

ALMANACCO ASTRONOMICO 2009



Pierpaolo Ricci

**SPECIALE
FENOMENI
MUTUI**

Questo Almanacco è il frutto di centinaia di ore di lavoro, la sua realizzazione ha richiesto infatti un anno intero.

Tutti i calcoli sono geocentrici e topocentrici: quest'anno quelli topocentrici sono per l'Italia, l'anno prossimo (2010) saranno estesi anche alle principali città mondiali.

Se il volume ti è piaciuto è gradita una donazione come contributo allo sviluppo di volumi futuri. Buona lettura.

Ricci Pier Paolo

IBAN IT17 D083 0534 4800 0000 0050 030

BIC CCRTIT2T77A

This Almanac is the result of hundreds hours of job, its creation has required in fact one whole year.

All the calculations are geocentric and topocentric: this year those topocentrics are for Italy, next year (2010) they will be also for the principal world cities.

If you like the volume it is pleasant a donation as contribution to the development of future volumes. Good reading.

Ricci Pier Paolo

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INTRODUZIONE

Dopo il successo del 2008 l'almanacco di questo anno si presenta ancora più ricco e rinnovato; molte più tabelle sono state elaborate con le moderne teorie VSOP87, DE405 ed ELP2000-85 che permettono precisione nei calcoli superiore al secondo. Anche i grafici sono più numerosi e dettagliati, tutti a colori per una immediata e facile consultazione. Verso la fine dell'anno inizieranno i PHEMU, i particolari e rari fenomeni riguardanti le occultazioni dei satelliti di Giove e di Saturno: troverete le relative tabelle nelle sezioni dedicate ai pianeti giganti. In complesso sono presenti 70 nuovi capitoli nell'edizione 2009 e quasi 30 sono stati completamente rinnovati.

L'imponente mole di dati contenuta in questo Almanacco è rivolta a soddisfare tutte le necessità di chi osserva la volta celeste, tanto del professionista quanto dell'astrofilo. Vi sono inclusi sia i fenomeni che si renderanno visibili a occhio nudo, sia quelli notevoli per la spettacolarità e la rarità.

Oltre alle classiche effemeridi di Sole, pianeti e Luna, sono state prese in considerazione congiunzioni di ogni tipo, tra pianeti, con la Luna, con le comete, le posizioni dei satelliti di Giove e Saturno, i fenomeni mutui tra gli stessi, le eclissi solari e lunari, i raggruppamenti planetari e stellari, i prospetti di visibilità degli oggetti, le occultazioni lunari e asteroidali e tanto altro, il tutto corredato da grafici esplicativi e decine di pagine di informazioni varie.

È stato posto il massimo rigore nei calcoli e, salvo ove diversamente indicato, tutti i tempi sono espressi in Tempo Universale (TU): per avere i tempi segnati dai nostri orologi occorre ricordarsi pertanto di aggiungere un'ora in inverno e due ore in estate, quando è in vigore l'Orario Estivo. Generalmente gli eventi topocentrici sono espressi in TU, mentre quelli geocentrici in TDT. La differenza TDT-UT nel 2009 sarà di 66 secondi.

Talvolta sono stati inclusi anche eventi che iniziano o finiscono sotto l'orizzonte ma che si rendono visibili nel corso dei crepuscoli.

Le tabelle sono state create mediante l'utilizzo di software da me sviluppati o reperibili in Internet e tutti i dati sono aggiornatissimi.

Pierpaolo Ricci, laureato in ingegneria presso il Politecnico di Milano, è appassionato di meccanica celeste ed ha scritto numerosi software per il calcolo di fenomeni astronomici di ogni tipo. E' iscritto all'Associazione Astronomica di Rovereto (TN) e gestisce attivamente il proprio sito di astronomia: www.pierpaoloricci.it

In copertina : eclissi parziale penombrale di Luna, nel 2009 ne accadranno 3

CALENDARIO

	Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
1	G	D	D	m	V	L	m	S	M	G	D	M
2	V	L	L	G	S	M	G	D	m	V	L	m
3	S	M	M	V	D	m	V	L	G	S	M	G
4	D	m	m	S	L	G	S	M	V	D	m	V
5	L	G	G	D	M	V	D	m	S	L	G	S
6	M	V	V	L	m	S	L	G	D	M	V	D
7	m	S	S	M	G	D	M	V	L	m	S	L
8	G	D	D	m	V	L	m	S	M	G	D	M
9	V	L	L	G	S	M	G	D	m	V	L	m
10	S	M	M	V	D	m	V	L	G	S	M	G
11	D	m	m	S	L	G	S	M	V	D	m	V
12	L	G	G	D	M	V	D	m	S	L	G	S
13	M	V	V	L	m	S	L	G	D	M	V	D
14	m	S	S	M	G	D	M	V	L	m	S	L
15	G	D	D	m	V	L	m	S	M	G	D	M
16	V	L	L	G	S	M	G	D	m	V	L	m
17	S	M	M	V	D	m	V	L	G	S	M	G
18	D	m	m	S	L	G	S	M	V	D	m	V
19	L	G	G	D	M	V	D	m	S	L	G	S
20	M	V	V	L	m	S	L	G	D	M	V	D
21	m	S	S	M	G	D	M	V	L	m	S	L
22	G	D	D	m	V	L	m	S	M	G	D	M
23	V	L	L	G	S	M	G	D	m	V	L	m
24	S	M	M	V	D	m	V	L	G	S	M	G
25	D	m	m	S	L	G	S	M	V	D	m	V
26	L	G	G	D	M	V	D	m	S	L	G	S
27	M	V	V	L	m	S	L	G	D	M	V	D
28	m	S	S	M	G	D	M	V	L	m	S	L
29	G		D	m	V	L	m	S	M	G	D	M
30	V		L	G	S	M	G	D	m	V	L	m
31	S		M		D		V	L		S		G

CALENDARIO PERPETUO

SECOLO						
0	100	200	300	400	500	600
700	800	900	1000	1100	1200	1300
1400	1500			1500	1600	
1700		1800		1900	2000	
2100		2200		2300	2400	
2500		2600		2700	2800	

LETTERA DOMENICALE							ANNI			
DC	ED	FE	GF	AG	BA	CB	00			
B	C	D	E	F	G	A	01	29	57	85
A	B	C	D	E	F	G	02	30	58	86
G	A	B	C	D	E	F	03	31	59	87
FE	GF	AG	BA	CB	DC	ED	04	32	60	88
D	E	F	G	A	B	C	05	33	61	89
C	D	E	F	G	A	B	06	34	62	90
B	C	D	E	F	G	A	07	35	63	91
AG	BA	CB	DC	ED	FE	GF	08	36	64	92
F	G	A	B	C	D	E	09	37	65	93
E	F	G	A	B	C	D	10	38	66	94
D	E	F	G	A	B	C	11	39	67	95
CB	DC	ED	FE	GF	AG	BA	12	40	68	96
A	B	C	D	E	F	G	13	41	69	97
G	A	B	C	D	E	F	14	42	70	98
F	G	A	B	C	D	E	15	43	71	99
ED	FE	GF	AG	BA	CB	DC	16	44	72	
C	D	E	F	G	A	B	17	45	73	
B	C	D	E	F	G	A	18	46	74	
A	B	C	D	E	F	G	19	47	75	
GF	AG	BA	CB	DC	ED	FE	20	48	76	
E	F	G	A	B	C	D	21	49	77	
D	E	F	G	A	B	C	22	50	78	
C	D	E	F	G	A	B	23	51	79	
BA	CB	DC	ED	FE	GF	AG	24	52	80	
G	A	B	C	D	E	F	25	53	81	
F	G	A	B	C	D	E	26	54	82	
E	F	G	A	B	C	D	27	55	83	
DC	ED	FE	GF	AG	BA	CB	28	56	84	

MESE										
gennaio, ottobre		A	B	C	D	E	F	G		
febbraio, marzo, novembre		D	E	F	G	A	B	C		
aprile, luglio		G	A	B	C	D	E	F		
maggio		B	C	D	E	F	G	A		
giugno		E	F	G	A	B	C	D		
agosto		C	D	E	F	G	A	B		
settembre, dicembre		F	G	A	B	C	D	E		

DATA									
1	8	15	22	29	D	S	V	G	m M L
2	9	16	23	30	L	D	S	V	G m M
3	10	17	24	31	M	L	D	S	V G m
4	11	18	25		m	M	L	D	S V G
5	12	19	26		G	m	M	L	D S V
6	13	20	27		V	G	m	M	L D S
7	14	21	28		S	V	G	m	M L D

Utilizzo: stabilita la data (per esempio 06-07-2009), trovare la lettera domenicale (per gli anni bisestili sono due, la prima da usarsi per i mesi di gennaio e febbraio, e la seconda per gli altri mesi) che è posta nel punto di incrocio fra la colonna del secolo che interessa (nel nostro caso 2000) e la riga in cui si trovano le ultime due cifre dell'anno che consideriamo (nel nostro caso 09): quindi D. Per le date tra il 1500 e il 4-10-1582 si utilizza la seconda colonna, dove sta il 1500 del calendario giuliano, e per quelle dal 15-10-1582 al 1599 si utilizza la quinta colonna, dove sta il 1500 del calendario gregoriano.

Ricordo che i giorni che vanno dal 5 ottobre al 14 ottobre 1582 non sono mai esistiti.

Si cerca poi, nel settore dei mesi, in quale colonna la lettera appare sulla stessa linea orizzontale del mese considerato (luglio): nel nostro caso, nella quinta colonna. Infine, nella stessa colonna verticale (cioè la quinta), nel settore dei giorni, si individua il giorno della settimana che appare all'incrocio con la riga in cui sta il giorno del mese considerato (il 6): ed abbiamo che è L, lunedì.

Si tenga presente che M (maiuscolo) sta per martedì ed m (minuscolo) sta per mercoledì.

PASQUA

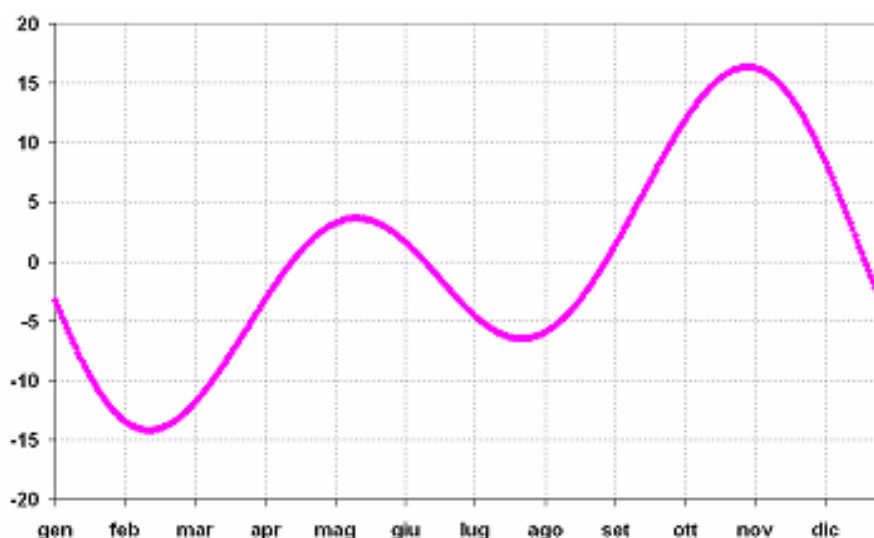
07/04/1901	25/03/1951	15/04/2001	02/04/2051
30/03/1902	13/04/1952	31/03/2002	21/04/2052
12/04/1903	05/04/1953	20/04/2003	06/04/2053
03/04/1904	18/04/1954	11/04/2004	29/03/2054
23/04/1905	10/04/1955	27/03/2005	18/04/2055
15/04/1906	01/04/1956	16/04/2006	02/04/2056
31/03/1907	21/04/1957	08/04/2007	22/04/2057
19/04/1908	06/04/1958	23/03/2008	14/04/2058
11/04/1909	29/03/1959	12/04/2009	30/03/2059
27/03/1910	17/04/1960	04/04/2010	18/04/2060
16/04/1911	02/04/1961	24/04/2011	10/04/2061
07/04/1912	22/04/1962	08/04/2012	26/03/2062
23/03/1913	14/04/1963	31/03/2013	15/04/2063
12/04/1914	29/03/1964	20/04/2014	06/04/2064
04/04/1915	18/04/1965	05/04/2015	29/03/2065
23/04/1916	10/04/1966	27/03/2016	11/04/2066
08/04/1917	26/03/1967	16/04/2017	03/04/2067
31/03/1918	14/04/1968	01/04/2018	22/04/2068
20/04/1919	06/04/1969	21/04/2019	14/04/2069
04/04/1920	29/03/1970	12/04/2020	30/03/2070
27/03/1921	11/04/1971	04/04/2021	19/04/2071
16/04/1922	02/04/1972	17/04/2022	10/04/2072
01/04/1923	22/04/1973	09/04/2023	26/03/2073
20/04/1924	14/04/1974	31/03/2024	15/04/2074
12/04/1925	30/03/1975	20/04/2025	07/04/2075
04/04/1926	18/04/1976	05/04/2026	19/04/2076
17/04/1927	10/04/1977	28/03/2027	11/04/2077
08/04/1928	26/03/1978	16/04/2028	03/04/2078
31/03/1929	15/04/1979	01/04/2029	23/04/2079
20/04/1930	06/04/1980	21/04/2030	07/04/2080
05/04/1931	19/04/1981	13/04/2031	30/03/2081
27/03/1932	11/04/1982	28/03/2032	19/04/2082
16/04/1933	03/04/1983	17/04/2033	04/04/2083
01/04/1934	22/04/1984	09/04/2034	26/03/2084
21/04/1935	07/04/1985	25/03/2035	15/04/2085
12/04/1936	30/03/1986	13/04/2036	31/03/2086
28/03/1937	19/04/1987	05/04/2037	20/04/2087
17/04/1938	03/04/1988	25/04/2038	11/04/2088
09/04/1939	26/03/1989	10/04/2039	03/04/2089
24/03/1940	15/04/1990	01/04/2040	16/04/2090
13/04/1941	31/03/1991	21/04/2041	08/04/2091
05/04/1942	19/04/1992	06/04/2042	30/03/2092
25/04/1943	11/04/1993	29/03/2043	12/04/2093
09/04/1944	03/04/1994	17/04/2044	04/04/2094
01/04/1945	16/04/1995	09/04/2045	24/04/2095
21/04/1946	07/04/1996	25/03/2046	15/04/2096
06/04/1947	30/03/1997	14/04/2047	31/03/2097
28/03/1948	12/04/1998	05/04/2048	20/04/2098
17/04/1949	04/04/1999	18/04/2049	12/04/2099
09/04/1950	23/04/2000	10/04/2050	28/03/2100

EQUAZIONE DEL TEMPO

L'equazione del tempo è la differenza tra il tempo solare vero e il tempo solare medio. E' espressa in minuti e secondi.

Tale differenza dipende dal fatto che il tempo solare medio è basato sul movimento di un Sole ipotetico (il Sole medio) che nel corso dell'anno si muove con moto uniforme lungo l'equatore celeste, mentre il moto annuo del Sole vero lungo l'eclittica non è uniforme.

	Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
1	-3m 40s	-13m 37s	-12m 19s	-3m 50s	2m 55s	2m 9s	-3m 54s	-6m 20s	0m 3s	10m 23s	16m 25s	10m 55s
2	-4m 8s	-13m 44s	-12m 7s	-3m 32s	3m 2s	2m 0s	-4m 5s	-6m 15s	0m 22s	10m 42s	16m 26s	10m 32s
3	-4m 36s	-13m 51s	-11m 54s	-3m 14s	3m 9s	1m 50s	-4m 16s	-6m 10s	0m 42s	11m 1s	16m 26s	10m 9s
4	-5m 3s	-13m 56s	-11m 41s	-2m 57s	3m 14s	1m 40s	-4m 27s	-6m 5s	1m 1s	11m 20s	16m 25s	9m 45s
5	-5m 30s	-14m 1s	-11m 28s	-2m 40s	3m 19s	1m 29s	-4m 37s	-5m 59s	1m 22s	11m 38s	16m 24s	9m 20s
6	-5m 56s	-14m 5s	-11m 14s	-2m 22s	3m 24s	1m 18s	-4m 47s	-5m 52s	1m 42s	11m 56s	16m 22s	8m 55s
7	-6m 22s	-14m 8s	-11m 0s	-2m 6s	3m 28s	1m 7s	-4m 57s	-5m 45s	2m 2s	12m 13s	16m 19s	8m 29s
8	-6m 47s	-14m 11s	-10m 45s	-1m 49s	3m 32s	0m 56s	-5m 6s	-5m 37s	2m 23s	12m 30s	16m 15s	8m 3s
9	-7m 12s	-14m 13s	-10m 30s	-1m 32s	3m 35s	0m 44s	-5m 15s	-5m 29s	2m 44s	12m 47s	16m 10s	7m 36s
10	-7m 36s	-14m 13s	-10m 14s	-1m 16s	3m 37s	0m 32s	-5m 23s	-5m 20s	3m 5s	13m 3s	16m 4s	7m 9s
11	-8m 0s	-14m 13s	-9m 59s	-1m 0s	3m 39s	0m 20s	-5m 31s	-5m 10s	3m 26s	13m 18s	15m 58s	6m 42s
12	-8m 23s	-14m 13s	-9m 42s	-0m 44s	3m 40s	0m 8s	-5m 39s	-5m 0s	3m 47s	13m 33s	15m 50s	6m 14s
13	-8m 46s	-14m 11s	-9m 26s	-0m 29s	3m 41s	-0m 4s	-5m 46s	-4m 49s	4m 8s	13m 48s	15m 42s	5m 46s
14	-9m 7s	-14m 9s	-9m 9s	-0m 14s	3m 41s	-0m 17s	-5m 53s	-4m 38s	4m 30s	14m 2s	15m 33s	5m 17s
15	-9m 29s	-14m 6s	-8m 53s	0m 1s	3m 40s	-0m 30s	-5m 59s	-4m 27s	4m 51s	14m 15s	15m 23s	4m 48s
16	-9m 49s	-14m 3s	-8m 36s	0m 15s	3m 39s	-0m 43s	-6m 5s	-4m 14s	5m 12s	14m 28s	15m 12s	4m 19s
17	-10m 9s	-13m 59s	-8m 18s	0m 29s	3m 37s	-0m 56s	-6m 10s	-4m 2s	5m 34s	14m 40s	15m 0s	3m 49s
18	-10m 28s	-13m 54s	-8m 1s	0m 42s	3m 35s	-1m 9s	-6m 14s	-3m 49s	5m 55s	14m 52s	14m 48s	3m 20s
19	-10m 47s	-13m 48s	-7m 43s	0m 55s	3m 32s	-1m 22s	-6m 19s	-3m 35s	6m 16s	15m 3s	14m 34s	2m 50s
20	-11m 4s	-13m 42s	-7m 26s	1m 8s	3m 29s	-1m 35s	-6m 22s	-3m 21s	6m 38s	15m 13s	14m 20s	2m 20s
21	-11m 21s	-13m 35s	-7m 8s	1m 20s	3m 25s	-1m 48s	-6m 25s	-3m 6s	6m 59s	15m 23s	14m 5s	1m 51s
22	-11m 38s	-13m 28s	-6m 50s	1m 32s	3m 21s	-2m 1s	-6m 28s	-2m 51s	7m 20s	15m 32s	13m 49s	1m 21s
23	-11m 53s	-13m 19s	-6m 32s	1m 43s	3m 16s	-2m 14s	-6m 30s	-2m 35s	7m 41s	15m 41s	13m 33s	0m 51s
24	-12m 8s	-13m 11s	-6m 14s	1m 54s	3m 10s	-2m 27s	-6m 31s	-2m 19s	8m 2s	15m 49s	13m 16s	0m 21s
25	-12m 22s	-13m 1s	-5m 56s	2m 4s	3m 4s	-2m 40s	-6m 32s	-2m 3s	8m 23s	15m 56s	12m 58s	-0m 9s
26	-12m 35s	-12m 52s	-5m 38s	2m 14s	2m 57s	-2m 53s	-6m 32s	-1m 46s	8m 43s	16m 2s	12m 39s	-0m 38s
27	-12m 47s	-12m 41s	-5m 20s	2m 23s	2m 50s	-3m 6s	-6m 31s	-1m 29s	9m 4s	16m 8s	12m 19s	-1m 8s
28	-12m 59s	-12m 30s	-5m 2s	2m 32s	2m 43s	-3m 18s	-6m 30s	-1m 11s	9m 24s	16m 13s	11m 59s	-1m 37s
29	-13m 10s		-4m 44s	2m 40s	2m 35s	-3m 30s	-6m 29s	-0m 53s	9m 44s	16m 17s	11m 38s	-2m 6s
30	-13m 19s		-4m 26s	2m 48s	2m 27s	-3m 42s	-6m 26s	-0m 35s	10m 4s	16m 20s	11m 17s	-2m 35s
31	-13m 28s		-4m 8s		2m 18s		-6m 23s	-0m 16s		16m 23s		-3m 4s



Esempio : il 6 luglio il Sole passa in meridiano alle 12.05 circa, ossia 5 minuti in ritardo rispetto al mezzogiorno del nostro orologio.

FUSI ORARI

UTC-12 : Isola Baker, Isola Howland

UTC-11 (BEST - Bering Standard Time) : Isole Midway ,Niue ,Samoa ,Samoa Americane

UTC-10 (HST - Hawaii-Aleutian Standard Time) : Atollo Johnston , Polinesia Francese (Tahiti, Arcipelago Tuamotu, Isole Tubuai) ,Stati Uniti (Hawaii) ,Stati Uniti (Isole Aleutine dell'Alaska)*

UTC-9:30 : Polinesia Francese (Isole Marchesi)

UTC-9 (AKST - Alaska Standard Time) : Polinesia Francese (Isole Gambier) ,Stati Uniti (Alaska*)

UTC-8 (PST - Pacific Standard Time) : Canada (Columbia Britannica*, Yukon*), Messico (Bassa California*), Stati Uniti (California*, Idaho (settentrionale)*, Nevada*, Oregon *, Stato di Washington*)

UTC-7 (MST - Mountain Standard Time) : Canada (Alberta*,Territori del Nord-Ovest*,Nunavut*), Messico,Stati Uniti (Arizona, Colorado*, Idaho (meridionale)*, Montana*, Nebraska (occidentale)*, Nuovo Messico*, Dakota del Nord*, Oregon*, Dakota del Sud*, Utah*, Wyoming*)

UTC-6 (CST - Central Standard Time) : Belize , Canada (Manitoba*, Nunavut (Isola Southampton), Nunavut (centrale)*, Ontario (occidentale)*, Saskatchewan) , Cile (Isola di Pasqua), Costa Rica , Ecuador (Isole Galapagos), El Salvador, Guatemala, Honduras, Messico* (Città del Messico e tutti gli stati non menzionati), Nicaragua, Stati Uniti (Alabama*, Arkansas*, Illinois*, Indiana*, Iowa*, Kansas*, Kentucky (occidentale)*, Louisiana*, Minnesota*, Mississippi*, Missouri*, Nebraska (orientale)*, Dakota del Nord*, Oklahoma*, Dakota del Sud (orientale)*, Tennessee centrale e occidentale)*, Texas*, Wisconsin*)

UTC-5 (EST - Eastern Standard Time) : Brasile (Acre) ,Canada (Nunavut (orientale)*, Ontario*, Quebec*), Colombia , Cuba*, Ecuador, Giamaica, Haiti, Isole Cayman, Isole Turks e Caicos* , Panamá, Perù, Stati Uniti (Connecticut*, Delaware*, Distretto di Columbia*, Florida*, Georgia*, Indiana (gran parte dello stato), Kentucky (orientale e centrale)*, Maine*, Maryland*, Massachusetts*, Michigan*, New Hampshire*, New Jersey*, New York*, Carolina del Nord*, Ohio*, Pennsylvania*, Rhode Island*, Carolina del Sud*, Tennessee (orientale)*, Vermont*, Virginia*, Virginia Occidentale*)

UTC-4 (AST - Atlantic Standard Time) : Anguilla , Antigua e Barbuda, Antille Olandesi, Aruba, Barbados, Bolivia, Brasile (Amazonas, Mato Grosso*, Mato Grosso do Sul*, Para (occidentale), Rondonia, Roraima), Canada (Labrador*, New Brunswick*, Nuova Scozia*, Isola del Principe Edoardo*) , Cile*, Dominica, Grenada, Guadalupa , Guyana, Isole Falkland*, Isole Vergini, Martinica, Montserrat, Paraguay*, Porto Rico, Repubblica Dominicana, Saint Kitts e Nevis, Saint Vincent e le Grenadine, Santa Lucia, Trinidad e Tobago, Venezuela

UTC-3:30 (NST - Newfoundland Standard Time) : Canada (Terranova*)

UTC-3 : Argentina ,Bahamas* ,Brasile (Alagoas, Amapa, Bahia*, Ceara, Distrito Federal*, Espirito Santo*, Goias*, Maranhao, Minas Gerais*, Para (orientale), Paraiba, Parana*, Pernambuco, Piaui, Rio de Janeiro*, Rio Grande do Norte, Rio Grande do Sul*, Santa Catarina*, Sao Paulo*, Sergipe, Tocantins*) ,Groenlandia, Guiana Francese* ,Saint Pierre e Miquelon* ,Suriname ,Uruguay

UTC-2 : Bermuda* , Brasile (Fernando de Noronha)

UTC-1 : Capo Verde , Portogallo (Azzorre*)

UTC (WET - West European Time) : Burkina Faso , Costa d'Avorio , Gambia ,Ghana ,Guinea ,Guinea-Bissau , Irlanda* , Islanda ,Isole Faroe* ,Liberia ,Mali ,Mauritania ,Marocco ,Portogallo* ,Regno Unito* , Sant'Elena ,São Tomé e Príncipe ,Senegal ,Sierra Leone ,Spagna* (Canarie) ,Togo

UTC+1 (CET - Central European Time) : Albania* ,Andorra* ,Angola ,Austria* ,Belgio* ,Benin ,Bosnia-Erzegovina* ,Camerun ,Ciad ,Croazia* ,Danimarca* ,Francia* ,Gabon ,Germania* ,Gibilterra* ,Guinea Equatoriale ,Italia* ,Isole Svalbard e Jan Mayen*,Liechtenstein* ,Lussemburgo* ,Macedonia* , Malta* Principato di Monaco* ,Montenegro* ,Namibia* ,Niger ,Nigeria ,Norvegia* ,Paesi Bassi* , Polonia* , Repubblica Ceca* ,Repubblica Centrafricana ,Repubblica del Congo ,Repubblica Democratica del Congo (Kinshasa, Bandundu, Bas-Congo, Équateur) ,San Marino* ,Serbia* ,Slovacchia* ,Slovenia* ,Spagna*, Svezia*, Svizzera* ,Tunisia* ,Ungheria*

UTC+2 (EET - East European Time) : Bielorussia* ,Botswana ,Bulgaria* ,Burundi ,Cipro* ,Cisgiordania* , Egitto* ,Estonia* ,Finlandia* ,Giordania ,Grecia* ,Israele* ,Lettonia* ,Lesotho ,Libano* ,Libia ,Lituania* ,Malawi ,Moldavia* ,Mozambico ,Repubblica Democratica del Congo (Kasai-Occidental, Kasai-Oriental, Alto Zaire, Katanga) ,Romania* ,Russia (Zona 1*, compresa Kaliningrad) ,Ruanda ,Striscia di Gaza* ,Sudafrica , Swaziland ,Siria* ,Turchia* ,Ucraina* ,Zambia ,Zimbabwe

UTC+3 (MSK - Moscow Time) : Arabia Saudita , Bahrain , Comore ,Eritrea ,Etiopia ,Gibuti ,Iraq* ,Kenya , Kuwait ,Madagascar ,Mayotte ,Qatar ,Russia (Zona 2*, include Mosca e San Pietroburgo; questo fuso orario si applica anche alle ferrovie di tutta la Russia) ,Somalia ,Sudan ,Tanzania ,Uganda ,Yemen

UTC+3:30 : Iran

UTC+4 : Emirati Arabi Uniti , Georgia , Mauritius , Oman ,Reunion ,Russia (Zona 3*) ,Seychelles

UTC+4:30 : Afghanistan

UTC+5 : Armenia , Azerbaijan* ,Kazakistan (Occidentale)* ,Maldive ,Pakistan ,Russia (Zona 4*, comprende Ekaterinburg e Perm) ,Tagikistan ,Turkmenistan ,Uzbekistan

UTC+5:30 (IST - Indian Standard Time) : India ,Sri Lanka

UTC+5:45 : Nepal

UTC+6 : Bangladesh ,Bhutan ,Kazakistan (orientale) ,Kirghizistan ,Russia (Zona 5*, comprende Novosibirsk e Omsk) ,Sri Lanka

UTC+6:30 : Isole Cocos , Myanmar

UTC+7 : Cambogia ,Indonesia (occidentale) ,Isola Christmas (Australia) ,Laos ,Russia (Zona 6*) , Thailandia ,Vietnam

UTC+8 (AWST - Australian Western Standard Time) : Australia (Australia Occidentale) ,Brunei ,Cina (continentale),Filippine ,Hong Kong ,Indonesia (centrale),Macao ,Malesia ,Mongolia ,Russia (Zona 7*),Singapore, Taiwan

Si noti che l'intera Cina ha lo stesso orario, il che rende questo fuso orario eccezionalmente ampio. All'estremità occidentale della Cina il Sole raggiunge lo zenit alle 15:00, all'estremità orientale alle 11:00.

UTC+8:45 : Caiguna, Eucla (Australia Occidentale)

UTC+9 : Corea del Nord ,Corea del Sud (KST - tempo standard della Corea) ,Giappone (JST - Tempo standard del Giappone) ,Indonesia (orientale) ,Palau ,Russia (Zona 8*, comprende Yakutsk) ,Timor Est

UTC+9:30 (ACST - Australian Central Standard Time) : Australia (Broken Hill (Nuovo Galles del Sud); Territori del Nord; Australia Meridionale*)

UTC+10 (AEST - Australian Eastern Standard Time) : Australia (Australian Capital Territory*, Nuovo Galles del Sud* (eccetto Broken Hill), Queensland, Victoria*, Tasmania*) ,Guam ,Isole Cook ,Isole Marianne Settentrionali, Papua Nuova Guinea ,Russia (Zona 9*, comprende Vladivostok) ,Stati Federati di Micronesia

UTC+10:30 : Australia (Isola Lord Howe*) (DST solo 0:30)

UTC+11 : Isole Salomone ,Nuova Caledonia ,Russia (Zona 10*) ,Stati Federati di Micronesia (Kosrae e Pohnpei), Vanuatu

UTC+11:30 : Isole Norfolk

UTC+12 : Figi* ,Isola Wake ,Isole Marshall ,Kiribati (Isole Gilbert) ,Nauru ,Nuova Zelanda (Aotearoa)* , Russia (Zona 11*) ,Tuvalu ,Wallis e Futuna

UTC+12:45 : Nuova Zelanda (Aotearoa) (Isole Chatham*)

UTC+13 : Kiribati (Isole Phoenix) , Tonga

UTC+14 : Kiribati (Isole della Linea o Sporadi equatoriali)

Gli stati che riportano l'asterisco * adottano l'ora legale in estate

ORA LEGALE

Anno	Inizio		Fine	
1966	dalle ore 00:00 del	22 maggio	alle ore 24:00 estive del	24 settembre
1967	"	28 maggio	alle ore 01:00 estive del	24 settembre
1968	"	26 maggio	"	22 settembre
1969	"	1 giugno	"	28 settembre
1970	"	31 maggio	"	27 settembre
1971	"	23 maggio	"	26 settembre
1972	"	28 maggio	"	1 ottobre
1973	"	3 giugno	"	30 settembre
1974	"	26 maggio	"	29 settembre
1975	"	1 giugno	"	28 settembre
1976	"	30 maggio	"	26 settembre
1977	"	22 maggio	"	25 settembre
1978	"	28 maggio	"	1 ottobre
1979	"	27 maggio	"	30 settembre
1980	dalle ore 02:00 del	6 aprile	alle ore 03:00 estive del	28 settembre
1981	"	29 marzo	"	27 settembre
1982	"	28 marzo	"	26 settembre
1983	"	27 marzo	"	25 settembre
1984	"	25 marzo	"	30 settembre
1985	"	31 marzo	"	29 settembre
1986	"	30 marzo	"	28 settembre
1987	"	29 marzo	"	27 settembre
1988	"	27 marzo	"	25 settembre
1989	"	26 marzo	"	24 settembre
1990	"	25 marzo	"	30 settembre
1991	"	31 marzo	"	29 settembre
1992	"	29 marzo	"	27 settembre
1993	"	28 marzo	"	26 settembre
1994	"	27 marzo	"	25 settembre
1995	"	26 marzo	"	24 settembre
1996	"	31 marzo	"	27 ottobre
1997	"	30 marzo	"	26 ottobre
1998	"	29 marzo	"	25 ottobre
1999	"	28 marzo	"	31 ottobre
2000	"	26 marzo	"	29 ottobre
2001	"	25 marzo	"	28 ottobre
2002	"	31 marzo	"	27 ottobre
2003	"	30 marzo	"	26 ottobre
2004	"	28 marzo	"	31 ottobre
2005	"	27 marzo	"	30 ottobre
2006	"	26 marzo	"	29 ottobre
2007	"	25 marzo	"	28 ottobre
2008	"	30 marzo	"	26 ottobre
2009	"	29 marzo	"	25 ottobre
2010	"	28 marzo	"	31 ottobre
2011	"	27 marzo	"	30 ottobre

TEMPO SIDERALE

Tempo siderale per Roma

Data					Ora			Tempo siderale di Greenwich			Tempo siderale locale apparente				
Giorno	Giuliano	AA	MM	GG	h	m	s	h	m	s	h	m	s		
2454832.50000	2009	Gen	1	0	00	00	6	43	07.1398	6	43	06.3212	7	31	07.1398
2454833.50000	2009	Gen	2	0	00	00	6	47	03.6932	6	47	02.8765	7	35	03.6932
2454834.50000	2009	Gen	3	0	00	00	6	51	00.2451	6	50	59.4319	7	39	00.2451
2454835.50000	2009	Gen	4	0	00	00	6	54	56.7968	6	54	55.9873	7	42	56.7968
2454836.50000	2009	Gen	5	0	00	00	6	58	53.3496	6	58	52.5426	7	46	53.3496
2454837.50000	2009	Gen	6	0	00	00	7	02	49.9051	7	02	49.0980	7	50	49.9051
2454838.50000	2009	Gen	7	0	00	00	7	06	46.4644	7	06	45.6534	7	54	46.4644
2454839.50000	2009	Gen	8	0	00	00	7	10	43.0280	7	10	42.2087	7	58	43.0280
2454840.50000	2009	Gen	9	0	00	00	7	14	39.5952	7	14	38.7641	8	02	39.5952
2454841.50000	2009	Gen	10	0	00	00	7	18	36.1641	7	18	35.3195	8	06	36.1641
2454842.50000	2009	Gen	11	0	00	00	7	22	32.7319	7	22	31.8748	8	10	32.7319
2454843.50000	2009	Gen	12	0	00	00	7	26	29.2963	7	26	28.4302	8	14	29.2963
2454844.50000	2009	Gen	13	0	00	00	7	30	25.8559	7	30	24.9856	8	18	25.8559
2454845.50000	2009	Gen	14	0	00	00	7	34	22.4111	7	34	21.5410	8	22	22.4111
2454846.50000	2009	Gen	15	0	00	00	7	38	18.9631	7	38	18.0963	8	26	18.9631
2454847.50000	2009	Gen	16	0	00	00	7	42	15.5139	7	42	14.6517	8	30	15.5139
2454848.50000	2009	Gen	17	0	00	00	7	46	12.0652	7	46	11.2071	8	34	12.0652
2454849.50000	2009	Gen	18	0	00	00	7	50	08.6181	7	50	07.7624	8	38	08.6181
2454850.50000	2009	Gen	19	0	00	00	7	54	05.1732	7	54	04.3178	8	42	05.1732
2454851.50000	2009	Gen	20	0	00	00	7	58	01.7309	7	58	00.8732	8	46	01.7309
2454852.50000	2009	Gen	21	0	00	00	8	01	58.2907	8	01	57.4285	8	49	58.2907
2454853.50000	2009	Gen	22	0	00	00	8	05	54.8521	8	05	53.9839	8	53	54.8521
2454854.50000	2009	Gen	23	0	00	00	8	09	51.4143	8	09	50.5393	8	57	51.4143
2454855.50000	2009	Gen	24	0	00	00	8	13	47.9765	8	13	47.0946	9	01	47.9765
2454856.50000	2009	Gen	25	0	00	00	8	17	44.5376	8	17	43.6500	9	05	44.5376
2454857.50000	2009	Gen	26	0	00	00	8	21	41.0969	8	21	40.2054	9	09	41.0969
2454858.50000	2009	Gen	27	0	00	00	8	25	37.6537	8	25	36.7607	9	13	37.6537
2454859.50000	2009	Gen	28	0	00	00	8	29	34.2079	8	29	33.3161	9	17	34.2079
2454860.50000	2009	Gen	29	0	00	00	8	33	30.7597	8	33	29.8715	9	21	30.7597
2454861.50000	2009	Gen	30	0	00	00	8	37	27.3097	8	37	26.4268	9	25	27.3097
2454862.50000	2009	Gen	31	0	00	00	8	41	23.8591	8	41	22.9822	9	29	23.8591
2454863.50000	2009	Feb	1	0	00	00	8	45	20.4093	8	45	19.5376	9	33	20.4093
2454864.50000	2009	Feb	2	0	00	00	8	49	16.9615	8	49	16.0930	9	37	16.9615
2454865.50000	2009	Feb	3	0	00	00	8	53	13.5171	8	53	12.6483	9	41	13.5171
2454866.50000	2009	Feb	4	0	00	00	8	57	10.0764	8	57	09.2037	9	45	10.0764
2454867.50000	2009	Feb	5	0	00	00	9	01	06.6393	9	01	05.7591	9	49	06.6393
2454868.50000	2009	Feb	6	0	00	00	9	05	03.2045	9	05	02.3144	9	53	03.2045
2454869.50000	2009	Feb	7	0	00	00	9	08	59.7698	9	08	58.8698	9	56	59.7698
2454870.50000	2009	Feb	8	0	00	00	9	12	56.3330	9	12	55.4252	10	00	56.3330
2454871.50000	2009	Feb	9	0	00	00	9	16	52.8921	9	16	51.9805	10	04	52.8921
2454872.50000	2009	Feb	10	0	00	00	9	20	49.4466	9	20	48.5359	10	08	49.4466
2454873.50000	2009	Feb	11	0	00	00	9	24	45.9972	9	24	45.0913	10	12	45.9972
2454874.50000	2009	Feb	12	0	00	00	9	28	42.5456	9	28	41.6466	10	16	42.5456
2454875.50000	2009	Feb	13	0	00	00	9	32	39.0937	9	32	38.2020	10	20	39.0937
2454876.50000	2009	Feb	14	0	00	00	9	36	35.6432	9	36	34.7574	10	24	35.6432
2454877.50000	2009	Feb	15	0	00	00	9	40	32.1949	9	40	31.3127	10	28	32.1949
2454878.50000	2009	Feb	16	0	00	00	9	44	28.7492	9	44	27.8681	10	32	28.7492
2454879.50000	2009	Feb	17	0	00	00	9	48	25.3059	9	48	24.4235	10	36	25.3059
2454880.50000	2009	Feb	18	0	00	00	9	52	21.8643	9	52	20.9788	10	40	21.8643
2454881.50000	2009	Feb	19	0	00	00	9	56	18.4238	9	56	17.5342	10	44	18.4238
2454882.50000	2009	Feb	20	0	00	00	10	00	14.9835	10	00	14.0896	10	48	14.9835
2454883.50000	2009	Feb	21	0	00	00	10	04	11.5423	10	04	10.6450	10	52	11.5423
2454884.50000	2009	Feb	22	0	00	00	10	08	08.0996	10	08	07.2003	10	56	08.0996
2454885.50000	2009	Feb	23	0	00	00	10	12	04.6546	10	12	03.7557	11	00	04.6546
2454886.50000	2009	Feb	24	0	00	00	10	16	01.2070	10	16	00.3111	11	04	01.2070
2454887.50000	2009	Feb	25	0	00	00	10	19	57.7568	10	19	56.8664	11	07	57.7568
2454888.50000	2009	Feb	26	0	00	00	10	23	54.3046	10	23	53.4218	11	11	54.3046
2454889.50000	2009	Feb	27	0	00	00	10	27	50.8515	10	27	49.9772	11	15	50.8515
2454890.50000	2009	Feb	28	0	00	00	10	31	47.3988	10	31	46.5325	11	19	47.3988
2454891.50000	2009	Mar	1	0	00	00	10	35	43.9480	10	35	43.0879	11	23	43.9480
2454892.50000	2009	Mar	2	0	00	00	10	39	40.5003	10	39	39.6433	11	27	40.5003
2454893.50000	2009	Mar	3	0	00	00	10	43	37.0562	10	43	36.1986	11	31	37.0562
2454894.50000	2009	Mar	4	0	00	00	10	47	33.6156	10	47	32.7540	11	35	33.6156
2454895.50000	2009	Mar	5	0	00	00	10	51	30.1774	10	51	29.3094	11	39	30.1774
2454896.50000	2009	Mar	6	0	00	00	10	55	26.7399	10	55	25.8647	11	43	26.7399
2454897.50000	2009	Mar	7	0	00	00	10	59	23.3010	10	59	22.4201	11	47	23.3010
2454898.50000	2009	Mar	8	0	00	00	11	03	19.8590	11	03	18.9755	11	51	19.8590
2454899.50000	2009	Mar	9	0	00	00	11	07	16.4129	11	07	15.5308	11	55	16.4129
2454900.50000	2009	Mar	10	0	00	00	11	11	12.9628	11	11	12.0862	11	59	12.9628
2454901.50000	2009	Mar	11	0	00	00	11	15	09.5100	11	15	08.6416	12	03	09.5100
2454902.50000	2009	Mar	12	0	00	00	11	19	06.0561	11	19	05.1970	12	07	06.0561
2454903.50000	2009	Mar	13	0	00	00	11	23	02.6030	11	23	01.7523	12	11	02.6030
2454904.50000	2009	Mar	14	0	00	00	11	26	59.1520	11	26	58.3077	12	14	59.1520

Data					Ora			Tempo siderale di Greenwich			Tempo siderale				
Giorno	Giuliano	AA	MM	GG	h	m	s	h	m	s	h	m	s		
					Apparente			Medio			locale apparente				
2454905.50000	2009	Mar	15	0	00	00	11	30	55.7037	11	30	54.8631	12	18	55.7037
2454906.50000	2009	Mar	16	0	00	00	11	34	52.2581	11	34	51.4184	12	22	52.2581
2454907.50000	2009	Mar	17	0	00	00	11	38	48.8146	11	38	47.9738	12	26	48.8146
2454908.50000	2009	Mar	18	0	00	00	11	42	45.3725	11	42	44.5292	12	30	45.3725
2454909.50000	2009	Mar	19	0	00	00	11	46	41.9309	11	46	41.0845	12	34	41.9309
2454910.50000	2009	Mar	20	0	00	00	11	50	38.4889	11	50	37.6399	12	38	38.4889
2454911.50000	2009	Mar	21	0	00	00	11	54	35.0455	11	54	34.1953	12	42	35.0455
2454912.50000	2009	Mar	22	0	00	00	11	58	31.6001	11	58	30.7506	12	46	31.6001
2454913.50000	2009	Mar	23	0	00	00	12	02	28.1524	12	02	27.3060	12	50	28.1524
2454914.50000	2009	Mar	24	0	00	00	12	06	24.7021	12	06	23.8614	12	54	24.7021
2454915.50000	2009	Mar	25	0	00	00	12	10	21.2496	12	10	20.4167	12	58	21.2496
2454916.50000	2009	Mar	26	0	00	00	12	14	17.7959	12	14	16.9721	13	02	17.7959
2454917.50000	2009	Mar	27	0	00	00	12	18	14.3422	12	18	13.5275	13	06	14.3422
2454918.50000	2009	Mar	28	0	00	00	12	22	10.8901	12	22	10.0828	13	10	10.8901
2454919.50000	2009	Mar	29	0	00	00	12	26	07.4410	12	26	06.6382	13	14	07.4410
2454920.50000	2009	Mar	30	0	00	00	12	30	03.9957	12	30	03.1936	13	18	03.9957
2454921.50000	2009	Mar	31	0	00	00	12	34	00.5542	12	33	59.7489	13	22	00.5542
2454922.50000	2009	Apr	1	0	00	00	12	37	57.1153	12	37	56.3043	13	25	57.1153
2454923.50000	2009	Apr	2	0	00	00	12	41	53.6775	12	41	52.8597	13	29	53.6775
2454924.50000	2009	Apr	3	0	00	00	12	45	50.2387	12	45	49.4151	13	33	50.2387
2454925.50000	2009	Apr	4	0	00	00	12	49	46.7972	12	49	45.9704	13	37	46.7972
2454926.50000	2009	Apr	5	0	00	00	12	53	43.3521	12	53	42.5258	13	41	43.3521
2454927.50000	2009	Apr	6	0	00	00	12	57	39.9031	12	57	39.0812	13	45	39.9031
2454928.50000	2009	Apr	7	0	00	00	13	01	36.4512	13	01	35.6365	13	49	36.4512
2454929.50000	2009	Apr	8	0	00	00	13	05	32.9979	13	05	32.1919	13	53	32.9979
2454930.50000	2009	Apr	9	0	00	00	13	09	29.5448	13	09	28.7473	13	57	29.5448
2454931.50000	2009	Apr	10	0	00	00	13	13	26.0934	13	13	25.3026	14	01	26.0934
2454932.50000	2009	Apr	11	0	00	00	13	17	22.6446	13	17	21.8580	14	05	22.6446
2454933.50000	2009	Apr	12	0	00	00	13	21	19.1987	13	21	18.4134	14	09	19.1987
2454934.50000	2009	Apr	13	0	00	00	13	25	15.7553	13	25	14.9687	14	13	15.7553
2454935.50000	2009	Apr	14	0	00	00	13	29	12.3138	13	29	11.5241	14	17	12.3138
2454936.50000	2009	Apr	15	0	00	00	13	33	08.8731	13	33	08.0795	14	21	08.8731
2454937.50000	2009	Apr	16	0	00	00	13	37	05.4323	13	37	04.6348	14	25	05.4323
2454938.50000	2009	Apr	17	0	00	00	13	41	01.9904	13	41	01.1902	14	29	01.9904
2454939.50000	2009	Apr	18	0	00	00	13	44	58.5469	13	44	57.7456	14	32	58.5469
2454940.50000	2009	Apr	19	0	00	00	13	48	55.1011	13	48	54.3009	14	36	55.1011
2454941.50000	2009	Apr	20	0	00	00	13	52	51.6529	13	52	50.8563	14	40	51.6529
2454942.50000	2009	Apr	21	0	00	00	13	56	48.2025	13	56	47.4117	14	44	48.2025
2454943.50000	2009	Apr	22	0	00	00	14	00	44.7506	14	00	43.9671	14	48	44.7506
2454944.50000	2009	Apr	23	0	00	00	14	04	41.2982	14	04	40.5224	14	52	41.2982
2454945.50000	2009	Apr	24	0	00	00	14	08	37.8469	14	08	37.0778	14	56	37.8469
2454946.50000	2009	Apr	25	0	00	00	14	12	34.3983	14	12	33.6332	15	00	34.3983
2454947.50000	2009	Apr	26	0	00	00	14	16	30.9535	14	16	30.1885	15	04	30.9535
2454948.50000	2009	Apr	27	0	00	00	14	20	27.5130	14	20	26.7439	15	08	27.5130
2454949.50000	2009	Apr	28	0	00	00	14	24	24.0758	14	24	23.2993	15	12	24.0758
2454950.50000	2009	Apr	29	0	00	00	14	28	20.6402	14	28	19.8546	15	16	20.6402
2454951.50000	2009	Apr	30	0	00	00	14	32	17.2040	14	32	16.4100	15	20	17.2040
2454952.50000	2009	Mag	1	0	00	00	14	36	13.7653	14	36	12.9654	15	24	13.7653
2454953.50000	2009	Mag	2	0	00	00	14	40	10.3229	14	40	09.5207	15	28	10.3229
2454954.50000	2009	Mag	3	0	00	00	14	44	06.8767	14	44	06.0761	15	32	06.8767
2454955.50000	2009	Mag	4	0	00	00	14	48	03.4274	14	48	02.6315	15	36	03.4274
2454956.50000	2009	Mag	5	0	00	00	14	51	59.9764	14	51	59.1868	15	39	59.9764
2454957.50000	2009	Mag	6	0	00	00	14	55	56.5252	14	55	55.7422	15	43	56.5252
2454958.50000	2009	Mag	7	0	00	00	14	59	53.0754	14	59	52.2976	15	47	53.0754
2454959.50000	2009	Mag	8	0	00	00	15	03	49.6279	15	03	48.8529	15	51	49.6279
2454960.50000	2009	Mag	9	0	00	00	15	07	46.1832	15	07	45.4083	15	55	46.1832
2454961.50000	2009	Mag	10	0	00	00	15	11	42.7413	15	11	41.9637	15	59	42.7413
2454962.50000	2009	Mag	11	0	00	00	15	15	39.3014	15	15	38.5191	16	03	39.3014
2454963.50000	2009	Mag	12	0	00	00	15	19	35.8628	15	19	35.0744	16	07	35.8628
2454964.50000	2009	Mag	13	0	00	00	15	23	32.4243	15	23	31.6298	16	11	32.4243
2454965.50000	2009	Mag	14	0	00	00	15	27	28.9851	15	27	28.1852	16	15	28.9851
2454966.50000	2009	Mag	15	0	00	00	15	31	25.5444	15	31	24.7405	16	19	25.5444
2454967.50000	2009	Mag	16	0	00	00	15	35	22.1015	15	35	21.2959	16	23	22.1015
2454968.50000	2009	Mag	17	0	00	00	15	39	18.6564	15	39	17.8513	16	27	18.6564
2454969.50000	2009	Mag	18	0	00	00	15	43	15.2089	15	43	14.4066	16	31	15.2089
2454970.50000	2009	Mag	19	0	00	00	15	47	11.7598	15	47	10.9620	16	35	11.7598
2454971.50000	2009	Mag	20	0	00	00	15	51	08.3098	15	51	07.5174	16	39	08.3098
2454972.50000	2009	Mag	21	0	00	00	15	55	04.8602	15	55	04.0727	16	43	04.8602
2454973.50000	2009	Mag	22	0	00	00	15	59	01.4127	15	59	00.6281	16	47	01.4127
2454974.50000	2009	Mag	23	0	00	00	16	02	57.9686	16	02	57.1835	16	50	57.9686
2454975.50000	2009	Mag	24	0	00	00	16	06	54.5288	16	06	53.7388	16	54	54.5288
2454976.50000	2009	Mag	25	0	00	00	16	10	51.0931	16	10	50.2942	16	58	51.0931
2454977.50000	2009	Mag	26	0	00	00	16	14	47.6600	16	14	46.8496	17	02	47.6600
2454978.50000	2009	Mag	27	0	00	00	16	18	44.2271	16	18	43.4049	17	06	44.2271
2454979.50000	2009	Mag	28	0	00	00	16	22	40.7921	16	22	39.9603	17	10	40.7921
2454980.50000	2009	Mag	29	0	00	00	16	26	37.3534	16	26	36.5157	17	14	37.3534
2454981.50000	2009	Mag	30	0	00	00	16	30	33.9104	16	30	33.0711	17	18	33.9104
2454982.50000	2009	Mag	31	00											

Data					Ora			Tempo siderale di Greenwich			Tempo siderale				
Giorno	Giuliano	AA	MM	GG	h	m	s	h	m	s	h	m	s		
					Apparente			Medio			locale apparente				
2454986.50000	2009	Giu	4	0	00	00	16	50	16.6715	16	50	15.8479	17	38	16.6715
2454987.50000	2009	Giu	5	0	00	00	16	54	13.2280	16	54	12.4033	17	42	13.2280
2454988.50000	2009	Giu	6	0	00	00	16	58	09.7872	16	58	08.9586	17	46	09.7872
2454989.50000	2009	Giu	7	0	00	00	17	02	06.3486	17	02	05.5140	17	50	06.3486
2454990.50000	2009	Giu	8	0	00	00	17	06	02.9114	17	06	02.0694	17	54	02.9114
2454991.50000	2009	Giu	9	0	00	00	17	09	59.4746	17	09	58.6247	17	57	59.4746
2454992.50000	2009	Giu	10	0	00	00	17	13	56.0374	17	13	55.1801	18	01	56.0374
2454993.50000	2009	Giu	11	0	00	00	17	17	52.5987	17	17	51.7355	18	05	52.5987
2454994.50000	2009	Giu	12	0	00	00	17	21	49.1579	17	21	48.2908	18	09	49.1579
2454995.50000	2009	Giu	13	0	00	00	17	25	45.7149	17	25	44.8462	18	13	45.7149
2454996.50000	2009	Giu	14	0	00	00	17	29	42.2694	17	29	41.4016	18	17	42.2694
2454997.50000	2009	Giu	15	0	00	00	17	33	38.8221	17	33	37.9569	18	21	38.8221
2454998.50000	2009	Giu	16	0	00	00	17	37	35.3736	17	37	34.5123	18	25	35.3736
2454999.50000	2009	Giu	17	0	00	00	17	41	31.9250	17	41	31.0677	18	29	31.9250
2455000.50000	2009	Giu	18	0	00	00	17	45	28.4778	17	45	27.6231	18	33	28.4778
2455001.50000	2009	Giu	19	0	00	00	17	49	25.0332	17	49	24.1784	18	37	25.0332
2455002.50000	2009	Giu	20	0	00	00	17	53	21.5926	17	53	20.7338	18	41	21.5926
2455003.50000	2009	Giu	21	0	00	00	17	57	18.1562	17	57	17.2892	18	45	18.1562
2455004.50000	2009	Giu	22	0	00	00	18	01	14.7232	18	01	13.8445	18	49	14.7232
2455005.50000	2009	Giu	23	0	00	00	18	05	11.2918	18	05	10.3999	18	53	11.2918
2455006.50000	2009	Giu	24	0	00	00	18	09	07.8592	18	09	06.9553	18	57	07.8592
2455007.50000	2009	Giu	25	0	00	00	18	13	04.4232	18	13	03.5106	19	01	04.4232
2455008.50000	2009	Giu	26	0	00	00	18	17	00.9826	18	17	00.0660	19	05	00.9826
2455009.50000	2009	Giu	27	0	00	00	18	20	57.5378	18	20	56.6214	19	08	57.5378
2455010.50000	2009	Giu	28	0	00	00	18	24	54.0901	18	24	53.1767	19	12	54.0901
2455011.50000	2009	Giu	29	0	00	00	18	28	50.6413	18	28	49.7321	19	16	50.6413
2455012.50000	2009	Giu	30	0	00	00	18	32	47.1931	18	32	46.2875	19	20	47.1931
2455013.50000	2009	Lug	1	0	00	00	18	36	43.7467	18	36	42.8428	19	24	43.7467
2455014.50000	2009	Lug	2	0	00	00	18	40	40.3028	18	40	39.3982	19	28	40.3028
2455015.50000	2009	Lug	3	0	00	00	18	44	36.8616	18	44	35.9536	19	32	36.8616
2455016.50000	2009	Lug	4	0	00	00	18	48	33.4226	18	48	32.5089	19	36	33.4226
2455017.50000	2009	Lug	5	0	00	00	18	52	29.9851	18	52	29.0643	19	40	29.9851
2455018.50000	2009	Lug	6	0	00	00	18	56	26.5482	18	56	25.6197	19	44	26.5482
2455019.50000	2009	Lug	7	0	00	00	19	00	23.1109	19	00	22.1751	19	48	23.1109
2455020.50000	2009	Lug	8	0	00	00	19	04	19.6724	19	04	18.7304	19	52	19.6724
2455021.50000	2009	Lug	9	0	00	00	19	08	16.2319	19	08	15.2858	19	56	16.2319
2455022.50000	2009	Lug	10	0	00	00	19	12	12.7890	19	12	11.8412	20	00	12.7890
2455023.50000	2009	Lug	11	0	00	00	19	16	09.3437	19	16	08.3965	20	04	09.3437
2455024.50000	2009	Lug	12	0	00	00	19	20	05.8962	19	20	04.9519	20	08	05.8962
2455025.50000	2009	Lug	13	0	00	00	19	24	02.4473	19	24	01.5073	20	12	02.4473
2455026.50000	2009	Lug	14	0	00	00	19	27	58.9980	19	27	58.0626	20	15	58.9980
2455027.50000	2009	Lug	15	0	00	00	19	31	55.5494	19	31	54.6180	20	19	55.5494
2455028.50000	2009	Lug	16	0	00	00	19	35	52.1030	19	35	51.1734	20	23	52.1030
2455029.50000	2009	Lug	17	0	00	00	19	39	48.6597	19	39	47.7287	20	27	48.6597
2455030.50000	2009	Lug	18	0	00	00	19	43	45.2204	19	43	44.2841	20	31	45.2204
2455031.50000	2009	Lug	19	0	00	00	19	47	41.7847	19	47	40.8395	20	35	41.7847
2455032.50000	2009	Lug	20	0	00	00	19	51	38.3515	19	51	37.3948	20	39	38.3515
2455033.50000	2009	Lug	21	0	00	00	19	55	34.9184	19	55	33.9502	20	43	34.9184
2455034.50000	2009	Lug	22	0	00	00	19	59	31.4831	19	59	30.5056	20	47	31.4831
2455035.50000	2009	Lug	23	0	00	00	20	03	28.0435	20	03	27.0609	20	51	28.0435
2455036.50000	2009	Lug	24	0	00	00	20	07	24.5991	20	07	23.6163	20	55	24.5991
2455037.50000	2009	Lug	25	0	00	00	20	11	21.1510	20	11	20.1717	20	59	21.1510
2455038.50000	2009	Lug	26	0	00	00	20	15	17.7008	20	15	16.7271	21	03	17.7008
2455039.50000	2009	Lug	27	0	00	00	20	19	14.2508	20	19	13.2824	21	07	14.2508
2455040.50000	2009	Lug	28	0	00	00	20	23	10.8023	20	23	09.8378	21	11	10.8023
2455041.50000	2009	Lug	29	0	00	00	20	27	07.3562	20	27	06.3932	21	15	07.3562
2455042.50000	2009	Lug	30	0	00	00	20	31	03.9128	20	31	02.9485	21	19	03.9128
2455043.50000	2009	Lug	31	0	00	00	20	35	00.4716	20	35	59.5039	21	23	00.4716
2455044.50000	2009	Ago	1	0	00	00	20	38	57.0322	20	38	56.0593	21	26	57.0322
2455045.50000	2009	Ago	2	0	00	00	20	42	53.5935	20	42	52.6146	21	30	53.5935
2455046.50000	2009	Ago	3	0	00	00	20	46	50.1545	20	46	49.1700	21	34	50.1545
2455047.50000	2009	Ago	4	0	00	00	20	50	46.7145	20	50	45.7254	21	38	46.7145
2455048.50000	2009	Ago	5	0	00	00	20	54	43.2726	20	54	42.2807	21	42	43.2726
2455049.50000	2009	Ago	6	0	00	00	20	58	39.8284	20	58	38.8361	21	46	39.8284
2455050.50000	2009	Ago	7	0	00	00	21	02	36.3816	21	02	35.3915	21	50	36.3816
2455051.50000	2009	Ago	8	0	00	00	21	06	32.9326	21	06	31.9468	21	54	32.9326
2455052.50000	2009	Ago	9	0	00	00	21	10	29.4819	21	10	28.5022	21	58	29.4819
2455053.50000	2009	Ago	10	0	00	00	21	14	26.0304	21	14	25.0576	22	02	26.0304
2455054.50000	2009	Ago	11	0	00	00	21	18	22.5794	21	18	21.6129	22	06	22.5794
2455055.50000	2009	Ago	12	0	00	00	21	22	19.1301	21	22	18.1683	22	10	19.1301
2455056.50000	2009	Ago	13	0	00	00	21	26	15.6835	21	26	14.7237	22	14	15.6835
2455057.50000	2009	Ago	14	0	00	00	21	30	12.2404	21	30	11.2791	22	18	12.2404
2455058.50000	2009	Ago	15	0	00	00	21	34	08.8008	21	34	07.8344	22	22	08.8008
2455059.50000	2009	Ago	16	0	00	00	21	38	05.3639	21	38	04.3898	22	26	05.3639
2455060.50000	2009	Ago	17	0	00	00	21	42	01.9281	21	42	00.9452	22	30	01.9281
2455061.50000	2009	Ago	18	0	00	00	21	45	58.4912	21	45	57.5005	22	33	58.4912
2455062.50000	2009	Ago	19	0	00	00	21	49	55.0511	21	49	54.0559			

Data					Ora			Tempo siderale di Greenwich			Tempo siderale				
Giorno	Giuliano	AA	MM	GG	h	m	s	h	m	s	h	m	s		
					Apparente			Medio			locale apparente				
2455067.50000	2009	Ago	24	0	00	00	22	09	37.8014	22	09	36.8327	22	57	37.8014
2455068.50000	2009	Ago	25	0	00	00	22	13	34.3523	22	13	33.3881	23	01	34.3523
2455069.50000	2009	Ago	26	0	00	00	22	17	30.9059	22	17	29.9435	23	05	30.9059
2455070.50000	2009	Ago	27	0	00	00	22	21	27.4621	22	21	26.4988	23	09	27.4621
2455071.50000	2009	Ago	28	0	00	00	22	25	24.0201	22	25	23.0542	23	13	24.0201
2455072.50000	2009	Ago	29	0	00	00	22	29	20.5792	22	29	19.6096	23	17	20.5792
2455073.50000	2009	Ago	30	0	00	00	22	33	17.1383	22	33	16.1649	23	21	17.1383
2455074.50000	2009	Ago	31	0	00	00	22	37	13.6965	22	37	12.7203	23	25	13.6965
2455075.50000	2009	Set	1	0	00	00	22	41	10.2531	22	41	09.2757	23	29	10.2531
2455076.50000	2009	Set	2	0	00	00	22	45	06.8074	22	45	05.8311	23	33	06.8074
2455077.50000	2009	Set	3	0	00	00	22	49	03.3592	22	49	02.3864	23	37	03.3592
2455078.50000	2009	Set	4	0	00	00	22	52	59.9086	22	52	58.9418	23	40	59.9086
2455079.50000	2009	Set	5	0	00	00	22	56	56.4562	22	56	55.4972	23	44	56.4562
2455080.50000	2009	Set	6	0	00	00	23	00	53.0028	23	00	52.0525	23	48	53.0028
2455081.50000	2009	Set	7	0	00	00	23	04	49.5496	23	04	48.6079	23	52	49.5496
2455082.50000	2009	Set	8	0	00	00	23	08	46.0978	23	08	45.1633	23	56	46.0978
2455083.50000	2009	Set	9	0	00	00	23	12	42.6486	23	12	41.7186	0	00	42.6486
2455084.50000	2009	Set	10	0	00	00	23	16	39.2027	23	16	38.2740	0	04	39.2027
2455085.50000	2009	Set	11	0	00	00	23	20	35.7601	23	20	34.8294	0	08	35.7601
2455086.50000	2009	Set	12	0	00	00	23	24	32.3204	23	24	31.3847	0	12	32.3204
2455087.50000	2009	Set	13	0	00	00	23	28	28.8821	23	28	27.9401	0	16	28.8821
2455088.50000	2009	Set	14	0	00	00	23	32	25.4433	23	32	24.4955	0	20	25.4433
2455089.50000	2009	Set	15	0	00	00	23	36	22.0023	23	36	21.0508	0	24	22.0023
2455090.50000	2009	Set	16	0	00	00	23	40	18.5575	23	40	17.6062	0	28	18.5575
2455091.50000	2009	Set	17	0	00	00	23	44	15.1085	23	44	14.1616	0	32	15.1085
2455092.50000	2009	Set	18	0	00	00	23	48	11.6562	23	48	10.7169	0	36	11.6562
2455093.50000	2009	Set	19	0	00	00	23	52	08.2023	23	52	07.2723	0	40	08.2023
2455094.50000	2009	Set	20	0	00	00	23	56	04.7487	23	56	03.8277	0	44	04.7487
2455095.50000	2009	Set	21	0	00	00	0	00	01.2972	0	00	00.3830	0	48	01.2972
2455096.50000	2009	Set	22	0	00	00	0	03	57.8487	0	03	56.9384	0	51	57.8487
2455097.50000	2009	Set	23	0	00	00	0	07	54.4031	0	07	53.4938	0	55	54.4031
2455098.50000	2009	Set	24	0	00	00	0	11	50.9598	0	11	50.0492	0	59	50.9598
2455099.50000	2009	Set	25	0	00	00	0	15	47.5179	0	15	46.6045	1	03	47.5179
2455100.50000	2009	Set	26	0	00	00	0	19	44.0763	0	19	43.1599	1	07	44.0763
2455101.50000	2009	Set	27	0	00	00	0	23	40.6342	0	23	39.7153	1	11	40.6342
2455102.50000	2009	Set	28	0	00	00	0	27	37.1906	0	27	36.2706	1	15	37.1906
2455103.50000	2009	Set	29	0	00	00	0	31	33.7450	0	31	32.8260	1	19	33.7450
2455104.50000	2009	Set	30	0	00	00	0	35	30.2970	0	35	29.3814	1	23	30.2970
2455105.50000	2009	Ott	1	0	00	00	0	39	26.8467	0	39	25.9367	1	27	26.8467
2455106.50000	2009	Ott	2	0	00	00	0	43	23.3944	0	43	22.4921	1	31	23.3944
2455107.50000	2009	Ott	3	0	00	00	0	47	19.9408	0	47	19.0475	1	35	19.9408
2455108.50000	2009	Ott	4	0	00	00	0	51	16.4872	0	51	15.6028	1	39	16.4872
2455109.50000	2009	Ott	5	0	00	00	0	55	13.0347	0	55	12.1582	1	43	13.0347
2455110.50000	2009	Ott	6	0	00	00	0	59	09.5847	0	59	08.7136	1	47	09.5847
2455111.50000	2009	Ott	7	0	00	00	1	03	06.1381	1	03	05.2689	1	51	06.1381
2455112.50000	2009	Ott	8	0	00	00	1	07	02.6949	1	07	01.8243	1	55	02.6949
2455113.50000	2009	Ott	9	0	00	00	1	10	59.2548	1	10	58.3797	1	58	59.2548
2455114.50000	2009	Ott	10	0	00	00	1	14	55.8164	1	14	54.9350	2	02	55.8164
2455115.50000	2009	Ott	11	0	00	00	1	18	52.3779	1	18	51.4904	2	06	52.3779
2455116.50000	2009	Ott	12	0	00	00	1	22	48.9375	1	22	48.0458	2	10	48.9375
2455117.50000	2009	Ott	13	0	00	00	1	26	45.4939	1	26	44.6012	2	14	45.4939
2455118.50000	2009	Ott	14	0	00	00	1	30	42.0465	1	30	41.1565	2	18	42.0465
2455119.50000	2009	Ott	15	0	00	00	1	34	38.5957	1	34	37.7119	2	22	38.5957
2455120.50000	2009	Ott	16	0	00	00	1	38	35.1429	1	38	34.2673	2	26	35.1429
2455121.50000	2009	Ott	17	0	00	00	1	42	31.6898	1	42	30.8226	2	30	31.6898
2455122.50000	2009	Ott	18	0	00	00	1	46	28.2383	1	46	27.3780	2	34	28.2383
2455123.50000	2009	Ott	19	0	00	00	1	50	24.7895	1	50	23.9334	2	38	24.7895
2455124.50000	2009	Ott	20	0	00	00	1	54	21.3439	1	54	20.4887	2	42	21.3439
2455125.50000	2009	Ott	21	0	00	00	1	58	17.9010	1	58	17.0441	2	46	17.9010
2455126.50000	2009	Ott	22	0	00	00	2	02	14.4601	2	02	13.5995	2	50	14.4601
2455127.50000	2009	Ott	23	0	00	00	2	06	11.0200	2	06	10.1548	2	54	11.0200
2455128.50000	2009	Ott	24	0	00	00	2	10	07.5797	2	10	06.7102	2	58	07.5797
2455129.50000	2009	Ott	25	0	00	00	2	14	04.1381	2	14	03.2656	3	02	04.1381
2455130.50000	2009	Ott	26	0	00	00	2	18	00.6947	2	17	59.8209	3	06	00.6947
2455131.50000	2009	Ott	27	0	00	00	2	21	57.2491	2	21	56.3763	3	09	57.2491
2455132.50000	2009	Ott	28	0	00	00	2	25	53.8012	2	25	52.9317	3	13	53.8012
2455133.50000	2009	Ott	29	0	00	00	2	29	50.3513	2	29	49.4870	3	17	50.3513
2455134.50000	2009	Ott	30	0	00	00	2	33	46.8999	2	33	46.0424	3	21	46.8999
2455135.50000	2009	Ott	31	0	00	00	2	37	43.4480	2	37	42.5978	3	25	43.4480
2455136.50000	2009	Nov	1	0	00	00	2	41	39.9970	2	41	39.1532	3	29	39.9970
2455137.50000	2009	Nov	2	0	00	00	2	45	36.5481	2	45	35.7085	3	33	36.5481
2455138.50000	2009	Nov	3	0	00	00	2	49	33.1024	2	49	32.2639	3	37	33.1024
2455139.50000	2009	Nov	4	0	00	00	2	53	29.6606	2	53	28.8193	3	41	29.6606
2455140.50000	2009	Nov	5	0	00	00	2	57	26.2223	2	57	25.3746	3	45	26.2223
2455141.50000	2009	Nov	6	0	00	00	3	01	22.7862	3	01	21.9300	3	49	22.7862
2455142.50000	2009	Nov	7	0	00	00	3	05	19.3504	3	05	18.4854	3	53	19.3504
2455143.50000	2009	Nov	8	0	00	00	3	09	15.9130	3	09	15.0407	3	57	15.9130
2455144.50000	2009	Nov	9	0	00	00	3	13	12.4725	3	13	11.5961	4	01	12.4725
2455145.50000	2009	Nov	10	0	00	00	3	17	09.0282	3	17	08.1515	4	05	09.0282
2455146.50000	2009	Nov	11	0	00	00	3	21	05.5805	3	21	04.7068			

Data					Ora			Tempo siderale di Greenwich			Tempo siderale locale apparente				
Giorno	Giuliano	AA	MM	GG	h	m	s	h	m	s	h	m	s		
2455148.50000	2009	Nov	13	0	00	00	3	28	58.6799	3	28	57.8176	4	16	58.6799
2455149.50000	2009	Nov	14	0	00	00	3	32	55.2303	3	32	54.3729	4	20	55.2303
2455150.50000	2009	Nov	15	0	00	00	3	36	51.7831	3	36	50.9283	4	24	51.7831
2455151.50000	2009	Nov	16	0	00	00	3	40	48.3388	3	40	47.4837	4	28	48.3388
2455152.50000	2009	Nov	17	0	00	00	3	44	44.8976	3	44	44.0390	4	32	44.8976
2455153.50000	2009	Nov	18	0	00	00	3	48	41.4587	3	48	40.5944	4	36	41.4587
2455154.50000	2009	Nov	19	0	00	00	3	52	38.0210	3	52	37.1498	4	40	38.0210
2455155.50000	2009	Nov	20	0	00	00	3	56	34.5835	3	56	33.7052	4	44	34.5835
2455156.50000	2009	Nov	21	0	00	00	4	00	31.1451	4	00	30.2605	4	48	31.1451
2455157.50000	2009	Nov	22	0	00	00	4	04	27.7050	4	04	26.8159	4	52	27.7050
2455158.50000	2009	Nov	23	0	00	00	4	08	24.2628	4	08	23.3713	4	56	24.2628
2455159.50000	2009	Nov	24	0	00	00	4	12	20.8182	4	12	19.9266	5	00	20.8182
2455160.50000	2009	Nov	25	0	00	00	4	16	17.3715	4	16	16.4820	5	04	17.3715
2455161.50000	2009	Nov	26	0	00	00	4	20	13.9232	4	20	13.0374	5	08	13.9232
2455162.50000	2009	Nov	27	0	00	00	4	24	10.4740	4	24	09.5927	5	12	10.4740
2455163.50000	2009	Nov	28	0	00	00	4	28	07.0252	4	28	06.1481	5	16	07.0252
2455164.50000	2009	Nov	29	0	00	00	4	32	03.5779	4	32	02.7035	5	20	03.5779
2455165.50000	2009	Nov	30	0	00	00	4	36	00.1334	4	35	59.2588	5	24	00.1334
2455166.50000	2009	Dic	1	0	00	00	4	39	56.6927	4	39	55.8142	5	27	56.6927
2455167.50000	2009	Dic	2	0	00	00	4	43	53.2559	4	43	52.3696	5	31	53.2559
2455168.50000	2009	Dic	3	0	00	00	4	47	49.8221	4	47	48.9249	5	35	49.8221
2455169.50000	2009	Dic	4	0	00	00	4	51	46.3895	4	51	45.4803	5	39	46.3895
2455170.50000	2009	Dic	5	0	00	00	4	55	42.9559	4	55	42.0357	5	43	42.9559
2455171.50000	2009	Dic	6	0	00	00	4	59	39.5192	4	59	38.5910	5	47	39.5192
2455172.50000	2009	Dic	7	0	00	00	5	03	36.0784	5	03	35.1464	5	51	36.0784
2455173.50000	2009	Dic	8	0	00	00	5	07	32.6337	5	07	31.7018	5	55	32.6337
2455174.50000	2009	Dic	9	0	00	00	5	11	29.1863	5	11	28.2572	5	59	29.1863
2455175.50000	2009	Dic	10	0	00	00	5	15	25.7379	5	15	24.8125	6	03	25.7379
2455176.50000	2009	Dic	11	0	00	00	5	19	22.2900	5	19	21.3679	6	07	22.2900
2455177.50000	2009	Dic	12	0	00	00	5	23	18.8442	5	23	17.9233	6	11	18.8442
2455178.50000	2009	Dic	13	0	00	00	5	27	15.4011	5	27	14.4786	6	15	15.4011
2455179.50000	2009	Dic	14	0	00	00	5	31	11.9608	5	31	11.0340	6	19	11.9608
2455180.50000	2009	Dic	15	0	00	00	5	35	08.5230	5	35	07.5894	6	23	08.5230
2455181.50000	2009	Dic	16	0	00	00	5	39	05.0867	5	39	04.1447	6	27	05.0867
2455182.50000	2009	Dic	17	0	00	00	5	43	01.6509	5	43	00.7001	6	31	01.6509
2455183.50000	2009	Dic	18	0	00	00	5	46	58.2145	5	46	57.2555	6	34	58.2145
2455184.50000	2009	Dic	19	0	00	00	5	50	54.7765	5	50	53.8108	6	38	54.7765
2455185.50000	2009	Dic	20	0	00	00	5	54	51.3363	5	54	50.3662	6	42	51.3363
2455186.50000	2009	Dic	21	0	00	00	5	58	47.8938	5	58	46.9216	6	46	47.8938
2455187.50000	2009	Dic	22	0	00	00	6	02	44.4490	6	02	43.4769	6	50	44.4490
2455188.50000	2009	Dic	23	0	00	00	6	06	41.0023	6	06	40.0323	6	54	41.0023
2455189.50000	2009	Dic	24	0	00	00	6	10	37.5545	6	10	36.5877	6	58	37.5545
2455190.50000	2009	Dic	25	0	00	00	6	14	34.1065	6	14	33.1430	7	02	34.1065
2455191.50000	2009	Dic	26	0	00	00	6	18	30.6594	6	18	29.6984	7	06	30.6594
2455192.50000	2009	Dic	27	0	00	00	6	22	27.2145	6	22	26.2538	7	10	27.2145
2455193.50000	2009	Dic	28	0	00	00	6	26	23.7728	6	26	22.8092	7	14	23.7728
2455194.50000	2009	Dic	29	0	00	00	6	30	20.3349	6	30	19.3645	7	18	20.3349
2455195.50000	2009	Dic	30	0	00	00	6	34	16.9005	6	34	15.9199	7	22	16.9005
2455196.50000	2009	Dic	31	0	00	00	6	38	13.4683	6	38	12.4753	7	26	13.4683

CALENDARIO GENERALE EVENTI

gennaio

d	h		d	h	
1	19	Saturno stazionario	18	16	Mercurio 3.2N di Giove
2	13	Urano 4.1S della Luna	20	15	Mercurio in congiunzione inferiore
4	6	Mercurio massima elong E (19°)	21	13	Antares 0.1S della Luna Occult
4	11	Luna primo quarto	22	13	Luna massima dec. sud (-27.0°)
4	12	Terra al perielio	23	0	Luna all'apogeo
9	5	Luna massima dec. nord (27.0°)	23	1	Venere 1.2N di Urano
10	10	Luna al perigeo	24	5	Giove in congiunzione
11	3	Luna piena	25	2	Marte 0.7N della Luna Occult
11	5	Mercurio stazionario	25	9	Mercurio 4.8N della Luna
11	7	Pollux 5.2N della Luna	26	4	Giove 0.0N della Luna Occult
13	18	Regulus 2.2N della Luna	26	7	Luna nuova Eclisse
14	20	Venere massima elong E (47°)	27	10	Mercurio 4.3N di Marte
15	7	Saturno 5.6N della Luna	27	17	Nettuno 1.6S della Luna
17	18	Spica 3.0N della Luna	29	21	Urano 4.2S della Luna
18	2	Luna ultimo quarto	30	9	Venere 2.5S della Luna

febbraio

d	h		d	h	
1	5	Mercurio stazionario	17	16	Marte 0.6S di Giove
2	23	Luna primo quarto	17	20	Antares 0.1S della Luna Occult
5	14	Luna massima dec. nord (27.0°)	18	20	Luna massima dec. sud (-27.0°)
7	17	Pollux 5.3N della Luna	19	17	Luna all'apogeo
7	19	Luna al perigeo	22	21	Mercurio 1.0S della Luna Occult
9	14	Luna piena Eclisse	23	0	Giove 0.7S della Luna Occult
10	5	Regulus 2.3N della Luna	23	6	Marte 1.6S della Luna
11	15	Saturno 5.6N della Luna	24	2	Nettuno 1.7S della Luna
12	12	Nettuno in congiunzione	24	5	Mercurio 0.6S di Giove
14	1	Mercurio massima elong O (26°)	25	1	Luna nuova
14	3	Spica 3.0N della Luna	26	6	Urano 4.2S della Luna
16	21	Luna ultimo quarto	27	23	Venere 1.2N della Luna Occult

marzo

d	h		d	h	
2	2	Mercurio 0.6S di Marte	18	5	Luna massima dec. sud (-26.9°)
4	7	Luna primo quarto	18	17	Luna ultimo quarto
4	21	Luna massima dec. nord (26.9°)	19	13	Luna all'apogeo
5	0	Venere stazionario	20	11	Equinozio
5	9	Mercurio 1.6S di Nettuno	22	4	Mercurio 1.3S di Urano
7	2	Pollux 5.4N della Luna	22	20	Giove 1.4S della Luna
7	14	Luna al perigeo	23	12	Nettuno 1.9S della Luna
8	12	Marte 0.8S di Nettuno	24	11	Marte 3.7S della Luna
8	19	Saturno in opposizione	25	16	Urano 4.4S della Luna
9	15	Regulus 2.4N della Luna	26	6	Mercurio 5.7S della Luna
10	22	Saturno 5.6N della Luna	26	16	Luna nuova
11	2	Luna piena	26	19	Venere 3.8N della Luna
13	1	Urano in congiunzione	27	19	Venere in congiunzione inferiore
13	13	Spica 2.9N della Luna	28	3	Venere massima elong O (8°)
17	4	Antares 0.2S della Luna Occn	31	2	Mercurio in congiunzione superiore

aprile

d	h		d	h	
1	2	Luna massima dec. nord (26.8°)	17	13	Luna ultimo quarto
2	2	Luna al perigeo	19	14	Giove 2.1S della Luna
2	14	Luna primo quarto	19	22	Nettuno 2.2S della Luna
3	8	Pollux 5.5N della Luna	22	1	Venere 4.4N di Marte
4	16	Plutone stazionario	22	4	Urano 4.6S della Luna
5	22	Regulus 2.5N della Luna	22	13	Venere 0.9S della Luna Occult
7	3	Saturno 5.5N della Luna	22	14	Marte 5.3S della Luna
9	15	Luna piena	25	3	Luna nuova
9	22	Spica 2.8N della Luna	26	6	Mercurio massima elong E (20°)
13	13	Antares 0.4S della Luna Occn	26	15	Mercurio 1.9S della Luna
14	13	Luna massima dec. sud (-26.7°)	28	6	Luna al perigeo
15	8	Venere stazionario	28	9	Luna massima dec. nord (26.6°)
15	9	Marte 0.4S di Urano	30	13	Pollux 5.7N della Luna
16	9	Luna all'apogeo			

maggio			
d	h		d h
1	20	Luna primo quarto	18 10 Mercurio in congiunzione inferiore
3	4	Regulus 2.7N della Luna	19 15 Urano 4.8S della Luna
4	7	Saturno 5.5N della Luna	21 15 Marte 6.0S della Luna
7	5	Spica 2.9N della Luna	24 12 Luna nuova
7	18	Mercurio stazionario	25 17 Luna massima dec. nord (26.5°)
9	4	Luna piena	26 3 Luna al perigeo
10	21	Antares 0.6S della Luna Occn	27 20 Pollux 5.9N della Luna
11	20	Luna massima dec. sud (-26.5°)	27 21 Giove 0.4S di Nettuno
14	2	Luna all'apogeo	29 11 Nettuno stazionario
17	5	Giove 2.7S della Luna	30 10 Regulus 2.8N della Luna
17	7	Luna ultimo quarto	30 15 Mercurio stazionario
17	7	Nettuno 2.4S della Luna	31 3 Luna primo quarto
17	18	Saturno stazionario	31 12 Saturno 5.6N della Luna
giugno			
d	h		d h
3	11	Spica 3.0N della Luna	21 5 Solstizio
5	23	Venere massima elong O (45°)	21 12 Venere 2.0S di Marte
7	3	Antares 0.6S della Luna Occn	22 2 Luna massima dec. nord (26.4°)
7	18	Luna piena	22 6 Mercurio 3.2N di Aldebaran
8	2	Luna massima dec. sud (-26.4°)	22 19 Luna nuova
10	15	Luna all'apogeo	23 7 Plutone in opposizione
13	13	Mercurio massima elong O (23°)	23 10 Luna al perigeo
13	14	Nettuno 2.6S della Luna	24 6 Pollux 6.0N della Luna
13	15	Giove 3.1S della Luna	26 17 Regulus 3.0N della Luna
15	19	Giove stazionario	27 21 Saturno 5.8N della Luna
15	22	Luna ultimo quarto	29 11 Luna primo quarto
16	1	Urano 5.1S della Luna	30 17 Spica 3.2N della Luna
19	13	Marte 5.8S della Luna	
luglio			
d	h		d h
1	15	Urano stazionario	15 9 Luna ultimo quarto
4	2	Terra all'afelio	18 9 Marte 4.8S della Luna
4	9	Antares 0.6S della Luna Occn	19 4 Venere 5.9S della Luna
5	7	Luna massima dec. sud (-26.4°)	19 12 Luna massima dec. nord (26.4°)
7	9	Luna piena Eclisse	21 20 Luna al perigeo
7	21	Luna all'apogeo	22 2 Luna nuova Eclisse
10	7	Giove 0.6S di Nettuno	22 18 Mercurio 2.6N della Luna
10	19	Giove 3.2S della Luna	24 3 Regulus 3.0N della Luna
10	19	Nettuno 2.6S della Luna	25 10 Saturno 5.9N della Luna
13	8	Urano 5.1S della Luna	26 9 Marte 5.1N di Aldebaran
14	2	Mercurio in congiunzione sup.	27 23 Spica 3.2N della Luna
14	8	Venere 3.1N di Aldebaran	28 22 Luna primo quarto
14	19	Mercurio 5.2S di Pollux	31 15 Antares 0.5S della Luna Occult
agosto			
d	h		d h
1	13	Luna massima dec. sud (-26.4°)	17 20 Nettuno in opposizione
2	23	Mercurio 0.6N di Regulus	17 21 Venere 1.6S della Luna
4	1	Luna all'apogeo	19 4 Luna al perigeo
6	0	Luna piena Eclisse	20 10 Luna nuova
6	19	Giove 3.1S della Luna	20 14 Regulus 3.0N della Luna
7	0	Nettuno 2.6S della Luna	22 9 Mercurio 2.5N della Luna
9	12	Urano 5.1S della Luna	24 8 Spica 3.1N della Luna
13	18	Luna ultimo quarto	24 12 Mercurio massima elong E (27°)
14	17	Giove in opposizione	27 11 Luna primo quarto
15	21	Luna massima dec. nord (26.4°)	27 22 Antares 0.6S della Luna Occult
16	2	Marte 3.1S della Luna	28 20 Luna massima dec. sud (-26.4°)
17	16	Mercurio 3.0S di Saturno	31 10 Luna all'apogeo

settembre			
d	h	d	h
2	19	Giove 2.9S della Luna	18 18 Luna nuova
3	5	Nettuno 2.6S della Luna	18 23 Mercurio 1.1N della Luna Occult
4	16	Luna piena	20 10 Mercurio in congiunzione inferiore
5	16	Urano 5.0S della Luna	20 12 Venere 0.5N di Regulus
6	17	Mercurio stazionario	20 18 Spica 3.0N della Luna
11	16	Plutone stazionario	22 10 Mercurio 4.4S di Saturno
12	2	Luna ultimo quarto	22 21 Equinozio
12	4	Luna massima dec. nord (26.3°)	24 6 Antares 0.8S della Luna Occult
13	16	Marte 1.0S della Luna Occn	25 3 Luna massima dec. sud (-26.2°)
16	7	Luna al perigeo	26 4 Luna primo quarto
16	16	Venere 3.1N della Luna	28 3 Luna all'apogeo
16	23	Regulus 3.1N della Luna	28 18 Mercurio stazionario
17	9	Urano in opposizione	29 22 Giove 2.8S della Luna
17	18	Saturno in congiunzione	30 11 Nettuno 2.7S della Luna
ottobre			
d	h	d	h
2	22	Urano 5.0S della Luna	14 7 Regulus 3.3N della Luna
3	23	Marte 5.9S di Pollux	18 3 Spica 2.9N della Luna
4	6	Luna piena	18 5 Luna nuova
6	3	Mercurio massima elong O (17°)	21 15 Antares 1.0S della Luna Occult
8	5	Mercurio 0.3S di Saturno	22 12 Luna massima dec. sud (-26.0°)
9	9	Luna massima dec. nord (26.1°)	24 20 Mercurio 3.5N di Spica
11	8	Luna ultimo quarto	25 22 Luna all'apogeo
12	1	Marte 1.1N della Luna Occn	26 0 Luna primo quarto
13	8	Giove stazionario	27 6 Giove 3.0S della Luna
13	10	Venere 0.5S di Saturno	27 19 Nettuno 2.9S della Luna
13	12	Luna al perigeo	30 4 Urano 5.1S della Luna
novembre			
d	h	d	h
2	19	Luna piena	16 19 Luna nuova
3	4	Venere 3.5N di Spica	17 9 Mercurio 2.8N della Luna
4	19	Nettuno stazionario	18 0 Antares 1.1S della Luna Occult
5	8	Mercurio in congiunzione sup.	18 20 Luna massima dec. sud (-25.8°)
5	15	Luna massima dec. nord (25.9°)	22 10 Mercurio 3.0N di Antares
7	7	Luna al perigeo	22 19 Luna all'apogeo
9	4	Marte 3.2N della Luna	23 19 Giove 3.3S della Luna
9	15	Luna ultimo quarto	24 3 Nettuno 3.1S della Luna
10	13	Regulus 3.5N della Luna	24 21 Luna primo quarto
14	11	Spica 3.0N della Luna	26 13 Urano 5.2S della Luna
dicembre			
d	h	d	h
2	4	Urano stazionario	18 9 Mercurio massima elong E (20°)
2	7	Luna piena	20 14 Luna all'apogeo
2	23	Luna massima dec. nord (25.8°)	21 8 Giove 0.5S di Nettuno
4	14	Luna al perigeo	21 12 Giove 3.8S della Luna
6	23	Marte 5.0N della Luna	21 12 Nettuno 3.2S della Luna
7	19	Regulus 3.6N della Luna	21 15 Marte stazionario
9	0	Luna ultimo quarto	21 17 Solstizio
9	19	Venere 5.0N di Antares	23 21 Urano 5.4S della Luna
11	17	Spica 3.1N della Luna	24 17 Luna primo quarto
15	7	Antares 1.2S della Luna Occn	24 17 Plutone in congiunzione
15	22	Venere 3.1N della Luna	26 6 Mercurio stazionario
16	2	Luna massima dec. sud (-25.7°)	28 6 Venere 5.4S di Plutone
16	12	Luna nuova	30 10 Luna massima dec. nord (25.7°)
18	7	Mercurio 1.3S della Luna	31 19 Luna piena Eclisse

© (8)

I valori di questa tabella sono approssimativi, per precisioni maggiori consultare i capitoli successivi

EFFEMERIDI DEL SOLE

Data	A.R. Geoc.	Dec. Geoc.	A.R. Topoc.	Dec. Topoc.	Distanza U.A.	Luce (m)	Parall. "	Diam. "
1-gen	18h 46m 32.96s	-23° 00' 30.5"	18h 46m 33.06s	-23° 00' 33.4"	0.9833051	8.18	8.9	1951.9
2-gen	18h 50m 57.77s	-22° 55' 22.2"	18h 50m 57.87s	-22° 55' 25.1"	0.9832902	8.18	8.9	1951.9
3-gen	18h 55m 22.21s	-22° 49' 46.5"	18h 55m 22.31s	-22° 49' 49.4"	0.9832798	8.18	8.9	1951.9
4-gen	18h 59m 46.26s	-22° 43' 43.5"	18h 59m 46.35s	-22° 43' 46.5"	0.9832741	8.18	8.9	1951.9
5-gen	19h 04m 09.88s	-22° 37' 13.6"	19h 04m 09.97s	-22° 37' 16.6"	0.9832734	8.18	8.9	1951.9
6-gen	19h 08m 33.05s	-22° 30' 16.8"	19h 08m 33.14s	-22° 30' 19.8"	0.9832779	8.18	8.9	1951.9
7-gen	19h 12m 55.74s	-22° 22' 53.5"	19h 12m 55.83s	-22° 22' 56.5"	0.9832880	8.18	8.9	1951.9
8-gen	19h 17m 17.93s	-22° 15' 03.7"	19h 17m 18.02s	-22° 15' 06.7"	0.9833040	8.18	8.9	1951.9
9-gen	19h 21m 39.59s	-22° 06' 47.9"	19h 21m 39.68s	-22° 06' 50.9"	0.9833263	8.18	8.9	1951.8
10-gen	19h 26m 00.70s	-21° 58' 06.1"	19h 26m 00.79s	-21° 58' 09.2"	0.9833550	8.18	8.9	1951.8
11-gen	19h 30m 21.24s	-21° 48' 58.7"	19h 30m 21.33s	-21° 49' 01.8"	0.9833904	8.18	8.9	1951.7
12-gen	19h 34m 41.19s	-21° 39' 25.9"	19h 34m 41.28s	-21° 39' 29.0"	0.9834325	8.18	8.9	1951.6
13-gen	19h 39m 00.53s	-21° 29' 28.0"	19h 39m 00.62s	-21° 29' 31.1"	0.9834812	8.18	8.9	1951.5
14-gen	19h 43m 19.25s	-21° 19' 05.1"	19h 43m 19.34s	-21° 19' 08.2"	0.9835363	8.18	8.9	1951.4
15-gen	19h 47m 37.33s	-21° 08' 17.6"	19h 47m 37.41s	-21° 08' 20.7"	0.9835977	8.18	8.9	1951.3
16-gen	19h 51m 54.75s	-20° 57' 05.7"	19h 51m 54.84s	-20° 57' 08.8"	0.9836649	8.18	8.9	1951.1
17-gen	19h 56m 11.51s	-20° 45' 29.7"	19h 56m 11.60s	-20° 45' 32.9"	0.9837377	8.18	8.9	1951.0
18-gen	20h 00m 27.59s	-20° 33' 29.9"	20h 00m 27.67s	-20° 33' 33.1"	0.9838158	8.18	8.9	1950.8
19-gen	20h 04m 42.97s	-20° 21' 06.7"	20h 04m 43.05s	-20° 21' 10.0"	0.9838989	8.18	8.9	1950.7
20-gen	20h 08m 57.64s	-20° 08' 20.4"	20h 08m 57.72s	-20° 08' 23.7"	0.9839866	8.18	8.9	1950.5
21-gen	20h 13m 11.58s	-19° 55' 11.3"	20h 13m 11.66s	-19° 55' 14.7"	0.9840788	8.18	8.9	1950.3
22-gen	20h 17m 24.77s	-19° 41' 39.9"	20h 17m 24.85s	-19° 41' 43.2"	0.9841752	8.19	8.9	1950.1
23-gen	20h 21m 37.22s	-19° 27' 46.4"	20h 21m 37.30s	-19° 27' 49.8"	0.9842756	8.19	8.9	1949.9
24-gen	20h 25m 48.89s	-19° 13' 31.3"	20h 25m 48.97s	-19° 13' 34.7"	0.9843798	8.19	8.9	1949.7
25-gen	20h 29m 59.78s	-18° 58' 54.9"	20h 29m 59.86s	-18° 58' 58.4"	0.9844877	8.19	8.9	1949.5
26-gen	20h 34m 09.88s	-18° 43' 57.6"	20h 34m 09.96s	-18° 44' 01.2"	0.9845991	8.19	8.9	1949.3
27-gen	20h 38m 19.18s	-18° 28' 39.9"	20h 38m 19.25s	-18° 28' 43.5"	0.9847139	8.19	8.9	1949.1
28-gen	20h 42m 27.66s	-18° 13' 02.2"	20h 42m 27.73s	-18° 13' 05.7"	0.9848322	8.19	8.9	1948.8
29-gen	20h 46m 35.32s	-17° 57' 04.7"	20h 46m 35.39s	-17° 57' 08.3"	0.9849539	8.19	8.9	1948.6
30-gen	20h 50m 42.16s	-17° 40' 48.0"	20h 50m 42.23s	-17° 40' 51.6"	0.9850790	8.19	8.9	1948.3
31-gen	20h 54m 48.16s	-17° 24' 12.4"	20h 54m 48.24s	-17° 24' 16.1"	0.9852077	8.19	8.9	1948.1
1-feb	20h 58m 53.33s	-17° 07' 18.5"	20h 58m 53.41s	-17° 07' 22.2"	0.9853401	8.19	8.9	1947.8
2-feb	21h 02m 57.68s	-16° 50' 06.5"	21h 02m 57.75s	-16° 50' 10.2"	0.9854763	8.20	8.9	1947.6
3-feb	21h 07m 01.18s	-16° 32' 36.9"	21h 07m 01.26s	-16° 32' 40.7"	0.9856166	8.20	8.9	1947.3
4-feb	21h 11m 03.86s	-16° 14' 50.1"	21h 11m 03.93s	-16° 14' 54.0"	0.9857613	8.20	8.9	1947.0
5-feb	21h 15m 05.71s	-15° 56' 46.6"	21h 15m 05.78s	-15° 56' 50.5"	0.9859107	8.20	8.9	1946.7
6-feb	21h 19m 06.74s	-15° 38' 26.8"	21h 19m 06.81s	-15° 38' 30.7"	0.9860650	8.20	8.9	1946.4
7-feb	21h 23m 06.95s	-15° 19' 51.0"	21h 23m 07.02s	-15° 19' 55.0"	0.9862245	8.20	8.9	1946.1
8-feb	21h 27m 06.34s	-15° 00' 59.8"	21h 27m 06.42s	-15° 01' 03.8"	0.9863894	8.20	8.9	1945.7
9-feb	21h 31m 04.94s	-14° 41' 53.4"	21h 31m 05.01s	-14° 41' 57.5"	0.9865600	8.20	8.9	1945.4
10-feb	21h 35m 02.74s	-14° 22' 32.3"	21h 35m 02.81s	-14° 22' 36.4"	0.9867361	8.21	8.9	1945.1
11-feb	21h 38m 59.77s	-14° 02' 56.8"	21h 38m 59.84s	-14° 03' 00.9"	0.9869178	8.21	8.9	1944.7
12-feb	21h 42m 56.03s	-13° 43' 07.3"	21h 42m 56.10s	-13° 43' 11.5"	0.9871048	8.21	8.9	1944.3
13-feb	21h 46m 51.54s	-13° 23' 04.2"	21h 46m 51.61s	-13° 23' 08.4"	0.9872969	8.21	8.9	1944.0
14-feb	21h 50m 46.32s	-13° 02' 47.8"	21h 50m 46.39s	-13° 02' 52.1"	0.9874939	8.21	8.9	1943.6
15-feb	21h 54m 40.39s	-12° 42' 18.6"	21h 54m 40.46s	-12° 42' 22.9"	0.9876954	8.21	8.9	1943.2
16-feb	21h 58m 33.74s	-12° 21' 37.0"	21h 58m 33.81s	-12° 21' 41.4"	0.9879010	8.22	8.9	1942.8
17-feb	22h 02m 26.41s	-12° 00' 43.4"	22h 02m 26.48s	-12° 00' 47.8"	0.9881105	8.22	8.9	1942.4
18-feb	22h 06m 18.39s	-11° 39' 38.2"	22h 06m 18.46s	-11° 39' 42.6"	0.9883235	8.22	8.9	1941.9
19-feb	22h 10m 09.70s	-11° 18' 21.8"	22h 10m 09.77s	-11° 18' 26.3"	0.9885397	8.22	8.9	1941.5
20-feb	22h 14m 00.36s	-10° 56' 54.7"	22h 14m 00.43s	-10° 56' 59.3"	0.9887589	8.22	8.9	1941.1
21-feb	22h 17m 50.37s	-10° 35' 17.3"	22h 17m 50.44s	-10° 35' 21.9"	0.9889808	8.23	8.8	1940.6
22-feb	22h 21m 39.74s	-10° 13' 30.0"	22h 21m 39.81s	-10° 13' 34.7"	0.9892051	8.23	8.8	1940.2
23-feb	22h 25m 28.50s	-09° 51' 33.3"	22h 25m 28.57s	-09° 51' 38.0"	0.9894316	8.23	8.8	1939.8
24-feb	22h 29m 16.64s	-09° 29' 27.5"	22h 29m 16.71s	-09° 29' 32.3"	0.9896600	8.23	8.8	1939.3
25-feb	22h 33m 04.19s	-09° 07' 13.2"	22h 33m 04.26s	-09° 07' 17.9"	0.9898903	8.23	8.8	1938.9
26-feb	22h 36m 51.16s	-08° 44' 50.6"	22h 36m 51.23s	-08° 44' 55.4"	0.9901223	8.23	8.8	1938.4
27-feb	22h 40m 37.56s	-08° 22' 20.3"	22h 40m 37.64s	-08° 22' 25.2"	0.9903559	8.24	8.8	1938.0
28-feb	22h 44m 23.42s	-07° 59' 42.7"	22h 44m 23.49s	-07° 59' 47.6"	0.9905911	8.24	8.8	1937.5
1-mar	22h 48m 08.73s	-07° 36' 58.1"	22h 48m 08.80s	-07° 37' 03.1"	0.9908279	8.24	8.8	1937.0
2-mar	22h 51m 53.53s	-07° 14' 07.1"	22h 51m 53.60s	-07° 14' 12.1"	0.9910665	8.24	8.8	1936.6
3-mar	22h 55m 37.82s	-06° 51' 09.9"	22h 55m 37.89s	-06° 51' 15.0"	0.9913070	8.24	8.8	1936.1
4-mar	22h 59m 21.63s	-06° 28' 07.2"	22h 59m 21.70s	-06° 28' 12.3"	0.9915496	8.25	8.8	1935.6
5-mar	23h 03m 04.97s	-06° 04' 59.1"	23h 03m 05.04s	-06° 05' 04.3"	0.9917946	8.25	8.8	1935.1
6-mar	23h 06m 47.85s	-05° 41' 46.2"	23h 06m 47.93s	-05° 41' 51.4"	0.9920422	8.25	8.8	1934.7
7-mar	23h 10m 30.30s	-05° 18' 28.8"	23h 10m 30.38s	-05° 18' 34.0"	0.9922927	8.25	8.8	1934.2
8-mar	23h 14m 12.34s	-04° 55' 07.3"	23h 14m 12.41s	-04° 55' 12.6"	0.9925463	8.25	8.8	1933.7
9-mar	23h 17m 53.98s	-04° 31' 42.0"	23h 17m 54.06s	-04° 31' 47.4"	0.9928033	8.26	8.8	1933.2
10-mar	23h 21m 35.25s	-04° 08' 13.4"	23h 21m 35.33s	-04° 08' 18.8"	0.9930637	8.26	8.8	1932.7
11-mar	23h 25m 16.18s	-03° 44' 41.7"	23h 25m 16.26s	-03° 44' 47.1"	0.9933275	8.26	8.8	1932.2
12-mar	23h 28m 56.79s	-03° 21' 07.3"	23h 28m 56.87s	-03° 21' 12.8"	0.9935947	8.26	8.8	1931.6
13-mar	23h 32m 37.11s	-02° 57' 30.5"	23h 32m 37.19s	-02° 57' 36.0"	0.9938652	8.27	8.8	1931.1
14-mar	23h 36m 17.16s	-02° 33' 51.6"	23h 36m 17.24s	-02° 33' 57.2"	0.9941387	8.27	8.8	1930.6
15-mar	23h 39m 56.97s	-02° 10' 11.1"	23h 39m 57.04s	-02° 10' 16.7"	0.9944150	8.27	8.8	1930.0
16-mar	23h 43m 36.55s	-01° 46' 29.2"	23h 43m 36.63s	-01° 46' 34.9"	0.9946937	8.27	8.8	1929.5
17-mar	23h 47m 15.94s	-01° 22' 46.3"	23h 47m 16.02s	-01° 22' 52.1"	0.9949746	8.27	8.8	1929.0
18-mar	23h 50m 55.15s	-00° 59' 02.9"	23h 50m 55.23s	-00° 59' 08.6"	0.9952572	8.28	8.8	1928.4

Data	A.R. Geoc.	Dec. Geoc.	A.R. Topoc.	Dec. Topoc.	Distanza U.A.	Luce (m)	Parall. "	Diam. "
19-mar	23h 54m 34.20s	-00° 35' 19.2"	23h 54m 34.28s	-00° 35' 25.0"	0.9955414	8.28	8.8	1927.9
20-mar	23h 58m 13.11s	-00° 11' 35.6"	23h 58m 13.19s	-00° 11' 41.5"	0.9958268	8.28	8.8	1927.3
21-mar	00h 01m 51.91s	+00° 12' 07.4"	00h 01m 51.99s	+00° 12' 01.5"	0.9961130	8.28	8.8	1926.8
22-mar	00h 05m 30.60s	+00° 35' 49.5"	00h 05m 30.68s	+00° 35' 43.6"	0.9963998	8.29	8.8	1926.2
23-mar	00h 09m 09.21s	+00° 59' 30.4"	00h 09m 09.30s	+00° 59' 24.4"	0.9966869	8.29	8.8	1925.6
24-mar	00h 12m 47.76s	+01° 23' 09.6"	00h 12m 47.85s	+01° 23' 03.5"	0.9969739	8.29	8.8	1925.1
25-mar	00h 16m 26.27s	+01° 46' 46.7"	00h 16m 26.35s	+01° 46' 40.7"	0.9972606	8.29	8.8	1924.5
26-mar	00h 20m 04.75s	+02° 10' 21.5"	00h 20m 04.83s	+02° 10' 15.4"	0.9975468	8.30	8.8	1924.0
27-mar	00h 23m 43.22s	+02° 33' 53.5"	00h 23m 43.30s	+02° 33' 47.3"	0.9978323	8.30	8.8	1923.4
28-mar	00h 27m 21.70s	+02° 57' 22.3"	00h 27m 21.79s	+02° 57' 16.1"	0.9981169	8.30	8.8	1922.9
29-mar	00h 31m 00.21s	+03° 20' 47.5"	00h 31m 00.29s	+03° 20' 41.3"	0.9984006	8.30	8.8	1922.3
30-mar	00h 34m 38.76s	+03° 44' 08.9"	00h 34m 38.85s	+03° 44' 02.7"	0.9986834	8.31	8.8	1921.8
31-mar	00h 38m 17.37s	+04° 07' 26.0"	00h 38m 17.46s	+04° 07' 19.7"	0.9989654	8.31	8.8	1921.3
1-apr	00h 41m 56.06s	+04° 30' 38.4"	00h 41m 56.15s	+04° 30' 32.1"	0.9992468	8.31	8.8	1920.7
2-apr	00h 45m 34.84s	+04° 53' 45.9"	00h 45m 34.92s	+04° 53' 39.5"	0.9995278	8.31	8.8	1920.2
3-apr	00h 49m 13.72s	+05° 16' 47.9"	00h 49m 13.81s	+05° 16' 41.5"	0.9998086	8.32	8.8	1919.6
4-apr	00h 52m 52.72s	+05° 39' 44.2"	00h 52m 52.81s	+05° 39' 37.8"	1.0000896	8.32	8.7	1919.1
5-apr	00h 56m 31.87s	+06° 02' 34.4"	00h 56m 31.96s	+06° 02' 27.9"	1.0003708	8.32	8.7	1918.6
6-apr	01h 00m 11.17s	+06° 25' 18.3"	01h 00m 11.26s	+06° 25' 11.8"	1.0006527	8.32	8.7	1918.0
7-apr	01h 03m 50.66s	+06° 47' 55.4"	01h 03m 50.75s	+06° 47' 48.8"	1.0009353	8.32	8.7	1917.5
8-apr	01h 07m 30.36s	+07° 10' 25.5"	01h 07m 30.45s	+07° 10' 18.9"	1.0012187	8.33	8.7	1916.9
9-apr	01h 11m 10.28s	+07° 32' 48.3"	01h 11m 10.37s	+07° 32' 41.7"	1.0015030	8.33	8.7	1916.4
10-apr	01h 14m 50.46s	+07° 55' 03.4"	01h 14m 50.55s	+07° 54' 56.8"	1.0017882	8.33	8.7	1915.8
11-apr	01h 18m 30.91s	+08° 17' 10.7"	01h 18m 31.00s	+08° 17' 04.0"	1.0020741	8.33	8.7	1915.3
12-apr	01h 22m 11.65s	+08° 39' 09.6"	01h 22m 11.74s	+08° 39' 02.9"	1.0023606	8.34	8.7	1914.7
13-apr	01h 25m 52.71s	+09° 01' 00.0"	01h 25m 52.80s	+09° 00' 53.3"	1.0026474	8.34	8.7	1914.2
14-apr	01h 29m 34.10s	+09° 22' 41.5"	01h 29m 34.19s	+09° 22' 34.7"	1.0029343	8.34	8.7	1913.6
15-apr	01h 33m 15.83s	+09° 44' 13.8"	01h 33m 15.93s	+09° 44' 07.0"	1.0032211	8.34	8.7	1913.1
16-apr	01h 36m 57.94s	+10° 05' 36.5"	01h 36m 58.03s	+10° 05' 29.6"	1.0035074	8.35	8.7	1912.6
17-apr	01h 40m 40.42s	+10° 26' 49.3"	01h 40m 40.52s	+10° 26' 42.4"	1.0037930	8.35	8.7	1912.0
18-apr	01h 44m 23.30s	+10° 47' 51.8"	01h 44m 23.39s	+10° 47' 44.9"	1.0040775	8.35	8.7	1911.5
19-apr	01h 48m 06.59s	+11° 08' 43.8"	01h 48m 06.68s	+11° 08' 36.8"	1.0043606	8.35	8.7	1910.9
20-apr	01h 51m 50.30s	+11° 29' 24.8"	01h 51m 50.40s	+11° 29' 17.8"	1.0046420	8.36	8.7	1910.4
21-apr	01h 55m 34.45s	+11° 49' 54.4"	01h 55m 34.54s	+11° 49' 47.5"	1.0049214	8.36	8.7	1910.9
22-apr	01h 59m 19.04s	+12° 10' 12.5"	01h 59m 19.14s	+12° 10' 05.5"	1.0051985	8.36	8.7	1909.3
23-apr	02h 03m 04.10s	+12° 30' 18.6"	02h 03m 04.20s	+12° 30' 11.5"	1.0054729	8.36	8.7	1908.8
24-apr	02h 06m 49.63s	+12° 50' 12.3"	02h 06m 49.73s	+12° 50' 05.2"	1.0057443	8.36	8.7	1908.3
25-apr	02h 10m 35.64s	+13° 09' 53.4"	02h 10m 35.74s	+13° 09' 46.3"	1.0060126	8.37	8.7	1907.8
26-apr	02h 14m 22.14s	+13° 29' 21.4"	02h 14m 22.24s	+13° 29' 14.3"	1.0062776	8.37	8.7	1907.3
27-apr	02h 18m 09.13s	+13° 48' 36.1"	02h 18m 09.23s	+13° 48' 28.9"	1.0065392	8.37	8.7	1906.8
28-apr	02h 21m 56.62s	+14° 07' 37.1"	02h 21m 56.72s	+14° 07' 29.9"	1.0067975	8.37	8.7	1906.3
29-apr	02h 25m 44.61s	+14° 26' 24.0"	02h 25m 44.71s	+14° 26' 16.8"	1.0070524	8.38	8.7	1905.8
30-apr	02h 29m 33.10s	+14° 44' 56.5"	02h 29m 33.21s	+14° 44' 49.3"	1.0073043	8.38	8.7	1905.3
1-mag	02h 33m 22.11s	+15° 03' 14.4"	02h 33m 22.21s	+15° 03' 07.2"	1.0075533	8.38	8.7	1904.9
2-mag	02h 37m 11.62s	+15° 21' 17.2"	02h 37m 11.72s	+15° 21' 09.9"	1.0077998	8.38	8.7	1904.4
3-mag	02h 41m 01.65s	+15° 39' 04.6"	02h 41m 01.75s	+15° 38' 57.3"	1.0080440	8.38	8.7	1903.9
4-mag	02h 44m 52.21s	+15° 56' 36.4"	02h 44m 52.31s	+15° 56' 29.1"	1.0082861	8.39	8.7	1903.5
5-mag	02h 48m 43.30s	+16° 13' 52.2"	02h 48m 43.40s	+16° 13' 44.9"	1.0085264	8.39	8.7	1903.0
6-mag	02h 52m 34.94s	+16° 30' 51.9"	02h 52m 35.04s	+16° 30' 44.5"	1.0087651	8.39	8.7	1902.6
7-mag	02h 56m 27.12s	+16° 47' 34.9"	02h 56m 27.23s	+16° 47' 27.6"	1.0090023	8.39	8.7	1902.1
8-mag	03h 00m 19.87s	+17° 04' 01.3"	03h 00m 19.98s	+17° 03' 53.9"	1.0092380	8.39	8.7	1901.7
9-mag	03h 04m 13.19s	+17° 20' 10.5"	03h 04m 13.29s	+17° 20' 03.1"	1.0094723	8.40	8.7	1901.3
10-mag	03h 08m 07.07s	+17° 36' 02.4"	03h 08m 07.18s	+17° 35' 55.0"	1.0097050	8.40	8.7	1900.8
11-mag	03h 12m 01.54s	+17° 51' 36.7"	03h 12m 01.64s	+17° 51' 29.3"	1.0099362	8.40	8.7	1900.4
12-mag	03h 15m 56.58s	+18° 06' 53.1"	03h 15m 56.69s	+18° 06' 45.6"	1.0101656	8.40	8.7	1900.0
13-mag	03h 19m 52.21s	+18° 21' 51.3"	03h 19m 52.32s	+18° 21' 43.8"	1.0103930	8.40	8.7	1899.5
14-mag	03h 23m 48.42s	+18° 36' 31.0"	03h 23m 48.52s	+18° 36' 23.5"	1.0106183	8.41	8.7	1899.1
15-mag	03h 27m 45.21s	+18° 50' 52.0"	03h 27m 45.31s	+18° 50' 44.5"	1.0108412	8.41	8.7	1898.7
16-mag	03h 31m 42.58s	+19° 04' 53.9"	03h 31m 42.68s	+19° 04' 46.4"	1.0110614	8.41	8.7	1898.3
17-mag	03h 35m 40.53s	+19° 18' 36.5"	03h 35m 40.63s	+19° 18' 28.9"	1.0112787	8.41	8.7	1897.9
18-mag	03h 39m 39.05s	+19° 31' 59.4"	03h 39m 39.16s	+19° 31' 51.9"	1.0114927	8.41	8.7	1897.5
19-mag	03h 43m 38.15s	+19° 45' 02.5"	03h 43m 38.25s	+19° 44' 54.9"	1.0117033	8.41	8.6	1897.1
20-mag	03h 47m 37.81s	+19° 57' 45.4"	03h 47m 37.91s	+19° 57' 37.8"	1.0119099	8.42	8.6	1896.7
21-mag	03h 51m 38.03s	+20° 10' 07.8"	03h 51m 38.14s	+20° 10' 00.2"	1.0121124	8.42	8.6	1896.3
22-mag	03h 55m 38.80s	+20° 22' 09.6"	03h 55m 38.91s	+20° 22' 02.0"	1.0123104	8.42	8.6	1895.9
23-mag	03h 59m 40.12s	+20° 33' 50.4"	03h 59m 40.22s	+20° 33' 42.8"	1.0125035	8.42	8.6	1895.6
24-mag	04h 03m 41.96s	+20° 45' 10.0"	04h 03m 42.07s	+20° 45' 02.4"	1.0126916	8.42	8.6	1895.2
25-mag	04h 07m 44.32s	+20° 56' 08.2"	04h 07m 44.43s	+20° 56' 00.5"	1.0128745	8.42	8.6	1894.9
26-mag	04h 11m 47.18s	+21° 06' 44.7"	04h 11m 47.29s	+21° 06' 37.0"	1.0130520	8.43	8.6	1894.5
27-mag	04h 15m 50.51s	+21° 16' 59.3"	04h 15m 50.62s	+21° 16' 51.7"	1.0132242	8.43	8.6	1894.2
28-mag	04h 19m 54.30s	+21° 26' 51.8"	04h 19m 54.41s	+21° 26' 44.2"	1.0133913	8.43	8.6	1893.9
29-mag	04h 23m 58.53s	+21° 36' 22.0"	04h 23m 58.63s	+21° 36' 14.3"	1.0135535	8.43	8.6	1893.6
30-mag	04h 28m 03.17s	+21° 45' 29.6"	04h 28m 03.28s	+21° 45' 22.0"	1.0137110	8.43	8.6	1893.3
31-mag	04h 32m 08.22s	+21° 54' 14.5"	04h 32m 08.33s	+21° 54' 06.8"	1.0138641	8.43	8.6	1893.0
1-giu	04h 36m 13.66s	+22° 02' 36.5"	04h 36m 13.77s	+22° 02' 28.8"	1.0140132	8.43	8.6	1892.7
2-giu	04h 40m 19.48s	+22° 10' 35.4"	04h 40m 19.58s	+22° 10' 27.7"	1.0141585	8.43	8.6	1892.5
3-giu	04h 44m 25.66s	+22° 18' 11.0"	04h 44m 25.76s	+22° 18' 03.3"	1.0143003	8.44	8.6	1892.2
4-giu	04h 48m 32.19s	+22° 25' 23.3"	04h 48m 32.29s	+22° 25' 15.6"	1.0144387	8.44	8.6	1891.9
5-giu	04h 52m 39.05s	+22° 32' 12.0"	04h 52m 39.16s	+22° 32' 04.3"	1.0145739	8.44	8.6	1891.7
6-giu	04h 56m 46.24s	+22° 38' 37.1"	04h 56m 46.34s	+22° 38' 29.4"	1.0147061	8.44	8.6	1891.4
7-giu	05h 00m 53.73s	+22° 44' 38.4"	05h 00m 53.84s	+22° 44' 30.7"	1.0148351	8.44	8.6	1891.2
8-giu	05h 05m 01.51s	+22° 50' 15.9"	05h 05m 01.61s	+22° 50' 08.1"	1.0149612	8.44	8.6	1891.0

Data	A.R. Geoc.	Dec. Geoc.	A.R. Topoc.	Dec. Topoc.	Distanza U.A.	Luce (m)	Parall. "	Diam. "
9-giu	05h 09m 09.56s	+22° 55' 29.2"	05h 09m 09.66s	+22° 55' 21.5"	1.0150842	8.44	8.6	1890.7
10-giu	05h 13m 17.86s	+23° 00' 18.5"	05h 13m 17.96s	+23° 00' 10.7"	1.0152040	8.44	8.6	1890.5
11-giu	05h 17m 26.39s	+23° 04' 43.5"	05h 17m 26.50s	+23° 04' 35.7"	1.0153206	8.44	8.6	1890.3
12-giu	05h 21m 35.14s	+23° 08' 44.1"	05h 21m 35.24s	+23° 08' 36.3"	1.0154338	8.45	8.6	1890.1
13-giu	05h 25m 44.08s	+23° 12' 20.3"	05h 25m 44.18s	+23° 12' 12.5"	1.0155434	8.45	8.6	1889.9
14-giu	05h 29m 53.20s	+23° 15' 31.9"	05h 29m 53.30s	+23° 15' 24.2"	1.0156493	8.45	8.6	1889.7
15-giu	05h 34m 02.46s	+23° 18' 19.0"	05h 34m 02.56s	+23° 18' 11.2"	1.0157511	8.45	8.6	1889.5
16-giu	05h 38m 11.87s	+23° 20' 41.3"	05h 38m 11.97s	+23° 20' 33.5"	1.0158486	8.45	8.6	1889.3
17-giu	05h 42m 21.38s	+23° 22' 38.9"	05h 42m 21.48s	+23° 22' 31.1"	1.0159416	8.45	8.6	1889.1
18-giu	05h 46m 30.99s	+23° 24' 11.6"	05h 46m 31.08s	+23° 24' 03.9"	1.0160297	8.45	8.6	1889.0
19-giu	05h 50m 40.66s	+23° 25' 19.6"	05h 50m 40.76s	+23° 25' 11.8"	1.0161126	8.45	8.6	1888.8
20-giu	05h 54m 50.37s	+23° 26' 02.7"	05h 54m 50.47s	+23° 25' 54.9"	1.0161900	8.45	8.6	1888.7
21-giu	05h 59m 00.11s	+23° 26' 20.9"	05h 59m 00.21s	+23° 26' 13.1"	1.0162616	8.45	8.6	1888.6
22-giu	06h 03m 09.83s	+23° 26' 14.3"	06h 03m 09.93s	+23° 26' 06.5"	1.0163271	8.45	8.6	1888.4
23-giu	06h 07m 19.51s	+23° 25' 42.9"	06h 07m 19.61s	+23° 25' 35.1"	1.0163863	8.45	8.6	1888.3
24-giu	06h 11m 29.11s	+23° 24' 46.8"	06h 11m 29.21s	+23° 24' 39.0"	1.0164393	8.45	8.6	1888.2
25-giu	06h 15m 38.61s	+23° 23' 25.8"	06h 15m 38.70s	+23° 23' 18.1"	1.0164859	8.45	8.6	1888.1
26-giu	06h 19m 47.96s	+23° 21' 40.2"	06h 19m 48.06s	+23° 21' 32.4"	1.0165265	8.45	8.6	1888.1
27-giu	06h 23m 57.15s	+23° 19' 29.9"	06h 23m 57.25s	+23° 19' 22.1"	1.0165613	8.45	8.6	1888.0
28-giu	06h 28m 06.15s	+23° 16' 55.0"	06h 28m 06.25s	+23° 16' 47.3"	1.0165904	8.45	8.6	1887.9
29-giu	06h 32m 14.94s	+23° 13' 55.7"	06h 32m 15.04s	+23° 13' 47.9"	1.0166144	8.45	8.6	1887.9
30-giu	06h 36m 23.50s	+23° 10' 31.9"	06h 36m 23.59s	+23° 10' 24.1"	1.0166335	8.46	8.6	1887.9
1-lug	06h 40m 31.80s	+23° 06' 43.8"	06h 40m 31.89s	+23° 06' 36.0"	1.0166480	8.46	8.6	1887.8
2-lug	06h 44m 39.83s	+23° 02' 31.4"	06h 44m 39.93s	+23° 02' 23.7"	1.0166582	8.46	8.6	1887.8
3-lug	06h 48m 47.57s	+22° 57' 55.0"	06h 48m 47.67s	+22° 57' 47.3"	1.0166642	8.46	8.6	1887.8
4-lug	06h 52m 55.00s	+22° 52' 54.6"	06h 52m 55.10s	+22° 52' 46.9"	1.0166664	8.46	8.6	1887.8
5-lug	06h 57m 02.11s	+22° 47' 30.4"	06h 57m 02.20s	+22° 47' 22.7"	1.0166648	8.46	8.6	1887.8
6-lug	07h 01m 08.87s	+22° 41' 42.5"	07h 01m 08.96s	+22° 41' 34.8"	1.0166596	8.46	8.6	1887.8
7-lug	07h 05m 15.26s	+22° 35' 31.0"	07h 05m 15.36s	+22° 35' 23.3"	1.0166508	8.46	8.6	1887.8
8-lug	07h 09m 21.28s	+22° 28' 56.1"	07h 09m 21.37s	+22° 28' 48.4"	1.0166384	8.46	8.6	1887.9
9-lug	07h 13m 26.91s	+22° 21' 57.9"	07h 13m 27.00s	+22° 21' 50.1"	1.0166226	8.45	8.6	1887.9
10-lug	07h 17m 32.12s	+22° 14' 36.5"	07h 17m 32.21s	+22° 14' 28.8"	1.0166031	8.45	8.6	1887.9
11-lug	07h 21m 36.92s	+22° 06' 52.2"	07h 21m 37.01s	+22° 06' 44.5"	1.0165801	8.45	8.6	1888.0
12-lug	07h 25m 41.28s	+21° 58' 45.0"	07h 25m 41.36s	+21° 58' 37.3"	1.0165532	8.45	8.6	1888.0
13-lug	07h 29m 45.19s	+21° 50' 15.2"	07h 29m 45.27s	+21° 50' 07.5"	1.0165224	8.45	8.6	1888.1
14-lug	07h 33m 48.64s	+21° 41' 22.9"	07h 33m 48.73s	+21° 41' 15.2"	1.0164876	8.45	8.6	1888.1
15-lug	07h 37m 51.62s	+21° 32' 08.3"	07h 37m 51.71s	+21° 32' 00.6"	1.0164484	8.45	8.6	1888.2
16-lug	07h 41m 54.12s	+21° 22' 31.6"	07h 41m 54.21s	+21° 22' 23.9"	1.0164046	8.45	8.6	1888.3
17-lug	07h 45m 56.13s	+21° 12' 33.0"	07h 45m 56.22s	+21° 12' 25.3"	1.0163560	8.45	8.6	1888.4
18-lug	07h 49m 57.64s	+21° 02' 12.8"	07h 49m 57.73s	+21° 02' 05.1"	1.0163022	8.45	8.6	1888.5
19-lug	07h 53m 58.63s	+20° 51' 31.1"	07h 53m 58.72s	+20° 51' 23.4"	1.0162430	8.45	8.6	1888.6
20-lug	07h 57m 59.09s	+20° 40' 28.2"	07h 57m 59.18s	+20° 40' 20.6"	1.0161779	8.45	8.6	1888.7
21-lug	08h 01m 59.01s	+20° 29' 04.5"	08h 01m 59.10s	+20° 28' 56.9"	1.0161069	8.45	8.6	1888.8
22-lug	08h 05m 58.36s	+20° 17' 20.1"	08h 05m 58.45s	+20° 17' 12.5"	1.0160297	8.45	8.6	1889.0
23-lug	08h 09m 57.14s	+20° 05' 15.4"	08h 09m 57.22s	+20° 05' 07.8"	1.0159462	8.45	8.6	1889.1
24-lug	08h 13m 55.32s	+19° 52' 50.5"	08h 13m 55.41s	+19° 52' 42.9"	1.0158566	8.45	8.6	1889.3
25-lug	08h 17m 52.90s	+19° 40' 05.8"	08h 17m 52.99s	+19° 39' 58.3"	1.0157611	8.45	8.6	1889.5
26-lug	08h 21m 49.87s	+19° 27' 01.6"	08h 21m 49.96s	+19° 26' 54.1"	1.0156598	8.45	8.6	1889.7
27-lug	08h 25m 46.23s	+19° 13' 38.1"	08h 25m 46.32s	+19° 13' 30.6"	1.0155532	8.45	8.6	1889.9
28-lug	08h 29m 41.97s	+18° 59' 55.6"	08h 29m 42.06s	+18° 59' 48.1"	1.0154416	8.45	8.6	1890.1
29-lug	08h 33m 37.09s	+18° 45' 54.4"	08h 33m 37.17s	+18° 45' 46.9"	1.0153252	8.44	8.6	1890.3
30-lug	08h 37m 31.59s	+18° 31' 34.8"	08h 37m 31.67s	+18° 31' 27.3"	1.0152045	8.44	8.6	1890.5
31-lug	08h 41m 25.46s	+18° 16' 57.0"	08h 41m 25.55s	+18° 16' 49.6"	1.0150798	8.44	8.6	1890.8
1-ago	08h 45m 18.71s	+18° 02' 01.4"	08h 45m 18.80s	+18° 01' 54.0"	1.0149512	8.44	8.6	1891.0
2-ago	08h 49m 11.35s	+17° 46' 48.3"	08h 49m 11.43s	+17° 46' 40.8"	1.0148191	8.44	8.6	1891.2
3-ago	08h 53m 03.36s	+17° 31' 17.8"	08h 53m 03.45s	+17° 31' 10.4"	1.0146836	8.44	8.6	1891.5
4-ago	08h 56m 54.76s	+17° 15' 30.4"	08h 56m 54.85s	+17° 15' 23.0"	1.0145449	8.44	8.6	1891.7
5-ago	09h 00m 45.55s	+16° 59' 26.2"	09h 00m 45.64s	+16° 59' 18.9"	1.0144032	8.44	8.6	1892.0
6-ago	09h 04m 35.73s	+16° 43' 05.7"	09h 04m 35.82s	+16° 42' 58.3"	1.0142585	8.44	8.6	1892.3
7-ago	09h 08m 25.32s	+16° 26' 28.9"	09h 08m 25.40s	+16° 26' 21.6"	1.0141110	8.43	8.6	1892.6
8-ago	09h 12m 14.31s	+16° 09' 36.3"	09h 12m 14.40s	+16° 09' 29.0"	1.0139606	8.43	8.6	1892.8
9-ago	09h 16m 02.72s	+15° 52' 28.0"	09h 16m 02.81s	+15° 52' 20.7"	1.0138074	8.43	8.6	1893.1
10-ago	09h 19m 50.56s	+15° 35' 04.4"	09h 19m 50.65s	+15° 34' 57.2"	1.0136513	8.43	8.6	1893.4
11-ago	09h 23m 37.84s	+15° 17' 25.8"	09h 23m 37.92s	+15° 17' 18.6"	1.0134922	8.43	8.6	1893.7
12-ago	09h 27m 24.56s	+14° 59' 32.4"	09h 27m 24.65s	+14° 59' 25.2"	1.0133299	8.43	8.6	1894.0
13-ago	09h 31m 10.75s	+14° 41' 24.6"	09h 31m 10.84s	+14° 41' 17.4"	1.0131643	8.43	8.6	1894.3
14-ago	09h 34m 56.41s	+14° 23' 02.5"	09h 34m 56.49s	+14° 22' 55.3"	1.0129951	8.42	8.6	1894.6
15-ago	09h 38m 41.54s	+14° 04' 26.6"	09h 38m 41.63s	+14° 04' 19.5"	1.0128221	8.42	8.6	1895.0
16-ago	09h 42m 26.17s	+13° 45' 37.2"	09h 42m 26.26s	+13° 45' 30.1"	1.0126450	8.42	8.6	1895.3
17-ago	09h 46m 10.29s	+13° 26' 34.5"	09h 46m 10.38s	+13° 26' 27.4"	1.0124635	8.42	8.6	1895.6
18-ago	09h 49m 53.92s	+13° 07' 19.0"	09h 49m 54.01s	+13° 07' 11.9"	1.0122773	8.42	8.6	1896.0
19-ago	09h 53m 37.05s	+12° 47' 51.0"	09h 53m 37.14s	+12° 47' 44.0"	1.0120863	8.42	8.6	1896.3
20-ago	09h 57m 19.69s	+12° 28' 10.8"	09h 57m 19.78s	+12° 28' 03.8"	1.0118902	8.42	8.6	1896.7
21-ago	10h 01m 01.86s	+12° 08' 18.8"	10h 01m 01.95s	+12° 08' 11.8"	1.0116890	8.41	8.6	1897.1
22-ago	10h 04m 43.55s	+11° 48' 15.3"	10h 04m 43.64s	+11° 48' 08.3"	1.0114829	8.41	8.6	1897.5
23-ago	10h 08m 24.78s	+11° 28' 00.6"	10h 08m 24.87s	+11° 27' 53.7"	1.0112719	8.41	8.6	1897.9
24-ago	10h 12m 05.56s	+11° 07' 35.1"	10h 12m 05.65s	+11° 07' 28.3"	1.0110565	8.41	8.7	1898.3
25-ago	10h 15m 45.91s	+10° 46' 59.2"	10h 15m 46.00s	+10° 46' 52.3"	1.0108369	8.41	8.7	1898.7
26-ago	10h 19m 25.83s	+10° 26' 13.1"	10h 19m 25.93s	+10° 26' 06.3"	1.0106135	8.41	8.7	1899.1
27-ago	10h 23m 05.35s	+10° 05' 17.2"	10h 23m 05.44s	+10° 05' 10.4"	1.0103865	8.40	8.7	1899.5
28-ago	10h 26m 44.47s	+09° 44' 11.8"	10h 26m 44.56s	+09° 44' 05.1"	1.0101564	8.40	8.7	1900.0
29-ago	10h 30m 23.21s	+09° 22' 57.3"	10h 30m 23.30s	+09° 22' 50.5"	1.0099234	8.40	8.7	1900.4

Data	A.R. Geoc.	Dec. Geoc.	A.R. Topoc.	Dec. Topoc.	Distanza U.A.	Luce (m)	Parall. "	Diam. "
30-ago	10h 34m 01.58s	+09° 01' 33.9"	10h 34m 01.68s	+09° 01' 27.2"	1.0096879	8.40	8.7	1900.8
31-ago	10h 37m 39.61s	+08° 40' 02.0"	10h 37m 39.71s	+08° 39' 55.3"	1.0094501	8.40	8.7	1901.3
1-set	10h 41m 17.31s	+08° 18' 21.9"	10h 41m 17.40s	+08° 18' 15.2"	1.0092104	8.39	8.7	1901.7
2-set	10h 44m 54.69s	+07° 56' 33.8"	10h 44m 54.79s	+07° 56' 27.2"	1.0089688	8.39	8.7	1902.2
3-set	10h 48m 31.78s	+07° 34' 38.1"	10h 48m 31.88s	+07° 34' 31.6"	1.0087256	8.39	8.7	1902.7
4-set	10h 52m 08.60s	+07° 12' 35.2"	10h 52m 08.70s	+07° 12' 28.6"	1.0084811	8.39	8.7	1903.1
5-set	10h 55m 45.17s	+06° 50' 25.2"	10h 55m 45.26s	+06° 50' 18.7"	1.0082353	8.39	8.7	1903.6
6-set	10h 59m 21.50s	+06° 28' 08.5"	10h 59m 21.60s	+06° 28' 02.0"	1.0079883	8.38	8.7	1904.1
7-set	11h 02m 57.63s	+06° 05' 45.4"	11h 02m 57.73s	+06° 05' 39.0"	1.0077402	8.38	8.7	1904.5
8-set	11h 06m 33.57s	+05° 43' 16.1"	11h 06m 33.67s	+05° 43' 09.7"	1.0074910	8.38	8.7	1905.0
9-set	11h 10m 09.35s	+05° 20' 41.0"	11h 10m 09.45s	+05° 20' 34.7"	1.0072407	8.38	8.7	1905.5
10-set	11h 13m 44.99s	+04° 58' 00.4"	11h 13m 45.09s	+04° 57' 54.1"	1.0069890	8.37	8.7	1905.9
11-set	11h 17m 20.51s	+04° 35' 14.5"	11h 17m 20.61s	+04° 35' 08.2"	1.0067358	8.37	8.7	1906.4
12-set	11h 20m 55.94s	+04° 12' 23.8"	11h 20m 56.04s	+04° 12' 17.5"	1.0064810	8.37	8.7	1906.9
13-set	11h 24m 31.29s	+03° 49' 28.5"	11h 24m 31.39s	+03° 49' 22.3"	1.0062243	8.37	8.7	1907.4
14-set	11h 28m 06.57s	+03° 26' 28.9"	11h 28m 06.67s	+03° 26' 22.8"	1.0059654	8.37	8.7	1907.9
15-set	11h 31m 41.81s	+03° 03' 25.5"	11h 31m 41.92s	+03° 03' 19.4"	1.0057041	8.36	8.7	1908.4
16-set	11h 35m 17.03s	+02° 40' 18.6"	11h 35m 17.13s	+02° 40' 12.5"	1.0054400	8.36	8.7	1908.9
17-set	11h 38m 52.23s	+02° 17' 08.6"	11h 38m 52.34s	+02° 17' 02.5"	1.0051730	8.36	8.7	1909.4
18-set	11h 42m 27.44s	+01° 53' 55.8"	11h 42m 27.55s	+01° 53' 49.7"	1.0049031	8.36	8.7	1909.9
19-set	11h 46m 02.67s	+01° 30' 40.5"	11h 46m 02.78s	+01° 30' 34.5"	1.0046301	8.36	8.7	1910.4
20-set	11h 49m 37.94s	+01° 07' 23.2"	11h 49m 38.05s	+01° 07' 17.3"	1.0043542	8.35	8.7	1910.9
21-set	11h 53m 13.27s	+00° 44' 04.2"	11h 53m 13.38s	+00° 43' 58.3"	1.0040755	8.35	8.7	1911.5
22-set	11h 56m 48.68s	+00° 20' 43.8"	11h 56m 48.79s	+00° 20' 37.9"	1.0037943	8.35	8.7	1912.0
23-set	12h 00m 24.18s	-00° 02' 37.6"	12h 00m 24.29s	-00° 02' 43.4"	1.0035109	8.35	8.7	1912.6
24-set	12h 03m 59.79s	-00° 25' 59.6"	12h 03m 59.90s	-00° 26' 05.4"	1.0032256	8.34	8.7	1913.1
25-set	12h 07m 35.53s	-00° 49' 21.9"	12h 07m 35.64s	-00° 49' 27.6"	1.0029388	8.34	8.7	1913.6
26-set	12h 11m 11.42s	-01° 12' 44.1"	12h 11m 11.53s	-01° 12' 49.8"	1.0026507	8.34	8.7	1914.2
27-set	12h 14m 47.48s	-01° 36' 06.0"	12h 14m 47.59s	-01° 36' 11.6"	1.0023617	8.34	8.7	1914.7
28-set	12h 18m 23.72s	-01° 59' 27.0"	12h 18m 23.83s	-01° 59' 32.6"	1.0020721	8.33	8.7	1915.3
29-set	12h 22m 00.17s	-02° 22' 47.0"	12h 22m 00.28s	-02° 22' 52.6"	1.0017823	8.33	8.7	1915.9
30-set	12h 25m 36.84s	-02° 46' 05.6"	12h 25m 36.96s	-02° 46' 11.1"	1.0014925	8.33	8.7	1916.4
1-ott	12h 29m 13.77s	-03° 09' 22.4"	12h 29m 13.89s	-03° 09' 27.8"	1.0012030	8.33	8.7	1917.0
2-ott	12h 32m 50.98s	-03° 32' 37.0"	12h 32m 51.09s	-03° 32' 42.5"	1.0009140	8.32	8.7	1917.5
3-ott	12h 36m 28.47s	-03° 55' 49.3"	12h 36m 28.59s	-03° 55' 54.7"	1.0006259	8.32	8.7	1918.1
4-ott	12h 40m 06.29s	-04° 18' 58.8"	12h 40m 06.41s	-04° 19' 04.2"	1.0003387	8.32	8.7	1918.6
5-ott	12h 43m 44.46s	-04° 42' 05.3"	12h 43m 44.57s	-04° 42' 10.6"	1.0000527	8.32	8.7	1919.2
6-ott	12h 47m 22.99s	-05° 05' 08.3"	12h 47m 23.11s	-05° 05' 13.6"	0.9997680	8.31	8.7	1919.7
7-ott	12h 51m 01.93s	-05° 28' 07.7"	12h 51m 02.04s	-05° 28' 12.9"	0.9994845	8.31	8.8	1920.3
8-ott	12h 54m 41.28s	-05° 51' 02.9"	12h 54m 41.39s	-05° 51' 08.1"	0.9992023	8.31	8.8	1920.8
9-ott	12h 58m 21.07s	-06° 13' 53.7"	12h 58m 21.19s	-06° 13' 58.9"	0.9989212	8.31	8.8	1921.3
10-ott	13h 02m 01.32s	-06° 36' 39.8"	13h 02m 01.44s	-06° 36' 44.9"	0.9986412	8.31	8.8	1921.9
11-ott	13h 05m 42.06s	-06° 59' 20.7"	13h 05m 42.18s	-06° 59' 25.7"	0.9983619	8.30	8.8	1922.4
12-ott	13h 09m 23.29s	-07° 21' 56.1"	13h 09m 23.41s	-07° 22' 01.1"	0.9980831	8.30	8.8	1923.0
13-ott	13h 13m 05.05s	-07° 44' 25.5"	13h 13m 05.17s	-07° 44' 30.5"	0.9978046	8.30	8.8	1923.5
14-ott	13h 16m 47.34s	-08° 06' 48.6"	13h 16m 47.46s	-08° 06' 53.5"	0.9975261	8.30	8.8	1924.0
15-ott	13h 20m 30.18s	-08° 29' 05.0"	13h 20m 30.30s	-08° 29' 09.9"	0.9972475	8.29	8.8	1924.6
16-ott	13h 24m 13.59s	-08° 51' 14.3"	13h 24m 13.72s	-08° 51' 19.1"	0.9969684	8.29	8.8	1925.1
17-ott	13h 27m 57.59s	-09° 13' 16.0"	13h 27m 57.71s	-09° 13' 20.8"	0.9966889	8.29	8.8	1925.6
18-ott	13h 31m 42.19s	-09° 35' 09.8"	13h 31m 42.31s	-09° 35' 14.5"	0.9964088	8.29	8.8	1926.2
19-ott	13h 35m 27.40s	-09° 56' 55.3"	13h 35m 27.52s	-09° 56' 60.0"	0.9961283	8.28	8.8	1926.7
20-ott	13h 39m 13.23s	-10° 18' 32.0"	13h 39m 13.36s	-10° 18' 36.6"	0.9958475	8.28	8.8	1927.3
21-ott	13h 42m 59.71s	-10° 39' 59.6"	13h 42m 59.84s	-10° 40' 04.2"	0.9955666	8.28	8.8	1927.8
22-ott	13h 46m 46.83s	-11° 01' 17.6"	13h 46m 46.96s	-11° 01' 22.1"	0.9952859	8.28	8.8	1928.4
23-ott	13h 50m 34.62s	-11° 22' 25.7"	13h 50m 34.75s	-11° 22' 30.2"	0.9950055	8.28	8.8	1928.9
24-ott	13h 54m 23.08s	-11° 43' 23.4"	13h 54m 23.21s	-11° 43' 27.8"	0.9947259	8.27	8.8	1929.4
25-ott	13h 58m 12.23s	-12° 04' 10.3"	13h 58m 12.35s	-12° 04' 14.7"	0.9944474	8.27	8.8	1930.0
26-ott	14h 02m 02.07s	-12° 24' 46.0"	14h 02m 02.20s	-12° 24' 50.4"	0.9941701	8.27	8.8	1930.5
27-ott	14h 05m 52.62s	-12° 45' 10.2"	14h 05m 52.75s	-12° 45' 14.6"	0.9938946	8.27	8.8	1931.1
28-ott	14h 09m 43.90s	-13° 05' 22.5"	14h 09m 44.02s	-13° 05' 26.8"	0.9936210	8.26	8.8	1931.6
29-ott	14h 13m 35.91s	-13° 25' 22.4"	14h 13m 36.04s	-13° 25' 26.6"	0.9933496	8.26	8.8	1932.1
30-ott	14h 17m 28.67s	-13° 45' 09.5"	14h 17m 28.80s	-13° 45' 13.7"	0.9930809	8.26	8.8	1932.6
31-ott	14h 21m 22.19s	-14° 04' 43.5"	14h 21m 22.32s	-14° 04' 47.7"	0.9928151	8.26	8.8	1933.2
1-nov	14h 25m 16.49s	-14° 24' 04.1"	14h 25m 16.62s	-14° 24' 08.2"	0.9925525	8.25	8.8	1933.7
2-nov	14h 29m 11.58s	-14° 43' 10.7"	14h 29m 11.71s	-14° 43' 14.8"	0.9922932	8.25	8.8	1934.2
3-nov	14h 33m 07.47s	-15° 02' 03.1"	14h 33m 07.60s	-15° 02' 07.1"	0.9920376	8.25	8.8	1934.7
4-nov	14h 37m 04.18s	-15° 20' 40.8"	14h 37m 04.32s	-15° 20' 44.8"	0.9917858	8.25	8.8	1935.2
5-nov	14h 41m 01.73s	-15° 39' 03.6"	14h 41m 01.86s	-15° 39' 07.5"	0.9915377	8.25	8.8	1935.6
6-nov	14h 45m 00.11s	-15° 57' 10.9"	14h 45m 00.24s	-15° 57' 14.8"	0.9912935	8.24	8.8	1936.1
7-nov	14h 48m 59.33s	-16° 15' 02.4"	14h 48m 59.47s	-16° 15' 06.3"	0.9910529	8.24	8.8	1936.6
8-nov	14h 52m 59.42s	-16° 32' 37.8"	14h 52m 59.55s	-16° 32' 41.6"	0.9908158	8.24	8.8	1937.1
9-nov	14h 57m 00.36s	-16° 49' 56.4"	14h 57m 00.49s	-16° 50' 00.2"	0.9905820	8.24	8.8	1937.5
10-nov	15h 01m 02.16s	-17° 06' 58.1"	15h 01m 02.29s	-17° 07' 01.8"	0.9903512	8.24	8.8	1938.0
11-nov	15h 05m 04.83s	-17° 23' 42.2"	15h 05m 04.96s	-17° 23' 46.0"	0.9901231	8.23	8.8	1938.4
12-nov	15h 09m 08.37s	-17° 40' 08.5"	15h 09m 08.50s	-17° 40' 12.2"	0.9898975	8.23	8.8	1938.9
13-nov	15h 13m 12.77s	-17° 56' 16.5"	15h 13m 12.90s	-17° 56' 20.1"	0.9896742	8.23	8.8	1939.3
14-nov	15h 17m 18.05s	-18° 12' 05.8"	15h 17m 18.18s	-18° 12' 09.4"	0.9894529	8.23	8.8	1939.7
15-nov	15h 21m 24.18s	-18° 27' 35.9"	15h 21m 24.31s	-18° 27' 39.5"	0.9892336	8.23	8.8	1940.2
16-nov	15h 25m 31.17s	-18° 42' 46.6"	15h 25m 31.30s	-18° 42' 50.1"	0.9890162	8.23	8.8	1940.6
17-nov	15h 29m 39.01s	-18° 57' 37.4"	15h 29m 39.14s	-18° 57' 40.9"	0.9888007	8.22	8.8	1941.0
18-nov	15h 33m 47.68s	-19° 12' 07.9"	15h 33m 47.81s	-19° 12' 11.4"	0.9885872	8.22	8.8	1941.4
19-nov	15h 37m 57.19s	-19° 26' 17.7"	15h 37m 57.32s	-19° 26' 21.1"	0.9883759	8.22	8.9	1941.8

Data	A.R. Geoc.	Dec. Geoc.	A.R. Topoc.	Dec. Topoc.	Distanza U.A.	Luce (m)	Parall. "	Diam. "
20-nov	15h 42m 07.50s	-19° 40' 06.5"	15h 42m 07.63s	-19° 40' 09.9"	0.9881669	8.22	8.9	1942.2
21-nov	15h 46m 18.62s	-19° 53' 33.8"	15h 46m 18.75s	-19° 53' 37.2"	0.9879604	8.22	8.9	1942.7
22-nov	15h 50m 30.53s	-20° 06' 39.3"	15h 50m 30.66s	-20° 06' 42.7"	0.9877567	8.21	8.9	1943.1
23-nov	15h 54m 43.22s	-20° 19' 22.7"	15h 54m 43.35s	-20° 19' 26.1"	0.9875560	8.21	8.9	1943.4
24-nov	15h 58m 56.66s	-20° 31' 43.6"	15h 58m 56.79s	-20° 31' 46.9"	0.9873587	8.21	8.9	1943.8
25-nov	16h 03m 10.86s	-20° 43' 41.6"	16h 03m 10.99s	-20° 43' 44.9"	0.9871648	8.21	8.9	1944.2
26-nov	16h 07m 25.79s	-20° 55' 16.5"	16h 07m 25.92s	-20° 55' 19.7"	0.9869749	8.21	8.9	1944.6
27-nov	16h 11m 41.44s	-21° 06' 27.8"	16h 11m 41.57s	-21° 06' 31.0"	0.9867891	8.21	8.9	1945.0
28-nov	16h 15m 57.80s	-21° 17' 15.3"	16h 15m 57.93s	-21° 17' 18.5"	0.9866079	8.21	8.9	1945.3
29-nov	16h 20m 14.85s	-21° 27' 38.7"	16h 20m 14.98s	-21° 27' 41.9"	0.9864314	8.20	8.9	1945.7
30-nov	16h 24m 32.57s	-21° 37' 37.7"	16h 24m 32.70s	-21° 37' 40.9"	0.9862600	8.20	8.9	1946.0
1-dic	16h 28m 50.96s	-21° 47' 12.0"	16h 28m 51.09s	-21° 47' 15.2"	0.9860940	8.20	8.9	1946.3
2-dic	16h 33m 10.00s	-21° 56' 21.4"	16h 33m 10.12s	-21° 56' 24.5"	0.9859335	8.20	8.9	1946.6
3-dic	16h 37m 29.66s	-22° 05' 05.6"	16h 37m 29.78s	-22° 05' 08.6"	0.9857788	8.20	8.9	1947.0
4-dic	16h 41m 49.93s	-22° 13' 24.3"	16h 41m 50.05s	-22° 13' 27.3"	0.9856300	8.20	8.9	1947.2
5-dic	16h 46m 10.78s	-22° 21' 17.2"	16h 46m 10.91s	-22° 21' 20.3"	0.9854869	8.20	8.9	1947.5
6-dic	16h 50m 32.21s	-22° 28' 44.2"	16h 50m 32.33s	-22° 28' 47.2"	0.9853495	8.19	8.9	1947.8
7-dic	16h 54m 54.17s	-22° 35' 44.9"	16h 54m 54.29s	-22° 35' 47.9"	0.9852175	8.19	8.9	1948.1
8-dic	16h 59m 16.66s	-22° 42' 19.1"	16h 59m 16.78s	-22° 42' 22.1"	0.9850906	8.19	8.9	1948.3
9-dic	17h 03m 39.64s	-22° 48' 26.6"	17h 03m 39.76s	-22° 48' 29.6"	0.9849686	8.19	8.9	1948.6
10-dic	17h 08m 03.09s	-22° 54' 07.2"	17h 08m 03.21s	-22° 54' 10.1"	0.9848512	8.19	8.9	1948.8
11-dic	17h 12m 26.98s	-22° 59' 20.6"	17h 12m 27.10s	-22° 59' 23.6"	0.9847380	8.19	8.9	1949.0
12-dic	17h 16m 51.28s	-23° 04' 06.7"	17h 16m 51.40s	-23° 04' 09.7"	0.9846289	8.19	8.9	1949.2
13-dic	17h 21m 15.97s	-23° 08' 25.4"	17h 21m 16.08s	-23° 08' 28.3"	0.9845236	8.19	8.9	1949.4
14-dic	17h 25m 40.99s	-23° 12' 16.4"	17h 25m 41.11s	-23° 12' 19.4"	0.9844220	8.19	8.9	1949.6
15-dic	17h 30m 06.32s	-23° 15' 39.8"	17h 30m 06.44s	-23° 15' 42.7"	0.9843239	8.19	8.9	1949.8
16-dic	17h 34m 31.93s	-23° 18' 35.2"	17h 34m 32.04s	-23° 18' 38.1"	0.9842294	8.19	8.9	1950.0
17-dic	17h 38m 57.76s	-23° 21' 02.7"	17h 38m 57.87s	-23° 21' 05.6"	0.9841385	8.18	8.9	1950.2
18-dic	17h 43m 23.79s	-23° 23' 02.2"	17h 43m 23.90s	-23° 23' 05.1"	0.9840511	8.18	8.9	1950.4
19-dic	17h 47m 49.98s	-23° 24' 33.5"	17h 47m 50.09s	-23° 24' 36.4"	0.9839674	8.18	8.9	1950.5
20-dic	17h 52m 16.28s	-23° 25' 36.7"	17h 52m 16.39s	-23° 25' 39.6"	0.9838875	8.18	8.9	1950.7
21-dic	17h 56m 42.66s	-23° 26' 11.7"	17h 56m 42.77s	-23° 26' 14.6"	0.9838115	8.18	8.9	1950.8
22-dic	18h 01m 09.09s	-23° 26' 18.4"	18h 01m 09.19s	-23° 26' 21.3"	0.9837397	8.18	8.9	1951.0
23-dic	18h 05m 35.52s	-23° 25' 56.9"	18h 05m 35.63s	-23° 25' 59.8"	0.9836723	8.18	8.9	1951.1
24-dic	18h 10m 01.93s	-23° 25' 07.1"	18h 10m 02.03s	-23° 25' 10.0"	0.9836094	8.18	8.9	1951.2
25-dic	18h 14m 28.27s	-23° 23' 49.1"	18h 14m 28.38s	-23° 23' 52.0"	0.9835513	8.18	8.9	1951.4
26-dic	18h 18m 54.52s	-23° 22' 03.0"	18h 18m 54.62s	-23° 22' 05.8"	0.9834983	8.18	8.9	1951.5
27-dic	18h 23m 20.64s	-23° 19' 48.7"	18h 23m 20.75s	-23° 19' 51.5"	0.9834507	8.18	8.9	1951.6
28-dic	18h 27m 46.60s	-23° 17' 06.3"	18h 27m 46.71s	-23° 17' 09.2"	0.9834087	8.18	8.9	1951.6
29-dic	18h 32m 12.38s	-23° 13' 56.0"	18h 32m 12.48s	-23° 13' 58.9"	0.9833727	8.18	8.9	1951.7
30-dic	18h 36m 37.93s	-23° 10' 17.8"	18h 36m 38.03s	-23° 10' 20.7"	0.9833429	8.18	8.9	1951.8
31-dic	18h 41m 03.23s	-23° 06' 11.8"	18h 41m 03.33s	-23° 06' 14.7"	0.9833196	8.18	8.9	1951.8

Legenda :

A.R. e DEC. = coordinate apparenti geocentriche e topocentriche per Roma (42°N, 12°E)

Luce = distanza in minuti-luce

Parall. = parallasse in "

Diam. = diametro in "

TRANSITO DEL MERIDIANO CENTRALE

13/01/09	22.34
10/02/09	06.46
09/03/09	14.45
05/04/09	22.00
03/05/09	04.11
30/05/09	09.25
26/06/09	14.12
23/07/09	19.04
20/08/09	00.29
16/09/09	06.36
13/10/09	13.20
09/11/09	20.29
07/12/09	03.59

SOLSTIZI ED EQUINOZI

Equinozio di primavera	20/03	11.43
Solstizio d'estate	21/06	05.45
Equinozio d'autunno	22/09	21.18
Solstizio d'inverno	21/12	17.46

PERIGEO ED APOGEO

Perigeo	04/01	16.24	0.98327 U.A.
Apogeo	04/07	02.14	1.01667 U.A.

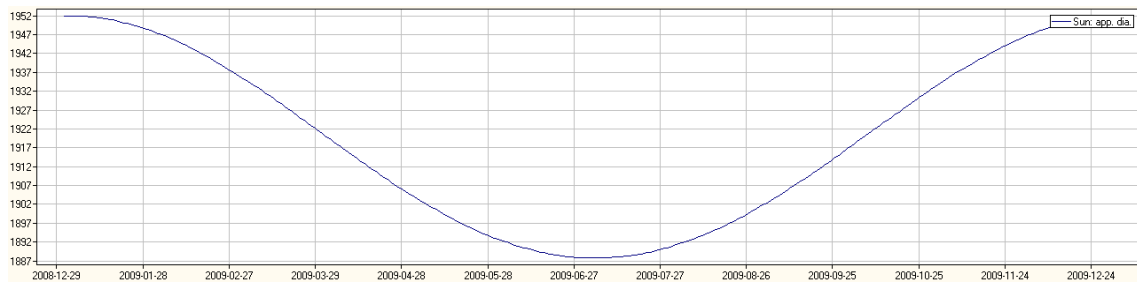
EFFEMERIDI FISICHE DEL SOLE

Data	Po	Bo	Lo	Data	Po	Bo	Lo	Data	Po	Bo	Lo
	o	o	o		o	o	o		o	o	o
Gen 1	1.9	-3.0	170.8	Mag 4	-23.4	-3.8	349.4	Set 4	21.8	7.1	162.4
4	0.5	-3.3	131.2	7	-22.8	-3.5	309.8	7	22.5	7.1	122.8
7	-1.0	-3.6	91.7	10	-22.1	-3.2	270.1	10	23.1	7.1	83.2
10	-2.4	-4.0	52.2	13	-21.4	-2.9	230.4	13	23.7	7.1	43.6
13	-3.9	-4.3	12.7	16	-20.5	-2.5	190.7	16	24.2	7.1	4.0
16	-5.3	-4.6	333.2	19	-19.7	-2.2	151.1	19	24.6	7.0	324.4
19	-6.6	-4.8	293.7	22	-18.7	-1.9	111.4	22	25.0	7.0	284.8
22	-8.0	-5.1	254.2	25	-17.8	-1.5	71.7	25	25.4	6.9	245.2
25	-9.3	-5.4	214.7	28	-16.7	-1.2	32.0	28	25.7	6.8	205.6
28	-10.6	-5.6	175.2	31	-15.7	-0.8	352.3	Ott 1	25.9	6.6	166.0
31	-11.8	-5.8	135.7	Giu 3	-14.5	-0.5	312.6	4	26.1	6.5	126.4
Feb 3	-13.0	-6.1	96.2	6	-13.4	-0.1	272.9	7	26.2	6.3	86.8
6	-14.2	-6.3	56.7	9	-12.2	0.3	233.2	10	26.2	6.1	47.2
9	-15.3	-6.4	17.2	12	-10.9	0.6	193.5	13	26.2	5.9	7.7
12	-16.4	-6.6	337.7	15	-9.7	1.0	153.8	16	26.1	5.7	328.1
15	-17.4	-6.7	298.2	18	-8.4	1.3	114.1	19	25.9	5.5	288.5
18	-18.4	-6.8	258.7	21	-7.0	1.7	74.4	22	25.7	5.3	248.9
21	-19.3	-6.9	219.2	24	-5.7	2.0	34.6	25	25.3	5.0	209.4
24	-20.2	-7.0	179.7	27	-4.4	2.4	354.9	28	25.0	4.7	169.8
27	-21.0	-7.1	140.2	30	-3.0	2.7	315.2	31	24.5	4.4	130.3
Mar 2	-21.8	-7.1	100.7	Lug 3	-1.7	3.0	275.5	Nov 3	24.0	4.1	90.7
5	-22.5	-7.1	61.1	6	-0.3	3.3	235.8	6	23.4	3.8	51.1
8	-23.1	-7.1	21.6	9	1.0	3.6	196.1	9	22.8	3.5	11.6
11	-23.7	-7.1	342.1	12	2.4	3.9	156.4	12	22.1	3.2	332.0
14	-24.2	-7.1	302.5	15	3.7	4.2	116.7	15	21.3	2.8	292.5
17	-24.7	-7.0	263.0	18	5.0	4.5	77.0	18	20.4	2.5	252.9
20	-25.1	-7.0	223.4	21	6.3	4.8	37.3	21	19.5	2.1	213.4
23	-25.4	-6.9	183.9	24	7.6	5.0	357.6	24	18.5	1.8	173.9
26	-25.7	-6.7	144.3	27	8.9	5.3	317.9	27	17.4	1.4	134.3
29	-25.9	-6.6	104.8	30	10.1	5.5	278.3	30	16.3	1.0	94.8
Apr 1	-26.1	-6.5	65.2	Ago 2	11.3	5.7	238.6	Dic 3	15.2	0.7	55.2
4	-26.2	-6.3	25.6	5	12.4	6.0	198.9	6	14.0	0.3	15.7
7	-26.2	-6.1	346.0	8	13.6	6.1	159.2	9	12.7	-0.1	336.2
10	-26.1	-5.9	306.4	11	14.6	6.3	119.6	12	11.4	-0.5	296.7
13	-26.0	-5.7	266.8	14	15.7	6.5	79.9	15	10.1	-0.9	257.1
16	-25.9	-5.5	227.2	17	16.7	6.6	40.3	18	8.7	-1.2	217.6
19	-25.6	-5.2	187.6	20	17.7	6.7	0.6	21	7.3	-1.6	178.1
22	-25.3	-5.0	148.0	23	18.6	6.9	321.0	24	5.9	-2.0	138.6
25	-24.9	-4.7	108.3	26	19.4	6.9	281.3	27	4.4	-2.3	99.1
28	-24.5	-4.4	68.7	29	20.3	7.0	241.7	30	3.0	-2.7	59.5
Mag 1	-24.0	-4.1	29.1	Set 1	21.1	7.1	202.1				

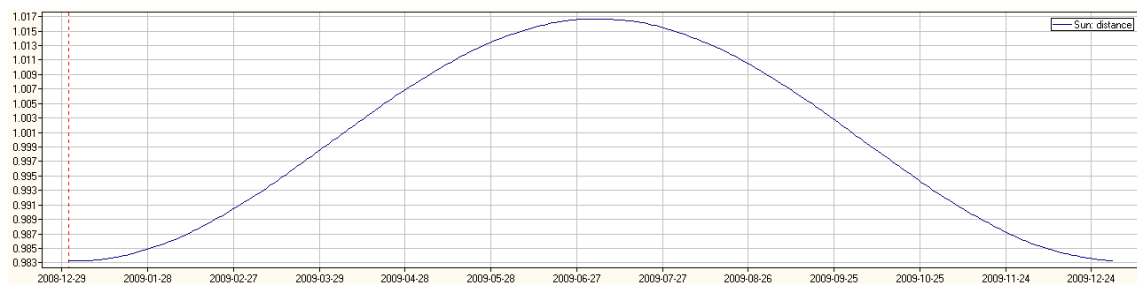
Moto del meridiano centrale

Giorni	0h	3h	6h	9h	12h	15h	18h	21h	24h
0	0.0	1.7	3.3	5.0	6.6	8.3	9.9	11.6	13.2
1	13.2	14.9	16.5	18.2	19.8	21.5	23.1	24.8	26.4
2	26.4	28.1	29.7	31.4	33.0	34.7	36.3	38.0	39.6

Po = Angolo di posizione del polo nord del Sole, in °
 Bo = Latitudine della Terra, riferita all'equatore del Sole, in °
 Lo = Longitudine del meridiano centrale del Sole, in °

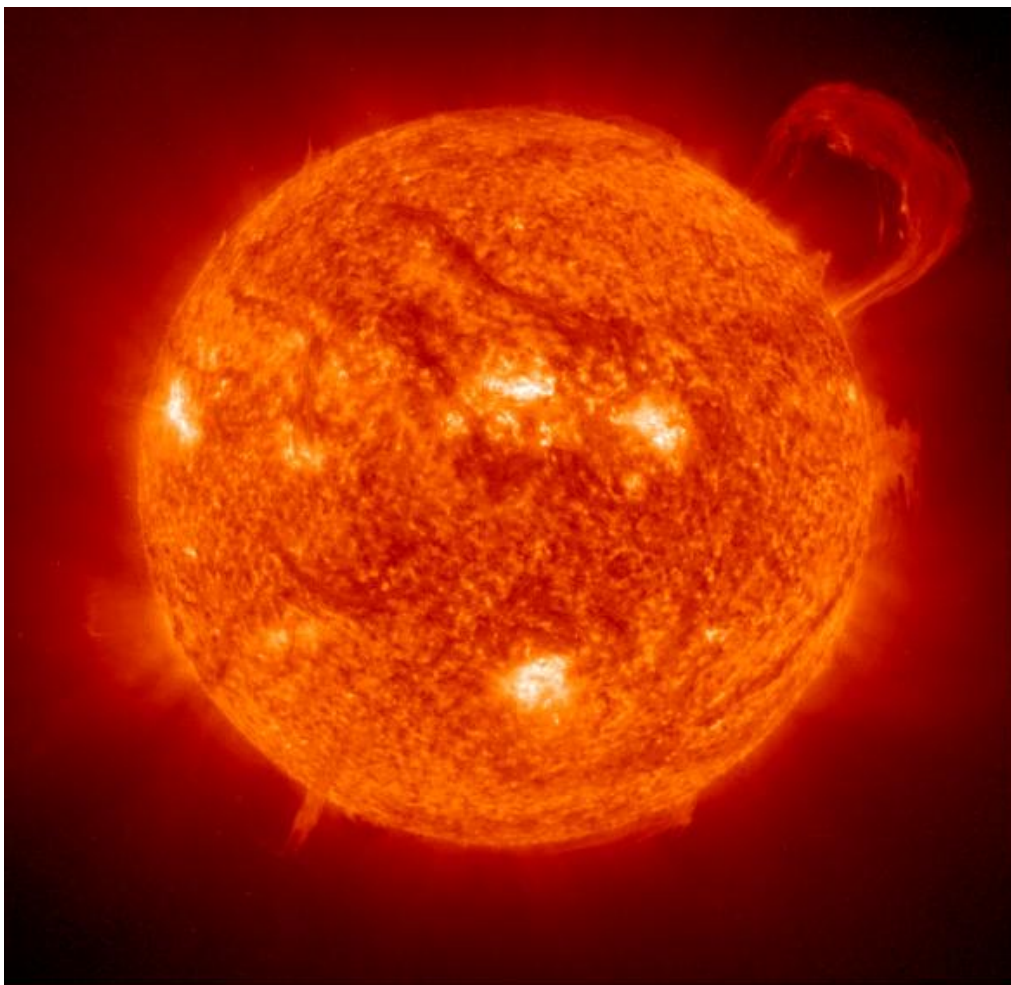


Diametro del Sole in " nel corso dell'anno



Distanza del Sole in U.A. nel corso dell'anno

© (4)



LEVATA E TRAMONTO DEL SOLE

Rispetto al meridiano di Greenwich

Per Roma Longitudine E 12°
 Latitudine N 42°
 Fuso orario UT +1

Data	Transito		TDT		Sorge (Azm)	Trans (Alt)		Tramonta (Azm)	
	TDI	JD	h	m s		h m	°	h m	°
2009 Gen 1	2454833.002544		12	03 39.8	7 40 (121)	12 16	(25)	16 51	(239)
2009 Gen 2	2454834.002869		12	04 07.9	7 40 (121)	12 16	(25)	16 52	(239)
2009 Gen 3	2454835.003190		12	04 35.6	7 40 (121)	12 17	(25)	16 53	(239)
2009 Gen 4	2454836.003506		12	05 02.9	7 40 (120)	12 17	(25)	16 54	(240)
2009 Gen 5	2454837.003817		12	05 29.8	7 40 (120)	12 17	(25)	16 55	(240)
2009 Gen 6	2454838.004122		12	05 56.1	7 40 (120)	12 18	(26)	16 56	(240)
2009 Gen 7	2454839.004422		12	06 22.0	7 40 (120)	12 18	(26)	16 57	(240)
2009 Gen 8	2454840.004715		12	06 47.4	7 40 (120)	12 19	(26)	16 58	(240)
2009 Gen 9	2454841.005003		12	07 12.2	7 40 (120)	12 19	(26)	16 59	(241)
2009 Gen 10	2454842.005283		12	07 36.5	7 39 (119)	12 20	(26)	17 00	(241)
2009 Gen 11	2454843.005558		12	08 00.2	7 39 (119)	12 20	(26)	17 01	(241)
2009 Gen 12	2454844.005825		12	08 23.3	7 39 (119)	12 20	(26)	17 02	(241)
2009 Gen 13	2454845.006085		12	08 45.7	7 38 (119)	12 21	(27)	17 03	(241)
2009 Gen 14	2454846.006338		12	09 07.6	7 38 (118)	12 21	(27)	17 05	(242)
2009 Gen 15	2454847.006583		12	09 28.8	7 38 (118)	12 21	(27)	17 06	(242)
2009 Gen 16	2454848.006821		12	09 49.3	7 37 (118)	12 22	(27)	17 07	(242)
2009 Gen 17	2454849.007051		12	10 09.2	7 37 (118)	12 22	(27)	17 08	(243)
2009 Gen 18	2454850.007273		12	10 28.4	7 36 (117)	12 22	(28)	17 09	(243)
2009 Gen 19	2454851.007487		12	10 46.9	7 35 (117)	12 23	(28)	17 10	(243)
2009 Gen 20	2454852.007692		12	11 04.6	7 35 (117)	12 23	(28)	17 12	(243)
2009 Gen 21	2454853.007889		12	11 21.6	7 34 (116)	12 23	(28)	17 13	(244)
2009 Gen 22	2454854.008077		12	11 37.9	7 33 (116)	12 24	(28)	17 14	(244)
2009 Gen 23	2454855.008256		12	11 53.4	7 33 (116)	12 24	(29)	17 15	(244)
2009 Gen 24	2454856.008427		12	12 08.1	7 32 (115)	12 24	(29)	17 17	(245)
2009 Gen 25	2454857.008588		12	12 22.0	7 31 (115)	12 24	(29)	17 18	(245)
2009 Gen 26	2454858.008740		12	12 35.1	7 30 (115)	12 25	(29)	17 19	(245)
2009 Gen 27	2454859.008883		12	12 47.5	7 30 (114)	12 25	(30)	17 20	(246)
2009 Gen 28	2454860.009016		12	12 59.0	7 29 (114)	12 25	(30)	17 22	(246)
2009 Gen 29	2454861.009140		12	13 09.7	7 28 (114)	12 25	(30)	17 23	(247)
2009 Gen 30	2454862.009254		12	13 19.5	7 27 (113)	12 25	(30)	17 24	(247)
2009 Gen 31	2454863.009359		12	13 28.6	7 26 (113)	12 25	(31)	17 26	(247)
2009 Feb 1	2454864.009454		12	13 36.8	7 25 (112)	12 26	(31)	17 27	(248)
2009 Feb 2	2454865.009539		12	13 44.1	7 24 (112)	12 26	(31)	17 28	(248)
2009 Feb 3	2454866.009614		12	13 50.7	7 23 (112)	12 26	(32)	17 29	(249)
2009 Feb 4	2454867.009680		12	13 56.4	7 22 (111)	12 26	(32)	17 31	(249)
2009 Feb 5	2454868.009737		12	14 01.2	7 20 (111)	12 26	(32)	17 32	(249)
2009 Feb 6	2454869.009783		12	14 05.3	7 19 (110)	12 26	(33)	17 33	(250)
2009 Feb 7	2454870.009821		12	14 08.5	7 18 (110)	12 26	(33)	17 35	(250)
2009 Feb 8	2454871.009849		12	14 10.9	7 17 (109)	12 26	(33)	17 36	(251)
2009 Feb 9	2454872.009868		12	14 12.6	7 16 (109)	12 26	(33)	17 37	(251)
2009 Feb 10	2454873.009878		12	14 13.4	7 15 (109)	12 26	(34)	17 38	(252)
2009 Feb 11	2454874.009879		12	14 13.5	7 13 (108)	12 26	(34)	17 40	(252)
2009 Feb 12	2454875.009871		12	14 12.8	7 12 (108)	12 26	(34)	17 41	(252)
2009 Feb 13	2454876.009855		12	14 11.4	7 11 (107)	12 26	(35)	17 42	(253)
2009 Feb 14	2454877.009830		12	14 09.3	7 09 (107)	12 26	(35)	17 44	(253)
2009 Feb 15	2454878.009797		12	14 06.4	7 08 (106)	12 26	(35)	17 45	(254)
2009 Feb 16	2454879.009756		12	14 02.9	7 07 (106)	12 26	(36)	17 46	(254)
2009 Feb 17	2454880.009707		12	13 58.6	7 05 (105)	12 26	(36)	17 47	(255)
2009 Feb 18	2454881.009650		12	13 53.7	7 04 (105)	12 26	(37)	17 49	(255)
2009 Feb 19	2454882.009585		12	13 48.1	7 02 (104)	12 26	(37)	17 50	(256)
2009 Feb 20	2454883.009513		12	13 41.9	7 01 (104)	12 26	(37)	17 51	(256)
2009 Feb 21	2454884.009433		12	13 35.0	6 59 (103)	12 26	(38)	17 52	(257)
2009 Feb 22	2454885.009346		12	13 27.5	6 58 (103)	12 25	(38)	17 54	(257)
2009 Feb 23	2454886.009253		12	13 19.4	6 56 (102)	12 25	(38)	17 55	(258)
2009 Feb 24	2454887.009152		12	13 10.7	6 55 (102)	12 25	(39)	17 56	(258)
2009 Feb 25	2454888.009044		12	13 01.4	6 53 (101)	12 25	(39)	17 57	(259)
2009 Feb 26	2454889.008930		12	12 51.6	6 52 (101)	12 25	(39)	17 59	(259)
2009 Feb 27	2454890.008809		12	12 41.1	6 50 (100)	12 25	(40)	18 00	(260)
2009 Feb 28	2454891.008683		12	12 30.2	6 49 (100)	12 25	(40)	18 01	(260)
2009 Mar 1	2454892.008549		12	12 18.7	6 47 (99)	12 24	(41)	18 02	(261)
2009 Mar 2	2454893.008410		12	12 06.7	6 46 (99)	12 24	(41)	18 03	(261)
2009 Mar 3	2454894.008266		12	11 54.1	6 44 (98)	12 24	(41)	18 05	(262)
2009 Mar 4	2454895.008115		12	11 41.1	6 42 (98)	12 24	(42)	18 06	(262)
2009 Mar 5	2454896.007959		12	11 27.7	6 41 (97)	12 23	(42)	18 07	(263)
2009 Mar 6	2454897.007798		12	11 13.8	6 39 (97)	12 23	(42)	18 08	(263)
2009 Mar 7	2454898.007633		12	10 59.5	6 37 (96)	12 23	(43)	18 09	(264)
2009 Mar 8	2454899.007462		12	10 44.8	6 36 (96)	12 23	(43)	18 10	(265)
2009 Mar 9	2454900.007288		12	10 29.7	6 34 (95)	12 23	(44)	18 12	(265)
2009 Mar 10	2454901.007109		12	10 14.2	6 32 (95)	12 22	(44)	18 13	(266)
2009 Mar 11	2454902.006926		12	09 58.4	6 31 (94)	12 22	(44)	18 14	(266)
2009 Mar 12	2454903.006740		12	09 42.4	6 29 (94)	12 22	(45)	18 15	(267)
2009 Mar 13	2454904.006551		12	09 26.0	6 27 (93)	12 21	(45)	18 16	(267)
2009 Mar 14	2454905.006358		12	09 09.4	6 26 (93)	12 21	(46)	18 17	(268)

Data	TDT JD		TDT			Sorge (Azm)		Trans (Alt)		Tramonta (Azm)	
			h	m	s	h	m	h	m	h	m
2009 Mar 15	2454906.006163		12	08	52.5	6	24 (92)	12	21 (46)	18	19 (268)
2009 Mar 16	2454907.005966		12	08	35.4	6	22 (92)	12	21 (46)	18	20 (269)
2009 Mar 17	2454908.005766		12	08	18.2	6	21 (91)	12	20 (47)	18	21 (269)
2009 Mar 18	2454909.005564		12	08	00.7	6	19 (90)	12	20 (47)	18	22 (270)
2009 Mar 19	2454910.005361		12	07	43.2	6	17 (90)	12	20 (48)	18	23 (270)
2009 Mar 20	2454911.005156		12	07	25.5	6	15 (89)	12	19 (48)	18	24 (271)
2009 Mar 21	2454912.004950		12	07	07.7	6	14 (89)	12	19 (48)	18	25 (271)
2009 Mar 22	2454913.004743		12	06	49.8	6	12 (88)	12	19 (49)	18	26 (272)
2009 Mar 23	2454914.004535		12	06	31.8	6	10 (88)	12	19 (49)	18	28 (272)
2009 Mar 24	2454915.004326		12	06	13.8	6	09 (87)	12	18 (50)	18	29 (273)
2009 Mar 25	2454916.004117		12	05	55.7	6	07 (87)	12	18 (50)	18	30 (274)
2009 Mar 26	2454917.003908		12	05	37.7	6	05 (86)	12	18 (50)	18	31 (274)
2009 Mar 27	2454918.003699		12	05	19.6	6	03 (86)	12	17 (51)	18	32 (275)
2009 Mar 28	2454919.003490		12	05	01.5	6	02 (85)	12	17 (51)	18	33 (275)
2009 Mar 29	2454920.003281		12	04	43.5	6	00 (85)	12	17 (52)	18	34 (276)
2009 Mar 30	2454921.003073		12	04	25.5	5	58 (84)	12	16 (52)	18	35 (276)
2009 Mar 31	2454922.002866		12	04	07.6	5	57 (84)	12	16 (52)	18	36 (277)
2009 Apr 1	2454923.002660		12	03	49.8	5	55 (83)	12	16 (53)	18	38 (277)
2009 Apr 2	2454924.002454		12	03	32.1	5	53 (83)	12	16 (53)	18	39 (278)
2009 Apr 3	2454925.002250		12	03	14.4	5	51 (82)	12	15 (53)	18	40 (278)
2009 Apr 4	2454926.002048		12	02	57.0	5	50 (82)	12	15 (54)	18	41 (279)
2009 Apr 5	2454927.001848		12	02	39.6	5	48 (81)	12	15 (54)	18	42 (279)
2009 Apr 6	2454928.001649		12	02	22.5	5	46 (80)	12	14 (55)	18	43 (280)
2009 Apr 7	2454929.001453		12	02	05.5	5	45 (80)	12	14 (55)	18	44 (280)
2009 Apr 8	2454930.001259		12	01	48.8	5	43 (79)	12	14 (55)	18	45 (281)
2009 Apr 9	2454931.001068		12	01	32.3	5	41 (79)	12	14 (56)	18	46 (281)
2009 Apr 10	2454932.000880		12	01	16.1	5	40 (78)	12	13 (56)	18	48 (282)
2009 Apr 11	2454933.000696		12	01	00.1	5	38 (78)	12	13 (56)	18	49 (282)
2009 Apr 12	2454934.000515		12	00	44.5	5	36 (77)	12	13 (57)	18	50 (283)
2009 Apr 13	2454935.000337		12	00	29.1	5	35 (77)	12	12 (57)	18	51 (283)
2009 Apr 14	2454936.000164		12	00	14.1	5	33 (76)	12	12 (58)	18	52 (284)
2009 Apr 15	2454936.999994		11	59	59.5	5	32 (76)	12	12 (58)	18	53 (284)
2009 Apr 16	2454937.999829		11	59	45.2	5	30 (75)	12	12 (58)	18	54 (285)
2009 Apr 17	2454938.999668		11	59	31.3	5	29 (75)	12	12 (59)	18	55 (285)
2009 Apr 18	2454939.999512		11	59	17.9	5	27 (75)	12	11 (59)	18	56 (286)
2009 Apr 19	2454940.999361		11	59	04.8	5	25 (74)	12	11 (59)	18	58 (286)
2009 Apr 20	2454941.999215		11	58	52.2	5	24 (74)	12	11 (60)	18	59 (287)
2009 Apr 21	2454942.999074		11	58	40.0	5	22 (73)	12	11 (60)	19	00 (287)
2009 Apr 22	2454943.998939		11	58	28.3	5	21 (73)	12	10 (60)	19	01 (288)
2009 Apr 23	2454944.998808		11	58	17.0	5	19 (72)	12	10 (61)	19	02 (288)
2009 Apr 24	2454945.998684		11	58	06.3	5	18 (72)	12	10 (61)	19	03 (289)
2009 Apr 25	2454946.998564		11	57	56.0	5	16 (71)	12	10 (61)	19	04 (289)
2009 Apr 26	2454947.998451		11	57	46.2	5	15 (71)	12	10 (62)	19	05 (289)
2009 Apr 27	2454948.998343		11	57	36.8	5	14 (70)	12	10 (62)	19	06 (290)
2009 Apr 28	2454949.998241		11	57	28.0	5	12 (70)	12	09 (62)	19	07 (290)
2009 Apr 29	2454950.998144		11	57	19.7	5	11 (70)	12	09 (63)	19	09 (291)
2009 Apr 30	2454951.998054		11	57	11.9	5	09 (69)	12	09 (63)	19	10 (291)
2009 Mag 1	2454952.997969		11	57	04.6	5	08 (69)	12	09 (63)	19	11 (292)
2009 Mag 2	2454953.997891		11	56	57.8	5	07 (68)	12	09 (63)	19	12 (292)
2009 Mag 3	2454954.997818		11	56	51.5	5	05 (68)	12	09 (64)	19	13 (292)
2009 Mag 4	2454955.997752		11	56	45.8	5	04 (67)	12	09 (64)	19	14 (293)
2009 Mag 5	2454956.997692		11	56	40.6	5	03 (67)	12	09 (64)	19	15 (293)
2009 Mag 6	2454957.997638		11	56	36.0	5	02 (67)	12	09 (65)	19	16 (294)
2009 Mag 7	2454958.997591		11	56	31.9	5	00 (66)	12	09 (65)	19	17 (294)
2009 Mag 8	2454959.997550		11	56	28.4	4	59 (66)	12	08 (65)	19	18 (294)
2009 Mag 9	2454960.997516		11	56	25.4	4	58 (65)	12	08 (65)	19	19 (295)
2009 Mag 10	2454961.997489		11	56	23.0	4	57 (65)	12	08 (66)	19	20 (295)
2009 Mag 11	2454962.997467		11	56	21.2	4	56 (65)	12	08 (66)	19	22 (295)
2009 Mag 12	2454963.997453		11	56	20.0	4	55 (64)	12	08 (66)	19	23 (296)
2009 Mag 13	2454964.997446		11	56	19.3	4	54 (64)	12	08 (66)	19	24 (296)
2009 Mag 14	2454965.997445		11	56	19.3	4	53 (64)	12	08 (67)	19	25 (297)
2009 Mag 15	2454966.997451		11	56	19.8	4	52 (63)	12	08 (67)	19	26 (297)
2009 Mag 16	2454967.997464		11	56	20.9	4	51 (63)	12	08 (67)	19	27 (297)
2009 Mag 17	2454968.997483		11	56	22.6	4	50 (63)	12	08 (67)	19	28 (298)
2009 Mag 18	2454969.997510		11	56	24.8	4	49 (62)	12	08 (68)	19	29 (298)
2009 Mag 19	2454970.997542		11	56	27.7	4	48 (62)	12	08 (68)	19	30 (298)
2009 Mag 20	2454971.997582		11	56	31.0	4	47 (62)	12	09 (68)	19	31 (298)
2009 Mag 21	2454972.997627		11	56	35.0	4	46 (61)	12	09 (68)	19	32 (299)
2009 Mag 22	2454973.997679		11	56	39.5	4	45 (61)	12	09 (68)	19	33 (299)
2009 Mag 23	2454974.997737		11	56	44.5	4	45 (61)	12	09 (69)	19	33 (299)
2009 Mag 24	2454975.997801		11	56	50.0	4	44 (61)	12	09 (69)	19	34 (300)
2009 Mag 25	2454976.997871		11	56	56.1	4	43 (60)	12	09 (69)	19	35 (300)
2009 Mag 26	2454977.997947		11	57	02.6	4	42 (60)	12	09 (69)	19	36 (300)
2009 Mag 27	2454978.998028		11	57	09.6	4	42 (60)	12	09 (69)	19	37 (300)
2009 Mag 28	2454979.998114		11	57	17.1	4	41 (60)	12	09 (70)	19	38 (301)
2009 Mag 29	2454980.998205		11	57	24.9	4	41 (59)	12	09 (70)	19	39 (301)
2009 Mag 30	2454981.998301		11	57	33.2	4	40 (59)	12	10 (70)	19	40 (301)
2009 Mag 31	2454982.998402		11	57	41.9	4	39 (59)	12	10 (70)	19	40 (301)
2009 Giu 1	2454983.998507		11	57	51.0	4	39 (59)	12	10 (70)	19	41 (301)
2009 Giu 2	2454984.998616		11	58	00.4	4	39 (59)	12	10 (70)	19	42 (302)
2009 Giu 3	2454985.998730		11	58	10.3	4	38 (58)	12	10 (70)	19	43 (302)
2009 Giu 4	2454986.998847		11	58	20.4	4	38 (58)	12	10 (70)	19	43 (302)

Data	TDT JD		TDT			Sorge (Azm)		Trans (Alt)		Tramonta (Azm)	
			h	m	s	h	m	h	m	h	m
2009 Giu 5	2454987.998968		11	58	30.9	4	37 (58)	12	11 (71)	19	44 (302)
2009 Giu 6	2454988.999093		11	58	41.7	4	37 (58)	12	11 (71)	19	45 (302)
2009 Giu 7	2454989.999221		11	58	52.7	4	37 (58)	12	11 (71)	19	45 (302)
2009 Giu 8	2454990.999353		11	59	04.1	4	37 (58)	12	11 (71)	19	46 (302)
2009 Giu 9	2454991.999487		11	59	15.7	4	36 (57)	12	11 (71)	19	46 (303)
2009 Giu 10	2454992.999624		11	59	27.6	4	36 (57)	12	11 (71)	19	47 (303)
2009 Giu 11	2454993.999764		11	59	39.6	4	36 (57)	12	12 (71)	19	47 (303)
2009 Giu 12	2454994.999907		11	59	51.9	4	36 (57)	12	12 (71)	19	48 (303)
2009 Giu 13	2454996.000051		12	00	04.4	4	36 (57)	12	12 (71)	19	48 (303)
2009 Giu 14	2454997.000197		12	00	17.0	4	36 (57)	12	12 (71)	19	49 (303)
2009 Giu 15	2454998.000345		12	00	29.8	4	36 (57)	12	12 (71)	19	49 (303)
2009 Giu 16	2454999.000495		12	00	42.7	4	36 (57)	12	13 (71)	19	50 (303)
2009 Giu 17	2455000.000645		12	00	55.8	4	36 (57)	12	13 (71)	19	50 (303)
2009 Giu 18	2455001.000797		12	01	08.9	4	36 (57)	12	13 (71)	19	50 (303)
2009 Giu 19	2455002.000949		12	01	22.0	4	36 (57)	12	13 (71)	19	51 (303)
2009 Giu 20	2455003.001101		12	01	35.2	4	36 (57)	12	14 (71)	19	51 (303)
2009 Giu 21	2455004.001254		12	01	48.3	4	37 (57)	12	14 (71)	19	51 (303)
2009 Giu 22	2455005.001406		12	02	01.5	4	37 (57)	12	14 (71)	19	51 (303)
2009 Giu 23	2455006.001557		12	02	14.5	4	37 (57)	12	14 (71)	19	51 (303)
2009 Giu 24	2455007.001708		12	02	27.5	4	37 (57)	12	14 (71)	19	52 (303)
2009 Giu 25	2455008.001857		12	02	40.4	4	38 (57)	12	15 (71)	19	52 (303)
2009 Giu 26	2455009.002004		12	02	53.1	4	38 (57)	12	15 (71)	19	52 (303)
2009 Giu 27	2455010.002149		12	03	05.7	4	38 (57)	12	15 (71)	19	52 (303)
2009 Giu 28	2455011.002292		12	03	18.0	4	39 (57)	12	15 (71)	19	52 (303)
2009 Giu 29	2455012.002432		12	03	30.1	4	39 (57)	12	15 (71)	19	52 (303)
2009 Giu 30	2455013.002570		12	03	42.0	4	40 (57)	12	16 (71)	19	51 (303)
2009 Lug 1	2455014.002704		12	03	53.6	4	40 (57)	12	16 (71)	19	51 (303)
2009 Lug 2	2455015.002835		12	04	05.0	4	41 (57)	12	16 (71)	19	51 (303)
2009 Lug 3	2455016.002963		12	04	16.0	4	41 (57)	12	16 (71)	19	51 (302)
2009 Lug 4	2455017.003087		12	04	26.7	4	42 (58)	12	16 (71)	19	51 (302)
2009 Lug 5	2455018.003207		12	04	37.1	4	42 (58)	12	17 (71)	19	50 (302)
2009 Lug 6	2455019.003323		12	04	47.1	4	43 (58)	12	17 (71)	19	50 (302)
2009 Lug 7	2455020.003435		12	04	56.7	4	44 (58)	12	17 (71)	19	50 (302)
2009 Lug 8	2455021.003542		12	05	06.0	4	44 (58)	12	17 (70)	19	49 (302)
2009 Lug 9	2455022.003644		12	05	14.9	4	45 (58)	12	17 (70)	19	49 (302)
2009 Lug 10	2455023.003742		12	05	23.3	4	46 (59)	12	17 (70)	19	49 (301)
2009 Lug 11	2455024.003835		12	05	31.3	4	47 (59)	12	18 (70)	19	48 (301)
2009 Lug 12	2455025.003923		12	05	38.9	4	47 (59)	12	18 (70)	19	48 (301)
2009 Lug 13	2455026.004005		12	05	46.1	4	48 (59)	12	18 (70)	19	47 (301)
2009 Lug 14	2455027.004082		12	05	52.7	4	49 (59)	12	18 (70)	19	46 (301)
2009 Lug 15	2455028.004154		12	05	58.9	4	50 (60)	12	18 (69)	19	46 (300)
2009 Lug 16	2455029.004220		12	06	04.6	4	50 (60)	12	18 (69)	19	45 (300)
2009 Lug 17	2455030.004280		12	06	09.8	4	51 (60)	12	18 (69)	19	45 (300)
2009 Lug 18	2455031.004335		12	06	14.5	4	52 (60)	12	18 (69)	19	44 (300)
2009 Lug 19	2455032.004383		12	06	18.7	4	53 (61)	12	18 (69)	19	43 (299)
2009 Lug 20	2455033.004425		12	06	22.3	4	54 (61)	12	18 (69)	19	42 (299)
2009 Lug 21	2455034.004460		12	06	25.4	4	55 (61)	12	18 (68)	19	41 (299)
2009 Lug 22	2455035.004489		12	06	27.9	4	56 (61)	12	18 (68)	19	41 (298)
2009 Lug 23	2455036.004511		12	06	29.8	4	57 (62)	12	18 (68)	19	40 (298)
2009 Lug 24	2455037.004527		12	06	31.1	4	58 (62)	12	19 (68)	19	39 (298)
2009 Lug 25	2455038.004535		12	06	31.8	4	59 (62)	12	19 (68)	19	38 (298)
2009 Lug 26	2455039.004536		12	06	31.9	5	00 (63)	12	19 (67)	19	37 (297)
2009 Lug 27	2455040.004531		12	06	31.4	5	00 (63)	12	19 (67)	19	36 (297)
2009 Lug 28	2455041.004518		12	06	30.3	5	01 (63)	12	19 (67)	19	35 (297)
2009 Lug 29	2455042.004497		12	06	28.6	5	02 (64)	12	18 (67)	19	34 (296)
2009 Lug 30	2455043.004470		12	06	26.2	5	03 (64)	12	18 (66)	19	33 (296)
2009 Lug 31	2455044.004435		12	06	23.2	5	04 (64)	12	18 (66)	19	32 (296)
2009 Ago 1	2455045.004393		12	06	19.6	5	05 (65)	12	18 (66)	19	31 (295)
2009 Ago 2	2455046.004344		12	06	15.3	5	06 (65)	12	18 (66)	19	29 (295)
2009 Ago 3	2455047.004288		12	06	10.5	5	07 (65)	12	18 (65)	19	28 (294)
2009 Ago 4	2455048.004224		12	06	05.0	5	08 (66)	12	18 (65)	19	27 (294)
2009 Ago 5	2455049.004154		12	05	58.9	5	09 (66)	12	18 (65)	19	26 (294)
2009 Ago 6	2455050.004077		12	05	52.3	5	11 (66)	12	18 (65)	19	25 (293)
2009 Ago 7	2455051.003993		12	05	45.0	5	12 (67)	12	18 (64)	19	23 (293)
2009 Ago 8	2455052.003902		12	05	37.1	5	13 (67)	12	18 (64)	19	22 (292)
2009 Ago 9	2455053.003805		12	05	28.7	5	14 (68)	12	17 (64)	19	21 (292)
2009 Ago 10	2455054.003701		12	05	19.7	5	15 (68)	12	17 (63)	19	19 (292)
2009 Ago 11	2455055.003590		12	05	10.2	5	16 (68)	12	17 (63)	19	18 (291)
2009 Ago 12	2455056.003473		12	05	00.1	5	17 (69)	12	17 (63)	19	17 (291)
2009 Ago 13	2455057.003350		12	04	49.4	5	18 (69)	12	17 (63)	19	15 (290)
2009 Ago 14	2455058.003221		12	04	38.3	5	19 (70)	12	17 (62)	19	14 (290)
2009 Ago 15	2455059.003086		12	04	26.6	5	20 (70)	12	16 (62)	19	12 (290)
2009 Ago 16	2455060.002944		12	04	14.4	5	21 (71)	12	16 (62)	19	11 (289)
2009 Ago 17	2455061.002798		12	04	01.7	5	22 (71)	12	16 (61)	19	09 (289)
2009 Ago 18	2455062.002645		12	03	48.5	5	23 (72)	12	16 (61)	19	08 (288)
2009 Ago 19	2455063.002487		12	03	34.9	5	24 (72)	12	16 (61)	19	06 (288)
2009 Ago 20	2455064.002323		12	03	20.7	5	25 (72)	12	15 (60)	19	05 (287)
2009 Ago 21	2455065.002154		12	03	06.1	5	26 (73)	12	15 (60)	19	03 (287)
2009 Ago 22	2455066.001979		12	02	51.0	5	27 (73)	12	15 (60)	19	02 (286)
2009 Ago 23	2455067.001800		12	02	35.5	5	28 (74)	12	15 (59)	19	00 (286)
2009 Ago 24	2455068.001614		12	02	19.5	5	29 (74)	12	14 (59)	18	59 (285)
2009 Ago 25	2455069.001425		12	02	03.1	5	30 (75)	12	14 (59)	18	57 (285)

Data	TDT JD		TDT			Sorge		(Azm)	Trans		(Alt)	Tramonta		(Azm)
			h	m	s	h	m	°	h	m	°	h	m	°
2009 Ago 26	2455070.001230		12	01	46.2	5	31	(75)	12	14	(58)	18	56	(285)
2009 Ago 27	2455071.001030		12	01	29.0	5	32	(76)	12	13	(58)	18	54	(284)
2009 Ago 28	2455072.000826		12	01	11.4	5	33	(76)	12	13	(58)	18	52	(284)
2009 Ago 29	2455073.000618		12	00	53.4	5	34	(77)	12	13	(57)	18	51	(283)
2009 Ago 30	2455074.000405		12	00	35.0	5	35	(77)	12	13	(57)	18	49	(283)
2009 Ago 31	2455075.000189		12	00	16.3	5	37	(78)	12	12	(56)	18	47	(282)
2009 Set 1	2455075.999969		11	59	57.3	5	38	(78)	12	12	(56)	18	46	(282)
2009 Set 2	2455076.999745		11	59	38.0	5	39	(79)	12	12	(56)	18	44	(281)
2009 Set 3	2455077.999519		11	59	18.4	5	40	(79)	12	11	(55)	18	42	(281)
2009 Set 4	2455078.999289		11	58	58.6	5	41	(80)	12	11	(55)	18	41	(280)
2009 Set 5	2455079.999056		11	58	38.5	5	42	(80)	12	11	(55)	18	39	(280)
2009 Set 6	2455080.998821		11	58	18.1	5	43	(81)	12	10	(54)	18	37	(279)
2009 Set 7	2455081.998584		11	57	57.6	5	44	(81)	12	10	(54)	18	35	(279)
2009 Set 8	2455082.998344		11	57	36.9	5	45	(82)	12	10	(54)	18	34	(278)
2009 Set 9	2455083.998103		11	57	16.1	5	46	(82)	12	09	(53)	18	32	(278)
2009 Set 10	2455084.997860		11	56	55.1	5	47	(83)	12	09	(53)	18	30	(277)
2009 Set 11	2455085.997616		11	56	34.0	5	48	(83)	12	09	(52)	18	29	(277)
2009 Set 12	2455086.997371		11	56	12.9	5	49	(84)	12	08	(52)	18	27	(276)
2009 Set 13	2455087.997125		11	55	51.6	5	50	(84)	12	08	(52)	18	25	(276)
2009 Set 14	2455088.996879		11	55	30.4	5	51	(85)	12	08	(51)	18	23	(275)
2009 Set 15	2455089.996632		11	55	09.0	5	52	(85)	12	07	(51)	18	22	(274)
2009 Set 16	2455090.996385		11	54	47.7	5	53	(86)	12	07	(50)	18	20	(274)
2009 Set 17	2455091.996138		11	54	26.3	5	54	(86)	12	06	(50)	18	18	(273)
2009 Set 18	2455092.995891		11	54	05.0	5	55	(87)	12	06	(50)	18	16	(273)
2009 Set 19	2455093.995645		11	53	43.7	5	56	(87)	12	06	(49)	18	15	(272)
2009 Set 20	2455094.995399		11	53	22.5	5	57	(88)	12	05	(49)	18	13	(272)
2009 Set 21	2455095.995154		11	53	01.3	5	58	(88)	12	05	(49)	18	11	(271)
2009 Set 22	2455096.994910		11	52	40.2	5	59	(89)	12	05	(48)	18	09	(271)
2009 Set 23	2455097.994667		11	52	19.2	6	00	(89)	12	04	(48)	18	08	(270)
2009 Set 24	2455098.994425		11	51	58.3	6	01	(90)	12	04	(47)	18	06	(270)
2009 Set 25	2455099.994185		11	51	37.6	6	03	(90)	12	04	(47)	18	04	(269)
2009 Set 26	2455100.993947		11	51	17.0	6	04	(91)	12	03	(47)	18	02	(269)
2009 Set 27	2455101.993710		11	50	56.6	6	05	(92)	12	03	(46)	18	01	(268)
2009 Set 28	2455102.993477		11	50	36.4	6	06	(92)	12	03	(46)	17	59	(268)
2009 Set 29	2455103.993245		11	50	16.4	6	07	(93)	12	02	(45)	17	57	(267)
2009 Set 30	2455104.993017		11	49	56.6	6	08	(93)	12	02	(45)	17	55	(267)
2009 Ott 1	2455105.992791		11	49	37.2	6	09	(94)	12	02	(45)	17	54	(266)
2009 Ott 2	2455106.992569		11	49	18.0	6	10	(94)	12	01	(44)	17	52	(266)
2009 Ott 3	2455107.992350		11	48	59.1	6	11	(95)	12	01	(44)	17	50	(265)
2009 Ott 4	2455108.992136		11	48	40.5	6	12	(95)	12	01	(44)	17	49	(265)
2009 Ott 5	2455109.991925		11	48	22.3	6	13	(96)	12	00	(43)	17	47	(264)
2009 Ott 6	2455110.991719		11	48	04.5	6	14	(96)	12	00	(43)	17	45	(264)
2009 Ott 7	2455111.991517		11	47	47.1	6	15	(97)	12	00	(42)	17	43	(263)
2009 Ott 8	2455112.991321		11	47	30.1	6	17	(97)	12	00	(42)	17	42	(263)
2009 Ott 9	2455113.991129		11	47	13.5	6	18	(98)	11	59	(42)	17	40	(262)
2009 Ott 10	2455114.990943		11	46	57.5	6	19	(98)	11	59	(41)	17	39	(261)
2009 Ott 11	2455115.990763		11	46	41.9	6	20	(99)	11	59	(41)	17	37	(261)
2009 Ott 12	2455116.990588		11	46	26.8	6	21	(99)	11	58	(40)	17	35	(260)
2009 Ott 13	2455117.990420		11	46	12.3	6	22	(100)	11	58	(40)	17	34	(260)
2009 Ott 14	2455118.990258		11	45	58.3	6	23	(100)	11	58	(40)	17	32	(259)
2009 Ott 15	2455119.990103		11	45	44.9	6	24	(101)	11	58	(39)	17	30	(259)
2009 Ott 16	2455120.989954		11	45	32.0	6	26	(101)	11	58	(39)	17	29	(258)
2009 Ott 17	2455121.989812		11	45	19.8	6	27	(102)	11	57	(39)	17	27	(258)
2009 Ott 18	2455122.989677		11	45	08.1	6	28	(102)	11	57	(38)	17	26	(257)
2009 Ott 19	2455123.989550		11	44	57.1	6	29	(103)	11	57	(38)	17	24	(257)
2009 Ott 20	2455124.989429		11	44	46.7	6	30	(103)	11	57	(38)	17	23	(257)
2009 Ott 21	2455125.989316		11	44	36.9	6	31	(104)	11	57	(37)	17	21	(256)
2009 Ott 22	2455126.989211		11	44	27.8	6	33	(104)	11	56	(37)	17	20	(256)
2009 Ott 23	2455127.989113		11	44	19.3	6	34	(105)	11	56	(36)	17	18	(255)
2009 Ott 24	2455128.989023		11	44	11.6	6	35	(105)	11	56	(36)	17	17	(255)
2009 Ott 25	2455129.988941		11	44	04.5	6	36	(106)	11	56	(36)	17	15	(254)
2009 Ott 26	2455130.988867		11	43	58.1	6	37	(106)	11	56	(35)	17	14	(254)
2009 Ott 27	2455131.988802		11	43	52.5	6	39	(107)	11	56	(35)	17	13	(253)
2009 Ott 28	2455132.988745		11	43	47.6	6	40	(107)	11	56	(35)	17	11	(253)
2009 Ott 29	2455133.988697		11	43	43.4	6	41	(108)	11	56	(34)	17	10	(252)
2009 Ott 30	2455134.988657		11	43	40.0	6	42	(108)	11	56	(34)	17	09	(252)
2009 Ott 31	2455135.988627		11	43	37.3	6	43	(108)	11	56	(34)	17	07	(251)
2009 Nov 1	2455136.988605		11	43	35.5	6	45	(109)	11	56	(33)	17	06	(251)
2009 Nov 2	2455137.988592		11	43	34.4	6	46	(109)	11	56	(33)	17	05	(251)
2009 Nov 3	2455138.988590		11	43	34.1	6	47	(110)	11	56	(33)	17	04	(250)
2009 Nov 4	2455139.988596		11	43	34.7	6	48	(110)	11	56	(33)	17	02	(250)
2009 Nov 5	2455140.988612		11	43	36.1	6	50	(111)	11	56	(32)	17	01	(249)
2009 Nov 6	2455141.988638		11	43	38.3	6	51	(111)	11	56	(32)	17	00	(249)
2009 Nov 7	2455142.988673		11	43	41.4	6	52	(111)	11	56	(32)	16	59	(248)
2009 Nov 8	2455143.988719		11	43	45.3	6	53	(112)	11	56	(31)	16	58	(248)
2009 Nov 9	2455144.988775		11	43	50.1	6	54	(112)	11	56	(31)	16	57	(248)
2009 Nov 10	2455145.988840		11	43	55.8	6	56	(113)	11	56	(31)	16	56	(247)
2009 Nov 11	2455146.988916		11	44	02.3	6	57	(113)	11	56	(30)	16	55	(247)
2009 Nov 12	2455147.989002		11	44	09.8	6	58	(113)	11	56	(30)	16	54	(246)
2009 Nov 13	2455148.989098		11	44	18.0	6	59	(114)	11	56	(30)	16	53	(246)
2009 Nov 14	2455149.989203		11	44	27.2	7	01	(114)	11	56	(30)	16	52	(246)
2009 Nov 15	2455150.989319		11	44	37.2	7	02	(114)	11	57	(29)	16	51	(245)

Data	TDT	JD	TDT			Sorge (Azm)		Trans (Alt)		Tramonta (Azm)	
			h	m	s	h	m	h	m	h	m
2009 Nov 16	2455151.989445		11	44	48.0	7	03 (115)	11	57 (29)	16	50 (245)
2009 Nov 17	2455152.989580		11	44	59.7	7	04 (115)	11	57 (29)	16	49 (245)
2009 Nov 18	2455153.989725		11	45	12.2	7	06 (116)	11	57 (29)	16	48 (244)
2009 Nov 19	2455154.989879		11	45	25.6	7	07 (116)	11	57 (28)	16	48 (244)
2009 Nov 20	2455155.990043		11	45	39.7	7	08 (116)	11	58 (28)	16	47 (244)
2009 Nov 21	2455156.990216		11	45	54.7	7	09 (116)	11	58 (28)	16	46 (243)
2009 Nov 22	2455157.990398		11	46	10.4	7	10 (117)	11	58 (28)	16	46 (243)
2009 Nov 23	2455158.990589		11	46	26.9	7	11 (117)	11	58 (28)	16	45 (243)
2009 Nov 24	2455159.990789		11	46	44.2	7	13 (117)	11	59 (27)	16	44 (243)
2009 Nov 25	2455160.990998		11	47	02.2	7	14 (118)	11	59 (27)	16	44 (242)
2009 Nov 26	2455161.991215		11	47	20.9	7	15 (118)	11	59 (27)	16	43 (242)
2009 Nov 27	2455162.991440		11	47	40.4	7	16 (118)	12	00 (27)	16	43 (242)
2009 Nov 28	2455163.991673		11	48	00.5	7	17 (118)	12	00 (27)	16	43 (241)
2009 Nov 29	2455164.991914		11	48	21.4	7	18 (119)	12	00 (26)	16	42 (241)
2009 Nov 30	2455165.992163		11	48	42.9	7	19 (119)	12	01 (26)	16	42 (241)
2009 Dic 1	2455166.992419		11	49	05.0	7	20 (119)	12	01 (26)	16	41 (241)
2009 Dic 2	2455167.992683		11	49	27.8	7	21 (119)	12	01 (26)	16	41 (241)
2009 Dic 3	2455168.992954		11	49	51.2	7	22 (120)	12	02 (26)	16	41 (240)
2009 Dic 4	2455169.993232		11	50	15.2	7	23 (120)	12	02 (26)	16	41 (240)
2009 Dic 5	2455170.993516		11	50	39.8	7	24 (120)	12	03 (26)	16	41 (240)
2009 Dic 6	2455171.993807		11	51	04.9	7	25 (120)	12	03 (26)	16	41 (240)
2009 Dic 7	2455172.994104		11	51	30.6	7	26 (120)	12	03 (25)	16	40 (240)
2009 Dic 8	2455173.994407		11	51	56.8	7	27 (120)	12	04 (25)	16	40 (239)
2009 Dic 9	2455174.994716		11	52	23.5	7	28 (121)	12	04 (25)	16	40 (239)
2009 Dic 10	2455175.995030		11	52	50.6	7	29 (121)	12	05 (25)	16	40 (239)
2009 Dic 11	2455176.995349		11	53	18.2	7	30 (121)	12	05 (25)	16	41 (239)
2009 Dic 12	2455177.995672		11	53	46.1	7	31 (121)	12	06 (25)	16	41 (239)
2009 Dic 13	2455178.996000		11	54	14.4	7	31 (121)	12	06 (25)	16	41 (239)
2009 Dic 14	2455179.996331		11	54	43.0	7	32 (121)	12	07 (25)	16	41 (239)
2009 Dic 15	2455180.996666		11	55	12.0	7	33 (121)	12	07 (25)	16	41 (239)
2009 Dic 16	2455181.997004		11	55	41.1	7	34 (121)	12	08 (25)	16	42 (239)
2009 Dic 17	2455182.997344		11	56	10.5	7	34 (121)	12	08 (25)	16	42 (239)
2009 Dic 18	2455183.997686		11	56	40.1	7	35 (121)	12	09 (25)	16	42 (239)
2009 Dic 19	2455184.998030		11	57	09.8	7	36 (121)	12	09 (25)	16	43 (239)
2009 Dic 20	2455185.998375		11	57	39.6	7	36 (121)	12	10 (25)	16	43 (239)
2009 Dic 21	2455186.998720		11	58	09.4	7	37 (121)	12	10 (25)	16	44 (239)
2009 Dic 22	2455187.999066		11	58	39.3	7	37 (121)	12	11 (25)	16	44 (239)
2009 Dic 23	2455188.999412		11	59	09.2	7	38 (121)	12	11 (25)	16	45 (239)
2009 Dic 24	2455189.999757		11	59	39.0	7	38 (121)	12	12 (25)	16	45 (239)
2009 Dic 25	2455191.000102		12	00	08.8	7	38 (121)	12	12 (25)	16	46 (239)
2009 Dic 26	2455192.000445		12	00	38.4	7	39 (121)	12	13 (25)	16	47 (239)
2009 Dic 27	2455193.000786		12	01	07.9	7	39 (121)	12	13 (25)	16	47 (239)
2009 Dic 28	2455194.001126		12	01	37.3	7	39 (121)	12	14 (25)	16	48 (239)
2009 Dic 29	2455195.001463		12	02	06.4	7	40 (121)	12	14 (25)	16	49 (239)
2009 Dic 30	2455196.001797		12	02	35.2	7	40 (121)	12	15 (25)	16	49 (239)
2009 Dic 31	2455197.002128		12	03	03.9	7	40 (121)	12	15 (25)	16	50 (239)

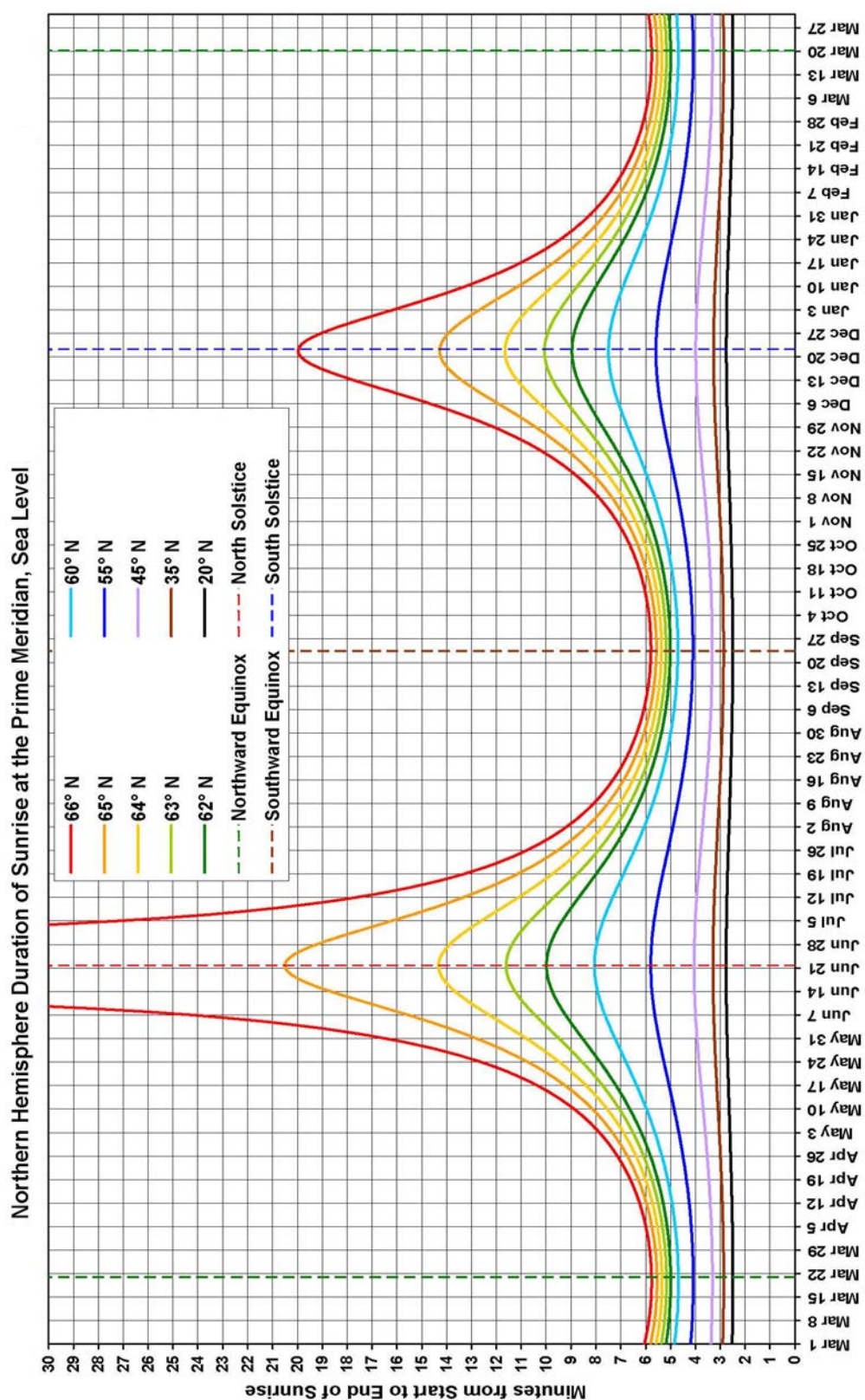
Tempi in T.U.+1, aggiungere un'ora quando si adotta l'ora legale

Legenda:

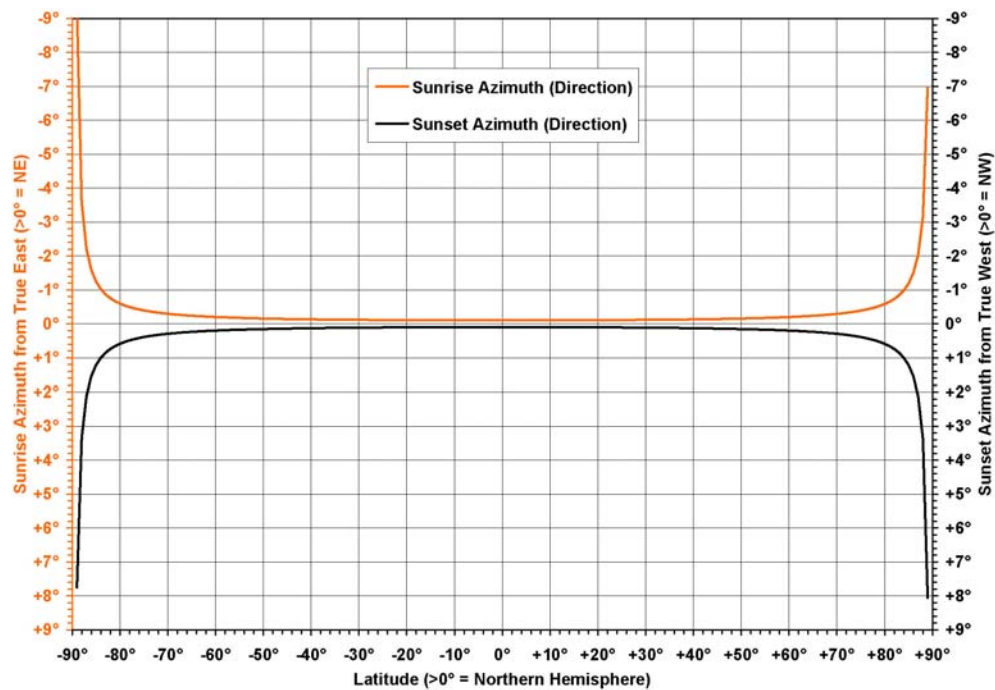
Sorge, transita, tramonta = orari di levata, altezza in gradi durante il transito a sud e tramonto.

Per località differenti da quella calcolata (42°N, 12°E) fare riferimento alla tabella correttiva posta in fondo all'almanacco.

DURATA DELLA LEVATA E DEL TRAMONTO



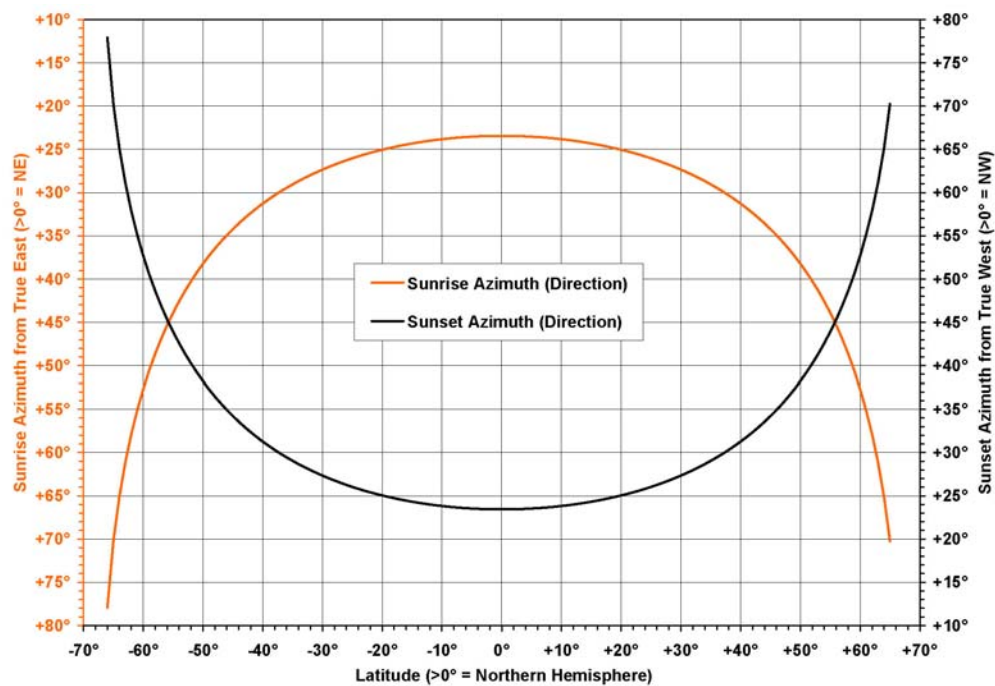
Il grafico mostra quanti minuti impiega il Sole per sorgere o tramontare alle varie latitudini © (2)



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

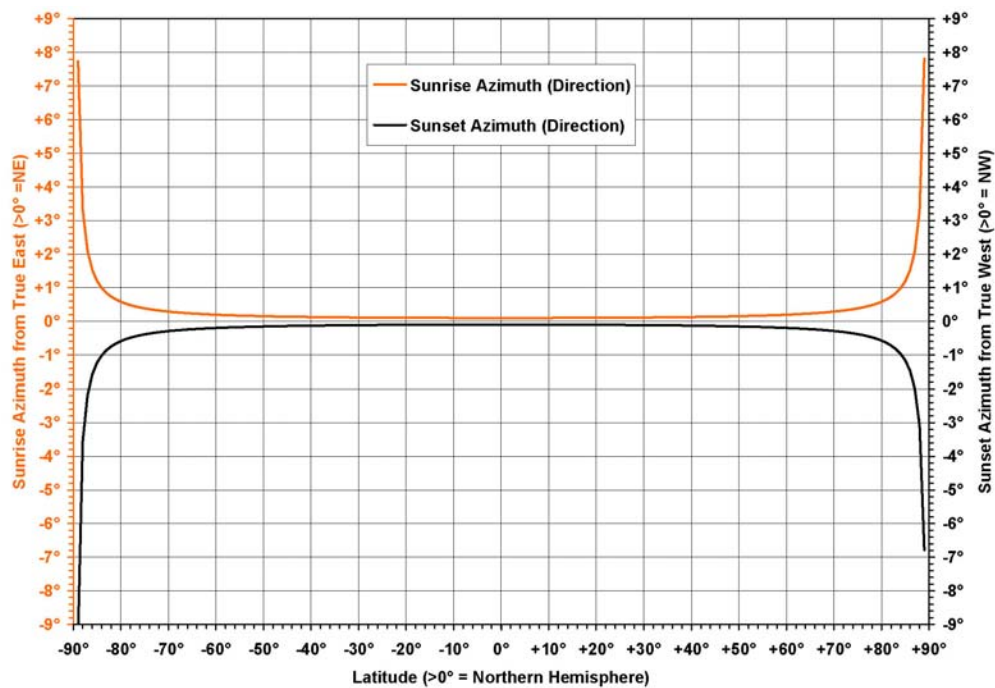
Posizione dell'azimut del Sole all'alba ed al tramonto, all'equinozio di primavera, alle varie latitudini, rispetto all'est ed all'ovest veri



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

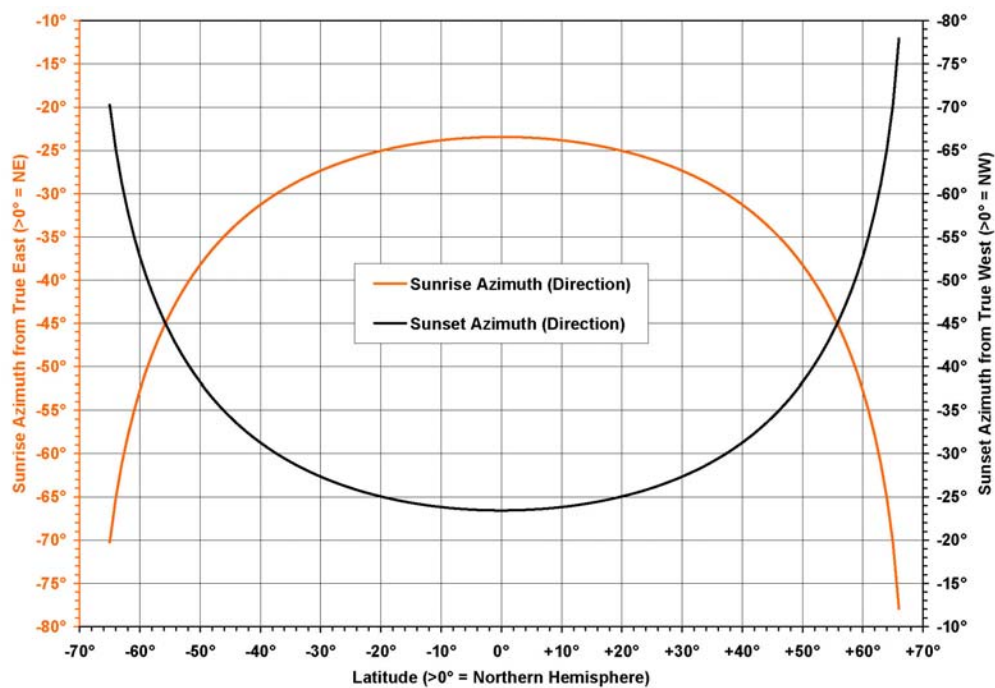
Posizione dell'azimut del Sole all'alba ed al tramonto, al solstizio d'estate, alle varie latitudini, rispetto all'est ed all'ovest veri



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

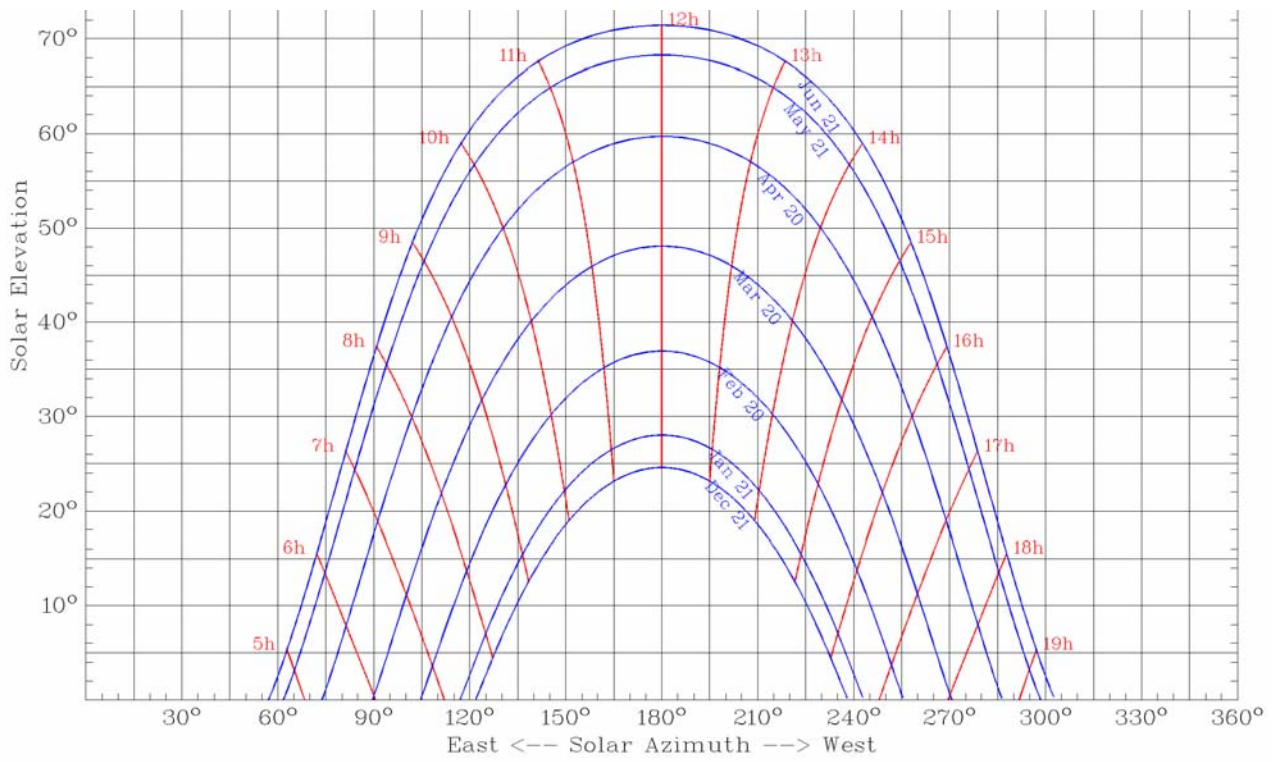
Posizione dell'azimut del Sole all'alba ed al tramonto, all'equinozio d'autunno, alle varie latitudini, rispetto all'est ed all'ovest veri



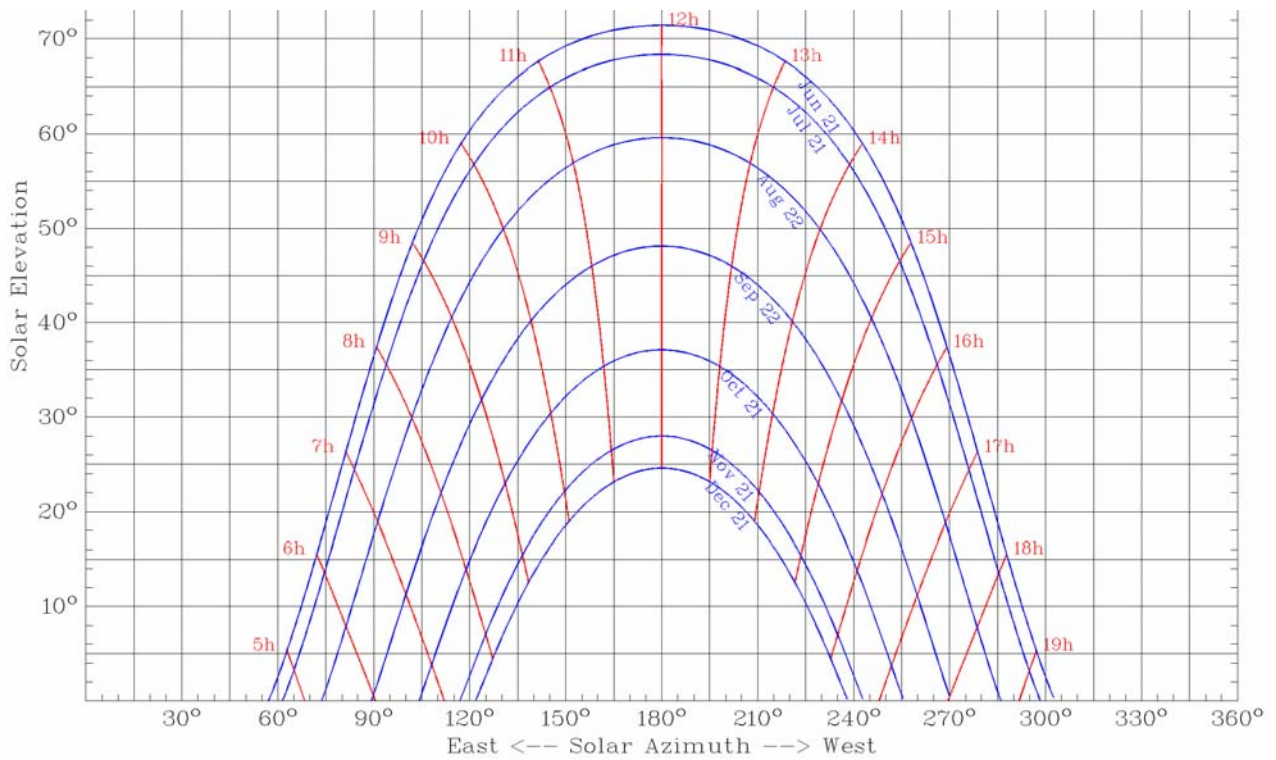
Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

Posizione dell'azimut del Sole all'alba ed al tramonto, al solstizio d'inverno, alle varie latitudini, rispetto all'est ed all'ovest veri



Altezza sull'orizzonte ed azimut del Sole per ogni mese ed ora, periodo gennaio-giugno
Calcolato per Roma



Altezza sull'orizzonte ed azimut del Sole per ogni mese ed ora, periodo luglio-dicembre
Calcolato per Roma

CREPUSCOLI

Longitudine:E 12

Latitudine:N 42

Time Zone: UT +1

Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
	h m	h m	h m	h m	h m	h m
2009 Gen 1	7 09	17 23	6 33	17 58	6 00	18 32
2009 Gen 2	7 09	17 24	6 34	17 59	6 00	18 33
2009 Gen 3	7 09	17 25	6 34	18 00	6 00	18 33
2009 Gen 4	7 09	17 25	6 34	18 00	6 00	18 34
2009 Gen 5	7 09	17 26	6 34	18 01	6 00	18 35
2009 Gen 6	7 09	17 27	6 34	18 02	6 00	18 36
2009 Gen 7	7 09	17 28	6 34	18 03	6 00	18 37
2009 Gen 8	7 09	17 29	6 34	18 04	6 00	18 38
2009 Gen 9	7 08	17 30	6 34	18 05	6 00	18 39
2009 Gen 10	7 08	17 31	6 33	18 06	6 00	18 40
2009 Gen 11	7 08	17 32	6 33	18 07	6 00	18 41
2009 Gen 12	7 08	17 33	6 33	18 08	6 00	18 42
2009 Gen 13	7 07	17 34	6 33	18 09	5 59	18 42
2009 Gen 14	7 07	17 35	6 33	18 10	5 59	18 43
2009 Gen 15	7 07	17 37	6 32	18 11	5 59	18 44
2009 Gen 16	7 06	17 38	6 32	18 12	5 59	18 45
2009 Gen 17	7 06	17 39	6 32	18 13	5 58	18 46
2009 Gen 18	7 05	17 40	6 31	18 14	5 58	18 48
2009 Gen 19	7 05	17 41	6 31	18 15	5 57	18 49
2009 Gen 20	7 04	17 42	6 30	18 16	5 57	18 50
2009 Gen 21	7 04	17 43	6 30	18 17	5 56	18 51
2009 Gen 22	7 03	17 44	6 29	18 19	5 56	18 52
2009 Gen 23	7 03	17 46	6 29	18 20	5 55	18 53
2009 Gen 24	7 02	17 47	6 28	18 21	5 55	18 54
2009 Gen 25	7 01	17 48	6 27	18 22	5 54	18 55
2009 Gen 26	7 00	17 49	6 27	18 23	5 54	18 56
2009 Gen 27	7 00	17 50	6 26	18 24	5 53	18 57
2009 Gen 28	6 59	17 52	6 25	18 25	5 52	18 58
2009 Gen 29	6 58	17 53	6 24	18 26	5 51	18 59
2009 Gen 30	6 57	17 54	6 24	18 28	5 51	19 00
2009 Gen 31	6 56	17 55	6 23	18 29	5 50	19 02
2009 Feb 1	6 55	17 56	6 22	18 30	5 49	19 03
2009 Feb 2	6 54	17 58	6 21	18 31	5 48	19 04
2009 Feb 3	6 53	17 59	6 20	18 32	5 47	19 05
2009 Feb 4	6 52	18 00	6 19	18 33	5 46	19 06
2009 Feb 5	6 51	18 01	6 18	18 35	5 45	19 07
2009 Feb 6	6 50	18 03	6 17	18 36	5 44	19 08
2009 Feb 7	6 49	18 04	6 16	18 37	5 43	19 09
2009 Feb 8	6 48	18 05	6 15	18 38	5 42	19 11
2009 Feb 9	6 47	18 06	6 14	18 39	5 41	19 12
2009 Feb 10	6 46	18 07	6 13	18 40	5 40	19 13
2009 Feb 11	6 44	18 09	6 12	18 42	5 39	19 14
2009 Feb 12	6 43	18 10	6 10	18 43	5 38	19 15
2009 Feb 13	6 42	18 11	6 09	18 44	5 37	19 16
2009 Feb 14	6 41	18 12	6 08	18 45	5 36	19 17
2009 Feb 15	6 39	18 14	6 07	18 46	5 34	19 19
2009 Feb 16	6 38	18 15	6 05	18 47	5 33	19 20
2009 Feb 17	6 37	18 16	6 04	18 49	5 32	19 21
2009 Feb 18	6 35	18 17	6 03	18 50	5 30	19 22
2009 Feb 19	6 34	18 18	6 01	18 51	5 29	19 23
2009 Feb 20	6 33	18 20	6 00	18 52	5 28	19 24
2009 Feb 21	6 31	18 21	5 59	18 53	5 26	19 26
2009 Feb 22	6 30	18 22	5 57	18 54	5 25	19 27
2009 Feb 23	6 28	18 23	5 56	18 56	5 24	19 28
2009 Feb 24	6 27	18 24	5 54	18 57	5 22	19 29
2009 Feb 25	6 25	18 25	5 53	18 58	5 21	19 30
2009 Feb 26	6 24	18 27	5 51	18 59	5 19	19 31
2009 Feb 27	6 22	18 28	5 50	19 00	5 18	19 33
2009 Feb 28	6 21	18 29	5 48	19 01	5 16	19 34
2009 Mar 1	6 19	18 30	5 47	19 03	5 15	19 35
2009 Mar 2	6 18	18 31	5 45	19 04	5 13	19 36
2009 Mar 3	6 16	18 33	5 44	19 05	5 11	19 37
2009 Mar 4	6 14	18 34	5 42	19 06	5 10	19 38
2009 Mar 5	6 13	18 35	5 41	19 07	5 08	19 40
2009 Mar 6	6 11	18 36	5 39	19 08	5 06	19 41
2009 Mar 7	6 10	18 37	5 37	19 10	5 05	19 42
2009 Mar 8	6 08	18 38	5 36	19 11	5 03	19 43
2009 Mar 9	6 06	18 39	5 34	19 12	5 01	19 44
2009 Mar 10	6 05	18 41	5 32	19 13	5 00	19 46
2009 Mar 11	6 03	18 42	5 31	19 14	4 58	19 47
2009 Mar 12	6 01	18 43	5 29	19 15	4 56	19 48
2009 Mar 13	6 00	18 44	5 27	19 16	4 54	19 49
2009 Mar 14	5 58	18 45	5 25	19 18	4 53	19 51
2009 Mar 15	5 56	18 46	5 24	19 19	4 51	19 52

Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
	h m	h m	h m	h m	h m	h m
2009 Mar 16	5 54	18 47	5 22	19 20	4 49	19 53
2009 Mar 17	5 53	18 49	5 20	19 21	4 47	19 54
2009 Mar 18	5 51	18 50	5 19	19 22	4 45	19 56
2009 Mar 19	5 49	18 51	5 17	19 24	4 44	19 57
2009 Mar 20	5 48	18 52	5 15	19 25	4 42	19 58
2009 Mar 21	5 46	18 53	5 13	19 26	4 40	19 59
2009 Mar 22	5 44	18 54	5 11	19 27	4 38	20 01
2009 Mar 23	5 42	18 55	5 10	19 28	4 36	20 02
2009 Mar 24	5 41	18 57	5 08	19 30	4 34	20 03
2009 Mar 25	5 39	18 58	5 06	19 31	4 32	20 05
2009 Mar 26	5 37	18 59	5 04	19 32	4 30	20 06
2009 Mar 27	5 35	19 00	5 02	19 33	4 29	20 07
2009 Mar 28	5 34	19 01	5 01	19 34	4 27	20 09
2009 Mar 29	5 32	19 02	4 59	19 36	4 25	20 10
2009 Mar 30	5 30	19 04	4 57	19 37	4 23	20 11
2009 Mar 31	5 28	19 05	4 55	19 38	4 21	20 13
2009 Apr 1	5 27	19 06	4 53	19 39	4 19	20 14
2009 Apr 2	5 25	19 07	4 51	19 41	4 17	20 15
2009 Apr 3	5 23	19 08	4 50	19 42	4 15	20 17
2009 Apr 4	5 21	19 09	4 48	19 43	4 13	20 18
2009 Apr 5	5 20	19 10	4 46	19 44	4 11	20 20
2009 Apr 6	5 18	19 12	4 44	19 46	4 09	20 21
2009 Apr 7	5 16	19 13	4 42	19 47	4 07	20 22
2009 Apr 8	5 15	19 14	4 41	19 48	4 05	20 24
2009 Apr 9	5 13	19 15	4 39	19 49	4 03	20 25
2009 Apr 10	5 11	19 16	4 37	19 51	4 01	20 27
2009 Apr 11	5 09	19 17	4 35	19 52	3 59	20 28
2009 Apr 12	5 08	19 19	4 33	19 53	3 57	20 30
2009 Apr 13	5 06	19 20	4 31	19 55	3 55	20 31
2009 Apr 14	5 04	19 21	4 30	19 56	3 53	20 33
2009 Apr 15	5 03	19 22	4 28	19 57	3 51	20 34
2009 Apr 16	5 01	19 23	4 26	19 58	3 49	20 36
2009 Apr 17	4 59	19 25	4 24	20 00	3 47	20 37
2009 Apr 18	4 58	19 26	4 23	20 01	3 45	20 39
2009 Apr 19	4 56	19 27	4 21	20 02	3 43	20 40
2009 Apr 20	4 54	19 28	4 19	20 04	3 41	20 42
2009 Apr 21	4 53	19 29	4 17	20 05	3 39	20 43
2009 Apr 22	4 51	19 31	4 15	20 06	3 37	20 45
2009 Apr 23	4 50	19 32	4 14	20 08	3 35	20 47
2009 Apr 24	4 48	19 33	4 12	20 09	3 33	20 48
2009 Apr 25	4 47	19 34	4 10	20 11	3 31	20 50
2009 Apr 26	4 45	19 35	4 09	20 12	3 29	20 51
2009 Apr 27	4 44	19 37	4 07	20 13	3 27	20 53
2009 Apr 28	4 42	19 38	4 05	20 15	3 26	20 55
2009 Apr 29	4 41	19 39	4 04	20 16	3 24	20 56
2009 Apr 30	4 39	19 40	4 02	20 17	3 22	20 58
2009 Mag 1	4 38	19 41	4 00	20 19	3 20	21 00
2009 Mag 2	4 36	19 43	3 59	20 20	3 18	21 01
2009 Mag 3	4 35	19 44	3 57	20 22	3 16	21 03
2009 Mag 4	4 33	19 45	3 56	20 23	3 14	21 05
2009 Mag 5	4 32	19 46	3 54	20 24	3 12	21 06
2009 Mag 6	4 31	19 47	3 53	20 26	3 11	21 08
2009 Mag 7	4 29	19 48	3 51	20 27	3 09	21 10
2009 Mag 8	4 28	19 50	3 50	20 28	3 07	21 11
2009 Mag 9	4 27	19 51	3 48	20 30	3 05	21 13
2009 Mag 10	4 26	19 52	3 47	20 31	3 03	21 15
2009 Mag 11	4 24	19 53	3 45	20 32	3 02	21 16
2009 Mag 12	4 23	19 54	3 44	20 34	3 00	21 18
2009 Mag 13	4 22	19 55	3 43	20 35	2 58	21 20
2009 Mag 14	4 21	19 57	3 41	20 36	2 57	21 21
2009 Mag 15	4 20	19 58	3 40	20 38	2 55	21 23
2009 Mag 16	4 19	19 59	3 39	20 39	2 53	21 25
2009 Mag 17	4 18	20 00	3 37	20 40	2 52	21 26
2009 Mag 18	4 16	20 01	3 36	20 42	2 50	21 28
2009 Mag 19	4 15	20 02	3 35	20 43	2 49	21 29
2009 Mag 20	4 14	20 03	3 34	20 44	2 47	21 31
2009 Mag 21	4 14	20 04	3 33	20 45	2 46	21 33
2009 Mag 22	4 13	20 05	3 32	20 47	2 44	21 34
2009 Mag 23	4 12	20 06	3 30	20 48	2 43	21 36
2009 Mag 24	4 11	20 07	3 29	20 49	2 42	21 37
2009 Mag 25	4 10	20 08	3 28	20 50	2 40	21 39
2009 Mag 26	4 09	20 09	3 27	20 51	2 39	21 40
2009 Mag 27	4 09	20 10	3 27	20 53	2 38	21 42
2009 Mag 28	4 08	20 11	3 26	20 54	2 36	21 43
2009 Mag 29	4 07	20 12	3 25	20 55	2 35	21 45
2009 Mag 30	4 07	20 13	3 24	20 56	2 34	21 46
2009 Mag 31	4 06	20 14	3 23	20 57	2 33	21 47
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2009 Giu 2	4 05	20 16	3 22	20 59	2 31	21 50
2009 Giu 3	4 04	20 16	3 21	21 00	2 30	21 51
2009 Giu 4	4 04	20 17	3 21	21 01	2 29	21 52

Data		Civile		Nautico		Astronomico	
		Mattino	Sera	Mattino	Sera	Mattino	Sera
		h m	h m	h m	h m	h m	h m
2009	Giu 5	4 03	20 18	3 20	21 01	2 29	21 53
2009	Giu 6	4 03	20 19	3 20	21 02	2 28	21 54
2009	Giu 7	4 03	20 19	3 19	21 03	2 27	21 55
2009	Giu 8	4 02	20 20	3 19	21 04	2 26	21 56
2009	Giu 9	4 02	20 21	3 18	21 05	2 26	21 57
2009	Giu 10	4 02	20 21	3 18	21 05	2 25	21 58
2009	Giu 11	4 02	20 22	3 18	21 06	2 25	21 59
2009	Giu 12	4 02	20 22	3 17	21 07	2 24	22 00
2009	Giu 13	4 01	20 23	3 17	21 07	2 24	22 01
2009	Giu 14	4 01	20 23	3 17	21 08	2 24	22 01
2009	Giu 15	4 01	20 24	3 17	21 08	2 24	22 02
2009	Giu 16	4 01	20 24	3 17	21 09	2 23	22 02
2009	Giu 17	4 01	20 25	3 17	21 09	2 23	22 03
2009	Giu 18	4 02	20 25	3 17	21 09	2 23	22 03
2009	Giu 19	4 02	20 25	3 17	21 10	2 23	22 03
2009	Giu 20	4 02	20 25	3 17	21 10	2 23	22 04
2009	Giu 21	4 02	20 26	3 18	21 10	2 24	22 04
2009	Giu 22	4 02	20 26	3 18	21 10	2 24	22 04
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2009	Giu 27	4 04	20 26	3 20	21 10	2 26	22 04
2009	Giu 28	4 04	20 26	3 20	21 10	2 27	22 04
2009	Giu 29	4 05	20 26	3 21	21 10	2 27	22 03
2009	Giu 30	4 05	20 26	3 21	21 10	2 28	22 03
2009	Lug 1	4 06	20 26	3 22	21 10	2 29	22 02
2009	Lug 2	4 06	20 25	3 22	21 09	2 30	22 02
2009	Lug 3	4 07	20 25	3 23	21 09	2 31	22 01
2009	Lug 4	4 08	20 25	3 24	21 09	2 31	22 01
2009	Lug 5	4 08	20 25	3 25	21 08	2 32	22 00
2009	Lug 6	4 09	20 24	3 25	21 08	2 33	21 59
2009	Lug 7	4 10	20 24	3 26	21 07	2 35	21 59
2009	Lug 8	4 10	20 23	3 27	21 06	2 36	21 58
2009	Lug 9	4 11	20 23	3 28	21 06	2 37	21 57
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2009	Lug 11	4 13	20 22	3 30	21 04	2 39	21 55
2009	Lug 12	4 14	20 21	3 31	21 04	2 41	21 54
2009	Lug 13	4 15	20 20	3 32	21 03	2 42	21 53
2009	Lug 14	4 15	20 20	3 33	21 02	2 43	21 52
2009	Lug 15	4 16	20 19	3 34	21 01	2 45	21 50
2009	Lug 16	4 17	20 18	3 35	21 00	2 46	21 49
2009	Lug 17	4 18	20 18	3 36	20 59	2 47	21 48
2009	Lug 18	4 19	20 17	3 37	20 58	2 49	21 46
2009	Lug 19	4 20	20 16	3 38	20 57	2 50	21 45
2009	Lug 20	4 21	20 15	3 40	20 56	2 52	21 44
2009	Lug 21	4 22	20 14	3 41	20 55	2 53	21 42
2009	Lug 22	4 23	20 13	3 42	20 54	2 55	21 41
2009	Lug 23	4 24	20 12	3 43	20 53	2 56	21 39
2009	Lug 24	4 25	20 11	3 44	20 52	2 58	21 38
2009	Lug 25	4 26	20 10	3 46	20 50	3 00	21 36
2009	Lug 26	4 27	20 09	3 47	20 49	3 01	21 35
2009	Lug 27	4 28	20 08	3 48	20 48	3 03	21 33
2009	Lug 28	4 29	20 07	3 49	20 47	3 04	21 31
2009	Lug 29	4 31	20 06	3 51	20 45	3 06	21 30
2009	Lug 30	4 32	20 05	3 52	20 44	3 08	21 28
2009	Lug 31	4 33	20 03	3 53	20 43	3 09	21 26
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2009	Ago 2	4 35	20 01	3 56	20 40	3 12	21 23
2009	Ago 3	4 36	20 00	3 57	20 38	3 14	21 21
2009	Ago 4	4 37	19 58	3 59	20 37	3 16	21 19
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2009	Ago 6	4 39	19 56	4 01	20 34	3 19	21 16
2009	Ago 7	4 41	19 54	4 02	20 32	3 20	21 14
2009	Ago 8	4 42	19 53	4 04	20 30	3 22	21 12
2009	Ago 9	4 43	19 51	4 05	20 29	3 24	21 10
2009	Ago 10	4 44	19 50	4 06	20 27	3 25	21 08
2009	Ago 11	4 45	19 48	4 08	20 26	3 27	21 06
2009	Ago 12	4 46	19 47	4 09	20 24	3 28	21 04
2009	Ago 13	4 47	19 45	4 10	20 22	3 30	21 02
2009	Ago 14	4 49	19 44	4 12	20 21	3 32	21 00
2009	Ago 15	4 50	19 42	4 13	20 19	3 33	20 58
2009	Ago 16	4 51	19 41	4 14	20 17	3 35	20 56
2009	Ago 17	4 52	19 39	4 16	20 16	3 36	20 54
2009	Ago 18	4 53	19 38	4 17	20 14	3 38	20 53
2009	Ago 19	4 54	19 36	4 18	20 12	3 39	20 51
2009	Ago 20	4 55	19 35	4 19	20 10	3 41	20 49
2009	Ago 21	4 57	19 33	4 21	20 09	3 42	20 47
2009	Ago 22	4 58	19 31	4 22	20 07	3 44	20 45
2009	Ago 23	4 59	19 30	4 23	20 05	3 45	20 43
2009	Ago 24	5 00	19 28	4 25	20 03	3 47	20 41

Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
	h m	h m	h m	h m	h m	h m
2009 Ago 25	5 01	19 26	4 26	20 01	3 48	20 39
2009 Ago 26	5 02	19 25	4 27	20 00	3 50	20 37
2009 Ago 27	5 03	19 23	4 28	19 58	3 51	20 35
2009 Ago 28	5 04	19 21	4 30	19 56	3 53	20 32
2009 Ago 29	5 05	19 19	4 31	19 54	3 54	20 30
2009 Ago 30	5 07	19 18	4 32	19 52	3 56	20 28
2009 Ago 31	5 08	19 16	4 33	19 50	3 57	20 26
2009 Set 1	5 09	19 14	4 34	19 49	3 58	20 24
2009 Set 2	5 10	19 13	4 36	19 47	4 00	20 22
2009 Set 3	5 11	19 11	4 37	19 45	4 01	20 20
2009 Set 4	5 12	19 09	4 38	19 43	4 02	20 18
2009 Set 5	5 13	19 07	4 39	19 41	4 04	20 16
2009 Set 6	5 14	19 06	4 40	19 39	4 05	20 14
2009 Set 7	5 15	19 04	4 42	19 37	4 06	20 12
2009 Set 8	5 16	19 02	4 43	19 36	4 08	20 10
2009 Set 9	5 18	19 00	4 44	19 34	4 09	20 08
2009 Set 10	5 19	18 58	4 45	19 32	4 10	20 06
2009 Set 11	5 20	18 57	4 46	19 30	4 12	20 04
2009 Set 12	5 21	18 55	4 47	19 28	4 13	20 02
2009 Set 13	5 22	18 53	4 49	19 26	4 14	20 00
2009 Set 14	5 23	18 51	4 50	19 24	4 16	19 58
2009 Set 15	5 24	18 50	4 51	19 23	4 17	19 56
2009 Set 16	5 25	18 48	4 52	19 21	4 18	19 55
2009 Set 17	5 26	18 46	4 53	19 19	4 19	19 53
2009 Set 18	5 27	18 44	4 54	19 17	4 21	19 51
2009 Set 19	5 28	18 42	4 55	19 15	4 22	19 49
2009 Set 20	5 29	18 41	4 57	19 13	4 23	19 47
2009 Set 21	5 30	18 39	4 58	19 12	4 24	19 45
2009 Set 22	5 31	18 37	4 59	19 10	4 25	19 43
2009 Set 23	5 33	18 35	5 00	19 08	4 27	19 41
2009 Set 24	5 34	18 34	5 01	19 06	4 28	19 39
2009 Set 25	5 35	18 32	5 02	19 04	4 29	19 37
2009 Set 26	5 36	18 30	5 03	19 03	4 30	19 36
2009 Set 27	5 37	18 28	5 04	19 01	4 31	19 34
2009 Set 28	5 38	18 27	5 05	18 59	4 32	19 32
2009 Set 29	5 39	18 25	5 06	18 57	4 34	19 30
2009 Set 30	5 40	18 23	5 08	18 56	4 35	19 28
2009 Ott 1	5 41	18 21	5 09	18 54	4 36	19 26
2009 Ott 2	5 42	18 20	5 10	18 52	4 37	19 25
2009 Ott 3	5 43	18 18	5 11	18 50	4 38	19 23
2009 Ott 4	5 44	18 16	5 12	18 49	4 39	19 21
2009 Ott 5	5 45	18 15	5 13	18 47	4 40	19 19
2009 Ott 6	5 46	18 13	5 14	18 45	4 42	19 18
2009 Ott 7	5 48	18 11	5 15	18 44	4 43	19 16
2009 Ott 8	5 49	18 10	5 16	18 42	4 44	19 14
2009 Ott 9	5 50	18 08	5 17	18 40	4 45	19 13
2009 Ott 10	5 51	18 06	5 18	18 39	4 46	19 11
2009 Ott 11	5 52	18 05	5 20	18 37	4 47	19 09
2009 Ott 12	5 53	18 03	5 21	18 36	4 48	19 08
2009 Ott 13	5 54	18 02	5 22	18 34	4 49	19 06
2009 Ott 14	5 55	18 00	5 23	18 32	4 50	19 05
2009 Ott 15	5 56	17 59	5 24	18 31	4 52	19 03
2009 Ott 16	5 57	17 57	5 25	18 29	4 53	19 02
2009 Ott 17	5 59	17 56	5 26	18 28	4 54	19 00
2009 Ott 18	6 00	17 54	5 27	18 26	4 55	18 59
2009 Ott 19	6 01	17 53	5 28	18 25	4 56	18 57
2009 Ott 20	6 02	17 51	5 29	18 24	4 57	18 56
2009 Ott 21	6 03	17 50	5 30	18 22	4 58	18 54
2009 Ott 22	6 04	17 48	5 32	18 21	4 59	18 53
2009 Ott 23	6 05	17 47	5 33	18 19	5 00	18 52
2009 Ott 24	6 06	17 45	5 34	18 18	5 01	18 50
2009 Ott 25	6 08	17 44	5 35	18 17	5 02	18 49
2009 Ott 26	6 09	17 43	5 36	18 15	5 04	18 48
2009 Ott 27	6 10	17 41	5 37	18 14	5 05	18 46
2009 Ott 28	6 11	17 40	5 38	18 13	5 06	18 45
2009 Ott 29	6 12	17 39	5 39	18 12	5 07	18 44
2009 Ott 30	6 13	17 37	5 40	18 10	5 08	18 43
2009 Ott 31	6 14	17 36	5 41	18 09	5 09	18 42
2009 Nov 1	6 16	17 35	5 43	18 08	5 10	18 40
2009 Nov 2	6 17	17 34	5 44	18 07	5 11	18 39
2009 Nov 3	6 18	17 33	5 45	18 06	5 12	18 38
2009 Nov 4	6 19	17 32	5 46	18 05	5 13	18 37
2009 Nov 5	6 20	17 30	5 47	18 04	5 14	18 36
2009 Nov 6	6 21	17 29	5 48	18 03	5 15	18 35
2009 Nov 7	6 23	17 28	5 49	18 02	5 17	18 34
2009 Nov 8	6 24	17 27	5 50	18 01	5 18	18 33
2009 Nov 9	6 25	17 26	5 51	18 00	5 19	18 32
2009 Nov 10	6 26	17 25	5 53	17 59	5 20	18 32
2009 Nov 11	6 27	17 24	5 54	17 58	5 21	18 31
2009 Nov 12	6 28	17 23	5 55	17 57	5 22	18 30
2009 Nov 13	6 30	17 23	5 56	17 56	5 23	18 29

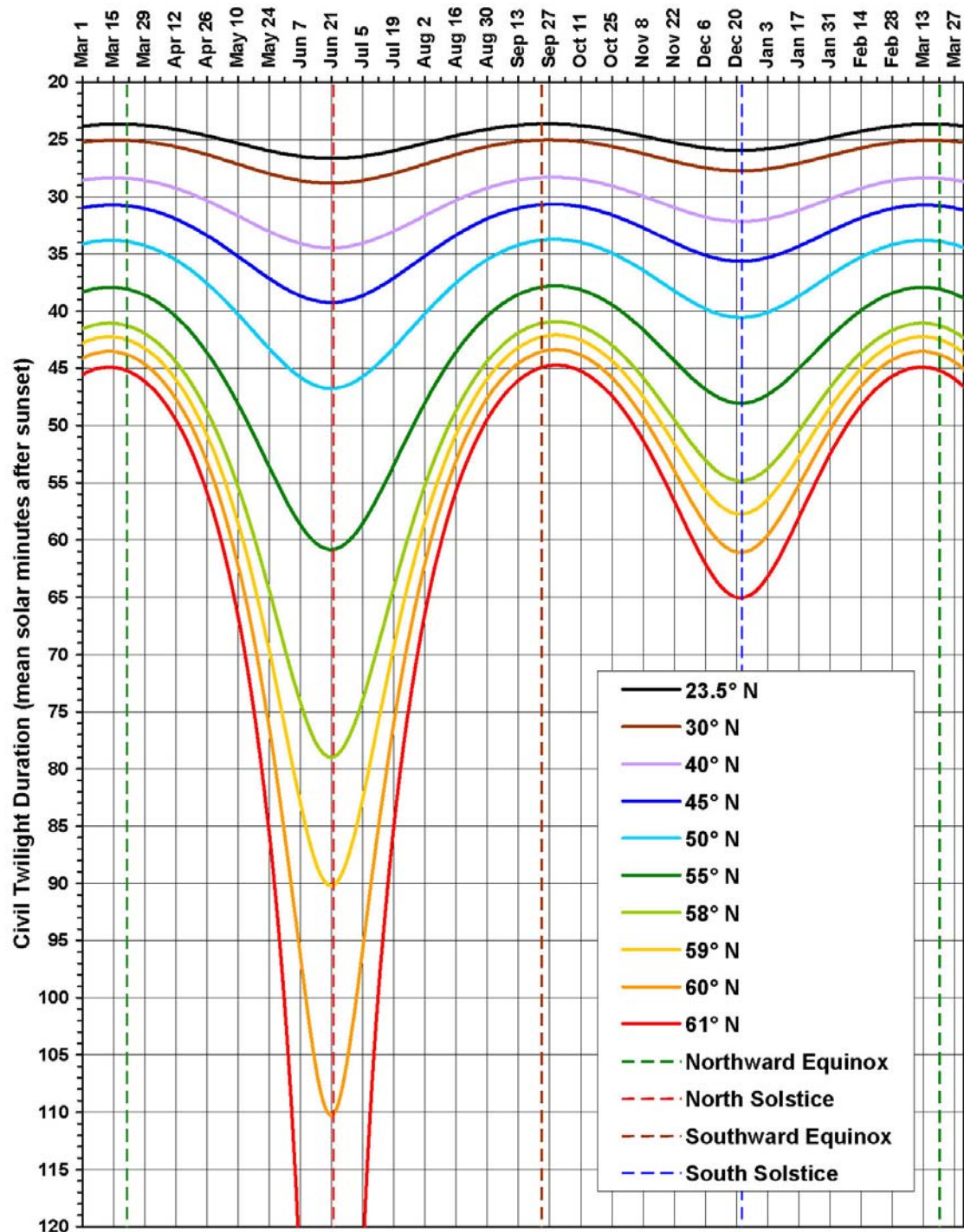
Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
	h m	h m	h m	h m	h m	h m
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2009 Nov 15	6 32	17 21	5 58	17 55	5 25	18 28
2009 Nov 16	6 33	17 20	5 59	17 54	5 26	18 27
2009 Nov 17	6 34	17 19	6 00	17 53	5 27	18 26
2009 Nov 18	6 35	17 19	6 01	17 53	5 28	18 26
2009 Nov 19	6 36	17 18	6 02	17 52	5 29	18 25
2009 Nov 20	6 38	17 17	6 03	17 51	5 30	18 25
2009 Nov 21	6 39	17 17	6 04	17 51	5 31	18 24
2009 Nov 22	6 40	17 16	6 06	17 50	5 32	18 24
2009 Nov 23	6 41	17 16	6 07	17 50	5 33	18 23
2009 Nov 24	6 42	17 15	6 08	17 49	5 34	18 23
2009 Nov 25	6 43	17 15	6 09	17 49	5 35	18 22
2009 Nov 26	6 44	17 14	6 10	17 49	5 36	18 22
2009 Nov 27	6 45	17 14	6 11	17 48	5 37	18 22
2009 Nov 28	6 46	17 13	6 12	17 48	5 38	18 22
2009 Nov 29	6 47	17 13	6 13	17 48	5 39	18 21
2009 Nov 30	6 48	17 13	6 14	17 48	5 40	18 21
2009 Dic 1	6 49	17 13	6 15	17 47	5 41	18 21
2009 Dic 2	6 50	17 12	6 15	17 47	5 42	18 21
2009 Dic 3	6 51	17 12	6 16	17 47	5 43	18 21
2009 Dic 4	6 52	17 12	6 17	17 47	5 44	18 21
2009 Dic 5	6 53	17 12	6 18	17 47	5 44	18 21
2009 Dic 6	6 54	17 12	6 19	17 47	5 45	18 21
2009 Dic 7	6 55	17 12	6 20	17 47	5 46	18 21
2009 Dic 8	6 56	17 12	6 21	17 47	5 47	18 21
2009 Dic 9	6 57	17 12	6 22	17 47	5 48	18 21
2009 Dic 10	6 57	17 12	6 22	17 47	5 48	18 21
2009 Dic 11	6 58	17 12	6 23	17 47	5 49	18 21
2009 Dic 12	6 59	17 12	6 24	17 47	5 50	18 21
2009 Dic 13	7 00	17 13	6 25	17 48	5 51	18 22
2009 Dic 14	7 01	17 13	6 25	17 48	5 51	18 22
2009 Dic 15	7 01	17 13	6 26	17 48	5 52	18 22
2009 Dic 16	7 02	17 13	6 27	17 49	5 53	18 23
2009 Dic 17	7 03	17 14	6 27	17 49	5 53	18 23
2009 Dic 18	7 03	17 14	6 28	17 49	5 54	18 23
2009 Dic 19	7 04	17 14	6 29	17 50	5 55	18 24
2009 Dic 20	7 04	17 15	6 29	17 50	5 55	18 24
2009 Dic 21	7 05	17 15	6 30	17 51	5 56	18 25
2009 Dic 22	7 05	17 16	6 30	17 51	5 56	18 25
2009 Dic 23	7 06	17 16	6 31	17 52	5 57	18 26
2009 Dic 24	7 06	17 17	6 31	17 52	5 57	18 26
2009 Dic 25	7 07	17 18	6 31	17 53	5 57	18 27
2009 Dic 26	7 07	17 18	6 32	17 53	5 58	18 28
2009 Dic 27	7 07	17 19	6 32	17 54	5 58	18 28
2009 Dic 28	7 08	17 20	6 32	17 55	5 58	18 29
2009 Dic 29	7 08	17 20	6 33	17 56	5 59	18 30
2009 Dic 30	7 08	17 21	6 33	17 56	5 59	18 30
2009 Dic 31	7 08	17 22	6 33	17 57	5 59	18 31

Tempi in T.U.+1, aggiungere un'ora quando si adotta l'ora legale

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Per la definizione di crepuscolo consultare il glossario a fine almanacco

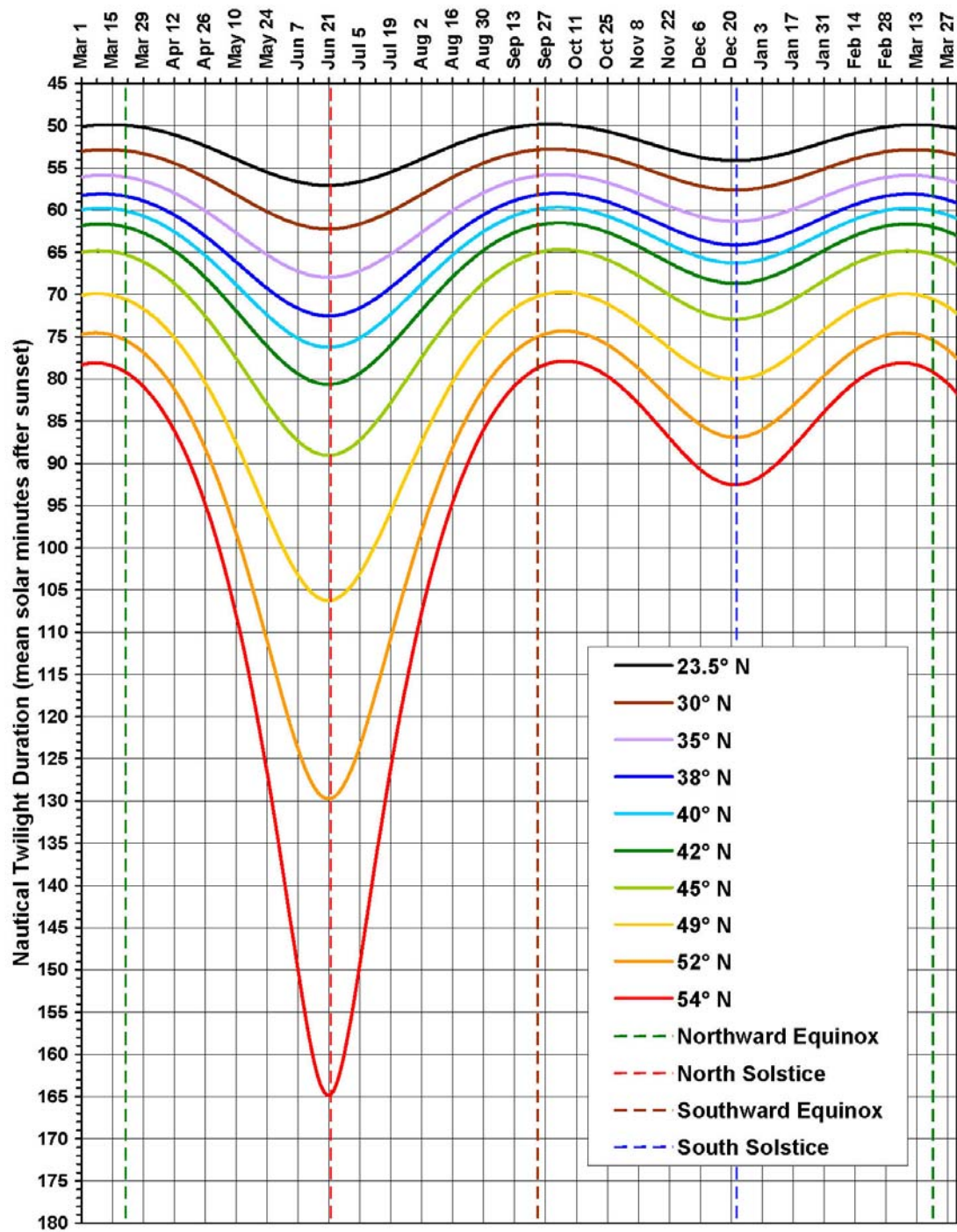
DURATA DEI CREPUSCOLI



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/twilight/>

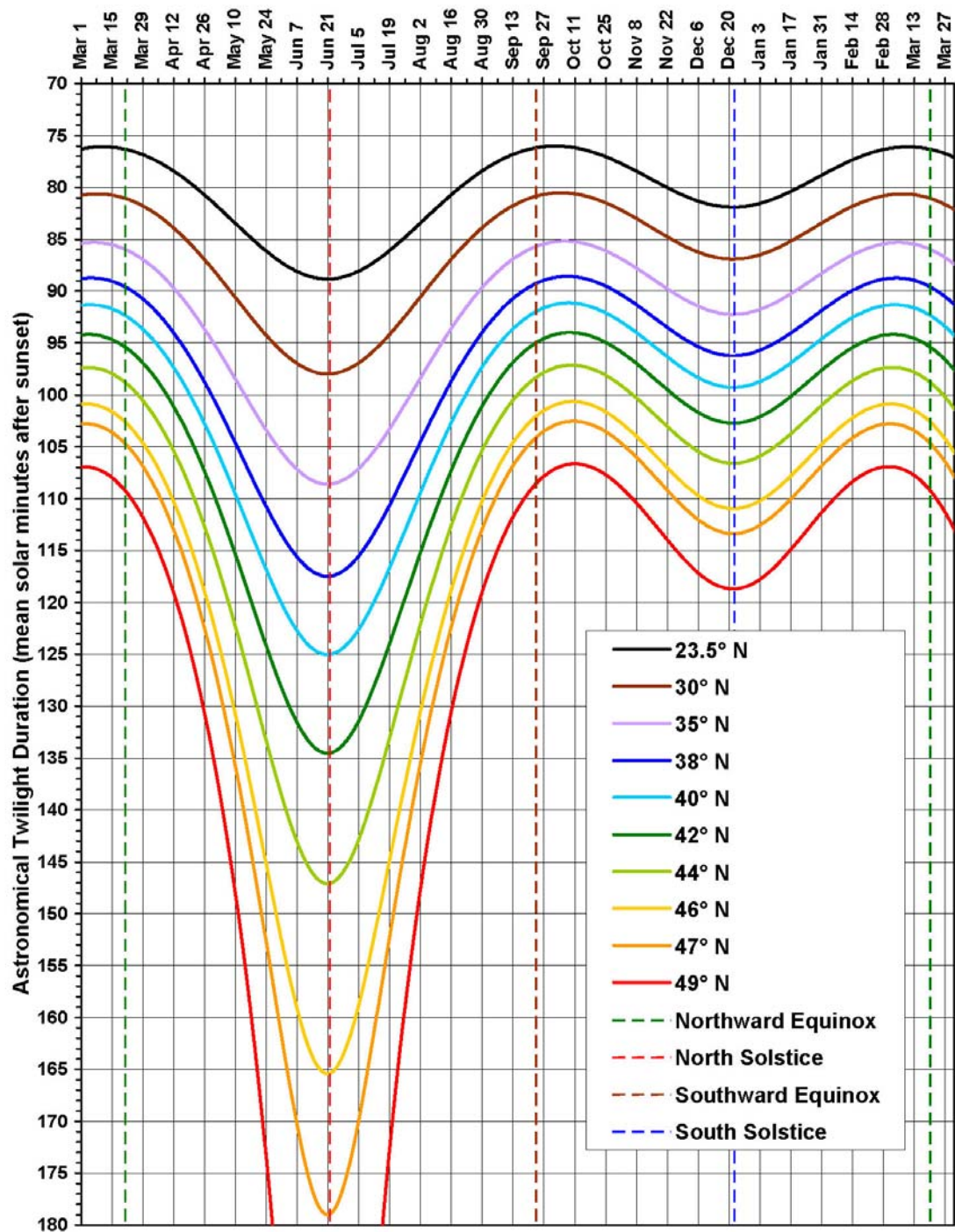
Durata in minuti del crepuscolo civile alle varie latitudini, emisfero nord.
(I grafici dei crepuscoli per alba e tramonto, o per l'emisfero sud, sono simmetrici o capovolti)



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/twilight/>

Durata in minuti del crepuscolo nautico alle varie latitudini, emisfero nord.
(I grafici dei crepuscoli per alba e tramonto, o per l'emisfero sud, sono simmetrici o capovolti)



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

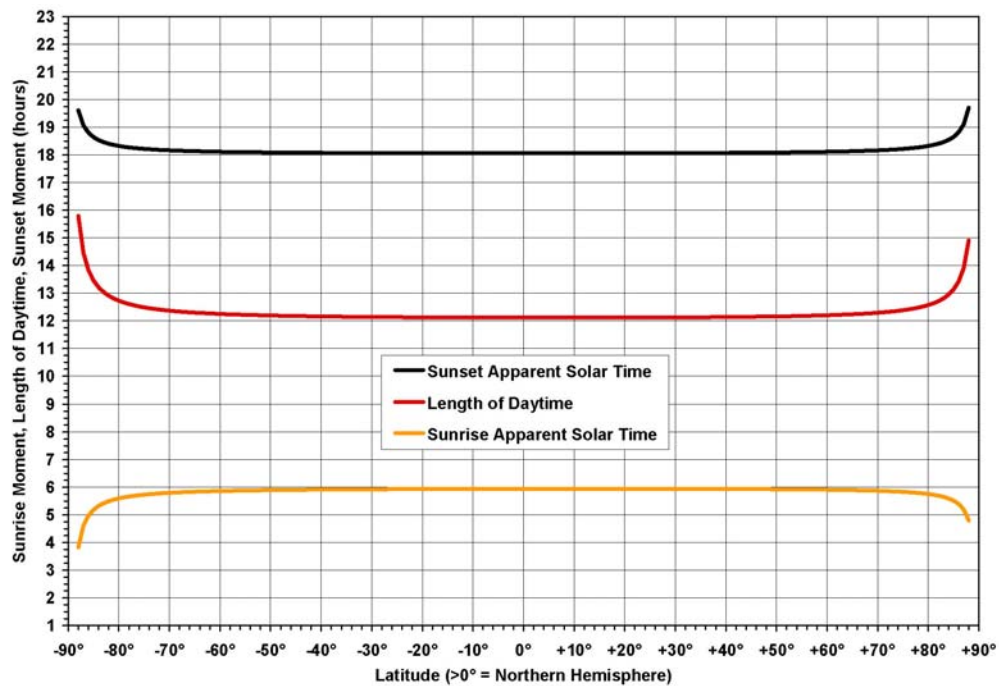
<http://www.sym454.org/twilight/>

Durata in minuti del crepuscolo astronomico alle varie latitudini, emisfero nord.
(I grafici dei crepuscoli per alba e tramonto, o per l'emisfero sud, sono simmetrici o capovolti)

DURATA DEL GIORNO

42°N - 12°E

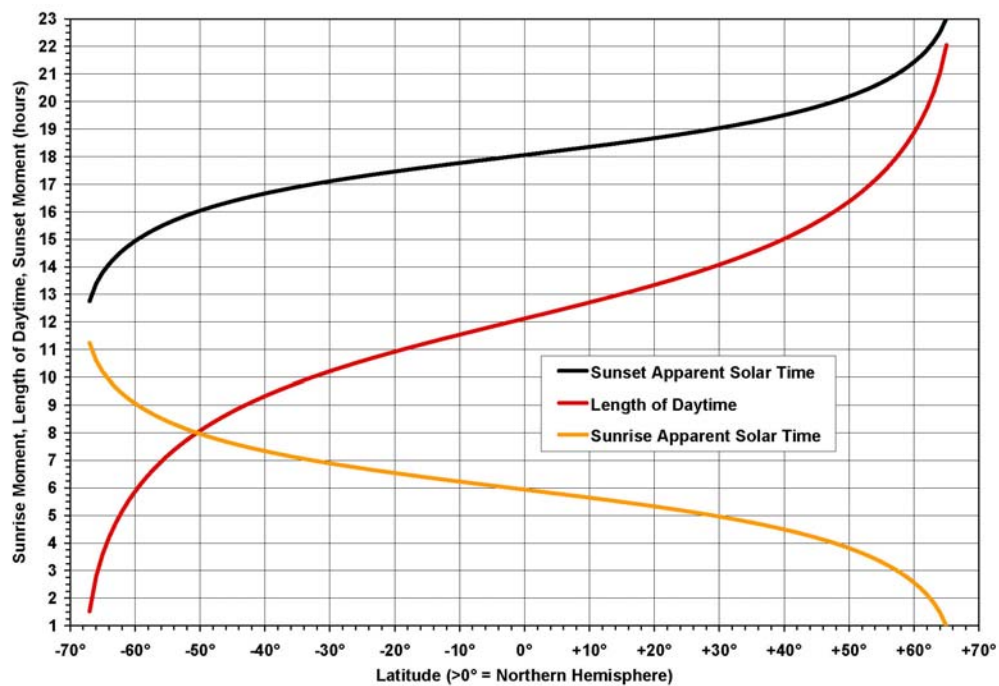
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	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
01	09:11	10:02	11:15	12:43	14:03	15:02	15:11	14:25	13:08	11:45	10:21	09:21
02	09:12	10:04	11:18	12:46	14:05	15:03	15:10	14:23	13:05	11:42	10:19	09:20
03	09:13	10:07	11:21	12:48	14:08	15:04	15:10	14:21	13:03	11:39	10:16	09:19
04	09:14	10:09	11:23	12:51	14:10	15:06	15:09	14:19	13:00	11:36	10:14	09:17
05	09:15	10:12	11:26	12:54	14:12	15:07	15:08	14:16	12:57	11:34	10:12	09:16
06	09:16	10:14	11:29	12:57	14:15	15:08	15:07	14:14	12:54	11:31	10:09	09:15
07	09:17	10:16	11:32	13:00	14:17	15:08	15:06	14:12	12:52	11:28	10:07	09:14
08	09:18	10:19	11:35	13:02	14:19	15:09	15:05	14:09	12:49	11:25	10:05	09:13
09	09:19	10:21	11:37	13:05	14:21	15:10	15:04	14:07	12:46	11:23	10:02	09:12
10	09:21	10:24	11:40	13:08	14:24	15:11	15:03	14:05	12:43	11:20	10:00	09:11
11	09:22	10:27	11:43	13:11	14:26	15:11	15:02	14:02	12:41	11:17	09:58	09:11
12	09:24	10:29	11:46	13:13	14:28	15:12	15:00	14:00	12:38	11:14	09:56	09:10
13	09:25	10:32	11:49	13:16	14:30	15:13	14:59	13:57	12:35	11:11	09:53	09:09
14	09:27	10:34	11:52	13:19	14:32	15:13	14:58	13:55	12:32	11:09	09:51	09:09
15	09:28	10:37	11:55	13:21	14:34	15:13	14:56	13:53	12:30	11:06	09:49	09:08
16	09:30	10:40	11:57	13:24	14:36	15:14	14:55	13:50	12:27	11:03	09:47	09:08
17	09:31	10:42	12:00	13:27	14:38	15:14	14:53	13:48	12:24	11:01	09:45	09:08
18	09:33	10:45	12:03	13:29	14:40	15:14	14:52	13:45	12:21	10:58	09:43	09:07
19	09:35	10:48	12:06	13:32	14:42	15:14	14:50	13:42	12:18	10:55	09:41	09:07
20	09:37	10:50	12:09	13:35	14:44	15:15	14:48	13:40	12:16	10:52	09:39	09:07
21	09:39	10:53	12:12	13:37	14:45	15:15	14:47	13:37	12:13	10:50	09:37	09:07
22	09:41	10:56	12:14	13:40	14:47	15:14	14:45	13:35	12:10	10:47	09:35	09:07
23	09:43	10:58	12:17	13:43	14:49	15:14	14:43	13:32	12:07	10:45	09:34	09:07
24	09:45	11:01	12:20	13:45	14:51	15:14	14:41	13:29	12:04	10:42	09:32	09:07
25	09:47	11:04	12:23	13:48	14:52	15:14	14:39	13:27	12:02	10:39	09:30	09:07
26	09:49	11:07	12:26	13:50	14:54	15:14	14:37	13:24	11:59	10:37	09:29	09:08
27	09:51	11:09	12:29	13:53	14:55	15:13	14:35	13:22	11:56	10:34	09:27	09:08
28	09:53	11:12	12:31	13:55	14:57	15:13	14:33	13:19	11:53	10:31	09:25	09:09
29	09:55		12:34	13:58	14:58	15:12	14:31	13:16	11:50	10:29	09:24	09:09
30	09:58		12:37	14:00	15:00	15:12	14:29	13:14	11:48	10:26	09:23	09:10
31	10:00		12:40		15:01		14:27	13:11		10:24		09:10



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

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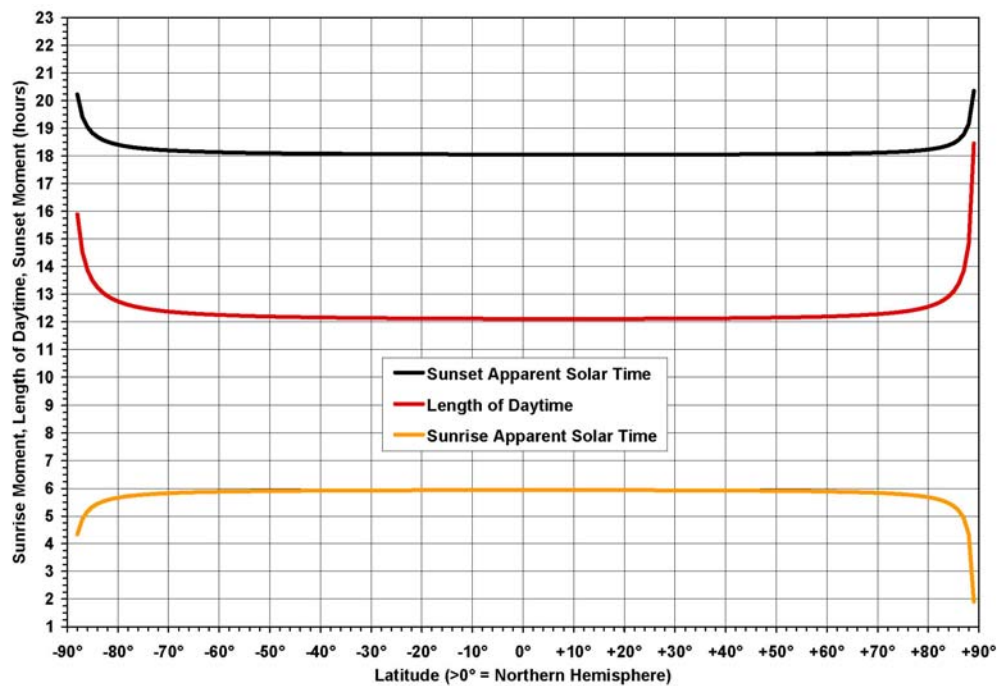
Equinozio di primavera: ora di levata e tramonto del Sole e durata del giorno alle varie latitudini



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

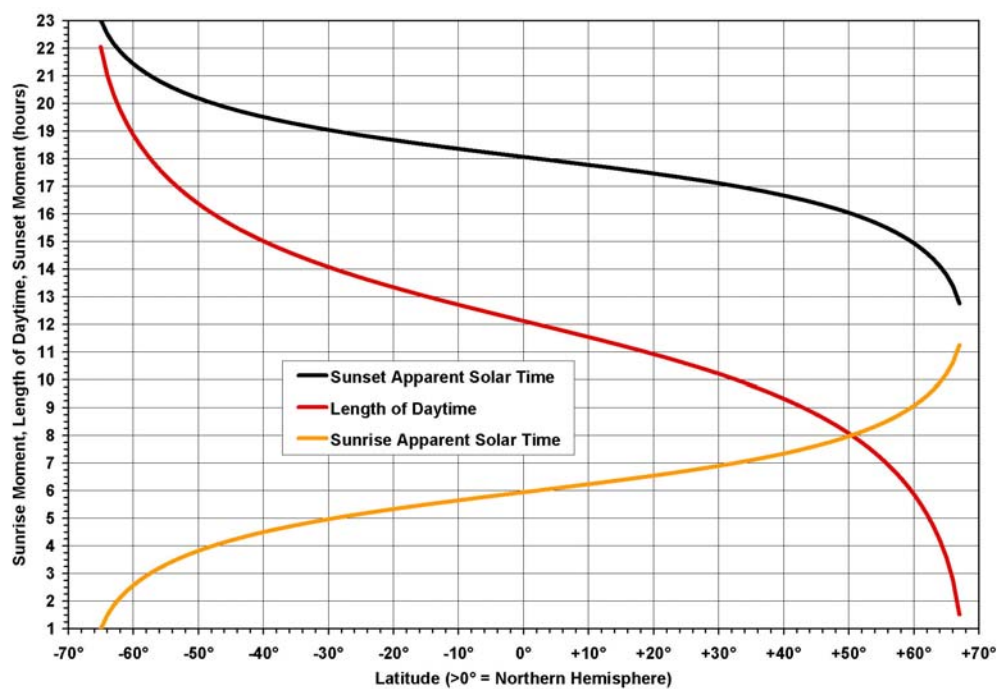
Solstizio d'estate: ora di levata e tramonto del Sole e durata del giorno alle varie latitudini



Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

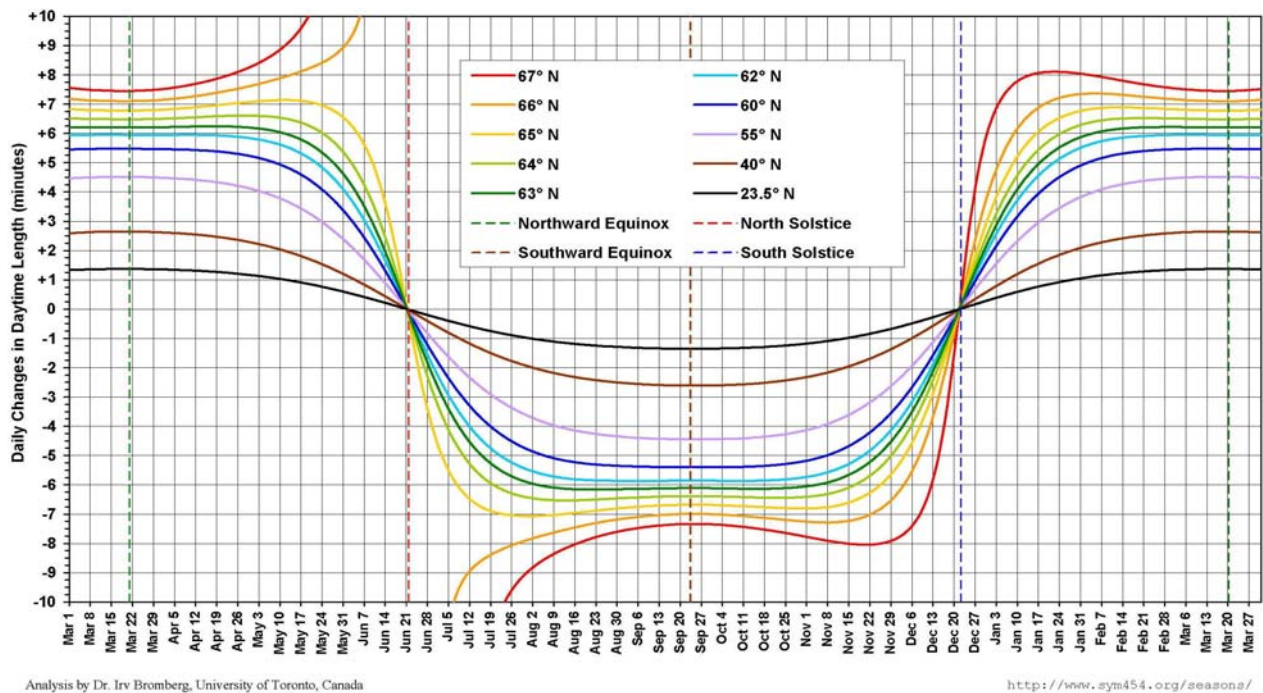
Equinozio d'autunno: ora di levata e tramonto del Sole e durata del giorno alle varie latitudini



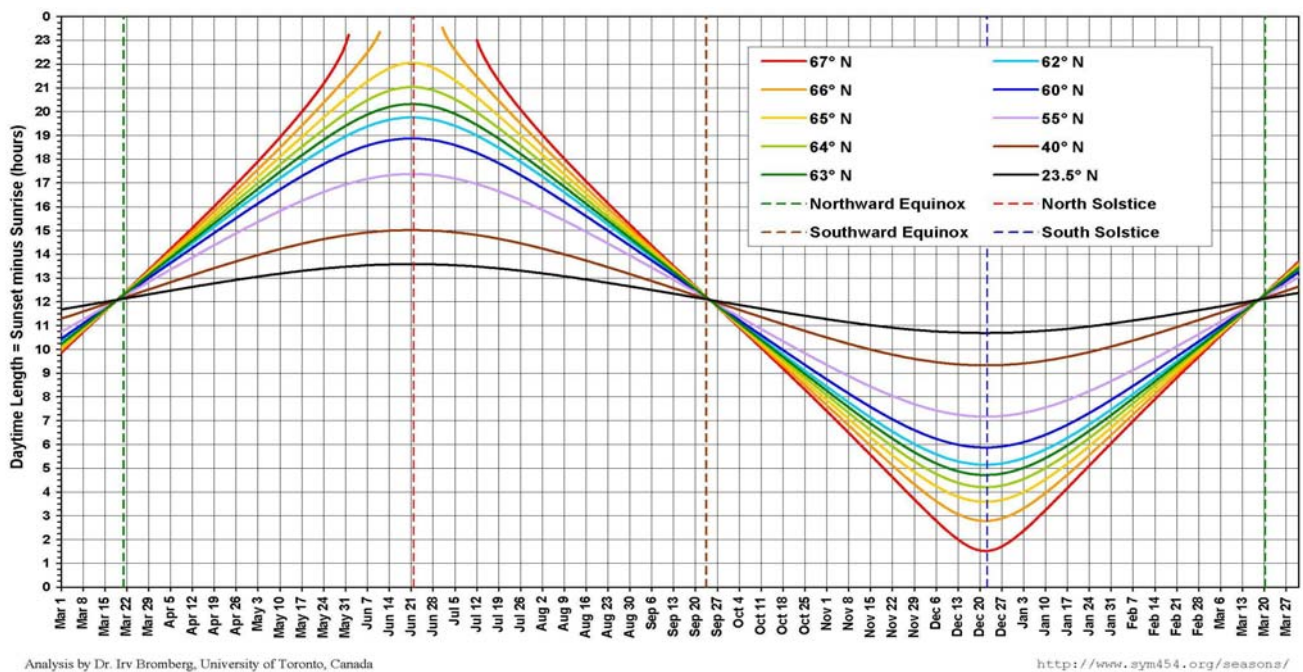
Analysis by Dr. Irv Bromberg, University of Toronto, Canada

<http://www.sym454.org/seasons/>

Solstizio d'inverno: ora di levata e tramonto del Sole e durata del giorno alle varie latitudini



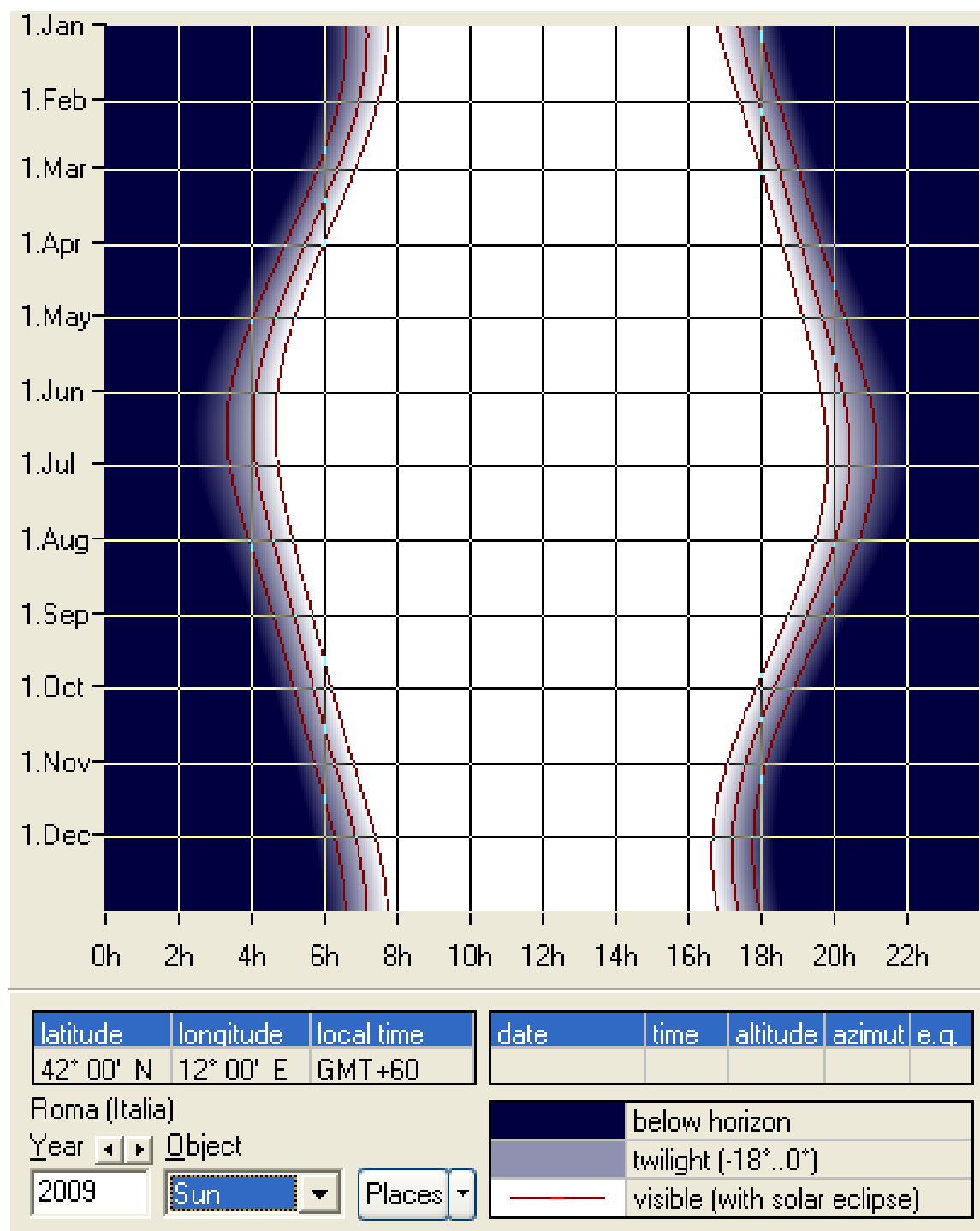
Variazione incrementale della durata del giorno nel corso dell'anno alle varie latitudini



Durata del giorno nel corso dell'anno alle varie latitudini (emisfero nord)

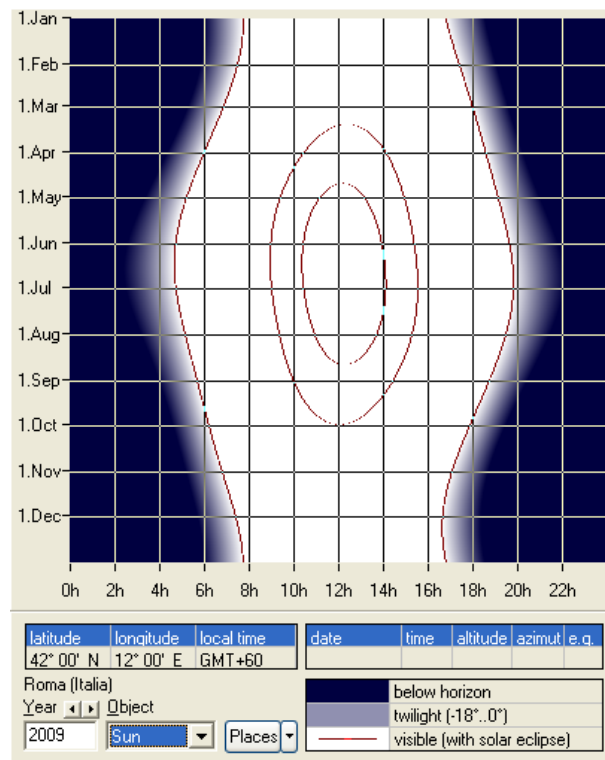
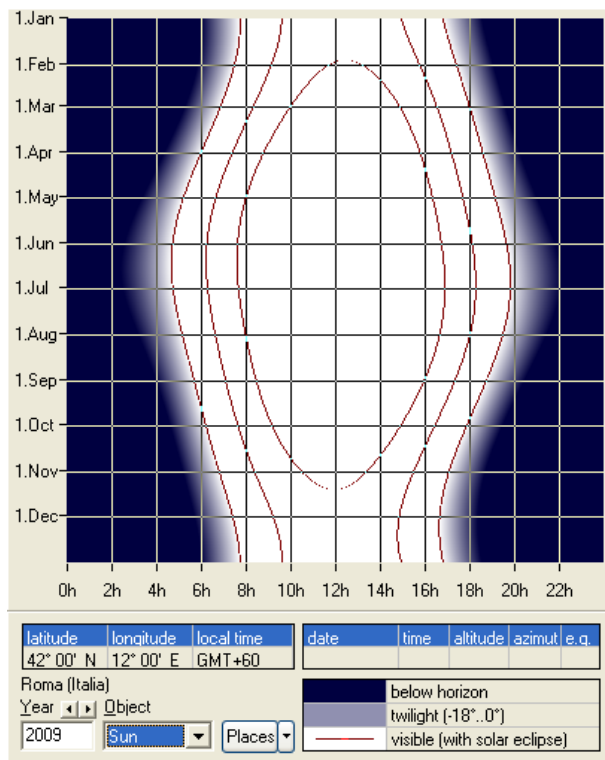
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VISIBILITA' DEL SOLE



Visibilità del Sole nel corso dell'anno

Le 2 righe rosse più interne indicano gli istanti in cui il Sole è sull'orizzonte
 Le 2 righe rosse intermedie indicano gli istanti in cui il Sole è a -6° dall'orizzonte, inizia o finisce il crepuscolo civile
 Le 2 righe rosse più esterne indicano gli istanti in cui il Sole è a -12° dall'orizzonte, inizia o finisce il crepuscolo nautico
 © (3)



Altezza del Sole sull'orizzonte nel corso dell'anno

Figura di sinistra:

la linea rossa continua interna indica gli istanti del giorno in cui il Sole supera i 30° sull'orizzonte
le 2 linee rosse intermedie indicano gli istanti del giorno in cui il Sole supera i 15° sull'orizzonte

Figura di destra:

la linea rossa continua interna indica gli istanti del giorno in cui il Sole supera i 60° sull'orizzonte
le linea rossa continua intermedia indica gli istanti del giorno in cui il Sole supera i 45° sull'orizzonte

Esempio : il 1° luglio il Sole sorge alle 4.45 circa, alle 6.15 circa si trova a 15° sull'orizzonte, alle 7.30 circa a 30°, alle 9 a 45°, dalle 10.30 alle 14 circa sarà ad oltre 60°, ecc.

© (3)

EFFEMERIDI DI MERCURIO

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
1-gen	20h 07m 57.26s	-21° 48' 03.9"	0.3498026	1.0773302	8.96	18.8	6.2	-0.7	0.710	65.2	8.55	13.35	18.16
2-gen	20h 13m 07.44s	-21° 23' 44.6"	0.3443241	1.0531909	8.76	19.1	6.4	-0.6	0.680	68.9	8.54	13.36	18.19
3-gen	20h 17m 59.00s	-20° 58' 47.3"	0.3390371	1.0283569	8.55	19.2	6.5	-0.6	0.647	72.8	8.53	13.37	18.21
4-gen	20h 22m 29.37s	-20° 33' 24.1"	0.3339909	1.0029059	8.34	19.3	6.7	-0.6	0.612	77.0	8.52	13.37	18.23
5-gen	20h 26m 35.76s	-20° 07' 49.2"	0.3292366	0.9769379	8.13	19.3	6.9	-0.5	0.575	81.4	8.50	13.37	18.25
6-gen	20h 30m 15.13s	-19° 42' 18.6"	0.3248263	0.9505775	7.91	19.2	7.1	-0.4	0.534	86.1	8.48	13.37	18.26
7-gen	20h 33m 24.27s	-19° 17' 10.4"	0.3208123	0.9239769	7.69	19.0	7.3	-0.3	0.491	91.0	8.45	13.35	18.27
8-gen	20h 35m 59.83s	-18° 52' 44.2"	0.3172453	0.8973174	7.46	18.7	7.5	-0.2	0.446	96.2	8.42	13.34	18.27
9-gen	20h 37m 58.45s	-18° 29' 21.0"	0.3141737	0.8708105	7.24	18.2	7.7	-0.1	0.400	101.6	8.38	13.32	18.26
10-gen	20h 39m 16.86s	-18° 07' 22.7"	0.3116412	0.8446972	7.03	17.6	8.0	0.1	0.351	107.3	8.34	13.29	18.24
11-gen	20h 39m 52.10s	-17° 47' 11.5"	0.3096858	0.8192457	6.81	16.8	8.2	0.3	0.303	113.2	8.29	13.25	18.21
12-gen	20h 39m 41.73s	-17° 29' 08.8"	0.3083378	0.7947465	6.61	15.9	8.5	0.6	0.255	119.4	8.23	13.20	18.18
13-gen	20h 38m 44.11s	-17° 13' 34.1"	0.3076187	0.7715059	6.42	14.7	8.7	0.9	0.208	125.8	8.17	13.15	18.13
14-gen	20h 36m 58.70s	-17° 00' 43.9"	0.3075404	0.7498363	6.24	13.4	9.0	1.3	0.163	132.3	8.10	13.09	18.08
15-gen	20h 34m 26.33s	-16° 50' 50.5"	0.3081040	0.7300443	6.07	11.9	9.2	1.7	0.123	139.0	8.03	13.02	18.01
16-gen	20h 31m 09.47s	-16° 44' 00.5"	0.3093003	0.7124176	5.93	10.2	9.4	2.2	0.087	145.8	7.55	12.55	17.54
17-gen	20h 27m 12.35s	-16° 40' 14.7"	0.3111102	0.6972103	5.80	8.4	9.6	2.8	0.056	152.5	7.47	12.46	17.46
18-gen	20h 22m 40.98s	-16° 39' 27.6"	0.3135053	0.6846296	5.69	6.5	9.8	3.4	0.033	159.0	7.39	12.38	17.37
19-gen	20h 17m 42.97s	-16° 41' 27.5"	0.3164494	0.6748235	5.61	4.8	10.0	4.0	0.017	165.0	7.30	12.29	17.28
20-gen	20h 12m 27.16s	-16° 45' 57.8"	0.3199000	0.6678733	5.55	3.5	10.1	4.5	0.009	169.3	7.21	12.20	17.18
21-gen	20h 07m 03.13s	-16° 52' 38.5"	0.3238097	0.6637894	5.52	3.4	10.1	4.6	0.008	169.7	7.12	12.10	17.08
22-gen	20h 01m 40.55s	-17° 01' 07.3"	0.3281282	0.6625137	5.51	4.6	10.1	4.2	0.015	166.1	7.04	12.01	16.58
23-gen	19h 56m 28.60s	-17° 11' 02.0"	0.3328036	0.6639259	5.52	6.4	10.1	3.7	0.028	160.7	6.55	11.52	16.49
24-gen	19h 51m 35.45s	-17° 22' 00.9"	0.3377834	0.6678546	5.55	8.3	10.1	3.1	0.047	155.0	6.47	11.43	16.39
25-gen	19h 47m 07.89s	-17° 33' 44.7"	0.3430163	0.6740899	5.61	10.3	10.0	2.6	0.071	149.2	6.40	11.35	16.31
26-gen	19h 43m 11.14s	-17° 45' 55.8"	0.3484527	0.6823976	5.67	12.2	9.9	2.2	0.098	143.5	6.33	11.28	16.22
27-gen	19h 39m 48.82s	-17° 58' 19.4"	0.3540450	0.6925318	5.76	13.9	9.7	1.8	0.128	138.0	6.27	11.21	16.15
28-gen	19h 37m 03.10s	-18° 10' 42.9"	0.3597489	0.7042463	5.86	15.5	9.5	1.5	0.160	132.8	6.21	11.14	16.07
29-gen	19h 34m 54.84s	-18° 22' 55.5"	0.3655227	0.7173030	5.96	17.0	9.4	1.3	0.193	127.9	6.16	11.09	16.01
30-gen	19h 33m 23.89s	-18° 34' 48.3"	0.3713284	0.7314782	6.08	18.4	9.2	1.0	0.226	123.2	6.11	11.03	15.55
31-gen	19h 32m 29.32s	-18° 46' 13.5"	0.3771309	0.7465666	6.21	19.6	9.0	0.8	0.259	118.8	6.07	10.59	15.50
1-feb	19h 32m 09.61s	-18° 57' 04.6"	0.3828983	0.7623832	6.34	20.7	8.8	0.7	0.292	114.6	6.04	10.55	15.45
2-feb	19h 32m 22.90s	-19° 07' 16.0"	0.3886018	0.7787636	6.48	21.7	8.6	0.6	0.323	110.7	6.01	10.51	15.41
3-feb	19h 33m 07.10s	-19° 16' 42.6"	0.3942154	0.7955640	6.62	22.5	8.5	0.5	0.354	107.0	5.59	10.48	15.38
4-feb	19h 34m 20.04s	-19° 25' 20.1"	0.3997158	0.8126595	6.76	23.2	8.3	0.4	0.383	103.5	5.57	10.46	15.35
5-feb	19h 35m 59.53s	-19° 33' 04.8"	0.4050820	0.8299429	6.90	23.9	8.1	0.3	0.411	100.2	5.55	10.44	15.32
6-feb	19h 38m 03.44s	-19° 39' 53.3"	0.4102954	0.8473227	7.05	24.4	7.9	0.2	0.438	97.1	5.54	10.42	15.30
7-feb	19h 40m 29.73s	-19° 45' 42.6"	0.4153394	0.8647213	7.19	24.8	7.8	0.2	0.464	94.2	5.53	10.40	15.28
8-feb	19h 43m 16.49s	-19° 50' 30.1"	0.4201994	0.8820734	7.33	25.2	7.6	0.1	0.488	91.4	5.52	10.39	15.27
9-feb	19h 46m 21.93s	-19° 54' 13.4"	0.4248622	0.8993244	7.48	25.5	7.5	0.1	0.510	88.8	5.51	10.39	15.26
10-feb	19h 49m 44.40s	-19° 56' 50.6"	0.4293162	0.9164286	7.62	25.7	7.3	0.1	0.532	86.3	5.51	10.38	15.26
11-feb	19h 53m 22.38s	-19° 58' 19.7"	0.4335511	0.9333482	7.76	25.9	7.2	0.1	0.553	84.0	5.51	10.38	15.25
12-feb	19h 57m 14.51s	-19° 58' 39.3"	0.4375581	0.9500524	7.90	26.0	7.1	0.0	0.572	81.7	5.51	10.38	15.25
13-feb	20h 01m 19.50s	-19° 57' 48.0"	0.4413291	0.9665157	8.04	26.1	7.0	0.0	0.590	79.6	5.51	10.38	15.26
14-feb	20h 05m 36.22s	-19° 55' 44.7"	0.4448570	0.9827176	8.17	26.1	6.8	0.0	0.608	77.6	5.51	10.39	15.26
15-feb	20h 10m 03.63s	-19° 52' 28.3"	0.4481359	0.9986417	8.30	26.1	6.7	0.0	0.624	75.6	5.51	10.39	15.27
16-feb	20h 14m 40.77s	-19° 47' 58.1"	0.4511603	1.0142753	8.43	26.0	6.6	0.0	0.640	73.7	5.52	10.40	15.29
17-feb	20h 19m 26.79s	-19° 42' 13.3"	0.4539256	1.0296082	8.56	25.9	6.5	0.0	0.655	71.9	5.52	10.41	15.30
18-feb	20h 24m 20.91s	-19° 35' 13.4"	0.4564277	1.0446328	8.69	25.8	6.4	0.0	0.669	70.2	5.53	10.42	15.31
19-feb	20h 29m 22.43s	-19° 26' 57.8"	0.4586632	1.0593436	8.81	25.6	6.3	0.0	0.683	68.5	5.53	10.43	15.33
20-feb	20h 34m 30.71s	-19° 17' 26.3"	0.4606290	1.0737365	8.93	25.4	6.3	0.0	0.696	66.9	5.54	10.44	15.35
21-feb	20h 39m 45.19s	-19° 06' 38.4"	0.4623226	1.0878088	9.05	25.1	6.2	0.0	0.708	65.4	5.54	10.46	15.37
22-feb	20h 45m 05.33s	-18° 54' 34.0"	0.4637420	1.1015589	9.16	24.9	6.1	0.0	0.720	63.9	5.55	10.47	15.40
23-feb	20h 50m 30.68s	-18° 41' 12.9"	0.4648854	1.1149858	9.27	24.6	6.0	-0.1	0.732	62.4	5.55	10.49	15.42
24-feb	20h 56m 00.81s	-18° 26' 35.0"	0.4657516	1.1280892	9.38	24.3	6.0	-0.1	0.743	61.0	5.56	10.50	15.45
25-feb	21h 01m 35.36s	-18° 10' 40.2"	0.4663394	1.1408693	9.49	24.0	5.9	-0.1	0.753	59.6	5.56	10.52	15.48
26-feb	21h 07m 13.97s	-17° 53' 28.5"	0.4666483	1.1533263	9.59	23.6	5.8	-0.1	0.764	58.2	5.57	10.54	15.51
27-feb	21h 12m 56.35s	-17° 34' 60.0"	0.4666780	1.1654608	9.69	23.2	5.8	-0.1	0.774	56.8	5.57	10.55	15.54
28-feb	21h 18m 42.24s	-17° 15' 14.6"	0.4664282	1.1772731	9.79	22.8	5.7	-0.1	0.783	55.5	5.58	10.57	15.57
1-mar	21h 24m 31.40s	-16° 54' 12.4"	0.4658995	1.1887635	9.89	22.4	5.7	-0.1	0.793	54.2	5.58	10.59	16.00
2-mar	21h 30m 23.63s	-16° 31' 53.6"	0.4650923	1.1999319	9.98	22.0	5.6	-0.1	0.802	52.9	5.59	11.01	16.04
3-mar	21h 36m 18.74s	-16° 08' 18.3"	0.4640075	1.2107780	10.07	21.5	5.6	-0.2	0.811	51.6	5.59	11.03	16.08
4-mar	21h 42m 16.58s	-15° 43' 26.7"	0.4626465	1.2213007	10.16	21.0	5.5	-0.2	0.820	50.3	6.00	11.05	16.11
5-mar	21h 48m 17.02s	-15° 17' 19.0"	0.4610109	1.2314984	10.24	20.5	5.5	-0.2	0.828	49.0	6.00	11.07	16.15
6-mar	21h 54m 19.96s	-14° 49' 55.3"	0.4591026	1.2413687	10.32	20.0	5.4	-0.2	0.837	47.7	6.00	11.09	16.19
7-mar	22h 00m 25.30s	-14° 21' 15.8"	0.4569241	1.2509083	10.40	19.5	5.4	-0.3	0.845	46.4	6.00	11.11	16.23
8-mar	22h 06m 32.99s	-13° 51' 20.9"	0.4544783	1.2601129	10.48	18.9	5.3	-0.3	0.853	45.0	6.01	11.14	16.28
9-mar	22h 12m 42.97s	-13° 20' 10.6"	0.4517685	1.2689770	10.55	18.3	5.3	-0.3	0.861	43.7	6.01	11.16	16.32
10-mar	22h 18m 55.22s	-12° 47' 45.3"	0.4487987	1.2774936	10.62	17.7	5.3	-0.3	0.869	42.4	6.01	11.18	16.36
11-mar	22h 25m 09.73s	-12° 14' 05.2"	0.4455734	1.2856546	10.69	17.1	5.2	-0.4	0.877	41.0	6.01	11.21	16.41
12-mar	22h 31m 26.51s	-11° 39' 10.7"	0.4420978	1.2934501	10.76	16.5	5.2	-0.4	0.885	39.6	6.01	11.23	16.45
13-mar	22h 37m 45.59s	-11° 03' 02.0"	0.4383779	1.3008684	10.82	15.8	5.2	-0.5	0.893	38.2	6.01	11.25	16.50

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
14-mar	22h 44m 07.00s	-10° 25' 39.7"	0.4344204	1.3078963	10.88	15.1	5.1	-0.5	0.901	36.7	6.02	11.28	16.55
15-mar	22h 50m 30.80s	-09° 47' 04.1"	0.4302332	1.3145181	10.93	14.4	5.1	-0.6	0.909	35.2	6.02	11.30	17.00
16-mar	22h 56m 57.06s	-09° 07' 15.7"	0.4258249	1.3207165	10.98	13.7	5.1	-0.6	0.916	33.7	6.02	11.33	17.05
17-mar	23h 03m 25.84s	-08° 26' 15.3"	0.4212056	1.3264713	11.03	13.0	5.1	-0.7	0.924	32.1	6.02	11.35	17.10
18-mar	23h 09m 57.23s	-07° 44' 03.4"	0.4163866	1.3317603	11.08	12.2	5.1	-0.7	0.931	30.4	6.02	11.38	17.15
19-mar	23h 16m 31.33s	-07° 00' 41.0"	0.4113805	1.3365583	11.12	11.4	5.0	-0.8	0.939	28.7	6.02	11.41	17.21
20-mar	23h 23m 08.25s	-06° 16' 08.8"	0.4062018	1.3408372	11.15	10.6	5.0	-0.9	0.946	26.9	6.02	11.43	17.26
21-mar	23h 29m 48.09s	-05° 30' 28.2"	0.4008667	1.3445661	11.18	9.8	5.0	-0.9	0.953	25.1	6.01	11.46	17.32
22-mar	23h 36m 30.96s	-04° 43' 40.2"	0.3953933	1.3477104	11.21	9.0	5.0	-1.0	0.960	23.2	6.01	11.49	17.37
23-mar	23h 43m 16.99s	-03° 55' 46.6"	0.3898020	1.3502326	11.23	8.1	5.0	-1.1	0.966	21.2	6.01	11.52	17.43
24-mar	23h 50m 06.29s	-03° 06' 49.0"	0.3841157	1.3520915	11.24	7.2	5.0	-1.2	0.973	19.1	6.01	11.55	17.49
25-mar	23h 56m 58.96s	-02° 16' 49.6"	0.3783597	1.3532422	11.25	6.3	5.0	-1.3	0.978	16.9	6.01	11.57	17.55
26-mar	00h 03m 55.10s	-01° 25' 50.9"	0.3725623	1.3536365	11.26	5.4	5.0	-1.4	0.984	14.6	6.01	12.01	18.01
27-mar	00h 10m 54.80s	-00° 33' 55.7"	0.3667546	1.3532229	11.25	4.5	5.0	-1.5	0.989	12.2	6.01	12.04	18.08
28-mar	00h 17m 58.11s	+00° 18' 52.5"	0.3609711	1.3519468	11.24	3.5	5.0	-1.6	0.993	9.8	6.01	12.07	18.14
29-mar	00h 25m 05.06s	+01° 12' 29.6"	0.3552492	1.3497509	11.23	2.6	5.0	-1.8	0.996	7.3	6.01	12.10	18.21
30-mar	00h 32m 15.63s	+02° 06' 51.1"	0.3496298	1.3465760	11.20	1.7	5.0	-1.9	0.998	4.9	6.01	12.13	18.27
31-mar	00h 39m 29.76s	+03° 01' 51.5"	0.3441567	1.3423619	11.16	1.1	5.0	-2.0	0.999	3.2	6.01	12.17	18.34
1-apr	00h 46m 47.33s	+03° 57' 24.8"	0.3388767	1.3370485	11.12	1.3	5.0	-2.0	0.999	3.9	6.01	12.20	18.41
2-apr	00h 54m 08.12s	+04° 53' 23.6"	0.3338391	1.3305775	11.07	2.1	5.1	-1.9	0.997	6.4	6.01	12.23	18.47
3-apr	01h 01m 31.87s	+05° 49' 40.1"	0.3290949	1.3228937	11.00	3.1	5.1	-1.9	0.993	9.5	6.01	12.27	18.54
4-apr	01h 08m 58.21s	+06° 46' 05.2"	0.3246964	1.3139478	10.93	4.2	5.1	-1.8	0.987	12.9	6.01	12.30	19.01
5-apr	01h 16m 26.64s	+07° 42' 29.0"	0.3206958	1.3036982	10.84	5.2	5.2	-1.8	0.979	16.5	6.01	12.34	19.09
6-apr	01h 23m 56.57s	+08° 38' 40.7"	0.3171438	1.2921137	10.75	6.3	5.2	-1.7	0.969	20.3	6.01	12.38	19.16
7-apr	01h 31m 27.32s	+09° 34' 28.7"	0.3140885	1.2791762	10.64	7.4	5.3	-1.6	0.956	24.2	6.01	12.41	19.23
8-apr	01h 38m 58.03s	+10° 29' 40.5"	0.3115736	1.2648826	10.52	8.5	5.3	-1.5	0.941	28.2	6.02	12.45	19.30
9-apr	01h 46m 27.79s	+11° 24' 03.3"	0.3096369	1.2492473	10.39	9.5	5.4	-1.5	0.922	32.4	6.02	12.48	19.37
10-apr	01h 53m 55.54s	+12° 17' 24.0"	0.3083083	1.2323031	10.25	10.6	5.5	-1.4	0.901	36.6	6.02	12.52	19.44
11-apr	02h 01m 20.15s	+13° 09' 29.6"	0.3076093	1.2141023	10.10	11.6	5.5	-1.3	0.878	40.9	6.02	12.55	19.50
12-apr	02h 08m 40.40s	+14° 00' 07.2"	0.3075510	1.1947159	9.94	12.6	5.6	-1.2	0.852	45.3	6.02	12.59	19.57
13-apr	02h 15m 55.05s	+14° 49' 04.7"	0.3081345	1.1742326	9.77	13.5	5.7	-1.2	0.824	49.7	6.02	13.02	20.03
14-apr	02h 23m 02.80s	+15° 36' 10.8"	0.3093503	1.1527569	9.59	14.5	5.8	-1.1	0.793	54.1	6.02	13.05	20.10
15-apr	02h 30m 02.36s	+16° 21' 15.3"	0.3111789	1.1304059	9.40	15.3	5.9	-1.0	0.762	58.4	6.02	13.08	20.15
16-apr	02h 36m 52.46s	+17° 04' 09.2"	0.3135916	1.1073060	9.21	16.1	6.1	-0.9	0.729	62.8	6.02	13.11	20.21
17-apr	02h 43m 31.88s	+17° 44' 44.9"	0.3165520	1.0835897	9.01	16.9	6.2	-0.8	0.694	67.1	6.02	13.13	20.26
18-apr	02h 49m 59.42s	+18° 22' 56.4"	0.3200175	1.0593918	8.81	17.6	6.3	-0.7	0.660	71.4	6.02	13.16	20.31
19-apr	02h 56m 13.97s	+18° 58' 38.7"	0.3239406	1.0348463	8.61	18.2	6.5	-0.6	0.625	75.6	6.02	13.18	20.36
20-apr	03h 02m 14.48s	+19° 31' 48.3"	0.3282708	1.0100838	8.40	18.8	6.7	-0.5	0.590	79.7	6.01	13.20	20.40
21-apr	03h 07m 59.98s	+20° 02' 22.9"	0.3329562	0.9852292	8.20	19.2	6.8	-0.4	0.555	83.7	6.01	13.22	20.43
22-apr	03h 13m 29.54s	+20° 30' 21.2"	0.3379445	0.9604003	7.99	19.6	7.0	-0.3	0.520	87.7	6.00	13.23	20.47
23-apr	03h 18m 42.32s	+20° 55' 42.5"	0.3431843	0.9357070	7.78	19.9	7.2	-0.2	0.486	91.6	6.00	13.24	20.49
24-apr	03h 23m 37.54s	+21° 18' 27.1"	0.3486260	0.9112504	7.58	20.2	7.4	0.0	0.453	95.4	5.99	13.25	20.52
25-apr	03h 28m 14.48s	+21° 38' 35.6"	0.3542222	0.8871232	7.38	20.3	7.6	0.1	0.421	99.1	5.98	13.25	20.53
26-apr	03h 32m 32.45s	+21° 56' 09.2"	0.3599287	0.8634098	7.18	20.4	7.8	0.2	0.389	102.8	5.97	13.26	20.55
27-apr	03h 36m 30.85s	+22° 11' 09.3"	0.3657039	0.8401869	6.99	20.4	8.0	0.4	0.359	106.4	5.96	13.25	20.55
28-apr	03h 40m 09.09s	+22° 23' 37.2"	0.3715098	0.8175244	6.80	20.3	8.2	0.5	0.329	109.9	5.95	13.25	20.56
29-apr	03h 43m 26.68s	+22° 33' 34.7"	0.3773115	0.7954858	6.62	20.1	8.5	0.7	0.301	113.5	5.93	13.24	20.55
30-apr	03h 46m 23.17s	+22° 41' 03.5"	0.3830771	0.7741293	6.44	19.8	8.7	0.8	0.274	116.9	5.92	13.23	20.54
1-mag	03h 48m 58.18s	+22° 46' 05.3"	0.3887780	0.7535084	6.27	19.4	8.9	1.0	0.247	120.4	5.90	13.21	20.53
2-mag	03h 51m 11.42s	+22° 48' 41.8"	0.3943882	0.7336725	6.10	19.0	9.2	1.2	0.222	123.8	5.88	13.19	20.51
3-mag	03h 53m 02.73s	+22° 48' 54.9"	0.3998845	0.7146677	5.94	18.4	9.4	1.4	0.198	127.2	5.86	13.17	20.49
4-mag	03h 54m 32.01s	+22° 46' 46.5"	0.4052461	0.6965372	5.79	17.8	9.7	1.6	0.175	130.6	5.83	13.15	20.45
5-mag	03h 55m 39.35s	+22° 42' 19.1"	0.4104543	0.6793216	5.65	17.0	9.9	1.8	0.153	134.0	5.81	13.12	20.42
6-mag	03h 56m 24.95s	+22° 35' 35.1"	0.4154927	0.6630593	5.52	16.2	10.1	2.0	0.132	137.4	5.78	13.08	20.38
7-mag	03h 56m 49.21s	+22° 26' 37.8"	0.4203466	0.6477865	5.39	15.3	10.4	2.3	0.113	140.8	5.75	13.05	20.33
8-mag	03h 56m 52.71s	+22° 15' 31.1"	0.4250029	0.6335376	5.27	14.3	10.6	2.5	0.095	144.2	5.72	13.00	20.28
9-mag	03h 56m 36.22s	+22° 02' 19.5"	0.4294501	0.6203444	5.16	13.2	10.8	2.8	0.078	147.6	5.69	12.56	20.22
10-mag	03h 56m 00.77s	+21° 47' 08.9"	0.4336781	0.6082368	5.06	12.0	11.1	3.1	0.063	151.0	5.66	12.51	20.16
11-mag	03h 55m 07.57s	+21° 30' 06.2"	0.4376777	0.5972418	4.97	10.8	11.3	3.4	0.049	154.5	5.62	12.47	20.10
12-mag	03h 53m 58.08s	+21° 11' 19.9"	0.4414411	0.5873835	4.89	9.4	11.4	3.7	0.037	157.9	5.58	12.41	20.03
13-mag	03h 52m 33.97s	+20° 50' 59.7"	0.4449614	0.5786824	4.81	8.1	11.6	4.1	0.026	161.4	5.54	12.36	19.96
14-mag	03h 50m 57.12s	+20° 29' 17.2"	0.4482324	0.5711553	4.75	6.7	11.8	4.4	0.017	164.9	5.51	12.30	19.49
15-mag	03h 49m 09.59s	+20° 06' 25.2"	0.4512488	0.5648148	4.70	5.2	11.9	4.8	0.010	168.3	5.48	12.24	19.41
16-mag	03h 47m 13.60s	+19° 42' 38.2"	0.4540059	0.5596684	4.65	3.7	12.0	5.2	0.005	171.7	5.45	12.19	19.34
17-mag	03h 45m 11.45s	+19° 18' 11.9"	0.4564998	0.5557189	4.62	2.2	12.1	5.6	0.002	175.0	5.42	12.13	19.26
18-mag	03h 43m 05.54s	+18° 53' 23.0"	0.4587269	0.5529639	4.60	1.0	12.2	6.0	0.000	177.7	5.40	12.07	19.18
19-mag	03h 40m 58.25s	+18° 28' 29.1"	0.4606843	0.5513953	4.59	1.4	12.2	5.8	0.001	176.8	5.39	12.01	19.10
20-mag	03h 38m 51.96s	+18° 03' 47.6"	0.4623694	0.5510003	4.58	2.8	12.2	5.5	0.003	173.8	5.37	11.55	19.03
21-mag	03h 36m 48.95s	+17° 39' 36.4"	0.4637803	0.5517605	4.59	4.3	12.2	5.1	0.007	170.5	5.35	11.49	18.55
22-mag	03h 34m 51.38s	+17° 16' 12.5"	0.4649152	0.5536532	4.60	5.8	12.1	4.7	0.012	167.2	5.33	11.43	18.48
23-mag	03h 33m 01.25s	+16° 53' 51.9"	0.4657728	0.5566515	4.63	7.3	12.1	4.3	0.020	163.9	5.31	11.37	18.41
24-mag	03h 31m 20.38s	+16° 32' 49.6"	0.4663520	0.5607247	4.66	8.8	12.0	4.0	0.028	160.7	5.29	11.32	18.34
25-mag	03h 29m 50.38s	+16° 13' 18.9"	0.4666523	0.5658395	4.71	10.2	11.9	3.7	0.038	157.5	5.27	11.26	18.28
26-mag	03h 28m 32.65s	+15° 55' 31.4"	0.4666734	0.5719603	4.76	11.5	11.8	3.4	0.049	154.4	5.25	11.21	18.21
27-mag	03h 27m 28.37s	+15° 39' 36.6"	0.4664151	0.5790500	4.82	12.8	11.6	3.2	0.061	151.3	5.23	11.16	18.16
28-mag	03h 26m 38.51s	+15° 25' 42.4"	0.4658778	0.5870706	4.88	14.0	11.5	2.9	0.075	148.3	5.21	11.12	18.10
29-mag	03h 26m 03.85s	+15° 13' 54.5"	0.4650621										

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
30-mag	03h 25m 45.00s	+15° 04' 17.0"	0.4639689	0.6057514	5.04	16.2	11.1	2.5	0.104	142.4	4.05	11.03	18.01
31-mag	03h 25m 42.38s	+14° 56' 52.3"	0.4625995	0.6163359	5.13	17.2	10.9	2.3	0.119	139.6	4.02	10.59	17.56
1-giu	03h 25m 56.31s	+14° 51' 41.1"	0.4609555	0.6277007	5.22	18.1	10.7	2.1	0.136	136.8	3.58	10.56	17.53
2-giu	03h 26m 26.95s	+14° 48' 42.9"	0.4590390	0.6398103	5.32	19.0	10.5	1.9	0.152	134.1	3.55	10.52	17.49
3-giu	03h 27m 14.39s	+14° 47' 55.9"	0.4568524	0.6526305	5.43	19.8	10.3	1.8	0.169	131.4	3.52	10.49	17.46
4-giu	03h 28m 18.60s	+14° 49' 17.3"	0.4543985	0.6661287	5.54	20.4	10.1	1.6	0.187	128.8	3.49	10.46	17.44
5-giu	03h 29m 39.53s	+14° 52' 43.5"	0.4516808	0.6802737	5.66	21.1	9.9	1.5	0.205	126.2	3.46	10.44	17.42
6-giu	03h 31m 17.05s	+14° 58' 10.0"	0.4487033	0.6950357	5.78	21.6	9.7	1.4	0.223	123.6	3.44	10.42	17.40
7-giu	03h 33m 11.00s	+15° 05' 31.9"	0.4454704	0.7103866	5.91	22.1	9.5	1.2	0.242	121.1	3.41	10.40	17.39
8-giu	03h 35m 21.21s	+15° 14' 43.8"	0.4419874	0.7262990	6.04	22.5	9.3	1.1	0.261	118.6	3.39	10.38	17.38
9-giu	03h 37m 47.50s	+15° 25' 39.8"	0.4382603	0.7427471	6.18	22.8	9.1	1.0	0.280	116.1	3.37	10.37	17.38
10-giu	03h 40m 29.68s	+15° 38' 13.9"	0.4342959	0.7597058	6.32	23.1	8.9	0.9	0.299	113.7	3.34	10.36	17.37
11-giu	03h 43m 27.59s	+15° 52' 19.6"	0.4301020	0.7771503	6.46	23.3	8.7	0.8	0.319	111.2	3.33	10.35	17.38
12-giu	03h 46m 41.06s	+16° 07' 50.6"	0.4256874	0.7950565	6.61	23.4	8.5	0.7	0.339	108.8	3.31	10.34	17.38
13-giu	03h 50m 09.96s	+16° 24' 40.0"	0.4210620	0.8134001	6.76	23.4	8.3	0.6	0.360	106.3	3.29	10.34	17.39
14-giu	03h 53m 54.17s	+16° 42' 41.1"	0.4162374	0.8321561	6.92	23.4	8.1	0.5	0.380	103.8	3.28	10.34	17.40
15-giu	03h 57m 53.61s	+17° 01' 47.0"	0.4112261	0.8512992	7.08	23.4	7.9	0.4	0.401	101.4	3.27	10.34	17.42
16-giu	04h 02m 08.22s	+17° 21' 50.5"	0.4060427	0.8708022	7.24	23.3	7.7	0.3	0.423	98.8	3.25	10.34	17.44
17-giu	04h 06m 37.97s	+17° 42' 44.3"	0.4007034	0.8906367	7.41	23.1	7.6	0.3	0.445	96.3	3.25	10.35	17.46
18-giu	04h 11m 22.85s	+18° 04' 21.2"	0.3952264	0.9107715	7.57	22.8	7.4	0.2	0.468	93.7	3.24	10.36	17.49
19-giu	04h 16m 22.88s	+18° 26' 33.4"	0.3896322	0.9311730	7.74	22.5	7.2	0.1	0.491	91.1	3.23	10.37	17.51
20-giu	04h 21m 38.11s	+18° 49' 13.1"	0.3839437	0.9518038	7.91	22.2	7.1	0.0	0.514	88.4	3.23	10.38	17.55
21-giu	04h 27m 08.59s	+19° 12' 12.3"	0.3781864	0.9726227	8.09	21.8	6.9	-0.1	0.538	85.6	3.23	10.40	17.58
22-giu	04h 32m 54.37s	+19° 35' 22.4"	0.3723885	0.9935838	8.26	21.3	6.8	-0.2	0.563	82.8	3.23	10.42	18.02
23-giu	04h 38m 55.53s	+19° 58' 34.6"	0.3665814	1.0146359	8.44	20.8	6.6	-0.3	0.588	79.9	3.24	10.44	18.06
24-giu	04h 45m 12.11s	+20° 21' 39.8"	0.3607996	1.0357221	8.61	20.2	6.5	-0.3	0.614	76.9	3.24	10.47	18.10
25-giu	04h 51m 44.14s	+20° 44' 28.4"	0.3550805	1.0567787	8.79	19.6	6.4	-0.4	0.640	73.8	3.25	10.49	18.14
26-giu	04h 58m 31.63s	+21° 06' 50.1"	0.3494652	1.0777356	8.96	18.9	6.2	-0.5	0.666	70.6	3.27	10.52	18.19
27-giu	05h 05m 34.52s	+21° 28' 34.7"	0.3439976	1.0985150	9.13	18.2	6.1	-0.6	0.693	67.3	3.28	10.55	18.24
28-giu	05h 12m 52.70s	+21° 49' 30.9"	0.3387245	1.1190318	9.31	17.4	6.0	-0.7	0.720	63.9	3.30	10.59	18.29
29-giu	05h 20m 25.96s	+22° 09' 27.6"	0.3336953	1.1391939	9.47	16.6	5.9	-0.8	0.747	60.4	3.32	11.03	18.34
30-giu	05h 28m 13.98s	+22° 28' 13.0"	0.3289612	1.1589022	9.64	15.7	5.8	-0.9	0.774	56.8	3.35	11.07	18.40
1-lug	05h 36m 16.32s	+22° 45' 35.1"	0.3245742	1.1780520	9.80	14.8	5.7	-1.0	0.800	53.1	3.37	11.11	18.45
2-lug	05h 44m 32.38s	+23° 01' 22.2"	0.3205866	1.1965340	9.95	13.8	5.6	-1.1	0.826	49.2	3.41	11.15	18.51
3-lug	05h 53m 01.39s	+23° 15' 22.2"	0.3170491	1.2142370	10.10	12.8	5.5	-1.1	0.851	45.3	3.44	11.20	18.56
4-lug	06h 01m 42.41s	+23° 27' 23.8"	0.3140096	1.2310495	10.24	11.8	5.5	-1.2	0.875	41.3	3.48	11.25	19.02
5-lug	06h 10m 34.34s	+23° 37' 16.0"	0.3115118	1.2468632	10.37	10.7	5.4	-1.3	0.898	37.3	3.52	11.30	19.08
6-lug	06h 19m 35.86s	+23° 44' 49.0"	0.3095931	1.2615761	10.49	9.6	5.3	-1.4	0.918	33.2	3.57	11.35	19.14
7-lug	06h 28m 45.54s	+23° 49' 54.1"	0.3082832	1.2750954	10.60	8.5	5.3	-1.5	0.937	29.1	4.02	11.40	19.19
8-lug	06h 38m 01.77s	+23° 52' 24.1"	0.3076033	1.2873412	10.71	7.3	5.2	-1.6	0.953	24.9	4.07	11.46	19.25
9-lug	06h 47m 22.89s	+23° 52' 13.3"	0.3075643	1.2982486	10.80	6.2	5.2	-1.7	0.967	20.8	4.12	11.51	19.30
10-lug	06h 56m 47.13s	+23° 49' 18.2"	0.3081669	1.3077703	10.88	5.0	5.1	-1.8	0.979	16.8	4.18	11.57	19.35
11-lug	07h 06m 12.74s	+23° 43' 36.9"	0.3094013	1.3158775	10.94	3.9	5.1	-1.9	0.987	12.9	4.24	12.02	19.40
12-lug	07h 15m 37.98s	+23° 35' 09.7"	0.3112476	1.3225603	11.00	2.8	5.1	-2.0	0.994	9.2	4.30	12.08	19.44
13-lug	07h 25m 01.21s	+23° 23' 58.6"	0.3136771	1.3278271	11.04	1.9	5.1	-2.1	0.997	6.2	4.37	12.13	19.49
14-lug	07h 34m 20.86s	+23° 10' 07.4"	0.3166531	1.3317033	11.08	1.5	5.1	-2.1	0.998	4.8	4.43	12.18	19.53
15-lug	07h 43m 35.54s	+22° 53' 41.2"	0.3201327	1.3342289	11.10	1.9	5.0	-2.0	0.997	6.1	4.50	12.24	19.57
16-lug	07h 52m 43.99s	+22° 34' 46.5"	0.3240684	1.3354561	11.11	2.8	5.0	-1.9	0.994	8.8	4.56	12.29	20.00
17-lug	08h 01m 45.13s	+22° 13' 30.9"	0.3284097	1.3354467	11.11	3.8	5.0	-1.8	0.989	11.9	5.03	12.34	20.04
18-lug	08h 10m 38.06s	+21° 50' 02.4"	0.3331046	1.3342693	11.10	4.9	5.0	-1.7	0.983	15.1	5.10	12.39	20.06
19-lug	08h 19m 22.04s	+21° 24' 29.6"	0.3381008	1.3319967	11.08	6.0	5.1	-1.5	0.975	18.2	5.17	12.43	20.09
20-lug	08h 27m 56.49s	+20° 57' 01.4"	0.3433470	1.3287038	11.05	7.0	5.1	-1.4	0.966	21.2	5.23	12.48	20.11
21-lug	08h 36m 20.99s	+20° 27' 46.8"	0.3487936	1.3244657	11.02	8.1	5.1	-1.3	0.956	24.1	5.30	12.52	20.14
22-lug	08h 44m 35.21s	+19° 56' 54.6"	0.3543935	1.3193557	10.97	9.1	5.1	-1.2	0.946	26.9	5.36	12.57	20.15
23-lug	08h 52m 38.99s	+19° 24' 33.5"	0.3601022	1.3134448	10.92	10.1	5.1	-1.1	0.935	29.6	5.43	13.01	20.17
24-lug	09h 00m 32.22s	+18° 50' 51.8"	0.3658786	1.3068005	10.87	11.0	5.1	-1.0	0.923	32.1	5.49	13.05	20.18
25-lug	09h 08m 14.89s	+18° 15' 57.5"	0.3716845	1.2994863	10.81	12.0	5.2	-0.9	0.912	34.6	5.55	13.08	20.20
26-lug	09h 15m 47.07s	+17° 39' 58.2"	0.3774852	1.2915611	10.74	12.9	5.2	-0.8	0.899	37.0	6.02	13.12	20.20
27-lug	09h 23m 08.87s	+17° 03' 01.2"	0.3832491	1.2830794	10.67	13.8	5.2	-0.8	0.887	39.2	6.08	13.15	20.21
28-lug	09h 30m 20.44s	+16° 25' 13.2"	0.3889473	1.2740910	10.60	14.7	5.3	-0.7	0.875	41.4	6.13	13.18	20.22
29-lug	09h 37m 21.96s	+15° 46' 40.6"	0.3945542	1.2646411	10.52	15.5	5.3	-0.6	0.863	43.5	6.19	13.21	20.22
30-lug	09h 44m 13.65s	+15° 07' 29.6"	0.4000465	1.2547708	10.44	16.3	5.4	-0.6	0.851	45.5	6.25	13.24	20.22
31-lug	09h 50m 55.72s	+14° 27' 45.6"	0.4054035	1.2445166	10.35	17.1	5.4	-0.5	0.838	47.4	6.30	13.27	20.22
1-ago	09h 57m 28.38s	+13° 47' 34.1"	0.4106067	1.2339117	10.26	17.9	5.5	-0.4	0.826	49.3	6.35	13.29	20.22
2-ago	10h 03m 51.87s	+13° 06' 59.9"	0.4156396	1.2229851	10.17	18.6	5.5	-0.4	0.814	51.1	6.40	13.32	20.22
3-ago	10h 10m 06.41s	+12° 26' 07.8"	0.4204876	1.2117631	10.08	19.3	5.6	-0.3	0.802	52.8	6.45	13.34	20.21
4-ago	10h 16m 12.20s	+11° 45' 02.3"	0.4251377	1.2002685	9.98	20.0	5.6	-0.3	0.790	54.5	6.50	13.36	20.21
5-ago	10h 22m 09.47s	+11° 03' 47.4"	0.4295783	1.1885217	9.89	20.6	5.7	-0.3	0.778	56.2	6.55	13.38	20.20
6-ago	10h 27m 58.38s	+10° 22' 27.1"	0.4337994	1.1765405	9.79	21.2	5.7	-0.2	0.766	57.8	6.59	13.40	20.19
7-ago	10h 33m 39.13s	+09° 41' 05.3"	0.4377920	1.1643405	9.68	21.8	5.8	-0.2	0.754	59.4	7.03	13.41	20.18
8-ago	10h 39m 11.87s	+08° 59' 45.5"	0.4415481	1.1519354	9.58	22.4	5.8	-0.1	0.743	61.0	7.07	13.43	20.17
9-ago	10h 44m 36.73s	+08° 18' 31.3"	0.4450609	1.1393370	9.48	22.9	5.9	-0.1	0.731	62.5	7.11	13.44	20.16
10-ago	10h 49m 53.85s	+07° 37' 25.9"	0.4483243	1.1265559	9.37	23.4	6.0	-0.1	0.719	64.0	7.15	13.46	20.15
11-ago	10h 55m 03.31s	+06° 56' 32.8"	0.4513329	1.1136011	9.26	23.9	6.0	0.0	0.707	65.5	7.19	13.47	20.13
12-ago	11h 00m 05.20s	+06° 15' 55.0"	0.4540821	1.1004806	9.15	24.4	6.1	0.0	0.695	67.0	7.23	13.48	20.12
13-ago	11h 04m 59.55s	+05° 35' 36.0"	0.4565680	1.0872014	9.04	24.8	6.2	0.0	0.683	68.5	7.26	13.49	20.10
14-ago	11h 09m 46.38s	+04° 55' 38.7"	0.4587870										

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
15-ago	11h 14m 25.69s	+04° 16' 06.5"	0.4607362	1.0601917	8.82	25.6	6.3	0.1	0.659	71.5	7.32	13.50	20.07
16-ago	11h 18m 57.44s	+03° 37' 02.6"	0.4624131	1.0464722	8.70	25.9	6.4	0.1	0.646	73.0	7.35	13.51	20.05
17-ago	11h 23m 21.54s	+02° 58' 30.3"	0.4638157	1.0326165	8.59	26.2	6.5	0.1	0.634	74.5	7.38	13.51	20.03
18-ago	11h 27m 37.90s	+02° 20' 33.2"	0.4649423	1.0186295	8.47	26.5	6.6	0.1	0.621	76.0	7.40	13.51	20.01
19-ago	11h 31m 46.35s	+01° 43' 14.6"	0.4657915	1.0045167	8.36	26.7	6.7	0.2	0.608	77.5	7.43	13.51	19.59
20-ago	11h 35m 46.72s	+01° 06' 38.5"	0.4663624	0.9902836	8.24	26.9	6.8	0.2	0.594	79.1	7.45	13.51	19.57
21-ago	11h 39m 38.77s	+00° 30' 48.6"	0.4666543	0.9759366	8.12	27.1	6.9	0.2	0.581	80.7	7.47	13.51	19.54
22-ago	11h 43m 22.23s	-00° 04' 11.0"	0.4666669	0.9614829	8.00	27.2	7.0	0.2	0.566	82.4	7.49	13.51	19.52
23-ago	11h 46m 56.79s	-00° 38' 15.8"	0.4664003	0.9469309	7.88	27.3	7.1	0.3	0.552	84.0	7.50	13.51	19.50
24-ago	11h 50m 22.09s	-01° 11' 21.2"	0.4658546	0.9322902	7.75	27.4	7.2	0.3	0.537	85.8	7.52	13.50	19.47
25-ago	11h 53m 37.70s	-01° 43' 22.3"	0.4650305	0.9175722	7.63	27.4	7.3	0.3	0.521	87.6	7.53	13.49	19.44
26-ago	11h 56m 43.15s	-02° 14' 13.6"	0.4639290	0.9027903	7.51	27.3	7.4	0.3	0.505	89.4	7.54	13.48	19.42
27-ago	11h 59m 37.92s	-02° 43' 49.4"	0.4625513	0.8879599	7.39	27.2	7.6	0.4	0.489	91.3	7.55	13.47	19.39
28-ago	12h 02m 21.41s	-03° 12' 03.5"	0.4608991	0.8730991	7.26	27.1	7.7	0.4	0.472	93.3	7.55	13.46	19.36
29-ago	12h 04m 52.99s	-03° 38' 49.0"	0.4589744	0.8582292	7.14	26.9	7.8	0.4	0.454	95.3	7.55	13.44	19.33
30-ago	12h 07m 11.93s	-04° 03' 58.7"	0.4567797	0.8433746	7.02	26.7	8.0	0.5	0.435	97.4	7.55	13.42	19.29
31-ago	12h 09m 17.48s	-04° 27' 24.4"	0.4543179	0.8285642	6.89	26.3	8.1	0.5	0.416	99.6	7.54	13.40	19.26
1-set	12h 11m 08.81s	-04° 48' 57.7"	0.4515923	0.8138309	6.77	26.0	8.3	0.6	0.396	102.0	7.53	13.38	19.23
2-set	12h 12m 45.04s	-05° 08' 29.2"	0.4486070	0.7992133	6.65	25.5	8.4	0.6	0.376	104.4	7.52	13.36	19.19
3-set	12h 14m 05.25s	-05° 25' 48.8"	0.4453665	0.7847555	6.53	25.0	8.6	0.7	0.355	106.9	7.51	13.33	19.15
4-set	12h 15m 08.48s	-05° 40' 45.7"	0.4418761	0.7705083	6.41	24.4	8.7	0.8	0.332	109.6	7.48	13.30	19.11
5-set	12h 15m 53.77s	-05° 53' 08.6"	0.4381417	0.7565298	6.29	23.7	8.9	0.8	0.310	112.4	7.46	13.27	19.07
6-set	12h 16m 20.15s	-06° 02' 45.3"	0.4341702	0.7428864	6.18	22.9	9.1	0.9	0.286	115.3	7.43	13.23	19.03
7-set	12h 16m 26.71s	-06° 09' 23.4"	0.4299695	0.7296531	6.07	22.0	9.2	1.1	0.262	118.4	7.39	13.19	18.59
8-set	12h 16m 12.61s	-06° 12' 50.1"	0.4255483	0.7169147	5.96	21.1	9.4	1.2	0.238	121.6	7.35	13.15	18.54
9-set	12h 15m 37.12s	-06° 12' 52.8"	0.4209168	0.7047661	5.86	20.0	9.5	1.3	0.213	125.0	7.30	13.10	18.50
10-set	12h 14m 39.72s	-06° 09' 19.6"	0.4160863	0.6933129	5.77	18.8	9.7	1.5	0.188	128.6	7.25	13.05	18.45
11-set	12h 13m 20.14s	-06° 01' 59.4"	0.4110696	0.6826715	5.68	17.5	9.8	1.7	0.163	132.4	7.19	12.59	18.40
12-set	12h 11m 38.46s	-05° 50' 43.4"	0.4058812	0.6729688	5.60	16.2	10.0	1.9	0.138	136.4	7.13	12.54	18.35
13-set	12h 09m 35.16s	-05° 35' 25.2"	0.4005374	0.6643416	5.53	14.7	10.1	2.2	0.114	140.5	7.06	12.48	18.30
14-set	12h 07m 11.24s	-05° 16' 02.7"	0.3950566	0.6569351	5.46	13.1	10.2	2.5	0.091	144.8	6.58	12.41	18.25
15-set	12h 04m 28.27s	-04° 52' 38.5"	0.3894592	0.6509007	5.41	11.4	10.3	2.8	0.070	149.3	6.50	12.34	18.19
16-set	12h 01m 28.49s	-04° 25' 21.3"	0.3837683	0.6463930	5.38	9.6	10.4	3.2	0.051	154.0	6.41	12.27	18.14
17-set	11h 58m 14.82s	-03° 54' 27.0"	0.3780093	0.6435663	5.35	7.9	10.4	3.6	0.034	158.7	6.32	12.20	18.09
18-set	11h 54m 50.86s	-03° 20' 18.8"	0.3722107	0.6425691	5.34	6.1	10.5	4.1	0.021	163.4	6.23	12.13	18.03
19-set	11h 51m 20.85s	-02° 43' 28.1"	0.3664039	0.6435394	5.35	4.4	10.4	4.6	0.011	167.7	6.13	12.05	17.58
20-set	11h 47m 49.56s	-02° 04' 33.7"	0.3606234	0.6465983	5.38	3.2	10.4	4.9	0.006	170.9	6.04	11.58	17.53
21-set	11h 44m 22.16s	-01° 24' 20.8"	0.3549070	0.6518446	5.42	3.1	10.3	4.9	0.006	171.2	5.54	11.51	17.48
22-set	11h 41m 04.02s	-00° 43' 39.5"	0.3492956	0.6593495	5.48	4.1	10.2	4.6	0.011	168.2	5.44	11.43	17.44
23-set	11h 38m 00.49s	-00° 03' 22.5"	0.3438333	0.6691514	5.56	5.6	10.0	4.0	0.021	163.4	5.35	11.37	17.39
24-set	11h 35m 16.67s	+00° 35' 37.2"	0.3385669	0.6812533	5.67	7.3	9.9	3.5	0.036	158.0	5.26	11.30	17.35
25-set	11h 32m 57.22s	+01° 12' 28.7"	0.3335460	0.6956206	5.78	8.9	9.7	2.9	0.057	152.3	5.18	11.24	17.31
26-set	11h 31m 06.14s	+01° 46' 25.3"	0.3288218	0.7121807	5.92	10.5	9.4	2.4	0.084	146.4	5.10	11.19	17.28
27-set	11h 29m 46.71s	+02° 16' 46.3"	0.3244463	0.7308247	6.08	11.9	9.2	1.9	0.115	140.4	5.03	11.14	17.25
28-set	11h 29m 01.32s	+02° 42' 58.1"	0.3204718	0.7514090	6.25	13.2	8.9	1.5	0.150	134.4	4.57	11.09	17.22
29-set	11h 28m 51.52s	+03° 04' 34.7"	0.3169488	0.7737596	6.43	14.4	8.7	1.1	0.190	128.4	4.52	11.05	17.19
30-set	11h 29m 17.97s	+03° 21' 18.1"	0.3139254	0.7976764	6.63	15.4	8.4	0.8	0.232	122.4	4.48	11.02	17.17
1-ott	11h 30m 20.56s	+03° 32' 57.5"	0.3114448	0.8229385	6.84	16.2	8.2	0.5	0.277	116.4	4.44	10.59	17.15
2-ott	11h 31m 58.46s	+03° 39' 29.2"	0.3095443	0.8493096	7.06	16.8	7.9	0.2	0.324	110.6	4.42	10.57	17.13
3-ott	11h 34m 10.24s	+03° 40' 55.7"	0.3082535	0.8765447	7.29	17.3	7.7	0.0	0.372	104.8	4.40	10.56	17.12
4-ott	11h 36m 53.98s	+03° 37' 24.6"	0.3075931	0.9043958	7.52	17.7	7.4	-0.2	0.421	99.1	4.39	10.55	17.10
5-ott	11h 40m 07.40s	+03° 29' 07.9"	0.3075738	0.9326185	7.75	17.9	7.2	-0.3	0.469	93.6	4.39	10.54	17.09
6-ott	11h 43m 47.97s	+03° 16' 21.1"	0.3081959	0.9609779	7.99	17.9	7.0	-0.5	0.516	88.2	4.39	10.54	17.08
7-ott	11h 47m 53.03s	+02° 59' 22.4"	0.3094493	0.9892531	8.23	17.9	6.8	-0.6	0.562	82.9	4.41	10.54	17.08
8-ott	11h 52m 19.88s	+02° 38' 31.6"	0.3113140	1.0172423	8.46	17.7	6.6	-0.7	0.605	77.9	4.43	10.55	17.07
9-ott	11h 57m 05.84s	+02° 14' 09.7"	0.3137607	1.0447656	8.69	17.5	6.4	-0.7	0.647	73.0	4.45	10.56	17.06
10-ott	12h 02m 08.37s	+01° 46' 38.3"	0.3167527	1.0716669	8.91	17.1	6.3	-0.8	0.685	68.3	4.48	10.57	17.06
11-ott	12h 07m 25.06s	+01° 16' 18.6"	0.3202470	1.0978149	9.13	16.7	6.1	-0.8	0.721	63.7	4.51	10.59	17.05
12-ott	12h 12m 53.73s	+00° 43' 31.5"	0.3241958	1.1231027	9.34	16.2	6.0	-0.9	0.754	59.4	4.55	11.00	17.05
13-ott	12h 18m 32.39s	+00° 08' 36.8"	0.3285487	1.1474469	9.54	15.7	5.9	-0.9	0.784	55.3	4.58	11.02	17.05
14-ott	12h 24m 19.28s	-00° 28' 06.8"	0.3332536	1.1707855	9.74	15.1	5.7	-1.0	0.812	51.4	5.02	11.04	17.04
15-ott	12h 30m 12.86s	-01° 06' 21.9"	0.3382581	1.1930755	9.92	14.5	5.6	-1.0	0.837	47.7	5.07	11.06	17.04
16-ott	12h 36m 11.80s	-01° 45' 52.6"	0.3435112	1.2142910	10.10	13.9	5.5	-1.0	0.859	44.1	5.11	11.08	17.04
17-ott	12h 42m 14.97s	-02° 26' 24.3"	0.3489631	1.2344200	10.26	13.2	5.4	-1.0	0.879	40.8	5.16	11.10	17.03
18-ott	12h 48m 21.44s	-03° 07' 44.0"	0.3545669	1.2534622	10.42	12.5	5.4	-1.0	0.896	37.6	5.20	11.12	17.03
19-ott	12h 54m 30.42s	-03° 49' 39.7"	0.3602783	1.2714266	10.57	11.9	5.3	-1.0	0.912	34.6	5.25	11.15	17.03
20-ott	13h 00m 41.25s	-04° 32' 01.1"	0.3660561	1.2883297	10.71	11.2	5.2	-1.1	0.925	31.7	5.30	11.17	17.02
21-ott	13h 06m 53.44s	-05° 14' 38.8"	0.3718624	1.3041933	10.85	10.4	5.2	-1.1	0.937	29.0	5.35	11.19	17.02
22-ott	13h 13m 06.57s	-05° 57' 24.4"	0.3776624	1.3190430	10.97	9.7	5.1	-1.1	0.948	26.5	5.40	11.21	17.02
23-ott	13h 19m 20.31s	-06° 40' 10.7"	0.3834247	1.3329072	11.08	9.0	5.0	-1.1	0.957	24.0	5.45	11.24	17.01
24-ott	13h 25m 34.44s	-07° 22' 51.2"	0.3891205	1.3458158	11.19	8.3	5.0	-1.1	0.965	21.7	5.50	11.26	17.01
25-ott	13h 31m 48.78s	-08° 05' 20.1"	0.3947242	1.3577994	11.29	7.6	5.0	-1.1	0.971	19.5	5.54	11.28	17.01
26-ott	13h 38m 03.21s	-08° 47' 32.5"	0.4002127	1.3688888	11.38	6.9	4.9	-1.1	0.977	17.4	5.59	11.31	17.01
27-ott	13h 44m 17.67s	-09° 29' 23.8"	0.4055653	1.3791140	11.47	6.2	4.9	-1.1	0.982	15.4	6.04	11.33	17.00
28-ott	13h 50m 32.11s	-10° 10' 50.0"	0.4107635	1.3885044	11.55	5.5	4.8	-1.2	0.986	13.5	6.09	11.35	17.00
29-ott	13h 56m 46.53s	-10° 51' 47.7"	0.4157910	1.3970883	11.62	4.8	4.8	-1.2	0.990	11.6	6.14	11.37	17.00
30-ott	14h 03m 00.97s	-11° 32' 13.6"	0.4206331	1.4048925									

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
31-ott	14h 09m 15.45s	-12° 12' 05.0"	0.4252769	1.4119424	11.74	3.5	4.8	-1.2	0.995	8.2	6.24	11.42	16.59
1-nov	14h 15m 30.04s	-12° 51' 19.3"	0.4297110	1.4182619	11.79	2.8	4.7	-1.3	0.997	6.6	6.28	11.44	16.59
2-nov	14h 21m 44.80s	-13° 29' 54.1"	0.4339253	1.4238731	11.84	2.2	4.7	-1.3	0.998	5.0	6.33	11.47	16.59
3-nov	14h 27m 59.83s	-14° 07' 47.5"	0.4379107	1.4287967	11.88	1.5	4.7	-1.3	0.999	3.5	6.38	11.49	16.59
4-nov	14h 34m 15.19s	-14° 44' 57.3"	0.4416595	1.4330514	11.92	0.9	4.7	-1.3	1.000	2.1	6.43	11.51	16.59
5-nov	14h 40m 30.98s	-15° 21' 21.6"	0.4451648	1.4366545	11.95	0.4	4.7	-1.4	1.000	0.9	6.47	11.54	16.59
6-nov	14h 46m 47.33s	-15° 56' 59.7"	0.4484204	1.4396216	11.97	0.5	4.7	-1.3	1.000	1.1	6.52	11.56	16.59
7-nov	14h 53m 04.23s	-16° 31' 48.9"	0.4514212	1.4419666	11.99	1.0	4.7	-1.3	1.000	2.3	6.57	11.58	16.59
8-nov	14h 59m 21.84s	-17° 05' 47.9"	0.4541624	1.4437020	12.01	1.6	4.7	-1.2	0.999	3.6	7.01	12.01	16.59
9-nov	15h 05m 40.22s	-17° 38' 55.3"	0.4566401	1.4448389	12.02	2.2	4.7	-1.1	0.998	4.9	7.06	12.03	16.59
10-nov	15h 11m 59.47s	-18° 11' 09.6"	0.4588509	1.4453867	12.02	2.8	4.7	-1.1	0.997	6.1	7.11	12.05	16.59
11-nov	15h 18m 19.64s	-18° 42' 29.6"	0.4607918	1.4453537	12.02	3.4	4.7	-1.0	0.996	7.4	7.15	12.08	17.00
12-nov	15h 24m 40.83s	-19° 12' 53.7"	0.4624604	1.4447469	12.02	4.0	4.7	-1.0	0.994	8.6	7.20	12.10	17.00
13-nov	15h 31m 03.08s	-19° 42' 20.7"	0.4638545	1.4435720	12.01	4.6	4.7	-0.9	0.993	9.8	7.24	12.13	17.00
14-nov	15h 37m 26.45s	-20° 10' 49.2"	0.4649726	1.4418335	11.99	5.2	4.7	-0.9	0.991	11.0	7.29	12.15	17.01
15-nov	15h 43m 51.00s	-20° 38' 18.0"	0.4658133	1.4395348	11.97	5.7	4.7	-0.9	0.989	12.2	7.33	12.18	17.01
16-nov	15h 50m 16.75s	-21° 04' 45.6"	0.4663756	1.4366785	11.95	6.3	4.7	-0.8	0.986	13.4	7.38	12.20	17.02
17-nov	15h 56m 43.74s	-21° 30' 10.8"	0.4666589	1.4332656	11.92	6.8	4.7	-0.8	0.984	14.6	7.42	12.23	17.03
18-nov	16h 03m 11.98s	-21° 54' 32.3"	0.4666630	1.4292967	11.89	7.4	4.7	-0.8	0.981	15.8	7.46	12.25	17.04
19-nov	16h 09m 41.46s	-22° 17' 48.6"	0.4663877	1.4247708	11.85	7.9	4.7	-0.7	0.978	17.0	7.51	12.28	17.04
20-nov	16h 16m 12.17s	-22° 39' 58.6"	0.4658334	1.4196865	11.81	8.5	4.7	-0.7	0.975	18.3	7.55	12.30	17.05
21-nov	16h 22m 44.09s	-23° 01' 00.7"	0.4650008	1.4140409	11.76	9.0	4.8	-0.7	0.971	19.5	7.59	12.33	17.06
22-nov	16h 29m 17.18s	-23° 20' 53.7"	0.4638907	1.4078304	11.71	9.6	4.8	-0.7	0.968	20.7	8.03	12.36	17.08
23-nov	16h 35m 51.37s	-23° 39' 36.2"	0.4625045	1.4010506	11.65	10.1	4.8	-0.6	0.964	22.0	8.07	12.38	17.09
24-nov	16h 42m 26.59s	-23° 57' 06.8"	0.4608439	1.3936958	11.59	10.6	4.8	-0.6	0.959	23.3	8.11	12.41	17.10
25-nov	16h 49m 02.75s	-24° 13' 24.1"	0.4589108	1.3857597	11.53	11.2	4.9	-0.6	0.955	24.6	8.15	12.44	17.12
26-nov	16h 55m 39.71s	-24° 28' 26.8"	0.4567078	1.3772350	11.45	11.7	4.9	-0.6	0.950	25.9	8.19	12.46	17.13
27-nov	17h 02m 17.35s	-24° 42' 13.5"	0.4542377	1.3681137	11.38	12.2	4.9	-0.6	0.944	27.3	8.23	12.49	17.15
28-nov	17h 08m 55.50s	-24° 54' 42.9"	0.4515040	1.3583866	11.30	12.7	5.0	-0.6	0.938	28.7	8.26	12.52	17.17
29-nov	17h 15m 33.95s	-25° 05' 53.6"	0.4485107	1.3480442	11.21	13.2	5.0	-0.6	0.932	30.2	8.30	12.54	17.19
30-nov	17h 22m 12.48s	-25° 15' 44.5"	0.4452624	1.3370759	11.12	13.7	5.0	-0.6	0.925	31.7	8.33	12.57	17.21
1-dic	17h 28m 50.83s	-25° 24' 14.2"	0.4417643	1.3254707	11.02	14.2	5.1	-0.5	0.918	33.2	8.37	13.00	17.23
2-dic	17h 35m 28.69s	-25° 31' 21.6"	0.4380224	1.3132168	10.92	14.7	5.1	-0.5	0.910	34.8	8.40	13.02	17.25
3-dic	17h 42m 05.71s	-25° 37' 05.7"	0.4340437	1.3003022	10.82	15.2	5.2	-0.5	0.902	36.5	8.43	13.05	17.27
4-dic	17h 48m 41.50s	-25° 41' 25.4"	0.4298359	1.2867141	10.70	15.7	5.2	-0.5	0.893	38.2	8.46	13.08	17.30
5-dic	17h 55m 15.60s	-25° 44' 19.8"	0.4254080	1.2724398	10.58	16.1	5.3	-0.5	0.883	40.0	8.49	13.10	17.32
6-dic	18h 01m 47.50s	-25° 45' 48.3"	0.4207701	1.2574666	10.46	16.6	5.3	-0.5	0.872	41.9	8.51	13.13	17.35
7-dic	18h 08m 16.62s	-25° 45' 50.2"	0.4159335	1.2417820	10.33	17.0	5.4	-0.5	0.860	43.9	8.54	13.15	17.37
8-dic	18h 14m 42.29s	-25° 44' 25.2"	0.4109111	1.2253743	10.19	17.5	5.5	-0.5	0.848	46.0	8.56	13.18	17.40
9-dic	18h 21m 03.78s	-25° 41' 33.2"	0.4057176	1.2082329	10.05	17.9	5.6	-0.5	0.834	48.1	8.58	13.20	17.42
10-dic	18h 27m 20.22s	-25° 37' 14.4"	0.4003692	1.1903490	9.90	18.3	5.7	-0.6	0.819	50.4	9.00	13.23	17.45
11-dic	18h 33m 30.65s	-25° 31' 29.6"	0.3948843	1.1717163	9.75	18.6	5.7	-0.6	0.802	52.8	9.02	13.25	17.48
12-dic	18h 39m 34.00s	-25° 24' 19.6"	0.3892836	1.1523317	9.59	19.0	5.8	-0.6	0.784	55.4	9.03	13.27	17.51
13-dic	18h 45m 29.01s	-25° 15' 46.1"	0.3835900	1.1321966	9.42	19.3	5.9	-0.6	0.765	58.0	9.05	13.29	17.53
14-dic	18h 51m 14.29s	-25° 05' 51.2"	0.3778292	1.1113177	9.24	19.6	6.1	-0.6	0.743	60.9	9.05	13.30	17.56
15-dic	18h 56m 48.25s	-24° 54' 37.9"	0.3720297	1.0897089	9.06	19.8	6.2	-0.5	0.720	63.9	9.06	13.32	17.58
16-dic	19h 02m 09.11s	-24° 42' 09.8"	0.3662230	1.0673929	8.88	20.0	6.3	-0.5	0.695	67.1	9.06	13.33	18.00
17-dic	19h 07m 14.86s	-24° 28' 31.4"	0.3604438	1.0444030	8.69	20.2	6.4	-0.5	0.668	70.4	9.06	13.34	18.02
18-dic	19h 12m 03.25s	-24° 13' 48.3"	0.3547298	1.0207855	8.49	20.3	6.6	-0.5	0.638	74.0	9.06	13.35	18.04
19-dic	19h 16m 31.76s	-23° 58' 07.3"	0.3491222	0.9966024	8.29	20.3	6.7	-0.5	0.606	77.8	9.05	13.35	18.06
20-dic	19h 20m 37.63s	-23° 41' 36.1"	0.3436650	0.9719341	8.08	20.2	6.9	-0.4	0.571	81.8	9.04	13.35	18.07
21-dic	19h 24m 17.80s	-23° 24' 24.0"	0.3384054	0.9468825	7.88	20.1	7.1	-0.4	0.534	86.1	9.02	13.35	18.08
22-dic	19h 27m 29.01s	-23° 06' 41.3"	0.3333928	0.9215740	7.67	19.8	7.3	-0.3	0.494	90.7	9.00	13.34	18.08
23-dic	19h 30m 07.74s	-22° 48' 39.8"	0.3286784	0.8961626	7.45	19.4	7.5	-0.2	0.452	95.5	8.57	13.32	18.08
24-dic	19h 32m 10.38s	-22° 30' 32.1"	0.3243144	0.8708322	7.24	18.9	7.7	-0.1	0.408	100.6	8.54	13.30	18.07
25-dic	19h 33m 33.28s	-22° 12' 31.9"	0.3203530	0.8457981	7.04	18.2	8.0	0.1	0.362	106.0	8.49	13.27	18.05
26-dic	19h 34m 12.97s	-21° 54' 53.3"	0.3168448	0.8213078	6.83	17.4	8.2	0.3	0.315	111.7	8.45	13.23	18.02
27-dic	19h 34m 06.34s	-21° 37' 50.4"	0.3138375	0.7976391	6.63	16.4	8.4	0.5	0.268	117.7	8.39	13.19	17.59
28-dic	19h 33m 10.97s	-21° 21' 36.5"	0.3113743	0.7750960	6.45	15.2	8.7	0.8	0.221	123.9	8.33	13.13	17.55
29-dic	19h 31m 25.47s	-21° 06' 23.9"	0.3094923	0.7540017	6.27	13.9	8.9	1.2	0.176	130.4	8.26	13.07	17.49
30-dic	19h 28m 49.85s	-20° 52' 22.8"	0.3082208	0.7346878	6.11	12.3	9.2	1.6	0.133	137.2	8.18	13.00	17.43
31-dic	19h 25m 25.89s	-20° 39' 41.0"	0.3075802	0.7174810	5.97	10.6	9.4	2.1	0.095	144.1	8.10	12.53	17.36

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro in "

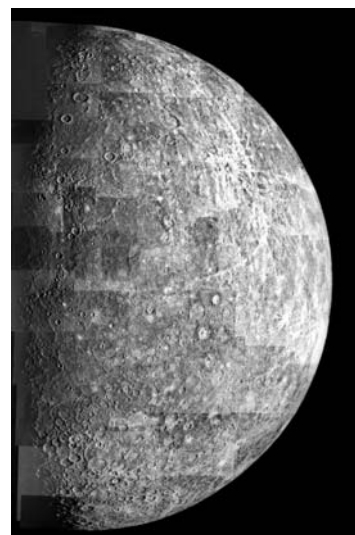
Mag. = magnitudine

Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

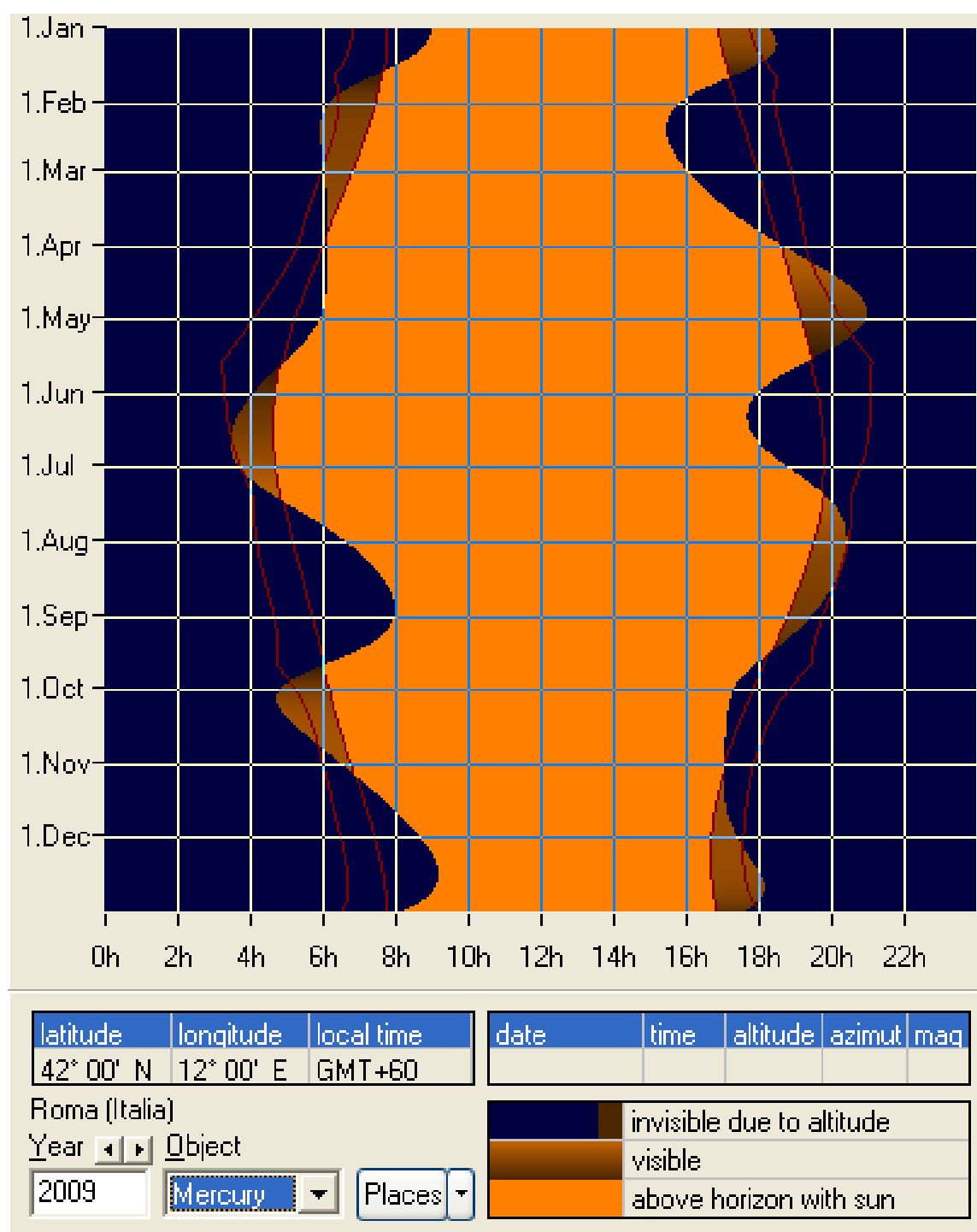
FENOMENI DI MERCURIO

Perielio	13/01/2009	14.56	0.30749 U.A.	
Perielio	11/04/2009	14.11	0.30750 U.A.	
Perielio	08/07/2009	13.28	0.30750 U.A.	
Perielio	04/10/2009	12.43	0.30750 U.A.	
Perielio	31/12/2009	11.59	0.30750 U.A.	
Afelio	26/02/2009	14.33	0.46670 U.A.	
Afelio	25/05/2009	13.49	0.46670 U.A.	
Afelio	21/08/2009	13.05	0.46670 U.A.	
Afelio	17/11/2009	12.21	0.46670 U.A.	
Perigeo	21/01/2009	23.11	0.66251 U.A.	
Perigeo	19/05/2009	20.09	0.55099 U.A.	
Perigeo	18/09/2009	00.25	0.64257 U.A.	
Apogeo	25/03/2009	22.56	1.35364 U.A.	
Apogeo	16/07/2009	12.26	1.33562 U.A.	
Apogeo	10/11/2009	10.37	1.44544 U.A.	
Magnitudine massima	31/03/2009	16.05	-2.0	mag
Magnitudine massima	13/07/2009	17.42	-2.1	mag
Magnitudine massima	04/11/2009	22.45	-1.4	mag
Magnitudine minima	20/01/2009	14.27	4.6	mag
Magnitudine minima	18/05/2009	08.42	6.0	mag
Magnitudine minima	20/09/2009	12.12	5.0	mag
Magnitudine minima	04/12/2009	10.39	-0.5	mag
Massima elongazione est	04/01/2009	13.31	19.3	°
Massima elongazione est	26/04/2009	07.48	20.4	°
Massima elongazione est	24/08/2009	16.02	27.4	°
Massima elongazione est	18/12/2009	17.06	20.3	°
Massima elongazione ovest	13/02/2009	20.53	26.1	°
Massima elongazione ovest	13/06/2009	11.52	23.5	°
Massima elongazione ovest	06/10/2009	01.43	17.9	°
Congiunzione inferiore	20/01/2009	15.59		
Congiunzione inferiore	18/05/2009	10.02		
Congiunzione inferiore	20/09/2009	10.05		
Congiunzione superiore	31/03/2009	03.29		
Congiunzione superiore	14/07/2009	02.16		
Congiunzione superiore	05/11/2009	08.02		
Moto retrogrado	11/01/2009	06.41		
Moto retrogrado	07/05/2009	16.15		
Moto retrogrado	06/09/2009	19.46		
Moto retrogrado	26/12/2009	08.42		
Moto diretto	01/02/2009	02.06		
Moto diretto	30/05/2009	15.50		
Moto diretto	28/09/2009	18.32		
Massimo angolo di fase	20/01/2009	13.49	170.1	°
Massimo angolo di fase	18/05/2009	07.42	178.0	°
Massimo angolo di fase	20/09/2009	13.20	171.5	°
Minimo angolo di fase	31/03/2009	06.04	3.2	°
Minimo angolo di fase	14/07/2009	00.27	4.9	°
Minimo angolo di fase	05/11/2009	10.41	0.5	°

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VISIBILITA' DI MERCURIO



Visibilità di Mercurio nel corso dell'anno

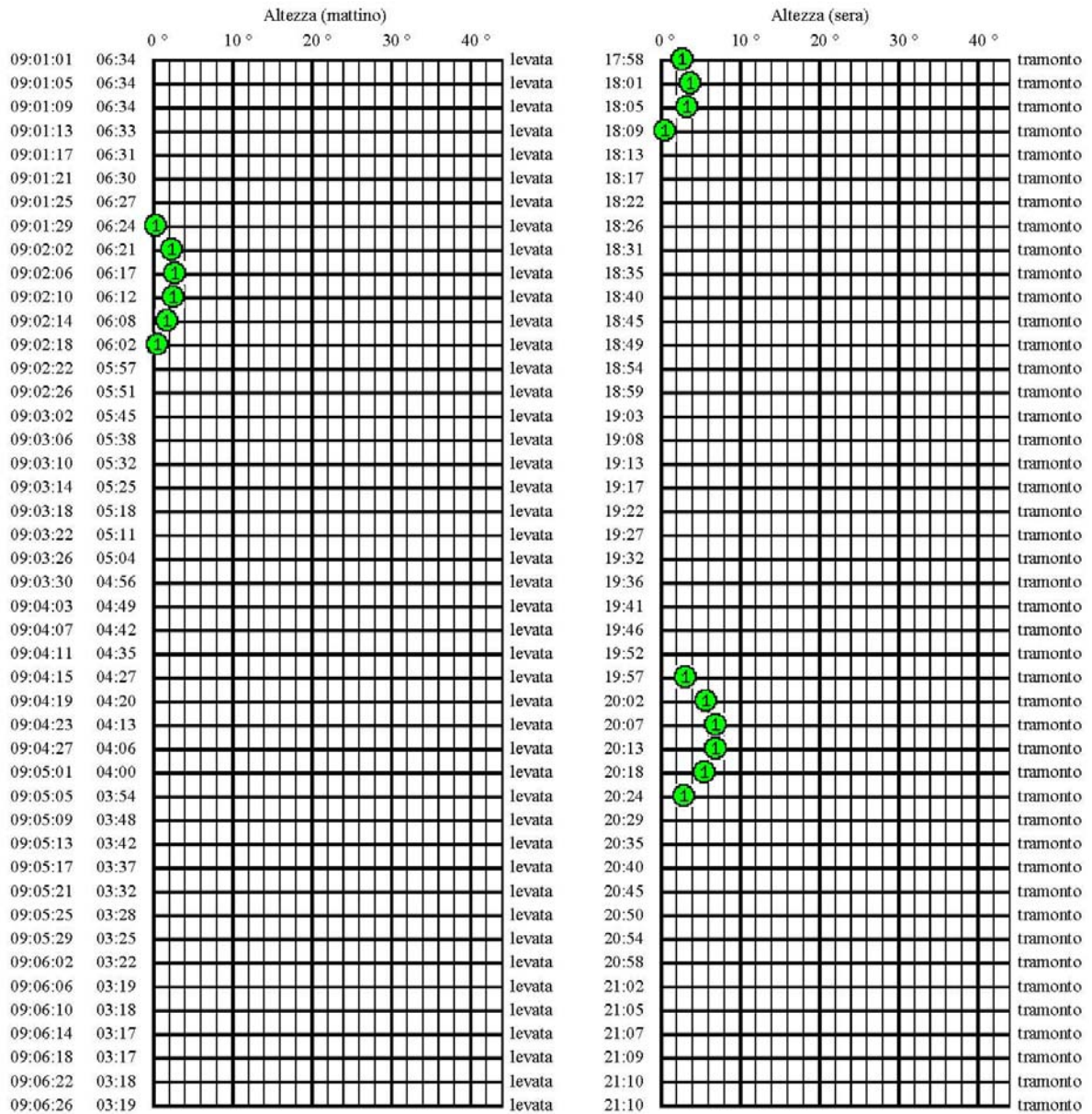
Le righe rosse più esterne indicano in quali periodi dell'anno il pianeta è sufficientemente distante dal Sole per poter essere osservato agevolmente. Le date esatte sono riportate nelle tabelle seguenti.

Altezza ai crepuscoli

di Mercurio

nel momento il cui il Sole è 12 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)

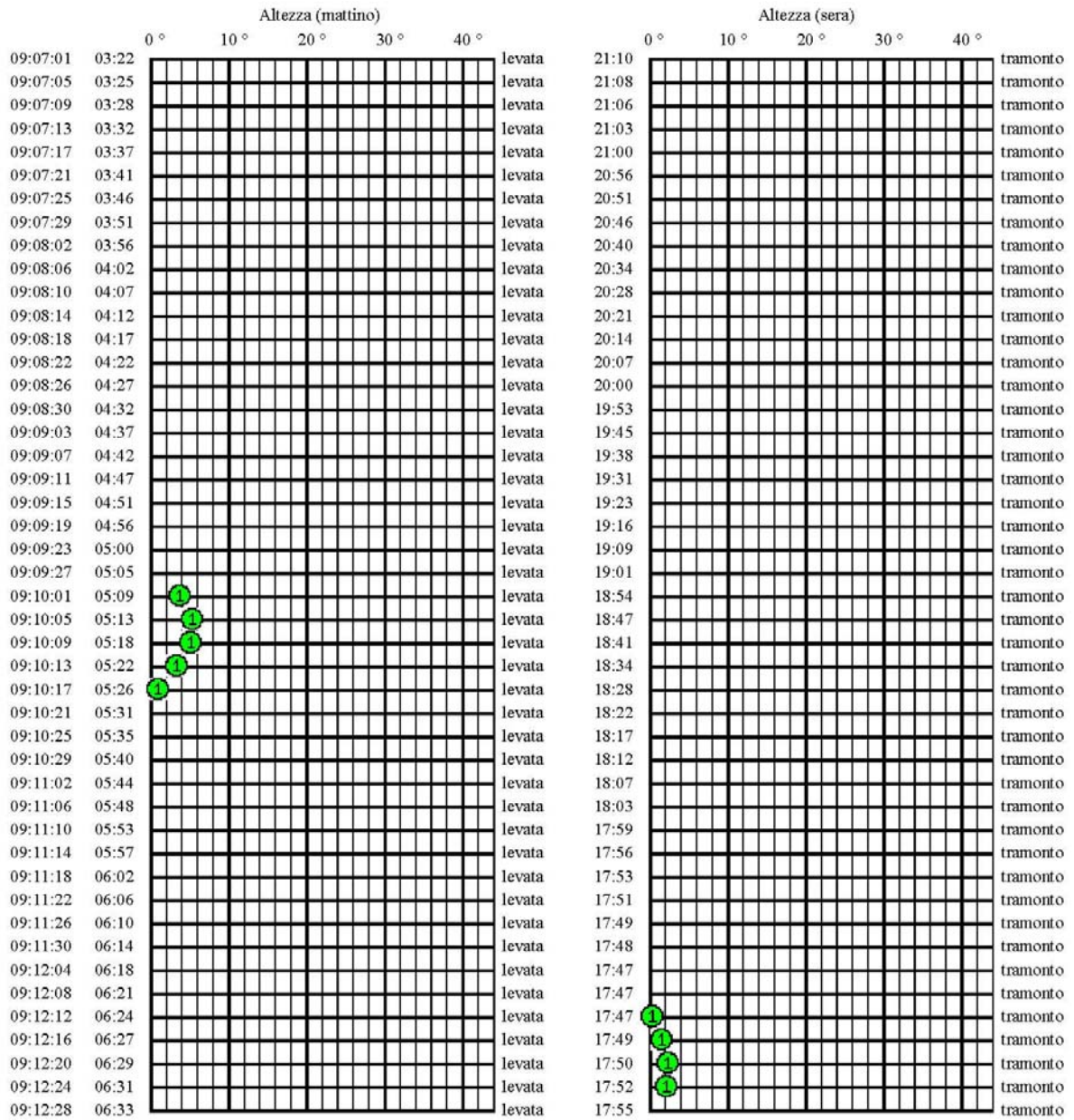


Altezza ai crepuscoli

di Mercurio

nel momento il cui il Sole è 12 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)



Altezza ai crepuscoli Il Sole è 12° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:34	-25.9	96.7	18.9	17:58	2.7	237.6	19.0
2009:01:05	06:34	-25.3	94.8	19.3	18:01	3.7	239.0	19.3
2009:01:09	06:34	-23.4	94.2	18.1	18:05	3.3	241.8	17.8
2009:01:13	06:33	-19.9	95.6	14.4	18:09	0.6	246.2	13.8
2009:01:17	06:31	-14.6	99.4	8.0	18:13	-4.9	252.0	7.1
2009:01:21	06:30	-8.6	105.1	3.6	18:17	-12.5	258.3	4.2
2009:01:25	06:27	-3.2	110.9	10.7	18:22	-20.2	263.9	11.6
2009:01:29	06:24	0.4	115.5	17.3	18:26	-26.4	268.2	18.0
2009:02:02	06:21	2.2	118.5	21.8	18:31	-30.8	271.2	22.3
2009:02:06	06:17	2.8	119.8	24.5	18:35	-33.6	273.0	24.7
2009:02:10	06:12	2.5	119.9	25.8	18:40	-35.2	274.2	25.9
2009:02:14	06:08	1.7	119.0	26.1	18:45	-35.9	274.9	26.1
2009:02:18	06:02	0.6	117.4	25.7	18:49	-35.8	275.6	25.6
2009:02:22	05:57	-0.7	115.1	24.8	18:54	-35.3	276.2	24.7
2009:02:26	05:51	-2.0	112.3	23.5	18:59	-34.2	276.8	23.3
2009:03:02	05:45	-3.5	109.1	21.9	19:03	-32.8	277.6	21.6
2009:03:06	05:38	-4.9	105.5	19.9	19:08	-31.0	278.5	19.6
2009:03:10	05:32	-6.3	101.4	17.6	19:13	-28.8	279.6	17.3
2009:03:14	05:25	-7.7	96.9	15.0	19:17	-26.3	280.7	14.6
2009:03:18	05:18	-9.1	92.1	12.1	19:22	-23.4	281.9	11.6
2009:03:22	05:11	-10.4	86.8	8.8	19:27	-20.2	283.2	8.3
2009:03:26	05:04	-11.7	81.1	5.2	19:32	-16.6	284.5	4.7
2009:03:30	04:56	-12.8	74.9	1.6	19:36	-12.7	285.7	1.2
2009:04:03	04:49	-13.9	68.5	3.3	19:41	-8.5	286.9	3.9
2009:04:07	04:42	-14.8	61.8	7.5	19:46	-4.3	288.0	8.2
2009:04:11	04:35	-15.4	55.3	11.7	19:52	-0.3	289.0	12.4
2009:04:15	04:27	-15.9	49.3	15.4	19:57	3.1	290.1	16.0
2009:04:19	04:20	-16.1	44.2	18.3	20:02	5.6	291.2	18.6
2009:04:23	04:13	-16.1	40.3	20.0	20:07	6.9	292.4	20.1
2009:04:27	04:06	-16.1	37.9	20.4	20:13	6.9	294.0	20.3
2009:05:01	04:00	-15.9	37.0	19.4	20:18	5.6	295.9	19.1
2009:05:05	03:54	-15.7	37.6	16.9	20:24	2.8	298.3	16.4
2009:05:09	03:48	-15.2	39.9	13.1	20:29	-1.2	301.3	12.2
2009:05:13	03:42	-14.5	43.4	7.9	20:35	-6.2	305.0	6.9
2009:05:17	03:37	-13.4	47.9	2.1	20:40	-11.7	309.3	1.2
2009:05:21	03:32	-11.9	52.7	4.5	20:45	-17.1	314.1	5.6
2009:05:25	03:28	-10.2	57.1	10.3	20:50	-21.7	319.2	11.3
2009:05:29	03:25	-8.4	60.7	15.2	20:54	-25.1	324.1	16.0
2009:06:02	03:22	-6.6	63.2	19.1	20:58	-27.3	328.4	19.6
2009:06:06	03:19	-5.1	64.6	21.7	21:02	-28.3	332.0	22.0
2009:06:10	03:18	-3.8	65.0	23.1	21:05	-28.3	334.5	23.2
2009:06:14	03:17	-2.7	64.5	23.4	21:07	-27.6	335.9	23.4
2009:06:18	03:17	-2.1	63.2	22.8	21:09	-26.2	336.2	22.6
2009:06:22	03:18	-1.8	61.3	21.3	21:10	-24.3	335.4	20.9
2009:06:26	03:19	-2.1	58.8	18.9	21:10	-22.0	333.5	18.3
2009:06:30	03:21	-2.9	55.8	15.6	21:10	-19.5	330.5	14.9

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	03:22	-3.3	55.0	14.7	21:10	-18.8	329.6	14.0
2009:07:05	03:25	-5.0	51.7	10.6	21:08	-16.1	325.5	9.8
2009:07:09	03:28	-7.3	48.4	6.1	21:06	-13.4	320.6	5.2
2009:07:13	03:32	-10.1	45.3	1.8	21:03	-10.8	315.4	1.5
2009:07:17	03:37	-13.3	42.8	3.9	21:00	-8.6	310.1	4.7
2009:07:21	03:41	-16.5	40.8	8.2	20:56	-6.8	304.8	8.9
2009:07:25	03:46	-19.8	39.6	12.1	20:51	-5.3	299.7	12.8
2009:07:29	03:51	-22.9	39.1	15.6	20:46	-4.2	294.8	16.2
2009:08:02	03:56	-25.9	39.3	18.7	20:40	-3.3	290.2	19.2
2009:08:06	04:02	-28.6	40.0	21.3	20:34	-2.8	285.9	21.7
2009:08:10	04:07	-31.1	41.4	23.5	20:28	-2.5	281.8	23.8
2009:08:14	04:12	-33.3	43.3	25.2	20:21	-2.4	278.1	25.5
2009:08:18	04:17	-35.1	45.7	26.5	20:14	-2.6	274.8	26.7
2009:08:22	04:22	-36.4	48.7	27.2	20:07	-2.9	272.0	27.3
2009:08:26	04:27	-37.1	52.2	27.3	20:00	-3.6	269.7	27.3
2009:08:30	04:32	-37.0	56.1	26.6	19:53	-4.5	268.1	26.4
2009:09:03	04:37	-35.8	60.5	24.9	19:45	-5.7	267.6	24.5
2009:09:07	04:42	-33.3	65.2	21.9	19:38	-7.4	268.3	21.3
2009:09:11	04:47	-29.1	70.1	17.3	19:31	-9.5	270.6	16.5
2009:09:15	04:51	-23.1	74.9	11.1	19:23	-12.0	274.7	10.1
2009:09:19	04:56	-15.5	79.3	4.2	19:16	-14.5	280.3	3.4
2009:09:23	05:00	-7.5	83.1	5.9	19:09	-16.5	286.1	6.9
2009:09:27	05:05	-0.8	86.1	12.1	19:01	-17.6	290.5	12.9
2009:10:01	05:09	3.6	88.4	16.3	18:54	-18.0	292.5	16.7
2009:10:05	05:13	5.4	90.2	17.9	18:47	-17.8	291.8	17.9
2009:10:09	05:18	5.0	91.6	17.4	18:41	-17.3	289.1	17.2
2009:10:13	05:22	3.3	93.0	15.6	18:34	-16.6	285.1	15.3
2009:10:17	05:26	0.9	94.3	13.1	18:28	-15.8	280.6	12.7
2009:10:21	05:31	-1.8	95.6	10.3	18:22	-15.0	275.8	9.9
2009:10:25	05:35	-4.6	97.0	7.5	18:17	-14.2	271.2	7.1
2009:10:29	05:40	-7.3	98.2	4.7	18:12	-13.3	266.6	4.3
2009:11:02	05:44	-9.9	99.5	2.0	18:07	-12.5	262.3	1.7
2009:11:06	05:48	-12.4	100.6	0.5	18:03	-11.6	258.3	0.9
2009:11:10	05:53	-14.8	101.5	2.9	17:59	-10.6	254.5	3.2
2009:11:14	05:57	-17.0	102.3	5.3	17:56	-9.5	250.9	5.6
2009:11:18	06:02	-19.1	102.8	7.5	17:53	-8.4	247.6	7.8
2009:11:22	06:06	-21.1	103.1	9.7	17:51	-7.2	244.6	9.9
2009:11:26	06:10	-22.9	103.0	11.8	17:49	-5.9	241.9	12.0
2009:11:30	06:14	-24.6	102.7	13.8	17:48	-4.5	239.5	14.1
2009:12:04	06:18	-26.2	102.0	15.8	17:47	-2.9	237.4	16.0
2009:12:08	06:21	-27.4	101.0	17.5	17:47	-1.3	235.7	17.7
2009:12:12	06:24	-28.3	99.8	19.1	17:47	0.2	234.6	19.2
2009:12:16	06:27	-28.6	98.6	20.1	17:49	1.6	234.3	20.1
2009:12:20	06:29	-28.0	97.6	20.2	17:50	2.4	235.0	20.1
2009:12:24	06:31	-26.0	97.6	18.8	17:52	2.1	237.1	18.5
2009:12:28	06:33	-22.2	99.2	14.9	17:55	-0.2	241.2	14.3

Altezza ai crepuscoli

di Mercurio

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

Altezza (mattino)							Altezza (sera)								
		0 °	10 °	20 °	30 °	40 °			0 °	10 °	20 °	30 °	40 °		
09:01:01	06:00						levata	18:32							tramonto
09:01:05	06:00						levata	18:35							tramonto
09:01:09	06:00						levata	18:38							tramonto
09:01:13	05:59						levata	18:42							tramonto
09:01:17	05:58						levata	18:46							tramonto
09:01:21	05:56						levata	18:50							tramonto
09:01:25	05:54						levata	18:55							tramonto
09:01:29	05:51						levata	18:59							tramonto
09:02:02	05:48						levata	19:03							tramonto
09:02:06	05:44						levata	19:08							tramonto
09:02:10	05:40						levata	19:13							tramonto
09:02:14	05:35						levata	19:17							tramonto
09:02:18	05:30						levata	19:22							tramonto
09:02:22	05:25						levata	19:26							tramonto
09:02:26	05:19						levata	19:31							tramonto
09:03:02	05:13						levata	19:36							tramonto
09:03:06	05:06						levata	19:41							tramonto
09:03:10	04:59						levata	19:45							tramonto
09:03:14	04:52						levata	19:50							tramonto
09:03:18	04:45						levata	19:55							tramonto
09:03:22	04:37						levata	20:00							tramonto
09:03:26	04:30						levata	20:05							tramonto
09:03:30	04:22						levata	20:11							tramonto
09:04:03	04:14						levata	20:16							tramonto
09:04:07	04:06						levata	20:22							tramonto
09:04:11	03:58						levata	20:28							tramonto
09:04:15	03:50						levata	20:34							tramonto
09:04:19	03:42						levata	20:40							tramonto
09:04:23	03:35						levata	20:46							tramonto
09:04:27	03:27						levata	20:52							tramonto
09:05:01	03:19						levata	20:59							tramonto
09:05:05	03:12						levata	21:06							tramonto
09:05:09	03:05						levata	21:12							tramonto
09:05:13	02:58						levata	21:19							tramonto
09:05:17	02:51						levata	21:26							tramonto
09:05:21	02:45						levata	21:32							tramonto
09:05:25	02:40						levata	21:38							tramonto
09:05:29	02:35						levata	21:44							tramonto
09:06:02	02:31						levata	21:49							tramonto
09:06:06	02:27						levata	21:54							tramonto
09:06:10	02:25						levata	21:58							tramonto
09:06:14	02:24						levata	22:01							tramonto
09:06:18	02:23						levata	22:03							tramonto
09:06:22	02:24						levata	22:04							tramonto
09:06:26	02:26						levata	22:04							tramonto

Altezza ai crepuscoli

di Mercurio

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

		Altezza (mattino)					Altezza (sera)				
		0 °	10 °	20 °	30 °	40 °	0 °	10 °	20 °	30 °	40 °
09:07:01	02:29						22:03				
09:07:05	02:33						22:00				
09:07:09	02:37						21:57				
09:07:13	02:42						21:53				
09:07:17	02:48						21:48				
09:07:21	02:54						21:43				
09:07:25	03:00						21:37				
09:07:29	03:07						21:30				
09:08:02	03:13						21:24				
09:08:06	03:19						21:16				
09:08:10	03:26						21:09				
09:08:14	03:32						21:01				
09:08:18	03:38						20:53				
09:08:22	03:44						20:45				
09:08:26	03:50						20:37				
09:08:30	03:56						20:29				
09:09:03	04:02						20:21				
09:09:07	04:07						20:13				
09:09:11	04:12						20:05				
09:09:15	04:17						19:57				
09:09:19	04:22						19:49				
09:09:23	04:27						19:42				
09:09:27	04:32						19:34				
09:10:01	04:36						19:27				
09:10:05	04:41						19:20				
09:10:09	04:45						19:13				
09:10:13	04:50						19:07				
09:10:17	04:54						19:01				
09:10:21	04:58						18:55				
09:10:25	05:03						18:49				
09:10:29	05:07						18:44				
09:11:02	05:11						18:40				
09:11:06	05:16						18:36				
09:11:10	05:20						18:32				
09:11:14	05:24						18:29				
09:11:18	05:28						18:26				
09:11:22	05:33						18:24				
09:11:26	05:36						18:22				
09:11:30	05:40						18:21				
09:12:04	05:44						18:21				
09:12:08	05:47						18:21				
09:12:12	05:50						18:21				
09:12:16	05:53						18:23				
09:12:20	05:55						18:24				
09:12:24	05:57						18:26				
09:12:28	05:59						18:29				

Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	-32.2	91.2	18.9	18:32	-2.8	243.3	19.0
2009:01:05	06:00	-31.6	89.3	19.3	18:35	-1.9	244.7	19.3
2009:01:09	06:00	-29.7	88.6	18.1	18:38	-2.4	247.4	17.8
2009:01:13	05:59	-26.1	90.1	14.4	18:42	-5.3	251.7	13.7
2009:01:17	05:58	-20.8	94.0	8.0	18:46	-11.0	257.4	7.0
2009:01:21	05:56	-14.6	99.7	3.5	18:50	-18.6	263.6	4.2
2009:01:25	05:54	-9.1	105.5	10.7	18:55	-26.3	269.4	11.7
2009:01:29	05:51	-5.3	110.1	17.3	18:59	-32.5	273.8	18.1
2009:02:02	05:48	-3.3	113.0	21.8	19:03	-36.8	276.9	22.3
2009:02:06	05:44	-2.6	114.4	24.5	19:08	-39.6	278.9	24.7
2009:02:10	05:40	-2.9	114.5	25.8	19:13	-41.2	280.2	25.9
2009:02:14	05:35	-3.7	113.6	26.1	19:17	-41.8	281.0	26.1
2009:02:18	05:30	-4.9	112.1	25.7	19:22	-41.8	281.7	25.6
2009:02:22	05:25	-6.2	109.9	24.8	19:26	-41.2	282.3	24.7
2009:02:26	05:19	-7.7	107.1	23.5	19:31	-40.1	283.0	23.3
2009:03:02	05:13	-9.2	103.9	21.9	19:36	-38.7	283.8	21.6
2009:03:06	05:06	-10.8	100.2	19.9	19:41	-36.9	284.8	19.6
2009:03:10	04:59	-12.3	96.1	17.6	19:45	-34.7	285.9	17.3
2009:03:14	04:52	-13.8	91.5	15.0	19:50	-32.2	287.0	14.6
2009:03:18	04:45	-15.2	86.5	12.1	19:55	-29.3	288.3	11.6
2009:03:22	04:37	-16.6	81.0	8.9	20:00	-26.1	289.6	8.3
2009:03:26	04:30	-17.8	75.1	5.3	20:05	-22.6	290.8	4.7
2009:03:30	04:22	-18.9	68.6	1.6	20:11	-18.7	292.1	1.2
2009:04:03	04:14	-19.8	61.8	3.3	20:16	-14.6	293.2	3.9
2009:04:07	04:06	-20.4	54.8	7.5	20:22	-10.4	294.2	8.3
2009:04:11	03:58	-20.7	47.9	11.7	20:28	-6.5	295.2	12.4
2009:04:15	03:50	-20.8	41.5	15.4	20:34	-3.1	296.2	16.0
2009:04:19	03:42	-20.6	36.1	18.3	20:40	-0.8	297.4	18.7
2009:04:23	03:35	-20.4	32.0	20.0	20:46	0.5	298.7	20.2
2009:04:27	03:27	-20.2	29.2	20.4	20:52	0.4	300.4	20.3
2009:05:01	03:19	-20.0	28.1	19.4	20:59	-1.1	302.6	19.1
2009:05:05	03:12	-19.9	28.5	17.0	21:06	-3.8	305.3	16.3
2009:05:09	03:05	-19.9	30.5	13.1	21:12	-7.8	308.9	12.2
2009:05:13	02:58	-19.6	34.0	8.0	21:19	-12.6	313.3	6.9
2009:05:17	02:51	-19.2	38.4	2.1	21:26	-17.9	318.5	1.2
2009:05:21	02:45	-18.4	43.2	4.4	21:32	-22.8	324.4	5.6
2009:05:25	02:40	-17.3	47.6	10.2	21:38	-26.9	330.6	11.3
2009:05:29	02:35	-16.0	51.2	15.2	21:44	-29.7	336.6	16.1
2009:06:02	02:31	-14.7	53.7	19.0	21:49	-31.3	341.8	19.7
2009:06:06	02:27	-13.4	55.1	21.6	21:54	-31.8	345.9	22.0
2009:06:10	02:25	-12.3	55.4	23.1	21:58	-31.4	348.7	23.2
2009:06:14	02:24	-11.3	54.9	23.4	22:01	-30.4	350.2	23.4
2009:06:18	02:23	-10.6	53.6	22.8	22:03	-29.0	350.3	22.6
2009:06:22	02:24	-10.2	51.7	21.3	22:04	-27.3	349.0	20.9
2009:06:26	02:26	-10.1	49.2	18.9	22:04	-25.4	346.6	18.3
2009:06:30	02:28	-10.6	46.2	15.7	22:03	-23.4	342.9	14.9

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	-10.8	45.4	14.7	22:03	-22.9	341.8	13.9
2009:07:05	02:33	-12.0	42.0	10.6	22:00	-20.8	337.0	9.7
2009:07:09	02:37	-13.8	38.6	6.1	21:57	-18.7	331.4	5.2
2009:07:13	02:42	-16.1	35.3	1.8	21:53	-16.7	325.5	1.5
2009:07:17	02:48	-18.8	32.6	3.9	21:48	-15.0	319.5	4.7
2009:07:21	02:54	-21.6	30.5	8.1	21:43	-13.6	313.7	8.9
2009:07:25	03:00	-24.6	29.1	12.1	21:37	-12.4	308.1	12.8
2009:07:29	03:07	-27.5	28.4	15.6	21:30	-11.4	302.8	16.2
2009:08:02	03:13	-30.3	28.4	18.6	21:24	-10.7	297.9	19.2
2009:08:06	03:19	-33.1	29.1	21.3	21:16	-10.2	293.2	21.7
2009:08:10	03:26	-35.6	30.5	23.5	21:09	-9.8	288.9	23.8
2009:08:14	03:32	-37.9	32.4	25.2	21:01	-9.7	285.0	25.5
2009:08:18	03:38	-39.8	35.0	26.5	20:53	-9.7	281.4	26.7
2009:08:22	03:44	-41.3	38.2	27.2	20:45	-10.0	278.4	27.3
2009:08:26	03:50	-42.2	42.1	27.3	20:37	-10.5	275.9	27.3
2009:08:30	03:56	-42.3	46.5	26.6	20:29	-11.2	274.2	26.4
2009:09:03	04:02	-41.3	51.6	24.9	20:21	-12.4	273.6	24.5
2009:09:07	04:07	-39.0	57.0	21.9	20:13	-13.9	274.2	21.3
2009:09:11	04:12	-35.0	62.7	17.4	20:05	-15.9	276.5	16.5
2009:09:15	04:17	-29.1	68.2	11.2	19:57	-18.3	280.7	10.0
2009:09:19	04:22	-21.6	73.2	4.2	19:49	-20.6	286.4	3.4
2009:09:23	04:27	-13.6	77.3	5.8	19:42	-22.3	292.4	6.9
2009:09:27	04:32	-6.9	80.5	12.1	19:34	-23.3	297.0	12.9
2009:10:01	04:36	-2.5	82.9	16.3	19:27	-23.5	299.0	16.7
2009:10:05	04:41	-0.7	84.7	17.9	19:20	-23.3	298.2	17.9
2009:10:09	04:45	-1.0	86.2	17.4	19:13	-22.9	295.3	17.2
2009:10:13	04:50	-2.6	87.6	15.6	19:07	-22.3	291.2	15.3
2009:10:17	04:54	-5.1	88.9	13.1	19:01	-21.7	286.4	12.7
2009:10:21	04:58	-7.8	90.2	10.3	18:55	-21.0	281.5	9.9
2009:10:25	05:03	-10.6	91.6	7.5	18:49	-20.2	276.7	7.1
2009:10:29	05:07	-13.3	92.9	4.7	18:44	-19.4	272.0	4.3
2009:11:02	05:11	-15.9	94.2	2.1	18:40	-18.5	267.6	1.7
2009:11:06	05:16	-18.4	95.3	0.5	18:36	-17.5	263.5	0.9
2009:11:10	05:20	-20.8	96.3	2.9	18:32	-16.5	259.6	3.3
2009:11:14	05:24	-23.0	97.1	5.3	18:29	-15.4	256.1	5.6
2009:11:18	05:28	-25.1	97.7	7.5	18:26	-14.2	252.8	7.8
2009:11:22	05:33	-27.1	98.0	9.7	18:24	-12.9	249.8	10.0
2009:11:26	05:36	-29.0	98.0	11.8	18:22	-11.5	247.1	12.1
2009:11:30	05:40	-30.8	97.6	13.8	18:21	-10.0	244.7	14.1
2009:12:04	05:44	-32.3	96.9	15.7	18:21	-8.3	242.7	16.0
2009:12:08	05:47	-33.6	95.9	17.5	18:21	-6.7	241.2	17.8
2009:12:12	05:50	-34.5	94.6	19.0	18:21	-5.1	240.2	19.2
2009:12:16	05:53	-34.8	93.3	20.1	18:23	-3.7	239.9	20.2
2009:12:20	05:55	-34.3	92.3	20.2	18:24	-3.0	240.6	20.1
2009:12:24	05:57	-32.3	92.2	18.8	18:26	-3.4	242.8	18.4
2009:12:28	05:59	-28.5	93.9	15.0	18:29	-5.9	246.7	14.3

Date eliache per Mercurio
 Posizione : Roma
 Latitudine : 42° 00' 00'' N
 Longitudine : 12° 00' 00'' E
 Visibilità minima [°] = 10.5 + 1.4 * magnitudine
 Altezza critica : 0.00°

	data	ogg s/t	Sole s/t	d s/t	età	mag
fine visibilità serale	2009-01-13	18:14	17:03	1:11h	-6d 23h	0.9
inizio visibilità mattutina	2009-01-28	06:23	07:28	-1:05h	7d 13h	1.2
fine visibilità mattutina	2009-02-25	05:59	06:53	-0:53h	-33d 22h	0.1
inizio visibilità serale	2009-04-08	19:32	18:45	0:47h	8d 15h	-1.4
fine visibilità serale	2009-05-07	20:35	19:17	1:17h	-10d 14h	1.8
inizio visibilità mattutina	2009-06-20	03:26	04:36	-1:09h	32d 16h	0.2
fine visibilità mattutina	2009-07-02	03:43	04:40	-0:57h	-11d 23h	-1.0
inizio visibilità mattutina	2009-09-28	05:00	06:05	-1:05h	7d 18h	1.1
fine visibilità mattutina	2009-10-23	05:47	06:33	-0:45h	-13d 03h	-1.0
inizio visibilità serale	2009-12-06	17:36	16:40	0:56h	31d 09h	-0.4
fine visibilità serale	2009-12-28	17:56	16:47	1:08h	-7d 02h	0.8

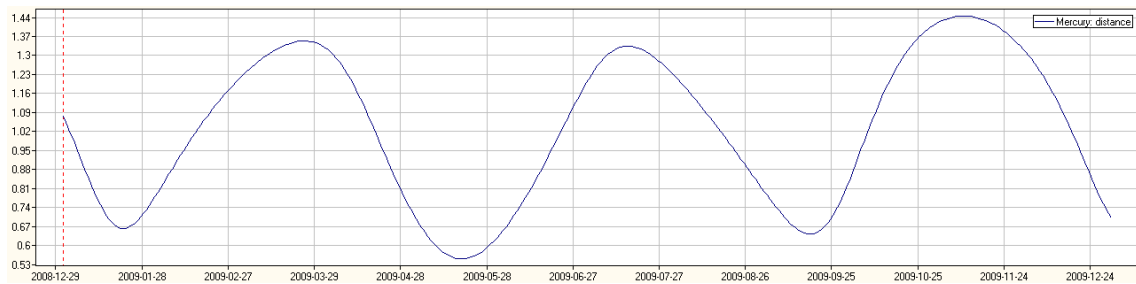
Legenda:

Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due oggetti
 Età : giorni trascorsi dalla congiunzione col Sole
 Mag : magnitudine

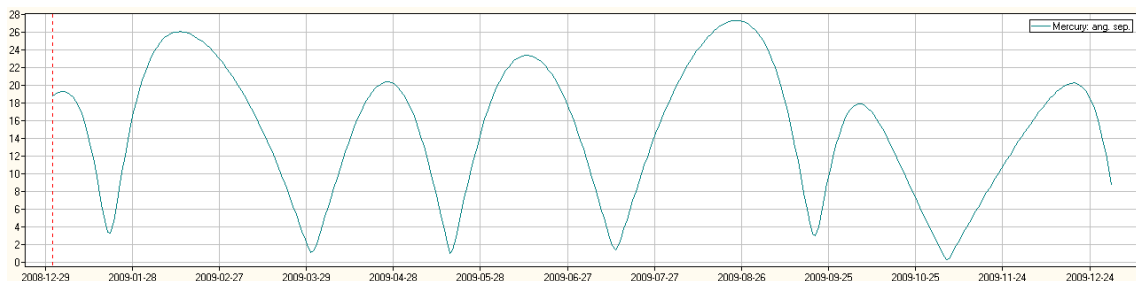
	data	ogg s/t	Sole s/t	Sole alt	Sole lon	ogg lon	ogg lat	mag	d az	d lon
FS	01-13	18:14	17:03	-13° 01'	293° 40'	307° 22'	1° 25'	0.9	-5° 40'	13° 42'
IM	01-28	06:23	07:28	-12° 13'	308° 25'	292° 53'	3° 19'	1.2	10° 49'	-15° 32'
FM	02-25	05:59	06:53	-10° 44'	336° 44'	312° 52'	-1° 13'	0.1	21° 43'	-23° 52'
IS	04-08	19:32	18:45	-9° 15'	19° 03'	28° 19'	0° 20'	-1.4	-3° 14'	9° 16'
FS	05-07	20:35	19:17	-13° 13'	47° 22'	61° 44'	1° 50'	1.8	-6° 52'	14° 21'
IM	06-20	03:26	04:36	-10° 53'	88° 55'	66° 55'	-2° 38'	0.2	19° 40'	-22° 00'
FM	07-02	03:43	04:40	-9° 14'	100° 22'	86° 40'	-0° 21'	-1.0	10° 34'	-13° 43'
IM	09-28	05:00	06:05	-12° 59'	185° 10'	171° 46'	-0° 31'	1.1	4° 55'	-13° 24'
FM	10-23	05:47	06:33	-9° 11'	209° 55'	201° 10'	1° 34'	-1.0	1° 37'	-8° 45'
IS	12-06	17:36	16:40	-10° 10'	254° 42'	271° 25'	-2° 20'	-0.4	-13° 56'	16° 43'
FS	12-28	17:56	16:47	-12° 14'	277° 06'	291° 22'	0° 34'	0.8	-8° 13'	14° 17'

Legenda:

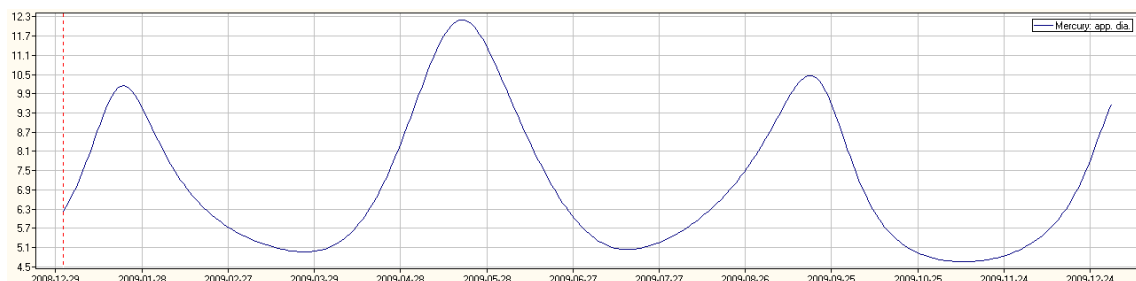
Data : data nel formato mese/giorno
 Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 Sole alt : altezza del Sole nell'istante di visibilità del pianeta
 Sole lon : longitudine celeste del Sole
 Ogg lon : longitudine celeste del pianeta
 Ogg lat : latitudine celeste del pianeta
 Mag : magnitudine
 D az : differenza in azimut tra i centri del Sole e del pianeta nell'istante della sua visibilità
 D lon : differenza in longitudine tra i centri del Sole e del pianeta nell'istante della sua visibilità



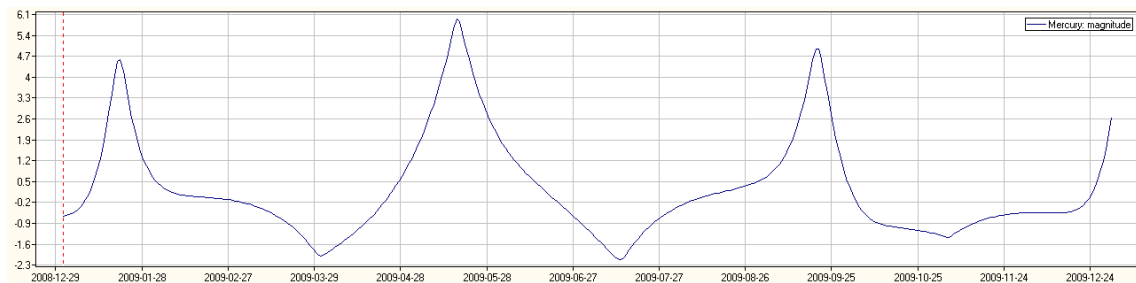
Distanza di Mercurio in U.A. nel corso dell'anno



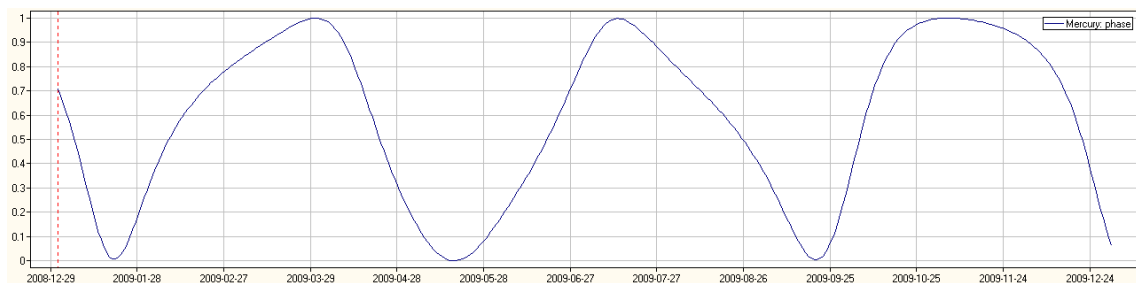
Elongazione di Mercurio in ° nel corso dell'anno



Diametro di Mercurio in " nel corso dell'anno



Magnitudine di Mercurio nel corso dell'anno

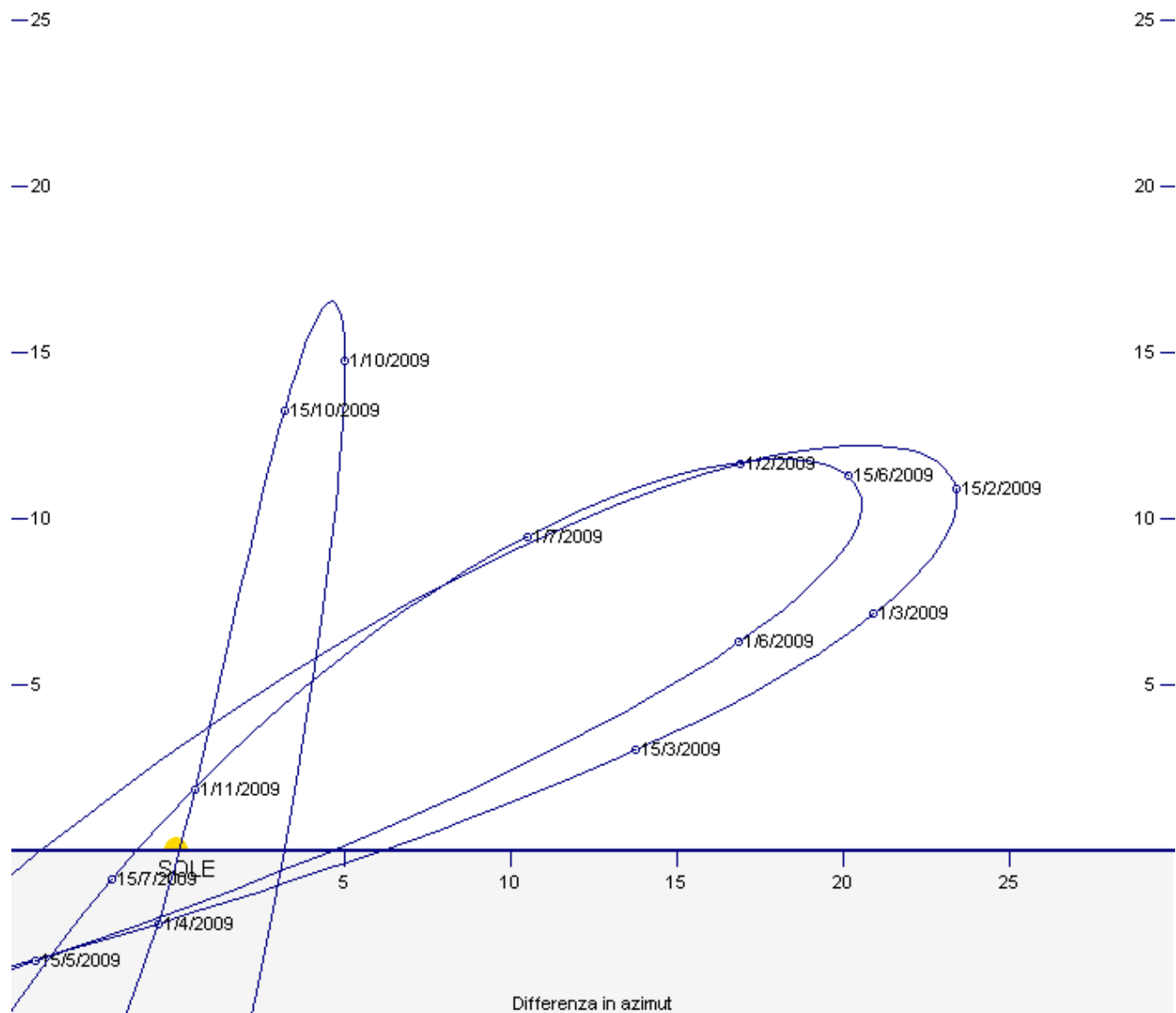


Fase di Mercurio nel corso dell'anno

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Posizione di Mercurio al mattino rispetto al sorgere del Sole

Luogo : Roma
 Latitudine: 42° 00' 00" N
 Longitudine: 12° 00' 00" E

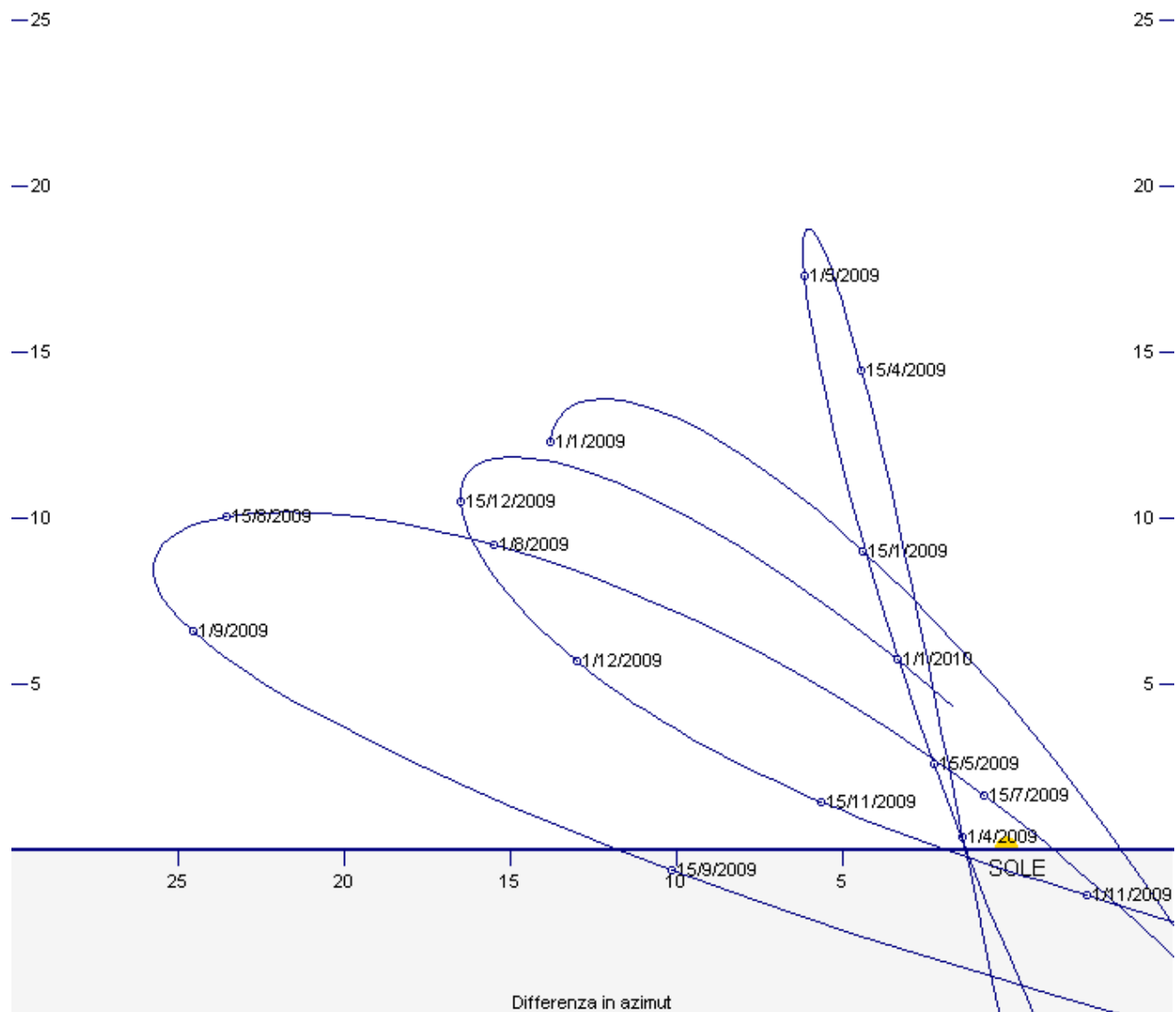


Posizione relativa di Mercurio rispetto al Sole al suo momento del sorgere

© (3)

Posizione di Mercurio alla sera rispetto al tramonto del Sole

Luogo : Roma
 Latitudine: 42° 00' 00" N
 Longitudine: 12° 00' 00" E



Posizione relativa di Mercurio rispetto al Sole al suo momento del tramonto

© (3)

EFFEMERIDI DI VENERE

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
1-gen	21h 59m 53.94s	-13° 49' 07.1"	0.7227414	0.7878392	6.55	46.6	21.2	-4.3	0.577	81.1	10.13	15.26	20.40
2-gen	22h 04m 01.59s	-13° 22' 47.3"	0.7226057	0.7805091	6.49	46.6	21.4	-4.3	0.573	81.6	10.12	15.27	20.42
3-gen	22h 08m 07.18s	-12° 56' 11.9"	0.7224706	0.7731686	6.43	46.7	21.6	-4.3	0.568	82.1	10.10	15.27	20.44
4-gen	22h 12m 10.69s	-12° 29' 21.8"	0.7223361	0.7658180	6.37	46.8	21.8	-4.3	0.564	82.7	10.09	15.27	20.46
5-gen	22h 16m 12.12s	-12° 02' 17.8"	0.7222023	0.7584581	6.31	46.8	22.0	-4.3	0.559	83.2	10.07	15.27	20.47
6-gen	22h 20m 11.46s	-11° 35' 00.8"	0.7220694	0.7510893	6.25	46.9	22.2	-4.3	0.555	83.7	10.05	15.27	20.49
7-gen	22h 24m 08.69s	-11° 07' 31.7"	0.7219374	0.7437125	6.19	46.9	22.4	-4.4	0.550	84.3	10.04	15.27	20.51
8-gen	22h 28m 03.81s	-10° 39' 51.3"	0.7218066	0.7363285	6.12	47.0	22.7	-4.4	0.545	84.8	10.02	15.27	20.53
9-gen	22h 31m 56.81s	-10° 12' 00.4"	0.7216768	0.7289381	6.06	47.0	22.9	-4.4	0.540	85.4	10.00	15.27	20.54
10-gen	22h 35m 47.66s	-09° 44' 00.0"	0.7215484	0.7215423	6.00	47.0	23.1	-4.4	0.536	85.9	9.58	15.27	20.56
11-gen	22h 39m 36.36s	-09° 15' 50.9"	0.7214213	0.7141422	5.94	47.1	23.4	-4.4	0.531	86.5	9.56	15.26	20.57
12-gen	22h 43m 22.89s	-08° 47' 33.8"	0.7212957	0.7067385	5.88	47.1	23.6	-4.4	0.526	87.0	9.54	15.26	20.59
13-gen	22h 47m 07.25s	-08° 19' 09.7"	0.7211717	0.6993322	5.82	47.1	23.9	-4.4	0.521	87.6	9.53	15.26	21.00
14-gen	22h 50m 49.42s	-07° 50' 39.1"	0.7210493	0.6919242	5.76	47.1	24.1	-4.4	0.516	88.2	9.51	15.26	21.02
15-gen	22h 54m 29.40s	-07° 22' 03.0"	0.7209287	0.6845151	5.69	47.1	24.4	-4.4	0.511	88.8	9.48	15.25	21.03
16-gen	22h 58m 07.16s	-06° 53' 22.2"	0.7208100	0.6771056	5.63	47.1	24.6	-4.4	0.505	89.4	9.46	15.25	21.05
17-gen	23h 01m 42.70s	-06° 24' 37.3"	0.7206933	0.6696964	5.57	47.1	24.9	-4.4	0.500	90.0	9.44	15.25	21.06
18-gen	23h 05m 15.99s	-05° 55' 49.2"	0.7205786	0.6622881	5.51	47.1	25.2	-4.4	0.495	90.6	9.42	15.24	21.07
19-gen	23h 08m 47.02s	-05° 26' 58.8"	0.7204660	0.6548813	5.45	47.1	25.5	-4.5	0.489	91.2	9.40	15.24	21.09
20-gen	23h 12m 15.75s	-04° 58' 06.8"	0.7203557	0.6474766	5.39	47.0	25.8	-4.5	0.484	91.8	9.38	15.23	21.10
21-gen	23h 15m 42.16s	-04° 29' 14.1"	0.7202477	0.6400747	5.32	47.0	26.1	-4.5	0.478	92.5	9.36	15.23	21.11
22-gen	23h 19m 06.21s	-04° 00' 21.5"	0.7201421	0.6326763	5.26	46.9	26.4	-4.5	0.473	93.1	9.33	15.22	21.12
23-gen	23h 22m 27.87s	-03° 31' 30.0"	0.7200390	0.6252821	5.20	46.9	26.7	-4.5	0.467	93.8	9.31	15.22	21.13
24-gen	23h 25m 47.08s	-03° 02' 40.3"	0.7199385	0.6178929	5.14	46.8	27.0	-4.5	0.461	94.4	9.29	15.21	21.15
25-gen	23h 29m 03.81s	-02° 33' 53.3"	0.7198407	0.6105096	5.08	46.7	27.3	-4.5	0.455	95.1	9.26	15.20	21.16
26-gen	23h 32m 18.00s	-02° 05' 10.0"	0.7197456	0.6031330	5.02	46.7	27.7	-4.5	0.450	95.8	9.24	15.20	21.17
27-gen	23h 35m 29.60s	-01° 36' 31.2"	0.7196533	0.5957641	4.96	46.6	28.0	-4.5	0.444	96.5	9.21	15.19	21.17
28-gen	23h 38m 38.53s	-01° 07' 58.0"	0.7195640	0.5884039	4.89	46.5	28.4	-4.5	0.438	97.2	9.19	15.18	21.18
29-gen	23h 41m 44.74s	-00° 39' 31.1"	0.7194775	0.5810536	4.83	46.3	28.7	-4.5	0.431	97.9	9.16	15.17	21.19
30-gen	23h 44m 48.16s	-00° 11' 11.6"	0.7193942	0.5737142	4.77	46.2	29.1	-4.5	0.425	98.6	9.14	15.16	21.20
31-gen	23h 47m 48.71s	+00° 16' 59.5"	0.7193139	0.5663872	4.71	46.1	29.5	-4.5	0.419	99.4	9.11	15.15	21.21
1-feb	23h 50m 46.30s	+00° 45' 01.3"	0.7192368	0.5590741	4.65	45.9	29.8	-4.5	0.412	100.1	9.08	15.14	21.21
2-feb	23h 53m 40.84s	+01° 12' 52.7"	0.7191629	0.5517763	4.59	45.8	30.2	-4.5	0.406	100.9	9.06	15.13	21.22
3-feb	23h 56m 32.25s	+01° 40' 32.8"	0.7190923	0.5444956	4.53	45.6	30.6	-4.5	0.399	101.6	9.03	15.12	21.22
4-feb	23h 59m 20.42s	+02° 08' 00.4"	0.7190251	0.5372339	4.47	45.4	31.1	-4.6	0.392	102.4	9.00	15.11	21.23
5-feb	00h 02m 05.23s	+02° 35' 14.5"	0.7189613	0.5299933	4.41	45.2	31.5	-4.6	0.386	103.2	8.57	15.10	21.23
6-feb	00h 04m 46.59s	+03° 02' 14.0"	0.7189009	0.5227759	4.35	45.0	31.9	-4.6	0.379	104.0	8.54	15.08	21.23
7-feb	00h 07m 24.36s	+03° 28' 57.7"	0.7188440	0.5155841	4.29	44.8	32.4	-4.6	0.372	104.9	8.51	15.07	21.24
8-feb	00h 09m 58.42s	+03° 55' 24.6"	0.7187907	0.5084203	4.23	44.5	32.8	-4.6	0.365	105.7	8.48	15.06	21.24
9-feb	00h 12m 28.64s	+04° 21' 33.5"	0.7187410	0.5012873	4.17	44.3	33.3	-4.6	0.357	106.6	8.45	15.04	21.24
10-feb	00h 14m 54.89s	+04° 47' 23.3"	0.7186949	0.4941877	4.11	44.0	33.8	-4.6	0.350	107.4	8.42	15.03	21.24
11-feb	00h 17m 17.04s	+05° 12' 52.7"	0.7186525	0.4871241	4.05	43.7	34.2	-4.6	0.343	108.3	8.39	15.01	21.24
12-feb	00h 19m 34.94s	+05° 38' 00.7"	0.7186138	0.4800993	3.99	43.4	34.7	-4.6	0.335	109.3	8.36	14.59	21.24
13-feb	00h 21m 48.45s	+06° 02' 45.9"	0.7185788	0.4731162	3.94	43.1	35.3	-4.6	0.327	110.2	8.33	14.58	21.23
14-feb	00h 23m 57.42s	+06° 27' 07.1"	0.7185476	0.4661775	3.88	42.7	35.8	-4.6	0.320	111.1	8.29	14.56	21.23
15-feb	00h 26m 01.68s	+06° 51' 03.0"	0.7185202	0.4592861	3.82	42.4	36.3	-4.6	0.312	112.1	8.26	14.54	21.22
16-feb	00h 28m 01.06s	+07° 14' 32.2"	0.7184966	0.4524452	3.76	42.0	36.9	-4.6	0.304	113.1	8.23	14.52	21.22
17-feb	00h 29m 55.38s	+07° 37' 33.1"	0.7184769	0.4456578	3.71	41.6	37.4	-4.6	0.296	114.1	8.19	14.50	21.21
18-feb	00h 31m 44.46s	+08° 00' 04.3"	0.7184610	0.4389273	3.65	41.2	38.0	-4.6	0.288	115.1	8.16	14.48	21.20
19-feb	00h 33m 28.09s	+08° 22' 04.1"	0.7184489	0.4322571	3.60	40.7	38.6	-4.6	0.279	116.2	8.12	14.45	21.19
20-feb	00h 35m 06.09s	+08° 43' 30.8"	0.7184408	0.4256508	3.54	40.2	39.2	-4.6	0.271	117.3	8.09	14.43	21.18
21-feb	00h 36m 38.23s	+09° 04' 22.7"	0.7184365	0.4191124	3.49	39.7	39.8	-4.6	0.262	118.4	8.05	14.41	21.17
22-feb	00h 38m 04.30s	+09° 24' 37.8"	0.7184361	0.4126459	3.43	39.2	40.4	-4.6	0.254	119.5	8.01	14.38	21.16
23-feb	00h 39m 24.08s	+09° 44' 14.3"	0.7184397	0.4062556	3.38	38.7	41.1	-4.6	0.245	120.7	7.57	14.35	21.14
24-feb	00h 40m 37.35s	+10° 03' 09.9"	0.7184470	0.3999459	3.33	38.1	41.7	-4.6	0.236	121.8	7.53	14.33	21.12
25-feb	00h 41m 43.87s	+10° 21' 22.6"	0.7184583	0.3937216	3.27	37.5	42.4	-4.6	0.227	123.1	7.49	14.30	21.11
26-feb	00h 42m 43.41s	+10° 38' 50.1"	0.7184735	0.3875878	3.22	36.8	43.0	-4.6	0.218	124.3	7.45	14.27	21.09
27-feb	00h 43m 35.75s	+10° 55' 30.0"	0.7184925	0.3815498	3.17	36.2	43.7	-4.6	0.209	125.6	7.41	14.23	21.06
28-feb	00h 44m 20.65s	+11° 11' 19.8"	0.7185153	0.3756133	3.12	35.5	44.4	-4.6	0.200	126.9	7.37	14.20	21.04
1-mar	00h 44m 57.89s	+11° 26' 17.0"	0.7185420	0.3697842	3.08	34.7	45.1	-4.6	0.191	128.2	7.33	14.17	21.02
2-mar	00h 45m 27.25s	+11° 40' 18.8"	0.7185725	0.3640690	3.03	34.0	45.8	-4.6	0.182	129.6	7.28	14.13	20.59
3-mar	00h 45m 48.52s	+11° 53' 22.4"	0.7186068	0.3584744	2.98	33.2	46.5	-4.6	0.172	131.0	7.24	14.10	20.56
4-mar	00h 46m 01.49s	+12° 05' 25.1"	0.7186448	0.3530075	2.94	32.4	47.3	-4.6	0.163	132.4	7.19	14.06	20.53
5-mar	00h 46m 06.01s	+12° 16' 23.9"	0.7186865	0.3476757	2.89	31.5	48.0	-4.6	0.154	133.9	7.15	14.02	20.50
6-mar	00h 46m 01.91s	+12° 26' 15.9"	0.7187319	0.3424870	2.85	30.6	48.7	-4.5	0.144	135.4	7.10	13.58	20.46
7-mar	00h 45m 49.07s	+12° 34' 58.0"	0.7187810	0.3374494	2.81	29.7	49.4	-4.5	0.135	136.9	7.05	13.54	20.42
8-mar	00h 45m 27.40s	+12° 42' 27.3"	0.7188337	0.3325713	2.77	28.7	50.2	-4.5	0.126	138.5	7.01	13.49	20.38
9-mar	00h 44m 56.87s	+12° 48' 41.0"	0.7188900	0.3278615	2.73	27.7	50.9	-4.5	0.117	140.1	6.56	13.45	20.34
10-mar	00h 44m 17.47s	+12° 53' 36.3"	0.7189498	0.3233288	2.69	26.7	51.6	-4.5	0.108	141.7	6.51	13.40	20.30
11-mar	00h 43m 29.26s	+12° 57' 10.7"	0.7190130	0.3189821	2.65	25.6	52.3	-4.5	0.099	143.4	6.46	13.35	20.25
12-mar	00h 42m 32.35s	+12° 59' 21.6"	0.7190797	0.3148303	2.62	24.5	53.0	-4.5	0.090	145.0	6.41	13.30	20.20
13-mar	00h 41m 26.91s	+13° 00' 06.9"	0.7191498	0.3108823	2.59	23.4	53.7	-4.4	0.082	146.8	6.36	13.25	20.15

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
14-mar	00h 40m 13.18s	+12° 59' 24.9"	0.7192232	0.3071471	2.55	22.2	54.3	-4.4	0.074	148.5	6.31	13.20	20.09
15-mar	00h 38m 51.45s	+12° 57' 13.8"	0.7192998	0.3036333	2.53	21.0	54.9	-4.4	0.066	150.3	6.25	13.15	20.04
16-mar	00h 37m 22.07s	+12° 53' 32.7"	0.7193797	0.3003496	2.50	19.8	55.5	-4.3	0.058	152.1	6.20	13.09	19.58
17-mar	00h 35m 45.48s	+12° 48' 20.8"	0.7194627	0.2973043	2.47	18.6	56.1	-4.3	0.051	153.8	6.15	13.04	19.52
18-mar	00h 34m 02.16s	+12° 41' 38.0"	0.7195487	0.2945056	2.45	17.4	56.6	-4.3	0.045	155.6	6.10	12.58	19.46
19-mar	00h 32m 12.68s	+12° 33' 24.7"	0.7196377	0.2919610	2.43	16.1	57.1	-4.3	0.038	157.4	6.05	12.52	19.39
20-mar	00h 30m 17.67s	+12° 23' 42.1"	0.7197297	0.2896780	2.41	14.9	57.6	-4.2	0.033	159.2	5.59	12.46	19.33
21-mar	00h 28m 17.79s	+12° 12' 32.0"	0.7198245	0.2876633	2.39	13.7	58.0	-4.2	0.028	160.9	5.54	12.40	19.26
22-mar	00h 26m 13.81s	+11° 59' 56.8"	0.7199221	0.2859232	2.38	12.5	58.3	-4.2	0.023	162.5	5.49	12.34	19.19
23-mar	00h 24m 06.50s	+11° 45' 59.8"	0.7200224	0.2844632	2.37	11.4	58.6	-4.1	0.019	164.1	5.44	12.28	19.12
24-mar	00h 21m 56.69s	+11° 30' 45.0"	0.7201253	0.2832883	2.36	10.4	58.9	-4.1	0.016	165.5	5.39	12.22	19.05
25-mar	00h 19m 45.25s	+11° 14' 17.0"	0.7202307	0.2824024	2.35	9.5	59.1	-4.1	0.013	166.8	5.34	12.16	18.58
26-mar	00h 17m 33.05s	+10° 56' 41.3"	0.7203386	0.2818088	2.34	8.8	59.2	-4.0	0.011	167.7	5.29	12.10	18.50
27-mar	00h 15m 20.98s	+10° 38' 03.9"	0.7204489	0.2815100	2.34	8.4	59.3	-4.0	0.010	168.4	5.24	12.04	18.43
28-mar	00h 13m 09.94s	+10° 18' 31.3"	0.7205614	0.2815075	2.34	8.2	59.3	-4.0	0.010	168.6	5.19	11.58	18.36
29-mar	00h 11m 00.80s	+09° 58' 10.7"	0.7206761	0.2818020	2.34	8.3	59.2	-4.0	0.010	168.5	5.14	11.52	18.28
30-mar	00h 08m 54.41s	+09° 37' 09.3"	0.7207929	0.2823933	2.35	8.7	59.1	-4.0	0.011	167.9	5.09	11.46	18.21
31-mar	00h 06m 51.60s	+09° 15' 35.1"	0.7209117	0.2832805	2.36	9.4	58.9	-4.1	0.013	167.0	5.05	11.40	18.14
1-apr	00h 04m 53.16s	+08° 53' 36.0"	0.7210324	0.2844615	2.37	10.2	58.6	-4.1	0.015	165.8	5.00	11.34	18.07
2-apr	00h 02m 59.82s	+08° 31' 19.8"	0.7211549	0.2859337	2.38	11.2	58.3	-4.1	0.018	164.4	4.56	11.28	18.00
3-apr	00h 01m 12.28s	+08° 08' 54.8"	0.7212791	0.2876935	2.39	12.3	58.0	-4.1	0.022	162.9	4.52	11.22	17.53
4-apr	23h 59m 31.15s	+07° 46' 28.8"	0.7214049	0.2897365	2.41	13.4	57.6	-4.2	0.027	161.2	4.47	11.17	17.46
5-apr	23h 57m 57.01s	+07° 24' 09.3"	0.7215323	0.2920575	2.43	14.6	57.1	-4.2	0.032	159.5	4.43	11.11	17.39
6-apr	23h 56m 30.37s	+07° 02' 03.9"	0.7216610	0.2946506	2.45	15.8	56.6	-4.2	0.037	157.8	4.39	11.06	17.32
7-apr	23h 55m 11.65s	+06° 40' 19.5"	0.7217910	0.2975094	2.47	17.0	56.1	-4.3	0.043	156.0	4.35	11.01	17.26
8-apr	23h 54m 01.22s	+06° 19' 02.6"	0.7219223	0.3006266	2.50	18.3	55.5	-4.3	0.050	154.2	4.32	10.56	17.20
9-apr	23h 52m 59.40s	+05° 58' 19.2"	0.7220546	0.3039946	2.53	19.5	54.9	-4.3	0.057	152.5	4.28	10.51	17.14
10-apr	23h 52m 06.39s	+05° 38' 14.8"	0.7221879	0.3076052	2.56	20.7	54.2	-4.3	0.064	150.7	4.24	10.46	17.08
11-apr	23h 51m 22.38s	+05° 18' 54.1"	0.7223222	0.3114500	2.59	21.8	53.6	-4.3	0.072	148.9	4.21	10.42	17.02
12-apr	23h 50m 47.47s	+05° 00' 21.5"	0.7224572	0.3155204	2.62	23.0	52.9	-4.4	0.080	147.2	4.17	10.37	16.56
13-apr	23h 50m 21.70s	+04° 42' 40.6"	0.7225928	0.3198074	2.66	24.1	52.2	-4.4	0.088	145.5	4.14	10.33	16.51
14-apr	23h 50m 05.08s	+04° 25' 54.4"	0.7227290	0.3243022	2.70	25.2	51.4	-4.4	0.096	143.8	4.11	10.29	16.46
15-apr	23h 49m 57.54s	+04° 10' 05.5"	0.7228657	0.3289960	2.74	26.2	50.7	-4.4	0.105	142.2	4.08	10.25	16.41
16-apr	23h 49m 58.99s	+03° 55' 15.9"	0.7230027	0.3338800	2.78	27.2	50.0	-4.4	0.114	140.6	4.05	10.21	16.37
17-apr	23h 50m 09.32s	+03° 41' 27.1"	0.7231400	0.3389454	2.82	28.2	49.2	-4.5	0.123	139.0	4.02	10.17	16.32
18-apr	23h 50m 28.35s	+03° 28' 40.3"	0.7232774	0.3441839	2.86	29.2	48.5	-4.5	0.132	137.4	3.59	10.14	16.28
19-apr	23h 50m 55.92s	+03° 16' 56.2"	0.7234148	0.3495870	2.91	30.1	47.7	-4.5	0.141	135.9	3.56	10.10	16.24
20-apr	23h 51m 31.81s	+03° 06' 15.2"	0.7235522	0.3551469	2.95	31.0	47.0	-4.5	0.150	134.4	3.54	10.07	16.20
21-apr	23h 52m 15.81s	+02° 56' 37.2"	0.7236893	0.3608557	3.00	31.8	46.2	-4.5	0.159	133.0	3.51	10.04	16.16
22-apr	23h 53m 07.69s	+02° 48' 02.2"	0.7238261	0.3667060	3.05	32.6	45.5	-4.5	0.168	131.5	3.48	10.01	16.13
23-apr	23h 54m 07.19s	+02° 40' 29.5"	0.7239626	0.3726905	3.10	33.4	44.8	-4.5	0.178	130.1	3.46	9.58	16.10
24-apr	23h 55m 14.08s	+02° 33' 58.7"	0.7240985	0.3788025	3.15	34.1	44.0	-4.5	0.187	128.8	3.44	9.55	16.06
25-apr	23h 56m 28.11s	+02° 28' 28.8"	0.7242338	0.3850354	3.20	34.9	43.3	-4.5	0.196	127.5	3.41	9.52	16.04
26-apr	23h 57m 49.01s	+02° 23' 58.8"	0.7243684	0.3913831	3.25	35.5	42.6	-4.5	0.205	126.2	3.39	9.50	16.01
27-apr	23h 59m 16.53s	+02° 20' 27.7"	0.7245021	0.3978399	3.31	36.2	41.9	-4.5	0.214	124.9	3.37	9.47	15.58
28-apr	00h 00m 50.44s	+02° 17' 54.2"	0.7246349	0.4044003	3.36	36.8	41.3	-4.5	0.223	123.7	3.34	9.45	15.56
29-apr	00h 02m 30.47s	+02° 16' 17.1"	0.7247667	0.4110592	3.42	37.4	40.6	-4.5	0.232	122.5	3.32	9.43	15.53
30-apr	00h 04m 16.40s	+02° 15' 35.2"	0.7248973	0.4178118	3.47	38.0	39.9	-4.5	0.240	121.3	3.30	9.41	15.51
1-mag	00h 06m 08.00s	+02° 15' 47.1"	0.7250267	0.4246535	3.53	38.5	39.3	-4.5	0.249	120.1	3.28	9.39	15.49
2-mag	00h 08m 05.04s	+02° 16' 51.4"	0.7251547	0.4315798	3.59	39.0	38.7	-4.5	0.258	119.0	3.26	9.37	15.48
3-mag	00h 10m 07.32s	+02° 18' 46.8"	0.7252813	0.4385864	3.65	39.5	38.0	-4.5	0.266	117.9	3.24	9.35	15.46
4-mag	00h 12m 14.64s	+02° 21' 31.9"	0.7254064	0.4456693	3.71	39.9	37.4	-4.5	0.274	116.8	3.22	9.33	15.44
5-mag	00h 14m 26.80s	+02° 25' 05.3"	0.7255298	0.4528244	3.77	40.4	36.8	-4.5	0.283	115.8	3.20	9.31	15.43
6-mag	00h 16m 43.61s	+02° 29' 25.6"	0.7256515	0.4600478	3.83	40.8	36.3	-4.5	0.291	114.7	3.18	9.30	15.41
7-mag	00h 19m 04.91s	+02° 34' 31.6"	0.7257714	0.4673358	3.89	41.2	35.7	-4.5	0.299	113.7	3.16	9.28	15.40
8-mag	00h 21m 30.50s	+02° 40' 21.6"	0.7258894	0.4746845	3.95	41.6	35.1	-4.5	0.307	112.7	3.14	9.27	15.39
9-mag	00h 24m 00.24s	+02° 46' 54.3"	0.7260053	0.4820905	4.01	41.9	34.6	-4.5	0.315	111.8	3.13	9.25	15.38
10-mag	00h 26m 33.96s	+02° 54' 08.3"	0.7261192	0.4895503	4.07	42.2	34.1	-4.5	0.322	110.8	3.11	9.24	15.37
11-mag	00h 29m 11.50s	+03° 02' 02.0"	0.7262309	0.4970604	4.13	42.5	33.6	-4.5	0.330	109.9	3.09	9.23	15.37
12-mag	00h 31m 52.71s	+03° 10' 34.2"	0.7263403	0.5046178	4.20	42.8	33.1	-4.5	0.337	109.0	3.07	9.21	15.36
13-mag	00h 34m 37.45s	+03° 19' 43.3"	0.7264474	0.5122192	4.26	43.1	32.6	-4.5	0.345	108.1	3.05	9.20	15.35
14-mag	00h 37m 25.59s	+03° 29' 28.0"	0.7265520	0.5198618	4.32	43.4	32.1	-4.5	0.352	107.2	3.04	9.19	15.35
15-mag	00h 40m 16.98s	+03° 39' 46.8"	0.7266541	0.5275427	4.39	43.6	31.6	-4.5	0.359	106.3	3.02	9.18	15.34
16-mag	00h 43m 11.51s	+03° 50' 38.3"	0.7267537	0.5352590	4.45	43.8	31.2	-4.5	0.367	105.5	3.00	9.17	15.34
17-mag	00h 46m 09.05s	+04° 02' 01.1"	0.7268505	0.5430083	4.52	44.1	30.7	-4.5	0.374	104.6	2.59	9.16	15.34
18-mag	00h 49m 09.50s	+04° 13' 53.9"	0.7269447	0.5507881	4.58	44.3	30.3	-4.4	0.381	103.8	2.57	9.15	15.34
19-mag	00h 52m 12.75s	+04° 26' 15.4"	0.7270360	0.5585960	4.65	44.4	29.9	-4.4	0.387	103.0	2.55	9.14	15.33
20-mag	00h 55m 18.69s	+04° 39' 04.2"	0.7271244	0.5664296	4.71	44.6	29.5	-4.4	0.394	102.2	2.54	9.13	15.33
21-mag	00h 58m 27.24s	+04° 52' 19.0"	0.7272099	0.5742870	4.78	44.8	29.0	-4.4	0.401	101.4	2.52	9.13	15.34
22-mag	01h 01m 38.29s	+05° 05' 58.5"	0.7272924	0.5821661	4.84	44.9	28.7	-4.4	0.407	100.7	2.51	9.12	15.34
23-mag	01h 04m 51.76s	+05° 20' 01.6"	0.7273719	0.5900651	4.91	45.0	28.3	-4.4	0.414	99.9	2.49	9.11	15.34
24-mag	01h 08m 07.58s	+05° 34' 26.8"	0.7274481	0.5979822	4.97	45.2	27.9	-4.4	0.420	99.2	2.47	9.11	15.34
25-mag	01h 11m 25.66s	+05° 49' 13.2"	0.7275212	0.6059159	5.04	45.3	27.5	-4.4	0.427	98.4	2.46	9.10	15.34
26-mag	01h 14m 45.93s	+06° 04' 19.4"	0.7275911	0.6138650	5.10	45.4	27.2	-4.4	0.433	97.7	2.44	9.09	15.35
27-mag	01h 18m 08.32s	+06° 19' 44.3"	0.7276577	0.6218280	5.17	45.5	26.8	-4.4	0.439	97.0	2.43	9.09	15.35
28-mag	01h 21m 32.78s	+06° 35' 26.8"	0.7277209	0.6298040	5.24	45.5	26.5	-4.4	0.445	96.3	2.41	9.08	15.36

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
30-mag	01h 28m 27.66s	+07° 07' 40.1"	0.7278370	0.6457906	5.37	45.7	25.8	-4.3	0.457	94.9	2.38	9.07	15.37
31-mag	01h 31m 57.99s	+07° 24' 08.9"	0.7278899	0.6537990	5.44	45.7	25.5	-4.3	0.463	94.3	2.37	9.07	15.37
1-giu	01h 35m 30.21s	+07° 40' 51.0"	0.7279393	0.6618162	5.50	45.8	25.2	-4.3	0.469	93.6	2.36	9.06	15.38
2-giu	01h 39m 04.29s	+07° 57' 45.6"	0.7279851	0.6698410	5.57	45.8	24.9	-4.3	0.474	92.9	2.34	9.06	15.39
3-giu	01h 42m 40.18s	+08° 14' 51.6"	0.7280273	0.6778722	5.64	45.8	24.6	-4.3	0.480	92.3	2.33	9.06	15.39
4-giu	01h 46m 17.87s	+08° 32' 08.0"	0.7280659	0.6859089	5.70	45.8	24.3	-4.3	0.486	91.6	2.31	9.05	15.40
5-giu	01h 49m 57.33s	+08° 49' 33.9"	0.7281009	0.6939497	5.77	45.8	24.0	-4.3	0.491	91.0	2.30	9.05	15.41
6-giu	01h 53m 38.53s	+09° 07' 08.2"	0.7281321	0.7019935	5.84	45.9	23.8	-4.3	0.497	90.4	2.29	9.05	15.42
7-giu	01h 57m 21.46s	+09° 24' 50.2"	0.7281597	0.7100391	5.90	45.8	23.5	-4.3	0.502	89.8	2.27	9.05	15.43
8-giu	02h 01m 06.10s	+09° 42' 38.7"	0.7281835	0.7180853	5.97	45.8	23.2	-4.3	0.507	89.1	2.26	9.05	15.44
9-giu	02h 04m 52.42s	+10° 00' 32.8"	0.7282036	0.7261309	6.04	45.8	23.0	-4.3	0.513	88.5	2.25	9.04	15.45
10-giu	02h 08m 40.41s	+10° 18' 31.6"	0.7282200	0.7341748	6.11	45.8	22.7	-4.3	0.518	87.9	2.23	9.04	15.46
11-giu	02h 12m 30.04s	+10° 36' 34.0"	0.7282325	0.7422157	6.17	45.8	22.5	-4.3	0.523	87.3	2.22	9.04	15.47
12-giu	02h 16m 21.31s	+10° 54' 39.2"	0.7282413	0.7502525	6.24	45.7	22.2	-4.3	0.528	86.7	2.21	9.04	15.48
13-giu	02h 20m 14.20s	+11° 12' 46.3"	0.7282463	0.7582840	6.31	45.7	22.0	-4.3	0.533	86.2	2.20	9.04	15.49
14-giu	02h 24m 08.69s	+11° 30' 54.2"	0.7282475	0.7663092	6.37	45.6	21.8	-4.2	0.539	85.6	2.19	9.04	15.50
15-giu	02h 28m 04.77s	+11° 49' 02.0"	0.7282450	0.7743270	6.44	45.6	21.5	-4.2	0.544	85.0	2.17	9.04	15.51
16-giu	02h 32m 02.44s	+12° 07' 08.9"	0.7282386	0.7823363	6.51	45.5	21.3	-4.2	0.548	84.4	2.16	9.04	15.52
17-giu	02h 36m 01.67s	+12° 25' 13.9"	0.7282285	0.7903360	6.57	45.5	21.1	-4.2	0.553	83.9	2.15	9.04	15.54
18-giu	02h 40m 02.46s	+12° 43' 16.0"	0.7282146	0.7983252	6.64	45.4	20.9	-4.2	0.558	83.3	2.14	9.04	15.55
19-giu	02h 44m 04.80s	+13° 01' 14.5"	0.7281969	0.8063028	6.71	45.3	20.7	-4.2	0.563	82.8	2.13	9.04	15.56
20-giu	02h 48m 08.68s	+13° 19' 08.4"	0.7281755	0.8142682	6.77	45.2	20.5	-4.2	0.568	82.2	2.12	9.04	15.57
21-giu	02h 52m 14.08s	+13° 36' 56.9"	0.7281503	0.8222203	6.84	45.1	20.3	-4.2	0.572	81.7	2.11	9.04	15.59
22-giu	02h 56m 20.99s	+13° 54' 39.0"	0.7281214	0.8301586	6.90	45.1	20.1	-4.2	0.577	81.1	2.10	9.05	16.00
23-giu	03h 00m 29.39s	+14° 12' 13.9"	0.7280888	0.8380826	6.97	45.0	19.9	-4.2	0.582	80.6	2.09	9.05	16.01
24-giu	03h 04m 39.28s	+14° 29' 40.8"	0.7280526	0.8459916	7.04	44.9	19.7	-4.2	0.586	80.1	2.08	9.05	16.03
25-giu	03h 08m 50.64s	+14° 46' 58.8"	0.7280127	0.8538855	7.10	44.8	19.5	-4.2	0.591	79.5	2.07	9.05	16.04
26-giu	03h 13m 03.46s	+15° 04' 07.0"	0.7279692	0.8617638	7.17	44.7	19.4	-4.2	0.595	79.0	2.06	9.06	16.06
27-giu	03h 17m 17.74s	+15° 21' 04.8"	0.7279221	0.8696264	7.23	44.6	19.2	-4.2	0.600	78.5	2.06	9.06	16.07
28-giu	03h 21m 33.48s	+15° 37' 51.1"	0.7278715	0.8774729	7.30	44.4	19.0	-4.2	0.604	78.0	2.05	9.06	16.08
29-giu	03h 25m 50.67s	+15° 54' 25.4"	0.7278174	0.8853030	7.36	44.3	18.8	-4.2	0.609	77.5	2.04	9.07	16.10
30-giu	03h 30m 09.31s	+16° 10' 46.8"	0.7277598	0.8931164	7.43	44.2	18.7	-4.1	0.613	76.9	2.03	9.07	16.11
1-lug	03h 34m 29.40s	+16° 26' 54.5"	0.7276987	0.9009126	7.49	44.1	18.5	-4.1	0.617	76.4	2.03	9.07	16.13
2-lug	03h 38m 50.94s	+16° 42' 47.8"	0.7276343	0.9086912	7.56	44.0	18.4	-4.1	0.622	75.9	2.02	9.08	16.14
3-lug	03h 43m 13.92s	+16° 58' 25.9"	0.7275666	0.9164516	7.62	43.8	18.2	-4.1	0.626	75.4	2.01	9.08	16.16
4-lug	03h 47m 38.35s	+17° 13' 48.0"	0.7274956	0.9241932	7.69	43.7	18.1	-4.1	0.630	74.9	2.01	9.09	16.17
5-lug	03h 52m 04.21s	+17° 28' 53.5"	0.7274213	0.9319156	7.75	43.6	17.9	-4.1	0.634	74.4	2.00	9.09	16.19
6-lug	03h 56m 31.50s	+17° 43' 41.5"	0.7273439	0.9396181	7.81	43.4	17.8	-4.1	0.638	73.9	2.00	9.10	16.21
7-lug	04h 01m 00.20s	+17° 58' 11.2"	0.7272634	0.9473000	7.88	43.3	17.6	-4.1	0.642	73.4	1.99	9.10	16.22
8-lug	04h 05m 30.31s	+18° 12' 21.9"	0.7271799	0.9549606	7.94	43.1	17.5	-4.1	0.647	73.0	1.99	9.11	16.24
9-lug	04h 10m 01.82s	+18° 26' 12.9"	0.7270933	0.9625994	8.00	43.0	17.3	-4.1	0.651	72.5	1.98	9.11	16.25
10-lug	04h 14m 34.72s	+18° 39' 43.5"	0.7270038	0.9702156	8.07	42.8	17.2	-4.1	0.655	72.0	1.98	9.12	16.27
11-lug	04h 19m 08.98s	+18° 52' 52.8"	0.7269115	0.9778085	8.13	42.7	17.1	-4.1	0.659	71.5	1.98	9.13	16.28
12-lug	04h 23m 44.60s	+19° 05' 40.2"	0.7268164	0.9853773	8.19	42.5	16.9	-4.1	0.663	71.0	1.97	9.13	16.30
13-lug	04h 28m 21.55s	+19° 18' 04.9"	0.7267185	0.9929214	8.26	42.4	16.8	-4.1	0.667	70.5	1.97	9.14	16.31
14-lug	04h 32m 59.83s	+19° 30' 06.3"	0.7266181	1.0004401	8.32	42.2	16.7	-4.1	0.670	70.1	1.97	9.15	16.33
15-lug	04h 37m 39.41s	+19° 41' 43.6"	0.7265150	1.0079325	8.38	42.1	16.6	-4.1	0.674	69.6	1.97	9.15	16.35
16-lug	04h 42m 20.27s	+19° 52' 56.3"	0.7264095	1.0153981	8.44	41.9	16.4	-4.1	0.678	69.1	1.97	9.16	16.36
17-lug	04h 47m 02.38s	+20° 03' 43.6"	0.7263016	1.0228361	8.51	41.7	16.3	-4.1	0.682	68.7	1.97	9.17	16.38
18-lug	04h 51m 45.72s	+20° 14' 04.8"	0.7261913	1.0302458	8.57	41.6	16.2	-4.1	0.686	68.2	1.97	9.18	16.39
19-lug	04h 56m 30.26s	+20° 23' 59.5"	0.7260789	1.0376267	8.63	41.4	16.1	-4.0	0.690	67.7	1.97	9.19	16.41
20-lug	05h 01m 15.96s	+20° 33' 26.9"	0.7259642	1.0449782	8.69	41.2	16.0	-4.0	0.693	67.3	1.97	9.19	16.42
21-lug	05h 06m 02.79s	+20° 42' 26.5"	0.7258475	1.0522998	8.75	41.0	15.9	-4.0	0.697	66.8	1.97	9.20	16.44
22-lug	05h 10m 50.71s	+20° 50' 57.8"	0.7257288	1.0595912	8.81	40.9	15.7	-4.0	0.701	66.3	1.97	9.21	16.45
23-lug	05h 15m 39.68s	+20° 59' 00.0"	0.7256083	1.0668523	8.87	40.7	15.6	-4.0	0.704	65.9	1.98	9.22	16.47
24-lug	05h 20m 29.67s	+21° 06' 32.8"	0.7254859	1.0740829	8.93	40.5	15.5	-4.0	0.708	65.4	1.98	9.23	16.48
25-lug	05h 25m 20.63s	+21° 13' 35.6"	0.7253618	1.0812830	8.99	40.3	15.4	-4.0	0.712	65.0	1.99	9.24	16.49
26-lug	05h 30m 12.55s	+21° 20' 07.8"	0.7252362	1.0884525	9.05	40.1	15.3	-4.0	0.715	64.5	1.99	9.25	16.51
27-lug	05h 35m 05.37s	+21° 26' 09.1"	0.7251090	1.0955914	9.11	40.0	15.2	-4.0	0.719	64.1	1.99	9.26	16.52
28-lug	05h 39m 59.07s	+21° 31' 39.0"	0.7249804	1.1026996	9.17	39.8	15.1	-4.0	0.722	63.6	2.00	9.27	16.54
29-lug	05h 44m 53.62s	+21° 36' 37.0"	0.7248505	1.1097769	9.23	39.6	15.0	-4.0	0.726	63.2	2.01	9.28	16.55
30-lug	05h 49m 48.97s	+21° 41' 02.7"	0.7247194	1.1168233	9.29	39.4	14.9	-4.0	0.729	62.7	2.01	9.29	16.56
31-lug	05h 54m 45.08s	+21° 44' 55.8"	0.7245872	1.1238384	9.35	39.2	14.8	-4.0	0.733	62.3	2.02	9.30	16.57
1-ago	05h 59m 41.92s	+21° 48' 15.8"	0.7244539	1.1308221	9.40	39.0	14.8	-4.0	0.736	61.8	2.03	9.31	16.59
2-ago	06h 04m 39.44s	+21° 51' 02.5"	0.7243198	1.1377740	9.46	38.8	14.7	-4.0	0.739	61.4	2.03	9.32	17.00
3-ago	06h 09m 37.61s	+21° 53' 15.5"	0.7241848	1.1446938	9.52	38.6	14.6	-4.0	0.743	60.9	2.04	9.33	17.01
4-ago	06h 14m 36.38s	+21° 54' 54.5"	0.7240492	1.1515812	9.58	38.4	14.5	-4.0	0.746	60.5	2.05	9.34	17.02
5-ago	06h 19m 35.70s	+21° 55' 59.1"	0.7239130	1.1584357	9.63	38.2	14.4	-4.0	0.750	60.1	2.06	9.35	17.03
6-ago	06h 24m 35.53s	+21° 56' 29.1"	0.7237763	1.1652570	9.69	38.0	14.3	-4.0	0.753	59.6	2.07	9.36	17.04
7-ago	06h 29m 35.83s	+21° 56' 24.3"	0.7236391	1.1720445	9.75	37.8	14.2	-4.0	0.756	59.2	2.08	9.37	17.05
8-ago	06h 34m 36.54s	+21° 55' 44.4"	0.7235018	1.1787979	9.80	37.6	14.2	-4.0	0.759	58.8	2.09	9.38	17.06
9-ago	06h 39m 37.64s	+21° 54' 29.2"	0.7233642	1.1855166	9.86	37.4	14.1	-4.0	0.763	58.3	2.11	9.39	17.07
10-ago	06h 44m 39.06s	+21° 52' 38.6"	0.7232266	1.1922002	9.91	37.2	14.0	-4.0	0.766	57.9	2.12	9.40	17.08
11-ago	06h 49m 40.76s	+21° 50' 12.4"	0.7230891	1.1988479	9.97	37.0	13.9	-4.0	0.769	57.4	2.13	9.41	17.09
12-ago	06h 54m 42.71s	+21° 47' 10.5"	0.7229517	1.2054594	10.02	36.8	13.8	-4.0	0.772	57.0	2.14	9.42	17.10
13-ago	06h 59m 44.84s	+21° 43' 32.9"	0.7228145	1.2120340	10.08	36.5	13.8	-4.0	0.775	56.6	2.16	9.43	17.11
14-ago	07h 04m 47.12s	+21° 39' 19.4"	0.7226778	1.2185711	10.13	36.3							

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
15-ago	07h 09m 49.49s	+21° 34' 30.0"	0.7225415	1.2250702	10.19	36.1	13.6	-4.0	0.782	55.7	2.19	9.46	17.12
16-ago	07h 14m 51.91s	+21° 29' 04.9"	0.7224058	1.2315308	10.24	35.9	13.5	-4.0	0.785	55.3	2.20	9.47	17.13
17-ago	07h 19m 54.32s	+21° 23' 03.9"	0.7222708	1.2379523	10.29	35.7	13.5	-4.0	0.788	54.9	2.22	9.48	17.14
18-ago	07h 24m 56.67s	+21° 16' 27.3"	0.7221366	1.2443343	10.35	35.5	13.4	-4.0	0.791	54.4	2.23	9.49	17.14
19-ago	07h 29m 58.91s	+21° 09' 15.0"	0.7220033	1.2506765	10.40	35.3	13.3	-4.0	0.794	54.0	2.25	9.50	17.15
20-ago	07h 35m 01.00s	+21° 01' 27.2"	0.7218710	1.2569788	10.45	35.0	13.3	-4.0	0.797	53.6	2.27	9.51	17.15
21-ago	07h 40m 02.87s	+20° 53' 04.1"	0.7217398	1.2632408	10.51	34.8	13.2	-4.0	0.800	53.2	2.28	9.52	17.16
22-ago	07h 45m 04.50s	+20° 44' 05.8"	0.7216099	1.2694628	10.56	34.6	13.1	-4.0	0.803	52.7	2.30	9.53	17.16
23-ago	07h 50m 05.85s	+20° 34' 32.4"	0.7214812	1.2756446	10.61	34.4	13.1	-4.0	0.806	52.3	2.32	9.54	17.16
24-ago	07h 55m 06.87s	+20° 24' 24.3"	0.7213540	1.2817865	10.66	34.2	13.0	-4.0	0.809	51.9	2.34	9.55	17.17
25-ago	08h 00m 07.52s	+20° 13' 41.6"	0.7212283	1.2878884	10.71	33.9	13.0	-4.0	0.811	51.5	2.36	9.56	17.17
26-ago	08h 05m 07.79s	+20° 02' 24.6"	0.7211043	1.2939504	10.76	33.7	12.9	-4.0	0.814	51.1	2.37	9.58	17.17
27-ago	08h 10m 07.62s	+19° 50' 33.6"	0.7209819	1.2999726	10.81	33.5	12.8	-4.0	0.817	50.6	2.39	9.59	17.17
28-ago	08h 15m 06.99s	+19° 38' 08.8"	0.7208614	1.3059550	10.86	33.3	12.8	-4.0	0.820	50.2	2.41	10.00	17.17
29-ago	08h 20m 05.88s	+19° 25' 10.7"	0.7207428	1.3118975	10.91	33.0	12.7	-4.0	0.823	49.8	2.43	10.01	17.17
30-ago	08h 25m 04.24s	+19° 11' 39.5"	0.7206263	1.3178000	10.96	32.8	12.7	-4.0	0.825	49.4	2.45	10.02	17.17
31-ago	08h 30m 02.06s	+18° 57' 35.6"	0.7205118	1.3236625	11.01	32.6	12.6	-4.0	0.828	49.0	2.47	10.03	17.17
1-set	08h 34m 59.32s	+18° 42' 59.4"	0.7203995	1.3294848	11.06	32.3	12.6	-4.0	0.831	48.6	2.49	10.04	17.17
2-set	08h 39m 55.98s	+18° 27' 51.1"	0.7202895	1.3352668	11.10	32.1	12.5	-4.0	0.834	48.1	2.51	10.05	17.17
3-set	08h 44m 52.03s	+18° 12' 11.3"	0.7201819	1.3410082	11.15	31.9	12.4	-4.0	0.836	47.7	2.54	10.06	17.17
4-set	08h 49m 47.44s	+17° 56' 00.4"	0.7200768	1.3467089	11.20	31.7	12.4	-4.0	0.839	47.3	2.56	10.07	17.17
5-set	08h 54m 42.22s	+17° 39' 18.8"	0.7199742	1.3523686	11.25	31.4	12.3	-4.0	0.842	46.9	2.58	10.08	17.17
6-set	08h 59m 36.34s	+17° 22' 06.8"	0.7198742	1.3579870	11.29	31.2	12.3	-4.0	0.844	46.5	3.00	10.09	17.17
7-set	09h 04m 29.78s	+17° 04' 25.1"	0.7197770	1.3635638	11.34	31.0	12.2	-4.0	0.847	46.1	3.02	10.10	17.16
8-set	09h 09m 22.55s	+16° 46' 14.0"	0.7196825	1.3690986	11.39	30.7	12.2	-4.0	0.849	45.7	3.04	10.10	17.16
9-set	09h 14m 14.63s	+16° 27' 34.0"	0.7195909	1.3745910	11.43	30.5	12.1	-4.0	0.852	45.3	3.06	10.11	17.16
10-set	09h 19m 06.02s	+16° 08' 25.8"	0.7195022	1.3800406	11.48	30.3	12.1	-4.0	0.855	44.8	3.09	10.12	17.15
11-set	09h 23m 56.71s	+15° 48' 49.8"	0.7194166	1.3854469	11.52	30.0	12.0	-4.0	0.857	44.4	3.11	10.13	17.15
12-set	09h 28m 46.69s	+15° 28' 46.5"	0.7193340	1.3908096	11.57	29.8	12.0	-4.0	0.860	44.0	3.13	10.14	17.14
13-set	09h 33m 35.96s	+15° 08' 16.7"	0.7192546	1.3961280	11.61	29.5	12.0	-4.0	0.862	43.6	3.15	10.15	17.14
14-set	09h 38m 24.52s	+14° 47' 20.7"	0.7191784	1.4014019	11.65	29.3	11.9	-4.0	0.864	43.2	3.18	10.16	17.13
15-set	09h 43m 12.35s	+14° 25' 59.4"	0.7191055	1.4066308	11.70	29.1	11.9	-3.9	0.867	42.8	3.20	10.17	17.13
16-set	09h 47m 59.47s	+14° 04' 13.2"	0.7190359	1.4118144	11.74	28.8	11.8	-3.9	0.869	42.4	3.22	10.18	17.12
17-set	09h 52m 45.87s	+13° 42' 02.7"	0.7189697	1.4169524	11.78	28.6	11.8	-3.9	0.872	42.0	3.25	10.18	17.11
18-set	09h 57m 31.55s	+13° 19' 28.7"	0.7189070	1.4220447	11.83	28.4	11.7	-3.9	0.874	41.6	3.27	10.19	17.11
19-set	10h 02m 16.52s	+12° 56' 31.7"	0.7188477	1.4270914	11.87	28.1	11.7	-3.9	0.876	41.2	3.29	10.20	17.10
20-set	10h 07m 00.80s	+12° 33' 12.4"	0.7187920	1.4320924	11.91	27.9	11.7	-3.9	0.879	40.8	3.31	10.21	17.09
21-set	10h 11m 44.38s	+12° 09' 31.4"	0.7187399	1.4370478	11.95	27.6	11.6	-3.9	0.881	40.4	3.34	10.22	17.08
22-set	10h 16m 27.29s	+11° 45' 29.3"	0.7186914	1.4419579	11.99	27.4	11.6	-3.9	0.883	40.0	3.36	10.22	17.08
23-set	10h 21m 09.54s	+11° 21' 06.9"	0.7186466	1.4468227	12.03	27.1	11.5	-3.9	0.885	39.6	3.38	10.23	17.07
24-set	10h 25m 51.14s	+10° 56' 24.7"	0.7186054	1.4516426	12.07	26.9	11.5	-3.9	0.888	39.2	3.41	10.24	17.06
25-set	10h 30m 32.10s	+10° 31' 23.5"	0.7185681	1.4564176	12.11	26.7	11.5	-3.9	0.890	38.8	3.43	10.25	17.05
26-set	10h 35m 12.46s	+10° 06' 03.8"	0.7185345	1.4611479	12.15	26.4	11.4	-3.9	0.892	38.4	3.45	10.25	17.04
27-set	10h 39m 52.22s	+09° 40' 26.4"	0.7185047	1.4658336	12.19	26.2	11.4	-3.9	0.894	38.0	3.48	10.26	17.03
28-set	10h 44m 31.42s	+09° 14' 31.9"	0.7184787	1.4704748	12.23	25.9	11.3	-3.9	0.896	37.6	3.50	10.27	17.02
29-set	10h 49m 10.06s	+08° 48' 21.0"	0.7184566	1.4750716	12.27	25.7	11.3	-3.9	0.898	37.2	3.52	10.27	17.02
30-set	10h 53m 48.18s	+08° 21' 54.4"	0.7184383	1.4796241	12.30	25.4	11.3	-3.9	0.900	36.8	3.55	10.28	17.01
1-ott	10h 58m 25.81s	+07° 55' 12.6"	0.7184240	1.4841323	12.34	25.2	11.2	-3.9	0.902	36.4	3.57	10.29	17.00
2-ott	11h 03m 02.96s	+07° 28' 16.5"	0.7184135	1.4885962	12.38	25.0	11.2	-3.9	0.904	36.0	3.59	10.29	16.59
3-ott	11h 07m 39.68s	+07° 01' 06.6"	0.7184069	1.4930159	12.42	24.7	11.2	-3.9	0.906	35.6	4.02	10.30	16.58
4-ott	11h 12m 15.99s	+06° 33' 43.6"	0.7184042	1.4973912	12.45	24.5	11.1	-3.9	0.908	35.2	4.04	10.31	16.57
5-ott	11h 16m 51.92s	+06° 06' 08.2"	0.7184054	1.5017221	12.49	24.2	11.1	-3.9	0.910	34.8	4.06	10.31	16.56
6-ott	11h 21m 27.51s	+05° 38' 21.1"	0.7184105	1.5060084	12.52	24.0	11.1	-3.9	0.912	34.4	4.09	10.32	16.55
7-ott	11h 26m 02.80s	+05° 10' 22.9"	0.7184196	1.5102500	12.56	23.7	11.0	-3.9	0.914	34.0	4.11	10.33	16.53
8-ott	11h 30m 37.80s	+04° 42' 14.4"	0.7184325	1.5144465	12.59	23.5	11.0	-3.9	0.916	33.7	4.13	10.33	16.52
9-ott	11h 35m 12.57s	+04° 13' 56.2"	0.7184493	1.5185978	12.63	23.2	11.0	-3.9	0.918	33.3	4.16	10.34	16.51
10-ott	11h 39m 47.12s	+03° 45' 29.1"	0.7184700	1.5227034	12.66	23.0	11.0	-3.9	0.920	32.9	4.18	10.35	16.50
11-ott	11h 44m 21.50s	+03° 16' 53.8"	0.7184946	1.5267631	12.70	22.7	10.9	-3.9	0.922	32.5	4.20	10.35	16.49
12-ott	11h 48m 55.73s	+02° 48' 11.0"	0.7185229	1.5307765	12.73	22.5	10.9	-3.9	0.924	32.1	4.23	10.36	16.48
13-ott	11h 53m 29.84s	+02° 19' 21.5"	0.7185551	1.5347433	12.76	22.2	10.9	-3.9	0.925	31.7	4.25	10.36	16.47
14-ott	11h 58m 03.88s	+01° 50' 26.0"	0.7185911	1.5386633	12.80	22.0	10.8	-3.9	0.927	31.3	4.28	10.37	16.46
15-ott	12h 02m 37.87s	+01° 21' 25.2"	0.7186308	1.5425362	12.83	21.8	10.8	-3.9	0.929	30.9	4.30	10.38	16.45
16-ott	12h 07m 11.85s	+00° 52' 19.9"	0.7186743	1.5463618	12.86	21.5	10.8	-3.9	0.931	30.6	4.32	10.38	16.44
17-ott	12h 11m 45.85s	+00° 23' 10.8"	0.7187214	1.5501402	12.89	21.3	10.8	-3.9	0.932	30.2	4.35	10.39	16.42
18-ott	12h 16m 19.92s	-00° 06' 01.3"	0.7187722	1.5538713	12.92	21.0	10.7	-3.9	0.934	29.8	4.37	10.40	16.41
19-ott	12h 20m 54.08s	-00° 35' 15.7"	0.7188266	1.5575553	12.95	20.8	10.7	-3.9	0.936	29.4	4.39	10.40	16.40
20-ott	12h 25m 28.37s	-01° 04' 31.7"	0.7188846	1.5611924	12.98	20.5	10.7	-3.9	0.937	29.0	4.42	10.41	16.39
21-ott	12h 30m 02.83s	-01° 33' 48.5"	0.7189461	1.5647827	13.01	20.3	10.7	-3.9	0.939	28.7	4.44	10.42	16.38
22-ott	12h 34m 37.50s	-02° 03' 05.4"	0.7190110	1.5683266	13.04	20.0	10.6	-3.9	0.940	28.3	4.47	10.42	16.37
23-ott	12h 39m 12.40s	-02° 32' 21.6"	0.7190794	1.5718242	13.07	19.8	10.6	-3.9	0.942	27.9	4.49	10.43	16.36
24-ott	12h 43m 47.58s	-03° 01' 36.4"	0.7191511	1.5752758	13.10	19.5	10.6	-3.9	0.943	27.5	4.51	10.43	16.35
25-ott	12h 48m 23.08s	-03° 30' 49.0"	0.7192262	1.5786818	13.13	19.3	10.6	-3.9	0.945	27.2	4.54	10.44	16.34
26-ott	12h 52m 58.92s	-03° 59' 58.6"	0.7193045	1.5820424	13.16	19.0	10.5	-3.9	0.946	26.8	4.56	10.45	16.32
27-ott	12h 57m 35.15s	-04° 29' 04.6"	0.7193859	1.5853577	13.18	18.8	10.5	-3.9	0.948	26.4	4.59	10.45	16.31
28-ott	13h 02m 11.81s	-04° 58' 06.2"	0.7194705	1.5886282	13.21	18.5	10.5	-3.9	0.949	26.0	5.01	10.46	16.30
29-ott	13h 06m 48.94s	-05° 27' 02.5"	0.7195581	1.5918540	13.24	18.3	10.5	-3.9	0.951	25.7	5.03		

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
31-ott	13h 16m 04.74s	-06° 24' 36.8"	0.7197422	1.5981723	13.29	17.8	10.4	-3.9	0.953	24.9	5.08	10.48	16.27
1-nov	13h 20m 43.50s	-06° 53' 13.1"	0.7198385	1.6012653	13.32	17.5	10.4	-3.9	0.955	24.5	5.11	10.49	16.26
2-nov	13h 25m 22.88s	-07° 21' 41.3"	0.7199375	1.6043144	13.34	17.3	10.4	-3.9	0.956	24.2	5.13	10.50	16.25
3-nov	13h 30m 02.93s	-07° 50' 00.6"	0.7200392	1.6073197	13.37	17.0	10.4	-3.9	0.957	23.8	5.16	10.50	16.24
4-nov	13h 34m 43.67s	-08° 18' 10.1"	0.7201436	1.6102812	13.39	16.8	10.4	-3.9	0.959	23.4	5.18	10.51	16.23
5-nov	13h 39m 25.16s	-08° 46' 09.3"	0.7202504	1.6131989	13.42	16.5	10.3	-3.9	0.960	23.1	5.21	10.52	16.22
6-nov	13h 44m 07.41s	-09° 13' 57.2"	0.7203596	1.6160727	13.44	16.3	10.3	-3.9	0.961	22.7	5.23	10.53	16.21
7-nov	13h 48m 50.48s	-09° 41' 33.0"	0.7204711	1.6189025	13.46	16.0	10.3	-3.9	0.962	22.3	5.26	10.53	16.20
8-nov	13h 53m 34.38s	-10° 08' 56.1"	0.7205849	1.6216879	13.49	15.8	10.3	-3.9	0.964	22.0	5.28	10.54	16.19
9-nov	13h 58m 19.15s	-10° 36' 05.5"	0.7207009	1.6244288	13.51	15.5	10.3	-3.9	0.965	21.6	5.31	10.55	16.19
10-nov	14h 03m 04.83s	-11° 03' 00.5"	0.7208189	1.6271249	13.53	15.3	10.3	-3.9	0.966	21.2	5.33	10.56	16.18
11-nov	14h 07m 51.43s	-11° 29' 40.3"	0.7209388	1.6297761	13.55	15.0	10.2	-3.9	0.967	20.9	5.36	10.57	16.17
12-nov	14h 12m 38.99s	-11° 56' 03.9"	0.7210606	1.6323821	13.58	14.8	10.2	-3.9	0.968	20.5	5.38	10.57	16.16
13-nov	14h 17m 27.54s	-12° 22' 10.7"	0.7211842	1.6349427	13.60	14.5	10.2	-3.9	0.969	20.2	5.41	10.58	16.15
14-nov	14h 22m 17.11s	-12° 47' 59.9"	0.7213095	1.6374580	13.62	14.3	10.2	-3.9	0.970	19.8	5.43	10.59	16.15
15-nov	14h 27m 07.71s	-13° 13' 30.5"	0.7214363	1.6399279	13.64	14.0	10.2	-3.9	0.971	19.4	5.46	11.00	16.14
16-nov	14h 31m 59.37s	-13° 38' 41.8"	0.7215646	1.6423525	13.66	13.8	10.2	-3.9	0.973	19.1	5.48	11.01	16.13
17-nov	14h 36m 52.12s	-14° 03' 33.1"	0.7216942	1.6447318	13.68	13.6	10.1	-3.9	0.974	18.7	5.51	11.02	16.13
18-nov	14h 41m 45.96s	-14° 28' 03.4"	0.7218251	1.6470661	13.70	13.3	10.1	-3.9	0.975	18.4	5.53	11.03	16.12
19-nov	14h 46m 40.91s	-14° 52' 12.0"	0.7219572	1.6493556	13.72	13.1	10.1	-3.9	0.975	18.0	5.56	11.04	16.11
20-nov	14h 51m 37.00s	-15° 15' 58.1"	0.7220904	1.6516006	13.74	12.8	10.1	-3.9	0.976	17.7	5.58	11.05	16.11
21-nov	14h 56m 34.22s	-15° 39' 20.8"	0.7222244	1.6538013	13.75	12.6	10.1	-3.9	0.977	17.3	6.01	11.06	16.10
22-nov	15h 01m 32.60s	-16° 02' 19.4"	0.7223593	1.6559580	13.77	12.3	10.1	-3.9	0.978	17.0	6.04	11.07	16.10
23-nov	15h 06m 32.15s	-16° 24' 53.0"	0.7224950	1.6580711	13.79	12.1	10.1	-3.9	0.979	16.6	6.06	11.08	16.09
24-nov	15h 11m 32.87s	-16° 47' 00.9"	0.7226313	1.6601409	13.81	11.8	10.1	-3.9	0.980	16.3	6.09	11.09	16.09
25-nov	15h 16m 34.77s	-17° 08' 42.3"	0.7227681	1.6621677	13.82	11.6	10.0	-3.9	0.981	15.9	6.11	11.10	16.09
26-nov	15h 21m 37.87s	-17° 29' 56.4"	0.7229053	1.6641518	13.84	11.3	10.0	-3.9	0.982	15.6	6.14	11.11	16.08
27-nov	15h 26m 42.15s	-17° 50' 42.4"	0.7230428	1.6660936	13.86	11.1	10.0	-3.9	0.982	15.2	6.16	11.13	16.08
28-nov	15h 31m 47.64s	-18° 10' 59.6"	0.7231806	1.6679934	13.87	10.8	10.0	-3.9	0.983	14.9	6.19	11.14	16.08
29-nov	15h 36m 54.32s	-18° 30' 47.1"	0.7233184	1.6698515	13.89	10.6	10.0	-3.9	0.984	14.5	6.21	11.15	16.08
30-nov	15h 42m 02.21s	-18° 50' 04.4"	0.7234562	1.6716683	13.90	10.3	10.0	-3.9	0.985	14.2	6.24	11.16	16.08
1-dic	15h 47m 11.28s	-19° 08' 50.6"	0.7235938	1.6734440	13.92	10.1	10.0	-3.9	0.986	13.8	6.26	11.17	16.08
2-dic	15h 52m 21.55s	-19° 27' 05.0"	0.7237313	1.6751788	13.93	9.9	10.0	-3.9	0.986	13.5	6.29	11.19	16.08
3-dic	15h 57m 33.00s	-19° 44' 47.0"	0.7238684	1.6768731	13.95	9.6	10.0	-3.9	0.987	13.1	6.31	11.20	16.08
4-dic	16h 02m 45.62s	-20° 01' 55.7"	0.7240050	1.6785267	13.96	9.4	9.9	-3.9	0.988	12.8	6.34	11.21	16.08
5-dic	16h 07m 59.39s	-20° 18' 30.5"	0.7241411	1.6801396	13.97	9.1	9.9	-3.9	0.988	12.5	6.36	11.22	16.08
6-dic	16h 13m 14.29s	-20° 34' 30.7"	0.7242765	1.6817119	13.99	8.9	9.9	-3.9	0.989	12.1	6.39	11.24	16.08
7-dic	16h 18m 30.31s	-20° 49' 55.6"	0.7244112	1.6832432	14.00	8.6	9.9	-3.9	0.989	11.8	6.41	11.25	16.08
8-dic	16h 23m 47.41s	-21° 04' 44.5"	0.7245450	1.6847334	14.01	8.4	9.9	-3.9	0.990	11.4	6.44	11.26	16.09
9-dic	16h 29m 05.59s	-21° 18' 56.8"	0.7246778	1.6861823	14.02	8.1	9.9	-3.9	0.991	11.1	6.46	11.28	16.09
10-dic	16h 34m 24.80s	-21° 32' 31.9"	0.7248095	1.6875896	14.03	7.9	9.9	-3.9	0.991	10.8	6.48	11.29	16.09
11-dic	16h 39m 45.01s	-21° 45' 29.0"	0.7249401	1.6889552	14.05	7.6	9.9	-3.9	0.992	10.4	6.51	11.31	16.10
12-dic	16h 45m 06.20s	-21° 57' 47.8"	0.7250694	1.6902790	14.06	7.4	9.9	-3.9	0.992	10.1	6.53	11.32	16.10
13-dic	16h 50m 28.33s	-22° 09' 27.5"	0.7251973	1.6915607	14.07	7.2	9.9	-3.9	0.993	9.7	6.55	11.33	16.11
14-dic	16h 55m 51.34s	-22° 20' 27.7"	0.7253237	1.6928005	14.08	6.9	9.9	-3.9	0.993	9.4	6.58	11.35	16.12
15-dic	17h 01m 15.21s	-22° 30' 47.9"	0.7254486	1.6939982	14.09	6.7	9.9	-3.9	0.994	9.1	7.00	11.36	16.12
16-dic	17h 06m 39.87s	-22° 40' 27.6"	0.7255718	1.6951540	14.10	6.4	9.8	-3.9	0.994	8.7	7.02	11.38	16.13
17-dic	17h 12m 05.28s	-22° 49' 26.3"	0.7256932	1.6962680	14.11	6.2	9.8	-3.9	0.995	8.4	7.04	11.39	16.14
18-dic	17h 17m 31.38s	-22° 57' 43.6"	0.7258128	1.6973402	14.12	5.9	9.8	-3.9	0.995	8.1	7.06	11.41	16.15
19-dic	17h 22m 58.13s	-23° 05' 19.1"	0.7259304	1.6983709	14.12	5.7	9.8	-3.9	0.995	7.7	7.08	11.42	16.16
20-dic	17h 28m 25.46s	-23° 12' 12.4"	0.7260459	1.6993603	14.13	5.5	9.8	-3.9	0.996	7.4	7.10	11.44	16.17
21-dic	17h 33m 53.33s	-23° 18' 23.2"	0.7261594	1.7003086	14.14	5.2	9.8	-3.9	0.996	7.1	7.12	11.45	16.18
22-dic	17h 39m 21.66s	-23° 23' 51.2"	0.7262706	1.7012160	14.15	5.0	9.8	-3.9	0.997	6.8	7.14	11.47	16.19
23-dic	17h 44m 50.41s	-23° 28' 36.1"	0.7263795	1.7020828	14.16	4.7	9.8	-3.9	0.997	6.4	7.16	11.48	16.20
24-dic	17h 50m 19.52s	-23° 32' 37.6"	0.7264861	1.7029093	14.16	4.5	9.8	-3.9	0.997	6.1	7.18	11.50	16.22
25-dic	17h 55m 48.92s	-23° 35' 55.5"	0.7265902	1.7036959	14.17	4.3	9.8	-3.9	0.997	5.8	7.20	11.51	16.23
26-dic	18h 01m 18.55s	-23° 38' 29.8"	0.7266917	1.7044427	14.18	4.0	9.8	-3.9	0.998	5.5	7.22	11.53	16.24
27-dic	18h 06m 48.36s	-23° 40' 20.1"	0.7267906	1.7051501	14.18	3.8	9.8	-3.9	0.998	5.2	7.23	11.55	16.26
28-dic	18h 12m 18.27s	-23° 41' 26.4"	0.7268869	1.7058185	14.19	3.6	9.8	-3.9	0.998	4.8	7.25	11.56	16.27
29-dic	18h 17m 48.24s	-23° 41' 48.7"	0.7269803	1.7064482	14.19	3.3	9.8	-3.9	0.998	4.5	7.26	11.58	16.29
30-dic	18h 23m 18.20s	-23° 41' 27.0"	0.7270709	1.7070394	14.20	3.1	9.8	-3.9	0.999	4.2	7.28	11.59	16.31
31-dic	18h 28m 48.08s	-23° 40' 21.1"	0.7271587	1.7075925	14.20	2.9	9.8	-3.9	0.999	3.9	7.29	12.01	16.32

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro in "

Mag. = magnitudine

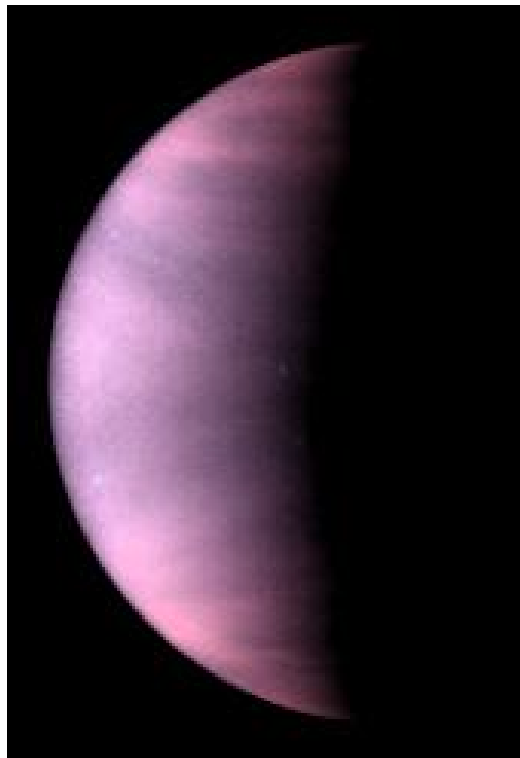
Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

FENOMENI DI VENERE

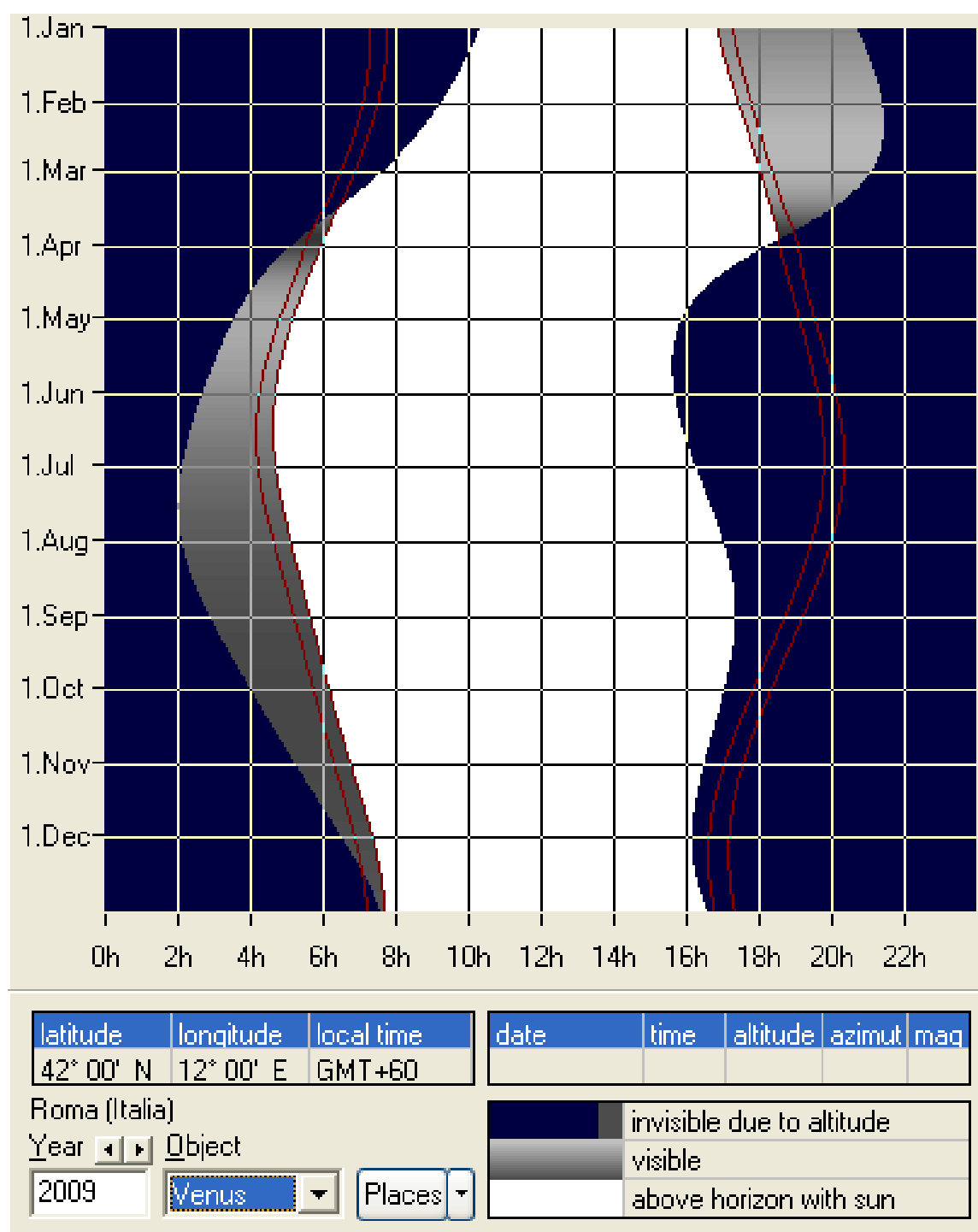
Perielio	21/02/2009	14.20	0.71844 U.A.	
Perielio	04/10/2009	04.29	0.71840 U.A.	
Afelio	13/06/2009	19.43	0.72825 U.A.	
Perigeo	27/03/2009	12.12	0.28147 U.A.	
Apogeo	Quest'anno il fenomeno non avviene			
Magnitudine massima	20/02/2009	22.51	-4.6	mag
Magnitudine massima	29/04/2009	07.21	-4.5	mag
Magnitudine minima	28/03/2009	06.45	-4.0	mag
Massima elongazione est	14/01/2009	21.24	47.1	°
Massima elongazione ovest	05/06/2009	21.09	45.9	°
Congiunzione inferiore	27/03/2009	19.24		
Congiunzione superiore	Quest'anno il fenomeno non avviene			
Moto retrogrado	05/03/2009	00.38		
Moto diretto	15/04/2009	08.05		
Massimo angolo di fase	28/03/2009	02.10	168.7	°
Minimo angolo di fase	Quest'anno il fenomeno non avviene			

© (5)

Curiosità : evento particolare, visto che la congiunzione inferiore di marzo avverrà ad una elongazione di 8°, Venere dovrebbe essere visibile sia di sera che di mattina per qualche giorno presentando il cosiddetto fenomeno "scavalco di fase"



VISIBILITA' DI VENERE



Visibilità di Venere nel corso dell'anno

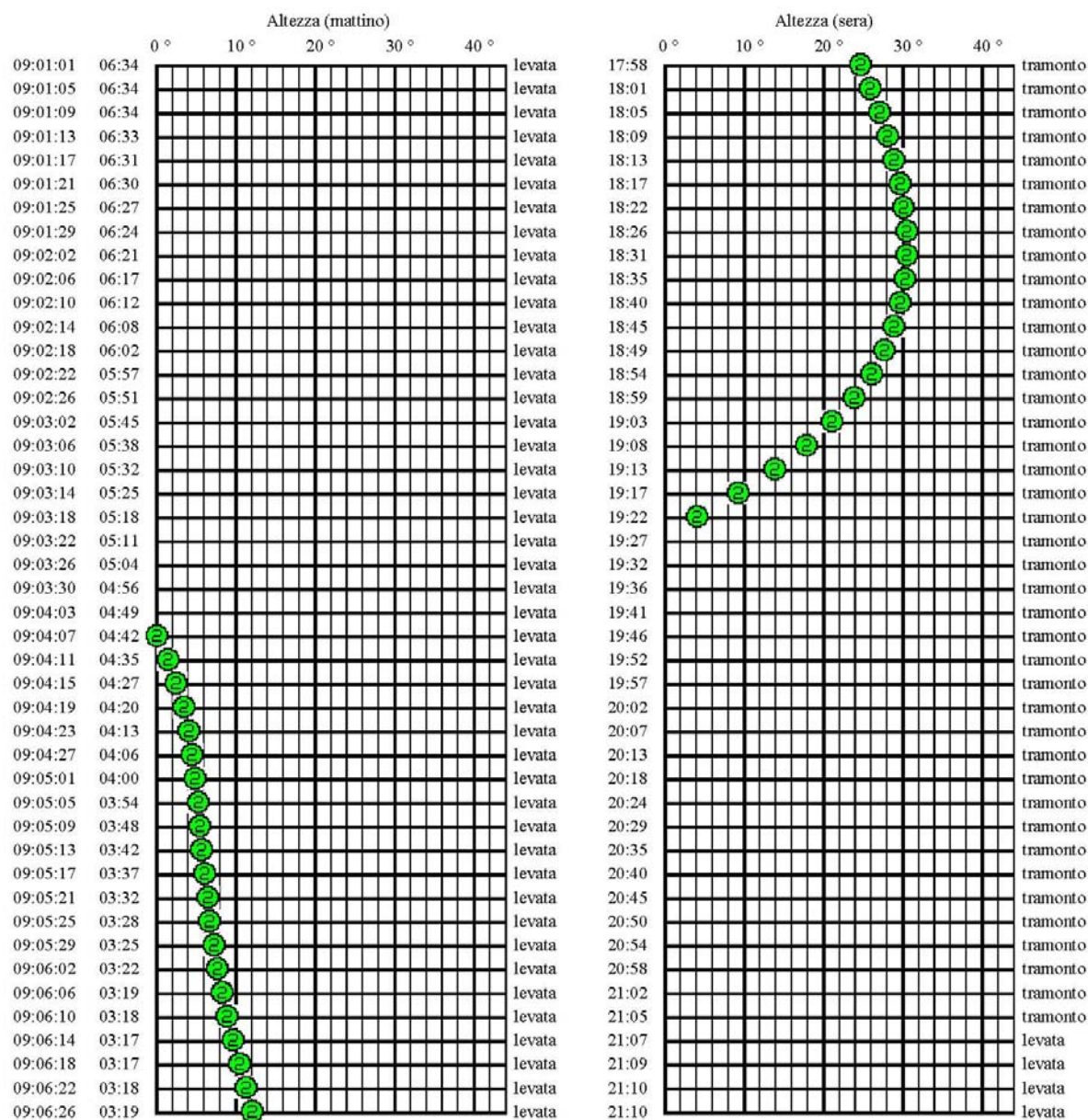
Le righe rosse più esterne indicano in quali periodi dell'anno il pianeta è sufficientemente distante dal Sole per poter essere osservato agevolmente. Le date esatte sono riportate nelle tabelle seguenti.

Altezza ai crepuscoli

di Venere

nel momento il cui il Sole è 12 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)

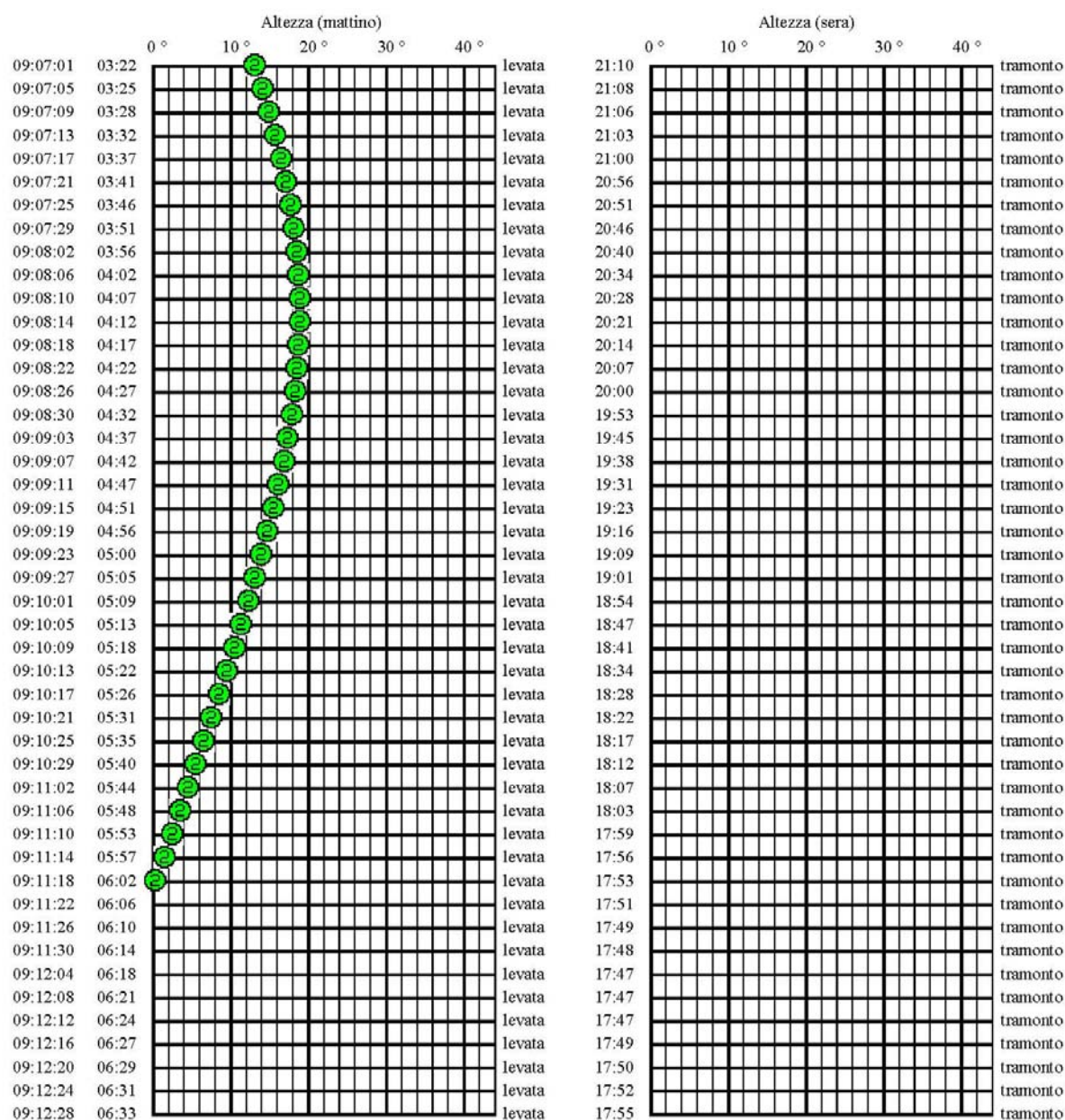


Altezza ai crepuscoli

di Venere

nel momento il cui il Sole è 12 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)



Altezza ai crepuscoli Il Sole è 12° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:34	-41.2	68.6	46.6	17:58	24.8	220.4	46.6
2009:01:05	06:34	-40.0	67.0	46.8	18:01	26.0	222.1	46.9
2009:01:09	06:34	-38.7	65.3	47.0	18:05	27.1	224.0	47.0
2009:01:13	06:33	-37.3	63.6	47.1	18:09	28.1	226.2	47.1
2009:01:17	06:31	-35.9	62.0	47.1	18:13	28.9	228.7	47.1
2009:01:21	06:30	-34.5	60.4	47.0	18:17	29.6	231.4	47.0
2009:01:25	06:27	-33.0	58.9	46.7	18:22	30.1	234.4	46.7
2009:01:29	06:24	-31.5	57.6	46.3	18:26	30.4	237.5	46.3
2009:02:02	06:21	-30.0	56.3	45.7	18:31	30.5	240.8	45.7
2009:02:06	06:17	-28.4	55.2	45.0	18:35	30.3	244.2	44.8
2009:02:10	06:12	-26.8	54.3	44.0	18:40	29.8	247.8	43.8
2009:02:14	06:08	-25.2	53.6	42.7	18:45	28.9	251.5	42.5
2009:02:18	06:02	-23.5	53.2	41.1	18:49	27.7	255.3	40.8
2009:02:22	05:57	-21.8	53.2	39.1	18:54	26.0	259.1	38.8
2009:02:26	05:51	-20.1	53.5	36.7	18:59	23.9	263.0	36.3
2009:03:02	05:45	-18.2	54.3	33.8	19:03	21.2	267.0	33.4
2009:03:06	05:38	-16.3	55.6	30.4	19:08	17.9	271.0	29.9
2009:03:10	05:32	-14.2	57.4	26.5	19:13	13.9	275.0	25.9
2009:03:14	05:25	-12.1	59.8	22.0	19:17	9.3	279.1	21.3
2009:03:18	05:18	-9.9	62.8	17.1	19:22	4.2	283.2	16.4
2009:03:22	05:11	-7.6	66.3	12.3	19:27	-1.5	287.4	11.7
2009:03:26	05:04	-5.4	70.1	8.7	19:32	-7.4	291.6	8.4
2009:03:30	04:56	-3.3	74.0	8.8	19:36	-13.3	296.0	9.2
2009:04:03	04:49	-1.4	77.8	12.4	19:41	-19.1	300.4	13.2
2009:04:07	04:42	0.2	81.2	17.2	19:46	-24.3	304.9	18.0
2009:04:11	04:35	1.5	84.3	22.0	19:52	-29.0	309.4	22.7
2009:04:15	04:27	2.6	86.8	26.4	19:57	-32.9	314.0	27.0
2009:04:19	04:20	3.4	88.7	30.2	20:02	-36.2	318.6	30.8
2009:04:23	04:13	4.0	90.1	33.5	20:07	-38.7	323.1	34.0
2009:04:27	04:06	4.5	90.9	36.3	20:13	-40.6	327.6	36.7
2009:05:01	04:00	4.9	91.4	38.5	20:18	-42.0	331.9	38.9
2009:05:05	03:54	5.2	91.4	40.4	20:24	-42.8	336.1	40.7
2009:05:09	03:48	5.5	91.2	41.9	20:29	-43.2	340.0	42.2
2009:05:13	03:42	5.8	90.7	43.1	20:35	-43.3	343.6	43.3
2009:05:17	03:37	6.1	90.0	44.1	20:40	-43.0	346.9	44.2
2009:05:21	03:32	6.4	89.2	44.8	20:45	-42.5	349.9	44.9
2009:05:25	03:28	6.8	88.2	45.3	20:50	-41.7	352.6	45.4
2009:05:29	03:25	7.2	87.2	45.6	20:54	-40.8	354.9	45.7
2009:06:02	03:22	7.7	86.2	45.8	20:58	-39.7	356.8	45.8
2009:06:06	03:19	8.3	85.1	45.8	21:02	-38.6	358.3	45.8
2009:06:10	03:18	9.0	84.1	45.8	21:05	-37.4	359.5	45.8
2009:06:14	03:17	9.7	83.1	45.6	21:07	-36.2	0.3	45.6
2009:06:18	03:17	10.4	82.2	45.4	21:09	-35.0	0.7	45.3
2009:06:22	03:18	11.2	81.3	45.1	21:10	-33.8	0.9	45.0
2009:06:26	03:19	12.1	80.5	44.7	21:10	-32.7	0.6	44.6
2009:06:30	03:21	13.0	79.7	44.2	21:10	-31.6	0.1	44.1

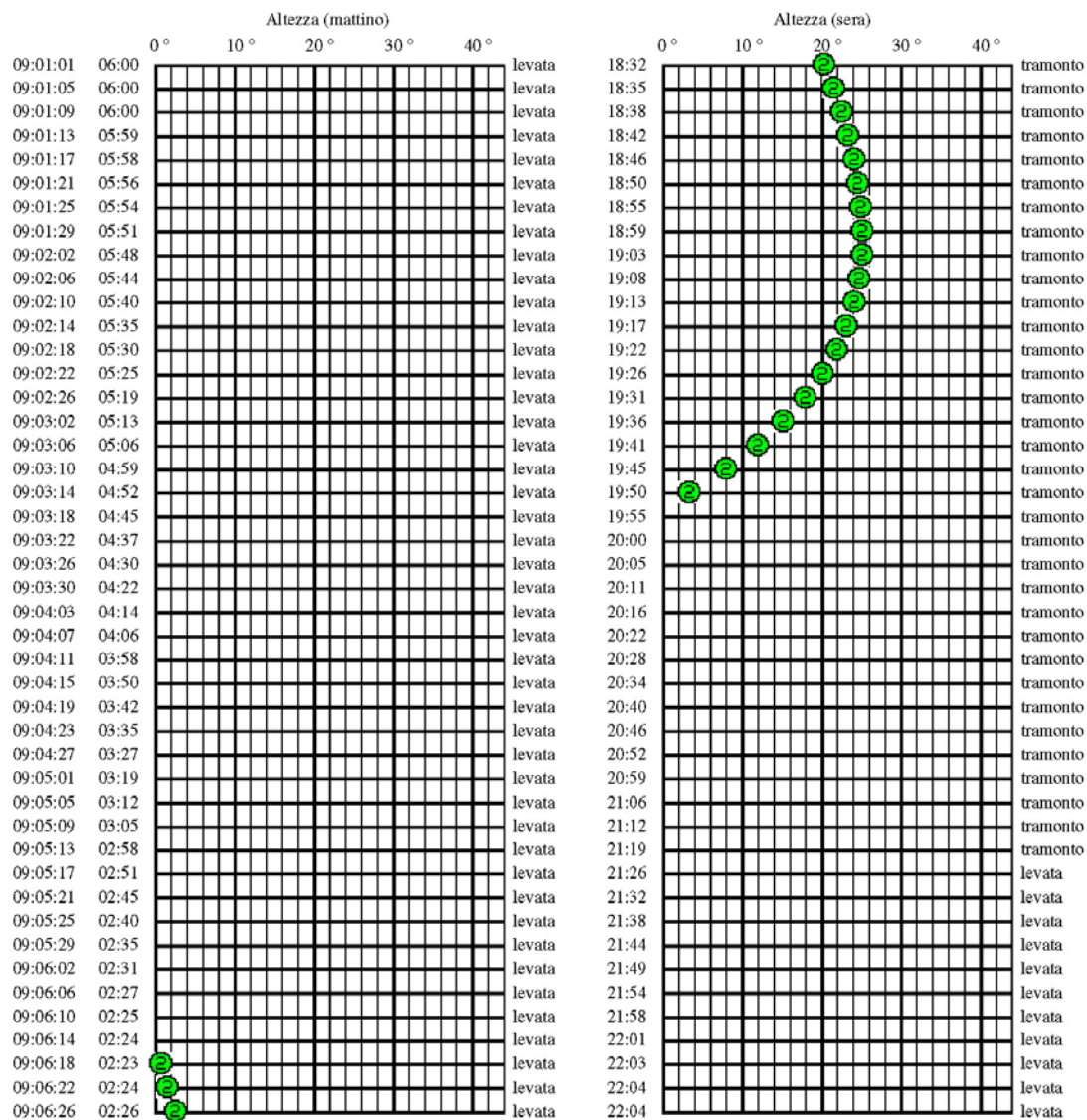
Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
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2009:07:09	03:28	14.9	78.4	43.0	21:06	-29.3	357.8	42.9
2009:07:13	03:32	15.7	77.9	42.4	21:03	-28.4	356.3	42.2
2009:07:17	03:37	16.4	77.5	41.7	21:00	-27.6	354.7	41.6
2009:07:21	03:41	17.1	77.2	41.0	20:56	-26.9	352.8	40.9
2009:07:25	03:46	17.6	77.0	40.3	20:51	-26.1	350.7	40.2
2009:07:29	03:51	18.1	76.9	39.5	20:46	-25.5	348.5	39.4
2009:08:02	03:56	18.5	76.8	38.8	20:40	-24.9	346.1	38.6
2009:08:06	04:02	18.7	76.9	38.0	20:34	-24.3	343.5	37.8
2009:08:10	04:07	18.8	77.1	37.1	20:28	-23.8	340.9	37.0
2009:08:14	04:12	18.8	77.5	36.3	20:21	-23.4	338.1	36.2
2009:08:18	04:17	18.7	77.9	35.4	20:14	-22.9	335.3	35.3
2009:08:22	04:22	18.5	78.5	34.6	20:07	-22.5	332.4	34.4
2009:08:26	04:27	18.2	79.2	33.7	20:00	-22.2	329.4	33.5
2009:08:30	04:32	17.8	80.0	32.8	19:53	-21.8	326.4	32.6
2009:09:03	04:37	17.4	80.9	31.9	19:45	-21.5	323.3	31.7
2009:09:07	04:42	16.8	82.0	30.9	19:38	-21.2	320.2	30.8
2009:09:11	04:47	16.2	83.1	30.0	19:31	-21.0	317.0	29.8
2009:09:15	04:51	15.5	84.4	29.0	19:23	-20.7	313.8	28.9
2009:09:19	04:56	14.7	85.8	28.1	19:16	-20.5	310.6	27.9
2009:09:23	05:00	14.0	87.3	27.1	19:09	-20.3	307.5	27.0
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2009:10:05	05:13	11.4	92.1	24.2	18:47	-19.8	297.9	24.0
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2009:10:13	05:22	9.5	95.6	22.2	18:34	-19.6	291.7	22.1
2009:10:17	05:26	8.5	97.4	21.2	18:28	-19.4	288.6	21.1
2009:10:21	05:31	7.6	99.1	20.2	18:22	-19.3	285.6	20.1
2009:10:25	05:35	6.6	100.9	19.2	18:17	-19.2	282.6	19.1
2009:10:29	05:40	5.6	102.6	18.2	18:12	-19.1	279.7	18.1
2009:11:02	05:44	4.5	104.3	17.2	18:07	-19.0	276.9	17.1
2009:11:06	05:48	3.5	105.9	16.2	18:03	-18.9	274.1	16.1
2009:11:10	05:53	2.5	107.4	15.2	17:59	-18.8	271.5	15.1
2009:11:14	05:57	1.4	108.8	14.3	17:56	-18.6	269.0	14.1
2009:11:18	06:02	0.4	110.1	13.3	17:53	-18.5	266.5	13.1
2009:11:22	06:06	-0.7	111.3	12.3	17:51	-18.3	264.2	12.1
2009:11:26	06:10	-1.7	112.3	11.3	17:49	-18.1	262.1	11.2
2009:11:30	06:14	-2.8	113.1	10.3	17:48	-17.8	260.1	10.2
2009:12:04	06:18	-3.8	113.8	9.3	17:47	-17.5	258.3	9.2
2009:12:08	06:21	-4.8	114.3	8.3	17:47	-17.2	256.6	8.2
2009:12:12	06:24	-5.8	114.5	7.4	17:47	-16.8	255.1	7.2
2009:12:16	06:27	-6.8	114.5	6.4	17:49	-16.4	253.9	6.3
2009:12:20	06:29	-7.8	114.4	5.4	17:50	-15.9	252.8	5.3
2009:12:24	06:31	-8.7	113.9	4.5	17:52	-15.4	251.9	4.3
2009:12:28	06:33	-9.6	113.3	3.5	17:55	-14.8	251.3	3.4

Altezza ai crepuscoli

di Venere

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

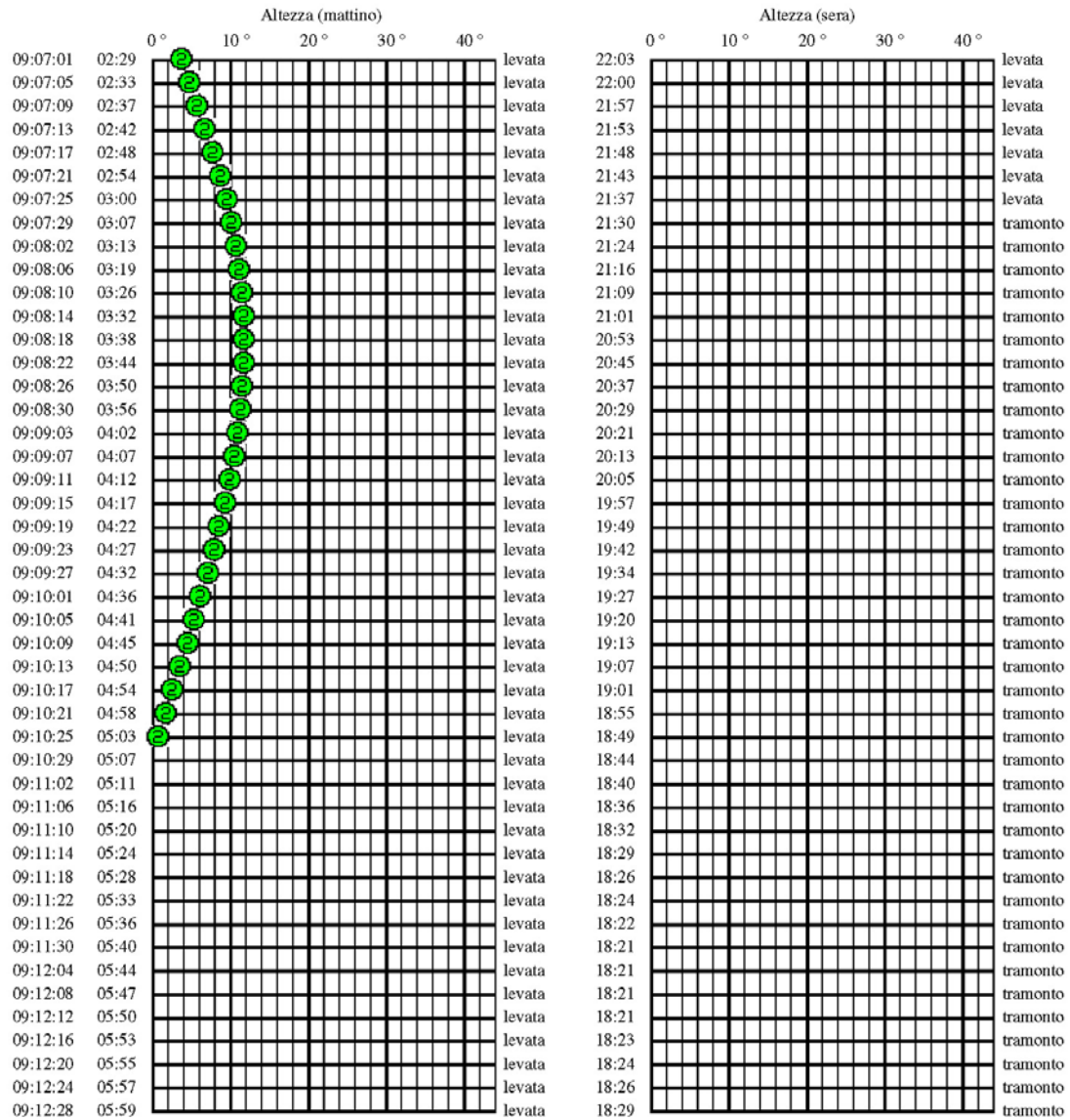


Altezza ai crepuscoli

di Venere

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)



Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	-46.9	60.4	46.6	18:32	20.4	227.9	46.6
2009:01:05	06:00	-45.6	58.6	46.8	18:35	21.5	229.6	46.9
2009:01:09	06:00	-44.1	57.0	47.0	18:38	22.4	231.6	47.0
2009:01:13	05:59	-42.7	55.3	47.1	18:42	23.3	233.8	47.1
2009:01:17	05:58	-41.2	53.8	47.1	18:46	24.0	236.2	47.1
2009:01:21	05:56	-39.6	52.3	47.0	18:50	24.6	238.8	47.0
2009:01:25	05:54	-38.0	50.9	46.7	18:55	24.9	241.6	46.7
2009:01:29	05:51	-36.4	49.6	46.3	18:59	25.1	244.6	46.3
2009:02:02	05:48	-34.8	48.5	45.7	19:03	25.0	247.7	45.7
2009:02:06	05:44	-33.1	47.5	45.0	19:08	24.7	250.9	44.8
2009:02:10	05:40	-31.5	46.7	44.0	19:13	24.1	254.3	43.8
2009:02:14	05:35	-29.8	46.2	42.7	19:17	23.1	257.7	42.5
2009:02:18	05:30	-28.1	45.9	41.1	19:22	21.8	261.3	40.8
2009:02:22	05:25	-26.4	46.0	39.1	19:26	20.1	264.9	38.8
2009:02:26	05:19	-24.7	46.5	36.7	19:31	17.9	268.6	36.3
2009:03:02	05:13	-22.9	47.4	33.8	19:36	15.1	272.4	33.4
2009:03:06	05:06	-21.1	48.9	30.4	19:41	11.8	276.3	29.9
2009:03:10	04:59	-19.2	50.9	26.5	19:45	7.9	280.3	25.8
2009:03:14	04:52	-17.2	53.4	22.0	19:50	3.4	284.5	21.3
2009:03:18	04:45	-15.2	56.6	17.2	19:55	-1.8	288.7	16.4
2009:03:22	04:37	-13.2	60.1	12.3	20:00	-7.3	293.2	11.6
2009:03:26	04:30	-11.2	64.0	8.7	20:05	-13.1	297.8	8.4
2009:03:30	04:22	-9.4	67.9	8.8	20:11	-18.9	302.6	9.2
2009:04:03	04:14	-7.7	71.8	12.4	20:16	-24.5	307.7	13.2
2009:04:07	04:06	-6.3	75.2	17.2	20:22	-29.5	312.9	18.0
2009:04:11	03:58	-5.1	78.2	22.0	20:28	-33.8	318.3	22.8
2009:04:15	03:50	-4.2	80.6	26.3	20:34	-37.5	323.8	27.0
2009:04:19	03:42	-3.6	82.3	30.2	20:40	-40.3	329.4	30.8
2009:04:23	03:35	-3.1	83.6	33.5	20:46	-42.4	334.9	34.0
2009:04:27	03:27	-2.8	84.3	36.2	20:52	-43.9	340.3	36.7
2009:05:01	03:19	-2.7	84.5	38.5	20:59	-44.7	345.4	38.9
2009:05:05	03:12	-2.6	84.4	40.4	21:06	-45.1	350.3	40.7
2009:05:09	03:05	-2.5	84.0	41.9	21:12	-45.0	354.8	42.2
2009:05:13	02:58	-2.5	83.3	43.1	21:19	-44.5	358.9	43.3
2009:05:17	02:51	-2.4	82.4	44.1	21:26	-43.8	2.6	44.2
2009:05:21	02:45	-2.3	81.3	44.8	21:32	-42.8	5.9	44.9
2009:05:25	02:40	-2.2	80.2	45.3	21:38	-41.6	8.7	45.4
2009:05:29	02:35	-1.9	79.0	45.6	21:44	-40.3	11.1	45.7
2009:06:02	02:31	-1.6	77.7	45.8	21:49	-38.9	13.0	45.8
2009:06:06	02:27	-1.2	76.5	45.9	21:54	-37.5	14.6	45.8
2009:06:10	02:25	-0.7	75.4	45.8	21:58	-36.1	15.6	45.8
2009:06:14	02:24	-0.1	74.3	45.6	22:01	-34.8	16.3	45.6
2009:06:18	02:23	0.7	73.4	45.4	22:03	-33.5	16.5	45.3
2009:06:22	02:24	1.5	72.5	45.1	22:04	-32.3	16.3	45.0
2009:06:26	02:26	2.4	71.8	44.7	22:04	-31.3	15.8	44.6
2009:06:30	02:28	3.4	71.2	44.2	22:03	-30.3	14.8	44.1

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	3.7	71.1	44.1	22:03	-30.1	14.6	44.0
2009:07:05	02:33	4.7	70.6	43.6	22:00	-29.3	13.2	43.4
2009:07:09	02:37	5.7	70.3	43.0	21:57	-28.6	11.6	42.9
2009:07:13	02:42	6.8	70.0	42.4	21:53	-28.0	9.7	42.2
2009:07:17	02:48	7.7	69.9	41.7	21:48	-27.4	7.5	41.6
2009:07:21	02:54	8.6	69.8	41.0	21:43	-27.0	5.2	40.9
2009:07:25	03:00	9.5	69.9	40.3	21:37	-26.6	2.6	40.2
2009:07:29	03:07	10.2	70.0	39.6	21:30	-26.3	359.9	39.4
2009:08:02	03:13	10.7	70.2	38.8	21:24	-26.1	357.1	38.6
2009:08:06	03:19	11.2	70.5	38.0	21:16	-25.8	354.2	37.8
2009:08:10	03:26	11.5	70.9	37.2	21:09	-25.7	351.2	37.0
2009:08:14	03:32	11.7	71.3	36.3	21:01	-25.5	348.0	36.2
2009:08:18	03:38	11.8	71.9	35.5	20:53	-25.4	344.9	35.3
2009:08:22	03:44	11.7	72.6	34.6	20:45	-25.3	341.6	34.4
2009:08:26	03:50	11.6	73.4	33.7	20:37	-25.2	338.3	33.5
2009:08:30	03:56	11.3	74.3	32.8	20:29	-25.1	335.0	32.6
2009:09:03	04:02	10.9	75.3	31.9	20:21	-25.1	331.6	31.7
2009:09:07	04:07	10.4	76.4	30.9	20:13	-25.0	328.3	30.8
2009:09:11	04:12	9.9	77.6	30.0	20:05	-25.0	324.9	29.8
2009:09:15	04:17	9.2	78.9	29.0	19:57	-25.0	321.5	28.9
2009:09:19	04:22	8.6	80.3	28.1	19:49	-25.0	318.1	27.9
2009:09:23	04:27	7.8	81.8	27.1	19:42	-25.0	314.7	27.0
2009:09:27	04:32	7.0	83.4	26.1	19:34	-25.0	311.3	26.0
2009:10:01	04:36	6.2	85.0	25.2	19:27	-25.0	308.0	25.0
2009:10:05	04:41	5.3	86.7	24.2	19:20	-25.0	304.6	24.0
2009:10:09	04:45	4.4	88.4	23.2	19:13	-25.0	301.4	23.1
2009:10:13	04:50	3.5	90.1	22.2	19:07	-25.0	298.1	22.1
2009:10:17	04:54	2.6	91.9	21.2	19:01	-25.0	294.9	21.1
2009:10:21	04:58	1.6	93.7	20.2	18:55	-25.0	291.7	20.1
2009:10:25	05:03	0.6	95.4	19.2	18:49	-25.0	288.7	19.1
2009:10:29	05:07	-0.4	97.1	18.2	18:44	-25.0	285.7	18.1
2009:11:02	05:11	-1.4	98.8	17.2	18:40	-25.0	282.7	17.1
2009:11:06	05:16	-2.4	100.4	16.2	18:36	-24.9	279.9	16.1
2009:11:10	05:20	-3.4	101.9	15.3	18:32	-24.9	277.2	15.1
2009:11:14	05:24	-4.4	103.4	14.3	18:29	-24.8	274.5	14.1
2009:11:18	05:28	-5.5	104.7	13.3	18:26	-24.6	272.0	13.1
2009:11:22	05:33	-6.5	105.8	12.3	18:24	-24.5	269.7	12.1
2009:11:26	05:36	-7.6	106.9	11.3	18:22	-24.3	267.5	11.2
2009:11:30	05:40	-8.6	107.7	10.3	18:21	-24.0	265.4	10.2
2009:12:04	05:44	-9.6	108.4	9.3	18:21	-23.7	263.5	9.2
2009:12:08	05:47	-10.7	108.9	8.3	18:21	-23.4	261.8	8.2
2009:12:12	05:50	-11.7	109.2	7.4	18:21	-23.0	260.3	7.2
2009:12:16	05:53	-12.7	109.3	6.4	18:23	-22.5	259.0	6.3
2009:12:20	05:55	-13.7	109.1	5.4	18:24	-22.0	257.9	5.3
2009:12:24	05:57	-14.6	108.7	4.5	18:26	-21.5	257.1	4.3
2009:12:28	05:59	-15.5	108.1	3.5	18:29	-20.9	256.4	3.4

Date eliache per Venere
 Posizione : Roma
 Latitudine : 42° 00' 00'' N
 Longitudine : 12° 00' 00'' E
 Visibilità minima [°] = 10.5 + 1.4 * magnitudine
 Altezza critica : 0.00°

	data	ogg s/t	Sole s/t	d s/t	età	mag
inizio visibilità mattutina	2009-03-25	05:36	06:06	-0:29h	-2d 15h	-3.3
fine visibilità serale	2009-03-25	18:59	18:29	0:30h	-2d 02h	-3.3
fine visibilità mattutina	2009-12-14	07:01	07:32	-0:31h	-28d 15h	-3.4

Legenda:

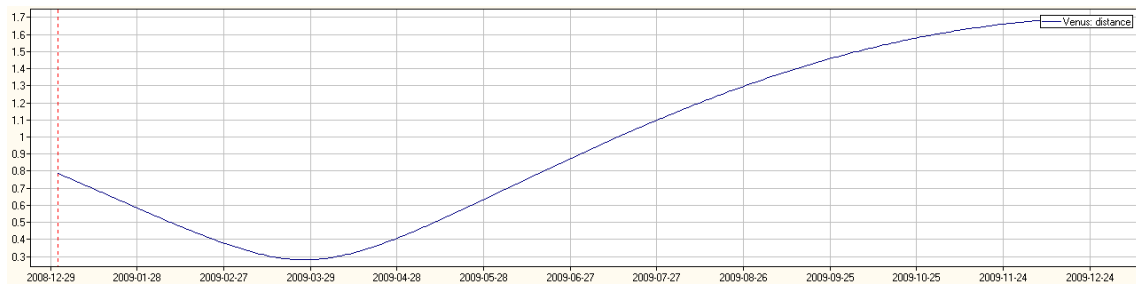
Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due oggetti
 Età : giorni trascorsi dalla congiunzione col Sole
 Mag : magnitudine

	data	ogg s/t	Sole s/t	Sole alt	Sole lon	ogg lon	ogg lat	mag	d az	d lon
IM	03-25	05:36	06:06	-6° 24'	4° 40'	8° 54'	8° 20'	-3.3	-7° 13'	4° 14'
FS	03-25	18:59	18:29	-6° 23'	5° 13'	8° 33'	8° 19'	-3.3	6° 45'	3° 20'
FM	12-14	07:01	07:32	-5° 54'	262° 22'	255° 31'	0° 16'	-3.4	4° 13'	-6° 52'

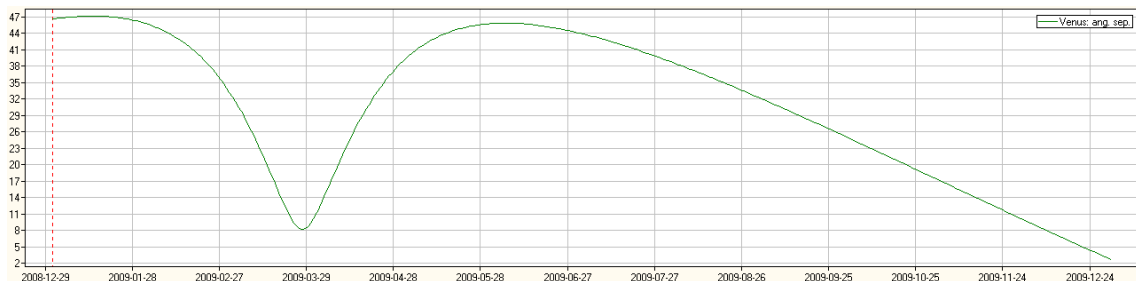
Legenda:

Data : data nel formato mese/giorno
 Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 Sole alt : altezza del Sole nell'istante di visibilità del pianeta
 Sole lon : longitudine celeste del Sole
 Ogg lon : longitudine celeste del pianeta
 Ogg lat : latitudine celeste del pianeta
 Mag : magnitudine
 D az : differenza in azimuth tra i centri del Sole e del pianeta nell'istante della sua visibilità
 D lon : differenza in longitudine tra i centri del Sole e del pianeta nell'istante della sua visibilità

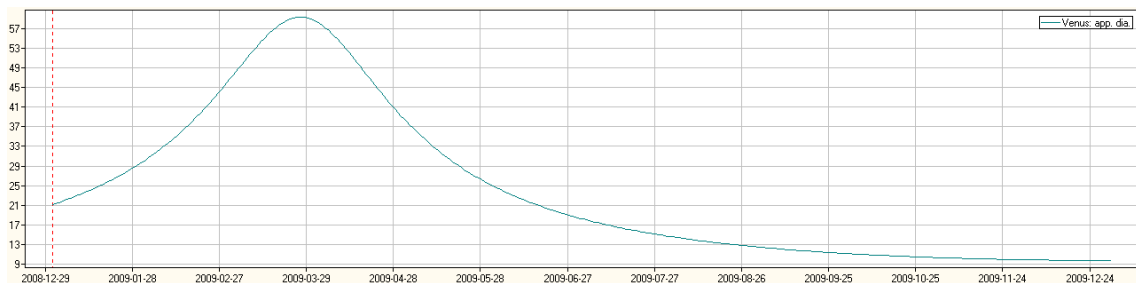
© (3)



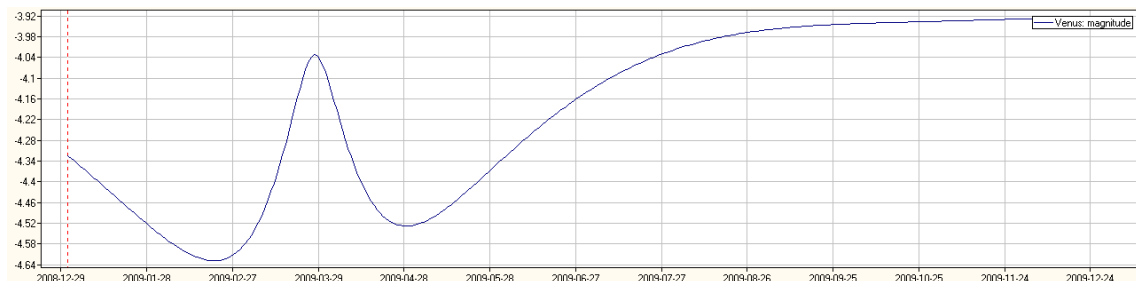
Distanza di Venere in U.A. nel corso dell'anno



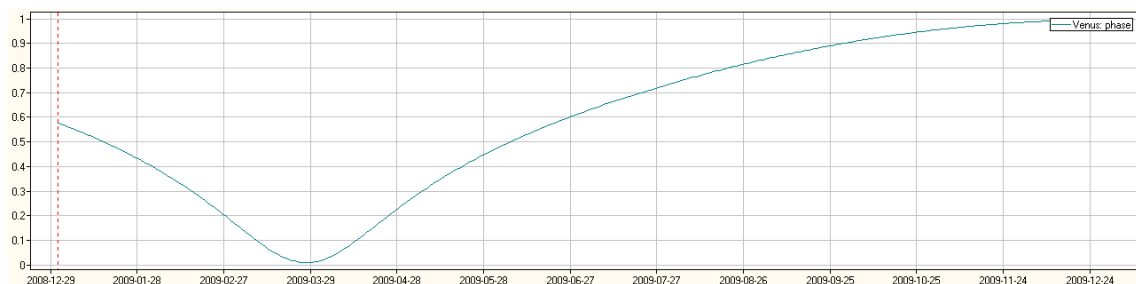
Elongazione di Venere in ° nel corso dell'anno



Diametro di Venere in " nel corso dell'anno



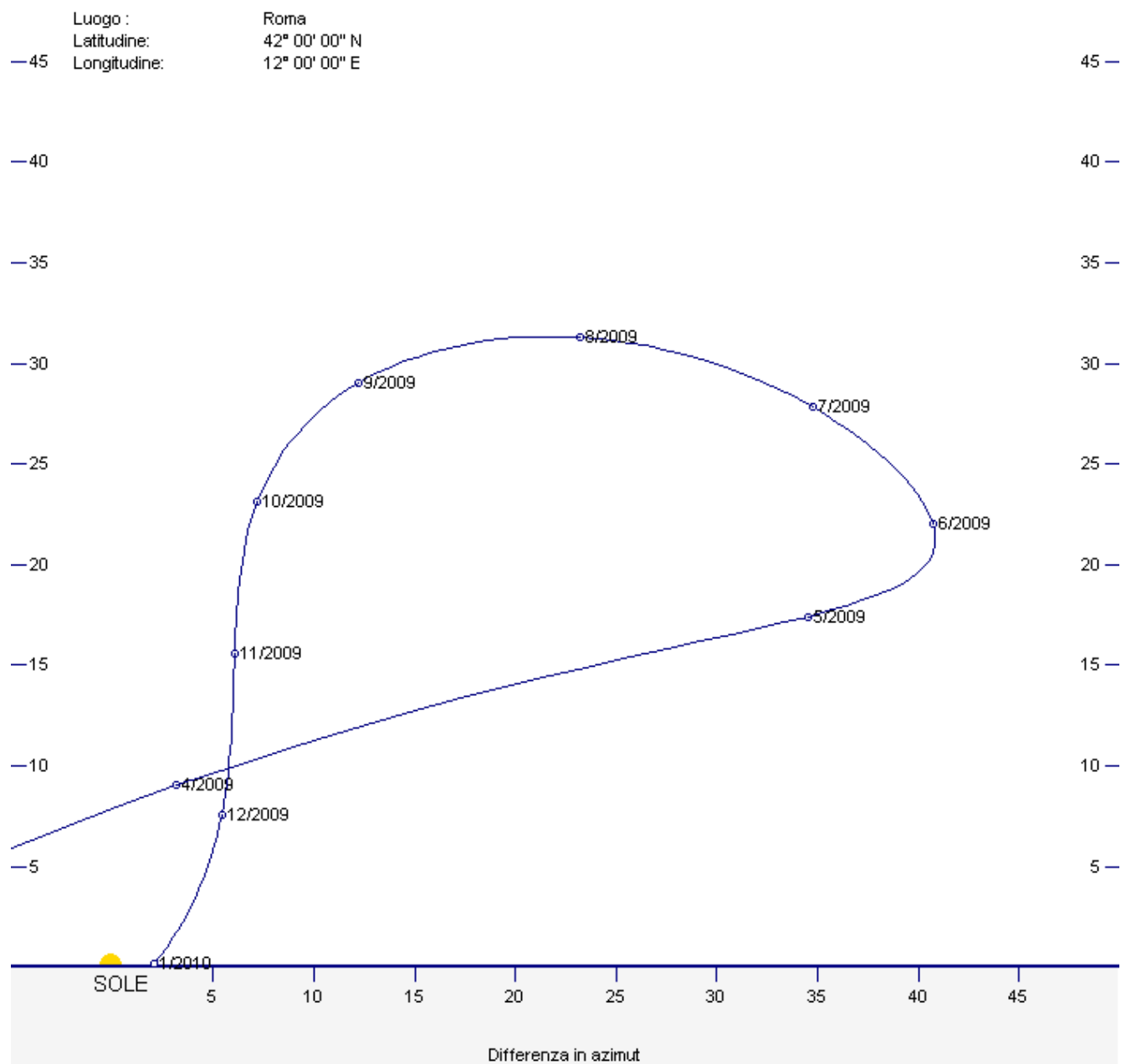
Magnitudine di Venere nel corso dell'anno



Fase di Venere nel corso dell'anno

© (4)

Posizione di Venere al mattino rispetto al sorgere del Sole

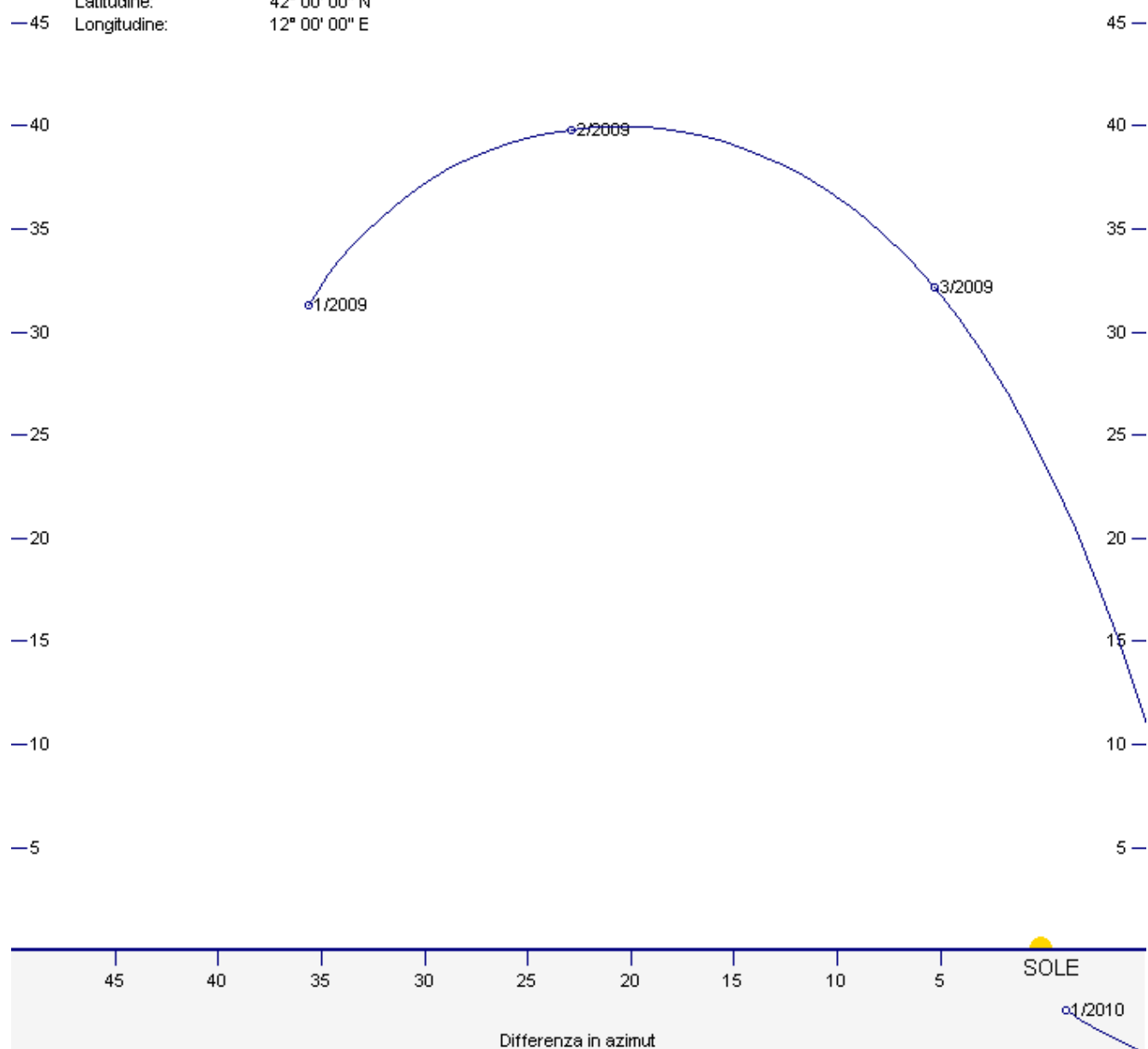


Posizione relativa di Venere rispetto al Sole al suo momento del sorgere

© (4)

Posizione di Venere alla sera rispetto al tramonto del Sole

Luogo : Roma
 Latitudine: 42° 00' 00" N
 Longitudine: 12° 00' 00" E



Posizione relativa di Venere rispetto al Sole al suo momento del tramonto

© (4)

EFFEMERIDI DI MARTE

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
1-gen	18h 15m 25.58s	-24° 05' 33.1"	1.4582625	2.4285651	20.20	7.2	3.9	1.3	0.998	4.8	7.13	11.42	16.11
2-gen	18h 18m 43.51s	-24° 04' 43.7"	1.4570562	2.4263645	20.18	7.5	3.9	1.3	0.998	5.0	7.12	11.41	16.10
3-gen	18h 22m 01.58s	-24° 03' 38.6"	1.4558550	2.4241404	20.16	7.7	3.9	1.3	0.998	5.2	7.11	11.40	16.09
4-gen	18h 25m 19.76s	-24° 02' 17.8"	1.4546590	2.4218937	20.14	8.0	3.9	1.3	0.998	5.4	7.10	11.40	16.09
5-gen	18h 28m 38.05s	-24° 00' 41.2"	1.4534684	2.4196250	20.12	8.3	3.9	1.3	0.998	5.6	7.10	11.39	16.08
6-gen	18h 31m 56.43s	-23° 58' 48.7"	1.4522833	2.4173350	20.10	8.5	3.9	1.3	0.997	5.8	7.09	11.38	16.08
7-gen	18h 35m 14.88s	-23° 56' 40.5"	1.4511038	2.4150245	20.09	8.8	3.9	1.3	0.997	5.9	7.08	11.38	16.07
8-gen	18h 38m 33.40s	-23° 54' 16.5"	1.4499300	2.4126942	20.07	9.1	3.9	1.3	0.997	6.1	7.07	11.37	16.07
9-gen	18h 41m 51.96s	-23° 51' 36.8"	1.4487621	2.4103448	20.05	9.3	3.9	1.3	0.997	6.3	7.06	11.36	16.07
10-gen	18h 45m 10.56s	-23° 48' 41.2"	1.4476003	2.4079770	20.03	9.6	3.9	1.3	0.997	6.5	7.05	11.36	16.06
11-gen	18h 48m 29.18s	-23° 45' 30.0"	1.4464445	2.4055914	20.01	9.8	3.9	1.3	0.997	6.7	7.05	11.35	16.06
12-gen	18h 51m 47.80s	-23° 42' 03.0"	1.4452950	2.4031881	19.99	10.1	3.9	1.3	0.996	6.9	7.04	11.35	16.05
13-gen	18h 55m 06.42s	-23° 38' 20.3"	1.4441519	2.4007677	19.97	10.4	3.9	1.3	0.996	7.0	7.03	11.34	16.05
14-gen	18h 58m 25.00s	-23° 34' 21.8"	1.4430153	2.3983302	19.95	10.6	3.9	1.3	0.996	7.2	7.02	11.33	16.05
15-gen	19h 01m 43.56s	-23° 30' 07.6"	1.4418853	2.3958757	19.93	10.9	3.9	1.3	0.996	7.4	7.01	11.33	16.05
16-gen	19h 05m 02.07s	-23° 25' 37.7"	1.4407621	2.3934043	19.91	11.1	3.9	1.3	0.996	7.6	7.00	11.32	16.04
17-gen	19h 08m 20.52s	-23° 20' 52.1"	1.4396458	2.3909161	19.88	11.4	3.9	1.3	0.995	7.7	6.59	11.31	16.04
18-gen	19h 11m 38.90s	-23° 15' 51.0"	1.4385366	2.3884112	19.86	11.6	3.9	1.3	0.995	7.9	6.58	11.31	16.04
19-gen	19h 14m 57.20s	-23° 10' 34.2"	1.4374344	2.3858896	19.84	11.9	3.9	1.3	0.995	8.1	6.57	11.30	16.04
20-gen	19h 18m 15.40s	-23° 05' 02.0"	1.4363396	2.3833514	19.82	12.1	3.9	1.3	0.995	8.3	6.56	11.29	16.03
21-gen	19h 21m 33.49s	-22° 59' 14.3"	1.4352521	2.3807970	19.80	12.4	3.9	1.3	0.995	8.5	6.55	11.29	16.03
22-gen	19h 24m 51.45s	-22° 53' 11.3"	1.4341722	2.3782264	19.78	12.6	3.9	1.3	0.994	8.6	6.54	11.28	16.03
23-gen	19h 28m 09.26s	-22° 46' 53.0"	1.4331000	2.3756399	19.76	12.9	3.9	1.3	0.994	8.8	6.52	11.28	16.03
24-gen	19h 31m 26.92s	-22° 40' 19.4"	1.4320355	2.3730378	19.74	13.1	3.9	1.3	0.994	9.0	6.51	11.27	16.03
25-gen	19h 34m 44.41s	-22° 33' 30.8"	1.4309789	2.3704203	19.71	13.4	4.0	1.3	0.994	9.2	6.50	11.26	16.02
26-gen	19h 38m 01.71s	-22° 26' 27.1"	1.4299303	2.3677878	19.69	13.6	4.0	1.3	0.993	9.3	6.49	11.26	16.02
27-gen	19h 41m 18.81s	-22° 19' 08.4"	1.4288899	2.3651408	19.67	13.9	4.0	1.3	0.993	9.5	6.48	11.25	16.02
28-gen	19h 44m 35.69s	-22° 11' 34.9"	1.4278578	2.3624795	19.65	14.1	4.0	1.3	0.993	9.7	6.47	11.24	16.02
29-gen	19h 47m 52.35s	-22° 03' 46.7"	1.4268341	2.3598045	19.63	14.4	4.0	1.3	0.993	9.9	6.45	11.24	16.02
30-gen	19h 51m 08.77s	-21° 55' 43.8"	1.4258188	2.3571163	19.60	14.6	4.0	1.3	0.992	10.0	6.44	11.23	16.02
31-gen	19h 54m 24.93s	-21° 47' 26.3"	1.4248123	2.3544154	19.58	14.9	4.0	1.3	0.992	10.2	6.43	11.22	16.02
1-feb	19h 57m 40.84s	-21° 38' 54.4"	1.4238145	2.3517025	19.56	15.1	4.0	1.3	0.992	10.4	6.41	11.22	16.02
2-feb	20h 00m 56.47s	-21° 30' 08.1"	1.4228255	2.3489782	19.54	15.4	4.0	1.3	0.992	10.6	6.40	11.21	16.02
3-feb	20h 04m 11.83s	-21° 21' 07.7"	1.4218456	2.3462432	19.51	15.6	4.0	1.3	0.991	10.7	6.39	11.20	16.02
4-feb	20h 07m 26.90s	-21° 11' 53.1"	1.4208748	2.3434981	19.49	15.8	4.0	1.3	0.991	10.9	6.37	11.19	16.02
5-feb	20h 10m 41.68s	-21° 02' 24.6"	1.4199133	2.3407436	19.47	16.1	4.0	1.3	0.991	11.1	6.36	11.19	16.02
6-feb	20h 13m 56.15s	-20° 52' 42.4"	1.4189611	2.3379804	19.44	16.3	4.0	1.3	0.990	11.3	6.35	11.18	16.02
7-feb	20h 17m 10.31s	-20° 42' 46.4"	1.4180184	2.3352091	19.42	16.6	4.0	1.3	0.990	11.4	6.33	11.17	16.02
8-feb	20h 20m 24.15s	-20° 32' 36.9"	1.4170853	2.3324302	19.40	16.8	4.0	1.3	0.990	11.6	6.32	11.17	16.02
9-feb	20h 23m 37.66s	-20° 22' 13.9"	1.4161619	2.3296441	19.37	17.0	4.0	1.3	0.989	11.8	6.30	11.16	16.02
10-feb	20h 26m 50.84s	-20° 11' 37.7"	1.4152483	2.3268511	19.35	17.3	4.0	1.3	0.989	11.9	6.29	11.15	16.02
11-feb	20h 30m 03.68s	-20° 00' 48.3"	1.4143447	2.3240514	19.33	17.5	4.0	1.3	0.989	12.1	6.27	11.14	16.02
12-feb	20h 33m 16.18s	-19° 49' 45.8"	1.4134511	2.3212451	19.30	17.7	4.0	1.3	0.989	12.3	6.26	11.14	16.02
13-feb	20h 36m 28.33s	-19° 38' 30.3"	1.4125677	2.3184321	19.28	18.0	4.0	1.3	0.988	12.5	6.24	11.13	16.02
14-feb	20h 39m 40.14s	-19° 27' 02.1"	1.4116946	2.3156125	19.26	18.2	4.0	1.3	0.988	12.6	6.23	11.12	16.02
15-feb	20h 42m 51.59s	-19° 15' 21.3"	1.4108319	2.3127863	19.23	18.4	4.1	1.3	0.988	12.8	6.21	11.12	16.02
16-feb	20h 46m 02.69s	-19° 03' 28.0"	1.4099797	2.3099535	19.21	18.7	4.1	1.3	0.987	13.0	6.20	11.11	16.02
17-feb	20h 49m 13.43s	-18° 51' 22.4"	1.4091381	2.3071140	19.19	18.9	4.1	1.3	0.987	13.1	6.18	11.10	16.02
18-feb	20h 52m 23.81s	-18° 39' 04.6"	1.4083072	2.3042678	19.16	19.1	4.1	1.2	0.987	13.3	6.16	11.09	16.02
19-feb	20h 55m 33.81s	-18° 26' 34.9"	1.4074871	2.3014151	19.14	19.4	4.1	1.2	0.986	13.5	6.15	11.08	16.03
20-feb	20h 58m 43.44s	-18° 13' 53.5"	1.4066780	2.2985559	19.12	19.6	4.1	1.2	0.986	13.6	6.13	11.08	16.03
21-feb	21h 01m 52.69s	-18° 01' 00.4"	1.4058799	2.2956904	19.09	19.8	4.1	1.2	0.986	13.8	6.11	11.07	16.03
22-feb	21h 05m 01.55s	-17° 47' 55.9"	1.4050930	2.2928185	19.07	20.0	4.1	1.2	0.985	14.0	6.10	11.06	16.03
23-feb	21h 08m 10.01s	-17° 34' 40.2"	1.4043173	2.2899405	19.04	20.3	4.1	1.2	0.985	14.1	6.08	11.05	16.03
24-feb	21h 11m 18.09s	-17° 21' 13.4"	1.4035530	2.2870566	19.02	20.5	4.1	1.2	0.985	14.3	6.06	11.04	16.03
25-feb	21h 14m 25.76s	-17° 07' 35.7"	1.4028000	2.2841670	19.00	20.7	4.1	1.2	0.984	14.5	6.04	11.04	16.03
26-feb	21h 17m 33.03s	-16° 53' 47.4"	1.4020587	2.2812720	18.97	20.9	4.1	1.2	0.984	14.6	6.03	11.03	16.03
27-feb	21h 20m 39.90s	-16° 39' 48.5"	1.4013290	2.2783718	18.95	21.2	4.1	1.2	0.983	14.8	6.01	11.02	16.03
28-feb	21h 23m 46.36s	-16° 25' 39.4"	1.4006110	2.2754669	18.92	21.4	4.1	1.2	0.983	15.0	5.59	11.01	16.04
1-mar	21h 26m 52.43s	-16° 11' 20.1"	1.3999049	2.2725578	18.90	21.6	4.1	1.2	0.983	15.1	5.57	11.00	16.04
2-mar	21h 29m 58.08s	-15° 56' 50.8"	1.3992107	2.2696448	18.88	21.8	4.1	1.2	0.982	15.3	5.56	10.59	16.04
3-mar	21h 33m 03.34s	-15° 42' 11.8"	1.3985285	2.2667286	18.85	22.1	4.1	1.2	0.982	15.4	5.54	10.59	16.04
4-mar	21h 36m 08.19s	-15° 27' 23.3"	1.3978584	2.2638096	18.83	22.3	4.1	1.2	0.982	15.6	5.52	10.58	16.04
5-mar	21h 39m 12.63s	-15° 12' 25.4"	1.3972006	2.2608884	18.80	22.5	4.1	1.2	0.981	15.8	5.50	10.57	16.04
6-mar	21h 42m 16.68s	-14° 57' 18.4"	1.3965550	2.2579654	18.78	22.7	4.2	1.2	0.981	15.9	5.48	10.56	16.04
7-mar	21h 45m 20.32s	-14° 42' 02.4"	1.3959218	2.2550413	18.75	22.9	4.2	1.2	0.980	16.1	5.46	10.55	16.04
8-mar	21h 48m 23.56s	-14° 26' 37.6"	1.3953011	2.2521163	18.73	23.2	4.2	1.2	0.980	16.2	5.44	10.54	16.04
9-mar	21h 51m 26.40s	-14° 11' 04.3"	1.3946929	2.2491908	18.71	23.4	4.2	1.2	0.980	16.4	5.42	10.53	16.05
10-mar	21h 54m 28.85s	-13° 55' 22.5"	1.3940974	2.2462650	18.68	23.6	4.2	1.2	0.979	16.6	5.41	10.52	16.05
11-mar	21h 57m 30.91s	-13° 39' 32.5"	1.3935146	2.2433390	18.66	23.8	4.2	1.2	0.979	16.7	5.39	10.51	16.05
12-mar	22h 00m 32.59s	-13° 23' 34.4"	1.3929445	2.2404129	18.63	24.0	4.2	1.2	0.978	16.9	5.37	10.51	16.05
13-mar	22h 03m 33.89s	-13° 07' 28.4"	1.3923874	2.2374865	18.61	24.2	4.2	1.2	0.978	17.0	5.35	10.50	16.05

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
14-mar	22h 06m 34.82s	-12° 51' 14.7"	1.3918432	2.2345597	18.58	24.5	4.2	1.2	0.978	17.2	5.33	10.49	16.05
15-mar	22h 09m 35.39s	-12° 34' 53.4"	1.3913120	2.2316323	18.56	24.7	4.2	1.2	0.977	17.4	5.31	10.48	16.05
16-mar	22h 12m 35.59s	-12° 18' 24.9"	1.3907939	2.2287043	18.54	24.9	4.2	1.2	0.977	17.5	5.29	10.47	16.05
17-mar	22h 15m 35.45s	-12° 01' 49.2"	1.3902890	2.2257753	18.51	25.1	4.2	1.2	0.976	17.7	5.27	10.46	16.05
18-mar	22h 18m 34.94s	-11° 45' 06.5"	1.3897973	2.2228453	18.49	25.3	4.2	1.2	0.976	17.8	5.25	10.45	16.06
19-mar	22h 21m 34.09s	-11° 28' 17.2"	1.3893190	2.2199140	18.46	25.5	4.2	1.2	0.976	18.0	5.23	10.44	16.06
20-mar	22h 24m 32.89s	-11° 11' 21.4"	1.3888540	2.2169814	18.44	25.7	4.2	1.2	0.975	18.1	5.21	10.43	16.06
21-mar	22h 27m 31.35s	-10° 54' 19.3"	1.3884024	2.2140473	18.41	25.9	4.2	1.2	0.975	18.3	5.19	10.42	16.06
22-mar	22h 30m 29.46s	-10° 37' 11.1"	1.3879644	2.2111116	18.39	26.1	4.2	1.2	0.974	18.4	5.17	10.41	16.06
23-mar	22h 33m 27.24s	-10° 19' 57.1"	1.3875399	2.2081742	18.36	26.4	4.2	1.2	0.974	18.6	5.15	10.40	16.06
24-mar	22h 36m 24.68s	-10° 02' 37.4"	1.3871290	2.2052350	18.34	26.6	4.2	1.2	0.973	18.7	5.13	10.39	16.06
25-mar	22h 39m 21.79s	-09° 45' 12.2"	1.3867318	2.2022940	18.32	26.8	4.3	1.2	0.973	18.9	5.10	10.38	16.06
26-mar	22h 42m 18.58s	-09° 27' 41.8"	1.3863483	2.1993513	18.29	27.0	4.3	1.2	0.973	19.1	5.08	10.37	16.06
27-mar	22h 45m 15.05s	-09° 10' 06.3"	1.3859787	2.1964068	18.27	27.2	4.3	1.2	0.972	19.2	5.06	10.36	16.06
28-mar	22h 48m 11.21s	-08° 52' 26.1"	1.3856228	2.1934607	18.24	27.4	4.3	1.2	0.972	19.4	5.04	10.35	16.06
29-mar	22h 51m 07.05s	-08° 34' 41.1"	1.3852809	2.1905133	18.22	27.6	4.3	1.2	0.971	19.5	5.02	10.34	16.07
30-mar	22h 54m 02.60s	-08° 16' 51.8"	1.3849529	2.1875648	18.19	27.8	4.3	1.2	0.971	19.7	5.00	10.33	16.07
31-mar	22h 56m 57.84s	-07° 58' 58.2"	1.3846389	2.1846154	18.17	28.0	4.3	1.2	0.970	19.8	4.58	10.32	16.07
1-apr	22h 59m 52.80s	-07° 41' 00.6"	1.3843389	2.1816656	18.14	28.2	4.3	1.2	0.970	20.0	4.56	10.31	16.07
2-apr	23h 02m 47.46s	-07° 22' 59.3"	1.3840530	2.1787157	18.12	28.4	4.3	1.2	0.970	20.1	4.54	10.30	16.07
3-apr	23h 05m 41.85s	-07° 04' 54.3"	1.3837812	2.1757660	18.09	28.6	4.3	1.2	0.969	20.3	4.52	10.29	16.07
4-apr	23h 08m 35.96s	-06° 46' 46.0"	1.3835235	2.1728168	18.07	28.8	4.3	1.2	0.969	20.4	4.49	10.28	16.07
5-apr	23h 11m 29.79s	-06° 28' 34.4"	1.3832801	2.1698684	18.05	29.0	4.3	1.2	0.968	20.6	4.47	10.27	16.07
6-apr	23h 14m 23.37s	-06° 10' 19.8"	1.3830508	2.1669209	18.02	29.2	4.3	1.2	0.968	20.7	4.45	10.26	16.07
7-apr	23h 17m 16.69s	-05° 52' 02.4"	1.3828358	2.1639745	18.00	29.4	4.3	1.2	0.967	20.8	4.43	10.25	16.07
8-apr	23h 20m 09.77s	-05° 33' 42.3"	1.3826351	2.1610290	17.97	29.6	4.3	1.2	0.967	21.0	4.41	10.24	16.07
9-apr	23h 23m 02.61s	-05° 15' 19.7"	1.3824487	2.1580844	17.95	29.9	4.3	1.2	0.966	21.1	4.39	10.23	16.07
10-apr	23h 25m 55.24s	-04° 56' 54.7"	1.3822767	2.1551406	17.92	30.1	4.3	1.2	0.966	21.3	4.36	10.22	16.07
11-apr	23h 28m 47.66s	-04° 38' 27.6"	1.3821190	2.1521971	17.90	30.3	4.4	1.2	0.965	21.4	4.34	10.21	16.07
12-apr	23h 31m 39.87s	-04° 19' 58.6"	1.3819757	2.1492538	17.87	30.5	4.4	1.2	0.965	21.6	4.32	10.19	16.07
13-apr	23h 34m 31.89s	-04° 01' 27.7"	1.3818468	2.1463103	17.85	30.7	4.4	1.2	0.965	21.7	4.30	10.18	16.07
14-apr	23h 37m 23.72s	-03° 42' 55.3"	1.3817323	2.1433663	17.83	30.9	4.4	1.2	0.964	21.9	4.28	10.17	16.07
15-apr	23h 40m 15.37s	-03° 24' 21.5"	1.3816323	2.1404213	17.80	31.1	4.4	1.2	0.964	22.0	4.25	10.16	16.07
16-apr	23h 43m 06.84s	-03° 05' 46.6"	1.3815468	2.1374751	17.78	31.3	4.4	1.2	0.963	22.1	4.23	10.15	16.07
17-apr	23h 45m 58.15s	-02° 47' 10.6"	1.3814757	2.1345272	17.75	31.5	4.4	1.2	0.963	22.3	4.21	10.14	16.08
18-apr	23h 48m 49.30s	-02° 28' 33.9"	1.3814190	2.1315773	17.73	31.7	4.4	1.2	0.962	22.4	4.19	10.13	16.08
19-apr	23h 51m 40.29s	-02° 09' 56.6"	1.3813769	2.1286252	17.70	31.9	4.4	1.2	0.962	22.6	4.17	10.12	16.08
20-apr	23h 54m 31.13s	-01° 51' 18.9"	1.3813493	2.1256703	17.68	32.1	4.4	1.2	0.961	22.7	4.14	10.11	16.08
21-apr	23h 57m 21.83s	-01° 32' 41.0"	1.3813361	2.1227125	17.65	32.3	4.4	1.2	0.961	22.8	4.12	10.10	16.08
22-apr	00h 00m 12.39s	-01° 14' 03.2"	1.3813375	2.1197514	17.63	32.5	4.4	1.2	0.960	23.0	4.10	10.09	16.08
23-apr	00h 03m 02.82s	-00° 55' 25.6"	1.3813533	2.1167867	17.60	32.7	4.4	1.2	0.960	23.1	4.08	10.07	16.08
24-apr	00h 05m 53.14s	-00° 36' 48.4"	1.3813836	2.1138183	17.58	32.9	4.4	1.2	0.959	23.3	4.06	10.06	16.08
25-apr	00h 08m 43.33s	-00° 18' 11.7"	1.3814285	2.1108461	17.55	33.1	4.4	1.2	0.959	23.4	4.03	10.05	16.08
26-apr	00h 11m 33.42s	+00° 00' 24.1"	1.3814878	2.1078700	17.53	33.3	4.4	1.2	0.958	23.5	4.01	10.04	16.08
27-apr	00h 14m 23.40s	+00° 18' 59.0"	1.3815616	2.1048899	17.51	33.5	4.5	1.2	0.958	23.7	3.59	10.03	16.08
28-apr	00h 17m 13.29s	+00° 37' 32.7"	1.3816498	2.1019061	17.48	33.7	4.5	1.2	0.957	23.8	3.57	10.02	16.08
29-apr	00h 20m 03.08s	+00° 56' 05.0"	1.3817525	2.0989186	17.46	33.9	4.5	1.2	0.957	24.0	3.55	10.01	16.08
30-apr	00h 22m 52.79s	+01° 14' 35.7"	1.3818696	2.0959277	17.43	34.1	4.5	1.2	0.956	24.1	3.52	10.00	16.08
1-mag	00h 25m 42.41s	+01° 33' 04.7"	1.3820012	2.0929335	17.41	34.3	4.5	1.2	0.956	24.2	3.50	9.59	16.08
2-mag	00h 28m 31.95s	+01° 51' 31.7"	1.3821472	2.0899362	17.38	34.5	4.5	1.2	0.955	24.4	3.48	9.57	16.08
3-mag	00h 31m 21.42s	+02° 09' 56.6"	1.3823075	2.0869359	17.36	34.7	4.5	1.2	0.955	24.5	3.46	9.56	16.08
4-mag	00h 34m 10.83s	+02° 28' 19.3"	1.3824822	2.0839326	17.33	34.9	4.5	1.2	0.954	24.6	3.43	9.55	16.08
5-mag	00h 37m 00.19s	+02° 46' 39.5"	1.3826712	2.0809262	17.31	35.1	4.5	1.2	0.954	24.8	3.41	9.54	16.08
6-mag	00h 39m 49.51s	+03° 04' 57.1"	1.3828745	2.0779166	17.28	35.3	4.5	1.2	0.953	24.9	3.39	9.53	16.08
7-mag	00h 42m 38.80s	+03° 23' 12.0"	1.3830921	2.0749037	17.26	35.5	4.5	1.2	0.953	25.0	3.37	9.52	16.07
8-mag	00h 45m 28.06s	+03° 41' 24.0"	1.3833239	2.0718870	17.23	35.7	4.5	1.2	0.953	25.2	3.35	9.51	16.07
9-mag	00h 48m 17.32s	+03° 59' 33.0"	1.3835699	2.0688663	17.21	35.9	4.5	1.2	0.952	25.3	3.32	9.50	16.07
10-mag	00h 51m 06.57s	+04° 17' 38.7"	1.3838302	2.0658411	17.18	36.1	4.5	1.2	0.952	25.4	3.30	9.48	16.07
11-mag	00h 53m 55.82s	+04° 35' 41.1"	1.3841045	2.0628110	17.16	36.3	4.5	1.2	0.951	25.6	3.28	9.47	16.07
12-mag	00h 56m 45.08s	+04° 53' 39.9"	1.3843929	2.0597756	17.13	36.5	4.5	1.2	0.951	25.7	3.26	9.46	16.07
13-mag	00h 59m 34.36s	+05° 11' 34.9"	1.3846954	2.0567343	17.10	36.7	4.6	1.2	0.950	25.8	3.24	9.45	16.07
14-mag	01h 02m 23.65s	+05° 29' 26.1"	1.3850119	2.0536865	17.08	36.9	4.6	1.2	0.950	26.0	3.21	9.44	16.07
15-mag	01h 05m 12.97s	+05° 47' 13.2"	1.3853424	2.0506319	17.05	37.1	4.6	1.2	0.949	26.1	3.19	9.43	16.07
16-mag	01h 08m 02.33s	+06° 04' 56.0"	1.3856868	2.0475698	17.03	37.3	4.6	1.2	0.949	26.2	3.17	9.42	16.07
17-mag	01h 10m 51.72s	+06° 22' 34.4"	1.3860451	2.0444998	17.00	37.5	4.6	1.2	0.948	26.4	3.15	9.41	16.07
18-mag	01h 13m 41.15s	+06° 40' 08.1"	1.3864171	2.0414213	16.98	37.7	4.6	1.2	0.948	26.5	3.13	9.40	16.07
19-mag	01h 16m 30.63s	+06° 57' 37.1"	1.3868030	2.0383339	16.95	37.9	4.6	1.2	0.947	26.6	3.10	9.38	16.07
20-mag	01h 19m 20.16s	+07° 15' 01.2"	1.3872025	2.0352369	16.93	38.1	4.6	1.2	0.947	26.7	3.08	9.37	16.07
21-mag	01h 22m 09.74s	+07° 32' 20.1"	1.3876158	2.0321300	16.90	38.3	4.6	1.2	0.946	26.9	3.06	9.36	16.07
22-mag	01h 24m 59.39s	+07° 49' 33.7"	1.3880426	2.0290128	16.87	38.5	4.6	1.2	0.946	27.0	3.04	9.35	16.07
23-mag	01h 27m 49.10s	+08° 06' 41.9"	1.3884829	2.0258849	16.85	38.7	4.6	1.1	0.945	27.1	3.02	9.34	16.07
24-mag	01h 30m 38.89s	+08° 23' 44.4"	1.3889367	2.0227459	16.82	38.9	4.6	1.1	0.944	27.3	3.00	9.33	16.07
25-mag	01h 33m 28.74s	+08° 40' 41.2"	1.3894040	2.0195958	16.80	39.1	4.6	1.1	0.944	27.4	2.57	9.32	16.07
26-mag	01h 36m 18.67s	+08° 57' 32.0"	1.3898846	2.0164345	16.77	39.3	4.6	1.1	0.943	27.5	2.55	9.31	16.07
27-mag	01h 39m 08.67s	+09° 14' 16.7"	1.3903784	2.0132619	16.74	39.5	4.7	1.1	0.943	27.6	2.53	9.30	16.07
28-mag	01h 41m 58.74s	+09° 30' 55.1"	1.3908855	2.0100781	16.72	39.7	4.7	1.1	0.942	27.8	2.51	9.28	16.06
29-mag	01h 44m 48.88s	+09° 47' 27.1"	1.391405										

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
30-mag	01h 47m 39.10s	+10° 03' 52.4"	1.3919390	2.0036772	16.66	40.2	4.7	1.1	0.941	28.0	2.47	9.26	16.06
31-mag	01h 50m 29.40s	+10° 20' 11.0"	1.3924853	2.0004603	16.64	40.4	4.7	1.1	0.941	28.1	2.45	9.25	16.06
1-giu	01h 53m 19.79s	+10° 36' 22.7"	1.3930445	1.9972322	16.61	40.6	4.7	1.1	0.940	28.3	2.42	9.24	16.06
2-giu	01h 56m 10.28s	+10° 52' 27.4"	1.3936165	1.9939930	16.58	40.8	4.7	1.1	0.940	28.4	2.40	9.23	16.06
3-giu	01h 59m 00.87s	+11° 08' 24.9"	1.3942013	1.9907424	16.56	41.0	4.7	1.1	0.939	28.5	2.38	9.22	16.06
4-giu	02h 01m 51.56s	+11° 24' 15.2"	1.3947988	1.9874800	16.53	41.2	4.7	1.1	0.939	28.6	2.36	9.21	16.06
5-giu	02h 04m 42.37s	+11° 39' 58.1"	1.3954089	1.9842057	16.50	41.4	4.7	1.1	0.938	28.8	2.34	9.20	16.06
6-giu	02h 07m 33.30s	+11° 55' 33.5"	1.3960315	1.9809190	16.47	41.6	4.7	1.1	0.938	28.9	2.32	9.19	16.06
7-giu	02h 10m 24.34s	+12° 11' 01.2"	1.3966665	1.9776195	16.45	41.8	4.7	1.1	0.937	29.0	2.30	9.17	16.06
8-giu	02h 13m 15.51s	+12° 26' 21.2"	1.3973139	1.9743066	16.42	42.1	4.7	1.1	0.937	29.1	2.28	9.16	16.05
9-giu	02h 16m 06.80s	+12° 41' 33.3"	1.3979736	1.9709799	16.39	42.3	4.8	1.1	0.936	29.2	2.26	9.15	16.05
10-giu	02h 18m 58.22s	+12° 56' 37.3"	1.3986454	1.9676388	16.36	42.5	4.8	1.1	0.936	29.4	2.24	9.14	16.05
11-giu	02h 21m 49.76s	+13° 11' 33.1"	1.3993293	1.9642828	16.34	42.7	4.8	1.1	0.935	29.5	2.22	9.13	16.05
12-giu	02h 24m 41.44s	+13° 26' 20.6"	1.4000252	1.9609111	16.31	42.9	4.8	1.1	0.935	29.6	2.20	9.12	16.05
13-giu	02h 27m 33.25s	+13° 40' 59.6"	1.4007330	1.9575233	16.28	43.1	4.8	1.1	0.934	29.7	2.18	9.11	16.05
14-giu	02h 30m 25.19s	+13° 55' 30.0"	1.4014525	1.9541187	16.25	43.4	4.8	1.1	0.934	29.8	2.16	9.10	16.05
15-giu	02h 33m 17.26s	+14° 09' 51.7"	1.4021838	1.9506967	16.22	43.6	4.8	1.1	0.933	30.0	2.14	9.09	16.05
16-giu	02h 36m 09.46s	+14° 24' 04.5"	1.4029267	1.9472567	16.19	43.8	4.8	1.1	0.933	30.1	2.11	9.08	16.04
17-giu	02h 39m 01.79s	+14° 38' 08.3"	1.4036811	1.9437982	16.17	44.0	4.8	1.1	0.932	30.2	2.10	9.07	16.04
18-giu	02h 41m 54.26s	+14° 52' 03.0"	1.4044470	1.9403205	16.14	44.2	4.8	1.1	0.932	30.3	2.08	9.06	16.04
19-giu	02h 44m 46.86s	+15° 05' 48.4"	1.4052241	1.9368230	16.11	44.5	4.8	1.1	0.931	30.4	2.06	9.05	16.04
20-giu	02h 47m 39.59s	+15° 19' 24.5"	1.4060124	1.9333053	16.08	44.7	4.8	1.1	0.931	30.5	2.04	9.03	16.04
21-giu	02h 50m 32.45s	+15° 32' 51.1"	1.4068119	1.9297671	16.05	44.9	4.9	1.1	0.930	30.7	2.02	9.02	16.04
22-giu	02h 53m 25.43s	+15° 46' 08.1"	1.4076223	1.9262078	16.02	45.1	4.9	1.1	0.930	30.8	2.00	9.01	16.04
23-giu	02h 56m 18.53s	+15° 59' 15.4"	1.4084437	1.9226274	15.99	45.4	4.9	1.1	0.929	30.9	1.58	9.00	16.03
24-giu	02h 59m 11.73s	+16° 12' 12.8"	1.4092758	1.9190258	15.96	45.6	4.9	1.1	0.929	31.0	1.56	8.59	16.03
25-giu	03h 02m 05.04s	+16° 25' 00.2"	1.4101186	1.9154029	15.93	45.8	4.9	1.1	0.928	31.1	1.54	8.58	16.03
26-giu	03h 04m 58.44s	+16° 37' 37.6"	1.4109720	1.9117588	15.90	46.1	4.9	1.1	0.927	31.2	1.52	8.57	16.03
27-giu	03h 07m 51.94s	+16° 50' 04.8"	1.4118358	1.9080935	15.87	46.3	4.9	1.1	0.927	31.4	1.50	8.56	16.03
28-giu	03h 10m 45.53s	+17° 02' 21.7"	1.4127101	1.9044070	15.84	46.5	4.9	1.1	0.926	31.5	1.48	8.55	16.02
29-giu	03h 13m 39.21s	+17° 14' 28.2"	1.4135945	1.9006994	15.81	46.8	4.9	1.1	0.926	31.6	1.46	8.54	16.02
30-giu	03h 16m 32.99s	+17° 26' 24.3"	1.4144891	1.8969705	15.78	47.0	4.9	1.1	0.925	31.7	1.44	8.53	16.02
1-lug	03h 19m 26.87s	+17° 38' 09.9"	1.4153937	1.8932202	15.74	47.2	4.9	1.1	0.925	31.8	1.43	8.52	16.02
2-lug	03h 22m 20.83s	+17° 49' 44.8"	1.4163082	1.8894481	15.71	47.5	5.0	1.1	0.924	31.9	1.41	8.51	16.01
3-lug	03h 25m 14.89s	+18° 01' 09.2"	1.4172325	1.8856541	15.68	47.7	5.0	1.1	0.924	32.0	1.39	8.50	16.01
4-lug	03h 28m 09.03s	+18° 12' 22.7"	1.4181665	1.8818376	15.65	47.9	5.0	1.1	0.923	32.2	1.37	8.49	16.01
5-lug	03h 31m 03.26s	+18° 23' 25.5"	1.4191100	1.8779985	15.62	48.2	5.0	1.1	0.923	32.3	1.35	8.48	16.01
6-lug	03h 33m 57.57s	+18° 34' 17.4"	1.4200630	1.8741361	15.59	48.4	5.0	1.1	0.922	32.4	1.33	8.47	16.00
7-lug	03h 36m 51.96s	+18° 44' 58.3"	1.4210253	1.8702501	15.55	48.7	5.0	1.1	0.922	32.5	1.32	8.46	16.00
8-lug	03h 39m 46.41s	+18° 55' 28.2"	1.4219968	1.8663398	15.52	48.9	5.0	1.1	0.921	32.6	1.30	8.45	16.00
9-lug	03h 42m 40.94s	+19° 05' 47.0"	1.4229774	1.8624048	15.49	49.1	5.0	1.1	0.921	32.7	1.28	8.44	15.59
10-lug	03h 45m 35.52s	+19° 15' 54.5"	1.4239669	1.8584445	15.46	49.4	5.0	1.1	0.920	32.8	1.26	8.43	15.59
11-lug	03h 48m 30.17s	+19° 25' 50.8"	1.4249653	1.8544583	15.42	49.6	5.1	1.1	0.920	32.9	1.25	8.42	15.59
12-lug	03h 51m 24.86s	+19° 35' 35.7"	1.4259725	1.8504456	15.39	49.9	5.1	1.1	0.919	33.0	1.23	8.40	15.58
13-lug	03h 54m 19.60s	+19° 45' 09.3"	1.4269882	1.8464059	15.36	50.1	5.1	1.1	0.919	33.1	1.21	8.39	15.58
14-lug	03h 57m 14.37s	+19° 54' 31.3"	1.4280124	1.8423384	15.32	50.4	5.1	1.1	0.918	33.3	1.20	8.38	15.58
15-lug	04h 00m 09.18s	+20° 03' 41.9"	1.4290450	1.8382425	15.29	50.6	5.1	1.1	0.918	33.4	1.18	8.37	15.57
16-lug	04h 03m 04.02s	+20° 12' 40.8"	1.4300858	1.8341178	15.25	50.9	5.1	1.1	0.917	33.5	1.16	8.36	15.57
17-lug	04h 05m 58.87s	+20° 21' 28.1"	1.4311348	1.8299636	15.22	51.1	5.1	1.1	0.917	33.6	1.14	8.35	15.57
18-lug	04h 08m 53.73s	+20° 30' 03.8"	1.4321917	1.8257795	15.18	51.4	5.1	1.1	0.916	33.7	1.13	8.34	15.56
19-lug	04h 11m 48.59s	+20° 38' 27.8"	1.4332565	1.8215648	15.15	51.7	5.1	1.1	0.916	33.8	1.11	8.33	15.56
20-lug	04h 14m 43.44s	+20° 46' 40.0"	1.4343290	1.8173194	15.11	51.9	5.2	1.1	0.915	33.9	1.10	8.32	15.55
21-lug	04h 17m 38.26s	+20° 54' 40.4"	1.4354092	1.8130429	15.08	52.2	5.2	1.1	0.915	34.0	1.08	8.31	15.55
22-lug	04h 20m 33.03s	+21° 02' 29.0"	1.4364968	1.8087352	15.04	52.4	5.2	1.1	0.914	34.1	1.06	8.30	15.54
23-lug	04h 23m 27.74s	+21° 10' 05.7"	1.4375918	1.8043963	15.01	52.7	5.2	1.1	0.913	34.2	1.05	8.29	15.54
24-lug	04h 26m 22.38s	+21° 17' 30.5"	1.4386941	1.8000263	14.97	53.0	5.2	1.1	0.913	34.3	1.03	8.28	15.53
25-lug	04h 29m 16.95s	+21° 24' 43.4"	1.4398034	1.7956252	14.93	53.2	5.2	1.1	0.912	34.4	1.02	8.27	15.53
26-lug	04h 32m 11.43s	+21° 31' 44.3"	1.4409198	1.7911932	14.90	53.5	5.2	1.1	0.912	34.5	1.00	8.26	15.52
27-lug	04h 35m 05.81s	+21° 38' 33.2"	1.4420430	1.7867303	14.86	53.8	5.2	1.1	0.911	34.6	0.58	8.25	15.52
28-lug	04h 38m 00.10s	+21° 45' 10.3"	1.4431729	1.7822366	14.82	54.1	5.3	1.1	0.911	34.7	0.57	8.24	15.51
29-lug	04h 40m 54.28s	+21° 51' 35.3"	1.4443095	1.7777119	14.78	54.3	5.3	1.1	0.910	34.8	0.55	8.23	15.51
30-lug	04h 43m 48.35s	+21° 57' 48.5"	1.4454525	1.7731561	14.75	54.6	5.3	1.1	0.910	34.9	0.54	8.22	15.50
31-lug	04h 46m 42.29s	+22° 03' 49.7"	1.4466019	1.7685692	14.71	54.9	5.3	1.1	0.909	35.0	0.52	8.21	15.50
1-ago	04h 49m 36.10s	+22° 09' 39.0"	1.4477575	1.7639507	14.67	55.2	5.3	1.1	0.909	35.1	0.51	8.20	15.49
2-ago	04h 52m 29.77s	+22° 15' 16.4"	1.4489192	1.7593006	14.63	55.4	5.3	1.1	0.908	35.2	0.49	8.19	15.48
3-ago	04h 55m 23.29s	+22° 20' 41.9"	1.4500869	1.7546184	14.59	55.7	5.3	1.1	0.908	35.3	0.48	8.18	15.48
4-ago	04h 58m 16.64s	+22° 25' 55.5"	1.4512604	1.7499038	14.55	56.0	5.4	1.1	0.907	35.4	0.47	8.17	15.47
5-ago	05h 01m 09.83s	+22° 30' 57.2"	1.4524396	1.7451564	14.51	56.3	5.4	1.1	0.907	35.5	0.45	8.16	15.46
6-ago	05h 04m 02.83s	+22° 35' 47.1"	1.4536244	1.7403757	14.47	56.6	5.4	1.1	0.906	35.6	0.44	8.15	15.46
7-ago	05h 06m 55.64s	+22° 40' 25.1"	1.4548147	1.7355615	14.43	56.9	5.4	1.1	0.906	35.7	0.42	8.14	15.45
8-ago	05h 09m 48.26s	+22° 44' 51.3"	1.4560103	1.7307131	14.39	57.2	5.4	1.1	0.905	35.8	0.41	8.12	15.44
9-ago	05h 12m 40.66s	+22° 49' 05.7"	1.4572111	1.7258300	14.35	57.4	5.4	1.1	0.905	35.9	0.39	8.11	15.43
10-ago	05h 15m 32.84s	+22° 53' 08.3"	1.4584170	1.7209119	14.31	57.7	5.4	1.1	0.905	36.0	0.38	8.10	15.43
11-ago	05h 18m 24.79s	+22° 56' 59.1"	1.4596278	1.7159580	14.27	58.0	5.5	1.1	0.904	36.1	0.37	8.09	15.42
12-ago	05h 21m 16.49s	+23° 00' 38.2"	1.4608435	1.7109680	14.23	58.3	5.5	1.0	0.904	36.2	0.35	8.08	15.41
13-ago	05h 24m 07.95s	+23° 04' 05.7"	1.4620638	1.7059414	14.19	58.6	5.5	1.0	0.903	36.3	0.34	8.07	15.40
14-ago	05h 26m 59.14s	+23° 07' 21.5"	1.4632887	1.7008776	14.14	58.9							

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
15-ago	05h 29m 50.04s	+23° 10' 25.8"	1.4645181	1.6957762	14.10	59.2	5.5	1.0	0.902	36.5	0.31	8.05	15.39
16-ago	05h 32m 40.65s	+23° 13' 18.6"	1.4657517	1.6906368	14.06	59.5	5.5	1.0	0.902	36.6	0.30	8.04	15.38
17-ago	05h 35m 30.95s	+23° 15' 59.9"	1.4669895	1.6854592	14.02	59.9	5.6	1.0	0.901	36.6	0.29	8.03	15.37
18-ago	05h 38m 20.91s	+23° 18' 29.9"	1.4682314	1.6802431	13.97	60.2	5.6	1.0	0.901	36.7	0.27	8.02	15.36
19-ago	05h 41m 10.53s	+23° 20' 48.6"	1.4694773	1.6749885	13.93	60.5	5.6	1.0	0.900	36.8	0.26	8.00	15.35
20-ago	05h 43m 59.78s	+23° 22' 56.1"	1.4707269	1.6696954	13.89	60.8	5.6	1.0	0.900	36.9	0.25	7.59	15.34
21-ago	05h 46m 48.64s	+23° 24' 52.4"	1.4719802	1.6643641	13.84	61.1	5.6	1.0	0.899	37.0	0.24	7.58	15.33
22-ago	05h 49m 37.11s	+23° 26' 37.5"	1.4732371	1.6589946	13.80	61.4	5.6	1.0	0.899	37.1	0.22	7.57	15.32
23-ago	05h 52m 25.17s	+23° 28' 11.7"	1.4744973	1.6535873	13.75	61.8	5.7	1.0	0.898	37.2	0.21	7.56	15.31
24-ago	05h 55m 12.82s	+23° 29' 34.9"	1.4757609	1.6481425	13.71	62.1	5.7	1.0	0.898	37.3	0.20	7.55	15.30
25-ago	05h 58m 00.05s	+23° 30' 47.3"	1.4770277	1.6426602	13.66	62.4	5.7	1.0	0.898	37.3	0.19	7.54	15.29
26-ago	06h 00m 46.83s	+23° 31' 49.0"	1.4782975	1.6371407	13.61	62.7	5.7	1.0	0.897	37.4	0.17	7.52	15.28
27-ago	06h 03m 33.18s	+23° 32' 40.0"	1.4795703	1.6315840	13.57	63.1	5.7	1.0	0.897	37.5	0.16	7.51	15.27
28-ago	06h 06m 19.06s	+23° 33' 20.5"	1.4808458	1.6259902	13.52	63.4	5.8	1.0	0.896	37.6	0.15	7.50	15.25
29-ago	06h 09m 04.48s	+23° 33' 50.6"	1.4821241	1.6203593	13.48	63.7	5.8	1.0	0.896	37.7	0.14	7.49	15.24
30-ago	06h 11m 49.41s	+23° 34' 10.4"	1.4834049	1.6146913	13.43	64.1	5.8	1.0	0.895	37.7	0.12	7.48	15.23
31-ago	06h 14m 33.86s	+23° 34' 20.0"	1.4846881	1.6089859	13.38	64.4	5.8	1.0	0.895	37.8	0.11	7.47	15.22
1-set	06h 17m 17.81s	+23° 34' 19.4"	1.4859737	1.6032432	13.33	64.7	5.8	1.0	0.895	37.9	0.10	7.45	15.21
2-set	06h 20m 01.24s	+23° 34' 08.8"	1.4872614	1.5974629	13.28	65.1	5.9	1.0	0.894	38.0	0.09	7.44	15.19
3-set	06h 22m 44.15s	+23° 33' 48.4"	1.4885512	1.5916448	13.24	65.4	5.9	1.0	0.894	38.0	0.08	7.43	15.18
4-set	06h 25m 26.53s	+23° 33' 18.1"	1.4898430	1.5857888	13.19	65.8	5.9	0.9	0.893	38.1	0.06	7.42	15.17
5-set	06h 28m 08.36s	+23° 32' 38.1"	1.4911366	1.5798946	13.14	66.1	5.9	0.9	0.893	38.2	0.05	7.40	15.16
6-set	06h 30m 49.64s	+23° 31' 48.5"	1.4924319	1.5739618	13.09	66.5	6.0	0.9	0.893	38.3	0.04	7.39	15.14
7-set	06h 33m 30.36s	+23° 30' 49.5"	1.4937288	1.5679902	13.04	66.8	6.0	0.9	0.892	38.3	0.03	7.38	15.13
8-set	06h 36m 10.51s	+23° 29' 41.1"	1.4950272	1.5619795	12.99	67.2	6.0	0.9	0.892	38.4	0.02	7.37	15.11
9-set	06h 38m 50.08s	+23° 28' 23.5"	1.4963269	1.5559293	12.94	67.6	6.0	0.9	0.891	38.5	0.00	7.35	15.10
10-set	06h 41m 29.04s	+23° 26' 56.9"	1.4976279	1.5498394	12.89	67.9	6.0	0.9	0.891	38.5	23.58	7.34	15.09
11-set	06h 44m 07.40s	+23° 25' 21.3"	1.4989299	1.5437094	12.84	68.3	6.1	0.9	0.891	38.6	23.57	7.33	15.07
12-set	06h 46m 45.14s	+23° 23' 37.0"	1.5002330	1.5375391	12.79	68.7	6.1	0.9	0.890	38.7	23.56	7.31	15.06
13-set	06h 49m 22.23s	+23° 21' 44.1"	1.5015369	1.5313283	12.73	69.0	6.1	0.9	0.890	38.7	23.55	7.30	15.04
14-set	06h 51m 58.67s	+23° 19' 42.7"	1.5028417	1.5250770	12.68	69.4	6.1	0.9	0.890	38.8	23.53	7.29	15.03
15-set	06h 54m 34.43s	+23° 17' 33.0"	1.5041470	1.5187852	12.63	69.8	6.2	0.9	0.889	38.9	23.52	7.27	15.01
16-set	06h 57m 09.50s	+23° 15' 15.3"	1.5054529	1.5124529	12.58	70.2	6.2	0.9	0.889	38.9	23.51	7.26	15.00
17-set	06h 59m 43.86s	+23° 12' 49.5"	1.5067592	1.5060805	12.52	70.5	6.2	0.9	0.889	39.0	23.50	7.25	14.58
18-set	07h 02m 17.49s	+23° 10' 15.9"	1.5080659	1.4996683	12.47	70.9	6.2	0.9	0.888	39.0	23.49	7.23	14.57
19-set	07h 04m 50.39s	+23° 07' 34.7"	1.5093727	1.4932167	12.42	71.3	6.3	0.9	0.888	39.1	23.47	7.22	14.55
20-set	07h 07m 22.54s	+23° 04' 46.0"	1.5106796	1.4867262	12.36	71.7	6.3	0.9	0.888	39.1	23.46	7.20	14.53
21-set	07h 09m 53.94s	+23° 01' 49.9"	1.5119864	1.4801974	12.31	72.1	6.3	0.8	0.888	39.2	23.45	7.19	14.52
22-set	07h 12m 24.56s	+22° 58' 46.8"	1.5132932	1.4736307	12.26	72.5	6.4	0.8	0.887	39.2	23.44	7.18	14.50
23-set	07h 14m 54.41s	+22° 55' 36.6"	1.5145996	1.4670267	12.20	72.9	6.4	0.8	0.887	39.3	23.43	7.16	14.48
24-set	07h 17m 23.47s	+22° 52' 19.7"	1.5159057	1.4603856	12.14	73.3	6.4	0.8	0.887	39.3	23.41	7.15	14.47
25-set	07h 19m 51.73s	+22° 48' 56.2"	1.5172114	1.4537080	12.09	73.7	6.4	0.8	0.886	39.4	23.40	7.13	14.45
26-set	07h 22m 19.17s	+22° 45' 26.3"	1.5185164	1.4469941	12.03	74.1	6.5	0.8	0.886	39.4	23.39	7.12	14.43
27-set	07h 24m 45.80s	+22° 41' 50.1"	1.5198207	1.4402443	11.98	74.5	6.5	0.8	0.886	39.5	23.38	7.10	14.41
28-set	07h 27m 11.59s	+22° 38' 07.8"	1.5211243	1.4334588	11.92	75.0	6.5	0.8	0.886	39.5	23.37	7.09	14.39
29-set	07h 29m 36.55s	+22° 34' 19.6"	1.5224269	1.4266378	11.86	75.4	6.6	0.8	0.886	39.5	23.35	7.07	14.38
30-set	07h 32m 00.65s	+22° 30' 25.7"	1.5237286	1.4197816	11.81	75.8	6.6	0.8	0.885	39.6	23.34	7.06	14.36
1-ott	07h 34m 23.89s	+22° 26' 26.3"	1.5250290	1.4128903	11.75	76.2	6.6	0.8	0.885	39.6	23.33	7.04	14.34
2-ott	07h 36m 46.26s	+22° 22' 21.4"	1.5263283	1.4059641	11.69	76.7	6.7	0.8	0.885	39.7	23.32	7.02	14.32
3-ott	07h 39m 07.75s	+22° 18' 11.4"	1.5276263	1.3990030	11.63	77.1	6.7	0.8	0.885	39.7	23.30	7.01	14.30
4-ott	07h 41m 28.35s	+22° 13' 56.4"	1.5289228	1.3920072	11.58	77.5	6.7	0.8	0.885	39.7	23.29	6.59	14.28
5-ott	07h 43m 48.05s	+22° 09' 36.5"	1.5302177	1.3849767	11.52	78.0	6.8	0.7	0.885	39.7	23.28	6.58	14.26
6-ott	07h 46m 06.84s	+22° 05' 11.9"	1.5315110	1.3779116	11.46	78.4	6.8	0.7	0.884	39.8	23.26	6.56	14.24
7-ott	07h 48m 24.71s	+22° 00' 43.0"	1.5328026	1.3708118	11.40	78.9	6.8	0.7	0.884	39.8	23.25	6.54	14.22
8-ott	07h 50m 41.65s	+21° 56' 09.8"	1.5340923	1.3636774	11.34	79.3	6.9	0.7	0.884	39.8	23.24	6.53	14.20
9-ott	07h 52m 57.64s	+21° 51' 32.6"	1.5353801	1.3565084	11.28	79.8	6.9	0.7	0.884	39.8	23.22	6.51	14.18
10-ott	07h 55m 12.67s	+21° 46' 51.7"	1.5366658	1.3493051	11.22	80.2	6.9	0.7	0.884	39.8	23.21	6.49	14.16
11-ott	07h 57m 26.72s	+21° 42' 07.3"	1.5379494	1.3420676	11.16	80.7	7.0	0.7	0.884	39.8	23.20	6.48	14.14
12-ott	07h 59m 39.76s	+21° 37' 19.5"	1.5392307	1.3347962	11.10	81.2	7.0	0.7	0.884	39.8	23.18	6.46	14.12
13-ott	08h 01m 51.78s	+21° 32' 28.7"	1.5405097	1.3274913	11.04	81.7	7.1	0.7	0.884	39.9	23.17	6.44	14.10
14-ott	08h 04m 02.76s	+21° 27' 35.1"	1.5417863	1.3201534	10.98	82.1	7.1	0.7	0.884	39.9	23.15	6.42	14.08
15-ott	08h 06m 12.69s	+21° 22' 38.8"	1.5430603	1.3127833	10.92	82.6	7.1	0.7	0.884	39.9	23.14	6.41	14.06
16-ott	08h 08m 21.54s	+21° 17' 40.2"	1.5443317	1.3053817	10.86	83.1	7.2	0.6	0.884	39.9	23.13	6.39	14.03
17-ott	08h 10m 29.30s	+21° 12' 39.4"	1.5456003	1.2979494	10.79	83.6	7.2	0.6	0.884	39.9	23.11	6.37	14.01
18-ott	08h 12m 35.95s	+21° 07' 36.8"	1.5468661	1.2904873	10.73	84.1	7.3	0.6	0.884	39.8	23.10	6.35	13.59
19-ott	08h 14m 41.49s	+21° 02' 32.4"	1.5481290	1.2829965	10.67	84.6	7.3	0.6	0.884	39.8	23.08	6.33	13.57
20-ott	08h 16m 45.90s	+20° 57' 26.7"	1.5493889	1.2754779	10.61	85.1	7.3	0.6	0.884	39.8	23.07	6.31	13.55
21-ott	08h 18m 49.15s	+20° 52' 19.8"	1.5506457	1.2679324	10.54	85.6	7.4	0.6	0.884	39.8	23.05	6.30	13.52
22-ott	08h 20m 51.24s	+20° 47' 11.9"	1.5518992	1.2603612	10.48	86.1	7.4	0.6	0.884	39.8	23.04	6.28	13.50
23-ott	08h 22m 52.16s	+20° 42' 03.4"	1.5531495	1.2527650	10.42	86.6	7.5	0.6	0.884	39.8	23.02	6.26	13.48
24-ott	08h 24m 51.88s	+20° 36' 54.4"	1.5543964	1.2451448	10.35	87.1	7.5	0.5	0.885	39.7	23.00	6.24	13.45
25-ott	08h 26m 50.38s	+20° 31' 45.1"	1.5556398	1.2375014	10.29	87.7	7.6	0.5	0.885	39.7	22.59	6.22	13.43
26-ott	08h 28m 47.67s	+20° 26' 35.9"	1.5568797	1.2298358	10.23	88.2	7.6	0.5	0.885	39.7	22.57	6.20	13.41
27-ott	08h 30m 43.71s	+20° 21' 26.9"	1.5581159	1.2221487	10.16	88.7	7.7	0.5	0.885	39.6	22.56	6.18	13.38
28-ott	08h 32m 38.50s	+20° 16' 18.4"	1.5593484	1.2144409	10.10	89.3	7.7	0.5	0.885	39.6	22.54	6.16	13.36
29-ott	08h 34m 32.01s	+20° 11' 10.7"	1.5605771	1.2067134	10.04	89.8	7.8	0.5	0.886	39.5	22.52	6.14	13.33
30-ott	08h 36m 24.24s	+20° 06' 03.8"	1.5618019	1.19									

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Fase	Angolo fase°	Sorge	Transita	Tramonta
31-ott	08h 38m 15.17s	+20° 00' 58.2"	1.5630226	1.1912018	9.91	90.9	7.9	0.5	0.886	39.4	22.49	6.10	13.28
1-nov	08h 40m 04.79s	+19° 55' 54.0"	1.5642393	1.1834192	9.84	91.5	7.9	0.4	0.887	39.4	22.47	6.07	13.26
2-nov	08h 41m 53.06s	+19° 50' 51.5"	1.5654518	1.1756198	9.78	92.1	8.0	0.4	0.887	39.3	22.45	6.05	13.23
3-nov	08h 43m 39.99s	+19° 45' 50.9"	1.5666601	1.1678041	9.71	92.6	8.0	0.4	0.887	39.2	22.43	6.03	13.21
4-nov	08h 45m 25.55s	+19° 40' 52.5"	1.5678640	1.1599729	9.65	93.2	8.1	0.4	0.888	39.2	22.42	6.01	13.18
5-nov	08h 47m 09.71s	+19° 35' 56.7"	1.5690635	1.1521269	9.58	93.8	8.1	0.4	0.888	39.1	22.40	5.59	13.16
6-nov	08h 48m 52.45s	+19° 31' 03.6"	1.5702585	1.1442668	9.52	94.4	8.2	0.4	0.889	39.0	22.38	5.57	13.13
7-nov	08h 50m 33.75s	+19° 26' 13.7"	1.5714490	1.1363934	9.45	95.0	8.2	0.4	0.889	38.9	22.36	5.54	13.11
8-nov	08h 52m 13.57s	+19° 21' 27.2"	1.5726348	1.1285077	9.39	95.6	8.3	0.3	0.889	38.8	22.34	5.52	13.08
9-nov	08h 53m 51.88s	+19° 16' 44.4"	1.5738158	1.1206107	9.32	96.2	8.4	0.3	0.890	38.7	22.32	5.50	13.05
10-nov	08h 55m 28.66s	+19° 12' 05.7"	1.5749920	1.1127036	9.25	96.8	8.4	0.3	0.891	38.6	22.30	5.47	13.03
11-nov	08h 57m 03.87s	+19° 07' 31.3"	1.5761634	1.1047878	9.19	97.4	8.5	0.3	0.891	38.5	22.28	5.45	13.00
12-nov	08h 58m 37.49s	+19° 03' 01.6"	1.5773298	1.0968647	9.12	98.1	8.5	0.3	0.892	38.4	22.26	5.43	12.57
13-nov	09h 00m 09.48s	+18° 58' 36.9"	1.5784911	1.0889360	9.06	98.7	8.6	0.3	0.892	38.3	22.24	5.40	12.55
14-nov	09h 01m 39.81s	+18° 54' 17.4"	1.5796473	1.0810033	8.99	99.4	8.7	0.3	0.893	38.2	22.21	5.38	12.52
15-nov	09h 03m 08.46s	+18° 50' 03.5"	1.5807983	1.0730684	8.92	100.0	8.7	0.2	0.894	38.0	22.19	5.35	12.49
16-nov	09h 04m 35.39s	+18° 45' 55.6"	1.5819440	1.0651333	8.86	100.7	8.8	0.2	0.895	37.9	22.17	5.33	12.46
17-nov	09h 06m 00.58s	+18° 41' 53.8"	1.5830844	1.0571997	8.79	101.3	8.9	0.2	0.895	37.8	22.15	5.30	12.43
18-nov	09h 07m 24.00s	+18° 37' 58.6"	1.5842193	1.0492698	8.73	102.0	8.9	0.2	0.896	37.6	22.12	5.28	12.41
19-nov	09h 08m 45.60s	+18° 34' 10.2"	1.5853488	1.0413453	8.66	102.7	9.0	0.2	0.897	37.5	22.10	5.25	12.38
20-nov	09h 10m 05.37s	+18° 30' 28.9"	1.5864726	1.0334282	8.59	103.4	9.1	0.1	0.898	37.3	22.08	5.23	12.35
21-nov	09h 11m 23.27s	+18° 26' 55.1"	1.5875909	1.0255206	8.53	104.1	9.1	0.1	0.899	37.1	22.05	5.20	12.32
22-nov	09h 12m 39.27s	+18° 23' 29.0"	1.5887034	1.0176244	8.46	104.8	9.2	0.1	0.900	37.0	22.03	5.17	12.29
23-nov	09h 13m 53.34s	+18° 20' 10.9"	1.5898102	1.0097416	8.40	105.5	9.3	0.1	0.901	36.8	22.00	5.15	12.26
24-nov	09h 15m 05.44s	+18° 17' 01.1"	1.5909111	1.0018740	8.33	106.2	9.3	0.1	0.902	36.6	21.58	5.12	12.23
25-nov	09h 16m 15.54s	+18° 13' 59.9"	1.5920061	0.9940237	8.27	106.9	9.4	0.1	0.903	36.4	21.55	5.09	12.20
26-nov	09h 17m 23.62s	+18° 11' 07.6"	1.5930951	0.9861928	8.20	107.7	9.5	0.0	0.904	36.2	21.52	5.06	12.17
27-nov	09h 18m 29.63s	+18° 08' 24.4"	1.5941781	0.9783831	8.14	108.4	9.6	0.0	0.905	36.0	21.50	5.03	12.14
28-nov	09h 19m 33.54s	+18° 05' 50.7"	1.5952549	0.9705966	8.07	109.2	9.6	0.0	0.906	35.7	21.47	5.00	12.11
29-nov	09h 20m 35.33s	+18° 03' 26.8"	1.5963256	0.9628355	8.01	109.9	9.7	0.0	0.907	35.5	21.44	4.58	12.08
30-nov	09h 21m 34.95s	+18° 01' 12.9"	1.5973900	0.9551016	7.94	110.7	9.8	0.0	0.908	35.3	21.41	4.55	12.05
1-dic	09h 22m 32.37s	+17° 59' 09.3"	1.5984481	0.9473970	7.88	111.5	9.9	-0.1	0.909	35.0	21.39	4.52	12.02
2-dic	09h 23m 27.54s	+17° 57' 16.4"	1.5994998	0.9397237	7.82	112.3	10.0	-0.1	0.911	34.8	21.36	4.49	11.59
3-dic	09h 24m 20.44s	+17° 55' 34.5"	1.6005450	0.9320837	7.75	113.1	10.0	-0.1	0.912	34.5	21.33	4.46	11.55
4-dic	09h 25m 11.00s	+17° 54' 04.0"	1.6015838	0.9244792	7.69	113.9	10.1	-0.1	0.913	34.2	21.30	4.42	11.52
5-dic	09h 25m 59.19s	+17° 52' 45.0"	1.6026160	0.9169124	7.63	114.7	10.2	-0.1	0.915	34.0	21.27	4.39	11.49
6-dic	09h 26m 44.95s	+17° 51' 38.1"	1.6036416	0.9093858	7.56	115.6	10.3	-0.2	0.916	33.7	21.23	4.36	11.46
7-dic	09h 27m 28.23s	+17° 50' 43.5"	1.6046604	0.9019019	7.50	116.4	10.4	-0.2	0.918	33.4	21.20	4.33	11.42
8-dic	09h 28m 08.97s	+17° 50' 01.5"	1.6056726	0.8944636	7.44	117.3	10.5	-0.2	0.919	33.0	21.17	4.30	11.39
9-dic	09h 28m 47.14s	+17° 49' 32.5"	1.6066779	0.8870738	7.38	118.1	10.6	-0.2	0.921	32.7	21.14	4.26	11.36
10-dic	09h 29m 22.68s	+17° 49' 16.7"	1.6076763	0.8797357	7.32	119.0	10.6	-0.2	0.922	32.4	21.10	4.23	11.32
11-dic	09h 29m 55.54s	+17° 49' 14.5"	1.6086678	0.8724527	7.26	119.9	10.7	-0.3	0.924	32.0	21.07	4.20	11.29
12-dic	09h 30m 25.67s	+17° 49' 26.0"	1.6096524	0.8652281	7.20	120.8	10.8	-0.3	0.925	31.7	21.03	4.16	11.25
13-dic	09h 30m 53.03s	+17° 49' 51.6"	1.6106299	0.8580656	7.14	121.7	10.9	-0.3	0.927	31.3	21.00	4.13	11.22
14-dic	09h 31m 17.57s	+17° 50' 31.4"	1.6116003	0.8509687	7.08	122.7	11.0	-0.3	0.929	30.9	20.56	4.09	11.19
15-dic	09h 31m 39.25s	+17° 51' 25.7"	1.6125635	0.8439412	7.02	123.6	11.1	-0.4	0.931	30.6	20.52	4.06	11.15
16-dic	09h 31m 58.02s	+17° 52' 34.7"	1.6135196	0.8369868	6.96	124.5	11.2	-0.4	0.932	30.2	20.49	4.02	11.11
17-dic	09h 32m 13.83s	+17° 53' 58.5"	1.6144684	0.8301095	6.90	125.5	11.3	-0.4	0.934	29.7	20.45	3.58	11.08
18-dic	09h 32m 26.65s	+17° 55' 37.4"	1.6154098	0.8233130	6.85	126.5	11.4	-0.4	0.936	29.3	20.41	3.55	11.04
19-dic	09h 32m 36.44s	+17° 57' 31.3"	1.6163439	0.8166013	6.79	127.5	11.5	-0.5	0.938	28.9	20.37	3.51	11.01
20-dic	09h 32m 43.16s	+17° 59' 40.4"	1.6172706	0.8099782	6.74	128.5	11.6	-0.5	0.940	28.4	20.33	3.47	10.57
21-dic	09h 32m 46.77s	+18° 02' 04.8"	1.6181898	0.8034478	6.68	129.5	11.7	-0.5	0.942	28.0	20.29	3.43	10.53
22-dic	09h 32m 47.25s	+18° 04' 44.4"	1.6191015	0.7970138	6.63	130.5	11.7	-0.5	0.943	27.5	20.25	3.39	10.49
23-dic	09h 32m 44.56s	+18° 07' 39.4"	1.6200056	0.7906803	6.58	131.5	11.8	-0.5	0.945	27.0	20.20	3.35	10.46
24-dic	09h 32m 38.67s	+18° 10' 49.6"	1.6209020	0.7844513	6.52	132.6	11.9	-0.6	0.947	26.5	20.16	3.31	10.42
25-dic	09h 32m 29.57s	+18° 14' 15.0"	1.6217908	0.7783307	6.47	133.7	12.0	-0.6	0.949	26.0	20.12	3.27	10.38
26-dic	09h 32m 17.22s	+18° 17' 55.5"	1.6226719	0.7723225	6.42	134.7	12.1	-0.6	0.951	25.5	20.07	3.23	10.34
27-dic	09h 32m 01.62s	+18° 21' 51.1"	1.6235452	0.7664307	6.37	135.8	12.2	-0.6	0.953	25.0	20.03	3.19	10.30
28-dic	09h 31m 42.74s	+18° 26' 01.5"	1.6244107	0.7606592	6.33	136.9	12.3	-0.7	0.955	24.4	19.58	3.14	10.26
29-dic	09h 31m 20.57s	+18° 30' 26.6"	1.6252683	0.7550119	6.28	138.0	12.4	-0.7	0.957	23.9	19.54	3.10	10.22
30-dic	09h 30m 55.11s	+18° 35' 06.3"	1.6261180	0.7494929	6.23	139.2	12.5	-0.7	0.959	23.3	19.49	3.06	10.18
31-dic	09h 30m 26.33s	+18° 40' 00.3"	1.6269597	0.7441060	6.19	140.3	12.6	-0.7	0.961	22.7	19.44	3.01	10.14

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro in "

Mag. = magnitudine

Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

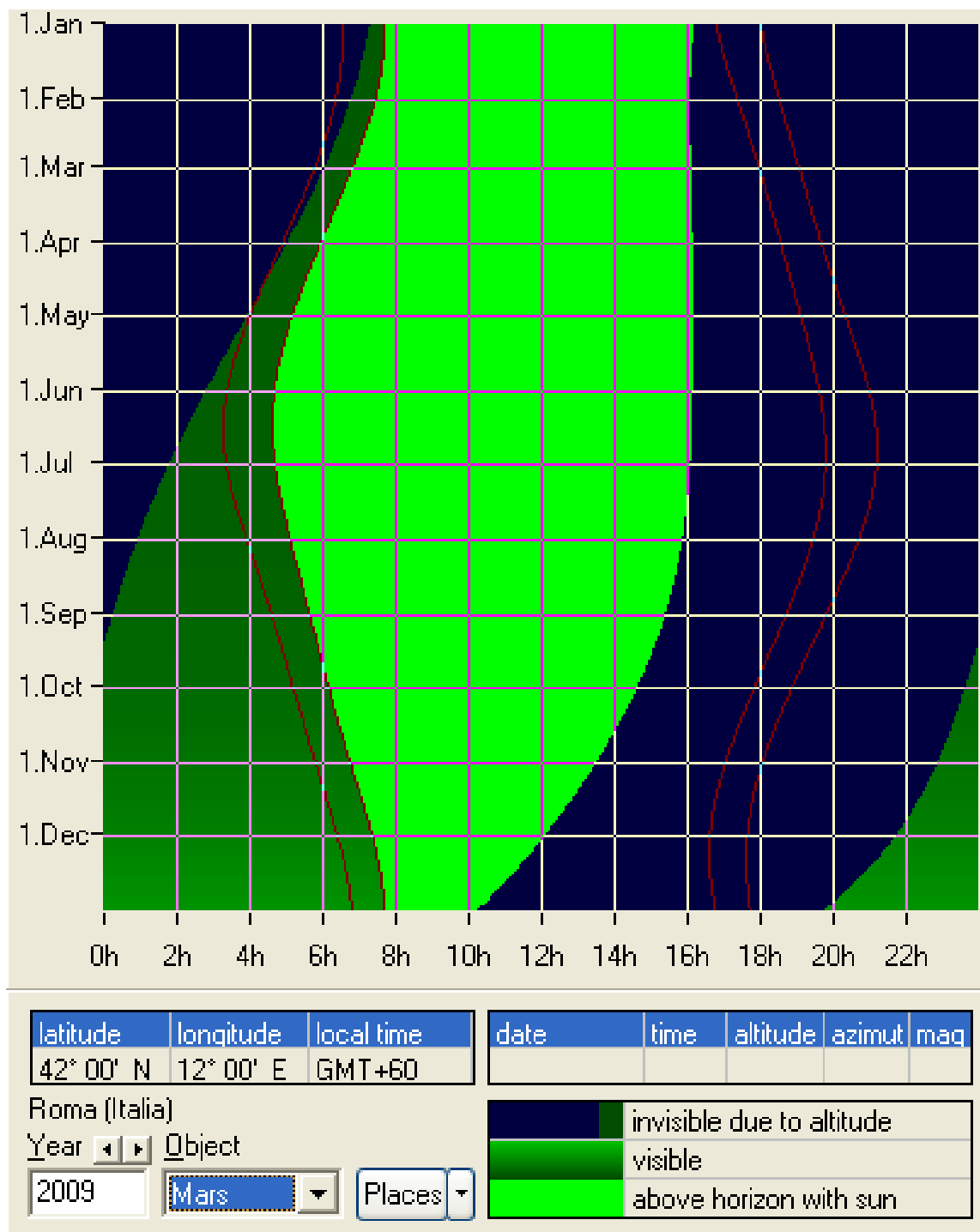
FENOMENI DI MARTE

Perielio	21/04/2009	09.46	1.38133 U.A.
Afelio	Quest'anno il fenomeno non avviene		
Perigeo	Quest'anno il fenomeno non avviene		
Apogeo	Quest'anno il fenomeno non avviene		
Magnitudine massima	Quest'anno il fenomeno non avviene		
Magnitudine minima	Quest'anno il fenomeno non avviene		
Opposizione	Quest'anno il fenomeno non avviene		
Congiunzione	Quest'anno il fenomeno non avviene		
Moto retrogrado	21/12/2009	15.38	
Moto diretto	Quest'anno il fenomeno non avviene		
Massimo angolo di fase	14/10/2009	19.50	39.9 °
Minimo angolo di fase	Quest'anno il fenomeno non avviene		
Estrema lat. della Terra	13/04/2009	19.18	-25.55 °
Estrema lat. della Terra	08/12/2009	16.44	19.15 °
Lat. della Terra zero	14/08/2009	15.41	
Estrema lat. del Sole	21/05/2009	09.37	-25.19 °
Lat. del Sole zero	26/10/2009	15.04	

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VISIBILITA' DI MARTE



Visibilità di Marte nel corso dell'anno

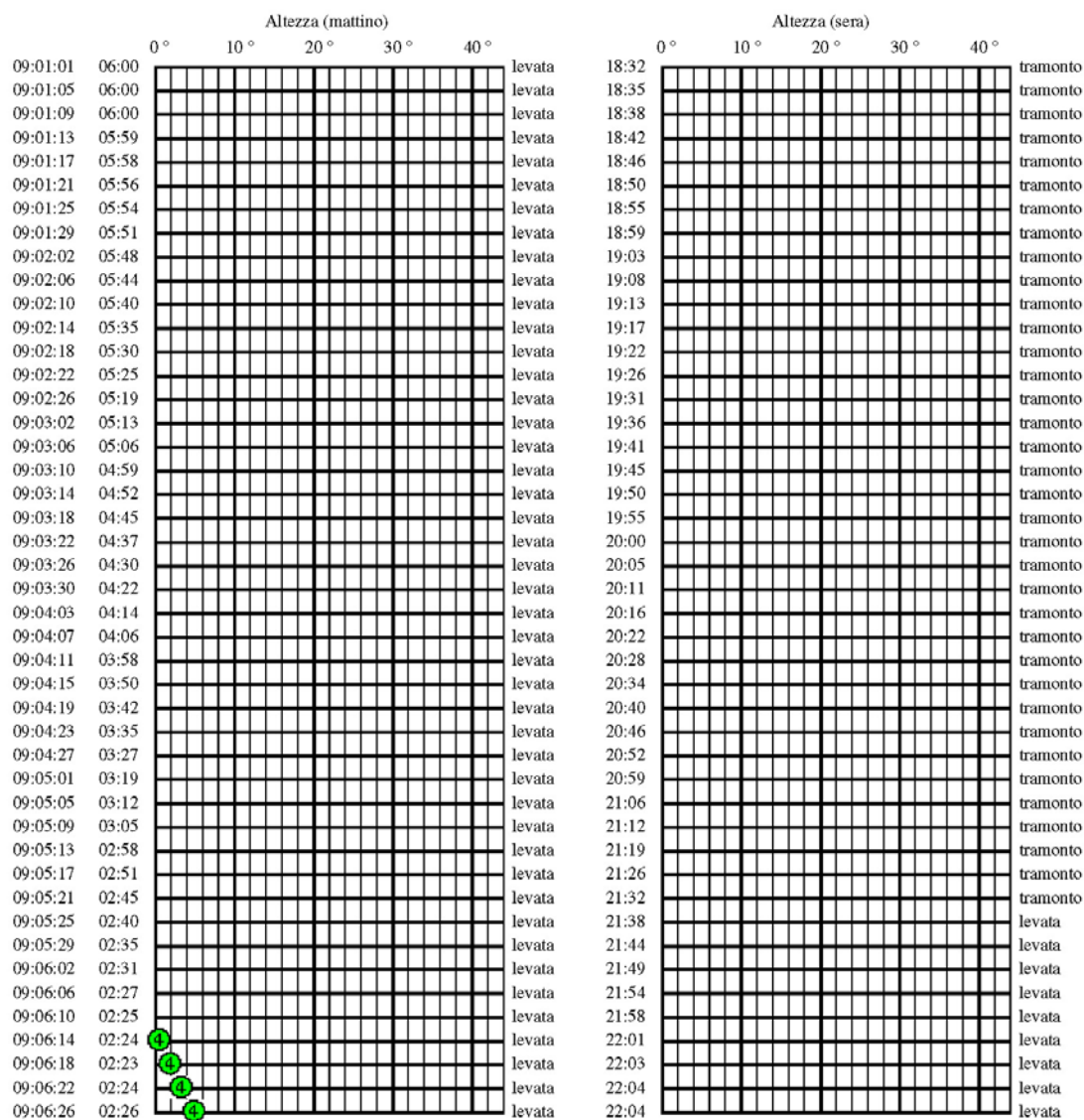
Le righe rosse più esterne indicano in quali periodi dell'anno il pianeta è sufficientemente distante dal Sole per poter essere osservato agevolmente. Le date esatte sono riportate nelle tabelle seguenti.

Altezza ai crepuscoli

di Marte

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

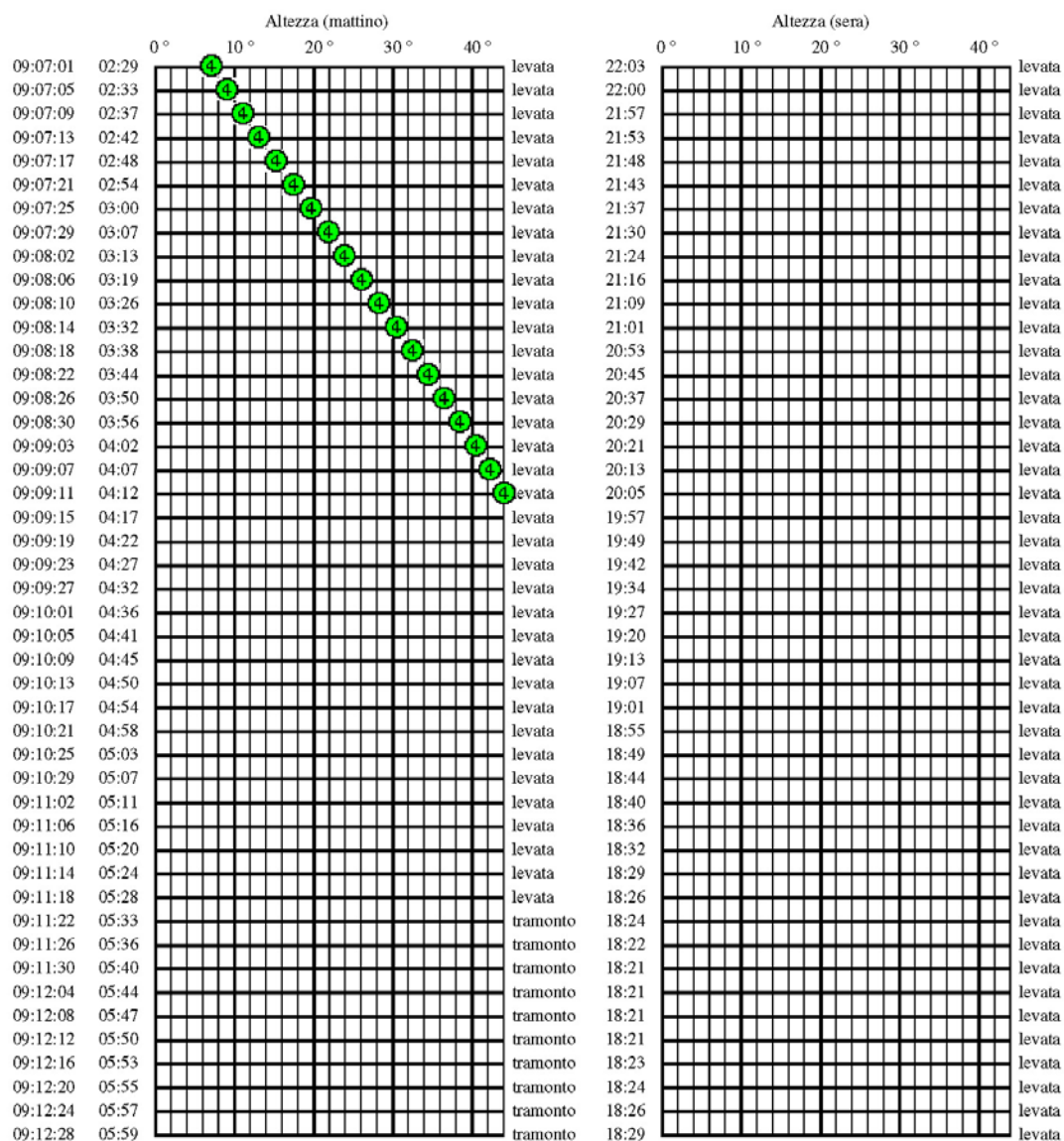


Altezza ai crepuscoli

di Marte

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)



Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	-13.2	110.7	7.3	18:32	-24.4	258.8	7.4
2009:01:05	06:00	-12.6	111.1	8.3	18:35	-25.4	259.8	8.5
2009:01:09	06:00	-12.1	111.3	9.4	18:38	-26.4	260.8	9.5
2009:01:13	05:59	-11.6	111.5	10.4	18:42	-27.5	262.0	10.5
2009:01:17	05:58	-11.2	111.4	11.4	18:46	-28.5	263.3	11.6
2009:01:21	05:56	-10.8	111.3	12.4	18:50	-29.5	264.7	12.6
2009:01:25	05:54	-10.4	111.0	13.4	18:55	-30.5	266.2	13.6
2009:01:29	05:51	-10.1	110.6	14.4	18:59	-31.5	267.8	14.6
2009:02:02	05:48	-9.9	110.1	15.4	19:03	-32.5	269.5	15.5
2009:02:06	05:44	-9.6	109.4	16.4	19:08	-33.5	271.4	16.5
2009:02:10	05:40	-9.4	108.7	17.3	19:13	-34.4	273.3	17.4
2009:02:14	05:35	-9.2	107.9	18.3	19:17	-35.4	275.4	18.4
2009:02:18	05:30	-9.1	106.9	19.2	19:22	-36.3	277.6	19.3
2009:02:22	05:25	-8.9	105.9	20.1	19:26	-37.2	279.9	20.2
2009:02:26	05:19	-8.8	104.8	21.0	19:31	-38.0	282.3	21.1
2009:03:02	05:13	-8.7	103.6	21.9	19:36	-38.8	284.8	22.0
2009:03:06	05:06	-8.6	102.4	22.8	19:41	-39.6	287.5	22.9
2009:03:10	04:59	-8.5	101.1	23.6	19:45	-40.4	290.3	23.8
2009:03:14	04:52	-8.4	99.7	24.5	19:50	-41.1	293.3	24.6
2009:03:18	04:45	-8.3	98.3	25.3	19:55	-41.8	296.4	25.5
2009:03:22	04:37	-8.2	96.9	26.2	20:00	-42.4	299.6	26.3
2009:03:26	04:30	-8.1	95.4	27.0	20:05	-43.0	303.0	27.1
2009:03:30	04:22	-8.0	93.9	27.8	20:11	-43.5	306.5	28.0
2009:04:03	04:14	-7.9	92.3	28.7	20:16	-43.9	310.1	28.8
2009:04:07	04:06	-7.8	90.8	29.5	20:22	-44.3	313.9	29.6
2009:04:11	03:58	-7.7	89.3	30.3	20:28	-44.5	317.8	30.4
2009:04:15	03:50	-7.6	87.7	31.1	20:34	-44.7	321.8	31.2
2009:04:19	03:42	-7.4	86.2	31.9	20:40	-44.7	325.9	32.0
2009:04:23	03:35	-7.2	84.7	32.7	20:46	-44.6	330.0	32.8
2009:04:27	03:27	-7.0	83.2	33.5	20:52	-44.4	334.2	33.6
2009:05:01	03:19	-6.8	81.7	34.3	20:59	-44.0	338.4	34.4
2009:05:05	03:12	-6.5	80.3	35.1	21:06	-43.5	342.5	35.2
2009:05:09	03:05	-6.1	78.9	35.9	21:12	-42.9	346.6	36.0
2009:05:13	02:58	-5.8	77.7	36.7	21:19	-42.1	350.6	36.8
2009:05:17	02:51	-5.3	76.5	37.5	21:26	-41.2	354.4	37.7
2009:05:21	02:45	-4.8	75.3	38.3	21:32	-40.2	358.0	38.5
2009:05:25	02:40	-4.2	74.3	39.1	21:38	-39.1	1.4	39.3
2009:05:29	02:35	-3.5	73.5	40.0	21:44	-37.9	4.6	40.1
2009:06:02	02:31	-2.7	72.7	40.8	21:49	-36.6	7.5	41.0
2009:06:06	02:27	-1.8	72.2	41.6	21:54	-35.3	10.0	41.8
2009:06:10	02:25	-0.7	71.8	42.5	21:58	-34.0	12.3	42.7
2009:06:14	02:24	0.5	71.5	43.4	22:01	-32.7	14.2	43.6
2009:06:18	02:23	1.8	71.5	44.3	22:03	-31.5	15.8	44.4
2009:06:22	02:24	3.3	71.7	45.2	22:04	-30.4	17.0	45.3
2009:06:26	02:26	4.9	72.0	46.1	22:04	-29.3	17.9	46.3
2009:06:30	02:28	6.7	72.5	47.0	22:03	-28.3	18.5	47.2

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	7.1	72.6	47.2	22:03	-28.1	18.6	47.4
2009:07:05	02:33	9.0	73.3	48.2	22:00	-27.3	18.9	48.4
2009:07:09	02:37	11.0	74.1	49.2	21:57	-26.6	18.9	49.4
2009:07:13	02:42	13.1	75.1	50.2	21:53	-25.9	18.8	50.4
2009:07:17	02:48	15.2	76.1	51.2	21:48	-25.4	18.4	51.4
2009:07:21	02:54	17.4	77.2	52.2	21:43	-24.9	18.0	52.4
2009:07:25	03:00	19.6	78.4	53.3	21:37	-24.6	17.4	53.5
2009:07:29	03:07	21.8	79.7	54.3	21:30	-24.3	16.7	54.6
2009:08:02	03:13	24.0	81.0	55.5	21:24	-24.1	15.9	55.7
2009:08:06	03:19	26.2	82.3	56.6	21:16	-23.9	15.1	56.8
2009:08:10	03:26	28.3	83.7	57.8	21:09	-23.8	14.2	58.0
2009:08:14	03:32	30.4	85.2	59.0	21:01	-23.7	13.4	59.2
2009:08:18	03:38	32.5	86.7	60.2	20:53	-23.7	12.5	60.4
2009:08:22	03:44	34.5	88.3	61.5	20:45	-23.7	11.6	61.7
2009:08:26	03:50	36.5	89.9	62.8	20:37	-23.7	10.7	63.0
2009:08:30	03:56	38.5	91.6	64.1	20:29	-23.8	9.9	64.3
2009:09:03	04:02	40.4	93.5	65.5	20:21	-23.9	9.1	65.7
2009:09:07	04:07	42.3	95.4	66.9	20:13	-24.1	8.4	67.1
2009:09:11	04:12	44.2	97.4	68.3	20:05	-24.2	7.7	68.6
2009:09:15	04:17	46.0	99.6	69.8	19:57	-24.4	7.1	70.1
2009:09:19	04:22	47.8	101.9	71.4	19:49	-24.6	6.5	71.6
2009:09:23	04:27	49.6	104.4	73.0	19:42	-24.9	6.1	73.2
2009:09:27	04:32	51.3	107.1	74.6	19:34	-25.1	5.7	74.9
2009:10:01	04:36	53.1	110.1	76.3	19:27	-25.4	5.4	76.6
2009:10:05	04:41	54.8	113.3	78.0	19:20	-25.7	5.3	78.3
2009:10:09	04:45	56.4	116.8	79.9	19:13	-26.0	5.3	80.1
2009:10:13	04:50	58.0	120.7	81.7	19:07	-26.3	5.4	82.0
2009:10:17	04:54	59.6	125.0	83.7	19:01	-26.6	5.7	83.9
2009:10:21	04:58	61.1	129.7	85.7	18:55	-27.0	6.2	86.0
2009:10:25	05:03	62.5	135.0	87.7	18:49	-27.2	6.9	88.1
2009:10:29	05:07	63.7	140.9	89.9	18:44	-27.5	7.7	90.2
2009:11:02	05:11	64.8	147.4	92.2	18:40	-27.7	8.8	92.5
2009:11:06	05:16	65.7	154.5	94.5	18:36	-27.9	10.1	94.8
2009:11:10	05:20	66.3	162.2	96.9	18:32	-28.0	11.6	97.3
2009:11:14	05:24	66.6	170.4	99.5	18:29	-28.1	13.3	99.8
2009:11:18	05:28	66.6	178.9	102.1	18:26	-28.0	15.4	102.5
2009:11:22	05:33	66.2	187.6	104.9	18:24	-27.8	17.6	105.3
2009:11:26	05:36	65.4	196.1	107.8	18:22	-27.4	20.2	108.2
2009:11:30	05:40	64.3	204.3	110.9	18:21	-26.8	22.9	111.3
2009:12:04	05:44	62.8	212.0	114.1	18:21	-26.0	25.9	114.5
2009:12:08	05:47	61.0	219.2	117.5	18:21	-25.0	29.1	117.9
2009:12:12	05:50	58.9	225.9	121.0	18:21	-23.6	32.6	121.5
2009:12:16	05:53	56.6	232.1	124.7	18:23	-21.9	36.1	125.2
2009:12:20	05:55	54.0	237.8	128.7	18:24	-19.9	39.8	129.2
2009:12:24	05:57	51.3	243.2	132.8	18:26	-17.5	43.6	133.4
2009:12:28	05:59	48.4	248.1	137.2	18:29	-14.7	47.4	137.7

Date eliache per Marte
 Posizione : Roma
 Latitudine : 42° 00' 00'' N
 Longitudine : 12° 00' 00'' E
 Visibilità minima [°] = 10.5 + 1.4 * magnitudine
 Altezza critica : 0.00°

	data	ogg s/t	Sole s/t	d s/t	età	mag
inizio visibilità mattutina	2009-04-22	04:10	05:18	-1:08h	137d 05h	1.4

Legenda:

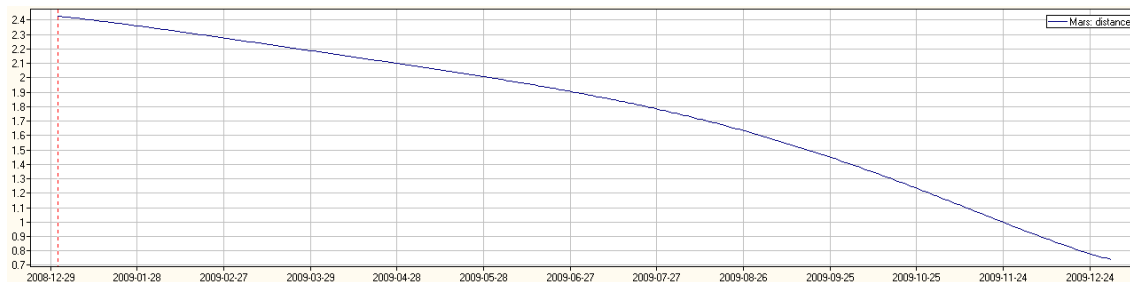
Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due oggetti
 Età : giorni trascorsi dalla congiunzione col Sole
 Mag : magnitudine

	data	ogg s/t	Sole s/t	Sole alt	Sole lon	ogg lon	ogg lat	mag	d az	d lon
IM	04-22	04:10	05:18	-12° 30'	32° 08'	359° 40'	-1° 09'	1.4	30° 27'	-32° 28'

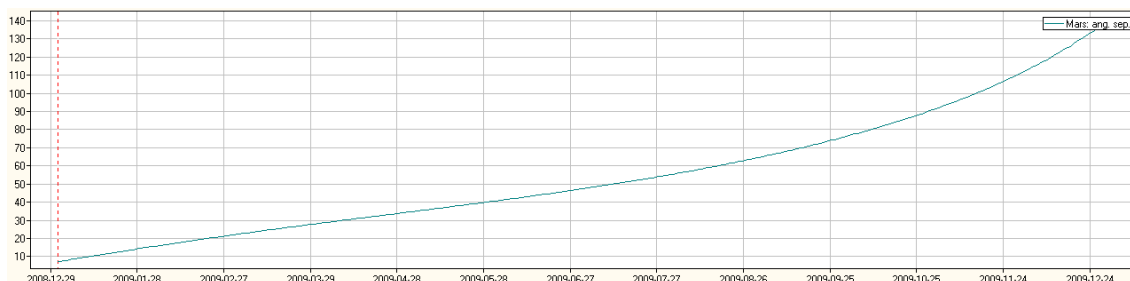
Legenda:

Data : data nel formato mese/giorno
 Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 Sole alt : altezza del Sole nell'istante di visibilità del pianeta
 Sole lon : longitudine celeste del Sole
 Ogg lon : longitudine celeste del pianeta
 Ogg lat : latitudine celeste del pianeta
 Mag : magnitudine
 D az : differenza in azimut tra i centri del Sole e del pianeta nell'istante della sua visibilità
 D lon : differenza in longitudine tra i centri del Sole e del pianeta nell'istante della sua visibilità

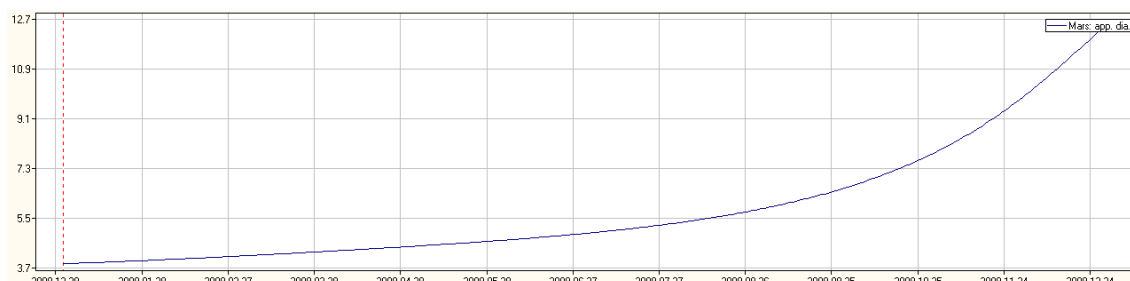
© (3)



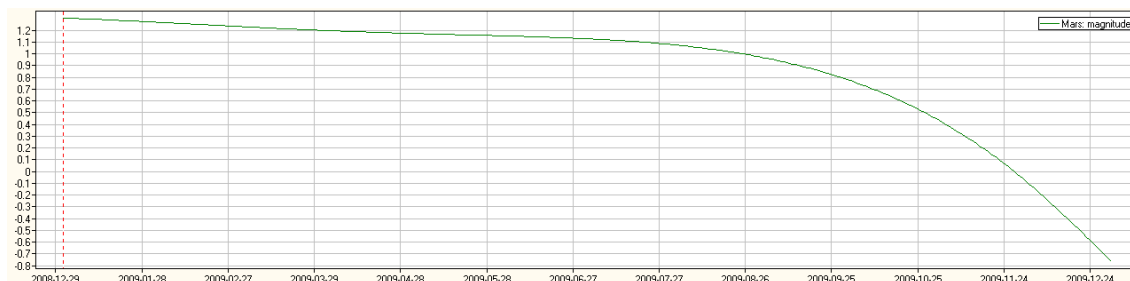
Distanza di Marte in U.A. nel corso dell'anno



Elongazione di Marte in ° nel corso dell'anno



Diametro di Marte in " nel corso dell'anno



Magnitudine di Marte nel corso dell'anno



Fase di Marte nel corso dell'anno

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MERIDIANO CENTRALE DI MARTE – TRANSITI

01/01/2009	03.38.3	02/04/2009	15.53.2	03/07/2009	04.14.7	02/10/2009	15.19.7
02/01/2009	04.18.5	03/04/2009	16.34.1	04/07/2009	04.55.0	03/10/2009	15.59.2
03/01/2009	04.58.8	04/04/2009	17.15.1	05/07/2009	05.35.1	04/10/2009	16.38.7
04/01/2009	05.38.9	05/04/2009	17.56.0	06/07/2009	06.15.3	05/10/2009	17.18.2
05/01/2009	06.19.2	06/04/2009	18.37.1	07/07/2009	06.55.4	06/10/2009	17.57.7
06/01/2009	06.59.4	07/04/2009	19.18.2	08/07/2009	07.35.6	07/10/2009	18.37.2
07/01/2009	07.39.7	08/04/2009	19.59.1	09/07/2009	08.15.6	08/10/2009	19.16.7
08/01/2009	08.19.9	09/04/2009	20.40.1	10/07/2009	08.55.8	09/10/2009	19.56.1
09/01/2009	09.00.3	10/04/2009	21.21.0	11/07/2009	09.35.8	10/10/2009	20.35.6
10/01/2009	09.40.6	11/04/2009	22.02.1	12/07/2009	10.16.0	11/10/2009	21.15.0
11/01/2009	10.20.8	12/04/2009	22.43.0	13/07/2009	10.56.2	12/10/2009	21.54.5
12/01/2009	11.01.2	13/04/2009	23.24.1	14/07/2009	11.36.2	13/10/2009	22.33.9
13/01/2009	11.41.4	15/04/2009	00.05.1	15/07/2009	12.16.3	14/10/2009	23.13.3
14/01/2009	12.21.8	16/04/2009	00.46.0	16/07/2009	12.56.3	15/10/2009	23.52.7
15/01/2009	13.02.0	17/04/2009	01.27.1	17/07/2009	13.36.4	17/10/2009	00.32.1
16/01/2009	13.42.4	18/04/2009	02.08.0	18/07/2009	14.16.4	18/10/2009	01.11.4
17/01/2009	14.22.6	19/04/2009	02.49.0	19/07/2009	14.56.5	19/10/2009	01.50.8
18/01/2009	15.03.0	20/04/2009	03.29.9	20/07/2009	15.36.5	20/10/2009	02.30.2
19/01/2009	15.43.4	21/04/2009	04.11.0	21/07/2009	16.16.5	21/10/2009	03.09.5
20/01/2009	16.23.7	22/04/2009	04.52.0	22/07/2009	16.56.6	22/10/2009	03.48.9
21/01/2009	17.04.1	23/04/2009	05.32.9	23/07/2009	17.36.5	23/10/2009	04.28.1
22/01/2009	17.44.4	24/04/2009	06.13.9	24/07/2009	18.16.5	24/10/2009	05.07.5
23/01/2009	18.24.9	25/04/2009	06.54.8	25/07/2009	18.56.4	25/10/2009	05.46.7
24/01/2009	19.05.2	26/04/2009	07.35.8	26/07/2009	19.36.5	26/10/2009	06.26.0
25/01/2009	19.45.7	27/04/2009	08.16.6	27/07/2009	20.16.4	27/10/2009	07.05.2
26/01/2009	20.26.1	28/04/2009	08.57.6	28/07/2009	20.56.4	28/10/2009	07.44.4
27/01/2009	21.06.5	29/04/2009	09.38.6	29/07/2009	21.36.4	29/10/2009	08.23.6
28/01/2009	21.47.0	30/04/2009	10.19.5	30/07/2009	22.16.2	30/10/2009	09.02.8
29/01/2009	22.27.3	01/05/2009	11.00.4	31/07/2009	22.56.2	31/10/2009	09.42.0
30/01/2009	23.07.8	02/05/2009	11.41.2	01/08/2009	23.36.1	01/11/2009	10.21.1
31/01/2009	23.48.2	03/05/2009	12.22.2	03/08/2009	00.16.1	02/11/2009	11.00.3
02/02/2009	00.28.7	04/05/2009	13.03.0	04/08/2009	00.55.9	03/11/2009	11.39.4
03/02/2009	01.09.1	05/05/2009	13.44.0	05/08/2009	01.35.9	04/11/2009	12.18.5
04/02/2009	01.49.7	06/05/2009	14.24.9	06/08/2009	02.15.7	05/11/2009	12.57.5
05/02/2009	02.30.2	07/05/2009	15.05.7	07/08/2009	02.55.6	06/11/2009	13.36.6
06/02/2009	03.10.7	08/05/2009	15.46.6	08/08/2009	03.35.4	07/11/2009	14.15.6
07/02/2009	03.51.2	09/05/2009	16.27.3	09/08/2009	04.15.4	08/11/2009	14.54.7
08/02/2009	04.31.7	10/05/2009	17.08.2	10/08/2009	04.55.3	09/11/2009	15.33.6
09/02/2009	05.12.3	11/05/2009	17.49.0	11/08/2009	05.35.1	10/11/2009	16.12.6
10/02/2009	05.52.8	12/05/2009	18.29.8	12/08/2009	06.15.0	11/11/2009	16.51.6
11/02/2009	06.33.4	13/05/2009	19.10.6	13/08/2009	06.54.8	12/11/2009	17.30.5
12/02/2009	07.14.0	14/05/2009	19.51.4	14/08/2009	07.34.7	13/11/2009	18.09.4
13/02/2009	07.54.5	15/05/2009	20.32.3	15/08/2009	08.14.4	14/11/2009	18.48.2
14/02/2009	08.35.2	16/05/2009	21.12.9	16/08/2009	08.54.3	15/11/2009	19.27.1
15/02/2009	09.15.7	17/05/2009	21.53.8	17/08/2009	09.34.1	16/11/2009	20.05.8
16/02/2009	09.56.4	18/05/2009	22.34.4	18/08/2009	10.13.9	17/11/2009	20.44.6
17/02/2009	10.36.9	19/05/2009	23.15.2	19/08/2009	10.53.8	18/11/2009	21.23.3
18/02/2009	11.17.6	20/05/2009	23.55.8	20/08/2009	11.33.5	19/11/2009	22.02.1
19/02/2009	11.58.2	22/05/2009	00.36.6	21/08/2009	12.13.4	20/11/2009	22.40.7
20/02/2009	12.38.9	23/05/2009	01.17.4	22/08/2009	12.53.1	21/11/2009	23.19.4
21/02/2009	13.19.7	24/05/2009	01.58.0	23/08/2009	13.33.0	22/11/2009	23.58.0
22/02/2009	14.00.2	25/05/2009	02.38.7	24/08/2009	14.12.7	24/11/2009	00.36.6
23/02/2009	14.41.0	26/05/2009	03.19.3	25/08/2009	14.52.5	25/11/2009	01.15.2
24/02/2009	15.21.6	27/05/2009	04.00.0	26/08/2009	15.32.2	26/11/2009	01.53.7
25/02/2009	16.02.4	28/05/2009	04.40.6	27/08/2009	16.12.0	27/11/2009	02.32.2
26/02/2009	16.43.0	29/05/2009	05.21.2	28/08/2009	16.51.8	28/11/2009	03.10.6
27/02/2009	17.23.9	30/05/2009	06.01.9	29/08/2009	17.31.5	29/11/2009	03.49.0
28/02/2009	18.04.7	31/05/2009	06.42.4	30/08/2009	18.11.3	30/11/2009	04.27.3
01/03/2009	18.45.3	01/06/2009	07.23.1	31/08/2009	18.51.0	01/12/2009	05.05.7
02/03/2009	19.26.2	02/06/2009	08.03.6	01/09/2009	19.30.7	02/12/2009	05.43.9
03/03/2009	20.06.9	03/06/2009	08.44.2	02/09/2009	20.10.4	03/12/2009	06.22.2
04/03/2009	20.47.7	04/06/2009	09.24.6	03/09/2009	20.50.2	04/12/2009	07.00.4
05/03/2009	21.28.4	05/06/2009	10.05.2	04/09/2009	21.29.8	05/12/2009	07.38.6
06/03/2009	22.09.3	06/06/2009	10.45.7	05/09/2009	22.09.6	06/12/2009	08.16.6
07/03/2009	22.50.2	07/06/2009	11.26.2	06/09/2009	22.49.3	07/12/2009	08.54.7
08/03/2009	23.30.9	08/06/2009	12.06.8	07/09/2009	23.29.0	08/12/2009	09.32.7
09/03/2009	00.11.8	09/06/2009	12.47.2	09/09/2009	00.08.7	09/12/2009	10.10.7
10/03/2009	00.52.6	10/06/2009	13.27.7	10/09/2009	00.48.3	10/12/2009	10.48.7
11/03/2009	01.33.5	11/06/2009	14.08.1	11/09/2009	01.28.0	11/12/2009	11.26.5
12/03/2009	02.14.3	12/06/2009	14.48.6	12/09/2009	02.07.7	12/12/2009	12.04.3
13/03/2009	02.55.2	13/06/2009	15.28.9	13/09/2009	02.47.4	13/12/2009	12.42.1
14/03/2009	03.36.2	14/06/2009	16.09.4	14/09/2009	03.27.0	14/12/2009	13.19.8
15/03/2009	04.17.0	15/06/2009	16.49.9	15/09/2009	04.06.7	15/12/2009	13.57.5
16/03/2009	04.58.0	16/06/2009	17.30.2	16/09/2009	04.46.3	16/12/2009	14.35.1
17/03/2009	05.38.8	17/06/2009	18.10.6	17/09/2009	05.26.0	17/12/2009	15.12.7
18/03/2009	06.19.8	18/06/2009	18.50.9	18/09/2009	06.05.6	18/12/2009	15.50.2
19/03/2009	07.00.6	19/06/2009	19.31.3	19/09/2009	06.45.2	19/12/2009	16.27.6
20/03/2009	07.41.6	20/06/2009	20.11.6	20/09/2009	07.24.9	20/12/2009	17.05.0
21/03/2009	08.22.4	21/06/2009	20.52.0	21/09/2009	08.04.4	21/12/2009	17.42.4
22/03/2009	09.03.4	22/06/2009	21.32.2	22/09/2009	08.44.1	22/12/2009	18.19.6
23/03/2009	09.44.5	23/06/2009	22.12.5	23/09/2009	09.23.6	23/12/2009	18.56.9
24/03/2009	10.25.3	24/06/2009	22.52.9	24/09/2009	10.03.3	24/12/2009	19.34.0
25/03/2009	11.06.3	25/06/2009	23.33.1	25/09/2009	10.42.8	25/12/2009	20.11.1
26/03/2009	11.47.2	26/06/2009	00.13.4	26/09/2009	11.22.4	26/12/2009	20.48.2
27/03/2009	12.28.3	27/06/2009	00.53.6	27/09/2009	12.02.0	27/12/2009	21.25.2
28/03/2009	13.09.1	28/06/2009	01.33.9	28/09/2009	12.41.5	28/12/2009	22.02.1
29/03/2009	13.50.2	29/06/2009	02.14.1	29/09/2009	13.21.1	29/12/2009	22.39.0
30/03/2009	14.31.2	30/06/2009	02.54.3	30/09/2009	14.00.6	30/12/2009	23.15.8
01/04/2009	15.12.1	02/07/2009	03.34.5	01/10/2009	14.40.2	31/12/2009	23.52.5

Orari in T.U. (hh.mm,m) in cui transita la Syrtis major

MERIDIANO CENTRALE DI MARTE

Data	Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
	o	o	o	o	o	o	o	o	o	o	o	o
01	238.8	294.7	018.3	070.1	131.3	184.2	249.5	307.4	007.1	077.7	140.7	217.5
02	229.0	284.9	008.4	060.2	121.4	174.3	239.7	297.7	357.4	068.1	131.2	208.1
03	219.2	275.1	358.5	050.2	111.5	164.4	229.9	288.0	347.7	058.5	121.7	198.8
04	209.4	265.2	348.5	040.3	101.5	154.6	220.2	278.3	338.1	048.9	112.1	189.5
05	199.7	255.4	338.6	030.3	091.6	144.7	210.4	268.6	328.4	039.3	102.6	180.2
06	189.9	245.5	328.7	020.3	081.6	134.9	200.6	258.9	318.7	029.6	093.1	170.9
07	180.1	235.7	318.8	010.4	071.7	125.0	190.8	249.2	309.1	020.0	083.6	161.7
08	170.3	225.8	308.9	000.4	061.8	115.2	181.1	239.5	299.4	010.4	074.1	152.4
09	160.5	215.9	298.9	350.4	051.8	105.3	171.3	229.8	289.8	000.8	064.6	143.1
10	150.7	206.1	289.0	340.5	041.9	095.5	161.6	220.1	280.1	351.2	055.1	133.9
11	140.9	196.2	279.1	330.5	032.0	085.6	151.8	210.4	270.5	341.6	045.7	124.7
12	131.1	186.4	269.1	320.5	022.1	075.8	142.0	200.7	260.8	332.0	036.2	115.4
13	121.3	176.5	259.2	310.6	012.1	066.0	132.3	191.0	251.2	322.4	026.7	106.2
14	111.5	166.6	249.3	300.6	002.2	056.1	122.5	181.3	241.5	312.8	017.2	097.0
15	101.7	156.8	239.3	290.6	352.3	046.3	112.8	171.6	231.9	303.2	007.8	087.9
16	091.9	146.9	229.4	280.7	342.4	036.5	103.1	161.9	222.2	293.7	358.3	078.7
17	082.1	137.0	219.5	270.7	332.5	026.7	093.3	152.2	212.6	284.1	348.9	069.5
18	072.3	127.1	209.5	260.8	322.6	016.9	083.6	142.5	202.9	274.5	339.5	060.4
19	062.5	117.2	199.6	250.8	312.7	007.0	073.8	132.8	193.3	264.9	330.0	051.2
20	052.6	107.4	189.6	240.8	302.8	357.2	064.1	123.2	183.7	255.3	320.6	042.1
21	042.8	097.5	179.7	230.9	292.9	347.4	054.4	113.5	174.0	245.8	311.2	033.0
22	033.0	087.6	169.7	220.9	283.0	337.6	044.6	103.8	164.4	236.2	301.8	023.9
23	023.2	077.7	159.8	211.0	273.1	327.8	034.9	094.1	154.7	226.6	292.4	014.8
24	013.4	067.8	149.8	201.0	263.2	318.0	025.2	084.4	145.1	217.1	283.0	005.8
25	003.6	057.9	139.9	191.0	253.3	308.2	015.4	074.8	135.5	207.5	273.6	356.7
26	353.7	048.0	129.9	181.1	243.4	298.4	005.7	065.1	125.8	198.0	264.2	347.7
27	343.9	038.1	119.9	171.1	233.5	288.6	356.0	055.4	116.2	188.4	254.8	338.7
28	334.1	028.2	110.0	161.2	223.6	278.8	346.3	045.7	106.6	178.9	245.5	329.6
29	324.2		100.0	151.2	213.8	269.0	336.5	036.1	097.0	169.3	236.1	320.6
30	314.4		090.1	141.3	203.9	259.3	326.8	026.4	087.3	159.8	226.8	311.7
31	304.6		080.1		194.0		317.1	016.7		150.2		302.7

Moto del meridiano centrale

	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h
m	o	o	o	o	o	o	o	o	o	o	o	o
0	0.0	14.6	29.2	43.9	58.5	73.1	87.7	102.3	117.0	131.6	146.2	160.8
10	2.4	17.1	31.7	46.3	60.9	75.5	90.2	104.8	119.4	134.0	148.6	163.3
20	4.9	19.5	34.1	48.7	63.4	78.0	92.6	107.2	121.8	136.5	151.1	165.7
30	7.3	21.9	36.6	51.2	65.8	80.4	95.0	109.7	124.3	138.9	153.5	168.1
40	9.7	24.4	39.0	53.6	68.2	82.8	97.5	112.1	126.7	141.3	156.0	170.6
50	12.2	26.8	41.4	56.0	70.7	85.3	99.9	114.5	129.1	143.8	158.4	173.0
60	14.6	29.2	43.9	58.5	73.1	87.7	102.3	117.0	131.6	146.2	160.8	175.4

Longitudine del meridiano che transita alle ore 0 T.U. del giorno indicato e moto medio in gradi

EFFEMERIDI DI GIOVE

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Angolo fase°	Sorge	Transita	Tramonta
1-gen	20h 04m 35.81s	-20° 46' 34.4"	5.114175	6.0388651	50.22	18.2	32.6	30.5	-1.9	3.4	8.46	13.29	18.13
2-gen	20h 05m 33.73s	-20° 43' 47.3"	5.113823	6.0434054	50.26	17.4	32.6	30.5	-1.9	3.3	8.43	13.26	18.10
3-gen	20h 06m 31.74s	-20° 40' 58.8"	5.113471	6.0477393	50.30	16.7	32.6	30.4	-1.9	3.2	8.40	13.23	18.07
4-gen	20h 07m 29.84s	-20° 38' 08.7"	5.113119	6.0518661	50.33	15.9	32.5	30.4	-1.9	3.0	8.37	13.21	18.05
5-gen	20h 08m 28.02s	-20° 35' 17.1"	5.112768	6.0557855	50.36	15.1	32.5	30.4	-1.9	2.9	8.33	13.18	18.02
6-gen	20h 09m 26.28s	-20° 32' 23.9"	5.112417	6.0594972	50.40	14.3	32.5	30.4	-1.9	2.7	8.30	13.15	17.59
7-gen	20h 10m 24.61s	-20° 29' 29.3"	5.112066	6.0630009	50.42	13.5	32.5	30.4	-1.9	2.6	8.27	13.12	17.56
8-gen	20h 11m 23.01s	-20° 26' 33.2"	5.111715	6.0662965	50.45	12.7	32.5	30.4	-1.9	2.4	8.24	13.09	17.54
9-gen	20h 12m 21.48s	-20° 23' 35.7"	5.111364	6.0693837	50.48	11.9	32.4	30.3	-1.9	2.3	8.21	13.06	17.51
10-gen	20h 13m 19.99s	-20° 20' 36.8"	5.111013	6.0722626	50.50	11.2	32.4	30.3	-1.9	2.1	8.18	13.03	17.48
11-gen	20h 14m 18.55s	-20° 17' 36.5"	5.110663	6.0749329	50.52	10.4	32.4	30.3	-1.9	2.0	8.14	13.00	17.45
12-gen	20h 15m 17.15s	-20° 14' 34.9"	5.110313	6.0773943	50.54	9.6	32.4	30.3	-1.9	1.8	8.11	12.57	17.43
13-gen	20h 16m 15.78s	-20° 11' 31.9"	5.109963	6.0796464	50.56	8.8	32.4	30.3	-1.9	1.7	8.08	12.54	17.40
14-gen	20h 17m 14.44s	-20° 08' 27.5"	5.109613	6.0816889	50.58	8.0	32.4	30.3	-1.9	1.5	8.05	12.51	17.37
15-gen	20h 18m 13.12s	-20° 05' 21.8"	5.109263	6.0835211	50.60	7.2	32.4	30.3	-1.9	1.4	8.02	12.48	17.34
16-gen	20h 19m 11.82s	-20° 02' 14.7"	5.108914	6.0851424	50.61	6.5	32.4	30.3	-1.9	1.2	7.58	12.45	17.32
17-gen	20h 20m 10.54s	-19° 59' 06.3"	5.108564	6.0865524	50.62	5.7	32.4	30.3	-1.9	1.1	7.55	12.42	17.29
18-gen	20h 21m 09.27s	-19° 55' 56.5"	5.108215	6.0877503	50.63	4.9	32.3	30.2	-1.9	0.9	7.52	12.39	17.26
19-gen	20h 22m 08.00s	-19° 52' 45.5"	5.107866	6.0887359	50.64	4.1	32.3	30.2	-1.9	0.8	7.49	12.36	17.23
20-gen	20h 23m 06.74s	-19° 49' 33.2"	5.107517	6.0895085	50.65	3.3	32.3	30.2	-1.9	0.6	7.46	12.33	17.21
21-gen	20h 24m 05.48s	-19° 46' 19.6"	5.107169	6.0900678	50.65	2.6	32.3	30.2	-1.9	0.5	7.43	12.30	17.18
22-gen	20h 25m 04.21s	-19° 43' 04.9"	5.106821	6.0904134	50.65	1.8	32.3	30.2	-1.9	0.3	7.39	12.27	17.15
23-gen	20h 26m 02.93s	-19° 39' 49.0"	5.106472	6.0905453	50.65	1.0	32.3	30.2	-1.9	0.2	7.36	12.24	17.13
24-gen	20h 27m 01.62s	-19° 36' 32.5"	5.106124	6.0904630	50.65	0.3	32.3	30.2	-1.9	0.0	7.33	12.21	17.10
25-gen	20h 28m 00.21s	-19° 33' 14.1"	5.105776	6.0901666	50.65	0.6	32.3	30.2	-1.9	0.1	7.30	12.18	17.07
26-gen	20h 28m 58.83s	-19° 29' 54.5"	5.105429	6.0896561	50.65	1.4	32.3	30.2	-1.9	0.3	7.27	12.15	17.04
27-gen	20h 29m 57.40s	-19° 26' 34.0"	5.105081	6.0889314	50.64	2.2	32.3	30.2	-1.9	0.4	7.23	12.12	17.02
28-gen	20h 30m 55.91s	-19° 23' 12.6"	5.104734	6.0879928	50.63	2.9	32.3	30.2	-1.9	0.6	7.20	12.09	16.59
29-gen	20h 31m 54.36s	-19° 19' 50.1"	5.104387	6.0868405	50.62	3.7	32.4	30.3	-1.9	0.7	7.17	12.07	16.56
30-gen	20h 32m 52.76s	-19° 16' 26.7"	5.104040	6.0854749	50.61	4.5	32.4	30.3	-1.9	0.9	7.14	12.04	16.53
31-gen	20h 33m 51.08s	-19° 13' 02.2"	5.103694	6.0838964	50.60	5.3	32.4	30.3	-1.9	1.0	7.11	12.01	16.51
1-feb	20h 34m 49.32s	-19° 09' 36.8"	5.103347	6.0821056	50.58	6.1	32.4	30.3	-1.9	1.2	7.07	11.58	16.48
2-feb	20h 35m 47.49s	-19° 06' 10.5"	5.103001	6.0801031	50.57	6.8	32.4	30.3	-1.9	1.3	7.04	11.55	16.45
3-feb	20h 36m 45.58s	-19° 02' 43.3"	5.102655	6.0778896	50.55	7.6	32.4	30.3	-1.9	1.5	7.01	11.52	16.43
4-feb	20h 37m 43.58s	-18° 59' 15.2"	5.102309	6.0754660	50.53	8.4	32.4	30.3	-1.9	1.6	6.58	11.49	16.40
5-feb	20h 38m 41.49s	-18° 55' 46.3"	5.101963	6.0728330	50.51	9.2	32.4	30.3	-1.9	1.8	6.55	11.46	16.37
6-feb	20h 39m 39.30s	-18° 52' 16.5"	5.101618	6.0699915	50.48	10.0	32.4	30.3	-1.9	1.9	6.51	11.43	16.34
7-feb	20h 40m 37.00s	-18° 48' 46.1"	5.101272	6.0669425	50.46	10.7	32.5	30.4	-1.9	2.1	6.48	11.40	16.32
8-feb	20h 41m 34.59s	-18° 45' 14.9"	5.100927	6.0636866	50.43	11.5	32.5	30.4	-1.9	2.2	6.45	11.37	16.29
9-feb	20h 42m 32.07s	-18° 41' 43.0"	5.100582	6.0602247	50.40	12.3	32.5	30.4	-1.9	2.4	6.42	11.34	16.26
10-feb	20h 43m 29.42s	-18° 38' 10.4"	5.100238	6.0565573	50.37	13.1	32.5	30.4	-1.9	2.5	6.38	11.31	16.23
11-feb	20h 44m 26.64s	-18° 34' 37.2"	5.099893	6.0526850	50.34	13.8	32.5	30.4	-1.9	2.7	6.35	11.28	16.21
12-feb	20h 45m 23.73s	-18° 31' 03.3"	5.099549	6.0486083	50.30	14.6	32.6	30.4	-1.9	2.8	6.32	11.25	16.18
13-feb	20h 46m 20.68s	-18° 27' 28.8"	5.099205	6.0443275	50.27	15.4	32.6	30.5	-1.9	2.9	6.29	11.22	16.15
14-feb	20h 47m 17.51s	-18° 23' 53.6"	5.098861	6.0398432	50.23	16.2	32.6	30.5	-1.9	3.1	6.26	11.19	16.12
15-feb	20h 48m 14.19s	-18° 20' 17.9"	5.098517	6.0351557	50.19	17.0	32.6	30.5	-1.9	3.2	6.22	11.16	16.10
16-feb	20h 49m 10.73s	-18° 16' 41.7"	5.098174	6.0302656	50.15	17.7	32.7	30.5	-1.9	3.4	6.19	11.13	16.07
17-feb	20h 50m 07.11s	-18° 13' 04.9"	5.097831	6.0251734	50.11	18.5	32.7	30.6	-1.9	3.5	6.16	11.10	16.04
18-feb	20h 51m 03.35s	-18° 09' 27.7"	5.097488	6.0198796	50.07	19.3	32.7	30.6	-1.9	3.7	6.13	11.07	16.01
19-feb	20h 51m 59.42s	-18° 05' 50.0"	5.097145	6.0143850	50.02	20.1	32.7	30.6	-1.9	3.8	6.09	11.04	15.59
20-feb	20h 52m 55.32s	-18° 02' 12.0"	5.096802	6.0086903	49.97	20.8	32.8	30.6	-1.9	4.0	6.06	11.01	15.56
21-feb	20h 53m 51.04s	-17° 58' 33.7"	5.096460	6.0027964	49.92	21.6	32.8	30.7	-2	4.1	6.03	10.58	15.53
22-feb	20h 54m 46.59s	-17° 54' 55.0"	5.096118	5.9967040	49.87	22.4	32.8	30.7	-2	4.2	6.00	10.55	15.50
23-feb	20h 55m 41.94s	-17° 51' 16.1"	5.095776	5.9904141	49.82	23.2	32.9	30.7	-2	4.4	5.56	10.52	15.48
24-feb	20h 56m 37.10s	-17° 47' 36.9"	5.095434	5.9839279	49.77	24.0	32.9	30.8	-2	4.5	5.53	10.49	15.45
25-feb	20h 57m 32.06s	-17° 43' 57.6"	5.095092	5.9772464	49.71	24.7	32.9	30.8	-2	4.7	5.50	10.46	15.42
26-feb	20h 58m 26.82s	-17° 40' 18.1"	5.094751	5.9703708	49.65	25.5	33.0	30.8	-2	4.8	5.46	10.43	15.39
27-feb	20h 59m 21.36s	-17° 36' 38.5"	5.094410	5.9633026	49.60	26.3	33.0	30.9	-2	4.9	5.43	10.40	15.37
28-feb	21h 00m 15.69s	-17° 32' 58.7"	5.094069	5.9560431	49.53	27.1	33.1	30.9	-2	5.1	5.40	10.37	15.34
1-mar	21h 01m 09.80s	-17° 29' 18.9"	5.093728	5.9485938	49.47	27.9	33.1	31.0	-2	5.2	5.37	10.34	15.31
2-mar	21h 02m 03.69s	-17° 25' 39.1"	5.093388	5.9409565	49.41	28.6	33.1	31.0	-2	5.4	5.33	10.31	15.28
3-mar	21h 02m 57.35s	-17° 21' 59.3"	5.093048	5.9331328	49.34	29.4	33.2	31.0	-2	5.5	5.30	10.28	15.25
4-mar	21h 03m 50.77s	-17° 18' 19.6"	5.092708	5.9251244	49.28	30.2	33.2	31.1	-2	5.6	5.27	10.25	15.23
5-mar	21h 04m 43.96s	-17° 14' 40.0"	5.092368	5.9169331	49.21	31.0	33.3	31.1	-2	5.8	5.23	10.22	15.20
6-mar	21h 05m 36.91s	-17° 11' 00.5"	5.092028	5.9085607	49.14	31.8	33.3	31.2	-2	5.9	5.20	10.18	15.17
7-mar	21h 06m 29.60s	-17° 07' 21.3"	5.091689	5.9000089	49.07	32.6	33.4	31.2	-2	6.0	5.17	10.15	15.14
8-mar	21h 07m 22.03s	-17° 03' 42.2"	5.091350	5.8912794	49.00	33.3	33.4	31.3	-2	6.2	5.14	10.12	15.11
9-mar	21h 08m 14.20s	-17° 00' 03.5"	5.091011	5.8823739	48.92	34.1	33.5	31.3	-2	6.3	5.10	10.09	15.08
10-mar	21h 09m 06.10s	-16° 56' 25.1"	5.090672	5.8732938	48.85	34.9	33.5	31.4	-2	6.4	5.07	10.06	15.06
11-mar	21h 09m 57.73s	-16° 52' 46.9"	5.090334	5.8640407	48.77	35.7	33.6	31.4	-2	6.5	5.04	10.03	15.03
12-mar	21h 10m 49.09s	-16° 49' 09.2"	5.089995	5.8546159	48.69	36.5	33.6	31.5	-2	6.7	5.00	10.00	15.00
13-mar	21h 11m 40.17s	-16° 45' 31.7"	5.089657	5.8450207	48.61	37.3	33.7	31.5	-2	6.8	4.57	9.57	14.57

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Angolo fase°	Sorge	Transita	Tramonta
14-mar	21h 12m 30.97s	-16° 41' 54.7"	5.089320	5.8352566	48.53	38.0	33.7	31.6	-2	6.9	4.54	9.54	14.54
15-mar	21h 13m 21.49s	-16° 38' 18.2"	5.088982	5.8253248	48.45	38.8	33.8	31.6	-2	7.0	4.50	9.51	14.51
16-mar	21h 14m 11.72s	-16° 34' 42.1"	5.088645	5.8152268	48.36	39.6	33.9	31.7	-2	7.2	4.47	9.48	14.49
17-mar	21h 15m 01.66s	-16° 31' 06.6"	5.088308	5.8049639	48.28	40.4	33.9	31.7	-2	7.3	4.44	9.45	14.46
18-mar	21h 15m 51.30s	-16° 27' 31.7"	5.087971	5.7945377	48.19	41.2	34.0	31.8	-2	7.4	4.40	9.41	14.43
19-mar	21h 16m 40.63s	-16° 23' 57.4"	5.087634	5.7839497	48.10	42.0	34.0	31.8	-2	7.5	4.37	9.38	14.40
20-mar	21h 17m 29.65s	-16° 20' 23.8"	5.087298	5.7732016	48.01	42.8	34.1	31.9	-2	7.6	4.34	9.35	14.37
21-mar	21h 18m 18.35s	-16° 16' 51.0"	5.086962	5.7622951	47.92	43.6	34.2	32.0	-2	7.8	4.30	9.32	14.34
22-mar	21h 19m 06.72s	-16° 13' 18.9"	5.086626	5.7512319	47.83	44.3	34.2	32.0	-2	7.9	4.27	9.29	14.31
23-mar	21h 19m 54.76s	-16° 09' 47.7"	5.086290	5.7400139	47.74	45.1	34.3	32.1	-2	8.0	4.23	9.26	14.28
24-mar	21h 20m 42.46s	-16° 06' 17.4"	5.085954	5.7286430	47.64	45.9	34.4	32.1	-2	8.1	4.20	9.23	14.25
25-mar	21h 21m 29.81s	-16° 02' 47.9"	5.085619	5.7171213	47.55	46.7	34.4	32.2	-2	8.2	4.17	9.20	14.23
26-mar	21h 22m 16.82s	-15° 59' 19.5"	5.085284	5.7054508	47.45	47.5	34.5	32.3	-2	8.3	4.13	9.16	14.20
27-mar	21h 23m 03.47s	-15° 55' 52.0"	5.084950	5.6936338	47.35	48.3	34.6	32.3	-2	8.4	4.10	9.13	14.17
28-mar	21h 23m 49.76s	-15° 52' 25.6"	5.084615	5.6816726	47.25	49.1	34.7	32.4	-2	8.5	4.07	9.10	14.14
29-mar	21h 24m 35.69s	-15° 49' 00.2"	5.084281	5.6695697	47.15	49.9	34.7	32.5	-2	8.6	4.03	9.07	14.11
30-mar	21h 25m 21.25s	-15° 45' 36.0"	5.083947	5.6573276	47.05	50.7	34.8	32.6	-2.1	8.7	4.00	9.04	14.08
31-mar	21h 26m 06.44s	-15° 42' 12.9"	5.083613	5.6449489	46.95	51.5	34.9	32.6	-2.1	8.8	3.96	9.01	14.05
1-apr	21h 26m 51.24s	-15° 38' 51.1"	5.083279	5.6324362	46.84	52.3	35.0	32.7	-2.1	8.9	3.93	8.97	14.02
2-apr	21h 27m 35.67s	-15° 35' 30.6"	5.082946	5.6197921	46.74	53.1	35.0	32.8	-2.1	9.0	3.90	8.94	13.99
3-apr	21h 28m 19.69s	-15° 32' 11.4"	5.082613	5.6070192	46.63	53.9	35.1	32.8	-2.1	9.1	3.86	8.91	13.96
4-apr	21h 29m 03.32s	-15° 28' 53.7"	5.082280	5.5941201	46.52	54.7	35.2	32.9	-2.1	9.2	3.83	8.88	13.93
5-apr	21h 29m 46.55s	-15° 25' 37.3"	5.081947	5.5810973	46.42	55.5	35.3	33.0	-2.1	9.3	3.79	8.85	13.90
6-apr	21h 30m 29.36s	-15° 22' 22.4"	5.081615	5.5679532	46.31	56.3	35.4	33.1	-2.1	9.4	3.76	8.82	13.87
7-apr	21h 31m 11.76s	-15° 19' 09.0"	5.081283	5.5546902	46.20	57.1	35.4	33.2	-2.1	9.5	3.72	8.79	13.84
8-apr	21h 31m 53.74s	-15° 15' 57.2"	5.080951	5.5413106	46.09	57.9	35.5	33.2	-2.1	9.6	3.68	8.76	13.81
9-apr	21h 32m 35.30s	-15° 12' 46.8"	5.080620	5.5278165	45.97	58.7	35.6	33.3	-2.1	9.7	3.64	8.73	13.78
10-apr	21h 33m 16.44s	-15° 09' 38.1"	5.080288	5.5142101	45.86	59.5	35.7	33.4	-2.1	9.8	3.60	8.70	13.75
11-apr	21h 33m 57.15s	-15° 06' 30.9"	5.079957	5.5004938	45.75	60.3	35.8	33.5	-2.1	9.9	3.56	8.67	13.72
12-apr	21h 34m 37.42s	-15° 03' 25.5"	5.079626	5.4866695	45.63	61.2	35.9	33.6	-2.1	10.0	3.52	8.64	13.69
13-apr	21h 35m 17.26s	-15° 00' 21.8"	5.079296	5.4727397	45.52	62.0	36.0	33.6	-2.1	10.1	3.48	8.61	13.66
14-apr	21h 35m 56.66s	-14° 57' 19.9"	5.078965	5.4587066	45.40	62.8	36.1	33.7	-2.1	10.2	3.44	8.58	13.63
15-apr	21h 36m 35.60s	-14° 54' 19.8"	5.078635	5.4445724	45.28	63.6	36.2	33.8	-2.1	10.3	3.40	8.55	13.60
16-apr	21h 37m 14.09s	-14° 51' 21.6"	5.078305	5.4303397	45.16	64.4	36.3	33.9	-2.1	10.4	3.36	8.52	13.57
17-apr	21h 37m 52.10s	-14° 48' 25.4"	5.077976	5.4160109	45.04	65.2	36.4	34.0	-2.1	10.5	3.32	8.49	13.54
18-apr	21h 38m 29.65s	-14° 45' 31.2"	5.077647	5.4015886	44.92	66.1	36.5	34.1	-2.1	10.6	3.28	8.46	13.51
19-apr	21h 39m 06.72s	-14° 42' 39.0"	5.077317	5.3870753	44.80	66.9	36.6	34.2	-2.2	10.7	3.24	8.43	13.48
20-apr	21h 39m 43.30s	-14° 39' 48.9"	5.076989	5.3724738	44.68	67.7	36.7	34.3	-2.2	10.8	3.20	8.40	13.45
21-apr	21h 40m 19.39s	-14° 37' 01.0"	5.076660	5.3577869	44.56	68.5	36.8	34.4	-2.2	10.9	3.16	8.37	13.42
22-apr	21h 40m 54.98s	-14° 34' 15.2"	5.076332	5.3430174	44.44	69.3	36.9	34.5	-2.2	11.0	3.12	8.34	13.39
23-apr	21h 41m 30.07s	-14° 31' 31.7"	5.076004	5.3281683	44.31	70.2	37.0	34.6	-2.2	11.1	3.08	8.31	13.36
24-apr	21h 42m 04.64s	-14° 28' 50.5"	5.075676	5.3132426	44.19	71.0	37.1	34.7	-2.2	11.2	3.04	8.28	13.33
25-apr	21h 42m 38.71s	-14° 26' 11.6"	5.075348	5.2982437	44.06	71.8	37.2	34.8	-2.2	11.3	3.00	8.25	13.30
26-apr	21h 43m 12.25s	-14° 23' 35.0"	5.075021	5.2831748	43.94	72.7	37.3	34.9	-2.2	11.4	2.96	8.22	13.27
27-apr	21h 43m 45.28s	-14° 21' 00.9"	5.074694	5.2680394	43.81	73.5	37.4	35.0	-2.2	11.5	2.92	8.19	13.24
28-apr	21h 44m 17.77s	-14° 18' 29.2"	5.074367	5.2528408	43.69	74.3	37.5	35.1	-2.2	11.6	2.88	8.16	13.21
29-apr	21h 44m 49.72s	-14° 16' 00.1"	5.074041	5.2375826	43.56	75.2	37.6	35.2	-2.2	11.7	2.84	8.13	13.18
30-apr	21h 45m 21.13s	-14° 13' 33.6"	5.073715	5.2222682	43.43	76.0	37.7	35.3	-2.2	11.8	2.80	8.10	13.15
1-mag	21h 45m 51.99s	-14° 11' 09.7"	5.073389	5.2069011	43.30	76.8	37.8	35.4	-2.2	11.9	2.76	8.07	13.12
2-mag	21h 46m 22.29s	-14° 08' 48.5"	5.073063	5.1914846	43.18	77.7	37.9	35.5	-2.2	12.0	2.72	8.04	13.09
3-mag	21h 46m 52.02s	-14° 06' 30.0"	5.072738	5.1760221	43.05	78.5	38.0	35.6	-2.2	12.1	2.68	8.01	13.06
4-mag	21h 47m 21.19s	-14° 04' 14.3"	5.072412	5.1605166	42.92	79.4	38.2	35.7	-2.3	12.2	2.64	7.98	13.03
5-mag	21h 47m 49.78s	-14° 02' 01.3"	5.072088	5.1449714	42.79	80.2	38.3	35.8	-2.3	12.3	2.60	7.95	13.00
6-mag	21h 48m 17.80s	-13° 59' 51.1"	5.071763	5.1293896	42.66	81.1	38.4	35.9	-2.3	12.4	2.56	7.92	12.97
7-mag	21h 48m 45.24s	-13° 57' 43.7"	5.071439	5.1137742	42.53	81.9	38.5	36.0	-2.3	12.5	2.52	7.89	12.94
8-mag	21h 49m 12.10s	-13° 55' 39.3"	5.071114	5.0981282	42.40	82.8	38.6	36.1	-2.3	12.6	2.48	7.86	12.91
9-mag	21h 49m 38.38s	-13° 53' 37.7"	5.070791	5.0824546	42.27	83.6	38.7	36.2	-2.3	12.7	2.44	7.83	12.88
10-mag	21h 50m 04.06s	-13° 51' 39.0"	5.070467	5.0667566	42.14	84.5	38.9	36.3	-2.3	12.8	2.40	7.80	12.85
11-mag	21h 50m 29.15s	-13° 49' 43.4"	5.070144	5.0510372	42.01	85.4	39.0	36.5	-2.3	12.9	2.36	7.77	12.82
12-mag	21h 50m 53.63s	-13° 47' 50.9"	5.069821	5.0352996	41.88	86.2	39.1	36.6	-2.3	13.0	2.32	7.74	12.79
13-mag	21h 51m 17.49s	-13° 46' 01.5"	5.069498	5.0195469	41.75	87.1	39.2	36.7	-2.3	13.1	2.28	7.71	12.76
14-mag	21h 51m 40.74s	-13° 44' 15.2"	5.069176	5.0037823	41.61	87.9	39.4	36.8	-2.3	13.2	2.24	7.68	12.73
15-mag	21h 52m 03.37s	-13° 42' 32.1"	5.068854	4.9880094	41.48	88.8	39.5	36.9	-2.3	13.3	2.20	7.65	12.70
16-mag	21h 52m 25.36s	-13° 40' 52.3"	5.068532	4.9722313	41.35	89.7	39.6	37.0	-2.3	13.4	2.16	7.62	12.67
17-mag	21h 52m 46.72s	-13° 39' 15.8"	5.068210	4.9564517	41.22	90.6	39.7	37.2	-2.3	13.5	2.12	7.59	12.64
18-mag	21h 53m 07.43s	-13° 37' 42.6"	5.067889	4.9406740	41.09	91.4	39.9	37.3	-2.3	13.6	2.08	7.56	12.61
19-mag	21h 53m 27.49s	-13° 36' 12.7"	5.067568	4.9249019	40.96	92.3	40.0	37.4	-2.4	13.7	2.04	7.53	12.58
20-mag	21h 53m 46.89s	-13° 34' 46.3"	5.067247	4.9091392	40.83	93.2	40.1	37.5	-2.4	13.8	2.00	7.50	12.55
21-mag	21h 54m 05.64s	-13° 33' 23.3"	5.066926	4.8933896	40.70	94.1	40.2	37.6	-2.4	13.9	1.96	7.47	12.52
22-mag	21h 54m 23.72s	-13° 32' 03.8"	5.066606	4.8776572	40.57	95.0	40.4	37.8	-2.4	14.0	1.92	7.44	12.49
23-mag	21h 54m 41.13s	-13° 30' 47.8"	5.066286	4.8619460	40.44	95.9	40.5	37.9	-2.4	14.1	1.88	7.41	12.46
24-mag	21h 54m 57.87s	-13° 29' 35.4"	5.065966	4.8462601	40.30	96.7	40.6	38.0	-2.4	14.2	1.84	7.38	12.43
25-mag	21h 55m 13.94s	-13° 28' 26.5"	5.065647	4.8306038	40.17	97.6	40.8	38.1	-2.4	14.3	1.80	7.35	12.40
26-mag	21h 55m 29.32s	-13° 27' 21.3"	5.065328	4.8149815	40.04	98.5	40.9	38.2	-2.4	14.4	1.76	7.32	12.37
27-mag	21h 55m 44.01s	-13° 26' 19.8"	5.065009	4.7993974	39.92	99.4	41.0	38.4	-2.4	14.5	1.72	7.29	12.34
28-mag	21h 55m 58.00s	-13° 25' 21.9"	5.064691	4.7838558	39.79	100.3	41.2	38.5	-2.4	14.6	1.68	7.26	12.31
29-mag	21h 56m 11.29s	-13° 24' 27.9"	5.064372	4.7683609	39.66	101.2	41.3	38.6	-2.4	14.7	1.64	7.23	12.28

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Angolo fase°	Sorge	Transita	Tramonta
30-mag	21h 56m 23.87s	-13° 23' 37.5"	5.064054	4.7529168	39.53	102.1	41.4	38.7	-2.4	11.3	0.22	5.35	10.48
31-mag	21h 56m 35.75s	-13° 22' 51.0"	5.063737	4.7375275	39.40	103.1	41.6	38.9	-2.4	11.2	0.18	5.31	10.44
1-giu	21h 56m 46.92s	-13° 22' 08.2"	5.063419	4.7221970	39.27	104.0	41.7	39.0	-2.5	11.2	0.14	5.27	10.40
2-giu	21h 56m 57.38s	-13° 21' 29.1"	5.063102	4.7069290	39.15	104.9	41.8	39.1	-2.5	11.2	0.10	5.23	10.37
3-giu	21h 57m 07.12s	-13° 20' 53.9"	5.062785	4.6917274	39.02	105.8	42.0	39.2	-2.5	11.1	0.06	5.20	10.33
4-giu	21h 57m 16.15s	-13° 20' 22.5"	5.062469	4.6765960	38.89	106.7	42.1	39.4	-2.5	11.1	0.03	5.16	10.29
5-giu	21h 57m 24.47s	-13° 19' 54.9"	5.062153	4.6615384	38.77	107.6	42.2	39.5	-2.5	11.0	23.55	5.12	10.25
6-giu	21h 57m 32.07s	-13° 19' 31.1"	5.061837	4.6465585	38.64	108.6	42.4	39.6	-2.5	11.0	23.51	5.08	10.22
7-giu	21h 57m 38.95s	-13° 19' 11.2"	5.061521	4.6316600	38.52	109.5	42.5	39.8	-2.5	10.9	23.47	5.04	10.18
8-giu	21h 57m 45.10s	-13° 18' 55.2"	5.061206	4.6168468	38.40	110.4	42.6	39.9	-2.5	10.8	23.43	5.01	10.14
9-giu	21h 57m 50.53s	-13° 18' 43.1"	5.060891	4.6021227	38.27	111.4	42.8	40.0	-2.5	10.8	23.39	4.97	10.10
10-giu	21h 57m 55.22s	-13° 18' 35.0"	5.060576	4.5874915	38.15	112.3	42.9	40.1	-2.5	10.7	23.36	4.93	10.06
11-giu	21h 57m 59.18s	-13° 18' 30.7"	5.060261	4.5729572	38.03	113.2	43.1	40.3	-2.5	10.6	23.32	4.90	10.02
12-giu	21h 58m 02.40s	-13° 18' 30.5"	5.059947	4.5585239	37.91	114.2	43.2	40.4	-2.5	10.5	23.28	4.87	9.98
13-giu	21h 58m 04.88s	-13° 18' 34.2"	5.059633	4.5441954	37.79	115.1	43.3	40.5	-2.5	10.5	23.24	4.84	9.95
14-giu	21h 58m 06.62s	-13° 18' 41.9"	5.059320	4.5299761	37.67	116.1	43.5	40.6	-2.5	10.4	23.20	4.81	9.91
15-giu	21h 58m 07.61s	-13° 18' 53.6"	5.059007	4.5158699	37.56	117.0	43.6	40.8	-2.5	10.3	23.16	4.78	9.87
16-giu	21h 58m 07.85s	-13° 19' 09.3"	5.058694	4.5018813	37.44	118.0	43.7	40.9	-2.6	10.2	23.12	4.75	9.83
17-giu	21h 58m 07.35s	-13° 19' 28.9"	5.058381	4.4880145	37.33	118.9	43.9	41.0	-2.6	10.1	23.08	4.72	9.79
18-giu	21h 58m 06.10s	-13° 19' 52.5"	5.058068	4.4742738	37.21	119.9	44.0	41.2	-2.6	10.0	23.04	4.69	9.75
19-giu	21h 58m 04.11s	-13° 20' 20.1"	5.057756	4.4606638	37.10	120.9	44.1	41.3	-2.6	9.9	23.00	4.66	9.71
20-giu	21h 58m 01.38s	-13° 20' 51.6"	5.057445	4.4471891	36.99	121.8	44.3	41.4	-2.6	9.8	22.56	4.63	9.67
21-giu	21h 57m 57.90s	-13° 21' 27.1"	5.057133	4.4338542	36.88	122.8	44.4	41.5	-2.6	9.7	22.53	4.60	9.63
22-giu	21h 57m 53.67s	-13° 22' 06.6"	5.056822	4.4206638	36.77	123.8	44.5	41.7	-2.6	9.6	22.49	4.57	9.59
23-giu	21h 57m 48.71s	-13° 22' 50.0"	5.056511	4.4076227	36.66	124.8	44.7	41.8	-2.6	9.5	22.45	4.54	9.55
24-giu	21h 57m 43.00s	-13° 23' 37.3"	5.056200	4.3947355	36.55	125.7	44.8	41.9	-2.6	9.4	22.41	4.51	9.51
25-giu	21h 57m 36.55s	-13° 24' 28.6"	5.055890	4.3820067	36.44	126.7	44.9	42.0	-2.6	9.3	22.37	4.48	9.47
26-giu	21h 57m 29.35s	-13° 25' 23.7"	5.055580	4.3694408	36.34	127.7	45.1	42.1	-2.6	9.2	22.33	4.45	9.43
27-giu	21h 57m 21.42s	-13° 26' 22.7"	5.055271	4.3570420	36.24	128.7	45.2	42.3	-2.6	9.0	22.29	4.42	9.39
28-giu	21h 57m 12.76s	-13° 27' 25.5"	5.054961	4.3448144	36.13	129.7	45.3	42.4	-2.6	8.9	22.25	4.39	9.35
29-giu	21h 57m 03.38s	-13° 28' 32.0"	5.054652	4.3327621	36.03	130.7	45.4	42.5	-2.6	8.8	22.21	4.36	9.31
30-giu	21h 56m 53.28s	-13° 29' 42.2"	5.054343	4.3208890	35.94	131.7	45.6	42.6	-2.7	8.6	22.17	4.33	9.27
1-lug	21h 56m 42.47s	-13° 30' 56.1"	5.054035	4.3091987	35.84	132.7	45.7	42.7	-2.7	8.5	22.12	4.30	9.23
2-lug	21h 56m 30.96s	-13° 32' 13.6"	5.053727	4.2976951	35.74	133.7	45.8	42.8	-2.7	8.4	22.08	4.27	9.19
3-lug	21h 56m 18.75s	-13° 33' 34.6"	5.053419	4.2863820	35.65	134.7	45.9	43.0	-2.7	8.2	22.04	4.24	9.15
4-lug	21h 56m 05.86s	-13° 34' 59.1"	5.053112	4.2752629	35.56	135.7	46.1	43.1	-2.7	8.1	22.00	4.21	9.11
5-lug	21h 55m 52.27s	-13° 36' 27.1"	5.052805	4.2643415	35.47	136.7	46.2	43.2	-2.7	7.9	21.56	4.18	9.07
6-lug	21h 55m 38.01s	-13° 37' 58.6"	5.052498	4.2536215	35.38	137.7	46.3	43.3	-2.7	7.8	21.52	4.15	9.03
7-lug	21h 55m 23.07s	-13° 39' 33.5"	5.052191	4.2431065	35.29	138.8	46.4	43.4	-2.7	7.6	21.48	4.12	8.99
8-lug	21h 55m 07.46s	-13° 41' 11.7"	5.051885	4.2328001	35.20	139.8	46.5	43.5	-2.7	7.5	21.44	4.09	8.95
9-lug	21h 54m 51.19s	-13° 42' 53.2"	5.051579	4.2227059	35.12	140.8	46.6	43.6	-2.7	7.3	21.40	4.06	8.91
10-lug	21h 54m 34.27s	-13° 44' 38.0"	5.051273	4.2128276	35.04	141.8	46.7	43.7	-2.7	7.1	21.36	4.03	8.87
11-lug	21h 54m 16.71s	-13° 46' 25.9"	5.050968	4.2031688	34.96	142.9	46.8	43.8	-2.7	7.0	21.32	4.00	8.83
12-lug	21h 53m 58.51s	-13° 48' 16.9"	5.050663	4.1937332	34.88	143.9	47.0	43.9	-2.7	6.8	21.28	3.97	8.79
13-lug	21h 53m 39.68s	-13° 50' 11.0"	5.050359	4.1845243	34.80	144.9	47.1	44.0	-2.7	6.6	21.23	3.94	8.75
14-lug	21h 53m 20.23s	-13° 52' 08.0"	5.050054	4.1755458	34.73	146.0	47.2	44.1	-2.7	6.5	21.19	3.91	8.71
15-lug	21h 53m 00.19s	-13° 54' 07.9"	5.049750	4.1668014	34.65	147.0	47.3	44.2	-2.8	6.3	21.15	3.88	8.67
16-lug	21h 52m 39.55s	-13° 56' 10.7"	5.049447	4.1582947	34.58	148.0	47.4	44.3	-2.8	6.1	21.11	3.85	8.63
17-lug	21h 52m 18.33s	-13° 58' 16.1"	5.049143	4.1500295	34.51	149.1	47.4	44.4	-2.8	5.9	21.07	3.82	8.59
18-lug	21h 51m 56.54s	-14° 00' 24.2"	5.048840	4.1420093	34.45	150.1	47.5	44.5	-2.8	5.8	21.03	3.79	8.55
19-lug	21h 51m 34.20s	-14° 02' 34.9"	5.048538	4.1342377	34.38	151.2	47.6	44.5	-2.8	5.6	20.59	3.76	8.51
20-lug	21h 51m 11.32s	-14° 04' 48.0"	5.048235	4.1267185	34.32	152.3	47.7	44.6	-2.8	5.4	20.54	3.73	8.47
21-lug	21h 50m 47.92s	-14° 07' 03.6"	5.047933	4.1194551	34.26	153.3	47.8	44.7	-2.8	5.2	20.50	3.70	8.43
22-lug	21h 50m 23.99s	-14° 09' 21.5"	5.047631	4.1124509	34.20	154.4	47.9	44.8	-2.8	5.0	20.46	3.67	8.39
23-lug	21h 49m 59.57s	-14° 11' 41.6"	5.047330	4.1057090	34.15	155.4	48.0	44.8	-2.8	4.8	20.42	3.64	8.35
24-lug	21h 49m 34.66s	-14° 14' 03.8"	5.047029	4.0992325	34.09	156.5	48.0	44.9	-2.8	4.6	20.38	3.61	8.31
25-lug	21h 49m 09.28s	-14° 16' 28.0"	5.046728	4.0930241	34.04	157.6	48.1	45.0	-2.8	4.4	20.33	3.58	8.27
26-lug	21h 48m 43.46s	-14° 18' 54.0"	5.046428	4.0870861	33.99	158.6	48.2	45.1	-2.8	4.2	20.29	3.55	8.23
27-lug	21h 48m 17.21s	-14° 21' 21.8"	5.046128	4.0814211	33.94	159.7	48.2	45.1	-2.8	4.0	20.25	3.52	8.19
28-lug	21h 47m 50.56s	-14° 23' 51.1"	5.045828	4.0760309	33.90	160.8	48.3	45.2	-2.8	3.8	20.21	3.49	8.15
29-lug	21h 47m 23.52s	-14° 26' 22.0"	5.045529	4.0709176	33.86	161.8	48.4	45.2	-2.8	3.6	20.17	3.46	8.11
30-lug	21h 46m 56.11s	-14° 28' 54.2"	5.045230	4.0660831	33.82	162.9	48.4	45.3	-2.8	3.4	20.12	3.43	8.07
31-lug	21h 46m 28.36s	-14° 31' 27.8"	5.044931	4.0615291	33.78	164.0	48.5	45.3	-2.8	3.2	20.08	3.40	8.03
1-ago	21h 46m 00.27s	-14° 34' 02.5"	5.044633	4.0572573	33.74	165.0	48.5	45.4	-2.8	3.0	20.04	3.37	7.99
2-ago	21h 45m 31.88s	-14° 36' 38.3"	5.044334	4.0532692	33.71	166.1	48.6	45.4	-2.8	2.8	20.00	3.34	7.95
3-ago	21h 45m 03.19s	-14° 39' 15.1"	5.044037	4.0495663	33.68	167.2	48.6	45.5	-2.8	2.6	19.55	3.31	7.91
4-ago	21h 44m 34.22s	-14° 41' 52.8"	5.043739	4.0461500	33.65	168.3	48.7	45.5	-2.8	2.3	19.51	3.28	7.87
5-ago	21h 44m 05.00s	-14° 44' 31.2"	5.043442	4.0430217	33.62	169.3	48.7	45.5	-2.8	2.1	19.47	3.25	7.83
6-ago	21h 43m 35.55s	-14° 47' 10.2"	5.043146	4.0401826	33.60	170.4	48.7	45.6	-2.8	1.9	19.43	3.22	7.79
7-ago	21h 43m 05.88s	-14° 49' 49.8"	5.042849	4.0376339	33.58	171.5	48.8	45.6	-2.8	1.7	19.38	3.19	7.75
8-ago	21h 42m 36.01s	-14° 52' 29.8"	5.042553	4.0353768	33.56	172.6	48.8	45.6	-2.8	1.5	19.34	3.16	7.71
9-ago	21h 42m 05.96s	-14° 55' 10.1"	5.042257	4.0334123	33.54	173.6	48.8	45.7	-2.9	1.3	19.30	3.13	7.67
10-ago	21h 41m 35.77s	-14° 57' 50.6"	5.041962	4.0317414	33.53	174.7	48.8	45.7	-2.9	1.1	19.26	3.10	7.63
11-ago	21h 41m 05.44s	-15° 00' 31.1"	5.041667	4.0303651	33.52	175.8	48.9	45.7	-2.9	0.8	19.21	3.07	7.59
12-ago	21h 40m 35.00s	-15° 03' 11.6"	5.041372	4.0292843	33.51	176.8	48.9	45.7	-2.9	0.6	19.17	3.04	7.55
13-ago	21h 40m 04.48s	-15° 05' 51.9"	5.041078	4.0284998	33.50	177.8	48.9	45.7	-2.9	0.4	19.13	3.01	7.51
14-ago	21h 39m 33.90s	-15° 08' 31.9"	5.040784	4.0280123	33.50	178.7	48.9	45.7	-2.9	0.3	19.09		

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Angolo fase°	Sorge	Transita	Tramonta
15-ago	21h 39m 03.28s	-15° 11' 11.5"	5.040491	4.0278225	33.50	178.9	48.9	45.7	-2.9	0.2	19.04	0.15	5.20
16-ago	21h 38m 32.64s	-15° 13' 50.6"	5.040197	4.0279310	33.50	178.3	48.9	45.7	-2.9	0.3	19.00	0.10	5.16
17-ago	21h 38m 02.00s	-15° 16' 29.1"	5.039904	4.0283382	33.50	177.3	48.9	45.7	-2.9	0.5	18.56	0.06	5.11
18-ago	21h 37m 31.39s	-15° 19' 06.9"	5.039612	4.0290443	33.51	176.3	48.9	45.7	-2.9	0.7	18.51	0.01	5.07
19-ago	21h 37m 00.83s	-15° 21' 43.8"	5.039319	4.0300495	33.52	175.2	48.9	45.7	-2.9	1.0	18.47	23.52	5.02
20-ago	21h 36m 30.33s	-15° 24' 19.8"	5.039028	4.0313535	33.53	174.2	48.8	45.7	-2.9	1.2	18.43	23.48	4.57
21-ago	21h 35m 59.93s	-15° 26' 54.7"	5.038736	4.0329558	33.54	173.1	48.8	45.7	-2.9	1.4	18.39	23.43	4.53
22-ago	21h 35m 29.65s	-15° 29' 28.3"	5.038445	4.0348558	33.56	172.0	48.8	45.6	-2.9	1.6	18.34	23.39	4.48
23-ago	21h 34m 59.51s	-15° 32' 00.6"	5.038154	4.0370523	33.58	170.9	48.8	45.6	-2.8	1.8	18.30	23.35	4.44
24-ago	21h 34m 29.55s	-15° 34' 31.4"	5.037863	4.0395442	33.60	169.8	48.7	45.6	-2.8	2.0	18.26	23.30	4.39
25-ago	21h 33m 59.78s	-15° 37' 00.6"	5.037573	4.0423301	33.62	168.7	48.7	45.6	-2.8	2.2	18.22	23.26	4.34
26-ago	21h 33m 30.23s	-15° 39' 28.2"	5.037284	4.0454084	33.64	167.7	48.7	45.5	-2.8	2.5	18.17	23.21	4.30
27-ago	21h 33m 00.93s	-15° 41' 54.0"	5.036994	4.0487774	33.67	166.6	48.6	45.5	-2.8	2.7	18.13	23.17	4.25
28-ago	21h 32m 31.88s	-15° 44' 17.9"	5.036705	4.0524354	33.70	165.5	48.6	45.4	-2.8	2.9	18.09	23.13	4.21
29-ago	21h 32m 03.12s	-15° 46' 39.8"	5.036416	4.0563804	33.74	164.4	48.5	45.4	-2.8	3.1	18.05	23.08	4.16
30-ago	21h 31m 34.66s	-15° 48' 59.7"	5.036128	4.0606105	33.77	163.3	48.5	45.3	-2.8	3.3	18.00	23.04	4.12
31-ago	21h 31m 06.52s	-15° 51' 17.5"	5.035840	4.0651237	33.81	162.2	48.4	45.3	-2.8	3.5	17.56	22.59	4.07
1-set	21h 30m 38.73s	-15° 53' 33.1"	5.035552	4.0699179	33.85	161.1	48.4	45.2	-2.8	3.7	17.52	22.55	4.03
2-set	21h 30m 11.29s	-15° 55' 46.5"	5.035265	4.0749910	33.89	160.1	48.3	45.2	-2.8	3.9	17.48	22.51	3.58
3-set	21h 29m 44.23s	-15° 57' 57.5"	5.034978	4.0803406	33.94	159.0	48.3	45.1	-2.8	4.1	17.43	22.46	3.53
4-set	21h 29m 17.57s	-16° 00' 06.0"	5.034692	4.0859645	33.98	157.9	48.2	45.1	-2.8	4.3	17.39	22.42	3.49
5-set	21h 28m 51.33s	-16° 02' 12.0"	5.034405	4.0918603	34.03	156.8	48.1	45.0	-2.8	4.5	17.35	22.37	3.44
6-set	21h 28m 25.52s	-16° 04' 15.4"	5.034120	4.0980258	34.08	155.7	48.0	44.9	-2.8	4.7	17.31	22.33	3.40
7-set	21h 28m 00.17s	-16° 06' 16.2"	5.033834	4.1044585	34.14	154.7	48.0	44.9	-2.8	4.9	17.27	22.29	3.35
8-set	21h 27m 35.28s	-16° 08' 14.2"	5.033549	4.1111560	34.19	153.6	47.9	44.8	-2.8	5.1	17.22	22.24	3.31
9-set	21h 27m 10.89s	-16° 10' 09.4"	5.033264	4.1181157	34.25	152.5	47.8	44.7	-2.8	5.3	17.18	22.20	3.27
10-set	21h 26m 47.01s	-16° 12' 01.8"	5.032980	4.1253352	34.31	151.5	47.7	44.6	-2.8	5.5	17.14	22.16	3.22
11-set	21h 26m 23.65s	-16° 13' 51.2"	5.032696	4.1328118	34.37	150.4	47.6	44.6	-2.8	5.7	17.10	22.11	3.18
12-set	21h 26m 00.83s	-16° 15' 37.6"	5.032412	4.1405430	34.44	149.3	47.6	44.5	-2.8	5.9	17.06	22.07	3.13
13-set	21h 25m 38.57s	-16° 17' 21.0"	5.032129	4.1485260	34.50	148.3	47.5	44.4	-2.8	6.0	17.01	22.03	3.09
14-set	21h 25m 16.88s	-16° 19' 01.3"	5.031846	4.1567578	34.57	147.2	47.4	44.3	-2.8	6.2	16.57	21.59	3.04
15-set	21h 24m 55.77s	-16° 20' 38.5"	5.031563	4.1652355	34.64	146.1	47.3	44.2	-2.8	6.4	16.53	21.54	3.00
16-set	21h 24m 35.26s	-16° 22' 12.5"	5.031281	4.1739559	34.71	145.1	47.2	44.1	-2.8	6.6	16.49	21.50	2.56
17-set	21h 24m 15.37s	-16° 23' 43.3"	5.030999	4.1829156	34.79	144.0	47.1	44.0	-2.8	6.7	16.45	21.46	2.51
18-set	21h 23m 56.10s	-16° 25' 10.7"	5.030718	4.1921111	34.86	143.0	47.0	43.9	-2.7	6.9	16.41	21.42	2.47
19-set	21h 23m 37.47s	-16° 26' 34.8"	5.030437	4.2015384	34.94	141.9	46.9	43.8	-2.7	7.1	16.36	21.37	2.43
20-set	21h 23m 19.51s	-16° 27' 55.4"	5.030156	4.2111936	35.02	140.8	46.8	43.7	-2.7	7.2	16.32	21.33	2.38
21-set	21h 23m 02.22s	-16° 29' 12.5"	5.029876	4.2210727	35.11	139.8	46.6	43.6	-2.7	7.4	16.28	21.29	2.34
22-set	21h 22m 45.62s	-16° 30' 26.1"	5.029596	4.2311713	35.19	138.8	46.5	43.5	-2.7	7.6	16.24	21.25	2.30
23-set	21h 22m 29.71s	-16° 31' 36.1"	5.029316	4.2414853	35.28	137.7	46.4	43.4	-2.7	7.7	16.20	21.21	2.25
24-set	21h 22m 14.51s	-16° 32' 42.6"	5.029037	4.2520103	35.36	136.7	46.3	43.3	-2.7	7.9	16.16	21.16	2.21
25-set	21h 22m 00.03s	-16° 33' 45.5"	5.028758	4.2627421	35.45	135.6	46.2	43.2	-2.7	8.0	16.12	21.12	2.17
26-set	21h 21m 46.27s	-16° 34' 44.9"	5.028480	4.2736761	35.54	134.6	46.1	43.1	-2.7	8.2	16.08	21.08	2.13
27-set	21h 21m 33.24s	-16° 35' 40.5"	5.028202	4.2848083	35.64	133.6	46.0	43.0	-2.7	8.3	16.04	21.04	2.08
28-set	21h 21m 20.95s	-16° 36' 32.6"	5.027924	4.2961341	35.73	132.5	45.8	42.9	-2.7	8.4	15.59	21.00	2.04
29-set	21h 21m 09.40s	-16° 37' 21.1"	5.027647	4.3076494	35.83	131.5	45.7	42.7	-2.7	8.6	15.55	20.56	2.00
30-set	21h 20m 58.60s	-16° 38' 05.8"	5.027370	4.3193498	35.92	130.5	45.6	42.6	-2.7	8.7	15.51	20.52	1.56
1-ott	21h 20m 48.55s	-16° 38' 47.0"	5.027093	4.3312310	36.02	129.4	45.5	42.5	-2.7	8.8	15.47	20.47	1.52
2-ott	21h 20m 39.26s	-16° 39' 24.4"	5.026817	4.3432888	36.12	128.4	45.3	42.4	-2.6	9.0	15.43	20.43	1.48
3-ott	21h 20m 30.74s	-16° 39' 58.1"	5.026541	4.3555190	36.22	127.4	45.2	42.3	-2.6	9.1	15.39	20.39	1.44
4-ott	21h 20m 22.98s	-16° 40' 28.2"	5.026266	4.3679173	36.33	126.4	45.1	42.2	-2.6	9.2	15.35	20.35	1.39
5-ott	21h 20m 16.00s	-16° 40' 54.5"	5.025991	4.3804797	36.43	125.4	44.9	42.0	-2.6	9.3	15.31	20.31	1.35
6-ott	21h 20m 09.79s	-16° 41' 17.0"	5.025716	4.3932021	36.54	124.4	44.8	41.9	-2.6	9.5	15.27	20.27	1.31
7-ott	21h 20m 04.37s	-16° 41' 35.9"	5.025442	4.4060804	36.64	123.4	44.7	41.8	-2.6	9.6	15.23	20.23	1.27
8-ott	21h 19m 59.74s	-16° 41' 51.0"	5.025168	4.4191106	36.75	122.3	44.6	41.7	-2.6	9.7	15.19	20.19	1.23
9-ott	21h 19m 55.90s	-16° 42' 02.4"	5.024895	4.4322886	36.86	121.3	44.4	41.5	-2.6	9.8	15.15	20.15	1.19
10-ott	21h 19m 52.84s	-16° 42' 10.1"	5.024622	4.4456104	36.97	120.3	44.3	41.4	-2.6	9.9	15.11	20.11	1.15
11-ott	21h 19m 50.58s	-16° 42' 14.0"	5.024349	4.4590718	37.09	119.4	44.2	41.3	-2.6	10.0	15.07	20.07	1.11
12-ott	21h 19m 49.10s	-16° 42' 14.3"	5.024077	4.4726688	37.20	118.4	44.0	41.2	-2.6	10.1	15.03	20.03	1.07
13-ott	21h 19m 48.42s	-16° 42' 10.8"	5.023805	4.4863970	37.31	117.4	43.9	41.0	-2.6	10.2	14.59	19.59	1.03
14-ott	21h 19m 48.53s	-16° 42' 03.6"	5.023533	4.5002520	37.43	116.4	43.8	40.9	-2.6	10.2	14.55	19.56	0.59
15-ott	21h 19m 49.44s	-16° 41' 52.7"	5.023262	4.5142294	37.54	115.4	43.6	40.8	-2.6	10.3	14.52	19.52	0.56
16-ott	21h 19m 51.14s	-16° 41' 38.0"	5.022991	4.5283245	37.66	114.4	43.5	40.7	-2.6	10.4	14.48	19.48	0.52
17-ott	21h 19m 53.64s	-16° 41' 19.6"	5.022721	4.5425326	37.78	113.4	43.3	40.5	-2.5	10.5	14.44	19.44	0.48
18-ott	21h 19m 56.94s	-16° 40' 57.3"	5.022451	4.5568489	37.90	112.4	43.2	40.4	-2.5	10.6	14.40	19.40	0.44
19-ott	21h 20m 01.05s	-16° 40' 31.4"	5.022181	4.5712685	38.02	111.5	43.1	40.3	-2.5	10.6	14.36	19.36	0.40
20-ott	21h 20m 05.95s	-16° 40' 01.6"	5.021912	4.5857866	38.14	110.5	42.9	40.2	-2.5	10.7	14.32	19.32	0.36
21-ott	21h 20m 11.65s	-16° 39' 28.2"	5.021643	4.6003984	38.26	109.5	42.8	40.0	-2.5	10.8	14.28	19.28	0.33
22-ott	21h 20m 18.15s	-16° 38' 51.0"	5.021375	4.6150990	38.38	108.6	42.7	39.9	-2.5	10.8	14.24	19.25	0.29
23-ott	21h 20m 25.44s	-16° 38' 10.2"	5.021107	4.6298837	38.51	107.6	42.5	39.8	-2.5	10.9	14.20	19.21	0.25
24-ott	21h 20m 33.51s	-16° 37' 25.7"	5.020839	4.6447478	38.63	106.6	42.4	39.6	-2.5	10.9	14.17	19.17	0.21
25-ott	21h 20m 42.37s	-16° 36' 37.5"	5.020572	4.6596867	38.75	105.7	42.3	39.5	-2.5	11.0	14.13	19.13	0.17
26-ott	21h 20m 52.00s	-16° 35' 45.8"	5.020306	4.6746957	38.88	104.7	42.1	39.4	-2.5	11.0	14.09	19.10	0.14
27-ott	21h 21m 02.40s	-16° 34' 50.4"	5.020039	4.6897705	39.00	103.8	42.0	39.3	-2.5	11.1	14.05	19.06	0.10
28-ott	21h 21m 13.57s	-16° 33' 51.4"	5.019773	4.7049066	39.13	102.8	41.9	39.1	-2.5	11.1	14.01	19.02	0.06
29-ott	21h 21m 25.50s	-16° 32' 48.9"	5.019508	4.7200996	39.26	101.9	41.7	39.0	-2.5	11.2	13.58	18.58	0.03
30-ott	21h 21m 38.18s	-16° 31' 42.8"	5.019242	4.7353453	39.38	100.9	4						

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Angolo fase°	Sorge	Transita	Tramonta
31-ott	21h 21m 51.62s	-16° 30' 33.1"	5.018978	4.7506395	39.51	100.0	41.4	38.8	-2.5	11.2	13.50	18.51	23.52
1-nov	21h 22m 05.80s	-16° 29' 19.9"	5.018713	4.7659781	39.64	99.0	41.3	38.6	-2.4	11.3	13.46	18.47	23.48
2-nov	21h 22m 20.73s	-16° 28' 03.2"	5.018449	4.7813571	39.77	98.1	41.2	38.5	-2.4	11.3	13.42	18.44	23.45
3-nov	21h 22m 36.40s	-16° 26' 42.9"	5.018186	4.7967726	39.89	97.2	41.0	38.4	-2.4	11.3	13.39	18.40	23.41
4-nov	21h 22m 52.80s	-16° 25' 19.2"	5.017923	4.8122207	40.02	96.2	40.9	38.3	-2.4	11.3	13.35	18.36	23.38
5-nov	21h 23m 09.93s	-16° 23' 52.0"	5.017660	4.8276978	40.15	95.3	40.8	38.1	-2.4	11.3	13.31	18.33	23.34
6-nov	21h 23m 27.78s	-16° 22' 21.4"	5.017397	4.8432000	40.28	94.4	40.7	38.0	-2.4	11.4	13.27	18.29	23.30
7-nov	21h 23m 46.34s	-16° 20' 47.5"	5.017135	4.8587236	40.41	93.5	40.5	37.9	-2.4	11.4	13.24	18.25	23.27
8-nov	21h 24m 05.61s	-16° 19' 10.1"	5.016874	4.8742648	40.54	92.5	40.4	37.8	-2.4	11.4	13.20	18.22	23.23
9-nov	21h 24m 25.58s	-16° 17' 29.3"	5.016613	4.8898197	40.67	91.6	40.3	37.7	-2.4	11.4	13.16	18.18	23.20
10-nov	21h 24m 46.24s	-16° 15' 45.2"	5.016352	4.9053845	40.80	90.7	40.1	37.5	-2.4	11.4	13.13	18.15	23.17
11-nov	21h 25m 07.59s	-16° 13' 57.7"	5.016092	4.9209550	40.93	89.8	40.0	37.4	-2.4	11.4	13.09	18.11	23.13
12-nov	21h 25m 29.62s	-16° 12' 06.9"	5.015832	4.9365273	41.06	88.9	39.9	37.3	-2.4	11.4	13.05	18.07	23.10
13-nov	21h 25m 52.33s	-16° 10' 12.7"	5.015572	4.9520972	41.19	88.0	39.8	37.2	-2.4	11.4	13.02	18.04	23.06
14-nov	21h 26m 15.72s	-16° 08' 15.2"	5.015313	4.9676605	41.32	87.1	39.6	37.1	-2.4	11.4	12.58	18.00	23.03
15-nov	21h 26m 39.77s	-16° 06' 14.4"	5.015055	4.9832129	41.44	86.2	39.5	37.0	-2.4	11.4	12.54	17.57	22.59
16-nov	21h 27m 04.49s	-16° 04' 10.2"	5.014796	4.9987503	41.57	85.3	39.4	36.8	-2.3	11.3	12.51	17.53	22.56
17-nov	21h 27m 29.87s	-16° 02' 02.8"	5.014538	5.0142685	41.70	84.4	39.3	36.7	-2.3	11.3	12.47	17.50	22.53
18-nov	21h 27m 55.89s	-15° 59' 52.1"	5.014281	5.0297633	41.83	83.5	39.1	36.6	-2.3	11.3	12.43	17.46	22.49
19-nov	21h 28m 22.56s	-15° 57' 38.2"	5.014024	5.0452307	41.96	82.6	39.0	36.5	-2.3	11.3	12.40	17.43	22.46
20-nov	21h 28m 49.86s	-15° 55' 21.1"	5.013767	5.0606666	42.09	81.7	38.9	36.4	-2.3	11.2	12.36	17.39	22.43
21-nov	21h 29m 17.78s	-15° 53' 00.8"	5.013511	5.0760671	42.22	80.8	38.8	36.3	-2.3	11.2	12.32	17.36	22.39
22-nov	21h 29m 46.31s	-15° 50' 37.5"	5.013255	5.0914285	42.34	79.9	38.7	36.2	-2.3	11.2	12.29	17.32	22.36
23-nov	21h 30m 15.45s	-15° 48' 11.0"	5.013000	5.1067469	42.47	79.0	38.6	36.1	-2.3	11.2	12.25	17.29	22.33
24-nov	21h 30m 45.18s	-15° 45' 41.4"	5.012745	5.1220187	42.60	78.1	38.4	36.0	-2.3	11.1	12.22	17.26	22.30
25-nov	21h 31m 15.50s	-15° 43' 08.8"	5.012491	5.1372403	42.73	77.2	38.3	35.8	-2.3	11.1	12.18	17.22	22.26
26-nov	21h 31m 46.40s	-15° 40' 33.1"	5.012237	5.1524084	42.85	76.4	38.2	35.7	-2.3	11.0	12.14	17.19	22.23
27-nov	21h 32m 17.88s	-15° 37' 54.4"	5.011983	5.1675194	42.98	75.5	38.1	35.6	-2.3	11.0	12.11	17.15	22.20
28-nov	21h 32m 49.91s	-15° 35' 12.7"	5.011730	5.1825701	43.10	74.6	38.0	35.5	-2.3	10.9	12.07	17.12	22.17
29-nov	21h 33m 22.50s	-15° 32' 28.0"	5.011477	5.1975574	43.23	73.7	37.9	35.4	-2.3	10.9	12.04	17.09	22.13
30-nov	21h 33m 55.65s	-15° 29' 40.4"	5.011224	5.2124781	43.35	72.9	37.8	35.3	-2.3	10.8	12.00	17.05	22.10
1-dic	21h 34m 29.34s	-15° 26' 49.8"	5.010972	5.2273293	43.47	72.0	37.7	35.2	-2.3	10.8	11.57	17.02	22.07
2-dic	21h 35m 03.56s	-15° 23' 56.3"	5.010721	5.2421081	43.60	71.1	37.6	35.1	-2.2	10.7	11.53	16.58	22.04
3-dic	21h 35m 38.31s	-15° 20' 00.0"	5.010470	5.2568117	43.72	70.3	37.5	35.0	-2.2	10.7	11.49	16.55	22.01
4-dic	21h 36m 13.58s	-15° 18' 00.8"	5.010219	5.2714373	43.84	69.4	37.4	34.9	-2.2	10.6	11.46	16.52	21.58
5-dic	21h 36m 49.36s	-15° 14' 58.7"	5.009969	5.2859821	43.96	68.5	37.3	34.8	-2.2	10.5	11.42	16.48	21.55
6-dic	21h 37m 25.63s	-15° 11' 53.9"	5.009719	5.3004434	44.08	67.7	37.1	34.7	-2.2	10.5	11.39	16.45	21.51
7-dic	21h 38m 02.40s	-15° 08' 46.4"	5.009469	5.3148182	44.20	66.8	37.0	34.6	-2.2	10.4	11.35	16.42	21.48
8-dic	21h 38m 39.65s	-15° 05' 36.0"	5.009220	5.3291035	44.32	66.0	36.9	34.6	-2.2	10.3	11.32	16.38	21.45
9-dic	21h 39m 17.38s	-15° 02' 22.9"	5.008972	5.3432962	44.44	65.1	36.9	34.5	-2.2	10.3	11.28	16.35	21.42
10-dic	21h 39m 55.59s	-14° 59' 07.0"	5.008724	5.3573933	44.56	64.3	36.8	34.4	-2.2	10.2	11.25	16.32	21.39
11-dic	21h 40m 34.26s	-14° 55' 48.4"	5.008476	5.3713915	44.67	63.4	36.7	34.3	-2.2	10.1	11.21	16.29	21.36
12-dic	21h 41m 13.40s	-14° 52' 27.1"	5.008229	5.3852878	44.79	62.6	36.6	34.2	-2.2	10.0	11.18	16.25	21.33
13-dic	21h 41m 52.99s	-14° 49' 03.1"	5.007982	5.3990789	44.90	61.7	36.5	34.1	-2.2	10.0	11.14	16.22	21.30
14-dic	21h 42m 33.03s	-14° 45' 36.4"	5.007735	5.4127616	45.02	60.9	36.4	34.0	-2.2	9.9	11.11	16.19	21.27
15-dic	21h 43m 13.51s	-14° 42' 07.0"	5.007489	5.4263329	45.13	60.0	36.3	33.9	-2.2	9.8	11.07	16.16	21.24
16-dic	21h 43m 54.43s	-14° 38' 35.0"	5.007244	5.4397898	45.24	59.2	36.2	33.9	-2.2	9.7	11.04	16.12	21.21
17-dic	21h 44m 35.77s	-14° 35' 00.5"	5.006999	5.4531291	45.35	58.3	36.1	33.8	-2.2	9.6	11.00	16.09	21.18
18-dic	21h 45m 17.52s	-14° 31' 23.4"	5.006754	5.4663481	45.46	57.5	36.0	33.7	-2.2	9.5	10.57	16.06	21.15
19-dic	21h 45m 59.69s	-14° 27' 43.8"	5.006510	5.4794439	45.57	56.7	35.9	33.6	-2.2	9.4	10.53	16.03	21.12
20-dic	21h 46m 42.24s	-14° 24' 01.7"	5.006266	5.4924138	45.68	55.8	35.9	33.5	-2.1	9.4	10.50	15.59	21.09
21-dic	21h 47m 25.19s	-14° 20' 17.2"	5.006022	5.5052551	45.79	55.0	35.8	33.4	-2.1	9.3	10.46	15.56	21.06
22-dic	21h 48m 08.51s	-14° 16' 30.2"	5.005779	5.5179654	45.89	54.2	35.7	33.4	-2.1	9.2	10.43	15.53	21.03
23-dic	21h 48m 52.21s	-14° 12' 40.9"	5.005537	5.5305421	46.00	53.3	35.6	33.3	-2.1	9.1	10.40	15.50	21.00
24-dic	21h 49m 36.28s	-14° 08' 49.1"	5.005295	5.5429829	46.10	52.5	35.5	33.2	-2.1	9.0	10.36	15.47	20.57
25-dic	21h 50m 20.70s	-14° 04' 55.0"	5.005053	5.5552855	46.20	51.7	35.4	33.1	-2.1	8.9	10.33	15.43	20.54
26-dic	21h 51m 05.47s	-14° 00' 58.6"	5.004812	5.5674478	46.30	50.8	35.4	33.1	-2.1	8.8	10.29	15.40	20.51
27-dic	21h 51m 50.59s	-13° 56' 59.9"	5.004571	5.5794676	46.40	50.0	35.3	33.0	-2.1	8.7	10.26	15.37	20.48
28-dic	21h 52m 36.05s	-13° 52' 58.8"	5.004331	5.5913431	46.50	49.2	35.2	32.9	-2.1	8.6	10.22	15.34	20.45
29-dic	21h 53m 21.84s	-13° 48' 55.5"	5.004091	5.6030724	46.60	48.4	35.1	32.9	-2.1	8.4	10.19	15.31	20.42
30-dic	21h 54m 07.95s	-13° 44' 50.0"	5.003851	5.6146536	46.70	47.6	35.1	32.8	-2.1	8.3	10.16	15.27	20.40
31-dic	21h 54m 54.38s	-13° 40' 42.4"	5.003612	5.6260852	46.79	46.7	35.0	32.7	-2.1	8.2	10.12	15.24	20.37

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro equatoriale e polare in "

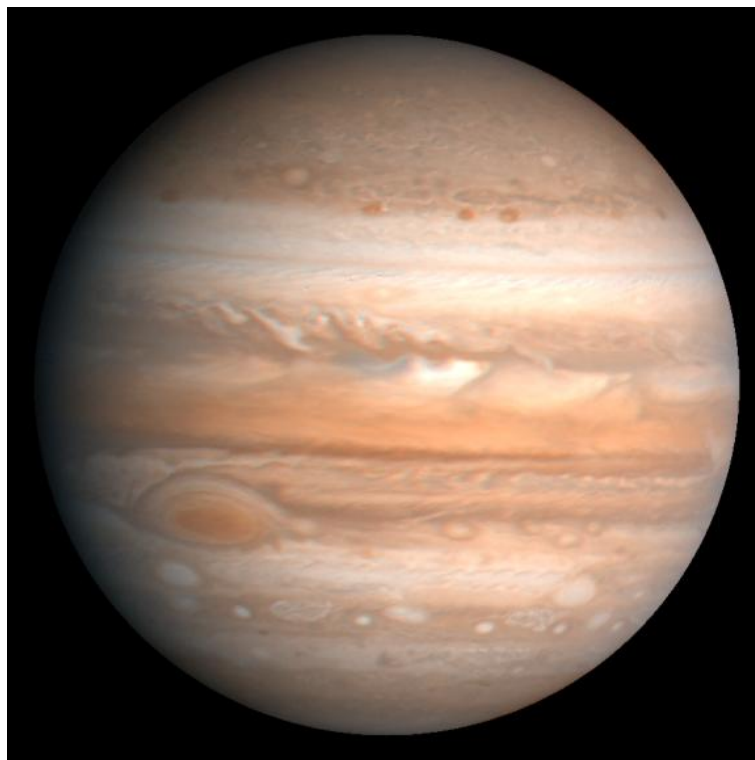
Mag. = magnitudine

Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

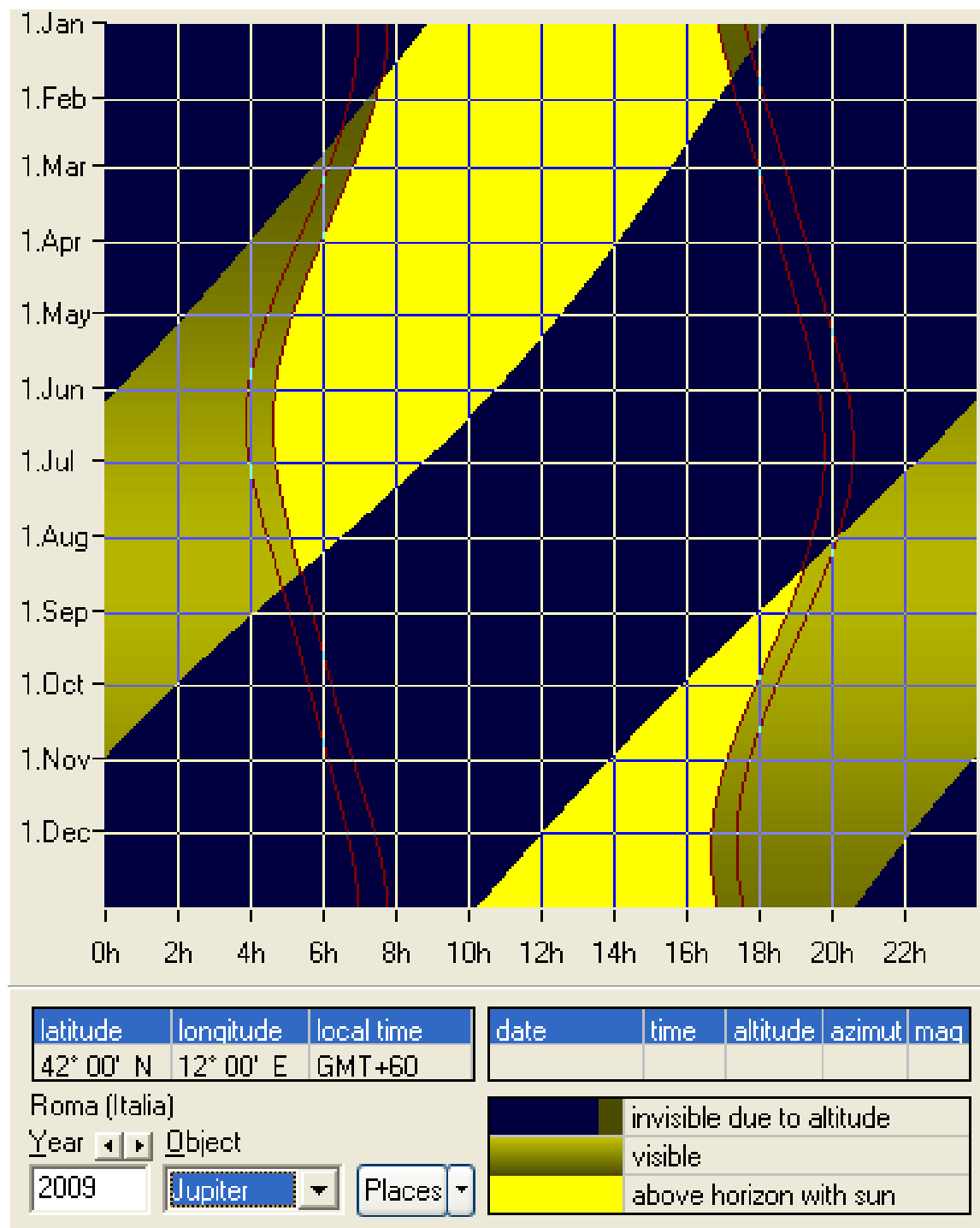
FENOMENI DI GIOVE

Perielio	Quest'anno il fenomeno non avviene				
Afelio	Quest'anno il fenomeno non avviene				
Perigeo	15/08/2009	03.17	4.02782 U.A.		
Apogeo	23/01/2009	02.47	6.09055 U.A.		
Magnitudine massima	15/08/2009	00.52	-2.9	mag	
Magnitudine minima	11/01/2009	08.34	-1.9	mag	
Opposizione	14/08/2009	17.53			
Congiunzione	24/01/2009	05.44			
Moto retrogrado	15/06/2009	19.53			
Moto diretto	13/10/2009	08.38			
Massimo angolo di fase	17/05/2009	13.35	11.5	°	
Massimo angolo di fase	10/11/2009	02.32	11.4	°	
Minimo angolo di fase	24/01/2009	04.18	0.1	°	
Minimo angolo di fase	14/08/2009	18.57	0.2	°	
Estrema lat. della Terra	18/07/2009	18.47	0.52	°	
Lat. della Terra zero	15/04/2009	11.01			
Estrema lat. del Sole	Quest'anno il fenomeno non avviene				
Lat. del Sole zero	22/06/2009	11.05			

© (5)



VISIBILITA' DI GIOVE



Visibilità di Giove nel corso dell'anno

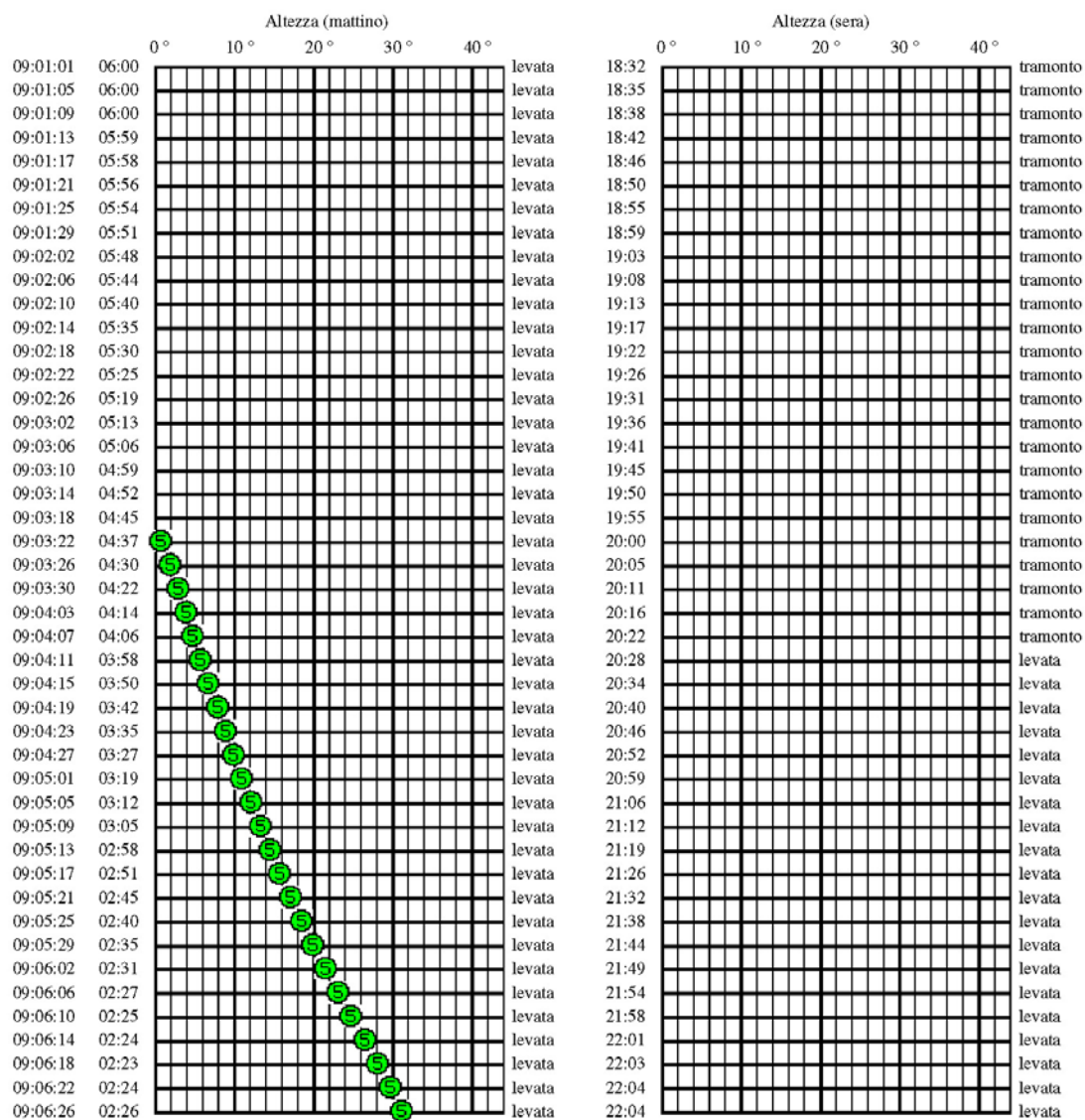
Le righe rosse più esterne indicano in quali periodi dell'anno il pianeta è sufficientemente distante dal Sole per poter essere osservato agevolmente. Le date esatte sono riportate nelle tabelle seguenti.

Altezza ai crepuscoli

di Giove

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

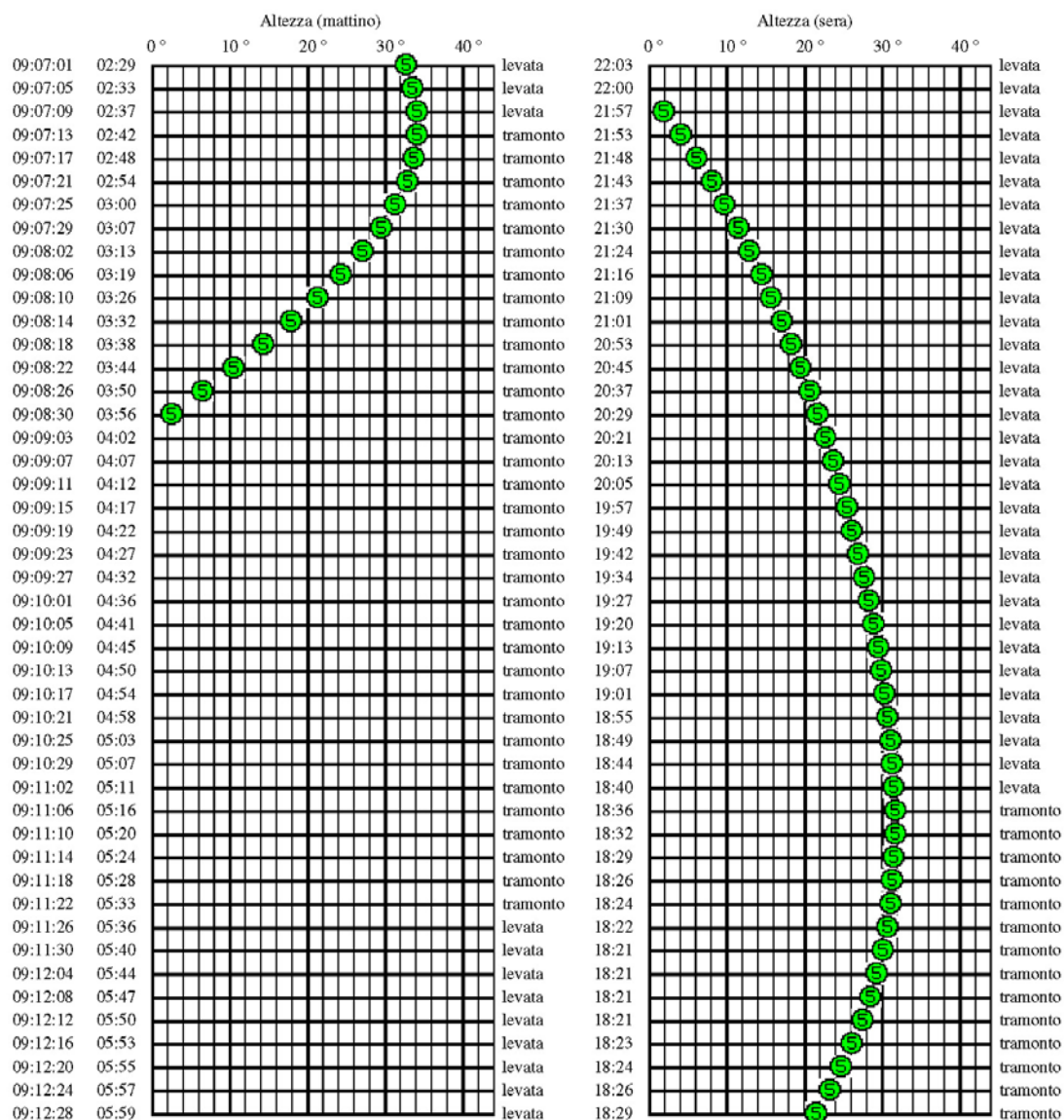


Altezza ai crepuscoli

di Giove

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)



Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	-30.8	91.1	18.1	18:32	-3.3	244.9	17.6
2009:01:05	06:00	-28.4	92.9	14.9	18:35	-5.8	247.4	14.5
2009:01:09	06:00	-26.1	94.6	11.8	18:38	-8.3	250.0	11.4
2009:01:13	05:59	-23.9	96.2	8.6	18:42	-10.9	252.7	8.2
2009:01:17	05:58	-21.8	97.7	5.5	18:46	-13.6	255.3	5.1
2009:01:21	05:56	-19.8	99.2	2.4	18:50	-16.4	258.0	2.0
2009:01:25	05:54	-17.9	100.5	0.9	18:55	-19.2	260.7	1.3
2009:01:29	05:51	-16.1	101.7	3.9	18:59	-22.1	263.4	4.3
2009:02:02	05:48	-14.4	102.9	7.0	19:03	-24.9	266.2	7.4
2009:02:06	05:44	-12.8	104.0	10.1	19:08	-27.8	269.1	10.5
2009:02:10	05:40	-11.3	105.0	13.2	19:13	-30.8	272.1	13.7
2009:02:14	05:35	-9.8	105.9	16.3	19:17	-33.7	275.2	16.8
2009:02:18	05:30	-8.5	106.9	19.4	19:22	-36.6	278.5	19.9
2009:02:22	05:25	-7.1	107.7	22.6	19:26	-39.5	282.0	23.0
2009:02:26	05:19	-5.9	108.5	25.7	19:31	-42.4	285.7	26.1
2009:03:02	05:13	-4.7	109.3	28.8	19:36	-45.2	289.6	29.3
2009:03:06	05:06	-3.5	110.1	31.9	19:41	-48.0	294.0	32.4
2009:03:10	04:59	-2.4	110.8	35.0	19:45	-50.6	298.7	35.5
2009:03:14	04:52	-1.3	111.5	38.2	19:50	-53.2	304.0	38.7
2009:03:18	04:45	-0.2	112.2	41.3	19:55	-55.6	309.9	41.8
2009:03:22	04:37	0.8	112.9	44.5	20:00	-57.8	316.5	45.0
2009:03:26	04:30	1.8	113.5	47.6	20:05	-59.7	323.9	48.2
2009:03:30	04:22	2.8	114.2	50.8	20:11	-61.3	332.2	51.3
2009:04:03	04:14	3.8	114.9	54.0	20:16	-62.4	341.2	54.6
2009:04:07	04:06	4.8	115.6	57.2	20:22	-63.0	350.9	57.8
2009:04:11	03:58	5.8	116.3	60.5	20:28	-63.1	0.9	61.0
2009:04:15	03:50	6.8	117.1	63.7	20:34	-62.5	11.0	64.3
2009:04:19	03:42	7.8	117.9	67.0	20:40	-61.3	20.7	67.6
2009:04:23	03:35	8.8	118.8	70.3	20:46	-59.6	29.7	70.9
2009:04:27	03:27	9.9	119.7	73.6	20:52	-57.4	37.9	74.2
2009:05:01	03:19	11.0	120.7	76.9	20:59	-54.7	45.3	77.6
2009:05:05	03:12	12.1	121.8	80.3	21:06	-51.7	52.0	80.9
2009:05:09	03:05	13.3	123.0	83.7	21:12	-48.5	58.0	84.4
2009:05:13	02:58	14.5	124.3	87.2	21:19	-45.0	63.4	87.8
2009:05:17	02:51	15.8	125.7	90.6	21:26	-41.4	68.2	91.3
2009:05:21	02:45	17.1	127.4	94.2	21:32	-37.7	72.7	94.8
2009:05:25	02:40	18.5	129.2	97.7	21:38	-33.9	76.9	98.4
2009:05:29	02:35	20.0	131.2	101.3	21:44	-30.1	80.7	102.0
2009:06:02	02:31	21.5	133.5	104.9	21:49	-26.3	84.4	105.7
2009:06:06	02:27	23.1	136.2	108.6	21:54	-22.6	87.8	109.4
2009:06:10	02:25	24.7	139.1	112.4	21:58	-19.0	91.0	113.1
2009:06:14	02:24	26.4	142.5	116.1	22:01	-15.5	94.1	116.9
2009:06:18	02:23	28.1	146.3	120.0	22:03	-12.2	97.1	120.8
2009:06:22	02:24	29.6	150.5	123.8	22:04	-9.1	99.9	124.6
2009:06:26	02:26	31.1	155.3	127.8	22:04	-6.2	102.5	128.6
2009:06:30	02:28	32.4	160.5	131.8	22:03	-3.4	105.1	132.6

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	32.6	161.9	132.8	22:03	-2.8	105.7	133.6
2009:07:05	02:33	33.5	167.7	136.8	22:00	-0.3	108.2	137.6
2009:07:09	02:37	34.1	173.9	140.9	21:57	2.0	110.6	141.7
2009:07:13	02:42	34.2	180.3	145.0	21:53	4.1	112.9	145.8
2009:07:17	02:48	33.8	187.0	149.2	21:48	6.1	115.1	150.0
2009:07:21	02:54	32.8	193.6	153.4	21:43	8.0	117.3	154.2
2009:07:25	03:00	31.4	200.2	157.6	21:37	9.8	119.5	158.5
2009:07:29	03:07	29.5	206.5	161.9	21:30	11.4	121.7	162.7
2009:08:02	03:13	27.1	212.6	166.2	21:24	12.9	123.8	167.0
2009:08:06	03:19	24.3	218.3	170.5	21:16	14.4	125.9	171.3
2009:08:10	03:26	21.2	223.7	174.8	21:09	15.8	128.1	175.6
2009:08:14	03:32	17.8	228.7	178.7	21:01	17.1	130.2	178.9
2009:08:18	03:38	14.2	233.5	176.2	20:53	18.3	132.4	175.4
2009:08:22	03:44	10.4	237.9	171.9	20:45	19.5	134.6	171.1
2009:08:26	03:50	6.5	242.1	167.5	20:37	20.6	136.7	166.8
2009:08:30	03:56	2.5	246.0	163.2	20:29	21.7	138.9	162.4
2009:09:03	04:02	-1.6	249.8	158.8	20:21	22.7	141.2	158.1
2009:09:07	04:07	-5.7	253.4	154.5	20:13	23.7	143.4	153.8
2009:09:11	04:12	-9.9	257.0	150.2	20:05	24.6	145.6	149.5
2009:09:15	04:17	-14.0	260.5	146.0	19:57	25.4	147.9	145.3
2009:09:19	04:22	-18.1	263.9	141.7	19:49	26.2	150.2	141.1
2009:09:23	04:27	-22.2	267.4	137.6	19:42	26.9	152.6	136.9
2009:09:27	04:32	-26.2	270.8	133.4	19:34	27.6	154.9	132.8
2009:10:01	04:36	-30.2	274.4	129.3	19:27	28.3	157.3	128.7
2009:10:05	04:41	-34.0	278.2	125.2	19:20	28.9	159.7	124.6
2009:10:09	04:45	-37.8	282.1	121.2	19:13	29.4	162.2	120.6
2009:10:13	04:50	-41.5	286.2	117.2	19:07	29.9	164.7	116.6
2009:10:17	04:54	-45.0	290.7	113.3	19:01	30.4	167.3	112.7
2009:10:21	04:58	-48.4	295.6	109.4	18:55	30.8	169.9	108.8
2009:10:25	05:03	-51.5	301.0	105.5	18:49	31.1	172.6	105.0
2009:10:29	05:07	-54.5	307.0	101.7	18:44	31.3	175.4	101.2
2009:11:02	05:11	-57.1	313.7	97.9	18:40	31.5	178.2	97.4
2009:11:06	05:16	-59.4	321.2	94.2	18:36	31.6	181.2	93.7
2009:11:10	05:20	-61.3	329.4	90.5	18:32	31.7	184.2	90.0
2009:11:14	05:24	-62.7	338.5	86.9	18:29	31.6	187.3	86.4
2009:11:18	05:28	-63.6	348.0	83.3	18:26	31.4	190.5	82.8
2009:11:22	05:33	-63.8	357.8	79.7	18:24	31.1	193.8	79.2
2009:11:26	05:36	-63.5	7.4	76.2	18:22	30.7	197.2	75.7
2009:11:30	05:40	-62.7	16.4	72.7	18:21	30.1	200.6	72.2
2009:12:04	05:44	-61.4	24.7	69.2	18:21	29.3	204.1	68.8
2009:12:08	05:47	-59.7	32.2	65.8	18:21	28.5	207.7	65.3
2009:12:12	05:50	-57.7	38.8	62.4	18:21	27.4	211.3	61.9
2009:12:16	05:53	-55.6	44.5	59.0	18:23	26.2	214.9	58.6
2009:12:20	05:55	-53.3	49.6	55.6	18:24	24.8	218.5	55.2
2009:12:24	05:57	-50.9	54.0	52.3	18:26	23.2	222.0	51.9
2009:12:28	05:59	-48.5	57.8	49.0	18:29	21.5	225.6	48.6

Date eliache per Giove

Posizione : Roma

Latitudine : 42° 00' 00'' N

Longitudine : 12° 00' 00'' E

Visibilità minima [°] = 10.5 + 1.4 * magnitudine

Altezza critica : 0.00°

	data	ogg s/t	Sole s/t	d s/t	età	mag
fine visibilità serale	2009-01-11	17:47	17:01	0:46h	-12d 14h	-1.5
inizio visibilità mattutina	2009-02-15	06:25	07:08	-0:42h	21d 22h	-1.5

Legenda:

Ogg s/t : ora del tramonto o della levata del pianeta

Sole s/t: ora del tramonto o della levata del Sole

D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due oggetti

Età : giorni trascorsi dalla congiunzione col Sole

Mag : magnitudine

	data	ogg s/t	Sole s/t	Sole alt	Sole lon	ogg lon	ogg lat	mag	d az	d lon
FS	01-11	17:47	17:01	-8° 33'	291° 36'	301° 25'	-0° 25'	-1.5	-5° 40'	9° 48'
IM	02-15	06:25	07:08	-8° 34'	326° 40'	309° 32'	-0° 29'	-1.5	15° 11'	-17° 07'

Legenda:

Data : data nel formato mese/giorno

Ogg s/t : ora del tramonto o della levata del pianeta

Sole s/t: ora del tramonto o della levata del Sole

Sole alt : altezza del Sole nell'istante di visibilità del pianeta

Sole lon : longitudine celeste del Sole

Ogg lon : longitudine celeste del pianeta

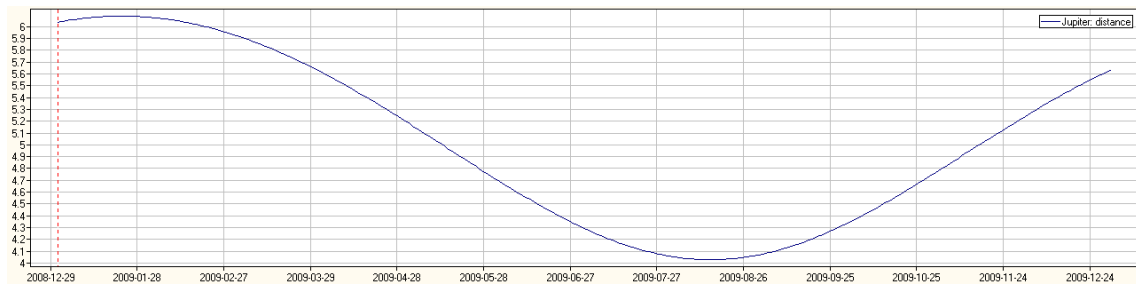
Ogg lat : latitudine celeste del pianeta

Mag : magnitudine

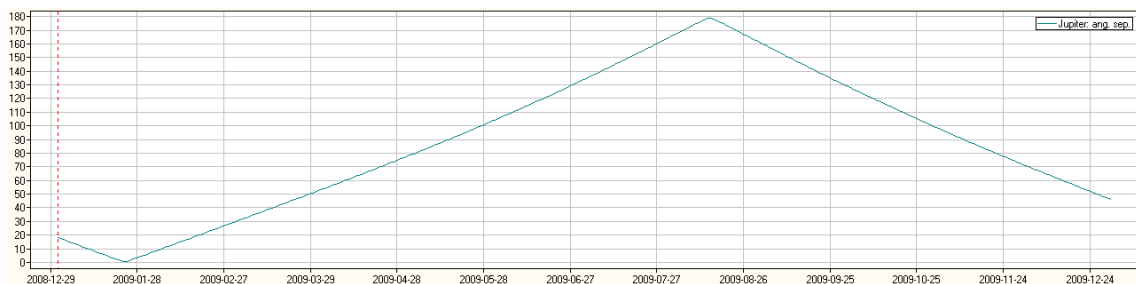
D az : differenza in azimuth tra i centri del Sole e del pianeta nell'istante della sua visibilità

D lon : differenza in longitudine tra i centri del Sole e del pianeta nell'istante della sua visibilità

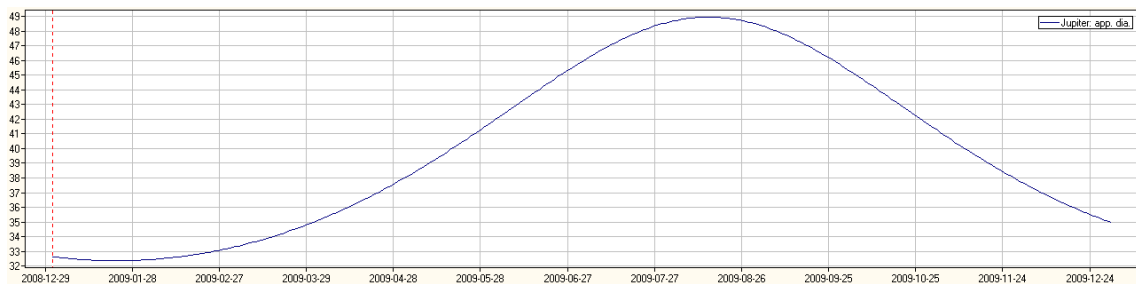
© (3)



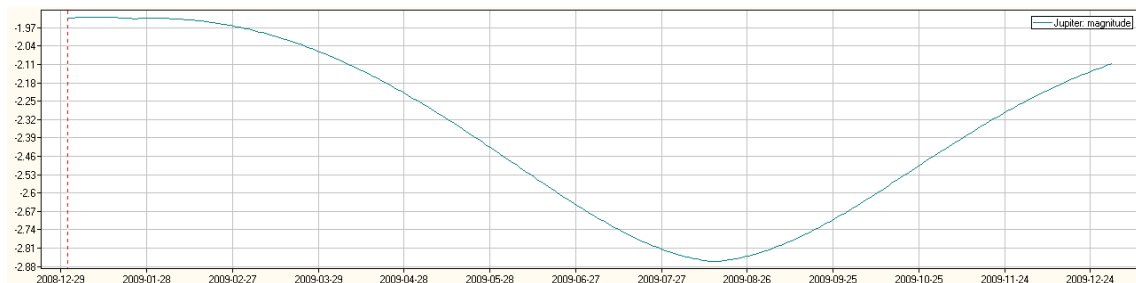
Distanza di Giove in U.A. nel corso dell'anno



Elongazione di Giove in ° nel corso dell'anno



Diametro di Giove in " nel corso dell'anno



Magnitudine di Giove nel corso dell'anno

COORDINATE DEI SATELLITI DI GIOVE

	I:x	I:y	I:z	II:x	II:y	II:z	III:x	III:y	III:z	IV:x	IV:y	IV:z
01/01/2009	-1.8112	0.0931	-5.6015	0.0310	0.2204	-9.4850	-14.8251	0.0297	-2.2793	-18.5083	0.2226	-18.7431
02/01/2009	-0.5887	-0.0983	5.9008	9.2654	0.0188	1.6176	-7.7876	0.2436	-12.8281	-10.4324	0.3218	-24.2519
03/01/2009	2.8517	0.0862	-5.1464	-3.5284	-0.2189	8.6082	4.8323	0.2815	-14.2058	-0.9209	0.3762	-26.4447
04/01/2009	-4.6586	-0.0620	3.6610	-7.7869	0.0749	-5.3210	13.9861	0.1188	-5.4268	8.7169	0.3795	-25.0474
05/01/2009	5.7161	0.0262	-1.4474	6.5730	0.1947	-6.8298	13.1154	-0.1256	7.2344	17.1737	0.3325	-20.2716
06/01/2009	-5.8497	0.0107	-0.8383	5.3843	-0.1403	7.6238	2.8461	-0.2766	14.7020	23.3109	0.2426	-12.7720
07/01/2009	4.9978	-0.0479	3.1627	-8.6418	-0.1311	3.5536	-9.4614	-0.2281	11.6052	26.3113	0.1226	-3.5598
08/01/2009	-3.3969	0.0743	-4.8126	-1.9298	0.1966	-9.2846	-14.9903	-0.0176	0.1715	25.7718	-0.0111	6.1289
09/01/2009	1.1767	-0.0902	5.8111	9.4090	0.0629	-0.3453	-9.7737	0.2027	-11.3880	21.7582	-0.1406	14.9903
10/01/2009	1.1898	0.0898	-5.7609	-1.6410	-0.2121	9.1576	2.4496	0.2758	-14.8044	14.7970	-0.2488	21.8121
11/01/2009	-3.3720	-0.0764	4.8749	-8.7144	0.0283	-3.5843	12.9165	0.1519	-7.6394	5.8190	-0.3216	25.6456
12/01/2009	5.0257	0.0492	-3.0777	5.0203	0.2052	-8.0441	14.1277	-0.0776	4.9888	-3.9565	-0.3496	25.9369
13/01/2009	-5.8391	-0.0169	0.9314	6.8673	-0.0983	6.3307	5.2164	-0.2478	14.0362	-13.1860	-0.3297	22.6223
14/01/2009	5.7063	-0.0201	1.5408	-7.6983	-0.1582	5.2815	-7.4314	-0.2386	12.9975	-20.5810	-0.2653	16.1457
15/01/2009	-4.6767	0.0505	-3.5883	-3.8086	0.1652	-8.6821	-14.7549	-0.0594	2.6190	-25.1042	-0.1660	7.4074
16/01/2009	2.8375	-0.0744	5.2035	9.1406	0.1008	-2.2972	-11.5029	0.1595	-9.6406	-26.1191	-0.0459	-2.3668
17/01/2009	-0.5804	0.0842	-5.8539	0.3206	-0.1957	9.2988	-0.0083	0.2617	-15.0085	-23.4917	0.0781	-11.8126
18/01/2009	-1.7844	-0.0816	5.6546	-9.2600	-0.0160	-1.6914	11.4921	0.1766	-9.6551	-17.6005	0.1890	-19.6220
19/01/2009	3.8816	0.0646	-4.4298	3.2476	0.2053	-8.9113	14.7588	-0.0321	2.5995	-9.2776	0.2723	-24.7349
20/01/2009	-5.3051	-0.0393	2.6189	8.0482	-0.0547	4.7544	7.4487	-0.2139	12.9868	0.3172	0.3176	-26.4736
21/01/2009	5.9030	0.0061	-0.2184	-6.4140	-0.1757	6.7746	-5.1997	-0.2399	14.0391	9.8701	0.3200	-24.6289
22/01/2009	-5.5348	0.0250	-2.0395	-5.5216	0.1286	-7.7033	-14.1221	-0.0946	4.9986	18.0866	0.2804	-19.4685
23/01/2009	4.2449	-0.0536	4.1323	8.4714	0.1311	-4.1508	-12.9226	0.1157	-7.6313	23.8668	0.2053	-11.6942
24/01/2009	-2.2978	0.0712	-5.4168	2.2691	-0.1711	9.0247	-2.4644	0.2403	-14.8059	26.4353	0.1052	-2.3511
25/01/2009	-0.0382	-0.0783	5.9306	-9.3989	-0.0561	0.2744	9.7591	0.1923	-11.4050	25.4460	-0.0060	7.3088
26/01/2009	2.3873	0.0715	-5.3808	1.3334	0.1957	-9.3925	14.9901	0.0090	0.1460	21.0215	-0.1136	15.9787
27/01/2009	-4.2966	-0.0548	4.0724	8.8734	-0.0120	2.9662	9.4776	-0.1767	11.5892	13.7438	-0.2035	22.4725
28/01/2009	5.5699	0.0279	-1.9561	-4.8461	-0.1831	7.9656	-2.8282	-0.2328	14.7032	4.5893	-0.2641	25.8786
29/01/2009	-5.8942	0.0007	-0.3069	-6.9938	0.0890	-6.3906	-13.1085	-0.1222	7.2483	-5.1965	-0.2879	25.7027
30/01/2009	5.2728	-0.0306	2.6935	7.4310	0.1525	-5.8242	-13.9971	0.0733	-5.4102	-14.2603	-0.2724	21.9469
31/01/2009	-3.8065	0.0530	-4.4901	4.1155	-0.1403	8.3480	-4.8599	0.2132	-14.2016	-21.3396	-0.2206	15.1217
01/02/2009	1.7104	-0.0677	5.6788	-9.1251	-0.0898	2.2251	7.7590	0.1992	-12.8468	-25.4396	-0.1403	6.1797
02/02/2009	0.6789	0.0702	-5.8450	-0.6385	0.1776	-9.4671	14.8154	0.0445	-2.3096	-25.9878	-0.0431	-3.6275
03/02/2009	-2.9053	-0.0624	5.1621	9.3066	0.0275	1.0460	11.2493	-0.1381	9.8800	-22.9164	0.0573	-12.9294
04/02/2009	4.7373	0.0435	-3.5159	-3.0658	-0.1810	8.8009	-0.3816	-0.2183	14.9691	-16.6673	0.1475	-20.4463
05/02/2009	-5.7242	-0.0198	1.4528	-8.1598	0.0487	-4.8031	-11.7407	-0.1416	9.2984	-8.1210	0.2158	-25.1603
06/02/2009	5.8298	-0.0082	1.0170	6.0663	0.1646	-7.2438	-14.6884	0.0341	-3.0490	1.5402	0.2539	-26.4516
07/02/2009	-4.9703	0.0323	-3.1590	5.7780	-0.1054	7.2996	-7.1146	0.1821	-13.2173	10.9925	0.2579	-24.1678
08/02/2009	3.3052	-0.0521	4.9232	-8.4519	-0.1159	4.0740	5.5577	0.1978	-13.9399	18.9597	0.2286	-18.6330
09/02/2009	-1.0885	0.0618	-5.7816	-2.5803	0.1527	-9.1328	14.2450	0.0733	-4.6982	24.3719	0.1708	-10.5986
10/02/2009	-1.2571	-0.0623	5.7919	9.3296	0.0619	-0.9193	12.7192	-0.0999	7.9066	26.5035	0.0929	-1.1396
11/02/2009	3.4813	0.0518	-4.7575	-1.1529	-0.1700	9.2444	2.0774	-0.1978	14.8319	25.0620	0.0056	8.4714
12/02/2009	-5.0426	-0.0346	3.0812	-8.9698	0.0101	-3.0109	-10.0540	-0.1529	11.0994	20.2292	-0.0796	16.9327
13/02/2009	5.8673	0.0110	-0.7468	4.4391	0.1674	-8.3477	-14.9818	-0.0004	-0.6047	12.6463	-0.1516	23.0792
14/02/2009	-5.6858	0.0121	-1.5455	7.1818	-0.0689	5.9289	-9.1735	0.1488	-11.8785	3.3311	-0.2015	26.0472
15/02/2009	4.6051	-0.0339	3.7330	-7.4107	-0.1335	5.7397	3.2128	0.1891	-14.6575	-6.4420	-0.2232	25.4007
16/02/2009	-2.7549	0.0485	-5.1985	-4.4078	0.1229	-8.4061	13.2943	0.0947	-6.9568	-15.3210	-0.2148	21.2081
17/02/2009	0.5002	-0.0556	5.9080	8.9435	0.0895	-2.8424	13.8447	-0.0640	5.7233	-22.0641	-0.1782	14.0467
18/02/2009	1.9162	0.0530	-5.5707	0.8057	-0.1517	9.2779	4.4728	-0.1728	14.2932	-25.7272	-0.1192	4.9157
19/02/2009	-3.9133	-0.0428	4.4337	-9.3900	-0.0247	-1.0939	-8.1046	-0.1561	12.5922	-25.8003	-0.0465	-4.9036
20/02/2009	5.3839	0.0251	-2.4401	2.6216	0.1616	-0.9898	-14.8733	-0.0291	1.8431	-22.2818	0.0298	-14.0440
21/02/2009	-5.8913	-0.0053	0.2042	8.2666	-0.0328	4.2986	-10.9796	0.1152	-10.2311	-15.6785	0.0996	-21.2468
22/02/2009	5.4962	-0.0158	2.2160	-6.0500	-0.1425	7.1492	0.7893	0.1742	-14.9859	-6.9163	0.1541	-25.5419
23/02/2009	-4.1710	0.0326	-4.1507	-6.0414	0.0904	-7.3212	11.9916	0.1085	-9.0283	2.7919	0.1870	-26.3678
24/02/2009	2.2102	-0.0443	5.5031	8.1680	0.1095	-4.6390	14.6003	-0.0317	3.3871	12.1229	0.1950	-23.6325
25/02/2009	0.1840	0.0480	-5.8849	2.7234	-0.1277	8.9026	6.7472	-0.1450	13.3694	19.8141	0.1783	-17.7202
26/02/2009	-2.4400	-0.0444	5.3917	-9.4050	-0.0542	0.8634	-5.9410	-0.1521	13.7432	24.8334	0.1400	-9.4285
27/02/2009	4.4251	0.0332	-3.9127	0.6956	0.1483	-9.4404	-14.3684	-0.0512	4.2334	26.5062	0.0858	0.1297
28/02/2009	-5.5724	-0.0181	1.9326	8.9863	0.0006	2.4835	-12.4885	0.0830	-8.3190	24.5974	0.0232	9.6709
01/03/2009	5.9021	-0.0002	0.5084	-4.4318	-0.1430	8.2426	-1.6482	0.1545	-14.9175	19.3516	-0.0397	17.8957
02/03/2009	-5.2115	0.0167	-2.7353	-7.4123	0.0573	-5.9279	10.3741	0.1148	-10.8522	11.4636	-0.0949	23.6665
03/03/2009	3.7226	-0.0305	4.6167	7.0408	0.1215	-6.2309	14.9622	-0.0044	0.9733	2.0013	-0.1359	26.1676
04/03/2009	-1.5596	0.0385	-5.6752	4.5149	-0.1001	8.1389	8.8271	-0.1162	12.0962	-7.7391	-0.1578	25.0259
05/03/2009	-0.7556	-0.0402	5.8738	-9.0178	-0.0772	2.7757	-3.6357	-0.1419	14.5236	-16.4029	-0.1588	20.3829
06/03/2009	3.0789	0.0352	-5.0355	-1.2552	0.1292	-9.3880	-13.4901	-0.0663	6.4998	-22.7761	-0.1396	12.8794
07/03/2009	-4.7619	-0.0254	3.4865	9.3128	0.0297	0.5656	-13.6652	0.0537	-6.1967	-25.9664	-0.1035	3.5710
08/03/2009	5.7906	0.0114	-1.2382	-2.6301	-0.1360	8.9745	-4.0374	0.1317	-14.4591	-25.5320	-0.0561	-6.2381
09/03/2009	-5.7871	0.0030	-1.0811	-8.4638	0.0256	-4.2897	8.4850	0.1142	-12.3877	-21.5473	-0.0037	-15.1826
10/03/2009	4.9066	-0.0167	3.3306	5.6144	0.1255	-7.5514	14.9267	0.0172	-1.4610	-14.5801	0.0468	-22.0348
11/03/2009	-3.1595	0.0266	-4.9643	6.1033	-0.0710	7.0245	10.6653	-0.0880	10.5077	-5.6092	0.0893	-25.8749
12/03/2009	0.9903	-0.0320	5.8421	-8.2497	-0.0930	4.5605	-1.2473	-0.1268	14.9183	4.1292	0.1191	-26.2025
13/03/2009	1.4671	0.0319	-5.7121	-3.1456	0.1060	-8.9398	-12.2646	-0.0745	8.5855	13.3083	0.1334	-22.9943
14/03/2009	-3.5363	-0.0270	4.7308	9.2363	0.0532	-1.3700	-14.4791	0.0284	-3.9231	20.6878	0.1314	-16.6904
15/03/2009	5.1755	0.0178	-2.8706	-0.7246	-0.1227	9.3175	-6.3056	0.1073	-13.6257	25.2747	0.1141	-8.1418
16/03/2009	-5.8515	-0.0070	0.6634	-9.1551	-0.0029	-2.4791	6.3892	0.1075	-13.5877	26.4462	0.0845	1.5052
17/03/2009	5.6622	-0.0047	1.7606	3.9547	0.1222	-8.5468	14.5040	0.0324	-3.8367	24.0357	0.0465	10.9482
18/03/2009	-4.4757	0.0146	-3.8196	7.4216	-0.0422	5.6126	12.2147	-0.0620	8.6596	18.3510	0.0050	18.8959
19/03/2009	2.6452	-0.0216	5.3047	-7.1382	-0.1014	6.1435	1.1592	-0.1084	14.9261	10.1524	-0.0352	24.2424
20/03/2009	-0.2664	0.0247	-5.8875	-4.8967	0.0805	-8.1198	-10.7289	-0.0762	10.4417	0.5537	-0.0693	26.2235
21/03/2009	-2.0071	-0.0238	5.5601	8.7658	0.0703	-3.2391	-1					

	I:x	I:y	I:z	II:x	II:y	II:z	III:x	III:y	III:z	IV:x	IV:y	IV:z
02/04/2009	5.1382	-0.0027	2.9605	-4.1069	-0.0982	8.4582	5.7815	-0.0672	13.8115	26.2950	0.0895	3.0266
03/04/2009	-3.4940	0.0067	-4.7394	-7.7039	0.0301	-5.5402	-6.9125	-0.0630	13.2803	23.3268	0.0752	12.3292
04/04/2009	1.4054	-0.0090	5.7504	6.7632	0.0846	-6.4706	-14.6420	-0.0151	3.1840	17.1706	0.0531	19.9406
05/04/2009	1.0723	0.0098	-5.8065	4.7845	-0.0616	8.0064	-11.8565	0.0401	-9.2058	8.6520	0.0256	24.7928
06/04/2009	-3.2003	-0.0090	4.9557	-8.9135	-0.0579	3.1883	-0.5554	0.0634	-15.0003	-1.0648	-0.0045	26.1902
07/04/2009	4.9684	0.0072	-3.2277	-1.6613	0.0811	-9.2929	11.1458	0.0410	-10.0576	-10.6321	-0.0343	23.9141
08/04/2009	-5.7909	-0.0049	1.0448	9.3067	0.0259	0.2867	14.8411	-0.0081	2.0912	-18.7131	-0.0605	18.2733
09/04/2009	5.7718	0.0025	1.3644	-2.3235	-0.0886	9.1034	7.8771	-0.0474	12.7327	-24.1713	-0.0806	10.0579
10/04/2009	-4.7125	-0.0004	-3.5273	-8.6529	0.0083	-3.8983	-4.7466	-0.0505	14.1989	-26.2437	-0.0921	0.4264
11/04/2009	2.9955	-0.0010	5.1093	5.3283	0.0826	-7.7039	-13.9586	-0.0181	5.4302	-24.6464	-0.0937	-9.2665
12/04/2009	-0.6425	0.0021	-5.8652	6.2967	-0.0398	6.8735	-13.1401	0.0239	-7.2508	-19.6193	-0.0850	-17.6756
13/04/2009	-1.6434	-0.0026	5.6707	-8.0960	-0.0646	4.8936	-2.8783	0.0454	-14.7339	-11.8763	-0.0668	-23.6508
14/04/2009	3.8363	0.0030	-4.5104	-3.4797	0.0619	-8.7840	9.4523	0.0335	-11.6690	-2.4972	-0.0406	-26.3948
15/04/2009	-5.2464	-0.0033	2.6682	9.1783	0.0392	-1.5920	14.9940	-0.0001	-0.2463	7.2246	-0.0090	-25.5518
16/04/2009	5.9218	0.0038	-0.3368	-0.4614	-0.0753	9.3763	9.7658	-0.0299	11.3480	15.9637	0.0246	-21.2520
17/04/2009	-5.5257	-0.0044	-2.0239	-9.2518	-0.0098	-2.1145	-2.4821	-0.0356	14.7614	22.5336	0.0566	-14.0817
18/04/2009	4.3286	0.0050	4.0461	3.6884	0.0758	-8.6179	-12.9434	-0.0160	7.5224	26.0451	0.0834	-5.0059
19/04/2009	-2.2931	-0.0052	-5.4324	7.5415	-0.0198	5.4714	-14.0950	0.0120	-5.1419	26.0115	0.1017	4.7498
20/04/2009	0.0429	0.0049	5.9085	-6.9659	-0.0657	6.3913	-5.1102	0.0280	-14.1183	22.4239	0.1088	13.8559
21/04/2009	2.3928	-0.0037	-5.4115	-5.1474	0.0427	-7.9319	7.5484	0.0225	-12.9840	15.7556	0.1033	21.0498
22/04/2009	-4.2657	0.0018	4.0595	8.6811	0.0471	-3.3915	14.7843	0.0026	-2.5497	6.9082	0.0851	25.3187
23/04/2009	5.5835	0.0011	-2.0002	1.4014	-0.0597	9.2744	11.3955	-0.0157	9.7100	-2.9009	0.0556	26.0407
24/04/2009	-5.8722	-0.0044	-0.3605	-9.4852	-0.0233	-0.2629	-0.1899	-0.0197	14.9660	-12.3056	0.0179	23.0949
25/04/2009	5.2989	0.0077	2.6565	1.9143	0.0653	-9.1838	-11.6374	-0.0095	9.4119	-19.9816	-0.0237	16.8869
26/04/2009	-3.7427	-0.0104	-4.5523	8.4749	-0.0028	3.8641	-14.7104	0.0050	-2.9355	-24.8501	-0.0643	8.2934
27/04/2009	1.7161	0.0118	5.6582	-5.5768	-0.0621	7.6261	-7.2026	0.0124	-13.1792	-26.2289	-0.0985	-1.4686
28/04/2009	0.7626	-0.0114	-5.8628	-6.6016	0.0247	-6.7795	5.4827	0.0091	-13.9840	-23.9354	-0.1218	-11.0284
29/04/2009	-2.9387	0.0092	5.1072	7.8444	0.0500	-5.0417	14.2279	0.0004	-4.7723	-18.3060	-0.1306	-19.0564
30/04/2009	4.7936	-0.0050	-3.4901	3.1908	-0.0434	8.8115	12.7400	-0.0053	7.8615	-10.1392	-0.1232	-24.4594
01/05/2009	-5.7320	-0.0005	1.3218	-9.3538	-0.0322	1.5808	2.0785	-0.0042	14.8196	-0.5750	-0.0999	-26.5159
02/05/2009	5.8342	0.0067	1.0603	0.0812	0.0525	-9.3886	-10.0796	0.0005	11.0614	9.0715	-0.0630	-24.9643
03/05/2009	-4.8753	-0.0124	-3.3058	9.0678	0.0106	2.1212	-14.9797	0.0027	-0.6883	17.4799	-0.0165	-20.0257
04/05/2009	3.2400	0.0165	4.9503	-3.9898	-0.0548	8.5572	-9.1003	-0.0004	-11.9499	23.5073	0.0339	-12.3709
05/05/2009	-0.9175	-0.0184	-5.8362	-7.7912	0.0090	-5.3805	3.3229	-0.0054	-14.6482	26.3294	0.0820	-3.0351
06/05/2009	-1.3812	0.0173	5.7326	6.7115	0.0484	-6.4805	13.3567	-0.0059	-6.8507	25.5520	0.1215	6.7171
07/05/2009	3.6246	-0.0132	-4.6893	4.8386	-0.0277	8.0159	13.7769	0.0007	5.8635	21.2646	0.1466	15.5441
08/05/2009	-5.1266	0.0066	2.8852	-8.8734	-0.0366	3.3468	4.2696	0.0098	14.3419	14.0384	0.1534	22.2143
09/05/2009	5.9002	0.0017	-0.6095	-1.7380	0.0386	-9.2351	-8.3149	0.0129	12.4439	4.8618	0.1401	25.7762
10/05/2009	-5.6051	-0.0105	-1.8013	9.3068	0.0199	0.3159	-14.9111	0.0049	1.5509	-4.9955	0.1076	25.7081
11/05/2009	4.4953	0.0179	3.8516	-2.2723	-0.0449	9.1577	-10.7740	-0.0098	-10.4661	-14.1501	0.0592	22.0021
12/05/2009	-2.5112	-0.0231	-5.3432	-8.6795	-0.0036	-3.7955	1.1146	-0.0198	-14.9769	-21.3112	0.0010	15.1755
13/05/2009	0.2762	0.0246	5.8945	5.3350	0.0433	-7.6593	12.2007	-0.0155	-8.7477	-25.4664	-0.0595	6.2001
14/05/2009	2.1776	-0.0221	-5.5083	6.2858	-0.0135	6.9288	14.4956	0.0024	3.7654	-26.0367	-0.1141	-3.6524
15/05/2009	-4.1152	0.0157	4.2060	-8.0735	-0.0368	4.9699	6.3364	0.0215	13.5554	-22.9542	-0.1553	-12.9951
16/05/2009	5.5020	-0.0064	-2.2189	-3.4742	0.0249	-8.7408	-6.3933	0.0264	13.5322	-16.6643	-0.1769	-20.5339
17/05/2009	-5.8824	-0.0047	-0.1652	9.1941	0.0252	-1.4813	-14.5166	0.0110	3.7191	-8.0589	-0.1756	-25.2396
18/05/2009	5.3888	0.0153	2.4583	-0.4927	-0.0336	9.4156	-12.1836	-0.0152	-8.7821	1.6631	-0.1508	-26.4854
19/05/2009	-3.8936	-0.0243	-4.4331	-9.2427	-0.0127	-2.0907	-1.0786	-0.0330	-14.9795	11.1581	-0.1052	-24.1181
20/05/2009	1.8998	0.0293	5.5911	3.7761	0.0355	-8.5416	10.8039	-0.0274	-10.4276	19.1265	-0.0442	-18.4661
21/05/2009	0.5727	-0.0299	-5.8912	7.4847	-0.0016	5.6004	14.8965	-0.0001	1.6180	24.4764	0.0244	-10.2989
22/05/2009	-2.7875	0.0254	5.1853	-6.9945	-0.0337	6.3956	8.2419	0.0300	12.4905	26.4711	0.0917	-0.7233
23/05/2009	4.6815	-0.0165	-3.6437	-5.0652	0.0123	-7.9362	-4.3599	0.0400	14.3184	24.8269	0.1484	8.9499
24/05/2009	-5.6958	0.0043	1.4704	8.7459	0.0268	-3.2018	-13.8184	0.0203	5.7792	19.7524	0.1866	17.3833
25/05/2009	5.8599	0.0089	0.8862	1.2811	-0.0220	9.3334	-13.3138	-0.0166	-6.9391	11.9339	0.2004	23.3877
26/05/2009	-4.9611	-0.0216	-3.1869	-9.4723	-0.0184	-0.3319	-3.2123	-0.0441	-14.6703	2.4458	0.1869	26.0987
27/05/2009	3.3640	0.0306	4.8577	2.0989	0.0263	-9.1056	9.2063	-0.0405	-11.8644	-7.3849	0.1471	25.1124
28/05/2009	-1.0620	-0.0354	-5.8189	8.3994	0.0074	4.0892	14.9822	-0.0062	-0.5287	-16.1743	0.0858	20.5535
29/05/2009	-1.2552	0.0340	5.7553	-5.6862	-0.0280	7.5790	9.9431	0.0350	11.1837	-22.6761	0.0108	13.0677
30/05/2009	3.5119	-0.0271	-4.7791	-6.4588	0.0016	-6.8618	-2.2759	0.0526	14.7926	-25.9688	-0.0677	3.7211
31/05/2009	-5.0715	0.0153	2.9783	7.9909	0.0253	-4.7861	-12.8530	0.0317	7.6796	-25.5936	-0.1388	-6.1540
01/06/2009	5.8833	-0.0008	-0.7397	2.9853	-0.0110	8.9267	-14.1540	-0.0143	-4.9932	-21.6153	-0.1924	-15.1680
02/06/2009	-5.6394	-0.0149	-1.7086	-9.3730	-0.0208	1.4151	-5.2433	-0.0524	-14.0753	-14.6096	-0.2209	-22.0702
03/06/2009	4.5614	0.0278	3.7621	0.3690	0.0165	-9.3433	7.4511	-0.0537	-13.0425	-5.5653	-0.2198	-25.9200
04/06/2009	-2.6011	-0.0372	-5.3081	9.0084	0.0134	2.4558	14.7676	-0.0153	-2.6331	4.2518	-0.1887	-26.2062
05/06/2009	0.3593	0.0401	5.8832	-4.2030	-0.0208	8.4882	11.4204	0.0363	9.6710	13.4837	-0.1314	-22.9030
06/06/2009	2.0905	-0.0367	-5.5472	-7.6131	-0.0067	-5.5667	-0.1799	0.0632	14.9623	20.8602	-0.0552	-16.4697
07/06/2009	-4.0689	0.0268	4.2471	6.9685	0.0213	-6.1824	-11.6509	0.0443	9.3938	25.3669	0.0299	-7.7801
08/06/2009	5.4695	-0.0125	-2.2963	4.5637	-0.0014	8.2224	-14.7028	-0.0085	-2.9862	26.3776	0.1125	1.9790
09/06/2009	-5.8875	-0.0048	-0.1159	-8.9616	-0.0204	3.0916	-7.1367	-0.0574	-13.2192	23.7383	0.1811	11.4638
10/06/2009	5.4099	0.0210	2.3962	-1.3509	0.0072	-9.2596	5.5829	-0.0660	-13.9464	17.7999	0.2258	19.3489
11/06/2009	-3.9322	-0.0349	-4.4085	9.3021	0.0166	0.7630	14.2705	-0.0264	-4.6438	9.3705	0.2399	24.5122
12/06/2009	1.9331	0.0425	5.5720	-2.6029	-0.0128	9.1034	12.6456	0.0340	8.0046	-0.3780	0.2206	26.2016
13/06/2009	0.5290	-0.0438	-5.9012	-8.4992	-0.0125	-4.1037	1.8733	0.0713	14.8433	-10.0739	0.1698	24.1536
14/06/2009	-2.7731	0.0373	5.1886	5.7246	0.0159	-7.3506	-10.2556	0.0570	10.8961	-18.3400	0.0941	18.6521
15/06/2009	4.6607	-0.0249	-3.6713	5.9674	0.0063	7.2570	-14.9677	0.0001	-0.9614	-23.9988	0.0037	10.4811
16/06/2009	-5.6986	0.0075	1.4701	-8.2654	-0.0178	4.6435	-8.8655	-0.0589	-12.1327	-26.2481	-0.0888	0.8134
17/06/2009	5.8573	0.0107	0.8680	-3.0031	-0.0011	-8.8709	3.6398	-0.0766	-14.5767	-24.7742	-0.1704	-8.9729
18/06/2009	-4.9631	-0.0285	-3.1964	9.2839	0.0174	-0.9302	13.5142	-0.0387	-6.5348	-19.8020	-0.2295	-17.4976
19/06/2009	3.3520	0.0407	4.8571	-0.9436	-0.0051	9.4167	13.6131	0.0286	6.2193	-12.0459	-0.2575	-23.5787
20/06/2009	-1.0554	-0.0473	-5.8268</									

	I:x	I:y	I:z	II:x	II:y	II:z	III:x	III:y	III:z	IV:x	IV:y	IV:z
08/07/2009	4.7382	-0.0283	-3.5681	-7.0794	-0.0165	-6.1696	-2.1922	-0.0919	-14.8631	10.4500	-0.2067	-24.4325
09/07/2009	-5.7412	0.0077	1.3136	7.5378	0.0108	-5.4864	10.0255	-0.0728	-11.1815	18.6343	-0.1226	-18.9685
10/07/2009	5.8268	0.0130	1.0163	3.8596	0.0124	8.6206	14.9717	-0.0006	0.5784	24.2302	-0.0213	-10.8840
11/07/2009	-4.8787	-0.0330	-3.3374	-9.1645	-0.0157	2.3309	9.0477	0.0722	11.9103	26.4557	0.0833	-1.2921
12/07/2009	3.2022	0.0462	4.9484	-0.4271	-0.0068	-9.3169	-3.4451	0.0925	14.5623	24.9945	0.1764	8.4793
13/07/2009	-0.8907	-0.0529	-5.8595	9.2145	0.0185	1.6859	-13.4418	0.0453	6.6031	20.0341	0.2450	17.0583
14/07/2009	-1.4782	0.0498	5.6940	-3.3984	-0.0005	8.8518	-13.6983	-0.0353	-6.1571	12.2546	0.2792	23.2223
15/07/2009	3.6656	-0.0392	-4.6645	-8.0309	-0.0186	-4.8816	-4.0308	-0.0908	-14.4728	2.7414	0.2737	26.0711
16/07/2009	-5.2025	0.0210	2.7526	6.4875	0.0077	-6.6921	8.5569	-0.0807	-12.3436	-7.1619	0.2290	25.1771
17/07/2009	5.8975	-0.0006	-0.5139	5.2519	0.0155	7.8413	14.9347	-0.0121	-1.2940	-16.0412	0.1513	20.6528
18/07/2009	-5.5679	-0.0215	-1.9705	-8.6465	-0.0139	3.8376	10.4645	0.0651	10.6876	-22.6232	0.0515	13.1459
19/07/2009	4.3706	0.0384	3.9600	-2.0064	-0.0103	-9.1134	-1.6072	0.0947	14.8768	-25.9600	-0.0560	3.7427
20/07/2009	-2.3576	-0.0503	-5.4351	9.3618	0.0183	0.1039	-12.5148	0.0552	8.2159	-25.5795	-0.1559	-6.2007
21/07/2009	0.0378	0.0526	5.8843	-1.8774	0.0029	9.2931	-14.3460	-0.0246	-4.4251	-21.5468	-0.2339	-15.2630
22/07/2009	2.3572	-0.0471	-5.4439	-8.7421	-0.0196	-3.4688	-5.7764	-0.0867	-13.8713	-14.4504	-0.2789	-22.1716
23/07/2009	-4.3180	0.0327	3.9961	5.2615	0.0050	-7.6906	6.9804	-0.0859	-13.3026	-5.3089	-0.2847	-25.9699
24/07/2009	5.5765	-0.0140	-2.0003	6.4804	0.0175	6.8505	14.6712	-0.0231	-3.1233	4.5819	-0.2506	-26.1486
25/07/2009	-5.8814	-0.0083	-0.4820	-7.8928	-0.0122	5.2214	11.7048	0.0561	9.3148	13.8310	-0.1817	-22.6982
26/07/2009	5.2413	0.0277	2.7135	-3.5120	-0.0128	-8.6519	0.2322	0.0939	14.9583	21.1511	-0.0877	-16.1038
27/07/2009	-3.6595	-0.0439	-4.6555	9.2425	0.0177	-1.4636	-11.4113	0.0631	9.6808	25.5211	0.0181	-7.2764
28/07/2009	1.5427	0.0513	5.6805	-0.3199	0.0053	9.4736	-14.7701	-0.0136	-2.6522	26.3290	0.1210	2.5640
29/07/2009	0.9017	-0.0512	-5.8626	-9.2026	-0.0200	-1.9712	-7.4133	-0.0801	-13.0725	23.4511	0.2064	12.0425
30/07/2009	-3.1514	0.0415	4.9667	3.8976	0.0030	-8.4617	5.3198	-0.0884	-14.0511	17.2765	0.2623	19.8207
31/07/2009	4.8916	-0.0260	-3.3484	7.5182	0.0187	5.6801	14.1913	-0.0328	-4.8792	8.6598	0.2807	24.7764
01/08/2009	-5.8052	0.0050	1.0303	-6.9293	-0.0109	6.4512	12.7512	0.0457	7.8247	-1.1895	0.2588	26.1788
02/08/2009	5.7638	0.0153	1.2937	-4.9081	-0.0144	-7.9512	2.0400	0.0902	14.8179	-10.8673	0.1996	23.8045
03/08/2009	-4.7158	-0.0344	-3.5757	8.8665	0.0172	-2.9771	-10.1571	0.0685	10.9856	-18.9860	0.1118	17.9861
04/08/2009	2.9400	0.0462	5.1020	1.2340	0.0069	9.3954	-14.9767	-0.0027	-0.8596	-24.3742	0.0081	9.5652
05/08/2009	-0.6068	-0.0513	-5.8992	-9.4072	-0.0202	-0.4288	-8.9307	-0.0714	-12.0915	-26.2582	-0.0966	-0.2388
06/08/2009	-1.7813	0.0469	5.6057	2.4329	0.0017	-8.9916	3.5906	-0.0879	-14.5915	-24.3734	-0.1871	-10.0093
07/08/2009	3.8909	-0.0356	-4.4752	8.3442	0.0195	4.3624	13.5047	-0.0410	-6.5541	-19.0040	-0.2505	-18.3562
08/08/2009	-5.3486	0.0173	2.4699	-5.7843	-0.0102	7.5000	13.6030	0.0348	6.2290	-10.9320	-0.2781	-24.1098
09/08/2009	5.9090	0.0024	-0.2074	-6.1613	-0.0154	-7.0339	3.8038	0.0840	14.4623	-1.3110	-0.2663	-26.4831
10/08/2009	-5.4622	-0.0229	-2.2666	8.2476	0.0171	-4.4006	-8.7659	0.0715	12.1225	8.4955	-0.2172	-25.1635
11/08/2009	4.1420	0.0379	4.1894	2.7480	0.0078	9.0647	-14.9663	0.0073	0.9346	17.1131	-0.1382	-20.3476
12/08/2009	-2.0729	-0.0477	-5.5548	-9.3553	-0.0206	1.1206	-10.3079	-0.0614	-10.9423	23.3393	-0.0406	-12.7092
13/08/2009	-0.2964	0.0484	5.8748	0.9060	0.0011	-9.2705	1.8240	-0.0848	-14.9162	20.3077	0.0618	-3.3031
14/08/2009	2.6395	-0.0419	-5.3116	8.9412	0.0203	2.9314	12.6299	-0.0470	-8.1200	25.5978	0.1545	6.5629
15/08/2009	-4.5425	0.0274	3.7458	-4.4866	-0.0101	8.3456	14.2549	0.0239	4.5559	21.2962	0.2244	15.5051
16/08/2009	5.6700	-0.0098	-1.6947	-7.2432	-0.0162	-5.9244	5.5061	0.0759	13.9023	13.9949	0.2618	22.2470
17/08/2009	-5.8527	-0.0106	-0.8113	7.4031	0.0175	-5.6998	-7.2522	0.0719	13.0860	4.7104	0.2614	25.8104
18/08/2009	5.0734	0.0276	3.0021	4.1860	0.0084	8.4915	-14.7427	0.0159	2.7183	-5.2434	0.2234	25.6615
19/08/2009	-3.4049	-0.0410	-4.8516	-9.0503	-0.0215	2.6401	-11.5403	-0.0506	-9.6330	-14.4455	0.1534	21.8032
20/08/2009	1.2087	0.0462	5.7575	-0.6465	0.0009	-9.2931	0.0277	-0.0795	-15.0261	-21.5690	0.0617	14.7889
21/08/2009	1.2161	-0.0446	-5.8057	9.2955	0.0214	1.4214	11.5721	-0.0508	-9.5688	-25.5880	-0.0382	5.6350
22/08/2009	-3.4378	0.0347	4.7768	-3.0679	-0.0105	8.9682	14.7025	0.0137	2.8176	-25.9277	-0.1319	-4.3308
23/08/2009	5.0617	-0.0201	-3.0745	-8.1277	-0.0173	-4.6499	7.1320	0.0665	13.1416	-22.5481	-0.2058	-13.6796
24/08/2009	-5.8616	0.0012	0.6989	6.3526	0.0185	-6.8439	-5.6307	0.0699	13.8616	-15.9490	-0.2497	-21.0857
25/08/2009	5.6745	0.0162	1.6148	5.5148	0.0091	7.6886	-14.3047	0.0228	4.4639	-7.0829	-0.2577	-25.5210
26/08/2009	-4.5184	-0.0320	-3.8320	-8.4986	-0.0230	4.0932	-12.6054	-0.0397	-8.1852	2.7839	-0.2293	-26.3864
27/08/2009	2.6385	0.0410	5.2595	-2.1860	0.0007	-9.0576	-1.7700	-0.0723	-14.9218	12.2623	-0.1690	-23.5790
28/08/2009	-0.2909	-0.0440	-5.9246	9.3970	0.0230	-0.1325	10.3461	-0.0523	-10.8857	20.0253	-0.0859	-17.5006
29/08/2009	-2.1027	0.0387	5.4952	-1.5594	-0.0112	9.3517	14.9426	0.0046	1.0286	24.9933	0.0082	-8.9945
30/08/2009	4.1198	-0.0280	-4.2592	-8.7920	-0.0189	-3.2395	8.6700	0.0564	12.1843	26.4749	0.0998	0.7593
31/08/2009	-5.4847	0.0117	2.1685	5.1200	0.0198	-7.8026	-3.9097	0.0660	14.4432	24.2567	0.1760	10.4051
01/09/2009	5.9041	0.0050	0.1141	6.7011	0.0101	6.6721	-13.6517	0.0278	6.1631	18.6383	0.2264	18.5930
02/09/2009	-5.3403	-0.0218	-2.5569	-7.7101	-0.0249	5.4448	-13.4946	-0.0294	-6.6031	10.3934	0.2438	24.1216
03/09/2009	3.9001	0.0335	4.4084	-3.6749	0.0003	-8.5657	-3.5567	-0.0640	-14.5988	0.6788	0.2260	26.2108
04/09/2009	-1.7867	-0.0404	-5.6560	9.2385	0.0253	-1.6924	8.9574	-0.0518	-12.0562	-9.1311	0.1758	24.5296
05/09/2009	-0.6203	0.0396	5.8502	0.0031	-0.0117	9.4822	14.9648	-0.0031	-0.7949	-17.6322	0.1008	19.3078
06/09/2009	2.9001	-0.0330	-5.1702	-9.2152	-0.0212	-1.7255	10.0941	0.0461	11.0342	-23.6009	0.0119	11.2939
07/09/2009	-4.7403	0.0201	3.5016	3.7318	0.0212	-8.5484	-2.1154	0.0605	14.8122	-26.1786	-0.0777	1.6511
08/09/2009	5.7415	-0.0052	-1.4042	7.7123	0.0120	5.4623	-12.7904	0.0309	7.7840	-24.9998	-0.1552	-8.2303
09/09/2009	-5.8121	-0.0114	-1.1042	-6.6994	-0.0272	6.6579	-14.1929	-0.0200	-4.9089	-20.2481	-0.2096	-16.9399
10/09/2009	4.9080	0.0246	3.2542	-5.0728	-0.0009	-7.8240	-5.3119	-0.0551	-14.0576	-12.6146	-0.2334	-23.2551
11/09/2009	-3.1739	-0.0345	-5.0100	8.8170	0.0280	-3.2193	7.4150	-0.0497	-13.0653	-3.1974	-0.2239	-26.3087
12/09/2009	0.9145	0.0376	5.8110	1.5824	-0.0116	9.3495	14.7618	-0.0092	-2.6374	6.6696	-0.1830	-25.6963
13/09/2009	1.4769	-0.0351	-5.7428	-9.3795	-0.0242	-0.1450	11.3895	0.0364	9.6938	15.6033	-0.1170	-21.5238
14/09/2009	-3.6697	0.0261	4.6071	2.2211	0.0222	-9.0547	-0.2571	0.0541	14.9574	22.3630	-0.0357	-14.3753
15/09/2009	5.1893	-0.0138	-2.8401	8.5167	0.0147	4.0846	-11.7183	0.0324	9.3099	26.0137	0.0494	-5.2404
16/09/2009	-5.8948	-0.0016	0.4340	-5.4855	-0.0293	7.6968	-14.6844	-0.0119	-3.1136	26.0456	0.1263	4.6195
17/09/2009	5.5891	0.0153	1.8675	-6.3392	-0.0030	-6.8441	-7.0148	-0.0462	-13.2923	22.4489	0.1842	13.8311
18/09/2009	-4.3579	-0.0271	-4.0204	8.1347	0.0311	-4.6700	5.7306	-0.0464	-13.8885	15.7106	0.2152	21.0951
19/09/2009	2.3995	0.0334	5.3708	3.1366	-0.0107	8.9478	14.3222	-0.0137	-4.4664	6.7631	0.2152	25.3687
20/09/2009	-0.0595	-0.0347	-5.9306	-9.2715	-0.0278	1.4618	12.5224	0.0275	8.1814	-3.1409	0.1843	26.0188
21/09/2009	-2.3368	0.0295	5.4037	0.6246	0.0225	-9.2988	1.6307	0.0473	14.8683	-12.5956	0.1271	22.9351
22/09/2009	4.2752	-0.0203	-4.0949	9.0839	0.0183	2.5704	-10.4461	0.0325	10.7135	-20.2485	0.0523	16.5498
23/09/2009	-5.5720	0.0071	1.9559	-4.0946	-0.0310	8.5256	-14.9544	-0.0051	-1.2363	-25.0025	-0.0293	7.7832
24/09/2009	5.8882	0.0061	0.3371	-7.4328	-0.0062	-5.6445	-8.6424	-0.0378	-12.3008	-26.1758	-0.1058	-2.1010
25/09/2009	-5.2525	-0.0190	-2.7447									

	I:x	I:y	I:z	II:x	II:y	II:z	III:x	III:y	III:z	IV:x	IV:y	IV:z
13/10/2009	0.0096	-0.0279	-5.9282	9.1199	0.0322	-2.3804	-5.5018	0.0289	13.9151	-15.1195	-0.1924	-21.6773
14/10/2009	-2.4148	0.0233	5.3754	0.7789	-0.0291	9.4407	-14.2544	0.0081	4.6352	-6.1474	0.1872	-25.7564
15/10/2009	4.3114	-0.0156	-4.0466	-9.2877	-0.0213	-1.0340	-12.7237	-0.0181	-8.0023	3.6832	-0.1559	-26.2741
16/10/2009	-5.5970	0.0047	1.9050	3.0935	0.0379	-8.8237	-2.0250	-0.0307	-14.8893	13.0031	-0.1032	-23.1776
17/10/2009	5.8787	0.0061	0.3931	8.1829	0.0055	4.7723	10.1312	-0.0212	-11.0804	20.5282	-0.0367	-16.9049
18/10/2009	-5.2428	-0.0164	-2.7720	-6.0716	-0.0406	7.1933	14.9588	0.0031	0.7086	25.2251	0.0343	-8.3186
19/10/2009	3.6935	0.0234	4.5771	-5.6699	0.0105	-7.3931	8.9556	0.0246	11.9757	26.4515	0.1000	1.4072
20/10/2009	-1.5960	-0.0269	-5.7116	8.5293	0.0363	-3.9967	-3.5325	0.0280	14.5420	24.0313	0.1514	10.9354
21/10/2009	-0.8547	0.0255	5.8276	2.4784	-0.0253	9.1459	-13.4716	0.0112	6.5575	18.2868	0.1814	18.9427
22/10/2009	3.0489	-0.0205	-5.0708	-9.3233	-0.0268	0.6950	-13.6984	-0.0134	-6.1715	10.0007	0.1858	24.2951
23/10/2009	-4.8606	0.0114	3.3575	1.4096	0.0361	-9.2366	-4.0596	-0.0281	-14.4669	0.3179	0.1639	26.2218
24/10/2009	5.7658	-0.0013	-1.2351	8.9150	0.0119	3.1958	8.5025	-0.0226	-12.3758	-9.4066	0.1189	24.4283
25/10/2009	-5.7968	-0.0097	-1.2375	-4.6477	-0.0410	8.1952	14.9196	-0.0011	-1.3814	-17.8007	0.0571	19.1562
26/10/2009	4.8129	0.0184	3.3812	-6.9490	0.0041	-6.2075	10.5461	0.0210	10.6033	-23.6690	-0.0128	11.1530
27/10/2009	-3.0974	-0.0246	-5.0593	7.6378	0.0392	-5.5005	-1.4572	0.0277	14.8931	-26.1804	-0.0808	1.5624
28/10/2009	0.7868	0.0263	5.8342	4.1208	-0.0199	8.5350	-12.4112	0.0145	8.3841	-24.9853	-0.1373	-8.2490
29/10/2009	1.5385	-0.0241	-5.7169	-9.0334	-0.0316	2.4270	-14.4226	-0.0092	-4.1880	-20.2675	-0.1745	-16.9023
30/10/2009	-3.7425	0.0174	4.5651	-0.3485	0.0325	-9.3311	-6.0537	-0.0263	-13.7542	-12.7077	-0.1873	-23.1970
31/10/2009	5.2032	-0.0085	-2.7846	9.3509	0.0182	1.4852	6.6713	-0.0246	-13.4549	-3.3767	-0.1741	-26.2824
01/11/2009	-5.9094	-0.0025	0.4073	-3.0388	-0.0395	8.9264	14.5807	-0.0053	-3.4911	6.4200	-0.1370	-25.7569
02/11/2009	5.5659	0.0124	1.9076	-7.9979	-0.0029	-4.7823	11.9591	0.0178	8.9832	15.3331	-0.0810	-21.7126
03/11/2009	-4.3737	-0.0208	-4.0089	6.4640	0.0404	-6.8309	0.6936	0.0282	14.9452	22.1414	-0.0141	-14.7106
04/11/2009	2.3818	0.0255	5.3808	5.6442	-0.0132	7.6156	-11.0750	0.0183	10.0745	25.9181	0.0547	-5.7045
05/11/2009	-0.1078	-0.0263	-5.9226	-8.4142	-0.0352	4.0984	-14.8659	-0.0050	-2.0813	26.1442	0.1160	4.0777
06/11/2009	-2.3199	0.0224	5.4239	-2.1177	0.0271	-9.0894	-7.9626	-0.0251	-12.7466	22.7807	0.1614	13.2972
07/11/2009	4.2226	-0.0154	-4.1290	9.4607	0.0240	-0.3013	4.6656	-0.0275	-14.2766	16.2761	0.1846	20.6723
08/11/2009	-5.5582	0.0051	2.0349	-1.2968	-0.0359	9.3476	13.9289	-0.0101	-5.5646	7.5132	0.1823	25.1612
09/11/2009	5.8807	0.0054	0.2673	-8.7671	-0.0099	-3.1607	13.1414	0.0149	7.1481	-2.2962	0.1544	26.1109
10/11/2009	-5.3165	-0.0157	-2.6326	5.0395	0.0396	-7.9302	2.8617	0.0295	14.6826	-11.7824	0.1047	23.3683
11/11/2009	3.7996	0.0231	4.4906	6.9857	-0.0057	6.4089	-9.4858	0.0230	11.5797	-19.6059	0.0400	17.3121
12/11/2009	-1.7611	-0.0270	-5.6592	-7.4757	-0.0368	5.5621	-15.0049	-0.0004	0.1062	-24.6611	-0.0307	8.7991
13/11/2009	-0.6991	0.0263	5.8539	-3.8309	0.0202	-8.5401	-9.7403	-0.0243	-11.4500	-26.2345	-0.0977	-0.9577
14/11/2009	2.8924	-0.0217	-5.1537	9.2262	0.0283	-2.1000	2.5177	-0.0313	-14.8100	-24.1151	-0.1514	-10.5802
15/11/2009	-4.7584	0.0129	3.5128	0.5173	-0.0305	9.4299	12.9600	-0.0159	-7.5598	-18.6191	-0.1846	-18.7239
16/11/2009	5.7196	-0.0025	-1.4095	-9.2146	-0.0162	-1.3987	14.0575	0.0115	5.1212	-10.5304	-0.1925	-24.2753
17/11/2009	-5.8401	-0.0090	-1.0331	3.4092	0.0365	-8.7465	5.0038	0.0313	14.0929	-0.9859	-0.1741	-26.4911
18/11/2009	4.9184	0.0188	3.2251	8.0869	0.0018	4.9491	-7.6635	0.0289	12.8566	8.6946	-0.1319	-25.0906
19/11/2009	-3.2863	-0.0259	-4.9359	-6.2417	-0.0363	6.9930	-14.8175	0.0053	2.3288	17.1837	-0.0716	-20.2820
20/11/2009	0.9916	0.0287	5.8077	-5.4174	0.0124	-7.5909	-11.3307	-0.0232	-9.8794	23.3298	-0.0012	-12.7228
21/11/2009	1.3137	-0.0271	-5.7660	8.6429	0.0308	-3.8409	0.2836	-0.0359	-15.0210	26.2967	0.0699	-3.4374
22/11/2009	-3.5642	0.0206	4.7149	2.3360	-0.0234	9.1569	11.6887	-0.0231	-9.4115	25.6745	0.1321	6.3164
23/11/2009	5.0839	-0.0112	-2.9837	-9.3109	-0.0211	0.4396	14.6714	0.0071	2.9536	21.5372	0.1768	15.1999
24/11/2009	-5.8906	-0.0009	0.6632	1.6302	0.0313	-9.2363	7.0652	0.0332	13.1789	14.4359	0.1976	21.9806
25/11/2009	5.6366	0.0125	1.6813	8.8951	0.0087	3.2848	-5.6398	0.0360	13.8654	5.3380	0.1915	25.6978
26/11/2009	-4.5536	-0.0226	-3.8017	-4.7510	-0.0334	8.0899	-14.2925	0.0125	4.5387	-4.5034	0.1587	25.8085
27/11/2009	2.6117	0.0290	5.2771	-6.8090	0.0045	-6.3681	-12.6917	-0.0212	-8.0549	-13.7110	0.1033	22.2806
28/11/2009	-0.3868	-0.0310	-5.9051	7.7211	0.0308	-5.4529	-1.9956	-0.0411	-14.8903	-20.9906	0.0329	15.6043
29/11/2009	-2.0660	0.0277	5.5334	4.0860	-0.0154	8.5270	10.1275	-0.0319	-11.0738	-25.3174	-0.0431	6.7269
30/11/2009	4.0166	-0.0202	-4.3199	-9.0398	-0.0238	2.2809	14.9548	0.0010	0.6879	-26.0880	-0.1142	-3.0979
01/12/2009	-5.4529	0.0086	2.3160	-0.2308	0.0244	-9.3685	8.9924	0.0346	11.9464	-23.2076	-0.1705	-12.4892
02/12/2009	5.8839	0.0040	-0.0155	9.3678	0.0140	1.4753	-3.4563	0.0442	14.5642	-17.0953	-0.2041	-20.1483
03/12/2009	-5.4505	-0.0167	-2.3429	-3.0560	-0.0281	8.8792	-13.4256	0.0217	6.6694	-8.6188	-0.2103	-25.0359
04/12/2009	4.0214	0.0268	4.2965	-7.9409	-0.0027	-4.8787	-13.7690	-0.0178	-6.0219	1.0446	-0.1881	-26.5053
05/12/2009	-2.0670	-0.0328	-5.5494	6.4871	0.0283	-6.8659	-4.2515	-0.0462	-14.4103	10.5655	-0.1403	-24.3773
06/12/2009	-0.3848	0.0334	5.8899	5.6947	-0.0073	7.5543	8.3112	-0.0422	-12.4958	18.6478	-0.0729	-18.9511
07/12/2009	2.6005	-0.0289	-5.2987	-8.4012	-0.0240	4.0491	14.8899	-0.0072	-1.6232	24.1964	0.0051	-10.9660
08/12/2009	-4.5539	0.0190	3.7839	-2.0984	0.0162	-9.1262	10.7347	0.0347	10.4124	26.4584	0.0835	-1.4966
09/12/2009	5.6292	-0.0063	-1.7217	9.4750	0.0172	-0.4093	-1.1566	0.0529	14.9250	25.1194	0.1517	8.1740
10/12/2009	-5.8933	-0.0082	-0.6776	-1.2204	-0.0209	9.3193	-12.2227	0.0331	8.6716	20.3459	0.2003	16.7222
11/12/2009	5.0945	0.0215	2.9416	-8.7586	-0.0084	-3.1766	-14.5280	-0.0120	-3.8162	12.7782	0.2223	22.9585
12/12/2009	-3.5824	-0.0317	-4.7204	4.9827	0.0232	-8.0157	-6.4310	-0.0506	-13.5781	3.4447	0.2140	25.9987
13/12/2009	1.3381	0.0369	5.7442	7.0906	0.0002	6.2697	6.2734	-0.0540	-13.6338	-6.3661	0.1760	25.3984
14/12/2009	0.9521	-0.0364	-5.8291	-7.4119	-0.0214	5.6674	14.4627	-0.0181	-3.9231	-15.2866	0.1129	21.2242
15/12/2009	-3.2624	0.0296	4.9368	-3.8950	0.0078	-8.5089	12.2339	0.0327	8.6050	-22.0647	0.0329	14.0611
16/12/2009	4.8856	-0.0182	-3.2890	9.2022	0.0175	-2.2934	1.1933	0.0617	14.9206	-25.7498	-0.0532	4.9196
17/12/2009	-5.8360	0.0030	1.0546	0.6819	-0.0125	9.3822	-10.7104	0.0466	10.4769	-25.8354	-0.1335	-4.9110
18/12/2009	5.7311	0.0128	1.3244	-9.2185	-0.0117	-1.3292	-14.9390	-0.0035	-1.4993	-22.3220	-0.1970	-14.0601
19/12/2009	-4.7989	-0.0270	-3.4817	3.2636	0.0158	-8.8473	-8.4746	-0.0534	-12.4078	-15.7178	-0.2347	-21.2701
20/12/2009	2.9533	0.0372	5.1002	8.2106	0.0060	4.7184	4.0587	-0.0667	-14.4516	-6.9499	-0.2412	-25.5685
21/12/2009	-0.7883	-0.0416	-5.8579	-6.1054	-0.0159	7.0628	13.6719	-0.0318	-6.1552	2.7676	-0.2153	-26.3943
22/12/2009	-1.6838	0.0391	5.6689	-5.5412	-0.0001	-7.5337	13.4469	0.0279	6.5580	12.1085	-0.1601	-23.6526
23/12/2009	3.7109	-0.0305	-4.5771	8.5512	0.0148	-4.0976	3.5421	0.0696	14.5392	19.8074	-0.0824	-17.7247
24/12/2009	-5.2757	0.0162	2.7041	2.5724	-0.0037	9.0561	-8.9133	0.0620	12.0369	24.8228	0.0076	-9.4084
25/12/2009	5.8679	0.0008	-0.4166	-9.2927	-0.0119	0.5876	-14.9806	0.0084	0.8767	26.4748	0.0981	0.1772
26/12/2009	-5.6060	-0.0183	-1.9358	1.3986	0.0070	-9.3175	-10.3263	-0.0538	-10.9168	24.5276	0.1770	9.7367
27/12/2009	4.3166	0.0334	4.0068	9.0002	0.0092	2.9609	1.7196	-0.0796	-14.9141	19.2314	0.2333	17.9621
28/12/2009	-2.4686	-0.0432	-5.3757	-4.5311	-0.0081	8.1702	12.5260	-0.0483	-8.2494	11.2920	0.2587	23.7063
29/12/2009	0.0472	0.0463	5.9093	-6.9630	-0.0062	-6.2345	14.3244	0.0196	4.3306	1.7924	0.2490	26.1533
30/12/2009	2.2037	-0.0420	-5.4682	7.5416	0.0089	-5.7432	5.8138	0.0758	13.7854	-7.9553	0.2046	24.9399
31/12/2009	-4.2547	0.0305	4.1248</									

FENOMENI MUTUI DEI SATELLITI DI GIOVE

Ec.D. : inizio dell'eclisse
 Ec.R. : fine dell'eclisse
 Oc.D. : inizio dell'occultazione
 Oc.R. : fine dell'occultazione
 Tr.I. : inizio del transito
 Tr.E. : fine del transito
 Sh.I. : ingresso dell'ombra
 Sh.E. : uscita dell'ombra

I : Io
 II : Europa
 III: Ganymede
 IV : Callisto

TEMPI IN T.U.

Data	Ora	Luna	Fenomeno	Fase	h	h Sole								
01/01/09	0.57.34	I	Tr.	I.	-68.2	-61.5	13/01/09	9.38.35	II	Occ.	D.	20.2	22.4	
01/01/09	1.21.35	I	Sh.	I.	-66.5	-57.6	13/01/09	10.30.28	I	Tr.	I.	24.8	25.6	
01/01/09	1.22.24	II	Tr.	E.	-66.4	-57.5	13/01/09	10.41.44	I	Sh.	I.	25.5	26.0	
01/01/09	2.12.47	II	Sh.	E.	-60.2	-48.7	13/01/09	12.18.02	III	Ec.	R.	27.7	25.3	
01/01/09	3.14.19	I	Tr.	E.	-50.1	-37.4	13/01/09	12.47.20	I	Tr.	E.	26.8	23.6	
01/01/09	3.38.29	I	Sh.	E.	-45.8	-32.9	13/01/09	12.49.38	II	Ec.	R.	26.7	23.4	
01/01/09	22.10.19	I	Occ.	D.	-53.7	-66.5	13/01/09	12.58.40	I	Sh.	E.	26.2	22.7	
02/01/09	0.51.55	I	Ec.	R.	-68.3	-62.4	14/01/09	7.44.32	I	Occ.	D.	5.5	9.5	
02/01/09	13.15.07	III	Tr.	I.	26.4	19.6	14/01/09	10.13.14	I	Ec.	R.	23.7	24.9	
02/01/09	14.45.59	III	Sh.	I.	19.8	9.2	15/01/09	4.17.38	II	Tr.	I.	-30.5	-25.6	
02/01/09	16.43.54	III	Tr.	E.	4.2	-9.5	15/01/09	4.36.56	II	Sh.	I.	-26.9	-22.0	
02/01/09	17.24.39	II	Occ.	D.	-2.0	-16.6	15/01/09	5.00.53	I	Tr.	I.	-22.5	-17.7	
02/01/09	18.17.21	III	Sh.	E.	-11.8	-26.1	15/01/09	5.10.18	I	Sh.	I.	-20.8	-16.0	
02/01/09	19.27.58	I	Tr.	I.	-24.6	-39.2	15/01/09	7.08.57	II	Tr.	E.	0.6	4.4	
02/01/09	19.50.12	I	Sh.	I.	-28.7	-43.3	15/01/09	7.17.47	I	Tr.	E.	1.9	5.7	
02/01/09	20.57.20	II	Ec.	R.	-41.2	-55.3	15/01/09	7.27.16	I	Sh.	E.	3.4	7.1	
02/01/09	21.44.44	I	Tr.	E.	-49.7	-63.0	15/01/09	7.28.46	II	Sh.	E.	3.6	7.3	
02/01/09	22.07.05	I	Sh.	E.	-53.6	-66.0	16/01/09	2.15.12	I	Occ.	D.	-52.2	-48.1	
03/01/09	0.00.50	IV	Tr.	I.	-68.0	-68.7	16/01/09	4.42.02	I	Ec.	R.	-25.4	-21.1	
03/01/09	3.29.12	IV	Sh.	I.	-46.4	-34.7	16/01/09	22.15.19	III	Tr.	I.	-60.8	-64.6	
03/01/09	4.29.23	IV	Tr.	E.	-35.3	-23.6	16/01/09	22.45.49	III	Sh.	I.	-64.6	-67.4	
03/01/09	8.05.19	IV	Sh.	E.	3.3	11.7	16/01/09	23.03.14	II	Occ.	D.	-66.2	-68.4	
03/01/09	16.40.53	I	Occ.	D.	4.2	-8.8	16/01/09	23.31.18	I	Tr.	I.	-67.8	-68.7	
03/01/09	19.20.40	I	Ec.	R.	-23.8	-37.7	16/01/09	23.38.52	I	Sh.	I.	-67.9	-68.5	
04/01/09	11.57.47	II	Tr.	I.	27.1	24.7	17/01/09	1.46.27	III	Tr.	E.	-56.4	-53.0	
04/01/09	12.39.49	II	Sh.	I.	27.3	22.6	17/01/09	1.48.13	I	Tr.	E.	-56.1	-52.7	
04/01/09	13.58.22	I	Tr.	I.	23.6	15.4	17/01/09	1.55.49	I	Sh.	E.	-54.9	-51.4	
04/01/09	14.18.47	I	Sh.	I.	21.9	13.0	17/01/09	2.07.01	II	Ec.	R.	-53.0	-49.4	
04/01/09	14.48.30	II	Tr.	E.	19.0	9.1	17/01/09	2.18.17	III	Sh.	E.	-51.1	-47.4	
04/01/09	15.31.21	II	Sh.	E.	13.8	3.0	17/01/09	20.45.47	I	Occ.	D.	-46.7	-50.8	
04/01/09	16.15.08	I	Tr.	E.	7.7	-4.1	17/01/09	23.10.44	I	Ec.	R.	-66.9	-68.4	
04/01/09	16.35.41	I	Sh.	E.	4.6	-7.8	18/01/09	17.43.43	II	Tr.	I.	-13.7	-17.4	
05/01/09	11.11.32	I	Occ.	D.	25.5	25.5	18/01/09	17.55.20	II	Sh.	I.	-15.8	-19.5	
05/01/09	13.49.29	I	Ec.	R.	24.1	16.6	18/01/09	18.01.42	I	Tr.	I.	-17.0	-20.6	
06/01/09	3.29.54	III	Occ.	D.	-44.5	-34.6	18/01/09	18.07.25	I	Sh.	I.	-18.0	-21.7	
06/01/09	6.49.18	II	Occ.	D.	-8.1	1.0	18/01/09	20.18.38	I	Tr.	E.	-42.3	-45.8	
06/01/09	8.17.23	III	Ec.	R.	6.6	13.3	18/01/09	20.24.23	I	Sh.	E.	-43.3	-46.9	
06/01/09	8.28.48	I	Tr.	I.	8.3	14.7	18/01/09	20.35.12	II	Tr.	E.	-45.3	-48.8	
06/01/09	8.47.24	I	Sh.	I.	11.0	16.8	18/01/09	20.47.15	II	Sh.	E.	-47.4	-50.9	
06/01/09	10.14.49	II	Ec.	R.	21.4	24.0	19/01/09	15.16.27	I	Occ.	D.	10.3	7.8	
06/01/09	10.45.35	I	Tr.	E.	24.0	25.2	19/01/09	17.39.31	I	Ec.	R.	-13.5	-16.4	
06/01/09	11.04.18	I	Sh.	E.	25.3	25.5	19/01/09	20.54.56	IV	Tr.	I.	-49.3	-52.0	
07/01/09	5.42.04	I	Occ.	D.	-19.5	-10.6	19/01/09	21.36.41	IV	Sh.	I.	-56.2	-58.7	
07/01/09	8.18.12	I	Ec.	R.	7.2	13.5	20/01/09	1.31.31	IV	Tr.	E.	-57.2	-55.2	
08/01/09	1.24.37	II	Tr.	I.	-63.6	-57.1	20/01/09	2.16.14	IV	Sh.	E.	-49.8	-47.6	
08/01/09	1.59.09	II	Sh.	I.	-58.9	-51.2	20/01/09	12.27.57	II	Occ.	D.	27.1	26.2	
08/01/09	2.59.13	I	Tr.	I.	-48.9	-40.3	20/01/09	12.30.38	III	Occ.	D.	26.9	26.1	
08/01/09	3.16.00	I	Sh.	I.	-45.9	-37.2	20/01/09	12.32.08	I	Tr.	I.	26.9	26.0	
08/01/09	4.15.33	II	Tr.	E.	-35.0	-26.2	20/01/09	12.35.58	I	Sh.	I.	26.7	25.8	
08/01/09	4.50.47	II	Sh.	E.	-28.4	-19.7	20/01/09	14.49.05	I	Tr.	E.	13.8	12.0	
08/01/09	5.16.02	I	Tr.	E.	-23.7	-15.2	20/01/09	14.52.57	I	Sh.	E.	13.3	11.4	
08/01/09	5.32.55	I	Sh.	E.	-20.6	-12.2	20/01/09	15.24.24	II	Ec.	R.	8.8	6.8	
09/01/09	0.12.44	I	Occ.	D.	-68.4	-67.2	20/01/09	16.18.30	III	Ec.	R.	0.6	-1.2	
09/01/09	2.47.01	I	Ec.	R.	-50.5	-42.5	21/01/09	9.47.00	I	Occ.	D.	23.6	24.3	
09/01/09	17.44.40	III	Tr.	I.	-9.5	-19.1	21/01/09	12.08.11	I	Ec.	R.	27.7	27.4	
09/01/09	18.45.36	III	Sh.	I.	-20.4	-30.3	22/01/09	7.02.33	I	Tr.	I.	3.0	4.1	
09/01/09	20.13.54	II	Occ.	D.	-36.8	-46.6	22/01/09	7.04.32	I	Sh.	I.	3.3	4.4	
09/01/09	21.14.38	III	Tr.	E.	-47.9	-57.1	22/01/09	7.10.43	II	Tr.	I.	4.3	5.4	
09/01/09	21.29.37	I	Tr.	I.	-50.5	-59.6	22/01/09	7.14.38	II	Sh.	I.	4.9	6.0	
09/01/09	21.44.34	I	Sh.	I.	-53.1	-61.8	22/01/09	9.19.32	I	Tr.	E.	21.4	22.1	
09/01/09	22.17.30	III	Sh.	E.	-58.4	-66.2	22/01/09	9.21.31	I	Sh.	E.	21.6	22.3	
09/01/09	23.32.14	II	Ec.	R.	-67.2	-69.8	22/01/09	10.02.23	II	Tr.	E.	25.1	25.6	
09/01/09	23.46.27	I	Tr.	E.	-67.9	-69.2	22/01/09	10.06.37	II	Sh.	E.	25.4	25.9	
10/01/09	0.01.30	I	Sh.	E.	-68.3	-68.1	23/01/09	4.17.40	I	Occ.	D.	-25.9	-25.0	
10/01/09	18.43.19	I	Occ.	D.	-20.5	-29.7	23/01/09	6.36.57	I	Ec.	R.	-0.3	0.4	
10/01/09	21.15.44	I	Ec.	R.	-48.5	-57.2	24/01/09	1.32.57	I	Tr.	I.	-54.9	-54.5	
11/01/09	12.02.29	IV	Occ.	D.	27.8	25.5	24/01/09	1.33.04	I	Sh.	I.	-54.9	-54.5	
11/01/09	14.50.40	II	Tr.	I.	16.6	10.0	24/01/09	1.52.38	II	Occ.	D.	-51.7	-51.2	
11/01/09	15.17.36	II	Sh.	I.	13.1	6.1	24/01/09	2.45.41	III	Sh.	I.	-42.3	-41.9	
11/01/09	16.00.02	I	Tr.	I.	7.1	-0.1	24/01/09	2.45.54	III	Tr.	I.	-42.2	-41.8	
11/01/09	16.13.08	I	Sh.	I.	5.1	-2.2	24/01/09	3.49.57	I	Tr.	E.	-30.4	-30.0	
11/01/09	17.41.47	II	Tr.	E.	-10.0	-18.3	24/01/09	3.50.04	I	Sh.	E.	-30.4	-30.0	
11/01/09	18.09.20	II	Sh.	E.	-14.9	-23.3	24/01/09	4.41.46	II	Ec.	R.	-20.8	-20.5	
11/01/09	18.16.53	I	Tr.	E.	-16.2	-24.7	24/01/09	6.18.10	III	Tr.	E.	-3.2	-2.7	
11/01/09	18.30.05	I	Sh.	E.	-18.6	-27.1	24/01/09	6.18.39	III	Sh.	E.	-3.1	-2.6	
11/01/09	18.42.51	IV	Ec.	R.	-21.0	-29.4	24/01/09	22.47.24	I	Ec.	D.	-66.4	-65.7	
12/01/09	13.13.59	I	Occ.	D.	25.5	21.3	25/01/09	1.06.29	I	Occ.	R.	-58.5	-58.4	
12/01/09	15.44.33	I	Ec.	R.	9.0	2.3	25/01/09	20.01.36	I	Sh.	I.	-42.7	-41.4	
13/01/09	8.00.09	III	Occ.	D.	7.4	11.5	25/01/09	20.03.21	I	Tr.	I.	-43.0	-41.7	

Data	Ora	Luna	Fenomeno	Fase	h	h Sole							
25/01/09	20.32.59	II	Sh.	I.	-48.3	-47.0	09/02/09	23.41.46	I	Occ.	R.	-62.6	-62.2
25/01/09	20.36.47	II	Tr.	I.	-49.0	-47.6	10/02/09	18.18.13	I	Sh.	I.	-31.8	-19.0
25/01/09	22.18.36	I	Sh.	E.	-64.1	-62.9	10/02/09	18.36.37	I	Tr.	I.	-35.2	-22.4
25/01/09	22.20.22	I	Tr.	E.	-64.3	-63.1	10/02/09	20.18.45	II	Ec.	D.	-53.3	-41.0
25/01/09	23.25.03	II	Sh.	E.	-67.5	-66.7	10/02/09	20.35.19	I	Sh.	E.	-55.9	-43.8
25/01/09	23.28.38	II	Tr.	E.	-67.4	-66.7	10/02/09	20.53.50	I	Tr.	E.	-58.7	-46.9
26/01/09	17.16.10	I	Ec.	D.	-12.8	-10.8	10/02/09	23.45.19	II	Occ.	R.	-61.8	-61.8
26/01/09	19.37.09	I	Occ.	R.	-38.7	-36.7	11/02/09	0.45.19	III	Ec.	D.	-53.2	-57.2
27/01/09	14.30.08	I	Sh.	I.	13.9	16.1	11/02/09	5.36.27	III	Occ.	R.	-0.2	-7.5
27/01/09	14.33.45	I	Tr.	I.	13.4	15.7	11/02/09	15.34.12	I	Ec.	D.	-1.8	10.4
27/01/09	15.09.55	II	Ec.	D.	8.2	10.5	11/02/09	18.12.13	I	Occ.	R.	-31.2	-17.7
27/01/09	16.45.23	III	Ec.	D.	-7.8	-5.1	12/02/09	12.46.43	I	Sh.	I.	21.5	31.5
27/01/09	16.47.09	I	Sh.	E.	-8.1	-5.4	12/02/09	13.06.57	I	Tr.	I.	19.2	29.8
27/01/09	16.50.47	I	Tr.	E.	-8.7	-6.1	12/02/09	15.03.51	I	Sh.	E.	2.4	15.4
27/01/09	18.06.16	II	Occ.	R.	-22.4	-19.7	12/02/09	15.07.08	II	Sh.	I.	1.9	14.9
27/01/09	20.33.45	III	Occ.	R.	-49.4	-46.7	12/02/09	15.24.11	I	Tr.	E.	-0.6	12.2
28/01/09	8.12.12	IV	Ec.	D.	15.9	15.3	12/02/09	15.49.07	II	Tr.	I.	-5.6	8.2
28/01/09	11.44.48	I	Ec.	D.	28.2	29.8	12/02/09	17.59.30	II	Sh.	E.	-29.4	-15.1
28/01/09	13.34.15	IV	Occ.	R.	20.4	23.0	12/02/09	18.41.40	II	Tr.	E.	-37.2	-23.0
28/01/09	14.07.42	I	Occ.	R.	16.5	19.2	13/02/09	10.02.54	I	Ec.	D.	29.4	31.5
29/01/09	8.58.41	I	Sh.	I.	21.7	21.3	13/02/09	12.42.46	I	Occ.	R.	21.7	32.1
29/01/09	9.04.09	I	Tr.	I.	22.3	21.9	14/02/09	2.18.14	IV	Ec.	D.	-35.1	-42.9
29/01/09	9.52.15	II	Sh.	I.	26.2	26.5	14/02/09	7.15.12	I	Sh.	I.	15.9	10.6
29/01/09	10.03.47	II	Tr.	I.	26.9	27.3	14/02/09	7.37.14	I	Tr.	I.	18.7	14.1
29/01/09	11.15.42	I	Sh.	E.	28.7	30.2	14/02/09	9.32.19	I	Sh.	E.	28.6	29.2
29/01/09	11.21.13	I	Tr.	E.	28.7	30.2	14/02/09	9.35.57	II	Ec.	D.	28.7	29.5
29/01/09	12.44.23	II	Sh.	E.	24.9	27.5	14/02/09	9.54.29	I	Tr.	E.	29.3	31.2
29/01/09	12.55.46	II	Tr.	E.	23.9	26.7	14/02/09	10.30.44	IV	Occ.	R.	29.6	33.7
30/01/09	6.13.32	I	Ec.	D.	-0.4	-2.6	14/02/09	13.09.56	II	Occ.	R.	18.2	30.2
30/01/09	8.38.21	I	Occ.	R.	19.9	19.1	14/02/09	14.45.10	III	Sh.	I.	4.5	18.7
31/01/09	3.27.11	I	Sh.	I.	-30.6	-33.4	14/02/09	16.16.44	III	Tr.	I.	-11.5	4.1
31/01/09	3.34.31	I	Tr.	I.	-29.2	-32.0	14/02/09	18.19.27	III	Sh.	E.	-34.1	-18.4
31/01/09	4.27.09	II	Ec.	D.	-19.5	-22.3	14/02/09	19.51.52	III	Tr.	E.	-50.7	-35.3
31/01/09	5.44.13	I	Sh.	E.	-5.6	-8.2	15/02/09	4.31.31	I	Ec.	D.	-10.0	-18.6
31/01/09	5.51.36	I	Tr.	E.	-4.2	-6.9	15/02/09	7.13.13	I	Occ.	R.	16.1	10.5
31/01/09	6.46.11	III	Sh.	I.	5.0	2.9	16/02/09	1.43.40	I	Sh.	I.	-40.3	-47.9
31/01/09	7.17.10	III	Tr.	I.	9.7	7.8	16/02/09	2.07.31	I	Tr.	I.	-35.9	-44.1
31/01/09	7.31.07	II	Occ.	R.	11.7	9.9	16/02/09	4.00.49	I	Sh.	E.	-15.0	-24.0
31/01/09	10.19.36	III	Sh.	E.	28.0	28.8	16/02/09	4.24.48	I	Tr.	E.	-10.6	-19.6
31/01/09	10.50.26	III	Tr.	E.	28.8	30.2	16/02/09	4.25.23	II	Sh.	I.	-10.5	-19.5
01/02/09	0.42.12	I	Ec.	D.	-58.7	-60.2	16/02/09	5.14.48	II	Tr.	I.	-1.0	-10.3
01/02/09	3.08.55	I	Occ.	R.	-33.4	-36.6	16/02/09	7.17.49	II	Sh.	E.	17.1	11.5
01/02/09	21.55.42	I	Sh.	I.	-63.5	-58.3	16/02/09	8.07.30	II	Tr.	E.	22.9	19.2
01/02/09	22.04.53	I	Tr.	I.	-64.4	-59.5	16/02/09	23.00.12	I	Ec.	D.	-64.3	-59.5
01/02/09	23.10.34	II	Sh.	I.	-67.0	-64.6	17/02/09	1.43.45	I	Occ.	R.	-39.7	-47.6
01/02/09	23.29.47	II	Tr.	I.	-66.2	-64.8	17/02/09	20.12.09	I	Sh.	I.	-55.3	-38.2
02/02/09	0.12.45	I	Sh.	E.	-62.2	-62.9	17/02/09	20.37.47	I	Tr.	I.	-59.0	-42.6
02/02/09	0.22.00	I	Tr.	E.	-61.1	-62.1	17/02/09	22.29.18	I	Sh.	E.	-65.9	-57.3
02/02/09	2.02.47	II	Sh.	E.	-44.9	-48.1	17/02/09	22.53.06	II	Ec.	D.	-64.5	-58.8
02/02/09	2.21.57	II	Tr.	E.	-41.4	-44.8	17/02/09	22.55.05	I	Tr.	E.	-64.4	-58.9
02/02/09	19.10.56	I	Ec.	D.	-37.5	-30.5	18/02/09	2.34.27	II	Occ.	R.	-29.7	-39.1
02/02/09	21.39.33	I	Occ.	R.	-61.9	-55.9	18/02/09	4.45.18	III	Ec.	D.	-5.8	-15.3
03/02/09	16.24.13	I	Sh.	I.	-7.5	0.6	18/02/09	10.06.58	III	Occ.	R.	29.9	33.5
03/02/09	16.35.16	I	Tr.	I.	-9.4	-1.1	18/02/09	17.28.47	I	Ec.	D.	-26.8	-8.2
03/02/09	17.44.21	II	Ec.	D.	-21.9	-14.3	18/02/09	20.14.08	I	Occ.	R.	-56.0	-38.3
03/02/09	18.41.16	I	Sh.	E.	-32.5	-24.8	19/02/09	14.40.38	I	Sh.	I.	3.1	20.7
03/02/09	18.52.23	I	Tr.	E.	-34.6	-26.8	19/02/09	15.08.04	I	Tr.	I.	-1.1	16.5
03/02/09	20.45.02	III	Ec.	D.	-54.5	-47.1	19/02/09	16.57.49	I	Sh.	E.	-21.6	-1.5
03/02/09	20.55.52	II	Occ.	R.	-56.2	-48.9	19/02/09	17.25.23	I	Tr.	E.	-26.7	-7.4
04/02/09	1.04.58	III	Occ.	R.	-53.7	-56.6	19/02/09	17.44.25	II	Sh.	I.	-30.2	-10.9
04/02/09	13.39.32	I	Ec.	D.	17.7	24.3	19/02/09	18.41.10	II	Tr.	I.	-40.7	-21.4
04/02/09	16.10.03	I	Occ.	R.	-5.4	3.0	19/02/09	20.36.52	II	Sh.	E.	-59.6	-41.9
05/02/09	10.52.44	I	Sh.	I.	29.1	31.7	19/02/09	21.33.58	II	Tr.	E.	-65.2	-56.0
05/02/09	11.05.38	I	Tr.	I.	29.0	32.0	20/02/09	11.57.27	I	Ec.	D.	24.5	36.8
05/02/09	12.29.45	II	Sh.	I.	24.8	30.4	20/02/09	14.44.36	I	Occ.	R.	2.0	20.4
05/02/09	12.56.37	II	Tr.	I.	22.3	28.6	21/02/09	9.09.05	I	Sh.	I.	28.9	28.9
05/02/09	13.09.48	I	Sh.	E.	20.9	27.5	21/02/09	9.38.17	I	Tr.	I.	29.9	32.1
05/02/09	13.22.47	I	Tr.	E.	19.4	26.3	21/02/09	11.26.16	I	Sh.	E.	26.9	37.6
05/02/09	15.22.01	II	Sh.	E.	2.6	10.9	21/02/09	11.55.38	I	Tr.	E.	24.4	37.2
05/02/09	15.44.13	IV	Sh.	I.	-0.7	7.4	21/02/09	12.10.18	II	Ec.	D.	23.0	36.6
05/02/09	15.48.55	II	Tr.	E.	-1.5	6.6	21/02/09	15.58.55	II	Occ.	R.	-11.8	8.7
05/02/09	17.51.41	IV	Tr.	I.	-24.3	-15.2	21/02/09	18.44.15	III	Sh.	I.	-42.2	-21.5
05/02/09	20.26.41	IV	Sh.	E.	-52.4	-43.5	21/02/09	20.45.15	III	Tr.	I.	-61.3	-42.8
05/02/09	22.35.00	IV	Tr.	E.	-66.7	-61.5	21/02/09	22.18.58	III	Sh.	E.	-65.5	-55.1
06/02/09	8.08.16	I	Ec.	D.	19.2	16.7	22/02/09	0.21.15	III	Tr.	E.	-51.3	-56.0
06/02/09	10.40.40	I	Occ.	R.	29.2	31.6	22/02/09	6.26.02	I	Ec.	D.	12.8	4.4
07/02/09	5.21.13	I	Sh.	I.	-5.7	-11.1	22/02/09	9.14.59	I	Occ.	R.	29.3	30.0
07/02/09	5.35.58	I	Tr.	I.	-2.6	-8.4	22/02/09	9.52.18	IV	Sh.	I.	30.1	33.7
07/02/09	7.01.35	II	Ec.	D.	10.7	6.7	22/02/09	14.37.23	IV	Sh.	E.	2.3	22.0
07/02/09	7.38.18	I	Sh.	E.	15.9	12.5	22/02/09	14.44.27	IV	Tr.	I.	1.2	20.9
07/02/09	7.53.08	I	Tr.	E.	17.8	14.7	22/02/09	19.33.01	IV	Tr.	E.	-51.2	-30.2
07/02/09	10.20.39	II	Occ.	R.	29.0	30.9	23/02/09	3.37.33	I	Sh.	I.	-15.1	-26.5
07/02/09	10.45.47	III	Sh.	I.	29.2	32.1	23/02/09	4.08.30	I	Tr.	I.	-9.5	-20.8
07/02/09	11.47.17	III	Tr.	I.	27.4	32.6	23/02/09	5.54.45	I	Sh.	E.	8.6	-0.5
07/02/09	14.19.39	III	Sh.	E.	11.2	20.3	23/02/09	6.25.52	I	Tr.	E.	13.3	4.6
07/02/09	15.21.32	III	Tr.	E.	1.8	11.4	23/02/09	7.02.34	II	Sh.	I.	18.2	10.9
08/02/09	2.36.54	I	Ec.	D.	-35.2	-41.0	23/02/09	8.06.34	II	Tr.	I.	25.2	21.2
08/02/09	5.11.10	I	Occ.	R.	-6.9	-12.8	23/02/09	9.55.05	II	Sh.	E.	30.2	34.3
08/02/09	23.49.43	I	Sh.	I.	-62.1	-62.2	23/02/09	10.59.29	II	Tr.	E.	28.3	38.0
09/02/09	0.06.18	I	Tr.	I.	-60.1	-61.4	24/02/09	0.54.43	I	Ec.	D.	-44.4	-52.0
09/02/09	1.48.01	II	Sh.	I.	-43.5	-49.1	24/02/09	3.45.26	I	Occ.	R.	-13.1	-24.8
09/02/09	2.06.49	I	Sh.	E.	-40.1	-46.0	24/02/09	22.06.00	I	Sh.	I.	-65.5	-52.8
09/02/09	2.22.29	II	Tr.	I.	-37.3	-43.3	24/02/09	22.38.42	I	Tr.	I.	-63.6	-55.6
09/02/09	2.23.29	I	Tr.	E.	-37.1	-43.2	25/02/09	0.23.13	I	Sh.	E.	-49.3	-54.7
09/02/09	4.40.21	II	Sh.	E.	-11.9	-18.2	25/02/09	0.56.05	I	Tr.	E.	-43.6	-51.5
09/02/09	5.14.56	II	Tr.	E.	-5.7	-11.9	25/02/09	1.27.29	II	Ec.	D.	-37.9	-47.5
09/02/09	21.05.37	I	Ec.	D.	-59.9	-49.0	25/02/09	5.23.17	II	Occ.	R.	4.7	-6.4
							25/02/09	8.45.52	III	Ec.	D.	28.6	27.4

Data	Ora	Luna	Fenomeno	Fase	h	h Sole								
25/02/09	14.37.09	III	Occ.	R.	1.0	22.8	12/03/09	22.39.23	I	Sh.	E.	-57.1	-49.9	
25/02/09	19.23.16	I	Ec.	D.	-50.9	-27.7	12/03/09	23.27.13	I	Tr.	E.	-49.8	-51.0	
25/02/09	22.15.44	I	Occ.	R.	-64.9	-53.5	13/03/09	1.35.17	II	Sh.	I.	-26.9	-40.8	
26/02/09	16.34.29	I	Sh.	I.	-20.9	3.7	13/03/09	3.13.06	II	Tr.	I.	-8.9	-25.4	
26/02/09	17.08.55	I	Tr.	I.	-27.3	-2.1	13/03/09	4.27.53	II	Sh.	E.	4.4	-12.0	
26/02/09	18.51.43	I	Sh.	E.	-46.0	-21.8	13/03/09	6.06.21	II	Tr.	E.	19.0	6.5	
26/02/09	19.26.20	I	Tr.	E.	-51.9	-28.1	13/03/09	17.40.33	I	Ec.	D.	-41.0	-5.4	
26/02/09	20.21.31	II	Sh.	I.	-59.9	-37.6	13/03/09	20.47.56	I	Occ.	R.	-64.6	-37.8	
26/02/09	21.32.36	II	Tr.	I.	-65.5	-48.3	14/03/09	14.50.26	I	Sh.	I.	-10.2	25.3	
26/02/09	23.14.02	II	Sh.	E.	-58.9	-56.3	14/03/09	15.39.36	I	Tr.	I.	-19.2	17.0	
27/02/09	0.25.35	II	Tr.	E.	-47.8	-53.8	14/03/09	17.07.48	I	Sh.	E.	-35.5	1.3	
27/02/09	13.51.54	I	Ec.	D.	7.3	29.6	14/03/09	17.57.12	I	Tr.	E.	-44.4	-8.3	
27/02/09	16.46.07	I	Occ.	R.	-23.6	2.0	14/03/09	19.53.23	II	Ec.	D.	-61.4	-29.0	
28/02/09	11.02.56	I	Sh.	I.	27.4	40.0	15/03/09	0.23.06	II	Occ.	R.	-38.9	-47.8	
28/02/09	11.39.04	I	Tr.	I.	24.4	40.1	15/03/09	6.42.52	III	Sh.	I.	24.1	13.7	
28/02/09	13.20.10	I	Sh.	E.	11.7	33.7	15/03/09	10.05.52	III	Tr.	I.	29.1	42.8	
28/02/09	13.56.30	I	Tr.	E.	6.1	29.4	15/03/09	10.18.52	III	Sh.	E.	28.2	43.8	
28/02/09	14.44.39	II	Ec.	D.	-1.3	22.5	15/03/09	12.09.05	I	Ec.	D.	16.0	44.7	
28/02/09	18.47.32	II	Occ.	R.	-46.3	-20.6	15/03/09	13.43.58	III	Tr.	E.	1.4	35.5	
28/02/09	22.43.28	III	Sh.	I.	-61.8	-54.5	15/03/09	15.18.00	I	Occ.	R.	-15.7	21.0	
01/03/09	1.13.01	III	Tr.	I.	-38.2	-48.1	16/03/09	9.18.52	I	Sh.	I.	31.1	38.4	
01/03/09	2.18.38	III	Sh.	E.	-26.1	-38.5	16/03/09	10.09.34	I	Tr.	I.	28.7	43.5	
01/03/09	4.49.49	III	Tr.	E.	1.5	-11.5	16/03/09	11.36.15	I	Sh.	E.	20.0	46.3	
01/03/09	8.20.28	I	Ec.	D.	28.0	25.2	16/03/09	12.27.11	I	Tr.	E.	13.0	43.9	
01/03/09	11.16.25	I	Occ.	R.	26.2	40.6	16/03/09	14.53.14	II	Sh.	I.	-11.8	25.3	
02/03/09	5.31.23	I	Sh.	I.	8.6	-3.1	16/03/09	16.37.17	II	Tr.	I.	-31.0	7.1	
02/03/09	6.09.13	I	Tr.	I.	14.2	3.7	16/03/09	17.45.52	II	Sh.	E.	-43.4	-5.7	
02/03/09	7.48.38	I	Sh.	E.	25.9	20.6	16/03/09	19.30.37	II	Tr.	E.	-59.5	-24.6	
02/03/09	8.26.40	I	Tr.	E.	28.7	26.4	17/03/09	6.37.41	I	Ec.	D.	24.3	13.4	
02/03/09	9.39.37	II	Sh.	I.	30.6	35.4	17/03/09	9.48.07	I	Occ.	R.	29.9	42.0	
02/03/09	10.57.40	II	Tr.	I.	27.5	40.6	18/03/09	3.47.17	I	Sh.	I.	0.6	-17.7	
02/03/09	12.32.11	II	Sh.	E.	17.7	38.6	18/03/09	4.39.29	I	Tr.	I.	8.9	-8.2	
02/03/09	13.50.45	II	Tr.	E.	6.2	30.7	18/03/09	6.04.40	I	Sh.	E.	21.0	7.8	
02/03/09	20.24.08	IV	Ec.	D.	-61.5	-37.1	18/03/09	6.57.07	I	Tr.	E.	26.6	17.2	
03/03/09	1.09.04	IV	Ec.	R.	-37.8	-47.9	18/03/09	9.10.35	II	Ec.	D.	31.3	38.2	
03/03/09	2.28.08	IV	Occ.	D.	-23.1	-36.3	18/03/09	13.46.36	II	Occ.	R.	-0.2	36.0	
03/03/09	2.49.07	I	Ec.	D.	-19.2	-32.8	18/03/09	20.44.08	III	Ec.	D.	-64.4	-35.9	
03/03/09	5.46.46	I	Occ.	R.	11.5	0.2	19/03/09	1.06.10	I	Ec.	D.	-28.6	-42.2	
03/03/09	7.16.56	IV	Occ.	R.	23.2	15.8	19/03/09	3.56.29	III	Occ.	R.	2.6	-15.8	
03/03/09	23.59.49	I	Sh.	I.	-49.4	-53.6	19/03/09	4.18.06	I	Occ.	R.	6.1	-11.8	
04/03/09	0.39.19	I	Tr.	I.	-42.5	-50.7	19/03/09	14.30.15	IV	Ec.	D.	-9.2	29.8	
04/03/09	2.17.05	I	Sh.	E.	-24.6	-37.8	19/03/09	19.17.05	IV	Ec.	R.	-58.9	-21.6	
04/03/09	2.56.48	I	Tr.	E.	-17.2	-31.1	19/03/09	22.15.44	I	Sh.	I.	-57.0	-45.8	
04/03/09	4.01.48	II	Ec.	D.	-5.4	-19.5	19/03/09	22.55.13	IV	Occ.	D.	-51.2	-47.9	
04/03/09	8.11.38	II	Occ.	R.	28.2	24.9	19/03/09	23.09.25	I	Tr.	I.	-48.9	-48.2	
04/03/09	12.45.30	III	Ec.	D.	15.1	38.3	20/03/09	0.33.09	I	Sh.	E.	-34.1	-45.0	
04/03/09	19.05.15	III	Occ.	R.	-51.2	-22.9	20/03/09	1.27.05	I	Tr.	E.	-24.1	-39.3	
04/03/09	21.17.39	I	Ec.	D.	-65.2	-44.6	20/03/09	3.46.19	IV	Occ.	R.	1.5	-17.2	
05/03/09	0.16.58	I	Occ.	R.	-45.9	-52.2	20/03/09	4.11.54	II	Sh.	I.	5.6	-12.6	
05/03/09	18.28.17	I	Sh.	I.	-45.4	-16.0	20/03/09	6.01.54	II	Tr.	I.	21.5	7.9	
05/03/09	19.09.28	I	Tr.	I.	-52.3	-23.4	20/03/09	7.04.31	II	Sh.	E.	27.9	19.2	
05/03/09	20.45.34	I	Sh.	E.	-64.0	-39.7	20/03/09	8.55.14	II	Tr.	E.	31.6	36.9	
05/03/09	21.26.57	I	Tr.	E.	-65.2	-45.5	20/03/09	19.34.45	I	Ec.	D.	-61.1	-24.4	
05/03/09	22.58.30	II	Sh.	I.	-57.8	-53.3	20/03/09	22.48.07	I	Occ.	R.	-51.8	-47.2	
06/03/09	0.23.18	II	Tr.	I.	-44.2	-51.3	21/03/09	16.44.08	I	Sh.	I.	-34.9	6.9	
06/03/09	1.51.04	II	Sh.	E.	-28.2	-41.1	21/03/09	17.39.17	I	Tr.	I.	-44.8	-3.1	
06/03/09	3.16.27	II	Tr.	E.	-12.4	-27.1	21/03/09	19.01.34	I	Sh.	E.	-57.6	-18.4	
06/03/09	15.46.17	I	Ec.	D.	-16.2	14.0	21/03/09	19.56.57	I	Tr.	E.	-63.1	-27.8	
06/03/09	18.47.15	I	Occ.	R.	-49.1	-19.2	21/03/09	22.27.48	II	Ec.	D.	-54.4	-45.9	
07/03/09	12.56.42	I	Sh.	I.	12.4	38.3	22/03/09	3.09.52	II	Occ.	R.	-3.8	-22.9	
07/03/09	13.39.31	I	Tr.	I.	5.7	33.6	22/03/09	10.43.02	III	Sh.	I.	24.4	48.0	
07/03/09	15.14.00	I	Sh.	E.	-10.8	19.7	22/03/09	14.03.15	I	Ec.	D.	-5.8	34.7	
07/03/09	15.57.02	I	Tr.	E.	-18.7	12.3	22/03/09	14.19.21	III	Sh.	E.	-8.8	32.3	
07/03/09	17.18.59	II	Ec.	D.	-33.9	-2.0	22/03/09	14.30.20	III	Tr.	I.	-10.8	30.6	
07/03/09	21.35.36	II	Occ.	R.	-64.7	-45.9	22/03/09	17.18.03	I	Occ.	R.	-41.6	1.1	
08/03/09	2.43.21	III	Sh.	I.	-17.3	-32.1	22/03/09	18.08.53	III	Tr.	E.	-50.3	-8.7	
08/03/09	5.40.20	III	Tr.	I.	13.0	0.5	23/03/09	11.12.33	I	Sh.	I.	20.6	49.2	
08/03/09	6.18.57	III	Sh.	E.	18.4	7.2	23/03/09	12.09.08	I	Tr.	I.	12.8	47.7	
08/03/09	9.17.52	III	Tr.	E.	31.0	35.3	23/03/09	13.30.00	I	Sh.	E.	0.1	39.7	
08/03/09	10.14.49	I	Ec.	D.	29.4	40.8	23/03/09	14.26.50	I	Tr.	E.	-10.7	31.4	
08/03/09	13.17.26	I	Occ.	R.	8.8	36.5	23/03/09	17.29.49	II	Sh.	I.	-44.2	-0.6	
09/03/09	7.25.09	I	Sh.	I.	26.1	19.1	23/03/09	19.25.36	II	Tr.	I.	-61.0	-22.1	
09/03/09	8.09.35	I	Tr.	I.	29.3	26.3	23/03/09	20.22.28	II	Sh.	E.	-64.1	-31.3	
09/03/09	9.42.28	I	Sh.	E.	30.6	38.4	23/03/09	22.18.59	II	Tr.	E.	-54.6	-44.6	
09/03/09	10.27.07	I	Tr.	E.	28.5	42.0	24/03/09	8.31.50	I	Ec.	D.	31.9	35.0	
09/03/09	12.16.31	II	Sh.	I.	17.3	42.1	24/03/09	11.48.02	I	Occ.	R.	15.5	49.0	
09/03/09	13.47.57	II	Tr.	I.	3.5	33.2	25/03/09	5.40.57	I	Sh.	I.	21.1	5.7	
09/03/09	15.09.08	II	Sh.	E.	-11.0	21.0	25/03/09	6.38.55	I	Tr.	I.	27.3	16.2	
09/03/09	16.41.11	II	Tr.	E.	-27.9	4.9	25/03/09	7.58.25	I	Sh.	E.	31.7	30.1	
10/03/09	4.43.27	I	Ec.	D.	5.3	-10.0	25/03/09	8.56.38	I	Tr.	E.	31.5	39.0	
10/03/09	7.47.40	I	Occ.	R.	28.2	23.2	25/03/09	11.45.01	II	Ec.	D.	15.5	49.5	
11/03/09	1.53.34	I	Sh.	I.	-24.7	-39.0	25/03/09	16.33.00	II	Occ.	R.	-35.0	9.8	
11/03/09	2.39.36	I	Tr.	I.	-16.2	-31.8	26/03/09	0.43.19	III	Ec.	D.	-28.5	-41.8	
11/03/09	3.59.37	IV	Sh.	I.	-1.0	-17.8	26/03/09	3.00.18	I	Ec.	D.	-2.9	-23.2	
11/03/09	4.10.54	I	Sh.	E.	0.7	-15.7	26/03/09	4.19.44	III	Ec.	R.	10.1	-9.3	
11/03/09	4.57.09	I	Tr.	E.	8.0	-7.2	26/03/09	4.40.45	III	Occ.	D.	13.3	-5.4	
11/03/09	6.36.10	II	Ec.	D.	21.8	11.2	26/03/09	6.17.53	I	Occ.	R.	25.7	12.7	
11/03/09	8.46.52	IV	Sh.	E.	31.0	32.4	26/03/09	8.19.25	III	Occ.	R.	32.1	33.8	
11/03/09	10.59.26	II	Occ.	R.	25.6	44.2	27/03/09	0.09.24	I	Sh.	I.	-34.1	-43.9	
11/03/09	11.24.33	IV	Tr.	I.	23.0	44.5	27/03/09	1.08.45	I	Tr.	I.	-23.1	-38.8	
11/03/09	16.16.34	IV	Tr.	E.	-24.4	9.8	27/03/09	2.26.53	I	Sh.	E.	-8.8	-28.2	
11/03/09	16.44.58	III	Ec.	D.	-29.7	4.7	27/03/09	3.26.29	I	Tr.	E.	2.1	-18.4	
11/03/09	23.11.57	I	Ec.	D.	-52.8	-51.3	27/03/09	6.48.20	II	Sh.	I.	28.7	18.6	
11/03/09	23.31.45	III	Occ.	R.	-49.6	-51.3	27/03/09	8.49.34	II	Tr.	I.	31.6	38.7	
12/03/09	2.17.46	I	Occ.	R.	-19.6	-34.9	27/03/09	9.40.57	II	Sh.	E.	28.9	45.2	
12/03/09	20.22.02	I	Sh.	I.	-63.4	-34.1	27/03/09	11.42.56	II	Tr.	E.	15.0	50.4	
12/03/09	21.09.39	I	Tr.	I.	-64.7	-41.1	27/03/09	21.28.52	I	Ec.	D.	-59.3	-38.8	
							27/03/09	22.07.10	IV	Sh.	I.	-54.3	-42.4	

Data	Ora	Luna	Fenomeno	Fase	h	h Sole	11/04/09	23.35.13	I	Tr.	I.	-30.4	-39.1
28/03/09	0.47.46	I	Occ.	R.	-26.4	-40.6	12/04/09	0.42.41	I	Sh.	E.	-17.9	-35.3
28/03/09	2.56.12	IV	Sh.	E.	-2.3	-23.2	12/04/09	1.53.05	I	Tr.	E.	-4.9	-27.5
28/03/09	7.45.44	IV	Tr.	I.	31.8	29.0	12/04/09	6.11.28	II	Ec.	D.	30.6	16.8
28/03/09	12.39.15	IV	Tr.	E.	5.8	47.0	12/04/09	11.24.49	II	Occ.	R.	10.6	56.7
28/03/09	18.37.47	I	Sh.	I.	-57.0	-12.7	12/04/09	19.45.17	I	Ec.	D.	-62.6	-20.5
28/03/09	19.38.28	I	Tr.	I.	-62.9	-23.1	12/04/09	22.40.24	III	Sh.	I.	-39.7	-38.5
28/03/09	20.55.17	I	Sh.	E.	-62.1	-34.5	12/04/09	23.14.34	I	Occ.	R.	-33.6	-39.0
28/03/09	21.56.13	I	Tr.	E.	-55.4	-41.1	13/04/09	2.17.37	III	Sh.	E.	0.5	-23.8
29/03/09	1.02.17	II	Ec.	D.	-23.1	-38.7	13/04/09	3.28.09	III	Tr.	I.	11.8	-12.6
29/03/09	5.55.51	II	Occ.	R.	24.5	9.6	13/04/09	7.07.31	III	Tr.	E.	32.9	27.3
29/03/09	14.42.21	III	Sh.	I.	-16.7	30.3	13/04/09	16.15.23	IV	Sh.	I.	-42.1	16.8
29/03/09	15.57.20	I	Ec.	D.	-30.6	17.1	13/04/09	16.53.28	II	Sh.	I.	-48.6	9.8
29/03/09	18.18.59	III	Sh.	E.	-54.9	-9.1	13/04/09	18.04.40	I	Tr.	I.	-58.5	-2.9
29/03/09	18.52.04	III	Tr.	I.	-59.1	-15.0	13/04/09	19.11.07	I	Sh.	E.	-62.9	-14.8
29/03/09	19.17.33	I	Occ.	R.	-61.6	-19.3	13/04/09	20.22.33	I	Tr.	E.	-59.7	-25.7
29/03/09	22.30.58	III	Tr.	E.	-49.6	-43.1	13/04/09	21.05.44	IV	Sh.	E.	-54.5	-31.1
30/03/09	13.06.12	I	Sh.	I.	0.6	44.8	14/04/09	1.18.21	II	Sh.	I.	-10.1	-31.1
30/03/09	14.08.12	I	Tr.	I.	-11.0	36.1	14/04/09	3.40.10	IV	Tr.	I.	14.2	-10.3
30/03/09	15.23.43	I	Sh.	E.	-25.0	23.4	14/04/09	3.42.42	II	Tr.	I.	14.6	-9.9
30/03/09	16.25.58	I	Tr.	E.	-36.5	12.1	14/04/09	4.10.57	II	Sh.	E.	18.6	-4.8
30/03/09	20.06.10	II	Sh.	I.	-63.7	-27.0	14/04/09	6.36.05	II	Tr.	E.	32.3	21.9
30/03/09	22.12.40	II	Tr.	I.	-52.0	-41.7	14/04/09	8.33.22	IV	Tr.	E.	30.5	42.4
30/03/09	22.58.49	II	Sh.	E.	-44.4	-43.7	14/04/09	14.13.49	I	Ec.	D.	-20.5	38.8
31/03/09	1.06.05	II	Tr.	E.	-21.1	-37.6	14/04/09	17.44.03	I	Occ.	R.	-56.4	1.0
31/03/09	10.25.54	I	Ec.	D.	23.6	50.7	15/04/09	11.21.50	I	Sh.	I.	9.6	57.8
31/03/09	13.47.22	I	Occ.	R.	-7.8	39.5	15/04/09	12.34.01	I	Tr.	I.	-2.1	53.2
01/04/09	7.34.36	I	Sh.	I.	32.1	28.4	15/04/09	13.39.30	I	Sh.	E.	-14.7	44.5
01/04/09	8.37.52	I	Tr.	I.	31.7	38.8	15/04/09	14.51.54	I	Tr.	E.	-28.1	32.4
01/04/09	9.52.07	I	Sh.	E.	26.8	48.3	15/04/09	19.28.54	II	Ec.	D.	-62.7	-17.2
01/04/09	10.55.38	I	Tr.	E.	19.6	52.4	16/04/09	0.46.32	II	Occ.	R.	-14.6	-33.6
01/04/09	14.19.34	II	Ec.	D.	-14.2	34.8	16/04/09	8.42.14	I	Ec.	D.	29.4	44.4
01/04/09	19.18.33	II	Occ.	R.	-62.3	-18.8	16/04/09	12.13.23	I	Occ.	R.	0.8	55.5
02/04/09	4.43.10	III	Ec.	D.	17.2	-2.0	16/04/09	12.42.51	III	Ec.	D.	-4.9	52.5
02/04/09	4.54.21	I	Ec.	D.	18.7	0.0	16/04/09	16.20.10	III	Ec.	R.	-44.6	16.5
02/04/09	8.17.03	I	Occ.	R.	32.3	35.9	16/04/09	17.36.48	III	Occ.	D.	-56.2	2.6
02/04/09	8.19.56	III	Ec.	R.	32.2	36.3	16/04/09	21.16.10	III	Occ.	R.	-51.5	-31.3
02/04/09	9.01.55	III	Occ.	D.	30.5	42.6	17/04/09	5.50.17	I	Sh.	I.	30.5	14.2
02/04/09	12.40.57	III	Occ.	R.	3.1	48.5	17/04/09	7.03.24	I	Tr.	I.	33.2	27.7
03/04/09	2.03.03	I	Sh.	I.	-8.8	-29.3	17/04/09	8.07.58	I	Sh.	E.	31.6	39.1
03/04/09	3.07.33	I	Tr.	I.	2.9	-19.3	17/04/09	9.21.18	I	Tr.	E.	25.4	50.4
03/04/09	4.20.35	I	Sh.	E.	14.4	-6.5	17/04/09	14.36.30	II	Sh.	I.	-26.4	35.5
03/04/09	5.25.21	I	Tr.	E.	23.1	5.6	17/04/09	17.04.26	II	Tr.	I.	-52.2	8.5
03/04/09	9.24.34	II	Sh.	I.	28.8	45.9	17/04/09	17.29.03	II	Sh.	E.	-55.6	4.1
03/04/09	11.35.56	II	Tr.	I.	13.0	53.2	17/04/09	19.57.46	II	Tr.	E.	-60.6	-21.1
03/04/09	12.17.10	II	Sh.	E.	6.5	51.0	18/04/09	3.10.43	I	Ec.	D.	11.9	-14.0
03/04/09	14.29.20	II	Tr.	E.	-17.1	33.7	18/04/09	6.42.45	I	Occ.	R.	33.1	24.2
03/04/09	23.22.53	I	Ec.	D.	-37.7	-42.3	19/04/09	0.18.39	I	Sh.	I.	-17.8	-34.7
04/04/09	2.46.47	I	Occ.	R.	0.2	-22.3	19/04/09	1.32.40	I	Tr.	I.	-4.1	-27.7
04/04/09	20.31.25	I	Sh.	I.	-61.9	-29.3	19/04/09	2.36.21	I	Sh.	E.	6.9	-19.1
04/04/09	21.37.08	I	Tr.	I.	-54.6	-37.1	19/04/09	3.50.35	I	Tr.	E.	18.3	-7.0
04/04/09	22.48.59	I	Sh.	E.	-43.1	-41.6	19/04/09	8.46.13	II	Ec.	D.	28.4	46.0
04/04/09	23.54.57	I	Tr.	E.	-31.2	-41.1	19/04/09	14.07.38	II	Occ.	R.	-22.2	40.9
05/04/09	3.36.50	II	Ec.	D.	8.8	-13.7	19/04/09	21.39.09	I	Ec.	D.	-46.1	-32.6
05/04/09	8.36.13	IV	Ec.	D.	31.5	39.9	20/04/09	1.12.00	I	Occ.	R.	-7.4	-29.7
05/04/09	8.40.52	II	Occ.	R.	31.3	40.6	20/04/09	2.39.29	III	Sh.	I.	8.0	-18.3
05/04/09	13.24.32	IV	Ec.	R.	-6.4	44.1	20/04/09	6.17.01	III	Sh.	E.	32.6	20.0
05/04/09	17.51.21	I	Ec.	D.	-53.8	-1.9	20/04/09	7.42.25	III	Tr.	I.	32.4	35.6
05/04/09	18.41.29	III	Sh.	I.	-60.0	-11.6	20/04/09	11.21.55	III	Tr.	E.	7.1	59.6
05/04/09	18.59.01	IV	Occ.	D.	-61.6	-14.6	20/04/09	18.47.04	I	Sh.	I.	-62.6	-9.3
05/04/09	21.16.24	I	Occ.	R.	-56.9	-34.6	20/04/09	20.01.56	I	Tr.	I.	-59.2	-21.0
05/04/09	22.18.24	III	Sh.	E.	-47.7	-40.0	20/04/09	21.04.48	I	Sh.	E.	-51.0	-28.9
05/04/09	23.11.23	III	Tr.	I.	-38.5	-41.6	20/04/09	22.19.52	I	Tr.	E.	-38.4	-35.0
05/04/09	23.50.32	IV	Occ.	R.	-31.4	-40.9	21/04/09	3.54.09	II	Sh.	I.	19.8	-5.8
06/04/09	2.50.33	III	Tr.	E.	1.8	-21.1	21/04/09	6.25.24	II	Tr.	I.	33.0	21.8
06/04/09	14.59.50	I	Sh.	I.	-24.5	29.1	21/04/09	6.46.42	II	Sh.	E.	33.4	25.8
06/04/09	16.06.44	I	Tr.	I.	-36.8	17.1	21/04/09	9.18.43	II	Tr.	E.	24.4	51.3
06/04/09	17.17.25	I	Sh.	E.	-49.0	4.1	21/04/09	16.07.40	I	Ec.	D.	-45.1	19.7
06/04/09	18.24.34	I	Tr.	E.	-58.5	-8.4	21/04/09	19.41.17	I	Occ.	R.	-60.7	-17.7
06/04/09	22.42.22	II	Sh.	I.	-43.0	-40.7	22/04/09	2.42.03	IV	Ec.	D.	9.6	-17.3
07/04/09	0.58.25	II	Tr.	I.	-18.1	-35.7	22/04/09	7.31.27	IV	Ec.	R.	32.7	34.2
07/04/09	1.34.59	II	Sh.	E.	-11.4	-31.6	22/04/09	13.15.27	I	Sh.	I.	-14.3	49.8
07/04/09	3.51.50	II	Tr.	E.	12.2	-10.4	22/04/09	14.31.07	I	Tr.	I.	-28.4	37.5
07/04/09	12.19.54	I	Ec.	D.	4.1	52.1	22/04/09	14.31.55	IV	Occ.	D.	-28.5	37.4
07/04/09	15.46.04	I	Occ.	R.	-33.6	21.0	22/04/09	15.33.11	I	Sh.	E.	-39.7	26.3
08/04/09	9.28.13	I	Sh.	I.	27.3	48.2	22/04/09	16.49.03	I	Tr.	E.	-52.2	12.3
08/04/09	10.36.14	I	Tr.	I.	19.5	54.4	22/04/09	19.22.17	IV	Occ.	R.	-61.6	-14.6
08/04/09	11.45.49	I	Sh.	E.	9.2	54.7	22/04/09	22.03.43	II	Ec.	D.	-40.0	-33.4
08/04/09	12.54.05	I	Tr.	E.	-1.8	48.9	23/04/09	3.28.42	II	Occ.	R.	17.2	-9.6
08/04/09	16.54.10	II	Ec.	D.	-46.2	8.7	23/04/09	10.36.04	I	Ec.	D.	12.9	59.7
08/04/09	22.03.05	II	Occ.	R.	-48.5	-37.9	23/04/09	14.10.26	I	Occ.	R.	-25.1	41.3
09/04/09	6.48.20	I	Ec.	D.	31.9	22.7	23/04/09	16.42.05	III	Ec.	D.	-51.6	13.7
09/04/09	8.42.43	III	Ec.	D.	30.7	42.2	23/04/09	20.19.38	III	Ec.	R.	-55.9	-22.7
09/04/09	10.15.35	I	Occ.	R.	21.8	53.4	23/04/09	21.49.29	III	Occ.	D.	-41.9	-32.2
09/04/09	12.19.47	III	Ec.	R.	3.2	52.8	24/04/09	1.28.52	III	Occ.	R.	-1.0	-26.6
09/04/09	13.20.24	III	Occ.	D.	-7.8	45.8	24/04/09	7.43.54	I	Sh.	I.	31.9	36.9
09/04/09	16.59.38	III	Occ.	R.	-47.6	7.9	24/04/09	9.00.19	I	Tr.	I.	25.5	49.6
10/04/09	3.56.40	I	Sh.	I.	14.5	-8.6	24/04/09	10.01.39	I	Sh.	E.	17.6	57.4
10/04/09	5.05.47	I	Tr.	I.	23.8	4.1	24/04/09	11.18.16	I	Tr.	E.	5.6	60.9
10/04/09	6.14.17	I	Sh.	E.	30.2	16.7	24/04/09	17.12.13	II	Sh.	I.	-56.2	8.4
10/04/09	7.23.39	I	Tr.	E.	32.9	29.3	24/04/09	19.46.19	II	Tr.	I.	-59.2	-17.8
10/04/09	12.00.39	II	Sh.	I.	5.8	54.5	24/04/09	20.04.43	II	Sh.	E.	-57.2	-20.4
10/04/09	14.20.58	II	Tr.	I.	-19.5	36.7	24/04/09	22.39.34	II	Tr.	E.	-32.3	-34.4
10/04/09	14.53.13	II	Sh.	E.	-25.5	31.2	25/04/09	5.04.32	I	Ec.	D.	29.4	7.9
10/04/09	17.14.20	II	Tr.	E.	-50.4	5.4	25/04/09	8.39.35	I	Occ.	R.	27.3	46.6
11/04/09	1.16.50	I	Ec.	D.	-12.2	-32.3	26/04/09	2.12.16	I	Sh.	I.	7.0	-20.5
11/04/09	4.45.07	I	Occ.	R.	21.7	0.9	26/04/09	3.29.24	I	Tr.	I.	18.9	-8.7
11/04/09	22.25.03	I	Sh.	I.	-43.0	-38.2	26/04/09	4.30.03	I	Sh.	E.	26.4	2.1

Data	Ora	Luna	Fenomeno	Fase	h	h Sole								
25/05/09	22.37.35	III	Sh.	I.	-11.8	-26.5	09/06/09	10.15.03	III	Sh.	E.	-12.0	67.6	
26/05/09	2.16.10	III	Sh.	E.	24.0	-13.6	09/06/09	10.21.15	I	Sh.	E.	-13.2	68.3	
26/05/09	3.32.51	IV	Occ.	D.	31.6	-1.7	09/06/09	11.37.29	I	Tr.	E.	-27.3	70.2	
26/05/09	4.05.03	III	Tr.	I.	33.5	3.1	09/06/09	11.44.44	III	Tr.	I.	-28.6	69.7	
26/05/09	4.15.25	I	Sh.	I.	33.9	4.8	09/06/09	15.23.10	III	Tr.	E.	-60.4	34.9	
26/05/09	5.36.19	I	Tr.	I.	33.6	18.9	10/06/09	22.00.10	II	Sh.	I.	-8.2	-23.0	
26/05/09	6.33.29	I	Sh.	E.	29.8	29.4	10/06/09	0.30.26	II	Tr.	I.	17.4	-22.5	
26/05/09	7.43.56	III	Tr.	E.	21.9	42.5	10/06/09	0.52.17	II	Sh.	E.	20.5	-21.0	
26/05/09	7.54.23	I	Tr.	E.	20.5	44.4	10/06/09	3.22.51	II	Tr.	E.	34.2	-2.3	
26/05/09	8.17.26	IV	Occ.	R.	17.2	48.5	10/06/09	5.23.25	I	Ec.	D.	31.1	17.4	
26/05/09	16.50.37	II	Sh.	I.	-61.5	17.4	10/06/09	8.56.12	I	Occ.	R.	1.9	56.1	
26/05/09	19.31.07	II	Tr.	I.	-45.0	-9.3	11/06/09	2.31.30	I	Sh.	I.	31.7	-10.3	
26/05/09	19.42.52	II	Sh.	E.	-43.0	-10.9	11/06/09	3.46.57	I	Tr.	I.	34.7	1.3	
26/05/09	22.23.50	II	Tr.	E.	-13.7	-25.9	11/06/09	4.49.41	I	Sh.	E.	33.1	11.4	
27/05/09	1.36.10	I	Ec.	D.	19.1	-18.2	11/06/09	6.05.01	I	Tr.	E.	26.7	24.9	
27/05/09	5.14.09	I	Occ.	R.	34.3	15.0	11/06/09	9.01.57	IV	Ec.	D.	0.4	57.1	
27/05/09	22.43.49	I	Sh.	I.	-9.3	-26.3	11/06/09	13.52.24	IV	Ec.	R.	-51.7	51.7	
28/05/09	0.04.22	I	Tr.	I.	5.3	-25.3	11/06/09	16.11.40	II	Ec.	D.	-60.9	26.1	
28/05/09	1.01.53	I	Sh.	E.	14.6	-21.5	11/06/09	20.45.00	IV	Occ.	D.	-20.7	-16.6	
28/05/09	2.22.26	I	Tr.	E.	25.6	-12.5	11/06/09	21.37.27	II	Occ.	R.	-11.0	-21.3	
28/05/09	10.59.58	II	Ec.	D.	-12.0	69.4	11/06/09	23.51.48	I	Ec.	D.	12.6	-24.2	
28/05/09	16.35.58	II	Occ.	R.	-61.4	20.3	12/06/09	1.25.56	IV	Occ.	R.	25.8	-17.9	
28/05/09	20.04.32	I	Ec.	D.	-37.9	-13.5	12/06/09	3.23.38	I	Occ.	R.	34.4	-2.1	
28/05/09	23.42.08	I	Occ.	R.	2.2	-26.0	12/06/09	20.37.38	III	Ec.	D.	-21.3	-15.7	
29/05/09	12.38.16	III	Ec.	D.	-30.9	62.5	12/06/09	21.00.03	I	Sh.	I.	-17.2	-18.1	
29/05/09	16.16.53	III	Ec.	R.	-61.0	23.9	12/06/09	22.14.32	I	Tr.	I.	-3.1	-23.5	
29/05/09	17.12.19	I	Sh.	I.	-60.5	13.9	12/06/09	23.18.14	I	Sh.	E.	7.8	-24.8	
29/05/09	18.00.32	III	Occ.	D.	-56.4	5.6	13/06/09	0.16.29	III	Ec.	R.	17.0	-23.1	
29/05/09	18.32.28	I	Tr.	I.	-52.3	0.6	13/06/09	0.32.36	I	Tr.	E.	19.4	-22.2	
29/05/09	19.30.24	I	Sh.	E.	-43.2	-8.7	13/06/09	1.36.15	III	Occ.	D.	27.4	-16.8	
29/05/09	20.50.32	I	Tr.	E.	-28.9	-18.7	13/06/09	5.14.25	III	Occ.	R.	30.9	15.8	
29/05/09	21.39.16	III	Occ.	R.	-19.9	-23.0	13/06/09	11.17.33	II	Sh.	I.	-26.5	71.2	
30/05/09	6.08.07	II	Sh.	I.	30.8	25.1	13/06/09	13.43.52	II	Tr.	I.	-51.6	53.4	
30/05/09	8.46.50	II	Tr.	I.	10.3	54.0	13/06/09	14.09.37	II	Sh.	E.	-55.0	48.8	
30/05/09	9.00.19	II	Sh.	E.	8.1	56.3	13/06/09	16.36.11	II	Tr.	E.	-59.0	21.8	
30/05/09	11.39.28	II	Tr.	E.	-20.7	68.9	13/06/09	18.20.13	I	Ec.	D.	-45.3	3.9	
30/05/09	14.32.58	I	Ec.	D.	-51.0	43.2	13/06/09	21.51.01	I	Occ.	R.	-7.1	-22.1	
30/05/09	18.10.03	I	Occ.	R.	-54.8	4.2	14/06/09	15.28.30	I	Sh.	I.	-61.3	34.3	
31/05/09	11.40.44	I	Sh.	I.	-21.6	69.0	14/06/09	16.41.57	I	Tr.	I.	-58.1	20.8	
31/05/09	13.00.26	I	Tr.	I.	-36.2	59.4	14/06/09	17.46.42	I	Sh.	E.	-50.0	9.5	
31/05/09	13.58.50	I	Sh.	E.	-46.3	49.5	14/06/09	19.00.01	I	Tr.	E.	-37.8	-1.9	
31/05/09	15.18.30	I	Tr.	E.	-57.3	34.9	15/06/09	5.29.25	II	Ec.	D.	28.8	18.4	
01/06/09	0.17.35	II	Ec.	D.	10.0	-24.1	15/06/09	10.51.07	II	Occ.	R.	-23.0	70.8	
01/06/09	5.51.48	II	Occ.	R.	31.5	22.2	15/06/09	12.48.36	I	Ec.	D.	-44.1	62.7	
01/06/09	9.01.20	I	Ec.	D.	6.7	56.6	15/06/09	16.18.18	I	Occ.	R.	-59.7	25.2	
01/06/09	12.37.53	I	Occ.	R.	-32.8	62.9	16/06/09	9.57.01	I	Sh.	I.	-13.7	65.6	
02/06/09	2.36.43	III	Sh.	I.	29.2	-10.1	16/06/09	10.36.22	III	Sh.	I.	-21.0	69.9	
02/06/09	6.09.13	I	Sh.	I.	29.8	25.4	16/06/09	11.09.23	I	Tr.	I.	-27.2	71.4	
02/06/09	6.15.28	III	Sh.	E.	29.2	26.6	16/06/09	12.15.15	I	Sh.	E.	-39.1	67.3	
02/06/09	7.28.23	I	Tr.	I.	20.5	40.1	16/06/09	13.27.27	I	Tr.	E.	-50.9	56.4	
02/06/09	7.57.01	III	Tr.	I.	16.4	45.3	16/06/09	14.15.27	III	Sh.	E.	-57.1	47.9	
02/06/09	8.27.20	I	Sh.	E.	11.7	50.8	16/06/09	15.28.39	III	Tr.	I.	-61.3	34.4	
02/06/09	9.46.27	I	Tr.	E.	-1.2	63.6	16/06/09	19.06.52	III	Tr.	E.	-35.2	-3.1	
02/06/09	11.35.41	III	Tr.	E.	-22.1	69.5	17/06/09	0.34.49	II	Sh.	I.	21.8	-22.0	
02/06/09	19.25.27	II	Sh.	I.	-41.4	-7.5	17/06/09	2.56.40	II	Tr.	I.	34.2	-6.8	
02/06/09	22.01.55	II	Tr.	I.	-12.8	-23.8	17/06/09	3.26.52	II	Sh.	E.	34.7	-1.5	
02/06/09	22.17.38	II	Sh.	E.	-10.0	-24.6	17/06/09	5.48.56	II	Tr.	E.	25.9	21.9	
02/06/09	22.40.26	IV	Sh.	I.	-5.8	-25.4	17/06/09	7.17.03	I	Ec.	D.	13.7	38.1	
03/06/09	0.54.29	II	Tr.	E.	16.9	-21.4	17/06/09	10.45.35	I	Occ.	R.	-23.5	70.5	
03/06/09	3.29.47	I	Ec.	D.	33.4	-1.4	18/06/09	7.17.03	I	Sh.	I.	32.9	7.3	
03/06/09	3.32.31	IV	Sh.	E.	33.5	-1.0	18/06/09	4.25.28	I	Tr.	I.	26.8	19.7	
03/06/09	7.05.43	I	Occ.	R.	23.1	35.9	18/06/09	5.36.39	I	Sh.	E.	18.1	31.9	
03/06/09	11.15.22	IV	Tr.	I.	-19.0	70.3	18/06/09	6.43.42	I	Tr.	E.	6.9	45.1	
03/06/09	15.59.50	IV	Tr.	E.	-61.0	27.6	18/06/09	7.54.43	I	Ec.	D.	-37.2	0.1	
04/06/09	0.37.38	I	Sh.	I.	15.0	-22.5	19/06/09	18.47.48	II	Occ.	R.	18.8	-23.5	
04/06/09	1.56.11	I	Tr.	I.	25.7	-15.1	19/06/09	0.04.56	II	Ec.	D.	30.5	-15.8	
04/06/09	2.55.45	I	Sh.	E.	31.5	-7.3	19/06/09	1.45.27	I	Occ.	R.	28.9	15.4	
04/06/09	4.14.15	I	Tr.	E.	34.7	5.3	19/06/09	5.12.45	I	Sh.	I.	-55.1	19.7	
04/06/09	13.35.45	II	Ec.	D.	-44.9	54.0	19/06/09	16.49.39	IV	Sh.	E.	-4.4	-21.2	
04/06/09	19.07.47	II	Occ.	R.	-43.1	-4.5	19/06/09	21.41.28	IV	Sh.	I.	8.3	-24.4	
04/06/09	21.58.10	I	Ec.	D.	-12.1	-23.4	19/06/09	22.54.01	I	Tr.	I.	19.2	-23.6	
05/06/09	1.33.25	I	Occ.	R.	23.4	-17.5	20/06/09	22.54.01	I	Ec.	D.	23.6	-21.8	
05/06/09	16.38.21	III	Ec.	D.	-60.8	20.7	20/06/09	0.03.57	I	Sh.	E.	27.7	-19.1	
05/06/09	19.06.09	I	Sh.	I.	-42.8	-4.1	20/06/09	0.36.50	III	Tr.	E.	33.3	-11.5	
05/06/09	20.17.06	III	Ec.	R.	-30.1	-14.0	20/06/09	1.12.16	I	Tr.	I.	33.8	3.0	
05/06/09	20.24.01	I	Tr.	I.	-28.9	-14.8	20/06/09	2.22.02	I	Tr.	E.	33.0	5.7	
05/06/09	21.24.17	I	Sh.	E.	-17.7	-20.9	20/06/09	3.59.00	IV	Occ.	D.	28.1	16.0	
05/06/09	21.51.05	III	Occ.	D.	-12.7	-22.8	20/06/09	4.15.45	III	Tr.	E.	-1.8	53.2	
05/06/09	22.42.06	I	Tr.	E.	-2.9	-25.1	20/06/09	5.16.40	III	Occ.	R.	-5.2	55.7	
06/06/09	1.29.32	III	Occ.	R.	23.4	-17.9	20/06/09	8.39.52	IV	Sh.	I.	-56.3	52.3	
06/06/09	8.42.52	II	Sh.	I.	6.7	53.7	20/06/09	8.54.33	III	Tr.	I.	-59.0	27.2	
06/06/09	11.16.29	II	Tr.	I.	-21.3	70.7	20/06/09	13.52.06	II	Sh.	E.	-55.3	20.8	
06/06/09	11.35.00	II	Sh.	E.	-24.7	70.0	20/06/09	16.08.53	II	Tr.	E.	-55.3	20.8	
06/06/09	14.08.58	II	Tr.	E.	-51.3	48.3	20/06/09	16.44.08	II	Tr.	E.	-33.4	-1.7	
06/06/09	16.26.35	I	Ec.	D.	-61.1	23.0	20/06/09	19.01.05	II	Ec.	D.	-19.9	-12.6	
06/06/09	20.01.05	I	Occ.	R.	-32.4	-11.9	20/06/09	20.13.52	I	Occ.	R.	16.2	-24.3	
07/06/09	13.34.35	I	Sh.	I.	-46.6	54.5	21/06/09	20.13.52	I	Sh.	I.	-49.5	14.0	
07/06/09	14.51.43	I	Tr.	I.	-57.2	40.6	21/06/09	23.39.51	I	Tr.	I.	-38.0	2.6	
07/06/09	15.52.44	I	Sh.	E.	-61.2	29.3	21/06/09	17.22.30	I	Sh.	E.	-25.3	-8.2	
07/06/09	17.09.47	I	Tr.	E.	-58.0	15.3	21/06/09	18.31.07	I	Tr.	E.	-12.6	-16.6	
08/06/09	2.53.26	II	Ec.	D.	32.4	-7.4	22/06/09	19.40.45	I	Ec.	D.	2.4	46.9	
08/06/09	8.22.33	II	Occ.	R.	8.8	50.2	22/06/09	20.49.11	I	Occ.	R.	-52.9	58.4	
08/06/09	10.54.58	I	Ec.	D.	-18.7	70.6	22/06/09	8.05.39	II	Ec.	D.	-60.9	43.3	
08/06/09	14.28.39	I	Occ.	R.	-55.0	44.9	22/06/09	13.17.31	II	Occ.	R.	-41.6	6.5	
09/06/09	6.36.07	III	Sh.	I.	23.9	30.6	22/06/09	14.42.16	I	Sh.	I.	-39.8	69.9	
09/06/09	8.03.05	I	Sh.	I.	11.3	46.7	23/06/09	18.06.52	I	Tr.	I.	-50.8	61.5	
09/06/09	9.19.24	I	Tr.	I.	-1.1	59.9	23/06/09	11.51.03	I	Sh.	E.	-59.2	49.3	
							23/06/09	14.09.19	I	Sh.	I.	-60.9	44.4	
							23/06/09	14.36.18	III	Tr.	E.	-61.2	37.0	
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Data	Ora	Luna	Fenomeno	Fase	h	h Sole								
23/06/09	18.15.29	III	Sh.	E.	-39.4	5.1	08/07/09	2.16.11	III	Sh.	E.	34.2	-13.5	
23/06/09	19.07.22	III	Tr.	I.	-30.0	-2.8	08/07/09	5.49.05	III	Tr.	E.	13.8	20.6	
23/06/09	22.45.21	III	Tr.	E.	9.5	-24.3	08/07/09	8.18.20	II	Sh.	I.	-12.3	48.1	
24/06/09	3.09.21	II	Sh.	I.	34.6	-5.9	08/07/09	10.01.43	II	Tr.	I.	-31.4	64.9	
24/06/09	5.20.33	II	Tr.	I.	25.9	16.6	08/07/09	11.10.14	II	Sh.	E.	-43.6	70.4	
24/06/09	6.01.21	II	Sh.	E.	20.7	23.9	08/07/09	12.53.37	II	Tr.	E.	-58.2	61.9	
24/06/09	8.12.41	II	Tr.	E.	0.0	48.1	08/07/09	12.58.12	I	Ec.	D.	-58.7	61.2	
24/06/09	9.10.43	I	Ec.	D.	-11.1	58.3	08/07/09	16.07.21	I	Occ.	R.	-50.5	27.5	
24/06/09	12.33.52	I	Occ.	R.	-47.6	65.1	09/07/09	10.07.56	I	Sh.	I.	-33.4	65.6	
25/06/09	6.19.31	I	Sh.	I.	17.5	27.2	09/07/09	10.59.29	I	Tr.	I.	-42.5	70.0	
25/06/09	7.25.16	I	Tr.	I.	7.1	39.3	09/07/09	12.26.17	I	Sh.	E.	-55.7	65.6	
25/06/09	8.37.47	I	Sh.	E.	-5.8	52.6	09/07/09	13.17.33	I	Tr.	E.	-60.5	58.1	
25/06/09	9.43.20	I	Tr.	E.	-17.9	63.4	10/07/09	2.37.25	II	Ec.	D.	33.4	-11.0	
25/06/09	21.24.08	II	Ec.	D.	-2.9	-19.9	10/07/09	7.14.34	II	Occ.	R.	-1.5	36.1	
26/06/09	2.30.15	II	Occ.	R.	34.4	-10.7	10/07/09	7.26.38	I	Ec.	D.	-4.3	38.4	
26/06/09	3.39.07	I	Ec.	D.	33.5	-0.1	10/07/09	10.33.46	I	Occ.	R.	-38.8	68.2	
26/06/09	7.00.46	I	Occ.	R.	10.4	34.7	11/07/09	4.36.34	I	Sh.	I.	22.3	7.5	
27/06/09	0.48.06	I	Sh.	I.	28.1	-21.3	11/07/09	5.26.03	I	Tr.	I.	15.3	16.2	
27/06/09	1.52.19	I	Tr.	I.	33.1	-15.3	11/07/09	6.54.56	I	Sh.	E.	0.9	32.4	
27/06/09	3.06.23	I	Sh.	E.	34.4	-5.7	11/07/09	7.44.08	I	Tr.	E.	-8.4	41.5	
27/06/09	4.10.23	I	Tr.	E.	31.4	4.5	11/07/09	12.35.30	III	Ec.	D.	-57.7	64.2	
27/06/09	4.35.59	III	Ec.	D.	29.2	8.7	11/07/09	19.29.12	III	Occ.	R.	-12.5	-7.2	
27/06/09	8.15.00	III	Ec.	R.	-2.7	48.4	11/07/09	21.35.32	II	Sh.	I.	10.0	-21.8	
27/06/09	8.52.25	III	Occ.	D.	-10.0	55.0	11/07/09	23.10.42	II	Tr.	I.	23.8	-26.0	
27/06/09	12.30.06	III	Occ.	R.	-49.0	65.7	12/07/09	0.27.25	II	Sh.	E.	31.4	-24.1	
27/06/09	16.26.37	II	Sh.	I.	-54.0	24.1	12/07/09	1.55.06	I	Ec.	D.	34.2	-16.5	
27/06/09	18.31.38	II	Tr.	I.	-33.6	2.6	12/07/09	2.02.33	II	Tr.	E.	34.1	-15.6	
27/06/09	19.18.35	II	Sh.	E.	-25.0	-4.9	12/07/09	5.00.08	I	Occ.	R.	18.5	11.5	
27/06/09	21.23.41	II	Tr.	E.	-1.2	-19.9	12/07/09	23.05.08	I	Sh.	I.	23.6	-26.1	
27/06/09	22.07.33	I	Ec.	D.	5.9	-22.9	12/07/09	23.52.29	I	Tr.	I.	28.8	-25.7	
28/06/09	1.27.36	I	Occ.	R.	31.8	-18.0	13/07/09	1.23.29	I	Sh.	E.	34.0	-19.9	
28/06/09	3.09.55	IV	Ec.	D.	34.2	-5.2	13/07/09	2.10.33	I	Tr.	E.	33.8	-14.8	
28/06/09	7.59.56	IV	Ec.	R.	-0.5	45.5	13/07/09	15.55.28	II	Ec.	D.	-49.2	29.4	
28/06/09	12.59.26	IV	Occ.	D.	-53.8	61.4	13/07/09	20.23.33	I	Ec.	D.	-0.4	-14.7	
28/06/09	17.37.25	IV	Occ.	R.	-42.5	11.5	13/07/09	20.24.00	II	Occ.	R.	-0.3	-14.8	
28/06/09	19.16.36	I	Sh.	I.	-24.6	-4.6	13/07/09	23.26.25	I	Occ.	R.	26.5	-26.3	
28/06/09	20.19.13	I	Tr.	I.	-13.0	-13.2	14/07/09	17.33.46	I	Sh.	I.	-31.5	11.5	
28/06/09	21.34.54	I	Sh.	E.	1.2	-20.8	14/07/09	18.18.56	I	Tr.	I.	-23.2	3.9	
28/06/09	22.37.17	I	Tr.	E.	11.4	-24.2	14/07/09	19.52.08	I	Sh.	E.	-6.0	-10.7	
29/06/09	10.42.02	II	Ec.	D.	-31.8	70.0	14/07/09	20.37.00	I	Tr.	E.	2.3	-16.4	
29/06/09	15.41.42	II	Occ.	R.	-58.3	32.4	14/07/09	21.18.14	IV	Ec.	D.	9.2	-20.7	
29/06/09	16.35.58	I	Ec.	D.	-51.7	22.4	15/07/09	2.07.29	IV	Ec.	R.	33.5	-15.4	
29/06/09	19.54.22	I	Occ.	R.	-16.9	-10.0	15/07/09	2.36.48	III	Sh.	I.	32.2	-11.7	
30/06/09	13.45.11	I	Sh.	I.	-59.6	53.7	15/07/09	4.17.34	IV	Occ.	D.	22.4	3.9	
30/06/09	14.46.07	I	Tr.	I.	-61.4	42.7	15/07/09	5.36.52	III	Tr.	I.	10.8	17.6	
30/06/09	16.03.29	I	Sh.	E.	-55.5	28.4	15/07/09	6.16.06	III	Sh.	E.	4.4	24.8	
30/06/09	17.04.11	I	Tr.	E.	-46.7	17.4	15/07/09	8.53.48	IV	Occ.	R.	-24.5	53.5	
30/06/09	18.36.56	III	Sh.	I.	-30.5	1.8	15/07/09	9.14.17	III	Tr.	E.	-28.3	57.0	
30/06/09	22.16.11	III	Sh.	E.	9.3	-23.5	15/07/09	10.52.48	II	Sh.	I.	-45.8	68.8	
30/06/09	22.42.01	III	Tr.	I.	13.4	-24.5	15/07/09	12.19.19	II	Tr.	I.	-57.9	65.8	
01/07/09	2.19.45	III	Tr.	E.	34.4	-12.3	15/07/09	13.44.40	II	Sh.	E.	-61.8	53.1	
01/07/09	5.43.53	II	Sh.	I.	19.0	20.3	15/07/09	14.52.02	I	Ec.	D.	-56.8	41.0	
01/07/09	7.42.13	II	Tr.	I.	0.2	42.1	15/07/09	15.11.07	II	Tr.	E.	-54.5	37.5	
01/07/09	8.35.50	II	Sh.	E.	-10.1	51.8	15/07/09	17.52.42	I	Occ.	R.	-27.3	8.2	
01/07/09	10.34.13	II	Tr.	E.	-31.9	69.2	16/07/09	12.02.19	I	Sh.	I.	-56.6	67.3	
01/07/09	11.04.26	I	Ec.	D.	-37.4	70.9	16/07/09	12.45.14	I	Tr.	I.	-60.6	62.4	
01/07/09	14.21.06	I	Occ.	R.	-61.5	47.3	16/07/09	14.20.41	I	Sh.	E.	-59.6	46.6	
02/07/09	8.13.40	I	Sh.	I.	-6.8	47.8	16/07/09	15.03.18	I	Tr.	E.	-55.0	38.9	
02/07/09	9.12.52	I	Tr.	I.	-17.7	58.1	17/07/09	5.14.20	II	Ec.	D.	13.0	13.4	
02/07/09	10.31.59	I	Sh.	E.	-32.3	68.9	17/07/09	9.20.30	I	Ec.	D.	-31.1	57.7	
02/07/09	11.30.56	I	Tr.	E.	-42.8	70.8	17/07/09	9.33.52	II	Occ.	R.	-33.5	59.8	
03/07/09	0.00.39	II	Ec.	D.	25.5	-24.3	17/07/09	12.18.55	I	Occ.	R.	-58.8	65.5	
03/07/09	4.53.24	II	Occ.	R.	24.6	11.2	18/07/09	6.30.59	I	Sh.	I.	-0.1	27.2	
03/07/09	5.32.51	I	Ec.	D.	19.4	18.1	18/07/09	7.11.36	I	Tr.	I.	-8.1	34.7	
03/07/09	8.47.45	I	Occ.	R.	-13.8	53.8	18/07/09	8.49.22	I	Sh.	E.	-26.2	52.4	
04/07/09	2.42.17	I	Sh.	I.	34.2	-9.7	18/07/09	9.29.41	I	Tr.	E.	-33.6	59.0	
04/07/09	3.39.40	I	Tr.	I.	31.4	-0.5	18/07/09	16.35.28	III	Ec.	D.	-39.1	21.6	
04/07/09	5.00.36	I	Sh.	E.	23.1	12.4	18/07/09	22.52.54	III	Occ.	R.	25.0	-26.9	
04/07/09	5.57.44	I	Tr.	E.	15.1	22.5	19/07/09	0.10.01	II	Sh.	I.	32.0	-26.1	
04/07/09	8.35.18	III	Ec.	D.	-12.3	51.5	19/07/09	1.27.27	II	Tr.	I.	33.9	-20.5	
04/07/09	12.14.25	III	Ec.	R.	-51.1	67.3	19/07/09	3.01.53	II	Sh.	E.	28.8	-8.8	
04/07/09	12.23.49	III	Occ.	D.	-52.5	66.2	19/07/09	3.48.59	I	Ec.	D.	23.8	-0.8	
04/07/09	16.01.20	III	Occ.	R.	-53.7	28.7	19/07/09	4.19.13	II	Tr.	E.	19.8	3.7	
04/07/09	19.01.05	II	Sh.	I.	-23.0	-1.7	19/07/09	6.45.05	I	Occ.	R.	-3.8	29.7	
04/07/09	20.52.12	II	Tr.	I.	-1.8	-17.2	20/07/09	0.59.34	I	Sh.	I.	33.9	-23.1	
04/07/09	21.53.01	II	Sh.	E.	8.2	-22.4	20/07/09	1.37.50	I	Tr.	I.	33.6	-19.6	
04/07/09	23.44.09	II	Tr.	E.	24.4	-24.9	20/07/09	3.17.58	I	Sh.	E.	26.8	-6.5	
05/07/09	0.01.18	I	Ec.	D.	26.4	-24.4	20/07/09	3.55.55	I	Tr.	E.	22.3	0.0	
05/07/09	3.14.20	I	Occ.	R.	32.8	-5.1	20/07/09	18.32.28	II	Ec.	D.	-16.0	1.2	
05/07/09	21.10.48	I	Sh.	I.	1.8	-19.1	20/07/09	22.17.27	I	Ec.	D.	21.6	-26.0	
05/07/09	22.06.19	I	Tr.	I.	11.0	-23.3	20/07/09	22.42.27	II	Occ.	R.	24.7	-27.0	
05/07/09	23.29.08	I	Sh.	E.	23.1	-25.3	21/07/09	1.11.11	I	Occ.	R.	33.9	-22.3	
06/07/09	0.24.23	I	Tr.	E.	29.2	-23.5	21/07/09	19.28.15	I	Sh.	I.	-5.0	-8.2	
06/07/09	10.59.34	IV	Sh.	I.	-40.3	70.3	21/07/09	20.04.06	I	Tr.	I.	1.7	-13.3	
06/07/09	13.18.39	II	Ec.	D.	-59.6	58.1	21/07/09	21.46.39	I	Sh.	E.	18.0	-24.2	
06/07/09	15.50.45	IV	Sh.	E.	-54.0	30.6	21/07/09	22.22.11	I	Tr.	E.	22.8	-26.4	
06/07/09	18.03.48	II	Occ.	R.	-32.1	6.9	22/07/09	6.36.43	III	Tr.	I.	-4.9	27.7	
06/07/09	18.29.43	I	Ec.	D.	-27.3	2.7	22/07/09	8.58.36	III	Sh.	I.	-31.1	53.4	
06/07/09	19.43.11	IV	Tr.	I.	-13.7	-8.8	22/07/09	10.16.03	III	Sh.	E.	-44.9	64.5	
06/07/09	21.40.51	I	Occ.	R.	7.5	-21.7	22/07/09	12.35.58	III	Tr.	E.	-61.7	62.7	
07/07/09	0.21.25	IV	Tr.	E.	29.3	-23.7	22/07/09	13.27.16	II	Sh.	I.	-61.6	55.2	
07/07/09	15.39.25	I	Sh.	I.	-55.0	32.7	22/07/09	14.35.13	II	Tr.	I.	-55.4	43.4	
07/07/09	16.32.59	I	Tr.	I.	-47.2	22.8	22/07/09	16.19.06	II	Sh.	E.	-39.0	24.2	
07/07/09	17.57.45	I	Sh.	E.	-32.4	7.9	22/07/09	16.45.58	I	Ec.	D.	-34.2	19.3	
07/07/09	18.51.03	I	Tr.	E.	-22.6	-0.4	22/07/09	17.26.56	II	Tr.	E.	-26.6	11.9	
07/07/09	22.36.54	III	Sh.	I.	17.0	-24.9	22/07/09	19.37.18	I	Occ.	R.	-1.9	-9.7	
08/07/09	2.11.33	III	Tr.	I.	34.3	-14.0	23/07/09	5.11.03	IV	Sh.	I.	9.2	12.0	
							23/07/09	10.01.09	IV	Sh.	E.	-43.1	62.6	

Data	Ora	Luna	Fenomeno	Fase	h	h Sole	08/08/09	12.24.44	I	Tr.	I.	-61.6	60.3
23/07/09	10.35.14	IV	Tr.	I.	-48.8	66.2	08/08/09	14.33.26	I	Sh.	E.	-44.9	40.8
23/07/09	13.56.49	I	Sh.	I.	-59.3	50.1	08/08/09	14.42.51	I	Tr.	E.	-43.3	39.1
23/07/09	14.30.14	I	Tr.	I.	-55.6	44.2	08/08/09	23.22.49	IV	Sh.	I.	32.9	-32.1
23/07/09	15.12.15	IV	Tr.	E.	-49.5	36.5	09/08/09	0.50.57	IV	Tr.	I.	31.0	-28.3
23/07/09	16.15.13	I	Sh.	E.	-38.9	24.8	09/08/09	4.11.30	IV	Sh.	E.	6.2	-0.5
23/07/09	16.48.19	I	Tr.	E.	-33.0	18.7	09/08/09	4.36.00	III	Ec.	D.	2.2	3.3
24/07/09	7.51.29	II	Ec.	D.	-20.4	41.3	09/08/09	5.28.34	IV	Tr.	E.	-7.5	12.6
24/07/09	11.14.27	I	Ec.	D.	-55.2	67.8	09/08/09	7.53.40	II	Sh.	I.	-34.2	39.2
24/07/09	11.51.36	II	Occ.	R.	-59.3	66.7	09/08/09	8.09.58	II	Tr.	I.	-37.2	42.1
24/07/09	14.03.20	I	Occ.	R.	-58.2	48.8	09/08/09	8.47.54	III	Occ.	R.	-43.9	48.6
25/07/09	8.25.32	I	Sh.	I.	-27.5	47.3	09/08/09	9.31.13	I	Ec.	D.	-51.0	55.2
25/07/09	8.56.26	I	Tr.	I.	-33.2	52.6	09/08/09	10.45.29	II	Sh.	E.	-60.4	62.9
25/07/09	10.43.56	I	Sh.	E.	-51.5	66.4	09/08/09	11.01.34	II	Tr.	E.	-61.6	63.5
25/07/09	11.14.31	I	Tr.	E.	-55.8	67.6	09/08/09	11.56.37	I	Occ.	R.	-62.8	62.4
25/07/09	20.36.08	III	Ec.	D.	9.7	-18.0	10/08/09	6.43.43	I	Sh.	I.	-22.1	26.3
26/07/09	2.13.56	III	Occ.	R.	30.1	-16.5	10/08/09	6.50.41	I	Tr.	I.	-23.4	27.6
26/07/09	2.44.30	II	Sh.	I.	27.3	-12.4	10/08/09	9.02.08	I	Sh.	E.	-47.1	50.7
26/07/09	3.42.37	II	Tr.	I.	20.4	-3.3	10/08/09	9.08.48	I	Tr.	E.	-48.2	51.7
26/07/09	5.36.20	II	Sh.	E.	2.8	16.1	11/08/09	2.24.44	II	Ec.	D.	20.8	-18.4
26/07/09	5.42.57	I	Ec.	D.	1.8	17.3	11/08/09	3.59.46	I	Ec.	D.	6.6	-3.2
26/07/09	6.34.18	II	Tr.	E.	-7.8	26.8	11/08/09	5.31.02	II	Occ.	R.	-9.6	12.7
26/07/09	8.29.21	I	Occ.	R.	-29.1	47.8	11/08/09	6.22.27	I	Occ.	R.	-19.0	22.2
27/07/09	2.54.09	I	Sh.	I.	25.8	-11.2	12/08/09	1.12.30	I	Sh.	I.	28.3	-27.2
27/07/09	3.22.31	I	Tr.	I.	22.5	-7.0	12/08/09	1.16.42	I	Tr.	I.	27.9	-26.7
27/07/09	5.12.33	I	Sh.	E.	6.0	11.7	12/08/09	3.30.55	I	Sh.	E.	10.5	-8.6
27/07/09	5.40.36	I	Tr.	E.	1.4	16.7	12/08/09	3.34.50	I	Tr.	E.	9.9	-8.0
27/07/09	21.09.42	II	Ec.	D.	16.2	-22.1	12/08/09	18.39.07	III	Sh.	I.	3.0	-4.6
28/07/09	0.11.27	I	Ec.	D.	33.3	-27.8	12/08/09	18.51.36	III	Tr.	I.	5.1	-6.8
28/07/09	0.59.32	II	Occ.	R.	33.4	-24.7	12/08/09	21.11.00	II	Sh.	I.	25.0	-26.3
28/07/09	2.55.19	I	Occ.	R.	25.2	-11.2	12/08/09	21.16.30	II	Tr.	I.	25.6	-26.9
28/07/09	21.22.51	I	Sh.	I.	18.7	-23.6	12/08/09	22.18.28	III	Sh.	E.	30.8	-31.7
28/07/09	21.48.39	I	Tr.	I.	22.1	-25.8	12/08/09	22.28.21	I	Ec.	D.	31.4	-32.2
28/07/09	23.41.16	I	Sh.	E.	32.4	-29.0	12/08/09	22.29.10	III	Tr.	E.	31.4	-32.3
29/07/09	0.06.45	I	Tr.	E.	33.3	-28.3	13/08/09	0.02.50	II	Sh.	E.	32.3	-32.4
29/07/09	10.36.59	III	Sh.	I.	-53.2	65.1	13/08/09	0.08.05	II	Tr.	E.	32.1	-32.1
29/07/09	12.17.40	III	Tr.	I.	-62.3	63.5	13/08/09	0.48.19	I	Occ.	R.	29.8	-29.6
29/07/09	14.16.22	III	Sh.	E.	-54.1	45.8	13/08/09	19.41.10	I	Sh.	I.	13.6	-15.0
29/07/09	15.55.03	III	Tr.	E.	-38.0	27.7	13/08/09	19.42.37	I	Tr.	I.	13.8	-15.2
29/07/09	16.01.46	II	Sh.	I.	-36.8	26.5	13/08/09	21.59.35	I	Sh.	E.	29.8	-30.9
29/07/09	16.49.45	II	Tr.	I.	-28.0	17.6	13/08/09	22.00.45	I	Tr.	E.	29.9	-31.0
29/07/09	18.39.59	I	Ec.	D.	-7.7	-1.1	14/08/09	15.44.01	II	Ec.	D.	-27.6	26.6
29/07/09	18.53.35	II	Sh.	E.	-5.4	-3.9	14/08/09	16.56.56	I	Ec.	D.	-14.0	13.1
29/07/09	19.41.25	II	Tr.	E.	3.5	-11.5	14/08/09	18.39.18	II	Ec.	R.	4.4	-5.2
29/07/09	21.21.17	I	Occ.	R.	19.0	-23.7	14/08/09	19.14.24	I	Ec.	R.	10.1	-11.1
30/07/09	15.51.28	I	Sh.	I.	-37.9	28.2	15/08/09	14.08.39	I	Tr.	I.	-44.0	43.5
30/07/09	16.14.39	I	Tr.	I.	-33.7	23.9	15/08/09	14.09.58	I	Sh.	I.	-43.8	43.2
30/07/09	18.09.53	I	Sh.	E.	-12.4	3.3	15/08/09	16.26.47	I	Tr.	E.	-18.8	18.4
30/07/09	18.32.45	I	Tr.	E.	-8.2	-0.2	15/08/09	16.28.24	I	Sh.	E.	-18.5	18.1
31/07/09	10.28.49	II	Ec.	D.	-53.3	63.9	16/08/09	8.26.01	III	Occ.	D.	-45.7	43.6
31/07/09	13.08.30	I	Ec.	D.	-60.7	56.6	16/08/09	10.23.00	II	Tr.	I.	-61.4	59.4
31/07/09	14.08.05	II	Occ.	R.	-54.1	46.9	16/08/09	10.28.22	II	Sh.	I.	-61.8	59.8
31/07/09	15.27.21	IV	Ec.	D.	-41.4	32.5	16/08/09	11.22.50	I	Occ.	D.	-63.1	61.6
31/07/09	15.47.13	I	Occ.	R.	-37.9	28.8	16/08/09	12.15.02	III	Ec.	R.	-59.8	58.9
31/07/09	23.27.02	IV	Occ.	R.	32.2	-30.0	16/08/09	13.14.35	II	Tr.	E.	-52.2	51.8
01/08/09	10.20.12	I	Sh.	I.	-52.8	62.9	16/08/09	13.20.12	II	Sh.	E.	-51.3	50.9
01/08/09	10.40.45	I	Tr.	I.	-55.6	64.6	16/08/09	13.42.59	I	Ec.	R.	-47.7	47.4
01/08/09	12.38.37	I	Sh.	E.	-62.2	60.5	17/08/09	8.34.36	I	Tr.	I.	-47.9	44.9
01/08/09	12.58.50	I	Tr.	E.	-61.1	57.8	17/08/09	8.38.42	I	Sh.	I.	-48.6	45.5
02/08/09	0.36.04	III	Ec.	D.	33.2	-27.6	17/08/09	9.02.28	IV	Occ.	D.	-52.3	49.3
02/08/09	5.19.03	II	Sh.	I.	0.5	12.0	17/08/09	10.52.45	I	Tr.	E.	-63.1	60.9
02/08/09	5.31.45	III	Occ.	R.	-1.5	14.3	17/08/09	10.57.07	I	Sh.	E.	-63.2	61.0
02/08/09	5.56.40	III	Tr.	I.	-6.7	18.8	17/08/09	14.24.32	IV	Ec.	R.	-39.8	40.2
02/08/09	7.37.02	I	Ec.	D.	-25.2	37.3	18/08/09	4.51.19	II	Occ.	D.	-8.2	4.4
02/08/09	8.10.53	II	Sh.	E.	-31.5	43.5	18/08/09	5.48.42	I	Occ.	D.	-18.7	14.8
02/08/09	8.48.18	II	Tr.	E.	-38.3	49.9	18/08/09	7.57.47	II	Ec.	R.	-42.4	38.4
02/08/09	10.13.07	I	Occ.	R.	-52.4	62.0	18/08/09	8.11.34	I	Ec.	R.	-44.8	40.8
03/08/09	4.48.52	I	Sh.	I.	4.6	6.5	19/08/09	3.00.39	I	Tr.	I.	10.2	-14.8
03/08/09	5.06.44	I	Tr.	I.	1.7	9.6	19/08/09	3.07.31	I	Sh.	I.	9.1	-13.8
03/08/09	7.07.17	I	Sh.	E.	-20.6	31.7	19/08/09	5.18.48	I	Tr.	E.	-14.1	9.1
03/08/09	7.24.50	I	Tr.	E.	-23.8	35.0	19/08/09	5.25.56	I	Sh.	E.	-15.4	10.4
03/08/09	23.47.06	II	Ec.	D.	33.2	-30.4	19/08/09	22.08.08	III	Tr.	I.	31.6	-33.4
04/08/09	2.05.33	I	Ec.	D.	26.9	-19.3	19/08/09	22.40.45	III	Sh.	I.	32.5	-35.0
04/08/09	3.15.34	II	Occ.	R.	18.4	-9.5	19/08/09	23.29.36	II	Tr.	I.	32.1	-35.5
04/08/09	4.39.00	I	Occ.	R.	5.5	4.6	19/08/09	23.45.47	II	Sh.	I.	31.4	-35.1
04/08/09	23.17.36	I	Sh.	I.	32.4	-31.0	20/08/09	0.14.36	I	Occ.	D.	29.7	-33.9
04/08/09	23.32.47	I	Tr.	I.	32.9	-30.9	20/08/09	1.45.48	III	Tr.	E.	20.4	-25.6
05/08/09	1.36.02	I	Sh.	E.	29.2	-23.0	20/08/09	2.20.01	III	Sh.	E.	15.6	-21.1
05/08/09	1.50.53	I	Tr.	E.	27.9	-21.3	20/08/09	2.21.11	II	Tr.	E.	15.5	-20.9
05/08/09	14.38.12	III	Sh.	I.	-46.2	40.6	20/08/09	2.37.38	II	Sh.	E.	13.0	-18.5
05/08/09	15.35.27	III	Tr.	I.	-36.2	30.1	20/08/09	2.40.10	I	Ec.	R.	12.6	-18.2
05/08/09	18.17.36	III	Sh.	E.	-6.3	1.0	20/08/09	21.26.36	I	Tr.	I.	29.4	-30.4
05/08/09	18.36.22	II	Sh.	I.	-2.4	-2.0	20/08/09	21.36.13	I	Sh.	I.	30.1	-31.3
05/08/09	19.03.23	II	Tr.	I.	2.1	-7.1	20/08/09	23.44.46	I	Tr.	E.	31.2	-35.5
05/08/09	19.12.55	III	Tr.	E.	3.7	-8.7	20/08/09	23.54.38	I	Sh.	E.	30.7	-35.1
05/08/09	20.34.07	I	Ec.	D.	16.5	-20.2	21/08/09	17.59.31	II	Occ.	D.	2.8	0.4
05/08/09	21.28.11	II	Sh.	E.	23.7	-26.1	21/08/09	18.40.31	I	Occ.	D.	9.4	-7.4
05/08/09	21.55.00	II	Tr.	E.	26.6	-28.2	21/08/09	21.08.47	I	Ec.	R.	28.3	-28.9
05/08/09	23.04.53	I	Occ.	R.	32.0	-31.2	21/08/09	21.17.12	II	Ec.	R.	29.0	-29.8
06/08/09	17.46.15	I	Sh.	I.	-11.3	6.0	22/08/09	15.52.42	I	Tr.	I.	-19.6	23.0
06/08/09	17.58.42	I	Tr.	I.	-9.0	3.9	22/08/09	16.05.04	I	Sh.	I.	-17.3	20.7
06/08/09	20.04.40	I	Sh.	E.	12.7	-16.6	22/08/09	18.10.52	I	Tr.	E.	5.4	-1.7
06/08/09	20.16.49	I	Tr.	E.	14.6	-18.2	22/08/09	18.23.28	I	Sh.	E.	7.4	-4.6
07/08/09	13.06.19	II	Ec.	D.	-58.3	55.3	23/08/09	11.41.47	III	Occ.	D.	-60.3	58.7
07/08/09	15.02.40	I	Ec.	D.	-40.6	35.8	23/08/09	12.36.16	II	Tr.	I.	-53.5	54.5
07/08/09	16.23.46	II	Occ.	R.	-25.8	20.8	23/08/09	13.03.11	II	Sh.	I.	-49.3	51.2
07/08/09	17.30.46	I	Occ.	R.	-13.3	8.5	23/08/09	13.06.26	I	Occ.	D.	-48.8	50.8
08/08/09	12.15.01	I	Sh.	I.	-62.2	61.2	23/08/09	15.27.51	II	Tr.	E.	-23.4	27.3

Data	Ora	Luna	Fenomeno	Fase	h	h Sole	08/09/09	11.01.22	I	Occ.	D.	-57.4	53.5
23/08/09	15.37.23	I	Ec.	R.	-21.6	25.5	08/09/09	11.41.23	II	Occ.	D.	-51.6	52.9
23/08/09	15.55.03	II	Sh.	E.	-18.3	22.3	08/09/09	13.55.16	I	Ec.	R.	-27.9	38.3
23/08/09	16.15.15	III	Ec.	R.	-14.6	18.5	08/09/09	15.51.59	II	Ec.	R.	-6.5	18.1
24/08/09	10.18.44	I	Tr.	I.	-63.4	56.7	09/09/09	8.15.04	I	Tr.	I.	-60.1	36.7
24/08/09	10.33.49	I	Sh.	I.	-63.6	57.7	09/09/09	8.53.21	I	Sh.	I.	-63.3	42.4
24/08/09	12.36.54	I	Tr.	E.	-52.8	54.1	09/09/09	10.33.18	I	Tr.	E.	-60.3	52.3
24/08/09	12.52.13	I	Sh.	E.	-50.4	52.3	09/09/09	11.11.43	I	Sh.	E.	-55.4	53.2
25/08/09	7.07.00	II	Occ.	D.	-39.1	28.0	10/09/09	5.27.43	I	Occ.	D.	-34.2	6.9
25/08/09	7.32.23	I	Occ.	D.	-43.6	32.6	10/09/09	6.13.28	II	Tr.	I.	-42.4	15.3
25/08/09	10.06.00	I	Ec.	R.	-63.1	55.3	10/09/09	7.30.47	II	Sh.	I.	-55.1	29.1
25/08/09	10.35.45	II	Ec.	R.	-63.6	57.5	10/09/09	8.03.52	III	Tr.	I.	-59.4	34.6
25/08/09	14.57.13	IV	Tr.	I.	-27.5	32.3	10/09/09	8.23.57	I	Ec.	R.	-61.5	37.8
25/08/09	17.36.00	IV	Sh.	I.	1.8	3.2	10/09/09	9.05.06	II	Tr.	E.	-64.0	43.7
25/08/09	19.36.39	IV	Tr.	E.	20.1	-17.8	10/09/09	10.22.45	II	Sh.	E.	-60.9	51.4
25/08/09	22.22.48	IV	Sh.	E.	32.4	-36.3	10/09/09	10.43.41	III	Sh.	I.	-58.6	52.4
26/08/09	4.44.52	I	Tr.	I.	-13.7	1.9	10/09/09	11.42.01	III	Tr.	E.	-50.2	52.1
26/08/09	5.02.40	I	Sh.	I.	-17.0	5.0	10/09/09	14.22.36	III	Sh.	E.	-21.3	33.2
26/08/09	7.03.03	I	Tr.	E.	-39.2	27.1	11/09/09	2.41.30	I	Tr.	I.	-4.3	-23.0
26/08/09	7.21.04	I	Sh.	E.	-42.4	30.4	11/09/09	3.22.09	I	Sh.	I.	-11.8	-16.3
27/08/09	1.24.44	III	Tr.	I.	18.8	-29.9	11/09/09	4.59.45	I	Tr.	E.	-29.8	1.7
27/08/09	1.43.08	II	Tr.	I.	16.3	-27.7	11/09/09	5.23.07	IV	Tr.	I.	-34.1	5.8
27/08/09	1.58.22	I	Occ.	D.	14.0	-25.7	11/09/09	5.40.30	I	Sh.	E.	-37.3	9.0
27/08/09	2.20.39	II	Sh.	I.	10.7	-22.7	11/09/09	10.04.58	IV	Tr.	E.	-62.2	49.8
27/08/09	2.41.44	III	Sh.	I.	7.3	-19.5	11/09/09	11.50.33	IV	Sh.	I.	-48.1	51.3
27/08/09	4.34.38	I	Ec.	R.	-12.7	0.1	11/09/09	16.35.05	IV	Sh.	E.	3.5	9.2
27/08/09	4.34.43	II	Tr.	E.	-12.7	0.1	11/09/09	23.54.07	I	Occ.	D.	21.0	-42.7
27/08/09	5.02.33	III	Tr.	E.	-17.8	4.8	12/09/09	0.51.23	II	Occ.	D.	13.2	-38.2
27/08/09	5.12.31	II	Sh.	E.	-19.7	6.6	12/09/09	2.52.41	I	Ec.	R.	-7.2	-21.5
27/08/09	6.20.53	III	Sh.	E.	-32.4	19.2	12/09/09	5.11.33	II	Ec.	R.	-32.8	3.6
27/08/09	23.10.56	I	Tr.	I.	31.1	-38.3	12/09/09	21.08.06	I	Tr.	I.	31.7	-36.7
27/08/09	23.31.25	I	Sh.	I.	29.9	-38.1	12/09/09	21.51.05	I	Sh.	I.	31.0	-40.9
28/08/09	1.29.07	I	Tr.	E.	17.6	-29.7	12/09/09	23.26.21	I	Tr.	E.	23.7	-44.0
28/08/09	1.49.49	I	Sh.	E.	14.6	-27.1	13/09/09	0.09.25	I	Sh.	E.	18.5	-42.1
28/08/09	20.15.36	II	Occ.	D.	26.0	-24.5	13/09/09	18.20.34	I	Occ.	D.	20.4	-11.0
28/08/09	20.24.24	I	Occ.	D.	26.8	-25.7	13/09/09	19.22.00	II	Tr.	I.	27.0	-21.7
28/08/09	23.03.17	I	Ec.	R.	31.2	-38.6	13/09/09	20.48.25	II	Sh.	I.	31.6	-34.6
28/08/09	23.55.15	II	Ec.	R.	27.8	-37.7	13/09/09	21.21.22	I	Ec.	R.	31.6	-38.5
29/08/09	17.37.09	I	Tr.	I.	4.7	1.9	13/09/09	21.42.54	III	Occ.	D.	31.1	-40.6
29/08/09	18.00.17	I	Sh.	I.	8.4	-1.9	13/09/09	22.13.41	II	Tr.	E.	29.6	-42.9
29/08/09	19.55.21	I	Tr.	E.	24.3	-21.9	13/09/09	23.40.26	II	Sh.	E.	21.6	-44.0
29/08/09	20.18.40	I	Sh.	E.	26.7	-25.3	14/09/09	4.18.43	III	Ec.	R.	-24.6	-6.8
30/08/09	14.50.13	II	Tr.	I.	-24.8	32.0	14/09/09	15.34.41	I	Tr.	I.	-5.0	19.3
30/08/09	14.50.27	I	Occ.	D.	-24.8	32.0	14/09/09	16.19.55	I	Sh.	I.	3.1	11.0
30/08/09	14.59.40	III	Occ.	D.	-23.1	30.3	14/09/09	17.52.56	I	Tr.	E.	17.3	-6.4
30/08/09	15.38.06	II	Sh.	I.	-15.9	23.4	14/09/09	18.38.15	I	Sh.	E.	23.0	-14.5
30/08/09	17.31.55	I	Ec.	R.	4.5	2.6	15/09/09	12.47.04	I	Occ.	D.	-35.1	44.9
30/08/09	17.41.49	II	Tr.	E.	6.1	0.9	15/09/09	14.00.55	II	Occ.	D.	-21.4	34.9
30/08/09	18.30.01	II	Sh.	E.	13.7	-8.2	15/09/09	15.50.05	I	Ec.	R.	-0.8	16.2
30/08/09	20.16.22	III	Ec.	R.	26.8	-25.3	15/09/09	18.30.15	II	Ec.	R.	22.5	-13.4
31/08/09	12.03.19	I	Tr.	I.	-53.4	54.7	16/09/09	10.01.25	I	Tr.	I.	-60.6	47.9
31/08/09	12.29.04	I	Sh.	I.	-49.4	52.5	16/09/09	10.48.52	I	Sh.	I.	-54.6	50.3
31/08/09	14.21.31	I	Tr.	E.	-29.4	36.7	16/09/09	12.19.41	I	Tr.	E.	-39.3	47.2
31/08/09	14.47.27	I	Sh.	E.	-24.5	32.2	16/09/09	13.07.11	I	Sh.	E.	-30.6	42.2
01/09/09	9.16.32	I	Occ.	D.	-62.3	47.7	17/09/09	7.13.39	I	Occ.	D.	-57.0	24.6
01/09/09	9.23.33	II	Occ.	D.	-62.8	48.6	17/09/09	8.31.00	II	Tr.	I.	-64.1	37.1
01/09/09	12.00.34	I	Ec.	R.	-53.2	54.5	17/09/09	10.06.03	II	Sh.	I.	-59.7	47.9
01/09/09	13.13.50	II	Ec.	R.	-41.0	46.8	17/09/09	10.18.48	I	Ec.	R.	-58.1	48.7
02/09/09	6.29.37	I	Tr.	I.	-38.9	19.7	17/09/09	11.22.40	II	Tr.	E.	-48.6	49.9
02/09/09	6.57.57	I	Sh.	I.	-43.9	24.9	17/09/09	11.28.21	III	Tr.	I.	-47.6	49.8
02/09/09	8.47.49	I	Tr.	E.	-60.2	43.4	17/09/09	12.58.06	II	Sh.	E.	-31.5	42.9
02/09/09	9.16.20	I	Sh.	E.	-62.6	47.4	17/09/09	14.45.02	III	Sh.	I.	-11.8	27.0
02/09/09	23.18.03	IV	Occ.	D.	28.8	-40.4	17/09/09	15.06.43	III	Tr.	E.	-7.8	23.3
03/09/09	3.42.41	I	Occ.	D.	-9.0	-11.1	17/09/09	18.23.49	III	Sh.	E.	22.7	-13.0
03/09/09	3.57.37	II	Tr.	I.	-11.7	-8.5	18/09/09	4.28.06	I	Tr.	I.	-29.6	-5.9
03/09/09	4.43.01	III	Tr.	I.	-20.1	0.3	18/09/09	5.17.41	I	Sh.	I.	-38.7	3.6
03/09/09	4.55.39	II	Sh.	I.	-22.4	2.4	18/09/09	6.46.22	I	Tr.	E.	-53.7	19.6
03/09/09	6.29.14	I	Ec.	R.	-39.7	19.5	18/09/09	7.36.00	I	Sh.	E.	-60.3	28.2
03/09/09	6.42.41	III	Sh.	I.	-42.1	21.9	19/09/09	1.40.19	I	Occ.	D.	0.7	-34.3
03/09/09	6.49.13	II	Tr.	E.	-43.2	23.1	19/09/09	3.11.50	II	Occ.	D.	-16.3	-19.8
03/09/09	7.47.34	II	Sh.	E.	-52.9	33.5	19/09/09	4.47.33	I	Ec.	R.	-34.0	-1.8
03/09/09	8.20.58	III	Tr.	E.	-57.6	39.0	19/09/09	7.49.48	II	Ec.	R.	-62.1	30.3
03/09/09	8.33.49	IV	Ec.	R.	-59.1	41.0	19/09/09	14.05.11	IV	Occ.	D.	-17.5	32.8
03/09/09	10.21.42	III	Sh.	E.	-63.2	53.7	19/09/09	18.47.07	IV	Occ.	R.	26.0	-17.8
04/09/09	0.55.50	I	Tr.	I.	17.7	-35.3	19/09/09	22.01.42	IV	Ec.	D.	28.6	-44.5
04/09/09	1.26.44	I	Sh.	I.	13.3	-31.9	19/09/09	22.54.58	I	Tr.	I.	23.7	-46.8
04/09/09	3.14.03	I	Tr.	E.	-4.5	-16.1	19/09/09	23.46.38	I	Sh.	I.	17.4	-45.9
04/09/09	3.45.06	I	Sh.	E.	-10.3	-10.9	20/09/09	1.13.14	I	Tr.	E.	4.3	-38.2
04/09/09	22.08.52	I	Occ.	D.	31.7	-39.1	20/09/09	2.04.56	I	Sh.	E.	-4.8	-31.0
04/09/09	22.32.44	II	Occ.	D.	30.9	-40.4	20/09/09	2.43.30	IV	Ec.	R.	-11.9	-24.8
05/09/09	0.57.55	I	Ec.	R.	16.8	-35.4	20/09/09	20.07.01	I	Occ.	D.	31.2	-31.4
05/09/09	2.33.21	II	Ec.	R.	2.0	-22.9	20/09/09	21.40.33	II	Tr.	I.	29.6	-43.2
05/09/09	19.22.13	I	Tr.	I.	23.8	-19.0	20/09/09	23.16.16	I	Ec.	R.	20.8	-47.2
05/09/09	19.55.37	I	Sh.	I.	27.1	-24.3	20/09/09	23.23.47	II	Sh.	I.	19.8	-47.1
05/09/09	21.40.27	I	Tr.	E.	32.0	-37.3	21/09/09	0.32.16	II	Tr.	E.	10.1	-43.0
05/09/09	22.14.00	I	Sh.	E.	31.4	-39.8	21/09/09	1.09.15	III	Occ.	D.	4.2	-39.0
06/09/09	16.35.06	I	Occ.	D.	0.2	10.8	21/09/09	2.15.53	II	Sh.	E.	-7.6	-29.5
06/09/09	17.05.22	II	Tr.	I.	5.0	5.2	21/09/09	8.19.28	III	Ec.	R.	-64.3	34.4
06/09/09	18.13.13	II	Sh.	I.	15.5	-7.5	21/09/09	17.21.49	I	Tr.	I.	17.0	-2.2
06/09/09	18.19.28	III	Occ.	D.	16.4	-8.6	21/09/09	18.15.30	I	Sh.	I.	23.6	-12.8
06/09/09	19.26.35	I	Ec.	R.	24.7	-20.1	21/09/09	19.40.05	I	Tr.	E.	30.3	-27.5
06/09/09	19.57.00	II	Tr.	E.	27.6	-24.9	21/09/09	20.33.47	I	Sh.	E.	31.5	-35.7
06/09/09	21.05.10	II	Sh.	E.	31.5	-34.1	22/09/09	14.33.47	I	Occ.	D.	-10.0	27.2
07/09/09	0.17.14	III	Ec.	R.	21.0	-39.6	22/09/09	16.22.23	II	Occ.	D.	8.8	8.0
07/09/09	13.48.35	I	Tr.	I.	-30.0	39.6	22/09/09	17.45.01	I	Ec.	R.	20.5	-7.5
07/09/09	14.24.27	I	Sh.	I.	-23.3	33.9	22/09/09	21.08.31	II	Ec.	R.	30.7	-40.6
07/09/09	16.06.48	I	Tr.	E.	-4.4	15.7	23/09/09	11.48.49	I	Tr.	I.	-39.7	46.6
07/09/09	16.42.48	I	Sh.	E.	2.1	9.0	23/09/09	12.44.28	I	Sh.	I.	-29.5	42.1

Data	Ora	Luna	Fenomeno	Fase	h	h Sole								
23/09/09	14.07.05	I	Tr.	E.	-14.1	31.1	07/10/09	18.54.03	I	Sh.	E.	30.9	-24.9	
23/09/09	15.02.44	I	Sh.	E.	-3.9	21.9	08/10/09	12.38.09	I	Occ.	D.	-19.3	37.0	
24/09/09	9.00.39	I	Occ.	D.	-63.2	39.2	08/10/09	15.36.35	II	Tr.	I.	11.7	11.1	
24/09/09	10.50.35	II	Tr.	I.	-49.1	47.3	08/10/09	16.03.59	I	Ec.	R.	15.7	6.2	
24/09/09	12.13.46	I	Ec.	R.	-34.4	44.6	08/10/09	17.52.53	II	Sh.	I.	27.8	-14.1	
24/09/09	12.41.31	II	Sh.	I.	-29.2	42.0	08/10/09	18.28.30	II	Tr.	E.	30.1	-20.6	
24/09/09	13.42.20	II	Tr.	E.	-17.9	34.4	08/10/09	20.45.11	II	Sh.	E.	28.2	-43.5	
24/09/09	14.57.39	III	Tr.	I.	-4.1	22.4	08/10/09	22.09.54	III	Tr.	I.	19.6	-52.6	
24/09/09	15.33.38	II	Sh.	E.	2.3	16.2	09/10/09	1.48.45	III	Tr.	E.	-16.3	-38.3	
24/09/09	18.36.14	III	Tr.	E.	26.8	-17.5	09/10/09	2.51.36	III	Sh.	I.	-27.9	-27.7	
24/09/09	18.47.17	III	Sh.	I.	27.8	-19.5	09/10/09	6.29.49	III	Sh.	E.	-62.5	12.2	
24/09/09	22.25.56	III	Sh.	E.	24.5	-47.9	09/10/09	9.54.41	I	Tr.	I.	-48.3	39.4	
25/09/09	6.15.47	I	Tr.	I.	-53.7	12.7	09/10/09	11.04.46	I	Sh.	I.	-35.9	41.6	
25/09/09	7.13.19	I	Sh.	I.	-61.1	22.8	09/10/09	12.12.59	I	Tr.	E.	-23.3	38.8	
25/09/09	8.34.03	I	Tr.	E.	-64.3	35.4	09/10/09	13.22.55	I	Sh.	E.	-10.4	31.6	
25/09/09	9.31.35	I	Sh.	E.	-59.9	42.3	10/10/09	7.05.42	I	Occ.	D.	-64.6	18.1	
26/09/09	3.27.35	I	Occ.	D.	-24.7	-18.5	10/10/09	10.26.30	II	Occ.	D.	-42.1	40.7	
26/09/09	5.34.23	II	Occ.	D.	-47.7	5.0	10/10/09	10.32.49	I	Ec.	R.	-41.0	40.9	
26/09/09	6.42.33	I	Ec.	R.	-58.1	17.3	10/10/09	15.44.36	II	Ec.	R.	14.0	9.0	
26/09/09	10.28.03	II	Ec.	R.	-51.4	45.9	11/10/09	4.22.26	I	Tr.	I.	-45.9	-11.5	
27/09/09	0.42.55	I	Tr.	I.	4.3	-43.8	11/10/09	5.33.45	I	Sh.	I.	-57.1	2.0	
27/09/09	1.42.16	I	Sh.	I.	-6.2	-36.2	11/10/09	6.40.44	I	Tr.	E.	-63.8	13.6	
27/09/09	3.01.12	I	Tr.	E.	-20.6	-23.4	11/10/09	7.51.53	I	Sh.	E.	-63.3	25.0	
27/09/09	4.00.32	I	Sh.	E.	-31.6	-12.8	12/10/09	1.33.18	I	Occ.	D.	-15.6	-41.4	
27/09/09	20.32.01	IV	Tr.	I.	31.1	-37.6	12/10/09	4.49.35	II	Tr.	I.	-51.1	-6.7	
27/09/09	21.54.34	I	Occ.	D.	26.3	-47.1	12/10/09	5.01.37	I	Ec.	R.	-53.0	-4.3	
28/09/09	0.01.12	II	Tr.	I.	10.3	-47.9	12/10/09	7.10.49	II	Sh.	I.	-64.7	18.4	
28/09/09	1.11.17	I	Ec.	R.	-0.7	-40.7	12/10/09	7.41.33	II	Tr.	E.	-63.7	23.2	
28/09/09	1.16.18	IV	Tr.	E.	-1.5	-40.1	12/10/09	10.03.11	II	Sh.	E.	-44.8	38.9	
28/09/09	1.59.18	II	Sh.	I.	-10.0	-33.9	12/10/09	11.54.50	III	Occ.	D.	-24.4	38.8	
28/09/09	2.52.59	II	Tr.	E.	-19.8	-25.0	12/10/09	15.33.30	III	Occ.	R.	13.6	10.4	
28/09/09	4.39.48	III	Occ.	D.	-39.6	-5.7	12/10/09	16.44.04	III	Ec.	D.	22.8	-1.8	
28/09/09	4.51.28	II	Sh.	E.	-41.7	-3.1	12/10/09	20.22.01	III	Ec.	R.	28.7	-41.4	
28/09/09	6.05.37	IV	Sh.	I.	-54.1	10.3	12/10/09	22.50.11	I	Tr.	I.	11.8	-55.7	
28/09/09	8.18.08	III	Occ.	R.	-64.4	32.3	13/10/09	0.02.40	I	Sh.	I.	0.4	-52.9	
28/09/09	8.41.53	III	Ec.	D.	-63.4	35.6	13/10/09	1.08.29	I	Tr.	E.	-11.8	-45.3	
28/09/09	10.47.29	IV	Sh.	E.	-46.9	45.7	13/10/09	2.20.47	I	Sh.	E.	-25.1	-33.9	
28/09/09	12.20.11	III	Ec.	R.	-30.2	42.5	13/10/09	20.00.59	I	Occ.	D.	29.8	-38.4	
28/09/09	19.10.04	I	Tr.	I.	30.2	-24.8	13/10/09	23.30.26	I	Ec.	R.	4.9	-55.4	
28/09/09	20.11.10	I	Sh.	I.	31.4	-34.9	13/10/09	23.40.38	II	Occ.	D.	3.2	-54.8	
28/09/09	21.28.21	I	Tr.	E.	28.1	-45.1	14/10/09	5.03.21	II	Ec.	R.	-54.4	-4.4	
28/09/09	22.29.24	I	Sh.	E.	22.3	-49.7	14/10/09	12.39.34	IV	Tr.	I.	-14.7	34.6	
29/09/09	16.21.39	I	Occ.	D.	13.0	5.9	14/10/09	17.18.06	I	Tr.	I.	26.9	-9.4	
29/09/09	18.46.07	II	Occ.	D.	29.1	-20.9	14/10/09	17.25.39	IV	Tr.	E.	27.6	-10.8	
29/09/09	19.40.03	I	Ec.	R.	31.2	-30.3	14/10/09	18.31.40	I	Sh.	I.	31.0	-23.0	
29/09/09	23.46.50	II	Ec.	R.	11.2	-49.5	14/10/09	19.36.24	I	Tr.	E.	30.7	-34.5	
30/09/09	13.37.22	I	Tr.	I.	-14.3	32.9	14/10/09	20.49.47	I	Sh.	E.	25.9	-46.2	
30/09/09	14.40.09	I	Sh.	I.	-2.5	23.3	15/10/09	0.21.42	IV	Sh.	I.	-4.7	-51.8	
30/09/09	15.55.39	I	Tr.	E.	9.7	10.2	15/10/09	5.00.23	IV	Sh.	E.	-54.6	-5.3	
30/09/09	16.58.22	I	Sh.	E.	18.7	-0.7	15/10/09	14.28.44	I	Occ.	D.	5.4	20.1	
01/10/09	10.48.48	I	Occ.	D.	-44.5	44.6	15/10/09	17.59.14	I	Ec.	R.	30.0	-17.3	
01/10/09	13.12.23	II	Tr.	I.	-18.2	35.8	15/10/09	18.03.12	II	Tr.	I.	30.2	-18.0	
01/10/09	14.08.49	I	Ec.	R.	-7.9	28.0	15/10/09	20.28.47	II	Sh.	I.	27.4	-43.4	
01/10/09	15.17.06	II	Sh.	I.	4.2	16.7	15/10/09	20.55.13	II	Tr.	E.	25.0	-47.3	
01/10/09	16.04.12	II	Tr.	E.	11.6	8.4	15/10/09	23.21.12	II	Sh.	E.	5.1	-56.5	
01/10/09	18.09.19	II	Sh.	E.	26.9	-14.9	16/10/09	1.52.51	III	Tr.	I.	-22.1	-39.3	
01/10/09	18.31.04	III	Tr.	I.	28.6	-18.9	16/10/09	5.31.48	III	Tr.	E.	-59.4	0.7	
01/10/09	22.09.49	III	Tr.	E.	23.1	-49.8	16/10/09	6.53.21	III	Sh.	I.	-64.7	14.6	
01/10/09	22.49.08	III	Sh.	I.	18.3	-51.4	16/10/09	10.31.17	III	Sh.	E.	-37.0	38.6	
02/10/09	2.27.36	III	Sh.	E.	-18.2	-30.2	16/10/09	11.45.59	I	Tr.	I.	-23.1	37.8	
02/10/09	8.04.37	I	Tr.	I.	-64.4	29.3	16/10/09	13.00.34	I	Sh.	I.	-9.5	31.7	
02/10/09	9.09.01	I	Sh.	I.	-59.3	37.7	16/10/09	14.04.16	I	Tr.	E.	2.1	23.5	
02/10/09	10.22.55	I	Tr.	E.	-48.3	43.5	16/10/09	15.18.39	I	Sh.	E.	13.7	11.7	
02/10/09	11.27.13	I	Sh.	E.	-36.9	43.9	17/10/09	8.56.36	I	Occ.	D.	-52.6	31.7	
03/10/09	5.16.02	I	Occ.	D.	-49.5	0.6	17/10/09	12.28.05	I	Ec.	R.	-14.6	34.6	
03/10/09	7.59.16	II	Occ.	D.	-64.5	28.2	17/10/09	12.56.12	II	Occ.	D.	-9.5	31.8	
03/10/09	8.37.38	I	Ec.	R.	-62.2	33.6	17/10/09	18.22.49	II	Ec.	R.	31.1	-22.2	
03/10/09	13.06.21	II	Ec.	R.	-17.8	35.8	18/10/09	6.14.02	I	Tr.	I.	-63.9	7.5	
04/10/09	2.32.04	I	Tr.	I.	-20.5	-29.9	18/10/09	7.29.34	I	Sh.	I.	-62.9	19.9	
04/10/09	3.37.59	I	Sh.	I.	-32.8	-18.3	18/10/09	8.32.19	I	Tr.	E.	-55.7	28.6	
04/10/09	4.50.21	I	Tr.	E.	-45.8	-4.9	18/10/09	9.47.38	I	Sh.	E.	-43.4	35.9	
04/10/09	5.56.11	I	Sh.	E.	-56.3	7.4	19/10/09	3.24.30	I	Occ.	D.	-41.1	-23.9	
04/10/09	23.43.19	I	Occ.	D.	8.6	-51.5	19/10/09	6.56.54	I	Ec.	R.	-64.4	14.5	
05/10/09	2.24.11	II	Tr.	I.	-19.8	-31.5	19/10/09	7.17.26	II	Tr.	I.	-63.5	17.7	
05/10/09	3.06.24	I	Ec.	R.	-27.7	-24.2	19/10/09	9.46.48	II	Sh.	I.	-42.9	35.5	
05/10/09	4.34.58	II	Sh.	I.	-43.8	-8.0	19/10/09	10.09.31	II	Tr.	E.	-38.8	36.8	
05/10/09	5.16.03	II	Tr.	E.	-50.8	0.2	19/10/09	12.39.16	II	Sh.	E.	-11.2	32.9	
05/10/09	7.27.13	II	Sh.	E.	-64.6	22.8	19/10/09	15.40.30	III	Occ.	D.	18.4	7.1	
05/10/09	8.14.51	III	Occ.	D.	-63.3	30.0	19/10/09	19.19.20	III	Occ.	R.	30.6	-33.0	
05/10/09	11.53.21	III	Occ.	R.	-29.9	41.6	19/10/09	20.46.10	III	Ec.	D.	24.4	-47.3	
05/10/09	12.42.52	III	Ec.	D.	-20.7	37.6	20/10/09	0.23.55	III	Tr.	I.	-8.7	-53.0	
05/10/09	16.21.00	III	Ec.	R.	16.4	4.1	20/10/09	0.42.06	I	Tr.	I.	-11.9	-50.8	
05/10/09	20.59.31	I	Tr.	I.	28.1	-44.3	20/10/09	1.58.29	I	Sh.	I.	-26.0	-39.3	
05/10/09	22.06.53	I	Sh.	I.	21.5	-51.2	20/10/09	3.00.23	I	Tr.	E.	-37.5	-28.5	
05/10/09	23.17.48	I	Tr.	E.	11.9	-52.9	20/10/09	4.16.32	I	Sh.	E.	-50.7	-14.4	
06/10/09	0.25.04	I	Sh.	E.	1.3	-48.6	20/10/09	21.52.30	I	Occ.	D.	15.7	-55.6	
06/10/09	5.44.26	IV	Occ.	D.	-55.8	4.9	21/10/09	1.25.44	I	Ec.	R.	-20.7	-44.9	
06/10/09	10.28.24	IV	Occ.	R.	-44.6	42.2	21/10/09	2.11.32	II	Occ.	D.	-29.2	-37.3	
06/10/09	16.15.35	IV	Ec.	D.	16.2	4.8	21/10/09	7.41.33	II	Ec.	R.	-60.7	20.9	
06/10/09	18.10.42	I	Occ.	D.	28.6	-16.7	21/10/09	19.10.19	I	Tr.	I.	30.7	-32.0	
06/10/09	20.54.24	IV	Ec.	R.	28.2	-44.0	21/10/09	20.27.30	I	Sh.	I.	25.5	-45.1	
06/10/09	21.12.10	II	Occ.	D.	26.7	-46.3	21/10/09	21.28.36	I	Tr.	E.	18.5	-53.5	
06/10/09	21.35.12	I	Ec.	R.	24.6	-48.9	21/10/09	22.45.32	I	Sh.	E.	7.2	-58.9	
07/10/09	2.25.06	II	Ec.	R.	-21.5	-31.8	22/10/09	16.20.34	I	Occ.	D.	24.5	-0.3	
07/10/09	15.27.07	I	Tr.	I.	9.6	13.0	22/10/09	19.54.33	I	Ec.	R.	28.0	-40.0	
07/10/09	16.35.53	I	Sh.	I.	19.4	1.0	22/10/09	20.32.18	II	Tr.	I.	24.6	-46.1	
07/10/09	17.45.25	I	Tr.	E.	26.9	-12.4	22/10/09	22.23.27	IV	Occ.	D.	10.0	-58.5	
							22/10/09	23.04.52	II	Sh.	I.	3.5	-59.3	

Data	Ora	Luna	Fenomeno	Fase	h	h Sole	06/11/09	13.30.22	III	Tr.	I.	9.5	21.9
22/10/09	23.24.26	II	Tr.	E.	0.4	-58.8	06/11/09	17.09.38	III	Tr.	E.	31.5	-13.3
23/10/09	1.57.23	II	Sh.	E.	-27.9	-40.2	06/11/09	17.27.02	I	Tr.	I.	31.7	-16.5
23/10/09	3.08.51	IV	Occ.	R.	-41.1	-27.5	06/11/09	18.48.04	I	Sh.	I.	29.0	-31.5
23/10/09	5.40.35	III	Tr.	I.	-62.9	0.8	06/11/09	18.58.25	III	Sh.	I.	28.3	-33.4
23/10/09	9.19.37	III	Tr.	E.	-44.9	32.1	06/11/09	19.45.17	I	Tr.	E.	24.0	-41.9
23/10/09	10.29.34	IV	Ec.	D.	-32.3	36.1	06/11/09	21.05.55	I	Sh.	E.	13.6	-55.1
23/10/09	10.54.57	III	Sh.	I.	-27.6	36.5	06/11/09	22.35.33	III	Sh.	E.	-0.4	-63.9
23/10/09	13.38.30	I	Tr.	I.	2.3	24.8	07/11/09	14.36.34	I	Occ.	D.	19.6	12.6
23/10/09	14.32.36	III	Sh.	E.	10.9	17.1	07/11/09	18.14.17	I	Ec.	R.	30.7	-25.5
23/10/09	14.56.23	I	Sh.	I.	14.4	13.3	07/11/09	20.39.13	II	Occ.	D.	16.9	-51.3
23/10/09	15.05.09	IV	Ec.	R.	15.7	11.9	08/11/09	2.16.52	II	Ec.	R.	-42.1	-40.3
23/10/09	15.56.47	I	Tr.	E.	22.3	3.2	08/11/09	11.55.57	I	Tr.	I.	-5.3	29.7
23/10/09	17.14.25	I	Sh.	E.	29.3	-11.2	08/11/09	13.17.03	I	Sh.	I.	8.6	22.9
24/10/09	10.48.45	I	Occ.	D.	-28.0	36.1	08/11/09	14.14.11	I	Tr.	E.	17.1	15.7
24/10/09	14.23.26	I	Ec.	R.	10.1	18.2	08/11/09	15.34.53	I	Sh.	E.	26.5	3.3
24/10/09	15.28.15	II	Occ.	D.	19.3	7.8	08/11/09	16.03.16	IV	Occ.	D.	28.8	-1.0
24/10/09	21.00.56	II	Ec.	R.	20.6	-50.9	08/11/09	20.49.16	IV	Occ.	R.	15.0	-53.1
25/10/09	8.06.51	I	Tr.	I.	-55.5	23.4	09/11/09	4.43.59	IV	Ec.	D.	-63.0	-13.4
25/10/09	9.25.23	I	Sh.	I.	-42.6	31.9	09/11/09	9.05.20	I	Occ.	D.	-36.0	25.8
25/10/09	10.25.08	I	Tr.	E.	-31.7	35.3	09/11/09	9.15.43	IV	Ec.	R.	-34.1	26.7
25/10/09	11.43.23	I	Sh.	E.	-17.2	34.7	09/11/09	12.43.08	I	Ec.	R.	3.7	26.1
26/10/09	5.16.57	I	Occ.	D.	-61.8	-4.4	09/11/09	14.55.33	II	Tr.	I.	22.8	9.3
26/10/09	8.52.15	I	Ec.	R.	-47.7	28.5	09/11/09	17.35.45	II	Sh.	I.	31.7	-18.7
26/10/09	9.47.47	II	Tr.	I.	-37.9	33.3	09/11/09	17.48.04	II	Tr.	E.	31.4	-20.9
26/10/09	12.22.59	II	Sh.	I.	-9.3	31.9	09/11/09	20.28.33	II	Sh.	E.	17.4	-49.9
26/10/09	12.40.00	II	Tr.	E.	-6.2	30.4	10/11/09	3.25.47	III	Occ.	D.	-54.6	-28.0
26/10/09	15.15.33	II	Sh.	E.	18.7	9.4	10/11/09	6.24.52	I	Tr.	I.	-60.6	4.2
26/10/09	19.30.47	III	Occ.	D.	28.7	-36.9	10/11/09	7.04.52	III	Occ.	R.	-55.6	10.5
26/10/09	23.09.44	III	Occ.	R.	0.4	-60.6	10/11/09	7.45.58	I	Sh.	I.	-49.3	16.4
27/10/09	0.47.57	III	Ec.	D.	-17.8	-52.0	10/11/09	8.43.05	I	Tr.	E.	-39.4	23.4
27/10/09	2.35.13	I	Tr.	I.	-37.7	-34.5	10/11/09	8.51.51	III	Ec.	D.	-37.8	24.3
27/10/09	3.54.19	I	Sh.	I.	-51.4	-20.0	10/11/09	10.03.47	I	Sh.	E.	-24.5	29.6
27/10/09	4.25.27	III	Ec.	R.	-56.1	-14.2	10/11/09	12.28.43	III	Ec.	R.	2.0	27.0
27/10/09	4.53.29	I	Tr.	E.	-59.7	-9.1	11/11/09	3.34.12	I	Occ.	D.	-56.3	-26.7
27/10/09	6.12.18	I	Sh.	E.	-64.6	5.2	11/11/09	7.12.01	I	Ec.	R.	-54.1	11.3
27/10/09	23.45.15	I	Occ.	D.	-7.1	-59.2	11/11/09	9.57.57	II	Occ.	D.	-24.9	29.0
28/10/09	3.21.06	I	Ec.	R.	-46.5	-26.3	11/11/09	15.35.32	II	Ec.	R.	27.6	2.7
28/10/09	4.44.47	II	Occ.	D.	-59.1	-10.9	12/11/09	0.53.55	I	Tr.	I.	-29.6	-55.1
28/10/09	10.19.39	II	Ec.	R.	-30.6	34.2	12/11/09	2.14.59	I	Sh.	I.	-44.2	-41.4
28/10/09	21.03.44	I	Tr.	I.	18.3	-52.5	12/11/09	3.12.08	I	Tr.	E.	-53.6	-31.0
28/10/09	22.23.20	I	Sh.	I.	6.6	-60.6	12/11/09	4.32.46	I	Sh.	E.	-62.9	-16.1
28/10/09	23.22.00	I	Tr.	E.	-3.2	-60.9	12/11/09	22.03.06	I	Occ.	D.	1.3	-63.4
29/10/09	0.41.17	I	Sh.	E.	-18.0	-53.4	13/11/09	1.40.52	I	Ec.	R.	-38.8	-47.6
29/10/09	18.13.36	I	Occ.	D.	31.4	-23.5	13/11/09	4.13.54	II	Tr.	I.	-61.7	-19.7
29/10/09	21.49.56	I	Ec.	R.	11.2	-58.3	13/11/09	6.54.04	II	Sh.	I.	-55.6	8.2
29/10/09	23.03.50	II	Tr.	I.	-0.4	-61.7	13/11/09	7.06.32	II	Tr.	E.	-53.8	10.1
30/10/09	1.41.06	II	Sh.	I.	-29.7	-44.5	13/11/09	9.46.57	II	Sh.	E.	-25.6	27.9
30/10/09	1.56.07	II	Tr.	E.	-32.5	-42.0	13/11/09	17.32.53	III	Tr.	I.	31.6	-18.7
30/10/09	4.33.45	II	Sh.	E.	-58.6	-13.3	13/11/09	19.22.56	I	Tr.	I.	23.9	-39.1
30/10/09	9.33.02	III	Tr.	I.	-37.8	31.0	13/11/09	20.43.53	I	Sh.	I.	13.3	-53.1
30/10/09	13.12.11	III	Tr.	E.	2.4	25.9	13/11/09	21.12.15	III	Tr.	E.	8.9	-57.5
30/10/09	14.56.33	III	Sh.	I.	18.2	11.4	13/11/09	21.41.08	I	Tr.	E.	4.3	-61.3
30/10/09	15.32.12	I	Tr.	I.	22.6	5.6	13/11/09	23.01.06	III	Sh.	I.	-10.0	-66.2
30/10/09	16.52.14	I	Sh.	I.	29.6	-8.8	13/11/09	23.01.39	I	Sh.	E.	-10.1	-66.2
30/10/09	17.50.28	I	Tr.	E.	31.5	-19.5	14/11/09	2.37.56	III	Sh.	E.	-49.3	-37.6
30/10/09	18.33.58	III	Sh.	E.	30.9	-27.5	14/11/09	16.32.08	I	Occ.	D.	31.5	-7.9
30/10/09	19.10.10	I	Sh.	E.	29.1	-34.2	14/11/09	20.09.47	I	Ec.	R.	17.7	-47.6
31/10/09	5.50.21	IV	Tr.	I.	-64.5	0.8	14/11/09	23.17.50	II	Occ.	D.	-13.7	-66.0
31/10/09	10.37.39	IV	Tr.	E.	-25.2	33.6	15/11/09	4.54.38	II	Ec.	R.	-64.1	-12.7
31/10/09	12.42.05	I	Occ.	D.	-1.7	28.7	15/11/09	13.52.05	I	Tr.	I.	17.7	17.2
31/10/09	16.18.50	I	Ec.	R.	27.6	-2.3	15/11/09	15.12.51	I	Sh.	I.	27.0	5.6
31/10/09	18.02.39	II	Occ.	D.	31.5	-21.9	15/11/09	16.10.17	I	Tr.	E.	30.9	-4.0
31/10/09	18.38.59	IV	Sh.	I.	30.6	-28.7	15/11/09	17.30.36	I	Sh.	E.	31.5	-18.6
31/10/09	23.14.07	IV	Sh.	E.	-3.9	-62.1	16/11/09	11.01.10	I	Occ.	D.	-9.9	29.2
31/10/09	23.38.57	II	Ec.	R.	-8.6	-60.9	16/11/09	14.38.38	I	Ec.	R.	23.9	10.6
01/11/09	10.00.51	I	Tr.	I.	-31.3	32.1	16/11/09	17.32.46	II	Tr.	I.	31.4	-19.1
01/11/09	11.21.13	I	Sh.	I.	-16.4	33.2	16/11/09	20.12.21	II	Sh.	I.	16.4	-48.3
01/11/09	12.19.06	I	Tr.	E.	-5.9	30.3	16/11/09	20.25.29	II	Tr.	E.	14.5	-50.6
01/11/09	13.39.09	I	Sh.	E.	7.9	22.1	16/11/09	23.05.16	II	Sh.	E.	-12.6	-66.9
02/11/09	7.10.35	I	Occ.	D.	-58.9	13.2	17/11/09	0.00.30	IV	Tr.	I.	-22.8	-63.3
02/11/09	10.47.40	I	Ec.	R.	-21.9	33.1	17/11/09	4.48.07	IV	Tr.	E.	-64.0	-14.2
02/11/09	12.20.30	II	Tr.	I.	-4.9	29.9	17/11/09	7.29.19	III	Occ.	D.	-47.8	12.5
02/11/09	14.59.16	II	Sh.	I.	20.0	10.3	17/11/09	8.21.15	I	Tr.	I.	-38.7	19.2
02/11/09	15.12.51	II	Tr.	E.	21.7	8.1	17/11/09	9.41.46	I	Sh.	I.	-23.9	26.5
02/11/09	17.51.58	II	Sh.	E.	31.6	-20.4	17/11/09	10.39.25	I	Tr.	E.	-13.2	28.8
02/11/09	23.26.26	III	Occ.	D.	-7.6	-62.2	17/11/09	11.08.26	III	Occ.	R.	-8.0	28.9
03/11/09	3.05.28	III	Occ.	R.	-47.5	-30.4	17/11/09	11.59.30	I	Sh.	E.	1.5	27.3
03/11/09	4.29.30	I	Tr.	I.	-59.8	-14.9	17/11/09	12.53.18	III	Ec.	D.	10.1	23.3
03/11/09	4.50.17	III	Ec.	D.	-61.9	-11.1	17/11/09	12.55.59	IV	Sh.	I.	10.5	23.1
03/11/09	5.50.09	I	Sh.	I.	-64.4	0.2	17/11/09	16.29.50	III	Ec.	R.	31.8	-7.9
03/11/09	6.47.45	I	Tr.	E.	-61.0	9.5	17/11/09	17.27.04	IV	Sh.	E.	31.5	-18.2
03/11/09	8.08.03	I	Sh.	E.	-50.0	21.1	18/11/09	5.30.17	I	Occ.	D.	-62.6	-7.0
03/11/09	8.27.29	III	Ec.	R.	-46.7	23.5	18/11/09	9.07.31	I	Ec.	R.	-29.6	23.7
04/11/09	1.39.10	I	Occ.	D.	-32.7	-46.0	18/11/09	12.37.35	II	Occ.	D.	8.2	24.5
04/11/09	5.16.32	I	Ec.	R.	-63.9	-6.5	18/11/09	18.13.17	II	Ec.	R.	28.9	-26.8
04/11/09	7.20.20	II	Occ.	D.	-56.6	14.2	19/11/09	2.50.33	I	Tr.	I.	-53.9	-36.3
04/11/09	12.57.41	II	Ec.	R.	3.1	26.0	19/11/09	4.10.46	I	Sh.	I.	-62.8	-21.4
04/11/09	22.58.17	I	Tr.	I.	-3.6	-63.6	19/11/09	5.08.43	I	Tr.	E.	-63.5	-11.0
05/11/09	0.19.10	I	Sh.	I.	-18.5	-58.1	19/11/09	6.28.28	I	Sh.	E.	-56.0	3.0
05/11/09	1.16.32	I	Tr.	E.	-29.2	-49.9	19/11/09	23.59.26	I	Occ.	D.	-24.5	-64.1
05/11/09	2.37.02	I	Sh.	E.	-43.8	-36.0	20/11/09	3.36.22	I	Ec.	R.	-60.2	-28.0
05/11/09	20.07.48	I	Occ.	D.	21.8	-45.6	20/11/09	6.52.12	II	Tr.	I.	-52.0	6.4
05/11/09	23.45.23	I	Ec.	R.	-13.0	-61.9	20/11/09	9.30.46	II	Sh.	I.	-23.9	25.1
06/11/09	1.37.43	II	Tr.	I.	-33.8	-46.7	20/11/09	9.45.01	II	Tr.	E.	-21.3	26.0
06/11/09	4.17.29	II	Sh.	I.	-59.6	-17.7	20/11/09	12.23.46	II	Sh.	E.	7.2	25.1
06/11/09	4.30.10	II	Tr.	E.	-61.0	-15.4	20/11/09	21.19.48	I	Tr.	I.	3.9	-59.7
06/11/09	7.10.15	II	Sh.	E.	-57.0	12.2	20/11/09	21.39.10	III	Tr.	I.	0.9	-62.7

Data	Ora	Luna	Fenomeno	Fase	h	h Sole	05/12/09	4.48.34	I	Sh.	E.	-60.6	-17.3
20/11/09	22.39.39	I	Sh.	I.	-10.4	-67.6	05/12/09	6.03.22	III	Tr.	I.	-51.2	-4.2
20/11/09	23.37.57	I	Tr.	E.	-21.1	-66.3	05/12/09	9.42.43	III	Tr.	E.	-11.8	23.0
21/11/09	0.57.21	I	Sh.	E.	-35.8	-56.5	05/12/09	11.07.40	III	Sh.	I.	3.5	25.6
21/11/09	1.18.35	III	Tr.	E.	-39.6	-53.0	05/12/09	14.43.22	III	Sh.	E.	30.7	8.0
21/11/09	3.03.15	III	Sh.	I.	-56.6	-34.3	05/12/09	22.24.36	I	Occ.	D.	-16.5	-68.9
21/11/09	6.39.45	III	Sh.	E.	-53.3	4.3	06/12/09	1.56.24	I	Ec.	R.	-53.8	-49.1
21/11/09	18.28.43	I	Occ.	D.	26.8	-29.9	06/12/09	7.24.21	II	Occ.	D.	-36.7	8.2
21/11/09	22.05.18	I	Ec.	R.	-4.7	-65.4	06/12/09	12.47.02	II	Ec.	R.	19.3	21.2
22/11/09	1.58.22	II	Occ.	D.	-47.2	-46.3	06/12/09	19.45.53	I	Tr.	I.	10.9	-44.8
22/11/09	7.32.17	II	Ec.	R.	-44.2	11.8	06/12/09	21.00.00	I	Sh.	I.	-0.9	-57.8
22/11/09	15.49.11	I	Tr.	I.	31.3	-0.7	06/12/09	22.03.55	I	Tr.	E.	-13.3	-67.0
22/11/09	17.08.37	I	Sh.	I.	31.7	-15.3	06/12/09	23.17.28	I	Sh.	E.	-26.9	-70.4
22/11/09	18.07.20	I	Tr.	E.	28.4	-26.1	07/12/09	16.54.18	I	Occ.	D.	30.7	-13.4
22/11/09	19.26.17	I	Sh.	E.	20.0	-40.7	07/12/09	20.25.15	I	Ec.	R.	4.0	-51.9
23/11/09	12.57.59	I	Occ.	D.	14.2	21.8	08/12/09	1.36.26	II	Tr.	I.	-51.8	-52.9
23/11/09	16.34.09	I	Ec.	R.	32.2	-9.3	08/12/09	4.03.03	II	Sh.	I.	-62.7	-26.0
23/11/09	20.12.06	II	Tr.	I.	13.1	-49.0	08/12/09	4.29.46	II	Tr.	E.	-61.2	-21.1
23/11/09	22.49.06	II	Sh.	I.	-13.9	-68.4	08/12/09	6.56.19	II	Sh.	E.	-40.5	3.9
23/11/09	23.05.00	II	Tr.	E.	-16.8	-68.5	08/12/09	14.15.39	I	Tr.	I.	29.7	11.6
24/11/09	1.42.08	II	Sh.	E.	-45.5	-49.6	08/12/09	15.28.53	I	Sh.	I.	32.9	1.4
24/11/09	10.18.34	I	Tr.	I.	-12.4	26.7	08/12/09	16.33.40	I	Tr.	E.	31.7	-9.8
24/11/09	11.36.44	III	Occ.	D.	1.9	26.8	08/12/09	17.46.19	I	Sh.	E.	26.1	-22.7
24/11/09	11.37.32	I	Sh.	I.	2.0	26.8	08/12/09	20.03.22	III	Occ.	D.	7.1	-47.9
24/11/09	12.36.42	I	Tr.	E.	11.5	23.4	08/12/09	23.42.35	III	Occ.	R.	-32.7	-69.2
24/11/09	13.55.10	I	Sh.	E.	22.4	15.3	09/12/09	0.58.50	III	Ec.	D.	-46.2	-59.4
24/11/09	15.15.55	III	Occ.	R.	29.9	4.0	09/12/09	4.34.22	III	Ec.	R.	-60.5	-20.5
24/11/09	16.54.47	III	Ec.	D.	32.0	-13.0	09/12/09	11.24.04	I	Occ.	D.	8.5	25.0
24/11/09	20.31.00	III	Ec.	R.	9.7	-52.4	09/12/09	14.54.10	I	Ec.	R.	32.1	6.4
25/11/09	7.27.21	I	Occ.	D.	-43.2	10.5	09/12/09	20.46.31	II	Occ.	D.	-0.3	-55.5
25/11/09	10.39.00	IV	Occ.	D.	-8.1	27.0	10/12/09	2.05.28	II	Ec.	R.	-56.7	-48.0
25/11/09	11.03.04	I	Ec.	R.	-3.4	27.2	10/12/09	8.45.33	I	Tr.	I.	-19.2	17.6
25/11/09	15.19.00	II	Occ.	D.	30.4	3.4	10/12/09	9.57.50	I	Sh.	I.	-5.9	23.3
25/11/09	15.24.41	IV	Occ.	R.	30.7	2.6	10/12/09	11.03.32	I	Tr.	E.	5.8	25.1
25/11/09	20.50.50	II	Ec.	R.	6.0	-55.8	10/12/09	12.15.15	I	Sh.	E.	16.9	23.1
25/11/09	22.59.24	IV	Ec.	D.	-17.0	-68.9	11/12/09	5.53.51	I	Occ.	D.	-49.3	-6.8
26/11/09	3.26.56	IV	Ec.	R.	-61.0	-30.8	11/12/09	9.23.00	I	Ec.	R.	-11.6	20.9
26/11/09	4.48.05	I	Tr.	I.	-63.1	-15.9	11/12/09	14.58.41	II	Tr.	I.	32.6	5.7
26/11/09	6.06.31	I	Sh.	I.	-55.5	-1.5	11/12/09	17.21.45	II	Sh.	I.	27.7	-18.1
26/11/09	7.06.12	I	Tr.	E.	-46.2	7.3	11/12/09	17.52.09	II	Tr.	E.	24.5	-23.6
26/11/09	8.24.07	I	Sh.	E.	-32.3	17.6	11/12/09	20.15.06	II	Sh.	E.	3.6	-50.0
27/11/09	1.56.44	I	Occ.	D.	-49.6	-47.5	12/12/09	3.15.23	I	Tr.	I.	-62.7	-35.4
27/11/09	5.31.55	I	Ec.	R.	-59.4	-8.4	12/12/09	4.26.41	I	Sh.	I.	-60.2	-22.3
27/11/09	9.32.34	II	Tr.	I.	-18.9	23.7	12/12/09	5.33.21	I	Tr.	E.	-51.9	-10.4
27/11/09	12.07.39	II	Sh.	I.	8.6	24.9	12/12/09	6.01.13	IV	Occ.	D.	-47.5	-5.7
27/11/09	12.25.35	II	Tr.	E.	11.5	23.8	12/12/09	6.44.05	I	Sh.	E.	-40.2	1.6
27/11/09	15.00.46	II	Sh.	E.	29.7	6.0	12/12/09	10.19.50	III	Tr.	I.	-0.1	24.1
27/11/09	23.17.33	I	Tr.	I.	-21.6	-69.0	12/12/09	10.45.38	IV	Occ.	R.	4.0	24.8
28/11/09	0.35.23	I	Sh.	I.	-36.0	-61.2	12/12/09	13.59.06	III	Tr.	E.	29.6	13.6
28/11/09	1.35.40	I	Tr.	E.	-46.6	-51.4	12/12/09	15.09.15	III	Sh.	I.	33.0	4.2
28/11/09	1.49.55	III	Tr.	I.	-49.0	-48.9	12/12/09	17.14.47	IV	Ec.	D.	28.1	-16.9
28/11/09	2.52.59	I	Sh.	E.	-58.1	-37.4	12/12/09	18.44.32	III	Sh.	E.	17.3	-33.2
28/11/09	5.29.19	III	Tr.	E.	-59.2	-9.0	12/12/09	21.37.40	IV	Ec.	R.	-11.9	-63.7
28/11/09	7.05.51	III	Sh.	I.	-45.0	6.9	13/12/09	0.23.45	I	Occ.	D.	-42.3	-65.2
28/11/09	10.41.58	III	Sh.	E.	-5.5	26.5	13/12/09	3.51.56	I	Ec.	R.	-62.3	-28.7
28/11/09	20.26.14	I	Occ.	D.	8.4	-51.8	13/12/09	10.09.26	II	Occ.	D.	-1.2	23.6
29/11/09	0.00.51	I	Ec.	R.	-30.2	-65.8	13/12/09	15.24.06	II	Ec.	R.	33.2	2.1
29/11/09	4.40.35	II	Occ.	D.	-62.9	-17.8	13/12/09	21.45.19	I	Tr.	I.	-13.9	-64.7
29/11/09	10.09.44	II	Ec.	R.	-10.8	25.4	13/12/09	22.55.36	I	Sh.	I.	-26.9	-71.1
29/11/09	17.47.09	I	Tr.	I.	28.4	-22.7	14/12/09	9.03.17	I	Tr.	E.	-39.2	-67.8
29/11/09	19.04.21	I	Sh.	I.	20.0	-37.0	14/12/09	1.12.58	I	Sh.	E.	-50.9	-57.7
29/11/09	20.05.15	I	Tr.	E.	11.2	-48.2	14/12/09	18.53.37	I	Occ.	D.	15.2	-34.8
29/11/09	21.21.54	I	Sh.	E.	-0.9	-61.0	14/12/09	22.20.48	I	Ec.	R.	-21.0	-68.9
30/11/09	14.55.44	I	Occ.	D.	30.2	6.5	15/12/09	4.21.11	II	Tr.	I.	-59.6	-23.6
30/11/09	18.29.42	I	Ec.	R.	23.9	-30.6	15/12/09	6.40.15	II	Tr.	E.	-39.0	0.8
30/11/09	22.53.23	II	Tr.	I.	-18.9	-69.7	15/12/09	7.14.44	II	Tr.	E.	-32.8	5.7
01/12/09	1.26.02	II	Sh.	I.	-46.6	-53.6	15/12/09	9.33.37	II	Sh.	E.	-7.1	21.3
01/12/09	1.46.30	II	Tr.	E.	-49.9	-50.0	15/12/09	16.15.15	I	Tr.	I.	31.8	-6.4
01/12/09	4.19.11	II	Sh.	E.	-63.3	-22.0	15/12/09	17.24.27	I	Sh.	I.	26.3	-18.4
01/12/09	12.16.44	I	Tr.	I.	12.3	23.8	15/12/09	18.33.11	I	Tr.	E.	17.7	-31.0
01/12/09	13.33.14	I	Sh.	I.	22.9	17.1	15/12/09	19.41.48	I	Sh.	E.	7.1	-43.7
01/12/09	14.34.49	I	Tr.	E.	29.0	9.4	16/12/09	0.21.31	III	Occ.	D.	-43.5	-65.8
01/12/09	15.47.58	III	Occ.	D.	32.5	-1.1	16/12/09	4.00.40	III	Occ.	R.	-61.0	-27.5
01/12/09	15.50.46	I	Sh.	E.	32.5	-1.6	16/12/09	5.00.50	III	Ec.	D.	-54.5	-16.6
01/12/09	19.27.11	III	Occ.	R.	16.0	-41.3	16/12/09	8.35.57	III	Ec.	R.	-17.1	15.9
01/12/09	20.56.24	III	Ec.	D.	2.0	-57.1	16/12/09	13.23.35	I	Occ.	D.	27.9	17.6
02/12/09	0.32.17	III	Ec.	R.	-37.7	-62.4	16/12/09	16.49.42	I	Ec.	R.	29.3	-12.3
02/12/09	9.25.18	I	Occ.	D.	-17.0	22.3	16/12/09	23.32.15	II	Occ.	D.	-35.3	-70.7
02/12/09	12.58.37	I	Ec.	R.	18.9	20.5	17/12/09	4.42.28	II	Ec.	R.	-56.5	-20.0
02/12/09	18.02.02	II	Occ.	D.	26.2	-25.5	17/12/09	10.45.17	I	Tr.	I.	6.8	24.5
02/12/09	23.28.14	II	Ec.	R.	-26.6	-69.3	17/12/09	11.53.23	I	Sh.	I.	17.4	23.8
03/12/09	6.46.27	I	Tr.	I.	-45.3	3.2	17/12/09	13.03.12	I	Tr.	E.	26.2	19.5
03/12/09	8.02.12	I	Sh.	I.	-31.7.								

Data	Ora	Luna	Fenomeno	Fase	h	h Sole							
20/12/09	5.47.29	I	Ec.	R.	-45.1	-8.9	26/12/09	8.17.40	I	Sh.	I.	-14.1	13.2
20/12/09	12.55.44	II	Occ.	D.	26.6	20.2	26/12/09	9.33.32	I	Tr.	E.	0.2	20.8
20/12/09	14.50.26	IV	Tr.	I.	33.6	7.2	26/12/09	10.34.52	I	Sh.	E.	10.2	24.1
20/12/09	18.01.00	II	Ec.	R.	20.2	-24.7	26/12/09	19.01.11	III	Tr.	I.	8.5	-35.2
20/12/09	19.35.29	IV	Tr.	E.	5.7	-42.1	26/12/09	22.40.13	III	Tr.	E.	-31.2	-70.1
20/12/09	23.45.21	I	Tr.	I.	-39.8	-70.0	26/12/09	23.12.33	III	Sh.	I.	-37.1	-71.3
21/12/09	0.51.06	I	Sh.	I.	-50.7	-62.0	27/12/09	2.47.01	III	Sh.	E.	-61.9	-42.1
21/12/09	1.32.13	IV	Sh.	I.	-56.4	-55.2	27/12/09	4.24.03	I	Occ.	D.	-54.2	-24.2
21/12/09	2.03.14	I	Tr.	E.	-59.7	-49.7	27/12/09	7.43.00	I	Ec.	R.	-19.9	8.8
21/12/09	3.08.22	I	Sh.	E.	-62.3	-37.7	27/12/09	15.43.02	II	Occ.	D.	32.2	0.3
21/12/09	5.53.43	IV	Sh.	E.	-43.5	-8.0	27/12/09	20.37.42	II	Ec.	R.	-9.2	-52.7
21/12/09	20.53.37	I	Occ.	D.	-8.8	-56.1	28/12/09	1.45.55	I	Tr.	I.	-59.7	-53.3
22/12/09	0.16.20	I	Ec.	R.	-45.6	-66.9	28/12/09	2.46.32	I	Sh.	I.	-61.8	-42.3
22/12/09	7.07.25	II	Tr.	I.	-29.7	4.0	28/12/09	4.03.42	I	Tr.	E.	-56.3	-28.0
22/12/09	9.17.32	II	Sh.	I.	-5.6	19.6	28/12/09	5.03.42	I	Sh.	E.	-47.8	-17.1
22/12/09	10.01.11	II	Tr.	E.	2.4	22.7	28/12/09	22.54.13	I	Occ.	D.	-34.9	-70.8
22/12/09	12.11.00	II	Sh.	E.	22.2	23.1	29/12/09	2.00.52	IV	Occ.	D.	-60.9	-50.7
22/12/09	18.15.25	I	Tr.	I.	17.4	-27.1	29/12/09	2.11.51	I	Ec.	R.	-61.4	-48.7
22/12/09	19.19.57	I	Sh.	I.	7.3	-39.1	29/12/09	6.42.28	IV	Occ.	R.	-29.9	0.2
22/12/09	20.33.17	I	Tr.	E.	-5.6	-52.5	29/12/09	9.55.02	II	Tr.	I.	5.4	22.3
22/12/09	21.37.11	I	Sh.	E.	-17.4	-63.1	29/12/09	11.29.51	IV	Ec.	D.	20.1	24.7
23/12/09	4.42.59	III	Occ.	D.	-53.5	-20.5	29/12/09	11.54.57	II	Sh.	I.	23.4	24.2
23/12/09	8.21.59	III	Occ.	R.	-15.2	13.9	29/12/09	12.49.01	II	Tr.	E.	29.3	21.3
23/12/09	9.03.16	III	Ec.	D.	-7.6	18.3	29/12/09	14.48.30	II	Sh.	E.	34.1	8.3
23/12/09	12.37.57	III	Ec.	R.	25.9	21.6	29/12/09	15.47.38	IV	Ec.	R.	31.7	-0.1
23/12/09	15.23.44	I	Occ.	D.	33.4	2.7	29/12/09	20.16.05	I	Tr.	I.	-6.3	-48.6
23/12/09	18.45.15	I	Ec.	R.	12.4	-32.6	29/12/09	21.15.21	I	Sh.	I.	-17.2	-58.9
24/12/09	2.19.08	II	Occ.	D.	-61.3	-47.1	29/12/09	22.33.52	I	Tr.	E.	-31.7	-69.4
24/12/09	7.19.19	II	Ec.	R.	-26.2	5.6	29/12/09	23.32.29	I	Sh.	E.	-42.1	-70.8
24/12/09	12.45.36	I	Tr.	I.	27.1	21.1	30/12/09	9.06.02	III	Occ.	D.	-2.1	18.4
24/12/09	13.48.51	I	Sh.	I.	32.2	15.3	30/12/09	12.44.49	III	Occ.	R.	29.3	21.6
24/12/09	15.03.26	I	Tr.	E.	33.8	5.7	30/12/09	13.04.53	III	Ec.	D.	31.0	20.1
24/12/09	16.06.04	I	Sh.	E.	31.2	-4.0	30/12/09	16.39.05	III	Ec.	R.	26.9	-9.1
25/12/09	9.53.50	I	Occ.	D.	2.9	22.2	30/12/09	17.24.28	I	Occ.	D.	21.3	-17.0
25/12/09	13.14.04	I	Ec.	R.	30.1	18.9	30/12/09	20.40.45	I	Ec.	R.	-11.3	-52.9
25/12/09	20.31.11	II	Tr.	I.	-6.9	-51.8	31/12/09	5.06.53	II	Occ.	D.	-45.5	-16.7
25/12/09	22.36.24	II	Sh.	I.	-30.0	-69.9	31/12/09	9.55.55	II	Ec.	R.	6.7	22.4
25/12/09	23.25.06	II	Tr.	E.	-38.8	-71.2	31/12/09	14.46.22	I	Tr.	I.	34.2	8.8
26/12/09	1.29.57	II	Sh.	E.	-57.7	-56.0	31/12/09	15.44.14	I	Sh.	I.	31.6	0.6
26/12/09	7.15.42	I	Tr.	I.	-25.6	5.0	31/12/09	17.04.07	I	Tr.	E.	23.6	-13.3
							31/12/09	18.01.21	I	Sh.	E.	15.7	-23.5

© (5)

FENOMENI MUTUI DOPPI DEI SATELLITI DI GIOVE

DOPPI TRANSITI DI SATELLITI

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC	ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC
2009	1	1	0	58	36	2009	1	1	1	23	25	1100	2009	4	14	3	43	44	2009	4	14	6	37	5	0101
2009	1	4	13	59	24	2009	1	4	14	49	30	1100	2009	5	19	3	44	16	2009	5	19	3	48	51	1010
2009	1	8	3	0	14	2009	1	8	4	16	33	1100	2009	5	26	5	37	21	2009	5	26	7	44	58	1010
2009	1	11	16	1	4	2009	1	11	17	42	47	1100	2009	6	2	7	58	3	2009	6	2	9	47	28	1010
2009	1	15	5	1	56	2009	1	15	7	9	57	1100	2009	7	23	14	31	16	2009	7	23	15	13	18	1001
2009	1	16	23	32	20	2009	1	17	1	47	27	1010	2009	8	5	19	4	26	2009	8	5	19	13	56	0110
2009	1	18	18	2	44	2009	1	18	20	19	39	1100	2009	8	12	21	17	32	2009	8	12	22	30	12	0110
2009	1	22	7	11	45	2009	1	22	9	20	33	1100	2009	8	19	23	30	38	2009	8	20	1	46	50	0110
2009	1	24	2	46	57	2009	1	24	3	50	58	1010	2009	8	27	1	44	10	2009	8	27	4	35	44	0110
2009	1	25	20	37	50	2009	1	25	22	21	23	1100	2009	9	3	4	44	3	2009	9	3	6	50	14	0110
2009	1	29	10	4	49	2009	1	29	11	22	13	1100	2009	9	10	8	4	54	2009	9	10	9	6	7	0110
2009	2	1	23	30	50	2009	2	2	0	23	0	1100	2009	9	28	0	2	14	2009	9	28	1	17	21	0101
2009	2	5	12	57	39	2009	2	5	13	23	48	1100	2009	10	14	17	19	8	2009	10	14	17	26	43	1001
2009	2	9	2	23	31	2009	2	9	2	24	30	1100	2009	11	13	19	23	57	2009	11	13	21	13	16	1010
													2009	11	20	21	40	12	2009	11	20	23	38	59	1010

DOPPI TRANSITI DI OMBRE

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC	ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC
2009	1	1	1	22	38	2009	1	1	2	13	47	1100	2009	2	9	1	49	3	2009	2	9	2	7	49	1100
2009	1	4	14	19	49	2009	1	4	15	32	21	1100	2009	3	11	4	0	40	2009	3	11	4	11	55	1001
2009	1	8	3	17	2	2009	1	8	4	51	48	1100	2009	4	13	16	54	30	2009	4	13	19	12	8	1001
2009	1	9	21	45	37	2009	1	9	22	18	31	1010	2009	5	17	7	54	16	2009	5	17	9	24	13	1001
2009	1	11	16	14	11	2009	1	11	18	10	20	1100	2009	6	2	6	10	15	2009	6	2	6	16	29	1010
2009	1	15	5	11	21	2009	1	15	7	28	16	1100	2009	6	9	8	4	7	2009	6	9	10	16	3	1010
2009	1	16	23	39	54	2009	1	17	1	56	50	1010	2009	6	16	10	37	24	2009	6	16	12	16	15	1010
2009	1	18	18	8	27	2009	1	18	20	25	23	1100	2009	8	12	21	12	2	2009	8	12	22	19	29	0110
2009	1	22	7	15	40	2009	1	22	9	22	32	1100	2009	8	19	23	46	50	2009	8	20	2	21	2	0110
2009	1	24	2	46	44	2009	1	24	3	51	5	1010	2009	8	27	2	42	46	2009	8	27	5	13	32	0110
2009	1	25	20	34	1	2009	1	25	22	19	36	1100	2009	9	3	6	43	43	2009	9	3	7	48	35	0110
2009	1	29	9	53	17	2009	1	29	11	16	43	1100	2009	10	30	16	53	16	2009	10	30	18	34	59	1010
2009	2	1	23	11	36	2009	2	2	0	13	45	1100	2009	11	6	18	59	26	2009	11	6	21	6	56	1010
2009	2	5	12	30	47	2009	2	5	13	10	49	1100	2009	11	13	23	2	7	2009	11	13	23	2	40	1010
													2009	12	21	1	33	11	2009	12	21	3	9	24	1001

DOPPIE ECLISSI

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC	ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC
2009	1	6	7	27	11	2009	1	6	8	18	24	0110	2009	8	16	11	26	33	2009	8	16	12	16	3	1010
2009	1	13	10	1	52	2009	1	13	12	19	2	0110	2009	8	18	5	55	8	2009	8	18	7	58	48	1100
2009	1	20	12	46	47	2009	1	20	15	25	24	0110	2009	8	21	18	52	22	2009	8	21	21	9	48	1100
2009	1	27	16	46	26	2009	1	27	18	0	5	0110	2009	8	23	13	20	58	2009	8	23	15	38	24	1010
2009	1	28	11	45	50	2009	1	28	12	53	15	1001	2009	8	25	7	49	35	2009	8	25	10	7	1	1100
2009	3	26	3	1	21	2009	3	26	4	20	45	1010	2009	8	28	21	0	56	2009	8	28	23	4	18	1100
2009	4	2	4	55	24	2009	4	2	7	13	34	1010	2009	8	30	16	38	27	2009	8	30	17	32	57	1010
2009	4	9	8	43	46	2009	4	9	9	7	31	1010	2009	9	1	10	19	30	2009	9	1	12	1	35	1100
2009	7	31	13	9	32	2009	7	31	13	24	56	1100	2009	9	3	4	12	51	2009	9	3	6	30	15	1001
2009	8	4	2	6	35	2009	8	4	2	43	16	1100	2009	9	4	23	39	1	2009	9	5	0	58	56	1100
2009	8	7	15	3	42	2009	8	7	16	2	32	1100	2009	9	8	12	57	40	2009	9	8	13	56	17	1100
2009	8	11	4	0	48	2009	8	11	5	21	0	1100	2009	9	12	2	17	15	2009	9	12	2	53	42	1100
2009	8	14	16	57	58	2009	8	14	18	40	19	1100	2009	9	15	15	35	57	2009	9	15	15	51	6	1100
													2009	10	6	19	18	48	2009	10	6	20	55	27	1001

Nell'ordine: tipo di fenomeno, anno/mese/giorno/ora/minuti/secondi di inizio e di fine
Io, Europa, Ganimede, Callisto (1 = il satellite è coinvolto, 0 = non lo è)

Tempi in T.D.T.

Esempio di lettura : il 6 gennaio dalle 7.27 alle 8.18 Europa e Ganimede saranno contemporaneamente eclissati

DOPPIE OCCULTAZIONI

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC	ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC
2009	1	6	6	50	20	2009	1	6	7	0	27	0110	2009	8	14	16	58	1	2009	8	14	18	40	8	1100
2009	1	13	9	39	37	2009	1	13	11	31	50	0110	2009	8	16	11	23	52	2009	8	16	12	4	24	1010
2009	1	20	12	31	41	2009	1	20	15	17	35	0110	2009	8	18	5	49	44	2009	8	18	7	47	22	1100
2009	1	27	17	1	58	2009	1	27	18	7	17	0110	2009	8	21	18	41	33	2009	8	21	20	55	34	1100
2009	1	28	11	50	27	2009	1	28	13	35	14	1001	2009	8	23	13	7	28	2009	8	23	15	20	21	1010
2009	2	14	10	21	2	2009	2	14	10	31	43	0101	2009	8	25	7	33	24	2009	8	25	9	50	37	1100
2009	3	3	3	29	22	2009	3	3	5	47	47	1001	2009	8	28	20	25	26	2009	8	28	22	42	39	1100
2009	3	19	2	0	44	2009	3	19	3	57	29	1010	2009	8	30	15	0	42	2009	8	30	17	8	43	1010
2009	3	26	4	41	47	2009	3	26	6	18	53	1010	2009	9	1	9	24	35	2009	9	1	11	34	48	1100
2009	4	5	19	0	3	2009	4	5	21	17	25	1001	2009	9	3	3	43	43	2009	9	3	3	58	40	1001
2009	5	9	10	13	48	2009	5	9	12	31	41	1001	2009	9	4	22	33	46	2009	9	5	0	27	10	1100
2009	6	11	20	46	1	2009	6	11	21	38	28	0101	2009	9	6	18	20	30	2009	9	6	18	53	23	1010
2009	6	12	1	7	10	2009	6	12	1	26	59	1001	2009	9	8	11	42	25	2009	9	8	13	19	40	1100
2009	7	24	11	47	10	2009	7	24	11	52	37	1100	2009	9	12	0	52	25	2009	9	12	2	12	26	1100
2009	7	28	0	39	9	2009	7	28	1	0	33	1100	2009	9	15	14	1	57	2009	9	15	15	5	24	1100
2009	7	31	13	31	4	2009	7	31	14	9	7	1100	2009	9	19	3	12	52	2009	9	19	3	58	40	1100
2009	8	4	2	22	51	2009	8	4	3	16	35	1100	2009	9	22	16	23	25	2009	9	22	16	52	10	1100
2009	8	7	15	14	36	2009	8	7	16	24	47	1100	2009	9	26	5	35	25	2009	9	26	5	45	59	1100
2009	8	11	4	6	17	2009	8	11	5	32	3	1100	2009	11	25	15	20	2	2009	11	25	15	25	43	0101

2 TRANSITI DI SATELLITI + 2 TRANSITI DI OMBRE

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	IEGC	IEGC
2009	1	1	1	22	38	2009	1	1	1	23	25	1100	1100
2009	1	4	14	19	49	2009	1	4	14	49	30	1100	1100
2009	1	8	3	17	2	2009	1	8	4	16	33	1100	1100
2009	1	11	16	14	11	2009	1	11	17	42	47	1100	1100
2009	1	15	5	11	21	2009	1	15	7	9	57	1100	1100
2009	1	16	23	39	54	2009	1	17	1	47	27	1010	1010
2009	1	18	18	8	27	2009	1	18	20	19	39	1100	1100
2009	1	22	7	15	40	2009	1	22	9	20	33	1100	1100
2009	1	24	2	46	57	2009	1	24	3	50	58	1010	1010
2009	1	25	20	37	50	2009	1	25	22	19	36	1100	1100
2009	1	29	10	4	49	2009	1	29	11	16	43	1100	1100
2009	2	1	23	30	50	2009	2	2	0	13	45	1100	1100
2009	2	5	12	57	39	2009	2	5	13	10	49	1100	1100
2009	8	12	21	17	32	2009	8	12	22	19	29	0110	0110
2009	8	19	23	46	50	2009	8	20	1	46	50	0110	0110
2009	8	27	2	42	46	2009	8	27	4	35	44	0110	0110
2009	9	3	6	43	43	2009	9	3	6	50	14	0110	0110

Nell'ordine: tipo di fenomeno, anno/mese/giorno/ora/minuti/secondi di inizio e di fine
Io, Europa, Ganimede, Callisto (1 = il satellite è coinvolto, 0 = non lo è)

GIOVE SENZA SATELLITI

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss
2009	9	3	4	44	3	2009	9	3	6	30	15

OCCULTAZIONE DI UN'OMBRA DI UN SATELLITE

ANNO	MM	GG	hh	mm	ss	AAAA	MM	GG	hh	mm	ss	
2009	5	26	4	33	53	2009	5	26	4	35	11	3 → 1
2009	8	20	2	15	48	in uscita						2 → 3
2009	11	21	0	14	14	2009	11	21	0	30	51	3 → 1

X → Y il satellite X occultava l'ombra del satellite Y

Tempi in T.D.T.

NB : Giove senza satelliti, non si ripeteranno eventi simili fino al 2019.

CONGIUNZ. TRIPLE TRA I SATELLITI DI GIOVE

DATA	ORA	CORPI	D12	D13	D23	CERCHIO	MAG1	MAG2	MAG3	MAGT
2009	8 25 11 30	IO EUROPA CALLISTO	0.41	0.29	0.48	0.484	5.0	5.3	5.7	4.1
2009	8 25 11 32	IO EUROPA CALLISTO	0.41	0.29	0.45	0.461	5.0	5.3	5.7	4.1
2009	8 25 11 34	IO EUROPA CALLISTO	0.42	0.29	0.42	0.447	5.0	5.3	5.7	4.1
2009	8 25 11 36	IO EUROPA CALLISTO	0.42	0.30	0.39	0.440	5.0	5.3	5.7	4.1
2009	8 25 11 38	IO EUROPA CALLISTO	0.42	0.32	0.36	0.437	5.0	5.3	5.7	4.1
2009	8 25 11 40	IO EUROPA CALLISTO	0.43	0.34	0.34	0.438	5.0	5.3	5.7	4.1
2009	8 25 11 42	IO EUROPA CALLISTO	0.43	0.36	0.31	0.441	5.0	5.3	5.7	4.1
2009	8 25 11 44	IO EUROPA CALLISTO	0.44	0.39	0.29	0.446	5.0	5.3	5.7	4.1
2009	8 25 11 46	IO EUROPA CALLISTO	0.44	0.42	0.27	0.454	5.0	5.3	5.7	4.1
2009	8 25 11 48	IO EUROPA CALLISTO	0.44	0.45	0.25	0.466	5.0	5.3	5.7	4.1
2009	8 25 11 50	IO EUROPA CALLISTO	0.45	0.48	0.24	0.485	5.0	5.3	5.7	4.1
2009	9 11 18 42	IO EUROPA CALLISTO	0.19	0.35	0.50	0.498	5.0	5.3	5.7	4.1
2009	9 11 18 44	IO EUROPA CALLISTO	0.19	0.32	0.47	0.468	5.0	5.3	5.7	4.1
2009	9 11 18 46	IO EUROPA CALLISTO	0.19	0.30	0.44	0.438	5.0	5.3	5.7	4.1
2009	9 11 18 48	IO EUROPA CALLISTO	0.19	0.28	0.41	0.408	5.0	5.3	5.7	4.1
2009	9 11 18 50	IO EUROPA CALLISTO	0.18	0.26	0.38	0.379	5.0	5.3	5.7	4.1
2009	9 11 18 52	IO EUROPA CALLISTO	0.18	0.25	0.35	0.351	5.0	5.3	5.7	4.1
2009	9 11 18 54	IO EUROPA CALLISTO	0.18	0.23	0.32	0.324	5.0	5.3	5.7	4.1
2009	9 11 18 56	IO EUROPA CALLISTO	0.18	0.23	0.30	0.298	5.0	5.3	5.7	4.1
2009	9 11 18 58	IO EUROPA CALLISTO	0.18	0.22	0.27	0.274	5.0	5.3	5.7	4.1
2009	9 11 19 0	IO EUROPA CALLISTO	0.17	0.22	0.25	0.256	5.0	5.3	5.7	4.1
2009	9 11 19 2	IO EUROPA CALLISTO	0.17	0.22	0.23	0.246	5.0	5.3	5.7	4.1
2009	9 11 19 4	IO EUROPA CALLISTO	0.17	0.23	0.21	0.242	5.0	5.3	5.7	4.1
2009	9 11 19 6	IO EUROPA CALLISTO	0.17	0.24	0.20	0.247	5.0	5.3	5.7	4.1
2009	9 11 19 8	IO EUROPA CALLISTO	0.17	0.26	0.19	0.260	5.0	5.3	5.7	4.1
2009	9 11 19 10	IO EUROPA CALLISTO	0.17	0.28	0.19	0.279	5.0	5.3	5.7	4.1
2009	9 11 19 12	IO EUROPA CALLISTO	0.17	0.30	0.19	0.300	5.0	5.3	5.7	4.1
2009	9 11 19 14	IO EUROPA CALLISTO	0.17	0.32	0.20	0.323	5.0	5.3	5.7	4.1
2009	9 11 19 16	IO EUROPA CALLISTO	0.17	0.35	0.22	0.347	5.0	5.3	5.7	4.1
2009	9 11 19 18	IO EUROPA CALLISTO	0.16	0.37	0.24	0.373	5.0	5.3	5.7	4.1
2009	9 11 19 20	IO EUROPA CALLISTO	0.16	0.40	0.26	0.400	5.0	5.3	5.7	4.1
2009	9 11 19 22	IO EUROPA CALLISTO	0.16	0.43	0.28	0.428	5.0	5.3	5.7	4.1
2009	9 11 19 24	IO EUROPA CALLISTO	0.16	0.46	0.31	0.457	5.0	5.3	5.7	4.1
2009	9 11 19 26	IO EUROPA CALLISTO	0.16	0.49	0.33	0.486	5.0	5.3	5.7	4.1
2009	9 28 3 36	EUROPA GANIMEDE CALLISTO	0.11	0.50	0.41	0.496	5.3	4.6	5.7	3.9
2009	9 28 3 38	EUROPA GANIMEDE CALLISTO	0.07	0.49	0.44	0.487	5.3	4.6	5.7	3.9
2009	9 28 3 40	EUROPA GANIMEDE CALLISTO	0.03	0.48	0.46	0.479	5.3	4.6	5.7	3.9
2009	9 28 3 42	EUROPA GANIMEDE CALLISTO	0.02	0.47	0.49	0.492	5.3	4.6	5.7	3.9

D12 = distanza tra il primo satellite indicato ed il secondo, in raggi gioviani

D13 = distanza tra il primo satellite indicato ed il terzo, in raggi gioviani

D23 = distanza tra il secondo satellite indicato ed il terzo, in raggi gioviani

Un Rj raggio gioviano è pari a circa 40"

CERCHIO = cerchio minimo, in raggi gioviani, comprendente i 3 satelliti

MAG1 = magnitudine del primo satellite indicato

MAG2 = magnitudine del secondo satellite indicato

MAG3 = magnitudine del terzo satellite indicato

MAGT = magnitudine totale del gruppo

Tempi in TDT Sono riportati solo gli eventi entro un cerchio minimo di 0.5 Rj

CONGIUNZIONI TRA I SATELLITI DI GIOVE

Date	Ora	Lune	Dit.	h	Sole								
02/01/09	5.54.21	I/III	-5''	-20.1	-8.5		05/03/09	10.04.28	II/III	2''	30.1	38.8	
02/01/09	17.07.57	II/III	-8''	0.6	-13.7		06/03/09	10.03.19	I/II	-2''	30.1	39.1	
02/01/09	21.34.19	II/IV	-10''	-47.9	-61.4		07/03/09	17.11.44	I/II	3''	-32.6	-0.6	
03/01/09	12.30.21	I/IV	-7''	27.4	23.1		08/03/09	1.11.06	II/III	-4''	-34.4	-45.8	
04/01/09	4.04.46	I/II	-2''	-39.3	-28.1		09/03/09	23.17.59	I/II	-2''	-52.9	-52.1	
04/01/09	16.11.24	III/IV	-7''	8.2	-3.4		11/03/09	6.22.31	I/II	2''	20.1	8.8	
05/01/09	10.35.51	II/III	4''	23.0	24.8		11/03/09	11.08.56	II/IV	-4''	24.6	44.4	
07/01/09	17.30.30	I/II	-2''	-6.0	-16.9		11/03/09	11.35.30	I/III	2''	21.8	44.4	
09/01/09	9.18.08	I/III	-5''	16.3	20.1		11/03/09	21.24.58	I/IV	-2''	-64.4	-43.4	
10/01/09	14.27.51	III/IV	8''	19.5	12.8		12/03/09	13.52.00	II/III	2''	1.5	33.5	
11/01/09	6.58.09	I/II	-2''	-3.5	2.5		13/03/09	12.32.26	I/II	-2''	13.5	42.5	
11/01/09	20.43.55	I/II	-2''	-43.3	-51.6		14/03/09	19.33.14	I/II	2''	-59.2	-25.6	
12/01/09	0.02.37	I/II	-3''	-68.2	-67.8		15/03/09	4.43.08	II/III	-4''	7.9	-8.5	
12/01/09	15.15.35	II/III	4''	13.1	6.6		17/03/09	1.46.07	I/II	-2''	-22.4	-37.9	
13/01/09	16.00.40	II/III	1''	6.2	0.2		18/03/09	8.43.50	I/II	2''	31.6	34.6	
14/01/09	2.19.11	II/III	2''	-52.6	-47.5		18/03/09	15.10.51	I/III	2''	-16.0	22.9	
14/01/09	20.30.35	I/II	-2''	-42.4	-48.7		19/03/09	4.55.20	I/III	1''	11.9	-4.9	
15/01/09	7.44.13	I/II	-2''	6.0	9.5		19/03/09	13.08.41	I/III	2''	5.3	41.0	
15/01/09	14.22.50	I/II	-3''	18.7	14.4		19/03/09	17.35.37	II/III	2''	-43.1	-2.7	
16/01/09	13.01.47	I/III	-4''	25.7	23.1		20/03/09	5.10.44	II/IV	3''	14.7	-1.0	
17/01/09	1.44.27	I/III	-3''	-56.7	-53.3		20/03/09	14.59.33	I/II	-2''	-15.0	25.3	
17/01/09	11.07.56	I/III	-4''	27.5	27.3		21/03/09	10.53.45	III/IV	3''	23.5	48.0	
18/01/09	10.07.42	I/II	-2''	24.4	25.2		21/03/09	21.54.20	I/II	2''	-58.9	-43.4	
18/01/09	19.12.20	I/II	-2''	-30.0	-33.7		22/03/09	8.14.44	II/III	-4''	31.7	31.7	
19/01/09	4.10.44	I/II	-3''	-29.5	-26.6		24/03/09	4.12.21	I/II	-2''	7.9	-11.3	
19/01/09	18.37.21	I/IV	-6''	-24.0	-27.0		25/03/09	11.04.43	I/II	2''	20.9	49.9	
19/01/09	20.35.25	II/III	3''	-45.8	-48.6		25/03/09	19.29.07	I/III	1''	-61.8	-22.2	
20/01/09	7.48.46	III/IV	-9''	9.1	10.7		26/03/09	17.15.54	I/III	1''	-43.3	2.2	
20/01/09	8.22.48	II/IV	-8''	13.8	15.3		26/03/09	21.15.41	II/III	2''	-61.1	-37.6	
20/01/09	12.24.49	II/III	1''	27.2	26.4		27/03/09	5.46.14	III/IV	-1''	22.6	7.3	
21/01/09	8.28.18	II/III	2''	15.0	16.2		27/03/09	17.24.52	I/II	-2''	-45.3	0.9	
21/01/09	23.56.52	I/II	-2''	-67.1	-66.6		28/03/09	3.06.47	I/IV	-1''	-0.4	-21.4	
22/01/09	6.37.24	I/II	-2''	-0.7	0.3		28/03/09	21.32.56	II/IV	-2''	-58.4	-38.9	
22/01/09	17.49.23	I/II	-3''	-16.8	-17.6		29/03/09	0.15.00	I/II	2''	-31.9	-42.8	
23/01/09	17.46.36	I/III	-3''	-16.8	-16.9		29/03/09	11.45.08	II/III	-3''	13.8	51.0	
23/01/09	23.20.22	II/III	-3''	-67.6	-67.2		31/03/09	6.36.48	I/II	-2''	29.0	17.8	
24/01/09	15.11.54	I/III	-4''	9.1	9.6		01/04/09	13.25.08	I/II	2''	-4.1	42.9	
25/01/09	14.12.19	I/II	-2''	16.9	17.9		02/04/09	20.45.14	I/III	1''	-61.4	-31.7	
25/01/09	17.43.31	I/II	-2''	-17.2	-16.0		03/04/09	0.52.45	II/III	2''	-21.7	-37.8	
26/01/09	7.20.54	I/II	-3''	7.8	7.5		03/04/09	19.48.27	I/II	-2''	-63.5	-23.2	
27/01/09	22.43.43	I/IV	5''	-66.5	-64.7		05/04/09	2.35.09	I/II	1''	-1.0	-23.8	
28/01/09	13.24.22	II/III	2''	21.5	23.9		05/04/09	7.29.07	I/IV	-0''	32.5	28.8	
28/01/09	14.32.47	I/IV	3''	13.1	16.0		05/04/09	15.14.28	II/III	-3''	-26.6	26.3	
29/01/09	1.18.26	I/IV	5''	-54.7	-55.9		05/04/09	22.01.13	I/III	-1''	-50.5	-38.8	
29/01/09	2.00.22	II/IV	6''	-47.6	-49.2		06/04/09	10.02.59	I/IV	0''	24.3	51.2	
29/01/09	20.49.33	I/II	-3''	-53.0	-49.0		06/04/09	14.49.38	II/IV	1''	-22.6	30.9	
29/01/09	23.30.33	III/IV	6''	-66.8	-65.7		07/04/09	8.59.35	I/II	-2''	29.9	44.0	
31/01/09	18.44.40	I/III	-4''	-31.6	-26.0		08/04/09	15.45.01	I/II	1''	-33.9	21.4	
02/02/09	10.14.36	I/II	-3''	28.2	29.1		09/04/09	23.58.01	I/III	1''	-27.5	-39.1	
03/02/09	19.53.13	I/III	5''	-45.7	-38.0		10/04/09	4.26.15	II/III	1''	18.8	-2.9	
04/02/09	17.53.45	II/III	2''	-24.2	-15.8		10/04/09	22.10.24	I/II	-2''	-46.1	-37.7	
04/02/09	19.13.35	III/IV	-6''	-39.0	-30.5		12/04/09	4.54.44	I/II	1''	23.4	2.7	
04/02/09	23.20.00	II/IV	-3''	-66.1	-63.9		12/04/09	18.42.35	II/III	-2''	-61.7	-10.3	
05/02/09	2.55.16	II/IV	-2''	-33.6	-38.4		13/04/09	0.54.35	I/III	-1''	-15.0	-33.9	
05/02/09	23.38.17	I/II	-3''	-64.4	-63.5		13/04/09	6.28.09	II/IV	0''	31.7	20.1	
06/02/09	5.04.23	I/IV	-5''	-9.3	-14.4		14/04/09	3.45.54	II/IV	2''	15.1	-9.3	
06/02/09	17.31.09	II/IV	-5''	-21.0	-11.2		14/04/09	11.20.43	I/II	-1''	10.3	57.5	
07/02/09	10.58.26	II/III	-6''	29.1	32.5		14/04/09	13.08.46	I/IV	0''	-8.5	48.7	
07/02/09	22.03.08	I/III	-4''	-65.4	-57.7		15/04/09	4.53.54	II/IV	0''	24.5	3.4	
09/02/09	12.59.40	I/II	-3''	20.9	29.5		15/04/09	15.02.55	III/IV	-1''	-30.2	30.5	
10/02/09	22.54.29	I/III	4''	-66.1	-61.2		15/04/09	18.04.19	I/II	1''	-59.1	-2.3	
11/02/09	22.08.55	II/III	2''	-66.1	-57.2		17/04/09	3.01.33	I/III	1''	9.8	-15.8	
13/02/09	2.20.18	I/II	-3''	-35.3	-42.8		17/04/09	7.56.42	II/III	1''	32.1	37.2	
13/02/09	10.08.21	II/IV	4''	29.5	31.9		18/04/09	0.30.44	I/II	-1''	-16.3	-34.2	
14/02/09	13.48.17	III/IV	7''	13.1	26.2		19/04/09	7.13.42	I/II	1''	33.3	30.2	
14/02/09	14.32.06	II/III	-6''	6.5	20.5		19/04/09	22.09.36	II/III	-2''	-40.9	-34.7	
14/02/09	17.14.40	II/IV	1''	-22.1	-6.5		20/04/09	3.48.14	I/III	-0''	18.5	-7.2	
15/02/09	1.13.35	I/III	-4''	-46.2	-52.6		21/04/09	10.50.54	III/IV	-2''	11.6	59.7	
15/02/09	7.29.24	II/IV	3''	18.2	13.1		21/04/09	13.40.15	I/II	-1''	-18.3	45.8	
16/02/09	15.39.17	I/II	-3''	-5.8	10.8		21/04/09	21.29.15	II/IV	-1''	-46.6	-31.1	
18/02/09	1.57.44	I/III	4''	-36.5	-45.2		22/04/09	20.22.58	I/II	1''	-55.9	-23.4	
19/02/09	2.13.58	II/III	2''	-32.9	-42.3		24/04/09	5.58.15	I/III	0''	32.6	17.5	
20/02/09	4.57.48	I/II	-3''	-1.8	-12.5		24/04/09	11.23.32	II/III	1''	4.8	60.9	
21/02/09	18.05.22	II/III	-5''	-35.1	-14.3		25/04/09	2.49.27	I/II	-1''	12.4	-15.3	
22/02/09	0.56.59	II/IV	-5''	-45.2	-52.4		26/04/09	9.32.00	I/II	1''	20.8	54.6	
22/02/09	4.18.51	I/III	-3''	-8.2	-19.2		27/04/09	1.35.34	II/III	-1''	1.6	-24.9	
22/02/09	11.02.46	I/IV	-4''	28.3	37.7		27/04/09	6.43.04	I/III	-0''	33.6	26.6	
23/02/09	18.15.01	I/II	-3''	-38.0	-15.7		28/04/09	15.58.11	I/II	-1''	-47.2	22.7	
24/02/09	4.43.02	III/IV	-4''	-2.2	-14.2		29/04/09	22.40.55	I/II	1''	-28.8	-32.9	
25/02/09	5.04.28	I/III	3''	1.8	-9.9		30/04/09	12.39.28	II/IV	1''	-12.5	56.7	
26/02/09	6.12.16	II/III	2''	12.8	3.1		30/04/09	18.23.20	I/IV	2''	-62.2	-2.7	
27/02/09	7.31.54	I/II	-3''	23.2	17.0		01/05/09	8.50.05	I/III	-0''	24.1	49.9	
28/02/09	21.38.20	II/III	-5''	-65.5	-48.4		01/05/09	14.47.00	II/III	1''	-36.6	36.4	
01/03/09	7.20.36	I/III	-3''	22.8	15.8		02/05/09	5.06.33	I/II	-1''	31.6	9.9	
02/03/09	1.26.27	III/IV	3''	-35.2	-46.0		03/05/09	11.49.34	I/II	0''	-5.0	62.4	
02/03/09	15.22.23	I/IV	2''	-9.8	17.0		04/05/09	4.59.51	II/III	-1''	31.6	9.1	
02/03/09	18.41.24	II/IV	4''	-46.2	-19.0		04/05/09	9.39.29	I/III	0''	16.2	57.8	
02/03/09	20.47.44	I/II	-3''	-63.6	-40.8		05/05/09	18.14.28	I/II	-1''	-61.9	-0.1	
03/03/09	18.03.50	I/IV	3''	-40.0	-11.9		07/05/09	0.58.05	I/II	0''	1.3	-26.0	
04/03/09	4.00.51	I/II	3''	-5.6	-19.7		08/05/09	11.38.04	I/III	-1''	-6.1	64.4	
04/03/09	8.15.50	I/III	3''	28.5	25.5		08/05/09	18.07.12	II/III	0''	-61.8	1.4	

Data	Ora	Lune	Dist.	h	h Sole						
28/09/09	5.14.51	II/IV	5''	-45.8	1.2	20/11/09	4.21.23	I/II	0''	-63.5	-19.7
28/09/09	14.37.10	I/III	-1''	-4.9	24.5	20/11/09	12.22.44	I/III	1''	7.0	25.2
28/09/09	22.11.54	II/IV	4''	24.2	-48.8	20/11/09	20.45.31	I/III	0''	9.5	-54.4
30/09/09	5.21.32	I/II	1''	-48.3	2.0	21/11/09	10.19.59	I/III	1''	-14.1	27.4
01/10/09	15.15.08	I/III	1''	3.9	17.1	21/11/09	14.18.57	II/III	1''	23.8	12.6
02/10/09	14.32.18	II/III	1''	-2.4	23.9	22/11/09	10.39.18	I/II	0''	-10.0	27.7
03/10/09	18.30.13	I/II	1''	29.1	-19.4	23/11/09	17.29.48	I/II	0''	30.7	-19.2
05/10/09	6.35.02	II/III	-0''	-61.5	14.0	24/11/09	4.42.55	II/III	-0''	-63.6	-16.5
05/10/09	15.05.20	II/IV	-4''	4.9	17.4	24/11/09	14.45.51	II/IV	-3''	27.6	8.5
05/10/09	17.15.21	I/III	-1''	23.2	-6.2	24/11/09	22.43.02	I/IV	-4''	-13.4	-68.5
06/10/09	1.26.29	I/IV	-5''	-10.0	-40.9	25/11/09	4.01.45	I/IV	-3''	-63.2	-24.2
07/10/09	7.38.19	I/II	1''	-64.6	24.0	25/11/09	22.46.25	II/IV	-4''	-14.6	-68.7
07/10/09	17.53.45	III/IV	-3''	27.6	-13.9	25/11/09	23.49.40	I/II	0''	-26.3	-66.4
08/10/09	17.50.12	I/III	1''	27.6	-13.6	26/11/09	11.49.30	II/IV	-3''	5.1	26.0
09/10/09	17.53.06	II/III	1''	28.1	-14.4	26/11/09	22.23.20	III/IV	-2''	-11.0	-67.8
10/10/09	20.47.00	I/II	1''	27.5	-44.4	27/11/09	6.38.37	I/II	0''	-50.1	3.0
12/10/09	9.33.37	II/III	0''	-49.8	36.8	28/11/09	13.45.55	I/III	1''	23.0	16.0
13/10/09	11.53.00	III/IV	5''	-24.0	38.5	28/11/09	17.48.37	II/III	1''	28.5	-23.0
14/10/09	3.27.31	I/IV	4''	-38.2	-22.3	29/11/09	13.00.21	I/II	0''	17.6	20.7
14/10/09	6.25.26	II/IV	3''	-63.6	10.3	30/11/09	19.47.48	I/II	0''	13.4	-45.0
14/10/09	9.55.17	I/II	1''	-44.8	37.7	01/12/09	8.06.17	II/III	-0''	-32.3	14.5
14/10/09	21.45.14	I/IV	3''	19.8	-52.8	01/12/09	15.03.18	I/III	-1''	30.9	5.3
15/10/09	5.25.43	I/IV	3''	-58.1	0.0	02/12/09	16.57.49	III/IV	5''	31.2	-13.9
15/10/09	20.29.40	I/III	1''	27.3	-43.6	03/12/09	2.11.01	I/II	0''	-54.6	-45.9
16/10/09	21.13.56	II/III	1''	22.6	-50.1	03/12/09	5.40.58	II/IV	3''	-55.5	-7.8
17/10/09	23.04.08	I/II	1''	6.6	-57.5	04/12/09	2.35.57	I/IV	4''	-58.2	-41.5
19/10/09	12.36.12	II/III	0''	-11.8	33.1	04/12/09	8.57.21	I/II	0''	-20.9	19.6
21/10/09	12.12.42	I/II	1''	-14.6	34.4	05/12/09	16.58.37	I/III	1''	30.7	-14.1
22/10/09	23.14.49	I/III	1''	1.9	-59.1	05/12/09	21.19.10	II/III	1''	-4.4	-60.9
23/10/09	4.36.04	III/IV	-4''	-55.5	-11.5	06/12/09	15.21.59	I/II	0''	32.6	2.4
23/10/09	10.01.43	I/IV	-4''	-37.4	35.0	07/12/09	22.07.16	I/II	0''	-14.5	-67.4
24/10/09	0.35.47	II/III	1''	-13.5	-52.8	08/12/09	11.33.04	II/III	-0''	9.4	24.9
25/10/09	1.21.48	I/II	1''	-22.7	-46.5	08/12/09	17.56.03	I/III	-2''	25.0	-24.4
26/10/09	15.42.25	III/III	0''	22.0	4.9	10/12/09	4.32.57	I/II	-0''	-60.3	-20.9
28/10/09	14.30.42	I/II	1''	13.5	16.0	11/12/09	11.17.34	I/II	0''	8.6	24.9
30/10/09	2.07.10	I/III	1''	-34.6	-40.1	11/12/09	22.29.05	II/IV	-4''	-20.8	-69.6
31/10/09	3.59.05	II/III	1''	-54.4	-19.9	12/12/09	5.41.14	I/IV	-4''	-50.7	-9.1
31/10/09	12.02.22	I/IV	4''	-9.6	31.7	12/12/09	20.04.42	I/III	2''	4.9	-48.0
31/10/09	15.14.45	II/IV	3''	21.0	8.3	13/12/09	0.50.45	II/III	1''	-46.9	-61.2
01/11/09	3.40.07	I/II	1''	-52.0	-23.6	13/12/09	17.44.07	I/II	-0''	24.8	-22.1
01/11/09	18.38.39	III/IV	2''	30.5	-28.8	15/12/09	0.28.11	I/II	0''	-44.1	-64.8
02/11/09	18.52.36	II/III	0''	29.6	-31.6	15/12/09	15.02.43	II/III	-1''	33.3	5.2
03/11/09	3.56.41	I/III	-1''	-55.6	-20.9	15/12/09	20.51.48	I/III	-2''	-5.2	-56.2
04/11/09	16.49.25	I/II	0''	30.5	-9.3	17/12/09	6.55.20	I/II	-0''	-35.0	2.7
05/11/09	23.51.50	I/II	-0''	-14.2	-61.3	18/12/09	13.39.11	I/II	0''	29.9	16.0
06/11/09	5.09.39	I/III	1''	-63.9	-8.2	19/12/09	23.07.04	I/III	2''	-32.3	-71.4
07/11/09	7.23.59	II/III	1''	-54.5	14.0	20/12/09	4.23.25	II/III	1''	-57.4	-23.8
07/11/09	14.26.39	III/IV	-4''	18.3	14.1	20/12/09	8.07.25	I/IV	5''	-19.8	12.3
08/11/09	5.59.09	I/II	0''	-63.3	0.6	20/12/09	20.06.43	I/II	-0''	0.7	-47.9
08/11/09	14.49.02	I/IV	-4''	21.6	10.5	22/12/09	2.09.33	III/IV	3''	-60.4	-48.6
09/11/09	12.58.37	I/II	-0''	6.2	24.6	22/12/09	2.50.29	I/II	0''	-62.2	-41.1
09/11/09	22.05.59	II/III	0''	2.5	-62.9	22/12/09	18.35.34	II/III	-1''	14.4	-30.9
11/11/09	19.08.48	I/II	0''	26.0	-36.2	22/12/09	23.51.39	I/III	-2''	-41.9	-69.6
13/11/09	2.05.47	I/II	-0''	-43.2	-43.3	24/12/09	9.18.09	I/II	-0''	-4.1	19.6
13/11/09	8.28.42	I/III	1''	-40.0	21.0	25/12/09	16.02.10	I/II	1''	31.3	-3.1
13/11/09	22.33.01	I/III	0''	-4.9	-65.7	27/12/09	2.07.20	I/III	2''	-61.0	-49.4
14/11/09	6.21.32	I/III	1''	-59.3	2.9	27/12/09	7.57.02	II/III	1''	-17.3	10.6
14/11/09	10.50.54	II/III	1''	-13.1	29.7	27/12/09	22.11.42	III/IV	-5''	-26.5	-67.3
15/11/09	8.18.52	I/II	0''	-40.4	19.4	27/12/09	22.29.41	I/II	-1''	-29.8	-69.2
16/11/09	15.13.23	I/II	-0''	27.3	5.3	28/12/09	13.59.01	I/IV	-4''	33.5	14.5
16/11/09	16.58.07	I/IV	4''	32.0	-12.8	28/12/09	19.39.40	I/IV	-4''	1.2	-42.1
17/11/09	1.22.49	II/III	0''	-38.0	-51.5	29/12/09	5.14.08	I/II	1''	-45.5	-15.3
17/11/09	6.21.09	III/IV	4''	-58.0	2.2	29/12/09	8.44.32	II/IV	-4''	-7.3	16.3
17/11/09	23.09.57	II/IV	3''	-14.1	-67.0	29/12/09	22.10.47	II/III	-1''	-27.4	-67.0
18/11/09	21.28.54	I/II	0''	3.5	-60.7	30/12/09	2.56.13	I/III	-2''	-61.2	-40.6
						31/12/09	11.41.17	I/II	-1''	22.6	24.7

I = Io
 II = Europa
 III = Ganimede
 IV = Callisto

TEMPI IN T.U.

Valori negativi delle distanze indicano che il 2° satellite transita a nord dell'altro

OCCULTAZIONI TRA I SATELLITI DI GIOVE

M	D	h	m	s	Event	Type	Ph	Dur	dMag	%Ill	Sep	PA	MinD	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s		
1	13	16	2	14	(II)	occ	(III)	P	937	0.0	99.6	55.1	80	0.915			15	54	26			16	2	14			16	10	2				
1	13	14	46	1	(II)	ecl	(III)	P	2329	0.1	90.9	44.2	81	0.847	14	26	37			14	33	18			14	46	1			14	58	45	
1	20	12	4	4	(II)	ecl	(III)	E	1462	0.0	98.7	20.0	243	1.075	11	51	53					12	4	4									
2	14	17	14	53	(II)	occ	(IV)	P	225	0.0	99.9	60.8	76	0.898			17	13	1			17	14	53			17	16	46				
3	27	5	45	45	(IV)	occ	(III)	P	371	0.0	96.0	194.4	70	1.017			5	42	39			5	45	45			5	48	50				
3	28	3	6	36	(IV)	occ	(I)	P	228	0.1	93.6	49.9	70	0.784			3	4	42			3	6	36			3	8	30				
4	5	7	28	53	(I)	occ	(IV)	P	628	0.5	63.8	100.5	250	0.159			7	23	39			7	28	53			7	34	7				
4	5	18	57	28	(I)	occ	(IV)	P	910	0.5	63.8	17.9	250	0.159			18	49	53			18	57	28			19	5	3				
4	5	23	27	37	(III)	occ	(IV)	P	127	0.0	99.7	14.8	70	1.208			23	26	34			23	27	37			23	28	41				
4	6	10	2	43	(I)	occ	(IV)	P	478	0.4	70.7	91.4	70	0.316			9	58	44			10	2	43			10	6	42				
4	9	23	57	39	(I)	occ	(III)	P	250	0.1	95.2	249.6	69	0.894			23	55	34			23	57	39			23	59	44				
4	13	0	54	22	(III)	occ	(I)	P	200	0.1	94.7	42.7	69	0.887			0	52	42			0	54	22			0	56	2				
4	13	6	28	5	(IV)	occ	(II)	P	790	0.2	80.5	170.2	69	0.464			6	21	31			6	28	5			6	34	40				
4	13	17	28	29	(IV)	ecl	(I)	E	613	0.0	98.1	27.6	69	1.285	17	23	23					17	28	29									
4	14	13	8	44	(IV)	occ	(I)	P	320	0.3	77.1	52.1	249	0.451			13	6	4			13	8	44			13	11	24				
4	15	4	53	51	(IV)	occ	(II)	P	723	0.4	70.9	165.2	249	0.246			4	47	50			4	53	51			4	59	53				
4	15	15	2	36	(IV)	occ	(III)	P	680	0.3	79.4	233.7	249	0.611			14	56	56			15	2	36			15	8	16				
4	17	3	1	14	(I)	occ	(III)	P	331	0.2	80.9	74.3	70	0.547			2	58	29			3	1	14			3	4	0				
4	20	3	48	2	(III)	occ	(I)	P	308	0.3	78.5	56.8	69	0.497			3	45	29			3	48	2			3	50	36				
4	21	21	29	0	(II)	occ	(IV)	P	429	0.2	84.3	145.7	249	0.556			21	25	25			21	29	0			21	32	34				
4	22	20	22	46	(I)	occ	(II)	P	58	0.0	99.7	70.3	248	0.852			20	22	16			20	22	46			20	23	15				
4	24	5	57	59	(I)	occ	(III)	A	348	0.4	67.7	63.4	69	0.168			5	55	5	5	57	40	5	57	59	5	58	18	6	0	53		
4	24	11	23	5	(II)	occ	(III)	P	238	0.0	95.6	115.4	69	0.882			11	21	6			11	23	5			11	25	4				
4	26	9	31	47	(I)	occ	(II)	P	145	0.0	95.9	73.2	248	0.733			9	30	35			9	31	47			9	33	0				
4	27	6	42	54	(III)	occ	(I)	T	363	0.4	67.7	70.8	69	0.132			6	39	52	6	42	28	6	42	54	6	43	20	6	45	55		
4	29	22	40	43	(I)	occ	(II)	P	190	0.1	90.2	76.2	248	0.616			22	39	8			22	40	43			22	42	18				
4	30	12	39	20	(IV)	occ	(II)	P	119	0.0	99.5	97.8	69	1.001			12	38	21			12	39	20			12	40	20				
5	1	8	49	51	(I)	occ	(III)	P	327	0.4	67.9	51.7	69	0.232			8	47	7			8	49	51			8	52	34				
5	1	14	46	36	(II)	occ	(III)	P	342	0.2	82.8	110.6	69	0.551			14	43	45			14	46	36			14	49	26				
5	2	5	6	21	(II)	occ	(I)	P	112	0.0	97.9	67.3	249	0.803			5	5	25			5	6	21			5	7	17				
5	3	11	49	23	(I)	occ	(II)	P	222	0.2	83.7	79.1	248	0.504			11	47	32			11	49	23			11	51	14				
5	4	9	39	21	(III)	occ	(I)	T	393	0.4	67.7	84.4	68	0.197			9	36	5	9	39	6	9	39	21	9	39	37	9	42	38		
5	4	4	59	31	(III)	occ	(II)	P	217	0.0	97.2	129.4	69	0.966			4	57	43			4	59	31			5	1	19				
5	5	18	14	17	(II)	occ	(I)	P	164	0.1	92.5	65.7	249	0.675			18	12	55			18	14	17			18	15	39				
5	7	0	57	55	(I)	occ	(II)	P	245	0.3	76.9	82.1	248	0.395			0	55	52			0	57	55			0	59	58				
5	8	11	37	52	(I)	occ	(III)	P	272	0.2	83.4	39.2	68	0.642			11	35	36			11	37	52			11	40	9				
5	8	16	9	10	(I)	ecl	(IV)	E	385	0.1	92.8	155.0	249	1.139	16	5	58					16	9	10			18	7	25	18	9	59	
5	8	18	6	51	(II)	occ	(III)	A	377	0.3	73.9	105.6	68	0.203			18	3	42	18	6	16	18	6	51	18	7	25	18	9	59		
5	9	7	21	50	(II)	occ	(I)	P	195	0.2	85.6	64.1	249	0.546			7	20	13			7	21	50			7	23	27				
5	10	14	6	9	(I)	occ	(II)	P	263	0.4	70.2	85.1	248	0.290			14	3	57			14	6	9			14	8	20				
5	11	12	39	25	(III)	occ	(I)	P	411	0.3	76.4	97.3	68	0.479			12	35	59			12	39	25			12	42	50				
5	11	8	22	31	(III)	occ	(II)	P	381	0.2	83.2	139.0	69	0.577			8	19	20			8	22	31			8	25	41				
5	12	20	28	58	(II)	occ	(I)	P	214	0.3	77.8	62.5	249	0.416			20	27	11			20	28	58			20	30	45				
5	14	3	14	17	(I)	occ	(II)	P	276	0.5	63.7	88.1	248	0.190			3	11	59			3	14	17			3	16	35				
5	15	14	22	43	(I)	occ	(III)	P	164	0.0	96.9	26.2	67	1.052			14	21	21			14	22	43			14	24	5				
5	15	21	23	46	(II)	occ	(III)	A	372	0.3	73.9	100.4	68	0.156			21	20	40	21	23	5	21	23	46	21	24	26	21	26	51		
5	16	4	10	24	(IV)	ecl	(III)	E	764	0.2	84.5	165.9	68	1.134	4	4	2					4	10	24									
5	16	9	35	40	(II)	occ	(I)	P	226	0.4	69.6	60.8	249	0.286			9	33	47			9	35	40			9	37	32				
5	16	18	43	41	(IV)	ecl	(I)	P	648	0.6	59.4	84.6	68	0.535	18	38	17	18	42	33			18	43	41			18	44	49			
5	17	10	55	50	(IV)	ecl	(I)	P	1221	0.7	52.2	9.0	245	0.362	10	45	40	10	51	5			10	55	50			11	0	35			
5	17	16	22	5	(I)	occ	(II)	P	286	0.6	58.2	91.1	248	0.094			16	19	42			16	22	5			16	24	28				
5	17	21	10	5	(IV)	ecl	(I)	E	815	0.3	78.1	118.1	248	0.927	21	3	17					21	10	5									
5	18	15	45	1	(III)	occ	(I)	P	434	0.2	84.9	109.0	68	0.702			15	41	24			15	45	1			15	48	38				
5	18	11	43	18	(III)	occ	(II)	T	451	0.3	73.9	148.6	68	0.213			11	39	33	11	42	37	11	43	18	11	43	59	11	47	4		
5	19	22	41	57	(II)	occ	(I)	P	231	0.5	61.5	59.1	249	0.156			22	40	1			22	41	57			22	43	52				
5	21	5	29	48	(I)	occ	(II)	T	293	0.6	57.5	94.1	248	0.004			5	27	21	5	29	37	5	29	48	5	29	59	5	32	14		
5	23	11	47	47	(II)	occ	(I)	A	232	0.6	57.5	57.4	249	0.028			11	45	51	11	47	39	11	47	47	11	47	55	11	49	43		
5	23																																

M	D	h	m	s	Event Type	Ph	Dur	dMag	%I11	Sep	PA	MinD	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
6	10	7	29	22	(III) ecl (IV)	A	941	0.6	59.1	330.7	249	0.307	7	21	31	7	26	32	7	27	34	7	29	22	7	31	9	7	32	11
6	10	14	37	52	(II) ecl (IV)	E	812	0.5	62.7	277.3	249	0.328	14	31	6	14	35	52	14	34	59	14	37	52	14	40	45	14	39	52
6	11	12	10	46	(I) occ (II)	P	306	0.3	75.7	112.1	248	0.419				12	8	13				12	10	46				12	13	19
6	11	6	12	43	(I) ecl (IV)	E	485	0.6	56.7	149.3	250	0.416	6	8	41	6	11	43	6	11	17	6	12	43	6	14	9	6	13	43
6	12	22	15	46	(I) ecl (III)	E	288	0.1	93.8	61.1	249	1.095	22	13	22							22	15	46						
6	13	18	13	46	(II) occ (I)	P	166	0.1	89.2	46.3	249	0.688				18	12	24				18	13	46				18	15	9
6	14	23	21	12	(I) ecl (II)	E	66	0.0	100.0	137.6	248	1.107	23	20	38							23	21	12						
6	15	1	16	38	(I) occ (II)	P	306	0.3	78.0	114.9	248	0.467				1	14	5				1	16	38				1	19	11
6	16	0	46	56	(III) occ (II)	P	388	0.1	91.9	186.1	68	0.910										0	46	56				0	50	10
6	16	1	29	41	(III) ecl (I)	P	1041	0.3	79.1	128.7	68	0.929	1	21	0	1	27	12				1	29	41				1	32	9
6	16	8	46	1	(III) ecl (I)	P	1336	0.3	77.3	64.9	69	0.903	8	34	53	8	40	22				8	46	1				8	51	40
6	16	23	16	29	(III) ecl (I)	P	644	0.5	64.4	129.8	248	0.790	23	11	7	23	14	17				23	16	29				23	18	40
6	17	7	16	36	(II) occ (I)	P	144	0.1	93.3	44.4	249	0.792				7	15	24				7	16	36				7	17	48
6	18	14	22	36	(I) occ (II)	P	308	0.2	79.9	117.8	248	0.508				14	20	2				14	22	36				14	25	10
6	18	12	29	59	(I) ecl (II)	E	144	0.0	99.7	140.0	248	1.039	12	28	47							12	29	59						
6	19	5	11	25	(IV) ecl (II)	P	604	0.5	64.6	95.8	68	0.482	5	6	23	5	11	17				5	11	25				5	11	32
6	19	8	32	46	(IV) ecl (I)	E	507	0.3	76.9	80.2	67	0.933	8	28	33							8	32	46						
6	19	23	21	17	(IV) ecl (III)	E	786	0.2	83.2	92.9	249	0.189	23	14	44	23	19	24	23	18	51	23	21	17	23	23	42	23	23	9
6	20	0	58	12	(I) ecl (III)	E	336	0.2	84.8	74.0	249	0.864	0	55	24							0	58	12						
6	20	5	10	45	(IV) ecl (I)	P	2236	0.9	45.6	72.0	247	0.557	4	52	7	5	4	3				5	10	45				5	17	26
6	20	9	36	38	(IV) ecl (I)	P	2112	0.7	51.5	123.9	248	0.453	9	19	2	9	30	25				9	36	38				9	42	51
6	20	20	18	57	(II) occ (I)	P	118	0.0	96.5	42.4	249	0.889				20	17	59				20	18	57				20	19	56
6	22	3	28	3	(I) occ (II)	P	311	0.2	81.3	120.6	248	0.541				3	25	27				3	28	3				3	30	38
6	22	1	38	47	(I) ecl (II)	E	193	0.0	98.6	142.2	248	0.974	1	37	10							1	38	47						
6	23	3	58	9	(III) occ (II)	P	325	0.0	96.2	194.8	68	1.088				3	55	27				3	58	9				4	0	52
6	24	9	20	56	(II) occ (I)	P	86	0.0	98.7	40.4	249	0.979				9	20	13				9	20	56				9	21	39
6	24	2	32	9	(III) ecl (I)	P	565	0.9	44.9	128.4	248	0.619	2	27	27	2	29	50				2	32	9				2	34	29
6	25	16	33	37	(I) occ (II)	P	316	0.2	82.3	123.3	248	0.567				16	30	59				16	33	37				16	36	15
6	25	14	48	6	(I) ecl (II)	E	232	0.0	96.8	144.3	248	0.911	14	46	9							14	48	6						
6	27	3	41	6	(I) ecl (III)	P	373	0.3	72.5	86.2	249	0.634	3	38	0	3	39	54				3	41	6				3	42	18
6	27	22	22	27	(II) occ (I)	P	34	0.0	99.9	38.4	250	1.061				22	22	10				22	22	27				22	22	44
6	27	22	16	22	(IV) ecl (IV)	E	564	0.3	76.0	158.8	250	0.224	22	11	40	22	15	15	22	14	4	22	16	22	22	18	39	22	17	28
6	28	15	21	4	(I) ecl (IV)	E	486	0.2	84.3	5.7	340	0.912	15	17	1							15	21	4						
6	29	3	57	25	(I) ecl (II)	E	266	0.1	94.1	146.1	248	0.851	3	55	12							3	57	25						
6	29	5	38	40	(I) occ (II)	P	322	0.2	83.0	125.9	248	0.585				5	35	59				5	38	40				5	41	21
6	29	14	59	56	(III) ecl (IV)	A	1095	0.4	67.6	218.9	67	0.183	14	50	49	14	56	0	14	57	51	14	59	56	15	2	1	15	3	53
6	30	7	8	10	(III) occ (II)	P	257	0.0	98.5	203.1	68	1.218				7	6	1				7	8	10				7	10	19
7	1	5	35	29	(III) ecl (I)	P	521	1.0	39.5	122.4	248	0.426	5	31	9	5	33	8				5	35	29				5	37	50
7	2	18	43	58	(I) occ (II)	P	331	0.2	83.2	128.4	248	0.596				18	41	12				18	43	58				18	46	43
7	2	17	7	22	(I) ecl (II)	E	296	0.1	90.6	147.8	248	0.794	17	4	53							17	7	22						
7	4	6	24	57	(I) ecl (III)	A	402	0.5	62.8	97.5	249	0.409	6	21	36	6	23	19	6	24	2	6	24	57	6	25	53	6	26	36
7	4	15	59	59	(II) ecl (III)	E	124	0.0	100.0	22.6	63	1.511	15	58	57							15	59	59						
7	5	9	22	16	(IV) ecl (III)	E	511	0.0	98.6	223.7	68	1.678	9	18	1							9	22	16						
7	6	6	17	21	(I) ecl (II)	P	325	0.2	86.2	149.3	248	0.740	6	14	38	6	17	4				6	17	21				6	17	38
7	6	7	48	45	(I) occ (II)	P	342	0.2	83.1	130.8	248	0.599				7	45	54				7	48	45				7	51	36
7	6	14	15	32	(IV) ecl (II)	A	559	0.2	79.7	37.5	248	0.162	14	10	53	14	14	26	14	14	30	14	15	32	14	16	35	14	16	39
7	6	17	38	14	(IV) ecl (I)	E	258	0.0	98.4	57.5	249	1.475	17	36	5							17	38	14						
7	7	10	16	24	(III) occ (II)	P	202	0.0	99.4	210.5	68	1.299				10	14	43				10	16	24				10	18	6
7	7	7	14	23	(III) ecl (II)	E	292	0.0	99.4	191.8	68	1.309	7	11	57							7	14	23						
7	8	12	9	48	(II) ecl (I)	E	90	0.0	99.9	56.2	249	1.126	12	9	3							12	9	48						
7	8	8	31	10	(III) ecl (I)	P	489	0.5	64.9	112.8	248	0.215	8	27	5	8	28	53				8	31	10				8	33	28
7	9	20	53	53	(I) occ (II)	P	356	0.2	82.6	133.1	248	0.593				20	50	55				20	53	53				20	56	51
7	9	19	28	5	(I) ecl (II)	P	352	0.2	81.3	150.6	248	0.689	19	25	9	19	27	5				19	28	5				19	29	6
7	11	9	10	30	(I) ecl (III)	A	428	0.5	64.6	107.9	249	0.194	9	6	56	9	8	35	9	9	15	9	10	30	9	11	44	9	12	24
7	11	19	12	54	(II) ecl (III)	E	264	0.0	98.6	19.8	62	1.293	19	10	42							19	12	54						
7	12	1	15	48	(II) ecl (I)	E	135	0.0	99.1	52.5	249	1.040	1	14	41							1	15	48						
7	13	9	58	30	(I) occ (II)	P	373	0.2	81.8	135.2	248	0.581				9	55	24				9	58	30				10	1	37
7	13	8	38	51	(I) ecl (II)	P	379	0.3	76.2	151.5	248	0.641	8	35	42	8	37	27				8	38	51				8	40	16
7	14	13	23	52	(III) occ (II)	P	197	0.0	99.6	217.1	68	1.332				13	22	14				13	23	52				13	25	31
7	14	10	46	27	(III) ecl (II)	E	525	0.1	89.9	203.6																				

M	D	h	m	s	Event Type	Ph	Dur	dMag	%I11	Sep	PA	MinD	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
8	5	20	58	4	(II) ecl (I)	P	255	0.5	60.9	21.1	252	0.425	20	55	57	20	57	8				20	58	4				20	59	1
8	5	19	40	45	(III) ecl (I)	P	365	0.6	56.7	47.8	250	0.731	19	37	43	19	39	49				19	40	45				19	41	41
8	7	5	38	9	(I) occ (II)	P	580	0.4	66.6	144.4	249	0.293				5	33	19				5	38	9				5	42	59
8	7	5	15	4	(I) ecl (II)	P	606	0.8	48.3	149.3	249	0.420	5	10	0	5	11	37				5	15	4				5	18	30
8	8	20	42	59	(I) ecl (III)	A	557	0.5	64.7	134.9	250	0.480	20	38	21	20	40	29	20	42	18	20	42	59	20	43	40	20	45	29
8	9	10	4	9	(II) ecl (I)	A	262	0.7	52.8	16.0	253	0.337	10	1	58	10	3	5	10	4	1	10	4	9	10	4	16	10	5	12
8	9	8	2	42	(II) ecl (III)	E	445	0.4	67.9	14.2	60	0.340	7	59	0	8	1	12	8	1	9	8	2	42	8	4	15	8	4	12
8	10	18	45	30	(I) occ (II)	P	625	0.5	63.3	144.6	249	0.228				18	40	17				18	45	30				18	50	43
8	10	18	32	51	(I) ecl (II)	P	656	0.8	46.7	147.3	249	0.409	18	27	23	18	29	2				18	32	51				18	36	39
8	12	1	53	18	(III) ecl (II)	T	1209	9.9	0.0	229.9	69	0.071	1	43	13	1	46	18	1	52	56	1	53	18	1	53	39	2	0	17
8	12	2	11	15	(III) occ (II)	P	676	0.1	94.0	229.7	69	1.094				2	5	38				2	11	15				2	16	53
8	12	22	24	26	(III) ecl (I)	E	320	0.2	79.6	27.1	251	0.974	22	21	46							22	24	26						
8	12	23	10	16	(II) ecl (I)	A	267	0.8	46.6	11.0	255	0.248	23	8	2	23	9	7	23	9	49	23	10	16	23	10	43	23	11	24
8	14	7	53	24	(I) ecl (II)	P	720	0.8	46.3	144.7	249	0.406	7	47	24				7	49	10	7	53	24				7	57	39
8	14	7	54	45	(I) occ (II)	P	679	0.6	59.8	144.4	249	0.155				7	49	6				7	54	45				8	0	25
8	14	21	59	29	(I) occ (II)	P	1097	0.0	99.4	78.7	69	1.108				21	50	20				21	59	29				22	8	37
8	15	0	44	52	(I) occ (II)	P	2209	0.1	91.5	120.3	69	0.833				0	26	27				0	44	52				1	3	16
8	15	23	53	6	(I) ecl (III)	P	642	0.4	69.6	175.7	68	0.571	23	47	45	23	50	15				23	53	6				23	55	58
8	16	11	14	56	(II) ecl (III)	E	455	0.2	81.4	13.5	60	0.087	11	11	9	11	13	15	11	13	13	11	14	56	11	16	40	11	16	38
8	16	12	12	30	(II) occ (I)	P	48	0.0	99.8	7.2	258	1.129				12	12	6				12	12	30				12	12	54
8	16	12	16	23	(II) ecl (I)	A	270	0.7	52.2	5.9	260	0.160	12	14	8	12	15	11	12	15	49	12	16	23	12	16	58	12	17	35
8	16	16	46	58	(I) ecl (III)	A	2791	0.4	70.7	86.9	68	0.192	16	23	42	16	29	43	16	41	4	16	46	58	16	52	51	17	4	12
8	16	17	14	9	(I) occ (III)	P	2103	0.1	92.9	92.8	68	1.133				16	56	38				17	14	9				17	31	41
8	16	20	14	8	(I) occ (III)	P	420	0.0	99.9	131.2	68	1.508				20	10	38				20	14	8				20	17	38
8	16	20	45	45	(I) ecl (III)	P	2370	0.5	62.9	137.8	68	0.449	20	25	59	20	32	42				20	45	45				20	58	48
8	17	21	4	31	(I) occ (II)	T	741	0.6	57.5	143.8	249	0.079				20	58	21	21	4	19	21	4	31	21	4	43	21	10	41
8	17	21	15	41	(I) ecl (II)	P	799	0.8	47.0	141.4	249	0.410	21	9	2	21	10	54				21	15	41				21	20	28
8	18	14	36	10	(I) occ (II)	P	1312	0.1	87.2	130.6	69	0.725				14	25	14				14	36	10				14	47	6
8	18	14	58	51	(I) ecl (II)	E	806	0.0	97.9	135.8	69	0.891	14	52	8							14	58	51						
8	19	5	40	25	(III) occ (II)	P	889	0.1	91.3	227.5	69	0.993				5	33	0				5	40	25				5	47	50
8	19	6	13	16	(III) ecl (II)	P	1498	0.2	85.5	226.0	69	0.173	6	0	47	6	4	21				6	13	16				6	22	11
8	20	1	10	51	(II) occ (I)	P	84	0.0	98.6	4.9	262	1.061				1	10	9				1	10	51				1	11	33
8	20	1	7	52	(III) ecl (I)	E	261	0.1	93.5	6.0	260	1.212	1	5	42							1	7	52						
8	20	1	22	34	(II) ecl (I)	A	272	0.3	74.1	1.3	311	0.071	1	20	18	1	21	20	1	21	56	1	22	34	1	23	12	1	23	47
8	20	17	52	52	(III) ecl (II)	E	1083	0.0	97.4	218.4	249	1.142	17	43	51							17	52	52						
8	21	10	17	11	(I) occ (II)	T	818	0.6	57.5	142.7	249	0.005				10	10	22	10	16	40	10	17	11	10	17	42	10	24	0
8	21	10	42	44	(I) ecl (II)	P	911	0.8	49.4	137.0	249	0.427	10	35	8	10	37	12				10	42	44				10	48	15
8	22	4	7	54	(I) occ (II)	P	1021	0.2	84.4	135.8	69	0.660				3	59	24				4	7	54				4	16	24
8	22	4	42	32	(I) ecl (II)	P	781	0.1	91.4	143.5	69	0.788	4	36	2	4	40	23				4	42	32				4	44	42
8	23	3	22	35	(I) ecl (III)	P	843	0.4	72.0	133.0	250	0.607	3	15	33	3	18	41				3	22	35				3	26	29
8	23	14	34	4	(I) ecl (III)	A	1496	0.2	82.0	14.1	62	0.154	14	21	36	14	24	36	14	30	52	14	34	4	14	37	17	14	43	32
8	23	14	9	17	(II) occ (I)	P	109	0.0	96.7	2.7	274	0.986				14	8	22				14	9	17				14	10	11
8	23	14	28	45	(II) ecl (I)	A	273	0.1	90.6	4.6	56	0.017	14	26	28	14	27	31	14	28	6	14	28	45	14	29	24	14	29	59
8	23	14	27	20	(II) ecl (III)	E	453	0.4	71.0	12.6	61	0.170	14	23	34	14	25	41	14	25	38	14	27	20	14	29	2	14	28	59
8	23	15	30	58	(I) occ (III)	P	1187	0.2	82.6	26.8	65	0.786				15	21	4				15	30	58				15	40	51
8	24	23	31	19	(I) occ (II)	P	915	0.6	57.6	140.9	249	0.093				23	23	41				23	31	19				23	38	56
8	24	1	28	44	(I) ecl (III)	P	781	0.2	84.6	155.2	69	0.834	1	22	14	1	26	9				1	28	44				1	31	20
8	25	0	14	17	(I) ecl (II)	P	1080	0.7	53.5	131.3	249	0.458	0	5	17	0	7	41				0	14	17				0	20	52
8	25	17	29	20	(I) occ (II)	P	870	0.2	82.7	138.6	69	0.622				17	22	5				17	29	20				17	36	35
8	25	18	14	8	(I) ecl (II)	P	745	0.2	82.6	148.3	69	0.696	18	7	55	18	10	47				18	14	8				18	17	29
8	26	9	26	57	(III) occ (II)	P	1204	0.1	89.1	221.4	69	0.912				9	16	55				9	26	57				9	36	59
8	26	11	12	24	(III) ecl (II)	P	2111	1.6	22.2	212.0	69	0.441	10	54	48	10	59	52				11	12	24				11	24	55
8	27	1	1	34	(III) ecl (II)	E	361	0.0	100.0	36.3	69	1.246	0	58	34							1	1	34						
8	27	3	7	51	(II) occ (I)	P	129	0.1	94.3	1.1	336	0.907				3	6	46				3	7	51				3	8	55
8	27	3	34	58	(II) ecl (I)	A	272	0.5	65.2	9.6	63	0.104	3	32	42	3	33	45	3	34	21	3	34	58	3	35	35	3	36	11
8	27	3	50	57	(III) ecl (I)	E	173	0.0	99.3	15.3	65	1.441	3	49	31							3	50	57						
8	27	22	49	2	(III) ecl (II)	E	762	0.0	97.2	226.9	250	1.150	22	42	41							22	49	2						
8	28	12	50	29	(I) occ (II)	P	1053	0.5	61.7	138.2	249	0.193				12	41	43				12	50	29				12	59	15
8	28																													

M	D	h	m	s	Event	Type	Ph	Dur	dMag	%I11	Sep	PA	MinD	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s			
9	13	20	4	6	(II)	occ	(I)	P	189	0.3	77.0	11.7	66	0.487				20	2	32				20	4	6				20	5	41		
9	13	21	6	38	(II)	ecl	(I)	P	246	0.4	71.1	33.1	68	0.534				21	5	54				21	6	38				21	7	21		
9	13	21	59	57	(II)	occ	(III)	P	262	0.1	87.5	20.2	254	0.837				21	57	46				21	59	57				22	2	8		
9	14	0	6	22	(II)	ecl	(III)	E	367	0.1	90.6	7.4	60	0.954		0	3	18						0	6	22								
9	16	0	46	16	(I)	occ	(II)	P	500	0.2	81.2	139.1	70	0.569				0	42	6				0	46	16				0	50	26		
9	16	2	15	20	(I)	ecl	(II)	P	578	1.3	30.0	157.0	70	0.171		2	10	31		2	11	53		2	15	20				2	18	46		
9	17	9	4	16	(II)	occ	(I)	P	195	0.3	73.1	14.1	67	0.407				9	2	39				9	4	16				9	5	54		
9	17	10	13	4	(II)	ecl	(I)	P	236	0.3	78.4	37.3	69	0.618		10	11	5		10	12	38		10	13	4				10	13	29		
9	19	13	55	48	(I)	occ	(II)	P	468	0.2	81.6	137.7	70	0.574				13	51	53				13	55	48				13	59	42		
9	19	15	30	22	(I)	ecl	(II)	A	554	0.6	55.9	156.5	70	0.082		15	25	45		15	27	4	15	30	18	15	30	22	15	30	26	15	33	40
9	20	22	4	51	(II)	occ	(I)	P	200	0.4	69.2	16.4	67	0.330				22	3	10				22	4	51				22	6	31		
9	20	23	19	34	(II)	ecl	(I)	E	225	0.2	84.9	41.3	69	0.700		23	17	42						23	19	34								
9	21	0	48	25	(II)	occ	(III)	P	301	0.3	78.7	27.9	252	0.549				0	45	55				0	48	25				0	50	56		
9	21	3	19	33	(II)	ecl	(III)	E	296	0.0	97.4	4.5	56	1.216		3	17	5					3	19	33				3	19	33			
9	23	3	4	16	(I)	occ	(II)	P	440	0.2	82.2	136.1	70	0.582				3	0	36				3	4	16				3	7	57		
9	23	4	44	2	(I)	ecl	(II)	A	531	0.0	100.0	155.8	70	0.006		4	39	36		4	40	54	4	43	40	4	44	2	4	44	23	4	47	9
9	24	11	5	47	(II)	occ	(I)	P	204	0.5	65.5	18.7	68	0.258				11	4	5				11	5	47				11	7	29		
9	24	12	26	6	(II)	ecl	(I)	E	210	0.1	90.1	45.0	69	0.782		12	24	20						12	26	6								
9	25	11	11	42	(III)	occ	(II)	P	234	0.0	99.5	215.9	250	1.296				11	9	45				11	11	42				11	13	39		
9	26	16	13	10	(I)	occ	(II)	P	415	0.2	82.8	134.3	70	0.588				16	9	42				16	13	10				16	16	37		
9	26	17	57	30	(I)	ecl	(II)	P	507	0.7	54.3	154.7	70	0.097		17	53	17		17	54	34		17	57	30				18	0	27		
9	28	0	7	9	(II)	occ	(I)	P	207	0.5	62.1	21.0	68	0.191				0	5	25				0	7	9				0	8	52		
9	28	1	32	41	(II)	ecl	(I)	E	193	0.1	94.1	48.6	69	0.863		1	31	4					1	32	41									
9	28	3	39	58	(II)	occ	(III)	A	322	0.3	73.9	35.6	252	0.294				3	37	18		3	39	37	3	39	58		3	40	20	3	42	39
9	28	6	32	56	(II)	ecl	(III)	E	168	0.0	99.9	1.2	15	1.477		6	31	32					6	32	56									
9	30	5	21	21	(I)	occ	(II)	P	393	0.2	83.4	132.3	71	0.595				5	18	4				5	21	21				5	24	37		
9	30	7	9	56	(I)	ecl	(II)	P	483	1.2	32.6	153.3	70	0.188		7	5	55		7	7	11		7	9	56				7	12	40		
10	1	13	8	55	(II)	occ	(I)	P	209	0.6	59.2	23.2	69	0.130				13	7	11				13	8	55				13	10	40		
10	1	14	39	18	(II)	ecl	(I)	E	173	0.0	96.9	51.9	70	0.942		14	37	51						14	39	18								
10	2	14	32	20	(III)	occ	(II)	P	392	0.0	96.6	209.6	250	1.118				14	29	4				14	32	20				14	35	36		
10	3	18	30	0	(I)	occ	(II)	P	373	0.2	83.9	130.1	71	0.599				18	26	54				18	30	0				18	33	7		
10	3	20	22	17	(I)	ecl	(II)	P	457	1.3	29.1	151.7	71	0.281		20	18	28		20	19	46		20	22	17				20	24	47		
10	5	2	11	10	(II)	occ	(I)	A	211	0.6	57.5	25.5	69	0.076				2	9	25		2	11	7	2	11	10		2	11	13	2	12	56
10	5	3	45	59	(II)	ecl	(I)	E	147	0.0	98.7	55.1	70	1.021		3	44	45					3	45	59									
10	5	6	34	53	(II)	occ	(III)	A	331	0.3	73.9	43.1	251	0.081				6	32	7		6	34	12	6	34	53		6	35	34	6	37	38
10	5	7	15	15	(I)	occ	(III)	P	102	0.0	99.5	87.3	70	1.344				17	14	24				17	15	15				17	16	6		
10	7	17	38	8	(I)	occ	(II)	P	356	0.2	84.3	127.8	71	0.602				7	35	10				7	38	8				7	41	6		
10	7	9	33	44	(I)	ecl	(II)	P	431	0.9	41.8	149.8	71	0.375		9	30	9		9	31	29		9	33	44				9	35	59		
10	8	15	13	51	(II)	occ	(I)	A	212	0.6	57.5	27.7	69	0.028				15	12	5		15	13	43	15	13	51		15	13	58	15	15	37
10	8	16	52	42	(II)	ecl	(I)	E	113	0.0	99.7	58.0	70	1.098		16	51	45						16	52	42								
10	8	17	50	12	(III)	occ	(I)	P	162	0.0	97.7	74.1	70	1.222				17	48	51				17	50	12				17	51	34		
10	9	17	53	5	(III)	occ	(II)	P	454	0.1	92.9	202.3	250	0.954				17	49	18				17	53	5				17	56	52		
10	10	20	46	48	(I)	occ	(II)	P	340	0.2	84.6	125.3	71	0.602				20	43	58				20	46	48				20	49	38		
10	10	22	45	12	(I)	ecl	(II)	P	402	0.7	54.6	147.8	71	0.470		22	41	51		22	43	15		22	45	12				22	47	8		
10	12	4	17	0	(II)	occ	(I)	A	213	0.6	57.5	29.9	69	0.012				4	15	13		4	16	52	4	17	0		4	17	8	4	18	46
10	12	5	59	28	(II)	ecl	(I)	E	56	0.0	100.0	60.7	70	1.173		5	59	0						5	59	28								
10	12	9	33	27	(II)	occ	(III)	A	333	0.3	73.9	50.4	251	0.082				9	30	40		9	32	46	9	33	27		9	34	8	9	36	13
10	12	19	53	47	(I)	occ	(III)	P	144	0.0	98.5	73.5	70	1.245				19	52	35				19	53	47				19	54	59		
10	14	9	55	5	(I)	occ	(II)	P	327	0.2	84.9	122.8	71	0.600				9	52	22				9	55	5				9	57	49		
10	14	11	55	55	(I)	ecl	(II)	P	372	0.4	66.8	145.6	71	0.566		11	52	50		11	54	22		11	55	55				11	57	29		
10	15	17	20	35	(II)	occ	(I)	A	213	0.6	57.5	32.1	69	0.045				17	18	48		17	20	28	17	20	35		17	20	41	17	22	22
10	15	20	29	40	(III)	occ	(I)	P	235	0.1	93.8	84.7	70	1.038				20	27	43				20	29	40				20	31	37		
10	16	21	13	54	(III)	occ	(II)	P	478	0.1	89.0	194.4	250	0.812				21	9	55				21	13	54				21	17	53		
10	17	23	3	57	(I)	occ	(II)	P	315	0.2	84.9	120.1	71	0.593				23	1	20				23	3	57				23	6	35		
10	18	1	6	42	(I)	ecl	(II)	P	338	0.3	77.9	143.1	71	0.663		1	3	53		1	5	40		1	6	42				1	7	43		
10	19	6	24	39	(II)	occ	(I)	A	214	0.6	57.5	34.3	69	0.071				6	22	52		6	24	36	6	24	39		6	24	42	6	26	26
10	19	12	36	1	(II)	occ	(III)	A	333	0.3	73.9	57.6	251	0.193				12	33	15		12	35	27	12	36	1		12					

M	D	h	m	s	Event Type	Ph	Dur	dMag	%Ill	Sep	PA	MinD	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
11	17	1	22	35	(II) occ (III) A	A	355	0.3	73.9	84.3	250	0.113				1	19	38	1	21	53	1	22	35	1	23	17
11	18	21	28	44	(I) occ (II) P	P	282	0.3	73.0	94.5	70	0.335				21	26	23				21	28	44			
11	20	4	21	19	(II) occ (I) A	A	229	0.6	57.5	52.4	69	0.005				4	19	25	4	21	11	4	21	19	4	21	28
11	20	12	22	40	(III) occ (I) P	P	923	0.3	77.4	114.8	70	0.499				12	14	58				12	22	40			
11	20	20	45	41	(III) occ (I) T	T	1436	0.4	67.7	29.1	71	0.133				20	33	43	20	43	56	20	45	41	20	47	26
11	21	10	19	53	(III) occ (I) P	P	466	0.1	91.0	112.0	250	0.841				10	16	0				10	19	53			
11	21	14	18	49	(III) occ (II) P	P	401	0.2	84.1	149.6	250	0.598				14	15	28				14	18	49			
11	22	10	39	8	(I) occ (II) P	P	282	0.4	69.7	91.5	70	0.281				10	36	47				10	39	8			
11	23	17	29	44	(II) occ (I) A	A	231	0.6	57.5	54.3	69	0.042				17	27	49	17	29	37	17	29	44	17	29	51
11	24	4	42	41	(II) occ (III) A	A	365	0.3	73.9	90.3	250	0.021				4	39	38	4	41	54	4	42	41	4	43	27
11	25	23	49	30	(I) occ (II) P	P	281	0.4	66.1	88.6	70	0.222				23	47	9				23	49	30			
11	27	6	38	33	(II) occ (I) P	P	232	0.6	57.9	56.2	69	0.083				6	36	37				6	38	33			
11	28	13	45	49	(III) occ (I) P	P	225	0.0	98.1	102.6	250	1.060				13	43	57				13	45	49			
11	28	17	48	28	(III) occ (II) P	P	360	0.1	87.6	140.4	249	0.673				17	45	28				17	48	28			
11	29	13	0	11	(I) occ (II) P	P	280	0.5	62.1	85.7	70	0.157				12	57	51				13	0	11			
11	30	19	47	44	(II) occ (I) P	P	234	0.5	60.3	58.0	69	0.128				19	45	47				19	47	44			
12	1	8	6	3	(II) occ (III) A	A	368	0.3	73.9	96.2	250	0.191				8	2	59	8	5	28	8	6	3	8	6	38
12	3	2	10	52	(I) occ (II) P	P	277	0.6	58.2	82.8	70	0.087				2	8	33				2	10	52			
12	4	8	57	17	(II) occ (I) P	P	234	0.5	63.5	59.8	69	0.177				8	55	20				8	57	17			
12	5	21	19	1	(III) occ (II) P	P	301	0.1	92.5	131.2	249	0.790				21	16	31				21	19	1			
12	6	15	21	50	(I) occ (II) T	T	274	0.6	57.5	79.9	69	0.012				15	19	33	15	21	40	15	21	50	15	22	0
12	7	22	7	12	(II) occ (I) P	P	234	0.4	67.0	61.5	69	0.228				22	5	15				22	7	12			
12	8	11	32	50	(II) occ (III) P	P	357	0.3	77.1	101.9	249	0.392				11	29	51				11	32	50			
12	10	4	32	47	(I) occ (II) P	P	268	0.6	57.6	77.1	69	0.068				4	30	33				4	32	47			
12	11	11	17	30	(II) occ (I) P	P	232	0.4	70.8	63.3	68	0.282				11	15	34				11	17	30			
12	13	17	43	59	(I) occ (II) P	P	260	0.5	62.2	74.2	69	0.153				17	41	49				17	43	59			
12	13	0	50	37	(III) occ (II) P	P	195	0.0	97.9	122.1	249	0.949				0	48	59				0	50	37			
12	15	0	28	8	(II) occ (I) P	P	229	0.3	74.7	65.0	68	0.338				0	26	14				0	28	8			
12	15	15	2	30	(II) occ (III) P	P	322	0.2	86.6	107.4	249	0.618				14	59	49				15	2	30			
12	17	6	55	11	(I) occ (II) P	P	250	0.4	68.4	71.4	69	0.244				6	53	6				6	55	11			
12	18	13	39	8	(II) occ (I) P	P	224	0.3	78.7	66.7	68	0.396				13	37	16				13	39	8			
12	20	20	6	35	(I) occ (II) P	P	235	0.3	75.1	68.6	69	0.339				20	4	37				20	6	35			
12	22	2	50	26	(II) occ (I) P	P	216	0.2	82.7	68.4	68	0.455				2	48	38				2	50	26			
12	22	18	35	20	(II) occ (III) P	P	231	0.0	96.1	112.8	249	0.864				18	33	24				18	35	20			
12	24	9	18	0	(I) occ (II) P	P	216	0.2	81.8	65.9	68	0.438				9	16	12				9	18	0			
12	25	16	2	7	(II) occ (I) P	P	206	0.2	86.6	70.1	68	0.515				16	0	24				16	2	7			
12	27	22	29	33	(I) occ (II) P	P	190	0.1	88.4	63.1	68	0.543				22	27	58				22	29	33			
12	29	5	14	5	(II) occ (I) P	P	192	0.1	90.3	71.7	68	0.576				5	12	29				5	14	5			

Ore in T.U.

Legenda :

Data nel formato mese/giorno, un asterisco indica che le lune si avvicinano ma non si occultano
Event type : tipo di evento, eclissi o occultazione
Ph : fenomeno, M=mancato, E=eclisse penombrale, P=eclisse/occultazione parziale, T=eclisse/occultazione totale, A=eclisse/occultazione anulare
Durn : durata in secondi
dMag : caduta di luce in magnitudini
%ill : cambio in illuminazione, rispetto alla illuminazione intera, della luna rimanente (occultazione) o di entrambe (eclissi)
Sep : distanza in " tra satellite occultato/eclissato e centro del pianeta
Pa : angolo di posizione tra satellite occultato/eclissato e pianeta
MinD : distanza minima tra i centri delle lune o tra la luna e l'ombra
T1-T7 : inizio/fine della fase di contatto con la penombra
T2-T6 : inizio/fine della fase di contatto con l'ombra o tra i lembi delle lune
T3-T5 : inizio/fine della fase di totalità
Tmax : tempo di metà evento

CONGIUNZIONI ED ELONGAZIONI DEI SATELLITI DI GIOVE

I Congiunzione superiore

Data	Ora	h	h Sole										
01/01/09	23.19.18	-64.0	-70.9	04/05/09	3.55.25	25.9	-1.6	03/09/09	4.51.18	-21.6	1.6		
03/01/09	17.49.52	-7.5	-21.0	05/05/09	22.24.17	-27.9	-30.6	04/09/09	23.17.30	28.1	-41.1		
05/01/09	12.20.32	27.5	23.9	07/05/09	16.53.00	-58.6	14.2	06/09/09	17.43.44	11.1	-1.3		
07/01/09	6.51.05	-7.2	1.3	09/05/09	11.21.43	-3.4	65.3	08/09/09	12.10.01	-46.9	51.1		
09/01/09	1.21.46	-63.6	-57.6	11/05/09	5.50.20	34.2	19.6	10/09/09	6.36.21	-46.4	19.4		
10/01/09	19.52.21	-33.3	-42.5	13/05/09	0.18.57	-1.3	-27.5	12/09/09	1.02.46	11.5	-37.0		
12/01/09	14.23.02	19.5	13.8	14/05/09	18.47.26	-57.5	-4.5	13/09/09	19.29.13	27.6	-22.9		
14/01/09	8.53.35	15.3	18.2	16/05/09	13.15.54	-29.3	54.7	15/09/09	13.55.44	-22.4	35.7		
16/01/09	3.24.16	-39.8	-35.4	18/05/09	7.44.16	25.3	41.7	17/09/09	8.22.19	-63.7	35.8		
17/01/09	21.54.52	-58.2	-61.8	20/05/09	2.12.39	20.5	-14.9	19/09/09	2.48.59	-12.1	-23.7		
19/01/09	16.25.33	0.0	-3.0	21/05/09	20.40.53	-36.1	-19.0	20/09/09	21.15.41	30.8	-40.6		
21/01/09	10.56.06	27.7	27.9	23/05/09	15.09.06	-52.6	35.7	22/09/09	15.42.28	2.4	15.2		
23/01/09	5.26.47	-13.2	-12.4	25/05/09	9.37.12	5.0	61.5	24/09/09	10.09.20	-55.5	45.7		
24/01/09	23.57.22	-66.4	-65.9	27/05/09	4.05.19	33.7	3.3	26/09/09	4.36.17	-37.4	-6.0		
26/01/09	18.28.01	-25.9	-23.9	28/05/09	22.33.18	-10.6	-25.9	27/09/09	23.03.16	18.6	-50.0		
28/01/09	12.58.34	23.9	26.2	30/05/09	17.01.14	-60.8	16.0	29/09/09	17.30.21	22.2	-7.1		
30/01/09	7.29.12	10.9	9.4	01/06/09	11.29.05	-20.1	69.7	01/10/09	11.57.30	-32.1	42.9		
01/02/09	1.59.45	-46.0	-48.8	03/06/09	5.56.55	30.5	23.2	03/10/09	6.24.45	-59.5	12.6		
02/02/09	20.30.23	-51.6	-44.8	05/06/09	0.24.38	13.5	-23.3	05/10/09	0.52.02	-2.6	-45.2		
04/02/09	15.00.53	6.3	13.8	06/06/09	18.52.18	-44.5	-1.3	06/10/09	19.19.25	31.3	-29.1		
06/02/09	9.31.29	26.8	26.7	08/06/09	13.19.52	-44.8	57.1	08/10/09	13.46.52	-6.8	28.7		
08/02/09	4.02.00	-19.4	-25.5	10/06/09	7.47.26	13.2	43.8	10/10/09	8.14.26	-61.7	28.5		
09/02/09	22.32.35	-66.6	-60.1	12/06/09	2.14.53	30.7	-12.4	12/10/09	2.42.02	-28.4	-30.0		
11/02/09	17.03.02	-18.4	-5.0	13/06/09	20.42.16	-19.8	-16.2	13/10/09	21.09.43	24.3	-48.5		
13/02/09	11.33.34	27.5	34.8	15/06/09	15.09.34	-60.8	37.9	15/10/09	15.37.29	15.8	8.8		
15/02/09	6.04.01	6.0	-0.8	17/06/09	9.36.52	-10.8	62.7	17/10/09	10.05.22	-41.0	37.3		
17/02/09	0.34.32	-51.8	-56.5	19/06/09	4.04.02	33.8	3.8	19/10/09	4.33.16	-52.8	-11.2		
18/02/09	19.04.56	-44.4	-26.0	20/06/09	22.31.09	5.2	-23.9	20/10/09	23.01.16	5.2	-58.6		
20/02/09	13.35.24	12.6	29.5	22/06/09	16.58.10	-52.4	18.3	22/10/09	17.29.20	29.9	-13.7		
22/02/09	8.05.46	24.8	20.8	24/06/09	11.25.11	-35.9	71.3	24/10/09	11.57.32	-15.3	34.3		
24/02/09	2.36.13	-25.8	-37.1	26/06/09	5.52.05	20.8	22.1	26/10/09	6.25.44	-64.5	7.7		
25/02/09	21.06.31	-64.2	-45.0	28/06/09	0.18.56	25.3	-23.1	28/10/09	0.54.03	-19.6	-51.4		
27/02/09	15.36.55	-10.9	13.9	29/06/09	18.45.42	-29.6	0.6	29/10/09	19.22.24	28.5	-36.1		
01/03/09	10.07.12	30.1	37.5	01/07/09	13.12.27	-57.0	59.3	31/10/09	13.50.53	9.2	20.8		
03/03/09	4.37.33	0.7	-13.2	03/07/09	7.39.06	-0.5	41.3	02/11/09	8.19.23	-48.7	22.8		
04/03/09	23.07.45	-57.0	-53.9	05/07/09	2.05.41	34.4	-14.4	04/11/09	2.47.59	-45.1	-33.8		
06/03/09	17.38.02	-36.9	-6.4	06/07/09	20.32.12	-4.6	-15.1	05/11/09	21.16.38	12.5	-56.4		
08/03/09	12.08.13	18.7	42.2	08/07/09	14.58.43	-59.0	40.2	07/11/09	15.45.24	27.1	1.8		
10/03/09	6.38.28	21.6	11.3	10/07/09	9.25.08	-26.3	59.3	09/11/09	10.14.11	-23.3	30.3		
12/03/09	1.08.34	-32.4	-44.6	12/07/09	3.51.30	27.1	0.3	11/11/09	4.43.03	-63.3	-14.0		
13/03/09	19.38.44	-59.5	-26.7	13/07/09	22.17.48	17.7	-24.8	12/11/09	23.11.58	-11.3	-65.7		
15/03/09	14.08.48	-2.8	32.0	15/07/09	16.44.05	-39.7	20.3	14/11/09	17.41.00	31.2	-20.4		
17/03/09	8.38.55	31.5	33.5	17/07/09	11.10.18	-50.0	69.1	16/11/09	12.10.02	2.6	26.9		
19/03/09	3.08.54	-6.0	-24.1	19/07/09	5.36.28	8.0	17.1	18/11/09	6.39.10	-55.1	4.8		
20/03/09	21.38.56	-61.0	-42.2	21/07/09	0.02.35	32.0	-26.7	20/11/09	1.08.19	-37.2	-54.5		
22/03/09	16.08.52	-28.9	13.6	22/07/09	18.28.41	-15.2	1.5	21/11/09	19.37.36	18.9	-42.7		
24/03/09	10.38.52	24.3	48.6	24/07/09	12.54.44	-62.3	59.9	23/11/09	14.06.53	23.3	14.0		
26/03/09	5.08.42	17.3	0.3	26/07/09	7.20.45	-16.3	35.4	25/11/09	8.36.15	-30.7	19.1		
27/03/09	23.38.36	-39.1	-44.8	28/07/09	1.46.43	31.3	-20.1	27/11/09	3.05.38	-59.2	-34.9		
29/03/09	18.08.23	-53.3	-7.2	29/07/09	20.12.41	8.6	-15.9	28/11/09	21.35.09	-3.1	-62.8		
31/03/09	12.38.13	4.5	48.1	31/07/09	14.38.37	-49.6	41.4	30/11/09	16.04.39	32.6	-4.5		
02/04/09	7.07.54	31.4	24.0	02/08/09	9.04.31	-41.2	52.6	02/12/09	10.34.14	-4.3	25.7		
04/04/09	1.37.38	-12.8	-32.3	04/08/09	3.30.24	16.3	-7.2	04/12/09	5.03.50	-59.5	-14.4		
05/04/09	20.07.16	-63.0	-25.6	05/08/09	21.56.18	26.8	-28.3	05/12/09	23.33.33	-29.3	-69.5		
07/04/09	14.36.56	-20.8	33.3	07/08/09	16.22.10	-26.1	21.1	07/12/09	18.03.15	24.5	-25.8		
09/04/09	9.06.28	29.0	45.7	09/08/09	10.48.01	-60.6	63.0	09/12/09	12.33.02	18.9	22.0		
11/04/09	3.36.01	11.9	-11.9	11/08/09	5.13.51	-6.4	9.6	11/12/09	7.02.49	-37.5	4.4		
12/04/09	22.05.28	-45.8	-36.8	12/08/09	23.39.43	32.8	-33.1	13/12/09	1.32.43	-53.4	-54.2		
14/04/09	16.34.57	-46.0	13.4	14/08/09	18.05.35	-0.8	1.0	14/12/09	20.02.36	4.2	-47.6		
16/04/09	11.04.18	11.9	58.2	16/08/09	12.31.26	-58.0	57.3	16/12/09	14.32.34	32.6	9.4		
18/04/09	5.33.40	29.5	11.5	18/08/09	6.57.18	-31.5	27.5	18/12/09	9.02.31	-10.9	18.5		
20/04/09	0.02.56	-20.1	-35.2	20/08/09	1.23.12	23.2	-28.2	20/12/09	3.32.35	-61.7	-33.1		
21/04/09	18.32.14	-62.2	-6.6	21/08/09	19.49.07	19.5	-18.4	21/12/09	22.02.37	-21.5	-66.7		
23/04/09	13.01.23	-12.4	52.1	23/08/09	14.15.02	-36.8	40.2	23/12/09	16.32.45	29.3	-8.8		
25/04/09	7.30.33	32.5	34.8	25/08/09	8.40.59	-54.6	44.2	25/12/09	11.02.51	14.1	24.6		
27/04/09	1.59.37	5.5	-21.9	27/08/09	3.06.59	3.2	-15.6	27/12/09	5.33.04	-43.5	-11.9		
28/04/09	20.28.42	-52.1	-22.6	28/08/09	21.33.01	31.4	-33.7	29/12/09	0.03.14	-46.8	-68.6		
30/04/09	14.57.38	-37.9	34.3	30/08/09	15.59.04	-12.1	19.5	30/12/09	18.33.30	11.1	-29.6		
02/05/09	9.26.35	19.0	55.5	01/09/09	10.25.09	-63.3	54.6						

I Congiunzione inferiore

Data	Ora	h	h Sole										
01/01/09	2.05.56	-61.2	-49.9	20/01/09	13.40.37	21.8	20.4	09/02/09	1.14.54	-49.4	-54.0		
02/01/09	20.36.21	-37.3	-51.7	22/01/09	8.11.03	13.1	14.1	10/02/09	19.45.14	-47.6	-35.0		
04/01/09	15.06.45	16.9	6.5	24/01/09	2.41.27	-43.1	-42.6	12/02/09	14.15.34	9.9	22.2		
06/01/09	9.37.12	17.4	21.5	25/01/09	21.11.51	-54.9	-53.6	14/02/09	8.45.52	25.7	23.9		
08/01/09	4.07.37	-36.4	-27.6	27/01/09	15.42.16	3.2	5.6	16/02/09	3.16.10	-23.2	-32.2		
09/01/09	22.38.02	-61.4	-68.2	29/01/09	10.12.41	27.4	27.9	17/02/09	21.46.26	-65.6	-52.7		
11/01/09	17.08.27	-3.9	-12.3	31/01/09	4.43.04	-16.5	-19.3	19/02/09	16.16.44	-14.0	5.2		
13/01/09	11.38.54	27.7	26.5	01/02/09	23.13.27	-66.9	-64.7	21/02/09	10.46.58	29.1	36.9		
15/01/09	6.09.20	-10.1	-5.6	03/02/09	17.43.50	-21.8	-14.2	23/02/09	5.17.12	2.7	-8.1		
17/01/09	0.39.45	-65.2	-63.2	05/02/09	12.14.13	26.0	31.2	24/02/09	23.47.24	-55.1	-56.8		
18/01/09	19.10.10	-29.6	-33.3	07/02/09	6.44.33	8.2	3.9	26/02/09	18.17.37	-40.0	-15.5		

28/02/09	12.47.47	16.3	36.7	11/06/09	4.55.59	32.7	12.5	21/09/09	18.30.57	25.2	-15.6
02/03/09	7.17.56	22.9	15.6	12/06/09	23.23.33	8.7	-24.8	23/09/09	12.57.57	-26.9	40.6
04/03/09	1.48.04	-30.0	-42.2	14/06/09	17.50.59	-49.3	8.7	25/09/09	7.24.55	-62.2	24.8
05/03/09	20.18.13	-61.6	-35.3	16/06/09	12.18.25	-39.6	66.9	27/09/09	1.52.04	-7.9	-34.7
07/03/09	14.48.17	-6.2	23.8	18/06/09	6.45.41	17.8	32.3	28/09/09	20.19.12	31.3	-36.1
09/03/09	9.18.21	31.0	35.7	20/06/09	1.12.59	27.8	-19.0	30/09/09	14.46.30	-1.1	22.3
11/03/09	3.48.23	-3.4	-19.8	21/06/09	19.40.09	-25.4	-8.1	02/10/09	9.13.46	-58.7	38.2
12/03/09	22.18.26	-59.8	-48.5	23/06/09	14.07.18	-59.0	49.7	04/10/09	3.41.13	-33.4	-17.7
14/03/09	16.48.24	-32.0	4.7	25/06/09	8.34.18	-5.1	52.0	05/10/09	22.08.39	21.3	-51.3
16/03/09	11.18.23	22.2	46.4	27/06/09	3.01.21	34.5	-6.4	07/10/09	16.36.16	19.5	0.9
18/03/09	5.48.18	18.9	4.8	28/06/09	21.28.15	0.1	-20.3	09/10/09	11.03.50	-36.1	41.6
20/03/09	0.18.15	-36.8	-46.2	30/06/09	15.55.09	-56.5	29.9	11/10/09	5.31.35	-56.8	1.6
21/03/09	18.48.07	-55.8	-16.0	02/07/09	10.21.54	-30.5	67.9	12/10/09	23.59.20	0.9	-53.2
23/03/09	13.17.59	1.9	41.2	04/07/09	4.48.42	24.6	10.3	14/10/09	18.27.15	30.9	-22.2
25/03/09	7.47.47	31.5	28.3	05/07/09	23.15.21	21.3	-25.3	16/10/09	12.55.07	-10.4	32.3
27/03/09	2.17.37	-10.5	-29.6	07/07/09	17.42.01	-35.3	10.5	18/10/09	7.23.11	-63.4	18.9
28/03/09	20.47.21	-62.7	-33.5	09/07/09	12.08.31	-53.3	67.6	20/10/09	1.51.14	-24.7	-40.5
30/03/09	15.17.05	-23.7	24.6	11/07/09	6.35.05	4.2	28.7	21/10/09	20.19.27	26.2	-43.8
01/04/09	9.46.45	27.3	47.7	13/07/09	1.01.31	33.4	-21.9	23/10/09	14.47.38	13.2	14.7
03/04/09	4.16.27	13.8	-7.3	14/07/09	19.27.58	-10.4	-7.3	25/10/09	9.16.00	-44.2	31.1
04/04/09	22.46.03	-43.6	-41.5	16/07/09	13.54.16	-61.3	51.3	27/10/09	3.44.21	-49.8	-21.8
06/04/09	17.15.39	-48.7	4.4	18/07/09	8.20.38	-20.8	47.3	28/10/09	22.12.52	8.2	-59.9
08/04/09	11.45.10	9.3	54.7	20/07/09	2.46.52	29.8	-11.1	30/10/09	16.41.20	28.9	-6.8
10/04/09	6.14.43	30.2	16.8	21/07/09	21.13.09	13.0	-21.3	01/11/09	11.09.59	-18.5	33.4
12/04/09	0.44.09	-17.6	-35.2	23/07/09	15.39.16	-45.2	31.5	03/11/09	5.38.37	-64.4	-1.6
13/04/09	19.13.36	-62.9	-15.2	25/07/09	10.05.28	-45.4	62.8	05/11/09	0.07.25	-16.4	-59.5
15/04/09	13.42.57	-15.3	44.0	27/07/09	4.31.33	12.6	4.6	06/11/09	18.36.09	29.8	-29.3
17/04/09	8.12.21	31.3	39.9	28/07/09	22.57.42	29.5	-29.1	08/11/09	13.05.04	6.7	24.2
19/04/09	2.41.38	7.8	-18.3	30/07/09	17.23.42	-21.0	11.3	10/11/09	7.33.58	-51.2	14.8
20/04/09	21.10.54	-50.1	-29.6	01/08/09	11.49.47	-62.0	65.0	12/11/09	2.03.01	-42.1	-43.5
22/04/09	15.40.05	-40.9	25.0	03/08/09	6.15.47	-11.1	22.2	13/11/09	20.32.02	15.0	-51.2
24/04/09	10.09.18	16.5	58.1	05/08/09	0.41.50	32.5	-28.0	15/11/09	15.01.11	25.9	7.4
26/04/09	4.38.23	27.3	3.5	06/08/09	19.07.45	3.5	-8.1	17/11/09	9.30.20	-26.0	25.8
27/04/09	23.07.29	-25.2	-33.9	08/08/09	13.33.48	-54.3	50.9	19/11/09	3.59.38	-62.0	-23.5
29/04/09	17.36.28	-60.3	5.0	10/08/09	7.59.44	-36.2	40.2	20/11/09	22.28.52	-8.4	-67.1
01/05/09	12.05.29	-6.9	60.6	12/08/09	2.25.46	20.1	-18.4	22/11/09	16.58.15	32.0	-13.5
03/05/09	6.34.22	33.7	26.3	13/08/09	20.51.40	23.2	-24.5	24/11/09	11.27.38	0.5	27.1
05/05/09	1.03.16	1.0	-26.1	15/08/09	15.17.43	-31.6	31.2	26/11/09	5.57.09	-56.8	-3.6
06/05/09	19.32.02	-55.8	-13.0	17/08/09	9.43.40	-57.9	55.0	28/11/09	0.26.36	-34.4	-62.4
08/05/09	14.00.51	-32.5	45.8	19/08/09	4.09.43	-0.8	-2.9	29/11/09	18.56.12	21.0	-35.5
10/05/09	8.29.32	23.1	48.4	20/08/09	22.35.41	32.5	-35.1	01/12/09	13.25.46	21.9	18.0
12/05/09	2.58.13	22.6	-10.0	22/08/09	17.01.47	-6.9	10.2	03/12/09	7.55.29	-33.0	12.8
13/05/09	21.26.46	-33.1	-25.1	24/08/09	11.27.49	-61.2	58.8	05/12/09	2.25.08	-57.3	-43.7
15/05/09	15.55.21	-55.0	26.0	26/08/09	5.53.58	-26.5	14.4	06/12/09	20.54.54	-0.2	-57.0
17/05/09	10.23.48	2.0	65.5	28/08/09	0.20.02	25.9	-36.1	08/12/09	15.24.40	32.8	2.0
19/05/09	4.52.16	34.1	10.3	29/08/09	18.46.15	15.4	-10.7	10/12/09	9.54.32	-6.5	23.1
20/05/09	23.20.34	-7.4	-27.8	31/08/09	13.12.25	-42.0	47.3	12/12/09	4.24.22	-60.4	-22.7
22/05/09	17.48.56	-60.0	6.6	02/09/09	7.38.43	-50.8	32.1	13/12/09	22.54.18	-26.6	-71.0
24/05/09	12.17.08	-23.6	64.4	04/09/09	2.04.56	7.3	-26.9	15/12/09	17.24.13	26.3	-18.4
26/05/09	6.45.21	28.7	31.6	05/09/09	20.31.20	29.8	-29.5	17/12/09	11.54.15	17.5	23.8
28/05/09	1.13.24	16.3	-20.4	07/09/09	14.57.41	-17.1	28.2	19/12/09	6.24.13	-39.4	-2.0
29/05/09	19.41.30	-41.3	-10.3	09/09/09	9.24.11	-64.2	46.4	21/12/09	0.54.18	-51.2	-61.5
31/05/09	14.09.28	-48.0	47.6	11/09/09	3.50.37	-17.0	-11.3	22/12/09	19.24.21	6.6	-39.9
02/06/09	8.37.25	10.1	52.6	12/09/09	22.17.14	29.7	-42.3	24/12/09	13.54.31	32.5	14.6
04/06/09	3.05.13	32.2	-5.9	14/09/09	16.43.49	6.9	6.6	26/12/09	8.24.37	-12.8	14.1
05/06/09	21.33.04	-16.1	-21.6	16/09/09	11.10.33	-51.2	50.5	28/12/09	2.54.48	-61.6	-40.8
07/06/09	16.00.45	-61.3	27.8	18/09/09	5.37.14	-42.2	7.1	29/12/09	21.24.58	-18.9	-60.5
09/06/09	10.28.27	-14.5	69.0	20/09/09	0.04.06	14.9	-44.9	31/12/09	15.55.15	30.8	-0.9

I Massima elongazione est

Data	Ora	h	h Sole								
02/01/09	10.01.02	18.6	22.9	07/03/09	4.15.28	-0.6	-16.1	09/05/09	21.54.48	-30.7	-28.1
04/01/09	4.31.32	-34.3	-23.2	08/03/09	22.45.31	-58.2	-51.7	11/05/09	16.23.21	-56.8	20.2
05/01/09	23.02.08	-63.2	-70.2	10/03/09	17.15.36	-34.8	-0.6	13/05/09	10.51.51	-0.2	66.2
07/01/09	17.32.38	-6.4	-17.3	12/03/09	11.45.36	20.2	44.5	15/05/09	5.20.19	34.3	14.7
09/01/09	12.03.12	27.7	25.2	14/03/09	6.15.35	20.6	8.5	16/05/09	23.48.42	-4.9	-28.0
11/01/09	6.33.42	-8.1	-1.0	16/03/09	0.45.31	-34.2	-45.5	18/05/09	18.17.01	-59.0	1.5
13/01/09	1.04.18	-64.1	-60.1	17/03/09	19.15.28	-58.0	-21.8	20/05/09	12.45.17	-26.2	60.1
14/01/09	19.34.47	-32.1	-38.6	19/03/09	13.45.21	-0.5	36.5	22/05/09	7.13.31	27.3	36.5
16/01/09	14.05.21	20.3	16.7	21/03/09	8.15.13	31.6	31.4	24/05/09	1.41.38	18.3	-18.0
18/01/09	8.35.51	14.7	16.7	23/03/09	2.45.01	-7.9	-26.7	25/05/09	20.09.43	-39.0	-14.6
20/01/09	3.06.25	-40.8	-38.5	24/03/09	21.14.50	-61.8	-38.2	27/05/09	14.37.44	-50.1	42.0
21/01/09	21.36.54	-57.1	-58.3	26/03/09	15.44.36	-26.6	18.8	29/05/09	9.05.43	7.8	57.1
23/01/09	16.07.26	1.0	0.9	28/03/09	10.14.19	25.7	48.7	31/05/09	3.33.35	33.0	-1.0
25/01/09	10.37.55	27.7	28.2	30/03/09	4.43.59	15.8	-3.1	01/06/09	22.01.24	-13.6	-23.9
27/01/09	5.08.27	-14.2	-15.2	31/03/09	23.13.39	-41.2	-43.5	03/06/09	16.29.10	-61.3	22.2
28/01/09	23.38.55	-66.6	-65.8	02/04/09	17.43.16	-51.2	-0.9	05/06/09	10.56.53	-16.9	70.4
30/01/09	18.09.24	-24.5	-19.7	04/04/09	12.12.49	6.8	51.7	07/06/09	5.24.30	31.9	17.5
01/02/09	12.39.50	24.7	28.6	06/04/09	6.42.20	30.9	20.7	08/06/09	23.52.04	10.8	-24.4
03/02/09	7.10.20	10.1	7.3	08/04/09	1.11.51	-15.0	-33.9	10/06/09	18.19.33	-47.3	3.8
05/02/09	1.40.45	-47.1	-51.1	09/04/09	19.41.18	-63.1	-20.6	12/06/09	12.47.01	-41.9	62.7
06/02/09	20.11.11	-50.2	-40.6	11/04/09	14.10.42	-18.2	38.6	14/06/09	7.14.21	15.9	37.7
08/02/09	14.41.34	7.6	17.6	13/04/09	8.40.03	30.2	43.1	16/06/09	1.41.40	29.1	-16.2
10/02/09	9.12.00	26.6	25.9	15/04/09	3.09.23	10.0	-15.1	17/06/09	20.08.53	-23.0	-12.1
12/02/09	3.42.21	-20.7	-28.3	16/04/09	21.38.40	-47.9	-33.4	19/06/09	14.36.05	-59.9	44.3
13/02/09	22.12.44	-66.3	-57.0	18/04/09	16.07.54	-43.5	19.2	21/06/09	9.03.09	-7.5	57.2
15/02/09	16.43.03	-16.8	0.1	20/04/09	10.37.04	14.2	58.8	23/06/09	3.30.12	34.3	-1.1
17/02/09	11.13.25	28.2	36.1	22/04/09	5.06.13	28.5	7.5	24/06/09	21.57.09	2.2	-22.2
19/02/09	5.43.42	4.9	-4.1	23/04/09	23.35.19	-22.6	-34.9	26/06/09	16.24.06	-54.9	24.6
21/02/09	0.14.00	-53.0	-56.9	25/04/09	18.04.21	-61.4	-0.2	28/06/09	10.50.55	-32.7	70.6
22/02/09	18.44.14	-42.7	-21.3	27/04/09	12.33.20	-9.6	56.7	30/06/09	5.17.42	23.1	15.7
24/02/09	13.14.31	14.1	33.0	29/04/09	7.02.16	33.2	30.6	01/07/09	23.44.24	23.0	-24.7
26/02/09	7.44.43	24.2	18.7	01/05/09	1.31.10	3.2	-24.2	03/07/09	18.11.06	-33.0	5.8
28/02/09	2.14.56	-27.4	-39.4	02/05/09	20.00.00	-54.1	-17.9	05/07/09	12.37.40	-54.9	64.4
01/03/09	20.45.05	-63.2	-40.7	04/05/09	14.28.46	-35.1	40.2	07/07/09	7.04.14	2.2	34.5
03/03/09	15.15.16	-9.0	18.5	06/05/09	8.57.30	21.2	52.2	09/07/09	1.30.42	33.9	-18.7
05/03/09	9.45.22	30.6	37.1	08/05/09	3.26.11	24.2	-6.4	10/07/09	19.57.10	-8.1	-11.0

12/07/09	14.23.31	-60.5	46.4	08/09/09	22.43.44	29.2	-42.3	06/11/09	7.54.12	-50.4	18.5
14/07/09	8.49.52	-23.0	53.0	10/09/09	17.10.07	8.5	3.1	08/11/09	2.23.07	-43.2	-39.1
16/07/09	3.16.07	28.8	-6.2	12/09/09	11.36.40	-49.7	51.5	09/11/09	20.52.01	14.1	-53.7
17/07/09	21.42.24	14.9	-23.2	14/09/09	6.03.11	-43.7	12.6	11/11/09	15.21.04	26.3	5.0
19/07/09	16.08.34	-43.0	26.5	16/09/09	0.29.50	13.7	-41.6	13/11/09	9.50.04	-25.0	28.1
21/07/09	10.34.44	-47.2	66.5	17/09/09	18.56.28	26.1	-18.7	15/11/09	4.19.15	-62.6	-19.1
23/07/09	5.00.49	10.9	10.2	19/09/09	13.23.16	-25.3	38.9	16/11/09	22.48.25	-9.6	-66.9
24/07/09	23.26.56	30.6	-28.3	21/09/09	7.50.03	-62.8	29.8	18/11/09	17.17.43	31.7	-16.6
26/07/09	17.52.57	-18.7	6.8	23/09/09	2.16.58	-9.4	-29.8	20/11/09	11.46.59	1.2	27.2
28/07/09	12.18.59	-62.2	63.6	24/09/09	20.43.53	31.2	-38.2	22/11/09	6.16.25	-56.2	0.6
30/07/09	6.44.57	-13.1	28.2	26/09/09	15.10.59	0.1	19.5	24/11/09	0.45.49	-35.5	-58.9
01/08/09	1.10.57	32.2	-24.6	28/09/09	9.38.03	-57.6	41.9	25/11/09	19.15.21	20.2	-38.9
02/08/09	19.36.52	5.5	-11.7	30/09/09	4.05.17	-34.8	-12.5	27/11/09	13.44.50	22.5	16.2
04/08/09	14.02.49	-52.5	47.0	01/10/09	22.32.30	20.4	-51.0	29/11/09	8.14.29	-32.1	15.9
06/08/09	8.28.43	-38.1	45.9	03/10/09	16.59.54	20.4	-2.0	01/12/09	2.44.06	-58.1	-39.6
08/08/09	2.54.40	18.7	-13.4	05/10/09	11.27.17	-34.7	42.7	02/12/09	21.13.51	-1.2	-59.9
09/08/09	21.20.33	24.7	-26.4	07/10/09	5.54.49	-57.8	6.5	04/12/09	15.43.33	32.7	-0.6
11/08/09	15.46.28	-29.5	26.8	09/10/09	0.22.21	-0.1	-49.8	06/12/09	10.13.24	-5.6	24.5
13/08/09	10.12.20	-59.0	59.2	10/10/09	18.50.03	31.1	-25.1	08/12/09	4.43.12	-60.1	-18.7
15/08/09	4.38.18	-2.9	2.7	12/10/09	13.17.46	-9.2	31.1	09/12/09	23.13.09	-27.8	-70.8
16/08/09	23.04.11	32.7	-34.5	14/10/09	7.45.37	-62.9	23.3	11/12/09	17.43.01	25.5	-22.0
18/08/09	17.30.08	-4.8	6.1	16/10/09	2.13.27	-26.0	-35.9	13/12/09	12.13.03	18.1	23.1
20/08/09	11.56.03	-60.1	59.0	17/10/09	20.41.29	25.6	-46.0	15/12/09	6.43.02	-38.5	1.1
22/08/09	6.22.04	-28.3	20.3	19/10/09	15.09.30	14.1	12.3	17/12/09	1.13.09	-52.3	-58.0
24/08/09	0.48.02	25.0	-32.7	21/10/09	9.37.40	-43.1	34.2	18/12/09	19.43.11	5.4	-43.7
25/08/09	19.14.05	17.0	-14.2	23/10/09	4.05.49	-50.8	-17.0	20/12/09	14.13.22	32.6	12.1
27/08/09	13.40.06	-40.1	44.6	24/10/09	22.34.10	7.2	-59.7	22/12/09	8.43.30	-11.9	16.3
29/08/09	8.06.15	-52.2	37.7	26/10/09	17.02.30	29.3	-9.7	24/12/09	3.13.45	-61.7	-37.0
31/08/09	2.32.21	5.9	-21.9	28/10/09	11.30.58	-17.4	34.2	25/12/09	21.43.56	-20.3	-63.8
01/09/09	20.58.33	30.5	-31.5	30/10/09	5.59.25	-64.5	2.4	27/12/09	16.14.15	30.0	-5.2
03/09/09	15.24.44	-15.3	24.6	01/11/09	0.28.04	-17.5	-56.0	29/12/09	10.44.30	13.4	24.5
05/09/09	9.51.03	-64.0	50.5	02/11/09	18.56.41	29.3	-32.4	31/12/09	5.14.53	-44.2	-15.3
07/09/09	4.17.20	-18.6	-5.7	04/11/09	13.25.27	7.6	23.0				

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Data	Ora	h	h Sole								
01/01/09	12.39.26	27.3	22.3	19/04/09	13.22.05	-13.8	48.1	05/08/09	11.22.23	-61.6	64.9
03/01/09	7.09.53	-6.1	4.0	21/04/09	7.51.29	31.9	37.4	07/08/09	5.48.17	-9.4	16.5
05/01/09	1.40.24	-62.9	-54.5	23/04/09	2.20.43	6.7	-20.2	09/08/09	0.14.14	32.7	-30.7
06/01/09	20.10.51	-34.7	-46.5	24/04/09	20.50.00	-51.1	-26.2	10/08/09	18.40.08	1.8	-4.3
08/01/09	14.41.25	18.6	10.7	26/04/09	15.19.10	-39.4	29.6	12/08/09	13.06.06	-55.8	54.1
10/01/09	9.11.53	15.9	19.6	28/04/09	9.48.22	17.7	57.2	14/08/09	7.31.59	-34.5	34.5
12/01/09	3.42.25	-38.8	-32.2	30/04/09	4.17.24	26.7	1.0	16/08/09	1.57.57	21.2	-23.1
13/01/09	22.12.54	-59.3	-64.9	01/05/09	22.46.29	-26.4	-32.4	17/08/09	20.23.51	21.9	-22.2
15/01/09	16.43.29	-1.0	-7.3	03/05/09	17.15.26	-59.5	9.4	19/08/09	14.49.51	-33.6	35.2
17/01/09	11.13.58	27.7	27.3	05/05/09	11.44.25	-5.4	63.3	21/08/09	9.15.47	-56.8	50.3
19/01/09	5.44.31	-12.3	-9.6	07/05/09	6.13.13	34.0	23.1	23/08/09	3.41.48	0.6	-9.0
21/01/09	0.15.00	-66.2	-65.4	09/05/09	0.42.05	0.0	-26.9	24/08/09	22.07.47	32.1	-35.1
22/01/09	18.45.35	-27.1	-28.0	10/05/09	19.10.49	-56.6	-9.0	26/08/09	16.33.53	-8.9	14.2
24/01/09	13.16.05	23.2	23.7	12/05/09	13.39.34	-31.1	50.1	28/08/09	10.59.55	-62.2	57.5
26/01/09	7.46.37	11.6	11.3	14/05/09	8.08.09	24.1	45.4	30/08/09	5.26.03	-24.7	8.5
28/01/09	2.17.06	-45.2	-46.5	16/05/09	2.36.46	21.8	-12.3	31/08/09	23.52.10	26.8	-38.9
29/01/09	20.47.40	-52.7	-48.7	17/05/09	21.05.15	-34.4	-22.3	02/09/09	18.18.24	13.8	-7.1
31/01/09	15.18.09	5.3	10.2	19/05/09	15.33.46	-54.0	30.6	04/09/09	12.44.36	-43.9	49.4
02/02/09	9.48.41	26.9	27.2	21/05/09	10.02.06	3.2	64.1	06/09/09	7.10.54	-49.2	26.4
04/02/09	4.19.08	-18.6	-23.1	23/05/09	4.30.28	34.0	7.0	08/09/09	1.37.12	8.9	-31.7
05/02/09	22.49.40	-66.9	-62.5	24/05/09	22.58.42	-8.7	-27.1	09/09/09	20.03.38	29.0	-26.9
07/02/09	17.20.07	-19.5	-9.0	26/05/09	17.26.57	-60.4	10.9	11/09/09	14.30.02	-19.1	31.6
09/02/09	11.50.37	27.0	33.2	28/05/09	11.55.01	-22.2	67.4	13/09/09	8.56.33	-64.2	41.8
11/02/09	6.21.02	6.6	0.9	30/05/09	6.23.07	29.5	27.8	15/09/09	3.23.05	-15.1	-17.0
13/02/09	0.51.32	-51.1	-55.9	01/06/09	0.51.05	15.3	-21.8	16/09/09	21.49.45	30.2	-42.4
14/02/09	19.21.57	-45.5	-29.9	02/06/09	19.19.04	-42.5	-6.6	18/09/09	16.16.23	5.2	10.4
16/02/09	13.52.24	11.7	26.3	04/06/09	13.46.52	-46.7	52.1	20/09/09	10.43.09	-52.9	48.7
18/02/09	8.22.46	25.0	22.0	06/06/09	8.14.42	11.3	48.7	22/09/09	5.09.57	-40.4	1.5
20/02/09	2.53.13	-25.1	-35.3	08/06/09	2.42.23	31.7	-8.9	23/09/09	23.36.52	16.3	-47.8
21/02/09	21.23.34	-64.8	-48.5	09/06/09	21.10.06	-17.5	-19.3	25/09/09	18.03.48	24.1	-12.0
23/02/09	15.53.58	-11.9	10.0	11/06/09	15.37.37	-61.2	32.4	27/09/09	12.30.51	-28.9	41.9
25/02/09	10.24.16	29.7	37.2	13/06/09	10.05.11	-13.1	66.6	29/09/09	6.57.55	-61.3	19.3
27/02/09	4.54.39	1.3	-11.2	15/06/09	4.32.36	33.2	8.5	01/10/09	1.25.08	-6.1	-39.7
28/02/09	23.24.56	-56.5	-55.6	16/06/09	23.00.02	7.4	-24.6	02/10/09	19.52.21	31.3	-33.3
02/03/09	17.55.15	-37.9	-10.5	18/06/09	17.27.16	-50.5	13.0	04/10/09	14.19.41	-3.5	25.2
04/03/09	12.25.28	17.9	39.7	20/06/09	11.54.33	-38.3	69.6	06/10/09	8.47.04	-60.0	33.9
06/03/09	6.55.46	22.0	13.1	22/06/09	6.21.41	19.0	27.7	08/10/09	3.14.35	-31.5	-23.4
08/03/09	1.25.58	-31.6	-43.9	24/06/09	0.48.50	26.9	-21.1	09/10/09	21.42.06	22.5	-50.7
09/03/09	19.56.12	-60.4	-30.7	25/06/09	19.15.49	-27.0	-4.4	11/10/09	16.09.44	18.1	4.3
11/03/09	14.26.19	-4.2	28.3	27/06/09	13.42.49	-58.3	54.1	13/10/09	10.37.24	-38.0	39.9
13/03/09	8.56.32	31.3	34.5	29/06/09	8.09.41	-3.4	47.3	15/10/09	5.05.13	-55.3	-4.3
15/03/09	3.26.37	-5.2	-22.4	01/07/09	2.36.34	34.5	-10.2	16/10/09	23.33.03	2.6	-56.3
16/03/09	21.56.45	-60.6	-45.3	02/07/09	21.03.17	-1.2	-18.2	18/10/09	18.00.59	30.6	-18.5
18/03/09	16.26.46	-30.1	9.5	04/07/09	15.30.02	-57.5	34.5	20/10/09	12.28.57	-12.4	33.4
20/03/09	10.56.52	23.4	47.7	06/07/09	9.56.39	-28.9	64.4	22/10/09	6.57.04	-63.9	13.8
22/03/09	5.26.50	17.9	2.2	08/07/09	4.23.18	25.6	5.7	24/10/09	1.25.12	-22.7	-45.7
23/03/09	23.56.52	-38.3	-45.8	09/07/09	22.49.46	20.0	-25.5	25/10/09	19.53.25	27.2	-40.6
25/03/09	18.26.45	-54.3	-11.3	11/07/09	17.16.17	-37.0	14.8	27/10/09	14.21.42	11.6	17.6
27/03/09	12.56.43	3.5	44.9	13/07/09	11.42.40	-52.2	69.1	29/10/09	8.50.05	-46.1	27.4
29/03/09	7.26.34	31.4	26.0	15/07/09	6.09.05	5.6	23.5	31/10/09	3.18.31	-47.9	-27.4
31/03/09	1.56.27	-11.9	-31.3	17/07/09	0.35.21	32.9	-24.4	01/11/09	21.47.01	10.0	-58.9
01/04/09	20.26.12	-62.9	-29.4	18/07/09	19.01.39	-12.2	-3.4	03/11/09	16.15.34	28.2	-2.4
03/04/09	14.56.01	-22.1	29.1	20/07/09	13.27.51	-61.8	55.4	05/11/09	10.44.14	-20.5	32.2
05/04/09	9.25.43	28.3	46.8	22/07/09	7.54.05	-19.2	42.0	07/11/09	5.12.55	-64.1	-7.8
07/04/09	3.55.27	12.8	-9.8	24/07/09	2.20.10	30.4	-15.3	08/11/09	23.41.42	-14.2	-63.0
08/04/09	22.25.02	-44.8	-39.3	25/07/09	20.46.19	11.4	-19.2	10/11/09	18.10.30	30.5	-25.2
10/04/09	16.54.42	-47.3	9.0	27/07/09	15.12.21	-46.9	35.9	12/11/09	12.39.26	4.9	25.6
12/04/09	11.24.14	10.7	56.7	29/07/09	9.38.27	-43.9	58.5	14/11/09	7.08.23	-52.9	10.1
14/04/09	5.53.49	29.9	14.1	31/07/09	4.04.25	14.0	-0.2	16/11/09	1.37.24	-40.0	-48.8
16/04/09	0.23.14	-18.9	-35.4	01/08/09	22.30.26	28.5	-29.2	17/11/09	20.06.27	16.8	-47.4
17/04/09	18.52.44	-62.6	-10.9	03/08/09	16.56.22	-22.9	15.5	19/11/09	14.35.37	24.8	10.6

21/11/09	9.04.48	-28.1	22.8	05/12/09	13.00.13	20.6	20.1	19/12/09	16.58.32	27.8	-13.6
23/11/09	3.34.03	-60.9	-28.9	07/12/09	7.29.52	-35.1	8.8	21/12/09	11.28.30	15.8	24.5
24/11/09	22.03.20	-6.2	-65.7	09/12/09	1.59.32	-55.5	-48.9	23/12/09	5.58.29	-41.5	-7.3
26/11/09	16.32.42	32.3	-9.3	10/12/09	20.29.17	1.8	-52.5	25/12/09	0.28.31	-49.0	-65.5
28/11/09	11.02.07	-1.2	26.7	12/12/09	14.59.04	32.8	5.7	26/12/09	18.58.36	8.9	-34.7
30/11/09	5.31.34	-58.1	-9.0	14/12/09	9.28.52	-8.6	21.0	28/12/09	13.28.40	32.0	17.7
02/12/09	0.01.03	-32.0	-66.4	16/12/09	3.58.42	-61.1	-27.9	30/12/09	7.58.47	-15.1	10.8
03/12/09	18.30.37	22.7	-30.8	17/12/09	22.28.36	-24.1	-69.6				

II Congiunzione superiore

Data	Ora	h	h Sole								
02/01/09	18.48.42	-17.4	-31.9	07/05/09	7.21.48	31.0	35.8	08/09/09	13.08.54	-36.5	44.9
06/01/09	8.13.24	6.0	12.8	10/05/09	20.40.32	-43.3	-21.2	12/09/09	2.18.54	-0.5	-26.8
09/01/09	21.38.05	-52.0	-60.9	14/05/09	9.59.16	7.8	62.5	15/09/09	15.28.26	-5.4	20.1
13/01/09	11.02.50	26.6	26.5	17/05/09	23.17.07	-10.0	-28.5	19/09/09	4.39.21	-32.5	-3.8
17/01/09	0.27.34	-66.3	-64.7	21/05/09	12.35.00	-24.9	61.7	22/09/09	17.49.55	21.1	-8.4
20/01/09	13.52.22	20.6	19.1	25/05/09	1.51.50	20.3	-16.7	26/09/09	7.01.54	-60.4	20.6
24/01/09	3.17.08	-36.5	-36.1	28/05/09	15.08.45	-54.9	36.4	29/09/09	20.13.38	31.3	-35.6
27/01/09	16.41.52	-7.2	-4.4	01/06/09	4.24.34	34.6	6.8	03/10/09	9.26.46	-56.4	39.2
31/01/09	6.06.36	-1.0	-4.0	04/06/09	17.40.30	-56.0	9.7	06/10/09	22.39.40	16.8	-53.2
03/02/09	19.31.16	-41.7	-34.0	08/06/09	6.55.15	22.0	34.1	10/10/09	11.53.59	-26.1	39.6
07/02/09	8.55.57	24.4	23.2	11/06/09	20.10.07	-27.2	-12.6	14/10/09	1.08.06	-12.5	-45.7
10/02/09	22.20.31	-66.5	-58.7	15/06/09	9.23.46	-6.9	60.7	17/10/09	14.23.39	5.8	20.3
14/02/09	11.45.03	26.6	35.0	18/06/09	22.37.34	4.9	-24.1	21/10/09	3.38.58	-45.0	-21.6
18/02/09	1.09.27	-45.3	-52.2	22/06/09	11.50.08	-38.9	70.0	24/10/09	16.55.40	28.3	-8.0
21/02/09	14.33.49	3.3	22.2	26/06/09	1.02.51	29.1	-20.1	28/10/09	6.12.11	-64.5	5.0
25/02/09	3.58.05	-10.2	-22.2	29/06/09	14.14.17	-61.0	48.5	31/10/09	19.30.01	27.4	-38.0
28/02/09	17.22.13	-30.8	-4.7	03/07/09	3.25.58	32.6	-2.8	04/11/09	8.47.41	-42.6	25.5
04/03/09	6.46.13	20.1	10.8	06/07/09	16.36.23	-47.3	22.2	07/11/09	22.06.33	3.5	-62.4
07/03/09	20.10.05	-61.3	-33.5	10/07/09	5.47.07	12.7	20.0	11/11/09	11.25.16	-8.9	30.1
11/03/09	9.33.49	30.8	38.2	13/07/09	18.56.33	-17.0	-1.6	15/11/09	0.45.06	-29.8	-57.1
14/03/09	22.57.23	-53.5	-49.8	17/07/09	8.06.24	-17.3	44.9	18/11/09	14.04.51	20.8	15.0
18/03/09	12.20.46	13.2	45.1	20/07/09	21.14.59	12.6	-21.3	22/11/09	3.25.35	-59.7	-30.3
22/03/09	1.43.58	-19.7	-36.3	24/07/09	10.24.07	-47.7	65.0	25/11/09	16.46.12	32.1	-11.6
25/03/09	15.06.59	-19.1	25.2	27/07/09	23.32.03	31.7	-28.9	29/11/09	6.07.44	-53.8	-1.9
29/03/09	4.29.45	13.2	-6.5	31/07/09	12.40.36	-62.2	60.4	02/12/09	19.29.11	15.3	-41.7
01/04/09	17.52.21	-52.2	-3.2	04/08/09	1.48.04	28.6	-21.4	06/12/09	8.51.27	-20.7	18.7
05/04/09	7.14.35	32.1	26.2	07/08/09	14.56.16	-41.7	36.9	09/12/09	22.13.36	-16.8	-68.1
08/04/09	20.36.42	-60.2	-28.9	11/08/09	4.03.32	6.0	-2.4	13/12/09	11.36.28	12.7	24.5
12/04/09	9.58.23	22.8	53.0	14/08/09	17.11.37	-11.4	10.4	17/12/09	0.59.16	-50.2	-60.3
15/04/09	23.19.59	-30.7	-37.9	18/08/09	6.18.50	-24.3	20.4	20/12/09	14.22.41	32.9	10.9
19/04/09	12.41.02	-6.3	53.6	21/08/09	19.27.02	16.5	-15.0	24/12/09	3.46.04	-59.7	-31.0
23/04/09	2.02.01	3.6	-22.8	25/08/09	8.34.31	-53.7	43.2	27/12/09	17.09.54	24.2	-14.8
26/04/09	15.22.21	-40.0	29.0	28/08/09	21.43.08	31.8	-34.6	31/12/09	6.33.44	-30.2	-1.1
30/04/09	4.42.39	29.1	5.2	01/09/09	10.51.05	-61.7	55.8				
03/05/09	18.02.16	-62.0	1.4	05/09/09	0.00.16	24.0	-39.9				

II Congiunzione inferiore

Data	Ora	h	h Sole								
04/01/09	13.23.16	25.9	19.1	05/05/09	13.12.10	-21.6	53.2	03/09/09	5.23.26	-27.6	7.3
08/01/09	2.50.12	-50.5	-42.0	09/05/09	2.31.06	17.3	-14.5	06/09/09	18.31.11	18.0	-10.7
11/01/09	16.16.20	4.6	-2.9	12/05/09	15.49.23	-52.9	26.7	10/09/09	7.39.17	-56.3	30.6
15/01/09	5.43.24	-14.7	-10.1	16/05/09	5.07.15	34.1	12.5	13/09/09	20.47.51	31.6	-34.6
18/01/09	19.09.34	-29.5	-33.2	19/05/09	18.24.30	-57.9	0.5	17/09/09	9.56.50	-60.7	47.2
22/01/09	8.36.39	16.5	17.4	23/05/09	7.41.17	23.6	41.7	20/09/09	23.06.25	22.0	-47.3
25/01/09	22.02.48	-62.3	-61.0	26/05/09	20.57.29	-29.7	-19.8	24/09/09	12.16.28	-33.9	44.4
29/01/09	11.29.52	28.5	30.2	30/05/09	10.13.09	-4.7	66.6	28/09/09	1.27.06	-4.0	-38.6
02/02/09	0.55.57	-56.2	-58.3	02/06/09	23.28.12	3.0	-25.6	01/10/09	14.38.18	-2.0	23.3
05/02/09	14.22.51	11.6	19.4	06/06/09	12.42.43	-37.1	62.8	05/10/09	3.50.07	-35.8	-16.3
09/02/09	3.48.47	-21.3	-27.8	10/06/09	1.56.38	28.3	-14.7	08/10/09	17.02.33	23.1	-4.6
12/02/09	17.15.28	-21.2	-7.1	13/06/09	15.10.02	-60.5	37.7	12/10/09	6.15.35	-62.3	9.1
16/02/09	6.41.14	12.1	5.4	17/06/09	4.22.48	33.3	6.9	15/10/09	19.29.13	30.8	-33.6
19/02/09	20.07.38	-55.4	-37.0	20/06/09	17.34.59	-48.1	11.8	19/10/09	8.43.29	-53.5	29.6
23/02/09	9.33.05	30.0	32.3	24/06/09	6.46.37	14.0	32.2	22/10/09	21.58.22	13.8	-56.8
26/02/09	22.59.09	-60.8	-55.9	27/06/09	19.57.40	-17.7	-10.4	26/10/09	11.13.54	-21.9	35.3
02/03/09	12.24.16	18.7	39.1	01/07/09	9.08.13	-16.0	57.4	30/10/09	0.29.59	-16.6	-55.2
06/03/09	1.49.56	-28.4	-41.3	04/07/09	22.18.10	12.2	-23.8	02/11/09	13.46.41	9.7	20.8
09/03/09	15.14.37	-12.0	20.1	08/07/09	11.27.40	-46.5	70.3	06/11/09	3.03.57	-49.0	-31.3
13/03/09	4.39.46	6.3	-9.8	12/07/09	0.36.38	32.0	-23.5	09/11/09	16.21.49	30.2	-5.2
16/03/09	18.03.59	-46.6	-9.1	15/07/09	13.45.13	-61.8	53.0	13/11/09	5.40.13	-63.3	-4.0
20/03/09	7.28.36	29.6	23.4	19/07/09	2.53.20	29.6	-10.0	16/11/09	18.59.08	25.4	-35.1
23/03/09	20.52.19	-63.5	-35.6	22/07/09	16.01.04	-42.2	27.5	20/11/09	8.18.37	-37.2	18.2
27/03/09	10.16.17	25.8	48.4	26/07/09	5.08.27	7.4	11.1	23/11/09	21.38.33	-0.5	-62.7
30/03/09	23.39.24	-37.1	-43.6	29/07/09	18.15.35	-12.1	2.5	27/11/09	10.59.05	-2.6	26.8
03/04/09	13.02.40	-0.7	46.4	02/08/09	7.22.29	-22.5	34.7	01/12/09	0.19.57	-34.9	-63.9
07/04/09	2.25.09	-1.6	-24.7	05/08/09	20.29.12	15.8	-19.6	04/12/09	13.41.23	25.1	16.0
10/04/09	15.47.40	-35.5	21.4	09/08/09	9.35.46	-51.7	55.9	08/12/09	3.03.06	-61.8	-37.1
14/04/09	5.09.24	25.8	5.9	12/08/09	22.42.17	32.0	-32.8	11/12/09	16.25.25	31.8	-8.3
17/04/09	18.31.07	-61.7	-7.2	16/08/09	11.48.48	-62.0	60.7	15/12/09	5.47.58	-48.0	-32.8
21/04/09	7.52.05	31.9	37.5	20/08/09	0.55.24	26.2	-30.9	18/12/09	19.11.04	10.7	-37.8
24/04/09	21.12.57	-47.5	-28.7	23/08/09	14.02.04	-39.2	42.4	22/12/09	8.34.18	-13.6	15.3
28/04/09	10.33.04	10.9	61.2	27/08/09	3.08.56	2.9	-15.3	25/12/09	21.58.09	-22.9	-65.8
01/05/09	23.52.58	-14.1	-31.8	30/08/09	16.16.01	-9.0	16.4	29/12/09	11.22.01	19.0	24.8

II Massima elongazione est

Data	Ora	h	h Sole								
03/01/09	15.50.23	11.6	0.1	28/01/09	13.49.48	18.7	21.3	22/02/09	11.49.39	24.8	37.7
07/01/09	5.15.51	-24.4	-15.2	01/02/09	3.15.23	-32.2	-35.4	26/02/09	1.15.28	-39.5	-48.8
10/01/09	18.41.14	-20.1	-29.3	04/02/09	16.41.24	-11.0	-2.1	01/03/09	14.40.33	-1.1	23.4
14/01/09	8.06.53	8.9	12.5	08/02/09	6.06.57	2.9	-2.0	05/03/09	4.06.09	-3.9	-18.4
17/01/09	21.32.24	-54.7	-58.5	11/02/09	19.32.59	-46.0	-32.6	08/03/09	17.30.55	-36.6	-4.6
21/01/09	10.58.13	27.8	27.9	15/02/09	8.58.26	26.9	25.8	12/03/09	6.56.14	24.4	15.1
25/01/09	0.23.50	-64.0	-63.7	18/02/09	22.24.22	-65.9	-56.5	15/03/09	20.20.40	-63.7	-33.1

19/03/09	9.45.40	29.8	42.6	23/06/09	9.29.14	-13.8	61.4	27/09/09	4.27.54	-36.6	-7.7
22/03/09	23.09.39	-47.1	-47.0	26/06/09	22.41.44	10.9	-24.3	30/09/09	17.39.16	23.6	-9.1
26/03/09	12.34.13	7.6	46.8	30/06/09	11.52.57	-45.1	69.6	04/10/09	6.51.20	-62.6	17.0
30/03/09	1.57.42	-12.2	-31.5	04/07/09	1.04.16	31.8	-20.5	07/10/09	20.03.51	30.7	-36.9
02/04/09	15.21.47	-26.3	24.4	07/07/09	14.14.25	-61.6	48.4	11/10/09	9.17.01	-53.1	35.7
06/04/09	4.44.42	19.3	-0.5	11/07/09	3.24.41	30.1	-4.1	14/10/09	22.30.42	13.5	-55.9
09/04/09	18.08.11	-57.6	-4.7	14/07/09	16.33.54	-42.2	22.3	18/10/09	11.45.01	-21.9	37.1
13/04/09	7.30.28	33.0	31.5	18/07/09	5.43.11	7.7	18.4	22/10/09	0.59.55	-16.6	-49.0
16/04/09	20.53.17	-54.8	-28.8	21/07/09	18.51.32	-11.7	-1.8	25/10/09	14.15.21	9.4	19.1
20/04/09	10.14.54	17.5	57.3	25/07/09	8.00.00	-22.8	42.7	29/10/09	3.31.21	-48.8	-24.6
23/04/09	23.36.58	-22.3	-34.8	28/07/09	21.07.43	16.5	-22.2	01/11/09	16.47.53	29.8	-8.4
27/04/09	12.57.45	-14.1	53.5	01/08/09	10.15.35	-52.1	62.5	05/11/09	6.04.59	-63.7	2.1
01/05/09	2.19.00	11.0	-18.2	04/08/09	23.22.49	32.6	-31.0	08/11/09	19.22.34	25.6	-38.2
04/05/09	15.38.56	-47.3	27.3	08/08/09	12.30.18	-61.3	59.7	12/11/09	8.40.40	-38.5	22.6
08/05/09	4.59.19	32.6	9.8	12/08/09	1.37.17	25.9	-24.6	15/11/09	21.59.14	0.4	-63.7
11/05/09	18.18.18	-60.9	0.2	15/08/09	14.44.38	-37.7	37.2	19/11/09	11.18.18	-4.8	28.3
15/05/09	7.37.41	27.2	40.1	19/08/09	3.51.37	1.9	-6.5	23/11/09	0.37.48	-33.4	-59.9
18/05/09	20.55.40	-35.4	-21.1	22/08/09	16.59.01	-7.4	10.7	26/11/09	13.57.45	23.5	14.8
22/05/09	10.14.02	0.7	65.6	26/08/09	6.06.15	-28.8	16.7	30/11/09	3.18.04	-61.3	-33.1
25/05/09	23.30.59	-1.3	-26.7	29/08/09	19.14.00	19.3	-15.4	03/12/09	16.38.49	31.9	-10.6
29/05/09	12.48.12	-32.7	61.0	02/09/09	8.21.46	-57.1	39.4	07/12/09	5.59.55	-50.6	-5.6
02/06/09	2.04.02	25.7	-14.3	05/09/09	21.30.02	31.9	-36.4	10/12/09	19.21.25	12.8	-40.2
05/06/09	15.20.05	-59.1	35.1	09/09/09	10.38.28	-59.7	52.6	14/12/09	8.43.13	-17.0	16.9
09/06/09	4.34.48	34.1	8.9	12/09/09	23.47.28	21.3	-43.3	17/12/09	22.05.21	-19.8	-67.2
12/06/09	17.49.40	-50.7	8.8	16/09/09	12.56.46	-32.5	43.4	21/12/09	11.27.47	15.7	24.5
16/06/09	7.03.12	16.4	35.6	20/09/09	2.06.41	-5.2	-30.7	25/12/09	0.50.32	-52.3	-62.3
19/06/09	20.16.52	-20.1	-13.0	23/09/09	15.16.58	-0.8	19.4	28/12/09	14.13.34	33.9	12.7

II Massima elongazione ovest

Data	Ora	h	h Sole								
01/01/09	21.38.30	-48.1	-62.2	06/05/09	10.14.45	9.7	62.1	07/09/09	15.35.38	-10.2	21.4
05/01/09	11.04.02	25.0	25.4	09/05/09	23.32.51	-12.5	-30.2	11/09/09	4.44.43	-27.0	-0.7
09/01/09	0.30.01	-68.0	-65.2	13/05/09	12.60.31	-22.6	58.0	14/09/09	17.53.53	17.4	-6.5
12/01/09	13.55.36	22.2	17.1	17/05/09	2.07.46	18.3	-16.1	18/09/09	7.03.58	-56.3	22.7
16/01/09	3.21.31	-40.3	-35.9	20/05/09	15.24.28	-53.2	32.4	21/09/09	20.14.09	31.4	-32.8
19/01/09	16.47.05	-4.1	-7.1	24/05/09	4.40.44	34.4	8.9	25/09/09	9.25.24	-60.6	41.7
23/01/09	6.12.51	-5.0	-4.1	27/05/09	17.56.27	-57.6	6.0	28/09/09	22.36.45	21.4	-50.0
26/01/09	19.38.18	-38.9	-36.9	31/05/09	7.11.44	23.7	36.9	02/10/09	11.49.13	-32.9	43.0
30/01/09	9.03.53	22.6	22.1	03/06/09	20.26.27	-29.8	-15.4	06/10/09	1.01.47	-5.5	-44.3
02/02/09	22.29.13	-66.4	-61.8	07/06/09	9.40.40	-4.1	63.1	09/10/09	14.15.32	-0.3	24.1
06/02/09	11.54.33	27.1	32.2	10/06/09	22.54.19	2.5	-24.8	13/10/09	3.29.23	-37.8	-21.7
10/02/09	1.19.38	-48.0	-53.1	14/06/09	12.07.29	-36.3	68.0	16/10/09	16.44.25	24.5	-3.4
13/02/09	14.44.41	5.0	18.5	18/06/09	1.20.07	27.7	-18.4	20/10/09	5.59.31	-63.4	4.6
17/02/09	4.09.31	-12.8	-22.2	21/06/09	14.32.11	-60.2	45.1	23/10/09	19.15.53	30.2	-33.5
20/02/09	17.34.17	-28.9	-8.8	25/06/09	3.43.44	33.5	0.6	27/10/09	8.32.14	-50.4	26.0
24/02/09	6.58.47	18.2	10.6	28/06/09	16.54.45	-49.5	19.0	30/10/09	21.49.54	10.7	-58.6
27/02/09	20.23.08	-60.5	-37.7	02/07/09	6.05.17	15.2	24.1	03/11/09	11.07.26	-17.5	32.8
03/03/09	9.47.16	30.6	36.6	05/07/09	19.15.20	-19.6	-4.6	07/11/09	0.26.18	-21.2	-57.8
06/03/09	23.11.13	-55.5	-53.2	09/07/09	8.24.54	-14.3	49.1	10/11/09	13.44.58	14.0	19.1
10/03/09	12.34.57	14.3	41.2	12/07/09	21.34.01	10.4	-21.8	14/11/09	3.05.01	-53.6	-32.7
14/03/09	1.58.25	-21.9	-37.2	16/07/09	10.42.44	-44.9	68.0	17/11/09	16.24.46	31.7	-7.0
17/03/09	15.21.40	-17.5	20.8	19/07/09	23.51.03	31.0	-26.9	21/11/09	5.45.51	-60.3	-4.7
21/03/09	4.44.38	11.3	-6.3	23/07/09	12.59.05	-62.2	59.4	24/11/09	19.06.37	21.7	-37.2
24/03/09	18.07.24	-50.9	-8.0	27/07/09	2.06.41	30.3	-17.6	28/11/09	8.28.41	-30.1	17.7
28/03/09	7.29.50	31.3	26.3	30/07/09	15.14.11	-44.4	35.1	01/12/09	21.50.23	-7.9	-65.0
31/03/09	20.51.59	-61.5	-33.2	03/08/09	4.21.21	9.1	1.8	05/12/09	11.13.20	4.5	25.6
04/04/09	10.13.49	23.7	51.4	06/08/09	17.28.33	-14.5	9.1	09/12/09	0.35.50	-42.3	-62.9
07/04/09	23.35.21	-32.9	-40.6	10/08/09	6.35.28	-20.6	24.8	12/12/09	13.59.35	29.6	13.6
11/04/09	12.56.34	-4.5	49.5	13/08/09	19.42.33	13.8	-15.2	16/12/09	3.22.49	-62.6	-34.5
15/04/09	2.17.26	1.5	-23.1	17/08/09	8.49.27	-50.3	47.3	19/12/09	16.47.19	28.9	-11.6
18/04/09	15.37.57	-38.3	24.7	20/08/09	21.56.41	31.3	-32.9	23/12/09	6.11.10	-39.3	-5.1
22/04/09	4.58.05	27.7	6.0	24/08/09	11.03.51	-62.9	58.9	26/12/09	19.36.15	2.7	-41.7
25/04/09	18.17.51	-62.0	-2.8	28/08/09	0.11.27	26.7	-36.6	30/12/09	9.00.40	-3.4	17.9
29/04/09	7.37.15	31.5	36.9	31/08/09	13.19.04	-40.8	46.4				
02/05/09	20.56.13	-45.5	-24.8	04/09/09	2.27.19	3.7	-23.6				

III Congiunzione superiore

Data	Ora	h	h Sole								
06/01/09	5.14.42	-25.1	-15.4	08/05/09	7.54.19	27.9	41.9	06/09/09	20.08.25	28.5	-26.6
13/01/09	9.45.31	20.9	22.9	15/05/09	11.56.32	-13.9	64.8	13/09/09	23.31.56	22.6	-44.2
20/01/09	14.16.32	17.9	16.2	22/05/09	15.55.33	-57.8	27.0	21/09/09	2.58.21	-15.4	-22.5
27/01/09	18.47.21	-30.0	-27.3	29/05/09	19.49.54	-39.8	-11.4	28/09/09	6.28.58	-57.4	14.4
03/02/09	23.18.03	-66.4	-64.2	05/06/09	23.40.18	7.0	-25.0	05/10/09	10.04.06	-49.4	41.4
11/02/09	3.49.03	-20.0	-27.3	13/06/09	3.25.21	34.6	-1.8	12/10/09	13.44.10	-4.3	27.7
18/02/09	8.19.07	24.7	21.5	20/06/09	7.05.37	13.6	35.9	19/10/09	17.29.55	29.2	-13.0
25/02/09	12.48.55	17.2	35.6	27/06/09	10.41.16	-30.2	70.0	26/10/09	21.20.15	17.1	-54.1
04/03/09	17.16.41	-31.9	-2.3	04/07/09	14.12.35	-61.6	48.8	03/11/09	1.15.57	-27.8	-49.6
11/03/09	21.42.54	-63.5	-45.5	11/07/09	17.40.31	-32.6	10.6	10/11/09	5.15.20	-64.3	-8.0
19/03/09	2.07.22	-17.2	-34.1	18/07/09	21.04.16	9.6	-19.9	17/11/09	9.18.52	-28.1	24.9
26/03/09	6.30.05	26.8	15.0	26/07/09	0.25.20	33.5	-26.7	24/11/09	13.26.19	18.7	18.7
02/04/09	10.51.26	19.8	52.7	02/08/09	3.43.09	15.8	-4.6	01/12/09	17.37.35	28.7	-21.1
09/04/09	15.10.01	-28.0	28.0	09/08/09	6.59.16	-24.2	29.3	08/12/09	21.52.59	-12.4	-65.7
16/04/09	19.26.29	-62.6	-16.6	16/08/09	10.14.42	-60.7	58.7	16/12/09	2.11.05	-59.2	-47.7
23/04/09	23.39.10	-21.9	-34.8	23/08/09	13.30.33	-44.7	47.3	23/12/09	6.32.29	-35.4	-0.9
01/05/09	3.48.30	23.8	-4.0	30/08/09	16.48.32	-2.6	10.4	30/12/09	10.55.26	15.6	24.7

III Congiunzione inferiore

Data	Ora	h	h Sole								
02/01/09	14.59.32	18.3	7.3	07/02/09	13.34.25	17.4	25.7	15/03/09	11.54.55	18.0	45.4
09/01/09	19.29.40	-28.6	-38.5	14/02/09	18.04.18	-31.3	-15.6	22/03/09	16.19.37	-30.9	11.6
17/01/09	0.00.54	-67.8	-67.2	21/02/09	22.33.15	-64.8	-56.2	29/03/09	20.41.31	-62.8	-32.4
24/01/09	4.32.03	-22.6	-22.2	01/03/09	3.01.25	-18.2	-31.3	06/04/09	1.00.58	-18.3	-35.8
31/01/09	9.03.49	22.9	22.3	08/03/09	7.29.06	26.1	19.4	13/04/09	5.17.50	26.3	7.2

20/04/09	9.32.10	23.1	52.8	15/07/09	7.25.35	-8.2	37.6	08/10/09	23.59.20	3.4	-51.9
27/04/09	13.44.16	-22.7	46.5	22/07/09	10.47.17	-49.9	67.2	16/10/09	3.42.19	-42.3	-20.0
04/05/09	17.52.32	-61.8	3.1	29/07/09	14.06.21	-55.5	47.5	23/10/09	7.30.06	-61.1	18.7
11/05/09	21.57.43	-28.8	-27.8	05/08/09	17.24.11	-16.1	10.1	30/10/09	11.22.37	-17.5	33.8
19/05/09	1.58.16	18.0	-16.9	12/08/09	20.40.23	21.3	-22.8	06/11/09	15.20.00	24.2	6.1
26/05/09	5.54.29	32.7	22.3	19/08/09	23.56.58	30.9	-34.7	13/11/09	19.22.34	23.9	-39.0
02/06/09	9.46.21	-1.2	63.6	27/08/09	3.13.38	2.1	-14.5	20/11/09	23.28.52	-19.4	-66.9
09/06/09	13.33.57	-47.7	54.8	03/09/09	6.31.59	-40.2	20.0	28/11/09	3.39.37	-62.4	-28.8
16/06/09	17.17.45	-53.0	14.6	10/09/09	9.52.57	-63.3	49.1	05/12/09	7.53.03	-32.1	12.2
23/06/09	20.56.22	-9.9	-17.3	17/09/09	13.17.32	-27.9	40.5	12/12/09	12.09.28	17.1	23.3
01/07/09	0.30.53	27.9	-22.7	24/09/09	16.46.56	13.8	2.9	19/12/09	16.28.42	30.4	-8.5
08/07/09	4.00.19	28.0	2.0	01/10/09	20.20.26	31.0	-37.4	26/12/09	20.50.42	-11.0	-55.1

III Massima elongazione est

Data	Ora	h	h Sole								
08/01/09	0.18.50	-68.4	-66.6	10/05/09	2.50.18	20.6	-11.5	08/09/09	14.53.54	-17.1	28.5
15/01/09	4.49.16	-24.6	-19.8	17/05/09	6.51.51	30.9	31.9	15/09/09	18.17.26	21.0	-11.1
22/01/09	9.20.03	21.4	22.1	24/05/09	10.49.49	-7.5	68.5	22/09/09	21.44.44	28.8	-44.3
29/01/09	13.51.33	18.1	21.4	31/05/09	14.42.42	-52.9	41.5	30/09/09	1.16.37	-3.5	-40.6
05/02/09	18.22.29	-30.0	-20.9	07/06/09	18.31.01	-47.3	1.8	07/10/09	4.54.01	-48.5	-4.8
12/02/09	22.53.31	-65.7	-60.5	14/06/09	22.14.45	-1.3	-23.4	14/10/09	8.35.54	-57.4	30.2
20/02/09	3.23.01	-19.5	-30.0	22/06/09	1.53.58	32.1	-14.9	21/10/09	12.23.21	-12.7	33.5
27/02/09	7.51.25	25.2	20.1	29/06/09	5.29.26	22.2	17.8	28/10/09	16.14.55	26.2	-0.8
06/03/09	12.18.24	18.1	40.9	06/07/09	9.00.00	-18.4	55.6	04/11/09	20.11.07	21.8	-46.0
13/03/09	16.44.05	-30.6	5.3	13/07/09	12.26.58	-57.8	65.1	12/11/09	0.11.39	-21.7	-60.8
20/03/09	21.08.53	-63.4	-38.6	20/07/09	15.49.32	-45.5	29.9	19/11/09	4.16.35	-63.1	-20.4
28/03/09	1.31.22	-18.3	-35.7	27/07/09	19.08.59	-3.7	-6.2	26/11/09	8.26.18	-31.9	17.8
04/04/09	5.52.10	26.4	10.8	03/08/09	22.26.07	28.8	-29.5	03/12/09	12.39.14	16.7	22.0
11/04/09	10.09.41	21.8	53.7	11/08/09	1.42.04	25.9	-23.8	10/12/09	16.55.59	30.0	-13.6
18/04/09	14.24.23	-24.8	37.9	18/08/09	4.58.24	-9.5	5.7	17/12/09	21.14.56	-10.5	-60.0
25/04/09	18.36.00	-62.4	-6.4	25/08/09	8.14.53	-50.7	40.0	25/12/09	1.36.25	-58.1	-
02/05/09	22.44.30	-26.2	-32.1	01/09/09	11.33.31	-57.0	55.8	54.828/12/08	5.40.03	III EO	-

III Massima elongazione ovest

Data	Ora	h	h Sole								
04/01/09	10.10.18	20.3	23.5	06/05/09	12.59.45	-19.9	55.3	05/09/09	1.26.44	12.6	-32.2
11/01/09	14.41.02	17.8	11.3	13/05/09	17.03.04	-60.8	13.3	12/09/09	4.49.18	-28.7	-0.2
18/01/09	19.12.52	-30.1	-33.8	20/05/09	21.02.29	-32.9	-21.4	19/09/09	8.15.04	-63.8	34.2
25/01/09	23.43.57	-66.9	-66.4	28/05/09	0.57.52	14.0	-21.8	26/09/09	11.45.37	-38.0	45.6
02/02/09	4.14.45	-20.6	-24.2	04/06/09	4.49.38	34.2	11.2	03/10/09	15.19.54	6.0	15.6
09/02/09	8.44.59	24.1	22.4	11/06/09	8.36.24	4.6	52.7	10/10/09	18.58.48	31.2	-26.7
16/02/09	13.14.49	16.9	30.4	18/06/09	12.19.03	-41.1	66.9	17/10/09	22.42.30	10.0	-57.4
23/02/09	17.44.34	-32.3	-10.0	25/06/09	15.56.13	-58.4	29.7	25/10/09	2.31.18	-35.6	-34.7
02/03/09	22.12.59	-63.8	-51.5	02/07/09	19.28.39	-19.4	-6.5	01/11/09	6.25.37	-63.5	6.3
10/03/09	2.40.43	-16.6	-31.9	09/07/09	22.56.51	20.9	-25.6	08/11/09	10.24.10	-22.1	30.9
17/03/09	7.06.03	27.0	18.5	17/07/09	2.21.21	32.5	-14.0	15/11/09	14.27.40	22.2	12.4
24/03/09	11.29.24	18.1	49.5	24/07/09	5.43.13	3.2	17.6	22/11/09	18.34.22	26.0	-31.1
31/03/09	15.50.37	-30.5	18.8	31/07/09	9.01.59	-39.1	52.5	29/11/09	22.44.37	-16.7	-69.4
07/04/09	20.09.43	-62.5	-25.4	07/08/09	12.19.31	-62.1	61.1	07/12/09	2.58.13	-61.2	-37.9
15/04/09	0.27.02	-18.9	-35.5	14/08/09	15.35.19	-29.2	28.2	14/12/09	7.15.06	-33.3	5.8
22/04/09	4.41.05	26.0	3.0	21/08/09	18.51.00	11.1	-9.2	21/12/09	11.35.34	16.9	24.3
29/04/09	8.52.34	24.6	49.7	28/08/09	22.07.45	32.2	-36.5	28/12/09	15.58.06	31.1	-1.8

IV Congiunzione superiore

Data	Ora	h	h Sole								
11/01/09	14.18.43	20.2	14.2	26/05/09	5.55.02	32.7	22.4	06/10/09	8.06.19	-63.6	28.5
28/01/09	11.14.48	28.7	29.9	11/06/09	23.05.20	5.0	-24.9	23/10/09	0.46.03	-14.7	-51.2
14/02/09	8.08.24	22.3	18.8	28/06/09	15.18.16	-60.4	36.7	08/11/09	18.26.11	30.0	-27.8
03/03/09	4.52.36	3.0	-10.4	15/07/09	6.35.31	1.2	28.4	25/11/09	13.01.44	15.8	21.1
20/03/09	1.20.48	-25.2	-40.1	31/07/09	21.08.53	18.5	-22.9	12/12/09	8.23.18	-22.0	14.9
05/04/09	21.24.46	-55.8	-35.5	17/08/09	11.20.59	-63.1	61.3	29/12/09	4.21.31	-53.5	-24.8
22/04/09	16.57.04	-53.3	10.8	03/09/09	1.37.42	12.3	-30.3				
09/05/09	11.50.07	-8.9	63.9	19/09/09	16.26.02	7.4	8.3				

IV Congiunzione inferiore

Data	Ora	h	h Sole								
03/01/09	2.15.16	-58.9	-48.3	17/05/09	19.56.47	-46.3	-14.3	27/09/09	22.54.03	19.8	-49.9
19/01/09	23.13.22	-67.3	-68.1	03/06/09	13.37.30	-44.6	53.6	14/10/09	15.02.31	10.1	15.0
05/02/09	20.13.27	-50.1	-41.2	20/06/09	6.19.17	20.4	27.4	31/10/09	8.13.54	-50.9	22.6
22/02/09	17.08.49	-25.2	-3.3	06/07/09	22.02.08	11.0	-23.2	17/11/09	2.24.13	-48.7	-40.7
11/03/09	13.50.37	2.2	33.4	23/07/09	12.53.35	-62.2	60.2	03/12/09	21.26.50	-4.7	-61.9
28/03/09	10.12.31	25.9	48.5	09/08/09	3.09.36	15.9	-11.4	20/12/09	17.12.50	26.1	-16.0
14/04/09	6.06.45	30.8	16.5	25/08/09	17.16.47	-1.1	6.6				
01/05/09	1.24.12	2.1	-25.0	11/09/09	7.43.55	-57.5	31.1				

IV Massima elongazione est

Data	Ora	h	h Sole								
15/01/09	18.14.31	-17.8	-23.5	13/05/09	15.08.16	-47.2	34.4	07/09/09	3.57.21	-14.9	-9.3
01/02/09	15.09.25	6.2	11.8	30/05/09	9.00.39	8.1	56.3	23/09/09	18.57.14	28.2	-20.9
18/02/09	12.00.56	24.6	35.9	16/06/09	1.57.29	30.6	-14.4	10/10/09	10.51.16	-37.6	41.2
07/03/09	8.42.03	30.3	30.3	02/07/09	17.55.26	-36.5	8.4	27/10/09	3.46.08	-50.1	-21.5
24/03/09	5.04.46	15.8	-0.8	19/07/09	9.00.02	-28.9	54.1	12/11/09	21.41.04	4.8	-61.1
10/04/09	1.02.02	-15.6	-34.3	04/08/09	23.25.43	32.7	-31.0	29/11/09	16.28.39	32.4	-8.7
26/04/09	20.26.26	-53.5	-22.8	21/08/09	13.35.23	-45.4	47.2	16/12/09	12.00.41	17.9	23.6

IV Massima elongazione ovest

Data	Ora	h	h Sole								
07/01/09	8.47.00	11.4	16.8	22/05/09	1.45.42	17.8	-17.9	02/10/09	4.09.52	-37.1	-12.1
24/01/09	5.47.23	-9.0	-8.6	07/06/09	19.11.16	-40.6	-4.8	18/10/09	20.34.35	25.9	-45.3
10/02/09	2.48.07	-31.9	-38.6	24/06/09	11.37.58	-38.2	70.8	04/11/09	14.01.02	13.0	18.4
26/02/09	23.40.53	-55.1	-56.2	11/07/09	3.07.33	31.4	-6.9	21/11/09	8.25.11	-35.4	18.7
15/03/09	20.18.17	-63.6	-32.8	27/07/09	17.47.57	-18.8	7.5	08/12/09	3.39.51	-63.1	-30.3
01/04/09	16.34.11	-39.0	11.0	13/08/09	7.59.35	-38.6	39.6	24/12/09	23.33.57	-39.9	-70.8
18/04/09	12.19.06	-1.0	55.6	29/08/09	22.09.57	32.2	-37.0				
05/05/09	7.25.28	31.1	36.1	15/09/09	12.45.46	-35.3	45.1				

I = Io
 II = Europa
 III = Ganimede
 IV = Callisto

TEMPI IN T.U.

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MERIDIANO CENTRALE DI GIOVE - TRANSITI

Data	Ore dei passaggi										
01/01/09	2.55.56	12.46.36	22.37.16								
02/01/09	8.27.57	18.18.37		31/03/09	3.03.54	12.54.29	22.45.04	28/06/09	2.44.23	12.34.49	22.25.15
03/01/09	4.09.17	13.59.57	23.50.37	01/04/09	8.35.39	18.26.14		29/06/09	8.15.40	18.06.06	
04/01/09	9.41.18	19.31.58		02/04/09	4.16.49	14.07.23	23.57.58	30/06/09	3.56.32	13.46.57	23.37.23
05/01/09	5.22.38	15.13.17		03/04/09	9.48.33	19.39.08		01/07/09	9.27.49	19.18.14	
06/01/09	1.03.57	10.54.38	20.45.18	04/04/09	5.29.42	15.20.17		02/07/09	5.08.40	14.59.05	
07/01/09	6.35.58	16.26.38		05/04/09	1.10.52	11.01.27	20.52.01	03/07/09	0.49.31	10.39.56	20.30.21
08/01/09	2.17.18	12.07.59	21.58.39	06/04/09	6.42.36	16.33.10		04/07/09	6.20.47	16.11.12	
09/01/09	7.49.18	17.39.58		07/04/09	2.23.44	12.14.19	22.04.53	05/07/09	2.01.38	11.52.03	21.42.28
10/01/09	3.30.38	13.21.19	23.11.59	08/04/09	7.55.28	17.46.02		06/07/09	7.32.53	17.23.18	
11/01/09	9.02.38	18.53.18		09/04/09	3.36.36	13.27.11	23.17.45	07/07/09	3.13.44	13.04.09	22.54.34
12/01/09	4.43.58	14.34.39		10/04/09	9.08.19	18.58.53		08/07/09	8.44.59	18.35.24	
13/01/09	0.25.18	10.15.58	20.06.38	11/04/09	4.49.27	14.40.01		09/07/09	4.25.49	14.16.14	
14/01/09	5.57.17	15.47.58		12/04/09	0.30.35	10.21.09	20.11.43	10/07/09	0.06.39	9.57.04	19.47.29
15/01/09	1.38.38	11.29.17	21.19.57	13/04/09	6.02.17	15.52.51		11/07/09	5.37.54	15.28.19	
16/01/09	7.10.37	17.01.17		14/04/09	1.43.24	11.33.58	21.24.32	12/07/09	1.18.43	11.09.08	20.59.33
17/01/09	2.51.57	12.42.36	22.33.16	15/04/09	7.15.06	17.05.39		13/07/09	6.49.58	16.40.23	
18/01/09	8.23.55	18.14.36		16/04/09	2.56.13	12.46.46	22.37.20	14/07/09	2.30.47	12.21.12	22.11.36
19/01/09	4.05.16	13.55.55	23.46.34	17/04/09	8.27.54	18.18.27		15/07/09	8.02.01	17.52.26	
20/01/09	9.37.15	19.27.54		18/04/09	4.09.00	13.59.33	23.50.07	16/07/09	3.42.50	13.33.15	23.23.39
21/01/09	5.18.34	15.09.13		19/04/09	9.40.40	19.31.13		17/07/09	9.14.04	19.04.29	
22/01/09	0.59.53	10.50.33	20.41.12	20/04/09	5.21.47	15.12.20		18/07/09	4.54.53	14.45.17	
23/01/09	6.31.52	16.22.31		21/04/09	1.02.53	10.53.26	20.43.59	19/07/09	0.35.42	10.26.07	20.16.31
24/01/09	2.13.10	12.03.51	21.54.30	22/04/09	6.34.32	16.25.05		20/07/09	6.06.55	15.57.20	
25/01/09	7.45.09	17.35.48		23/04/09	2.15.38	12.06.11	21.56.44	21/07/09	1.47.44	11.38.09	21.28.33
26/01/09	3.26.28	13.17.08	23.07.47	24/04/09	7.47.16	17.37.49		22/07/09	7.18.57	17.09.21	
27/01/09	8.58.26	18.49.05		25/04/09	3.28.22	13.18.55	23.09.27	23/07/09	2.59.46	12.50.10	22.40.35
28/01/09	4.39.45	14.30.25		26/04/09	9.00.00	18.50.32		24/07/09	8.30.58	18.21.23	
29/01/09	0.21.04	10.11.43	20.02.22	27/04/09	4.41.05	14.31.37		25/07/09	4.11.47	14.02.12	23.52.36
30/01/09	5.53.01	15.43.41		28/04/09	0.22.10	10.12.42	20.03.14	26/07/09	9.43.00	19.33.24	
31/01/09	1.34.20	11.24.59	21.15.38	29/04/09	5.53.46	15.44.19		27/07/09	5.23.49	15.14.13	
01/02/09	7.06.17	16.56.57		30/04/09	1.34.51	11.25.23	21.15.55	28/07/09	1.04.37	10.55.01	20.45.25
02/02/09	2.47.36	12.38.14	22.28.53	01/05/09	7.06.27	16.56.59		29/07/09	6.35.50	16.26.14	
03/02/09	8.19.32	18.10.12		02/05/09	2.47.31	12.38.03	22.28.35	30/07/09	2.16.39	12.07.02	21.57.27
04/02/09	4.00.51	13.51.29	23.42.08	03/05/09	8.19.07	18.09.39		31/07/09	7.47.51	17.38.15	
05/02/09	9.32.47	19.23.27		04/05/09	4.00.11	13.50.42	23.41.14	01/08/09	3.28.40	13.19.03	23.09.28
06/02/09	5.14.05	15.04.44		05/05/09	9.31.45	19.22.17		02/08/09	8.59.52	18.50.17	
07/02/09	0.55.23	10.46.01	20.36.41	06/05/09	5.12.49	15.03.20		03/08/09	4.40.41	14.31.05	
08/02/09	6.27.19	16.17.58		07/05/09	0.53.52	10.44.23	20.34.54	04/08/09	0.21.29	10.11.54	20.02.18
09/02/09	2.08.36	11.59.15	21.49.54	08/05/09	6.25.26	16.15.57		05/08/09	5.52.42	15.43.06	
10/02/09	7.40.33	17.31.11		09/05/09	2.06.28	11.56.59	21.47.31	06/08/09	1.33.31	11.23.55	21.14.20
11/02/09	3.21.50	13.12.29	23.03.07	10/05/09	7.38.02	17.28.33		07/08/09	7.04.44	16.55.08	
12/02/09	8.53.46	18.44.24		11/05/09	3.19.04	13.09.35	23.00.06	08/08/09	2.45.32	12.35.57	22.26.21
13/02/09	4.35.02	14.25.42		12/05/09	8.50.37	18.41.07		09/08/09	8.16.46	18.07.10	
14/02/09	0.16.20	10.06.58	19.57.36	13/05/09	4.31.38	14.22.09		10/08/09	3.57.35	13.47.59	23.38.24
15/02/09	5.48.14	15.38.54		14/05/09	0.12.40	10.03.10	19.53.41	11/08/09	9.28.48	19.19.12	
16/02/09	1.29.32	11.20.10	21.10.48	15/05/09	5.44.12	15.34.42		12/08/09	5.09.37	15.00.02	
17/02/09	7.01.26	16.52.05		16/05/09	1.25.13	11.15.43	21.06.13	13/08/09	0.50.26	10.40.51	20.31.15
18/02/09	2.42.43	12.33.21	22.23.59	17/05/09	6.56.44	16.47.14		14/08/09	6.21.40	16.12.05	
19/02/09	8.14.37	18.05.16		18/05/09	2.37.44	12.28.15	22.18.45	15/08/09	2.02.30	11.52.55	21.43.19
20/02/09	3.55.53	13.46.31	23.37.09	19/05/09	8.09.15	17.59.45		16/08/09	7.33.44	17.24.09	
21/02/09	9.27.47	19.18.26		20/05/09	3.50.15	13.40.45	23.31.15	17/08/09	3.14.34	13.04.59	22.55.23
22/02/09	5.09.03	14.59.41		21/05/09	9.21.45	19.12.15		18/08/09	8.45.48	18.36.13	
23/02/09	0.50.19	10.40.56	20.31.35	22/05/09	5.02.44	14.53.14		19/08/09	4.26.38	14.17.03	
24/02/09	6.22.13	16.12.50		23/05/09	0.43.44	10.34.14	20.24.43	20/08/09	0.07.28	9.57.53	19.48.18
25/02/09	2.03.28	11.54.05	21.44.44	24/05/09	6.15.13	16.05.42		21/08/09	5.38.44	15.29.09	
26/02/09	7.35.21	17.25.59		25/05/09	1.56.12	11.46.41	21.37.10	22/08/09	1.19.34	11.09.59	21.00.25
27/02/09	3.16.36	13.07.13	22.57.52	26/05/09	7.27.40	17.18.09		23/08/09	6.50.50	16.41.15	
28/02/09	8.48.29	18.39.06		27/05/09	3.08.38	12.59.08	22.49.37	24/08/09	2.31.40	12.22.06	22.12.32
01/03/09	4.29.44	14.20.21		28/05/09	8.40.06	18.30.35		25/08/09	8.02.57	17.53.23	
02/03/09	0.10.59	10.01.36	19.52.13	29/05/09	4.21.04	14.11.33		26/08/09	3.43.48	13.34.14	23.24.40
03/03/09	5.42.50	15.33.28		30/05/09	0.02.02	9.52.31	19.43.00	27/08/09	9.15.06	19.05.31	
04/03/09	1.24.06	11.14.43	21.05.20	31/05/09	5.33.28	15.23.57		28/08/09	4.55.57	14.46.23	
05/03/09	6.55.57	16.46.34		01/06/09	1.14.26	11.04.54	20.55.23	29/08/09	0.36.49	10.27.15	20.17.41
06/03/09	2.37.11	12.27.48	22.18.25	02/06/09	6.45.52	16.36.20		30/08/09	6.08.07	15.58.33	
07/03/09	8.09.02	17.59.39		03/06/09	2.26.49	12.17.17	22.07.45	31/08/09	1.48.59	11.39.25	21.29.52
08/03/09	3.50.16	13.40.53	23.31.30	04/06/09	7.58.14	17.48.42		01/09/09	7.20.18	17.10.44	
09/03/09	9.22.07	19.12.44		05/06/09	3.39.10	13.29.38	23.20.07	02/09/09	3.01.11	12.51.37	22.42.04
10/03/09	5.03.21	14.53.57		06/06/09	9.10.35	19.01.03		03/09/09	8.32.30	18.22.57	
11/03/09	0.44.34	10.35.10	20.25.48	07/06/09	4.51.31	14.41.59		04/09/09	4.13.24	14.03.50	23.54.17
12/03/09	6.16.24	16.07.01		08/06/09	0.32.27	10.22.55	20.13.23	05/09/09	9.44.44	19.35.11	
13/03/09	1.57.37	11.48.13	21.38.51	09/06/09	6.03.50	15.54.18		06/09/09	5.25.38	15.16.05	
14/03/09	7.29.27	17.20.03		10/06/09	1.44.46	11.35.14	21.25.41	07/09/09	1.06.32	10.56.59	20.47.26
15/03/09	3.10.39	13.01.16	22.51.53	11/06/09	7.16.09	17.06.36		08/09/09	6.37.53	16.28.21	
16/03/09	8.42.29	18.33.05		12/06/09	2.57.04	12.47.31	22.37.59	09/09/09	2.18.48	12.09.15	21.59.43
17/03/09	4.23.41	14.14.17		13/06/09	8.28.26	18.18.53		10/09/09	7.50.10	17.40.38	
18/03/09	0.04.54	9.55.30	19.46.06	14/06/09	4.09.20	13.59.48	23.50.15	11/09/09	3.31.06	13.21.33	23.12.01
19/03/09	5.36.42	15.27.18		15/06/09	9.40.42	19.31.09		12/09/09	9.02.29	18.52.57	
20/03/09	1.17.54	11.08.30	20.59.06	16/06/09	5.21.36	15.12.03		13/09/09	4.43.25	14.33.52	
21/03/09	6.49.42	16.40.18		17/06/09	1.02.30	10.52.57	20.43.24	14/09/09	0.24.21	10.14.49	20.05.17
22/03/09	2.30.54	12.21.30	22.12.05	18/06/09	6.33.51	16.24.18		15/09/09	5.55.45	15.46.13	
23/03/09	8.02.41	17.53.17		19/06/09	2.14.45	12.05.11	21.55.38	16/09/09	1.36.42	11.27.10	21.17.39
24/03/09	3.43.53	13.34.28	23.25.04	20/06/09	7.46.04	17.36.31		17/09/09	7.08.07	16.58.36	
25/03/09	9.15.39	19.06.15		21/06/09	3.26.58	13.17.24	23.07.50	18/09/09	2.49.05	12.39.33	22.30.02
26/03/09	4.56.51	14.47.26		22/06/09	8.58.17	18.48.43		19/09/09	8.20.31	18.11.00	
27/03/09	0.38.01	10.28.37	20.19.12	23/06/09	4.39.10	14.29.36		20/09/09	4.01.29	13.51.58	23.42.27
28/03/09	6.09.48	16.00.23		24/06/09	0.20.02	10.10.28	20.00.55	21/09/09			

Data	Ore dei passaggi												
25/09/09	2.07.23	11.57.52	21.48.22	28/10/09	7.21.20	17.11.55				30/11/09	2.50.50	12.41.29	22.32.08
26/09/09	7.38.52	17.29.22		29/10/09	3.02.30	12.53.05	22.43.41			01/12/09	8.22.46	18.13.26	
27/09/09	3.19.53	13.10.23	23.00.53	30/10/09	8.34.17	18.24.52				02/12/09	4.04.05	13.54.44	23.45.22
28/09/09	8.51.24	18.41.54		31/10/09	4.15.27	14.06.03	23.56.38			03/12/09	9.36.02	19.26.41	
29/09/09	4.32.24	14.22.55		01/11/09	9.47.14	19.37.50				04/12/09	5.17.20	15.07.59	
30/09/09	0.13.26	10.03.56	19.54.27	02/11/09	5.28.26	15.19.01				05/12/09	0.58.38	10.49.18	20.39.57
01/10/09	5.44.58	15.35.29		03/11/09	1.09.37	11.00.13	20.50.49			06/12/09	6.30.36	16.21.15	
02/10/09	1.26.00	11.16.31	21.07.02	04/11/09	6.41.25	16.32.01				07/12/09	2.11.54	12.02.34	21.53.13
03/10/09	6.57.33	16.48.05		05/11/09	2.22.37	12.13.14	22.03.50			08/12/09	7.43.53	17.34.32	
04/10/09	2.38.36	12.29.07	22.19.39	06/11/09	7.54.26	17.45.02				09/12/09	3.25.11	13.15.51	23.06.31
05/10/09	8.10.10	18.00.42		07/11/09	3.35.39	13.26.16	23.16.52			10/12/09	8.57.10	18.47.49	
06/10/09	3.51.13	13.41.45	23.32.17	08/11/09	9.07.29	18.58.05				11/12/09	4.38.28	14.29.09	
07/10/09	9.22.49	19.13.21		09/11/09	4.48.42	14.39.19				12/12/09	0.19.48	10.10.28	20.01.07
08/10/09	5.03.53	14.54.25		10/11/09	0.29.55	10.20.32	20.11.09			13/12/09	5.51.47	15.42.27	
09/10/09	0.44.57	10.35.29	20.26.01	11/11/09	6.01.46	15.52.23				14/12/09	1.33.07	11.23.46	21.14.26
10/10/09	6.16.34	16.07.06		12/11/09	1.43.00	11.33.37	21.24.14			15/12/09	7.05.05	16.55.46	
11/10/09	1.57.38	11.48.11	21.38.44	13/11/09	7.14.52	17.05.29				16/12/09	2.46.26	12.37.05	22.27.45
12/10/09	7.29.16	17.19.49		14/11/09	2.56.06	12.46.43	22.37.20			17/12/09	8.18.25	18.09.06	
13/10/09	3.10.22	13.00.55	22.51.28	15/11/09	8.27.58	18.18.35				18/12/09	3.59.45	13.50.25	23.41.05
14/10/09	8.42.01	18.32.34		16/11/09	4.09.12	13.59.50	23.50.27			19/12/09	9.31.44	19.22.25	
15/10/09	4.23.07	14.13.40		17/11/09	9.41.05	19.31.43				20/12/09	5.13.05	15.03.45	
16/10/09	0.04.13	9.54.47	19.45.20	18/11/09	5.22.20	15.12.58				21/12/09	0.54.25	10.45.05	20.35.46
17/10/09	5.35.53	15.26.27		19/11/09	1.03.36	10.54.14	20.44.52			22/12/09	6.26.26	16.17.06	
18/10/09	1.17.01	11.07.34	20.58.08	20/11/09	6.35.29	16.26.07				23/12/09	2.07.46	11.58.25	21.49.07
19/10/09	6.48.41	16.39.15		21/11/09	2.16.45	12.07.24	21.58.02			24/12/09	7.39.47	17.30.27	
20/10/09	2.29.49	12.20.23	22.10.57	22/11/09	7.48.40	17.39.17				25/12/09	3.21.07	13.11.47	23.02.28
21/10/09	8.01.31	17.52.05		23/11/09	3.29.55	13.20.34	23.11.12			26/12/09	8.53.08	18.43.48	
22/10/09	3.42.40	13.33.14	23.23.48	24/11/09	9.01.51	18.52.29				27/12/09	4.34.28	14.25.09	
23/10/09	9.14.22	19.04.57		25/11/09	4.43.07	14.33.46				28/12/09	0.15.49	10.06.29	19.57.10
24/10/09	4.55.32	14.46.06		26/11/09	0.24.24	10.15.03	20.05.41			29/12/09	5.47.50	15.38.31	
25/10/09	0.36.41	10.27.15	20.17.50	27/11/09	5.56.19	15.46.59				30/12/09	1.29.11	11.19.51	21.10.32
26/10/09	6.08.25	15.59.00		28/11/09	1.37.37	11.28.15	21.18.54			31/12/09	7.01.12	16.51.53	
27/10/09	1.49.35	11.40.10	21.30.45	29/11/09	7.09.32	17.00.12							

Orari in T.U. in cui transita il Meridiano Centrale

MERIDIANO CENTRALE DI GIOVE I

(Valido per le regioni equatoriali)

Data	Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
	o	o	o	o	o	o	o	o	o	o	o	o
1	252.8	100.0	195.5	45.5	100.0	314.5	13.8	232.8	91.5	149.5	2.0	53.5
2	50.3	257.8	353.3	203.3	257.8	112.5	171.8	30.8	249.5	307.5	159.8	211.0
3	208.0	55.5	151.0	1.0	55.5	270.3	329.8	188.8	47.5	105.3	317.5	8.8
4	5.5	213.0	308.8	159.0	213.5	68.3	127.8	346.8	205.3	263.3	115.3	166.5
5	163.3	10.8	106.3	316.8	11.3	226.3	285.8	144.8	3.3	61.0	273.0	324.3
6	321.0	168.5	264.0	114.5	169.3	24.3	83.8	302.8	161.3	219.0	70.8	121.8
7	118.5	326.3	61.8	272.3	327.0	182.3	241.8	101.0	319.3	16.8	228.5	279.5
8	276.3	123.8	219.5	70.0	125.0	340.0	39.8	259.0	117.3	174.5	26.3	77.3
9	73.8	281.5	17.3	227.8	282.8	138.0	197.8	57.0	275.3	332.5	184.0	234.8
10	231.5	79.3	175.0	25.8	80.8	296.0	355.8	215.0	73.3	130.3	341.8	32.5
11	29.3	236.8	332.8	183.5	238.5	94.0	153.8	13.0	231.3	288.3	139.3	190.3
12	186.8	34.5	130.5	341.3	36.5	252.0	311.8	171.0	29.0	86.0	297.0	347.8
13	344.5	192.3	288.3	139.0	194.3	50.0	110.0	329.0	187.0	243.8	94.8	145.5
14	142.0	350.0	86.0	296.8	352.3	207.8	268.0	127.3	345.0	41.8	252.5	303.0
15	299.8	147.5	243.8	94.8	150.0	5.8	66.0	285.3	143.0	199.5	50.3	100.8
16	97.5	305.3	41.5	252.5	308.0	163.8	224.0	83.3	301.0	357.3	208.0	258.5
17	255.0	103.0	199.3	50.3	105.8	321.8	22.0	241.3	98.8	155.0	5.8	56.0
18	52.8	260.8	357.0	208.0	263.8	119.8	180.0	39.3	256.8	313.0	163.5	213.8
19	210.5	58.5	154.8	6.0	61.5	277.8	338.0	197.3	54.8	110.8	321.0	11.5
20	8.0	216.0	312.5	163.8	219.5	75.8	136.3	355.3	212.8	268.5	118.8	169.0
21	165.8	13.8	110.3	321.5	17.5	233.8	294.3	153.3	10.5	66.3	276.5	326.8
22	323.5	171.5	268.0	119.3	175.3	31.8	92.3	311.3	168.5	224.3	74.3	124.3
23	121.0	329.3	65.8	277.3	333.3	189.8	250.3	109.3	326.5	22.0	232.0	282.0
24	278.8	127.0	223.5	75.0	131.0	347.8	48.3	267.5	124.3	179.8	29.5	79.8
25	76.5	284.8	21.3	232.8	289.0	145.8	206.3	65.5	282.3	337.5	187.3	237.3
26	234.0	82.3	179.0	30.8	87.0	303.8	4.5	223.5	80.0	135.3	345.0	35.0
27	31.8	240.0	336.8	188.5	244.8	101.8	162.5	21.5	238.0	293.0	142.8	192.5
28	189.5	37.8	134.5	346.3	42.8	259.8	320.5	179.5	36.0	90.8	300.3	350.3
29	347.0		292.3	144.3	200.8	57.8	118.5	337.5	193.8	248.5	98.0	147.8
30	144.8		90.0	302.0	358.8	215.8	276.5	135.5	351.8	46.5	255.8	305.5
31	302.5		247.8		156.5		74.5	293.5		204.3		103.3

Moto del meridiano centrale

	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h
m	o	o	o	o	o	o	o	o	o	o	o	o
00	0.0	36.6	73.2	109.7	146.3	182.9	219.5	256.1	292.6	329.2	5.8	42.4
10	6.1	42.7	79.3	115.8	152.4	189.0	225.6	262.2	298.7	335.3	11.9	48.5
20	12.2	48.8	85.4	121.9	158.5	195.1	231.7	268.2	304.8	341.4	18.0	54.6
30	18.3	54.9	91.4	128.0	164.6	201.2	237.8	274.3	310.9	347.5	24.1	60.7
40	24.4	61.0	97.5	134.1	170.7	207.3	243.9	280.4	317.0	353.6	30.2	66.8
50	30.5	67.1	103.6	140.2	176.8	213.4	250.0	286.5	323.1	359.7	36.3	72.9
60	36.6	73.2	109.7	146.3	182.9	219.5	256.1	292.6	329.2	5.8	42.4	79.0

Longitudine del meridiano che transita alle ore 0 T.U. del giorno indicato e moto medio in gradi

MERIDIANO CENTRALE DI GIOVE II

(Valido per le regioni a media latitudine)

Data	Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
	o	o	o	o	o	o	o	o	o	o	o	o
1	345.5	316.3	198.3	171.8	357.0	335.3	165.5	147.8	130.0	319.3	295.3	117.8
2	135.5	106.5	348.3	321.8	147.3	125.5	315.8	298.3	280.5	109.5	85.3	267.8
3	285.5	256.5	138.3	112.0	297.5	275.8	106.3	88.8	70.8	259.8	235.5	58.0
4	75.5	46.5	288.5	262.0	87.8	66.0	256.5	239.0	221.3	50.0	25.5	208.0
5	225.5	196.5	78.5	52.3	238.0	216.3	47.0	29.5	11.5	200.3	175.8	358.0
6	15.5	346.5	228.5	202.5	28.3	6.8	197.3	180.0	161.8	350.5	325.8	148.0
7	165.5	136.8	18.8	352.5	178.5	157.0	347.8	330.3	312.3	140.8	116.0	298.0
8	315.8	286.8	168.8	142.8	328.8	307.3	138.0	120.8	102.5	291.0	266.0	88.0
9	105.8	76.8	318.8	293.0	119.0	97.8	288.5	271.0	252.8	81.3	56.0	238.3
10	255.8	226.8	109.0	83.0	269.3	248.0	78.8	61.5	43.3	231.5	206.3	28.3
11	45.8	16.8	259.0	233.3	59.5	38.3	229.3	212.0	193.5	21.8	356.3	178.3
12	195.8	167.0	49.3	23.5	209.8	188.5	19.8	2.3	343.8	171.8	146.5	328.3
13	345.8	317.0	199.3	173.5	0.0	339.0	170.0	152.8	134.3	322.0	296.5	118.3
14	135.8	107.0	349.5	323.8	150.3	129.3	320.5	303.3	284.5	112.3	86.5	268.3
15	285.8	257.0	139.5	114.0	300.5	279.8	110.8	93.5	74.8	262.5	236.8	58.3
16	75.8	47.3	289.5	264.0	90.8	70.0	261.3	244.0	225.0	52.5	26.8	208.3
17	225.8	197.3	79.8	54.3	241.0	220.3	51.8	34.3	15.5	202.8	176.8	358.5
18	15.8	347.3	229.8	204.5	31.3	10.8	202.0	184.8	165.8	353.0	327.0	148.5
19	166.0	137.3	20.0	354.8	181.5	161.0	352.5	335.3	316.0	143.3	117.0	298.5
20	316.0	287.5	170.0	144.8	331.8	311.3	143.0	125.5	106.3	293.3	267.0	88.5
21	106.0	77.5	320.3	295.0	122.0	101.8	293.3	276.0	256.8	83.5	57.3	238.5
22	256.0	227.5	110.3	85.3	272.3	252.0	83.8	66.3	47.0	233.8	207.3	28.5
23	46.0	17.8	260.5	235.5	62.5	42.5	234.0	216.8	197.3	23.8	357.3	178.5
24	196.0	167.8	50.5	25.8	212.8	192.8	24.5	7.0	347.5	174.0	147.5	328.5
25	346.0	317.8	200.8	175.8	3.0	343.3	175.0	157.5	137.8	324.3	297.5	118.5
26	136.3	108.0	350.8	326.0	153.5	133.5	325.3	307.8	288.0	114.3	87.5	268.5
27	286.3	258.0	141.0	116.3	303.8	284.0	115.8	98.3	78.3	264.5	237.5	58.5
28	76.3	48.0	291.0	266.5	94.0	74.3	266.3	248.5	228.5	54.5	27.8	208.5
29	226.3		81.3	56.8	244.3	224.8	56.5	39.0	18.8	204.8	177.8	358.5
30	16.3		231.5	207.0	34.5	15.0	207.0	189.3	169.0	355.0	327.8	148.8
31	166.3		21.5		184.8		357.5	339.8		145.0		298.8

Moto del meridiano centrale

	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h
m	o	o	o	o	o	o	o	o	o	o	o	o
0	0.0	36.3	72.5	108.8	145.0	181.3	217.6	253.8	290.1	326.4	2.6	38.9
10	6.0	42.3	78.6	114.8	151.1	187.3	223.6	259.9	296.1	332.4	8.7	44.9
20	12.1	48.3	84.6	120.9	157.1	193.4	229.7	265.9	302.2	338.4	14.7	51.0
30	18.1	54.4	90.7	126.9	163.2	199.4	235.7	272.0	308.2	344.5	20.7	57.0
40	24.2	60.4	96.7	133.0	169.2	205.5	241.7	278.0	314.3	350.5	26.8	63.0
50	30.2	66.5	102.7	139.0	175.3	211.5	247.8	284.0	320.3	356.6	32.8	69.1
60	36.3	72.5	108.8	145.0	181.3	217.6	253.8	290.1	326.4	2.6	38.9	75.1

Longitudine del meridiano che transita alle ore 0 T.U. del giorno indicato e moto medio in gradi

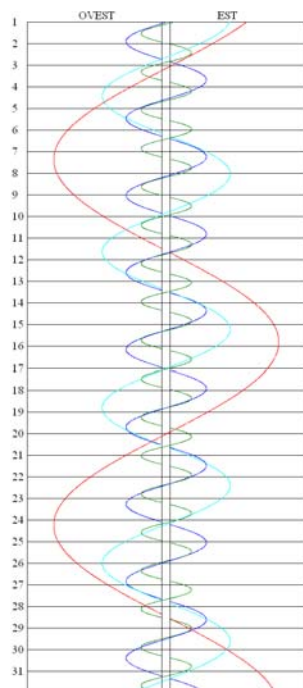
TRANSITI MACCHIA ROSSA DI GIOVE

[illegible]

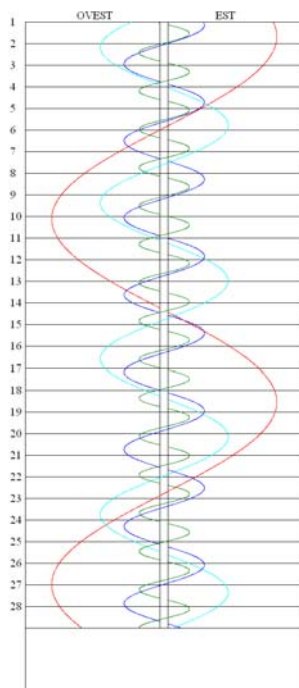
Orari in T.U. in cui transita la grande macchia rossa

POSIZIONE DEI SATELLITI DI GIOVE

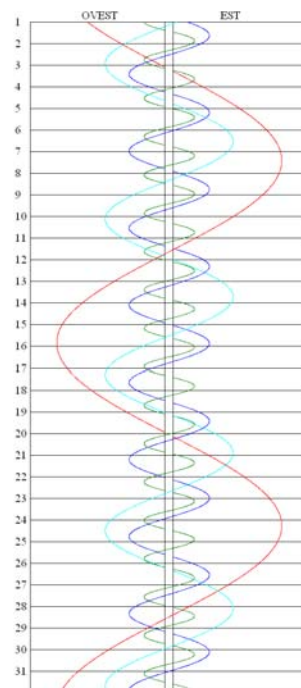
Gen



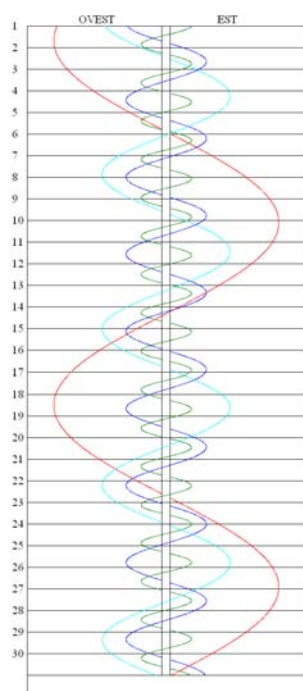
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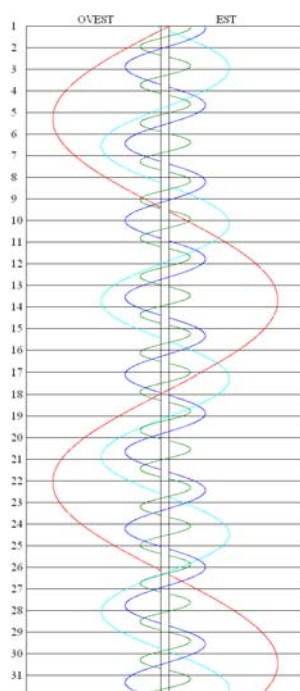
Mar



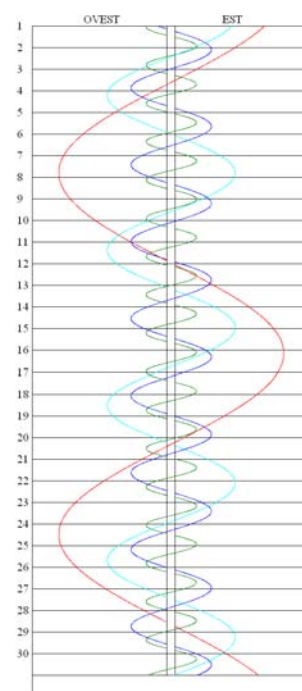
Apr



Mag

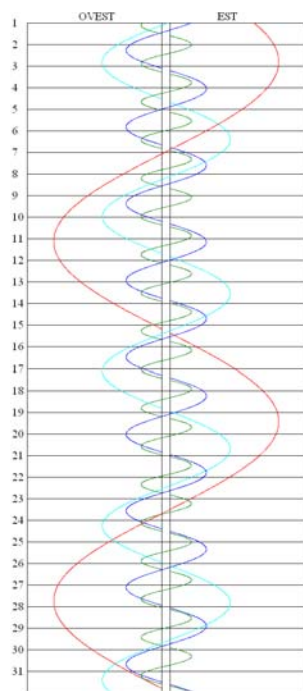


Giu

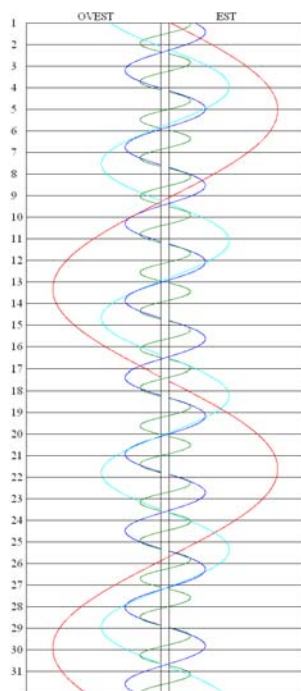


In verde Io, in blu Europa, in azzurro Ganimede, in rosso Callisto

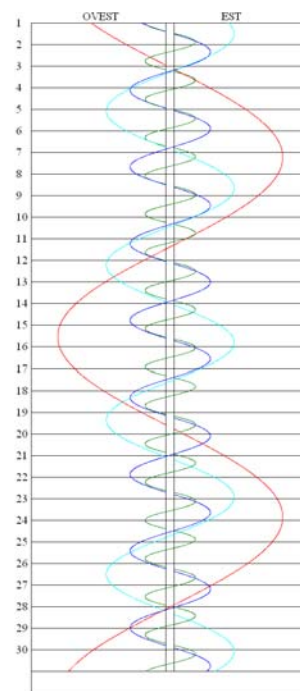
Lug



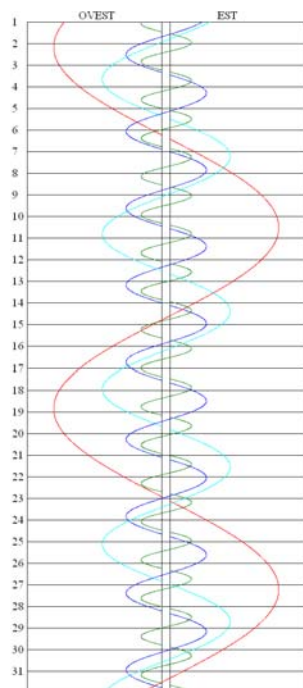
Ago



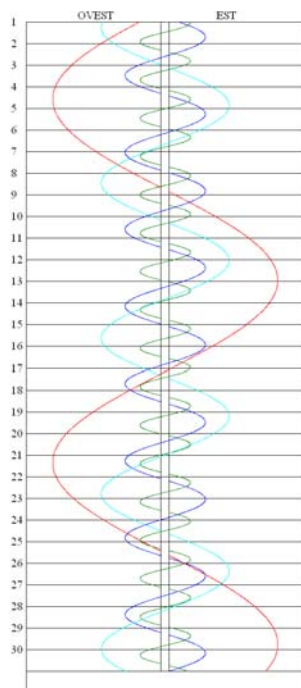
Set



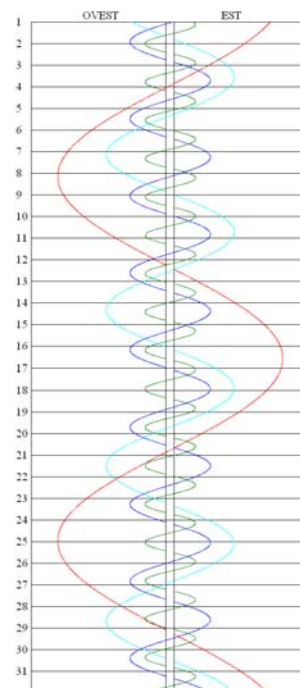
Ott



Nov



Dic



In verde Io, in blu Europa, in azzurro Ganimede, in rosso Callisto

EFFEMERIDI DI SATURNO

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Ang. fase°	Max "	Min "	B °	Sorge	Tran.	Tram.
1-gen	11h 32m 59.78s	+05° 08' 52.2"	9.367137	9.001902	74.87	108.9	18.4	16.4	0.9	5.7	41.7	0.6	-0.8	22.34	4.59	11.19
2-gen	11h 32m 59.91s	+05° 09' 09.3"	9.367426	8.986268	74.74	109.9	18.4	16.4	0.9	5.7	41.8	0.6	-0.8	22.30	4.55	11.15
3-gen	11h 32m 59.63s	+05° 09' 29.1"	9.367714	8.970736	74.61	111.0	18.4	16.5	0.9	5.6	41.8	0.6	-0.8	22.26	4.51	11.11
4-gen	11h 32m 58.94s	+05° 09' 51.4"	9.368003	8.955312	74.48	112.0	18.5	16.5	0.9	5.6	41.9	0.6	-0.8	22.22	4.47	11.08
5-gen	11h 32m 57.85s	+05° 10' 16.3"	9.368291	8.940001	74.35	113.0	18.5	16.5	0.9	5.5	42.0	0.6	-0.8	22.18	4.43	11.04
6-gen	11h 32m 56.35s	+05° 10' 43.7"	9.368580	8.924808	74.23	114.0	18.5	16.5	0.9	5.5	42.1	0.6	-0.8	22.14	4.39	11.00
7-gen	11h 32m 54.46s	+05° 11' 13.7"	9.368869	8.909738	74.10	115.1	18.6	16.6	0.9	5.5	42.1	0.6	-0.8	22.10	4.35	10.56
8-gen	11h 32m 52.17s	+05° 11' 46.1"	9.369158	8.894795	73.98	116.1	18.6	16.6	0.9	5.4	42.2	0.6	-0.9	22.06	4.31	10.52
9-gen	11h 32m 49.48s	+05° 12' 21.0"	9.369446	8.879985	73.85	117.1	18.6	16.6	0.9	5.4	42.3	0.6	-0.9	22.02	4.27	10.48
10-gen	11h 32m 46.39s	+05° 12' 58.4"	9.369735	8.865312	73.73	118.2	18.7	16.7	0.9	5.3	42.3	0.6	-0.9	21.58	4.23	10.44
11-gen	11h 32m 42.90s	+05° 13' 38.3"	9.370024	8.850781	73.61	119.2	18.7	16.7	0.9	5.3	42.4	0.7	-0.9	21.54	4.19	10.40
12-gen	11h 32m 39.02s	+05° 14' 20.7"	9.370313	8.836396	73.49	120.2	18.7	16.7	0.9	5.2	42.5	0.7	-0.9	21.50	4.15	10.36
13-gen	11h 32m 34.73s	+05° 15' 05.5"	9.370602	8.822161	73.37	121.3	18.8	16.7	0.9	5.1	42.5	0.7	-0.9	21.46	4.11	10.32
14-gen	11h 32m 30.05s	+05° 15' 52.8"	9.370891	8.808082	73.25	122.3	18.8	16.8	0.9	5.1	42.6	0.7	-0.9	21.42	4.07	10.28
15-gen	11h 32m 24.98s	+05° 16' 42.5"	9.371180	8.794163	73.14	123.4	18.8	16.8	0.8	5.0	42.7	0.7	-0.9	21.38	4.03	10.24
16-gen	11h 32m 19.52s	+05° 17' 34.7"	9.371469	8.780408	73.02	124.4	18.8	16.8	0.8	5.0	42.7	0.7	-1.0	21.34	3.59	10.20
17-gen	11h 32m 13.67s	+05° 18' 29.2"	9.371759	8.766824	72.91	125.5	18.9	16.8	0.8	4.9	42.8	0.7	-1.0	21.30	3.55	10.16
18-gen	11h 32m 07.43s	+05° 19' 26.0"	9.372048	8.753415	72.80	126.5	18.9	16.9	0.8	4.8	42.9	0.7	-1.0	21.26	3.51	10.12
19-gen	11h 32m 00.82s	+05° 20' 25.1"	9.372337	8.740185	72.69	127.5	18.9	16.9	0.8	4.8	42.9	0.8	-1.0	21.22	3.47	10.08
20-gen	11h 31m 53.83s	+05° 21' 26.6"	9.372627	8.727140	72.58	128.6	19.0	16.9	0.8	4.7	43.0	0.8	-1.0	21.18	3.43	10.04
21-gen	11h 31m 46.47s	+05° 22' 30.2"	9.372916	8.714285	72.47	129.7	19.0	16.9	0.8	4.6	43.1	0.8	-1.1	21.13	3.39	10.00
22-gen	11h 31m 38.75s	+05° 23' 36.1"	9.373206	8.701625	72.37	130.7	19.0	17.0	0.8	4.6	43.1	0.8	-1.1	21.09	3.35	9.56
23-gen	11h 31m 30.65s	+05° 24' 44.3"	9.373495	8.689164	72.27	131.8	19.0	17.0	0.8	4.5	43.2	0.8	-1.1	21.05	3.31	9.52
24-gen	11h 31m 22.19s	+05° 25' 54.6"	9.373785	8.676907	72.16	132.8	19.1	17.0	0.8	4.4	43.3	0.8	-1.1	21.01	3.27	9.48
25-gen	11h 31m 13.37s	+05° 27' 07.0"	9.374074	8.664860	72.06	133.9	19.1	17.0	0.8	4.3	43.3	0.9	-1.1	20.57	3.23	9.44
26-gen	11h 31m 04.19s	+05° 28' 21.6"	9.374364	8.653026	71.96	134.9	19.1	17.1	0.8	4.3	43.4	0.9	-1.2	20.53	3.18	9.40
27-gen	11h 30m 54.67s	+05° 29' 38.2"	9.374654	8.641411	71.87	136.0	19.2	17.1	0.8	4.2	43.4	0.9	-1.2	20.48	3.14	9.36
28-gen	11h 30m 44.79s	+05° 30' 56.9"	9.374944	8.630018	71.77	137.1	19.2	17.1	0.8	4.1	43.5	0.9	-1.2	20.44	3.10	9.32
29-gen	11h 30m 34.58s	+05° 32' 17.5"	9.375233	8.618853	71.68	138.1	19.2	17.1	0.8	4.0	43.5	0.9	-1.2	20.40	3.06	9.28
30-gen	11h 30m 24.03s	+05° 33' 40.1"	9.375523	8.607919	71.59	139.2	19.2	17.2	0.8	3.9	43.6	1.0	-1.3	20.36	3.02	9.24
31-gen	11h 30m 13.15s	+05° 35' 04.6"	9.375813	8.597221	71.50	140.2	19.3	17.2	0.7	3.9	43.7	1.0	-1.3	20.32	2.58	9.20
1-feb	11h 30m 01.95s	+05° 36' 30.9"	9.376103	8.586763	71.41	141.3	19.3	17.2	0.7	3.8	43.7	1.0	-1.3	20.27	2.54	9.16
2-feb	11h 29m 50.44s	+05° 37' 59.0"	9.376393	8.576547	71.33	142.4	19.3	17.2	0.7	3.7	43.8	1.0	-1.4	20.23	2.50	9.12
3-feb	11h 29m 38.62s	+05° 39' 28.9"	9.376683	8.566579	71.25	143.4	19.3	17.2	0.7	3.6	43.8	1.1	-1.4	20.19	2.46	9.08
4-feb	11h 29m 26.51s	+05° 41' 00.3"	9.376973	8.556861	71.16	144.5	19.3	17.3	0.7	3.5	43.9	1.1	-1.4	20.15	2.41	9.04
5-feb	11h 29m 14.10s	+05° 42' 33.4"	9.377264	8.547397	71.09	145.6	19.4	17.3	0.7	3.4	43.9	1.1	-1.4	20.11	2.37	9.00
6-feb	11h 29m 01.41s	+05° 44' 08.1"	9.377554	8.538190	71.01	146.6	19.4	17.3	0.7	3.3	44.0	1.1	-1.5	20.06	2.33	8.56
7-feb	11h 28m 48.44s	+05° 45' 44.4"	9.377844	8.529243	70.94	147.7	19.4	17.3	0.7	3.2	44.0	1.2	-1.5	20.02	2.29	8.52
8-feb	11h 28m 35.20s	+05° 47' 22.1"	9.378134	8.520558	70.86	148.8	19.4	17.3	0.7	3.1	44.1	1.2	-1.5	19.58	2.25	8.48
9-feb	11h 28m 21.68s	+05° 49' 01.3"	9.378425	8.512139	70.79	149.9	19.4	17.3	0.7	3.0	44.1	1.2	-1.6	19.54	2.21	8.44
10-feb	11h 28m 07.90s	+05° 50' 41.9"	9.378715	8.503989	70.73	150.9	19.5	17.4	0.7	2.9	44.1	1.2	-1.6	19.49	2.17	8.40
11-feb	11h 27m 53.86s	+05° 52' 23.9"	9.379006	8.496110	70.66	152.0	19.5	17.4	0.7	2.8	44.2	1.3	-1.6	19.45	2.12	8.36
12-feb	11h 27m 39.58s	+05° 54' 07.2"	9.379296	8.488505	70.60	153.1	19.5	17.4	0.7	2.7	44.2	1.3	-1.7	19.41	2.08	8.32
13-feb	11h 27m 25.05s	+05° 55' 51.8"	9.379587	8.481177	70.54	154.1	19.5	17.4	0.7	2.6	44.3	1.3	-1.7	19.36	2.04	8.27
14-feb	11h 27m 10.29s	+05° 57' 37.5"	9.379877	8.474129	70.48	155.2	19.5	17.4	0.6	2.5	44.3	1.3	-1.7	19.32	2.00	8.23
15-feb	11h 26m 55.32s	+05° 59' 24.4"	9.380168	8.467364	70.42	156.3	19.5	17.4	0.6	2.4	44.3	1.4	-1.8	19.28	1.56	8.19
16-feb	11h 26m 40.12s	+06° 01' 12.3"	9.380459	8.460885	70.37	157.4	19.6	17.5	0.6	2.3	44.4	1.4	-1.8	19.24	1.52	8.15
17-feb	11h 26m 24.73s	+06° 03' 01.2"	9.380750	8.454694	70.32	158.4	19.6	17.5	0.6	2.2	44.4	1.4	-1.8	19.19	1.47	8.11
18-feb	11h 26m 09.13s	+06° 04' 51.1"	9.381040	8.448794	70.27	159.5	19.6	17.5	0.6	2.1	44.4	1.5	-1.9	19.15	1.43	8.07
19-feb	11h 25m 53.34s	+06° 06' 41.9"	9.381331	8.443187	70.22	160.6	19.6	17.5	0.6	2.0	44.5	1.5	-1.9	19.11	1.39	8.03
20-feb	11h 25m 37.38s	+06° 08' 33.5"	9.381622	8.437877	70.18	161.7	19.6	17.5	0.6	1.9	44.5	1.5	-2.0	19.06	1.35	7.59
21-feb	11h 25m 21.23s	+06° 10' 25.9"	9.381913	8.432865	70.13	162.7	19.6	17.5	0.6	1.8	44.5	1.5	-2.0	19.02	1.31	7.55
22-feb	11h 25m 04.93s	+06° 12' 19.1"	9.382204	8.428153	70.09	163.8	19.6	17.5	0.6	1.7	44.5	1.6	-2.0	18.58	1.26	7.51
23-feb	11h 24m 48.46s	+06° 14' 12.9"	9.382495	8.423744	70.06	164.9	19.6	17.5	0.6	1.6	44.6	1.6	-2.1	18.53	1.22	7.47
24-feb	11h 24m 31.85s	+06° 16' 07.3"	9.382786	8.419639	70.02	166.0	19.7	17.5	0.6	1.5	44.6	1.6	-2.1	18.49	1.18	7.43
25-feb	11h 24m 15.09s	+06° 18' 02.3"	9.383077	8.415840	69.99	167.0	19.7	17.5	0.6	1.4	44.6	1.7	-2.1	18.45	1.14	7.38
26-feb	11h 23m 58.21s	+06° 19' 57.7"	9.383368	8.412348	69.96	168.1	19.7	17.6	0.6	1.2	44.6	1.7	-2.2	18.40	1.10	7.34
27-feb	11h 23m 41.22s	+06° 21' 53.5"	9.383660	8.409166	69.94	169.2	19.7	17.6	0.6	1.1	44.6	1.7	-2.2	18.36	1.05	7.30
28-feb	11h 23m 24.11s	+06° 23' 49.7"	9.383951	8.406293	69.91	170.2	19.7	17.6	0.5	1.0	44.7	1.8	-2.3	18.32	1.01	7.26
1-mar	11h 23m 06.92s	+06° 25' 46.0"	9.384242	8.403731	69.89	171.3	19.7	17.6	0.5	0.9	44.7	1.8	-2.3	18.27	0.57	7.22
2-mar	11h 22m 49.64s	+06° 27' 42.5"	9.384534	8.401481	69.87	172.3	19.7	17.6	0.5	0.8	44.7	1.8	-2.3	18.23	0.53	7.18
3-mar	11h 22m 32.28s	+06° 29' 39.1"	9.384825	8.399543	69.86	173.3	19.7	17.6	0.5	0.7	44.7	1.8	-2.4	18.19	0.48	7.14
4-mar	11h 22m 14.87s	+06° 31' 35.8"	9.385116	8.397917	69.84	174.3	19.7	17.6	0.5	0.6	44.7	1.9	-2.4	18.14	0.44	7.10
5-mar	11h 21m 57.40s	+06° 33' 32.4"	9.385408	8.396604	69.83	175.3	19.7	17.6	0.5	0.5	44.7	1.9	-2.4	18.10	0.40	7.06
6-mar	11h 21m 39.89s	+06° 35' 28.9"	9.385699	8.395603	69.82	176.2	19.7	17.6	0.5	0.4	44.7	1.9	-2.5	18.06	0.36	7.02
7-mar	11h 21m 22.34s	+06° 37' 25.3"	9.385991	8.394914	69.82	177.0	19.7	17.6	0.5	0.3	44.7	2.0	-2.5	18.01	0.32	6.57
8-mar	11h 21m 04.77s	+06° 39' 21.5"	9.386283	8.394537	69.82	177.5	19.7	17.6	0.5							

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Ang. fase'	Max "	Min "	B °	Sorge	Tran.	Tram.
14-mar	11h 19m 19.23s	+06° 50' 51.5"	9.388033	8.398808	69.85	174.0	19.7	17.6	0.5	0.6	44.7	2.2	-2.8	17.31	0.02	6.29
15-mar	11h 19m 01.72s	+06° 52' 44.6"	9.388325	8.400605	69.87	173.0	19.7	17.6	0.5	0.7	44.7	2.2	-2.8	17.27	23.54	6.25
16-mar	11h 18m 44.27s	+06° 54' 37.1"	9.388617	8.402710	69.88	171.9	19.7	17.6	0.5	0.9	44.7	2.2	-2.9	17.22	23.49	6.20
17-mar	11h 18m 26.87s	+06° 56' 28.9"	9.388909	8.405123	69.90	170.9	19.7	17.6	0.5	1.0	44.7	2.3	-2.9	17.18	23.45	6.16
18-mar	11h 18m 09.55s	+06° 58' 19.8"	9.389201	8.407843	69.93	169.9	19.7	17.6	0.5	1.1	44.6	2.3	-2.9	17.14	23.41	6.12
19-mar	11h 17m 52.30s	+07° 00' 09.9"	9.389494	8.410870	69.95	168.8	19.7	17.6	0.5	1.2	44.6	2.3	-3.0	17.09	23.37	6.08
20-mar	11h 17m 35.14s	+07° 01' 59.0"	9.389786	8.414202	69.98	167.8	19.7	17.6	0.5	1.3	44.6	2.3	-3.0	17.05	23.32	6.04
21-mar	11h 17m 18.08s	+07° 03' 47.3"	9.390078	8.417838	70.01	166.7	19.7	17.5	0.5	1.4	44.6	2.4	-3.1	17.01	23.28	6.00
22-mar	11h 17m 01.11s	+07° 05' 34.5"	9.390370	8.421777	70.04	165.7	19.7	17.5	0.5	1.5	44.6	2.4	-3.1	16.56	23.24	5.56
23-mar	11h 16m 44.27s	+07° 07' 20.6"	9.390663	8.426017	70.08	164.6	19.6	17.5	0.5	1.6	44.5	2.4	-3.1	16.52	23.20	5.52
24-mar	11h 16m 27.54s	+07° 09' 05.6"	9.390955	8.430557	70.11	163.6	19.6	17.5	0.5	1.7	44.5	2.5	-3.2	16.48	23.16	5.48
25-mar	11h 16m 10.94s	+07° 10' 49.4"	9.391247	8.435395	70.15	162.5	19.6	17.5	0.5	1.8	44.5	2.5	-3.2	16.43	23.11	5.44
26-mar	11h 15m 54.49s	+07° 12' 32.0"	9.391540	8.440529	70.20	161.4	19.6	17.5	0.5	1.9	44.5	2.5	-3.2	16.39	23.07	5.39
27-mar	11h 15m 38.19s	+07° 14' 13.2"	9.391832	8.445957	70.24	160.4	19.6	17.5	0.5	2.0	44.4	2.5	-3.3	16.35	23.03	5.35
28-mar	11h 15m 22.05s	+07° 15' 53.1"	9.392125	8.451676	70.29	159.3	19.6	17.5	0.6	2.1	44.4	2.6	-3.3	16.31	22.59	5.31
29-mar	11h 15m 06.09s	+07° 17' 31.5"	9.392417	8.457685	70.34	158.3	19.6	17.5	0.6	2.3	44.4	2.6	-3.3	16.26	22.55	5.27
30-mar	11h 14m 50.32s	+07° 19' 08.4"	9.392710	8.463981	70.39	157.2	19.6	17.4	0.6	2.4	44.3	2.6	-3.4	16.22	22.50	5.23
31-mar	11h 14m 34.73s	+07° 20' 43.7"	9.393003	8.470560	70.45	156.2	19.5	17.4	0.6	2.5	44.3	2.6	-3.4	16.18	22.46	5.19
1-apr	11h 14m 19.35s	+07° 22' 17.5"	9.393295	8.477419	70.50	155.1	19.5	17.4	0.6	2.6	44.3	2.6	-3.4	16.13	22.42	5.15
2-apr	11h 14m 04.17s	+07° 23' 49.6"	9.393588	8.484556	70.56	154.1	19.5	17.4	0.6	2.7	44.2	2.7	-3.5	16.09	22.38	5.11
3-apr	11h 13m 49.21s	+07° 25' 20.1"	9.393881	8.491967	70.63	153.0	19.5	17.4	0.6	2.8	44.2	2.7	-3.5	16.05	22.34	5.07
4-apr	11h 13m 34.46s	+07° 26' 48.9"	9.394174	8.499649	70.69	152.0	19.5	17.4	0.6	2.9	44.2	2.7	-3.5	16.01	22.30	5.03
5-apr	11h 13m 19.94s	+07° 28' 16.0"	9.394466	8.507599	70.76	150.9	19.5	17.4	0.6	3.0	44.1	2.7	-3.5	15.56	22.25	4.59
6-apr	11h 13m 05.65s	+07° 29' 41.4"	9.394759	8.515812	70.82	149.9	19.4	17.3	0.6	3.1	44.1	2.7	-3.6	15.52	22.21	4.54
7-apr	11h 12m 51.60s	+07° 31' 04.9"	9.395052	8.524287	70.89	148.8	19.4	17.3	0.6	3.2	44.0	2.8	-3.6	15.48	22.17	4.50
8-apr	11h 12m 37.80s	+07° 32' 26.6"	9.395345	8.533019	70.97	147.8	19.4	17.3	0.6	3.3	44.0	2.8	-3.6	15.44	22.13	4.46
9-apr	11h 12m 24.25s	+07° 33' 46.4"	9.395638	8.542006	71.04	146.8	19.4	17.3	0.6	3.4	43.9	2.8	-3.7	15.39	22.09	4.42
10-apr	11h 12m 10.96s	+07° 35' 04.3"	9.395931	8.551243	71.12	145.7	19.4	17.3	0.6	3.4	43.9	2.8	-3.7	15.35	22.05	4.38
11-apr	11h 11m 57.94s	+07° 36' 20.2"	9.396224	8.560729	71.20	144.7	19.3	17.3	0.6	3.5	43.8	2.8	-3.7	15.31	22.00	4.34
12-apr	11h 11m 45.20s	+07° 37' 34.1"	9.396518	8.570459	71.28	143.6	19.3	17.2	0.6	3.6	43.8	2.9	-3.7	15.27	21.56	4.30
13-apr	11h 11m 32.74s	+07° 38' 46.0"	9.396811	8.580431	71.36	142.6	19.3	17.2	0.6	3.7	43.7	2.9	-3.8	15.23	21.52	4.26
14-apr	11h 11m 20.57s	+07° 39' 55.8"	9.397104	8.590640	71.45	141.6	19.3	17.2	0.6	3.8	43.7	2.9	-3.8	15.18	21.48	4.22
15-apr	11h 11m 08.69s	+07° 41' 03.6"	9.397397	8.601085	71.53	140.5	19.2	17.2	0.6	3.9	43.6	2.9	-3.8	15.14	21.44	4.18
16-apr	11h 10m 57.11s	+07° 42' 09.3"	9.397691	8.611760	71.62	139.5	19.2	17.1	0.6	4.0	43.6	2.9	-3.8	15.10	21.40	4.14
17-apr	11h 10m 45.83s	+07° 43' 12.8"	9.397984	8.622662	71.71	138.5	19.2	17.1	0.6	4.1	43.5	2.9	-3.8	15.06	21.36	4.10
18-apr	11h 10m 34.85s	+07° 44' 14.2"	9.398277	8.633789	71.81	137.5	19.2	17.1	0.7	4.1	43.5	2.9	-3.9	15.02	21.32	4.06
19-apr	11h 10m 24.19s	+07° 45' 13.4"	9.398571	8.645135	71.90	136.4	19.1	17.1	0.7	4.2	43.4	2.9	-3.9	14.57	21.27	4.02
20-apr	11h 10m 13.84s	+07° 46' 10.5"	9.398864	8.656698	72.00	135.4	19.1	17.1	0.7	4.3	43.4	3.0	-3.9	14.53	21.23	3.58
21-apr	11h 10m 03.81s	+07° 47' 05.3"	9.399158	8.668473	72.09	134.4	19.1	17.0	0.7	4.4	43.3	3.0	-3.9	14.49	21.19	3.54
22-apr	11h 09m 54.11s	+07° 47' 57.8"	9.399451	8.680456	72.19	133.4	19.1	17.0	0.7	4.5	43.2	3.0	-3.9	14.45	21.15	3.50
23-apr	11h 09m 44.75s	+07° 48' 48.0"	9.399745	8.692643	72.29	132.4	19.0	17.0	0.7	4.5	43.2	3.0	-4.0	14.41	21.11	3.45
24-apr	11h 09m 35.72s	+07° 49' 35.9"	9.400039	8.705030	72.40	131.4	19.0	17.0	0.7	4.6	43.1	3.0	-4.0	14.37	21.07	3.41
25-apr	11h 09m 27.04s	+07° 50' 21.5"	9.400332	8.717613	72.50	130.4	19.0	16.9	0.7	4.7	43.1	3.0	-4.0	14.33	21.03	3.37
26-apr	11h 09m 18.71s	+07° 51' 04.6"	9.400626	8.730386	72.61	129.3	19.0	16.9	0.7	4.7	43.0	3.0	-4.0	14.28	20.59	3.33
27-apr	11h 09m 10.73s	+07° 51' 45.4"	9.400920	8.743345	72.72	128.3	18.9	16.9	0.7	4.8	42.9	3.0	-4.0	14.24	20.55	3.29
28-apr	11h 09m 03.12s	+07° 52' 23.7"	9.401214	8.756486	72.83	127.3	18.9	16.9	0.7	4.9	42.9	3.0	-4.0	14.20	20.51	3.25
29-apr	11h 08m 55.86s	+07° 52' 59.7"	9.401507	8.769804	72.94	126.3	18.9	16.8	0.7	5.0	42.8	3.0	-4.1	14.16	20.47	3.21
30-apr	11h 08m 48.97s	+07° 53' 33.2"	9.401801	8.783292	73.05	125.3	18.8	16.8	0.7	5.0	42.7	3.0	-4.1	14.12	20.43	3.17
1-mag	11h 08m 42.44s	+07° 54' 04.3"	9.402095	8.796948	73.16	124.3	18.8	16.8	0.7	5.1	42.7	3.0	-4.1	14.08	20.39	3.13
2-mag	11h 08m 36.27s	+07° 54' 33.0"	9.402389	8.810765	73.28	123.3	18.8	16.8	0.7	5.1	42.6	3.0	-4.1	14.04	20.35	3.09
3-mag	11h 08m 30.47s	+07° 54' 59.3"	9.402683	8.824740	73.39	122.3	18.8	16.7	0.7	5.2	42.5	3.0	-4.1	14.00	20.31	3.05
4-mag	11h 08m 25.03s	+07° 55' 23.2"	9.402977	8.838867	73.51	121.4	18.7	16.7	0.7	5.3	42.5	3.0	-4.1	13.56	20.27	3.01
5-mag	11h 08m 19.97s	+07° 55' 44.6"	9.403271	8.853141	73.63	120.4	18.7	16.7	0.7	5.3	42.4	3.0	-4.1	13.52	20.23	2.57
6-mag	11h 08m 15.28s	+07° 56' 03.6"	9.403566	8.867559	73.75	119.4	18.7	16.7	0.8	5.4	42.3	3.0	-4.1	13.48	20.19	2.53
7-mag	11h 08m 10.96s	+07° 56' 20.1"	9.403860	8.882116	73.87	118.4	18.6	16.6	0.8	5.4	42.3	3.0	-4.1	13.44	20.15	2.49
8-mag	11h 08m 07.03s	+07° 56' 34.1"	9.404154	8.896807	73.99	117.4	18.6	16.6	0.8	5.5	42.2	3.0	-4.1	13.40	20.11	2.45
9-mag	11h 08m 03.47s	+07° 56' 45.7"	9.404448	8.911628	74.12	116.4	18.6	16.6	0.8	5.5	42.1	3.0	-4.1	13.36	20.07	2.41
10-mag	11h 08m 00.30s	+07° 56' 54.8"	9.404742	8.926575	74.24	115.4	18.5	16.5	0.8	5.6	42.0	3.0	-4.1	13.32	20.03	2.37
11-mag	11h 07m 57.51s	+07° 57' 01.4"	9.405037	8.941643	74.37	114.5	18.5	16.5	0.8	5.6	42.0	3.0	-4.1	13.28	19.59	2.33
12-mag	11h 07m 55.10s	+07° 57' 05.6"	9.405331	8.956829	74.49	113.5	18.5	16.5	0.8	5.7	41.9	3.0	-4.1	13.24	19.55	2.29
13-mag	11h 07m 53.08s	+07° 57' 07.3"	9.405626	8.972127	74.62	112.5	18.4	16.5	0.8	5.7	41.8	3.0	-4.1	13.20	19.51	2.25
14-mag	11h 07m 51.44s	+07° 57' 06.5"	9.405920	8.987533	74.75	111.6	18.4	16.4	0.8	5.7	41.8	3.0	-4.1	13.16	19.47	2.22
15-mag	11h 07m 50.18s	+07° 57' 03.3"	9.406214	9.003044	74.88	110.6	18.4	16.4	0.8	5.8	41.7	3.0	-4.1	13.12	19.43	2.18
16-mag	11h 07m 49.30s	+07° 56' 57.7"	9.406509	9.018654	75.01	109.6	18.4	16.4	0.8	5.8	41.6	3.0	-4.1	13.08	19.39	2.14
17-mag	11h 07m 48.80s	+07° 56' 49.6"	9.406804	9.034360	75.14	108.7	18.3	16.3	0.8	5.8	41.5	3.0	-4.1	13.04	19.35	2.10
18-mag	11h 07m 48.69s	+07° 56' 39.0"	9.407098	9.050156	75.27	107.7	18.3	16.3	0.8	5.9	41.5	3.0	-4.1	13.00	19.31	2.06
19-mag	11h 07m 48.96s	+07° 56' 26.1"	9.407393	9.066038	75.40	106.7										

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Ang. fase'	Max "	Min "	B °	Sorge	Tran.	Tram.
30-mag	11h 08m 17.55s	+07° 51' 21.3"	9.410636	9.245068	76.89	96.3	17.9	16.0	0.9	6.1	40.6	2.9	-4.0	12.14	18.44	1.19
31-mag	11h 08m 22.45s	+07° 50' 39.2"	9.410931	9.261609	77.03	95.4	17.9	15.9	0.9	6.2	40.5	2.8	-4.0	12.10	18.41	1.15
1-giu	11h 08m 27.71s	+07° 49' 54.8"	9.411227	9.278174	77.16	94.4	17.8	15.9	0.9	6.2	40.5	2.8	-4.0	12.06	18.37	1.11
2-giu	11h 08m 33.36s	+07° 49' 08.0"	9.411522	9.294758	77.30	93.5	17.8	15.9	0.9	6.2	40.4	2.8	-4.0	12.03	18.33	1.07
3-giu	11h 08m 39.37s	+07° 48' 19.0"	9.411817	9.311357	77.44	92.6	17.8	15.9	0.9	6.2	40.3	2.8	-4.0	11.59	18.29	1.03
4-giu	11h 08m 45.76s	+07° 47' 27.6"	9.412112	9.327967	77.58	91.7	17.7	15.8	0.9	6.2	40.2	2.8	-4.0	11.55	18.25	0.99
5-giu	11h 08m 52.52s	+07° 46' 34.0"	9.412408	9.344584	77.72	90.7	17.7	15.8	0.9	6.2	40.2	2.8	-3.9	11.51	18.21	0.95
6-giu	11h 08m 59.64s	+07° 45' 38.0"	9.412703	9.361203	77.85	89.8	17.7	15.8	0.9	6.2	40.1	2.7	-3.9	11.47	18.18	0.92
7-giu	11h 09m 07.14s	+07° 44' 39.8"	9.412998	9.377820	77.99	88.9	17.6	15.7	0.9	6.2	40.0	2.7	-3.9	11.44	18.14	0.88
8-giu	11h 09m 14.99s	+07° 43' 39.4"	9.413294	9.394432	78.13	88.0	17.6	15.7	0.9	6.2	40.0	2.7	-3.9	11.40	18.10	0.84
9-giu	11h 09m 23.21s	+07° 42' 36.7"	9.413589	9.411035	78.27	87.1	17.6	15.7	0.9	6.2	39.9	2.7	-3.9	11.36	18.06	0.80
10-giu	11h 09m 31.78s	+07° 41' 31.9"	9.413885	9.427625	78.41	86.1	17.6	15.7	0.9	6.2	39.8	2.7	-3.9	11.33	18.02	0.76
11-giu	11h 09m 40.71s	+07° 40' 24.9"	9.414180	9.444197	78.55	85.2	17.5	15.6	0.9	6.2	39.7	2.7	-3.8	11.29	17.99	0.72
12-giu	11h 09m 49.99s	+07° 39' 15.7"	9.414476	9.460748	78.68	84.3	17.5	15.6	0.9	6.2	39.7	2.6	-3.8	11.25	17.95	0.68
13-giu	11h 09m 59.62s	+07° 38' 04.4"	9.414771	9.477274	78.82	83.4	17.5	15.6	0.9	6.2	39.6	2.6	-3.8	11.21	17.91	0.64
14-giu	11h 10m 09.59s	+07° 36' 51.0"	9.415067	9.493771	78.96	82.5	17.4	15.6	0.9	6.1	39.5	2.6	-3.8	11.18	17.87	0.60
15-giu	11h 10m 19.91s	+07° 35' 35.4"	9.415363	9.510235	79.09	81.6	17.4	15.5	0.9	6.1	39.5	2.6	-3.7	11.14	17.83	0.56
16-giu	11h 10m 30.57s	+07° 34' 17.8"	9.415658	9.526662	79.23	80.7	17.4	15.5	0.9	6.1	39.4	2.5	-3.7	11.10	17.79	0.52
17-giu	11h 10m 41.57s	+07° 32' 58.0"	9.415954	9.543048	79.37	79.8	17.3	15.5	1.0	6.1	39.3	2.5	-3.7	11.07	17.75	0.48
18-giu	11h 10m 52.91s	+07° 31' 36.2"	9.416250	9.559389	79.50	78.9	17.3	15.4	1.0	6.1	39.3	2.5	-3.7	11.03	17.71	0.44
19-giu	11h 11m 04.59s	+07° 30' 12.2"	9.416546	9.575681	79.64	78.0	17.3	15.4	1.0	6.1	39.2	2.5	-3.6	10.99	17.67	0.40
20-giu	11h 11m 16.61s	+07° 28' 46.2"	9.416842	9.591920	79.77	77.1	17.3	15.4	1.0	6.0	39.1	2.5	-3.6	10.95	17.63	0.36
21-giu	11h 11m 28.97s	+07° 27' 18.1"	9.417137	9.608101	79.91	76.2	17.2	15.4	1.0	6.0	39.1	2.4	-3.6	10.91	17.59	0.32
22-giu	11h 11m 41.66s	+07° 25' 48.0"	9.417433	9.624221	80.04	75.3	17.2	15.3	1.0	6.0	39.0	2.4	-3.5	10.87	17.55	0.28
23-giu	11h 11m 54.68s	+07° 24' 15.9"	9.417729	9.640274	80.18	74.4	17.2	15.3	1.0	6.0	38.9	2.4	-3.5	10.83	17.51	0.24
24-giu	11h 12m 08.03s	+07° 22' 41.9"	9.418025	9.656257	80.31	73.5	17.1	15.3	1.0	5.9	38.9	2.4	-3.5	10.79	17.47	0.20
25-giu	11h 12m 21.69s	+07° 21' 05.9"	9.418321	9.672165	80.44	72.6	17.1	15.3	1.0	5.9	38.8	2.3	-3.4	10.75	17.43	0.16
26-giu	11h 12m 35.66s	+07° 19' 28.0"	9.418618	9.687995	80.57	71.7	17.1	15.2	1.0	5.9	38.7	2.3	-3.4	10.71	17.39	0.12
27-giu	11h 12m 49.94s	+07° 17' 48.3"	9.418914	9.703743	80.70	70.8	17.1	15.2	1.0	5.9	38.7	2.3	-3.4	10.67	17.35	0.08
28-giu	11h 13m 04.53s	+07° 16' 06.7"	9.419210	9.719404	80.83	69.9	17.0	15.2	1.0	5.8	38.6	2.3	-3.3	10.63	17.31	0.04
29-giu	11h 13m 19.42s	+07° 14' 23.2"	9.419506	9.734975	80.96	69.1	17.0	15.2	1.0	5.8	38.6	2.2	-3.3	10.59	17.27	0.00
30-giu	11h 13m 34.62s	+07° 12' 37.9"	9.419802	9.750453	81.09	68.2	17.0	15.1	1.0	5.7	38.5	2.2	-3.3	10.55	17.23	-0.04
1-lug	11h 13m 50.11s	+07° 10' 50.8"	9.420099	9.765835	81.22	67.3	16.9	15.1	1.0	5.7	38.4	2.2	-3.2	10.51	17.19	-0.08
2-lug	11h 14m 05.90s	+07° 09' 01.9"	9.420395	9.781116	81.35	66.4	16.9	15.1	1.0	5.7	38.4	2.1	-3.2	10.47	17.15	-0.12
3-lug	11h 14m 21.99s	+07° 07' 11.2"	9.420691	9.796295	81.47	65.5	16.9	15.1	1.0	5.6	38.3	2.1	-3.2	10.43	17.11	-0.16
4-lug	11h 14m 38.36s	+07° 05' 18.8"	9.420988	9.811367	81.60	64.7	16.9	15.1	1.0	5.6	38.3	2.1	-3.1	10.39	17.07	-0.20
5-lug	11h 14m 55.02s	+07° 03' 24.6"	9.421284	9.826330	81.72	63.8	16.8	15.0	1.0	5.6	38.2	2.1	-3.1	10.35	17.03	-0.24
6-lug	11h 15m 11.96s	+07° 01' 28.8"	9.421580	9.841180	81.85	62.9	16.8	15.0	1.0	5.5	38.1	2.0	-3.1	10.31	17.00	-0.28
7-lug	11h 15m 29.18s	+06° 59' 31.3"	9.421877	9.855915	81.97	62.0	16.8	15.0	1.0	5.5	38.1	2.0	-3.0	10.27	16.96	-0.32
8-lug	11h 15m 46.67s	+06° 57' 32.2"	9.422173	9.870532	82.09	61.2	16.8	15.0	1.0	5.4	38.0	2.0	-3.0	10.23	16.92	-0.36
9-lug	11h 16m 04.43s	+06° 55' 31.4"	9.422470	9.885028	82.21	60.3	16.7	14.9	1.0	5.4	38.0	1.9	-2.9	10.19	16.88	-0.40
10-lug	11h 16m 22.45s	+06° 53' 29.1"	9.422767	9.899400	82.33	59.4	16.7	14.9	1.0	5.3	37.9	1.9	-2.9	10.15	16.84	-0.44
11-lug	11h 16m 40.74s	+06° 51' 25.2"	9.423063	9.913644	82.45	58.5	16.7	14.9	1.1	5.3	37.9	1.9	-2.9	10.11	16.80	-0.48
12-lug	11h 16m 59.28s	+06° 49' 19.7"	9.423360	9.927758	82.57	57.7	16.7	14.9	1.1	5.2	37.8	1.9	-2.8	10.07	16.76	-0.52
13-lug	11h 17m 18.08s	+06° 47' 12.7"	9.423657	9.941739	82.68	56.8	16.6	14.9	1.1	5.2	37.8	1.8	-2.8	10.03	16.72	-0.56
14-lug	11h 17m 37.13s	+06° 45' 04.2"	9.423953	9.955584	82.80	55.9	16.6	14.8	1.1	5.1	37.7	1.8	-2.7	10.00	16.68	-0.60
15-lug	11h 17m 56.43s	+06° 42' 54.1"	9.424250	9.969290	82.91	55.1	16.6	14.8	1.1	5.1	37.7	1.8	-2.7	9.96	16.64	-0.64
16-lug	11h 18m 15.99s	+06° 40' 42.5"	9.424547	9.982853	83.02	54.2	16.6	14.8	1.1	5.0	37.6	1.7	-2.6	9.92	16.60	-0.68
17-lug	11h 18m 35.79s	+06° 38' 29.5"	9.424844	9.996271	83.14	53.3	16.6	14.8	1.1	5.0	37.5	1.7	-2.6	9.88	16.56	-0.72
18-lug	11h 18m 55.83s	+06° 36' 14.9"	9.425141	10.009541	83.25	52.5	16.5	14.8	1.1	4.9	37.5	1.7	-2.6	9.84	16.52	-0.76
19-lug	11h 19m 16.12s	+06° 33' 59.0"	9.425438	10.022659	83.36	51.6	16.5	14.7	1.1	4.8	37.4	1.6	-2.5	9.80	16.48	-0.80
20-lug	11h 19m 36.65s	+06° 31' 41.6"	9.425735	10.035622	83.46	50.8	16.5	14.7	1.1	4.8	37.4	1.6	-2.5	9.76	16.44	-0.84
21-lug	11h 19m 57.40s	+06° 29' 22.8"	9.426032	10.048427	83.57	49.9	16.5	14.7	1.1	4.7	37.4	1.6	-2.4	9.72	16.40	-0.88
22-lug	11h 20m 18.39s	+06° 27' 02.7"	9.426329	10.061071	83.68	49.0	16.5	14.7	1.1	4.7	37.3	1.5	-2.4	9.68	16.36	-0.92
23-lug	11h 20m 39.59s	+06° 24' 41.3"	9.426626	10.073550	83.78	48.2	16.4	14.7	1.1	4.6	37.3	1.5	-2.3	9.64	16.32	-0.96
24-lug	11h 21m 01.00s	+06° 22' 18.6"	9.426923	10.085863	83.88	47.3	16.4	14.6	1.1	4.5	37.2	1.5	-2.3	9.60	16.28	-1.00
25-lug	11h 21m 22.63s	+06° 19' 54.7"	9.427220	10.098005	83.98	46.5	16.4	14.6	1.1	4.5	37.2	1.4	-2.2	9.56	16.24	-1.04
26-lug	11h 21m 44.46s	+06° 17' 29.5"	9.427517	10.109974	84.08	45.6	16.4	14.6	1.1	4.4	37.1	1.4	-2.2	9.52	16.20	-1.08
27-lug	11h 22m 06.50s	+06° 15' 03.1"	9.427814	10.121768	84.18	44.8	16.4	14.6	1.1	4.3	37.1	1.4	-2.1	9.48	16.16	-1.12
28-lug	11h 22m 28.75s	+06° 12' 35.5"	9.428111	10.133385	84.28	43.9	16.3	14.6	1.1	4.3	37.0	1.4	-2.1	9.44	16.12	-1.16
29-lug	11h 22m 51.19s	+06° 10' 06.8"	9.428409	10.144821	84.37	43.1	16.3	14.6	1.1	4.2	37.0	1.3	-2.0	9.40	16.08	-1.20
30-lug	11h 23m 13.83s	+06° 07' 36.8"	9.428706	10.156077	84.47	42.2	16.3	14.5	1.1	4.1	37.0	1.3	-2.0	9.36	16.04	-1.24
31-lug	11h 23m 36.67s	+06° 05' 05.8"	9.429003	10.167148	84.56	41.3	16.3	14.5	1.1	4.1	36.9	1.3	-1.9	9.32	16.00	-1.28
1-ago	11h 23m 59.69s	+06° 02' 33.6"	9.429301	10.178033	84.65	40.5	16.3	14.5	1.1	4.0	36.9	1.2	-1.9	9.28	15.96	-1.32
2-ago	11h 24m 22.89s	+06° 00' 00.4"	9.429598	10.188730	84.74	39.6	16.2	14.5	1.1	3.9	36.8	1.2	-1.8	9.24	15.92	-1.36
3-ago	11h 24m 46.27s	+05° 57' 26.1"	9.429895	10.199238	84.82	38.8	16.2	14.5	1.1	3.9	36.8	1.1	-1.8	9.20	15.88	-1.40
4-ago	11h 25m 09.83s	+05° 54' 50.8"	9.430193	10.209554	84.91	38.0	16.2	14.5	1.1	3.8	36.8	1.1	-1.7			

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Ang. fase'	Max "	Min "	B °	Sorge	Tran.	Tram.
15-ago	11h 29m 39.43s	+05° 25' 22.1"	9.433467	10.309839	85.74	28.6	16.1	14.3	1.1	2.9	36.4	0.7	-1.2	7.41	14.03	20.25
16-ago	11h 30m 04.82s	+05° 22' 36.3"	9.433765	10.317706	85.81	27.8	16.0	14.3	1.1	2.9	36.4	0.7	-1.1	7.38	14.00	20.21
17-ago	11h 30m 30.34s	+05° 19' 49.7"	9.434062	10.325357	85.87	27.0	16.0	14.3	1.1	2.8	36.4	0.7	-1.0	7.35	13.56	20.17
18-ago	11h 30m 55.99s	+05° 17' 02.4"	9.434360	10.332789	85.94	26.1	16.0	14.3	1.1	2.7	36.3	0.6	-1.0	7.31	13.53	20.14
19-ago	11h 31m 21.75s	+05° 14' 14.5"	9.434658	10.340000	86.00	25.3	16.0	14.3	1.1	2.6	36.3	0.6	-0.9	7.28	13.49	20.10
20-ago	11h 31m 47.63s	+05° 11' 26.0"	9.434956	10.346988	86.05	24.4	16.0	14.3	1.1	2.5	36.3	0.6	-0.9	7.25	13.46	20.06
21-ago	11h 32m 13.61s	+05° 08' 36.8"	9.435254	10.353752	86.11	23.6	16.0	14.3	1.1	2.5	36.3	0.5	-0.8	7.21	13.42	20.03
22-ago	11h 32m 39.71s	+05° 05' 47.1"	9.435552	10.360289	86.16	22.7	16.0	14.3	1.1	2.4	36.2	0.5	-0.8	7.18	13.39	19.59
23-ago	11h 33m 05.91s	+05° 02' 56.8"	9.435850	10.366598	86.22	21.9	16.0	14.2	1.1	2.3	36.2	0.4	-0.7	7.15	13.35	19.55
24-ago	11h 33m 32.20s	+05° 00' 06.0"	9.436148	10.372679	86.27	21.1	16.0	14.2	1.1	2.2	36.2	0.4	-0.7	7.11	13.32	19.52
25-ago	11h 33m 58.60s	+04° 57' 14.7"	9.436446	10.378530	86.32	20.2	15.9	14.2	1.1	2.1	36.2	0.4	-0.6	7.08	13.28	19.48
26-ago	11h 34m 25.10s	+04° 54' 22.9"	9.436744	10.384150	86.36	19.4	15.9	14.2	1.1	2.0	36.1	0.3	-0.5	7.05	13.25	19.44
27-ago	11h 34m 51.68s	+04° 51' 30.6"	9.437043	10.389537	86.41	18.5	15.9	14.2	1.1	2.0	36.1	0.3	-0.5	7.02	13.21	19.41
28-ago	11h 35m 18.35s	+04° 48' 37.8"	9.437341	10.394692	86.45	17.7	15.9	14.2	1.1	1.9	36.1	0.3	-0.4	6.58	13.18	19.37
29-ago	11h 35m 45.11s	+04° 45' 44.7"	9.437639	10.399614	86.49	16.9	15.9	14.2	1.1	1.8	36.1	0.2	-0.4	6.55	13.14	19.33
30-ago	11h 36m 11.94s	+04° 42' 51.1"	9.437937	10.404300	86.53	16.0	15.9	14.2	1.1	1.7	36.1	0.2	-0.3	6.52	13.11	19.30
31-ago	11h 36m 38.84s	+04° 39' 57.3"	9.438236	10.408752	86.57	15.2	15.9	14.2	1.1	1.6	36.1	0.2	-0.3	6.48	13.07	19.26
1-set	11h 37m 05.81s	+04° 37' 03.1"	9.438534	10.412968	86.60	14.3	15.9	14.2	1.1	1.5	36.0	0.1	-0.2	6.45	13.04	19.22
2-set	11h 37m 32.84s	+04° 34' 08.7"	9.438832	10.416947	86.64	13.5	15.9	14.2	1.1	1.4	36.0	0.1	-0.1	6.42	13.00	19.19
3-set	11h 37m 59.93s	+04° 31' 13.9"	9.439131	10.420689	86.67	12.7	15.9	14.2	1.1	1.3	36.0	0.1	-0.1	6.38	12.57	19.15
4-set	11h 38m 27.08s	+04° 28' 19.0"	9.439429	10.424193	86.70	11.8	15.9	14.2	1.1	1.3	36.0	0.0	0.0	6.35	12.53	19.11
5-set	11h 38m 54.28s	+04° 25' 23.8"	9.439727	10.427458	86.72	11.0	15.9	14.2	1.1	1.2	36.0	0.0	0.0	6.32	12.50	19.08
6-set	11h 39m 21.53s	+04° 22' 28.4"	9.440026	10.430484	86.75	10.2	15.9	14.2	1.1	1.1	36.0	0.1	0.1	6.28	12.46	19.04
7-set	11h 39m 48.83s	+04° 19' 32.8"	9.440324	10.433270	86.77	9.4	15.9	14.2	1.1	1.0	36.0	0.1	0.1	6.25	12.43	19.00
8-set	11h 40m 16.18s	+04° 16' 37.0"	9.440623	10.435815	86.79	8.5	15.9	14.2	1.1	0.9	36.0	0.1	0.2	6.22	12.39	18.57
9-set	11h 40m 43.57s	+04° 13' 41.1"	9.440921	10.438118	86.81	7.7	15.9	14.1	1.1	0.8	36.0	0.2	0.3	6.19	12.36	18.53
10-set	11h 41m 11.00s	+04° 10' 45.1"	9.441220	10.440179	86.83	6.9	15.9	14.1	1.1	0.7	36.0	0.2	0.3	6.15	12.32	18.49
11-set	11h 41m 38.47s	+04° 07' 48.9"	9.441519	10.441997	86.84	6.1	15.9	14.1	1.1	0.6	35.9	0.2	0.4	6.12	12.29	18.46
12-set	11h 42m 05.97s	+04° 04' 52.7"	9.441817	10.443571	86.86	5.3	15.8	14.1	1.1	0.6	35.9	0.3	0.4	6.09	12.25	18.42
13-set	11h 42m 33.50s	+04° 01' 56.4"	9.442116	10.444901	86.87	4.5	15.8	14.1	1.1	0.5	35.9	0.3	0.5	6.05	12.22	18.38
14-set	11h 43m 01.05s	+03° 59' 00.1"	9.442414	10.445984	86.88	3.8	15.8	14.1	1.1	0.4	35.9	0.3	0.6	6.02	12.18	18.35
15-set	11h 43m 28.62s	+03° 56' 03.8"	9.442713	10.446821	86.88	3.1	15.8	14.1	1.1	0.3	35.9	0.4	0.6	5.59	12.15	18.31
16-set	11h 43m 56.20s	+03° 53' 07.7"	9.443012	10.447411	86.89	2.5	15.8	14.1	1.1	0.3	35.9	0.4	0.7	5.55	12.12	18.27
17-set	11h 44m 23.78s	+03° 50' 11.6"	9.443311	10.447754	86.89	2.0	15.8	14.1	1.1	0.2	35.9	0.5	0.7	5.52	12.08	18.24
18-set	11h 44m 51.37s	+03° 47' 15.7"	9.443609	10.447848	86.89	1.9	15.8	14.1	1.1	0.2	35.9	0.5	0.8	5.49	12.05	18.20
19-set	11h 45m 18.95s	+03° 44' 19.8"	9.443908	10.447694	86.89	2.2	15.8	14.1	1.1	0.2	35.9	0.5	0.8	5.46	12.01	18.17
20-set	11h 45m 46.53s	+03° 41' 24.1"	9.444207	10.447291	86.89	2.7	15.8	14.1	1.1	0.3	35.9	0.6	0.9	5.42	11.58	18.13
21-set	11h 46m 14.11s	+03° 38' 28.5"	9.444506	10.446639	86.88	3.4	15.8	14.1	1.1	0.4	35.9	0.6	1.0	5.39	11.54	18.09
22-set	11h 46m 41.69s	+03° 35' 33.2"	9.444805	10.445740	86.87	4.1	15.8	14.1	1.1	0.4	35.9	0.6	1.0	5.36	11.51	18.06
23-set	11h 47m 09.25s	+03° 32' 38.1"	9.445104	10.444592	86.86	4.9	15.8	14.1	1.1	0.5	35.9	0.7	1.1	5.32	11.47	18.02
24-set	11h 47m 36.79s	+03° 29' 43.3"	9.445403	10.443196	86.85	5.7	15.8	14.1	1.1	0.6	35.9	0.7	1.1	5.29	11.44	17.58
25-set	11h 48m 04.31s	+03° 26' 48.8"	9.445702	10.441553	86.84	6.5	15.9	14.1	1.1	0.7	35.9	0.7	1.2	5.26	11.40	17.55
26-set	11h 48m 31.80s	+03° 23' 54.6"	9.446001	10.439664	86.82	7.3	15.9	14.1	1.1	0.8	36.0	0.8	1.2	5.22	11.37	17.51
27-set	11h 48m 59.26s	+03° 21' 00.8"	9.446300	10.437528	86.81	8.1	15.9	14.2	1.1	0.9	36.0	0.8	1.3	5.19	11.33	17.47
28-set	11h 49m 26.69s	+03° 18' 07.4"	9.446599	10.435147	86.79	9.0	15.9	14.2	1.1	0.9	36.0	0.9	1.4	5.16	11.30	17.44
29-set	11h 49m 54.07s	+03° 15' 14.4"	9.446898	10.432520	86.76	9.8	15.9	14.2	1.1	1.0	36.0	0.9	1.4	5.13	11.26	17.40
30-set	11h 50m 21.40s	+03° 12' 21.8"	9.447197	10.429649	86.74	10.6	15.9	14.2	1.1	1.1	36.0	0.9	1.5	5.09	11.23	17.36
1-ott	11h 50m 48.69s	+03° 09' 29.8"	9.447496	10.426535	86.71	11.5	15.9	14.2	1.1	1.2	36.0	1.0	1.5	5.06	11.19	17.33
2-ott	11h 51m 15.92s	+03° 06' 38.2"	9.447795	10.423177	86.69	12.3	15.9	14.2	1.1	1.3	36.0	1.0	1.6	5.03	11.16	17.29
3-ott	11h 51m 43.10s	+03° 03' 47.2"	9.448094	10.419576	86.66	13.2	15.9	14.2	1.1	1.4	36.0	1.0	1.6	4.59	11.12	17.25
4-ott	11h 52m 10.22s	+03° 00' 56.7"	9.448394	10.415734	86.62	14.0	15.9	14.2	1.1	1.5	36.0	1.1	1.7	4.56	11.09	17.22
5-ott	11h 52m 37.27s	+02° 58' 06.7"	9.448693	10.411651	86.59	14.9	15.9	14.2	1.1	1.6	36.1	1.1	1.8	4.53	11.05	17.18
6-ott	11h 53m 04.27s	+02° 55' 17.3"	9.448992	10.407327	86.55	15.8	15.9	14.2	1.1	1.6	36.1	1.1	1.8	4.49	11.02	17.14
7-ott	11h 53m 31.20s	+02° 52' 28.6"	9.449291	10.402762	86.52	16.6	15.9	14.2	1.1	1.7	36.1	1.2	1.9	4.46	10.58	17.11
8-ott	11h 53m 58.05s	+02° 49' 40.4"	9.449591	10.397959	86.48	17.5	15.9	14.2	1.1	1.8	36.1	1.2	1.9	4.43	10.55	17.07
9-ott	11h 54m 24.84s	+02° 46' 52.8"	9.449890	10.392916	86.44	18.3	15.9	14.2	1.1	1.9	36.1	1.2	2.0	4.39	10.51	17.04
10-ott	11h 54m 51.54s	+02° 44' 06.0"	9.450189	10.387635	86.39	19.2	15.9	14.2	1.1	2.0	36.1	1.3	2.0	4.36	10.48	17.00
11-ott	11h 55m 18.16s	+02° 41' 19.9"	9.450489	10.382116	86.35	20.1	15.9	14.2	1.1	2.1	36.2	1.3	2.1	4.33	10.45	16.56
12-ott	11h 55m 44.69s	+02° 38' 34.5"	9.450788	10.376360	86.30	20.9	16.0	14.2	1.1	2.2	36.2	1.3	2.1	4.29	10.41	16.53
13-ott	11h 56m 11.13s	+02° 35' 49.9"	9.451087	10.370367	86.25	21.8	16.0	14.2	1.1	2.2	36.2	1.4	2.2	4.26	10.38	16.49
14-ott	11h 56m 37.46s	+02° 33' 06.1"	9.451387	10.364138	86.20	22.7	16.0	14.3	1.1	2.3	36.2	1.4	2.2	4.23	10.34	16.45
15-ott	11h 57m 03.69s	+02° 30' 23.2"	9.451686	10.357674	86.14	23.5	16.0	14.3	1.1	2.4	36.2	1.5	2.3	4.19	10.31	16.42
16-ott	11h 57m 29.80s	+02° 27' 41.2"	9.451986	10.350976	86.09	24.4	16.0	14.3	1.1	2.5	36.3	1.5	2.4	4.16	10.27	16.38
17-ott	11h 57m 55.81s	+02° 25' 00.1"	9.452285	10.344046	86.03	25.3	16.0	14.3	1.1	2.6	36.3	1.5	2.4	4.13	10.24	16.34
18-ott	11h 58m 21.70s	+02° 22' 19.9"	9.452585	10.336884	85.97	26.1	16.0	14.3	1.1	2.7	36.3	1.6	2.5	4.09	10.20	16.31
19-ott	11h 58m 47.48s	+02° 19' 40.7"	9.452884	10.329492	85.91	27.0	16.0	14.3	1.1	2.7	36.3	1.6	2.5	4.06	10.17	16.27
20-ott	11h 59m 13.13s	+02° 17' 02.4"	9.453184	10.321872	85.84	27.9	16.0	14.3	1.1	2.8						

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. Eq."	Diam. Pol."	Mag.	Ang. fase'	Max "	Min "	B °	Sorge	Tran.	Tram.
31-ott	12h 03m 45.83s	+01° 49' 15.1"	9.456481	10.223546	85.03	37.6	16.2	14.4	1.0	3.7	36.7	2.0	3.1	3.26	9.34	15.43
1-nov	12h 04m 09.64s	+01° 46' 50.9"	9.456780	10.213342	84.94	38.5	16.2	14.5	1.0	3.7	36.8	2.0	3.2	3.22	9.31	15.39
2-nov	12h 04m 33.28s	+01° 44' 28.1"	9.457080	10.202937	84.85	39.4	16.2	14.5	1.0	3.8	36.8	2.1	3.2	3.19	9.27	15.36
3-nov	12h 04m 56.74s	+01° 42' 06.5"	9.457380	10.192333	84.77	40.3	16.2	14.5	1.0	3.9	36.8	2.1	3.2	3.15	9.24	15.32
4-nov	12h 05m 20.02s	+01° 39' 46.4"	9.457680	10.181531	84.68	41.2	16.3	14.5	1.0	4.0	36.9	2.1	3.3	3.12	9.20	15.28
5-nov	12h 05m 43.11s	+01° 37' 27.7"	9.457980	10.170534	84.59	42.1	16.3	14.5	1.0	4.0	36.9	2.1	3.3	3.09	9.17	15.24
6-nov	12h 06m 06.00s	+01° 35' 10.3"	9.458280	10.159344	84.49	43.0	16.3	14.5	1.0	4.1	36.9	2.2	3.4	3.05	9.13	15.21
7-nov	12h 06m 28.71s	+01° 32' 54.5"	9.458580	10.147962	84.40	43.9	16.3	14.6	1.0	4.2	37.0	2.2	3.4	3.02	9.09	15.17
8-nov	12h 06m 51.20s	+01° 30' 40.1"	9.458880	10.136392	84.30	44.8	16.3	14.6	1.0	4.2	37.0	2.2	3.5	2.58	9.06	15.13
9-nov	12h 07m 13.49s	+01° 28' 27.3"	9.459180	10.124634	84.20	45.7	16.3	14.6	1.0	4.3	37.1	2.3	3.5	2.55	9.02	15.10
10-nov	12h 07m 35.56s	+01° 26' 16.1"	9.459480	10.112692	84.10	46.6	16.4	14.6	1.0	4.4	37.1	2.3	3.6	2.51	8.59	15.06
11-nov	12h 07m 57.41s	+01° 24' 06.5"	9.459780	10.100568	84.00	47.5	16.4	14.6	1.0	4.4	37.2	2.3	3.6	2.48	8.55	15.02
12-nov	12h 08m 19.04s	+01° 21' 58.5"	9.460080	10.088264	83.90	48.4	16.4	14.6	1.0	4.5	37.2	2.4	3.6	2.45	8.52	14.59
13-nov	12h 08m 40.45s	+01° 19' 52.1"	9.460380	10.075783	83.80	49.3	16.4	14.7	1.0	4.5	37.3	2.4	3.7	2.41	8.48	14.55
14-nov	12h 09m 01.63s	+01° 17' 47.5"	9.460680	10.063128	83.69	50.2	16.4	14.7	1.0	4.6	37.3	2.4	3.7	2.38	8.44	14.51
15-nov	12h 09m 22.57s	+01° 15' 44.5"	9.460980	10.050301	83.59	51.1	16.5	14.7	1.0	4.7	37.3	2.4	3.8	2.34	8.41	14.47
16-nov	12h 09m 43.28s	+01° 13' 43.2"	9.461280	10.037307	83.48	52.0	16.5	14.7	1.0	4.7	37.4	2.5	3.8	2.31	8.37	14.44
17-nov	12h 10m 03.74s	+01° 11' 43.7"	9.461580	10.024148	83.37	53.0	16.5	14.7	1.0	4.8	37.4	2.5	3.8	2.27	8.34	14.40
18-nov	12h 10m 23.96s	+01° 09' 45.9"	9.461881	10.010828	83.26	53.9	16.5	14.8	1.0	4.8	37.5	2.5	3.9	2.24	8.30	14.36
19-nov	12h 10m 43.93s	+01° 07' 50.0"	9.462181	9.997350	83.15	54.8	16.6	14.8	1.0	4.9	37.5	2.6	3.9	2.20	8.26	14.33
20-nov	12h 11m 03.65s	+01° 05' 55.9"	9.462481	9.983718	83.03	55.7	16.6	14.8	1.0	5.0	37.6	2.6	4.0	2.17	8.23	14.29
21-nov	12h 11m 23.10s	+01° 04' 03.7"	9.462781	9.969935	82.92	56.6	16.6	14.8	1.0	5.0	37.6	2.6	4.0	2.13	8.19	14.25
22-nov	12h 11m 42.28s	+01° 02' 13.3"	9.463081	9.956005	82.80	57.6	16.6	14.8	1.0	5.1	37.7	2.6	4.0	2.10	8.16	14.21
23-nov	12h 12m 01.19s	+01° 00' 24.9"	9.463382	9.941931	82.68	58.5	16.6	14.9	1.0	5.1	37.8	2.7	4.1	2.06	8.12	14.18
24-nov	12h 12m 19.83s	+00° 58' 38.5"	9.463682	9.927718	82.57	59.4	16.7	14.9	1.0	5.2	37.8	2.7	4.1	2.03	8.08	14.14
25-nov	12h 12m 38.19s	+00° 56' 54.0"	9.463982	9.913369	82.45	60.3	16.7	14.9	1.0	5.2	37.9	2.7	4.1	1.59	8.05	14.10
26-nov	12h 12m 56.27s	+00° 55' 11.5"	9.464282	9.898887	82.33	61.3	16.7	14.9	1.0	5.2	37.9	2.8	4.2	1.56	8.01	14.07
27-nov	12h 13m 14.06s	+00° 53' 31.0"	9.464583	9.884277	82.20	62.2	16.7	14.9	1.0	5.3	38.0	2.8	4.2	1.52	7.58	14.03
28-nov	12h 13m 31.56s	+00° 51' 52.6"	9.464883	9.869541	82.08	63.1	16.8	15.0	1.0	5.3	38.0	2.8	4.2	1.49	7.54	13.59
29-nov	12h 13m 48.77s	+00° 50' 16.2"	9.465184	9.854685	81.96	64.1	16.8	15.0	1.0	5.4	38.1	2.8	4.3	1.45	7.50	13.55
30-nov	12h 14m 05.69s	+00° 48' 41.8"	9.465484	9.839711	81.83	65.0	16.8	15.0	1.0	5.4	38.1	2.9	4.3	1.42	7.47	13.52
1-dic	12h 14m 22.32s	+00° 47' 09.5"	9.465784	9.824624	81.71	66.0	16.8	15.0	1.0	5.5	38.2	2.9	4.3	1.38	7.43	13.48
2-dic	12h 14m 38.65s	+00° 45' 39.3"	9.466085	9.809426	81.58	66.9	16.9	15.1	1.0	5.5	38.3	2.9	4.4	1.34	7.39	13.44
3-dic	12h 14m 54.68s	+00° 44' 11.2"	9.466385	9.794122	81.45	67.8	16.9	15.1	1.0	5.5	38.3	2.9	4.4	1.31	7.36	13.40
4-dic	12h 15m 10.40s	+00° 42' 45.2"	9.466686	9.778715	81.33	68.8	16.9	15.1	1.0	5.6	38.4	3.0	4.4	1.27	7.32	13.37
5-dic	12h 15m 25.80s	+00° 41' 21.3"	9.466986	9.763208	81.20	69.7	17.0	15.1	1.0	5.6	38.4	3.0	4.4	1.24	7.28	13.33
6-dic	12h 15m 40.89s	+00° 39' 59.7"	9.467287	9.747605	81.07	70.7	17.0	15.2	1.0	5.6	38.5	3.0	4.5	1.20	7.25	13.29
7-dic	12h 15m 55.65s	+00° 38' 40.4"	9.467587	9.731910	80.94	71.6	17.0	15.2	1.0	5.7	38.6	3.0	4.5	1.16	7.21	13.25
8-dic	12h 16m 10.09s	+00° 37' 23.3"	9.467888	9.716127	80.81	72.6	17.0	15.2	1.0	5.7	38.6	3.0	4.5	1.13	7.17	13.21
9-dic	12h 16m 24.19s	+00° 36' 08.5"	9.468188	9.700260	80.67	73.5	17.1	15.2	0.9	5.7	38.7	3.1	4.5	1.09	7.13	13.18
10-dic	12h 16m 37.97s	+00° 34' 55.9"	9.468489	9.684312	80.54	74.5	17.1	15.3	0.9	5.8	38.8	3.1	4.6	1.06	7.10	13.14
11-dic	12h 16m 51.40s	+00° 33' 45.7"	9.468789	9.668288	80.41	75.4	17.1	15.3	0.9	5.8	38.8	3.1	4.6	1.02	7.06	13.10
12-dic	12h 17m 04.50s	+00° 32' 37.8"	9.469090	9.652193	80.27	76.4	17.1	15.3	0.9	5.8	38.9	3.1	4.6	0.58	7.02	13.06
13-dic	12h 17m 17.26s	+00° 31' 32.3"	9.469390	9.636030	80.14	77.4	17.2	15.3	0.9	5.8	39.0	3.1	4.6	0.55	6.59	13.03
14-dic	12h 17m 29.67s	+00° 30' 29.1"	9.469691	9.619805	80.01	78.3	17.2	15.4	0.9	5.8	39.0	3.2	4.7	0.51	6.55	12.59
15-dic	12h 17m 41.74s	+00° 29' 28.2"	9.469992	9.603523	79.87	79.3	17.2	15.4	0.9	5.9	39.1	3.2	4.7	0.47	6.51	12.55
16-dic	12h 17m 53.45s	+00° 28' 29.8"	9.470292	9.587187	79.73	80.2	17.3	15.4	0.9	5.9	39.2	3.2	4.7	0.44	6.47	12.51
17-dic	12h 18m 04.81s	+00° 27' 33.8"	9.470593	9.570804	79.60	81.2	17.3	15.4	0.9	5.9	39.2	3.2	4.7	0.40	6.44	12.47
18-dic	12h 18m 15.80s	+00° 26' 40.2"	9.470894	9.554378	79.46	82.2	17.3	15.5	0.9	5.9	39.3	3.2	4.7	0.36	6.40	12.44
19-dic	12h 18m 26.43s	+00° 25' 49.1"	9.471194	9.537913	79.32	83.2	17.4	15.5	0.9	5.9	39.4	3.3	4.7	0.33	6.36	12.40
20-dic	12h 18m 36.70s	+00° 25' 00.5"	9.471495	9.521415	79.19	84.1	17.4	15.5	0.9	5.9	39.4	3.3	4.8	0.29	6.32	12.36
21-dic	12h 18m 46.59s	+00° 24' 14.3"	9.471796	9.504889	79.05	85.1	17.4	15.5	0.9	5.9	39.5	3.3	4.8	0.25	6.29	12.32
22-dic	12h 18m 56.10s	+00° 23' 30.7"	9.472097	9.488340	78.91	86.1	17.4	15.6	0.9	5.9	39.6	3.3	4.8	0.21	6.25	12.28
23-dic	12h 19m 05.25s	+00° 22' 49.6"	9.472397	9.471773	78.77	87.1	17.5	15.6	0.9	6.0	39.6	3.3	4.8	0.18	6.21	12.24
24-dic	12h 19m 14.01s	+00° 22' 11.0"	9.472698	9.455193	78.64	88.0	17.5	15.6	0.9	6.0	39.7	3.3	4.8	0.14	6.17	12.21
25-dic	12h 19m 22.40s	+00° 21' 34.9"	9.472999	9.438604	78.50	89.0	17.5	15.6	0.9	6.0	39.8	3.3	4.8	0.10	6.13	12.17
26-dic	12h 19m 30.40s	+00° 21' 01.4"	9.473300	9.422012	78.36	90.0	17.6	15.7	0.9	6.0	39.8	3.4	4.8	0.06	6.10	12.13
27-dic	12h 19m 38.03s	+00° 20' 30.3"	9.473601	9.405421	78.22	91.0	17.6	15.7	0.9	6.0	39.9	3.4	4.9	0.03	6.06	12.09
28-dic	12h 19m 45.28s	+00° 20' 01.8"	9.473902	9.388837	78.08	92.0	17.6	15.7	0.9	6.0	40.0	3.4	4.9	23.55	6.02	12.05
29-dic	12h 19m 52.15s	+00° 19' 35.8"	9.474202	9.372264	77.95	93.0	17.7	15.8	0.9	5.9	40.0	3.4	4.9	23.51	5.58	12.01
30-dic	12h 19m 58.63s	+00° 19' 12.4"	9.474503	9.355707	77.81	94.0	17.7	15.8	0.9	5.9	40.1	3.4	4.9	23.47	5.54	11.58
31-dic	12h 20m 04.73s	+00° 18' 51.4"	9.474804	9.339170	77.67	94.9	17.7	15.8	0.9	5.9	40.2	3.4	4.9	23.44	5.51	11.54

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro equatoriale e polare in "

Mag. = magnitudine

Max = diametro dell'asse maggiore degli anelli in " Min = diametro dell'asse min. degli anelli in "

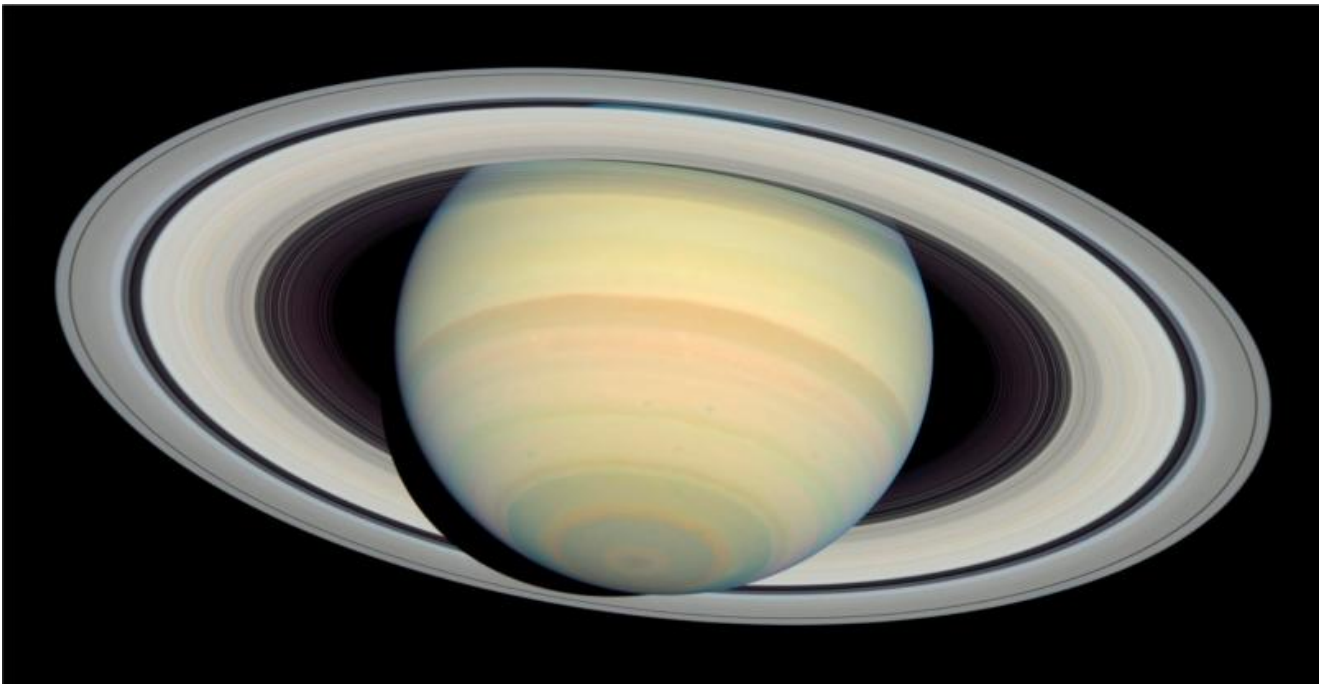
B = latitudine saturnocentrica della Terra, in °

Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

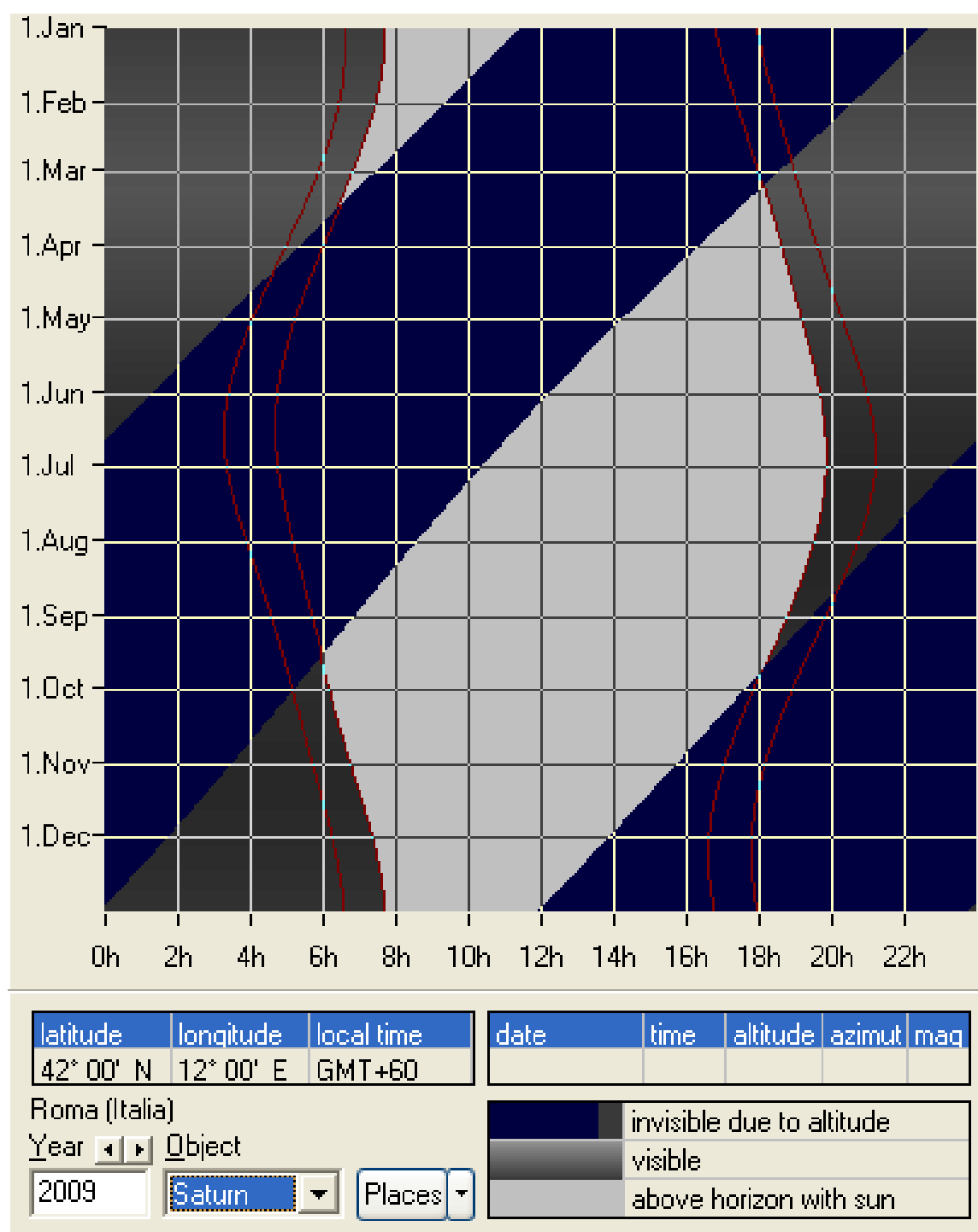
FENOMENI DI SATURNO

Perielio	Quest'anno il fenomeno non avviene			
Afelio	Quest'anno il fenomeno non avviene			
Perigeo	08/03/2009	17.01	8.39446 U.A.	
Apogeo	17/09/2009	21.06	10.44785 U.A.	
Magnitudine massima	10/03/2009	07.39	0.5	mag
Magnitudine massima	20/09/2009	04.30	1.1	mag
Magnitudine minima	03/09/2009	01.33	1.1	mag
Opposizione	08/03/2009	19.53		
Congiunzione	17/09/2009	18.22		
Moto retrogrado	01/01/2009	19.41		
Moto diretto	17/05/2009	18.59		
Massimo angolo di fase	06/06/2009	05.02	6.2	°
Massimo angolo di fase	25/12/2009	18.13	6.0	°
Minimo angolo di fase	08/03/2009	20.39	0.2	°
Minimo angolo di fase	17/09/2009	19.17	0.2	°

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VISIBILITA' DI SATURNO



Visibilità di Saturno nel corso dell'anno

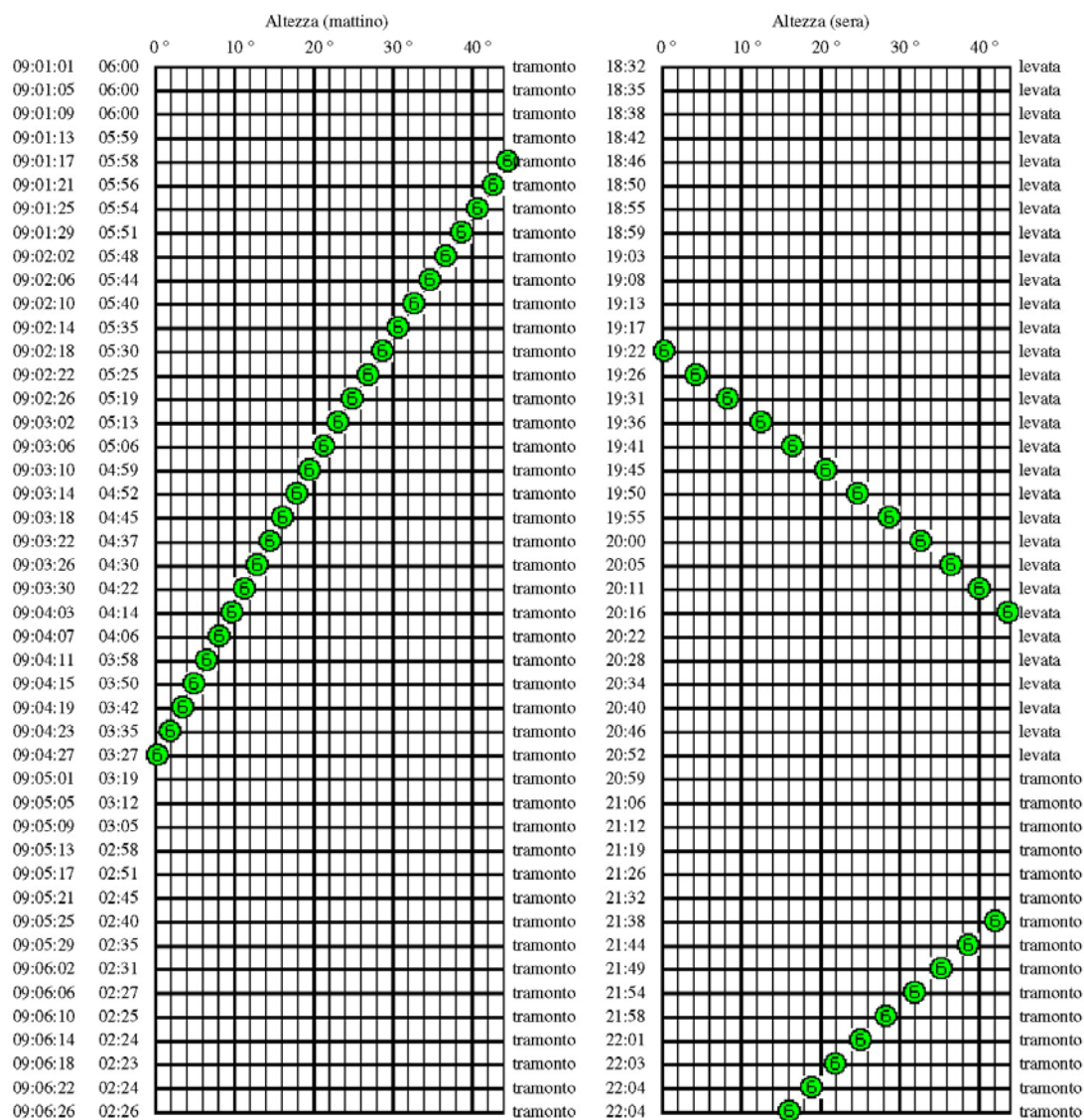
Le righe rosse più esterne indicano in quali periodi dell'anno il pianeta è sufficientemente distante dal Sole per poter essere osservato agevolmente. Le date esatte sono riportate nelle tabelle seguenti.

Altezza ai crepuscoli

di Saturno

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

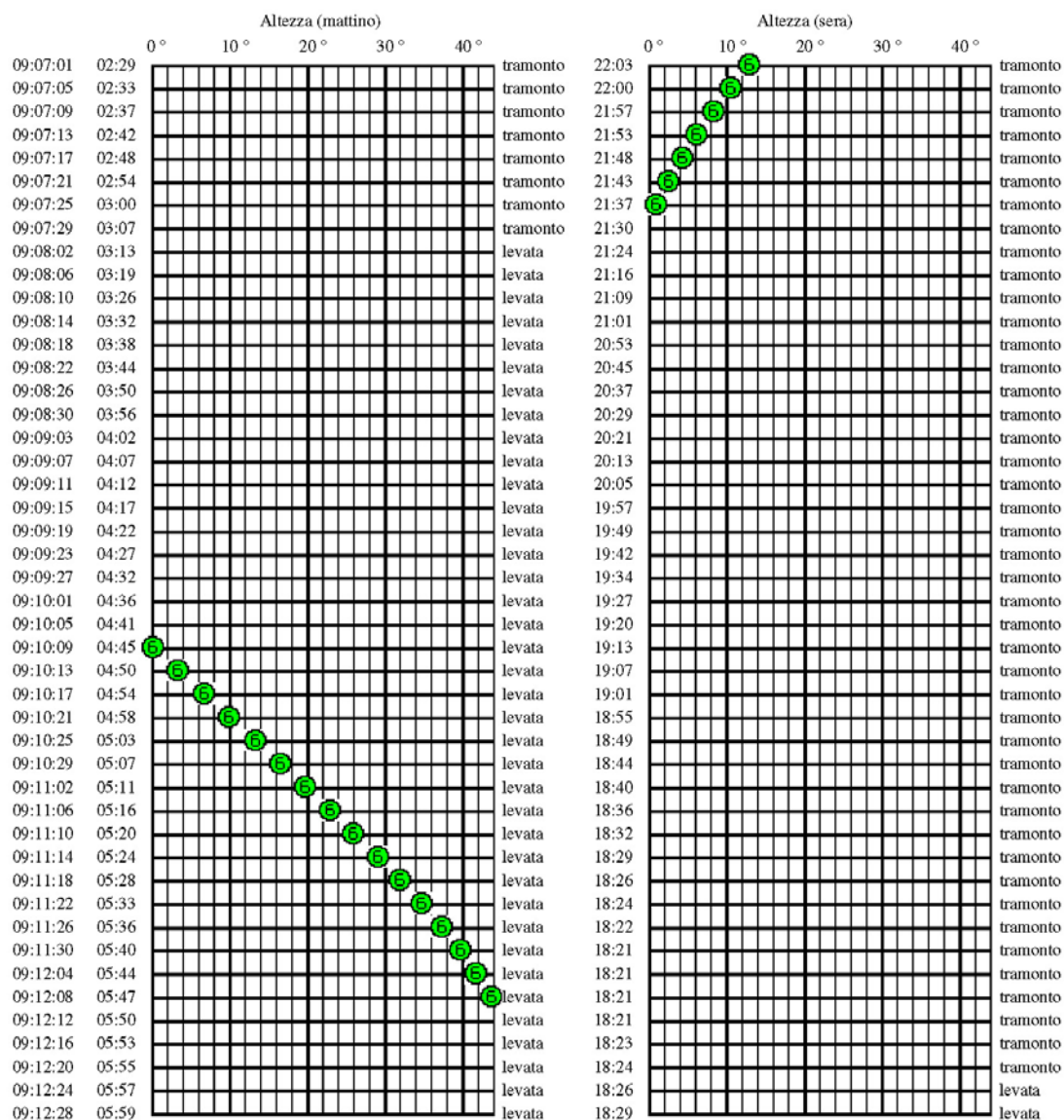


Altezza ai crepuscoli

di Saturno

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)



Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	50.9	203.5	109.1	18:32	-38.3	30.0	109.7
2009:01:05	06:00	49.6	209.5	113.2	18:35	-36.4	35.4	113.8
2009:01:09	06:00	48.1	215.0	117.4	18:38	-34.1	40.7	117.9
2009:01:13	05:59	46.4	220.1	121.5	18:42	-31.6	45.7	122.1
2009:01:17	05:58	44.5	224.7	125.7	18:46	-28.7	50.5	126.2
2009:01:21	05:56	42.6	228.9	129.9	18:50	-25.7	55.0	130.4
2009:01:25	05:54	40.7	232.8	134.1	18:55	-22.4	59.4	134.7
2009:01:29	05:51	38.7	236.4	138.3	18:59	-18.9	63.5	138.9
2009:02:02	05:48	36.7	239.6	142.6	19:03	-15.3	67.4	143.2
2009:02:06	05:44	34.7	242.7	146.9	19:08	-11.5	71.2	147.5
2009:02:10	05:40	32.7	245.5	151.1	19:13	-7.7	74.9	151.8
2009:02:14	05:35	30.7	248.2	155.4	19:17	-3.8	78.5	156.1
2009:02:18	05:30	28.8	250.6	159.7	19:22	0.2	82.0	160.3
2009:02:22	05:25	26.9	253.0	164.0	19:26	4.3	85.5	164.6
2009:02:26	05:19	25.0	255.2	168.3	19:31	8.4	89.0	168.9
2009:03:02	05:13	23.1	257.3	172.5	19:36	12.5	92.5	173.1
2009:03:06	05:06	21.3	259.3	176.4	19:41	16.6	96.1	176.8
2009:03:10	04:59	19.6	261.2	177.3	19:45	20.7	99.8	176.9
2009:03:14	04:52	17.8	263.1	173.8	19:50	24.7	103.7	173.2
2009:03:18	04:45	16.1	264.8	169.7	19:55	28.7	107.9	169.0
2009:03:22	04:37	14.5	266.5	165.5	20:00	32.7	112.3	164.8
2009:03:26	04:30	12.8	268.2	161.3	20:05	36.5	117.1	160.6
2009:03:30	04:22	11.2	269.8	157.1	20:11	40.1	122.3	156.4
2009:04:03	04:14	9.6	271.4	152.9	20:16	43.6	128.1	152.2
2009:04:07	04:06	8.1	272.9	148.7	20:22	46.8	134.5	148.0
2009:04:11	03:58	6.5	274.4	144.6	20:28	49.7	141.7	143.8
2009:04:15	03:50	5.0	275.9	140.4	20:34	52.1	149.7	139.7
2009:04:19	03:42	3.4	277.3	136.3	20:40	54.0	158.4	135.6
2009:04:23	03:35	1.9	278.8	132.3	20:46	55.3	167.9	131.5
2009:04:27	03:27	0.4	280.3	128.2	20:52	55.9	177.9	127.5
2009:05:01	03:19	-1.2	281.7	124.2	20:59	55.7	187.9	123.5
2009:05:05	03:12	-2.7	283.2	120.3	21:06	54.8	197.7	119.5
2009:05:09	03:05	-4.3	284.7	116.3	21:12	53.2	206.8	115.6
2009:05:13	02:58	-5.9	286.3	112.4	21:19	51.0	215.3	111.7
2009:05:17	02:51	-7.6	287.9	108.6	21:26	48.4	222.8	107.8
2009:05:21	02:45	-9.3	289.6	104.8	21:32	45.4	229.6	104.0
2009:05:25	02:40	-11.1	291.4	101.0	21:38	42.2	235.5	100.2
2009:05:29	02:35	-12.9	293.3	97.2	21:44	38.8	240.9	96.4
2009:06:02	02:31	-14.9	295.4	93.5	21:49	35.3	245.6	92.7
2009:06:06	02:27	-16.9	297.7	89.8	21:54	31.8	249.8	89.0
2009:06:10	02:25	-19.1	300.1	86.1	21:58	28.4	253.6	85.3
2009:06:14	02:24	-21.3	302.9	82.4	22:01	25.1	257.0	81.7
2009:06:18	02:23	-23.6	305.9	78.8	22:03	21.9	260.1	78.1
2009:06:22	02:24	-26.0	309.3	75.2	22:04	18.9	262.8	74.5
2009:06:26	02:26	-28.4	313.0	71.7	22:04	16.1	265.3	70.9
2009:06:30	02:28	-30.8	317.2	68.1	22:03	13.4	267.6	67.4

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	-31.4	318.3	67.2	22:03	12.8	268.1	66.5
2009:07:05	02:33	-33.7	323.0	63.7	22:00	10.4	270.1	63.0
2009:07:09	02:37	-35.8	328.1	60.2	21:57	8.2	271.9	59.5
2009:07:13	02:42	-37.7	333.7	56.7	21:53	6.2	273.5	56.0
2009:07:17	02:48	-39.3	339.8	53.3	21:48	4.3	275.0	52.6
2009:07:21	02:54	-40.6	346.2	49.8	21:43	2.5	276.4	49.2
2009:07:25	03:00	-41.4	352.9	46.4	21:37	0.9	277.7	45.7
2009:07:29	03:07	-41.8	359.7	43.0	21:30	-0.6	278.8	42.3
2009:08:02	03:13	-41.8	6.6	39.6	21:24	-2.1	280.0	38.9
2009:08:06	03:19	-41.3	13.5	36.2	21:16	-3.5	281.0	35.5
2009:08:10	03:26	-40.4	20.1	32.8	21:09	-4.8	282.0	32.2
2009:08:14	03:32	-39.0	26.5	29.4	21:01	-6.1	283.0	28.8
2009:08:18	03:38	-37.3	32.6	26.0	20:53	-7.3	283.9	25.4
2009:08:22	03:44	-35.3	38.3	22.6	20:45	-8.6	284.8	22.1
2009:08:26	03:50	-33.1	43.6	19.3	20:37	-9.8	285.7	18.7
2009:08:30	03:56	-30.6	48.6	15.9	20:29	-10.9	286.6	15.3
2009:09:03	04:02	-28.0	53.3	12.6	20:21	-12.1	287.5	12.0
2009:09:07	04:07	-25.1	57.7	9.2	20:13	-13.3	288.4	8.7
2009:09:11	04:12	-22.2	61.8	6.0	20:05	-14.5	289.4	5.4
2009:09:15	04:17	-19.2	65.7	3.0	19:57	-15.7	290.3	2.6
2009:09:19	04:22	-16.1	69.4	2.3	19:49	-16.9	291.3	2.6
2009:09:23	04:27	-12.9	73.0	5.0	19:42	-18.1	292.4	5.5
2009:09:27	04:32	-9.7	76.5	8.3	19:34	-19.4	293.5	8.8
2009:10:01	04:36	-6.5	79.8	11.6	19:27	-20.6	294.7	12.1
2009:10:05	04:41	-3.2	83.1	15.0	19:20	-21.9	295.9	15.5
2009:10:09	04:45	0.1	86.3	18.5	19:13	-23.3	297.2	19.0
2009:10:13	04:50	3.4	89.5	21.9	19:07	-24.6	298.6	22.4
2009:10:17	04:54	6.7	92.8	25.4	19:01	-26.0	300.2	25.9
2009:10:21	04:58	10.0	96.0	28.9	18:55	-27.5	301.8	29.4
2009:10:25	05:03	13.3	99.3	32.4	18:49	-29.0	303.6	32.9
2009:10:29	05:07	16.5	102.7	36.0	18:44	-30.5	305.5	36.5
2009:11:02	05:11	19.7	106.2	39.6	18:40	-32.0	307.7	40.1
2009:11:06	05:16	22.9	109.9	43.1	18:36	-33.6	310.0	43.6
2009:11:10	05:20	26.0	113.7	46.8	18:32	-35.2	312.6	47.3
2009:11:14	05:24	29.0	117.7	50.4	18:29	-36.8	315.4	50.9
2009:11:18	05:28	31.9	121.9	54.1	18:26	-38.4	318.5	54.6
2009:11:22	05:33	34.6	126.4	57.7	18:24	-40.0	321.9	58.2
2009:11:26	05:36	37.2	131.1	61.5	18:22	-41.5	325.7	62.0
2009:11:30	05:40	39.6	136.1	65.2	18:21	-43.0	329.9	65.7
2009:12:04	05:44	41.8	141.4	69.0	18:21	-44.3	334.4	69.5
2009:12:08	05:47	43.7	147.0	72.8	18:21	-45.5	339.4	73.3
2009:12:12	05:50	45.3	152.9	76.6	18:21	-46.4	344.8	77.1
2009:12:16	05:53	46.5	159.0	80.5	18:23	-47.1	350.6	81.0
2009:12:20	05:55	47.5	165.2	84.3	18:24	-47.5	356.7	84.8
2009:12:24	05:57	48.1	171.5	88.3	18:26	-47.6	3.1	88.8
2009:12:28	05:59	48.3	177.8	92.2	18:29	-47.3	9.6	92.7

Date eliache per Saturno
 Posizione : Roma
 Latitudine : 42° 00' 00'' N
 Longitudine : 12° 00' 00'' E
 Visibilità minima [°] = 10.5 + 1.4 * magnitudine
 Altezza critica : 0.00°

		data	ogg s/t	Sole s/t	d s/t	età	mag
fine	visibilità serale	2009-08-17	20:19	19:09	1:09h	-30d 23h	1.4
inizio	visibilità mattutina	2009-10-02	05:05	06:09	-1:04h	14d 10h	1.3

Legenda:

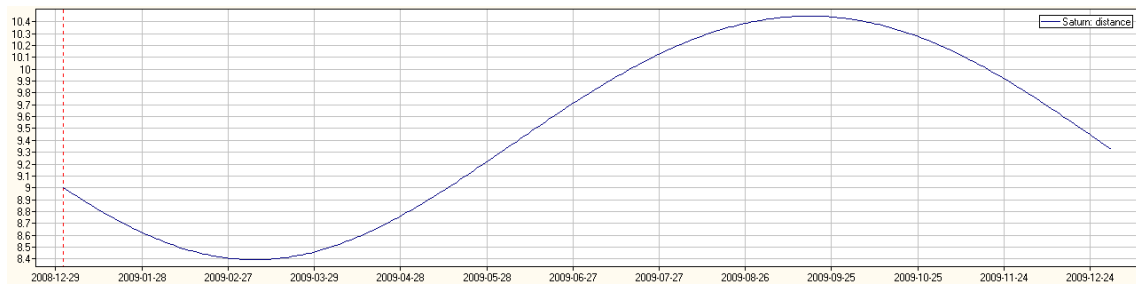
Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due oggetti
 Età : giorni trascorsi dalla congiunzione col Sole
 Mag : magnitudine

	data	ogg s/t	Sole s/t	Sole alt	Sole lon	ogg lon	ogg lat	mag	d az	d lon
FS	08-17	20:19	19:09	-12° 35'	145° 01'	171° 13'	1° 58'	1.4	-23° 30'	26° 12'
IM	10-02	05:05	06:09	-12° 46'	189° 06'	176° 47'	1° 59'	1.3	2° 08'	-12° 20'

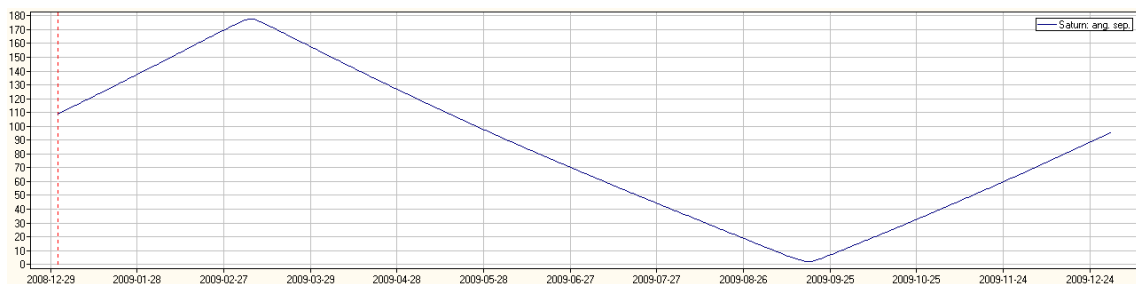
Legenda:

Data : data nel formato mese/giorno
 Ogg s/t : ora del tramonto o della levata del pianeta
 Sole s/t: ora del tramonto o della levata del Sole
 Sole alt : altezza del Sole nell'istante di visibilità del pianeta
 Sole lon : longitudine celeste del Sole
 Ogg lon : longitudine celeste del pianeta
 Ogg lat : latitudine celeste del pianeta
 Mag : magnitudine
 D az : differenza in azimuth tra i centri del Sole e del pianeta nell'istante della sua visibilità
 D lon : differenza in longitudine tra i centri del Sole e del pianeta nell'istante della sua visibilità

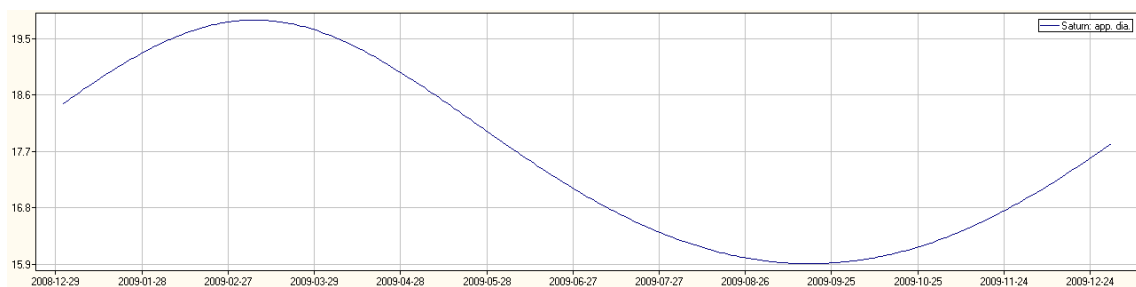
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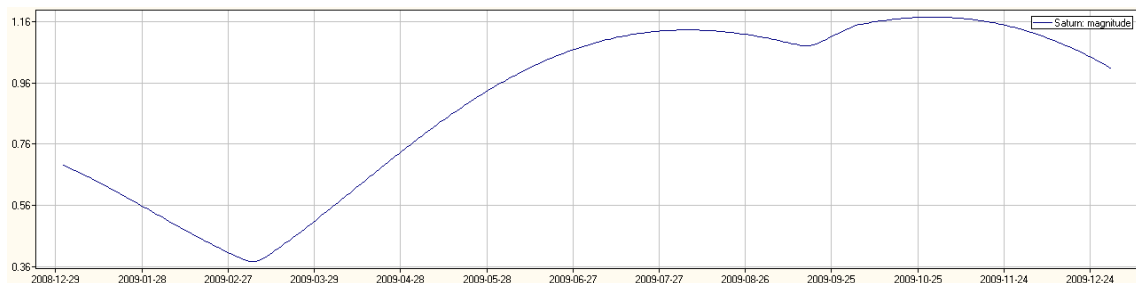
Distanza di Saturno in U.A. nel corso dell'anno



Elongazione di Saturno in ° nel corso dell'anno



Diametro di Saturno in " nel corso dell'anno



Magnitudine di Saturno nel corso dell'anno

COORDINATE DEI SATELLITI DI SATURNO

	Tethys: x			y	z	Dione: x			y	z	Rhea: x			y	z	Titan: x			y	z	
01/01/09	4.4067	-0.0179	2.0980	0.9462	0.0878	-6.1772	8.7087	0.0084	-0.5439	-8.1896	-0.2673	18.9874									
02/01/09	-3.9407	0.0118	-2.8807	4.0364	-0.0692	4.7813	2.1052	-0.1193	8.4747	-14.5128	-0.2060	14.4792									
03/01/09	3.3354	-0.0055	3.5632	-6.2331	0.0036	-0.1675	-7.9501	-0.0519	3.6011	-18.7027	-0.1136	7.8461									
04/01/09	-2.6154	-0.0007	-4.1214	4.2917	0.0653	-4.5540	-4.9571	0.1023	-7.1739	-20.0549	-0.0025	0.0282									
05/01/09	1.8026	0.0066	4.5358	0.6093	-0.0912	6.2206	6.1890	0.0894	-6.1450	-18.2585	0.1108	-7.7875									
06/01/09	-0.9276	-0.0121	-4.7920	-5.0254	0.0557	-3.6951	7.1581	-0.0722	4.9952	-13.5047	0.2082	-14.3370									
07/01/09	0.0201	0.0169	4.8809	6.1212	0.0185	-1.3202	-3.6183	-0.1175	7.9463	-6.5125	0.2729	-18.5096									
08/01/09	0.8891	-0.0210	-4.7994	-3.0341	-0.0819	5.4552	-8.4605	0.0310	-2.1311	1.5721	0.2930	-19.5843									
09/01/09	-1.7658	0.0242	4.5501	-2.0233	0.0908	-5.9058	0.6011	0.1315	-8.6968	9.3970	0.2643	-17.3940									
10/01/09	2.5830	-0.0265	-4.1419	5.7906	-0.0381	2.3808	8.6736	0.0153	-0.9498	15.6842	0.1911	-12.3512									
11/01/09	-3.3076	0.0279	3.5888	-5.5984	-0.0421	2.7477	2.4957	-0.1296	8.3677	19.4724	0.0850	-5.3344									
12/01/09	3.9191	-0.0285	-2.9101	1.7016	0.0957	-6.0146	-7.7755	-0.0631	3.9643	20.2580	-0.0375	2.5123									
13/01/09	-4.3914	0.0282	2.1296	3.4150	-0.0856	5.2418	-5.2822	0.1105	-6.9383	18.0216	-0.1580	9.9910									
14/01/09	4.7119	-0.0273	-1.2745	-6.1640	0.0167	-0.9418	5.9011	0.1049	-6.4214	13.1721	-0.2592	16.0252									
15/01/09	-4.8664	0.0259	0.3747	4.8240	0.0658	-3.9876	7.3774	-0.0764	4.6644	6.4502	-0.3263	19.7818									
16/01/09	4.8510	-0.0240	0.5384	-0.1697	-0.1062	6.2464	-3.2558	-0.1364	8.1015	-1.1802	-0.3490	20.7479									
17/01/09	-4.6662	0.0217	-1.4327	-4.5238	0.0753	-4.2954	-8.5481	0.0291	-1.7481	-8.6427	-0.3223	18.7755									
18/01/09	4.3169	-0.0193	2.2769	6.2382	0.0084	-0.5470	0.2102	0.1519	-8.7146	-14.8617	-0.2474	14.1035									
19/01/09	-3.8179	0.0168	-3.0415	-3.6944	-0.0895	5.0296	8.6225	0.0245	-1.3352	-18.8879	-0.1326	7.3543									
20/01/09	3.1833	-0.0142	3.6997	-1.2641	0.1121	-6.1144	2.8632	-0.1489	8.2486	-20.0365	0.0071	-0.5091									
21/01/09	-2.4388	0.0117	-4.2282	5.4454	-0.0587	3.0883	-7.5935	-0.0800	4.3029	-18.0269	0.1511	-8.2854									
22/01/09	1.6074	-0.0092	4.6087	-5.9008	-0.0371	2.0165	-5.5821	0.1255	-6.6995	-13.0870	0.2758	-14.7100									
23/01/09	-0.7202	0.0067	-4.8276	2.4488	0.1111	-5.7525	5.6147	0.1286	-6.6725	-5.9711	0.3587	-18.6885									
24/01/09	-0.1923	-0.0043	4.8772	2.7242	-0.1119	5.6302	7.5726	-0.0843	4.3397	2.1486	0.3834	-19.5323									
25/01/09	1.0990	0.0019	-4.7558	-5.9941	0.0359	-1.7193	-2.9036	-0.1648	8.2340	9.9119	0.3437	-17.1150									
26/01/09	-1.9656	0.0007	4.4675	5.2918	0.0678	-3.3437	-8.6156	0.0273	-1.3792	16.0518	0.2446	-11.8887									
27/01/09	2.7655	-0.0033	-4.0224	-0.9643	-0.1296	6.1719	-0.1635	0.1816	-8.7151	19.6332	0.1014	-4.7612									
28/01/09	-3.4660	0.0062	3.4361	-3.9369	0.1047	-4.8396	8.5577	0.0370	-1.7006	20.1866	-0.0641	3.1081									
29/01/09	4.0473	-0.0093	-2.7291	6.2570	-0.0068	0.2529	3.2091	-0.1760	8.1195	17.7276	-0.2268	10.5202									
30/01/09	-4.4844	0.0126	1.9262	-4.3092	-0.1001	4.5120	-7.4058	-0.1031	4.6184	12.6964	-0.3628	16.4097									
31/01/09	4.7657	-0.0163	-1.0556	-0.4672	0.1425	-6.2269	-5.8587	0.1459	-6.4591	5.8582	-0.4518	19.9638									
01/02/09	-4.8787	0.0201	0.1479	5.0035	-0.0888	3.7666	5.3308	0.1603	-6.9004	-1.8066	-0.4793	20.6961									
02/02/09	4.8204	-0.0242	0.7651	-6.1118	-0.0282	1.2362	7.7459	-0.0944	4.0213	-9.2140	-0.4382	18.4898									
03/02/09	-4.5934	0.0283	-1.6514	3.1713	0.1306	-5.3893	-2.5615	-0.2018	8.3461	-15.2916	-0.3306	13.6171									
04/02/09	4.2037	-0.0322	2.4796	1.9739	-0.1479	5.9330	-8.6653	0.0245	-1.0234	-19.1049	-0.1682	6.7323									
05/02/09	-3.6678	0.0360	-3.2208	-5.7201	0.0642	-2.4837	-0.5213	0.2193	-8.7001	-19.9968	0.0275	-1.1752									
06/02/09	3.0012	-0.0393	3.8487	5.6807	0.0671	-2.6310	8.4810	0.0535	-2.0481	-17.7252	0.2272	-8.8896									
07/02/09	-2.2306	0.0419	-4.3414	-1.7582	-0.1583	5.9919	3.5355	-0.2094	7.9817	-12.5631	0.3974	-15.1493									
08/02/09	1.3803	-0.0435	4.6815	-3.2720	0.1443	-5.3119	-7.2133	-0.1325	4.9134	-5.3068	0.5070	-18.8834									
09/02/09	-0.4820	0.0441	-4.8569	6.1709	-0.0306	1.0634	-6.1148	0.1698	-6.2170	2.8434	0.5339	-19.4445									
10/02/09	-0.4331	-0.0433	4.8615	-4.8619	-0.1091	3.9080	5.0490	0.1993	-7.1079	10.5206	0.4705	-16.7558									
11/02/09	1.3341	0.0411	-4.6951	0.3519	0.1792	-6.2350	7.9001	-0.1051	3.7082	16.4737	0.3252	-11.3160									
12/02/09	-2.1865	-0.0372	4.3634	4.4690	-0.1294	4.3803	-2.2279	-0.2460	8.4403	19.8012	0.1206	-4.0663									
13/02/09	2.9642	0.0317	-3.8782	-6.2212	-0.0114	0.4217	-8.6993	0.0194	-0.6789	20.0756	-0.1115	3.8176									
14/02/09	-3.6351	-0.0245	3.2565	3.8513	0.1497	-4.9276	-0.8657	0.2631	-8.6715	17.3546	-0.3361	11.1384									
15/02/09	4.1806	0.0157	-2.5201	1.1779	-0.1914	6.1384	8.3935	0.0744	-2.3801	12.1149	-0.5199	16.8461									
16/02/09	-4.5768	-0.0054	1.6950	-5.3426	0.1033	-3.2163	3.8454	-0.2469	7.8358	5.1499	-0.6353	20.1540									
17/02/09	4.8135	-0.0060	-0.8102	5.9776	0.0591	-1.8624	-7.0159	-0.1677	5.1908	-2.5426	-0.6633	20.6091									
18/02/09	-4.8799	0.0184	-0.1032	-2.5330	-0.1878	5.7052	-6.3532	0.1954	-5.9729	-9.8725	-0.5958	18.1323									
19/02/09	4.7744	-0.0312	1.0129	-2.5408	0.1923	-5.6976	4.7681	0.2446	-7.2976	-15.7739	-0.4375	13.0342									
20/02/09	-4.5017	0.0441	-1.8870	5.9768	-0.0652	1.8660	8.0376	-0.1151	3.3988	-19.3326	-0.2067	6.0053									
21/02/09	4.0689	-0.0565	2.6946	-5.3365	-0.1116	3.2280	-1.9007	-0.2959	8.5185	-19.9258	0.0653	-1.9376									
22/02/09	-3.4946	0.0679	-3.4074	1.1749	0.2180	-6.1336	-8.7192	0.0113	-0.3432	-17.3574	0.3369	-9.5654									
23/02/09	2.7954	-0.0779	4.0002	3.8504	-0.1794	4.9304	-1.1994	0.3110	-8.6301	-11.9511	0.5624	-15.6242									
24/02/09	-1.9993	0.0859	-4.4520	-6.2220	0.0164	-0.4090	8.2957	0.0998	-2.6997	-4.5488	0.7003	-19.0733									
25/02/09	1.1317	-0.0914	4.7471	4.4711	0.1634	-4.3744	4.1419	-0.2864	7.6815	3.6205	0.7227	-19.3138									
26/02/09	-0.2246	0.0941	-4.8749	0.3533	-0.2383	6.2374	-6.8129	-0.2079	5.4536	11.1865	0.6225	-16.3253									
27/02/09	-0.6900	-0.0936	4.8310	-4.8668	0.1526	-3.8984	-6.5768	0.2209	-5.7252	16.9194	0.4144	-10.6571									
28/02/09	1.5815	0.0898	-4.6170	6.1721	0.0404	-1.0543	4.4862	0.2945	-7.4721	19.9577	0.1314	-3.2855									
01/03/09	-2.4154	-0.0824	4.2403	-3.2694	-0.2130	5.3148	8.1607	-0.1229	3.0906	19.9216	-0.1820	4.5995									
02/03/09	3.1667	0.0717	-3.7142	-1.7586	0.2451	-5.9847	-1.5768	-0.3492	8.5825	16.9156	-0.4785	11.8047									
03/03/09	-3.8038	-0.0577	3.0574	5.6759	-0.1109	2.6410	-8.7262	-0.0003	-0.0129	11.4558	-0.7141	17.3005									
04/03/09	4.3093	0.0407	-2.2928	-5.7192	-0.1038	2.4862	-1.5262	0.3605	-8.5766	4.3646	-0.8537	20.3311									
05/03/09	-4.6610	-0.0213	1.4476	1.9822	0.2538	-5.9224	8.1874	0.1293	-3.0105	-3.3433	-0.8746	20.4819									
06/03/09	4.8499	0.0000	-0.5513	3.1604	-0.2358	5.3956	4.4286	-0.3256	7.5180	-10.5741	-0.7693	17.7152									
07																					

Tethys: x	y	z	Dione: x	y	z	Rhea: x	y	z	Titan: x	y	z	
02/04/09	-1.1875	-0.1932	4.7303	6.1003	-0.0866	1.4102	5.2623	-0.4189	6.9538	19.5140	-0.3699	6.1644
03/04/09	2.0507	0.1818	-4.4259	-5.0744	-0.2202	3.6242	-5.9024	-0.3912	6.4209	15.9501	-0.7950	13.0913
04/04/09	-2.8396	-0.1635	3.9662	0.7016	0.3816	-6.1952	-7.3770	0.2848	-4.6479	10.0806	-1.1113	18.1276
05/04/09	3.5313	0.1391	-3.3674	4.2156	-0.2877	4.6185	3.2855	0.4996	-8.0613	2.7792	-1.2733	20.5863
06/04/09	-4.0966	-0.1090	2.6506	-6.2354	-0.0035	0.0760	8.5375	-0.1117	1.8014	-4.9139	-1.2562	20.1324
07/04/09	4.5203	0.0745	-1.8410	4.1193	0.2957	-4.6977	-0.2414	-0.5479	8.7127	-11.9061	-1.0583	16.8111
08/04/09	-4.7839	-0.0365	0.9669	0.8361	-0.3935	6.1857	-8.6250	-0.0850	1.3282	-17.1706	-0.7023	11.0540
09/04/09	4.8807	-0.0036	-0.0591	-5.1586	0.2252	-3.4975	-2.8361	0.5255	-8.2285	-19.8747	-0.2355	3.6548
10/04/09	-4.8063	0.0444	-0.8506	6.0703	0.0974	-1.5291	7.6211	0.2732	-4.2354	-19.5167	0.2748	-4.2993
11/04/09	4.5629	-0.0844	1.7304	-2.8388	-0.3601	5.5520	5.5397	-0.4356	6.7334	-16.0498	0.7480	-11.5608
12/04/09	-4.1609	0.1223	-2.5494	-2.2312	0.3811	-5.8155	-5.6363	-0.4344	6.6535	-9.9520	1.1040	-16.9222
13/04/09	3.6117	-0.1565	3.2790	5.8679	-0.1448	2.1807	-7.5616	0.2845	-4.3418	-2.1914	1.2787	-19.4557
14/04/09	-2.9379	0.1859	-3.8937	-5.4998	-0.1936	2.9385	2.9502	0.5414	-8.1871	5.9382	1.2391	-18.7219
15/04/09	2.1597	-0.2091	4.3721	1.4946	0.4034	-6.0531	8.6045	-0.0955	1.4480	13.0798	0.9909	-14.8703
16/04/09	-1.3072	0.2256	-4.6973	3.5885	-0.3439	5.1167	0.1197	-0.5824	8.7130	18.0900	0.5768	-8.5919
17/04/09	0.4086	-0.2341	4.8582	-6.1934	0.0501	-0.7240	-8.5623	-0.1141	1.6849	20.2395	0.0659	-0.9489
18/04/09	0.5044	0.2348	-4.8492	4.6873	0.2795	-4.1342	-3.1792	0.5478	-8.1009	19.2949	-0.4610	6.8456
19/04/09	-1.3986	-0.2270	4.6707	0.0398	-0.4252	6.2384	7.4357	0.3101	-4.5503	15.4947	-0.9248	13.6317
20/04/09	2.2456	0.2114	-4.3289	-4.6690	-0.2837	-4.1255	5.8191	-0.4430	6.4925	9.4609	-1.2592	18.4542
21/04/09	-3.0117	-0.1879	3.8359	6.2159	0.0503	-0.7492	-5.3490	-0.4730	6.8844	2.0863	-1.4171	20.6584
22/04/09	3.6750	0.1577	-3.2091	-3.5211	-0.3551	5.1449	-7.7405	0.2763	-4.0153	-5.5816	-1.3753	19.9443
23/04/09	-4.2075	-0.1215	2.4702	-1.4742	0.4208	-6.0503	2.5952	0.5758	-8.3040	-12.4542	-1.1363	16.3927
24/04/09	4.5950	0.0806	-1.6453	5.5459	-0.2034	2.8995	8.6588	-0.0741	1.0768	-17.5204	-0.7298	10.4671
25/04/09	-4.8207	-0.0365	0.7631	-5.8271	-0.1543	2.2207	0.4965	-0.6073	8.6979	-19.9744	-0.2107	2.9872
26/04/09	4.8788	-0.0094	0.1456	2.2463	0.4087	-5.8174	-8.4810	-0.1448	2.0543	-19.3507	0.3449	-4.9450
27/04/09	-4.7668	0.0554	-1.0491	2.9183	-0.3902	5.5225	-3.5318	0.5595	-7.9530	-15.6448	0.8492	-12.0821
28/04/09	4.4878	-0.0998	1.9158	-6.0531	0.1070	-1.4941	7.2277	0.3446	-4.8711	-9.3756	1.2171	-17.2351
29/04/09	-4.0538	0.1412	-2.7156	5.1681	0.2489	-3.5190	6.1003	-0.4405	6.2288	-1.5419	1.3832	-19.5114
30/04/09	3.4769	-0.1780	3.4206	-0.7386	-0.4408	6.1922	-5.0381	-0.5055	7.1132	6.5509	1.3173	-18.5172
01/05/09	-2.7807	0.2089	-4.0063	-4.1172	0.3347	-4.6736	-7.9127	0.2604	-3.6661	13.5565	1.0313	-14.4474
02/05/09	1.9862	-0.2327	4.4524	6.2614	-0.0030	0.0231	2.2184	0.6010	-8.4106	18.3601	0.5753	-8.0271
03/05/09	-1.1237	0.2486	-4.7434	-4.1320	-0.3341	4.6682	8.6984	-0.0483	0.6861	20.2707	0.0261	-0.3361
04/05/09	0.2219	-0.2559	4.8692	-0.7128	0.4451	-6.1858	0.8903	-0.6211	8.6654	19.0938	-0.5296	7.4124
05/05/09	0.6880	0.2544	-4.8256	5.1470	-0.2572	3.5559	-8.3787	-0.1759	2.4372	15.1012	-1.0092	14.0724
06/05/09	-1.5725	-0.2439	4.6141	-6.0564	-0.1061	1.4871	-3.8940	0.5606	-7.7824	8.9386	-1.3451	18.7114
07/05/09	2.4041	0.2251	-4.2422	2.9446	0.3970	-5.4996	6.9947	0.3754	-5.1974	1.5126	-1.4911	20.7024
08/05/09	-3.1497	-0.1983	3.7229	2.2212	-0.4226	5.8347	6.3822	-0.4281	5.9400	-6.1253	-1.4270	19.7748
09/05/09	3.7882	0.1646	-3.0743	-5.8244	0.1622	-2.2215	-4.7015	-0.5305	7.3385	-12.8919	-1.1595	16.0376
10/05/09	-4.2926	-0.1251	2.3190	5.5589	0.2068	-2.8676	-8.0762	0.2375	-3.2927	-17.7901	-0.7234	9.9798
11/05/09	4.6498	0.0812	-1.4832	-1.4855	-0.4390	6.0552	1.8187	0.6159	-8.5048	-20.0370	-0.1787	2.4408
12/05/09	-4.8442	-0.0344	0.5961	-3.5181	0.3738	-5.1377	8.7210	-0.0192	0.2752	-19.1975	0.3941	-5.4666
13/05/09	4.8710	-0.0136	0.3116	6.2133	-0.0575	0.7745	1.3011	-0.6235	8.6130	-15.3014	0.9043	-12.4965
14/05/09	-4.7289	0.0612	-1.2083	-4.6654	-0.2994	4.1358	-8.2527	-0.2059	2.8331	-8.9004	1.2664	-17.4766
15/05/09	4.4219	-0.1066	2.0630	0.0388	0.4524	-6.2274	-4.2646	0.5493	-7.5867	-1.0164	1.4170	-19.5443
16/05/09	-3.9630	0.1484	-2.8460	4.6841	-0.3017	4.1432	6.7348	0.4010	-5.5279	7.0383	1.3303	-18.3430
17/05/09	3.3652	-0.1850	3.5302	-6.1909	-0.0533	0.7519	6.6629	-0.4064	5.6244	13.9281	1.0230	-14.1038
18/05/09	-2.6524	0.2152	-4.0920	3.5814	0.3700	-5.1117	-4.3382	-0.5468	7.5581	18.5633	0.5502	-7.5776
19/05/09	1.8465	-0.2378	4.5119	1.5113	-0.4389	6.0553	-8.2284	0.2084	-2.8944	20.2846	-0.0084	0.1440
20/05/09	-0.9775	0.2523	-4.7755	-5.5180	0.2109	-2.8973	1.3960	0.6199	-8.5839	18.9285	-0.5646	7.8501
21/05/09	0.0748	-0.2579	4.8736	5.8601	0.1573	-2.1938	8.7238	0.0120	-0.1554	14.7912	-1.0366	14.4073
22/05/09	0.8311	0.2549	-4.8030	-2.1907	-0.4207	5.8370	1.7278	-0.6141	8.5382	8.5355	-1.3587	18.9020
23/05/09	-1.7067	-0.2429	4.5662	-2.8857	0.3982	-5.5169	-8.1009	-0.2335	3.2407	1.0766	-1.4882	20.7290
24/05/09	2.5251	0.2228	-4.1715	6.0798	-0.1087	1.4942	-4.6417	0.5278	-7.3640	-6.5325	-1.4081	19.6396
25/05/09	-3.2537	-0.1951	3.6325	-5.1188	-0.2544	3.5608	6.4461	0.4200	-5.8602	-13.2137	-1.1288	15.7639
26/05/09	3.8721	0.1610	-2.9681	0.7689	0.4425	-6.1819	6.9398	-0.3763	5.2807	-17.9817	-0.6877	9.6093
27/05/09	-4.3544	-0.1215	2.2011	4.1698	-0.3334	4.6576	-3.9474	-0.5534	7.7692	-20.0713	-0.1465	2.0291
28/05/09	4.6879	0.0781	-1.3581	-6.2362	-0.0006	0.0269	-8.3664	0.1747	-2.4708	-19.0703	0.4142	-5.8563
29/05/09	-4.8583	-0.0325	0.4683	4.1515	0.3304	-4.6654	0.9507	0.6125	-8.6450	-15.0346	0.9058	-12.8032
30/05/09	4.8612	-0.0139	0.4375	0.8010	-0.4380	6.1884	8.7039	0.0435	-0.6048	-8.5398	1.2464	-17.6525
31/05/09	-4.6967	0.0595	-1.3281	-5.1450	0.2491	-3.5152	2.1690	-0.5932	8.4382	-0.6242	1.3778	-19.5647
01/06/09	4.3691	-0.1025	2.1728	6.0743	0.1048	-1.5096	-7.9207	-0.2571	3.6580	7.3962	1.2786	-18.2120
02/06/09	-3.8922	0.1417	-2.9424	-2.8469	-0.3877	5.5473	-5.0228	0.4964	-7.1122	14.1960	0.9695	-13.8518
03/06/09	3.2795	-0.1756	3.6104	-2.2322	0.4060	-5.8125	6.1274	0.4313	-6.1914	18.7061	0.5066	-7.2531
04/06/09	-2.5554	0.2032	-4.1539	5.8701	-0.1522	2.1743	7.2095	-0.3392	4.9082	20.2911	-0.0316	0.4858
05/06/09	1.7420	-0.2235	4.5540	-5.4917	-0.2031	2.9550	-3.5291	-0.5496	7.9684	18.8095	-0.5606	8.1577
06/06/09	-0.8693	0.2361	-4.7972	1.4687	0.4167	-6.0573	-8.4868	0.1381	-2.0226	14.5744	-1.0030	14.6398
07/06/09	-0.0331	-0.2404	4.8750	3.6158	-0.3499	5.0979	0.4842	0.5935	-8.6849	8.2586	-1.2985	19.0328
08/06/09	0.9351	0.2366	-4.7848	-6.1988	0.0476	-0.6786	8.6585	0.0736	-1.0713	0.7817	-1.4090	20.7466
09/06/09	-1.8033	-0.2247	4.5299	4.6523	0.2818	-4.1717	2.6220	-0.5614	8.3106	-6.8037	-1.3214	19.5474
10/06/09	2.6113	0.2056	-4.1190	0.0999	-0.4206	6.2392	-7.7105	-0.2751	4.0819	-13.4242	-1.0483	15.5787
11/06/09	-3.3270	-0.1796	3.5664	-4.7160	0.2740	-4.0716	-5.4043	0.4562	-6.8300	-18.1025	-0.6274	9.3596
12/06/09	3.9304	0.1481	-2.8911	6.2057	0.0536	-0.8250	5.7781	0.4338	-6.5180	-20.0856	-0.1185	1.7523
13/06/09	-4.3965	-0.1121	2.1164	-3.4491	-0.3433	5.1958	7.4685	-0.2969	4.5068	-18.9768	0.4023	-6.1178
14/06/09	4.7129	0.0729	-1.2689	1.5682	0.3971	-6.0272	-3.0840	-0.5351	8.1522	-14.8492	0.8529	-13.0088
15/06/09	-4.8662	-0.0320	0.3779	5.5929	-0.1848	2.8095	-8.5862	0.1003	-1.5511	-8.2949	1.1588	-17.7706
16/06/09	4.8525	-0.0093	0.5260	-5.7859	-0.1499	2.3284	-0.0013	0.5635	-8.7004	-0.3623	1.2690	-19.5801
17/06/09	-4.6724	0.0494	-1.4118	2.1315	0.3775	-5.8612	8.5848	0.1006	-1.5522	7.6312	1.1673	-18.1291
18/06/09	4.3308	-0.0871	2.2490	3.0321	-0.3503	5.4645	3.0837	-0.5198	8.1531	14.3691	0.8759	-13.6927
19/06/09	-3.8418	0.1212	-3.0088	-6.0856	0.0875	-1.3576	-7.4686	-0.2862	4.5091	18.7972	0.4487	-7.0508
20/06/09	3.2194	-0.1503	3.6653	5.0832	0.2283	-3.6401	-5.7827	0.4090	-6.5164	20.2968	-0.0417	0.6957
21/06/09	-2.4880	0.1739	-4.1958	-0.5840	-0.3881	6.2134	5.3981	0.4267	-6.8361	18.7403	-0.5181	8.3439
22/06												

	Tethys: x	y	z	Dione: x	y	z	Rhea: x	y	z	Titan: x	y	z
08/07/09	-2.4464	0.1296	-4.2218	-6.1487	-0.0532	1.0457	-6.5135	0.3008	-5.7935	14.4093	-0.7699	14.8366
09/07/09	1.6263	-0.1429	4.5998	3.3290	0.2713	-5.2840	4.5483	0.3818	-7.4304	8.0547	-0.9810	19.1456
10/07/09	-0.7511	0.1512	-4.8205	1.8092	-0.3040	5.9825	8.1426	-0.1579	3.1364	0.5727	-1.0504	20.7716
11/07/09	-0.1495	-0.1542	4.8763	-5.6592	0.1322	-2.6155	-1.6049	-0.4277	8.5736	-6.9882	-0.9724	19.4904
12/07/09	1.0458	0.1521	-4.7653	5.7379	0.1218	-2.4959	-8.7263	0.0001	-0.0186	-13.5600	-0.7607	15.4528
13/07/09	-1.9047	-0.1451	4.4915	-1.8774	-0.2888	5.9544	-1.5435	0.4150	-8.5711	-18.1716	-0.4465	9.1846
14/07/09	2.7005	0.1339	-4.0641	-3.1830	0.2571	-5.3587	8.1729	0.1461	-3.0481	-20.0779	-0.0762	1.5541
15/07/09	-3.4016	-0.1188	3.4979	6.1530	-0.0560	1.1597	4.4837	-0.3507	7.4840	-18.8929	0.2943	-6.3094
16/07/09	3.9888	0.1007	-2.8121	-4.9086	-0.1773	3.8514	-6.5455	-0.2669	5.7701	-14.7028	0.6067	-13.1640
17/07/09	-4.4376	-0.0803	2.0303	0.4091	0.2835	-6.2242	-6.8577	0.2439	-5.3852	-8.1120	0.8110	-17.8667
18/07/09	4.7363	0.0584	-1.1792	4.4361	-0.1986	4.4136	4.0814	0.3439	-7.6982	-0.1761	0.8757	-19.6078
19/07/09	-4.8723	-0.0359	0.2878	-6.2237	-0.0163	0.4025	8.3205	-0.1145	2.6299	7.7901	0.7947	-18.0960
20/07/09	4.8422	0.0135	0.6133	3.8582	0.2115	-4.9157	-1.0723	-0.3726	8.6590	14.4812	0.5881	-13.6189
21/07/09	-4.6471	0.0080	-1.4935	1.1835	-0.2604	6.1379	-8.7108	-0.0228	0.5214	18.8588	0.2961	-6.9615
22/07/09	4.2925	-0.0279	2.3227	-5.3582	0.1337	-3.1871	-2.0741	0.3504	-8.4615	20.3177	-0.0302	0.7795
23/07/09	-3.7927	0.0457	-3.0725	5.9645	0.0760	-1.8966	7.9669	0.1450	-3.5513	18.7373	-0.3395	8.4100
24/07/09	3.1620	-0.0609	3.7175	-2.4785	-0.2282	5.7314	4.9414	-0.2855	7.1925	14.4397	-0.5881	14.8251
25/07/09	-2.4248	0.0732	-4.2356	-2.6147	0.2219	-5.6600	-6.1723	-0.2408	6.1692	8.0970	-0.7443	19.1413
26/07/09	1.6039	-0.0823	4.6092	6.0028	-0.0695	1.7807	-7.1822	0.1879	-4.9471	0.6230	-0.7914	20.7798
27/07/09	-0.7288	0.0884	-4.8255	-5.2767	-0.1233	3.3295	3.5890	0.2963	-7.9414	-6.9368	-0.7274	19.5129
28/07/09	-0.1709	-0.0913	4.8771	1.0438	0.2248	-6.1535	8.4693	-0.0757	2.1027	-13.5151	-0.5651	15.4878
29/07/09	1.0656	0.0913	-4.7625	3.9645	-0.1737	4.8420	-0.5251	-0.3096	8.7119	-18.1396	-0.3298	9.2268
30/07/09	-1.9225	-0.0886	4.4854	-6.2318	0.0096	-0.2348	-8.6607	-0.0379	1.0699	-20.0624	-0.0575	1.5965
31/07/09	2.7156	0.0837	-4.0553	4.3385	0.1519	-4.5018	-2.6064	0.2810	-8.3158	-18.8945	0.2103	-6.2737
01/08/09	-3.4140	-0.0768	3.4870	0.5555	-0.2060	6.2271	7.7254	0.1341	-4.0497	-14.7201	0.4315	-13.1403
02/08/09	3.9981	0.0684	-2.7998	-5.0060	0.1208	-3.7168	5.3877	-0.2194	6.8666	-8.1422	0.5720	-17.8590
03/08/09	-4.4439	-0.0591	2.0172	6.1263	0.0389	-1.2864	-5.7679	-0.2046	6.5505	-0.2149	0.6119	-19.6197
04/08/09	4.7397	0.0492	-1.1658	-3.0450	-0.1650	5.4522	-7.4832	0.1349	-4.4811	7.7493	0.5499	-18.1301
05/08/09	-4.8730	-0.0392	0.2747	-2.0277	0.1745	-5.8984	3.0740	0.2398	-8.1561	14.4480	0.4033	-13.6759
06/08/09	4.8405	0.0293	0.6257	5.7935	-0.0692	2.3749	8.5863	-0.0435	1.5581	18.8445	0.2023	-7.0380
07/08/09	-4.6435	-0.0201	-1.5048	-5.5854	-0.0756	2.7802	0.0329	-0.2402	8.7298	20.3330	-0.0169	0.6920
08/08/09	4.2872	0.0116	2.3325	1.6592	0.1607	-6.0204	-8.5745	-0.0440	1.6228	18.7882	-0.2196	8.3248
09/08/09	-3.7862	-0.0040	-3.0808	3.4591	-0.1355	5.2155	-3.1358	0.2087	-8.1334	14.5256	-0.3775	14.7573
10/08/09	3.1548	-0.0026	3.7241	-6.1761	0.0229	-0.8618	7.4486	0.1131	-4.5388	8.2098	-0.4720	19.1045
11/08/09	-2.4173	0.0082	-4.2405	4.7687	0.0959	-4.0470	5.8181	-0.1544	6.5074	0.7485	-0.4949	20.7827
12/08/09	1.5964	-0.0128	4.6125	-0.0704	-0.1439	6.2520	-5.3341	-0.1586	6.9099	-6.8160	-0.4482	19.5571
13/08/09	-0.7217	0.0165	-4.8273	-4.6070	0.0939	-4.2024	-7.7573	0.0868	-3.9899	-13.4162	-0.3430	15.5672
14/08/09	-0.1775	-0.0197	4.8777	6.2246	0.0127	-0.6700	2.5395	0.1754	-8.3394	-18.0759	-0.1978	9.3289
15/08/09	1.0714	0.0223	-4.7620	-3.5744	-0.1025	5.1206	8.6690	-0.0192	0.9997	-20.0411	-0.0363	1.7050
16/08/09	-1.9273	-0.0247	4.4841	-1.4267	0.1171	-6.0742	0.5977	-0.1662	8.7111	-18.9163	0.1160	-6.1756
17/08/09	2.7195	0.0270	-4.0535	5.5287	-0.0549	2.9391	-8.4513	-0.0403	2.1757	-14.7793	0.2356	-13.0677
18/08/09	-3.4168	-0.0295	3.4849	-5.8346	-0.0368	2.2081	-3.6583	0.1355	-7.9140	-8.2283	0.3055	-17.8232
19/08/09	4.0000	0.0322	-2.7977	2.2517	0.0946	-5.8278	7.1374	0.0819	-5.0142	-0.3141	0.3184	-19.6279
20/08/09	-4.4451	-0.0352	2.0152	2.9244	-0.0856	5.5332	6.2288	-0.0925	6.1162	7.6536	0.2781	-18.1846
21/08/09	4.7402	0.0386	-1.1641	-6.0589	0.0226	-1.4745	-4.8732	-0.1037	7.2437	14.3740	0.1981	-13.7734
22/08/09	-4.8731	-0.0424	0.2734	5.1476	0.0465	-3.5557	-8.0013	0.0454	-3.4761	18.8094	0.0972	-7.1681
23/08/09	4.8403	0.0464	0.6266	-0.6899	-0.0770	6.2140	1.9888	0.1046	-8.4886	20.3495	-0.0046	0.5465
24/08/09	-4.6431	-0.0505	-1.5052	-4.1654	0.0541	-4.6417	8.7156	-0.0040	0.4314	18.8614	-0.0907	8.1854
25/08/09	4.2869	0.0543	2.3326	6.2608	-0.0009	-0.0518	1.1652	-0.0892	8.6546	14.6506	-0.1498	14.6465
26/08/09	-3.7860	-0.0578	-3.0805	-4.0642	-0.0439	4.7403	-8.2910	-0.0263	2.7243	8.3723	-0.1770	19.0412
27/08/09	3.1549	0.0605	3.7236	-0.8162	0.0526	-6.1879	-4.1696	0.0635	-7.6582	0.9271	-0.1734	20.7783
28/08/09	-2.4177	-0.0621	-4.2399	5.2117	-0.0271	3.4703	6.7929	0.0409	-5.4718	-6.6463	-0.1450	19.6131
29/08/09	1.5972	0.0623	4.6118	-6.0244	-0.0091	1.6177	6.6161	-0.0355	5.6952	-13.2789	-0.1011	15.6749
30/08/09	-0.7228	-0.0608	-4.8268	2.8180	0.0299	-5.5784	-4.3879	-0.0409	7.5486	-17.9893	-0.0527	9.4708
31/08/09	-0.1761	0.0573	4.8775	2.3644	-0.0265	5.7943	-8.2126	0.0120	-2.9433	-20.0151	-0.0102	1.8585
01/09/09	1.0697	-0.0517	-4.7621	-5.8825	0.0086	-2.0689	1.4258	0.0290	-8.6015	-18.9509	0.0183	-6.0346
02/09/09	-1.9255	0.0438	4.4847	5.4740	0.0062	-3.0319	8.7249	0.0012	-0.1426	-14.8659	0.0291	-12.9604
03/09/09	2.7177	-0.0336	-4.0546	-1.2994	-0.0086	6.1147	1.7312	-0.0114	8.5597	-8.3513	0.0233	-17.7660
04/09/09	-3.4152	0.0211	3.4866	-3.6849	0.0032	-5.0327	-8.0940	-0.0019	3.2642	-0.4530	0.0069	-19.6305
05/09/09	3.9986	-0.0067	6.2359	-0.0012	-0.0012	0.5641	-4.6655	-0.0054	-7.3672	7.5220	-0.0111	-18.2496
06/09/09	-4.4440	-0.0095	2.0179	-4.5121	0.0078	4.3144	6.4172	-0.0092	-5.9076	14.2732	-0.0215	-13.8946
07/09/09	4.7395	0.0270	-1.1672	-0.2000	-0.0160	-6.2398	9.9766	0.0148	5.2470	18.7602	-0.0176	-7.3309
08/09/09	-4.8729	-0.0452	0.2769	4.8453	0.0131	3.9656	-3.8815	0.0284	7.8214	20.3657	0.0035	0.3645
09/09/09	4.8406	0.0637	0.6229	-6.1543	0.0061	1.0129	-8.3891	-0.0121	-2.3953	18.9470	0.0396	8.0112
10/09/09	-4.6439	-0.0816	-1.5014	3.3552	-0.0304	-5.2745	0.8545	-0.0495	-8.6767	14.7981	0.0842	14.5070
11/09/09	4.2881	0.0983	2.3288	1.7828	0.0392	5.9978	8.6964	-0.0039	-0.7179	8.5635	0.1280	18.9585
12/09/09	-3.7877	-0.1132	-3.0769	-5.6486	-0.0188	-2.6416	2.2914	0.0654	8.4266	1.1359	0.1603	20.7653
13/09/09	3.1569	0.1253	3.7202	5.7466	-0.0228	-2.4791	-7.8612	0.0323	3.7911	-6.4488	0.1709	19.6716
14/09/09	-2.4199	-0.1343	-4.2369	-1.8954	0.0579	5.9552	-5.1423	-0.0692	-7.0427	-13.1200	0.1524	15.7945
15/09/09	1.5996	0.1393	4.6093	-3.1687	-0.0566	-5.3731	6.0128	-0.0674	-6.3180	-17.8897	0.1016	9.6316
16/09/09	-0.7252	-0.1401	-4.8248	6.1506	0.0122	1.1740	7.3073	0.0570	4.7748	-19.9854	0.0218	2.0345
17/09/09	-0.1737	0.1361	4.8760	-4.9156	0.0500	3.8460	-3.3574	0.1027	8.0600	-18.9910	-0.0770	-5.8709
18/09/09	1.0676	-0.1273	-4.7612	0.4181	-0.0854	-6.2297	-8.5291	-0.0262	-1.8360	-14.9652	-0.1786	-12.8338
19/09/09	-1.9236	0.1136	4.4843	4.4317	0.0640	4.4219	0.2789	-0.1290	-8.7133	-8.4913	-0.2628	-17.6953
20/09/09	2.7161	-0.0953	-4.0547	-6.2239	0.0077	0.3979	8.6299	-0.0195	-1.2902	-0.6101	-0.3104	-19.6270
21/09/09	-3.4140	0.0726	3.4871	3.8601	-0.0832	-4.9184	2.8417	0.1391	8.2562	7.3740	-0.3072	-18.3155
22/09/09	3.9977	-0.0462	-2.8007	1.1833	0.1086	6.1423	-7.5941	0.0758	4.3010	14.1602	-0.2483	-14.0232
23/09/09	-4.4434	0.0168	2.0190	-5.3587	-0.0584	-3.1886	-5.5964	-0.1265	-6.6871	18.7040	-0.1392	-7.5056
24/09/09	4.7393	0.0149	-1.1686	5.9636	-0.0389	-1.9011	5.5824	-0.1323	-6.6999	20.3804	0.0055	0.1681
25/09/09	-4.8728	-0.0477	0.2783	-2.4741	0.1195	5.7364	7.6059	0.0899	4.2821	19.0358	0.1648	7.8222
26/09/09	4.8405	0.0805	0.6213	-2.6201	-0.1224	-5.6608	-2.8195	0.1799	8.2625	14.9519	0.3145	14.3540
27/09/09	-4.6438	-0.1123	-1.4998	6.0051	0.0389	1.7738	-8.6317	-0.0299				

Tethys: x	y	z	Dione: x	y	z	Rhea: x	y	z	Titan: x	y	z	
13/10/09	4.8393	0.0968	0.6286	4.7591	-0.1563	-4.0569	8.0993	0.1254	3.2513	8.9479	0.7195	18.7701
14/10/09	-4.6407	-0.1417	-1.5068	-0.0557	0.2448	6.2487	-1.7191	0.3355	8.5552	1.5538	0.8126	20.7168
15/10/09	4.2827	0.1831	2.3336	-4.6160	-0.1670	-4.1904	-8.7240	-0.0063	-0.1341	-6.0560	0.7929	19.7657
16/10/09	-3.7799	-0.2196	-3.0808	6.2233	-0.0295	-0.6832	-1.4303	-0.3536	-8.5934	-12.8054	0.6563	16.0109
17/10/09	3.1466	0.2496	3.7227	-3.5642	0.2159	5.1239	8.2118	-0.1230	-2.9463	-17.6922	0.4152	9.9307
18/10/09	-2.4071	-0.2720	-4.2376	-1.4376	-0.2599	-6.0675	4.3944	0.3242	7.5387	-19.9235	0.0994	2.3656
19/10/09	1.5844	0.2856	4.6078	5.5339	0.1268	2.9270	-6.6121	0.2489	5.6929	-19.0611	-0.2460	-5.5602
20/10/09	-0.7080	-0.2900	-4.8207	-5.8313	0.1004	2.2144	-6.7924	-0.2454	-5.4655	-15.1446	-0.5654	-12.5896
21/10/09	-0.1925	0.2843	4.8689	2.2442	-0.2663	-5.8257	4.1714	-0.3490	-7.6505	-8.7439	-0.8028	-17.5520
22/10/09	1.0873	-0.2689	-4.7508	2.9307	0.2561	5.5244	8.2920	0.1276	2.7218	-0.8915	-0.9133	-19.6046
23/10/09	-1.9436	0.2437	4.4705	-6.0600	-0.0681	-1.4685	-1.1650	0.4099	8.6450	7.1108	-0.8735	-18.4186
24/10/09	2.7354	-0.2096	-4.0374	5.1455	-0.1729	-3.5554	-8.7147	0.0197	0.4266	13.9603	-0.6868	-14.2396
25/10/09	-3.4316	0.1672	3.4664	-0.6876	0.3051	6.2069	-1.9805	-0.4176	-8.4807	18.6047	-0.3820	-7.8066
26/10/09	4.0128	-0.1181	-2.7770	-4.1653	-0.2309	-4.6366	8.0056	-0.1726	-3.4650	20.4046	-0.0065	-0.1748
27/10/09	-4.4549	0.0637	1.9926	6.2610	-0.0041	-0.0508	4.8677	0.3691	7.2396	19.1872	0.3832	7.4880
28/10/09	4.7462	-0.0058	-1.1402	-4.0668	0.2456	4.7314	-6.2348	0.3151	6.1011	15.2134	0.7300	14.0781
29/10/09	-4.8743	-0.0538	0.2488	-0.8103	-0.3248	-6.1807	-7.1281	-0.2649	-5.0194	9.0983	0.9834	18.6868
30/10/09	4.8359	0.1128	0.6512	5.2077	0.1841	3.4715	3.6744	-0.4219	-7.8973	1.7152	1.1050	20.6870
31/10/09	-4.6326	-0.1694	-1.5288	-6.0269	0.0885	1.6049	8.4483	0.1197	2.1888	-5.9064	1.0727	19.7898
01/11/09	4.2697	0.2213	2.3541	2.8294	-0.3072	-5.5646	-0.6142	0.4792	8.6981	-12.6872	0.8841	16.0799
02/11/09	-3.7620	-0.2669	-3.0989	2.3507	0.3229	5.7907	-8.6703	0.0537	0.9770	-17.6180	0.5587	10.0292
03/11/09	3.1241	0.3041	3.7376	-5.8763	-0.1167	-2.0831	-2.5143	-0.4734	-8.3352	-19.8975	0.1382	2.4747
04/11/09	-2.3805	-0.3318	-4.2484	5.4840	-0.1744	-3.0093	7.7705	-0.2271	-3.9611	-19.0789	-0.3162	-5.4583
05/11/09	1.5543	0.3484	4.6137	-1.3221	0.3557	6.0991	5.3140	0.4039	6.9164	-15.1960	-0.7316	-12.5092
06/11/09	-0.6753	-0.3536	-4.8211	-3.6632	-0.2969	-5.0400	-5.8389	0.3822	6.4779	-8.8156	-1.0363	-17.5025
07/11/09	-0.2267	0.3465	4.8634	6.2334	0.0339	0.5918	-7.4298	-0.2740	-4.5608	-0.9699	-1.1743	-19.5910
08/11/09	1.1219	-0.3275	-4.7391	-4.5345	0.2607	4.2824	3.1713	-0.4917	-8.1082	7.0392	-1.1186	-18.4420
09/11/09	-1.9773	0.2966	4.4525	-0.1638	-0.3824	-6.2295	8.5685	0.1027	1.6569	13.9075	-0.8770	-14.2971
10/11/09	2.7669	-0.2552	-4.0133	4.8206	0.2465	3.9877	-0.0707	0.5417	8.7159	18.5808	-0.4886	-7.8905
11/11/09	-3.4596	0.2040	3.4365	-6.1610	0.0624	0.9681	-8.5927	0.0943	1.5131	20.4156	-0.0149	-0.2731
12/11/09	4.0359	-0.1451	-2.7420	3.3945	-0.3341	-5.2393	-3.0285	-0.5198	-8.1597	19.2334	0.4723	7.3897
13/11/09	-4.4720	0.0800	1.9534	1.7350	0.3854	5.9992	7.5096	-0.2845	-4.4321	15.2887	0.9019	13.9943
14/11/09	4.7561	-0.0111	-1.0979	-5.6252	-0.1733	-2.6855	5.7313	0.4283	6.5728	9.1915	1.2124	18.6287
15/11/09	-4.8763	-0.0594	0.2047	5.7693	-0.1606	-2.4211	-5.4283	0.4481	6.8220	1.8119	1.3581	20.6599
16/11/09	4.8293	0.1289	0.6955	-1.9542	0.3939	5.9229	-7.6971	-0.2731	-4.0943	-5.8200	1.3140	19.7925
17/11/09	-4.6171	-0.1951	-1.5719	-3.1112	-0.3615	-5.3951	2.6663	-0.5563	-8.2836	-12.6214	1.0795	16.1055
18/11/09	4.2453	0.2555	2.3944	6.1372	0.0826	1.2398	8.6539	0.0776	1.1302	-17.5772	0.6807	10.0763
19/11/09	-3.7291	-0.3081	-3.1346	-4.9612	0.2598	3.7778	0.4614	0.5959	8.7005	-19.8796	0.1700	2.5150
20/11/09	3.0833	0.3506	3.7673	0.4974	-0.4295	-6.2100	-8.4847	0.1396	2.0314	-19.0773	-0.3772	-5.4234
21/11/09	-2.3328	-0.3819	-4.2705	4.3724	0.3107	4.4700	-3.5200	-0.5560	-7.9578	-15.2025	-0.8733	-12.4829
22/11/09	1.5011	0.4001	4.6271	-6.2288	0.0232	0.3081	7.2267	-0.3427	-4.8756	-8.8234	-1.2332	-17.4848
23/11/09	-0.6182	-0.4051	-4.8247	3.9332	-0.3454	-4.8490	6.1178	0.4420	6.2133	-0.9753	-1.3924	-19.5808
24/11/09	-0.2859	0.3958	4.8565	1.0869	0.4398	6.1450	-5.0075	0.5105	7.1328	7.0374	-1.3215	-18.4388
25/11/09	1.1811	-0.3730	-4.7213	-5.3049	-0.2349	-3.2696	-7.9298	-0.2628	-3.6244	13.9099	-1.0324	-14.3011
26/11/09	-2.0343	0.3367	4.4238	5.9958	-0.1321	-1.7935	2.1640	-0.6137	-8.4246	18.5877	-0.5737	-7.9016
27/11/09	2.8196	-0.2886	-3.9741	-2.5779	0.4172	5.6759	8.7059	0.0460	0.6130	20.4273	-0.0190	-0.2900
28/11/09	-3.5058	0.2297	3.3877	-2.5113	-0.4208	-5.6960	0.9785	0.6403	8.6544	19.2488	0.5473	7.3698
29/11/09	4.0736	-0.1623	-2.6847	5.9688	0.1392	1.8876	-8.3492	0.1876	2.5288	15.3051	1.0428	13.9743
30/11/09	-4.4993	0.0885	1.8893	-5.3403	0.2429	3.2187	-3.9861	-0.5814	-7.7333	9.2050	1.3973	18.6098
01/12/09	4.7715	-0.0108	-1.0288	1.1679	-0.4630	-6.1185	6.9258	-0.3994	-5.2898	1.8188	1.5597	20.6410
02/12/09	-4.8787	0.0681	0.1328	3.8633	0.3729	4.9116	6.4726	0.4455	5.8422	-5.8212	1.5034	19.7700
03/12/09	4.8179	0.1454	0.7678	-6.2250	-0.0269	-0.3702	-4.5809	0.5673	7.4103	-12.6282	1.2298	16.0749
04/12/09	-4.5916	-0.2185	-1.6420	4.4387	-0.3400	-4.3935	-8.1286	-0.2444	-3.1555	-17.5825	0.7711	10.0253
05/12/09	4.2059	0.2846	2.4597	0.4106	0.4827	6.2224	1.6684	-0.6625	-8.5327	-19.8735	0.1889	2.4628
06/12/09	-3.6767	-0.3416	-3.1926	-4.9138	-0.2978	-3.8286	8.7267	0.0095	0.1089	-19.0500	-0.4301	-5.4791
07/12/09	3.0190	0.3871	3.8155	6.1568	-0.0903	-1.1302	1.4771	0.6740	8.5808	-15.1489	-0.9865	-12.5305
08/12/09	-2.2585	-0.4197	-4.3068	-3.1861	0.4237	5.3559	-8.1896	0.2363	3.0028	-8.7459	-1.3854	-17.5116
09/12/09	1.4189	0.4378	4.6496	-1.8664	-0.4711	-5.9359	-4.4250	-0.5957	-7.4899	-0.8839	-1.5564	-19.5774
10/12/09	-0.5307	-0.4412	-4.8320	5.7249	0.2005	2.5286	6.6111	-0.4525	-5.6739	7.1280	-1.4698	-18.4026
11/12/09	-0.3757	0.4289	4.8476	-5.6640	0.2106	2.6075	6.7951	0.4392	5.4637	13.9847	-1.1417	-14.2366
12/12/09	1.2702	-0.4020	-4.6958	1.8411	-0.4805	-5.9509	-4.1526	0.6168	7.6550	18.6350	-0.6287	-7.8188
13/12/09	-2.1193	0.3605	4.3818	3.2945	0.4289	5.3049	-8.2947	-0.2191	-2.6915	20.4402	-0.0140	-0.2012
14/12/09	2.8974	-0.3066	-3.9165	-6.1444	-0.0848	-1.0607	1.1832	-0.7011	-8.6101	19.2249	0.6086	7.4519
15/12/09	-3.5732	0.2414	3.3157	4.9027	-0.3179	-3.8729	8.7190	-0.0300	-0.3788	15.2464	1.1487	14.0374
16/12/09	4.1278	-0.1675	-2.6003	-0.2883	0.5110	6.2257	1.9547	0.6964	8.4828	9.1172	1.5303	18.6429
17/12/09	-4.5378	0.0873	1.7950	-4.4509	-0.3578	-4.3541	-8.0096	0.2836	3.4515	1.7120	1.6995	20.6348
18/12/09	4.7923	-0.0037	-0.9274	6.2456	-0.0376	-0.4359	-4.8351	-0.5991	-7.2319	-5.9325	1.6294	19.7180
19/12/09	-4.8802	-0.0806	0.0278	-3.7704	0.4128	4.9610	6.2865	-0.5000	-6.0273	-12.7254	1.3242	15.9756
20/12/09	4.7994	0.1624	0.8730	-1.1806	-0.5087	-6.1075	7.0856	0.4242	5.0822	-17.6447	0.8213	9.8849
21/12/09	-4.5530	-0.2390	-1.7436	5.4024	0.2624	3.1547	-3.7268	0.6572	7.8682	-19.8810	0.1897	2.2967
22/12/09	4.1477	0.3076	2.5540	-5.9241	0.1647	1.9472	-8.4298	-0.1885	-2.2363	-18.9901	-0.4757	-5.6462
23/12/09	-3.6002	-0.3658	-3.2759	2.5090	-0.4803	-5.7032	0.7120	-0.7285	-8.6595	-15.0206	-1.0677	-12.6689
24/12/09	2.9263	0.4113	3.8845	2.6679	0.4750	5.6415	8.6856	-0.0705	-0.8474	-8.5634	-1.4856	-17.5929
25/12/09	-2.1523	-0.4429	-4.3585	-5.9816	-0.1470	-1.7559	2.4089	0.7072	8.3642	-0.6744	-1.6570	-19.5824
26/12/09	1.3026	0.4588	4.6815	5.3159	-0.2800	-3.2887	-7.8129	0.3273	3.8733	7.3301	-1.5534	-18.3263
27/12/09	-0.4080	-0.4591	-4.8422	-1.0028	0.5223	6.1487	-5.2158	-0.5922	-6.9633	14.1461	-1.1957	-14.0893
28/12/09	-0.5006	0.4429	4.8350	-3.9165	-0.4108	-4.8369	5.9562	-0.5400	-6.3501	18.7295	-0.6468	-7.6227
29/12/09	1.3930	-0.4117	-4.6600	6.2548	0.0226	0.2830	7.3447	0.4016	4.7014	20.4527	0.0035	0.0146
30/12/09	-2.2355	0.3656	4.3233	-4.3209	0.3845	4.4901	-3.3070	0.6871	8.0515	19.1524	0.6558	7.6558
31/12/09	3.0026	-0.3070	-3.8364	-0.4598	-0.5306	-6.2029	-8.5359	-0.1543	-1.7930	15.0969	1.2155	14.1995
01/01/10	-3.6632	0.2373	3.2163	4.9988	0.3205	3.7567	0.2574	-0.7441	-8.6834	8.9087	1.6046	18.7375

FENOMENI MUTUI DEI SATELLITI DI SATURNO

Ec.D. : inizio dell'eclisse
 Ec.R. : fine dell'eclisse
 Oc.D. : inizio dell'occultazione
 Oc.R. : fine dell'occultazione
 Tr.I. : inizio del transito
 Tr.E. : fine del transito
 Sh.I. : ingresso dell'ombra
 Sh.E. : uscita dell'ombra

TEMPI IN T.U.

Sono stati presi in considerazione solo i 4 satelliti principali

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole							
01/01/09	0.04.58	Dione	Tr.	E.	26.1	-68.4	13/01/09	3.39.30	Dione	Ec.	D.	52.8	-32.7
01/01/09	6.02.18	Tethys	Ec.	D.	44.3	-7.1	13/01/09	7.42.55	Dione	Occ.	R.	20.2	9.2
01/01/09	9.36.36	Tethys	Occ.	R.	8.0	21.2	13/01/09	8.09.44	Rhea	Sh.	I.	15.3	12.8
02/01/09	1.03.43	Rhea	Ec.	D.	36.7	-60.6	13/01/09	9.14.53	Rhea	Tr.	I.	3.3	20.3
02/01/09	4.41.35	Tethys	Sh.	I.	51.9	-21.3	13/01/09	11.29.26	Rhea	Sh.	E.	-20.9	26.6
02/01/09	4.53.24	Dione	Ec.	D.	51.1	-19.2	13/01/09	12.33.02	Tethys	Sh.	I.	-30.5	24.5
02/01/09	5.17.11	Tethys	Tr.	I.	49.1	-14.9	13/01/09	13.05.32	Tethys	Tr.	I.	-34.7	22.2
02/01/09	6.10.29	Rhea	Occ.	R.	42.7	-5.7	13/01/09	13.09.28	Rhea	Tr.	E.	-35.2	21.9
02/01/09	7.35.38	Tethys	Sh.	E.	29.2	7.7	13/01/09	15.27.46	Tethys	Sh.	E.	-42.6	5.0
02/01/09	8.15.38	Tethys	Tr.	E.	22.1	12.9	13/01/09	16.04.00	Tethys	Tr.	E.	-41.3	-0.3
02/01/09	9.00.54	Dione	Occ.	R.	13.8	18.0	14/01/09	11.12.19	Tethys	Ec.	D.	-18.7	26.8
03/01/09	3.20.52	Tethys	Ec.	D.	52.5	-36.2	14/01/09	12.25.00	Dione	Sh.	I.	-30.0	25.1
03/01/09	6.54.47	Tethys	Occ.	R.	35.4	1.8	14/01/09	13.07.20	Dione	Tr.	I.	-35.4	22.2
03/01/09	13.38.52	Dione	Sh.	I.	-34.0	17.4	14/01/09	14.43.02	Tethys	Occ.	R.	-42.4	11.6
03/01/09	14.25.13	Dione	Tr.	I.	-38.9	12.0	14/01/09	15.30.55	Dione	Sh.	E.	-42.4	4.7
03/01/09	16.43.01	Dione	Sh.	E.	-41.4	-9.2	14/01/09	16.27.30	Dione	Tr.	E.	-39.3	-4.6
03/01/09	17.45.44	Dione	Tr.	E.	-36.1	-20.2	15/01/09	9.51.37	Tethys	Sh.	I.	-5.1	23.6
04/01/09	2.00.09	Tethys	Sh.	I.	45.9	-51.0	15/01/09	10.23.28	Tethys	Tr.	I.	-11.0	25.6
04/01/09	2.35.21	Tethys	Tr.	I.	49.6	-44.7	15/01/09	12.46.28	Tethys	Sh.	E.	-33.3	24.0
04/01/09	4.54.19	Tethys	Sh.	E.	50.4	-19.1	15/01/09	13.21.55	Tethys	Tr.	E.	-37.3	21.1
04/01/09	5.33.47	Tethys	Tr.	E.	46.4	-12.1	15/01/09	14.22.29	Rhea	Ec.	D.	-41.8	14.4
04/01/09	7.17.15	Rhea	Sh.	I.	31.0	5.1	15/01/09	17.28.41	Titan	Occ.	D.	-32.3	-15.2
04/01/09	8.27.05	Rhea	Tr.	I.	18.6	14.4	15/01/09	19.21.13	Rhea	Occ.	R.	-14.9	-35.9
04/01/09	10.33.13	Rhea	Sh.	E.	-4.8	24.6	15/01/09	21.21.03	Dione	Ec.	D.	7.1	-57.1
04/01/09	12.22.18	Rhea	Tr.	E.	-23.7	23.6	15/01/09	23.11.55	Titan	Occ.	R.	27.3	-68.9
04/01/09	22.34.54	Dione	Ec.	D.	12.6	-68.7	16/01/09	1.23.06	Dione	Occ.	R.	47.2	-57.0
05/01/09	0.39.26	Tethys	Ec.	D.	34.7	-64.1	16/01/09	8.30.55	Tethys	Ec.	D.	9.2	15.8
05/01/09	2.41.36	Dione	Occ.	R.	50.5	-43.5	16/01/09	12.00.57	Tethys	Occ.	R.	-27.6	26.5
05/01/09	4.12.55	Tethys	Occ.	R.	52.7	-26.6	17/01/09	6.06.34	Dione	Sh.	I.	34.3	-5.9
05/01/09	23.18.43	Tethys	Sh.	I.	21.3	-70.5	17/01/09	6.47.35	Dione	Tr.	I.	27.3	1.3
05/01/09	23.53.28	Tethys	Tr.	I.	27.5	-69.1	17/01/09	7.10.13	Tethys	Sh.	I.	23.2	4.7
06/01/09	2.13.00	Tethys	Sh.	E.	48.2	-48.7	17/01/09	7.41.21	Tethys	Tr.	I.	17.6	9.3
06/01/09	2.51.54	Tethys	Tr.	E.	51.6	-41.6	17/01/09	9.12.55	Dione	Sh.	E.	0.9	20.6
06/01/09	7.20.23	Dione	Sh.	I.	29.1	5.6	17/01/09	10.05.11	Tethys	Sh.	E.	-9.1	24.9
06/01/09	8.05.55	Dione	Tr.	I.	21.0	11.8	17/01/09	10.07.37	Dione	Tr.	E.	-9.5	25.0
06/01/09	10.24.59	Dione	Sh.	E.	-4.7	24.4	17/01/09	10.39.49	Tethys	Tr.	E.	-15.2	26.6
06/01/09	11.26.23	Dione	Tr.	E.	-15.7	25.6	17/01/09	20.36.04	Rhea	Sh.	I.	0.6	-49.1
06/01/09	13.29.56	Rhea	Ec.	D.	-34.3	18.8	17/01/09	21.38.03	Rhea	Tr.	I.	11.7	-59.3
06/01/09	18.34.41	Rhea	Occ.	R.	-28.2	-28.7	17/01/09	23.57.32	Rhea	Sh.	E.	36.4	-67.3
06/01/09	21.58.00	Tethys	Ec.	D.	7.2	-64.2	18/01/09	1.32.07	Rhea	Tr.	E.	49.1	-55.3
07/01/09	1.31.01	Tethys	Occ.	R.	43.7	-56.1	18/01/09	5.49.31	Tethys	Ec.	D.	36.4	-8.8
07/01/09	16.16.26	Dione	Ec.	D.	-41.9	-3.8	18/01/09	9.18.49	Tethys	Occ.	R.	-0.6	21.3
07/01/09	16.37.53	Titan	Tr.	I.	-40.7	-7.7	18/01/09	15.02.37	Dione	Ec.	D.	-42.6	9.6
07/01/09	20.22.10	Dione	Occ.	R.	-9.9	-48.4	18/01/09	19.03.09	Dione	Occ.	R.	-15.9	-32.0
07/01/09	20.37.17	Tethys	Sh.	I.	-7.1	-51.1	19/01/09	4.28.49	Tethys	Sh.	I.	47.2	-23.3
07/01/09	21.11.32	Tethys	Tr.	I.	-0.2	-57.0	19/01/09	4.59.12	Tethys	Tr.	I.	43.3	-17.7
07/01/09	22.09.53	Titan	Tr.	E.	10.1	-65.6	19/01/09	7.23.53	Tethys	Sh.	E.	19.3	7.0
07/01/09	23.31.41	Tethys	Sh.	E.	25.1	-70.1	19/01/09	7.57.40	Tethys	Tr.	E.	13.1	11.9
08/01/09	0.09.59	Tethys	Tr.	E.	31.8	-67.5	19/01/09	23.48.09	Dione	Sh.	I.	36.2	-67.5
08/01/09	19.16.34	Tethys	Ec.	D.	-20.5	-36.2	20/01/09	0.27.44	Dione	Tr.	I.	42.3	-64.2
08/01/09	19.43.28	Rhea	Sh.	I.	-15.9	-41.2	20/01/09	2.48.50	Rhea	Ec.	D.	53.4	-41.7
08/01/09	20.51.14	Rhea	Tr.	I.	-3.5	-53.4	20/01/09	2.54.55	Dione	Sh.	E.	53.3	-40.6
08/01/09	22.49.05	Tethys	Occ.	R.	18.1	-69.2	20/01/09	3.08.07	Tethys	Ec.	D.	53.0	-38.2
08/01/09	23.01.20	Rhea	Sh.	E.	20.3	-69.8	20/01/09	3.47.36	Dione	Tr.	E.	50.8	-30.8
09/01/09	0.46.11	Rhea	Tr.	E.	38.3	-63.0	20/01/09	6.36.39	Tethys	Occ.	R.	27.1	0.0
09/01/09	1.01.55	Dione	Sh.	I.	40.7	-60.7	20/01/09	7.43.34	Rhea	Occ.	R.	15.0	10.0
09/01/09	1.46.30	Dione	Tr.	I.	46.6	-53.4	21/01/09	1.47.26	Tethys	Sh.	I.	51.5	-52.5
09/01/09	4.06.57	Dione	Sh.	E.	52.3	-27.7	21/01/09	2.17.01	Tethys	Tr.	I.	53.0	-47.3
09/01/09	5.06.53	Dione	Tr.	E.	47.3	-16.8	21/01/09	4.42.36	Tethys	Sh.	E.	44.5	-20.6
09/01/09	17.55.52	Tethys	Sh.	I.	-32.0	-21.1	21/01/09	5.15.29	Tethys	Tr.	E.	39.9	-14.6
09/01/09	18.29.34	Tethys	Tr.	I.	-27.2	-27.3	21/01/09	8.44.12	Dione	Ec.	D.	3.1	18.1
09/01/09	20.50.23	Tethys	Sh.	E.	-2.8	-53.1	21/01/09	12.43.05	Dione	Occ.	R.	-35.7	25.5
09/01/09	21.28.02	Tethys	Tr.	E.	3.9	-59.3	22/01/09	0.26.44	Tethys	Ec.	D.	43.3	-64.0
10/01/09	9.57.57	Dione	Ec.	D.	-2.1	23.4	22/01/09	3.54.27	Tethys	Occ.	R.	49.6	-29.4
10/01/09	14.02.37	Dione	Occ.	R.	-39.3	15.9	22/01/09	9.02.27	Rhea	Sh.	I.	-0.6	20.3
10/01/09	16.35.09	Tethys	Ec.	D.	-40.0	-6.7	22/01/09	10.00.45	Rhea	Tr.	I.	-11.9	25.5
10/01/09	20.07.06	Tethys	Occ.	R.	-10.4	-45.2	22/01/09	12.25.39	Rhea	Sh.	E.	-34.1	26.8
11/01/09	1.56.11	Rhea	Ec.	D.	48.6	-51.7	22/01/09	13.54.10	Rhea	Tr.	E.	-41.7	19.4
11/01/09	6.58.16	Rhea	Occ.	R.	29.5	2.5	22/01/09	17.29.45	Dione	Sh.	I.	-28.2	-14.1
11/01/09	15.14.26	Tethys	Sh.	I.	-42.8	6.6	22/01/09	18.07.47	Dione	Tr.	I.	-22.3	-21.0
11/01/09	15.47.34	Tethys	Tr.	I.	-42.4	1.7	22/01/09	20.36.55	Dione	Sh.	E.	4.3	-48.3
11/01/09	18.09.04	Tethys	Sh.	E.	-29.0	-23.2	22/01/09	21.27.28	Dione	Tr.	E.	13.6	-56.7
11/01/09	18.43.27	Dione	Sh.	I.	-23.8	-29.6	22/01/09	23.06.03	Tethys	Sh.	I.	31.3	-67.2
11/01/09	18.46.02	Tethys	Tr.	E.	-23.4	-30.0	22/01/09	23.34.48	Tethys	Tr.	I.	36.1	-67.4
11/01/09	19.26.58	Dione	Tr.	I.	-16.7	-37.6	23/01/09	2.01.19	Tethys	Sh.	E.	52.7	-49.9
11/01/09	21.48.56	Dione	Sh.	E.	9.2	-62.1	23/01/09	2.33.16	Tethys	Tr.	E.	53.4	-44.2
11/01/09	22.47.15	Dione	Tr.	E.	20.0	-68.5	23/01/09	15.03.56	Titan	Tr.	I.	-42.0	10.5
12/01/09	13.53.44	Tethys	Ec.	D.	-39.2	17.3	23/01/09	20.21.24	Titan	Tr.	E.	2.3	-45.3
12/01/09	17.25.05	Tethys	Occ.	R.	-34.3	-15.1	23/01/09	21.45.21	Tethys	Ec.	D.	17.6	-59.1

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
24/01/09	1.12.13	Tethys	Occ.	R.	49.6	-57.7	07/02/09	4.31.17	Tethys	Sh.	E.	36.1	-20.3	
24/01/09	2.25.48	Dione	Ec.	D.	53.4	-45.5	07/02/09	4.34.53	Rhea	Ec.	D.	35.6	-19.6	
24/01/09	6.22.53	Dione	Occ.	R.	26.7	-1.7	07/02/09	4.54.23	Tethys	Tr.	E.	32.3	-16.0	
24/01/09	15.15.15	Rhea	Ec.	D.	-41.3	9.1	07/02/09	9.07.10	Rhea	Occ.	R.	-13.7	24.5	
24/01/09	20.05.19	Rhea	Occ.	R.	0.3	-42.3	08/02/09	0.14.35	Tethys	Ec.	D.	50.3	-61.1	
24/01/09	20.24.40	Tethys	Sh.	I.	3.6	-45.7	08/02/09	3.33.13	Tethys	Occ.	R.	44.3	-30.9	
24/01/09	20.52.34	Tethys	Tr.	I.	8.7	-50.6	08/02/09	3.39.40	Dione	Sh.	I.	43.4	-29.7	
24/01/09	23.20.03	Tethys	Sh.	E.	35.0	-67.0	08/02/09	4.06.25	Dione	Tr.	I.	39.4	-24.7	
24/01/09	23.51.01	Tethys	Tr.	E.	39.9	-66.3	08/02/09	6.49.11	Dione	Sh.	E.	10.9	4.9	
25/01/09	11.11.21	Dione	Sh.	I.	-25.6	29.1	08/02/09	7.24.17	Dione	Tr.	E.	4.4	10.5	
25/01/09	11.47.45	Dione	Tr.	I.	-30.8	28.9	08/02/09	13.19.12	Titan	Tr.	I.	-42.2	27.5	
25/01/09	14.18.56	Dione	Sh.	E.	-42.5	17.1	08/02/09	18.01.23	Titan	Tr.	E.	-11.3	-16.3	
25/01/09	15.07.13	Dione	Tr.	E.	-41.5	10.5	08/02/09	22.53.56	Tethys	Sh.	I.	40.9	-61.8	
25/01/09	19.03.58	Tethys	Ec.	D.	-10.7	-30.8	08/02/09	23.13.39	Tethys	Tr.	I.	43.8	-62.6	
25/01/09	22.29.57	Tethys	Occ.	R.	27.2	-64.0	09/02/09	1.50.04	Tethys	Sh.	E.	53.3	-48.7	
26/01/09	17.43.18	Tethys	Sh.	I.	-23.6	-15.7	09/02/09	2.11.54	Tethys	Tr.	E.	52.2	-45.1	
26/01/09	18.10.17	Tethys	Tr.	I.	-19.2	-20.7	09/02/09	10.48.36	Rhea	Sh.	I.	-30.9	32.8	
26/01/09	20.07.25	Dione	Ec.	D.	2.0	-42.2	09/02/09	11.27.59	Rhea	Tr.	I.	-35.6	33.5	
26/01/09	20.38.47	Tethys	Sh.	E.	7.7	-47.8	09/02/09	12.35.45	Dione	Ec.	D.	-41.1	31.3	
26/01/09	21.08.44	Tethys	Tr.	E.	13.2	-52.8	09/02/09	14.18.10	Rhea	Sh.	E.	-40.4	21.1	
26/01/09	21.28.53	Rhea	Sh.	I.	16.9	-56.0	09/02/09	15.16.44	Rhea	Tr.	E.	-35.4	12.7	
26/01/09	22.23.03	Rhea	Tr.	I.	26.7	-63.1	09/02/09	16.19.23	Dione	Occ.	R.	-27.3	2.5	
27/01/09	0.02.34	Dione	Occ.	R.	42.8	-65.1	09/02/09	21.33.16	Tethys	Ec.	D.	28.4	-53.2	
27/01/09	0.53.45	Rhea	Sh.	E.	49.1	-59.8	10/02/09	0.50.43	Tethys	Occ.	R.	53.3	-56.9	
27/01/09	2.15.38	Rhea	Tr.	E.	53.5	-46.9	10/02/09	20.12.38	Tethys	Sh.	I.	14.5	-39.9	
27/01/09	16.22.36	Tethys	Ec.	D.	-34.3	-0.5	10/02/09	20.31.12	Tethys	Tr.	I.	18.0	-43.1	
27/01/09	19.47.39	Tethys	Occ.	R.	-0.5	-38.4	10/02/09	21.21.23	Dione	Sh.	I.	27.0	-51.2	
28/01/09	4.52.59	Dione	Sh.	I.	39.0	-17.9	10/02/09	21.45.58	Dione	Tr.	I.	31.3	-54.7	
28/01/09	5.27.38	Dione	Tr.	I.	33.5	-11.6	10/02/09	23.08.51	Tethys	Sh.	E.	44.3	-61.8	
28/01/09	8.00.58	Dione	Sh.	E.	5.9	13.7	10/02/09	23.29.24	Tethys	Tr.	E.	46.9	-62.1	
28/01/09	8.46.51	Dione	Tr.	E.	-2.2	19.7	11/02/09	0.31.16	Dione	Sh.	E.	52.6	-58.7	
28/01/09	15.01.56	Tethys	Sh.	I.	-41.1	12.0	11/02/09	1.03.25	Dione	Tr.	E.	53.8	-55.0	
28/01/09	15.27.59	Tethys	Tr.	I.	-39.3	8.1	11/02/09	17.01.34	Rhea	Ec.	D.	-19.3	-4.7	
28/01/09	17.57.31	Tethys	Sh.	E.	-19.9	-17.9	11/02/09	18.51.58	Tethys	Ec.	D.	0.7	-25.1	
28/01/09	18.26.25	Tethys	Tr.	E.	-15.0	-23.2	11/02/09	21.26.46	Rhea	Occ.	R.	28.7	-51.7	
29/01/09	3.41.44	Rhea	Ec.	D.	48.1	-31.0	11/02/09	22.08.12	Tethys	Occ.	R.	35.8	-57.1	
29/01/09	8.26.28	Rhea	Occ.	R.	0.7	17.4	12/02/09	6.17.29	Dione	Ec.	D.	13.7	0.6	
29/01/09	13.41.15	Tethys	Ec.	D.	-42.1	22.5	12/02/09	9.58.27	Dione	Occ.	R.	-25.4	30.9	
29/01/09	13.49.03	Dione	Ec.	D.	-42.3	21.6	12/02/09	17.31.20	Tethys	Sh.	I.	-13.6	-10.0	
29/01/09	17.05.19	Tethys	Occ.	R.	-27.4	-8.3	12/02/09	17.48.43	Tethys	Tr.	I.	-10.5	-13.2	
29/01/09	17.42.08	Dione	Occ.	R.	-21.7	-14.9	12/02/09	20.27.38	Tethys	Sh.	E.	18.9	-42.1	
30/01/09	12.20.35	Tethys	Sh.	I.	-37.1	29.1	12/02/09	20.46.52	Tethys	Tr.	E.	22.4	-45.3	
30/01/09	12.45.39	Tethys	Tr.	I.	-39.3	27.7	13/02/09	15.03.07	Dione	Sh.	I.	-34.9	15.8	
30/01/09	15.16.15	Tethys	Sh.	E.	-39.5	10.3	13/02/09	15.25.28	Dione	Tr.	I.	-32.3	12.3	
30/01/09	15.44.04	Tethys	Tr.	E.	-37.1	6.0	13/02/09	16.10.41	Tethys	Ec.	D.	-26.0	4.9	
30/01/09	22.34.37	Dione	Sh.	I.	31.7	-63.1	13/02/09	18.13.22	Dione	Sh.	E.	-5.2	-17.5	
30/01/09	23.07.25	Dione	Tr.	I.	37.1	-65.1	13/02/09	18.42.27	Dione	Tr.	E.	0.6	-22.9	
31/01/09	1.43.00	Dione	Sh.	E.	53.4	-51.7	13/02/09	19.25.40	Tethys	Occ.	R.	8.2	-30.8	
31/01/09	2.26.22	Dione	Tr.	E.	53.1	-44.4	13/02/09	23.15.18	Rhea	Sh.	I.	46.8	-61.0	
31/01/09	9.55.23	Rhea	Sh.	I.	-17.2	27.2	13/02/09	23.49.10	Rhea	Tr.	I.	50.5	-60.6	
31/01/09	10.45.00	Rhea	Tr.	I.	-25.2	30.0	14/02/09	2.46.21	Rhea	Sh.	E.	47.2	-38.0	
31/01/09	10.59.54	Tethys	Ec.	D.	-27.4	30.5	14/02/09	3.36.08	Rhea	Tr.	E.	40.4	-29.0	
31/01/09	13.21.53	Rhea	Sh.	E.	-41.7	25.0	14/02/09	14.50.03	Tethys	Sh.	I.	-35.9	18.0	
31/01/09	14.22.57	Tethys	Occ.	R.	-42.1	18.1	14/02/09	15.06.14	Tethys	Tr.	I.	-34.1	15.5	
31/01/09	14.36.31	Rhea	Tr.	E.	-41.6	16.3	14/02/09	17.46.26	Tethys	Sh.	E.	-9.4	-12.3	
31/01/09	15.46.11	Titan	Occ.	D.	-36.4	5.9	14/02/09	18.04.19	Tethys	Tr.	E.	-6.2	-15.6	
31/01/09	21.01.18	Titan	Occ.	R.	15.7	-50.5	14/02/09	23.59.14	Dione	Ec.	D.	51.7	-59.8	
01/02/09	7.30.42	Dione	Ec.	D.	8.4	10.0	15/02/09	3.37.27	Dione	Occ.	R.	39.6	-28.6	
01/02/09	9.39.14	Tethys	Sh.	I.	-15.1	26.1	15/02/09	13.29.24	Tethys	Ec.	D.	-41.4	28.6	
01/02/09	10.03.18	Tethys	Tr.	I.	-19.2	28.0	15/02/09	16.43.06	Tethys	Occ.	R.	-19.5	0.0	
01/02/09	11.21.36	Dione	Occ.	R.	-31.0	31.0	16/02/09	5.28.18	Rhea	Ec.	D.	19.8	-7.9	
01/02/09	12.35.00	Tethys	Sh.	E.	-39.1	28.9	16/02/09	8.44.53	Dione	Sh.	I.	-16.2	24.4	
01/02/09	13.01.41	Tethys	Tr.	E.	-40.9	27.0	16/02/09	9.04.57	Dione	Tr.	I.	-19.5	26.9	
02/02/09	8.18.33	Tethys	Ec.	D.	-0.6	17.2	16/02/09	9.45.56	Rhea	Occ.	R.	-26.0	31.1	
02/02/09	11.40.34	Tethys	Occ.	R.	-33.9	31.2	16/02/09	11.55.29	Dione	Sh.	E.	-40.3	35.4	
02/02/09	16.08.17	Rhea	Ec.	D.	-32.9	2.8	16/02/09	12.08.46	Tethys	Sh.	I.	-41.0	35.0	
02/02/09	16.16.17	Dione	Sh.	I.	-31.9	1.6	16/02/09	12.21.25	Dione	Tr.	E.	-41.5	34.4	
02/02/09	16.47.09	Dione	Tr.	I.	-27.6	-4.0	16/02/09	12.23.45	Tethys	Tr.	I.	-41.6	34.2	
02/02/09	19.25.03	Dione	Sh.	E.	-0.1	-33.1	16/02/09	14.00.42	Titan	Occ.	D.	-39.5	25.3	
02/02/09	20.05.46	Dione	Tr.	E.	7.0	-40.5	16/02/09	15.05.14	Tethys	Sh.	E.	-33.1	16.2	
02/02/09	20.47.05	Rhea	Occ.	R.	14.6	-47.7	16/02/09	15.21.45	Tethys	Tr.	E.	-31.1	13.6	
03/02/09	6.57.54	Tethys	Sh.	I.	13.0	5.3	16/02/09	18.12.05	Titan	Occ.	R.	-2.7	-16.6	
03/02/09	7.20.55	Tethys	Tr.	E.	8.8	8.9	17/02/09	10.48.08	Tethys	Ec.	D.	-34.7	35.5	
03/02/09	9.53.46	Tethys	Sh.	E.	-18.9	27.9	17/02/09	14.00.32	Tethys	Occ.	R.	-39.2	25.6	
03/02/09	10.19.17	Tethys	Tr.	E.	-23.0	29.6	17/02/09	17.41.00	Dione	Ec.	D.	-8.1	-10.7	
04/02/09	1.12.22	Dione	Ec.	D.	53.0	-55.6	17/02/09	21.16.22	Dione	Occ.	R.	31.4	-48.6	
04/02/09	5.00.57	Dione	Occ.	R.	33.2	-15.4	18/02/09	9.27.30	Tethys	Sh.	I.	-24.4	30.0	
04/02/09	5.37.13	Tethys	Ec.	D.	27.0	-8.8	18/02/09	9.41.14	Tethys	Tr.	I.	-26.5	31.4	
04/02/09	8.58.08	Tethys	Occ.	R.	-10.0	22.7	18/02/09	11.42.05	Rhea	Sh.	I.	-39.9	36.4	
04/02/09	22.21.58	Rhea	Sh.	I.	33.1	-60.6	18/02/09	12.10.12	Rhea	Tr.	I.	-41.3	35.6	
04/02/09	23.06.37	Rhea	Tr.	I.	40.3	-63.6	18/02/09	12.24.03	Tethys	Sh.	E.	-41.7	34.9	
05/02/09	1.50.01	Rhea	Sh.	E.	53.7	-49.6	18/02/09	12.39.10	Tethys	Tr.	E.	-41.9	34.0	
05/02/09	2.56.53	Rhea	Tr.	E.	49.9	-38.1	18/02/09	15.14.33	Rhea	Sh.	E.	-30.8	15.3	
05/02/09	4.16.34	Tethys	Sh.	I.	39.7	-23.4	18/02/09	15.55.06	Rhea	Tr.	E.	-25.1	8.7	
05/02/09	4.38.31	Tethys	Tr.	I.	36.3	-19.3	19/02/09	2.26.40	Dione	Sh.	I.	47.2	-40.1	
05/02/09	7.12.31	Tethys	Sh.	E.	8.8	8.0	19/02/09	2.44.24	Dione	Tr.	I.	44.9	-37.1	
05/02/09	7.36.51	Tethys	Tr.	E.	4.4	11.8	19/02/09	5.37.37	Dione	Sh.	E.	15.8	-5.3	
05/02/09	9.57.58	Dione	Sh.	I.	-20.9	28.7	19/02/09	6.00.18	Dione	Tr.	E.	11.6	-0.5	
05/02/09	10.26.49	Dione	Tr.	I.	-25.5	30.6	19/02/09	8.06.52	Tethys	Ec.	D.	-11.7	20.0	
05/02/09	13.07.07	Dione	Sh.	E.	-41.8	27.7	19/02/09	11.17.56	Tethys	Occ.	R.	-38.4	36.9	
05/02/09	13.45.05	Dione	Tr.	E.	-42.3	24.0	20/02/09	6.46.15	Tethys	Sh.	I.	2.5	7.3	
06/02/09	2.55.54	Tethys	Ec.	D.	49.6	-38.1	20/02/09	6.58.44	Tethys	Tr.	I.	0.4	9.4	
06/02/09	6.15.42	Tethys	Occ.	R.	18.6	-0.8	20/02/09	9.42.52	Tethys	Sh.	E.	-27.9	32.2	
06/02/09	18.54.03	Dione	Ec.	D.	-2.8	-26.5	20/02/09	9.56.33	Tethys	Tr.	E.	-29.8	33.4	
06/02/09	22.40.13	Dione	Occ.	R.	37.5	-61.6	20/02/09	11.22.47	Dione	Ec.	D.	-39.1	37.2	
07/02/09	1.35.15	Tethys	Sh.	I.	53.8	-51.5	20/02/09	14.55.14	Dione	Occ.	R.	-32.2	18.8	
07/02/09	1.56.05	Tethys	Tr.	I.	53.4	-48.2	20/02/09	17.55.07	Rhea	Ec.	D.	-2.6	-12.	

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole	06/03/09	13.36.49	Tethys	Occ.	R.	-34.1	33.7
21/02/09	5.25.37	Tethys	Ec.	D.	16.5	-7.1	07/03/09	9.16.32	Tethys	Sh.	I.	-32.4	34.8
21/02/09	8.35.19	Tethys	Occ.	R.	-18.0	24.7	07/03/09	9.18.38	Tethys	Tr.	I.	-32.6	35.0
21/02/09	20.08.28	Dione	Sh.	I.	22.4	-36.6	07/03/09	12.13.43	Tethys	Sh.	E.	-40.4	41.5
21/02/09	20.23.50	Dione	Tr.	I.	25.2	-39.3	07/03/09	12.15.25	Tethys	Tr.	E.	-40.4	41.4
21/02/09	23.19.46	Dione	Sh.	E.	51.1	-58.2	07/03/09	12.37.48	Dione	Sh.	I.	-39.1	39.9
21/02/09	23.39.08	Dione	Tr.	E.	52.5	-58.1	07/03/09	12.41.00	Dione	Tr.	I.	-38.9	39.7
22/02/09	4.05.00	Tethys	Sh.	I.	30.3	-21.7	07/03/09	15.50.43	Dione	Sh.	E.	-13.7	13.4
22/02/09	4.16.13	Tethys	Tr.	I.	28.4	-19.7	07/03/09	15.52.40	Dione	Tr.	E.	-13.4	13.1
22/02/09	7.01.41	Tethys	Sh.	E.	-1.4	10.5	08/03/09	7.55.57	Tethys	Ec.	D.	-21.5	23.8
22/02/09	7.13.56	Tethys	Tr.	E.	-4.2	12.5	08/03/09	10.54.10	Tethys	Occ.	R.	-40.7	42.8
23/02/09	0.08.55	Rhea	Sh.	I.	54.1	-56.5	08/03/09	13.29.54	Rhea	Sh.	I.	-33.9	35.1
23/02/09	0.31.10	Rhea	Tr.	I.	54.2	-54.8	08/03/09	13.34.14	Rhea	Tr.	I.	-33.4	34.6
23/02/09	2.44.22	Tethys	Ec.	D.	42.7	-36.0	08/03/09	17.07.37	Rhea	Sh.	E.	1.3	0.2
23/02/09	3.42.46	Rhea	Sh.	E.	33.4	-25.6	08/03/09	17.07.57	Rhea	Tr.	E.	1.4	0.2
23/02/09	4.13.42	Rhea	Tr.	E.	28.1	-19.9	08/03/09	21.33.57	Dione	Ec.	D.	46.9	-45.4
23/02/09	5.04.35	Dione	Ec.	D.	18.9	-10.5	09/03/09	0.47.28	Dione	Occ.	R.	50.3	-48.8
23/02/09	5.52.42	Tethys	Occ.	R.	10.0	-0.8	09/03/09	6.35.22	Tethys	Sh.	I.	-8.5	10.4
23/02/09	8.34.02	Dione	Occ.	R.	-19.1	25.1	09/03/09	6.36.09	Tethys	Tr.	I.	-8.7	10.6
24/02/09	1.23.45	Tethys	Sh.	I.	51.6	-48.4	09/03/09	9.32.37	Tethys	Sh.	E.	-35.1	37.3
24/02/09	1.33.42	Tethys	Tr.	I.	50.7	-47.0	09/03/09	9.32.46	Tethys	Tr.	E.	-35.1	37.4
24/02/09	4.20.32	Tethys	Sh.	E.	26.2	-18.3	10/03/09	5.14.47	Tethys	Ec.	D.	5.7	-4.0
24/02/09	4.31.19	Tethys	Tr.	E.	24.2	-16.3	10/03/09	6.19.44	Dione	Sh.	I.	-6.5	8.0
24/02/09	11.25.41	Titan	Sh.	I.	-40.3	38.7	10/03/09	6.20.29	Dione	Tr.	I.	-6.6	8.1
24/02/09	11.39.17	Titan	Tr.	I.	-40.9	38.6	10/03/09	8.12.08	Tethys	Ec.	R.	-25.2	27.0
24/02/09	12.39.45	Titan	Sh.	E.	-41.5	36.0	10/03/09	9.31.19	Dione	Tr.	E.	-35.4	37.6
24/02/09	13.50.17	Dione	Sh.	I.	-37.4	28.9	10/03/09	9.32.58	Dione	Sh.	E.	-35.6	37.8
24/02/09	14.03.15	Dione	Tr.	I.	-36.1	27.3	10/03/09	19.43.08	Rhea	Ec.	D.	31.1	-28.2
24/02/09	15.06.06	Titan	Tr.	E.	-28.4	18.2	10/03/09	23.21.57	Rhea	Ec.	R.	54.7	-51.8
24/02/09	17.01.55	Dione	Sh.	E.	-9.6	-1.1	11/03/09	3.53.40	Tethys	Tr.	I.	19.9	-18.8
24/02/09	17.17.55	Dione	Tr.	E.	-6.8	-4.8	11/03/09	3.54.13	Tethys	Sh.	I.	19.8	-18.7
25/02/09	0.03.08	Tethys	Ec.	D.	54.2	-56.1	11/03/09	6.50.07	Tethys	Tr.	E.	-12.6	13.7
25/02/09	3.10.04	Rhea	Occ.	R.	37.5	-30.9	11/03/09	6.51.31	Tethys	Sh.	E.	-12.8	13.9
25/02/09	6.22.01	Rhea	Ec.	D.	3.2	4.5	11/03/09	15.15.26	Dione	Occ.	D.	-16.7	20.4
25/02/09	10.23.06	Rhea	Occ.	R.	-35.4	37.1	11/03/09	18.29.33	Dione	Ec.	R.	18.6	-14.9
25/02/09	22.42.32	Tethys	Sh.	I.	49.2	-55.5	12/03/09	2.32.26	Tethys	Occ.	D.	33.6	-32.6
25/02/09	22.46.25	Dione	Ec.	D.	49.6	-55.7	12/03/09	5.31.02	Tethys	Ec.	R.	1.4	0.1
25/02/09	22.51.10	Tethys	Tr.	I.	50.1	-55.9	12/03/09	9.51.28	Titan	Sh.	I.	-37.9	40.4
26/02/09	1.39.22	Tethys	Sh.	E.	49.4	-45.5	12/03/09	12.36.00	Titan	Sh.	E.	-37.5	41.8
26/02/09	1.48.40	Tethys	Tr.	E.	48.4	-44.1	13/03/09	0.00.01	Dione	Tr.	I.	53.0	-50.0
26/02/09	2.12.46	Dione	Occ.	R.	45.4	-40.4	13/03/09	0.01.41	Dione	Sh.	I.	52.9	-50.0
26/02/09	21.21.55	Tethys	Ec.	D.	38.8	-46.9	13/03/09	1.11.13	Tethys	Tr.	I.	45.6	-43.9
27/02/09	0.27.26	Tethys	Occ.	R.	54.1	-53.7	13/03/09	1.13.04	Tethys	Sh.	I.	45.3	-43.7
27/02/09	7.32.08	Dione	Sh.	I.	-11.3	17.0	13/03/09	1.55.30	Rhea	Tr.	I.	39.0	-38.0
27/02/09	7.42.40	Dione	Tr.	I.	-13.2	18.7	13/03/09	1.57.03	Rhea	Sh.	I.	38.8	-37.8
27/02/09	10.44.06	Dione	Sh.	E.	-38.2	39.0	13/03/09	3.09.59	Dione	Tr.	E.	26.3	-25.9
27/02/09	10.56.38	Dione	Tr.	E.	-39.1	39.4	13/03/09	3.15.13	Dione	Sh.	E.	25.4	-25.0
27/02/09	12.35.51	Rhea	Sh.	I.	-41.1	37.3	13/03/09	4.07.28	Tethys	Tr.	E.	15.8	-15.7
27/02/09	12.52.07	Rhea	Tr.	I.	-40.5	36.0	13/03/09	4.10.26	Tethys	Sh.	E.	15.3	-15.2
27/02/09	16.11.02	Rhea	Sh.	E.	-16.2	8.0	13/03/09	5.25.46	Rhea	Tr.	E.	1.6	-0.5
27/02/09	16.32.00	Rhea	Tr.	E.	-12.6	4.4	13/03/09	5.35.58	Rhea	Sh.	E.	-0.1	1.1
27/02/09	20.01.19	Tethys	Sh.	I.	25.8	-34.0	13/03/09	23.49.59	Tethys	Occ.	D.	53.4	-50.1
27/02/09	20.08.39	Tethys	Tr.	I.	27.2	-35.2	14/03/09	2.49.57	Tethys	Ec.	R.	29.2	-29.0
27/02/09	22.58.13	Tethys	Sh.	E.	51.6	-55.5	14/03/09	8.54.58	Dione	Occ.	D.	-33.1	34.6
27/02/09	23.06.02	Tethys	Tr.	E.	52.2	-55.8	14/03/09	12.11.49	Dione	Ec.	R.	-38.6	44.2
28/02/09	16.28.16	Dione	Ec.	D.	-12.5	5.3	14/03/09	22.28.46	Tethys	Tr.	I.	54.2	-48.5
28/02/09	18.40.42	Tethys	Ec.	D.	11.9	-19.3	14/03/09	22.31.56	Tethys	Sh.	I.	54.3	-48.7
28/02/09	19.51.29	Dione	Occ.	R.	24.9	-32.0	15/03/09	1.24.51	Tethys	Tr.	E.	42.5	-41.5
28/02/09	21.44.47	Tethys	Occ.	R.	43.6	-49.2	15/03/09	1.29.21	Tethys	Sh.	E.	41.8	-40.9
01/03/09	17.20.06	Tethys	Sh.	I.	-1.6	-4.0	15/03/09	8.05.51	Rhea	Occ.	D.	-27.3	27.8
01/03/09	17.26.08	Tethys	Tr.	I.	-0.6	-5.2	15/03/09	11.50.19	Rhea	Ec.	R.	-39.7	45.5
01/03/09	18.48.59	Rhea	Ec.	D.	14.2	-20.6	15/03/09	17.39.35	Dione	Tr.	I.	12.6	-4.7
01/03/09	20.17.05	Tethys	Sh.	E.	30.2	-36.1	15/03/09	17.43.40	Dione	Sh.	I.	13.3	-5.5
01/03/09	20.23.23	Tethys	Tr.	E.	31.3	-37.2	15/03/09	20.48.39	Dione	Tr.	E.	45.0	-37.3
01/03/09	22.41.15	Rhea	Occ.	R.	50.9	-54.0	15/03/09	20.57.30	Dione	Sh.	E.	46.2	-38.6
02/03/09	1.14.00	Dione	Sh.	I.	50.4	-47.6	15/03/09	21.07.33	Tethys	Occ.	D.	47.5	-40.0
02/03/09	1.22.06	Dione	Tr.	I.	49.6	-46.6	16/03/09	0.08.53	Tethys	Ec.	R.	51.4	-48.4
02/03/09	4.26.17	Dione	Sh.	E.	20.7	-15.6	16/03/09	19.46.21	Tethys	Tr.	I.	36.1	-27.3
02/03/09	4.35.20	Dione	Tr.	E.	19.0	-13.9	16/03/09	19.50.48	Tethys	Sh.	I.	36.8	-28.1
02/03/09	15.59.30	Tethys	Ec.	D.	-15.9	10.7	16/03/09	22.42.13	Tethys	Tr.	E.	54.9	-48.5
02/03/09	19.02.08	Tethys	Occ.	R.	17.4	-22.8	16/03/09	22.48.16	Tethys	Sh.	E.	54.9	-48.8
03/03/09	10.10.09	Dione	Ec.	D.	-36.5	38.5	17/03/09	2.34.33	Dione	Occ.	D.	29.7	-30.5
03/03/09	13.30.10	Dione	Occ.	R.	-36.3	33.5	17/03/09	5.54.06	Dione	Ec.	R.	-7.0	5.5
03/03/09	14.38.54	Tethys	Sh.	I.	-27.9	24.2	17/03/09	14.16.59	Rhea	Tr.	I.	-22.0	31.3
03/03/09	14.43.38	Tethys	Tr.	I.	-27.2	23.5	17/03/09	14.24.16	Rhea	Sh.	I.	-20.8	30.2
03/03/09	17.35.57	Tethys	Sh.	E.	2.4	-6.7	17/03/09	17.43.34	Rhea	Tr.	E.	14.9	-5.9
03/03/09	17.40.43	Tethys	Tr.	E.	3.3	-7.6	17/03/09	18.04.21	Rhea	Sh.	E.	18.8	-9.0
04/03/09	1.02.50	Rhea	Sh.	I.	50.7	-48.2	17/03/09	18.25.08	Tethys	Occ.	D.	22.6	-12.8
04/03/09	1.13.07	Rhea	Tr.	I.	49.7	-47.0	17/03/09	21.27.49	Tethys	Ec.	R.	50.8	-41.9
04/03/09	4.39.19	Rhea	Sh.	E.	16.8	-12.6	18/03/09	11.19.13	Dione	Tr.	I.	-40.4	47.2
04/03/09	4.50.03	Rhea	Tr.	E.	14.8	-10.6	18/03/09	11.25.40	Dione	Sh.	I.	-40.2	47.2
04/03/09	12.27.03	Titan	Ec.	D.	-40.5	39.6	18/03/09	14.27.22	Dione	Tr.	E.	-19.6	30.0
04/03/09	13.18.18	Tethys	Ec.	D.	-37.0	35.2	18/03/09	14.39.47	Dione	Sh.	E.	-17.6	28.0
04/03/09	14.16.04	Titan	Occ.	R.	-30.4	27.9	18/03/09	17.03.56	Tethys	Tr.	I.	8.4	2.8
04/03/09	16.19.28	Tethys	Occ.	R.	-11.0	7.7	18/03/09	17.09.41	Tethys	Sh.	I.	9.5	1.8
04/03/09	18.55.53	Dione	Sh.	I.	17.9	-21.2	18/03/09	19.59.37	Tethys	Tr.	E.	39.6	-29.0
04/03/09	19.01.32	Dione	Tr.	I.	18.9	-22.2	18/03/09	20.07.13	Tethys	Sh.	E.	40.8	-30.2
04/03/09	22.08.30	Dione	Sh.	E.	48.9	-50.4	19/03/09	15.42.44	Tethys	Occ.	D.	-5.9	17.6
04/03/09	22.14.01	Dione	Tr.	E.	49.5	-50.9	19/03/09	18.46.45	Tethys	Ec.	R.	28.0	-16.2
05/03/09	11.57.43	Tethys	Sh.	I.	-41.3	41.5	19/03/09	20.14.11	Dione	Occ.	D.	42.5	-31.1
05/03/09	12.01.07	Tethys	Tr.	I.	-41.2	41.4	19/03/09	20.27.26	Rhea	Occ.	D.	44.5	-33.1
05/03/09	14.54.50	Tethys	Sh.	E.	-24.2	22.3	19/03/09	23.36.24	Dione	Ec.	R.	52.8	-48.0
05/03/09	14.58.04	Tethys	Tr.	E.	-23.8	21.8	20/03/09	0.18.43	Rhea	Ec.	R.	48.7	-46.1
06/03/09	3.52.02	Dione	Ec.	D.	23.9	-20.7	20/03/09	10.47.56	Titan	Ec.	D.	-40.9	47.4
06/03/09	7.08.49	Dione	Occ.	R.	-12.3	15.3	20/03/09	13.41.51	Titan	Ec.	R.	-25.3	37.2
06/03/09	7.16.01	Rhea	Ec.	D.	-13.5	16.6	20/03/09	14.21.33	Tethys	Tr.	I.	-19.1	31.4
06/03/09	10.37.07	Tethys	Ec.	D.	-39.6	41.3	20/03/09	14.28.34	Tethys	Sh.	I.	-18.0	30.3
06/03/09	10.59.11	Rhea	Occ.	R.	-40.7	42.2	20/03/09	17.17.02	Tethys	Tr.	E.	12.4	0.9

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
20/03/09	17.26.09	Tethys	Sh.	E.	14.1	-0.5	04/04/09	0.20.45	Dione	Tr.	E.	39.9	-40.1	
21/03/09	4.58.53	Dione	Tr.	I.	0.6	-3.3	04/04/09	0.53.50	Dione	Sh.	E.	34.4	-37.3	
21/03/09	5.07.41	Dione	Sh.	I.	-0.8	-1.2	04/04/09	15.45.36	Rhea	Tr.	I.	7.4	20.5	
21/03/09	8.06.06	Dione	Tr.	E.	-30.6	29.9	04/04/09	16.13.50	Rhea	Sh.	I.	12.6	15.4	
21/03/09	8.22.05	Dione	Sh.	E.	-32.5	32.4	04/04/09	16.43.21	Tethys	Tr.	I.	18.1	9.9	
21/03/09	13.00.21	Tethys	Occ.	D.	-30.5	42.6	04/04/09	17.00.03	Tethys	Sh.	I.	21.2	6.9	
21/03/09	16.05.42	Tethys	Ec.	R.	0.4	13.9	04/04/09	18.56.28	Rhea	Tr.	E.	41.3	-14.4	
22/03/09	2.38.42	Rhea	Tr.	I.	25.3	-28.1	04/04/09	19.37.07	Tethys	Tr.	E.	47.1	-21.2	
22/03/09	2.51.33	Rhea	Sh.	I.	23.0	-26.0	04/04/09	19.58.00	Tethys	Sh.	E.	49.7	-24.4	
22/03/09	6.01.27	Rhea	Tr.	E.	-11.9	8.5	04/04/09	19.58.08	Rhea	Sh.	E.	49.7	-24.5	
22/03/09	6.32.45	Rhea	Sh.	E.	-17.2	14.2	05/04/09	6.13.22	Dione	Occ.	D.	-23.2	15.0	
22/03/09	11.39.11	Tethys	Tr.	I.	-38.3	48.6	05/04/09	9.34.46	Titan	Ec.	D.	-40.5	47.9	
22/03/09	11.47.28	Tethys	Sh.	I.	-37.7	48.3	05/04/09	9.50.29	Dione	Ec.	R.	-40.3	49.6	
22/03/09	13.53.53	Dione	Occ.	D.	-22.2	36.1	05/04/09	13.25.43	Titan	Ec.	R.	-17.0	44.0	
22/03/09	14.34.27	Tethys	Tr.	E.	-15.6	29.9	05/04/09	15.22.16	Tethys	Occ.	D.	4.0	24.9	
22/03/09	14.45.07	Tethys	Sh.	E.	-13.8	28.2	05/04/09	18.37.35	Tethys	Ec.	R.	39.0	-10.9	
22/03/09	17.18.42	Dione	Ec.	R.	14.3	1.0	06/04/09	14.01.13	Tethys	Tr.	I.	-10.2	39.0	
23/03/09	10.18.00	Tethys	Occ.	D.	-40.9	47.0	06/04/09	14.19.01	Tethys	Sh.	I.	-7.1	36.1	
23/03/09	13.24.40	Tethys	Ec.	R.	-25.9	40.4	06/04/09	14.58.20	Dione	Tr.	I.	0.6	29.4	
23/03/09	22.38.37	Dione	Tr.	I.	55.0	-45.7	06/04/09	15.20.16	Dione	Sh.	I.	4.4	25.5	
23/03/09	22.49.44	Dione	Sh.	I.	54.6	-46.2	06/04/09	16.54.46	Tethys	Tr.	E.	21.8	8.2	
24/03/09	1.44.53	Dione	Tr.	E.	33.4	-35.5	06/04/09	17.17.01	Tethys	Sh.	E.	25.8	4.2	
24/03/09	2.04.24	Dione	Sh.	E.	30.0	-32.7	06/04/09	17.59.57	Dione	Tr.	E.	33.4	-3.7	
24/03/09	8.49.17	Rhea	Occ.	D.	-36.6	37.6	06/04/09	18.36.14	Dione	Sh.	E.	39.4	-10.4	
24/03/09	8.56.51	Tethys	Tr.	I.	-37.3	38.6	06/04/09	21.56.38	Rhea	Occ.	D.	54.8	-38.1	
24/03/09	9.06.23	Tethys	Sh.	I.	-38.0	39.9	07/04/09	2.12.37	Rhea	Ec.	R.	18.1	-26.5	
24/03/09	11.51.54	Tethys	Tr.	E.	-36.6	48.9	07/04/09	12.40.08	Tethys	Occ.	D.	-22.9	50.2	
24/03/09	12.04.04	Tethys	Sh.	E.	-35.4	48.3	07/04/09	15.56.36	Tethys	Ec.	R.	11.8	19.1	
24/03/09	12.47.09	Rhea	Ec.	R.	-30.5	45.0	07/04/09	23.53.30	Dione	Occ.	D.	41.6	-40.0	
25/03/09	7.33.38	Dione	Occ.	D.	-28.4	25.9	08/04/09	3.32.53	Dione	Ec.	R.	2.6	-13.4	
25/03/09	7.35.40	Tethys	Occ.	D.	-28.7	26.3	08/04/09	11.19.06	Tethys	Tr.	I.	-33.2	55.3	
25/03/09	10.43.37	Tethys	Ec.	R.	-40.4	49.2	08/04/09	11.38.00	Tethys	Sh.	I.	-30.9	55.0	
25/03/09	11.01.02	Dione	Ec.	R.	-39.8	49.8	08/04/09	14.12.27	Tethys	Tr.	E.	-6.7	37.6	
26/03/09	6.14.32	Tethys	Tr.	I.	-16.9	12.1	08/04/09	14.36.02	Tethys	Sh.	E.	-1.7	33.7	
26/03/09	6.25.18	Tethys	Sh.	I.	-18.7	14.1	09/04/09	4.08.32	Rhea	Tr.	I.	-4.8	-6.8	
26/03/09	9.09.22	Tethys	Tr.	E.	-38.8	41.0	09/04/09	4.41.23	Rhea	Sh.	I.	-10.8	-0.2	
26/03/09	9.23.02	Tethys	Sh.	E.	-39.5	42.8	09/04/09	7.15.35	Rhea	Tr.	E.	-33.6	27.6	
26/03/09	15.00.41	Rhea	Tr.	I.	-8.0	26.5	09/04/09	8.26.39	Rhea	Sh.	E.	-39.3	39.7	
26/03/09	15.18.54	Rhea	Sh.	I.	-4.6	23.4	09/04/09	8.38.31	Dione	Tr.	I.	-39.8	41.6	
26/03/09	16.18.25	Dione	Tr.	I.	6.4	12.7	09/04/09	9.02.26	Dione	Sh.	I.	-40.4	45.1	
26/03/09	16.31.48	Dione	Sh.	I.	8.8	10.2	09/04/09	9.58.03	Tethys	Occ.	D.	-39.4	51.9	
26/03/09	18.19.30	Rhea	Tr.	E.	28.6	-9.8	09/04/09	11.39.15	Dione	Tr.	E.	-30.2	55.3	
26/03/09	19.01.11	Rhea	Sh.	E.	35.8	-17.2	09/04/09	12.18.38	Dione	Sh.	E.	-24.8	52.9	
26/03/09	19.23.44	Dione	Tr.	E.	39.5	-21.1	09/04/09	13.15.37	Tethys	Ec.	R.	-15.8	46.5	
26/03/09	19.46.45	Dione	Sh.	E.	43.0	-24.9	10/04/09	8.37.01	Tethys	Tr.	I.	-39.9	41.7	
27/03/09	4.53.22	Tethys	Occ.	D.	-3.0	-2.1	10/04/09	8.57.00	Tethys	Sh.	I.	-40.3	44.7	
27/03/09	8.02.36	Tethys	Ec.	R.	-33.1	31.5	10/04/09	11.30.10	Tethys	Tr.	E.	-30.9	55.9	
28/03/09	1.13.28	Dione	Occ.	D.	35.9	-37.9	10/04/09	11.55.04	Tethys	Sh.	E.	-27.6	54.9	
28/03/09	3.32.14	Tethys	Tr.	I.	10.9	-17.1	10/04/09	17.33.43	Dione	Occ.	D.	31.8	2.0	
28/03/09	3.44.14	Tethys	Sh.	I.	8.7	-15.0	10/04/09	21.15.18	Dione	Ec.	R.	55.6	-33.0	
28/03/09	4.43.22	Dione	Ec.	R.	-1.6	-4.1	11/04/09	7.15.59	Tethys	Occ.	D.	-34.5	28.3	
28/03/09	6.26.52	Tethys	Tr.	E.	-20.3	15.0	11/04/09	10.19.44	Rhea	Occ.	D.	-37.5	54.5	
28/03/09	6.42.01	Tethys	Sh.	E.	-22.6	17.8	11/04/09	10.34.39	Tethys	Ec.	R.	-36.3	55.4	
28/03/09	8.37.34	Titan	Sh.	I.	-37.0	37.3	11/04/09	14.41.09	Rhea	Ec.	R.	1.2	33.5	
28/03/09	12.13.10	Titan	Sh.	E.	-32.5	49.2	12/04/09	2.18.47	Dione	Tr.	I.	13.2	-23.9	
28/03/09	21.11.25	Rhea	Occ.	D.	53.6	-36.5	12/04/09	2.44.36	Dione	Sh.	I.	8.4	-20.0	
29/03/09	1.15.37	Rhea	Ec.	R.	34.9	-37.3	12/04/09	5.18.40	Dione	Tr.	E.	-19.1	7.0	
29/03/09	2.11.05	Tethys	Occ.	D.	25.1	-29.9	12/04/09	5.54.58	Tethys	Tr.	I.	-24.7	13.7	
29/03/09	5.21.35	Tethys	Ec.	R.	-10.0	3.4	12/04/09	6.01.04	Dione	Sh.	E.	-25.6	14.8	
29/03/09	9.58.17	Dione	Tr.	I.	-40.7	47.7	12/04/09	6.16.00	Tethys	Sh.	I.	-27.7	17.6	
29/03/09	10.13.53	Dione	Sh.	I.	-40.6	49.0	12/04/09	8.47.55	Tethys	Tr.	E.	-40.3	44.0	
29/03/09	13.02.39	Dione	Tr.	E.	-25.3	44.9	12/04/09	9.14.06	Tethys	Sh.	E.	-40.3	47.8	
29/03/09	13.29.06	Dione	Sh.	E.	-21.3	41.6	13/04/09	4.33.57	Tethys	Occ.	D.	-12.3	-0.4	
30/03/09	0.49.58	Tethys	Tr.	I.	38.4	-39.6	13/04/09	7.31.21	Titan	Sh.	I.	-36.6	31.6	
30/03/09	1.03.10	Tethys	Sh.	I.	36.3	-38.3	13/04/09	7.53.42	Tethys	Ec.	R.	-38.3	35.5	
30/03/09	3.44.23	Tethys	Tr.	E.	7.2	-14.3	13/04/09	11.14.00	Dione	Occ.	D.	-31.3	57.2	
30/03/09	4.01.00	Tethys	Sh.	E.	4.2	-11.4	13/04/09	11.43.46	Titan	Sh.	E.	-27.4	56.5	
30/03/09	18.53.21	Dione	Occ.	D.	37.4	-15.0	13/04/09	14.57.43	Dione	Ec.	R.	5.6	31.0	
30/03/09	22.25.44	Dione	Ec.	R.	54.6	-42.5	13/04/09	16.31.48	Rhea	Tr.	I.	23.0	13.8	
30/03/09	23.28.50	Tethys	Occ.	D.	49.4	-43.8	13/04/09	17.09.00	Rhea	Sh.	I.	29.7	7.0	
31/03/09	2.40.34	Tethys	Ec.	R.	18.2	-24.7	13/04/09	19.35.13	Rhea	Tr.	E.	51.4	-18.7	
31/03/09	3.22.59	Rhea	Tr.	I.	10.4	-17.7	13/04/09	20.55.11	Rhea	Sh.	E.	55.7	-29.8	
31/03/09	3.46.20	Rhea	Sh.	I.	6.1	-13.6	14/04/09	3.12.57	Tethys	Tr.	I.	1.9	-14.8	
31/03/09	6.37.48	Rhea	Tr.	E.	-23.8	18.0	14/04/09	3.35.00	Tethys	Sh.	I.	-1.8	-11.2	
31/03/09	7.29.39	Rhea	Sh.	E.	-31.0	27.2	14/04/09	6.05.43	Tethys	Tr.	E.	-27.4	16.3	
31/03/09	22.07.44	Tethys	Tr.	I.	55.1	-41.0	14/04/09	6.33.09	Tethys	Sh.	E.	-31.0	21.3	
31/03/09	22.22.07	Tethys	Sh.	I.	54.6	-41.9	14/04/09	19.59.08	Dione	Tr.	I.	53.9	-22.1	
01/04/09	1.01.56	Tethys	Tr.	E.	35.1	-37.6	14/04/09	20.26.48	Dione	Sh.	I.	55.3	-26.0	
01/04/09	1.20.00	Tethys	Sh.	E.	32.0	-35.6	14/04/09	22.58.13	Dione	Tr.	E.	45.6	-38.2	
01/04/09	3.38.14	Dione	Tr.	I.	6.8	-14.7	14/04/09	23.43.29	Dione	Sh.	E.	38.7	-37.8	
01/04/09	3.55.59	Dione	Sh.	I.	3.6	-11.6	15/04/09	1.51.57	Tethys	Occ.	D.	15.9	-26.6	
01/04/09	6.41.39	Dione	Tr.	E.	-25.0	19.0	15/04/09	5.12.44	Tethys	Ec.	R.	-20.1	6.8	
01/04/09	7.11.28	Dione	Sh.	E.	-29.2	24.4	15/04/09	22.43.09	Rhea	Occ.	D.	47.1	-37.5	
01/04/09	20.46.37	Tethys	Occ.	D.	53.1	-32.2	16/04/09	0.30.59	Tethys	Tr.	I.	29.9	-34.9	
01/04/09	23.59.34	Tethys	Ec.	R.	44.3	-42.1	16/04/09	0.54.01	Tethys	Sh.	I.	25.8	-32.9	
02/04/09	9.33.52	Rhea	Occ.	D.	-40.6	46.7	16/04/09	3.09.42	Rhea	Ec.	R.	1.1	-14.8	
02/04/09	12.33.19	Dione	Occ.	D.	-27.0	49.3	16/04/09	3.23.33	Tethys	Tr.	E.	-1.1	-12.5	
02/04/09	13.44.06	Rhea	Ec.	R.	-16.1	40.5	16/04/09	3.52.12	Tethys	Sh.	E.	-7.1	-7.6	
02/04/09	16.08.06	Dione	Ec.	R.	10.0	16.0	16/04/09	4.54.23	Dione	Occ.	D.	-17.8	3.8	
02/04/09	19.25.32	Tethys	Tr.	I.	44.3	-19.7	16/04/09	8.40.09	Dione	Ec.	R.	-40.3	44.1	
02/04/09	19.41.05	Tethys	Sh.	I.	46.5	-22.3	16/04/09	23.09.59	Tethys	Occ.	D.	42.7	-37.6	
02/04/09	22.19.31	Tethys	Tr.	E.	54.4	-41.1	17/04/09	2.31.47	Tethys	Ec.	R.	7.0	-20.4	
02/04/09	22.39.00	Tethys	Sh.	E.	53.1	-42.0	17/04/09	13.39.34	Dione	Tr.	I.	-5.8	45.0	
03/04/09	18.04.26	Tethys	Occ.	D.	32.0	-5.3	17/04/09	14.09.01	Dione	Sh.	I.	0.1	40.2	
03/04/09	21.18.15	Dione	Tr.	I.	55.2	-35.5	17/04/09	16.37.54	Dione	Tr.	E.	27.1	13.4	
03/04/09	21.18.34	Tethys	Ec.	R.	55.2	-35.5	17/04/09	17.25.56	Dione	Sh.	E.	35.5	4.7	
03/04/09	21.38.07	Dione	Sh.	I.	55.5	-37.5	17/04/09	21.49.02	Tethys	Tr.	I.	52.3	-34.0	
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18/04/09	0.41.26	Tethys	Tr.	E.	26.6	-33.3	01/05/09	19.00.01	Rhea	Sh.	I.	54.7	-9.1	
18/04/09	1.11.15	Tethys	Sh.	E.	21.2	-30.5	01/05/09	21.00.32	Rhea	Tr.	E.	51.7	-25.5	
18/04/09	4.55.23	Rhea	Tr.	I.	-19.2	4.5	01/05/09	22.49.30	Rhea	Sh.	E.	36.3	-32.5	
18/04/09	5.36.40	Rhea	Sh.	I.	-25.5	12.0	02/05/09	1.35.36	Tethys	Occ.	D.	6.3	-23.5	
18/04/09	7.55.27	Rhea	Tr.	E.	-39.4	37.3	02/05/09	5.04.23	Tethys	Ec.	R.	-28.8	9.5	
18/04/09	9.23.45	Rhea	Sh.	E.	-39.1	51.1	02/05/09	14.58.32	Dione	Occ.	D.	20.3	34.4	
18/04/09	20.28.04	Tethys	Occ.	D.	55.7	-25.1	03/05/09	18.54.58	Dione	Ec.	R.	54.7	-8.1	
18/04/09	22.34.51	Dione	Occ.	D.	46.6	-36.2	03/05/09	0.14.47	Tethys	Tr.	I.	20.5	-30.4	
18/04/09	23.50.51	Tethys	Ec.	R.	34.8	-36.1	03/05/09	0.45.28	Tethys	Sh.	I.	14.8	-28.2	
19/04/09	2.22.36	Dione	Ec.	R.	7.2	-21.1	03/05/09	3.06.09	Tethys	Tr.	E.	-11.0	-10.7	
19/04/09	19.07.07	Tethys	Tr.	I.	51.2	-12.8	03/05/09	3.43.52	Tethys	Sh.	E.	-17.4	-4.4	
19/04/09	19.32.04	Tethys	Sh.	I.	53.5	-16.8	03/05/09	22.53.58	Tethys	Occ.	D.	34.2	-32.0	
19/04/09	21.59.22	Tethys	Tr.	E.	50.5	-34.1	03/05/09	23.44.02	Dione	Tr.	I.	25.3	-31.5	
19/04/09	22.30.18	Tethys	Sh.	E.	46.7	-35.7	04/05/09	0.19.50	Rhea	Occ.	D.	18.8	-29.8	
20/04/09	7.20.05	Dione	Tr.	I.	-37.9	31.6	04/05/09	0.22.39	Dione	Sh.	I.	18.3	-29.6	
20/04/09	7.51.15	Dione	Sh.	I.	-39.5	37.1	04/05/09	2.23.29	Tethys	Ec.	R.	-4.0	-16.8	
20/04/09	10.17.44	Dione	Tr.	E.	-34.2	57.5	04/05/09	2.39.12	Dione	Tr.	E.	-7.0	-14.5	
20/04/09	11.06.53	Rhea	Occ.	D.	-28.4	59.6	04/05/09	3.40.47	Dione	Sh.	E.	-17.5	-4.8	
20/04/09	11.08.23	Dione	Sh.	E.	-28.2	59.7	04/05/09	5.04.06	Rhea	Ec.	R.	-29.8	9.9	
20/04/09	15.38.17	Rhea	Ec.	R.	18.5	25.0	04/05/09	21.33.10	Tethys	Tr.	I.	46.3	-27.8	
20/04/09	17.46.10	Tethys	Occ.	D.	40.9	1.7	04/05/09	22.04.33	Tethys	Sh.	I.	41.7	-30.0	
20/04/09	21.09.54	Tethys	Ec.	R.	54.4	-29.5	05/05/09	0.24.28	Tethys	Tr.	E.	17.2	-29.2	
21/04/09	8.30.24	Titan	Ec.	D.	-40.2	44.0	05/05/09	1.02.58	Tethys	Sh.	E.	10.1	-26.1	
21/04/09	13.01.49	Titan	Ec.	R.	-9.6	51.5	05/05/09	8.39.32	Dione	Occ.	D.	-37.4	49.1	
21/04/09	16.15.25	Dione	Occ.	D.	26.1	18.3	05/05/09	12.37.28	Dione	Ec.	R.	-3.3	58.1	
21/04/09	16.25.15	Tethys	Tr.	I.	27.8	16.5	05/05/09	20.12.22	Tethys	Occ.	D.	54.4	-18.8	
21/04/09	16.51.07	Tethys	Sh.	I.	32.4	11.7	05/05/09	23.42.35	Tethys	Ec.	R.	24.2	-31.0	
21/04/09	19.17.20	Tethys	Tr.	E.	52.9	-14.0	06/05/09	6.32.39	Rhea	Tr.	I.	-38.8	26.5	
21/04/09	19.49.22	Tethys	Sh.	E.	55.1	-18.9	06/05/09	7.27.53	Rhea	Sh.	I.	-40.1	36.7	
21/04/09	20.05.03	Dione	Ec.	R.	55.6	-21.2	06/05/09	9.23.53	Rhea	Tr.	E.	-32.9	56.2	
22/04/09	15.04.19	Tethys	Occ.	D.	13.8	31.6	06/05/09	11.18.07	Rhea	Sh.	E.	-16.8	64.6	
22/04/09	17.19.16	Rhea	Tr.	I.	37.9	6.8	06/05/09	17.25.05	Dione	Tr.	I.	47.4	8.2	
22/04/09	18.04.24	Rhea	Sh.	I.	44.9	-0.7	06/05/09	18.04.58	Dione	Sh.	I.	52.0	1.5	
22/04/09	18.28.58	Tethys	Ec.	R.	48.2	-5.8	06/05/09	18.51.35	Tethys	Tr.	I.	55.3	-6.8	
22/04/09	20.16.22	Rhea	Tr.	E.	55.8	-22.5	06/05/09	19.23.38	Tethys	Sh.	I.	55.9	-11.8	
22/04/09	21.52.19	Rhea	Sh.	E.	49.9	-32.7	06/05/09	20.20.00	Dione	Tr.	E.	53.5	-19.6	
23/04/09	1.00.42	Dione	Tr.	I.	19.4	-29.9	06/05/09	21.23.17	Dione	Sh.	E.	46.5	-26.4	
23/04/09	1.33.30	Dione	Sh.	I.	13.3	-26.4	06/05/09	21.42.50	Tethys	Tr.	E.	43.8	-28.0	
23/04/09	3.57.42	Dione	Tr.	E.	-13.0	-4.6	06/05/09	22.22.04	Tethys	Sh.	E.	37.6	-30.3	
23/04/09	4.50.51	Dione	Sh.	E.	-21.7	5.0	07/05/09	7.31.19	Titan	Ec.	D.	-40.0	37.5	
23/04/09	13.43.25	Tethys	Tr.	I.	0.0	45.8	07/05/09	12.33.23	Titan	Ec.	R.	-2.3	59.1	
23/04/09	14.10.09	Tethys	Sh.	I.	4.6	41.3	07/05/09	17.30.48	Tethys	Occ.	D.	48.6	7.4	
23/04/09	16.35.21	Tethys	Tr.	E.	31.1	15.0	07/05/09	21.01.41	Tethys	Ec.	R.	48.8	-24.1	
23/04/09	17.08.26	Tethys	Sh.	E.	36.8	8.9	08/05/09	2.20.37	Dione	Occ.	D.	-6.5	-16.2	
24/04/09	9.56.03	Dione	Occ.	D.	-34.7	56.8	08/05/09	6.19.58	Dione	Ec.	R.	-38.5	24.6	
24/04/09	12.22.30	Tethys	Occ.	D.	-14.2	57.0	08/05/09	12.44.42	Rhea	Occ.	D.	0.4	57.8	
24/04/09	13.47.31	Dione	Ec.	R.	1.3	45.3	08/05/09	16.10.03	Tethys	Tr.	I.	37.2	22.2	
24/04/09	15.48.03	Tethys	Ec.	R.	23.4	23.9	08/05/09	16.42.43	Tethys	Sh.	I.	42.5	16.2	
24/04/09	23.30.55	Rhea	Occ.	D.	34.1	-34.7	08/05/09	17.32.43	Rhea	Ec.	R.	49.4	7.2	
25/04/09	4.06.53	Rhea	Ec.	R.	-15.9	-1.8	08/05/09	19.01.15	Tethys	Tr.	E.	55.9	-7.9	
25/04/09	11.01.37	Tethys	Tr.	I.	-26.2	61.3	08/05/09	19.41.10	Tethys	Sh.	E.	55.4	-13.9	
25/04/09	11.29.12	Tethys	Sh.	I.	-22.1	61.0	09/05/09	11.06.14	Dione	Tr.	I.	-16.7	65.5	
25/04/09	13.53.25	Tethys	Tr.	E.	3.1	44.6	09/05/09	11.47.17	Dione	Sh.	I.	-9.8	64.1	
25/04/09	14.27.31	Tethys	Sh.	E.	9.2	38.7	09/05/09	14.00.58	Dione	Tr.	E.	14.8	45.9	
25/04/09	18.41.24	Dione	Tr.	I.	51.1	-7.3	09/05/09	14.49.17	Tethys	Occ.	D.	23.7	37.3	
25/04/09	19.15.46	Dione	Sh.	I.	54.1	-12.9	09/05/09	15.05.48	Dione	Sh.	E.	26.7	34.3	
25/04/09	21.37.50	Dione	Tr.	E.	50.2	-30.7	09/05/09	18.20.48	Tethys	Ec.	R.	54.3	-0.4	
25/04/09	22.33.19	Dione	Sh.	E.	42.8	-33.9	10/05/09	13.28.33	Tethys	Tr.	I.	9.6	51.6	
26/04/09	9.40.43	Tethys	Occ.	D.	-35.4	55.7	10/05/09	14.01.49	Tethys	Sh.	I.	15.7	46.0	
26/04/09	13.07.08	Tethys	Ec.	R.	-4.8	52.0	10/05/09	16.19.43	Tethys	Tr.	E.	40.1	20.7	
27/04/09	3.36.47	Dione	Occ.	D.	-12.2	-7.2	10/05/09	17.00.17	Tethys	Sh.	E.	46.2	13.3	
27/04/09	5.43.27	Rhea	Tr.	I.	-31.2	15.5	10/05/09	18.57.38	Rhea	Tr.	I.	55.9	-7.0	
27/04/09	6.32.11	Rhea	Sh.	I.	-36.3	24.5	10/05/09	19.55.48	Rhea	Sh.	I.	54.2	-15.6	
27/04/09	7.29.59	Dione	Ec.	R.	-39.7	35.2	10/05/09	20.01.48	Dione	Occ.	D.	53.7	-16.4	
27/04/09	8.19.51	Tethys	Tr.	I.	-39.9	43.9	10/05/09	21.48.06	Rhea	Tr.	E.	40.5	-27.4	
27/04/09	8.38.03	Rhea	Tr.	E.	-39.4	46.9	10/05/09	23.46.43	Rhea	Sh.	E.	19.7	-29.5	
27/04/09	8.48.16	Tethys	Sh.	I.	-38.9	48.6	11/05/09	0.02.28	Dione	Ec.	R.	16.8	-28.9	
27/04/09	10.20.54	Rhea	Sh.	E.	-30.5	60.0	11/05/09	12.07.48	Tethys	Occ.	D.	-4.6	62.9	
27/04/09	11.11.31	Tethys	Tr.	E.	-23.6	62.0	11/05/09	15.39.54	Tethys	Ec.	R.	34.2	28.3	
27/04/09	11.46.36	Tethys	Sh.	E.	-18.1	60.9	12/05/09	4.47.28	Dione	Tr.	I.	-31.7	8.4	
28/04/09	6.58.58	Tethys	Occ.	D.	-38.5	29.7	12/05/09	5.29.37	Dione	Sh.	I.	-36.0	16.0	
28/04/09	10.26.13	Tethys	Ec.	R.	-29.4	60.7	12/05/09	7.42.07	Dione	Tr.	E.	-39.1	40.4	
28/04/09	12.22.11	Dione	Tr.	I.	-11.4	58.2	12/05/09	8.48.19	Dione	Sh.	E.	-34.2	51.9	
28/04/09	12.58.03	Dione	Sh.	I.	-5.0	53.7	12/05/09	10.47.05	Tethys	Tr.	I.	-17.9	65.8	
28/04/09	15.18.07	Dione	Tr.	E.	20.9	30.2	12/05/09	11.20.54	Tethys	Sh.	I.	-12.3	66.1	
28/04/09	16.15.48	Dione	Sh.	E.	31.3	19.5	12/05/09	13.38.14	Tethys	Tr.	E.	12.8	50.3	
29/04/09	5.38.07	Tethys	Tr.	I.	-31.6	15.0	12/05/09	14.19.23	Tethys	Sh.	E.	20.4	43.2	
29/04/09	6.07.19	Tethys	Sh.	I.	-34.7	20.4	13/05/09	1.09.49	Rhea	Occ.	D.	3.0	-23.5	
29/04/09	6.29.53	Titan	Sh.	I.	-36.8	24.6	13/05/09	6.01.20	Rhea	Ec.	R.	-38.6	21.9	
29/04/09	8.29.41	Tethys	Tr.	E.	-39.4	46.1	13/05/09	9.26.21	Tethys	Occ.	D.	-29.3	58.0	
29/04/09	9.05.41	Tethys	Sh.	E.	-37.3	51.8	13/05/09	12.59.01	Tethys	Ec.	R.	6.3	56.8	
29/04/09	11.10.32	Titan	Sh.	E.	-22.5	62.6	13/05/09	13.43.04	Dione	Occ.	D.	14.5	49.7	
29/04/09	11.55.14	Rhea	Occ.	D.	-15.3	60.9	13/05/09	17.44.59	Dione	Ec.	R.	52.8	5.9	
29/04/09	16.35.29	Rhea	Ec.	R.	35.4	16.0	14/05/09	8.05.39	Tethys	Tr.	I.	-37.2	45.0	
29/04/09	21.17.37	Dione	Occ.	D.	50.7	-27.7	14/05/09	8.40.00	Tethys	Sh.	I.	-34.2	50.9	
30/04/09	1.12.28	Dione	Ec.	R.	12.0	-26.6	14/05/09	10.56.48	Tethys	Tr.	E.	-15.0	66.6	
30/04/09	4.17.16	Tethys	Occ.	D.	-20.8	0.9	14/05/09	11.38.30	Tethys	Sh.	E.	-7.8	65.9	
30/04/09	7.45.18	Tethys	Ec.	R.	-40.1	38.6	14/05/09	22.28.47	Dione	Tr.	I.	31.0	-28.5	
01/05/09	2.56.26	Tethys	Tr.	I.	-7.9	-12.7	14/05/09	23.11.58	Dione	Sh.	I.	23.2	-29.2	
01/05/09	3.26.23	Tethys	Sh.	I.	-13.1	-7.9	15/05/09	1.23.26	Dione	Tr.	E.	-0.5	-21.7	
01/05/09	5.47.54	Tethys	Tr.	E.	-33.6	17.2	15/05/09	2.30.50	Dione	Sh.	E.	-13.2	-13.3	
01/05/09	6.03.04	Dione	Tr.	I.	-35.1	20.0	15/05/09	5.31.50	Titan	Sh.	I.	-37.2	16.8	
01/05/09	6.24.46	Tethys	Sh.	E.	-37.0	24.1	15/05/09	6.44.56	Tethys	Occ.	D.	-40.1	30.3	
01/05/09	6.40.20	Dione	Sh.	I.	-38.1	27.0	15/05/09	7.22.53	Rhea	Tr.	I.	-39.4	37.3	
01/05/09	8.58.35	Dione	Tr.	E.	-37.2	51.2	15/05/09	8.23.45	Rhea	Sh.	I.	-35.4	48.3	
01/05/09	9.58.17	Dione	Sh.	E.	-31.3	59.2	15/05/09	10.13.14	Rhea	Tr.	E.	-21.4	64.2	
01/05/09	18.07.55	Rhea	Tr.	I.	50.2	0.2	15/05/09	10.18.08	Tethys	Ec.	R.	-20.6	64.6	

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
15/05/09	12.15.20	Rhea	Sh.	E.	0.1	62.9	29/05/09	23.52.31	Dione	Occ.	D.	4.9	-25.5	
16/05/09	5.24.15	Tethys	Tr.	I.	-36.9	15.6	30/05/09	4.00.06	Dione	Ec.	R.	-34.3	2.7	
16/05/09	5.59.07	Tethys	Sh.	I.	-39.1	22.0	30/05/09	9.14.57	Tethys	Occ.	D.	-21.5	58.7	
16/05/09	7.24.25	Dione	Occ.	D.	-39.2	37.8	30/05/09	12.51.06	Tethys	Ec.	R.	17.1	60.7	
16/05/09	8.15.25	Tethys	Tr.	E.	-35.8	47.0	31/05/09	2.52.50	Rhea	Occ.	D.	-26.5	-8.0	
16/05/09	8.57.37	Tethys	Sh.	E.	-31.4	54.2	31/05/09	4.36.24	Titan	Sh.	I.	-37.8	8.7	
16/05/09	11.27.30	Dione	Ec.	R.	-8.4	66.8	31/05/09	7.54.25	Tethys	Tr.	I.	-32.0	44.8	
17/05/09	4.03.34	Tethys	Occ.	D.	-28.6	1.8	31/05/09	7.55.47	Rhea	Ec.	R.	-31.9	45.0	
17/05/09	7.37.15	Tethys	Ec.	R.	-38.3	40.3	31/05/09	8.32.03	Tethys	Sh.	I.	-27.2	51.5	
17/05/09	13.35.11	Rhea	Occ.	D.	15.9	51.7	31/05/09	8.38.33	Dione	Tr.	I.	-26.3	52.7	
17/05/09	16.10.12	Dione	Tr.	I.	42.9	23.6	31/05/09	9.26.12	Dione	Sh.	I.	-19.1	60.5	
17/05/09	16.54.19	Dione	Sh.	I.	49.0	15.5	31/05/09	9.56.19	Titan	Sh.	E.	-14.1	64.8	
17/05/09	18.29.58	Rhea	Ec.	R.	55.9	-0.5	31/05/09	10.46.11	Tethys	Tr.	E.	-5.3	69.4	
17/05/09	19.04.55	Dione	Tr.	E.	55.4	-6.8	31/05/09	11.30.36	Tethys	Sh.	E.	3.0	69.5	
17/05/09	20.13.21	Dione	Sh.	E.	49.9	-16.5	31/05/09	11.34.56	Dione	Tr.	E.	3.8	69.3	
18/05/09	2.42.54	Tethys	Tr.	I.	-17.2	-11.1	31/05/09	12.45.58	Dione	Sh.	E.	16.8	61.6	
18/05/09	3.18.13	Tethys	Sh.	I.	-22.7	-5.8	01/06/09	6.33.52	Tethys	Occ.	D.	-38.7	29.9	
18/05/09	5.34.05	Tethys	Tr.	E.	-38.1	17.7	01/06/09	10.10.14	Tethys	Ec.	R.	-11.1	66.5	
18/05/09	6.16.44	Tethys	Sh.	E.	-39.9	25.5	01/06/09	17.34.24	Dione	Occ.	D.	55.8	10.4	
19/05/09	1.05.52	Dione	Occ.	D.	-0.2	-22.6	01/06/09	21.42.37	Dione	Ec.	R.	26.6	-22.8	
19/05/09	1.22.13	Tethys	Occ.	D.	-3.6	-21.0	02/06/09	5.13.21	Tethys	Tr.	I.	-39.9	15.3	
19/05/09	4.56.22	Tethys	Ec.	R.	-35.5	11.0	02/06/09	5.51.10	Tethys	Sh.	I.	-40.1	22.1	
19/05/09	5.10.01	Dione	Ec.	R.	-36.7	13.4	02/06/09	8.05.14	Tethys	Tr.	E.	-29.8	46.8	
19/05/09	19.48.22	Rhea	Tr.	I.	51.7	-12.8	02/06/09	8.49.44	Tethys	Sh.	E.	-23.6	54.7	
19/05/09	20.51.45	Rhea	Sh.	I.	43.7	-20.5	02/06/09	9.06.26	Rhea	Tr.	I.	-21.0	57.5	
19/05/09	22.39.16	Rhea	Tr.	E.	25.6	-27.7	02/06/09	10.15.52	Rhea	Sh.	I.	-9.5	67.2	
20/05/09	0.01.35	Tethys	Tr.	I.	10.4	-26.9	02/06/09	12.02.40	Rhea	Tr.	E.	10.2	67.4	
20/05/09	0.37.20	Tethys	Sh.	I.	3.9	-24.8	02/06/09	14.09.44	Rhea	Sh.	E.	33.3	47.8	
20/05/09	0.43.57	Rhea	Sh.	E.	2.7	-24.3	03/06/09	2.20.30	Dione	Tr.	I.	-23.5	-12.2	
20/05/09	2.52.48	Tethys	Tr.	E.	-20.0	-9.4	03/06/09	3.08.36	Dione	Sh.	I.	-30.2	-5.4	
20/05/09	3.35.51	Tethys	Sh.	E.	-26.5	-2.0	03/06/09	3.52.49	Tethys	Occ.	D.	-35.1	1.8	
20/05/09	9.51.42	Dione	Tr.	I.	-21.7	62.7	03/06/09	5.17.26	Dione	Tr.	E.	-40.1	16.1	
20/05/09	10.36.41	Dione	Sh.	I.	-14.4	67.1	03/06/09	6.28.29	Dione	Sh.	E.	-38.6	29.0	
20/05/09	12.46.35	Dione	Tr.	E.	9.1	59.9	03/06/09	7.29.22	Tethys	Ec.	R.	-33.6	40.3	
20/05/09	13.55.52	Dione	Sh.	E.	21.9	48.6	04/06/09	2.32.19	Tethys	Tr.	I.	-25.8	-10.5	
20/05/09	22.40.55	Tethys	Occ.	D.	24.6	-27.5	04/06/09	3.10.18	Tethys	Sh.	I.	-30.9	-5.2	
21/05/09	2.15.29	Tethys	Ec.	R.	-14.6	-14.4	04/06/09	5.24.21	Tethys	Tr.	E.	-40.2	17.4	
21/05/09	18.47.24	Dione	Occ.	D.	55.5	-3.0	04/06/09	6.08.51	Tethys	Sh.	E.	-39.4	25.4	
21/05/09	21.20.18	Tethys	Tr.	I.	38.0	-22.8	04/06/09	11.16.23	Dione	Occ.	D.	3.2	70.4	
21/05/09	21.56.27	Tethys	Sh.	I.	31.8	-25.5	04/06/09	15.19.17	Rhea	Occ.	D.	45.6	35.2	
21/05/09	22.52.32	Dione	Ec.	R.	21.7	-27.6	04/06/09	15.25.08	Dione	Ec.	R.	46.4	34.1	
22/05/09	0.11.35	Tethys	Tr.	E.	7.1	-26.0	04/06/09	20.24.23	Rhea	Ec.	R.	38.2	-15.0	
22/05/09	0.54.59	Tethys	Sh.	E.	-0.4	-23.0	05/06/09	1.11.48	Tethys	Occ.	D.	-13.7	-19.7	
22/05/09	2.00.48	Rhea	Occ.	D.	-12.8	-16.1	05/06/09	4.48.29	Tethys	Ec.	R.	-39.5	11.1	
22/05/09	6.58.35	Rhea	Ec.	R.	-39.3	33.7	05/06/09	20.02.31	Dione	Tr.	I.	41.0	-10.2	
22/05/09	19.59.39	Tethys	Occ.	D.	49.2	-13.8	05/06/09	20.50.59	Dione	Sh.	I.	33.0	-17.8	
22/05/09	23.34.37	Tethys	Ec.	R.	13.2	-27.2	05/06/09	23.00.05	Dione	Tr.	E.	9.5	-25.3	
23/05/09	3.33.17	Dione	Tr.	I.	-27.8	-2.0	05/06/09	23.51.19	Tethys	Tr.	I.	0.4	-24.7	
23/05/09	4.19.03	Dione	Sh.	I.	-33.4	5.1	06/06/09	0.11.00	Dione	Sh.	E.	-3.3	-23.9	
23/05/09	6.28.25	Dione	Tr.	E.	-40.0	28.2	06/06/09	0.29.26	Tethys	Sh.	I.	-7.0	-22.9	
23/05/09	6.36.00	Titan	Ec.	D.	-39.9	29.6	06/06/09	0.29.26	Tethys	Sh.	I.	-7.0	-22.9	
23/05/09	7.38.23	Dione	Sh.	E.	-36.6	41.2	06/06/09	2.43.30	Tethys	Tr.	E.	-28.5	-8.9	
23/05/09	12.01.41	Titan	Ec.	R.	3.1	65.9	06/06/09	3.27.59	Tethys	Sh.	E.	-33.8	-1.5	
23/05/09	18.39.03	Tethys	Tr.	I.	55.5	-1.0	06/06/09	21.33.02	Rhea	Tr.	I.	24.9	-21.5	
23/05/09	19.15.34	Tethys	Sh.	I.	53.3	-7.5	06/06/09	22.30.49	Tethys	Occ.	D.	14.2	-24.6	
23/05/09	21.30.24	Tethys	Tr.	E.	35.0	-23.3	06/06/09	22.43.57	Rhea	Sh.	I.	11.8	-25.0	
23/05/09	22.14.06	Tethys	Sh.	E.	27.3	-26.0	07/06/09	0.32.06	Rhea	Tr.	E.	-8.2	-22.6	
24/05/09	8.14.07	Rhea	Tr.	I.	-32.8	47.8	07/06/09	2.07.37	Tethys	Ec.	R.	-23.9	-13.5	
24/05/09	9.19.45	Rhea	Sh.	I.	-24.2	58.8	07/06/09	2.38.18	Rhea	Sh.	E.	-28.3	-9.5	
24/05/09	11.06.12	Rhea	Tr.	E.	-6.6	68.8	07/06/09	4.58.26	Dione	Occ.	D.	-40.1	12.9	
24/05/09	12.29.01	Dione	Occ.	D.	8.7	63.0	07/06/09	4.58.26	Dione	Occ.	D.	-40.1	12.9	
24/05/09	13.12.33	Rhea	Sh.	E.	16.8	56.5	07/06/09	9.07.39	Dione	Ec.	R.	-17.8	58.0	
24/05/09	16.35.03	Dione	Ec.	R.	50.0	20.0	07/06/09	21.10.21	Tethys	Tr.	I.	28.3	-19.5	
24/05/09	17.18.26	Tethys	Occ.	D.	54.1	12.2	07/06/09	21.48.33	Tethys	Sh.	I.	21.3	-22.5	
24/05/09	20.53.44	Tethys	Ec.	R.	40.4	-19.8	08/06/09	0.02.42	Tethys	Tr.	E.	-3.2	-24.1	
25/05/09	15.57.50	Tethys	Tr.	I.	45.7	26.9	08/06/09	0.47.06	Tethys	Sh.	E.	-11.5	-21.5	
25/05/09	16.34.41	Tethys	Sh.	I.	50.4	20.2	08/06/09	5.43.34	Titan	Ec.	D.	-39.8	20.9	
25/05/09	18.49.16	Tethys	Tr.	E.	54.6	-2.5	08/06/09	11.27.16	Titan	Ec.	R.	7.8	70.6	
25/05/09	19.33.14	Tethys	Sh.	E.	50.8	-9.7	08/06/09	13.44.38	Dione	Tr.	I.	32.9	52.9	
25/05/09	21.14.57	Dione	Tr.	I.	36.2	-21.7	08/06/09	14.33.23	Dione	Sh.	I.	40.9	44.1	
25/05/09	22.01.26	Dione	Sh.	I.	28.2	-25.0	08/06/09	16.42.53	Dione	Tr.	E.	55.1	20.2	
26/05/09	0.10.25	Dione	Tr.	E.	4.5	-25.3	08/06/09	17.53.32	Dione	Sh.	E.	54.5	7.8	
26/05/09	1.20.55	Dione	Sh.	E.	-8.6	-19.9	08/06/09	19.49.52	Tethys	Occ.	D.	41.2	-10.2	
26/05/09	14.26.41	Rhea	Occ.	D.	31.6	43.9	08/06/09	23.26.44	Tethys	Ec.	R.	2.6	-25.0	
26/05/09	14.37.14	Tethys	Occ.	D.	33.5	42.0	09/06/09	3.46.03	Rhea	Occ.	D.	-36.7	1.1	
26/05/09	18.12.51	Tethys	Ec.	R.	55.8	3.2	09/06/09	8.52.57	Rhea	Ec.	R.	-19.0	55.5	
26/05/09	19.27.11	Rhea	Ec.	R.	51.1	-8.7	09/06/09	18.29.25	Tethys	Tr.	I.	51.3	2.2	
27/05/09	6.10.44	Dione	Occ.	D.	-40.1	25.3	09/06/09	19.07.41	Tethys	Sh.	I.	46.8	-3.9	
27/05/09	10.17.35	Dione	Ec.	R.	-13.1	66.7	09/06/09	21.21.56	Tethys	Tr.	E.	24.8	-20.3	
27/05/09	13.16.40	Tethys	Tr.	I.	19.7	56.3	09/06/09	22.06.14	Tethys	Sh.	E.	16.6	-23.3	
27/05/09	13.53.48	Tethys	Sh.	I.	26.5	49.9	09/06/09	22.40.35	Dione	Occ.	D.	10.3	-24.6	
27/05/09	16.08.11	Tethys	Tr.	E.	48.1	25.3	10/06/09	2.50.10	Dione	Ec.	R.	-31.3	-7.8	
27/05/09	16.52.21	Tethys	Sh.	E.	52.9	17.2	10/06/09	17.08.57	Tethys	Occ.	D.	55.7	15.7	
28/05/09	11.56.05	Tethys	Occ.	D.	5.5	67.3	10/06/09	20.45.51	Tethys	Ec.	R.	30.5	-16.8	
28/05/09	14.56.43	Dione	Tr.	I.	38.0	38.6	11/06/09	7.26.49	Dione	Tr.	I.	-30.4	40.0	
28/05/09	15.31.59	Tethys	Ec.	R.	43.6	32.1	11/06/09	8.15.47	Dione	Sh.	I.	-23.6	49.0	
28/05/09	15.43.49	Dione	Sh.	I.	45.3	29.9	11/06/09	9.59.57	Rhea	Tr.	I.	-6.3	65.9	
28/05/09	17.52.36	Dione	Tr.	E.	55.9	6.8	11/06/09	10.25.50	Dione	Tr.	E.	-0.8	68.8	
28/05/09	19.03.26	Dione	Sh.	E.	52.6	-4.8	11/06/09	11.12.02	Rhea	Sh.	I.	7.1	71.1	
28/05/09	20.40.08	Rhea	Tr.	I.	40.0	-17.7	11/06/09	11.36.02	Dione	Sh.	E.	11.5	70.4	
28/05/09	21.47.48	Rhea	Sh.	I.	28.5	-23.7	11/06/09	13.02.16	Rhea	Tr.	E.	27.4	60.3	
28/05/09	23.34.01	Rhea	Tr.	E.	9.0	-26.2	11/06/09	15.06.51	Rhea	Sh.	E.	47.4	38.1	
29/05/09	1.41.09	Rhea	Sh.	E.	-14.1	-17.4	11/06/09	15.48.31	Tethys	Tr.	I.	52.1	30.4	
29/05/09	10.35.31	Tethys	Tr.	I.	-8.7	68.5	11/06/09	16.26.49	Tethys	Sh.	I.	54.8	23.4	
29/05/09	11.12.55	Tethys	Sh.	I.	-1.1	69.7	11/06/09	18.41.13	Tethys	Tr.	E.	49.1	0.6	
29/05/09	13.27.10	Tethys	Tr.	E.	23.0	54.8	11/06/09	19.25.21	Tethys	Sh.	E.	43.2	-6.6	
29/05/09	14.11.29	Tethys	Sh.	E.	31.0	47.0	12/06/09	14.28.04	Tethys	Occ.	D.	42.4	45.4	

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole							
13/06/09	13.07.39	Tethys	Tr.	I.	29.6	59.5	26/06/09	21.58.16	Tethys	Sh.	E.	6.1	-22.3
13/06/09	13.45.57	Tethys	Sh.	I.	36.2	53.0	27/06/09	5.36.36	Rhea	Occ.	D.	-36.3	19.2
13/06/09	16.00.33	Tethys	Tr.	E.	53.7	28.3	27/06/09	10.46.59	Rhea	Ec.	R.	13.2	70.4
13/06/09	16.13.08	Rhea	Occ.	D.	54.5	26.0	27/06/09	17.02.10	Tethys	Occ.	D.	52.8	17.7
13/06/09	16.44.28	Tethys	Sh.	E.	55.6	20.3	27/06/09	17.41.50	Dione	Tr.	I.	48.8	10.8
13/06/09	21.21.30	Rhea	Ec.	R.	22.0	-20.0	27/06/09	18.30.10	Dione	Sh.	I.	42.2	2.8
14/06/09	1.09.06	Dione	Tr.	I.	-19.0	-19.4	27/06/09	20.37.53	Tethys	Ec.	R.	20.2	-15.3
14/06/09	1.58.11	Dione	Sh.	I.	-26.5	-14.4	27/06/09	20.46.15	Dione	Tr.	E.	18.7	-16.2
14/06/09	4.08.55	Dione	Tr.	E.	-39.4	4.7	27/06/09	21.51.00	Dione	Sh.	E.	6.7	-21.9
14/06/09	5.18.33	Dione	Sh.	E.	-40.0	16.5	28/06/09	15.41.52	Tethys	Tr.	I.	55.1	32.4
14/06/09	11.47.13	Tethys	Occ.	D.	15.6	69.9	28/06/09	16.18.56	Tethys	Sh.	I.	54.9	25.5
14/06/09	15.24.06	Tethys	Ec.	R.	50.7	35.1	28/06/09	18.36.29	Tethys	Tr.	E.	40.6	1.9
15/06/09	10.05.08	Dione	Occ.	D.	-2.0	66.7	28/06/09	19.17.22	Tethys	Sh.	E.	33.9	-4.7
15/06/09	10.26.49	Tethys	Tr.	I.	1.7	69.0	29/06/09	2.38.02	Dione	Occ.	D.	-37.7	-9.8
15/06/09	11.05.04	Tethys	Sh.	I.	8.5	71.3	29/06/09	6.47.36	Dione	Ec.	R.	-27.1	32.1
15/06/09	13.19.54	Tethys	Tr.	E.	33.1	57.6	29/06/09	11.51.13	Rhea	Tr.	I.	26.3	69.8
15/06/09	14.03.35	Tethys	Sh.	E.	40.3	50.0	29/06/09	13.04.31	Rhea	Sh.	I.	38.9	60.6
15/06/09	14.15.11	Dione	Ec.	R.	42.1	47.9	29/06/09	14.21.34	Tethys	Occ.	D.	49.6	47.2
15/06/09	22.27.12	Rhea	Tr.	I.	8.5	-23.9	29/06/09	15.09.13	Rhea	Tr.	E.	53.8	38.4
15/06/09	23.40.09	Rhea	Sh.	I.	-5.0	-24.4	29/06/09	17.00.48	Rhea	Sh.	E.	52.2	18.0
16/06/09	1.33.08	Rhea	Tr.	E.	-24.0	-17.1	29/06/09	17.56.59	Tethys	Ec.	R.	45.8	8.2
16/06/09	3.35.22	Rhea	Sh.	E.	-38.0	-0.3	30/06/09	11.24.38	Dione	Tr.	I.	22.2	71.1
16/06/09	3.43.03	Titan	Sh.	I.	-38.5	0.7	30/06/09	12.12.33	Dione	Sh.	I.	30.8	67.7
16/06/09	9.06.24	Tethys	Occ.	D.	-12.5	57.8	30/06/09	13.01.17	Tethys	Tr.	I.	39.0	61.1
16/06/09	9.16.01	Titan	Sh.	E.	-10.8	59.4	30/06/09	13.38.03	Tethys	Sh.	I.	44.5	55.0
16/06/09	12.43.13	Tethys	Ec.	R.	27.2	63.5	30/06/09	14.30.03	Dione	Tr.	E.	50.9	45.7
16/06/09	18.51.28	Dione	Tr.	I.	45.3	-0.4	30/06/09	15.33.29	Dione	Sh.	E.	55.0	33.9
16/06/09	19.40.35	Dione	Sh.	I.	37.7	-8.4	30/06/09	15.56.07	Tethys	Tr.	E.	55.2	29.7
16/06/09	21.52.08	Dione	Tr.	E.	14.3	-22.1	30/06/09	16.36.28	Tethys	Sh.	E.	53.7	22.3
16/06/09	23.01.03	Dione	Sh.	E.	1.7	-24.6	01/07/09	11.41.00	Tethys	Occ.	D.	25.8	70.4
17/06/09	7.46.01	Tethys	Tr.	I.	-24.8	43.5	01/07/09	15.16.05	Tethys	Ec.	R.	54.5	37.2
17/06/09	8.24.12	Tethys	Sh.	I.	-18.9	50.5	01/07/09	18.05.12	Rhea	Occ.	D.	43.6	6.8
17/06/09	10.39.19	Tethys	Tr.	E.	5.2	70.1	01/07/09	20.20.53	Dione	Occ.	D.	20.6	-13.5
17/06/09	11.22.43	Tethys	Sh.	E.	13.1	71.3	01/07/09	23.15.25	Rhea	Ec.	R.	-11.5	-25.0
18/06/09	3.47.32	Dione	Occ.	D.	-39.2	1.3	02/07/09	0.30.04	Dione	Ec.	R.	-23.8	-22.8
18/06/09	4.40.35	Rhea	Occ.	D.	-40.5	9.8	02/07/09	2.51.23	Titan	Sh.	I.	-39.4	-8.2
18/06/09	6.25.37	Tethys	Occ.	D.	-34.6	28.6	02/07/09	8.33.47	Titan	Sh.	E.	-8.1	51.4
18/06/09	7.57.41	Dione	Ec.	R.	-22.5	45.6	02/07/09	10.20.44	Tethys	Tr.	I.	11.7	67.8
18/06/09	9.50.01	Rhea	Ec.	R.	-3.0	64.6	02/07/09	10.57.10	Tethys	Sh.	I.	18.4	70.6
18/06/09	10.02.20	Tethys	Ec.	R.	-0.5	66.3	02/07/09	13.15.48	Tethys	Tr.	E.	42.3	58.7
19/06/09	5.05.15	Tethys	Tr.	I.	-40.0	14.1	02/07/09	13.55.34	Tethys	Sh.	E.	47.8	51.9
19/06/09	5.43.19	Tethys	Sh.	I.	-38.0	20.8	03/07/09	5.07.31	Dione	Tr.	I.	-37.1	13.6
19/06/09	7.58.45	Tethys	Tr.	E.	-21.8	45.8	03/07/09	5.54.57	Dione	Sh.	I.	-32.2	22.1
19/06/09	8.41.50	Tethys	Sh.	E.	-14.8	53.5	03/07/09	8.13.57	Dione	Tr.	E.	-11.0	47.7
19/06/09	12.33.56	Dione	Tr.	I.	27.5	65.0	03/07/09	9.00.28	Tethys	Occ.	D.	-1.9	56.0
19/06/09	13.22.59	Dione	Sh.	I.	36.1	57.3	03/07/09	9.15.56	Dione	Sh.	E.	0.7	58.5
19/06/09	15.35.29	Dione	Tr.	E.	53.4	33.3	03/07/09	12.35.11	Tethys	Ec.	R.	36.4	64.8
19/06/09	16.43.33	Dione	Sh.	E.	55.4	20.8	04/07/09	0.20.01	Rhea	Tr.	I.	-23.4	-23.5
20/06/09	3.44.52	Tethys	Occ.	D.	-39.5	0.9	04/07/09	1.32.39	Rhea	Sh.	I.	-33.2	-17.9
20/06/09	7.21.27	Tethys	Ec.	R.	-26.8	38.9	04/07/09	3.42.14	Rhea	Tr.	E.	-40.9	-0.2
20/06/09	10.54.50	Rhea	Tr.	I.	10.0	71.0	04/07/09	5.29.12	Rhea	Sh.	E.	-34.7	17.4
20/06/09	12.08.16	Rhea	Sh.	I.	23.6	68.2	04/07/09	7.40.13	Tethys	Tr.	I.	-16.1	41.5
20/06/09	14.04.37	Rhea	Tr.	E.	43.2	50.1	04/07/09	8.16.17	Tethys	Sh.	I.	-10.0	48.1
20/06/09	16.03.52	Rhea	Sh.	E.	55.1	28.1	04/07/09	10.35.30	Tethys	Tr.	E.	15.7	69.0
20/06/09	21.30.02	Dione	Occ.	D.	15.5	-20.4	04/07/09	11.14.40	Tethys	Sh.	E.	22.9	70.8
21/06/09	1.40.10	Dione	Ec.	R.	-27.8	-16.4	04/07/09	14.03.49	Dione	Occ.	D.	49.6	50.4
21/06/09	2.24.31	Tethys	Tr.	I.	-33.3	-11.2	04/07/09	18.12.31	Dione	Ec.	R.	40.8	5.5
21/06/09	3.02.27	Tethys	Sh.	I.	-37.0	-6.0	05/07/09	6.19.57	Tethys	Occ.	D.	-28.0	26.5
21/06/09	5.18.14	Tethys	Tr.	E.	-39.1	16.3	05/07/09	9.54.16	Tethys	Ec.	R.	8.8	64.2
21/06/09	6.00.56	Tethys	Sh.	E.	-36.0	24.0	05/07/09	12.50.30	Dione	Tr.	I.	-9.8	-25.1
22/06/09	1.04.09	Tethys	Occ.	D.	-23.1	-19.8	05/07/09	23.37.20	Dione	Sh.	I.	-17.8	-25.2
22/06/09	4.40.34	Tethys	Ec.	R.	-40.4	9.7	06/07/09	1.57.56	Dione	Tr.	E.	-36.6	-15.4
22/06/09	6.16.29	Dione	Tr.	I.	-34.1	26.8	06/07/09	2.58.23	Dione	Sh.	E.	-40.5	-7.6
22/06/09	7.05.23	Dione	Sh.	I.	-28.0	35.8	06/07/09	4.59.43	Tethys	Tr.	I.	-36.9	12.0
22/06/09	9.18.57	Dione	Tr.	E.	-6.4	59.8	06/07/09	5.35.23	Tethys	Sh.	I.	-33.3	18.3
22/06/09	10.26.03	Dione	Sh.	E.	6.1	68.9	06/07/09	6.34.12	Rhea	Occ.	D.	-25.5	29.1
22/06/09	17.08.23	Rhea	Occ.	D.	53.8	16.5	06/07/09	7.55.13	Tethys	Tr.	E.	-12.4	44.0
22/06/09	22.18.31	Rhea	Ec.	R.	5.2	-23.4	06/07/09	8.33.45	Tethys	Sh.	E.	-5.5	51.0
22/06/09	23.43.48	Tethys	Tr.	I.	-10.5	-24.2	06/07/09	11.43.49	Rhea	Ec.	R.	29.4	69.8
23/06/09	0.21.34	Tethys	Sh.	I.	-16.9	-22.8	07/07/09	3.39.28	Tethys	Occ.	D.	-40.9	-0.8
23/06/09	2.37.44	Tethys	Tr.	E.	-35.5	-9.5	07/07/09	7.13.22	Tethys	Ec.	R.	-18.8	36.2
23/06/09	3.20.03	Tethys	Sh.	E.	-38.9	-3.1	07/07/09	7.46.49	Dione	Occ.	D.	-13.2	42.4
23/06/09	15.12.37	Dione	Occ.	D.	52.6	37.7	07/07/09	11.54.58	Dione	Ec.	R.	32.0	69.0
23/06/09	19.22.40	Dione	Ec.	R.	36.3	-5.6	08/07/09	2.19.14	Tethys	Tr.	I.	-38.9	-13.1
23/06/09	22.23.28	Tethys	Occ.	D.	3.6	-23.6	08/07/09	2.54.30	Tethys	Sh.	I.	-40.6	-8.4
24/06/09	1.59.41	Tethys	Ec.	R.	-31.8	-14.3	08/07/09	5.14.58	Tethys	Tr.	E.	-34.8	14.5
24/06/09	4.53.25	Titan	Ec.	D.	-39.8	11.8	08/07/09	5.52.50	Tethys	Sh.	E.	-30.3	21.3
24/06/09	10.50.26	Titan	Ec.	R.	11.9	70.7	08/07/09	12.49.13	Rhea	Tr.	I.	41.4	62.6
24/06/09	21.03.08	Tethys	Tr.	I.	17.7	-17.9	08/07/09	14.00.46	Rhea	Sh.	I.	50.7	50.8
24/06/09	21.40.42	Tethys	Sh.	I.	10.7	-21.1	08/07/09	16.15.37	Rhea	Tr.	E.	52.9	26.0
24/06/09	23.22.49	Rhea	Tr.	I.	-8.2	-24.6	08/07/09	16.33.33	Dione	Tr.	I.	51.4	22.7
24/06/09	23.57.17	Tethys	Tr.	E.	-14.1	-23.9	08/07/09	17.19.42	Dione	Sh.	I.	46.2	14.4
24/06/09	23.59.07	Dione	Tr.	I.	-14.4	-23.8	08/07/09	17.57.35	Rhea	Sh.	E.	40.7	7.8
25/06/09	0.36.24	Rhea	Sh.	I.	-20.6	-22.0	08/07/09	19.42.00	Dione	Tr.	E.	22.9	-8.8
25/06/09	0.39.10	Tethys	Sh.	E.	-21.0	-21.8	08/07/09	20.40.50	Dione	Sh.	E.	12.0	-16.2
25/06/09	0.47.46	Dione	Sh.	I.	-22.4	-21.2	09/07/09	0.59.01	Tethys	Occ.	D.	-31.5	-21.5
25/06/09	2.36.40	Rhea	Tr.	E.	-36.2	-9.8	09/07/09	4.32.27	Tethys	Ec.	R.	-38.3	7.1
25/06/09	3.02.33	Dione	Tr.	E.	-38.3	-6.1	09/07/09	23.38.48	Tethys	Tr.	I.	-20.5	-25.6
25/06/09	4.08.32	Dione	Sh.	E.	-40.7	4.3	10/07/09	0.13.36	Tethys	Sh.	I.	-25.9	-24.5
25/06/09	4.32.21	Rhea	Sh.	E.	-40.4	8.2	10/07/09	1.29.55	Dione	Occ.	D.	-35.5	-18.9
25/06/09	19.42.48	Tethys	Occ.	D.	31.5	-8.4	10/07/09	2.34.45	Tethys	Tr.	E.	-40.2	-11.3
25/06/09	23.18.47	Tethys	Ec.	R.	-8.1	-24.7	10/07/09	3.11.55	Tethys	Sh.	E.	-41.1	-6.1
26/06/09	8.55.17	Dione	Occ.	D.	-8.1	55.6	10/07/09	4.05.10	Titan	Ec.	D.	-39.8	2.5
26/06/09	13.05.08	Dione	Ec.	R.	37.3	60.5	10/07/09	5.37.24	Dione	Ec.	R.	-31.4	18.3
26/06/09	18.22.29	Tethys	Tr.	I.	43.9	4.0	10/07/09	10.11.19	Titan	Ec.	R.	15.2	65.8
26/06/09	18.59.49	Tethys	Sh.	I.	38.1	-1.3	10/07/09	19.03.38	Rhea	Occ.	D.	28.4	-2.7
26/06/09	21.16.52	Tethys	Tr.	E.	13.7	-19.2	10/07/09	22.18.35	Tethys	Occ.	D.	-7.5	-24.5

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
11/07/09	1.51.31	Tethys	Ec.	R.	-37.8	-16.7	25/07/09	2.53.37	Dione	Tr.	I.	-41.1	-11.0	
11/07/09	10.16.42	Dione	Tr.	I.	16.8	66.3	25/07/09	3.33.51	Dione	Sh.	I.	-39.0	-4.8	
11/07/09	11.02.05	Dione	Sh.	I.	25.1	69.8	25/07/09	5.13.41	Tethys	Tr.	E.	-27.8	12.2	
11/07/09	13.26.09	Dione	Tr.	E.	47.9	56.6	25/07/09	5.44.24	Tethys	Sh.	E.	-23.2	17.7	
11/07/09	14.23.16	Dione	Sh.	E.	53.3	46.6	25/07/09	6.07.50	Dione	Tr.	E.	-19.4	22.0	
11/07/09	20.58.23	Tethys	Tr.	I.	6.7	-18.4	26/07/09	0.26.42	Titan	Occ.	D.	-35.4	-26.6	
11/07/09	21.32.42	Tethys	Sh.	I.	0.7	-21.6	26/07/09	0.56.04	Tethys	Occ.	D.	-38.2	-24.6	
11/07/09	23.54.33	Tethys	Tr.	E.	-24.2	-25.5	26/07/09	4.23.59	Tethys	Ec.	R.	-33.8	3.5	
12/07/09	0.30.59	Tethys	Sh.	E.	-29.4	-23.9	26/07/09	9.29.57	Titan	Ec.	R.	17.8	57.8	
12/07/09	19.13.06	Dione	Occ.	D.	25.4	-4.8	26/07/09	11.50.12	Dione	Occ.	D.	41.8	66.4	
12/07/09	19.38.11	Tethys	Occ.	D.	20.8	-8.6	26/07/09	14.50.15	Rhea	Tr.	I.	53.5	40.1	
12/07/09	23.10.36	Tethys	Ec.	R.	-17.8	-26.2	26/07/09	15.51.45	Dione	Ec.	R.	48.5	28.8	
12/07/09	23.19.49	Dione	Ec.	R.	-19.3	-26.2	26/07/09	15.53.11	Rhea	Sh.	I.	48.3	28.5	
13/07/09	1.18.51	Rhea	Tr.	I.	-35.5	-20.3	26/07/09	18.32.01	Rhea	Tr.	E.	23.4	0.5	
13/07/09	2.28.53	Rhea	Sh.	I.	-40.5	-12.5	26/07/09	19.50.40	Rhea	Sh.	E.	8.9	-12.3	
13/07/09	4.49.21	Rhea	Tr.	E.	-35.7	9.5	26/07/09	23.35.58	Tethys	Tr.	I.	-29.7	-28.7	
13/07/09	6.25.55	Rhea	Sh.	E.	-23.1	26.8	27/07/09	0.05.22	Tethys	Sh.	I.	-33.5	-27.9	
13/07/09	18.18.00	Tethys	Tr.	I.	34.4	4.1	27/07/09	2.33.37	Tethys	Tr.	E.	-41.6	-14.1	
13/07/09	18.51.48	Tethys	Sh.	I.	28.5	-0.9	27/07/09	3.03.26	Tethys	Sh.	E.	-40.5	-9.9	
13/07/09	21.14.22	Tethys	Tr.	E.	2.5	-20.2	27/07/09	20.37.14	Dione	Tr.	I.	0.0	-18.6	
13/07/09	21.50.04	Tethys	Sh.	E.	-4.2	-23.2	27/07/09	21.16.10	Dione	Sh.	I.	-7.7	-22.8	
14/07/09	3.59.55	Dione	Tr.	I.	-39.5	1.3	27/07/09	22.15.52	Tethys	Occ.	D.	-18.0	-27.3	
14/07/09	4.44.27	Dione	Sh.	I.	-35.9	8.5	27/07/09	23.52.19	Dione	Tr.	E.	-32.3	-28.5	
14/07/09	7.10.22	Dione	Tr.	E.	-15.3	34.9	28/07/09	0.37.36	Dione	Sh.	E.	-37.3	-26.4	
14/07/09	8.05.41	Dione	Sh.	E.	-5.5	45.1	28/07/09	1.43.01	Tethys	Ec.	R.	-41.4	-20.5	
14/07/09	16.57.48	Tethys	Occ.	D.	46.0	17.9	28/07/09	20.55.46	Tethys	Tr.	I.	-4.5	-20.9	
14/07/09	20.29.40	Tethys	Ec.	R.	9.9	-15.6	28/07/09	21.05.34	Rhea	Occ.	D.	-6.4	-21.9	
15/07/09	7.33.29	Rhea	Occ.	D.	-10.7	39.1	28/07/09	21.24.25	Tethys	Sh.	I.	-9.8	-23.8	
15/07/09	12.40.31	Rhea	Ec.	R.	43.7	63.1	28/07/09	23.53.34	Tethys	Tr.	E.	-33.0	-28.7	
15/07/09	12.56.21	Dione	Occ.	D.	45.9	60.9	29/07/09	0.22.28	Tethys	Sh.	E.	-36.2	-27.5	
15/07/09	15.37.38	Tethys	Tr.	I.	53.5	32.6	29/07/09	2.05.14	Rhea	Ec.	R.	-41.9	-18.1	
15/07/09	16.10.53	Tethys	Sh.	I.	51.0	26.4	29/07/09	5.33.51	Dione	Occ.	D.	-22.7	15.2	
15/07/09	17.02.14	Dione	Ec.	R.	44.9	17.0	29/07/09	9.34.06	Dione	Ec.	R.	20.4	57.8	
15/07/09	18.34.12	Tethys	Tr.	E.	30.3	1.4	29/07/09	19.35.41	Tethys	Occ.	D.	9.6	-10.7	
15/07/09	19.09.08	Tethys	Sh.	E.	24.1	-4.4	29/07/09	23.02.03	Tethys	Ec.	R.	-26.5	-29.4	
16/07/09	14.17.27	Tethys	Occ.	D.	53.8	47.2	30/07/09	14.20.55	Dione	Tr.	I.	53.9	44.8	
16/07/09	17.48.44	Tethys	Ec.	R.	37.3	8.7	30/07/09	14.58.30	Dione	Sh.	I.	52.0	38.0	
16/07/09	21.43.13	Dione	Tr.	I.	-5.1	-23.1	30/07/09	17.36.50	Dione	Tr.	E.	30.5	9.0	
16/07/09	22.26.48	Dione	Sh.	I.	-12.9	-25.7	30/07/09	18.15.36	Tethys	Tr.	I.	23.6	2.4	
17/07/09	0.54.39	Dione	Tr.	E.	-34.7	-23.0	30/07/09	18.19.56	Dione	Sh.	E.	22.9	1.7	
17/07/09	1.48.05	Dione	Sh.	E.	-39.3	-18.0	30/07/09	18.43.29	Tethys	Sh.	I.	18.6	-1.9	
17/07/09	12.57.17	Tethys	Tr.	I.	46.9	60.5	30/07/09	21.13.32	Tethys	Tr.	E.	-9.2	-23.2	
17/07/09	13.29.59	Tethys	Sh.	I.	50.6	55.4	30/07/09	21.41.29	Tethys	Sh.	E.	-14.1	-25.7	
17/07/09	13.48.54	Rhea	Tr.	I.	52.2	52.2	31/07/09	3.21.33	Rhea	Tr.	I.	-38.5	-7.8	
17/07/09	14.57.00	Rhea	Sh.	I.	54.6	39.9	31/07/09	4.21.16	Rhea	Sh.	I.	-32.2	2.3	
17/07/09	15.54.04	Tethys	Tr.	E.	51.8	29.4	31/07/09	7.06.35	Rhea	Tr.	E.	-5.7	32.0	
17/07/09	16.28.12	Tethys	Sh.	E.	48.3	23.1	31/07/09	8.18.50	Rhea	Sh.	E.	7.8	45.2	
17/07/09	17.23.21	Rhea	Tr.	E.	40.7	13.1	31/07/09	16.55.31	Tethys	Occ.	D.	36.8	16.2	
17/07/09	18.54.12	Rhea	Sh.	E.	25.4	-1.7	31/07/09	20.21.04	Tethys	Ec.	R.	0.2	-17.4	
17/07/09	23.48.50	Titan	Tr.	I.	-26.7	-26.6	31/07/09	23.17.35	Dione	Occ.	D.	-29.8	-30.0	
18/07/09	1.13.44	Titan	Tr.	E.	-37.0	-21.6	01/08/09	3.16.25	Dione	Ec.	R.	-38.6	-8.8	
18/07/09	2.01.09	Titan	Sh.	I.	-40.3	-16.7	01/08/09	15.35.26	Tethys	Tr.	I.	47.7	30.8	
18/07/09	6.39.42	Dione	Occ.	D.	-18.1	28.8	01/08/09	16.02.32	Tethys	Sh.	I.	44.2	25.8	
18/07/09	7.49.38	Titan	Sh.	E.	-6.0	41.7	01/08/09	18.33.30	Tethys	Tr.	E.	19.0	-0.6	
18/07/09	10.44.38	Dione	Ec.	R.	26.3	67.8	01/08/09	19.00.30	Tethys	Sh.	E.	14.1	-5.8	
18/07/09	11.37.08	Tethys	Occ.	D.	35.4	68.6	02/08/09	8.04.41	Dione	Tr.	I.	6.4	42.3	
18/07/09	15.07.48	Tethys	Ec.	R.	54.2	37.8	02/08/09	8.40.48	Dione	Sh.	I.	13.1	48.7	
19/07/09	10.16.59	Tethys	Tr.	I.	22.0	65.2	02/08/09	9.37.05	Rhea	Occ.	D.	23.4	57.5	
19/07/09	10.49.04	Tethys	Sh.	I.	27.7	67.9	02/08/09	11.21.23	Dione	Tr.	E.	41.0	65.7	
19/07/09	13.13.57	Tethys	Tr.	E.	49.6	57.7	02/08/09	12.02.16	Dione	Sh.	E.	46.6	63.9	
19/07/09	13.47.15	Tethys	Sh.	E.	52.6	52.2	02/08/09	14.15.22	Tethys	Occ.	D.	53.6	45.2	
19/07/09	15.26.36	Dione	Tr.	I.	53.2	34.3	02/08/09	14.33.23	Rhea	Ec.	R.	52.8	42.0	
19/07/09	16.09.09	Dione	Sh.	I.	49.5	26.4	02/08/09	17.40.05	Tethys	Ec.	R.	28.0	7.9	
19/07/09	18.39.00	Dione	Tr.	E.	26.8	0.3	02/08/09	22.28.29	Titan	Tr.	I.	-23.7	-29.4	
19/07/09	19.30.29	Dione	Sh.	E.	17.4	-8.3	03/08/09	1.12.09	Titan	Sh.	I.	-41.3	-25.0	
19/07/09	20.03.45	Rhea	Occ.	D.	11.3	-12.9	03/08/09	2.47.43	Titan	Tr.	E.	-40.3	-13.5	
20/07/09	1.08.48	Rhea	Ec.	R.	-37.2	-22.4	03/08/09	7.03.33	Titan	Sh.	E.	-4.3	31.0	
20/07/09	8.56.50	Tethys	Occ.	D.	7.8	53.4	03/08/09	12.55.18	Tethys	Tr.	I.	52.1	57.8	
20/07/09	12.26.51	Tethys	Ec.	R.	44.2	64.2	03/08/09	13.21.35	Tethys	Sh.	I.	53.5	54.0	
21/07/09	0.23.07	Dione	Occ.	D.	-32.8	-25.8	03/08/09	15.53.29	Tethys	Tr.	E.	44.4	27.1	
21/07/09	4.27.01	Dione	Ec.	R.	-35.3	4.7	03/08/09	16.19.31	Tethys	Sh.	E.	40.7	22.3	
21/07/09	7.36.41	Tethys	Tr.	I.	-6.4	39.0	03/08/09	17.01.23	Dione	Occ.	D.	34.0	14.6	
21/07/09	8.08.09	Tethys	Sh.	I.	-0.1	44.7	03/08/09	20.58.44	Dione	Ec.	R.	-9.2	-22.6	
21/07/09	10.33.51	Tethys	Tr.	E.	26.3	66.4	04/08/09	11.35.15	Tethys	Occ.	D.	43.9	64.9	
21/07/09	11.06.18	Tethys	Sh.	E.	32.0	68.2	04/08/09	14.59.05	Tethys	Ec.	R.	50.3	37.0	
22/07/09	2.19.22	Rhea	Tr.	I.	-41.5	-15.1	04/08/09	15.53.15	Rhea	Tr.	I.	43.9	27.0	
22/07/09	3.25.06	Rhea	Sh.	I.	-40.1	-5.7	04/08/09	16.49.19	Rhea	Sh.	I.	35.4	16.6	
22/07/09	5.57.36	Rhea	Tr.	E.	-22.7	20.5	04/08/09	19.41.14	Rhea	Tr.	E.	4.5	-12.7	
22/07/09	6.16.33	Tethys	Occ.	D.	-19.7	24.0	04/08/09	20.46.56	Rhea	Sh.	E.	-7.8	-21.5	
22/07/09	7.22.28	Rhea	Sh.	E.	-8.4	36.2	05/08/09	1.48.32	Dione	Tr.	I.	-42.1	-21.6	
22/07/09	9.10.04	Dione	Tr.	I.	11.6	55.3	05/08/09	2.23.06	Dione	Sh.	I.	-41.3	-17.3	
22/07/09	9.45.54	Tethys	Ec.	R.	18.2	60.7	05/08/09	5.05.57	Dione	Tr.	E.	-23.4	9.2	
22/07/09	9.51.30	Dione	Sh.	I.	19.2	61.5	05/08/09	5.44.35	Dione	Sh.	E.	-17.2	16.1	
22/07/09	12.23.23	Dione	Tr.	E.	44.6	64.2	05/08/09	10.15.12	Tethys	Tr.	I.	31.9	61.5	
22/07/09	13.12.52	Dione	Sh.	E.	50.5	57.5	05/08/09	10.40.37	Tethys	Sh.	I.	36.1	63.6	
23/07/09	4.56.25	Tethys	Tr.	I.	-31.0	9.4	05/08/09	13.13.29	Tethys	Tr.	E.	53.3	54.8	
23/07/09	5.27.13	Tethys	Sh.	I.	-26.8	14.9	05/08/09	13.38.31	Tethys	Sh.	E.	53.9	50.9	
23/07/09	7.53.45	Tethys	Tr.	E.	-1.3	41.8	06/08/09	8.55.08	Tethys	Occ.	D.	18.2	50.3	
23/07/09	8.25.21	Tethys	Sh.	E.	4.0	47.5	06/08/09	10.45.15	Dione	Occ.	D.	37.4	63.7	
23/07/09	18.06.37	Dione	Occ.	D.	29.9	4.9	06/08/09	12.18.06	Tethys	Ec.	R.	49.8	61.5	
23/07/09	22.09.23	Dione	Ec.	R.	-14.4	-26.1	06/08/09	14.41.03	Dione	Ec.	R.	51.1	39.9	
24/07/09	3.36.18	Tethys	Occ.	D.	-39.0	-4.1	06/08/09	22.09.00	Rhea	Occ.	D.	-23.0	-29.4	
24/07/09	7.04.57	Tethys	Ec.	R.	-10.3	32.7	07/08/09	3.01.28	Rhea	Ec.	R.	-38.4	-12.2	
24/07/09	8.34.27	Rhea	Occ.	D.	6.3	49.0	07/08/09	7.35.06	Tethys	Tr.	I.	4.1	36.2	
24/07/09	13.37.02	Rhea	Ec.	R.	52.9	53.3	07/08/09	7.59.40	Tethys	Sh.	I.	8.6	40.6	
25/07/09	2.16.11	Tethys	Tr.	I.	-41.7	-16.0	07/08/09	10.33.28	Tethys	Tr.	E.	36.1	62.6	
25/07/09	2.46.17	Tethys	Sh.	I.	-41.4	-12.0	07/08/09	10.57.32	Tethys	Sh.	E.	39.9	64.0	

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
07/08/09	19.32.26	Dione	Tr.	I.	4.1	-12.1	21/08/09	12.12.55	Dione	Tr.	I.	52.5	57.4	
07/08/09	20.05.24	Dione	Sh.	I.	-1.4	-16.9	21/08/09	12.36.42	Dione	Sh.	I.	53.1	55.1	
07/08/09	22.50.32	Dione	Tr.	E.	-29.7	-31.5	21/08/09	14.49.53	Tethys	Ec.	R.	43.8	34.7	
07/08/09	23.26.53	Dione	Sh.	E.	-34.4	-31.8	21/08/09	15.33.35	Dione	Tr.	E.	37.4	26.8	
08/08/09	6.15.03	Tethys	Occ.	D.	21.3		21/08/09	15.58.08	Dione	Sh.	E.	33.4	22.2	
08/08/09	9.37.06	Tethys	Ec.	R.	27.0	56.3	22/08/09	10.14.58	Tethys	Tr.	I.	40.8	57.0	
09/08/09	4.25.20	Rhea	Tr.	I.	-27.6	1.5	22/08/09	10.31.45	Tethys	Sh.	I.	43.2	58.2	
09/08/09	4.29.11	Dione	Occ.	D.	-27.0	2.2	22/08/09	13.13.32	Tethys	Tr.	E.	52.4	50.1	
09/08/09	4.55.01	Tethys	Tr.	I.	-23.1	6.6	22/08/09	13.29.17	Tethys	Sh.	E.	51.5	47.8	
09/08/09	5.17.22	Rhea	Sh.	I.	-19.5	10.6	22/08/09	18.03.49	Rhea	Tr.	I.	10.2	-0.5	
09/08/09	5.18.41	Tethys	Sh.	I.	-19.2	10.8	22/08/09	18.41.22	Rhea	Sh.	I.	3.4	-7.8	
09/08/09	7.53.28	Tethys	Tr.	E.	8.7	39.2	22/08/09	21.09.50	Dione	Occ.	D.	-23.1	-29.3	
09/08/09	8.15.56	Rhea	Tr.	E.	12.9	43.2	22/08/09	21.59.58	Rhea	Tr.	E.	-30.6	-33.8	
09/08/09	8.16.31	Tethys	Sh.	E.	13.0	43.3	22/08/09	22.38.52	Rhea	Sh.	E.	-35.5	-35.9	
09/08/09	8.23.20	Dione	Ec.	R.	14.2	44.5	23/08/09	0.54.32	Dione	Ec.	R.	-42.8	-31.9	
09/08/09	9.15.00	Rhea	Sh.	E.	23.7	52.9	23/08/09	8.54.59	Tethys	Occ.	D.	28.4	46.8	
10/08/09	3.34.59	Tethys	Occ.	D.	-33.9	-7.6	23/08/09	12.08.50	Tethys	Ec.	R.	52.5	57.1	
10/08/09	6.56.05	Tethys	Ec.	R.	-0.7	28.6	24/08/09	5.57.12	Dione	Tr.	I.	-3.4	15.3	
10/08/09	13.16.24	Dione	Tr.	I.	53.6	53.1	24/08/09	6.18.56	Dione	Sh.	I.	0.8	19.4	
10/08/09	13.47.41	Dione	Sh.	I.	53.2	48.2	24/08/09	7.35.01	Tethys	Tr.	I.	14.6	33.2	
10/08/09	16.35.08	Dione	Tr.	E.	34.0	18.0	24/08/09	7.50.44	Tethys	Sh.	I.	17.5	36.0	
10/08/09	17.09.10	Dione	Sh.	E.	28.2	11.8	24/08/09	9.18.11	Dione	Tr.	E.	32.9	49.9	
10/08/09	23.43.38	Titan	Occ.	D.	-37.4	-32.4	24/08/09	9.40.20	Dione	Sh.	E.	36.5	52.8	
11/08/09	2.14.58	Tethys	Tr.	I.	-40.9	-19.7	24/08/09	10.33.32	Tethys	Tr.	E.	44.3	57.7	
11/08/09	2.37.43	Tethys	Sh.	I.	-39.3	-16.5	24/08/09	10.48.14	Tethys	Sh.	E.	46.1	58.5	
11/08/09	5.13.28	Tethys	Tr.	E.	-19.0	9.5	25/08/09	0.20.23	Rhea	Occ.	D.	-43.0	-35.1	
11/08/09	5.35.30	Tethys	Sh.	E.	-15.3	13.5	25/08/09	4.53.20	Rhea	Ec.	R.	-14.6	3.5	
11/08/09	8.46.19	Titan	Ec.	R.	19.7	48.0	25/08/09	6.15.02	Tethys	Occ.	D.	0.7	18.5	
11/08/09	10.41.18	Rhea	Occ.	D.	39.4	62.1	25/08/09	9.27.46	Tethys	Ec.	R.	35.0	51.0	
11/08/09	15.29.31	Rhea	Ec.	R.	43.5	30.0	25/08/09	14.54.08	Dione	Occ.	D.	41.1	32.8	
11/08/09	22.13.12	Dione	Occ.	D.	-26.5	-31.1	25/08/09	18.36.43	Dione	Ec.	R.	2.3	-7.9	
12/08/09	0.54.56	Tethys	Occ.	D.	-42.2	-28.8	26/08/09	4.55.04	Tethys	Tr.	I.	-13.7	6.7	
12/08/09	2.05.36	Dione	Ec.	R.	-41.2	-21.1	26/08/09	5.09.43	Tethys	Sh.	I.	-11.1	6.3	
12/08/09	4.15.04	Tethys	Ec.	R.	-27.7	-0.5	26/08/09	7.53.32	Tethys	Tr.	E.	19.2	36.1	
12/08/09	23.34.55	Tethys	Tr.	I.	-37.4	-33.2	26/08/09	8.07.10	Tethys	Sh.	E.	21.7	38.4	
12/08/09	23.56.44	Tethys	Sh.	I.	-39.3	-32.6	26/08/09	23.41.31	Dione	Tr.	I.	-42.1	-37.5	
13/08/09	2.33.29	Tethys	Tr.	E.	-39.2	-17.6	26/08/09	23.49.50	Titan	Occ.	D.	-42.5	-37.3	
13/08/09	2.54.29	Tethys	Sh.	E.	-37.3	-14.5	27/08/09	0.01.09	Dione	Sh.	I.	-42.8	-36.8	
13/08/09	7.00.26	Dione	Tr.	I.	1.6	28.9	27/08/09	3.02.46	Dione	Tr.	E.	-31.0	-16.2	
13/08/09	7.29.57	Dione	Sh.	I.	6.9	34.3	27/08/09	3.22.31	Dione	Sh.	E.	-28.2	-13.0	
13/08/09	10.19.45	Dione	Tr.	E.	37.1	59.9	27/08/09	3.35.06	Tethys	Occ.	D.	-26.3	-10.9	
13/08/09	10.51.26	Dione	Sh.	E.	41.9	62.0	27/08/09	6.37.20	Rhea	Tr.	I.	5.8	22.2	
13/08/09	16.57.48	Rhea	Tr.	I.	28.3	13.2	27/08/09	6.46.42	Tethys	Ec.	R.	7.5	23.9	
13/08/09	17.45.23	Rhea	Sh.	I.	19.7	4.6	27/08/09	7.09.19	Rhea	Sh.	I.	11.7	28.1	
13/08/09	20.50.39	Rhea	Tr.	E.	-14.3	-24.3	27/08/09	8.00.25	Titan	Ec.	R.	21.0	37.1	
13/08/09	21.43.01	Rhea	Sh.	E.	-23.0	-29.6	27/08/09	10.34.30	Rhea	Tr.	E.	45.6	56.8	
13/08/09	22.14.54	Tethys	Occ.	D.	-27.9	-31.8	27/08/09	11.06.43	Rhea	Sh.	E.	49.1	57.9	
14/08/09	1.34.03	Tethys	Ec.	R.	-42.3	-25.4	28/08/09	2.15.09	Tethys	Tr.	I.	-36.6	-23.7	
14/08/09	15.57.16	Dione	Occ.	D.	37.8	24.1	28/08/09	2.28.41	Tethys	Sh.	I.	-35.0	-21.7	
14/08/09	19.47.52	Dione	Ec.	R.	-3.4	-16.2	28/08/09	5.13.32	Tethys	Tr.	E.	-9.3	6.6	
14/08/09	20.54.54	Tethys	Tr.	I.	-15.7	-25.1	28/08/09	5.26.05	Tethys	Sh.	E.	-7.0	8.9	
14/08/09	21.15.45	Tethys	Sh.	I.	-19.2	-27.4	28/08/09	8.38.29	Dione	Occ.	D.	28.4	43.1	
14/08/09	23.53.29	Tethys	Tr.	E.	-39.7	-33.3	28/08/09	12.18.53	Dione	Ec.	R.	52.8	54.5	
15/08/09	0.13.28	Tethys	Sh.	E.	-41.0	-32.4	29/08/09	0.55.11	Tethys	Occ.	D.	-42.5	-33.6	
15/08/09	19.34.54	Tethys	Occ.	D.	-1.2	-14.5	29/08/09	4.05.37	Tethys	Ec.	R.	-20.4	-6.0	
15/08/09	22.53.01	Tethys	Ec.	R.	-34.0	-34.0	29/08/09	12.54.05	Rhea	Occ.	D.	51.8	50.4	
15/08/09	23.13.58	Rhea	Occ.	D.	-36.4	-34.3	29/08/09	17.21.10	Rhea	Ec.	R.	13.4	4.7	
16/08/09	0.44.32	Dione	Tr.	I.	-42.4	-30.7	29/08/09	17.25.54	Dione	Tr.	I.	12.5	3.9	
16/08/09	1.12.13	Dione	Sh.	I.	-42.6	-28.2	29/08/09	17.43.21	Dione	Sh.	I.	9.3	0.9	
16/08/09	3.57.31	Rhea	Ec.	R.	-28.3	-4.9	29/08/09	20.47.19	Dione	Tr.	E.	-23.7	-29.1	
16/08/09	4.04.22	Dione	Tr.	E.	-27.3	-3.4	29/08/09	21.04.41	Dione	Sh.	E.	-26.4	-31.1	
16/08/09	4.33.41	Dione	Sh.	E.	-22.8	1.7	29/08/09	23.35.14	Tethys	Tr.	I.	-42.4	-38.7	
16/08/09	18.14.54	Tethys	Tr.	I.	12.3	-0.8	29/08/09	23.47.39	Tethys	Sh.	I.	-42.9	-38.4	
16/08/09	18.34.46	Tethys	Sh.	I.	8.6	-5.0	30/08/09	2.33.32	Tethys	Tr.	E.	-33.6	-21.5	
16/08/09	21.13.30	Tethys	Tr.	E.	-20.1	-27.8	30/08/09	2.45.00	Tethys	Sh.	E.	-32.1	-19.7	
16/08/09	21.32.26	Tethys	Sh.	E.	-23.1	-29.6	30/08/09	2.55.16	Tethys	Occ.	D.	-36.4	-37.7	
17/08/09	9.41.24	Dione	Occ.	D.	32.9	54.7	31/08/09	1.24.32	Tethys	Ec.	R.	-40.5	-31.1	
17/08/09	13.30.06	Dione	Ec.	R.	52.6	49.2	31/08/09	2.22.53	Dione	Occ.	D.	-34.6	-23.3	
17/08/09	16.54.54	Tethys	Occ.	D.	26.2	12.8	31/08/09	6.01.03	Dione	Ec.	R.	1.7	14.8	
17/08/09	20.11.59	Tethys	Ec.	R.	-10.1	-20.5	31/08/09	19.11.09	Rhea	Tr.	I.	-8.5	-15.6	
18/08/09	5.30.38	Rhea	Tr.	I.	-12.1	11.5	31/08/09	19.37.15	Rhea	Sh.	I.	-13.1	-19.8	
18/08/09	6.13.23	Rhea	Sh.	I.	-4.2	19.4	31/08/09	20.55.19	Tethys	Tr.	I.	-26.1	-30.7	
18/08/09	9.25.20	Rhea	Tr.	E.	30.8	52.4	31/08/09	21.06.36	Tethys	Sh.	I.	-27.8	-32.1	
18/08/09	10.10.58	Rhea	Sh.	E.	38.3	57.8	31/08/09	23.08.54	Rhea	Tr.	E.	-41.5	-39.7	
18/08/09	15.34.54	Tethys	Tr.	I.	38.9	27.3	31/08/09	23.34.31	Rhea	Sh.	E.	-42.8	-39.5	
18/08/09	15.53.46	Tethys	Sh.	I.	35.9	23.8	31/08/09	23.53.31	Tethys	Tr.	E.	-43.3	-38.8	
18/08/09	18.28.42	Dione	Tr.	I.	8.4	-4.4	01/09/09	0.03.55	Tethys	Sh.	E.	-43.4	-38.3	
18/08/09	18.33.31	Tethys	Tr.	E.	7.5	-5.3	01/09/09	11.10.19	Dione	Tr.	I.	50.6	56.1	
18/08/09	18.51.23	Tethys	Sh.	E.	4.2	-8.4	01/09/09	11.25.32	Dione	Sh.	I.	51.5	56.0	
18/08/09	18.54.28	Dione	Sh.	I.	3.7	-8.9	01/09/09	14.31.51	Dione	Tr.	E.	40.5	34.6	
18/08/09	21.48.59	Dione	Tr.	E.	-26.8	-31.7	01/09/09	14.46.50	Dione	Sh.	E.	38.2	32.0	
18/08/09	22.10.27	Titan	Tr.	I.	-30.0	-33.2	01/09/09	19.35.22	Tethys	Occ.	D.	-13.4	-19.8	
18/08/09	22.15.55	Dione	Sh.	E.	-30.7	-33.5	01/09/09	22.43.26	Tethys	Ec.	R.	-39.9	-39.6	
19/08/09	0.24.14	Titan	Sh.	I.	-42.3	-33.0	02/09/09	18.15.26	Tethys	Tr.	I.	0.9	-6.6	
19/08/09	3.40.34	Titan	Tr.	E.	-29.4	-8.4	02/09/09	18.25.33	Tethys	Sh.	I.	-0.7	-8.4	
19/08/09	6.15.29	Titan	Sh.	E.	-2.9	19.6	02/09/09	20.07.20	Dione	Occ.	D.	-19.5	-25.0	
19/08/09	14.14.54	Tethys	Occ.	D.	48.8	41.3	02/09/09	21.13.29	Tethys	Tr.	E.	-29.9	-33.6	
19/08/09	17.30.56	Tethys	Ec.	R.	18.3	5.7	02/09/09	21.22.49	Tethys	Sh.	E.	-31.2	-34.5	
20/08/09	3.25.35	Dione	Occ.	D.	-31.0	-11.1	02/09/09	23.43.11	Dione	Ec.	R.	-43.3	-39.9	
20/08/09	7.12.19	Dione	Ec.	R.	7.9	29.9	03/09/09	1.28.05	Rhea	Occ.	D.	-39.4	-31.5	
20/08/09	11.47.00	Rhea	Occ.	D.	50.7	59.5	03/09/09	5.48.56	Rhea	Ec.	R.	1.3	12.0	
20/08/09	12.54.55	Tethys	Tr.	I.	53.1	53.2	03/09/09	16.55.29	Tethys	Occ.	D.	14.7	7.9	
20/08/09	13.12.46	Tethys	Sh.	I.	52.8	50.8	03/09/09	20.02.20	Tethys	Ec.	R.	-19.3	-24.6	
20/08/09	15.53.31	Tethys	Tr.	E.	34.8	23.4	03/09/09	22.23.28	Titan	Tr.	I.	-38.8	-39.6	
20/08/09	16.10.21	Tethys	Sh.	E.	32.0	20.2	03/09/09	23.37.23	Titan	Tr.	I.	-43.3	-40.4	
20/08/09	16.25.27	Rhea	Ec.	R.	29.4	17.4	04/09/09	4.16.19	Titan	Tr.	E.	-15.3	-5.3	
21/08/09	11.34.56	Tethys	Occ.	D.	50.0	59.7	04/09/09	4.54.47	Dione	Tr.	I.	-8.5	2.1	
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04/09/09	5.25.24	Titan	Sh.	E.	-2.2	7.5	18/09/09	0.58.21	Dione	Tr.	E.	-37.9	-39.3	
04/09/09	8.16.22	Dione	Tr.	E.	28.5	38.0	18/09/09	0.59.22	Dione	Sh.	E.	-37.8	-39.2	
04/09/09	8.28.58	Dione	Sh.	E.	30.7	40.0	18/09/09	19.36.22	Tethys	Ec.	D.	-24.2	-25.8	
04/09/09	15.35.32	Tethys	Tr.	I.	28.4	22.3	18/09/09	21.28.43	Rhea	Sh.	I.	-39.3	-41.2	
04/09/09	15.44.30	Tethys	Sh.	I.	26.9	20.7	18/09/09	21.29.09	Rhea	Tr.	I.	-39.3	-41.3	
04/09/09	18.33.27	Tethys	Tr.	E.	-4.0	-10.4	18/09/09	22.33.15	Tethys	Ec.	R.	-43.7	-45.9	
04/09/09	18.41.42	Tethys	Sh.	E.	-5.7	-11.8	19/09/09	1.24.36	Rhea	Tr.	E.	-34.4	-36.4	
05/09/09	7.45.16	Rhea	Tr.	I.	23.6	32.6	19/09/09	1.25.06	Rhea	Sh.	E.	-34.3	-36.4	
05/09/09	8.05.09	Rhea	Sh.	I.	27.2	36.0	19/09/09	6.34.17	Dione	Ec.	D.	19.2	17.3	
05/09/09	11.43.08	Rhea	Tr.	E.	52.4	53.9	19/09/09	9.55.44	Dione	Occ.	R.	48.8	46.4	
05/09/09	12.02.15	Rhea	Sh.	E.	52.3	52.9	19/09/09	18.15.49	Tethys	Sh.	I.	-11.0	-12.2	
05/09/09	13.51.50	Dione	Occ.	D.	43.9	39.8	19/09/09	18.16.39	Tethys	Tr.	I.	-11.2	-12.3	
05/09/09	14.15.36	Tethys	Occ.	D.	40.7	36.0	19/09/09	21.12.36	Tethys	Sh.	E.	-38.0	-39.9	
05/09/09	17.21.13	Tethys	Ec.	R.	8.7	2.7	19/09/09	21.12.49	Tethys	Tr.	E.	-38.0	-39.9	
05/09/09	17.25.18	Dione	Ec.	R.	7.9	2.0	19/09/09	22.51.33	Titan	Sh.	I.	-44.3	-46.8	
06/09/09	12.55.40	Tethys	Tr.	I.	49.5	47.3	19/09/09	23.01.52	Titan	Tr.	I.	-44.3	-46.9	
06/09/09	13.03.26	Tethys	Sh.	I.	48.8	46.4	20/09/09	4.33.04	Titan	Tr.	E.	-2.1	-5.3	
06/09/09	15.53.25	Tethys	Tr.	E.	24.0	18.5	20/09/09	4.33.12	Titan	Sh.	E.	-2.1	-5.3	
06/09/09	16.00.36	Tethys	Sh.	E.	22.7	17.1	20/09/09	15.20.31	Dione	Sh.	I.	20.7	19.8	
06/09/09	22.39.17	Dione	Tr.	I.	-41.2	-41.4	20/09/09	15.22.19	Dione	Tr.	I.	20.4	19.5	
06/09/09	22.49.53	Dione	Sh.	I.	-41.9	-41.7	20/09/09	16.55.15	Tethys	Ec.	D.	3.4	2.7	
07/09/09	2.00.50	Dione	Tr.	E.	-34.6	-28.2	20/09/09	18.41.24	Dione	Sh.	E.	-16.2	-17.1	
07/09/09	2.11.05	Dione	Sh.	E.	-33.3	-26.8	20/09/09	18.42.36	Dione	Tr.	E.	-16.4	-17.3	
07/09/09	11.35.43	Tethys	Occ.	D.	52.3	53.5	20/09/09	19.52.48	Tethys	Occ.	R.	-27.9	-29.2	
07/09/09	14.02.22	Rhea	Occ.	D.	41.5	37.5	21/09/09	3.42.38	Rhea	Ec.	D.	-11.4	-14.8	
07/09/09	14.40.06	Tethys	Ec.	R.	35.8	31.2	21/09/09	7.41.53	Rhea	Occ.	R.	32.1	28.5	
07/09/09	18.16.39	Rhea	Ec.	R.	-2.6	-8.4	21/09/09	15.34.42	Tethys	Sh.	I.	17.5	17.0	
08/09/09	7.36.21	Dione	Occ.	D.	23.8	30.5	21/09/09	15.36.48	Tethys	Tr.	I.	17.1	16.6	
08/09/09	10.15.47	Tethys	Tr.	I.	47.7	51.7	21/09/09	18.31.25	Tethys	Sh.	E.	-15.1	-15.6	
08/09/09	10.22.22	Tethys	Sh.	I.	48.3	52.1	21/09/09	18.32.40	Tethys	Tr.	E.	-15.3	-15.9	
08/09/09	11.07.24	Dione	Ec.	R.	51.5	53.6	22/09/09	0.16.22	Dione	Ec.	D.	-40.8	-44.7	
08/09/09	13.13.22	Tethys	Tr.	E.	47.1	44.3	22/09/09	3.39.58	Dione	Occ.	R.	-11.3	-15.5	
08/09/09	13.19.28	Tethys	Sh.	E.	46.4	43.5	22/09/09	14.14.08	Tethys	Ec.	D.	31.0	30.3	
09/09/09	8.55.51	Tethys	Occ.	D.	37.7	42.8	22/09/09	17.12.40	Tethys	Occ.	R.	-0.7	-0.7	
09/09/09	11.58.59	Tethys	Ec.	R.	51.9	51.5	23/09/09	9.02.37	Dione	Sh.	I.	44.7	39.7	
09/09/09	16.23.50	Dione	Tr.	I.	16.5	11.9	23/09/09	9.06.59	Dione	Tr.	I.	45.2	40.2	
09/09/09	16.32.02	Dione	Sh.	I.	15.0	10.4	23/09/09	9.56.31	Rhea	Sh.	I.	49.7	45.1	
09/09/09	19.45.16	Dione	Tr.	E.	-20.2	-24.1	23/09/09	10.04.12	Rhea	Tr.	I.	50.2	45.7	
09/09/09	19.53.11	Dione	Sh.	E.	-21.5	-25.3	23/09/09	12.23.24	Dione	Sh.	E.	46.2	44.2	
09/09/09	20.19.39	Rhea	Tr.	I.	-25.8	-29.3	23/09/09	12.26.49	Dione	Tr.	E.	45.8	43.9	
09/09/09	20.33.02	Rhea	Sh.	I.	-27.8	-31.1	23/09/09	12.53.35	Tethys	Sh.	I.	42.6	41.1	
10/09/09	0.17.11	Rhea	Tr.	E.	-42.9	-40.6	23/09/09	12.56.58	Tethys	Tr.	I.	42.1	40.7	
10/09/09	0.29.55	Rhea	Sh.	E.	-42.3	-39.6	23/09/09	13.52.36	Rhea	Sh.	E.	33.9	33.3	
10/09/09	7.35.55	Tethys	Tr.	I.	24.9	30.0	23/09/09	13.57.55	Rhea	Tr.	E.	33.1	32.5	
10/09/09	7.41.18	Tethys	Sh.	I.	25.9	30.9	23/09/09	15.50.14	Tethys	Sh.	E.	13.3	13.5	
10/09/09	10.33.18	Tethys	Tr.	E.	49.7	52.0	23/09/09	15.52.31	Tethys	Tr.	E.	12.9	13.1	
10/09/09	10.38.21	Tethys	Sh.	E.	50.1	52.2	24/09/09	11.33.00	Tethys	Ec.	D.	50.1	46.9	
11/09/09	1.20.55	Dione	Occ.	D.	-37.8	-34.6	24/09/09	14.32.30	Tethys	Occ.	R.	26.6	26.7	
11/09/09	4.49.29	Dione	Ec.	R.	-5.1	0.0	24/09/09	17.58.27	Dione	Ec.	D.	-11.2	-10.7	
11/09/09	6.15.59	Tethys	Occ.	D.	11.0	15.5	24/09/09	21.24.09	Dione	Occ.	R.	-41.0	-43.1	
11/09/09	9.17.51	Tethys	Ec.	R.	41.8	45.1	25/09/09	10.12.27	Tethys	Sh.	I.	50.8	45.5	
12/09/09	0.28.27	Titan	Occ.	D.	-42.0	-40.4	25/09/09	10.17.07	Tethys	Tr.	I.	51.0	45.8	
12/09/09	2.36.55	Rhea	Occ.	D.	-27.3	-24.0	25/09/09	13.09.03	Tethys	Sh.	E.	39.4	38.5	
12/09/09	4.56.04	Tethys	Tr.	I.	-2.9	0.9	25/09/09	13.12.20	Tethys	Tr.	E.	39.0	38.1	
12/09/09	5.00.13	Tethys	Sh.	I.	-1.9	1.6	25/09/09	16.10.26	Rhea	Ec.	D.	8.2	9.2	
12/09/09	6.44.18	Rhea	Ec.	R.	16.8	20.5	25/09/09	20.15.04	Rhea	Occ.	R.	-33.8	-34.4	
12/09/09	7.12.08	Titan	Ec.	R.	21.8	25.4	26/09/09	2.44.41	Dione	Sh.	I.	-18.7	-26.0	
12/09/09	7.53.14	Tethys	Tr.	E.	29.1	32.4	26/09/09	2.51.41	Dione	Tr.	I.	-17.5	-24.8	
12/09/09	7.57.13	Tethys	Sh.	E.	29.7	33.1	26/09/09	6.05.24	Dione	Sh.	E.	18.1	10.6	
12/09/09	10.08.24	Dione	Tr.	I.	48.1	49.8	26/09/09	6.10.58	Dione	Tr.	E.	19.1	11.6	
12/09/09	10.14.11	Dione	Sh.	I.	48.6	50.2	26/09/09	8.51.52	Tethys	Ec.	D.	44.5	37.5	
12/09/09	13.29.40	Dione	Tr.	E.	43.3	40.6	26/09/09	11.52.19	Tethys	Occ.	R.	48.1	45.2	
12/09/09	13.35.16	Dione	Sh.	E.	42.6	39.8	27/09/09	7.31.19	Tethys	Sh.	I.	33.5	25.4	
13/09/09	3.36.08	Tethys	Occ.	D.	-17.1	-14.3	27/09/09	7.37.16	Tethys	Tr.	I.	34.5	26.3	
13/09/09	6.36.43	Tethys	Ec.	R.	16.0	18.9	27/09/09	10.27.51	Tethys	Sh.	E.	51.3	45.5	
13/09/09	19.05.31	Dione	Occ.	D.	-15.9	-18.9	27/09/09	10.32.09	Tethys	Tr.	E.	51.3	45.7	
13/09/09	22.31.33	Dione	Ec.	R.	-42.6	-43.8	27/09/09	11.40.30	Dione	Ec.	D.	48.7	45.4	
14/09/09	2.16.12	Tethys	Tr.	I.	-29.5	-27.7	27/09/09	15.08.16	Dione	Occ.	R.	18.3	19.6	
14/09/09	2.19.08	Tethys	Sh.	I.	-29.0	-27.3	27/09/09	22.24.18	Rhea	Sh.	I.	-44.7	-49.1	
14/09/09	5.13.09	Tethys	Tr.	E.	1.4	3.5	27/09/09	22.39.25	Rhea	Tr.	I.	-44.7	-49.6	
14/09/09	5.16.04	Tethys	Sh.	E.	1.9	4.0	28/09/09	0.25.48	Titan	Ec.	D.	-38.1	-45.9	
14/09/09	8.54.17	Rhea	Tr.	I.	39.8	41.2	28/09/09	2.20.02	Rhea	Sh.	E.	-21.7	-30.5	
14/09/09	9.00.53	Rhea	Sh.	I.	40.8	42.1	28/09/09	2.30.56	Rhea	Tr.	E.	-19.9	-28.8	
14/09/09	12.51.01	Rhea	Tr.	E.	47.0	44.9	28/09/09	6.10.44	Tethys	Ec.	D.	20.3	11.2	
14/09/09	12.57.32	Rhea	Sh.	E.	46.3	44.1	28/09/09	6.49.00	Titan	Occ.	R.	27.0	18.0	
15/09/09	0.56.17	Tethys	Occ.	D.	-39.0	-38.7	28/09/09	9.12.07	Tethys	Occ.	R.	47.3	39.3	
15/09/09	3.53.01	Dione	Tr.	I.	-13.0	-11.7	28/09/09	20.26.45	Dione	Sh.	I.	-36.7	-37.2	
15/09/09	3.55.34	Tethys	Ec.	R.	-12.6	-11.2	28/09/09	20.36.23	Dione	Tr.	I.	-37.8	-38.6	
15/09/09	3.56.18	Dione	Sh.	I.	-12.5	-11.1	28/09/09	23.47.22	Dione	Sh.	E.	-41.5	-49.1	
15/09/09	7.14.02	Dione	Tr.	E.	23.9	25.1	28/09/09	23.55.03	Dione	Tr.	E.	-40.9	-48.7	
15/09/09	7.17.20	Dione	Sh.	E.	24.5	25.7	29/09/09	4.50.10	Tethys	Sh.	I.	6.1	-3.7	
15/09/09	23.36.21	Tethys	Tr.	I.	-43.9	-44.8	29/09/09	4.57.24	Tethys	Tr.	I.	7.4	-1.9	
15/09/09	23.38.02	Tethys	Sh.	I.	-43.9	-44.8	29/09/09	7.46.39	Tethys	Sh.	E.	36.9	27.3	
16/09/09	2.33.03	Tethys	Tr.	E.	-25.9	-25.6	29/09/09	7.51.56	Tethys	Tr.	E.	37.7	28.1	
16/09/09	2.34.55	Tethys	Sh.	E.	-25.6	-25.3	30/09/09	3.29.35	Tethys	Ec.	D.	-8.4	-19.0	
16/09/09	12.50.08	Dione	Occ.	D.	46.2	44.2	30/09/09	4.38.13	Rhea	Ec.	D.	4.6	-6.4	
16/09/09	15.11.42	Rhea	Occ.	D.	24.9	22.7	30/09/09	5.22.33	Dione	Ec.	D.	12.7	2.2	
16/09/09	16.13.36	Dione	Ec.	R.	13.7	11.5	30/09/09	6.31.54	Tethys	Occ.	R.	25.2	14.5	
16/09/09	19.11.54	Rhea	Ec.	R.	-18.9	-21.0	30/09/09	8.47.58	Rhea	Occ.	R.	45.5	35.8	
16/09/09	22.16.26	Tethys	Occ.	D.	-42.4	-44.3	30/09/09	8.52.20	Dione	Occ.	R.	46.0	36.4	
17/09/09	1.14.25	Tethys	Ec.	R.	-36.4	-37.2	01/10/09	2.09.01	Tethys	Sh.	I.	-21.9	-33.1	
17/09/09	20.56.30	Tethys	Tr.	I.	-35.2	-37.2	01/10/09	2.17.33	Tethys	Tr.	I.	-20.5	-31.7	
17/09/09	20.56.56	Tethys	Sh.	I.	-35.3	-37.2	01/10/09	5.05.26	Tethys	Sh.	E.	10.1	-0.8	
17/09/09	21.37.39	Dione	Tr.	I.	-39.7	-41.7	01/10/09	5.11.43	Tethys	Tr.	E.	11.3	0.2	
17/09/09	21.38.25	Dione	Sh.	I.	-39.8	-41.8	01/10/09	14.08.48	Dione	Sh.	I.	26.3	28.0	
17/09/09	23.52.56	Tethys	Tr.	E.	-43.1	-44.9	01/10/09	14.21.06	Dione	Tr.	I.	24.1	26.0	
17/09/09	23.53.46	Tethys	Sh.	E.	-43.1	-44.8	01/10/09	17.29.19	Dione	Sh.	E.	-10.6	-	

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
02/10/09	0.48.26	Tethys	Ec.	D.	-33.7	-44.8	15/10/09	10.18.14	Dione	Tr.	E.	49.2	38.6	
02/10/09	3.51.39	Tethys	Occ.	R.	-2.5	-15.4	16/10/09	0.15.09	Rhea	Sh.	I.	-32.1	-52.7	
02/10/09	10.52.03	Rhea	Sh.	I.	50.4	44.2	16/10/09	1.01.18	Rhea	Tr.	I.	-25.0	-47.2	
02/10/09	11.14.45	Rhea	Tr.	I.	49.1	44.2	16/10/09	4.09.13	Rhea	Sh.	E.	9.0	-15.0	
02/10/09	14.47.25	Rhea	Sh.	E.	18.8	21.4	16/10/09	4.39.34	Tethys	Sh.	I.	14.5	-9.4	
02/10/09	15.03.38	Rhea	Tr.	E.	15.8	18.7	16/10/09	4.39.37	Rhea	Tr.	E.	14.5	-9.4	
02/10/09	23.04.35	Dione	Ec.	D.	-43.7	-51.9	16/10/09	4.58.25	Tethys	Tr.	I.	18.0	-5.9	
02/10/09	23.27.51	Tethys	Sh.	I.	-42.1	-51.5	16/10/09	7.35.28	Tethys	Sh.	E.	42.9	21.3	
02/10/09	23.37.41	Tethys	Tr.	I.	-41.3	-51.1	16/10/09	7.49.10	Tethys	Tr.	E.	44.5	23.3	
03/10/09	2.24.13	Tethys	Sh.	E.	-18.2	-31.0	16/10/09	15.34.35	Dione	Ec.	D.	0.9	9.0	
03/10/09	2.31.28	Tethys	Tr.	E.	-17.0	-29.8	16/10/09	19.15.18	Dione	Occ.	R.	-36.4	-31.5	
03/10/09	2.36.20	Dione	Occ.	R.	-16.1	-29.0	17/10/09	3.18.57	Tethys	Ec.	D.	0.6	-24.5	
03/10/09	22.07.16	Tethys	Ec.	D.	-45.0	-50.5	17/10/09	6.29.02	Tethys	Occ.	R.	34.0	10.3	
04/10/09	1.11.24	Tethys	Occ.	R.	-29.5	-42.4	18/10/09	0.20.50	Dione	Sh.	I.	-30.3	-52.8	
04/10/09	7.50.50	Dione	Sh.	I.	39.9	26.7	18/10/09	0.49.14	Dione	Tr.	I.	-25.9	-49.4	
04/10/09	8.05.48	Dione	Tr.	I.	41.9	28.9	18/10/09	1.58.21	Tethys	Sh.	I.	-14.1	-38.9	
04/10/09	11.11.15	Dione	Sh.	E.	48.8	43.5	18/10/09	2.18.28	Tethys	Tr.	I.	-10.5	-35.5	
04/10/09	11.23.03	Dione	Tr.	E.	47.8	43.2	18/10/09	3.40.40	Dione	Sh.	E.	5.0	-20.7	
04/10/09	17.05.58	Rhea	Ec.	D.	-8.3	-3.9	18/10/09	4.01.50	Dione	Tr.	E.	8.8	-16.8	
04/10/09	20.46.41	Tethys	Sh.	I.	-41.2	-42.2	18/10/09	4.54.11	Tethys	Sh.	E.	18.4	-7.1	
04/10/09	20.57.49	Tethys	Tr.	I.	-42.2	-43.7	18/10/09	5.08.45	Tethys	Tr.	E.	21.0	-4.2	
04/10/09	21.20.31	Rhea	Occ.	R.	-43.7	-46.5	18/10/09	6.29.03	Rhea	Ec.	D.	34.5	10.1	
04/10/09	23.42.59	Tethys	Sh.	E.	-40.3	-51.5	18/10/09	10.56.00	Rhea	Occ.	R.	45.2	38.3	
04/10/09	23.51.12	Tethys	Tr.	E.	-39.5	-51.0	19/10/09	0.37.44	Tethys	Ec.	D.	-27.2	-51.1	
05/10/09	16.46.37	Dione	Ec.	D.	-5.4	-0.2	19/10/09	3.48.36	Tethys	Occ.	R.	7.0	-19.4	
05/10/09	19.26.06	Tethys	Ec.	D.	-32.3	-29.9	19/10/09	9.16.33	Dione	Ec.	D.	50.3	33.1	
05/10/09	20.20.16	Dione	Occ.	R.	-39.1	-38.8	19/10/09	12.58.52	Dione	Occ.	R.	26.9	30.9	
05/10/09	22.06.51	Titan	Sh.	I.	-45.1	-51.2	19/10/09	23.17.08	Tethys	Sh.	I.	-38.1	-58.0	
05/10/09	22.31.07	Tethys	Occ.	R.	-44.7	-52.5	19/10/09	23.38.31	Tethys	Tr.	I.	-35.4	-57.0	
06/10/09	0.06.50	Titan	Tr.	I.	-37.4	-50.2	20/10/09	2.12.54	Tethys	Sh.	E.	-10.3	-36.9	
06/10/09	3.38.48	Titan	Sh.	E.	-2.4	-18.6	20/10/09	2.28.18	Tethys	Tr.	E.	-7.5	-34.2	
06/10/09	4.22.01	Titan	Tr.	E.	5.2	-10.6	20/10/09	12.42.48	Rhea	Sh.	I.	29.0	32.2	
06/10/09	18.05.31	Tethys	Sh.	I.	-20.1	-15.8	20/10/09	13.36.51	Rhea	Tr.	I.	19.6	26.0	
06/10/09	18.17.56	Tethys	Tr.	I.	-22.2	-18.1	20/10/09	16.36.22	Rhea	Sh.	E.	-13.6	-2.9	
06/10/09	21.01.45	Tethys	Sh.	E.	-43.0	-45.0	20/10/09	17.10.51	Rhea	Tr.	E.	-19.6	-9.7	
06/10/09	21.10.55	Tethys	Tr.	E.	-43.6	-46.1	20/10/09	18.02.48	Dione	Sh.	I.	-28.2	-19.3	
06/10/09	23.19.46	Rhea	Sh.	I.	-41.8	-53.2	20/10/09	18.33.52	Dione	Tr.	I.	-32.8	-25.1	
06/10/09	23.50.13	Rhea	Tr.	I.	-38.9	-51.8	20/10/09	21.22.30	Dione	Sh.	E.	-45.7	-52.5	
07/10/09	1.32.52	Dione	Sh.	I.	-24.7	-40.2	20/10/09	21.45.22	Dione	Tr.	E.	-45.2	-55.0	
07/10/09	1.50.31	Dione	Tr.	I.	-21.7	-37.5	20/10/09	21.56.31	Tethys	Ec.	D.	-44.7	-56.0	
07/10/09	3.14.45	Rhea	Sh.	E.	-6.9	-23.1	21/10/09	1.08.09	Tethys	Occ.	R.	-21.1	-47.5	
07/10/09	3.36.00	Rhea	Tr.	E.	-2.3	-19.3	21/10/09	20.35.54	Tethys	Sh.	I.	-45.1	-46.4	
07/10/09	4.53.10	Dione	Sh.	E.	11.5	-4.9	21/10/09	20.58.33	Tethys	Tr.	I.	-45.7	-49.7	
07/10/09	5.06.57	Dione	Tr.	E.	14.1	-1.7	21/10/09	21.23.25	Titan	Sh.	I.	-45.7	-52.9	
07/10/09	16.44.55	Tethys	Ec.	D.	-6.5	-0.4	21/10/09	23.31.36	Tethys	Sh.	E.	-35.4	-58.1	
07/10/09	19.50.50	Tethys	Occ.	R.	-36.5	-34.7	21/10/09	23.47.50	Tethys	Tr.	E.	-33.2	-57.1	
08/10/09	10.28.38	Dione	Ec.	D.	50.2	41.5	22/10/09	2.42.03	Titan	Sh.	E.	-3.3	-32.2	
08/10/09	14.04.08	Dione	Occ.	R.	22.6	26.2	22/10/09	2.58.30	Dione	Ec.	D.	0.0	-29.2	
08/10/09	15.24.20	Tethys	Sh.	I.	8.0	13.2	22/10/09	6.42.21	Dione	Occ.	R.	38.4	11.4	
08/10/09	15.38.03	Tethys	Tr.	I.	5.5	10.8	22/10/09	18.56.42	Rhea	Ec.	D.	-36.9	-29.8	
08/10/09	18.20.30	Tethys	Sh.	E.	-23.9	-19.2	22/10/09	19.15.17	Tethys	Ec.	D.	-39.1	-33.1	
08/10/09	18.30.36	Tethys	Tr.	E.	-25.5	-21.0	22/10/09	22.27.40	Tethys	Occ.	R.	-42.2	-58.7	
09/10/09	5.33.41	Rhea	Ec.	D.	20.1	2.4	22/10/09	23.27.03	Rhea	Occ.	R.	-35.6	-58.7	
09/10/09	9.52.43	Rhea	Occ.	R.	50.8	39.3	23/10/09	11.44.45	Dione	Sh.	I.	36.4	35.3	
09/10/09	14.03.45	Tethys	Ec.	D.	22.0	25.9	23/10/09	12.18.27	Dione	Tr.	I.	31.2	33.2	
09/10/09	17.10.31	Tethys	Occ.	R.	-12.5	-6.5	23/10/09	15.04.19	Dione	Sh.	E.	1.7	12.0	
09/10/09	19.14.52	Dione	Sh.	I.	-32.8	-29.3	23/10/09	15.28.49	Dione	Tr.	E.	-2.7	8.0	
09/10/09	19.35.13	Dione	Tr.	I.	-35.5	-32.8	23/10/09	17.54.41	Tethys	Sh.	I.	-28.7	-18.6	
09/10/09	22.35.04	Dione	Sh.	E.	-44.2	-54.2	23/10/09	18.18.33	Tethys	Tr.	I.	-32.3	-23.0	
09/10/09	22.50.47	Dione	Tr.	E.	-43.3	-54.6	23/10/09	20.50.18	Tethys	Sh.	E.	-45.8	-49.1	
10/10/09	12.43.09	Tethys	Sh.	I.	34.9	35.7	23/10/09	21.07.21	Tethys	Tr.	E.	-45.9	-51.5	
10/10/09	12.58.10	Tethys	Tr.	I.	32.5	34.1	24/10/09	21.07.21	Tethys	Tr.	E.	-45.9	-51.5	
10/10/09	15.39.15	Tethys	Sh.	E.	3.9	10.0	24/10/09	16.34.03	Tethys	Ec.	D.	-15.8	-3.7	
10/10/09	15.50.17	Tethys	Tr.	E.	2.0	8.0	24/10/09	19.47.10	Tethys	Occ.	R.	-43.0	-39.3	
11/10/09	4.10.38	Dione	Ec.	D.	6.2	-13.7	24/10/09	20.40.27	Dione	Ec.	D.	-45.7	-48.0	
11/10/09	7.47.55	Dione	Occ.	R.	42.5	24.5	25/10/09	0.25.46	Dione	Occ.	R.	-25.9	-54.3	
11/10/09	11.22.33	Tethys	Ec.	D.	45.2	40.5	25/10/09	1.10.26	Rhea	Sh.	I.	-18.4	-48.2	
11/10/09	11.47.28	Rhea	Sh.	I.	42.3	39.6	25/10/09	2.12.22	Rhea	Tr.	I.	-7.3	-38.1	
11/10/09	12.25.44	Rhea	Tr.	I.	37.0	37.0	25/10/09	5.03.28	Rhea	Sh.	E.	24.2	-6.8	
11/10/09	14.30.10	Tethys	Occ.	R.	15.9	21.2	25/10/09	5.41.41	Rhea	Tr.	E.	30.7	0.6	
11/10/09	15.42.01	Rhea	Sh.	E.	2.8	9.2	25/10/09	15.13.26	Tethys	Sh.	I.	-0.9	10.0	
11/10/09	16.08.00	Rhea	Tr.	E.	-1.6	4.6	25/10/09	15.38.33	Tethys	Tr.	I.	-6.4	5.8	
12/10/09	10.01.58	Tethys	Sh.	I.	50.4	38.8	25/10/09	18.09.00	Tethys	Sh.	E.	-32.0	-21.8	
12/10/09	10.18.16	Tethys	Tr.	I.	49.9	39.6	25/10/09	18.26.50	Tethys	Tr.	E.	-34.5	-25.1	
12/10/09	12.56.52	Dione	Sh.	I.	31.6	33.6	26/10/09	5.26.41	Dione	Sh.	I.	28.7	-2.1	
12/10/09	12.58.00	Tethys	Sh.	E.	31.4	33.4	26/10/09	6.03.01	Dione	Tr.	I.	34.6	3.9	
12/10/09	13.09.56	Tethys	Tr.	E.	29.4	32.1	26/10/09	8.46.06	Dione	Sh.	E.	50.0	27.9	
12/10/09	13.19.54	Dione	Tr.	I.	27.7	30.9	26/10/09	9.12.12	Dione	Tr.	E.	49.8	30.5	
12/10/09	16.16.57	Dione	Sh.	E.	-4.6	2.8	26/10/09	13.52.49	Tethys	Ec.	D.	12.7	22.0	
12/10/09	16.34.33	Dione	Tr.	E.	-7.9	-0.1	26/10/09	17.06.38	Tethys	Occ.	R.	-22.7	-10.5	
13/10/09	8.41.22	Tethys	Ec.	D.	48.5	31.2	27/10/09	7.24.20	Rhea	Ec.	D.	45.5	16.8	
13/10/09	11.49.49	Tethys	Occ.	R.	41.0	38.7	27/10/09	11.57.41	Rhea	Occ.	R.	32.1	33.3	
13/10/09	18.01.23	Rhea	Ec.	D.	-23.8	-17.1	27/10/09	12.32.12	Tethys	Sh.	I.	26.4	30.8	
13/10/09	21.52.37	Dione	Ec.	D.	-45.3	-53.1	27/10/09	12.58.31	Tethys	Tr.	I.	21.8	28.3	
13/10/09	22.24.33	Rhea	Occ.	R.	-44.2	-55.3	27/10/09	14.22.22	Dione	Ec.	D.	6.6	17.5	
13/10/09	23.46.09	Titan	Ec.	D.	-36.9	-54.5	27/10/09	15.27.41	Tethys	Sh.	E.	-5.7	7.1	
14/10/09	1.31.39	Dione	Occ.	R.	-21.0	-42.2	27/10/09	15.46.18	Tethys	Tr.	E.	-9.2	4.0	
14/10/09	6.09.13	Titan	Occ.	R.	29.2	7.5	27/10/09	18.09.06	Dione	Occ.	R.	-33.1	-22.3	
14/10/09	7.20.46	Tethys	Sh.	I.	40.2	19.5	28/10/09	11.11.34	Tethys	Ec.	D.	38.5	34.7	
14/10/09	7.38.21	Tethys	Tr.	I.	42.5	22.2	28/10/09	14.26.05	Tethys	Occ.	R.	5.2	16.7	
14/10/09	10.16.44	Tethys	Sh.	E.	49.5	38.9	28/10/09	23.08.37	Dione	Sh.	I.	-35.5	-61.3	
14/10/09	10.29.33	Tethys	Tr.	E.	48.8	39.3	28/10/09	23.47.31	Dione	Tr.	I.	-29.9	-59.3	
15/10/09	6.00.09	Tethys	Ec.	D.	28.2	5.7	29/10/09	2.27.53	Dione	Sh.	E.	-1.1	-36.2	
15/10/09	6.38.52	Dione	Sh.	I.	34.5	12.4	29/10/09	2.55.29	Dione	Tr.	E.	3.5	-31.2	
15/10/09	7.04.35	Dione	Tr.	I.	38.4	16.7	29/10/09	9.50.57	Tethys	Sh.	I.	47.2	32.5	
15/10/09	9.09.26	Tethys	Occ.	R.	50.1	33.6	29/10/09	10.18.28	Tethys	Tr.	E.	44.6	33.8	
15/10/09	9.58.49	Dione	Sh.	E.	50.1	37.6	29/10/09	12.46.21	Tethys	Sh.	E.	22.7	28.9	
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Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
29/10/09	14.47.47	Rhea	Tr.	I.	0.8	13.1	12/11/09	13.41.24	Tethys	Ec.	D.	3.3	19.1	
29/10/09	17.30.31	Rhea	Sh.	E.	-28.4	-15.6	12/11/09	17.00.43	Tethys	Occ.	R.	-31.9	-12.7	
29/10/09	18.12.05	Rhea	Tr.	E.	-34.5	-23.3	13/11/09	0.33.44	Dione	Ec.	D.	-13.5	-58.2	
29/10/09	23.08.18	Titan	Ec.	D.	-35.1	-61.6	13/11/09	4.27.18	Dione	Occ.	R.	29.0	-17.3	
30/10/09	4.31.48	Titan	Ec.	R.	21.6	-13.7	13/11/09	12.20.46	Tethys	Sh.	I.	17.3	26.9	
30/10/09	8.04.17	Dione	Ec.	D.	49.1	21.7	13/11/09	12.57.09	Tethys	Tr.	I.	10.7	23.8	
30/10/09	8.30.19	Tethys	Ec.	D.	49.8	24.9	13/11/09	15.15.34	Tethys	Sh.	E.	-15.0	5.5	
30/10/09	11.45.30	Tethys	Occ.	R.	32.3	32.9	13/11/09	15.40.15	Tethys	Tr.	E.	-19.3	1.6	
30/10/09	11.52.20	Dione	Occ.	R.	31.2	32.6	14/11/09	9.14.41	Rhea	Ec.	D.	44.8	25.3	
31/10/09	7.09.42	Tethys	Sh.	I.	45.3	13.6	14/11/09	9.19.59	Dione	Sh.	I.	44.2	25.7	
31/10/09	7.38.24	Tethys	Tr.	I.	47.7	17.9	14/11/09	10.13.19	Dione	Tr.	I.	37.7	28.9	
31/10/09	10.05.02	Tethys	Sh.	E.	45.2	32.6	14/11/09	11.00.06	Tethys	Ec.	D.	30.6	29.7	
31/10/09	10.25.08	Tethys	Tr.	E.	43.0	33.4	14/11/09	12.38.16	Dione	Sh.	E.	13.5	25.3	
31/10/09	16.50.32	Dione	Sh.	I.	-23.1	-8.7	14/11/09	13.13.26	Dione	Tr.	E.	7.0	21.9	
31/10/09	17.31.59	Dione	Tr.	I.	-29.8	-16.3	14/11/09	13.55.54	Rhea	Occ.	R.	-0.3	16.9	
31/10/09	19.51.57	Rhea	Ec.	D.	-45.2	-41.8	14/11/09	14.19.56	Tethys	Occ.	R.	-5.5	13.6	
31/10/09	20.09.39	Dione	Sh.	E.	-45.9	-44.9	14/11/09	22.32.44	Titan	Ec.	D.	-32.5	-65.9	
31/10/09	20.38.41	Dione	Tr.	E.	-46.2	-49.6	15/11/09	3.32.22	Titan	Ec.	R.	20.7	-27.8	
01/11/09	0.27.53	Rhea	Occ.	R.	-21.7	-56.0	15/11/09	9.39.28	Tethys	Sh.	I.	41.6	26.9	
01/11/09	5.49.03	Tethys	Ec.	D.	35.5	0.4	15/11/09	10.16.52	Tethys	Tr.	I.	36.6	28.8	
01/11/09	9.04.54	Tethys	Occ.	R.	49.2	28.0	15/11/09	12.34.11	Tethys	Sh.	E.	13.6	25.4	
02/11/09	1.46.12	Dione	Ec.	D.	-7.1	-44.4	15/11/09	12.59.27	Tethys	Tr.	E.	8.9	23.1	
02/11/09	4.28.26	Tethys	Sh.	I.	22.8	-14.9	15/11/09	18.15.36	Dione	Ec.	D.	-42.6	-26.9	
02/11/09	4.58.18	Tethys	Tr.	I.	27.9	-9.4	15/11/09	22.10.01	Dione	Occ.	R.	-35.3	-64.7	
02/11/09	5.35.30	Dione	Occ.	R.	33.9	-2.0	16/11/09	8.18.48	Tethys	Ec.	D.	48.3	19.1	
02/11/09	7.23.42	Tethys	Sh.	E.	47.1	15.2	16/11/09	11.39.07	Tethys	Occ.	R.	22.7	28.4	
02/11/09	7.44.31	Tethys	Tr.	E.	48.5	18.2	16/11/09	15.28.19	Rhea	Sh.	I.	-19.2	3.0	
03/11/09	2.05.38	Rhea	Sh.	I.	-2.3	-41.2	16/11/09	17.07.39	Rhea	Tr.	I.	-35.1	-14.5	
03/11/09	3.07.48	Tethys	Ec.	D.	8.8	-30.0	16/11/09	19.18.10	Rhea	Sh.	E.	-46.6	-38.6	
03/11/09	3.23.05	Rhea	Tr.	I.	11.6	-27.2	16/11/09	20.09.23	Rhea	Tr.	E.	-46.2	-47.8	
03/11/09	5.57.30	Rhea	Sh.	E.	37.7	1.3	17/11/09	3.01.51	Dione	Sh.	I.	16.5	-33.8	
03/11/09	6.24.16	Tethys	Occ.	R.	41.3	5.7	17/11/09	3.57.21	Dione	Tr.	I.	26.2	-23.5	
03/11/09	6.42.03	Rhea	Tr.	E.	43.4	8.5	17/11/09	6.19.56	Dione	Sh.	E.	45.7	2.1	
03/11/09	10.32.27	Dione	Sh.	I.	40.7	32.6	17/11/09	6.56.07	Dione	Tr.	E.	48.2	7.6	
03/11/09	11.16.23	Dione	Tr.	I.	34.5	32.6	17/11/09	6.58.10	Tethys	Sh.	I.	48.3	7.9	
03/11/09	13.51.24	Dione	Sh.	E.	7.5	20.0	17/11/09	7.36.32	Tethys	Tr.	I.	49.2	13.5	
03/11/09	14.21.48	Dione	Tr.	E.	2.1	15.7	17/11/09	9.52.49	Tethys	Sh.	E.	38.9	27.2	
04/11/09	1.47.10	Tethys	Sh.	I.	-5.7	-44.6	17/11/09	10.18.37	Tethys	Tr.	E.	35.3	28.3	
04/11/09	2.18.11	Tethys	Tr.	I.	0.6	-39.2	18/11/09	5.37.30	Tethys	Ec.	D.	41.6	-5.7	
04/11/09	4.42.21	Tethys	Sh.	E.	26.3	-12.7	18/11/09	8.58.16	Tethys	Occ.	R.	44.8	22.9	
04/11/09	5.03.53	Tethys	Tr.	E.	29.9	-8.8	18/11/09	11.57.27	Dione	Ec.	D.	18.2	27.2	
04/11/09	19.28.06	Dione	Ec.	D.	-44.8	-38.5	18/11/09	15.52.40	Dione	Occ.	R.	-24.6	-0.8	
04/11/09	23.18.35	Dione	Occ.	R.	-30.7	-63.2	18/11/09	21.42.14	Rhea	Ec.	D.	-37.6	-62.4	
05/11/09	0.26.32	Tethys	Ec.	D.	-19.6	-57.2	19/11/09	2.24.22	Rhea	Occ.	R.	11.0	-41.1	
05/11/09	3.43.37	Tethys	Occ.	R.	16.6	-23.8	19/11/09	4.16.51	Tethys	Sh.	I.	30.6	-20.3	
05/11/09	8.19.32	Rhea	Ec.	D.	49.6	22.0	19/11/09	4.56.10	Tethys	Tr.	I.	36.6	-13.2	
05/11/09	12.57.40	Rhea	Occ.	R.	16.0	25.7	19/11/09	7.11.25	Tethys	Sh.	E.	48.9	9.5	
05/11/09	23.05.54	Tethys	Sh.	I.	-32.1	-63.9	19/11/09	7.37.45	Tethys	Tr.	E.	49.1	13.2	
05/11/09	23.38.02	Tethys	Tr.	I.	-27.2	-62.4	19/11/09	20.43.43	Dione	Sh.	I.	-43.6	-54.0	
06/11/09	2.01.01	Tethys	Sh.	E.	-1.1	-42.7	19/11/09	21.41.17	Dione	Tr.	I.	-37.3	-62.4	
06/11/09	2.23.13	Tethys	Tr.	E.	2.6	-38.7	20/11/09	0.01.36	Dione	Sh.	E.	-14.9	-63.9	
06/11/09	4.14.21	Dione	Sh.	I.	22.7	-18.3	20/11/09	0.38.43	Dione	Tr.	E.	-8.2	-59.1	
06/11/09	5.00.44	Dione	Tr.	I.	30.5	-9.8	20/11/09	2.56.12	Tethys	Ec.	D.	17.4	-35.4	
06/11/09	7.33.08	Dione	Sh.	E.	48.5	15.6	20/11/09	6.17.23	Tethys	Occ.	R.	46.3	1.1	
06/11/09	8.04.50	Dione	Tr.	E.	49.5	19.9	21/11/09	1.35.33	Tethys	Sh.	I.	3.3	-50.2	
06/11/09	20.41.32	Titan	Sh.	I.	-46.0	-51.4	21/11/09	2.15.46	Tethys	Tr.	I.	10.7	-43.0	
06/11/09	21.45.15	Tethys	Ec.	D.	-41.8	-60.1	21/11/09	3.55.51	Rhea	Sh.	I.	28.3	-24.5	
07/11/09	1.02.56	Tethys	Occ.	R.	-11.9	-52.5	21/11/09	4.30.02	Tethys	Sh.	E.	33.8	-18.3	
07/11/09	1.42.46	Titan	Sh.	E.	-4.5	-46.0	21/11/09	4.56.52	Tethys	Tr.	E.	37.7	-13.4	
07/11/09	13.09.59	Dione	Ec.	D.	12.4	23.9	21/11/09	5.39.18	Dione	Ec.	D.	43.0	-5.9	
07/11/09	14.33.12	Rhea	Sh.	I.	-2.6	13.1	21/11/09	5.41.53	Rhea	Tr.	I.	43.3	-5.5	
07/11/09	15.58.11	Rhea	Tr.	I.	-18.6	-0.1	21/11/09	7.44.58	Rhea	Sh.	E.	48.7	13.8	
07/11/09	17.01.34	Dione	Occ.	R.	-29.1	-12.1	21/11/09	8.37.38	Rhea	Tr.	E.	45.6	20.1	
07/11/09	18.24.26	Rhea	Sh.	E.	-40.3	-27.3	21/11/09	9.35.13	Dione	Occ.	R.	39.2	25.2	
07/11/09	19.11.36	Rhea	Tr.	E.	-44.5	-36.0	22/11/09	0.14.53	Tethys	Ec.	D.	-11.2	-62.8	
07/11/09	20.24.37	Tethys	Sh.	I.	-46.4	-48.9	22/11/09	3.36.29	Tethys	Occ.	R.	25.6	-28.3	
07/11/09	20.57.51	Tethys	Tr.	I.	-45.2	-54.2	22/11/09	14.25.34	Dione	Sh.	I.	-12.0	11.6	
07/11/09	23.19.39	Tethys	Sh.	E.	-29.0	-64.0	22/11/09	15.25.07	Dione	Tr.	I.	-22.5	2.8	
07/11/09	23.42.31	Tethys	Tr.	E.	-25.3	-62.6	22/11/09	17.43.16	Dione	Sh.	E.	-42.1	-21.6	
08/11/09	19.03.58	Tethys	Ec.	D.	-44.3	-34.8	22/11/09	18.21.14	Dione	Tr.	E.	-45.2	-28.6	
08/11/09	21.56.14	Dione	Sh.	I.	-39.9	-61.8	22/11/09	20.01.39	Titan	Sh.	I.	-45.8	-47.1	
08/11/09	22.22.13	Tethys	Occ.	R.	-36.8	-63.8	22/11/09	22.54.14	Tethys	Sh.	I.	-24.8	-68.3	
08/11/09	22.45.00	Dione	Tr.	I.	-33.7	-64.7	22/11/09	23.35.19	Tethys	Tr.	I.	-17.7	-67.0	
09/11/09	1.14.52	Dione	Sh.	E.	-8.5	-51.1	23/11/09	0.40.39	Titan	Sh.	E.	-5.8	-59.4	
09/11/09	1.47.47	Dione	Tr.	E.	-1.6	-45.6	23/11/09	1.48.38	Tethys	Sh.	E.	7.0	-48.2	
09/11/09	17.43.20	Tethys	Sh.	I.	-36.3	-20.1	23/11/09	2.15.57	Tethys	Tr.	E.	12.0	-43.3	
09/11/09	18.17.39	Tethys	Tr.	I.	-40.4	-26.4	23/11/09	10.09.46	Rhea	Ec.	D.	33.2	26.6	
09/11/09	20.38.18	Tethys	Sh.	E.	-45.8	-51.5	23/11/09	14.52.25	Rhea	Occ.	R.	-17.5	7.6	
09/11/09	20.47.07	Rhea	Ec.	D.	-45.4	-52.9	23/11/09	21.33.34	Tethys	Ec.	D.	-36.5	-62.0	
09/11/09	21.01.47	Tethys	Tr.	E.	-44.6	-55.2	23/11/09	23.21.08	Dione	Ec.	D.	-19.6	-68.0	
10/11/09	1.27.00	Rhea	Occ.	R.	-5.6	-49.3	24/11/09	0.55.33	Tethys	Occ.	R.	-1.7	-57.4	
10/11/09	6.51.52	Dione	Ec.	D.	46.5	8.5	24/11/09	3.17.41	Dione	Occ.	R.	23.6	-32.1	
10/11/09	10.44.29	Dione	Occ.	R.	35.3	30.7	24/11/09	20.12.55	Tethys	Sh.	I.	-44.7	-49.2	
10/11/09	16.22.41	Tethys	Ec.	D.	-24.7	-5.6	24/11/09	20.54.50	Tethys	Tr.	I.	-40.9	-56.4	
10/11/09	19.41.29	Tethys	Occ.	R.	-46.4	-42.0	24/11/09	23.07.14	Tethys	Sh.	E.	-21.4	-68.7	
11/11/09	15.02.03	Tethys	Sh.	I.	-11.2	7.9	24/11/09	23.35.00	Tethys	Tr.	E.	-16.5	-67.4	
11/11/09	15.37.25	Tethys	Tr.	I.	-17.5	2.4	25/11/09	8.07.24	Dione	Sh.	I.	46.8	15.8	
11/11/09	15.38.07	Dione	Sh.	I.	-17.7	2.3	25/11/09	9.08.51	Dione	Tr.	I.	40.7	22.3	
11/11/09	16.29.12	Dione	Tr.	I.	-26.4	-6.9	25/11/09	11.24.54	Dione	Sh.	E.	19.3	26.9	
11/11/09	17.56.56	Tethys	Sh.	E.	-39.0	-22.9	25/11/09	12.03.40	Dione	Tr.	E.	12.3	25.5	
11/11/09	18.21.02	Tethys	Tr.	E.	-41.6	-27.4	25/11/09	16.23.23	Rhea	Sh.	I.	-33.6	-7.6	
11/11/09	18.56.34	Dione	Sh.	E.	-44.6	-33.9	25/11/09	18.15.41	Rhea	Tr.	I.	-45.6	-27.8	
11/11/09	19.30.39	Dione	Tr.	E.	-46.3	-40.2	25/11/09	18.52.15	Tethys	Ec.	D.	-47.0	-34.6	
12/11/09	3.00.46	Rhea	Sh.	I.	13.2	-33.1	25/11/09	20.11.43	Rhea	Sh.	E.	-44.5	-49.1	
12/11/09	4.33.04	Rhea	Tr.	I.	29.3	-16.0	25/11/09	21.05.28	Rhea	Tr.	E.	-39.2	-58.1	
12/11/09	6.51.20	Rhea	Sh.	E.	47.0	8.0	25/11/09	22.14.35	Tethys	Occ.	R.	-29.5	-66.9	
12/11/09	7.40.42	Rhea	Tr.	E.	49.3	15.2	26/11/09	17.02.58	Dione	Ec.	D.	-39.4	-14.6	
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Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole								
26/11/09	18.14.19	Tethys	Tr.	I.	-45.8	-27.6	10/12/09	13.30.42	Dione	Occ.	R.	-14.3	16.9	
26/11/09	20.25.50	Tethys	Sh.	E.	-43.1	-51.6	10/12/09	21.21.35	Tethys	Ec.	D.	-29.5	-61.3	
26/11/09	20.54.01	Tethys	Tr.	E.	-40.2	-56.4	11/12/09	0.45.51	Tethys	Occ.	R.	7.3	-61.7	
26/11/09	21.00.04	Dione	Occ.	R.	-39.5	-57.4	11/12/09	11.59.54	Rhea	Ec.	D.	2.1	23.8	
27/11/09	16.10.56	Tethys	Ec.	D.	-32.9	-5.5	11/12/09	16.40.49	Rhea	Occ.	R.	-43.2	-10.9	
27/11/09	19.33.36	Tethys	Occ.	R.	-46.4	-42.3	11/12/09	18.18.22	Dione	Sh.	I.	-47.4	-28.4	
27/11/09	22.37.18	Rhea	Ec.	D.	-24.7	-68.7	11/12/09	19.28.34	Dione	Tr.	I.	-43.6	-41.5	
28/11/09	1.49.15	Dione	Sh.	I.	10.3	-49.0	11/12/09	20.00.55	Tethys	Sh.	I.	-40.2	-47.4	
28/11/09	2.52.27	Dione	Tr.	I.	21.7	-37.5	11/12/09	20.48.34	Tethys	Tr.	I.	-33.9	-55.8	
28/11/09	3.20.04	Rhea	Occ.	R.	26.4	-32.4	11/12/09	21.34.33	Dione	Sh.	E.	-26.8	-63.2	
28/11/09	5.06.32	Dione	Sh.	E.	42.0	-13.0	11/12/09	22.16.27	Dione	Tr.	E.	-19.7	-68.5	
28/11/09	5.46.00	Dione	Tr.	E.	45.9	-6.1	11/12/09	22.54.29	Tethys	Sh.	E.	-12.9	-70.9	
28/11/09	14.50.16	Tethys	Sh.	I.	-20.4	7.4	11/12/09	23.25.10	Tethys	Tr.	E.	-7.3	-70.6	
28/11/09	15.33.46	Tethys	Tr.	I.	-27.7	1.0	12/12/09	18.40.14	Tethys	Ec.	D.	-46.7	-32.4	
28/11/09	17.44.26	Tethys	Sh.	E.	-44.3	-22.2	12/12/09	22.04.38	Tethys	Occ.	R.	-21.1	-67.2	
28/11/09	18.13.01	Tethys	Tr.	E.	-46.2	-27.5	13/12/09	3.13.53	Dione	Ec.	D.	34.0	-35.8	
29/11/09	10.44.48	Dione	Ec.	D.	23.7	26.4	13/12/09	7.12.35	Dione	Occ.	R.	45.5	5.6	
29/11/09	13.29.36	Tethys	Ec.	D.	-6.5	17.7	13/12/09	17.19.34	Tethys	Sh.	I.	-46.6	-17.7	
29/11/09	14.42.22	Dione	Occ.	R.	-19.7	8.5	13/12/09	18.07.38	Tethys	Tr.	I.	-47.5	-26.4	
29/11/09	16.52.34	Tethys	Occ.	R.	-39.5	-12.9	13/12/09	18.13.28	Rhea	Sh.	I.	-47.4	-27.5	
30/11/09	4.50.54	Rhea	Sh.	I.	41.0	-16.1	13/12/09	20.13.03	Tethys	Sh.	E.	-37.9	-49.5	
30/11/09	6.49.00	Rhea	Tr.	I.	48.8	4.1	13/12/09	20.25.18	Rhea	Tr.	I.	-36.2	-51.7	
30/11/09	8.38.26	Rhea	Sh.	E.	42.0	18.4	13/12/09	20.43.56	Tethys	Tr.	E.	-33.6	-55.0	
30/11/09	9.32.55	Rhea	Tr.	E.	34.7	23.2	13/12/09	21.58.21	Rhea	Sh.	E.	-21.5	-66.5	
30/11/09	12.08.56	Tethys	Sh.	I.	7.9	24.4	13/12/09	22.53.10	Rhea	Tr.	E.	-11.8	-71.0	
30/11/09	12.53.09	Tethys	Tr.	I.	0.1	21.2	14/12/09	12.00.11	Dione	Sh.	I.	0.2	23.6	
30/11/09	15.03.01	Tethys	Sh.	E.	-23.9	5.4	14/12/09	13.11.21	Dione	Tr.	I.	-13.6	18.7	
30/11/09	15.31.59	Tethys	Tr.	E.	-28.6	1.1	14/12/09	15.16.08	Dione	Sh.	E.	-34.4	3.3	
30/11/09	19.31.05	Dione	Sh.	I.	-46.1	-42.0	14/12/09	15.58.17	Dione	Tr.	E.	-39.9	-3.3	
30/11/09	20.35.57	Dione	Tr.	I.	-40.7	-53.6	14/12/09	15.58.54	Tethys	Ec.	D.	-40.0	-3.4	
30/11/09	22.00.14	Titan	Ec.	D.	-29.0	-66.1	14/12/09	19.23.23	Tethys	Occ.	R.	-43.1	-40.3	
30/11/09	22.48.10	Dione	Sh.	E.	-21.0	-69.6	15/12/09	14.38.14	Tethys	Sh.	I.	-29.2	8.7	
30/11/09	23.28.16	Dione	Tr.	E.	-13.9	-69.0	15/12/09	15.26.39	Tethys	Tr.	I.	-36.4	1.8	
01/12/09	2.29.06	Titan	Ec.	R.	19.4	-42.3	15/12/09	17.31.36	Tethys	Sh.	E.	-47.3	-19.7	
01/12/09	10.48.16	Tethys	Ec.	D.	21.8	26.1	15/12/09	18.02.41	Tethys	Tr.	E.	-47.5	-25.4	
01/12/09	14.11.32	Tethys	Occ.	R.	-15.6	12.5	15/12/09	20.55.42	Dione	Ec.	D.	-30.7	-56.9	
02/12/09	4.26.37	Dione	Ec.	D.	38.8	-20.8	16/12/09	0.27.27	Rhea	Ec.	D.	7.2	-65.0	
02/12/09	8.24.35	Dione	Occ.	R.	42.7	16.5	16/12/09	0.54.22	Dione	Occ.	R.	12.2	-61.0	
02/12/09	9.27.37	Tethys	Sh.	I.	34.4	22.5	16/12/09	5.07.08	Rhea	Occ.	R.	47.4	-15.5	
02/12/09	10.12.30	Tethys	Tr.	I.	27.3	25.0	16/12/09	13.17.33	Tethys	Ec.	D.	-16.0	18.2	
02/12/09	11.04.50	Rhea	Ec.	D.	18.2	26.0	16/12/09	16.42.06	Tethys	Occ.	R.	-45.0	-11.0	
02/12/09	12.21.36	Tethys	Sh.	E.	4.3	23.4	16/12/09	21.32.18	Titan	Ec.	D.	-24.1	-62.8	
02/12/09	12.50.55	Tethys	Tr.	E.	-0.7	21.2	17/12/09	1.20.46	Titan	Ec.	R.	17.6	-56.8	
02/12/09	15.47.19	Rhea	Occ.	R.	-32.2	-1.1	17/12/09	5.42.00	Dione	Sh.	I.	48.5	-9.6	
03/12/09	8.06.56	Tethys	Ec.	D.	44.1	14.3	17/12/09	6.53.58	Dione	Tr.	I.	45.7	2.5	
03/12/09	11.30.27	Tethys	Occ.	R.	12.9	25.5	17/12/09	8.57.43	Dione	Sh.	E.	30.2	18.1	
03/12/09	13.12.54	Dione	Sh.	I.	-6.2	19.1	17/12/09	9.40.03	Dione	Tr.	E.	23.1	21.6	
03/12/09	14.19.18	Dione	Tr.	I.	-18.3	11.4	17/12/09	11.56.53	Tethys	Sh.	I.	-1.1	23.7	
03/12/09	16.29.46	Dione	Sh.	E.	-38.6	-9.1	17/12/09	12.45.37	Tethys	Tr.	I.	-11.0	20.9	
03/12/09	17.10.26	Dione	Tr.	E.	-43.1	-16.2	17/12/09	14.50.10	Tethys	Sh.	E.	-32.2	7.1	
04/12/09	6.46.17	Tethys	Sh.	I.	48.6	3.0	17/12/09	15.21.23	Tethys	Tr.	E.	-36.7	2.6	
04/12/09	7.31.49	Tethys	Tr.	I.	46.7	9.5	18/12/09	6.41.00	Rhea	Sh.	I.	46.4	0.6	
04/12/09	9.40.11	Tethys	Sh.	E.	31.3	23.0	18/12/09	8.55.55	Rhea	Tr.	I.	29.9	17.8	
04/12/09	10.09.50	Tethys	Tr.	E.	26.5	24.6	18/12/09	10.24.56	Rhea	Sh.	E.	14.5	23.9	
04/12/09	17.18.25	Rhea	Sh.	I.	-44.1	-17.6	18/12/09	10.36.12	Tethys	Ec.	D.	12.5	24.2	
04/12/09	19.21.46	Rhea	Tr.	I.	-45.9	-40.3	18/12/09	11.19.21	Rhea	Tr.	E.	4.6	24.6	
04/12/09	21.05.06	Rhea	Sh.	E.	-35.2	-58.6	18/12/09	14.00.48	Tethys	Occ.	R.	-24.9	13.5	
04/12/09	21.59.59	Rhea	Tr.	E.	-26.7	-66.4	18/12/09	14.37.30	Dione	Ec.	D.	-30.8	8.9	
04/12/09	22.08.26	Dione	Ec.	D.	-25.3	-67.3	18/12/09	18.36.05	Dione	Occ.	R.	-45.8	-31.3	
05/12/09	2.06.42	Dione	Occ.	R.	18.0	-47.0	19/12/09	9.15.32	Tethys	Sh.	I.	26.0	19.6	
05/12/09	5.25.36	Tethys	Ec.	D.	46.2	-10.8	19/12/09	10.04.32	Tethys	Tr.	I.	17.5	22.9	
05/12/09	8.49.21	Tethys	Occ.	R.	38.2	18.7	19/12/09	12.08.44	Tethys	Sh.	E.	-5.5	23.2	
06/12/09	4.04.56	Tethys	Sh.	I.	37.7	-25.4	19/12/09	12.40.04	Tethys	Tr.	E.	-11.3	21.3	
06/12/09	4.51.05	Tethys	Tr.	I.	43.4	-17.0	19/12/09	23.23.49	Dione	Sh.	I.	-1.2	-71.2	
06/12/09	6.54.44	Dione	Sh.	I.	48.2	3.9	20/12/09	0.36.26	Dione	Tr.	I.	11.6	-64.1	
06/12/09	6.58.46	Tethys	Sh.	E.	48.1	4.5	20/12/09	2.39.17	Dione	Sh.	E.	32.7	-43.0	
06/12/09	7.28.42	Tethys	Tr.	E.	46.4	8.8	20/12/09	3.21.43	Dione	Tr.	E.	38.7	-35.1	
06/12/09	8.02.32	Dione	Tr.	I.	43.4	13.3	20/12/09	7.54.51	Tethys	Ec.	D.	37.8	10.7	
06/12/09	10.11.22	Dione	Sh.	E.	24.9	24.4	20/12/09	11.19.28	Tethys	Occ.	R.	3.2	24.6	
06/12/09	10.52.31	Dione	Tr.	E.	17.7	25.5	20/12/09	12.55.00	Rhea	Ec.	D.	-14.7	20.2	
06/12/09	23.32.22	Rhea	Ec.	D.	-9.3	-69.7	20/12/09	17.33.12	Rhea	Occ.	R.	-47.6	-19.7	
07/12/09	2.44.16	Tethys	Ec.	D.	25.8	-40.5	21/12/09	6.34.11	Tethys	Sh.	I.	46.0	-0.5	
07/12/09	4.14.14	Rhea	Occ.	R.	39.5	-23.8	21/12/09	7.23.23	Tethys	Tr.	I.	41.3	6.4	
07/12/09	6.08.13	Tethys	Occ.	R.	48.5	-3.6	21/12/09	8.19.19	Dione	Ec.	D.	33.8	13.7	
07/12/09	15.50.15	Dione	Ec.	D.	-35.4	-1.7	21/12/09	9.27.18	Tethys	Sh.	E.	22.7	20.4	
07/12/09	19.48.45	Dione	Occ.	R.	-43.0	-45.3	21/12/09	9.58.43	Tethys	Tr.	E.	17.2	22.5	
08/12/09	1.23.36	Tethys	Sh.	I.	12.2	-55.1	21/12/09	12.17.43	Dione	Occ.	R.	-8.6	22.8	
08/12/09	2.10.17	Tethys	Tr.	I.	20.6	-46.8	22/12/09	5.13.30	Tethys	Ec.	D.	48.3	-15.0	
08/12/09	4.17.20	Tethys	Sh.	E.	40.3	-23.4	22/12/09	8.38.06	Tethys	Occ.	R.	30.3	15.7	
08/12/09	4.47.34	Tethys	Tr.	E.	43.7	-17.9	22/12/09	17.05.38	Dione	Sh.	I.	-47.4	-14.6	
08/12/09	19.24.30	Titan	Sh.	I.	-44.8	-40.8	22/12/09	18.18.44	Dione	Tr.	I.	-46.0	-27.8	
08/12/09	23.35.10	Titan	Sh.	E.	-7.4	-69.8	22/12/09	19.08.33	Rhea	Sh.	I.	-41.7	-37.0	
09/12/09	0.02.55	Tethys	Ec.	D.	-1.5	-67.2	22/12/09	20.20.51	Dione	Sh.	E.	-32.1	-50.3	
09/12/09	0.36.33	Dione	Sh.	I.	4.3	-62.8	22/12/09	21.03.19	Dione	Tr.	E.	-25.2	-57.7	
09/12/09	1.45.37	Dione	Tr.	I.	16.8	-51.4	22/12/09	21.25.39	Rhea	Tr.	I.	-21.4	-61.3	
09/12/09	3.27.03	Tethys	Occ.	R.	33.8	-32.8	22/12/09	22.51.29	Rhea	Sh.	E.	-5.9	-71.0	
09/12/09	3.52.58	Dione	Sh.	E.	37.6	-28.0	22/12/09	23.45.19	Rhea	Tr.	E.	4.3	-70.1	
09/12/09	4.34.31	Dione	Tr.	E.	42.7	-20.4	23/12/09	3.52.50	Tethys	Sh.	I.	43.6	-29.6	
09/12/09	5.45.56	Rhea	Sh.	I.	48.1	-7.9	23/12/09	4.42.11	Tethys	Tr.	I.	47.4	-20.6	
09/12/09	7.53.54	Rhea	Tr.	I.	43.1	11.7	23/12/09	6.45.51	Tethys	Sh.	E.	44.4	0.9	
09/12/09	9.31.45	Rhea	Sh.	E.	29.6	21.7	23/12/09	7.17.20	Tethys	Tr.	E.	41.1	5.4	
09/12/09	10.26.44	Rhea	Tr.	E.	20.3	24.6	24/12/09	2.01.08	Dione	Ec.	D.	29.0	-50.3	
09/12/09	22.42.16	Tethys	Sh.	I.	-16.4	-70.3	24/12/09	2.32.09	Tethys	Ec.	D.	33.8	-44.7	
09/12/09	23.29.27	Tethys	Tr.	I.	-7.8	-70.2	24/12/09	5.56.42	Tethys	Occ.	R.	47.6	-7.7	
10/12/09	1.35.54	Tethys	Sh.	E.	15.7	-53.3	24/12/09	5.59.17	Dione	Occ.	R.	47.4	-7.3	
10/12/09	2.06.23	Tethys	Sh.	E.	21.1	-47.8	24/12/09	18.51.25	Titan	Sh.	I.	-42.7	-33.6	
10/12/09	9.32.04	Dione	Ec.	D.	28.9	21.7	24/12/09	22.25.15	Titan	Sh.	E.	-9.4	-69.0	
</														

Data	Ora	Luna	Fenomeno	Fase	h Sat	h Sole	28/12/09	7.43.58	Dione	Sh.	E.	35.0	8.9
25/12/09	1.22.34	Rhea	Ec.	D.	23.1	-57.1	28/12/09	8.26.18	Dione	Tr.	E.	28.4	14.2
25/12/09	2.00.56	Tethys	Tr.	I.	29.6	-50.4	28/12/09	19.48.47	Tethys	Sh.	I.	-33.5	-43.8
25/12/09	4.04.25	Tethys	Sh.	E.	45.3	-27.7	28/12/09	20.38.16	Tethys	Tr.	I.	-25.7	-52.7
25/12/09	4.35.55	Tethys	Tr.	E.	47.4	-21.9	28/12/09	22.41.32	Tethys	Sh.	E.	-3.2	-70.1
25/12/09	5.59.05	Rhea	Occ.	R.	47.2	-7.4	28/12/09	23.13.01	Tethys	Tr.	E.	2.6	-71.2
25/12/09	10.47.27	Dione	Sh.	I.	5.5	24.4	29/12/09	13.24.45	Dione	Ec.	D.	-25.9	18.2
25/12/09	12.00.51	Dione	Tr.	I.	-8.4	23.7	29/12/09	13.50.09	Rhea	Ec.	D.	-30.0	15.6
25/12/09	14.02.24	Dione	Sh.	E.	-29.5	13.8	29/12/09	17.22.10	Dione	Occ.	R.	-47.4	-16.7
25/12/09	14.44.51	Dione	Tr.	E.	-35.9	8.4	29/12/09	18.24.48	Rhea	Occ.	R.	-43.4	-28.1
25/12/09	23.50.48	Tethys	Ec.	D.	7.4	-69.7	29/12/09	18.28.06	Tethys	Ec.	D.	-43.1	-28.7
26/12/09	3.15.17	Tethys	Occ.	R.	40.7	-36.8	29/12/09	21.52.21	Tethys	Occ.	R.	-12.0	-64.6
26/12/09	19.42.56	Dione	Ec.	D.	-35.4	-42.9	30/12/09	17.07.26	Tethys	Sh.	I.	-47.6	-14.0
26/12/09	22.30.08	Tethys	Sh.	I.	-7.1	-69.3	30/12/09	17.56.51	Tethys	Tr.	I.	-45.4	-22.8
26/12/09	23.19.38	Tethys	Tr.	I.	2.4	-71.3	30/12/09	20.00.05	Tethys	Sh.	E.	-30.6	-45.6
26/12/09	23.40.45	Dione	Occ.	R.	6.2	-70.5	30/12/09	20.31.31	Tethys	Tr.	E.	-25.5	-51.3
27/12/09	1.22.58	Tethys	Sh.	E.	24.5	-57.2	30/12/09	22.11.06	Dione	Sh.	I.	-7.8	-66.9
27/12/09	1.54.29	Tethys	Tr.	E.	29.7	-51.7	30/12/09	23.24.34	Dione	Tr.	I.	6.0	-71.0
27/12/09	7.36.07	Rhea	Sh.	I.	36.7	7.8	31/12/09	1.25.31	Dione	Sh.	E.	27.5	-56.9
27/12/09	9.54.25	Rhea	Tr.	I.	13.8	22.2	31/12/09	2.07.40	Dione	Tr.	E.	34.1	-49.6
27/12/09	11.18.01	Rhea	Sh.	E.	-1.0	24.7	31/12/09	15.46.46	Tethys	Ec.	D.	-45.3	0.3
27/12/09	12.11.07	Rhea	Tr.	E.	-11.6	23.4	31/12/09	19.10.50	Tethys	Occ.	R.	-37.3	-36.3
27/12/09	21.09.27	Tethys	Ec.	D.	-21.0	-58.2	31/12/09	20.03.42	Rhea	Sh.	I.	-29.4	-46.1
28/12/09	0.33.50	Tethys	Occ.	R.	16.6	-64.9	31/12/09	22.22.11	Rhea	Tr.	I.	-5.0	-68.0
28/12/09	4.29.17	Dione	Sh.	I.	47.6	-23.3	31/12/09	23.44.32	Rhea	Sh.	E.	10.4	-70.1
28/12/09	5.42.48	Dione	Tr.	I.	47.5	-10.3							

CONGIUNZIONI TRA I SATELLITI DI SATURNO

Sono stati presi in considerazione solo i 4 satelliti principali

Data	Ora	Lune	Dist.">'	h Sat	h Sole						
01/01/09	3.29.41	Tethys/Dione	-1''	52.5	-34.5	16/02/09	11.17.32	Tethys/Rhea	3''	-37.4	35.8
01/01/09	14.24.03	Dione/Rhea	1''	-38.1	11.9	16/02/09	12.36.58	Dione/Titan	8''	-41.9	33.4
03/01/09	10.31.39	Tethys/Dione	-0''	-3.6	24.4	17/02/09	17.45.18	Rhea/Titan	7''	-7.3	-11.5
04/01/09	15.39.38	Tethys/Dione	0''	-42.8	1.8	18/02/09	3.29.58	Tethys/Dione	2''	38.8	-29.2
04/01/09	18.10.53	Dione/Rhea	-2''	-32.6	-24.7	18/02/09	4.23.21	Dione/Rhea	-4''	30.0	-19.4
04/01/09	19.08.52	Tethys/Rhea	-1''	-24.3	-35.4	19/02/09	0.00.40	Tethys/Rhea	-3''	53.0	-58.4
06/01/09	8.20.56	Tethys/Rhea	1''	18.3	13.7	19/02/09	7.15.00	Tethys/Dione	-3''	-1.6	11.9
06/01/09	12.54.58	Dione/Rhea	2''	-29.8	21.8	20/02/09	10.43.53	Tethys/Dione	3''	-35.6	36.4
06/01/09	17.03.39	Tethys/Dione	-1''	-39.1	-12.3	20/02/09	13.40.05	Tethys/Rhea	3''	-39.6	28.9
07/01/09	3.48.35	Rhea/Titan	-4''	53.1	-31.1	21/02/09	9.02.58	Dione/Rhea	3''	-22.4	28.2
07/01/09	7.16.15	Tethys/Titan	-2''	29.2	5.0	21/02/09	14.26.11	Tethys/Dione	-2''	-35.1	23.3
07/01/09	20.48.31	Tethys/Dione	1''	-5.0	-53.1	23/02/09	4.50.29	Dione/Rhea	-5''	21.5	-13.1
08/01/09	2.19.15	Tethys/Titan	-3''	49.6	-47.6	23/02/09	16.16.41	Tethys/Dione	2''	-18.2	6.1
08/01/09	9.20.16	Dione/Rhea	-1''	5.9	20.2	23/02/09	19.54.12	Dione/Titan	-7''	21.4	-33.7
08/01/09	9.48.36	Tethys/Titan	-3''	0.9	22.5	24/02/09	18.51.28	Dione/Titan	-5''	10.7	-22.2
09/01/09	0.12.55	Tethys/Dione	-1''	32.9	-67.1	24/02/09	20.54.35	Tethys/Dione	-3''	32.9	-43.5
10/01/09	4.09.13	Tethys/Dione	0''	52.0	-27.3	24/02/09	21.23.35	Tethys/Titan	-8''	37.7	-47.7
11/01/09	11.49.18	Tethys/Rhea	1''	-22.8	25.9	24/02/09	23.37.15	Dione/Rhea	4''	53.3	-57.0
11/01/09	13.32.57	Dione/Rhea	2''	-36.9	19.3	25/02/09	0.39.47	Rhea/Titan	-10''	53.9	-53.2
12/01/09	6.10.34	Tethys/Dione	-1''	36.8	-5.6	25/02/09	7.57.18	Dione/Titan	-7''	-14.3	20.4
13/01/09	1.22.07	Tethys/Rhea	-1''	45.7	-57.3	25/02/09	17.03.16	Tethys/Rhea	3''	-8.6	-1.2
13/01/09	8.25.00	Dione/Rhea	-2''	12.5	14.8	27/02/09	3.55.22	Tethys/Dione	-3''	28.4	-22.1
13/01/09	10.31.53	Tethys/Dione	1''	-11.0	25.6	27/02/09	6.13.43	Tethys/Rhea	-3''	3.2	3.6
14/01/09	16.41.33	Rhea/Titan	3''	-38.1	-7.1	28/02/09	4.04.06	Dione/Rhea	-3''	26.2	-20.3
15/01/09	2.35.09	Dione/Titan	4''	52.7	-44.5	28/02/09	8.52.31	Tethys/Dione	1''	-25.2	29.3
15/01/09	4.16.17	Dione/Rhea	1''	50.1	-25.8	02/03/09	0.10.10	Dione/Rhea	6''	54.3	-53.8
15/01/09	11.59.51	Rhea/Titan	2''	-26.9	26.4	02/03/09	10.24.47	Tethys/Dione	-3''	-37.5	39.1
15/01/09	14.15.11	Tethys/Rhea	1''	-41.5	15.4	03/03/09	14.10.37	Tethys/Dione	4''	-31.7	28.3
15/01/09	14.39.07	Tethys/Titan	3''	-42.4	12.3	03/03/09	18.59.40	Dione/Rhea	-5''	17.8	-22.1
15/01/09	17.34.09	Tethys/Dione	1''	-31.6	-16.2	04/03/09	0.05.15	Tethys/Titan	9''	54.3	-53.3
16/01/09	3.53.48	Dione/Titan	2''	51.5	-30.0	04/03/09	7.10.03	Rhea/Titan	12''	-11.0	14.9
16/01/09	15.58.41	Dione/Titan	3''	-40.8	0.9	04/03/09	9.35.48	Tethys/Rhea	-4''	-33.2	35.8
16/01/09	23.22.34	Tethys/Dione	-0''	29.9	-68.8	04/03/09	17.34.29	Tethys/Dione	-4''	2.9	-6.2
16/01/09	23.45.28	Rhea/Titan	3''	33.8	-68.2	04/03/09	18.09.14	Dione/Titan	11''	9.3	-12.7
18/01/09	4.14.21	Tethys/Rhea	-1''	49.1	-26.0	05/03/09	4.13.46	Tethys/Titan	9''	20.7	-17.0
18/01/09	8.56.58	Dione/Rhea	-2''	3.0	19.1	05/03/09	21.27.51	Tethys/Dione	2''	44.3	-45.6
19/01/09	0.08.10	Tethys/Dione	1''	38.7	-66.3	05/03/09	23.13.22	Tethys/Rhea	3''	54.2	-53.7
19/01/09	20.06.39	Tethys/Rhea	1''	-3.5	-43.5	06/03/09	22.51.24	Dione/Rhea	3''	53.4	-52.7
20/01/09	16.00.07	Tethys/Rhea	1''	-39.5	1.4	07/03/09	23.25.19	Tethys/Dione	-2''	54.7	-52.9
21/01/09	7.12.45	Tethys/Dione	1''	19.9	5.5	08/03/09	11.59.09	Tethys/Rhea	-5''	-40.8	42.6
21/01/09	23.27.42	Dione/Rhea	-2''	34.2	-67.7	08/03/09	19.34.36	Dione/Rhea	-6''	28.1	-27.2
22/01/09	6.35.48	Tethys/Rhea	-1''	25.8	0.1	09/03/09	3.51.29	Tethys/Dione	4''	21.8	-19.9
22/01/09	11.11.54	Tethys/Dione	-1''	-23.8	28.4	10/03/09	14.15.34	Dione/Rhea	6''	-26.8	29.6
23/01/09	21.40.57	Tethys/Titan	-4''	16.8	-58.5	11/03/09	1.57.29	Tethys/Rhea	5''	40.0	-38.4
24/01/09	0.38.59	Dione/Titan	-5''	46.0	-62.2	11/03/09	10.52.26	Tethys/Dione	3''	-41.0	44.0
24/01/09	7.59.24	Rhea/Titan	-5''	9.1	12.8	11/03/09	13.51.34	Rhea/Titan	-11''	-29.5	33.3
24/01/09	13.24.58	Tethys/Dione	1''	-40.5	22.9	11/03/09	23.44.32	Dione/Titan	-11''	54.1	-51.0
24/01/09	20.33.07	Tethys/Rhea	2''	5.1	-47.2	12/03/09	6.22.42	Tethys/Titan	-11''	-8.5	9.1
25/01/09	4.14.56	Dione/Rhea	2''	46.0	-25.3	12/03/09	16.20.46	Tethys/Dione	-2''	-4.4	9.2
25/01/09	17.26.08	Tethys/Dione	-1''	-26.8	-12.8	12/03/09	18.36.37	Tethys/Rhea	-3''	20.7	-16.0
27/01/09	9.43.39	Tethys/Rhea	-2''	-12.4	25.3	12/03/09	23.16.11	Tethys/Rhea	-3''	54.8	-51.0
28/01/09	0.30.18	Tethys/Dione	-1''	47.0	-62.4	13/03/09	13.53.58	Tethys/Rhea	-4''	-28.0	33.5
28/01/09	18.34.13	Dione/Rhea	2''	-13.7	-24.7	13/03/09	17.25.56	Dione/Rhea	-3''	8.5	-2.0
28/01/09	23.02.47	Tethys/Rhea	2''	35.0	-65.5	14/03/09	17.25.11	Tethys/Dione	3''	9.1	-1.6
29/01/09	9.39.42	Tethys/Dione	1''	-13.1	25.4	15/03/09	4.16.49	Tethys/Rhea	5''	12.6	-13.3
29/01/09	11.28.01	Tethys/Dione	1''	-30.3	30.2	15/03/09	14.53.57	Dione/Rhea	7''	-17.4	25.0
30/01/09	0.56.13	Tethys/Dione	1''	50.5	-58.9	15/03/09	21.00.52	Tethys/Dione	-5''	46.6	-39.1
31/01/09	4.02.13	Tethys/Titan	4''	44.6	-26.9	17/03/09	0.30.07	Tethys/Dione	4''	48.7	-46.5
31/01/09	6.07.37	Tethys/Titan	4''	24.4	-3.8	17/03/09	9.39.40	Dione/Rhea	-7''	-38.5	41.2
31/01/09	7.03.29	Tethys/Dione	-1''	14.2	5.6	17/03/09	18.13.03	Tethys/Rhea	-6''	20.4	-10.6
31/01/09	7.11.33	Dione/Titan	6''	12.7	6.9	18/03/09	4.25.59	Tethys/Dione	-3''	8.6	-10.7
31/01/09	14.54.31	Rhea/Titan	7''	-40.7	13.7	19/03/09	10.00.41	Dione/Rhea	2''	-40.1	44.0
31/01/09	23.33.57	Dione/Rhea	-2''	41.8	-65.1	19/03/09	19.45.36	Dione/Rhea	1''	38.1	-26.5
01/02/09	5.34.49	Tethys/Titan	5''	29.5	-9.7	20/03/09	6.37.51	Tethys/Dione	3''	-16.7	14.4
02/02/09	14.06.10	Tethys/Dione	-1''	-42.2	20.7	20/03/09	7.27.43	Tethys/Rhea	5''	-24.6	23.2
03/02/09	2.31.22	Tethys/Rhea	2''	52.4	-43.0	20/03/09	11.12.38	Dione/Rhea	2''	-40.3	48.0
03/02/09	18.22.43	Tethys/Dione	1''	-11.3	-21.3	20/03/09	14.16.31	Tethys/Titan	13''	-20.0	32.2
04/02/09	13.51.39	Dione/Rhea	-2''	-42.3	23.0	20/03/09	23.22.53	Dione/Titan	13''	53.5	-47.8
04/02/09	15.47.24	Tethys/Rhea	-2''	-34.4	6.6	21/03/09	10.41.02	Rhea/Titan	13''	-40.9	47.5
05/02/09	20.25.28	Tethys/Dione	-1''	13.0	-43.3	21/03/09	10.42.39	Tethys/Dione	-5''	-40.9	47.6
07/02/09	0.24.00	Tethys/Dione	2''	50.8	-60.6	21/03/09	20.44.01	Tethys/Rhea	-5''	47.8	-35.0
07/02/09	18.46.30	Dione/Rhea	3''	-3.7	-24.9	22/03/09	10.17.44	Dione/Rhea	-7''	-40.9	46.5
07/02/09	21.03.05	Rhea/Titan	-6''	21.4	-49.1	23/03/09	17.45.47	Tethys/Dione	-4''	20.1	-4.1
08/02/09	3.48.05	Tethys/Dione	-2''	42.2	-28.1	24/03/09	4.57.31	Dione/Rhea	8''	-1.1	-2.3
08/02/09	6.51.29	Tethys/Titan	-5''	10.5	5.3	25/03/09	0.55.18	Tethys/Dione	2''	40.8	-41.0
09/02/09	5.39.30	Dione/Titan	-6''	22.9	-7.4	25/03/09	17.32.33	Tethys/Dione	2''	19.3	-0.6
09/02/09	7.30.54	Tethys/Dione	1''	2.5	11.8	26/03/09	3.11.27	Dione/Rhea	-3''	16.3	-21.3
09/02/09	18.58.29	Tethys/Rhea	-3''	0.4	-26.7	27/03/09	0.10.37	Tethys/Rhea	-6''	46.1	-43.9
11/02/09	8.43.24	Tethys/Dione	-1''	-12.4	22.7	27/03/09	0.18.41	Tethys/Dione	-4''	45.0	-43.3
11/02/09	9.02.54	Dione/Rhea	3''	-15.8	25.1	27/03/09	18.16.14	Tethys/Titan	-11''	28.8	-9.0
11/02/09	9.17.42	Tethys/Rhea	2''	-18.3	26.8	28/03/09	0.51.56	Tethys/Titan	-9''	39.4	-40.2
12/02/09	0.22.37	Tethys/Rhea	2''	52.4	-59.2	28/03/09	4.54.09	Dione/Titan	-15''	-4.1	-1.5
12/02/09	4.28.47	Tethys/Rhea	2''	33.2	-19.7	28/03/09	13.28.05	Tethys/Rhea	5''	-22.1	41.4
12/02/09	14.02.48	Tethys/Dione	2''	-40.5	23.9	28/03/09	17.01.39	Rhea/Titan	-16''	16.0	5.2
13/02/09	21.19.03	Tethys/Rhea	-3''	28.9	-50.1	28/03/09	20.32.25	Tethys/Titan	-12''	50.1	-31.4
14/02/09	13.58.46	Dione/Rhea	-3''	-40.2	24.9	29/03/09	5.37.03	Dione/Rhea	8''	-12.7	6.2
14/02/09	21.03.24	Tethys/Dione	2''	26.9	-47.4	29/03/09	7.22.05	Tethys/Dione	-5''	-29.0	25.3
16/02/09	1.29.39	Tethys/Dione	-1''	53.2	-50.0	30/03/09	11.33.41	Tethys/Dione	3''	-35.8	51.7

Data	Ora	Lune	Dist. ''	h Sat	h Sole	23/05/09	1.01.04	Tethys/Dione	-6''	-2.2	-22.3
31/03/09	0.23.19	Dione/Rhea	-8''	42.0	-41.4	23/05/09	4.25.49	Dione/Titan	18''	-34.1	6.2
31/03/09	2.41.03	Tethys/Rhea	-7''	18.1	-24.6	23/05/09	14.17.49	Tethys/Titan	15''	28.0	45.1
01/04/09	13.38.20	Tethys/Dione	-3''	-17.7	41.1	23/05/09	21.20.57	Rhea/Titan	17''	36.6	-22.5
01/04/09	21.21.50	Dione/Rhea	4''	55.0	-36.5	24/05/09	5.10.14	Tethys/Dione	4''	-38.1	14.1
02/04/09	16.37.48	Tethys/Rhea	7''	15.5	10.5	24/05/09	11.58.51	Dione/Rhea	-10''	3.3	66.4
02/04/09	17.40.06	Tethys/Dione	5''	26.9	-0.4	24/05/09	14.46.34	Tethys/Rhea	-7''	33.7	40.0
04/04/09	7.08.11	Tethys/Rhea	-4''	-30.3	24.7	26/05/09	5.44.52	Tethys/Rhea	4''	-39.9	20.5
04/04/09	13.17.28	Dione/Titan	13''	-19.0	44.8	26/05/09	6.48.42	Dione/Rhea	8''	-39.1	32.3
04/04/09	20.45.22	Tethys/Rhea	-3''	54.0	-31.2	26/05/09	7.17.20	Tethys/Dione	-3''	-37.4	37.6
04/04/09	23.04.46	Tethys/Titan	14''	49.8	-41.9	27/05/09	1.54.10	Tethys/Rhea	4''	-14.9	-16.2
04/04/09	23.21.40	Rhea/Titan	17''	47.8	-42.0	27/05/09	11.22.20	Tethys/Dione	6''	-0.8	69.2
05/04/09	0.45.47	Tethys/Dione	4''	35.1	-37.7	28/05/09	17.10.58	Tethys/Rhea	-7''	54.5	14.0
05/04/09	1.00.25	Dione/Rhea	-8''	32.6	-36.3	29/05/09	11.24.21	Dione/Rhea	-5''	0.7	69.4
05/04/09	2.46.02	Tethys/Rhea	-4''	13.4	-22.1	29/05/09	18.28.56	Tethys/Dione	5''	54.8	1.1
06/04/09	3.18.50	Dione/Titan	13''	6.6	-16.4	30/05/09	11.02.55	Dione/Titan	-14''	-2.5	69.8
06/04/09	18.57.50	Tethys/Rhea	7''	42.8	-14.2	30/05/09	16.04.22	Tethys/Titan	-14''	49.0	26.3
06/04/09	19.43.16	Dione/Rhea	9''	49.0	-21.6	31/05/09	19.12.46	Tethys/Dione	-2''	50.5	-5.9
07/04/09	1.41.34	Tethys/Dione	-2''	23.8	-30.8	02/06/09	1.05.05	Tethys/Dione	5''	-10.6	-20.6
08/04/09	7.18.59	Tethys/Dione	5''	-33.5	27.9	02/06/09	2.20.33	Dione/Rhea	-8''	-22.9	-12.2
08/04/09	16.11.33	Dione/Rhea	-4''	15.4	16.6	02/06/09	20.14.54	Tethys/Rhea	-5''	40.9	-14.1
09/04/09	8.56.53	Tethys/Rhea	-7''	-40.3	44.3	04/06/09	8.08.21	Tethys/Dione	5''	-28.4	47.5
10/04/09	14.20.15	Tethys/Dione	5''	-3.4	36.8	04/06/09	9.42.19	Tethys/Rhea	7''	-13.9	63.2
11/04/09	18.40.31	Tethys/Dione	-3''	43.4	-10.1	05/06/09	6.25.49	Dione/Rhea	4''	-38.4	28.6
11/04/09	20.19.46	Dione/Rhea	8''	54.3	-25.8	05/06/09	12.26.18	Tethys/Dione	-3''	16.7	65.0
11/04/09	21.47.07	Tethys/Rhea	5''	54.3	-35.7	07/06/09	3.02.23	Dione/Rhea	-9''	-31.4	-6.1
12/04/09	6.59.55	Rhea/Titan	-14''	-33.2	25.7	07/06/09	10.03.54	Rhea/Titan	16''	-8.3	66.2
13/04/09	10.24.53	Dione/Titan	-16''	-36.4	55.6	07/06/09	14.35.10	Tethys/Dione	4''	40.6	43.6
13/04/09	11.22.09	Tethys/Rhea	-7''	-30.2	57.1	07/06/09	23.50.40	Tethys/Titan	15''	-0.6	-24.6
13/04/09	15.10.56	Dione/Rhea	-9''	8.1	28.6	08/06/09	18.25.09	Tethys/Dione	-5''	52.1	2.7
13/04/09	20.45.44	Tethys/Dione	4''	55.6	-28.7	08/06/09	21.46.46	Dione/Rhea	8''	20.9	-22.3
15/04/09	0.33.23	Tethys/Dione	-6''	30.2	-35.0	09/06/09	13.16.11	Tethys/Rhea	6''	28.5	57.8
15/04/09	11.03.54	Dione/Rhea	5''	-31.4	57.9	09/06/09	21.55.13	Tethys/Dione	6''	18.7	-22.7
16/04/09	4.02.35	Tethys/Dione	6''	-9.0	-5.8	11/06/09	1.36.23	Tethys/Dione	-4''	-21.5	-16.9
17/04/09	7.43.37	Tethys/Dione	-4''	-38.6	34.9	11/06/09	2.31.16	Tethys/Rhea	-5''	-29.4	-10.3
18/04/09	14.47.17	Tethys/Rhea	-6''	7.6	33.9	12/06/09	1.19.11	Dione/Rhea	-4''	-19.4	-18.6
18/04/09	15.42.34	Dione/Rhea	-8''	17.8	23.8	13/06/09	3.16.00	Tethys/Dione	2''	-35.4	-3.6
19/04/09	9.26.34	Tethys/Dione	3''	-38.7	51.7	13/06/09	15.56.01	Tethys/Rhea	7''	53.3	29.2
20/04/09	3.58.23	Tethys/Rhea	6''	-11.1	-5.3	13/06/09	22.33.02	Dione/Rhea	8''	8.8	-24.2
20/04/09	10.33.09	Dione/Rhea	10''	-32.6	58.6	14/06/09	8.10.10	Tethys/Dione	-5''	-22.8	48.0
20/04/09	14.14.19	Tethys/Dione	-5''	3.1	40.0	14/06/09	22.46.03	Rhea/Titan	-10''	5.7	-24.4
20/04/09	16.52.11	Dione/Titan	16''	31.9	11.3	15/06/09	16.36.05	Dione/Titan	-14''	55.5	22.0
21/04/09	14.04.23	Tethys/Titan	16''	2.1	41.9	15/06/09	17.22.00	Dione/Rhea	-8''	54.7	13.8
22/04/09	3.40.32	Rhea/Titan	17''	-9.3	-7.9	15/06/09	21.47.28	Rhea/Titan	-6''	15.8	-21.8
22/04/09	6.14.44	Dione/Rhea	-6''	-32.6	20.1	16/06/09	5.54.26	Tethys/Rhea	-6''	-37.9	22.9
22/04/09	21.16.06	Tethys/Dione	-5''	53.5	-29.5	16/06/09	7.18.02	Tethys/Titan	-13''	-29.2	38.3
24/04/09	2.03.29	Tethys/Dione	3''	7.0	-22.3	16/06/09	15.13.49	Tethys/Dione	-5''	50.4	37.2
25/04/09	7.22.57	Tethys/Rhea	7''	-39.1	33.4	17/06/09	3.30.22	Rhea/Titan	-10''	-37.9	-1.0
25/04/09	11.01.34	Dione/Rhea	8''	-26.2	61.3	17/06/09	19.57.55	Tethys/Dione	2''	34.2	-10.7
26/04/09	3.45.35	Tethys/Dione	-4''	-13.0	-6.0	17/06/09	20.00.48	Tethys/Rhea	4''	33.7	-11.0
26/04/09	21.08.20	Tethys/Rhea	-5''	52.8	-27.6	17/06/09	20.38.43	Dione/Rhea	2''	27.0	-15.6
27/04/09	7.33.43	Tethys/Dione	6''	-39.8	35.8	17/06/09	22.35.46	Dione/Rhea	2''	5.5	-24.1
28/04/09	10.58.10	Tethys/Dione	-6''	-24.9	62.2	18/06/09	19.40.41	Dione/Rhea	3''	36.5	-8.3
28/04/09	16.01.01	Tethys/Titan	-14''	28.7	22.2	19/06/09	21.45.10	Tethys/Dione	-3''	13.4	-21.5
29/04/09	1.22.21	Dione/Rhea	6''	10.9	-25.8	20/06/09	8.21.35	Tethys/Rhea	-6''	-17.6	49.9
29/04/09	9.46.36	Rhea/Titan	-19''	-33.6	57.3	20/06/09	18.08.34	Dione/Rhea	-8''	48.8	6.1
29/04/09	9.47.05	Tethys/Rhea	8''	-33.5	57.3	22/06/09	5.00.20	Tethys/Dione	-5''	-39.8	13.1
29/04/09	9.48.28	Tethys/Titan	-11''	-33.4	57.5	22/06/09	12.51.33	Dione/Rhea	7''	32.6	62.5
29/04/09	14.49.40	Tethys/Dione	4''	16.4	35.5	22/06/09	22.24.08	Tethys/Rhea	6''	4.2	-23.6
29/04/09	15.49.06	Dione/Titan	-16''	27.3	24.6	23/06/09	8.51.45	Tethys/Dione	3''	-10.6	55.1
29/04/09	18.52.27	Tethys/Titan	-13''	53.7	-8.3	23/06/09	10.57.03	Tethys/Titan	11''	12.4	71.1
01/05/09	16.44.12	Tethys/Dione	-3''	38.2	14.8	23/06/09	21.55.06	Tethys/Titan	9''	8.8	-22.1
01/05/09	23.47.23	Tethys/Rhea	-8''	26.2	-32.0	24/06/09	11.50.25	Dione/Rhea	-2''	22.9	70.0
02/05/09	6.23.10	Dione/Rhea	-7''	-37.2	24.0	24/06/09	15.03.39	Tethys/Titan	11''	52.2	39.4
02/05/09	21.17.06	Tethys/Dione	6''	49.4	-26.9	24/06/09	15.49.00	Rhea/Titan	14''	55.0	31.0
04/05/09	12.00.18	Tethys/Rhea	5''	-11.0	61.8	24/06/09	16.38.49	Dione/Titan	13''	54.9	21.9
05/05/09	4.18.56	Tethys/Dione	5''	-24.1	2.2	25/06/09	4.29.09	Dione/Rhea	-1''	-40.5	7.6
05/05/09	20.43.20	Dione/Rhea	-7''	51.8	-22.6	25/06/09	10.46.05	Tethys/Dione	-2''	11.7	70.5
06/05/09	2.10.51	Tethys/Rhea	-8''	-2.9	-18.0	25/06/09	11.03.59	Tethys/Rhea	-4''	15.1	71.3
06/05/09	9.33.07	Tethys/Dione	-2''	-31.9	57.4	25/06/09	12.47.13	Dione/Rhea	-2''	33.7	63.2
06/05/09	16.11.21	Rhea/Titan	19''	36.1	21.7	26/06/09	15.22.24	Tethys/Dione	4''	54.0	36.0
06/05/09	22.21.06	Dione/Titan	18''	37.7	-30.2	27/06/09	0.52.29	Tethys/Rhea	6''	-24.2	-20.9
06/05/09	23.02.31	Tethys/Titan	16''	30.6	-31.2	27/06/09	13.40.26	Dione/Rhea	7''	43.3	54.6
08/05/09	10.53.12	Tethys/Dione	5''	-19.5	65.0	28/06/09	22.25.49	Tethys/Dione	4''	0.1	-23.8
09/05/09	1.40.36	Dione/Rhea	7''	0.5	-21.1	29/06/09	8.29.21	Dione/Rhea	-7''	-10.8	50.8
09/05/09	14.30.51	Tethys/Dione	-6''	20.4	40.6	30/06/09	3.36.35	Tethys/Dione	-2''	-40.7	-0.6
10/05/09	18.00.34	Tethys/Dione	6''	53.1	2.8	01/07/09	5.56.37	Dione/Rhea	3''	-32.8	22.6
11/05/09	5.28.36	Tethys/Rhea	-6''	-35.6	15.6	01/07/09	17.07.21	Tethys/Titan	-11''	50.8	16.8
11/05/09	21.54.47	Tethys/Dione	-4''	38.8	-27.6	02/07/09	4.23.32	Tethys/Rhea	4''	-40.1	6.2
12/05/09	15.59.28	Dione/Rhea	7''	38.1	24.8	02/07/09	5.02.17	Tethys/Dione	3''	-37.8	12.8
12/05/09	18.43.33	Tethys/Rhea	7''	55.8	-4.1	03/07/09	8.41.13	Tethys/Dione	-4''	-6.1	52.6
14/05/09	0.06.43	Tethys/Dione	3''	13.8	-27.9	03/07/09	17.37.06	Tethys/Rhea	-5''	46.4	11.5
14/05/09	1.25.56	Rhea/Titan	-13''	-0.3	-21.6	04/07/09	9.16.22	Dione/Rhea	-6''	1.3	58.5
14/05/09	8.30.34	Dione/Titan	-12''	-35.1	49.3	04/07/09	12.11.39	Tethys/Dione	4''	33.1	67.7
14/05/09	19.37.18	Dione/Titan	-9''	54.3	-12.2	05/07/09	16.06.05	Tethys/Dione	-3''	54.2	27.8
15/05/09	4.16.00	Tethys/Dione	-6''	-29.2	3.5	06/07/09	4.01.32	Dione/Rhea	6''	-40.5	2.4
15/05/09	6.25.05	Tethys/Titan	-15''	-39.8	26.6	07/07/09	18.19.01	Tethys/Dione	2''	38.0	4.4
15/05/09	20.16.56	Dione/Titan	-14''	50.4	-17.3	08/07/09	0.51.58	Dione/Rhea	-3''	-30.1	-21.9
15/05/09	20.59.22	Dione/Rhea	-6''	44.9	-22.1	08/07/09	21.09.36	Tethys/Rhea	-4''	6.7	-19.2
17/05/09	11.20.13	Tethys/Dione	-5''	-9.0	67.3	08/07/09	22.30.09	Tethys/Dione	-4''	-8.2	-24.7
17/05/09	22.15.35	Tethys/Rhea	7''	31.2	-27.3	09/07/09	5.06.27	Rhea/Titan	11''	-35.3	12.9
18/05/09	17.52.06	Tethys/Dione	2''	54.7	5.5	09/07/09	7.05.27	Dione/Titan	9''	-19.0	34.6
19/05/09	10.16.25	Tethys/Dione	2''	-18.4	65.3	10/07/09	1.19.47	Tethys/Titan	10''	-34.4	-19.9
19/05/09	11.26.48	Dione/Rhea	-8''	-6.4	67.5	10/07/09	10.49.36	Tethys/Rhea	4''	22.2	69.4
19/05/09	11.39.44	Tethys/Rhea	-6''	-3.8	66.9	10/07/09	21.14.09	Dione/Titan	9''	4.5	-19.9
20/05/09	17.55.17	Tethys/Dione	-5''	55.3	5.3	11/07/09	4.48.46	Dione/Rhea	5''	-36.4	9.6
22/05/09	0.46.30	Tethys/Rhea	8''	1.0	-23.7	11/07/09	5.35.49	Tethys/Dione	-3''	-31.2	17.9
22/05/09	16.12.25	Dione/Rhea	6''	46.1	23.8	12/07/09	12.02.16	Tethys/Dione	2''	36.2	67.8

Data	Ora	Lune	Dist. ' ' h	Sat	h Sole									
12/07/09	23.31.42	Tethys/Dione	1''	-21.2	-26.1	03/09/09	9.00.56	Dione/Titan	-0''	35.4	45.0			
12/07/09	23.40.44	Tethys/Rhea	-5''	-22.6	-26.0	03/09/09	12.27.54	Rhea/Titan	-0''	52.0	51.5			
12/07/09	23.41.15	Dione/Rhea	-6''	-22.7	-26.0	03/09/09	16.43.26	Dione/Rhea	0''	17.0	10.1			
13/07/09	4.17.15	Tethys/Dione	1''	-38.5	4.1	03/09/09	20.45.01	Tethys/Titan	0''	-26.2	-30.5			
14/07/09	12.13.01	Tethys/Dione	-3''	39.0	66.6	04/09/09	0.16.50	Tethys/Dione	0''	-43.3	-38.6			
14/07/09	19.52.18	Dione/Rhea	3''	16.9	-10.7	05/09/09	6.54.39	Tethys/Dione	1''	14.4	23.7			
15/07/09	13.43.59	Tethys/Rhea	4''	51.3	53.2	05/09/09	12.52.27	Dione/Rhea	0''	50.1	48.1			
16/07/09	19.20.23	Tethys/Dione	-3''	21.3	-6.4	05/09/09	13.09.02	Tethys/Rhea	1''	48.7	46.0			
17/07/09	6.52.39	Tethys/Rhea	-3''	-16.5	31.3	05/09/09	23.25.59	Tethys/Dione	-0''	-43.3	-41.4			
17/07/09	10.21.18	Tethys/Rhea	-2''	21.5	66.0	07/09/09	6.54.48	Tethys/Dione	1''	15.7	23.4			
17/07/09	23.29.49	Tethys/Dione	2''	-23.9	-26.9	07/09/09	7.41.23	Dione/Rhea	-0''	24.1	31.6			
18/07/09	0.24.22	Dione/Rhea	-5''	-31.5	-25.2	08/09/09	2.00.34	Tethys/Rhea	-1''	-34.2	-28.5			
18/07/09	1.50.37	Tethys/Rhea	-2''	-39.7	-17.9	09/09/09	14.02.23	Tethys/Dione	1''	40.4	36.8			
18/07/09	5.25.39	Dione/Titan	-9''	-29.4	15.3	09/09/09	15.41.33	Tethys/Rhea	1''	24.2	19.7			
18/07/09	8.42.50	Tethys/Titan	-8''	4.0	51.3	10/09/09	11.57.34	Dione/Rhea	0''	51.8	51.2			
19/07/09	1.06.19	Rhea/Titan	-8''	-36.6	-22.4	10/09/09	18.13.20	Tethys/Dione	-0''	-4.4	-8.8			
19/07/09	16.11.27	Tethys/Rhea	4''	49.3	25.9	10/09/09	23.36.26	Rhea/Titan	-1''	-43.9	-43.0			
19/07/09	19.15.28	Dione/Rhea	5''	20.2	-6.0	12/09/09	8.29.53	Dione/Rhea	-1''	35.1	38.2			
20/07/09	1.38.22	Tethys/Dione	-2''	-39.5	-19.5	12/09/09	8.54.23	Dione/Titan	-2''	38.9	41.8			
21/07/09	5.44.20	Tethys/Dione	3''	-25.3	18.2	12/09/09	20.22.01	Tethys/Dione	1''	-27.8	-30.7			
21/07/09	15.12.13	Dione/Rhea	-3''	53.5	36.7	13/09/09	7.39.11	Rhea/Titan	-1''	27.2	29.9			
22/07/09	6.12.14	Tethys/Rhea	-4''	-20.4	23.2	14/09/09	0.27.04	Tethys/Dione	-2''	-41.8	-41.1			
23/07/09	12.52.14	Tethys/Dione	2''	48.6	60.4	14/09/09	3.21.57	Dione/Rhea	1''	-19.0	-16.9			
24/07/09	19.35.25	Tethys/Rhea	3''	13.1	-9.7	14/09/09	19.16.17	Tethys/Rhea	2''	-18.4	-21.1			
24/07/09	19.56.25	Dione/Rhea	4''	9.2	-12.7	16/09/09	7.35.42	Tethys/Dione	-1''	28.3	28.6			
25/07/09	11.59.33	Tethys/Titan	7''	42.7	65.9	16/09/09	8.30.43	Tethys/Rhea	-1''	37.3	37.3			
25/07/09	12.26.26	Dione/Titan	8''	46.3	63.4	17/09/09	6.56.23	Dione/Rhea	-1''	22.0	21.6			
25/07/09	13.36.36	Tethys/Dione	-1''	53.0	53.2	18/09/09	8.27.50	Tethys/Dione	1''	37.8	36.4			
26/07/09	8.53.01	Tethys/Rhea	-3''	10.9	51.9	19/09/09	4.11.14	Dione/Rhea	2''	-7.4	-9.2			
26/07/09	10.54.29	Rhea/Titan	9''	32.9	66.8	19/09/09	14.13.58	Tethys/Dione	-2''	32.9	31.4			
26/07/09	16.19.14	Tethys/Titan	6''	45.1	23.7	19/09/09	14.52.33	Dione/Titan	3''	26.3	25.0			
26/07/09	19.30.17	Tethys/Dione	2''	12.7	-9.3	20/09/09	12.25.45	Tethys/Titan	4''	47.2	45.1			
28/07/09	10.29.15	Dione/Rhea	3''	29.7	64.6	20/09/09	18.02.55	Rhea/Titan	3''	-9.4	-10.2			
29/07/09	2.34.49	Tethys/Dione	2''	-41.4	-14.3	20/09/09	22.56.20	Dione/Rhea	-2''	-44.4	-47.2			
30/07/09	6.53.32	Tethys/Dione	-2''	-8.7	29.8	21/09/09	12.04.06	Tethys/Rhea	-2''	48.8	46.5			
31/07/09	12.29.56	Tethys/Rhea	-2''	49.0	61.7	21/09/09	21.18.36	Tethys/Dione	-2''	-39.4	-41.3			
31/07/09	15.30.41	Dione/Rhea	-3''	48.6	31.9	23/09/09	1.39.25	Tethys/Dione	0''	-30.6	-35.5			
01/08/09	9.03.27	Tethys/Dione	1''	16.6	52.6	23/09/09	1.55.17	Tethys/Rhea	1''	-28.3	-33.2			
02/08/09	1.55.13	Tethys/Rhea	2''	-42.0	-20.2	24/09/09	1.37.08	Dione/Rhea	1''	-30.5	-36.1			
02/08/09	12.53.57	Tethys/Dione	-2''	51.8	58.2	25/09/09	3.48.14	Tethys/Dione	-2''	-8.0	-14.6			
02/08/09	16.50.19	Rhea/Titan	-7''	36.4	16.8	25/09/09	14.34.31	Tethys/Rhea	-3''	25.6	26.0			
02/08/09	18.46.27	Tethys/Titan	-6''	16.0	-3.4	25/09/09	23.48.15	Dione/Rhea	-2''	-42.1	-48.0			
03/08/09	11.50.15	Dione/Titan	-6''	45.5	64.5	26/09/09	7.37.55	Tethys/Dione	3''	34.1	26.7			
03/08/09	16.24.34	Tethys/Dione	2''	39.9	21.4	27/09/09	11.08.35	Tethys/Dione	-2''	50.6	46.2			
04/08/09	5.59.24	Dione/Rhea	-2''	-15.2	19.0	27/09/09	15.51.22	Tethys/Titan	-4''	10.4	12.0			
04/08/09	15.06.03	Tethys/Rhea	-3''	49.6	35.7	27/09/09	18.37.48	Dione/Rhea	3''	-20.0	-18.8			
04/08/09	20.06.25	Tethys/Dione	-2''	0.2	-16.3	28/09/09	4.38.34	Tethys/Rhea	3''	3.4	-5.9			
06/08/09	21.47.52	Tethys/Dione	1''	-19.6	-28.0	28/09/09	11.08.39	Tethys/Titan	-3''	50.4	45.8			
07/08/09	5.08.48	Tethys/Rhea	2''	-21.9	9.3	28/09/09	14.51.05	Tethys/Dione	1''	20.7	22.2			
07/08/09	11.01.05	Dione/Rhea	2''	40.4	64.1	28/09/09	15.42.30	Dione/Titan	-5''	11.4	13.2			
08/08/09	2.41.41	Tethys/Dione	-1''	-39.7	-15.3	28/09/09	19.32.50	Tethys/Titan	-5''	-29.4	-28.7			
08/08/09	20.15.16	Tethys/Rhea	-2''	-4.6	-18.5	29/09/09	17.45.17	Dione/Rhea	-1''	-12.1	-9.9			
08/08/09	6.35.07	Tethys/Rhea	-1''	-5.9	24.8	30/09/09	9.06.23	Dione/Rhea	-1''	47.4	38.0			
09/08/09	16.23.08	Tethys/Rhea	-1''	36.6	20.5	30/09/09	16.36.11	Tethys/Dione	-1''	0.4	3.0			
10/08/09	1.24.28	Rhea/Titan	5''	-42.4	-25.4	30/09/09	17.05.30	Tethys/Rhea	-2''	-5.5	-2.1			
10/08/09	9.46.21	Tethys/Dione	-2''	29.8	57.0	30/09/09	19.03.30	Dione/Rhea	-1''	-26.0	-29.3			
10/08/09	18.58.14	Dione/Titan	5''	8.3	-7.5	01/10/09	21.26.00	Tethys/Dione	3''	-43.3	-46.0			
11/08/09	1.24.33	Dione/Rhea	2''	-42.4	-25.7	02/10/09	7.08.32	Tethys/Rhea	3''	32.5	20.4			
11/08/09	7.36.28	Tethys/Rhea	2''	6.8	35.8	02/10/09	19.28.22	Dione/Rhea	3''	-31.0	-29.3			
11/08/09	14.32.03	Tethys/Dione	1''	50.2	40.4	04/10/09	4.30.39	Tethys/Dione	2''	5.6	-8.6			
13/08/09	16.19.18	Tethys/Dione	-1''	34.8	20.3	04/10/09	14.13.05	Dione/Rhea	-3''	23.6	26.2			
13/08/09	21.39.29	Tethys/Rhea	-2''	-22.5	-29.3	05/10/09	8.26.52	Rhea/Titan	6''	44.9	31.6			
14/08/09	6.32.30	Dione/Rhea	-2''	-2.9	23.6	05/10/09	9.19.56	Tethys/Dione	-1''	49.5	37.9			
14/08/09	20.09.17	Tethys/Dione	1''	-7.7	-19.3	05/10/09	21.27.15	Dione/Titan	6''	-44.2	-47.7			
15/08/09	23.35.08	Tethys/Dione	-1''	-38.5	-34.1	05/10/09	22.48.44	Tethys/Titan	7''	-44.1	-53.0			
16/08/09	10.48.56	Tethys/Rhea	1''	42.9	61.0	06/10/09	12.02.59	Dione/Rhea	1''	42.7	40.6			
17/08/09	3.27.23	Tethys/Dione	1''	-32.0	-10.2	07/10/09	10.37.00	Tethys/Rhea	3''	50.0	42.1			
17/08/09	21.00.09	Dione/Rhea	-2''	-18.5	-26.6	07/10/09	11.04.04	Tethys/Dione	3''	48.4	42.4			
18/08/09	0.15.29	Tethys/Rhea	-1''	-41.8	-33.2	08/10/09	14.53.17	Tethys/Dione	-4''	13.7	18.5			
18/08/09	7.31.00	Dione/Titan	-2''	10.1	33.6	08/10/09	23.52.33	Tethys/Rhea	-3''	-38.0	-52.3			
18/08/09	12.17.22	Dione/Titan	-2''	52.3	58.0	09/10/09	15.04.20	Dione/Rhea	-4''	11.0	16.3			
19/08/09	5.23.28	Tethys/Dione	-0''	-12.8	10.0	09/10/09	18.19.04	Tethys/Dione	3''	-24.3	-19.2			
19/08/09	10.29.35	Tethys/Titan	-2''	41.5	59.0	10/10/09	22.12.11	Tethys/Dione	-2''	-45.0	-53.5			
19/08/09	17.32.43	Dione/Titan	-3''	18.0	5.4	11/10/09	9.54.44	Dione/Rhea	4''	50.6	38.7			
19/08/09	21.47.43	Rhea/Titan	-3''	-27.2	-31.9	13/10/09	0.10.01	Tethys/Dione	2''	-34.2	-52.3			
20/08/09	9.58.55	Tethys/Dione	0''	37.4	56.0	13/10/09	6.45.47	Dione/Rhea	-2''	34.6	14.0			
21/08/09	1.59.05	Dione/Rhea	1''	-40.0	-24.1	13/10/09	9.22.40	Dione/Titan	-6''	50.4	35.6			
22/08/09	17.03.12	Tethys/Dione	1''	21.4	9.9	13/10/09	17.18.09	Dione/Titan	-5''	-16.4	-9.1			
23/08/09	3.53.00	Tethys/Rhea	-0''	-25.6	-7.1	14/10/09	3.29.48	Tethys/Rhea	-4''	0.7	-21.8			
23/08/09	22.17.31	Tethys/Dione	-1''	-33.4	-35.3	14/10/09	4.42.41	Tethys/Dione	-4''	13.9	-8.4			
24/08/09	16.29.58	Dione/Rhea	1''	26.0	15.5	14/10/09	7.41.55	Tethys/Titan	-9''	42.9	22.8			
24/08/09	17.10.27	Tethys/Rhea	1''	18.7	8.1	14/10/09	21.49.20	Dione/Titan	-7''	-45.4	-53.2			
25/08/09	23.40.54	Tethys/Dione	-0''	-41.9	-37.2	15/10/09	6.36.02	Rhea/Titan	-7''	34.1	11.9			
26/08/09	13.47.44	Tethys/Titan	2''	48.8	43.8	15/10/09	17.02.41	Tethys/Rhea	3''	-15.0	-6.8			
27/08/09	3.19.51	Tethys/Dione	0''	-28.6	-13.5	16/10/09	10.42.34	Dione/Rhea	4''	47.2	38.9			
27/08/09	17.55.02	Tethys/Titan	1''	8.5	-0.4	16/10/09	11.46.54	Tethys/Dione	-3''	39.9	37.7			
27/08/09	21.24.56	Dione/Rhea	-1''	-28.3	-32.6	17/10/09	17.07.10	Tethys/Dione	1''	-17.1	-8.2			
28/08/09	6.50.40	Tethys/Dione	0''	8.8	24.5	18/10/09	5.30.18	Dione/Rhea	-5''	24.8	0.1			
29/08/09	10.46.08	Tethys/Dione	-0''	47.6	56.7	18/10/09	6.02.46	Tethys/Rhea	-5''	30.3	5.6			
29/08/09	20.36.18	Tethys/Rhea	-0''	-21.9	-27.7	19/10/09	18.24.25	Tethys/Dione	-4''	-30.9	-23.1			
31/08/09	10.55.27	Tethys/Rhea	-1''	49.1	56.3	20/10/09	1.55.52	Dione/Rhea	3''	-13.3	-39.8		</	

OCCULTAZIONI TRA I SATELLITI DI SATURNO

MM	GG	HH	MM	Sec	Event Type	Ph	Durn	dMag	%Ill	Sep	PA	MinSep	T1	T2	T3	Tmax	T5	T6	T7
1	3	10	1	1	(II) occ (III)	P	7	0.0	100.0	26.9	85	0.119		10 0 57		10 1 1		10 1 5	
1	6	17	27	13	(II) occ (III)	P	106	0.0	99.6	36.1	265	0.115		17 26 20		17 27 13		17 28 6	
1	7	4	30	53	(I) occ (II)	P	268	0.1	88.5	25.0	86	0.045		4 28 39		4 30 53		4 33 7	
1	8	4	7	27	(III) occ (II)	P	66	0.1	94.9	31.4	265	0.093		4 6 54		4 7 27		4 8 0	
1	11	10	37	57	(III) occ (II)	P	51	0.0	99.6	36.6	85	0.116		10 37 31		10 37 57		10 38 22	
1	12	22	8	6	(II) occ (III)	A	127	0.2	81.9	34.9	85	0.036		22 7 2	22 7 52		22 8 6	22 8 19	22 9 9
1	17	15	54	26	(III) occ (III)	P	177	0.2	82.3	37.3	265	0.048		15 52 57		15 54 26		15 55 54	
1	20	9	41	26	(I) occ (III)	P	136	0.0	98.8	27.5	85	0.104		9 40 18		9 41 26		9 42 34	
1	20	4	19	15	(I) occ (V)	P	112	0.0	99.6	7.2	256	0.145		4 18 19		4 19 15		4 20 11	
1	22	5	23	58	(I) occ (II)	P	745	0.1	92.1	21.2	87	0.052		5 17 46		5 23 58		5 30 11	
1	22	7	3	7	(I) occ (III)	A	294	0.1	87.7	27.9	85	0.009		7 0 40	7 2 1	7 3 7	7 4 13	7 5 34	
1	24	4	24	7	(I) occ (III)	P	186	0.1	94.5	28.3	85	0.085		4 22 34		4 24 7		4 25 40	
1	29	11	16	47	(I) occ (IV)	P	338	0.0	96.4	26.7	263	0.097		11 13 58		11 16 47		11 19 36	
1	29	11	16	47	(I) occ (IV)	P	337	0.0	96.4	26.7	263	0.097		11 13 59		11 16 47		11 19 36	
1	31	7	55	23	(I) ecl (III)	A	366	0.0	100.0	30.1	265	0.035	7 52 19	7 53 1	7 54 2	7 55 23	7 56 43	7 57 44	7 58 26
2	2	5	20	9	(I) ecl (III)	P	371	0.1	89.4	29.6	265	0.065	5 17 4	5 18 0		5 20 9		5 22 18	5 23 15
2	2	5	20	10	(I) ecl (III)	P	366	0.1	89.4	29.6	265	0.065	5 17 7	5 18 2		5 20 10		5 22 17	5 23 13
2	6	11	27	40	(II) occ (III)	A	292	0.2	81.9	38.0	85	0.028		11 25 14	11 26 57	11 27 40	11 28 22	11 30 6	
3	8	2	34	11	(I) ecl (II)	E	68	0.0	99.4	30.1	263	0.068	2 33 37			2 34 11			2 34 45
3	23	4	20	44	(I) ecl (II)	P	119	0.3	78.6	29.4	262	0.041	4 19 44	4 20 9		4 20 44		4 21 18	4 21 43
4	7	6	8	21	(I) ecl (II)	P	112	0.3	77.2	28.4	262	0.040	6 7 26	6 7 50		6 8 21		6 8 53	6 9 17
4	17	7	4	8	(II) ecl (III)	A	613	0.0	100.0	36.8	87	0.030	6 59 1	6 59 41	7 2 29	7 4 8	7 5 47	7 8 35	7 9 15
4	22	7	56	50	(I) ecl (II)	E	73	0.0	97.1	27.3	261	0.062	7 56 14			7 56 50			7 57 27
4	28	11	56	48	(II) ecl (I)	P	191	1.1	35.1	28.5	83	0.025	11 55 12	11 55 36		11 56 48		11 58 0	11 58 23
5	6	18	41	49	(III) ecl (I)	E	31	0.0	99.2	15.6	88	0.129	18 41 34			18 41 49			18 42 5
5	6	14	6	37	(III) ecl (II)	P	283	0.4	66.6	36.6	84	0.039	14 4 15	14 4 44		14 6 37		14 8 30	14 8 59
5	8	15	58	31	(III) ecl (I)	E	65	0.6	60.2	15.8	88	0.083	15 57 59			15 58 31			15 59 4
5	10	13	15	14	(III) ecl (I)	P	78	0.4	71.7	16.0	88	0.039	13 14 35	13 14 55		13 15 14		13 15 32	13 15 53
5	12	10	31	57	(III) ecl (I)	T	81	9.9	0.0	16.2	88	0.003	10 31 17	10 31 35	10 31 52	10 31 57	10 32 2	10 32 19	10 32 38
5	14	7	48	41	(III) ecl (I)	P	77	0.5	65.0	16.4	88	0.044	7 48 2	7 48 23		7 48 41		7 48 59	7 49 19
5	16	5	5	25	(III) ecl (I)	E	65	0.5	60.3	16.6	88	0.083	5 4 53			5 5 25			5 5 58
5	18	2	22	11	(III) ecl (I)	E	40	0.0	97.1	16.8	88	0.120	2 21 50			2 22 11			2 22 31
5	26	10	0	51	(II) ecl (III)	P	178	0.1	87.3	32.9	262	0.071	9 59 22	9 59 53		10 0 51		10 1 48	10 2 19
5	31	3	50	8	(III) ecl (II)	P	131	1.0	41.4	34.2	86	0.070	3 49 2	3 49 32		3 50 8		3 50 44	3 51 13
6	3	9	30	29	(I) ecl (III)	E	43	0.0	99.6	24.0	90	0.120	9 30 7			9 30 29			9 30 51
6	4	21	54	4	(II) ecl (III)	E	15	0.0	100.0	26.6	261	0.138	21 53 57			21 54 4			21 54 12
6	5	20	16	43	(III) occ (II)	P	1115	0.1	91.5	27.9	82	0.077		20 7 25		20 16 43		20 26 0	
6	5	6	47	19	(I) ecl (III)	A	80	0.1	89.0	23.7	90	0.068	6 46 39	6 47 6	6 47 7	6 47 19	6 47 31	6 47 32	6 47 59
6	6	8	26	36	(III) ecl (II)	P	277	0.3	78.5	34.5	265	0.093	8 24 18	8 25 13		8 26 36		8 28 0	8 28 55
6	7	4	4	9	(I) ecl (III)	A	92	0.0	100.0	23.4	90	0.017	4 3 23	4 3 43	4 3 43	4 4 9	4 4 34	4 4 35	4 4 54
6	9	1	20	57	(I) ecl (III)	A	89	0.1	89.7	23.2	90	0.033	1 20 13	1 20 34	1 20 34	1 20 57	1 21 21	1 21 21	1 21 42
6	10	22	37	46	(I) ecl (III)	E	72	0.1	93.4	22.9	90	0.083	22 37 10			22 37 46			22 38 22
6	12	19	54	33	(I) ecl (III)	E	20	0.0	100.0	22.6	90	0.132	19 54 23			19 54 33			19 54 43
6	20	11	19	0	(I) ecl (II)	E	27	0.0	98.6	6.4	104	0.081	11 18 46			11 19 0			11 19 13
6	20	0	7	52	(II) ecl (III)	E	61	0.0	99.6	27.4	262	0.122	0 7 22			0 7 52			0 8 22
6	22	16	13	19	(II) ecl (I)	E	42	0.0	96.9	22.4	264	0.068	16 12 58			16 13 19			16 13 40
6	23	6	11	31	(I) ecl (II)	E	51	0.4	68.3	12.9	93	0.013	6 11 6	6 11 22	6 11 22	6 11 31	6 11 41	6 11 41	6 11 57
6	23	19	51	38	(I) ecl (I)	E	18	0.0	99.7	10.5	89	0.088	19 51 29			19 51 38			19 51 47
6	24	18	14	28	(III) ecl (II)	E	84	0.3	79.1	28.3	87	0.096	18 13 46			18 14 28			18 15 10
6	24	14	3	53	(V) ecl (IV)	P	1098	0.3	75.4	47.9	83	0.019	13 54 44	13 56 20		14 3 53		14 11 27	14 13 3
6	25	11	38	51	(IV) ecl (III)	P	283	1.0	41.2	40.7	265	0.057	11 36 30	11 37 7		11 38 51		11 40 36	11 41 13
6	25	1	52	52	(V) ecl (IV)	P	1795	0.8	46.4	3.7	325	0.031	1 37 55	1 39 32		1 52 52		2 6 12	2 7 49
6	26	1	2	33	(I) ecl (II)	E	46	0.2	86.0	18.8	90	0.052	1 2 10			1 2 33			1 2 56
6	26	14	45	22	(II) ecl (I)	A	48	0.3	74.0	3.5	98	0.013	14 44 58	14 45 13	14 45 17	14 45 22	14 45 26	14 45 30	14 45 45
6	28	16	57	56	(III) ecl (II)	E	47	0.0	96.7	7.9	99	0.129	16 57 33			16 57 56			16 58 20
6	29	9	39	17	(II) ecl (I)	E	34	0.1	92.7	3.9	254	0.069	9 39 0			9 39 17			9 39 34
6	29	12	26	24	(II) ecl (III)	E	72	0.0	96.0	18.9	261	0.103	12 25 48			12 26 24			12 27 0
6	29	23	26	12	(I) ecl (II)	E	44	0.2	81.2	7.9	251	0.048	23 25 49			23 26 12			23 26 34
7	1	19	58	0	(I) ecl (V)	E	54	0.0	99.7	4.0	163	0.171	19 57 33			19 58 0			19 58 27
7	1	7	34	5	(IV) ecl (V)	P	600	0.7	54.0	48.3	262	0.055	7 29 5	7 30 15		7 34 5		7 37 55	7 39 5
7	2	18	18	33	(I) ecl (II)	E	42	0.2	82.2	2.0	199	0.050	18 18 12			18 18 33			18 18 54
7	2	5	49	19	(III) ecl (IV)	A	179	0.0	100.0	36.5	88	0.002	5 47 49	5 48 21	5 49 1	5 49 19	5 49 37	5 50 17	5 50 48
7	3	11	15	13	(II) ecl (III)	E	71	0.1	90.6	4.7	105	0.088	11 14 38			11 15 13			11 15 48
7	3	9	26	28	(IV) ecl (III)	E	39	0.0	99.9	6.1	251	0.198	9 26 8			9 26 28			9 26 47
7	4	3	33	41	(V) ecl (I)	E	95	0.4	70.3	2.0	106	0.106	3 32 54			3 33 41			3 34 28
7	4	6	38	27	(III) ecl (II)	E	56	0.1	94.7	19.7	89	0.121	6 37 59			6 38 27			6 38 55
7	4	15	39	23	(I) ecl (IV)	E	41	0.0	99.6	2.9	173	0.134	15 39 2			15 39 23			15 39 43
7	6	1	1	26	(IV) ecl (I)	E	67	0.4	67.7	3.5	97	0.091	1 0 53			1 1 26			1 2 0
7	6	2	53	19	(II) ecl (I)	E	27	0.0	98.6	15.9	87	0.079	2 53 5			2 53 19			2 53 32
7	6	8	13	11	(III) ecl (V)	E	77	0.0	99.5	3.7	180	0.222	8 12 32			8 13 11			8 13 49
7	6	11	19	14	(I) ecl (V)	E	118	0.0	100.0	13.4	101	0.018	11 18 15	11 18 47	11 18 33	11 19 14	11 19 55	11 19 41	11 20 13
7	7	10	37	13	(I) ecl (IV)	E	86	0.0	96.4	6.9	108	0.017	10 36 31	10 36 54	10 36 47	10 37 13	10 37 40	10 37 33	10 37 56
7	7	19	6	32	(III) ecl (IV)	P	174	0.1	92.0	42.3	87	0.134	19 5 5	19 6 19		19 6 32		19 6 45	19 7 59
7	8	2	15	41	(V) ecl (IV)	P	470	1.2	33.9	52.5	85	0.042	2 11 46	2 12 47		2 15 41		2 18 35	2 19 36
7	8	5	28	28	(III) ecl (II)	P	83												

MM	GG	HH	MM	Sec	Event	Type	Ph	Durn	dMag	%Ill	Sep	PA	MinSep	T1	T2	T3	Tmax	T5	T6	T7														
7	15	1	18	28	(I)	ecl (II)	E	45	0.2	79.8	7.6	254	0.047	1	18	5	1	18	28	1	18	50												
7	15	14	38	57	(III)	ecl (V)	P	154	0.2	82.5	22.2	93	0.127	14	37	40	14	38	57	14	39	11	14	40	14									
7	15	16	34	52	(III)	ecl (IV)	P	123	0.5	60.7	10.3	98	0.079	16	33	50	16	34	52	16	35	17	16	35	54									
7	15	16	55	45	(I)	ecl (V)	E	275	0.0	100.0	31.1	91	0.011	16	53	28	16	54	25	16	55	45	16	57	18	16	58	3						
7	16	22	18	45	(II)	ecl (III)	E	30	0.0	100.0	32.0	87	0.132	22	18	30	22	18	45	22	19	0	22	19	0	22	19	0						
7	16	20	0	48	(IV)	ecl (III)	E	69	0.0	99.0	22.6	88	0.179	20	0	14	20	0	48	20	0	48	20	1	22	20	1	22						
7	17	17	57	39	(III)	ecl (II)	P	94	0.2	86.2	14.2	260	0.017	17	56	52	17	57	39	17	58	4	17	58	26	17	58	26						
7	18	3	4	38	(V)	ecl (III)	P	367	0.2	85.3	39.9	265	0.007	3	1	35	3	4	38	3	6	46	3	7	42	3	7	42						
7	18	6	23	41	(VI)	ecl (I)	T	324	9.9	0.0	2.3	253	0.160	6	20	59	6	22	36	6	23	41	6	24	45	6	25	10	6	26	23			
7	18	7	38	48	(VII)	ecl (I)	E	112	0.2	82.8	6.7	90	0.086	7	37	52	7	38	10	7	38	48	7	39	26	7	39	44	7	39	44			
7	18	10	40	29	(VI)	ecl (III)	T	448	9.9	0.0	13.4	261	0.180	10	36	45	10	39	58	10	40	29	10	41	1	10	42	36	10	44	13			
7	18	12	30	14	(VII)	ecl (III)	E	142	0.1	95.5	3.5	247	0.165	12	29	2	12	29	31	12	30	14	12	30	56	12	31	25	12	31	25			
7	19	19	23	21	(I)	ecl (V)	E	131	0.0	100.0	10.8	250	0.031	19	22	16	19	22	50	19	23	21	19	24	6	19	23	52	19	24	27			
7	19	17	5	12	(III)	ecl (V)	A	195	0.3	73.5	20.0	257	0.071	17	3	34	17	4	17	17	5	12	17	5	46	17	6	6	17	6	49			
7	21	4	47	28	(II)	ecl (I)	P	49	0.7	53.9	14.8	87	0.032	4	47	4	4	47	22	4	47	28	4	47	34	4	47	53	4	47	53			
7	21	16	10	51	(III)	ecl (II)	E	114	0.1	90.4	31.4	264	0.104	16	9	54	16	10	51	16	10	51	16	11	48	16	11	48	16	11	48			
7	21	16	18	14	(V)	ecl (IV)	P	331	1.2	31.8	50.6	86	0.077	16	15	28	16	16	27	16	18	14	16	20	0	16	20	59	16	20	59			
7	22	2	55	37	(V)	ecl (I)	E	100	0.4	68.9	11.8	88	0.105	2	54	47	2	55	37	2	55	37	2	56	27	2	56	27	2	56	27			
7	22	9	48	9	(IV)	ecl (III)	P	122	0.5	62.7	11.3	90	0.088	9	47	8	9	48	9	9	48	9	9	48	31	9	49	9	9	49	9			
7	22	12	13	40	(II)	ecl (III)	A	100	0.2	82.4	23.4	87	0.030	12	12	50	12	13	13	12	13	40	12	14	3	12	14	7	12	14	30			
7	24	5	25	44	(II)	ecl (V)	E	156	0.1	88.1	20.7	258	0.071	5	24	26	5	25	13	5	25	44	5	26	27	5	26	16	5	27	2			
7	25	14	49	40	(IV)	ecl (VI)	E	627	0.0	98.8	29.9	254	0.210	14	44	26	14	46	49	14	46	16	14	49	40	14	53	4	14	52	31	14	54	53
7	25	15	8	15	(II)	ecl (VI)	E	574	0.0	99.7	29.1	253	0.482	15	3	28	15	8	15	15	8	15	15	8	15	15	13	2	15	13	2			
7	25	18	9	29	(II)	ecl (VI)	E	1478	0.0	100.0	21.4	249	0.101	17	57	10	18	9	29	18	9	29	18	19	56	18	17	15	18	21	48			
7	25	22	11	12	(II)	ecl (VI)	E	1656	0.0	100.0	11.6	234	0.065	21	57	24	22	1	51	21	59	30	22	11	12	22	22	55	22	20	34	22	25	0
7	26	7	2	55	(I)	ecl (VI)	E	332	0.0	100.0	14.8	109	0.189	7	0	8	7	2	55	7	2	55	7	5	19	7	4	17	7	5	41			
7	26	9	38	46	(II)	ecl (III)	A	304	0.2	81.0	33.8	86	0.048	9	36	14	9	36	44	9	38	46	9	39	11	9	40	48	9	41	18			
7	26	9	44	18	(V)	ecl (III)	P	222	0.8	48.0	34.1	86	0.045	9	42	27	9	43	13	9	44	18	9	45	23	9	45	23	9	46	9			
7	26	9	47	30	(V)	ecl (II)	P	234	0.6	56.1	32.6	85	0.104	9	45	33	9	46	56	9	47	30	9	48	4	9	48	4	9	49	27			
7	26	13	22	23	(V)	ecl (VI)	E	495	0.1	93.8	30.6	96	0.367	13	18	15	13	22	23	13	22	23	13	23	32	13	23	32	13	26	31			
7	26	14	41	15	(II)	ecl (VI)	E	32	0.0	100.0	34.0	95	0.514	14	40	59	14	41	15	14	41	15	14	41	15	14	41	15	14	41	15			
7	26	15	52	5	(V)	ecl (IV)	E	53	0.0	99.9	11.8	94	0.248	15	51	39	15	52	5	15	52	5	15	52	5	15	52	5	15	52	5			
7	26	18	45	5	(III)	ecl (VI)	E	594	0.0	100.0	44.3	93	0.192	18	40	8	18	42	16	18	41	44	18	45	5	18	48	25	18	47	53	18	50	2
7	26	20	2	16	(V)	ecl (II)	T	616	9.9	0.0	11.1	271	0.010	19	57	8	19	58	26	20	0	40	20	2	16	20	3	53	20	6	7	20	7	24
7	27	8	19	35	(I)	ecl (II)	E	33	0.0	98.0	13.6	260	0.074	8	19	18	8	19	35	8	19	35	8	19	35	8	19	35	8	19	35	8	19	51
7	27	6	21	52	(III)	ecl (II)	P	110	0.4	70.7	23.4	263	0.035	6	20	57	6	21	21	6	21	52	6	22	24	6	22	24	6	22	24			
7	28	11	27	51	(IV)	ecl (V)	E	205	0.0	96.0	44.3	263	0.177	11	26	9	11	27	51	11	27	51	11	27	51	11	27	51	11	27	51	11	29	33
7	29	3	9	40	(III)	ecl (IV)	A	148	0.7	53.7	19.4	260	0.027	3	8	27	3	8	58	3	9	40	3	9	40	3	9	40	3	10	23	3	10	54
7	29	5	10	15	(I)	ecl (IV)	E	85	0.2	87.0	10.1	255	0.064	5	9	32	5	10	4	5	9	54	5	10	15	5	10	35	5	10	26	5	10	57
7	29	11	39	12	(II)	ecl (VII)	E	116	0.1	92.3	17.4	105	0.080	11	38	14	11	38	49	11	39	12	11	39	34	11	39	34	11	40	9	11	40	9
7	30	12	56	15	(III)	occ (II)	P	223	0.2	85.8	32.4	85	0.054	12	56	15	12	56	15	12	56	15	12	56	15	12	56	15	12	56	15	12	56	15
7	30	14	33	2	(IV)	ecl (I)	P	88	0.1	95.2	11.5	88	0.018	14	32	19	14	32	42	14	33	2	14	33	23	14	33	46	14	33	46	14	33	46
7	31	10	35	31	(V)	ecl (II)	E	66	0.0	97.8	15.9	262	0.177	10	34	58	10	35	31	10	35	31	10	35	31	10	35	31	10	35	31	10	35	31
8	1	0	5	46	(I)	ecl (IV)	E	46	0.0	99.4	4.5	243	0.129	0	5	23	0	5	46	0	5	46	0	5	46	0	5	46	0	5	46	0	5	46
8	1	0	32	43	(II)	ecl (III)	A	131	0.0	100.0	30.0	86	0.018	0	31	38	0	32	0	0	32	13	0	32	43	0	33	13	0	33	26	0	33	49
8	2	2	47	9	(III)	ecl (V)	A	298	0.3	78.7	34.6	262	0.016	2	44	39	2	46	22	2	47	9	2	47	55	2	48	47	2	49	38	2	49	38
8	2	4	10	20	(IV)	ecl (II)	E	78	0.0	95.7	29.3	86	0.125	4	9	41	4	10	20	4	10	20	4	10	20	4	10	20	4	10	20	4	10	59
8	2	11	21	55	(IV)	ecl (V)	A	190	0.5	61.5	2.1	193	0.032	11	20	20	11	21	8	11	21	22	11	21	55	11	22	28	11	22	41	11	23	29
8	2	14	1	59	(II)	ecl (V)	E	127	0.2	86.7	10.5	96	0.056	14	0	56	14	1	35	14	1	21	14	1	59	14	2	38	14	2	24	14	3	3
8	2	18	55	52	(VI)	ecl (V)	T	599	9.9	0.0	29.7	89	0.123	18	50	53	18	52	58	18	55	14	18	55	52	18	56	31	18	58	47	19	0	52
8	2	20	20	42	(VI)	ecl (III)	E	319	0.3	75.6	23.7	87	0.429	20	18	3	20	20	42	20	20	42	20	20	42	20	20	42	20	20	42	20	23	22
8	3	6	22	35	(VI)	ecl (II)	T	389	9.9	0.0	4.4	252	0.014	6	19	21	6	20	38	6	21	6	6	22	35	6	24	5	6	24	32	6	25	50
8	3	13	38	8	(VI)	ecl (IV)	T	525	9.9	0.0	23.7																							

MM	GG	HH	MM	Sec	Event Type	Ph	Durn	dMag	%Ill	Sep	PA	MinSep	T1	T2	T3	Tmax	T5	T6	T7
8	27	5	38	4	(III) ecl (VI)	E	522	0.0	99.8	7.1	93	0.471	5 33 43			5 38 4			5 42 25
8	27	6	1	36	(II) occ (III)	P	49	0.1	91.1	5.1	83	0.068		6 1 11		6 1 36		6 2 0	
8	27	7	10	18	(V) ecl (I)	P	423	0.2	85.8	7.3	87	0.066	7 6 46	7 8 5		7 10 18		7 12 30	7 13 49
8	27	21	51	32	(V) ecl (IV)	E	100	0.0	99.8	46.6	265	0.220	21 50 42			21 51 32			21 52 22
8	28	17	8	12	(II) occ (I)	P	32	0.3	74.1	8.2	267	0.022		17 7 56		17 8 12		17 8 28	
8	28	10	28	4	(VII) occ (VI)	A	384	0.0	99.7	77.9	86	0.277		10 24 51	10 25 45	10 28 4	10 30 22	10 31 16	
8	29	8	47	39	(VII) occ (III)	P	89	0.1	93.7	30.2	86	0.055		8 46 54		8 47 39		8 48 23	
8	29	9	44	43	(I) ecl (V)	E	83	0.0	99.7	20.5	265	0.161	9 44 2			9 44 43			9 45 25
8	29	11	1	21	(IV) ecl (III)	P	219	1.6	24.0	36.3	86	0.033	10 59 32	11 0 5		11 1 21		11 2 38	11 3 11
8	29	20	49	0	(III) occ (I)	T	83	0.1	87.7	21.7	87	0.038		20 48 18	20 48 50	20 49 0	20 49 10	20 49 41	
8	30	9	35	52	(VII) occ (I)	A	196	0.4	66.3	24.7	267	0.004		9 34 14	9 35 39	9 35 52	9 36 6	9 37 30	
8	30	7	43	39	(III) ecl (II)	P	379	2.1	15.1	30.6	265	0.050	7 40 30	7 41 4		7 43 39		7 46 14	7 46 49
8	31	4	46	41	(II) occ (III)	P	48	0.0	97.6	25.0	85	0.089		4 46 17		4 46 41		4 47 5	
8	31	11	21	35	(V) ecl (III)	E	39	0.0	100.0	39.0	86	0.219	11 21 16			11 21 35			11 21 55
8	31	12	8	23	(V) occ (IV)	T	181	0.5	65.1	34.8	86	0.011		12 6 53	12 8 11	12 8 23	12 8 36	12 9 54	
8	31	18	7	10	(III) occ (I)	T	89	0.1	87.7	21.8	87	0.023		18 6 25	18 6 52	18 7 10	18 7 28	18 7 55	
9	1	1	50	56	(V) ecl (III)	T	1423	9.9	0.0	17.8	265	0.002	1 39 5	1 41 7	1 50 0	1 50 56	1 51 53	2 0 46	2 2 48
9	1	1	50	56	(V) ecl (III)	T	1427	9.9	0.0	17.8	265	0.002	1 39 3	1 41 5	1 50 0	1 50 56	1 51 53	2 0 48	2 2 50
9	1	5	35	21	(V) occ (III)	P	1882	0.4	69.0	32.7	266	0.040		5 19 40		5 35 21		5 51 2	
9	1	12	50	3	(IV) occ (I)	P	25	0.0	98.9	0.1	296	0.092		12 49 50		12 50 3		12 50 16	
9	2	15	25	22	(III) occ (I)	P	46	0.0	98.0	21.9	87	0.084		15 25 0		15 25 22		15 25 45	
9	2	22	16	58	(I) occ (IV)	P	51	0.1	91.1	2.2	87	0.060		22 16 33		22 16 58		22 17 24	
9	3	0	28	42	(I) occ (V)	P	46	0.0	98.4	12.0	266	0.111		0 28 19		0 28 42		0 29 5	
9	3	0	53	22	(II) occ (IV)	P	28	0.0	99.2	14.4	86	0.100		0 53 9		0 53 22		0 53 36	
9	3	3	24	48	(II) occ (V)	A	83	0.1	90.4	0.2	291	0.067		3 24 7	3 24 44	3 24 48	3 24 53	3 25 30	
9	3	12	28	52	(VI) occ (V)	P	300	0.0	97.1	34.7	85	0.359		12 26 22		12 28 52		12 31 22	
9	3	16	42	54	(IV) occ (V)	P	59	0.0	99.9	48.3	86	0.172		16 42 25		16 42 54		16 43 24	
9	3	21	31	32	(VI) occ (II)	P	96	0.0	99.8	10.4	85	0.356		21 30 44		21 31 32		21 32 20	
9	4	0	16	27	(IV) occ (III)	T	136	0.7	52.8	28.3	85	0.002		0 15 19	0 16 25	0 16 27	0 16 28	0 17 34	
9	4	0	50	58	(IV) occ (II)	T	102	0.2	83.4	26.0	85	0.011		0 50 7	0 50 39	0 50 58	0 51 17	0 51 49	
9	4	10	28	41	(II) ecl (I)	E	15	0.0	99.9	11.6	87	0.089	10 28 34			10 28 41			10 28 48
9	4	22	52	1	(III) occ (II)	P	103	0.2	83.4	28.1	265	0.045		22 51 9		22 52 1		22 52 53	
9	4	16	58	9*	(VI) occ (IV)	T	12104	0.1	95.5	41.8	265	0.180		15 17 17	16 5 6	16 58 9	17 51 12	18 39 1	
9	9	16	56	1	(II) occ (III)	P	48	0.0	99.4	30.6	85	0.098		16 55 37		16 56 1		16 56 26	
9	10	13	52	58	(I) ecl (II)	A	55	0.2	81.6	13.8	266	0.005	13 52 31		13 52 48	13 52 58	13 53 8	13 53 10	13 53 26
9	10	18	13	30	(III) occ (IV)	P	211	0.5	63.5	37.2	266	0.030		18 11 45		18 13 30		18 15 15	
9	10	18	19	58	(III) ecl (IV)	P	240	0.9	43.4	36.9	266	0.051	18 17 58	18 18 33		18 19 58		18 21 23	18 21 58
9	14	10	30	57	(III) ecl (II)	P	183	0.2	81.7	31.2	265	0.095	10 29 26	10 30 16		10 30 57		10 31 39	10 32 29
9	15	2	11	41	(IV) occ (I)	P	706	0.0	96.2	15.8	88	0.079		2 5 48		2 11 41		2 17 34	
9	16	17	29	56	(II) occ (I)	P	36	0.2	81.4	16.4	87	0.030		17 29 38		17 29 56		17 30 14	
9	17	18	9	56	(IV) occ (I)	T	123	0.1	88.8	23.4	87	0.003		18 8 54	18 9 27	18 9 56	18 10 26	18 10 58	
9	19	3	22	44	(I) ecl (IV)	E	104	0.1	92.4	22.4	267	0.082	3 21 52		3 22 37	3 22 44	3 22 51		3 23 36
9	20	12	44	17	(IV) ecl (I)	P	107	0.4	70.1	19.7	87	0.041	12 43 24	12 43 51		12 44 17		12 44 43	12 45 11
9	23	1	35	49	(IV) ecl (III)	P	276	1.3	30.9	38.1	86	0.043	1 33 31	1 34 6		1 35 49		1 37 31	1 38 7
9	25	15	43	25	(I) ecl (II)	E	29	0.0	98.9	14.0	268	0.078	15 43 11			15 43 25			15 43 40
10	1	19	22	53	(II) ecl (I)	P	55	0.7	53.6	15.6	86	0.019	19 22 25	19 22 42		19 22 53		19 23 4	19 23 21
10	4	5	48	45	(II) ecl (III)	P	370	0.1	94.7	29.1	84	0.091	5 45 40	5 46 40		5 48 45		5 50 50	5 51 50
10	5	9	6	25	(III) ecl (IV)	A	343	1.5	24.5	39.7	267	0.020	9 3 33	9 4 10	9 6 14	9 6 25	9 6 37	9 8 41	9 9 17
10	7	22	44	48	(I) ecl (II)	P	56	0.4	71.4	19.5	268	0.037	22 44 20	22 44 41		22 44 48		22 44 56	22 45 16
10	14	2	28	12	(II) ecl (I)	E	56	0.3	77.6	20.1	86	0.049	2 27 44			2 28 12			2 28 39
10	17	16	40	46	(IV) ecl (III)	P	342	0.2	79.6	39.3	87	0.111	16 37 55	16 38 49		16 40 46		16 42 42	16 43 36
10	20	5	51	26	(I) ecl (II)	E	43	0.0	98.3	23.9	268	0.069	5 51 4			5 51 26			5 51 47
10	26	9	44	53	(II) ecl (I)	P	94	0.8	47.0	23.6	86	0.011	9 44 6	9 44 23		9 44 53		9 45 23	9 45 40
10	30	11	40	9	(III) ecl (IV)	A	1877	0.2	80.2	7.1	63	0.001	11 24 30	11 25 40	11 39 10	11 40 9	11 41 8	11 54 38	11 55 48
11	1	13	15	16	(I) ecl (II)	P	118	0.8	49.7	26.6	268	0.019	13 14 17	13 14 35		13 15 16		13 15 56	13 16 14
12	23	18	53	25	(III) ecl (IV)	P	671	0.7	52.1	44.2	270	0.063	18 47 49	18 48 43		18 53 25		18 58 6	18 59 0

Ore in T.U.

Legenda :

Data nel formato mese/giorno, un asterisco indica che le lune si avvicinano ma non si occultano

Event type : tipo di evento, eclissi o occultazione

Ph : fenomeno, M=mancato, E=eclisse penombrale, P=eclisse/occultazione parziale, T=eclisse/occultazione totale, A=eclisse/occultazione anulare

Durn : durata in secondi

dMag : caduta di luce in magnitudini

%Ill : cambio in illuminazione, rispetto alla illuminazione intera, della luna rimanente (occultazione) o di entrambe (eclissi)

Sep : distanza in " tra satellite occultato/eclissato e centro del pianeta

Pa : angolo di posizione tra satellite occultato/eclissato e pianeta

MinSep : distanza minima tra i centri delle lune o tra la luna e l'ombra

T1-T7 : inizio/fine della fase di contatto con la penombra

T2-T6 : inizio/fine della fase di contatto con l'ombra o tra i lembi delle lune

T3-T5 : inizio/fine della fase di totalità

Tmax : tempo di metà evento

Satelliti :

I = Mimas

II = Enceladus

III = Tethys

IV = Dione

V = Rhea

VI = Titan

VII = Hyperion © (8)

CONGIUNZIONI ED ELONGAZIONI DEI SATELLITI DI SATURNO

Tethys Congiunzione superiore

Data	Ora	h Sat	h Sole				
01/01/2009	08.07.4	24.3	11.9	10/06/2009	18.35.4	50.3	1.4
03/01/2009	05.25.5	47.8	-13.5	12/06/2009	15.54.6	52.9	29.3
05/01/2009	02.43.7	50.7	-43.1	14/06/2009	13.13.8	31.4	58.6
07/01/2009	00.01.8	29.7	-68.4	16/06/2009	10.33.1	3.4	69.6
08/01/2009	21.19.8	1.8	-58.2	18/06/2009	07.52.4	-23.3	44.7
10/01/2009	18.37.9	-25.3	-28.7	20/06/2009	05.11.8	-39.6	15.2
12/01/2009	15.55.8	-41.9	0.7	22/06/2009	02.31.2	-34.5	-10.4
14/01/2009	13.13.8	-36.1	21.7	23/06/2009	23.50.6	-12.3	-24.1
16/01/2009	10.31.7	-13.1	26.1	25/06/2009	21.10.1	15.7	-18.6
18/01/2009	07.49.6	15.3	10.6	27/06/2009	18.29.5	42.3	2.9
20/01/2009	05.07.4	41.6	-16.2	29/06/2009	15.49.1	55.2	31.0
22/01/2009	02.25.2	53.3	-45.8	01/07/2009	13.08.6	40.7	59.9
23/01/2009	23.43.0	38.0	-66.9	03/07/2009	10.28.2	13.7	68.5
25/01/2009	21.00.7	10.9	-51.7	05/07/2009	07.47.8	-14.3	42.8
27/01/2009	18.18.4	-17.1	-21.9	07/07/2009	05.07.4	-35.9	13.3
29/01/2009	15.36.1	-38.3	7.0	09/07/2009	02.27.1	-39.7	-12.2
31/01/2009	12.53.7	-40.2	27.4	10/07/2009	23.46.7	-22.4	-25.6
02/02/2009	10.11.3	-21.1	28.9	12/07/2009	21.06.4	4.6	-19.3
04/02/2009	07.28.9	6.5	10.4	14/07/2009	18.26.2	32.3	2.7
06/02/2009	04.46.5	34.3	-17.7	16/07/2009	15.45.9	52.7	31.0
08/02/2009	02.04.0	52.9	-46.7	18/07/2009	13.05.7	48.3	59.1
09/02/2009	23.21.6	45.4	-62.4	20/07/2009	10.25.5	24.1	65.9
11/02/2009	20.39.1	20.2	-44.2	22/07/2009	07.45.3	-4.1	40.4
13/02/2009	17.56.6	-8.4	-14.4	24/07/2009	05.05.1	-29.4	10.8
15/02/2009	15.14.0	-32.6	14.6	26/07/2009	02.25.0	-41.7	-15.1
17/02/2009	12.31.5	-41.8	34.1	27/07/2009	23.44.8	-31.4	-28.7
19/02/2009	09.48.9	-28.2	32.4	29/07/2009	21.04.7	-7.0	-22.1
21/02/2009	07.06.4	-1.5	11.0	31/07/2009	18.24.6	21.3	0.8
23/02/2009	04.23.8	26.3	-18.0	02/08/2009	15.44.5	46.1	29.0
25/02/2009	01.41.2	49.6	-45.6	04/08/2009	13.04.5	52.8	56.3
26/02/2009	22.58.6	51.2	-55.9	06/08/2009	10.24.4	34.0	62.1
28/02/2009	20.16.1	29.2	-36.2	08/08/2009	07.44.3	6.4	37.7
02/03/2009	17.33.5	1.3	-6.4	10/08/2009	05.04.3	-21.1	8.0
04/03/2009	14.50.9	-25.5	22.6	12/08/2009	02.24.3	-40.1	-18.6
06/03/2009	12.08.3	-40.9	41.4	13/08/2009	23.44.3	-38.6	-33.3
08/03/2009	09.25.7	-33.9	36.2	15/08/2009	21.04.2	-17.9	-26.5
10/03/2009	06.43.2	-10.6	12.1	17/08/2009	18.24.2	9.9	-3.0
12/03/2009	04.00.6	17.8	-17.3	19/08/2009	15.44.2	36.9	25.3
14/03/2009	01.18.1	44.1	-42.7	21/08/2009	13.04.3	52.9	51.7
15/03/2009	22.35.5	54.6	-48.5	23/08/2009	10.24.3	42.6	57.4
17/03/2009	19.53.0	37.9	-28.2	25/08/2009	07.44.3	16.9	34.7
19/03/2009	17.10.5	10.4	1.8	27/08/2009	05.04.3	-11.5	5.1
21/03/2009	14.28.1	-17.4	30.7	29/08/2009	02.24.3	-35.2	-22.6
23/03/2009	11.45.6	-37.5	48.8	30/08/2009	23.44.4	-42.9	-38.8
25/03/2009	09.03.2	-38.1	39.8	01/09/2009	21.04.4	-28.0	-32.2
27/03/2009	06.20.8	-18.6	13.6	03/09/2009	18.24.4	-1.1	-8.5
29/03/2009	03.38.4	9.1	-15.7	05/09/2009	15.44.5	26.3	20.4
31/03/2009	00.56.0	36.8	-38.6	07/09/2009	13.04.5	48.4	45.9
01/04/2009	22.13.7	54.8	-41.1	09/09/2009	10.24.5	48.8	51.9
03/04/2009	19.31.4	45.8	-20.5	11/09/2009	07.44.5	27.0	31.2
05/04/2009	16.49.1	20.0	9.1	13/09/2009	05.04.6	-0.5	2.2
07/04/2009	14.06.9	-8.5	38.3	15/09/2009	02.24.6	-27.7	-26.7
09/04/2009	11.24.7	-32.0	55.6	16/09/2009	23.44.6	-43.6	-44.9
11/04/2009	08.42.5	-40.1	42.9	18/09/2009	21.04.6	-36.7	-38.5
13/04/2009	06.00.4	-26.1	15.0	20/09/2009	18.24.6	-13.2	-14.1
15/04/2009	03.18.3	0.3	-13.7	22/09/2009	15.44.6	15.0	14.9
17/04/2009	00.36.3	28.3	-34.1	24/09/2009	13.04.6	40.6	39.4
18/04/2009	21.54.3	51.4	-34.0	26/09/2009	10.24.5	51.2	45.8
20/04/2009	19.12.3	52.1	-13.4	28/09/2009	07.44.5	36.1	27.2
22/04/2009	16.30.4	29.5	15.7	30/09/2009	05.04.4	9.3	-0.8
24/04/2009	13.48.5	1.5	45.2	02/10/2009	02.24.4	-18.8	-30.8
26/04/2009	11.06.6	-24.9	61.6	03/10/2009	23.44.3	-40.5	-51.1
28/04/2009	08.24.8	-39.7	45.0	05/10/2009	21.04.2	-42.9	-44.9
30/04/2009	05.43.1	-32.6	16.1	07/10/2009	18.24.1	-23.9	-19.5
02/05/2009	03.01.4	-9.5	-11.7	09/10/2009	15.44.0	3.7	9.4
04/05/2009	00.19.7	18.8	-29.8	11/10/2009	13.03.9	31.0	33.1
05/05/2009	21.38.1	45.0	-27.9	13/10/2009	10.23.7	49.4	39.5
07/05/2009	18.56.5	55.6	-7.4	15/10/2009	07.43.5	43.5	22.7
09/05/2009	16.14.9	38.7	21.5	17/10/2009	05.03.3	19.4	-5.1
11/05/2009	13.33.4	11.2	51.0	19/10/2009	02.23.1	-9.0	-34.9
13/05/2009	10.52.0	-16.5	66.2	20/10/2009	23.42.9	-34.4	-57.1
15/05/2009	08.10.6	-36.5	46.0	22/10/2009	21.02.7	-45.8	-50.6
17/05/2009	05.29.2	-37.5	16.6	24/10/2009	18.22.4	-33.4	-24.0
19/05/2009	02.47.9	-18.6	-10.2	26/10/2009	15.42.1	-7.7	4.9
21/05/2009	00.06.6	8.8	-26.4	28/10/2009	13.01.8	20.6	27.6
22/05/2009	21.25.4	36.5	-23.1	30/10/2009	10.21.5	43.9	33.6
24/05/2009	18.44.2	55.1	-1.7	01/11/2009	07.41.1	48.1	18.0
26/05/2009	16.03.1	46.9	26.1	03/11/2009	05.00.7	28.9	-9.2
28/05/2009	13.22.0	21.3	55.5	05/11/2009	02.20.3	1.5	-39.0
30/05/2009	10.40.9	-7.0	69.0	06/11/2009	23.39.9	-26.3	-62.6
01/06/2009	07.59.9	-30.9	45.8	08/11/2009	20.59.4	-44.9	-54.6
03/06/2009	05.18.9	-40.1	16.3	10/11/2009	18.18.9	-41.0	-26.8
05/06/2009	02.38.0	-27.2	-9.7	12/11/2009	15.38.4	-18.4	2.0
06/06/2009	23.57.1	-1.1	-24.4	14/11/2009	12.57.9	9.9	23.5
08/06/2009	21.16.2	26.5	-19.9	16/11/2009	10.17.3	36.0	28.5

18/11/2009	07.36.7	49.2	13.3	10/12/2009	23.26.7	-7.7	-70.5
20/11/2009	04.56.0	37.1	-13.4	12/12/2009	20.45.6	-33.9	-55.3
22/11/2009	02.15.3	11.2	-43.3	14/12/2009	18.04.5	-47.5	-25.7
23/11/2009	23.34.6	-17.2	-67.2	16/12/2009	15.23.3	-36.4	2.3
25/11/2009	20.53.9	-40.6	-56.3	18/12/2009	12.42.1	-11.0	21.2
27/11/2009	18.13.1	-45.9	-27.4	20/12/2009	10.00.9	17.5	22.7
29/11/2009	15.32.3	-28.1	1.2	22/12/2009	07.19.6	41.3	5.8
01/12/2009	12.51.4	-0.2	21.3	24/12/2009	04.38.3	47.3	-21.4
03/12/2009	10.10.6	27.0	24.8	26/12/2009	01.56.9	29.5	-51.2
05/12/2009	07.29.6	46.6	9.1	27/12/2009	23.15.5	2.4	-71.3
07/12/2009	04.48.7	43.5	-17.6	29/12/2009	20.34.1	-25.7	-51.9
09/12/2009	02.07.7	20.7	-47.5	31/12/2009	17.52.6	-45.5	-21.9

Tethys Congiunzione inferiore

Data	Ora	h Sat	h Sole				
02/01/2009	06.46.4	37.4	0.6	06/06/2009	01.17.5	-15.3	-19.1
04/01/2009	04.04.6	53.0	-28.1	07/06/2009	22.36.6	12.4	-24.7
06/01/2009	01.22.7	41.9	-57.5	09/06/2009	19.55.7	39.7	-10.9
07/01/2009	22.40.8	15.8	-68.7	11/06/2009	17.14.9	55.5	14.7
09/01/2009	19.58.8	-12.6	-43.8	13/06/2009	14.34.2	43.8	44.3
11/01/2009	17.16.8	-35.7	-13.8	15/06/2009	11.53.4	17.5	69.5
13/01/2009	14.34.8	-42.0	12.5	17/06/2009	09.12.7	-10.7	58.9
15/01/2009	11.52.7	-25.8	26.6	19/06/2009	06.32.1	-33.5	29.7
17/01/2009	09.10.6	1.3	20.4	21/06/2009	03.51.5	-40.0	1.8
19/01/2009	06.28.4	29.2	-1.3	23/06/2009	01.10.9	-24.7	-19.3
21/01/2009	03.46.3	50.6	-31.0	24/06/2009	22.30.3	1.8	-23.8
23/01/2009	01.04.0	48.4	-59.1	26/06/2009	19.49.8	29.6	-9.4
24/01/2009	22.21.8	25.0	-63.5	28/06/2009	17.09.3	51.8	16.5
26/01/2009	19.39.5	-3.1	-37.1	30/06/2009	14.28.8	50.8	45.9
28/01/2009	16.57.2	-29.2	-7.0	02/07/2009	11.48.4	27.7	69.9
30/01/2009	14.14.9	-42.4	18.8	04/07/2009	09.07.9	0.0	57.1
01/02/2009	11.32.5	-32.4	31.0	06/07/2009	06.27.6	-26.4	27.8
03/02/2009	08.50.1	-7.9	21.5	08/07/2009	03.47.2	-40.8	0.2
05/02/2009	06.07.7	20.8	-2.6	10/07/2009	01.06.9	-32.9	-21.0
07/02/2009	03.25.2	45.8	-32.5	11/07/2009	22.26.6	-9.6	-25.0
09/02/2009	00.42.8	52.7	-58.1	13/07/2009	19.46.3	18.7	-9.8
10/02/2009	22.00.3	33.8	-56.5	15/07/2009	17.06.0	44.4	16.4
12/02/2009	19.17.8	6.0	-29.6	17/07/2009	14.25.8	54.3	45.6
14/02/2009	16.35.3	-21.5	1.0	19/07/2009	11.45.5	37.4	68.0
16/02/2009	13.52.7	-40.0	26.3	21/07/2009	09.05.3	10.0	54.7
18/02/2009	11.10.2	-37.4	36.4	23/07/2009	06.25.2	-17.7	25.5
20/02/2009	08.27.6	-16.0	23.3	25/07/2009	03.45.0	-38.1	-2.5
22/02/2009	05.45.1	12.2	-2.7	27/07/2009	01.04.9	-39.2	-24.1
24/02/2009	03.02.5	39.4	-32.5	28/07/2009	22.24.7	-20.1	-28.0
26/02/2009	00.19.9	54.3	-54.6	30/07/2009	19.44.6	7.3	-12.2
27/02/2009	21.37.3	41.8	-48.6	01/08/2009	17.04.5	34.7	14.4
01/03/2009	18.54.7	15.3	-21.7	03/08/2009	14.24.5	53.0	43.4
03/03/2009	16.12.2	-13.0	8.8	05/08/2009	11.44.4	45.5	64.2
05/03/2009	13.29.6	-35.4	34.2	07/08/2009	09.04.3	20.5	51.6
07/03/2009	10.47.0	-40.3	42.2	09/08/2009	06.24.3	-7.9	22.8
09/03/2009	08.04.4	-23.4	25.5	11/08/2009	03.44.3	-32.3	-6.2
11/03/2009	05.21.9	3.7	-1.8	13/08/2009	01.04.2	-42.4	-28.2
13/03/2009	02.39.3	31.7	-31.1	14/08/2009	22.24.2	-29.8	-32.6
14/03/2009	23.56.8	52.7	-49.4	16/08/2009	19.44.2	-4.3	-16.2
16/03/2009	21.14.3	48.8	-40.5	18/08/2009	17.04.2	23.8	10.8
18/03/2009	18.31.7	24.6	-13.8	20/08/2009	14.24.2	47.4	39.5
20/03/2009	15.49.3	-3.7	16.7	22/08/2009	11.44.2	51.0	59.0
22/03/2009	13.06.8	-29.0	42.2	24/08/2009	09.04.3	30.6	48.0
24/03/2009	10.24.3	-40.8	47.8	26/08/2009	06.24.3	2.8	20.0
26/03/2009	07.41.9	-30.0	27.7	28/08/2009	03.44.3	-24.4	-9.6
28/03/2009	04.59.5	-5.2	-0.6	30/08/2009	01.04.3	-42.0	-33.0
30/03/2009	02.17.2	23.3	-28.6	31/08/2009	22.24.4	-37.8	-38.5
31/03/2009	23.34.8	48.2	-43.3	02/09/2009	19.44.4	-15.6	-21.5
02/04/2009	20.52.5	53.8	-32.7	04/09/2009	17.04.4	12.4	6.0
04/04/2009	18.10.2	33.7	-6.2	06/09/2009	14.24.4	38.8	34.2
06/04/2009	15.28.0	5.8	24.1	08/09/2009	11.44.5	52.3	52.7
08/04/2009	12.45.8	-21.4	49.9	10/09/2009	09.04.5	39.5	43.7
10/04/2009	10.03.6	-38.9	52.8	12/09/2009	06.24.5	13.2	16.9
12/04/2009	07.21.4	-35.4	29.6	14/09/2009	03.44.5	-15.1	-13.0
14/04/2009	04.39.3	-13.9	0.7	16/09/2009	01.04.5	-37.9	-38.0
16/04/2009	01.57.3	14.2	-25.6	17/09/2009	22.24.6	-43.1	-45.1
17/04/2009	23.15.2	41.3	-37.2	19/09/2009	19.44.6	-26.1	-27.5
19/04/2009	20.33.2	55.8	-25.5	21/09/2009	17.04.5	1.2	0.8
21/04/2009	17.51.3	42.3	1.1	23/09/2009	14.24.5	28.6	28.3
23/04/2009	15.09.4	15.5	30.8	25/09/2009	11.44.5	49.0	46.0
25/04/2009	12.27.5	-12.6	56.8	27/09/2009	09.04.5	46.3	38.7
27/04/2009	09.45.7	-34.5	56.6	29/09/2009	06.24.4	23.3	13.4
29/04/2009	07.03.9	-39.0	30.9	01/10/2009	03.44.4	-5.0	-16.5
01/05/2009	04.22.2	-22.2	1.9	03/10/2009	01.04.3	-31.1	-43.1
03/05/2009	01.40.5	4.7	-22.6	04/10/2009	22.24.2	-44.9	-51.8
04/05/2009	22.58.8	32.7	-31.8	06/10/2009	19.44.1	-35.2	-33.3
06/05/2009	20.17.2	53.8	-19.2	08/10/2009	17.04.0	-10.6	-4.9
08/05/2009	17.35.7	49.7	6.7	10/10/2009	14.23.9	17.7	22.5
10/05/2009	14.54.2	25.4	36.6	12/10/2009	11.43.7	42.3	39.4
12/05/2009	12.12.7	-2.5	62.6	14/10/2009	09.03.6	49.9	33.4
14/05/2009	09.31.3	-28.1	58.9	16/10/2009	06.23.4	32.6	9.6
16/05/2009	06.49.9	-40.0	31.4	18/10/2009	03.43.2	5.4	-20.2
18/05/2009	04.08.5	-29.8	2.7	20/10/2009	01.03.0	-22.5	-48.0
20/05/2009	01.27.2	-5.4	-20.3	21/10/2009	22.22.8	-42.9	-58.1
21/05/2009	22.46.0	22.9	-27.5	23/10/2009	19.42.5	-42.2	-38.2
23/05/2009	20.04.8	48.0	-14.3	25/10/2009	17.02.2	-21.3	-9.4
25/05/2009	17.23.6	54.6	11.4	27/10/2009	14.21.9	6.7	17.6
27/05/2009	14.42.5	35.0	41.1	29/10/2009	11.41.6	33.5	33.4
29/05/2009	12.01.4	7.2	67.0	31/10/2009	09.01.3	49.4	28.0
31/05/2009	09.20.4	-20.0	59.6	02/11/2009	06.20.9	40.4	5.3
02/06/2009	06.39.4	-38.2	31.0	04/11/2009	03.40.5	15.4	-24.1
04/06/2009	03.58.4	-36.0	2.7	06/11/2009	01.00.1	-13.1	-52.7

07/11/2009	22.19.6	-37.6	-63.4	06/12/2009	06.09.1	48.5	-3.2
09/11/2009	19.39.1	-46.2	-41.4	08/12/2009	03.28.2	33.4	-32.5
11/11/2009	16.58.6	-31.0	-12.2	10/12/2009	00.47.1	6.8	-61.4
13/11/2009	14.18.1	-4.3	14.1	11/12/2009	22.06.1	-21.5	-67.4
15/11/2009	11.37.5	23.7	28.7	13/12/2009	19.25.0	-43.3	-40.7
17/11/2009	08.56.9	45.3	23.0	15/12/2009	16.43.9	-44.8	-11.3
19/11/2009	06.16.3	46.0	1.1	17/12/2009	14.02.7	-24.6	13.3
21/11/2009	03.35.7	24.9	-28.3	19/12/2009	11.21.5	3.5	24.6
23/11/2009	00.55.0	-2.7	-57.3	21/12/2009	08.40.2	30.5	16.0
24/11/2009	22.14.2	-30.1	-66.7	23/12/2009	05.58.9	47.6	-7.2
26/11/2009	19.33.5	-46.5	-42.3	25/12/2009	03.17.6	40.5	-36.3
28/11/2009	16.52.7	-39.1	-12.9	27/12/2009	00.36.2	16.3	-64.5
30/11/2009	14.11.8	-14.9	12.6	28/12/2009	21.54.8	-12.2	-65.0
02/12/2009	11.31.0	13.5	25.7	30/12/2009	19.13.3	-37.4	-36.9
04/12/2009	08.50.1	38.6	18.9				

Tethys Massima elongazione est

Data	Ora	h Sat	h Sole				
02/01/2009	02.28.8	48.2	-45.8	01/06/2009	19.36.4	47.1	-9.2
03/01/2009	23.51.2	25.7	-69.4	03/06/2009	16.56.8	55.0	17.2
05/01/2009	21.16.8	-0.6	-58.2	05/06/2009	14.17.3	36.5	46.7
07/01/2009	18.45.9	-26.0	-30.7	07/06/2009	11.37.9	9.1	70.0
09/01/2009	16.19.2	-41.4	-4.0	09/06/2009	08.58.6	-18.1	56.5
11/01/2009	13.57.2	-39.2	16.7	11/06/2009	06.19.4	-37.4	27.5
13/01/2009	11.40.8	-22.7	26.5	13/06/2009	03.40.4	-37.5	0.4
15/01/2009	09.30.9	-0.6	22.0	15/06/2009	01.01.5	-18.4	-20.0
17/01/2009	07.28.6	19.9	7.5	16/06/2009	22.22.7	8.6	-23.6
19/01/2009	05.34.5	38.2	-11.4	18/06/2009	19.44.1	35.9	-8.8
22/01/2009	02.58.5	53.1	-39.8	20/06/2009	17.05.6	54.4	16.9
24/01/2009	01.22.0	50.5	-56.2	22/06/2009	14.27.3	47.4	46.0
25/01/2009	23.47.8	40.1	-66.2	24/06/2009	11.49.2	22.7	70.1
27/01/2009	22.11.6	25.4	-61.6	26/06/2009	09.11.3	-5.1	58.3
29/01/2009	20.30.0	8.4	-45.6	28/06/2009	06.33.6	-29.5	29.6
31/01/2009	18.41.1	-10.3	-25.3	30/06/2009	03.56.1	-40.8	2.1
02/02/2009	16.44.5	-28.0	-3.4	02/07/2009	01.19.0	-30.6	-19.1
04/02/2009	14.40.6	-40.5	16.7	03/07/2009	22.42.1	-7.0	-24.7
06/02/2009	12.30.3	-40.1	30.7	05/07/2009	20.05.5	20.6	-11.7
08/02/2009	10.14.8	-25.5	30.8	07/07/2009	17.29.3	45.4	12.7
10/02/2009	07.54.9	-2.3	15.7	09/07/2009	14.53.5	54.5	41.1
12/02/2009	05.31.4	22.2	-8.2	11/07/2009	12.18.2	38.2	66.4
14/02/2009	03.05.0	44.8	-34.7	13/07/2009	09.43.4	12.0	61.7
16/02/2009	00.36.3	53.8	-56.7	15/07/2009	07.09.2	-14.9	34.6
17/02/2009	22.05.6	39.5	-55.0	17/07/2009	04.35.7	-35.7	6.7
19/02/2009	19.33.3	14.4	-30.9	19/07/2009	02.03.1	-40.6	-16.6
21/02/2009	16.59.6	-12.3	-1.4	20/07/2009	23.31.4	-25.8	-27.5
23/02/2009	14.24.8	-34.3	24.1	22/07/2009	21.00.9	-0.8	-20.3
25/02/2009	11.49.1	-41.4	38.8	24/07/2009	18.31.8	24.7	0.8
27/02/2009	09.12.6	-27.6	31.4	26/07/2009	16.04.3	47.0	26.4
01/03/2009	06.35.4	-1.9	8.0	28/07/2009	13.39.0	53.6	52.4
03/03/2009	03.57.7	25.1	-20.6	30/07/2009	11.16.1	38.6	66.4
05/03/2009	01.19.4	48.6	-45.8	01/08/2009	08.56.5	15.4	51.5
06/03/2009	22.40.7	52.7	-52.1	03/08/2009	06.41.0	-8.5	26.8
08/03/2009	20.01.7	32.8	-31.8	05/08/2009	04.30.7	-28.7	3.0
10/03/2009	17.22.3	5.4	-1.9	07/08/2009	02.27.0	-40.8	-17.2
12/03/2009	14.42.7	-21.4	26.0	09/08/2009	00.31.8	-40.6	-29.7
14/03/2009	12.02.8	-39.2	44.7	10/08/2009	22.47.1	-30.8	-32.3
16/03/2009	09.22.7	-36.8	38.9	12/08/2009	21.14.6	-17.8	-26.7
18/03/2009	06.42.5	-16.1	14.6	14/08/2009	19.54.4	-4.9	-17.2
20/03/2009	04.02.1	11.5	-14.4	16/08/2009	18.43.2	7.1	-6.5
22/03/2009	01.21.6	38.6	-39.2	19/08/2009	16.58.1	24.3	11.7
23/03/2009	22.40.9	54.9	-45.8	21/08/2009	15.38.7	36.6	25.8
25/03/2009	20.00.2	44.3	-27.3	23/08/2009	14.07.0	48.0	41.5
27/03/2009	17.19.4	18.4	1.8	25/08/2009	12.23.2	52.9	55.2
29/03/2009	14.38.5	-9.7	31.0	27/08/2009	10.28.7	44.9	56.5
31/03/2009	11.57.5	-32.8	51.2	29/08/2009	08.25.6	26.7	40.9
02/04/2009	09.16.6	-40.3	44.6	31/08/2009	06.15.7	4.3	17.5
04/04/2009	06.35.6	-25.9	18.8	02/09/2009	04.00.5	-19.1	-7.8
06/04/2009	03.54.5	0.4	-10.3	04/09/2009	01.41.2	-37.9	-30.1
08/04/2009	01.13.5	28.1	-33.8	05/09/2009	23.18.6	-43.1	-41.5
09/04/2009	22.32.4	51.2	-39.2	07/09/2009	20.53.5	-29.7	-33.1
11/04/2009	19.51.3	52.1	-21.7	09/09/2009	18.26.3	-6.3	-10.8
13/04/2009	17.10.2	29.9	6.7	11/09/2009	15.57.4	20.0	16.1
15/04/2009	14.29.2	2.1	36.4	13/09/2009	13.27.1	43.2	40.6
17/04/2009	11.48.1	-24.3	57.6	15/09/2009	10.55.7	51.6	50.8
19/04/2009	09.07.1	-39.6	49.1	17/09/2009	08.23.3	36.6	36.0
21/04/2009	06.26.1	-33.4	21.9	19/09/2009	05.50.0	11.1	9.2
23/04/2009	03.45.1	-10.8	-6.9	21/09/2009	03.16.1	-16.1	-19.5
25/04/2009	01.04.2	17.3	-28.9	23/09/2009	00.41.5	-38.0	-42.7
26/04/2009	22.23.2	43.7	-33.2	24/09/2009	22.06.4	-43.7	-46.8
28/04/2009	19.42.4	55.8	-16.3	26/09/2009	19.30.9	-28.0	-27.7
30/04/2009	17.01.5	40.3	11.4	28/09/2009	16.55.0	-1.5	0.4
02/05/2009	14.20.7	13.3	41.2	30/09/2009	14.18.7	25.2	26.8
04/05/2009	11.40.0	-14.5	63.2	02/10/2009	11.42.0	46.8	43.4
06/05/2009	08.59.3	-35.4	52.5	04/10/2009	09.05.1	48.3	36.6
08/05/2009	06.18.7	-38.4	24.3	06/10/2009	06.28.0	27.9	12.5
10/05/2009	03.38.1	-20.9	-3.8	08/10/2009	03.50.6	0.9	-16.8
12/05/2009	00.57.5	5.9	-24.8	10/10/2009	01.13.0	-26.3	-43.9
13/05/2009	22.17.1	33.7	-28.3	11/10/2009	22.35.1	-44.0	-55.0
15/05/2009	19.36.7	54.1	-11.9	13/10/2009	19.57.2	-39.9	-37.7
17/05/2009	16.56.3	49.3	15.1	15/10/2009	17.19.0	-17.8	-9.9
19/05/2009	14.16.1	24.9	44.9	17/10/2009	14.40.7	10.0	17.6
21/05/2009	11.35.9	-2.9	67.5	19/10/2009	12.02.3	36.0	35.8
23/05/2009	08.55.7	-28.1	54.8	21/10/2009	09.23.7	50.2	33.1
25/05/2009	06.15.7	-40.1	26.1	23/10/2009	06.45.0	39.3	11.6
27/05/2009	03.35.7	-30.1	-1.1	25/10/2009	04.06.2	13.9	-17.4
29/05/2009	00.55.9	-6.2	-21.8	27/10/2009	01.27.2	-14.3	-46.1
30/05/2009	22.16.1	22.0	-25.0	28/10/2009	22.48.2	-38.1	-61.4

30/10/2009	20.09.1	-45.7	-44.5	01/12/2009	22.50.7	-20.0	-69.8
01/11/2009	17.29.8	-30.0	-16.1	03/12/2009	20.10.1	-42.3	-49.2
03/11/2009	14.50.5	-3.3	11.4	05/12/2009	17.29.5	-45.3	-19.6
05/11/2009	12.11.1	24.3	29.7	07/12/2009	14.48.8	-25.9	7.2
07/11/2009	09.31.6	45.8	28.5	09/12/2009	12.08.0	2.0	23.5
09/11/2009	06.52.0	46.3	8.7	11/12/2009	09.27.1	29.1	21.2
11/11/2009	04.12.3	25.3	-19.6	13/12/2009	06.46.2	47.3	1.8
13/11/2009	01.32.5	-2.0	-49.1	15/12/2009	04.05.2	41.8	-26.6
14/11/2009	22.52.7	-29.5	-66.4	17/12/2009	01.24.1	18.2	-56.2
16/11/2009	20.12.8	-46.1	-48.4	18/12/2009	22.42.9	-10.3	-70.6
18/11/2009	17.32.8	-39.3	-19.3	20/12/2009	20.01.7	-35.9	-47.0
20/11/2009	14.52.7	-15.5	7.9	22/12/2009	17.20.4	-47.6	-17.2
22/11/2009	12.12.5	12.7	25.5	24/12/2009	14.39.0	-34.5	9.1
24/11/2009	09.32.3	38.1	24.3	26/12/2009	11.57.6	-8.5	23.9
26/11/2009	06.52.0	48.8	5.2	28/12/2009	09.16.0	20.0	19.3
28/11/2009	04.11.7	34.7	-22.9	30/12/2009	06.34.4	42.9	-1.0
30/11/2009	01.31.2	8.3	-52.5				

Tethys Massima elongazione ovest

Data	Ora	h Sat	h Sole				
01/01/2009	03.48.7	53.1	-31.0	26/05/2009	04.55.7	-37.7	11.7
03/01/2009	01.09.6	38.2	-59.6	28/05/2009	02.15.8	-19.1	-13.4
04/01/2009	22.33.6	12.3	-68.6	29/05/2009	23.36.0	7.9	-26.0
06/01/2009	20.00.9	-14.3	-44.7	31/05/2009	20.56.2	35.5	-19.0
08/01/2009	17.32.0	-35.4	-17.0	02/06/2009	18.16.6	54.6	3.5
10/01/2009	15.07.5	-42.7	7.4	04/06/2009	15.37.0	47.9	31.9
12/01/2009	12.48.2	-32.0	23.3	06/06/2009	12.57.6	23.1	60.5
14/01/2009	10.35.0	-12.3	25.9	08/06/2009	10.18.2	-4.9	67.9
16/01/2009	08.28.8	9.6	15.6	10/06/2009	07.39.0	-29.3	42.3
18/01/2009	06.30.5	29.6	-1.0	12/06/2009	04.59.9	-40.4	13.2
20/01/2009	04.40.6	45.3	-21.0	14/06/2009	02.20.9	-29.6	-11.6
21/01/2009	03.48.7	50.4	-30.6	15/06/2009	23.42.1	-5.4	-24.3
23/01/2009	02.09.7	53.1	-48.4	17/06/2009	21.03.3	22.6	-18.1
25/01/2009	00.34.9	46.0	-62.5	19/06/2009	18.24.8	47.3	3.5
26/01/2009	23.00.2	33.1	-65.9	21/06/2009	15.46.4	54.5	31.4
28/01/2009	21.21.6	17.1	-54.4	23/06/2009	13.08.2	36.0	59.9
30/01/2009	19.36.5	-0.3	-35.8	25/06/2009	10.30.2	8.8	69.2
01/02/2009	17.43.7	-19.4	-14.6	27/06/2009	07.52.4	-18.2	44.2
03/02/2009	15.43.4	-35.3	7.0	29/06/2009	05.14.8	-37.6	15.2
05/02/2009	13.36.2	-42.3	24.9	01/07/2009	02.37.5	-38.2	-10.0
07/02/2009	11.23.2	-34.2	32.8	03/07/2009	00.00.5	-19.7	-24.3
09/02/2009	09.05.3	-14.8	24.8	04/07/2009	21.23.8	6.9	-20.2
11/02/2009	06.43.6	9.7	4.6	06/07/2009	18.47.4	33.9	0.2
13/02/2009	04.18.6	34.3	-21.4	08/07/2009	16.11.4	53.2	26.8
15/02/2009	01.50.9	52.1	-47.1	10/07/2009	13.35.8	48.7	55.0
16/02/2009	23.21.2	49.0	-60.0	12/07/2009	11.00.7	25.5	69.6
18/02/2009	20.49.6	27.5	-44.2	14/07/2009	08.26.2	-1.0	48.8
20/02/2009	18.16.6	1.2	-16.6	16/07/2009	05.52.4	-26.6	20.3
22/02/2009	15.42.4	-24.3	11.7	18/07/2009	03.19.3	-40.9	-6.0
24/02/2009	13.07.1	-40.5	33.7	20/07/2009	00.47.1	-35.1	-24.1
26/02/2009	10.31.0	-36.6	38.0	21/07/2009	22.16.0	-14.3	-26.1
28/02/2009	07.54.1	-15.8	20.9	23/07/2009	19.46.2	11.8	-11.1
02/03/2009	05.16.6	11.4	-6.2	25/07/2009	17.17.8	36.9	13.1
04/03/2009	02.38.6	38.0	-34.2	27/07/2009	14.51.4	53.2	39.8
06/03/2009	00.00.1	54.3	-52.8	29/07/2009	12.27.2	48.0	62.5
07/03/2009	21.21.2	44.6	-44.1	31/07/2009	10.05.9	27.4	61.6
09/03/2009	18.42.0	19.3	-17.6	02/08/2009	07.48.2	3.4	39.4
11/03/2009	16.02.5	-8.6	12.3	04/08/2009	05.35.1	-19.3	14.6
13/03/2009	13.22.8	-32.1	37.5	06/08/2009	03.27.9	-36.1	-8.0
15/03/2009	10.42.8	-41.0	45.2	08/08/2009	01.28.2	-42.3	-24.6
17/03/2009	08.02.6	-27.9	28.0	09/08/2009	23.38.0	-36.5	-32.2
19/03/2009	05.22.3	-2.0	0.6	11/08/2009	21.59.3	-24.4	-30.3
21/03/2009	02.41.8	25.5	-28.0	13/08/2009	20.33.1	-11.2	-22.2
23/03/2009	00.01.3	49.3	-46.0	15/08/2009	19.18.0	1.5	-11.9
24/03/2009	21.20.6	52.9	-38.8	17/08/2009	18.08.9	12.7	-0.1
26/03/2009	18.39.8	32.1	-13.5	18/08/2009	17.34.3	18.4	5.4
28/03/2009	15.58.9	4.4	16.6	20/08/2009	16.19.8	30.4	18.5
30/03/2009	13.18.0	-22.3	43.3	22/08/2009	14.54.4	42.6	33.6
01/04/2009	10.37.1	-39.3	51.7	24/08/2009	13.16.6	51.8	49.1
03/04/2009	07.56.1	-35.3	32.7	26/08/2009	11.27.1	50.6	58.1
05/04/2009	05.15.0	-13.8	4.3	28/08/2009	09.28.1	36.6	50.2
07/04/2009	02.34.0	14.2	-23.3	30/08/2009	07.21.4	15.7	29.7
08/04/2009	23.52.9	41.1	-39.7	01/09/2009	05.08.7	-7.7	5.0
10/04/2009	21.11.8	55.6	-32.6	03/09/2009	02.51.3	-29.5	-19.6
12/04/2009	18.30.8	42.6	-8.2	05/09/2009	00.30.3	-42.9	-37.9
14/04/2009	15.49.7	16.0	21.8	06/09/2009	22.06.4	-38.3	-39.7
16/04/2009	13.08.7	-12.0	49.3	08/09/2009	19.40.2	-18.7	-22.9
18/04/2009	10.27.6	-34.1	57.5	10/09/2009	17.12.1	7.0	2.8
20/04/2009	07.46.6	-39.4	36.3	12/09/2009	14.42.4	32.4	29.2
22/04/2009	05.05.6	-23.3	7.4	14/09/2009	12.11.5	50.3	48.7
24/04/2009	02.24.6	3.2	-19.3	16/09/2009	09.39.6	46.4	46.0
25/04/2009	23.43.7	31.1	-34.0	18/09/2009	07.06.7	24.4	23.2
27/04/2009	21.02.8	52.9	-26.8	20/09/2009	04.33.1	-2.1	-5.3
29/04/2009	18.21.9	50.8	-2.6	22/09/2009	01.58.9	-28.2	-32.4
01/05/2009	15.41.1	27.3	26.4	23/09/2009	23.24.0	-43.8	-48.2
03/05/2009	13.00.4	-0.3	54.5	25/09/2009	20.48.7	-37.9	-39.2
05/05/2009	10.19.6	-26.4	62.3	27/09/2009	18.13.0	-15.7	-14.3
07/05/2009	07.39.0	-39.9	38.9	29/09/2009	15.36.8	11.7	13.9
09/05/2009	04.58.4	-31.5	9.8	01/10/2009	13.00.4	37.4	37.3
11/05/2009	02.17.8	-8.2	-15.9	03/10/2009	10.23.6	51.0	43.1
12/05/2009	23.37.3	20.0	-29.3	05/10/2009	07.46.6	39.8	25.8
14/05/2009	20.56.9	45.8	-22.1	07/10/2009	05.09.3	14.5	-1.2
16/05/2009	18.16.5	55.5	1.3	09/10/2009	02.31.8	-13.4	-31.1
18/05/2009	15.36.2	38.2	30.0	10/10/2009	23.54.1	-37.0	-52.9
20/05/2009	12.56.0	10.8	58.5	12/10/2009	21.16.2	-45.0	-49.0
22/05/2009	10.15.8	-16.6	65.7	14/10/2009	18.38.1	-30.2	-24.2
24/05/2009	07.35.7	-36.6	40.8	16/10/2009	15.59.9	-4.0	4.6

18/10/2009	13.21.5	23.6	28.6	25/11/2009	08.12.2	46.4	16.4
20/10/2009	10.43.0	45.7	37.5	27/11/2009	05.31.9	44.4	-8.4
22/10/2009	08.04.4	47.7	23.8	29/11/2009	02.51.5	22.1	-37.9
24/10/2009	05.25.6	27.4	-1.9	01/12/2009	00.11.0	-6.1	-65.0
26/10/2009	02.46.7	0.3	-32.2	02/12/2009	21.30.4	-32.5	-62.4
28/10/2009	00.07.7	-27.2	-57.2	04/12/2009	18.49.8	-47.1	-34.4
29/10/2009	21.28.6	-44.9	-56.0	06/12/2009	16.09.1	-37.4	-5.6
31/10/2009	18.49.5	-40.1	-30.6	08/12/2009	13.28.4	-12.5	17.2
02/11/2009	16.10.2	-17.4	-1.0	10/12/2009	10.47.5	15.9	25.0
04/11/2009	13.30.8	10.6	22.3	12/12/2009	08.06.6	40.3	12.9
06/11/2009	10.51.3	36.6	31.9	14/12/2009	05.25.7	47.9	-12.0
08/11/2009	08.11.8	49.5	20.3	16/12/2009	02.44.6	31.2	-41.6
10/11/2009	05.32.1	37.4	-4.9	18/12/2009	00.03.5	4.2	-68.1
12/11/2009	02.52.4	11.6	-34.6	19/12/2009	21.22.3	-23.9	-61.0
14/11/2009	00.12.6	-16.6	-61.2	21/12/2009	18.41.0	-44.6	-32.0
15/11/2009	21.32.7	-40.0	-60.7	23/12/2009	15.59.7	-43.8	-2.8
17/11/2009	18.52.8	-45.8	-34.0	25/12/2009	13.18.3	-22.2	18.5
19/11/2009	16.12.7	-28.5	-5.1	27/12/2009	10.36.8	6.1	24.2
21/11/2009	13.32.6	-0.8	18.5	29/12/2009	07.55.2	32.8	10.3
23/11/2009	10.52.4	26.3	27.6	31/12/2009	05.13.6	48.1	-15.5

Dione Congiunzione superiore

Data	Ora	h Sat	h Sole				
02/01/2009	07.20.5	31.8	5.5	04/07/2009	15.37.4	55.1	33.2
05/01/2009	01.01.3	38.2	-60.9	07/07/2009	09.21.0	4.0	59.0
07/01/2009	18.41.9	-26.6	-29.9	10/07/2009	03.04.6	-41.1	-7.2
10/01/2009	12.22.4	-27.3	24.5	12/07/2009	20.48.3	7.9	-17.5
13/01/2009	06.02.7	37.5	-6.9	15/07/2009	14.32.0	54.3	44.7
15/01/2009	23.43.0	32.7	-68.5	18/07/2009	08.15.8	-0.5	46.5
18/01/2009	17.23.1	-31.4	-13.6	21/07/2009	01.59.7	-40.8	-17.3
21/01/2009	11.03.1	-21.7	28.0	23/07/2009	19.43.7	12.2	-10.8
24/01/2009	04.43.0	42.9	-20.2	26/07/2009	13.27.7	52.7	54.5
26/01/2009	22.22.8	26.7	-63.1	29/07/2009	07.11.8	-6.0	33.3
29/01/2009	16.02.5	-35.6	2.9	01/08/2009	00.55.9	-40.0	-25.9
01/02/2009	09.42.1	-15.6	26.4	03/08/2009	18.40.1	16.5	-2.2
04/02/2009	03.21.6	47.7	-33.7	06/08/2009	12.24.3	50.3	60.9
06/02/2009	21.01.1	20.3	-49.0	09/08/2009	06.08.6	-10.7	19.9
09/02/2009	14.40.4	-38.9	18.0	11/08/2009	23.52.9	-38.7	-32.4
12/02/2009	08.19.7	-8.9	19.8	14/08/2009	17.37.3	20.5	5.8
15/02/2009	01.59.0	51.5	-45.8	17/08/2009	11.21.6	47.4	61.3
17/02/2009	19.38.2	13.7	-32.2	20/08/2009	05.06.0	-15.2	6.7
20/02/2009	13.17.3	-40.9	31.4	22/08/2009	22.50.5	-36.8	-36.3
23/02/2009	06.56.4	-1.1	9.9	25/08/2009	16.34.9	24.5	14.3
26/02/2009	00.35.5	54.0	-53.3	28/08/2009	10.19.4	44.1	55.5
28/02/2009	18.14.5	7.0	-14.5	31/08/2009	04.03.9	-19.6	-6.8
03/03/2009	11.53.6	-41.5	40.9	02/09/2009	21.48.3	-34.6	-36.9
06/03/2009	05.32.6	5.4	-1.3	05/09/2009	15.32.8	28.3	22.5
08/03/2009	23.11.7	54.6	-52.5	08/09/2009	09.17.3	40.4	45.9
11/03/2009	16.50.8	0.7	3.7	11/09/2009	03.01.8	-23.9	-19.7
14/03/2009	10.29.9	-40.6	44.1	13/09/2009	20.46.3	-31.9	-34.4
17/03/2009	04.09.0	12.5	-14.1	16/09/2009	14.30.8	31.9	29.7
19/03/2009	21.48.2	53.3	-43.4	19/09/2009	08.15.3	36.4	34.3
22/03/2009	15.27.4	-6.3	21.0	22/09/2009	01.59.7	-28.1	-32.3
25/03/2009	09.06.7	-38.3	40.3	24/09/2009	19.44.2	-28.9	-29.2
28/03/2009	02.46.0	19.5	-24.8	27/09/2009	13.28.6	35.4	35.2
30/03/2009	20.25.5	50.3	-29.8	30/09/2009	07.13.0	32.1	21.6
02/04/2009	14.05.0	-12.5	37.4	03/10/2009	00.57.3	-32.1	-44.0
05/04/2009	07.44.5	-35.0	31.4	05/10/2009	18.41.7	-25.5	-22.1
08/04/2009	01.24.2	26.2	-32.5	08/10/2009	12.25.9	38.6	38.1
10/04/2009	19.04.0	46.1	-14.3	11/10/2009	06.10.2	27.7	8.4
13/04/2009	12.43.9	-18.3	51.6	13/10/2009	23.54.4	-35.8	-53.9
16/04/2009	06.23.9	-30.8	20.2	16/10/2009	17.38.6	-21.8	-13.8
19/04/2009	00.04.0	32.5	-35.5	19/10/2009	11.22.7	41.6	37.6
21/04/2009	17.44.2	41.2	2.2	22/10/2009	05.06.7	23.0	-5.6
24/04/2009	11.24.6	-23.5	60.8	24/10/2009	22.50.7	-39.3	-60.0
27/04/2009	05.05.0	-26.2	8.5	27/10/2009	16.34.7	-17.8	-4.7
29/04/2009	22.45.6	38.3	-33.0	30/10/2009	10.18.5	44.2	33.5
02/05/2009	16.26.3	35.9	18.2	02/11/2009	04.02.3	18.1	-19.7
05/05/2009	10.07.2	-28.1	61.2	04/11/2009	21.46.0	-42.3	-59.7
08/05/2009	03.48.2	-21.3	-2.1	07/11/2009	15.29.7	-13.5	4.3
10/05/2009	21.29.3	43.4	-26.0	10/11/2009	09.13.3	46.3	26.2
13/05/2009	15.10.5	30.4	34.0	13/11/2009	02.56.8	13.1	-34.0
16/05/2009	08.51.9	-32.0	53.2	15/11/2009	20.40.2	-44.8	-52.9
19/05/2009	02.33.4	-16.2	-12.3	18/11/2009	14.23.5	-8.9	12.4
21/05/2009	20.15.0	47.7	-15.9	21/11/2009	08.06.7	47.8	16.6
24/05/2009	13.56.8	24.9	49.0	24/11/2009	01.49.8	7.8	-48.2
27/05/2009	07.38.7	-35.3	41.6	26/11/2009	19.32.9	-46.5	-42.1
30/05/2009	01.20.7	-11.3	-19.4	29/11/2009	13.15.8	-3.7	19.2
01/06/2009	19.02.9	51.1	-4.1	02/12/2009	06.58.6	48.6	5.1
04/06/2009	12.45.1	19.5	62.2	05/12/2009	00.41.3	2.5	-61.5
07/06/2009	06.27.5	-37.8	29.0	07/12/2009	18.23.9	-47.4	-29.6
10/06/2009	00.10.0	-6.3	-23.6	10/12/2009	12.06.4	1.6	23.6
12/06/2009	17.52.7	53.5	8.3	13/12/2009	05.48.8	48.4	-7.9
15/06/2009	11.35.4	14.1	70.7	15/12/2009	23.31.0	-3.0	-70.7
18/06/2009	05.18.2	-39.6	16.4	18/12/2009	17.13.1	-47.1	-16.2
20/06/2009	23.01.2	-0.7	-24.5	21/12/2009	10.55.1	6.9	24.5
23/06/2009	16.44.3	54.8	20.8	24/12/2009	04.37.0	47.3	-21.6
26/06/2009	10.27.4	9.0	68.9	26/12/2009	22.18.8	-9.2	-68.2
29/06/2009	04.10.7	-40.7	4.4	29/12/2009	16.00.4	-45.7	-2.1
01/07/2009	21.54.0	3.5	-22.3				

Dione Congiunzione inferiore

Data	Ora	h Sat	h Sole				
03/01/2009	16.05.5	-42.7	-2.3	09/01/2009	03.26.7	53.2	-35.2
06/01/2009	09.46.2	2.7	22.2	11/01/2009	21.07.1	1.7	-55.6

14/01/2009	14.47.4	-42.5	11.0	11/07/2009	11.51.4	33.8	68.8
17/01/2009	08.27.6	9.0	15.5	14/07/2009	05.35.1	-29.9	17.4
20/01/2009	02.07.7	52.4	-49.1	16/07/2009	23.18.9	-21.6	-26.8
22/01/2009	19.47.6	-5.0	-39.4	19/07/2009	17.02.8	42.7	16.6
25/01/2009	13.27.5	-40.9	22.9	22/07/2009	10.46.7	29.2	67.2
28/01/2009	07.07.2	15.8	5.7	25/07/2009	04.30.7	-33.4	4.7
31/01/2009	00.46.9	50.1	-59.9	27/07/2009	22.14.8	-17.9	-27.3
02/02/2009	18.26.5	-11.4	-22.2	30/07/2009	15.58.9	45.7	26.8
05/02/2009	12.06.0	-37.9	31.5	02/08/2009	09.43.0	24.5	58.3
08/02/2009	05.45.4	22.6	-6.5	05/08/2009	03.27.2	-36.5	-7.9
10/02/2009	23.24.7	46.3	-62.1	07/08/2009	21.11.5	-14.1	-25.0
13/02/2009	17.04.0	-17.5	-4.7	10/08/2009	14.55.8	48.2	36.4
16/02/2009	10.43.2	-33.7	34.9	13/08/2009	08.40.1	19.8	46.6
19/02/2009	04.22.4	29.4	-19.3	16/08/2009	02.24.5	-39.2	-19.5
21/02/2009	22.01.5	41.5	-53.3	18/08/2009	20.08.8	-10.2	-20.4
24/02/2009	15.40.6	-23.3	12.5	21/08/2009	13.53.3	50.1	44.4
27/02/2009	09.19.7	-28.6	32.2	24/08/2009	07.37.7	15.1	33.7
02/03/2009	02.58.7	36.0	-31.4	27/08/2009	01.22.1	-41.4	-30.2
04/03/2009	20.37.8	35.9	-38.7	29/08/2009	19.06.6	-6.3	-14.2
07/03/2009	14.16.8	-28.5	28.6	01/09/2009	12.51.1	51.3	49.7
10/03/2009	07.55.9	-22.8	24.5	04/09/2009	06.35.6	10.3	20.4
13/03/2009	01.35.0	42.2	-40.9	07/09/2009	00.20.1	-43.1	-39.4
15/03/2009	19.14.1	29.8	-22.0	09/09/2009	18.04.6	-1.5	-6.9
18/03/2009	12.53.3	-33.0	42.3	12/09/2009	11.49.1	51.8	51.0
21/03/2009	06.32.5	-16.5	13.8	15/09/2009	05.33.5	5.6	7.0
24/03/2009	00.11.8	47.6	-45.0	17/09/2009	23.18.0	-44.2	-46.0
26/03/2009	17.51.1	23.5	-4.5	20/09/2009	17.02.5	2.1	1.5
29/03/2009	11.30.5	-36.5	51.4	23/09/2009	10.46.9	51.5	47.6
01/04/2009	05.10.0	-10.1	2.2	26/09/2009	04.31.3	1.0	-6.9
03/04/2009	22.49.5	51.8	-42.0	28/09/2009	22.15.7	-44.6	-49.0
06/04/2009	16.29.2	17.1	12.9	01/10/2009	16.00.1	6.1	9.1
09/04/2009	10.08.9	-38.8	52.9	04/10/2009	09.44.5	50.5	40.4
12/04/2009	03.48.7	-3.2	-9.4	07/10/2009	03.28.8	-4.1	-20.6
14/04/2009	21.28.7	54.7	-33.1	09/10/2009	21.13.0	-44.4	-47.5
17/04/2009	15.08.7	10.7	29.8	12/10/2009	14.57.3	10.3	16.5
20/04/2009	08.48.9	-40.0	46.7	15/10/2009	08.41.4	48.8	30.6
23/04/2009	02.29.2	3.1	-18.9	18/10/2009	02.25.6	-9.2	-34.2
25/04/2009	20.09.6	55.8	-20.8	20/10/2009	20.09.6	-43.4	-41.9
28/04/2009	13.50.2	4.7	45.7	23/10/2009	13.53.7	14.5	22.8
01/05/2009	07.30.8	-40.0	36.2	26/10/2009	07.37.6	46.5	19.0
04/05/2009	01.11.6	9.2	-25.5	29/10/2009	01.21.5	-14.1	-47.5
06/05/2009	18.52.6	55.4	-6.9	31/10/2009	19.05.4	-41.7	-33.5
09/05/2009	12.33.6	-0.7	59.5	03/11/2009	12.49.1	18.9	27.1
12/05/2009	06.14.8	-39.0	24.3	06/11/2009	06.32.8	43.5	6.4
14/05/2009	23.56.1	15.1	-28.2	09/11/2009	00.16.4	-19.0	-59.5
17/05/2009	17.37.6	53.5	7.8	11/11/2009	17.60.0	-39.3	-23.4
20/05/2009	11.19.1	-7.1	68.0	14/11/2009	11.43.4	23.3	28.7
23/05/2009	05.00.8	-37.2	12.3	17/11/2009	05.26.8	39.9	-7.4
25/05/2009	22.42.7	20.7	-26.6	19/11/2009	23.10.0	-23.9	-67.5
28/05/2009	16.24.7	50.5	22.4	22/11/2009	16.53.2	-36.2	-12.6
31/05/2009	10.06.7	-12.3	66.0	25/11/2009	10.36.3	27.7	27.0
03/06/2009	03.49.0	-34.8	1.3	28/11/2009	04.19.3	35.8	-21.5
05/06/2009	21.31.3	25.9	-21.4	30/11/2009	22.02.1	-28.7	-66.3
08/06/2009	15.13.8	46.8	36.6	03/12/2009	15.44.9	-32.4	-0.7
11/06/2009	08.56.3	-17.3	56.1	06/12/2009	09.27.6	32.1	21.8
14/06/2009	02.39.0	-31.8	-9.2	09/12/2009	03.10.1	31.2	-36.0
16/06/2009	20.21.8	30.7	-13.7	11/12/2009	20.52.5	-33.4	-56.5
19/06/2009	14.04.7	42.7	50.0	14/12/2009	14.34.9	-28.0	9.1
22/06/2009	07.47.7	-21.8	43.6	17/12/2009	08.17.1	36.3	13.7
25/06/2009	01.30.8	-28.6	-17.5	20/12/2009	01.59.1	26.2	-50.3
27/06/2009	19.14.0	35.1	-4.1	22/12/2009	19.41.1	-37.7	-43.0
30/06/2009	12.57.3	38.3	61.7	25/12/2009	13.22.9	-23.0	18.0
03/07/2009	06.40.7	-26.1	30.5	28/12/2009	07.04.6	40.3	3.3
06/07/2009	00.24.2	-25.2	-23.5	31/12/2009	00.46.2	20.8	-63.2
08/07/2009	18.07.8	39.1	6.1				

Dione Massima elongazione est

Data	Ora	h Sat	h Sole				
02/01/2009	23.34.6	22.0	-70.5	23/03/2009	07.47.9	-29.2	27.7
05/01/2009	17.15.5	-38.4	-14.5	26/03/2009	01.27.3	35.0	-37.0
08/01/2009	10.56.3	-11.9	25.6	28/03/2009	19.06.8	38.1	-17.7
11/01/2009	04.37.1	49.6	-22.2	31/03/2009	12.46.3	-26.4	47.3
13/01/2009	22.17.7	16.1	-65.4	03/04/2009	06.25.9	-23.9	16.7
16/01/2009	15.58.3	-40.9	1.0	06/04/2009	00.05.6	41.0	-40.2
19/01/2009	09.38.7	-5.7	23.3	08/04/2009	17.45.3	32.4	-0.2
22/01/2009	03.19.1	52.2	-36.0	11/04/2009	11.25.2	-30.9	56.4
24/01/2009	20.59.3	9.9	-51.7	14/04/2009	05.05.2	-18.2	5.2
27/01/2009	14.39.4	-42.2	14.9	16/04/2009	22.45.2	46.3	-37.2
30/01/2009	08.19.4	1.2	16.7	19/04/2009	16.25.4	26.4	16.1
02/02/2009	01.59.3	53.6	-48.7	22/04/2009	10.05.7	-34.6	57.1
04/02/2009	19.39.2	3.7	-35.2	25/04/2009	03.46.1	-12.4	-6.1
07/02/2009	13.18.9	-42.2	27.3	27/04/2009	21.26.7	50.6	-29.1
10/02/2009	06.58.5	7.7	6.8	30/04/2009	15.07.3	20.4	32.5
13/02/2009	00.38.0	53.4	-57.4	03/05/2009	08.48.1	-37.4	50.0
15/02/2009	18.17.5	-2.4	-17.8	06/05/2009	02.29.0	-6.6	-15.5
18/02/2009	11.56.9	-40.8	36.1	08/05/2009	20.10.0	53.7	-17.9
21/02/2009	05.36.2	14.6	-5.0	11/05/2009	13.51.2	14.5	48.0
23/02/2009	23.15.5	51.5	-57.4	14/05/2009	07.32.5	-39.2	39.0
26/02/2009	16.54.8	-9.4	0.4	17/05/2009	01.13.9	-0.2	-22.2
01/03/2009	10.34.0	-38.0	39.3	19/05/2009	18.55.4	55.5	-4.9
04/03/2009	04.13.2	21.6	-17.4	22/05/2009	12.37.1	8.8	61.5
06/03/2009	21.52.4	48.0	-48.2	25/05/2009	06.18.9	-40.1	26.7
09/03/2009	15.31.6	-15.5	17.2	28/05/2009	00.00.8	4.8	-25.5
12/03/2009	09.10.8	-34.0	36.0	30/05/2009	17.42.9	55.8	8.7
15/03/2009	02.50.1	28.4	-28.7	02/06/2009	11.25.0	3.4	70.0
17/03/2009	20.29.3	43.5	-33.9	05/06/2009	05.07.3	-40.1	14.4
20/03/2009	14.08.6	-21.2	33.4	07/06/2009	22.49.7	10.0	-25.0

10/06/2009	16.32.2	54.9	22.3	22/09/2009	18.32.4	-15.9	-16.2
13/06/2009	10.14.9	-1.5	67.8	25/09/2009	12.15.8	46.2	44.0
16/06/2009	03.57.6	-39.3	2.9	28/09/2009	05.59.5	18.2	9.2
18/06/2009	21.40.4	15.0	-21.2	30/09/2009	23.43.2	-41.4	-50.1
21/06/2009	15.23.3	53.0	35.6	03/10/2009	17.27.0	-11.5	-7.7
24/06/2009	09.06.4	-7.4	57.6	06/10/2009	11.10.9	48.2	42.7
27/06/2009	02.49.5	-37.9	-8.1	09/10/2009	04.54.9	13.1	-5.1
29/06/2009	20.32.7	19.8	-14.8	11/10/2009	22.38.8	-43.7	-55.1
02/07/2009	14.16.0	50.2	48.2	14/10/2009	16.22.7	-7.1	1.2
05/07/2009	07.59.4	-12.3	44.9	17/10/2009	10.06.7	49.4	37.3
08/07/2009	01.42.8	-36.0	-17.3	20/10/2009	03.50.6	8.0	-19.3
10/07/2009	19.26.3	24.4	-6.7	22/10/2009	21.34.4	-45.4	-54.5
13/07/2009	13.09.9	46.8	59.0	25/10/2009	15.18.2	-1.9	9.2
16/07/2009	06.53.5	-17.0	31.6	28/10/2009	09.02.0	49.8	28.9
19/07/2009	00.37.2	-33.6	-24.6	31/10/2009	02.45.8	3.0	-33.4
21/07/2009	18.21.0	28.7	2.8	02/11/2009	20.29.4	-46.3	-48.6
24/07/2009	12.04.7	42.9	65.7	05/11/2009	14.13.0	2.3	16.5
27/07/2009	05.48.5	-21.5	18.2	08/11/2009	07.56.6	49.4	18.3
29/07/2009	23.32.4	-30.8	-29.4	11/11/2009	01.40.0	-1.8	-47.4
01/08/2009	17.16.2	32.8	12.3	13/11/2009	19.23.4	-46.3	-39.2
04/08/2009	10.60.0	38.7	64.8	16/11/2009	13.06.8	6.9	22.2
07/08/2009	04.43.8	-25.8	4.9	19/11/2009	06.50.0	48.2	6.3
09/08/2009	22.27.5	-27.5	-31.3	22/11/2009	00.33.1	-7.9	-60.3
12/08/2009	16.11.2	36.7	22.0	24/11/2009	18.16.2	-45.4	-27.8
15/08/2009	09.54.6	34.0	56.8	27/11/2009	11.59.1	11.8	25.4
18/08/2009	03.37.9	-30.2	-8.7	30/11/2009	05.42.0	46.1	-7.2
20/08/2009	21.20.7	-23.6	-29.8	02/12/2009	23.24.8	-13.3	-69.5
23/08/2009	15.02.8	40.9	31.8	05/12/2009	17.07.4	-43.5	-15.7
26/08/2009	08.43.5	28.1	44.4	08/12/2009	10.49.9	16.8	25.2
29/08/2009	02.21.1	-35.5	-23.1	11/12/2009	04.32.4	43.2	-21.1
31/08/2009	19.48.3	-15.0	-21.5	13/12/2009	22.14.7	-18.7	-68.3
03/09/2009	11.44.1	52.4	54.7	16/12/2009	15.56.9	-40.7	-2.9
06/09/2009	09.12.9	38.8	45.9	19/12/2009	09.39.0	22.0	21.4
09/09/2009	02.13.6	-32.1	-26.9	22/12/2009	03.21.0	39.6	-35.5
11/09/2009	19.46.4	-21.6	-25.0	24/12/2009	21.02.8	-24.1	-57.4
14/09/2009	13.25.5	42.9	40.5	27/12/2009	14.44.5	-36.9	8.6
17/09/2009	07.06.9	23.8	23.5	30/12/2009	08.26.1	27.2	14.2
20/09/2009	00.49.4	-38.2	-40.9				

Dione Massima elongazione ovest

Data	Ora	h Sat	h Sole				
01/01/2009	14.43.7	-39.8	9.3	03/06/2009	20.14.1	40.5	-13.9
04/01/2009	08.24.6	19.1	14.1	06/06/2009	13.56.4	33.6	50.6
07/01/2009	02.05.4	47.9	-50.1	09/06/2009	07.38.8	-29.8	42.2
09/01/2009	19.46.2	-14.8	-41.5	12/06/2009	01.21.4	-19.8	-18.3
12/01/2009	13.26.9	-36.7	20.1	14/06/2009	19.04.1	44.6	-2.7
15/01/2009	07.07.4	25.2	4.1	17/06/2009	12.46.8	28.5	63.1
18/01/2009	00.47.9	43.9	-62.0	20/06/2009	06.29.7	-33.4	29.3
20/01/2009	18.28.3	-20.3	-25.1	23/06/2009	00.12.7	-15.4	-23.2
23/01/2009	12.08.6	-32.5	27.8	25/06/2009	17.55.7	48.0	8.4
26/01/2009	05.48.7	31.3	-8.1	28/06/2009	11.38.9	23.5	70.6
28/01/2009	23.28.8	39.1	-66.0	01/07/2009	05.22.1	-36.4	16.4
31/01/2009	17.08.7	-25.7	-8.5	03/07/2009	23.05.5	-11.1	-25.1
03/02/2009	10.48.5	-27.5	31.0	06/07/2009	16.48.9	50.7	20.0
06/02/2009	04.28.2	37.3	-21.1	09/07/2009	10.32.3	18.4	68.2
08/02/2009	22.07.9	33.6	-57.9	12/07/2009	04.15.9	-38.8	4.0
11/02/2009	15.47.4	-30.5	8.3	14/07/2009	21.59.5	-6.8	-23.9
14/02/2009	09.26.9	-21.8	28.6	17/07/2009	15.43.1	52.6	31.4
17/02/2009	03.06.3	43.0	-33.7	20/07/2009	09.26.9	13.4	58.3
19/02/2009	20.45.6	27.6	-43.3	23/07/2009	03.10.6	-40.7	-8.1
22/02/2009	14.24.9	-34.8	23.8	25/07/2009	20.54.4	-1.6	-20.1
25/02/2009	08.04.1	-15.4	21.4	28/07/2009	14.38.2	53.6	42.0
28/02/2009	01.43.3	48.1	-44.3	31/07/2009	08.22.0	8.4	45.7
02/03/2009	19.22.5	21.2	-26.5	03/08/2009	02.05.9	-41.9	-19.1
05/03/2009	13.01.7	-38.0	37.2	05/08/2009	19.49.7	2.4	-14.2
08/03/2009	06.40.9	-8.8	11.1	08/08/2009	13.33.4	53.7	51.0
11/03/2009	00.20.0	52.1	-49.6	11/08/2009	07.17.1	3.3	32.3
13/03/2009	17.59.2	14.6	-8.9	14/08/2009	01.00.7	-42.5	-28.8
16/03/2009	11.38.4	-40.0	46.3	16/08/2009	18.44.0	6.9	-6.6
19/03/2009	05.17.6	-1.1	-0.1	19/08/2009	12.27.1	52.8	56.8
21/03/2009	22.56.9	54.6	-47.1	22/08/2009	06.09.6	-1.9	18.0
24/03/2009	16.36.2	8.1	9.0	24/08/2009	23.51.1	-42.1	-36.6
27/03/2009	10.15.6	-40.7	48.4	27/08/2009	17.30.6	13.0	3.6
30/03/2009	03.55.1	5.2	-12.4	30/08/2009	11.04.7	49.7	56.8
01/04/2009	21.34.6	55.3	-37.8	02/09/2009	04.14.1	-16.8	-5.3
04/04/2009	15.14.2	1.8	26.2	04/09/2009	09.20.6	39.0	47.4
07/04/2009	08.53.9	-40.1	43.2	05/09/2009	02.38.6	-30.4	-22.1
10/04/2009	02.33.6	11.9	-22.4	07/09/2009	17.32.6	5.2	0.2
12/04/2009	20.13.5	54.2	-24.7	10/09/2009	10.56.7	51.2	52.7
15/04/2009	13.53.5	-4.7	42.3	13/09/2009	04.33.6	-6.9	-3.6
18/04/2009	07.33.6	-38.3	33.5	15/09/2009	22.14.0	-42.0	-43.7
21/04/2009	01.13.8	18.5	-29.2	18/09/2009	15.56.0	15.6	14.1
23/04/2009	18.54.1	51.6	-9.8	21/09/2009	09.38.8	47.9	44.3
26/04/2009	12.34.6	-10.7	56.2	24/09/2009	03.22.1	-13.3	-19.1
29/04/2009	06.15.1	-35.5	21.8	26/09/2009	21.05.6	-40.1	-41.7
01/05/2009	23.55.8	24.7	-31.7	29/09/2009	14.49.3	20.4	22.2
04/05/2009	17.36.6	47.8	5.9	02/10/2009	08.33.1	44.5	33.3
07/05/2009	11.17.6	-16.2	64.9	05/10/2009	02.16.9	-18.4	-32.7
10/05/2009	04.58.7	-32.0	10.0	07/10/2009	20.00.9	-37.7	-36.4
12/05/2009	22.39.9	30.4	-29.3	10/10/2009	13.44.8	24.7	28.3
15/05/2009	16.21.2	43.4	21.2	13/10/2009	07.28.7	40.8	21.0
18/05/2009	10.02.7	-21.2	63.7	16/10/2009	01.12.7	-23.1	-45.6
21/05/2009	03.44.2	-28.2	-0.5	18/10/2009	18.56.6	-34.9	-28.7
23/05/2009	21.26.0	35.7	-23.0	21/10/2009	12.40.5	28.8	32.0
26/05/2009	15.07.8	38.6	36.3	24/10/2009	06.24.3	36.8	7.9
29/05/2009	08.49.8	-25.8	54.4	27/10/2009	00.08.1	-27.7	-56.8
01/06/2009	02.31.9	-24.0	-10.8	29/10/2009	17.51.9	-31.7	-19.5

01/11/2009	11.35.6	32.7	32.7	04/12/2009	08.14.1	43.0	15.0
04/11/2009	05.19.2	32.4	-6.0	07/12/2009	01.56.7	17.5	-49.2
06/11/2009	23.02.8	-32.1	-64.2	09/12/2009	19.39.1	-43.3	-43.5
09/11/2009	16.46.3	-27.9	-9.7	12/12/2009	13.21.5	-14.0	17.8
12/11/2009	10.29.7	36.4	29.9	15/12/2009	07.03.8	45.6	4.1
15/11/2009	04.13.1	27.7	-20.2	18/12/2009	00.45.9	12.0	-62.5
17/11/2009	21.56.4	-36.2	-63.8	20/12/2009	18.27.9	-45.8	-29.6
20/11/2009	15.39.6	-23.7	0.8	23/12/2009	12.09.8	-8.6	23.2
23/11/2009	09.22.7	39.9	23.8	26/12/2009	05.51.6	47.4	-8.7
26/11/2009	03.05.7	22.8	-34.7	28/12/2009	23.33.2	6.2	-70.8
28/11/2009	20.48.6	-40.0	-55.6	31/12/2009	17.14.7	-47.4	-15.2
01/12/2009	14.31.4	-19.1	9.9				

Rhea Congiunzione superiore

Data	Ora	h Sat	h Sole				
02/01/2009	04.12.6	53.0	-26.6	06/07/2009	08.16.6	-8.7	47.9
06/01/2009	16.36.9	-41.1	-7.7	10/07/2009	20.48.1	9.3	-17.2
11/01/2009	05.00.6	47.1	-17.9	15/07/2009	09.19.9	8.9	57.9
15/01/2009	17.23.8	-32.9	-14.3	19/07/2009	21.52.2	-8.8	-24.3
20/01/2009	05.46.4	35.6	-9.2	24/07/2009	10.24.7	26.5	65.0
24/01/2009	18.08.5	-20.9	-20.7	28/07/2009	22.57.5	-25.3	-29.1
29/01/2009	06.30.2	21.8	0.1	02/08/2009	11.30.6	42.3	65.5
02/02/2009	18.51.4	-6.9	-26.8	07/08/2009	00.03.9	-37.9	-30.6
07/02/2009	07.12.1	7.4	8.4	11/08/2009	12.37.4	52.4	58.1
11/02/2009	19.32.6	7.9	-32.5	16/08/2009	01.11.1	-42.6	-28.3
16/02/2009	07.52.7	-7.0	17.0	20/08/2009	13.45.0	51.0	46.0
20/02/2009	20.12.6	22.4	-37.6	25/08/2009	02.19.0	-37.1	-22.4
25/02/2009	08.32.3	-20.1	25.5	29/08/2009	14.53.1	39.0	31.8
01/03/2009	20.51.8	36.1	-41.7	03/09/2009	03.27.3	-24.0	-13.7
06/03/2009	09.11.3	-31.2	33.8	07/09/2009	16.01.5	21.9	16.6
10/03/2009	21.30.8	47.6	-44.4	12/09/2009	04.35.8	-7.1	-2.8
15/03/2009	09.50.4	-38.7	41.5	16/09/2009	17.10.1	3.4	1.4
19/03/2009	22.10.1	54.4	-45.4	21/09/2009	05.44.3	11.2	7.8
24/03/2009	10.29.9	-40.8	48.1	25/09/2009	18.18.5	-15.4	-14.6
28/03/2009	22.50.1	53.7	-44.3	30/09/2009	06.52.6	28.7	18.1
02/04/2009	11.10.5	-36.7	53.1	04/10/2009	19.26.6	-31.8	-29.7
06/04/2009	23.31.3	45.4	-41.1	09/10/2009	08.00.5	43.2	26.8
11/04/2009	11.52.6	-27.3	55.4	13/10/2009	20.34.2	-43.1	-43.6
16/04/2009	00.14.2	32.9	-36.0	18/10/2009	09.07.7	50.2	32.5
20/04/2009	12.36.3	-14.7	54.4	22/10/2009	21.41.0	-45.2	-55.2
25/04/2009	00.59.0	18.2	-29.4	27/10/2009	10.14.1	45.8	34.3
29/04/2009	13.22.2	0.6	50.4	31/10/2009	22.46.9	-37.0	-62.3
04/05/2009	01.45.9	3.0	-21.7	05/11/2009	11.19.4	32.9	32.0
08/05/2009	14.10.2	15.8	44.1	09/11/2009	23.51.6	-22.7	-62.4
13/05/2009	02.35.1	-12.6	-13.1	14/11/2009	12.23.4	16.2	26.4
17/05/2009	15.00.6	31.5	36.4	19/11/2009	00.54.9	-5.8	-56.5
22/05/2009	03.26.7	-26.3	-3.6	23/11/2009	13.25.9	-0.9	18.9
26/05/2009	15.53.3	45.6	27.9	28/11/2009	01.56.6	11.7	-47.7
31/05/2009	04.20.5	-36.5	6.1	02/12/2009	14.26.7	-18.9	10.4
04/06/2009	16.48.2	54.7	18.9	07/12/2009	02.56.4	27.8	-38.2
09/06/2009	05.16.5	-40.3	16.1	11/12/2009	15.25.6	-34.1	1.8
13/06/2009	17.45.3	53.8	9.6	16/12/2009	03.54.3	41.0	-28.7
18/06/2009	06.14.7	-35.7	26.6	20/12/2009	16.22.4	-44.7	-7.3
22/06/2009	18.44.5	42.9	0.7	25/12/2009	04.50.0	48.0	-19.4
27/06/2009	07.14.7	-24.1	37.3	29/12/2009	17.17.0	-47.5	-15.8
01/07/2009	19.45.4	27.0	-8.9				

Rhea Congiunzione inferiore

Data	Ora	h Sat	h Sole				
04/01/2009	10.24.7	-2.8	24.2	16/06/2009	00.00.2	-8.7	-23.8
08/01/2009	22.48.7	18.0	-69.1	20/06/2009	12.29.7	27.4	65.6
13/01/2009	11.12.2	-18.0	26.6	25/06/2009	00.59.7	-24.2	-20.3
17/01/2009	23.35.1	32.7	-68.4	29/06/2009	13.30.2	42.9	56.3
22/01/2009	11.57.5	-30.5	28.0	04/07/2009	02.01.1	-36.2	-14.9
27/01/2009	00.19.4	45.1	-63.8	08/07/2009	14.32.4	53.3	45.1
31/01/2009	12.40.8	-39.2	28.3	13/07/2009	03.04.1	-41.2	-7.6
05/02/2009	01.01.8	52.7	-56.8	17/07/2009	15.36.1	53.1	32.7
09/02/2009	13.22.4	-42.2	27.5	22/07/2009	04.08.5	-36.8	1.6
14/02/2009	01.42.7	52.9	-48.6	26/07/2009	16.41.1	42.0	19.6
18/02/2009	14.02.7	-38.6	25.6	31/07/2009	05.14.1	-24.8	11.4
23/02/2009	02.22.5	45.7	-39.7	04/08/2009	17.47.2	25.4	6.2
27/02/2009	14.42.1	-29.9	22.7	09/08/2009	06.20.6	-8.6	22.2
04/03/2009	03.01.6	34.2	-30.3	13/08/2009	18.54.2	7.0	-7.5
08/03/2009	15.21.1	-18.0	18.7	18/08/2009	07.28.0	9.6	33.1
13/03/2009	03.40.7	20.8	-20.5	22/08/2009	20.01.9	-11.6	-20.6
17/03/2009	16.00.3	-4.1	14.0	27/08/2009	08.35.9	27.4	43.0
22/03/2009	04.20.1	6.7	-10.5	31/08/2009	21.10.0	-28.3	-32.4
26/03/2009	16.40.1	10.4	8.7	05/09/2009	09.44.2	42.8	49.8
31/03/2009	05.00.4	-7.7	0.4	09/09/2009	22.18.4	-40.5	-41.6
04/04/2009	17.21.1	25.0	3.1	14/09/2009	10.52.7	51.5	51.1
09/04/2009	05.42.1	-20.9	10.5	18/09/2009	23.26.9	-44.0	-46.2
13/04/2009	18.03.5	39.0	-2.6	23/09/2009	12.01.1	48.3	45.9
18/04/2009	06.25.5	-32.0	21.0	28/09/2009	00.35.2	-37.0	-45.0
22/04/2009	18.47.9	50.5	-9.0	02/10/2009	13.09.2	35.5	35.8
27/04/2009	07.10.8	-38.9	31.7	07/10/2009	01.43.1	-23.0	-38.6
01/05/2009	19.34.2	55.9	-14.4	11/10/2009	14.16.9	18.3	23.3
06/05/2009	07.58.3	-39.4	42.2	16/10/2009	02.50.5	-5.8	-29.4
10/05/2009	20.22.9	51.9	-19.1	20/10/2009	15.23.9	0.3	9.6
15/05/2009	08.48.1	-32.9	52.4	25/10/2009	03.57.1	12.3	-19.1
19/05/2009	21.13.8	40.3	-22.7	29/10/2009	16.30.0	-18.3	-4.3
24/05/2009	09.40.2	-21.1	61.8	03/11/2009	05.02.6	29.2	-8.9
28/05/2009	22.07.1	25.0	-24.8	07/11/2009	17.34.9	-34.1	-18.2
02/06/2009	10.34.5	-6.1	68.9	12/11/2009	06.06.9	42.8	1.0
06/06/2009	23.02.6	8.4	-25.3	16/11/2009	18.38.6	-44.8	-31.3
11/06/2009	11.31.1	10.6	70.7	21/11/2009	07.09.8	49.0	8.8

25/11/2009	19.40.6	-46.4	-43.5	18/12/2009	10.07.7	17.6	23.1
30/11/2009	08.11.0	44.9	15.3	22/12/2009	22.35.5	-8.9	-70.0
04/12/2009	20.40.9	-38.4	-54.6	27/12/2009	11.02.8	1.4	24.7
09/12/2009	09.10.3	33.0	20.0	31/12/2009	23.29.5	7.6	-70.8
13/12/2009	21.39.3	-24.8	-63.9				

Rhea Massima elongazione est

Data	Ora	h Sat	h Sole				
03/01/2009	07.27.1	30.0	6.5	02/07/2009	22.56.7	-8.9	-24.9
07/01/2009	19.51.0	-15.3	-42.7	07/07/2009	11.28.0	27.3	70.4
12/01/2009	08.14.2	15.2	13.3	11/07/2009	23.59.8	-24.9	-25.3
16/01/2009	20.36.8	0.1	-49.4	16/07/2009	12.31.9	42.9	64.1
21/01/2009	08.58.9	0.6	19.8	21/07/2009	01.04.4	-37.2	-22.9
25/01/2009	21.20.4	14.6	-54.9	25/07/2009	13.37.2	53.1	53.1
30/01/2009	09.41.5	-14.1	25.8	30/07/2009	02.10.4	-41.9	-17.7
03/02/2009	22.02.2	29.0	-58.6	03/08/2009	14.43.9	51.8	40.0
08/02/2009	10.22.6	-26.6	31.3	08/08/2009	03.17.8	-36.5	-9.9
12/02/2009	22.42.6	41.8	-59.9	12/08/2009	15.52.1	39.7	25.6
17/02/2009	11.02.4	-36.3	35.9	17/08/2009	04.27.0	-23.4	0.5
21/02/2009	23.22.0	51.2	-58.2	21/08/2009	17.02.7	22.1	10.3
26/02/2009	11.41.4	-41.2	39.3	26/08/2009	05.40.5	-5.5	11.9
03/03/2009	00.00.7	54.4	-53.9	30/08/2009	18.25.9	1.0	-7.5
07/03/2009	12.20.1	-40.1	41.2	08/09/2009	18.48.3	-9.6	-14.3
12/03/2009	00.39.5	49.9	-47.6	13/09/2009	07.34.3	26.4	29.1
16/03/2009	12.58.9	-33.4	41.1	17/09/2009	20.12.4	-29.2	-31.1
21/03/2009	01.18.6	39.7	-40.0	22/09/2009	08.48.6	42.5	38.2
25/03/2009	13.38.4	-22.5	39.1	26/09/2009	21.23.9	-41.7	-43.8
30/03/2009	01.58.6	26.6	-31.4	01/10/2009	09.58.7	50.8	42.5
03/04/2009	14.19.1	-9.3	35.4	05/10/2009	22.33.2	-44.7	-52.6
08/04/2009	02.39.9	12.3	-22.1	10/10/2009	11.07.4	47.1	41.2
12/04/2009	15.01.2	5.5	30.2	14/10/2009	23.41.3	-37.1	-55.2
17/04/2009	03.22.9	-1.8	-12.3	19/10/2009	12.15.0	34.1	34.9
21/04/2009	15.45.2	20.6	23.9	24/10/2009	00.48.5	-22.7	-51.1
26/04/2009	04.07.9	-16.7	-1.3	28/10/2009	13.21.6	17.0	25.4
30/04/2009	16.31.2	35.4	17.0	02/11/2009	01.54.5	-5.6	-42.9
05/05/2009	04.55.1	-29.2	8.5	06/11/2009	14.27.0	-0.6	14.3
09/05/2009	17.19.6	48.2	9.7	11/11/2009	02.59.2	12.3	-33.2
14/05/2009	05.44.6	-37.8	19.0	15/11/2009	15.31.0	-19.0	2.7
18/05/2009	18.10.2	55.6	2.5	20/11/2009	04.02.4	28.8	-23.2
23/05/2009	06.36.4	-39.9	29.7	24/11/2009	16.33.4	-34.5	-9.2
27/05/2009	19.03.2	53.0	-4.9	29/11/2009	05.04.0	42.1	-13.6
01/06/2009	07.30.6	-34.2	40.4	03/12/2009	17.34.0	-45.0	-20.4
05/06/2009	19.58.5	41.7	-11.7	08/12/2009	06.03.6	48.5	-4.7
10/06/2009	08.26.9	-22.5	51.0	12/12/2009	18.32.7	-47.0	-31.1
14/06/2009	20.55.9	26.0	-17.5	17/12/2009	07.01.3	45.1	3.5
19/06/2009	09.25.4	-7.2	60.9	21/12/2009	19.29.3	-39.7	-40.9
23/06/2009	21.55.4	8.7	-22.1	26/12/2009	07.56.7	34.3	10.6
28/06/2009	10.25.8	10.0	68.6	30/12/2009	20.23.6	-26.8	-49.8

Rhea Massima elongazione ovest

Data	Ora	h Sat	h Sole				
01/01/2009	01.11.4	37.3	-59.3	05/07/2009	05.08.9	-36.4	13.7
05/01/2009	13.35.6	-34.6	18.0	09/07/2009	17.40.4	42.8	10.7
10/01/2009	01.59.2	48.5	-51.2	14/07/2009	06.12.3	-24.6	24.2
14/01/2009	14.22.1	-41.6	14.3	18/07/2009	18.44.6	26.5	-0.3
19/01/2009	02.44.4	53.3	-42.6	23/07/2009	07.17.3	-8.7	35.1
23/01/2009	15.06.2	-41.9	10.2	27/07/2009	19.50.3	8.3	-12.4
28/01/2009	03.27.5	49.9	-33.7	01/08/2009	08.23.6	9.3	45.9
01/02/2009	15.48.4	-35.7	5.8	05/08/2009	20.57.3	-10.3	-22.9
06/02/2009	04.08.9	40.3	-24.6	10/08/2009	09.31.4	27.2	55.0
10/02/2009	16.29.1	-25.2	1.2	14/08/2009	22.06.0	-27.1	-31.6
15/02/2009	04.49.0	27.6	-15.3	19/08/2009	10.41.2	43.2	59.7
19/02/2009	17.08.7	-12.3	-4.1	23/08/2009	23.17.8	-39.8	-36.9
24/02/2009	05.28.2	13.8	-5.8	28/08/2009	11.57.9	52.5	56.1
28/02/2009	17.47.6	2.2	-9.5	02/09/2009	01.01.9	-41.6	-34.1
05/03/2009	06.06.9	0.2	4.2	06/09/2009	12.03.2	52.2	52.4
09/03/2009	18.26.3	16.4	-14.7	11/09/2009	01.09.9	-38.9	-35.9
14/03/2009	06.45.7	-13.9	13.9	15/09/2009	13.50.3	38.9	36.5
18/03/2009	19.05.2	30.5	-19.8	20/09/2009	02.27.2	-24.8	-27.5
23/03/2009	07.25.0	-26.0	23.8	24/09/2009	15.02.9	21.3	21.6
27/03/2009	19.45.0	43.4	-24.4	29/09/2009	03.37.9	-7.5	-17.3
01/04/2009	08.05.3	-35.5	33.6	03/10/2009	16.12.5	2.6	6.3
05/04/2009	20.25.9	52.9	-28.3	08/10/2009	04.46.9	11.0	-6.4
10/04/2009	08.47.0	-40.2	43.2	12/10/2009	17.21.0	-16.3	-9.4
14/04/2009	21.08.5	55.5	-31.1	17/10/2009	05.54.8	28.4	4.4
19/04/2009	09.30.5	-38.5	52.3	21/10/2009	18.28.4	-32.6	-24.3
23/04/2009	21.53.0	49.4	-32.4	26/10/2009	07.01.7	42.7	13.6
28/04/2009	10.16.0	-30.6	60.0	30/10/2009	19.34.7	-43.9	-38.6
02/05/2009	22.39.6	37.3	-32.0	04/11/2009	08.07.4	49.5	20.8
07/05/2009	11.03.8	-18.4	64.9	08/11/2009	20.39.8	-45.9	-51.6
11/05/2009	23.28.5	22.4	-29.7	13/11/2009	09.11.8	45.4	25.3
16/05/2009	11.53.9	-3.3	65.2	17/11/2009	21.43.4	-37.9	-62.4
21/05/2009	00.19.8	6.3	-25.7	22/11/2009	10.14.6	33.0	27.0
25/05/2009	12.46.3	12.6	60.7	26/11/2009	22.45.4	-23.9	-68.9
30/05/2009	01.13.3	-10.0	-20.1	01/12/2009	11.15.7	16.9	26.1
03/06/2009	13.41.0	28.9	53.0	05/12/2009	23.45.6	-7.5	-68.5
08/06/2009	02.09.2	-24.7	-13.3	10/12/2009	12.14.9	0.2	23.1
12/06/2009	14.37.9	43.9	43.6	15/12/2009	00.43.7	9.6	-62.5
17/06/2009	03.07.1	-36.1	-5.1	19/12/2009	13.12.0	-17.1	18.7
21/06/2009	15.36.9	53.9	33.1	24/12/2009	01.39.8	25.4	-54.1
26/06/2009	04.07.1	-40.7	4.0	28/12/2009	14.06.9	-32.0	13.5
30/06/2009	16.37.8	53.6	22.1				

Titano Congiunzione superiore

Data	Ora	h Sat	h Sole				
15/01/2009	20.20.4	-4.1	-46.7	10/07/2009	01.47.0	-37.1	-17.1
31/01/2009	18.23.9	-13.3	-22.2	26/07/2009	01.56.5	-41.5	-18.6
16/02/2009	16.06.6	-24.6	6.2	11/08/2009	02.20.1	-40.6	-19.0
04/03/2009	13.36.5	-35.1	33.1	27/08/2009	02.53.5	-32.3	-17.7
20/03/2009	11.03.6	-40.6	47.9	12/09/2009	03.32.6	-18.3	-14.7
05/04/2009	08.38.0	-39.1	40.2	28/09/2009	04.13.2	-0.8	-10.6
21/04/2009	06.28.7	-33.7	22.4	14/10/2009	04.50.7	15.4	-6.9
07/05/2009	04.41.9	-28.5	6.5	30/10/2009	05.20.8	30.0	-4.6
23/05/2009	03.20.7	-26.0	-4.6	15/11/2009	05.38.6	40.5	-4.8
08/06/2009	02.25.9	-27.1	-11.1	01/12/2009	05.39.5	46.2	-7.7
24/06/2009	01.55.6	-31.3	-14.8	17/12/2009	05.19.2	48.0	-13.5

Titano Congiunzione inferiore

Data	Ora	h Sat	h Sole				
07/01/2009	19.23.9	-19.9	-37.7	18/07/2009	00.31.0	-32.4	-24.8
23/01/2009	17.42.8	-25.6	-16.2	03/08/2009	00.37.9	-39.3	-27.7
08/02/2009	15.40.5	-33.1	8.7	19/08/2009	00.55.4	-42.8	-30.6
24/02/2009	13.23.0	-39.5	32.1	04/09/2009	01.19.9	-39.9	-32.7
12/03/2009	10.58.4	-41.1	44.5	20/09/2009	01.47.6	-30.8	-33.5
28/03/2009	08.36.0	-36.8	37.1	06/10/2009	02.14.8	-18.2	-33.3
13/04/2009	06.24.4	-29.4	19.4	22/10/2009	02.37.3	-4.4	-33.0
29/04/2009	04.30.4	-22.2	2.9	07/11/2009	02.51.1	8.3	-33.8
15/05/2009	02.58.3	-17.7	-9.4	23/11/2009	02.52.0	18.5	-36.7
31/05/2009	01.49.6	-16.8	-16.2	09/12/2009	02.35.8	25.6	-42.3
16/06/2009	01.03.7	-19.4	-19.8	25/12/2009	01.58.8	29.2	-50.8
02/07/2009	00.38.5	-25.0	-22.3				

Titano Massima elongazione est

Data	Ora	h Sat	h Sole				
04/01/2009	00.31.4	32.7	-65.2	14/07/2009	04.48.7	-35.4	9.3
19/01/2009	22.49.6	26.3	-67.0	30/07/2009	04.59.3	-27.5	8.9
04/02/2009	20.44.3	15.7	-46.7	15/08/2009	05.26.9	-14.5	11.3
20/02/2009	18.23.1	2.4	-17.8	31/08/2009	07.09.1	14.1	27.3
08/03/2009	15.53.7	-12.4	13.1	16/09/2009	05.34.8	6.4	7.0
24/03/2009	13.25.2	-25.2	40.6	02/10/2009	06.24.8	25.1	12.9
09/04/2009	11.06.5	-34.1	55.7	18/10/2009	06.57.4	38.7	14.8
25/04/2009	09.05.2	-38.5	50.6	03/11/2009	07.19.1	47.0	14.3
11/05/2009	07.26.3	-39.8	37.3	19/11/2009	07.27.3	49.1	11.8
27/05/2009	06.12.1	-40.1	25.6	05/12/2009	07.18.2	47.3	7.5
12/06/2009	05.22.4	-40.1	17.2	21/12/2009	06.48.2	44.9	1.3
28/06/2009	04.55.5	-39.1	11.9				

Titano Massima elongazione ovest

Data	Ora	h Sat	h Sole				
11/01/2009	16.46.7	-38.8	-8.5	21/07/2009	21.46.8	-9.2	-24.2
27/01/2009	14.51.5	-41.8	13.2	06/08/2009	22.07.5	-22.8	-29.4
12/02/2009	12.36.1	-41.5	32.2	22/08/2009	22.51.7	-37.0	-36.3
28/02/2009	10.08.1	-35.1	37.2	04/09/2009	08.48.5	33.9	43.0
16/03/2009	07.36.3	-23.5	23.3	07/09/2009	21.01.8	-30.9	-34.1
01/04/2009	05.10.0	-10.1	2.3	23/09/2009	23.08.9	-44.3	-48.4
17/04/2009	02.57.9	2.4	-16.4	09/10/2009	23.52.1	-37.7	-52.7
03/05/2009	01.06.3	10.9	-26.3	26/10/2009	00.23.9	-25.7	-54.8
18/05/2009	23.38.9	15.3	-27.9	11/11/2009	00.43.6	-13.0	-56.4
03/06/2009	22.36.9	15.3	-25.2	27/11/2009	00.47.6	-1.1	-59.2
19/06/2009	21.59.1	10.9	-22.4	13/12/2009	00.31.8	6.0	-64.0
05/07/2009	21.43.4	2.7	-21.8	28/12/2009	23.52.4	9.7	-69.6

TEMPI IN T.U.

MERIDIANO CENTRALE DI SATURNO I

(Banda equatoriale nord NEB, zona equatoriale EZ, banda equatoriale sud SEB)

Data	Ore										
01/01/2009	00.04.5	10.18.5	20.32.4	17/03/2009	00.57.6	11.11.6	21.25.5	31/05/2009	02.04.6	12.18.7	22.32.7
02/01/2009	06.46.4	17.00.3		18/03/2009	07.39.5	17.53.5		01/06/2009	08.46.8	19.00.9	
03/01/2009	03.14.2	13.28.2	23.42.1	19/03/2009	04.07.4	14.21.4		02/06/2009	05.15.0	15.29.0	
04/01/2009	09.56.1	20.10.0		20/03/2009	00.35.3	10.49.3	21.03.3	03/06/2009	01.43.1	11.57.2	22.11.3
05/01/2009	06.24.0	16.37.9		21/03/2009	07.17.2	17.31.2		04/06/2009	08.25.4	18.39.4	
06/01/2009	02.51.8	13.05.8	23.19.7	22/03/2009	03.45.2	13.59.1		05/06/2009	04.53.5	15.07.6	
07/01/2009	09.33.7	19.47.6		23/03/2009	00.13.1	10.27.1	20.41.0	06/06/2009	01.21.7	11.35.7	21.49.8
08/01/2009	06.01.5	16.15.5		24/03/2009	06.55.0	17.09.0		07/06/2009	08.03.9	18.18.0	
09/01/2009	02.29.4	12.43.4	22.57.3	25/03/2009	03.22.9	13.36.9	23.50.9	08/06/2009	04.32.1	14.46.2	
10/01/2009	09.11.2	19.25.2		26/03/2009	10.04.8	20.18.8		09/06/2009	01.00.2	11.14.3	21.28.4
11/01/2009	05.39.1	15.53.0		27/03/2009	06.32.8	16.46.8		10/06/2009	07.42.5	17.56.6	
12/01/2009	02.07.0	12.20.9	22.34.9	28/03/2009	03.00.7	13.14.7	23.28.7	11/06/2009	04.10.7	14.24.7	
13/01/2009	08.48.8	19.02.7		29/03/2009	09.42.7	19.56.6		12/06/2009	00.38.8	10.52.9	21.07.0
14/01/2009	05.16.7	15.30.6		30/03/2009	06.10.6	16.24.6		13/06/2009	07.21.1	17.35.2	
15/01/2009	01.44.5	11.58.5	22.12.4	31/03/2009	02.38.6	12.52.6	23.06.5	14/06/2009	03.49.3	14.03.3	
16/01/2009	08.26.3	18.40.3		01/04/2009	09.20.5	19.34.5		15/06/2009	00.17.4	10.31.5	20.45.6
17/01/2009	04.54.2	15.08.2		02/04/2009	05.48.5	16.02.5		16/06/2009	06.59.7	17.13.8	
18/01/2009	01.22.1	11.36.0	21.50.0	03/04/2009	02.16.4	12.30.4	22.44.4	17/06/2009	03.27.9	13.42.0	23.56.1
19/01/2009	08.03.9	18.17.8		04/04/2009	08.58.4	19.12.4		18/06/2009	10.10.1	20.24.2	
20/01/2009	04.31.8	14.45.7		05/04/2009	05.26.4	15.40.4		19/06/2009	06.38.3	16.52.4	
21/01/2009	00.59.6	11.13.6	21.27.5	06/04/2009	01.54.3	12.08.3	22.22.3	20/06/2009	03.06.5	13.20.6	23.34.7
22/01/2009	07.41.4	17.55.4		07/04/2009	08.36.3	18.50.3		21/06/2009	09.48.8	20.02.9	
23/01/2009	04.09.3	14.23.2		08/04/2009	05.04.3	15.18.3		22/06/2009	06.17.0	16.31.1	
24/01/2009	00.37.1	10.51.1	21.05.0	09/04/2009	01.32.3	11.46.3	22.00.3	23/06/2009	02.45.2	12.59.3	23.13.4
25/01/2009	07.18.9	17.32.9		10/04/2009	08.14.3	18.28.3		24/06/2009	09.27.4	19.41.5	
26/01/2009	03.46.8	14.00.7		11/04/2009	04.42.3	14.56.3		25/06/2009	05.55.6	16.09.7	
27/01/2009	00.14.7	10.28.6	20.42.5	12/04/2009	01.10.3	11.24.3	21.38.2	26/06/2009	02.23.8	12.37.9	22.52.0
28/01/2009	06.56.5	17.10.4		13/04/2009	07.52.2	18.06.3		27/06/2009	09.06.1	19.20.2	
29/01/2009	03.24.3	13.38.3	23.52.2	14/04/2009	04.20.3	14.34.3		28/06/2009	05.34.3	15.48.4	
30/01/2009	10.06.1	20.20.0		15/04/2009	00.48.3	11.02.3	21.16.3	29/06/2009	02.02.5	12.16.6	22.30.7
31/01/2009	06.34.0	16.47.9		16/04/2009	07.30.3	17.44.3		30/06/2009	08.44.8	18.58.9	
01/02/2009	03.01.8	13.15.8	23.29.7	17/04/2009	03.58.3	14.12.3		01/07/2009	05.13.0	15.27.1	
02/02/2009	09.43.6	19.57.6		18/04/2009	00.26.3	10.40.3	20.54.3	02/07/2009	01.41.2	11.55.3	22.09.4
03/02/2009	06.11.5	16.25.4		19/04/2009	07.08.3	17.22.3		03/07/2009	08.23.5	18.37.6	
04/02/2009	02.39.3	12.53.3	23.07.2	20/04/2009	03.36.3	13.50.4		04/07/2009	04.51.7	15.05.8	
05/02/2009	09.21.1	19.35.1		21/04/2009	00.04.4	10.18.4	20.32.4	05/07/2009	01.19.9	11.34.0	21.48.1
06/02/2009	05.49.0	16.02.9		22/04/2009	06.46.4	17.00.4		06/07/2009	08.02.2	18.16.3	
07/02/2009	02.16.9	12.30.8	22.44.7	23/04/2009	03.14.4	13.28.5	23.42.5	07/07/2009	04.30.4	14.44.5	
08/02/2009	08.58.7	19.12.6		24/04/2009	09.56.5	20.10.5		08/07/2009	00.58.6	11.12.7	21.26.8
09/02/2009	05.26.5	15.40.4		25/04/2009	06.24.5	16.38.6		09/07/2009	07.40.9	17.55.0	
10/02/2009	01.54.4	12.08.3	22.22.2	26/04/2009	02.52.6	13.06.6	23.20.6	10/07/2009	04.09.1	14.23.2	
11/02/2009	08.36.2	18.50.1		27/04/2009	09.34.7	19.48.7		11/07/2009	00.37.3	10.51.4	21.05.5
12/02/2009	05.04.0	15.18.0		28/04/2009	06.02.7	16.16.7		12/07/2009	07.19.7	17.33.8	
13/02/2009	01.31.9	11.45.8	21.59.8	29/04/2009	02.30.8	12.44.8	22.58.8	13/07/2009	03.47.9	14.02.0	
14/02/2009	08.13.7	18.27.6		30/04/2009	09.12.8	19.26.9		14/07/2009	00.16.1	10.30.2	20.44.3
15/02/2009	04.41.6	14.55.5		01/05/2009	05.40.9	15.54.9		15/07/2009	06.58.4	17.12.5	
16/02/2009	01.09.4	11.23.4	21.37.3	02/05/2009	02.09.0	12.23.0	22.37.0	16/07/2009	03.26.6	13.40.7	23.54.8
17/02/2009	07.51.2	18.05.2		03/05/2009	08.51.1	19.05.1		17/07/2009	10.08.9	20.23.0	
18/02/2009	04.19.1	14.33.0		04/05/2009	05.19.1	15.33.2		18/07/2009	06.37.1	16.51.2	
19/02/2009	00.47.0	11.00.9	21.14.8	05/05/2009	01.47.2	12.01.2	22.15.3	19/07/2009	03.05.3	13.19.4	23.33.5
20/02/2009	07.28.8	17.42.7		06/05/2009	08.29.3	18.43.4		20/07/2009	09.47.6	20.01.7	
21/02/2009	03.56.6	14.10.6		07/05/2009	04.57.4	15.11.4		21/07/2009	06.15.8	16.29.9	
22/02/2009	00.24.5	10.38.5	20.52.4	08/05/2009	01.25.5	11.39.5	21.53.6	22/07/2009	02.44.1	12.58.2	23.12.3
23/02/2009	07.06.3	17.20.3		09/05/2009	08.07.6	18.21.6		23/07/2009	09.26.4	19.40.5	
24/02/2009	03.34.2	13.48.1		10/05/2009	04.35.7	14.49.7		24/07/2009	05.54.6	16.08.7	
25/02/2009	00.02.1	10.16.0	20.29.9	11/05/2009	01.03.8	11.17.8	21.31.9	25/07/2009	02.22.8	12.36.9	22.51.0
26/02/2009	06.43.9	16.57.8		12/05/2009	07.45.9	17.60.0		26/07/2009	09.05.1	19.19.2	
27/02/2009	03.11.8	13.25.7	23.39.7	13/05/2009	04.14.0	14.28.1		27/07/2009	05.33.3	15.47.4	
28/02/2009	09.53.6	20.07.5		14/05/2009	00.42.1	10.56.2	21.10.2	28/07/2009	02.01.5	12.15.6	22.29.7
01/03/2009	06.21.5	16.35.4		15/05/2009	07.24.3	17.38.3		29/07/2009	08.43.8	18.57.9	
02/03/2009	02.49.4	13.03.3	23.17.2	16/05/2009	03.52.4	14.06.4		30/07/2009	05.12.1	15.26.2	
03/03/2009	09.31.2	19.45.1		17/05/2009	00.20.5	10.34.5	20.48.6	31/07/2009	01.40.3	11.54.4	22.08.5
04/03/2009	05.59.1	16.13.0		18/05/2009	07.02.6	17.16.7		01/08/2009	08.22.6	18.36.7	
05/03/2009	02.27.0	12.40.9	22.54.9	19/05/2009	03.30.8	13.44.8	23.58.9	02/08/2009	04.50.8	15.04.9	
06/03/2009	09.08.8	19.22.7		20/05/2009	10.12.9	20.27.0		03/08/2009	01.19.0	11.33.1	21.47.2
07/03/2009	05.36.7	15.50.6		21/05/2009	06.41.1	16.55.1		04/08/2009	08.01.3	18.15.4	
08/03/2009	02.04.6	12.18.5	22.32.5	22/05/2009	03.09.2	13.23.2	23.37.3	05/08/2009	04.29.5	14.43.6	
09/03/2009	08.46.4	19.00.4		23/05/2009	09.51.4	20.05.4		06/08/2009	00.57.7	11.11.8	21.25.9
10/03/2009	05.14.3	15.28.3		24/05/2009	06.19.5	16.33.6		07/08/2009	07.40.0	17.54.1	
11/03/2009	01.42.2	11.56.2	22.10.1	25/05/2009	02.47.6	13.01.7	23.15.8	08/08/2009	04.08.2	14.22.3	
12/03/2009	08.24.1	18.38.1		26/05/2009	09.29.8	19.43.9		09/08/2009	00.36.5	10.50.6	21.04.7
13/03/2009	04.52.0	15.06.0		27/05/2009	05.58.0	16.12.0		10/08/2009	07.18.8	17.32.9	
14/03/2009	01.19.9	11.33.9	21.47.8	28/05/2009	02.26.1	12.40.2	22.54.2	11/08/2009	03.47.0	14.01.1	
15/03/2009	08.01.8	18.15.7		29/05/2009	09.08.3	19.22.4		12/08/2009	00.15.2	10.29.3	20.43.4
16/03/2009	04.29.7	14.43.7		30/05/2009	05.36.4	15.50.5		13/08/2009	06.57.5	17.11.6	

Data	Ore									
14/08/2009	03.25.7	13.39.8	23.53.9	30/09/2009	01.15.3	11.29.4	21.43.5	16/11/2009	09.14.0	19.28.1
15/08/2009	10.08.0	20.22.1		01/10/2009	07.57.5	18.11.6		17/11/2009	05.42.1	15.56.1
16/08/2009	06.36.2	16.50.3		02/10/2009	04.25.7	14.39.7		18/11/2009	02.10.1	12.24.1
17/08/2009	03.04.4	13.18.5	23.32.6	03/10/2009	00.53.8	11.07.9	21.21.9	19/11/2009	08.52.1	19.06.1
18/08/2009	09.46.7	20.00.8		04/10/2009	07.36.0	17.50.1		20/11/2009	05.20.1	15.34.1
19/08/2009	06.14.9	16.29.0		05/10/2009	04.04.1	14.18.2		21/11/2009	01.48.2	12.02.2
20/08/2009	02.43.1	12.57.2	23.11.3	06/10/2009	00.32.3	10.46.3	21.00.4	22/11/2009	08.30.2	18.44.2
21/08/2009	09.25.4	19.39.5		07/10/2009	07.14.4	17.28.5		23/11/2009	04.58.2	15.12.2
22/08/2009	05.53.6	16.07.7		08/10/2009	03.42.6	13.56.6		24/11/2009	01.26.2	11.40.2
23/08/2009	02.21.8	12.35.9	22.50.0	09/10/2009	00.10.7	10.24.7	20.38.8	25/11/2009	08.08.2	18.22.2
24/08/2009	09.04.1	19.18.2		10/10/2009	06.52.9	17.06.9		26/11/2009	04.36.2	14.50.2
25/08/2009	05.32.3	15.46.4		11/10/2009	03.21.0	13.35.0	23.49.1	27/11/2009	01.04.2	11.18.2
26/08/2009	02.00.5	12.14.6	22.28.6	12/10/2009	10.03.1	20.17.2		28/11/2009	07.46.2	18.00.2
27/08/2009	08.42.7	18.56.8		13/10/2009	06.31.3	16.45.3		29/11/2009	04.14.2	14.28.2
28/08/2009	05.10.9	15.25.0		14/10/2009	02.59.4	13.13.4	23.27.5	30/11/2009	00.42.2	10.56.2
29/08/2009	01.39.1	11.53.2	22.07.3	15/10/2009	09.41.5	19.55.6		01/12/2009	07.24.2	17.38.2
30/08/2009	08.21.4	18.35.5		16/10/2009	06.09.6	16.23.7		02/12/2009	03.52.2	14.06.2
31/08/2009	04.49.6	15.03.7		17/10/2009	02.37.7	12.51.8	23.05.8	03/12/2009	00.20.1	10.34.1
01/09/2009	01.17.8	11.31.9	21.46.0	18/10/2009	09.19.9	19.33.9		04/12/2009	07.02.1	17.16.1
02/09/2009	08.00.1	18.14.2		19/10/2009	05.48.0	16.02.0		05/12/2009	03.30.1	13.44.1
03/09/2009	04.28.2	14.42.3		20/10/2009	02.16.1	12.30.1	22.44.2	06/12/2009	10.12.1	20.26.1
04/09/2009	00.56.4	11.10.5	21.24.6	21/10/2009	08.58.2	19.12.3		07/12/2009	06.40.0	16.54.0
05/09/2009	07.38.7	17.52.8		22/10/2009	05.26.3	15.40.4		08/12/2009	03.08.0	13.22.0
06/09/2009	04.06.9	14.21.0		23/10/2009	01.54.4	12.08.4	22.22.5	09/12/2009	09.50.0	20.04.0
07/09/2009	00.35.1	10.49.1	21.03.2	24/10/2009	08.36.5	18.50.6		10/12/2009	06.17.9	16.31.9
08/09/2009	07.17.3	17.31.4		25/10/2009	05.04.6	15.18.6		11/12/2009	02.45.9	12.59.9
09/09/2009	03.45.5	13.59.6		26/10/2009	01.32.7	11.46.7	22.00.8	12/12/2009	09.27.8	19.41.8
10/09/2009	00.13.7	10.27.7	20.41.8	27/10/2009	08.14.8	18.28.8		13/12/2009	05.55.8	16.09.8
11/09/2009	06.55.9	17.10.0		28/10/2009	04.42.9	14.56.9		14/12/2009	02.23.8	12.37.7
12/09/2009	03.24.1	13.38.2	23.52.3	29/10/2009	01.11.0	11.25.0	21.39.0	15/12/2009	09.05.7	19.19.7
13/09/2009	10.06.3	20.20.4		30/10/2009	07.53.1	18.07.1		16/12/2009	05.33.6	15.47.6
14/09/2009	06.34.5	16.48.6		31/10/2009	04.21.1	14.35.2		17/12/2009	02.01.6	12.15.6
15/09/2009	03.02.7	13.16.8	23.30.8	01/11/2009	00.49.2	11.03.2	21.17.3	18/12/2009	08.43.5	18.57.5
16/09/2009	09.44.9	19.59.0		02/11/2009	07.31.3	17.45.3		19/12/2009	05.11.5	15.25.4
17/09/2009	06.13.1	16.27.2		03/11/2009	03.59.4	14.13.4		20/12/2009	01.39.4	11.53.4
18/09/2009	02.41.3	12.55.3	23.09.4	04/11/2009	00.27.4	10.41.4	20.55.5	21/12/2009	08.21.3	18.35.3
19/09/2009	09.23.5	19.37.6		05/11/2009	07.09.5	17.23.5		22/12/2009	04.49.2	15.03.2
20/09/2009	05.51.6	16.05.7		06/11/2009	03.37.6	13.51.6		23/12/2009	01.17.2	11.31.2
21/09/2009	02.19.8	12.33.9	22.47.9	07/11/2009	00.05.6	10.19.6	20.33.7	24/12/2009	07.59.1	18.13.1
22/09/2009	09.02.0	19.16.1		08/11/2009	06.47.7	17.01.7		25/12/2009	04.27.0	14.41.0
23/09/2009	05.30.2	15.44.3		09/11/2009	03.15.7	13.29.8	23.43.8	26/12/2009	00.54.9	11.08.9
24/09/2009	01.58.3	12.12.4	22.26.5	10/11/2009	09.57.8	20.11.8		27/12/2009	07.36.8	17.50.8
25/09/2009	08.40.6	18.54.6		11/11/2009	06.25.8	16.39.9		28/12/2009	04.04.8	14.18.7
26/09/2009	05.08.7	15.22.8		12/11/2009	02.53.9	13.07.9	23.21.9	29/12/2009	00.32.7	10.46.6
27/09/2009	01.36.8	11.50.9	22.05.0	13/11/2009	09.35.9	19.49.9		30/12/2009	07.14.6	17.28.5
28/09/2009	08.19.1	18.33.1		14/11/2009	06.04.0	16.18.0		31/12/2009	03.42.5	13.56.4
29/09/2009	04.47.2	15.01.3		15/11/2009	02.32.0	12.46.0	23.00.0			

Orari in T.U. in cui transita il Meridiano Centrale

MERIDIANO CENTRALE DI SATURNO III

(Origine delle radio emissioni)

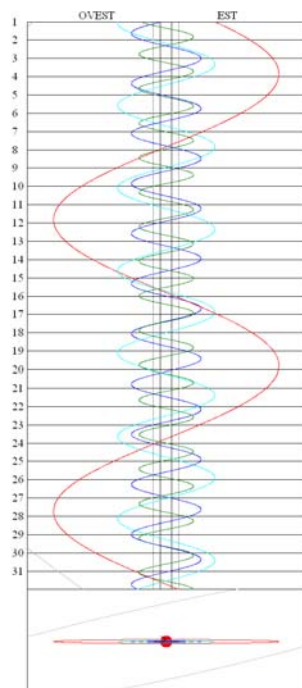
Data	Ore										
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08/01/2009	07.49.6	18.28.9		24/03/2009	08.32.9	19.12.3		07/06/2009	09.31.9	20.11.3	
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10/01/2009	02.26.9	13.06.2	23.45.5	26/03/2009	03.10.3	13.49.6		09/06/2009	04.09.7	14.49.2	
11/01/2009	10.24.8	21.04.1		27/03/2009	00.29.0	11.08.3	21.47.7	10/06/2009	01.28.6	12.08.1	22.47.6
12/01/2009	07.43.4	18.22.7		28/03/2009	08.27.0	19.06.4		11/06/2009	09.27.0	20.06.5	
13/01/2009	05.02.0	15.41.3		29/03/2009	05.45.7	16.25.0		12/06/2009	06.45.9	17.25.4	
14/01/2009	02.20.6	12.59.9	23.39.2	30/03/2009	03.04.4	13.43.7		13/06/2009	04.04.9	14.44.3	
15/01/2009	10.18.5	20.57.9		31/03/2009	00.23.1	11.02.4	21.41.8	14/06/2009	01.23.8	12.03.3	22.42.7
16/01/2009	07.37.2	18.16.5		01/04/2009	08.21.1	19.00.5		15/06/2009	09.22.2	20.01.7	
17/01/2009	04.55.8	15.35.1		02/04/2009	05.39.9	16.19.2		16/06/2009	06.41.1	17.20.6	
18/01/2009	02.14.4	12.53.7	23.33.0	03/04/2009	02.58.6	13.37.9		17/06/2009	04.00.1	14.39.6	
19/01/2009	10.12.3	20.51.6		04/04/2009	00.17.3	10.56.6	21.36.0	18/06/2009	01.19.0	11.58.5	22.38.0
20/01/2009	07.30.9	18.10.2		05/04/2009	08.15.3	18.54.7		19/06/2009	09.17.4	19.56.9	
21/01/2009	04.49.5	15.28.8		06/04/2009	05.34.1	16.13.4		20/06/2009	06.36.4	17.15.8	
22/01/2009	02.08.1	12.47.4	23.26.7	07/04/2009	02.52.8	13.32.1		21/06/2009	03.55.3	14.34.8	
23/01/2009	10.06.0	20.45.3		08/04/2009	00.11.5	10.50.9	21.30.2	22/06/2009	01.14.3	11.53.7	22.33.2
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26/01/2009	02.01.8	12.41.1	23.20.4	11/04/2009	02.47.1	13.26.4		25/06/2009	03.50.6	14.30.1	
27/01/2009	09.59.7	20.39.0		12/04/2009	00.05.8	10.45.2	21.24.6	26/06/2009	01.09.5	11.49.0	22.28.5
28/01/2009	07.18.3	17.57.6		13/04/2009	08.03.9	18.43.3		27/06/2009	09.08.0	19.47.4	
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30/01/2009	01.55.5	12.34.8	23.14.1	15/04/2009	02.41.4	13.20.8		29/06/2009	03.45.9	14.25.3	
31/01/2009	09.53.4	20.32.7		16/04/2009	00.00.2	10.39.5	21.18.9	30/06/2009	01.04.8	11.44.3	22.23.8
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07/02/2009	01.42.9	12.22.2	23.01.5	23/04/2009	02.30.3	13.09.7	23.49.1	07/07/2009	03.36.5	14.16.0	
08/02/2009	09.40.8	20.20.1		24/04/2009	10.28.5	21.07.9		08/07/2009	00.55.5	11.34.9	22.14.4
09/02/2009	06.59.4	17.38.7		25/04/2009	07.47.3	18.26.7		09/07/2009	08.53.9	19.33.4	
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11/02/2009	01.36.6	12.15.9	22.55.2	27/04/2009	02.24.9	13.04.2	23.43.6	11/07/2009	03.31.8	14.11.3	
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27/02/2009	01.11.6	11.50.9	22.30.2	13/05/2009	02.03.6	12.43.1	23.22.5	27/07/2009	03.13.3	13.52.8	
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07/03/2009	00.59.2	11.38.5	22.17.8	21/05/2009	01.53.4	12.32.8	23.12.3	04/08/2009	03.04.0	13.43.5	
08/03/2009	08.57.1	19.36.4		22/05/2009	09.51.7	20.31.1		05/08/2009	00.23.0	11.02.5	21.42.0
09/03/2009	06.15.8	16.55.1		23/05/2009	07.10.6	17.50.0		06/08/2009	08.21.5	19.01.0	
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13/03/2009	06.09.7	16.49.0		27/05/2009	07.05.6	17.45.0		10/08/2009	08.16.8	18.56.3	
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15/03/2009	00.47.0	11.26.3	22.05.6	29/05/2009	01.43.4	12.22.8	23.02.3	12/08/2009	02.54.8	13.34.3	
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21/08/2009	00.04.4	10.43.9	21.23.4	07/10/2009	01.47.5	12.26.9	23.06.4	23/11/2009	03.25.2	14.04.5	
22/08/2009	08.02.8	18.42.3		08/10/2009	09.45.8	20.25.2		24/11/2009	00.43.9	11.23.3	22.02.7
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02/09/2009	10.29.7	21.09.2		19/10/2009	01.32.2	12.11.6	22.51.1	05/12/2009	03.08.2	13.47.6	
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16/09/2009	04.53.2	15.32.7		02/11/2009	06.33.6	17.13.0		19/12/2009	08.07.6	18.46.9	
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19/09/2009	07.29.5	18.08.9		05/11/2009	09.09.4	19.48.8		22/12/2009	00.03.6	10.43.0	21.22.3
20/09/2009	04.48.4	15.27.8		06/11/2009	06.28.2	17.07.7		23/12/2009	08.01.7	18.41.0	
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27/09/2009	07.19.7	17.59.1		13/11/2009	08.58.6	19.38.0		30/12/2009	10.31.1	21.10.4	
28/09/2009	04.38.6	15.18.0		14/11/2009	06.17.4	16.56.8		31/12/2009	07.49.7	18.29.0	
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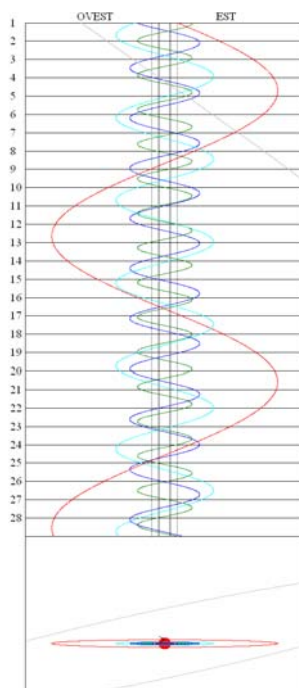
Orari in T.U. in cui transita il Meridiano Centrale

POSIZIONE DEI SATELLITI DI SATURNO

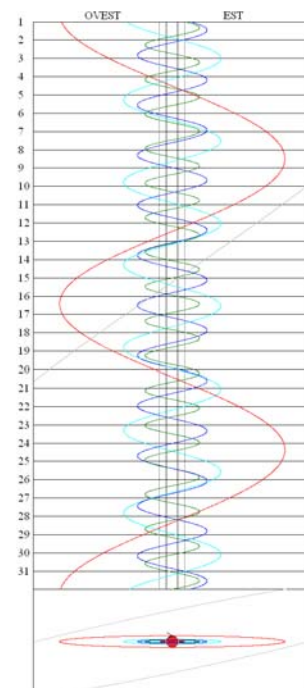
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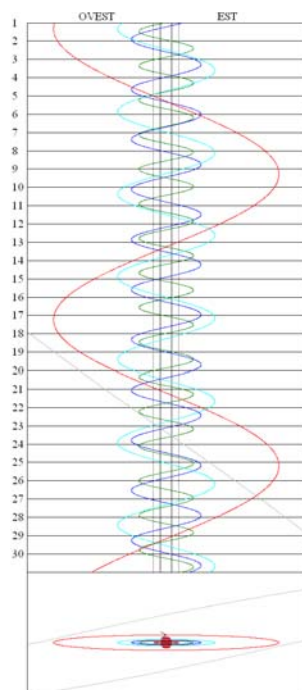
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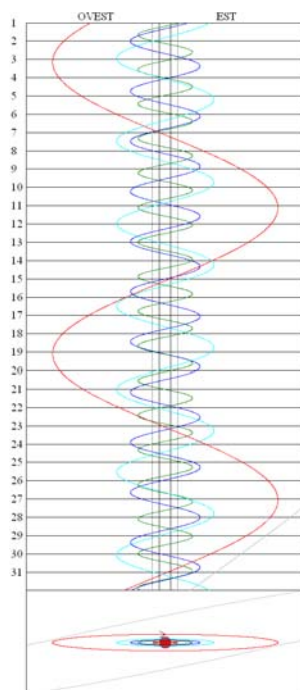
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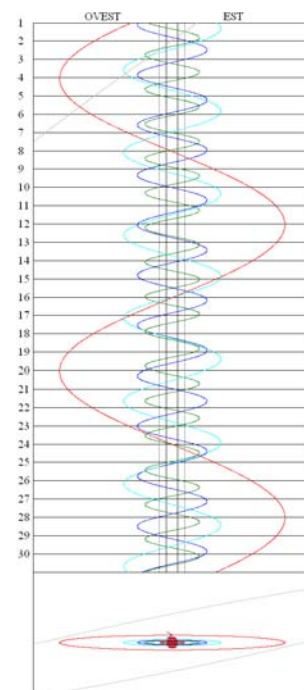
Apr



Mag

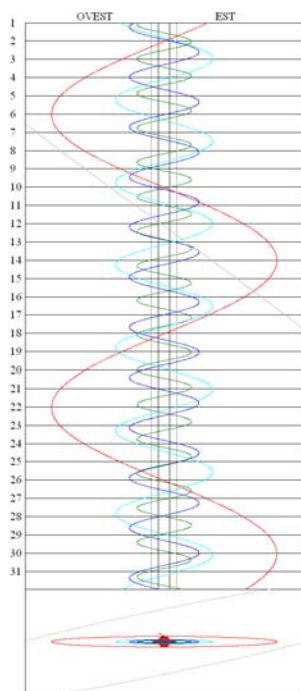


Giu

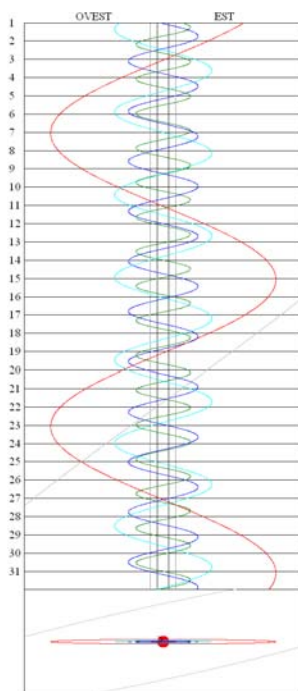


In verde Tethys, in blu Dione, in azzurro Rhea, in rosso Titano, in grigio Japetus

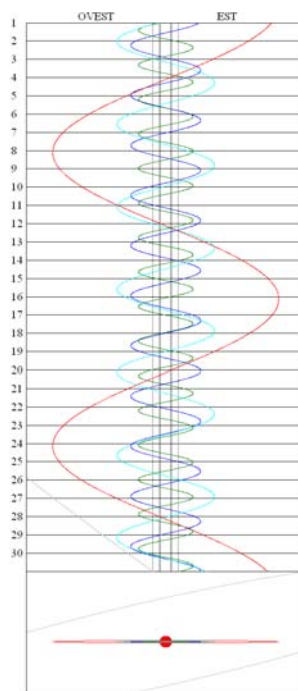
Lug



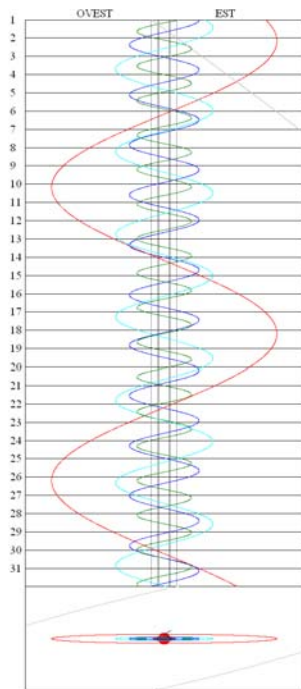
Ago



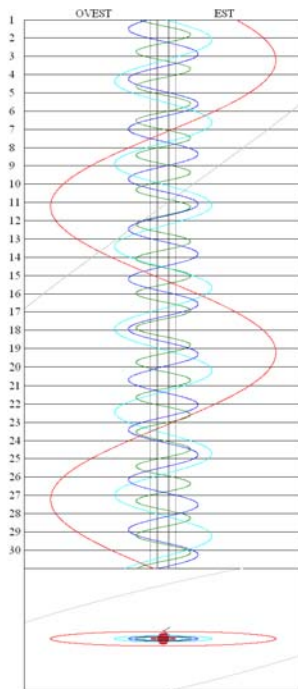
Set



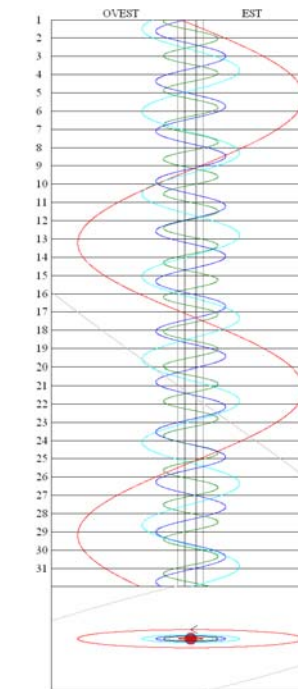
Ott



Nov



Dic



In verde Tethys, in blu Dione, in azzurro Rhea, in rosso Titano, in grigio Japetus

EFFEMERIDI DI URANO

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
1-gen	23h 21m 36.65s	-04° 57' 08.5"	20.09878	20.437735	169.98	68.5	3.4	5.9	11.01	16.45	22.30
2-gen	23h 21m 42.98s	-04° 56' 25.8"	20.09878	20.453786	170.11	67.5	3.4	5.9	10.57	16.42	22.26
3-gen	23h 21m 49.47s	-04° 55' 42.0"	20.09878	20.469724	170.24	66.6	3.4	5.9	10.53	16.38	22.22
4-gen	23h 21m 56.13s	-04° 54' 57.2"	20.09878	20.485543	170.37	65.6	3.4	5.9	10.50	16.34	22.19
5-gen	23h 22m 02.94s	-04° 54' 11.4"	20.09878	20.501239	170.50	64.6	3.4	5.9	10.46	16.30	22.15
6-gen	23h 22m 09.93s	-04° 53' 24.6"	20.09879	20.516808	170.63	63.6	3.4	5.9	10.42	16.26	22.11
7-gen	23h 22m 17.07s	-04° 52' 36.8"	20.09879	20.532245	170.76	62.6	3.4	5.9	10.38	16.23	22.07
8-gen	23h 22m 24.38s	-04° 51' 47.9"	20.09879	20.547546	170.89	61.6	3.4	5.9	10.34	16.19	22.03
9-gen	23h 22m 31.84s	-04° 50' 58.0"	20.09879	20.562708	171.01	60.6	3.4	5.9	10.30	16.15	22.00
10-gen	23h 22m 39.46s	-04° 50' 07.2"	20.09879	20.577726	171.14	59.7	3.4	5.9	10.26	16.11	21.56
11-gen	23h 22m 47.23s	-04° 49' 15.5"	20.09880	20.592597	171.26	58.7	3.4	5.9	10.23	16.07	21.52
12-gen	23h 22m 55.14s	-04° 48' 22.9"	20.09880	20.607317	171.39	57.7	3.4	5.9	10.19	16.04	21.48
13-gen	23h 23m 03.20s	-04° 47' 29.3"	20.09880	20.621882	171.51	56.7	3.4	5.9	10.15	16.00	21.45
14-gen	23h 23m 11.40s	-04° 46' 34.9"	20.09880	20.636289	171.63	55.7	3.4	5.9	10.11	15.56	21.41
15-gen	23h 23m 19.74s	-04° 45' 39.6"	20.09880	20.650534	171.75	54.7	3.4	5.9	10.07	15.52	21.37
16-gen	23h 23m 28.22s	-04° 44' 43.4"	20.09880	20.664612	171.86	53.8	3.4	5.9	10.03	15.48	21.34
17-gen	23h 23m 36.84s	-04° 43' 46.3"	20.09881	20.678519	171.98	52.8	3.4	5.9	9.59	15.45	21.30
18-gen	23h 23m 45.60s	-04° 42' 48.4"	20.09881	20.692253	172.09	51.8	3.4	5.9	9.56	15.41	21.26
19-gen	23h 23m 54.50s	-04° 41' 49.5"	20.09881	20.705808	172.21	50.8	3.4	5.9	9.52	15.37	21.22
20-gen	23h 24m 03.53s	-04° 40' 49.9"	20.09881	20.719180	172.32	49.9	3.4	5.9	9.48	15.33	21.19
21-gen	23h 24m 12.71s	-04° 39' 49.3"	20.09881	20.732367	172.43	48.9	3.4	5.9	9.44	15.29	21.15
22-gen	23h 24m 22.01s	-04° 38' 48.0"	20.09881	20.745363	172.53	47.9	3.4	5.9	9.40	15.26	21.11
23-gen	23h 24m 31.44s	-04° 37' 45.8"	20.09881	20.758165	172.64	46.9	3.4	5.9	9.36	15.22	21.07
24-gen	23h 24m 41.00s	-04° 36' 42.9"	20.09882	20.770770	172.75	45.9	3.4	5.9	9.33	15.18	21.04
25-gen	23h 24m 50.68s	-04° 35' 39.2"	20.09882	20.783173	172.85	45.0	3.4	5.9	9.29	15.14	21.00
26-gen	23h 25m 00.49s	-04° 34' 34.7"	20.09882	20.795370	172.95	44.0	3.4	5.9	9.25	15.11	20.56
27-gen	23h 25m 10.40s	-04° 33' 29.6"	20.09882	20.807360	173.05	43.0	3.4	5.9	9.21	15.07	20.53
28-gen	23h 25m 20.44s	-04° 32' 23.7"	20.09882	20.819137	173.15	42.1	3.4	5.9	9.17	15.03	20.49
29-gen	23h 25m 30.58s	-04° 31' 17.1"	20.09882	20.830699	173.24	41.1	3.4	5.9	9.13	14.59	20.45
30-gen	23h 25m 40.83s	-04° 30' 09.9"	20.09882	20.842042	173.34	40.1	3.4	5.9	9.10	14.56	20.42
31-gen	23h 25m 51.20s	-04° 29' 02.0"	20.09882	20.853164	173.43	39.2	3.4	5.9	9.06	14.52	20.38
1-feb	23h 26m 01.66s	-04° 27' 53.4"	20.09882	20.864061	173.52	38.2	3.4	5.9	9.02	14.48	20.34
2-feb	23h 26m 12.24s	-04° 26' 44.1"	20.09883	20.874731	173.61	37.2	3.4	5.9	8.58	14.44	20.30
3-feb	23h 26m 22.92s	-04° 25' 34.2"	20.09883	20.885171	173.70	36.3	3.4	5.9	8.54	14.41	20.27
4-feb	23h 26m 33.70s	-04° 24' 23.7"	20.09883	20.895379	173.78	35.3	3.4	5.9	8.50	14.37	20.23
5-feb	23h 26m 44.58s	-04° 23' 12.6"	20.09883	20.905352	173.86	34.3	3.4	5.9	8.47	14.33	20.19
6-feb	23h 26m 55.56s	-04° 22' 00.9"	20.09883	20.915089	173.95	33.4	3.4	5.9	8.43	14.29	20.16
7-feb	23h 27m 06.62s	-04° 20' 48.6"	20.09883	20.924586	174.02	32.4	3.4	5.9	8.39	14.26	20.12
8-feb	23h 27m 17.78s	-04° 19' 35.8"	20.09883	20.933843	174.10	31.4	3.4	5.9	8.35	14.22	20.08
9-feb	23h 27m 29.01s	-04° 18' 22.5"	20.09883	20.942857	174.18	30.5	3.3	5.9	8.31	14.18	20.05
10-feb	23h 27m 40.33s	-04° 17' 08.7"	20.09883	20.951627	174.25	29.5	3.3	5.9	8.28	14.14	20.01
11-feb	23h 27m 51.72s	-04° 15' 54.5"	20.09883	20.960150	174.32	28.6	3.3	5.9	8.24	14.11	19.57
12-feb	23h 28m 03.19s	-04° 14' 39.7"	20.09883	20.968424	174.39	27.6	3.3	5.9	8.20	14.07	19.54
13-feb	23h 28m 14.73s	-04° 13' 24.5"	20.09883	20.976447	174.46	26.6	3.3	5.9	8.16	14.03	19.50
14-feb	23h 28m 26.35s	-04° 12' 08.9"	20.09883	20.984218	174.52	25.7	3.3	5.9	8.12	13.59	19.46
15-feb	23h 28m 38.05s	-04° 10' 52.7"	20.09884	20.991734	174.58	24.7	3.3	5.9	8.08	13.56	19.43
16-feb	23h 28m 49.82s	-04° 09' 36.2"	20.09884	20.998992	174.64	23.8	3.3	5.9	8.05	13.52	19.39
17-feb	23h 29m 01.65s	-04° 08' 19.2"	20.09884	21.005992	174.70	22.8	3.3	5.9	8.01	13.48	19.35
18-feb	23h 29m 13.55s	-04° 07' 01.8"	20.09884	21.012730	174.76	21.9	3.3	5.9	7.57	13.44	19.32
19-feb	23h 29m 25.52s	-04° 05' 44.0"	20.09884	21.019206	174.81	20.9	3.3	5.9	7.53	13.41	19.28
20-feb	23h 29m 37.54s	-04° 04' 25.9"	20.09884	21.025417	174.86	19.9	3.3	5.9	7.49	13.37	19.24
21-feb	23h 29m 49.63s	-04° 03' 07.4"	20.09884	21.031361	174.91	19.0	3.3	5.9	7.46	13.33	19.21
22-feb	23h 30m 01.76s	-04° 01' 48.7"	20.09884	21.037037	174.96	18.0	3.3	5.9	7.42	13.29	19.17
23-feb	23h 30m 13.94s	-04° 00' 29.6"	20.09884	21.042443	175.00	17.1	3.3	5.9	7.38	13.26	19.14
24-feb	23h 30m 26.17s	-03° 59' 10.3"	20.09884	21.047578	175.05	16.1	3.3	5.9	7.34	13.22	19.10
25-feb	23h 30m 38.44s	-03° 57' 50.7"	20.09884	21.052441	175.09	15.2	3.3	5.9	7.30	13.18	19.06
26-feb	23h 30m 50.76s	-03° 56' 30.8"	20.09884	21.057030	175.13	14.2	3.3	5.9	7.27	13.15	19.03
27-feb	23h 31m 03.11s	-03° 55' 10.8"	20.09884	21.061344	175.16	13.3	3.3	5.9	7.23	13.11	18.59
28-feb	23h 31m 15.50s	-03° 53' 50.5"	20.09884	21.065382	175.20	12.3	3.3	5.9	7.19	13.07	18.55
1-mar	23h 31m 27.92s	-03° 52' 30.0"	20.09884	21.069144	175.23	11.4	3.3	5.9	7.15	13.03	18.52
2-mar	23h 31m 40.38s	-03° 51' 09.3"	20.09884	21.072628	175.26	10.5	3.3	5.9	7.11	13.00	18.48
3-mar	23h 31m 52.88s	-03° 49' 48.5"	20.09884	21.075835	175.28	9.5	3.3	5.9	7.08	12.56	18.44
4-mar	23h 32m 05.40s	-03° 48' 27.4"	20.09884	21.078764	175.31	8.6	3.3	5.9	7.04	12.52	18.41
5-mar	23h 32m 17.95s	-03° 47' 06.3"	20.09884	21.081415	175.33	7.6	3.3	5.9	7.00	12.48	18.37
6-mar	23h 32m 30.52s	-03° 45' 45.0"	20.09884	21.083787	175.35	6.7	3.3	5.9	6.56	12.45	18.33
7-mar	23h 32m 43.10s	-03° 44' 23.6"	20.09884	21.085882	175.37	5.8	3.3	5.9	6.52	12.41	18.30
8-mar	23h 32m 55.70s	-03° 43' 02.3"	20.09884	21.087699	175.38	4.8	3.3	5.9	6.48	12.37	18.26
9-mar	23h 33m 08.31s	-03° 41' 40.8"	20.09884	21.089237	175.39	3.9	3.3	5.9	6.45	12.34	18.23
10-mar	23h 33m 20.93s	-03° 40' 19.4"	20.09884	21.090498	175.40	3.0	3.3	5.9	6.41	12.30	18.19
11-mar	23h 33m 33.55s	-03° 38' 57.9"	20.09884	21.091481	175.41	2.1	3.3	5.9	6.37	12.26	18.15
12-mar	23h 33m 46.18s	-03° 37' 36.5"	20.09883	21.092187	175.42	1.3	3.3	5.9	6.33	12.22	18.12
13-mar	23h 33m 58.80s	-03° 36' 15.5"	20.09883	21.092615	175.42	0.8	3.3	5.9	6.29	12.19	18.08

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
14-mar	23h 34m 11.40s	-03° 34' 53.9"	20.09883	21.092765	175.42	1.2	3.3	5.9	6.26	12.15	18.04
15-mar	23h 34m 24.03s	-03° 33' 32.2"	20.09883	21.092637	175.42	2.0	3.3	5.9	6.22	12.11	18.01
16-mar	23h 34m 36.66s	-03° 32' 10.7"	20.09883	21.092231	175.42	2.9	3.3	5.9	6.18	12.08	17.57
17-mar	23h 34m 49.29s	-03° 30' 49.3"	20.09883	21.091548	175.41	3.8	3.3	5.9	6.14	12.04	17.53
18-mar	23h 35m 01.91s	-03° 29' 28.0"	20.09883	21.090587	175.41	4.7	3.3	5.9	6.10	12.00	17.50
19-mar	23h 35m 14.52s	-03° 28' 06.8"	20.09883	21.089348	175.39	5.6	3.3	5.9	6.07	11.56	17.46
20-mar	23h 35m 27.11s	-03° 26' 45.8"	20.09883	21.087833	175.38	6.5	3.3	5.9	6.03	11.53	17.42
21-mar	23h 35m 39.68s	-03° 25' 24.8"	20.09883	21.086040	175.37	7.5	3.3	5.9	5.59	11.49	17.39
22-mar	23h 35m 52.24s	-03° 24' 04.0"	20.09883	21.083971	175.35	8.4	3.3	5.9	5.55	11.45	17.35
23-mar	23h 36m 04.77s	-03° 22' 43.5"	20.09883	21.081626	175.33	9.3	3.3	5.9	5.51	11.41	17.32
24-mar	23h 36m 17.27s	-03° 21' 23.1"	20.09883	21.079005	175.31	10.3	3.3	5.9	5.48	11.38	17.28
25-mar	23h 36m 29.74s	-03° 20' 02.9"	20.09882	21.076110	175.28	11.2	3.3	5.9	5.44	11.34	17.24
26-mar	23h 36m 42.18s	-03° 18' 43.0"	20.09882	21.072941	175.26	12.1	3.3	5.9	5.40	11.30	17.21
27-mar	23h 36m 54.59s	-03° 17' 23.3"	20.09882	21.069500	175.23	13.1	3.3	5.9	5.36	11.27	17.17
28-mar	23h 37m 06.96s	-03° 16' 03.8"	20.09882	21.065786	175.20	14.0	3.3	5.9	5.32	11.23	17.13
29-mar	23h 37m 19.30s	-03° 14' 44.6"	20.09882	21.061803	175.17	14.9	3.3	5.9	5.29	11.19	17.10
30-mar	23h 37m 31.60s	-03° 13' 25.7"	20.09882	21.057550	175.13	15.9	3.3	5.9	5.25	11.15	17.06
31-mar	23h 37m 43.86s	-03° 12' 07.0"	20.09882	21.053030	175.09	16.8	3.3	5.9	5.21	11.12	17.02
1-apr	23h 37m 56.07s	-03° 10' 48.7"	20.09882	21.048245	175.05	17.7	3.3	5.9	5.17	11.08	16.59
2-apr	23h 38m 08.24s	-03° 09' 30.7"	20.09882	21.043196	175.01	18.7	3.3	5.9	5.13	11.04	16.55
3-apr	23h 38m 20.36s	-03° 08' 13.1"	20.09881	21.037885	174.97	19.6	3.3	5.9	5.10	11.00	16.51
4-apr	23h 38m 32.42s	-03° 06' 55.9"	20.09881	21.032315	174.92	20.5	3.3	5.9	5.06	10.57	16.48
5-apr	23h 38m 44.42s	-03° 05' 39.0"	20.09881	21.026486	174.87	21.5	3.3	5.9	5.02	10.53	16.44
6-apr	23h 38m 56.36s	-03° 04' 22.6"	20.09881	21.020402	174.82	22.4	3.3	5.9	4.58	10.49	16.40
7-apr	23h 39m 08.24s	-03° 03' 06.7"	20.09881	21.014064	174.77	23.3	3.3	5.9	4.54	10.46	16.37
8-apr	23h 39m 20.05s	-03° 01' 51.1"	20.09881	21.007475	174.71	24.3	3.3	5.9	4.51	10.42	16.33
9-apr	23h 39m 31.79s	-03° 00' 36.1"	20.09881	21.000635	174.66	25.2	3.3	5.9	4.47	10.38	16.29
10-apr	23h 39m 43.48s	-02° 59' 21.4"	20.09880	20.993547	174.60	26.1	3.3	5.9	4.43	10.34	16.26
11-apr	23h 39m 55.09s	-02° 58' 07.2"	20.09880	20.986212	174.54	27.0	3.3	5.9	4.39	10.31	16.22
12-apr	23h 40m 06.64s	-02° 56' 53.5"	20.09880	20.978633	174.47	28.0	3.3	5.9	4.35	10.27	16.18
13-apr	23h 40m 18.12s	-02° 55' 40.3"	20.09880	20.970811	174.41	28.9	3.3	5.9	4.31	10.23	16.15
14-apr	23h 40m 29.52s	-02° 54' 27.5"	20.09880	20.962749	174.34	29.8	3.3	5.9	4.28	10.19	16.11
15-apr	23h 40m 40.84s	-02° 53' 15.3"	20.09880	20.954447	174.27	30.7	3.3	5.9	4.24	10.16	16.07
16-apr	23h 40m 52.09s	-02° 52' 03.6"	20.09879	20.945908	174.20	31.7	3.3	5.9	4.20	10.12	16.04
17-apr	23h 41m 03.25s	-02° 50' 52.5"	20.09879	20.937135	174.13	32.6	3.4	5.9	4.16	10.08	16.00
18-apr	23h 41m 14.33s	-02° 49' 42.0"	20.09879	20.928129	174.05	33.5	3.4	5.9	4.12	10.04	15.56
19-apr	23h 41m 25.32s	-02° 48' 32.1"	20.09879	20.918892	173.98	34.5	3.4	5.9	4.09	10.01	15.53
20-apr	23h 41m 36.21s	-02° 47' 22.8"	20.09879	20.909427	173.90	35.4	3.4	5.9	4.05	9.57	15.49
21-apr	23h 41m 47.02s	-02° 46' 14.1"	20.09878	20.899737	173.82	36.3	3.4	5.9	4.01	9.53	15.45
22-apr	23h 41m 57.72s	-02° 45' 06.1"	20.09878	20.889822	173.74	37.2	3.4	5.9	3.57	9.49	15.42
23-apr	23h 42m 08.33s	-02° 43' 58.7"	20.09878	20.879687	173.65	38.2	3.4	5.9	3.53	9.46	15.38
24-apr	23h 42m 18.85s	-02° 42' 52.0"	20.09878	20.869334	173.56	39.1	3.4	5.9	3.49	9.42	15.34
25-apr	23h 42m 29.26s	-02° 41' 45.9"	20.09878	20.858766	173.48	40.0	3.4	5.9	3.46	9.38	15.31
26-apr	23h 42m 39.58s	-02° 40' 40.5"	20.09877	20.847986	173.39	40.9	3.4	5.9	3.42	9.34	15.27
27-apr	23h 42m 49.79s	-02° 39' 35.8"	20.09877	20.836997	173.30	41.9	3.4	5.9	3.38	9.31	15.23
28-apr	23h 42m 59.90s	-02° 38' 31.8"	20.09877	20.825802	173.20	42.8	3.4	5.9	3.34	9.27	15.19
29-apr	23h 43m 09.90s	-02° 37' 28.5"	20.09877	20.814405	173.11	43.7	3.4	5.9	3.30	9.23	15.16
30-apr	23h 43m 19.79s	-02° 36' 26.0"	20.09876	20.802809	173.01	44.7	3.4	5.9	3.26	9.19	15.12
1-mag	23h 43m 29.56s	-02° 35' 24.3"	20.09876	20.791018	172.91	45.6	3.4	5.9	3.23	9.15	15.08
2-mag	23h 43m 39.22s	-02° 34' 23.3"	20.09876	20.779036	172.81	46.5	3.4	5.9	3.19	9.12	15.05
3-mag	23h 43m 48.75s	-02° 33' 23.2"	20.09876	20.766865	172.71	47.4	3.4	5.9	3.15	9.08	15.01
4-mag	23h 43m 58.16s	-02° 32' 23.9"	20.09875	20.754510	172.61	48.4	3.4	5.9	3.11	9.04	14.57
5-mag	23h 44m 07.45s	-02° 31' 25.3"	20.09875	20.741973	172.51	49.3	3.4	5.9	3.07	9.00	14.53
6-mag	23h 44m 16.61s	-02° 30' 27.6"	20.09875	20.729259	172.40	50.2	3.4	5.9	3.03	8.57	14.50
7-mag	23h 44m 25.65s	-02° 29' 30.8"	20.09875	20.716370	172.29	51.1	3.4	5.9	3.00	8.53	14.46
8-mag	23h 44m 34.57s	-02° 28' 34.7"	20.09874	20.703310	172.18	52.1	3.4	5.9	2.56	8.49	14.42
9-mag	23h 44m 43.36s	-02° 27' 39.5"	20.09874	20.690081	172.07	53.0	3.4	5.9	2.52	8.45	14.39
10-mag	23h 44m 52.03s	-02° 26' 45.1"	20.09874	20.676688	171.96	53.9	3.4	5.9	2.48	8.41	14.35
11-mag	23h 45m 00.57s	-02° 25' 51.6"	20.09874	20.663134	171.85	54.9	3.4	5.9	2.44	8.38	14.31
12-mag	23h 45m 08.98s	-02° 24' 58.9"	20.09873	20.649421	171.74	55.8	3.4	5.9	2.40	8.34	14.27
13-mag	23h 45m 17.25s	-02° 24' 07.1"	20.09873	20.635553	171.62	56.7	3.4	5.9	2.37	8.30	14.24
14-mag	23h 45m 25.39s	-02° 23' 16.3"	20.09873	20.621534	171.50	57.6	3.4	5.9	2.33	8.26	14.20
15-mag	23h 45m 33.39s	-02° 22' 26.3"	20.09872	20.607366	171.39	58.6	3.4	5.9	2.29	8.22	14.16
16-mag	23h 45m 41.24s	-02° 21' 37.3"	20.09872	20.593054	171.27	59.5	3.4	5.9	2.25	8.19	14.12
17-mag	23h 45m 48.96s	-02° 20' 49.3"	20.09872	20.578601	171.15	60.4	3.4	5.9	2.21	8.15	14.09
18-mag	23h 45m 56.52s	-02° 20' 02.1"	20.09871	20.564010	171.03	61.4	3.4	5.9	2.17	8.11	14.05
19-mag	23h 46m 03.95s	-02° 19' 16.0"	20.09871	20.549286	170.90	62.3	3.4	5.9	2.13	8.07	14.01
20-mag	23h 46m 11.22s	-02° 18' 30.9"	20.09871	20.534432	170.78	63.2	3.4	5.9	2.10	8.03	13.57
21-mag	23h 46m 18.35s	-02° 17' 46.7"	20.09871	20.519452	170.65	64.1	3.4	5.9	2.06	8.00	13.54
22-mag	23h 46m 25.33s	-02° 17' 03.5"	20.09870	20.504349	170.53	65.1	3.4	5.9	2.02	7.56	13.50
23-mag	23h 46m 32.16s	-02° 16' 21.2"	20.09870	20.489129	170.40	66.0	3.4	5.9	1.58	7.52	13.46
24-mag	23h 46m 38.85s	-02° 15' 40.0"	20.09870	20.473795	170.28	66.9	3.4	5.9	1.54	7.48	13.42
25-mag	23h 46m 45.38s	-02° 14' 59.7"	20.09869	20.458352	170.15	67.9	3.4	5.9	1.50	7.44	13.38
26-mag	23h 46m 51.77s	-02° 14' 20.5"	20.09869	20.442804	170.02	68.8	3.4	5.9	1.46	7.41	13.35
27-mag	23h 46m 57.99s	-02° 13' 42.3"	20.09869	20.427156	169.89	69.7	3.4	5.9	1.43	7.37	13.31
28-mag	23h 47m 04.05s	-02° 13' 05.1"	20.09868	20.411413	169.76	70.7	3.4	5.9	1.39	7.33	13.27
29-mag	23h 47m 09.95s	-02° 12' 29.0"	20.09868	20.395579	169.62	71.6	3.4	5.9	1.35	7.29	13.23

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
30-mag	23h 47m 15.69s	-02° 11' 54.0"	20.09867	20.379658	169.49	72.5	3.4	5.9	1.31	7.25	13.19
31-mag	23h 47m 21.26s	-02° 11' 20.1"	20.09867	20.363656	169.36	73.5	3.4	5.9	1.27	7.21	13.16
1-giu	23h 47m 26.66s	-02° 10' 47.3"	20.09867	20.347577	169.23	74.4	3.4	5.9	1.23	7.17	13.12
2-giu	23h 47m 31.91s	-02° 10' 15.6"	20.09866	20.331425	169.09	75.3	3.4	5.9	1.19	7.14	13.08
3-giu	23h 47m 36.98s	-02° 09' 44.9"	20.09866	20.315204	168.96	76.3	3.5	5.9	1.15	7.10	13.04
4-giu	23h 47m 41.90s	-02° 09' 15.3"	20.09866	20.298919	168.82	77.2	3.5	5.9	1.12	7.06	13.00
5-giu	23h 47m 46.65s	-02° 08' 46.7"	20.09865	20.282573	168.68	78.1	3.5	5.9	1.08	7.02	12.56
6-giu	23h 47m 51.24s	-02° 08' 19.3"	20.09865	20.266171	168.55	79.1	3.5	5.8	1.04	6.58	12.53
7-giu	23h 47m 55.66s	-02° 07' 52.9"	20.09864	20.249718	168.41	80.0	3.5	5.8	1.00	6.54	12.49
8-giu	23h 47m 59.92s	-02° 07' 27.6"	20.09864	20.233216	168.27	81.0	3.5	5.8	0.56	6.51	12.45
9-giu	23h 48m 04.00s	-02° 07' 03.4"	20.09864	20.216672	168.14	81.9	3.5	5.8	0.52	6.47	12.41
10-giu	23h 48m 07.92s	-02° 06' 40.3"	20.09863	20.200087	168.00	82.8	3.5	5.8	0.48	6.43	12.37
11-giu	23h 48m 11.66s	-02° 06' 18.4"	20.09863	20.183467	167.86	83.8	3.5	5.8	0.44	6.39	12.33
12-giu	23h 48m 15.23s	-02° 05' 57.5"	20.09862	20.166817	167.72	84.7	3.5	5.8	0.40	6.35	12.30
13-giu	23h 48m 18.63s	-02° 05' 37.9"	20.09862	20.150139	167.58	85.6	3.5	5.8	0.37	6.31	12.26
14-giu	23h 48m 21.85s	-02° 05' 19.4"	20.09862	20.133439	167.44	86.6	3.5	5.8	0.33	6.27	12.22
15-giu	23h 48m 24.89s	-02° 05' 02.0"	20.09861	20.116722	167.31	87.5	3.5	5.8	0.29	6.23	12.18
16-giu	23h 48m 27.76s	-02° 04' 45.7"	20.09861	20.099990	167.17	88.5	3.5	5.8	0.25	6.20	12.14
17-giu	23h 48m 30.45s	-02° 04' 30.6"	20.09860	20.083250	167.03	89.4	3.5	5.8	0.21	6.16	12.10
18-giu	23h 48m 32.97s	-02° 04' 16.7"	20.09860	20.066505	166.89	90.4	3.5	5.8	0.17	6.12	12.06
19-giu	23h 48m 35.32s	-02° 04' 03.9"	20.09859	20.049760	166.75	91.3	3.5	5.8	0.13	6.08	12.03
20-giu	23h 48m 37.49s	-02° 03' 52.2"	20.09859	20.033021	166.61	92.3	3.5	5.8	0.09	6.04	11.59
21-giu	23h 48m 39.49s	-02° 03' 41.6"	20.09859	20.016291	166.47	93.2	3.5	5.8	0.05	6.00	11.55
22-giu	23h 48m 41.31s	-02° 03' 32.2"	20.09858	19.999576	166.33	94.1	3.5	5.8	0.01	5.56	11.51
23-giu	23h 48m 42.95s	-02° 03' 24.0"	20.09858	19.982882	166.19	95.1	3.5	5.8	23.54	5.52	11.47
24-giu	23h 48m 44.42s	-02° 03' 16.9"	20.09857	19.966212	166.05	96.0	3.5	5.8	23.50	5.48	11.43
25-giu	23h 48m 45.70s	-02° 03' 11.0"	20.09857	19.949573	165.92	97.0	3.5	5.8	23.46	5.44	11.39
26-giu	23h 48m 46.80s	-02° 03' 06.3"	20.09856	19.932970	165.78	97.9	3.5	5.8	23.42	5.41	11.35
27-giu	23h 48m 47.71s	-02° 03' 02.8"	20.09856	19.916406	165.64	98.9	3.5	5.8	23.38	5.37	11.31
28-giu	23h 48m 48.45s	-02° 03' 00.4"	20.09855	19.899888	165.50	99.8	3.5	5.8	23.34	5.33	11.27
29-giu	23h 48m 49.00s	-02° 02' 59.2"	20.09855	19.883420	165.37	100.8	3.5	5.8	23.30	5.29	11.23
30-giu	23h 48m 49.38s	-02° 02' 59.2"	20.09854	19.867006	165.23	101.7	3.5	5.8	23.26	5.25	11.20
1-lug	23h 48m 49.58s	-02° 03' 00.3"	20.09854	19.850652	165.09	102.7	3.5	5.8	23.22	5.21	11.16
2-lug	23h 48m 49.61s	-02° 03' 02.5"	20.09853	19.834361	164.96	103.6	3.5	5.8	23.18	5.17	11.12
3-lug	23h 48m 49.46s	-02° 03' 05.8"	20.09853	19.818137	164.82	104.6	3.5	5.8	23.14	5.13	11.08
4-lug	23h 48m 49.14s	-02° 03' 10.3"	20.09852	19.801987	164.69	105.6	3.5	5.8	23.10	5.09	11.04
5-lug	23h 48m 48.64s	-02° 03' 15.8"	20.09852	19.785912	164.55	106.5	3.5	5.8	23.07	5.05	11.00
6-lug	23h 48m 47.97s	-02° 03' 22.6"	20.09851	19.769919	164.42	107.5	3.5	5.8	23.03	5.01	10.56
7-lug	23h 48m 47.12s	-02° 03' 30.4"	20.09851	19.754011	164.29	108.4	3.6	5.8	22.59	4.57	10.52
8-lug	23h 48m 46.10s	-02° 03' 39.4"	20.09850	19.738193	164.16	109.4	3.6	5.8	22.55	4.53	10.48
9-lug	23h 48m 44.90s	-02° 03' 49.5"	20.09850	19.722468	164.03	110.3	3.6	5.8	22.51	4.49	10.44
10-lug	23h 48m 43.52s	-02° 04' 00.7"	20.09849	19.706841	163.90	111.3	3.6	5.8	22.47	4.45	10.40
11-lug	23h 48m 41.97s	-02° 04' 13.1"	20.09849	19.691317	163.77	112.3	3.6	5.8	22.43	4.41	10.36
12-lug	23h 48m 40.25s	-02° 04' 26.6"	20.09848	19.675900	163.64	113.2	3.6	5.8	22.39	4.37	10.32
13-lug	23h 48m 38.35s	-02° 04' 41.2"	20.09848	19.660593	163.51	114.2	3.6	5.8	22.35	4.34	10.28
14-lug	23h 48m 36.28s	-02° 04' 56.9"	20.09847	19.645403	163.39	115.1	3.6	5.8	22.31	4.30	10.24
15-lug	23h 48m 34.03s	-02° 05' 13.7"	20.09846	19.630332	163.26	116.1	3.6	5.8	22.27	4.26	10.20
16-lug	23h 48m 31.63s	-02° 05' 31.5"	20.09846	19.615386	163.14	117.1	3.6	5.8	22.23	4.22	10.16
17-lug	23h 48m 29.05s	-02° 05' 50.4"	20.09845	19.600569	163.01	118.0	3.6	5.8	22.19	4.18	10.12
18-lug	23h 48m 26.31s	-02° 06' 10.4"	20.09845	19.585886	162.89	119.0	3.6	5.8	22.15	4.14	10.08
19-lug	23h 48m 23.41s	-02° 06' 31.4"	20.09844	19.571341	162.77	120.0	3.6	5.8	22.11	4.10	10.04
20-lug	23h 48m 20.34s	-02° 06' 53.5"	20.09844	19.556939	162.65	120.9	3.6	5.8	22.07	4.06	10.00
21-lug	23h 48m 17.11s	-02° 07' 16.6"	20.09843	19.542685	162.53	121.9	3.6	5.8	22.03	4.02	9.56
22-lug	23h 48m 13.71s	-02° 07' 40.8"	20.09843	19.528584	162.41	122.9	3.6	5.8	21.59	3.58	9.52
23-lug	23h 48m 10.15s	-02° 08' 06.0"	20.09842	19.514641	162.30	123.9	3.6	5.8	21.55	3.54	9.48
24-lug	23h 48m 06.42s	-02° 08' 32.3"	20.09841	19.500859	162.18	124.8	3.6	5.8	21.51	3.50	9.44
25-lug	23h 48m 02.53s	-02° 08' 59.6"	20.09841	19.487244	162.07	125.8	3.6	5.8	21.47	3.46	9.40
26-lug	23h 47m 58.47s	-02° 09' 28.0"	20.09840	19.473800	161.96	126.8	3.6	5.8	21.43	3.42	9.36
27-lug	23h 47m 54.26s	-02° 09' 57.3"	20.09840	19.460530	161.85	127.8	3.6	5.8	21.39	3.38	9.32
28-lug	23h 47m 49.90s	-02° 10' 27.6"	20.09839	19.447440	161.74	128.7	3.6	5.8	21.35	3.34	9.28
29-lug	23h 47m 45.39s	-02° 10' 58.8"	20.09838	19.434532	161.63	129.7	3.6	5.8	21.32	3.30	9.24
30-lug	23h 47m 40.74s	-02° 11' 30.9"	20.09838	19.421811	161.53	130.7	3.6	5.8	21.28	3.26	9.20
31-lug	23h 47m 35.93s	-02° 12' 03.9"	20.09837	19.409280	161.42	131.7	3.6	5.8	21.24	3.22	9.16
1-ago	23h 47m 30.99s	-02° 12' 37.9"	20.09836	19.396943	161.32	132.6	3.6	5.8	21.20	3.18	9.12
2-ago	23h 47m 25.89s	-02° 13' 12.8"	20.09836	19.384803	161.22	133.6	3.6	5.8	21.16	3.14	9.08
3-ago	23h 47m 20.66s	-02° 13' 48.5"	20.09835	19.372864	161.12	134.6	3.6	5.8	21.12	3.10	9.04
4-ago	23h 47m 15.29s	-02° 14' 25.1"	20.09835	19.361129	161.02	135.6	3.6	5.8	21.08	3.06	9.00
5-ago	23h 47m 09.77s	-02° 15' 02.6"	20.09834	19.349602	160.93	136.6	3.6	5.8	21.04	3.02	8.56
6-ago	23h 47m 04.12s	-02° 15' 41.0"	20.09833	19.338286	160.83	137.5	3.6	5.8	21.00	2.58	8.52
7-ago	23h 46m 58.33s	-02° 16' 20.3"	20.09833	19.327184	160.74	138.5	3.6	5.8	20.56	2.54	8.47
8-ago	23h 46m 52.41s	-02° 17' 00.3"	20.09832	19.316300	160.65	139.5	3.6	5.8	20.52	2.50	8.43
9-ago	23h 46m 46.36s	-02° 17' 41.2"	20.09831	19.305638	160.56	140.5	3.6	5.8	20.48	2.45	8.39
10-ago	23h 46m 40.17s	-02° 18' 22.9"	20.09831	19.295200	160.47	141.5	3.6	5.8	20.44	2.41	8.35
11-ago	23h 46m 33.87s	-02° 19' 05.3"	20.09830	19.284989	160.39	142.5	3.6	5.8	20.40	2.37	8.31
12-ago	23h 46m 27.44s	-02° 19' 48.5"	20.09829	19.275010	160.31	143.5	3.6	5.8	20.36	2.33	8.27
13-ago	23h 46m 20.89s	-02° 20' 32.4"	20.09829	19.265266	160.22	144.5	3.6	5.7	20.32	2.29	8.23
14-ago	23h 46m 14.23s	-02° 21' 17.1"	20.09828	19.255759	160.15	145.4	3.6	5.7	20.28	2.25	8.19

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
15-ago	23h 46m 07.46s	-02° 22' 02.4"	20.09827	19.246494	160.07	146.4	3.6	5.7	20.24	2.21	8.15
16-ago	23h 46m 00.57s	-02° 22' 48.4"	20.09827	19.237474	159.99	147.4	3.6	5.7	20.20	2.17	8.11
17-ago	23h 45m 53.58s	-02° 23' 35.1"	20.09826	19.228702	159.92	148.4	3.6	5.7	20.16	2.13	8.07
18-ago	23h 45m 46.47s	-02° 24' 22.4"	20.09825	19.220182	159.85	149.4	3.6	5.7	20.12	2.09	8.03
19-ago	23h 45m 39.26s	-02° 25' 10.4"	20.09824	19.211916	159.78	150.4	3.7	5.7	20.08	2.05	7.58
20-ago	23h 45m 31.94s	-02° 25' 59.1"	20.09824	19.203909	159.71	151.4	3.7	5.7	20.04	2.01	7.54
21-ago	23h 45m 24.52s	-02° 26' 48.4"	20.09823	19.196163	159.65	152.4	3.7	5.7	20.00	1.57	7.50
22-ago	23h 45m 16.99s	-02° 27' 38.3"	20.09822	19.188681	159.59	153.4	3.7	5.7	19.56	1.53	7.46
23-ago	23h 45m 09.38s	-02° 28' 28.7"	20.09822	19.181465	159.53	154.4	3.7	5.7	19.52	1.49	7.42
24-ago	23h 45m 01.67s	-02° 29' 19.7"	20.09821	19.174519	159.47	155.4	3.7	5.7	19.48	1.45	7.38
25-ago	23h 44m 53.89s	-02° 30' 11.1"	20.09820	19.167844	159.41	156.4	3.7	5.7	19.44	1.41	7.34
26-ago	23h 44m 46.02s	-02° 31' 03.1"	20.09819	19.161442	159.36	157.4	3.7	5.7	19.40	1.37	7.30
27-ago	23h 44m 38.07s	-02° 31' 55.4"	20.09819	19.155315	159.31	158.4	3.7	5.7	19.36	1.33	7.26
28-ago	23h 44m 30.06s	-02° 32' 48.3"	20.09818	19.149466	159.26	159.4	3.7	5.7	19.32	1.29	7.21
29-ago	23h 44m 21.97s	-02° 33' 41.5"	20.09817	19.143896	159.21	160.4	3.7	5.7	19.28	1.24	7.17
30-ago	23h 44m 13.81s	-02° 34' 35.1"	20.09816	19.138606	159.17	161.4	3.7	5.7	19.24	1.20	7.13
31-ago	23h 44m 05.58s	-02° 35' 29.1"	20.09816	19.133599	159.13	162.4	3.7	5.7	19.20	1.16	7.09
1-set	23h 43m 57.29s	-02° 36' 23.5"	20.09815	19.128875	159.09	163.4	3.7	5.7	19.16	1.12	7.05
2-set	23h 43m 48.94s	-02° 37' 18.2"	20.09814	19.124436	159.05	164.4	3.7	5.7	19.12	1.08	7.01
3-set	23h 43m 40.53s	-02° 38' 13.3"	20.09813	19.120285	159.02	165.4	3.7	5.7	19.08	1.04	6.57
4-set	23h 43m 32.06s	-02° 39' 08.7"	20.09813	19.116421	158.99	166.4	3.7	5.7	19.03	1.00	6.53
5-set	23h 43m 23.54s	-02° 40' 04.3"	20.09812	19.112846	158.96	167.4	3.7	5.7	18.59	0.56	6.48
6-set	23h 43m 14.97s	-02° 41' 00.2"	20.09811	19.109562	158.93	168.4	3.7	5.7	18.55	0.52	6.44
7-set	23h 43m 06.37s	-02° 41' 56.4"	20.09810	19.106570	158.90	169.4	3.7	5.7	18.51	0.48	6.40
8-set	23h 42m 57.72s	-02° 42' 52.7"	20.09810	19.103872	158.88	170.4	3.7	5.7	18.47	0.44	6.36
9-set	23h 42m 49.04s	-02° 43' 49.2"	20.09809	19.101467	158.86	171.4	3.7	5.7	18.43	0.40	6.32
10-set	23h 42m 40.33s	-02° 44' 45.8"	20.09808	19.099358	158.84	172.5	3.7	5.7	18.39	0.36	6.28
11-set	23h 42m 31.59s	-02° 45' 42.6"	20.09807	19.097546	158.83	173.5	3.7	5.7	18.35	0.32	6.24
12-set	23h 42m 22.83s	-02° 46' 39.4"	20.09806	19.096032	158.82	174.5	3.7	5.7	18.31	0.27	6.20
13-set	23h 42m 14.05s	-02° 47' 36.4"	20.09806	19.094816	158.81	175.5	3.7	5.7	18.27	0.23	6.15
14-set	23h 42m 05.25s	-02° 48' 33.4"	20.09805	19.093901	158.80	176.5	3.7	5.7	18.23	0.19	6.11
15-set	23h 41m 56.43s	-02° 49' 30.5"	20.09804	19.093287	158.79	177.5	3.7	5.7	18.19	0.15	6.07
16-set	23h 41m 47.60s	-02° 50' 27.6"	20.09803	19.092975	158.79	178.4	3.7	5.7	18.15	0.11	6.03
17-set	23h 41m 38.75s	-02° 51' 24.8"	20.09802	19.092965	158.79	179.2	3.7	5.7	18.11	0.07	5.59
18-set	23h 41m 29.90s	-02° 52' 21.9"	20.09801	19.093259	158.79	179.1	3.7	5.7	18.07	0.03	5.55
19-set	23h 41m 21.05s	-02° 53' 19.0"	20.09801	19.093856	158.80	178.2	3.7	5.7	18.03	23.55	5.51
20-set	23h 41m 12.20s	-02° 54' 16.0"	20.09800	19.094756	158.81	177.3	3.7	5.7	17.59	23.51	5.46
21-set	23h 41m 03.36s	-02° 55' 12.8"	20.09799	19.095960	158.82	176.3	3.7	5.7	17.55	23.47	5.42
22-set	23h 40m 54.54s	-02° 56' 09.6"	20.09798	19.097466	158.83	175.3	3.7	5.7	17.51	23.43	5.38
23-set	23h 40m 45.74s	-02° 57' 06.1"	20.09797	19.099275	158.84	174.3	3.7	5.7	17.47	23.39	5.34
24-set	23h 40m 36.96s	-02° 58' 02.4"	20.09796	19.101386	158.86	173.2	3.7	5.7	17.43	23.34	5.30
25-set	23h 40m 28.20s	-02° 58' 58.5"	20.09795	19.103797	158.88	172.2	3.7	5.7	17.39	23.30	5.26
26-set	23h 40m 19.47s	-02° 59' 54.4"	20.09795	19.106508	158.90	171.2	3.7	5.7	17.35	23.26	5.22
27-set	23h 40m 10.78s	-03° 00' 50.1"	20.09794	19.109519	158.93	170.2	3.7	5.7	17.31	23.22	5.17
28-set	23h 40m 02.11s	-03° 01' 45.4"	20.09793	19.112827	158.96	169.2	3.7	5.7	17.27	23.18	5.13
29-set	23h 39m 53.49s	-03° 02' 40.5"	20.09792	19.116432	158.99	168.1	3.7	5.7	17.23	23.14	5.09
30-set	23h 39m 44.90s	-03° 03' 35.3"	20.09791	19.120333	159.02	167.1	3.7	5.7	17.19	23.10	5.05
1-ott	23h 39m 36.36s	-03° 04' 29.7"	20.09790	19.124528	159.05	166.1	3.7	5.7	17.15	23.06	5.01
2-ott	23h 39m 27.87s	-03° 05' 23.7"	20.09789	19.129016	159.09	165.1	3.7	5.7	17.11	23.02	4.57
3-ott	23h 39m 19.42s	-03° 06' 17.4"	20.09788	19.133796	159.13	164.1	3.7	5.7	17.07	22.58	4.53
4-ott	23h 39m 11.03s	-03° 07' 10.7"	20.09788	19.138866	159.17	163.0	3.7	5.7	17.03	22.54	4.49
5-ott	23h 39m 02.71s	-03° 08' 03.5"	20.09787	19.144226	159.22	162.0	3.7	5.7	16.59	22.50	4.44
6-ott	23h 38m 54.45s	-03° 08' 55.9"	20.09786	19.149872	159.26	161.0	3.7	5.7	16.55	22.46	4.40
7-ott	23h 38m 46.25s	-03° 09' 47.7"	20.09785	19.155805	159.31	160.0	3.7	5.7	16.51	22.41	4.36
8-ott	23h 38m 38.13s	-03° 10' 39.0"	20.09784	19.162022	159.37	159.0	3.7	5.7	16.47	22.37	4.32
9-ott	23h 38m 30.09s	-03° 11' 29.9"	20.09783	19.168522	159.42	157.9	3.7	5.7	16.43	22.33	4.28
10-ott	23h 38m 22.13s	-03° 12' 20.1"	20.09782	19.175303	159.48	156.9	3.7	5.7	16.39	22.29	4.24
11-ott	23h 38m 14.24s	-03° 13' 09.8"	20.09781	19.182364	159.53	155.9	3.7	5.7	16.35	22.25	4.20
12-ott	23h 38m 06.44s	-03° 13' 58.9"	20.09780	19.189704	159.60	154.9	3.7	5.7	16.31	22.21	4.16
13-ott	23h 37m 58.71s	-03° 14' 47.4"	20.09779	19.197320	159.66	153.8	3.7	5.7	16.27	22.17	4.12
14-ott	23h 37m 51.08s	-03° 15' 35.4"	20.09778	19.205210	159.72	152.8	3.7	5.7	16.23	22.13	4.07
15-ott	23h 37m 43.53s	-03° 16' 22.7"	20.09777	19.213372	159.79	151.8	3.7	5.7	16.19	22.09	4.03
16-ott	23h 37m 36.08s	-03° 17' 09.3"	20.09776	19.221805	159.86	150.8	3.6	5.7	16.15	22.05	3.59
17-ott	23h 37m 28.73s	-03° 17' 55.2"	20.09776	19.230504	159.94	149.8	3.6	5.7	16.11	22.01	3.55
18-ott	23h 37m 21.49s	-03° 18' 40.5"	20.09775	19.239469	160.01	148.7	3.6	5.7	16.07	21.57	3.51
19-ott	23h 37m 14.36s	-03° 19' 24.9"	20.09774	19.248694	160.09	147.7	3.6	5.7	16.03	21.53	3.47
20-ott	23h 37m 07.34s	-03° 20' 08.6"	20.09773	19.258179	160.17	146.7	3.6	5.7	15.59	21.49	3.43
21-ott	23h 37m 00.43s	-03° 20' 51.4"	20.09772	19.267918	160.25	145.7	3.6	5.7	15.55	21.45	3.39
22-ott	23h 36m 53.65s	-03° 21' 33.5"	20.09771	19.277910	160.33	144.6	3.6	5.8	15.51	21.41	3.35
23-ott	23h 36m 46.98s	-03° 22' 14.7"	20.09770	19.288150	160.41	143.6	3.6	5.8	15.47	21.37	3.31
24-ott	23h 36m 40.44s	-03° 22' 55.1"	20.09769	19.298635	160.50	142.6	3.6	5.8	15.43	21.33	3.27
25-ott	23h 36m 34.03s	-03° 23' 34.7"	20.09768	19.309361	160.59	141.6	3.6	5.8	15.39	21.29	3.22
26-ott	23h 36m 27.74s	-03° 24' 13.4"	20.09767	19.320325	160.68	140.5	3.6	5.8	15.35	21.25	3.18
27-ott	23h 36m 21.58s	-03° 24' 51.3"	20.09766	19.331523	160.78	139.5	3.6	5.8	15.31	21.20	3.14
28-ott	23h 36m 15.55s	-03° 25' 28.2"	20.09765	19.342951	160.87	138.5	3.6	5.8	15.27	21.16	3.10
29-ott	23h 36m 09.65s	-03° 26' 04.3"	20.09764	19.354606	160.97	137.5	3.6	5.8	15.23	21.12	3.06
30-ott	23h 36m 03.90s	-03° 26' 39.4"	20.09763	19.366483	161.07	136.4	3.6	5.8	15.19	21.08	3.02

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
31-ott	23h 35m 58.28s	-03° 27' 13.6"	20.09762	19.378579	161.17	135.4	3.6	5.8	15.15	21.04	2.58
1-nov	23h 35m 52.80s	-03° 27' 46.8"	20.09761	19.390891	161.27	134.4	3.6	5.8	15.11	21.00	2.54
2-nov	23h 35m 47.48s	-03° 28' 19.1"	20.09760	19.403414	161.37	133.4	3.6	5.8	15.07	20.56	2.50
3-nov	23h 35m 42.30s	-03° 28' 50.3"	20.09759	19.416144	161.48	132.3	3.6	5.8	15.03	20.52	2.46
4-nov	23h 35m 37.28s	-03° 29' 20.5"	20.09758	19.429078	161.59	131.3	3.6	5.8	14.59	20.48	2.42
5-nov	23h 35m 32.42s	-03° 29' 49.7"	20.09757	19.442212	161.70	130.3	3.6	5.8	14.55	20.44	2.38
6-nov	23h 35m 27.70s	-03° 30' 17.9"	20.09756	19.455542	161.81	129.3	3.6	5.8	14.51	20.40	2.34
7-nov	23h 35m 23.15s	-03° 30' 45.0"	20.09755	19.469064	161.92	128.2	3.6	5.8	14.47	20.36	2.30
8-nov	23h 35m 18.75s	-03° 31' 11.1"	20.09754	19.482776	162.03	127.2	3.6	5.8	14.43	20.32	2.26
9-nov	23h 35m 14.51s	-03° 31' 36.1"	20.09752	19.496672	162.15	126.2	3.6	5.8	14.39	20.28	2.22
10-nov	23h 35m 10.43s	-03° 32' 00.2"	20.09751	19.510748	162.27	125.2	3.6	5.8	14.35	20.24	2.18
11-nov	23h 35m 06.51s	-03° 32' 23.1"	20.09750	19.525001	162.38	124.1	3.6	5.8	14.31	20.20	2.14
12-nov	23h 35m 02.75s	-03° 32' 45.0"	20.09749	19.539426	162.50	123.1	3.6	5.8	14.27	20.16	2.10
13-nov	23h 34m 59.16s	-03° 33' 05.7"	20.09748	19.554019	162.63	122.1	3.6	5.8	14.23	20.12	2.06
14-nov	23h 34m 55.74s	-03° 33' 25.3"	20.09747	19.568774	162.75	121.1	3.6	5.8	14.19	20.08	2.02
15-nov	23h 34m 52.49s	-03° 33' 43.8"	20.09746	19.583688	162.87	120.1	3.6	5.8	14.15	20.04	1.58
16-nov	23h 34m 49.42s	-03° 34' 01.1"	20.09745	19.598755	163.00	119.0	3.6	5.8	14.11	20.00	1.54
17-nov	23h 34m 46.53s	-03° 34' 17.3"	20.09744	19.613970	163.12	118.0	3.6	5.8	14.07	19.56	1.50
18-nov	23h 34m 43.82s	-03° 34' 32.2"	20.09743	19.629328	163.25	117.0	3.6	5.8	14.03	19.52	1.46
19-nov	23h 34m 41.29s	-03° 34' 46.0"	20.09742	19.644824	163.38	116.0	3.6	5.8	13.59	19.48	1.42
20-nov	23h 34m 38.94s	-03° 34' 58.6"	20.09741	19.660453	163.51	115.0	3.6	5.8	13.55	19.44	1.38
21-nov	23h 34m 36.77s	-03° 35' 10.1"	20.09740	19.676209	163.64	113.9	3.6	5.8	13.51	19.41	1.34
22-nov	23h 34m 34.78s	-03° 35' 20.4"	20.09739	19.692087	163.77	112.9	3.6	5.8	13.47	19.37	1.30
23-nov	23h 34m 32.97s	-03° 35' 29.5"	20.09737	19.708082	163.91	111.9	3.6	5.8	13.43	19.33	1.26
24-nov	23h 34m 31.34s	-03° 35' 37.4"	20.09736	19.724189	164.04	110.9	3.6	5.8	13.39	19.29	1.22
25-nov	23h 34m 29.89s	-03° 35' 44.1"	20.09735	19.740403	164.18	109.9	3.6	5.8	13.36	19.25	1.18
26-nov	23h 34m 28.62s	-03° 35' 49.6"	20.09734	19.756717	164.31	108.9	3.6	5.8	13.32	19.21	1.14
27-nov	23h 34m 27.54s	-03° 35' 54.0"	20.09733	19.773128	164.45	107.8	3.5	5.8	13.28	19.17	1.10
28-nov	23h 34m 26.65s	-03° 35' 57.1"	20.09732	19.789629	164.59	106.8	3.5	5.8	13.24	19.13	1.06
29-nov	23h 34m 25.95s	-03° 35' 59.0"	20.09731	19.806216	164.72	105.8	3.5	5.8	13.20	19.09	1.02
30-nov	23h 34m 25.43s	-03° 35' 59.6"	20.09730	19.822884	164.86	104.8	3.5	5.8	13.16	19.05	0.58
1-dic	23h 34m 25.11s	-03° 35' 59.1"	20.09728	19.839628	165.00	103.8	3.5	5.8	13.12	19.01	0.54
2-dic	23h 34m 24.98s	-03° 35' 57.3"	20.09727	19.856442	165.14	102.8	3.5	5.8	13.08	18.57	0.50
3-dic	23h 34m 25.04s	-03° 35' 54.2"	20.09726	19.873323	165.28	101.7	3.5	5.8	13.04	18.53	0.46
4-dic	23h 34m 25.28s	-03° 35' 50.0"	20.09725	19.890265	165.42	100.7	3.5	5.8	13.00	18.49	0.42
5-dic	23h 34m 25.72s	-03° 35' 44.5"	20.09724	19.907263	165.56	99.7	3.5	5.8	12.56	18.45	0.38
6-dic	23h 34m 26.34s	-03° 35' 37.8"	20.09723	19.924312	165.71	98.7	3.5	5.8	12.52	18.41	0.34
7-dic	23h 34m 27.15s	-03° 35' 29.9"	20.09722	19.941409	165.85	97.7	3.5	5.8	12.48	18.37	0.31
8-dic	23h 34m 28.14s	-03° 35' 20.9"	20.09720	19.958547	165.99	96.7	3.5	5.8	12.44	18.34	0.27
9-dic	23h 34m 29.32s	-03° 35' 10.6"	20.09719	19.975722	166.13	95.7	3.5	5.8	12.40	18.30	0.23
10-dic	23h 34m 30.68s	-03° 34' 59.1"	20.09718	19.992928	166.28	94.7	3.5	5.8	12.37	18.26	0.19
11-dic	23h 34m 32.24s	-03° 34' 46.4"	20.09717	20.010161	166.42	93.7	3.5	5.8	12.33	18.22	0.15
12-dic	23h 34m 33.99s	-03° 34' 32.5"	20.09716	20.027414	166.56	92.7	3.5	5.8	12.29	18.18	0.11
13-dic	23h 34m 35.93s	-03° 34' 17.3"	20.09714	20.044682	166.71	91.7	3.5	5.8	12.25	18.14	0.07
14-dic	23h 34m 38.07s	-03° 34' 00.8"	20.09713	20.061960	166.85	90.6	3.5	5.8	12.21	18.10	0.03
15-dic	23h 34m 40.39s	-03° 33' 43.1"	20.09712	20.079242	166.99	89.6	3.5	5.8	12.17	18.06	23.56
16-dic	23h 34m 42.91s	-03° 33' 24.2"	20.09711	20.096523	167.14	88.6	3.5	5.8	12.13	18.02	23.52
17-dic	23h 34m 45.62s	-03° 33' 04.1"	20.09710	20.113796	167.28	87.6	3.5	5.8	12.09	17.58	23.48
18-dic	23h 34m 48.51s	-03° 32' 42.8"	20.09708	20.131058	167.43	86.6	3.5	5.8	12.05	17.55	23.44
19-dic	23h 34m 51.59s	-03° 32' 20.3"	20.09707	20.148301	167.57	85.6	3.5	5.8	12.01	17.51	23.40
20-dic	23h 34m 54.86s	-03° 31' 56.6"	20.09706	20.165520	167.71	84.6	3.5	5.8	11.57	17.47	23.36
21-dic	23h 34m 58.31s	-03° 31' 31.8"	20.09705	20.182711	167.85	83.6	3.5	5.8	11.54	17.43	23.32
22-dic	23h 35m 01.94s	-03° 31' 05.7"	20.09704	20.199867	168.00	82.6	3.5	5.8	11.50	17.39	23.29
23-dic	23h 35m 05.75s	-03° 30' 38.5"	20.09702	20.216983	168.14	81.6	3.5	5.8	11.46	17.35	23.25
24-dic	23h 35m 09.75s	-03° 30' 10.2"	20.09701	20.234055	168.28	80.6	3.5	5.8	11.42	17.31	23.21
25-dic	23h 35m 13.92s	-03° 29' 40.6"	20.09700	20.251077	168.42	79.6	3.5	5.8	11.38	17.28	23.17
26-dic	23h 35m 18.28s	-03° 29' 09.9"	20.09699	20.268044	168.56	78.6	3.5	5.8	11.34	17.24	23.13
27-dic	23h 35m 22.82s	-03° 28' 38.1"	20.09697	20.284950	168.70	77.6	3.5	5.9	11.30	17.20	23.09
28-dic	23h 35m 27.55s	-03° 28' 05.1"	20.09696	20.301792	168.85	76.6	3.5	5.9	11.26	17.16	23.06
29-dic	23h 35m 32.45s	-03° 27' 30.9"	20.09695	20.318565	168.98	75.6	3.5	5.9	11.22	17.12	23.02
30-dic	23h 35m 37.53s	-03° 26' 55.6"	20.09694	20.335263	169.12	74.6	3.4	5.9	11.19	17.08	22.58
31-dic	23h 35m 42.79s	-03° 26' 19.2"	20.09692	20.351882	169.26	73.6	3.4	5.9	11.15	17.04	22.54

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro in "

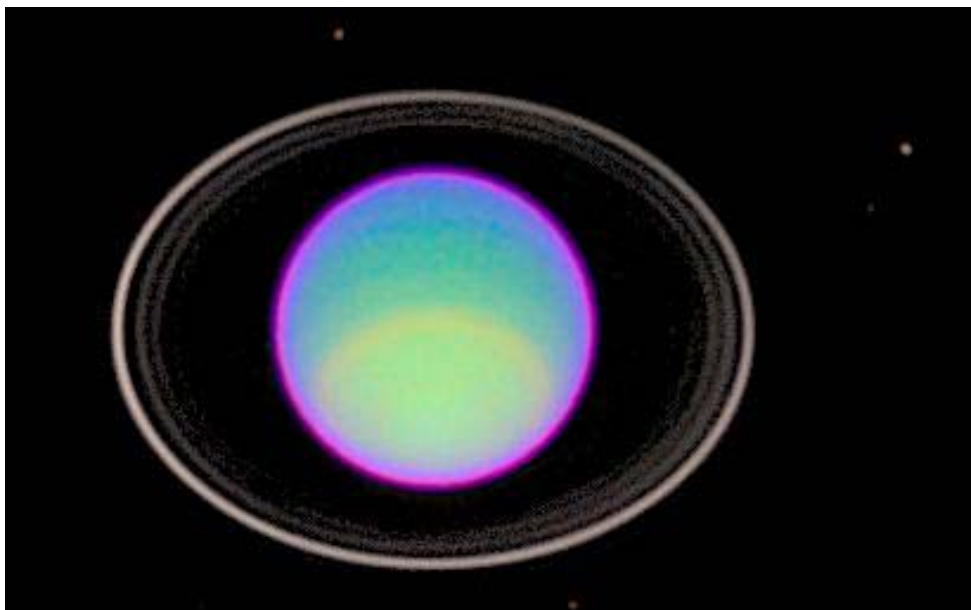
Mag. = magnitudine

Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

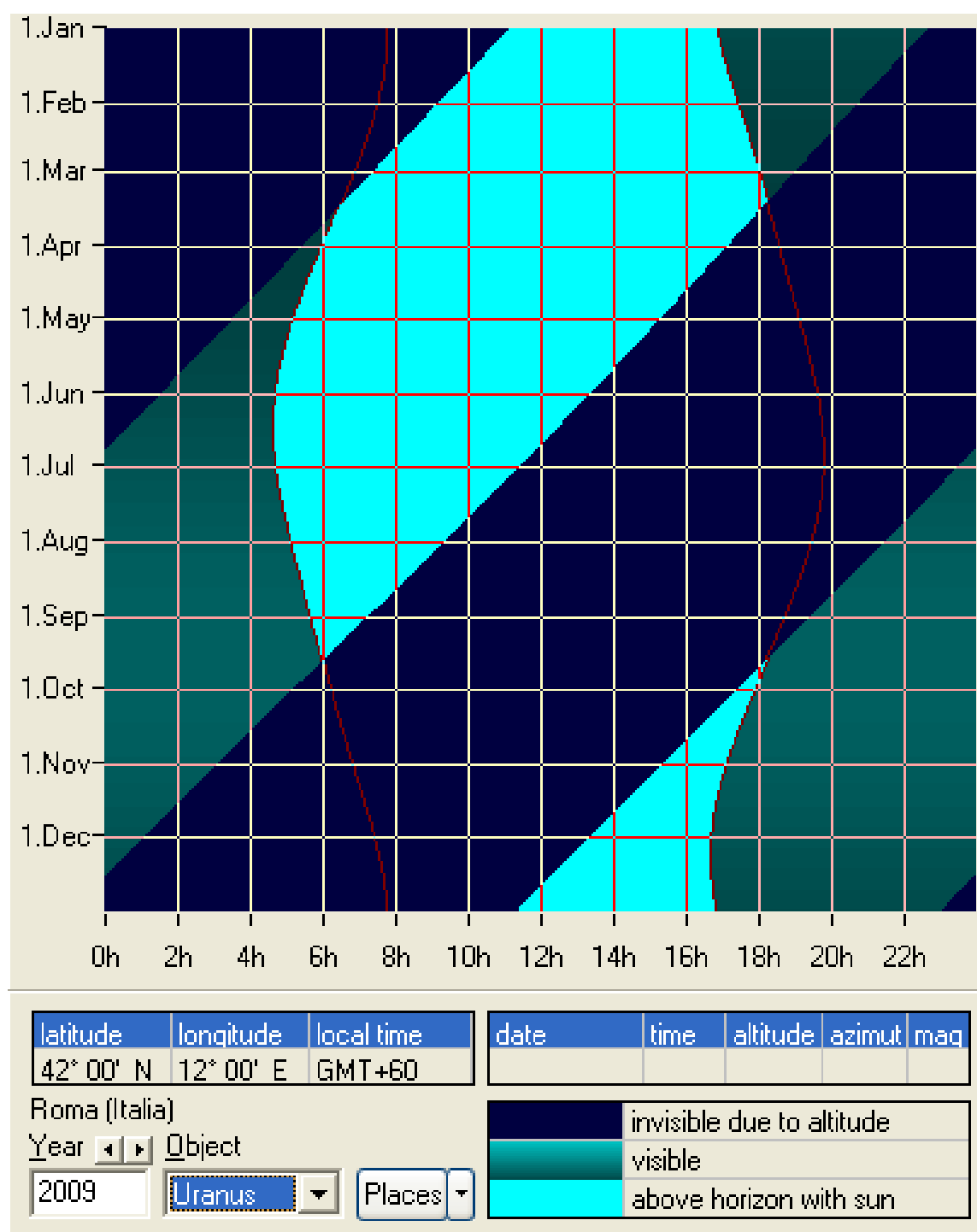
FENOMENI DI URANO

Perielio	Quest'anno il fenomeno non avviene			
Afelio	27/02/2009	03.36	20.09888 U.A.	
Perigeo	16/09/2009	12.46	19.09297 U.A.	
Apogeo	14/03/2009	00.58	21.09280 U.A.	
Magnitudine massima	16/09/2009	13.23	5.7	mag
Magnitudine minima	14/03/2009	00.55	5.9	mag
Opposizione	17/09/2009	09.41		
Congiunzione	13/03/2009	01.27		
Moto retrogrado	01/07/2009	15.36		
Moto diretto	02/12/2009	04.34		
Massimo angolo di fase	18/06/2009	00.57	2.9	°
Massimo angolo di fase	14/12/2009	09.33	2.8	°
Minimo angolo di fase	13/03/2009	01.48	0.0	°
Minimo angolo di fase	17/09/2009	12.43	0.0	°

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VISIBILITA' DI URANO



Visibilità di Urano nel corso dell'anno

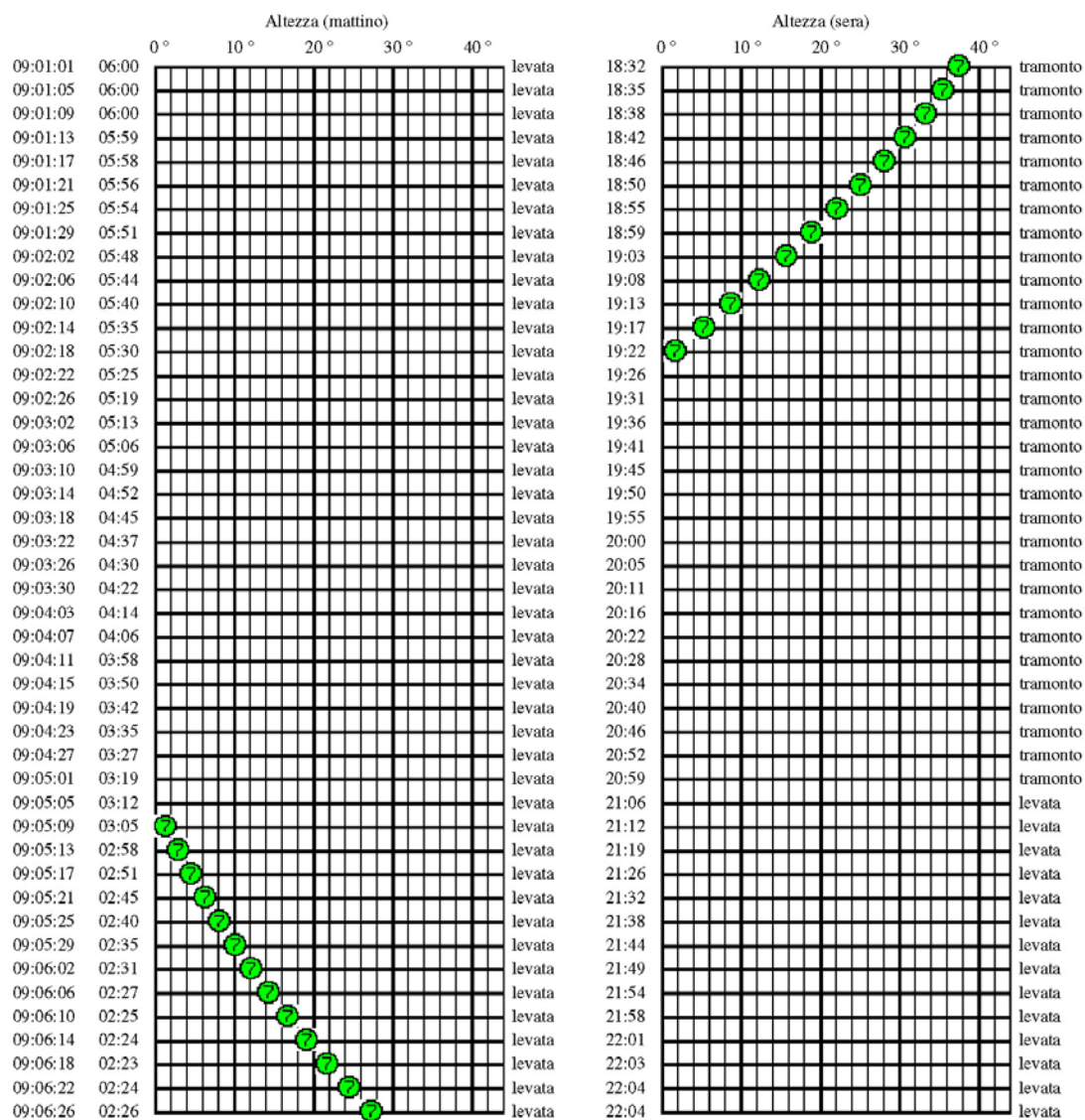
© (3)

Altezza ai crepuscoli

di Urano

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

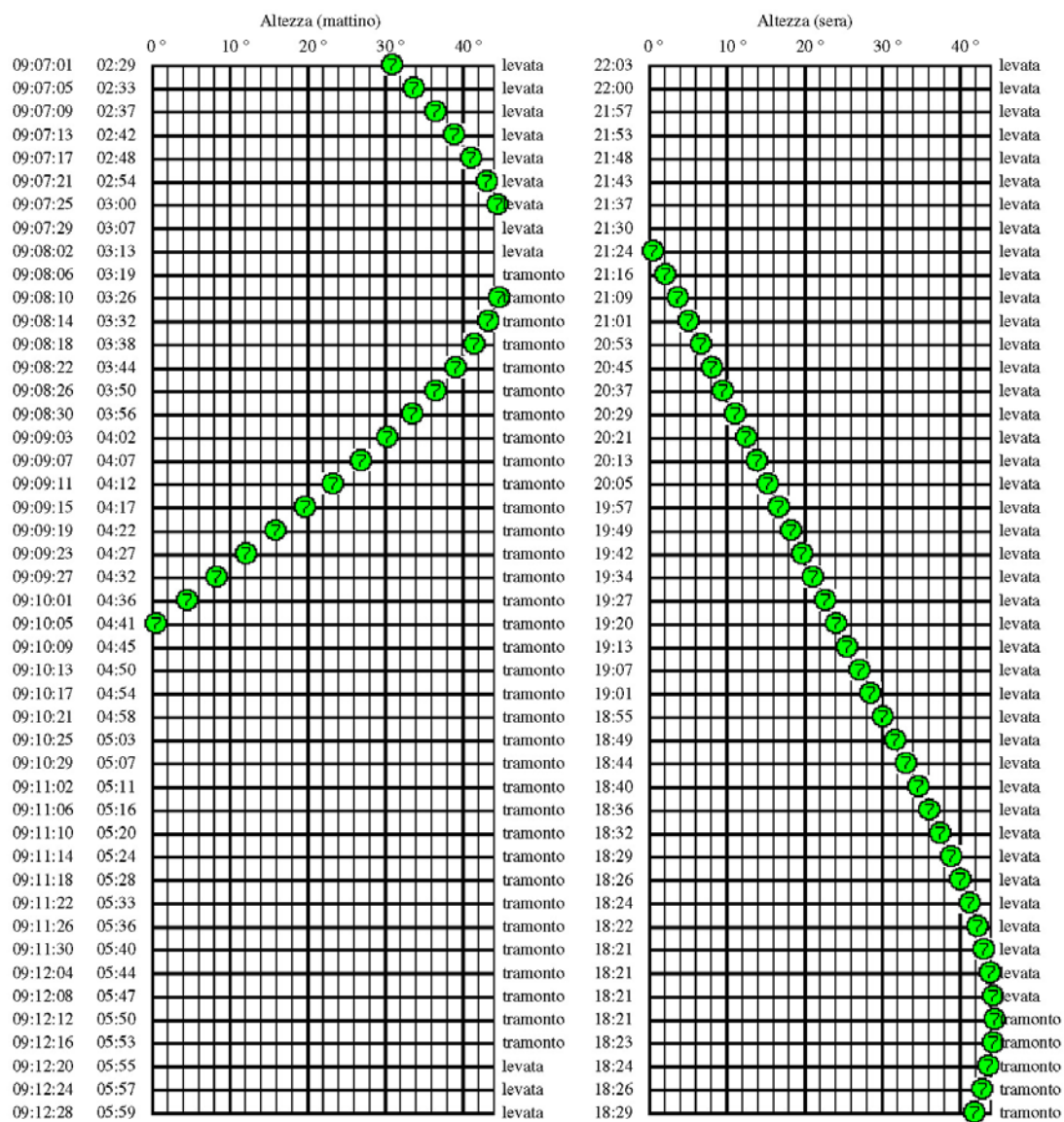


Altezza ai crepuscoli

di Urano

nel momento il cui il Sole è 18 ° sotto l'orizzonte

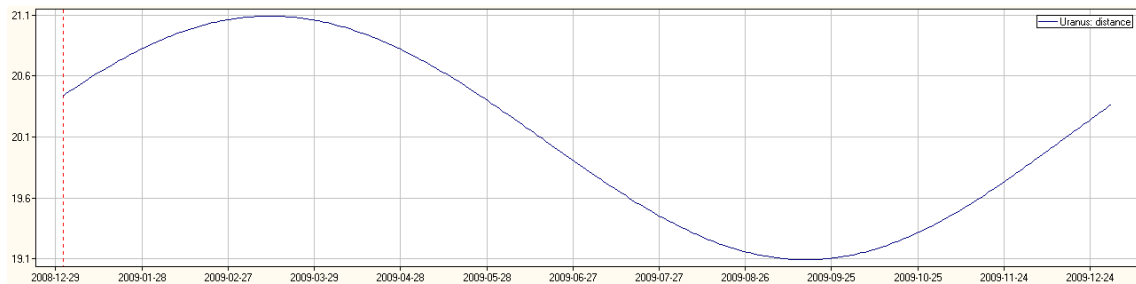
Postazione: Roma 42:00 N, 12:00 E (UT +01:00)



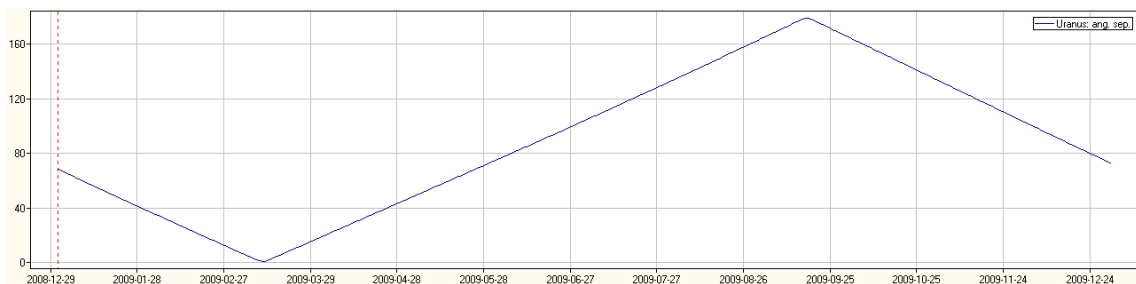
Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	-49.8	27.6	68.3	18:32	37.4	213.4	67.8
2009:01:05	06:00	-48.3	33.1	64.4	18:35	35.4	218.6	63.9
2009:01:09	06:00	-46.6	38.1	60.4	18:38	33.2	223.5	59.9
2009:01:13	05:59	-44.8	42.7	56.5	18:42	30.7	228.3	56.0
2009:01:17	05:58	-42.9	46.7	52.6	18:46	28.0	232.8	52.1
2009:01:21	05:56	-41.0	50.4	48.7	18:50	25.1	237.1	48.2
2009:01:25	05:54	-39.0	53.7	44.8	18:55	22.1	241.2	44.3
2009:01:29	05:51	-37.1	56.8	40.9	18:59	18.9	245.2	40.4
2009:02:02	05:48	-35.2	59.5	37.0	19:03	15.6	248.9	36.5
2009:02:06	05:44	-33.3	62.0	33.2	19:08	12.2	252.6	32.6
2009:02:10	05:40	-31.5	64.3	29.3	19:13	8.8	256.1	28.8
2009:02:14	05:35	-29.7	66.5	25.5	19:17	5.3	259.5	25.0
2009:02:18	05:30	-27.9	68.4	21.7	19:22	1.8	262.9	21.1
2009:02:22	05:25	-26.2	70.2	17.9	19:26	-1.8	266.2	17.3
2009:02:26	05:19	-24.6	72.0	14.1	19:31	-5.4	269.6	13.5
2009:03:02	05:13	-22.9	73.6	10.3	19:36	-9.0	272.9	9.7
2009:03:06	05:06	-21.4	75.1	6.5	19:41	-12.6	276.4	6.0
2009:03:10	04:59	-19.8	76.5	2.8	19:45	-16.1	279.9	2.3
2009:03:14	04:52	-18.4	77.9	1.3	19:50	-19.7	283.5	1.8
2009:03:18	04:45	-16.9	79.2	4.8	19:55	-23.2	287.3	5.4
2009:03:22	04:37	-15.5	80.4	8.5	20:00	-26.6	291.3	9.1
2009:03:26	04:30	-14.1	81.6	12.3	20:05	-30.0	295.5	12.9
2009:03:30	04:22	-12.7	82.8	16.0	20:11	-33.3	300.1	16.6
2009:04:03	04:14	-11.3	83.9	19.7	20:16	-36.4	305.0	20.3
2009:04:07	04:06	-10.0	85.1	23.4	20:22	-39.4	310.3	24.1
2009:04:11	03:58	-8.6	86.2	27.1	20:28	-42.1	316.1	27.8
2009:04:15	03:50	-7.3	87.3	30.9	20:34	-44.6	322.5	31.5
2009:04:19	03:42	-5.9	88.5	34.6	20:40	-46.7	329.4	35.2
2009:04:23	03:35	-4.5	89.6	38.3	20:46	-48.5	336.9	38.9
2009:04:27	03:27	-3.1	90.8	42.0	20:52	-49.7	344.9	42.6
2009:05:01	03:19	-1.7	92.0	45.7	20:59	-50.4	353.3	46.3
2009:05:05	03:12	-0.2	93.2	49.4	21:06	-50.5	1.8	50.1
2009:05:09	03:05	1.3	94.5	53.1	21:12	-50.0	10.4	53.8
2009:05:13	02:58	2.9	95.8	56.8	21:19	-48.9	18.6	57.5
2009:05:17	02:51	4.5	97.3	60.5	21:26	-47.3	26.4	61.2
2009:05:21	02:45	6.3	98.8	64.2	21:32	-45.2	33.7	64.9
2009:05:25	02:40	8.1	100.4	67.9	21:38	-42.8	40.4	68.7
2009:05:29	02:35	10.0	102.2	71.7	21:44	-40.1	46.4	72.4
2009:06:02	02:31	12.1	104.2	75.4	21:49	-37.1	51.8	76.1
2009:06:06	02:27	14.3	106.3	79.1	21:54	-34.1	56.8	79.9
2009:06:10	02:25	16.7	108.7	82.9	21:58	-30.9	61.2	83.6
2009:06:14	02:24	19.1	111.4	86.6	22:01	-27.8	65.1	87.4
2009:06:18	02:23	21.8	114.3	90.4	22:03	-24.8	68.7	91.2
2009:06:22	02:24	24.5	117.6	94.2	22:04	-21.9	72.0	95.0
2009:06:26	02:26	27.3	121.3	98.0	22:04	-19.1	74.9	98.8
2009:06:30	02:28	30.2	125.4	101.8	22:03	-16.4	77.6	102.6

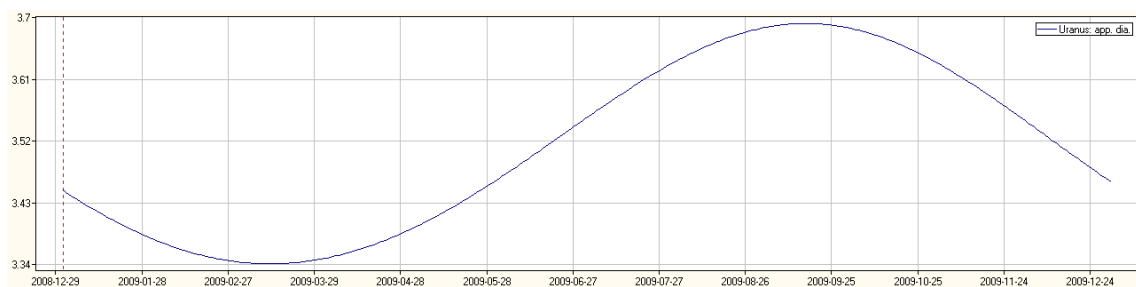
Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	30.9	126.5	102.7	22:03	-15.8	78.2	103.5
2009:07:05	02:33	33.7	131.2	106.6	22:00	-13.3	80.6	107.3
2009:07:09	02:37	36.4	136.4	110.4	21:57	-11.0	82.8	111.2
2009:07:13	02:42	38.9	142.2	114.2	21:53	-8.8	84.8	115.0
2009:07:17	02:48	41.2	148.6	118.1	21:48	-6.8	86.7	118.9
2009:07:21	02:54	43.1	155.6	122.0	21:43	-4.8	88.5	122.7
2009:07:25	03:00	44.5	163.0	125.9	21:37	-3.0	90.2	126.6
2009:07:29	03:07	45.4	170.8	129.8	21:30	-1.2	91.8	130.5
2009:08:02	03:13	45.8	178.9	133.7	21:24	0.4	93.4	134.4
2009:08:06	03:19	45.5	186.9	137.6	21:16	2.1	94.9	138.4
2009:08:10	03:26	44.7	194.9	141.6	21:09	3.6	96.4	142.3
2009:08:14	03:32	43.3	202.4	145.5	21:01	5.2	97.9	146.3
2009:08:18	03:38	41.4	209.6	149.5	20:53	6.7	99.3	150.2
2009:08:22	03:44	39.1	216.3	153.5	20:45	8.1	100.8	154.2
2009:08:26	03:50	36.4	222.4	157.5	20:37	9.6	102.3	158.2
2009:08:30	03:56	33.5	228.1	161.5	20:29	11.0	103.7	162.2
2009:09:03	04:02	30.3	233.3	165.5	20:21	12.5	105.2	166.2
2009:09:07	04:07	26.9	238.1	169.6	20:13	13.9	106.8	170.2
2009:09:11	04:12	23.4	242.6	173.6	20:05	15.3	108.3	174.3
2009:09:15	04:17	19.7	246.8	177.6	19:57	16.8	109.9	178.2
2009:09:19	04:22	16.0	250.8	178.1	19:49	18.2	111.6	177.5
2009:09:23	04:27	12.2	254.6	174.1	19:42	19.7	113.3	173.5
2009:09:27	04:32	8.4	258.2	170.0	19:34	21.1	115.1	169.4
2009:10:01	04:36	4.5	261.8	166.0	19:27	22.6	117.0	165.3
2009:10:05	04:41	0.6	265.3	161.9	19:20	24.1	118.9	161.3
2009:10:09	04:45	-3.3	268.7	157.8	19:13	25.6	120.9	157.2
2009:10:13	04:50	-7.2	272.1	153.7	19:07	27.1	123.1	153.1
2009:10:17	04:54	-11.1	275.6	149.6	19:01	28.6	125.4	149.0
2009:10:21	04:58	-14.9	279.1	145.5	18:55	30.1	127.8	144.9
2009:10:25	05:03	-18.7	282.7	141.4	18:49	31.6	130.4	140.8
2009:10:29	05:07	-22.4	286.5	137.3	18:44	33.1	133.1	136.7
2009:11:02	05:11	-26.0	290.4	133.2	18:40	34.6	136.1	132.6
2009:11:06	05:16	-29.6	294.6	129.1	18:36	36.1	139.3	128.5
2009:11:10	05:20	-33.0	299.0	125.0	18:32	37.5	142.7	124.4
2009:11:14	05:24	-36.2	303.7	120.9	18:29	38.8	146.3	120.3
2009:11:18	05:28	-39.2	308.8	116.8	18:26	40.1	150.3	116.3
2009:11:22	05:33	-42.0	314.3	112.7	18:24	41.3	154.6	112.2
2009:11:26	05:36	-44.5	320.1	108.7	18:22	42.3	159.1	108.1
2009:11:30	05:40	-46.7	326.4	104.6	18:21	43.2	164.0	104.1
2009:12:04	05:44	-48.5	333.0	100.5	18:21	43.9	169.2	100.0
2009:12:08	05:47	-49.9	340.0	96.5	18:21	44.3	174.7	96.0
2009:12:12	05:50	-50.9	347.2	92.5	18:21	44.4	180.3	91.9
2009:12:16	05:53	-51.4	354.4	88.4	18:23	44.3	186.2	87.9
2009:12:20	05:55	-51.5	1.6	84.4	18:24	43.8	192.1	83.9
2009:12:24	05:57	-51.2	8.5	80.4	18:26	43.0	198.0	79.9
2009:12:28	05:59	-50.5	15.1	76.4	18:29	41.8	203.9	75.9



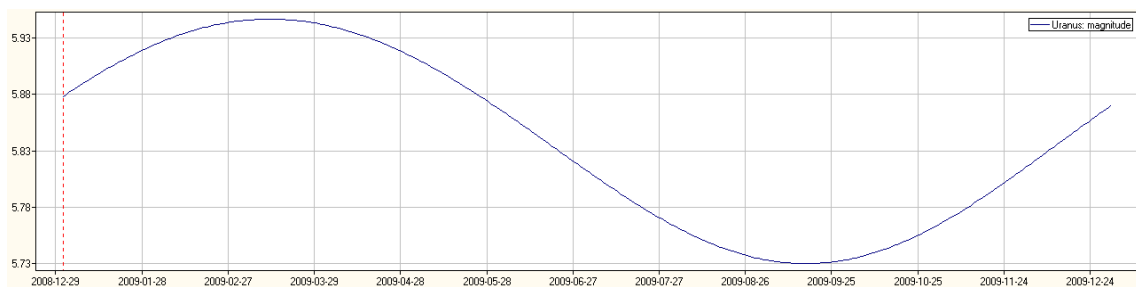
Distanza di Urano in U.A. nel corso dell'anno



Elongazione di Urano in ° nel corso dell'anno



Diametro di Urano in " nel corso dell'anno



Magnitudine di Urano nel corso dell'anno

OCCULTAZIONI TRA I SATELLITI DI URANO

MM	GG	HH	MM	Sec	Event Type	Ph	Durn	dMag	%Ill	Sep	PA	MinSep	T1	T2	T3	Tmax	T5	T6	T7														
1	11	3	6	46	(I) occ (V)	P	522	0.1	93.1	8.3	163	0.038		3	2	25	3	6	46	3	11	7											
1	11	3	6	47	(I) occ (V)	P	525	0.1	93.1	8.3	163	0.038		3	2	24	3	6	47	3	11	9											
1	11	16	36	37	(I) occ (V)	T	750	0.2	85.8	8.2	347	0.009		16	30	23	16	34	10	16	36	37	16	39	5	16	42	52					
6	11	19	0	6	(I) ecl (V)	T	2531	9.9	0.0	5.4	1	0.014	18	39	1	18	39	54	18	53	20	19	0	6	19	6	53	19	20	19	19	21	12
8	8	15	20	9	(I) occ (V)	T	1347	0.2	85.8	2.6	35	0.020		15	8	56	15	17	19	15	20	9	15	22	59	15	31	22					
8	8	15	20	9	(I) occ (V)	T	1347	0.2	85.8	2.6	35	0.020		15	8	56	15	17	19	15	20	9	15	22	59	15	31	22					
8	8	15	20	9*	(I) occ (V)	T	1807	0.2	85.8	2.6	35	0.020		15	5	6	15	16	19	15	20	9	15	23	59	15	35	13					
11	26	3	19	49*	(III) ecl (II)	T	0	9.9	0.0	12.7	350	4.230								3	19	49											
12	2	8	52	3	(I) ecl (V)	T	3015	9.9	0.0	5.4	151	0.002	8	26	55	8	27	55	8	42	11	8	52	3	9	1	54	9	16	11	9	17	10
12	2	8	52	3	(I) ecl (V)	T	3007	9.9	0.0	5.4	151	0.002	8	26	59	8	27	59	8	42	13	8	52	3	9	1	53	9	16	8	9	17	7
12	2	8	52	3	(I) ecl (V)	T	3010	9.9	0.0	5.4	151	0.002	8	26	58	8	27	57	8	42	13	8	52	3	9	1	53	9	16	9	9	17	8

Ore in T.U.

Legenda :

Data nel formato mese/giorno, un asterisco indica che le lune si avvicinano ma non si occultano
 Event type : tipo di evento, eclissi o occultazione
 Ph : fenomeno, M=mancato, E=eclisse penombrale, P=eclisse/occultazione parziale, T=eclisse/occultazione totale, A=eclisse/occultazione anulare
 Durn : durata in secondi
 dMag : caduta di luce in magnitudini
 %ill : cambio in illuminazione, rispetto alla illuminazione intera, della luna rimanente (occultazione) o di entrambe (eclissi)
 Sep : distanza in " tra satellite occultato/eclissato e centro del pianeta
 Pa : angolo di posizione tra satellite occultato/eclissato e pianeta
 MinSep : distanza minima tra i centri delle lune o tra la luna e l'ombra
 T1-T7 : inizio/fine della fase di contatto con la penombra
 T2-T6 : inizio/fine della fase di contatto con l'ombra o tra i lembi delle lune
 T3-T5 : inizio/fine della fase di totalità
 Tmax : tempo di metà evento

Satelliti :

I = Miranda
 II = Ariel
 III = Umbriel
 IV = Titania
 V = Oberon

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EFFEMERIDI DI NETTUNO

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
1-gen	21h 39m 37.65s	-14° 22' 11.8"	30.03400	30.760664	255.83	41.7	2.2	8.0	9.54	15.04	20.13
2-gen	21h 39m 44.76s	-14° 21' 36.4"	30.03398	30.772093	255.92	40.7	2.2	8.0	9.51	15.00	20.09
3-gen	21h 39m 51.96s	-14° 21' 00.6"	30.03395	30.783297	256.02	39.8	2.2	8.0	9.47	14.56	20.06
4-gen	21h 39m 59.23s	-14° 20' 24.3"	30.03393	30.794273	256.11	38.8	2.2	8.0	9.43	14.52	20.02
5-gen	21h 40m 06.58s	-14° 19' 47.7"	30.03390	30.805018	256.20	37.8	2.2	8.0	9.39	14.49	19.58
6-gen	21h 40m 14.00s	-14° 19' 10.7"	30.03388	30.815529	256.29	36.8	2.2	8.0	9.35	14.45	19.54
7-gen	21h 40m 21.51s	-14° 18' 33.2"	30.03385	30.825804	256.37	35.8	2.2	8.0	9.31	14.41	19.50
8-gen	21h 40m 29.09s	-14° 17' 55.4"	30.03383	30.835840	256.45	34.8	2.2	8.0	9.28	14.37	19.47
9-gen	21h 40m 36.75s	-14° 17' 17.2"	30.03380	30.845635	256.54	33.8	2.2	8.0	9.24	14.33	19.43
10-gen	21h 40m 44.48s	-14° 16' 38.6"	30.03378	30.855186	256.61	32.8	2.2	8.0	9.20	14.30	19.39
11-gen	21h 40m 52.27s	-14° 15' 59.8"	30.03376	30.864491	256.69	31.9	2.2	8.0	9.16	14.26	19.35
12-gen	21h 41m 00.12s	-14° 15' 20.6"	30.03373	30.873548	256.77	30.9	2.2	8.0	9.12	14.22	19.32
13-gen	21h 41m 08.04s	-14° 14' 41.1"	30.03371	30.882354	256.84	29.9	2.2	8.0	9.08	14.18	19.28
14-gen	21h 41m 16.01s	-14° 14' 01.4"	30.03368	30.890908	256.91	28.9	2.2	8.0	9.04	14.14	19.24
15-gen	21h 41m 24.03s	-14° 13' 21.3"	30.03366	30.899206	256.98	27.9	2.2	8.0	9.01	14.11	19.20
16-gen	21h 41m 32.12s	-14° 12' 40.9"	30.03363	30.907246	257.05	26.9	2.2	8.0	8.57	14.07	19.17
17-gen	21h 41m 40.25s	-14° 12' 00.2"	30.03361	30.915026	257.11	26.0	2.2	8.0	8.53	14.03	19.13
18-gen	21h 41m 48.45s	-14° 11' 19.2"	30.03358	30.922543	257.18	25.0	2.2	8.0	8.49	13.59	19.09
19-gen	21h 41m 56.70s	-14° 10' 38.0"	30.03356	30.929796	257.24	24.0	2.2	8.0	8.45	13.55	19.05
20-gen	21h 42m 05.00s	-14° 09' 56.4"	30.03353	30.936780	257.29	23.0	2.2	8.0	8.41	13.52	19.02
21-gen	21h 42m 13.35s	-14° 09' 14.6"	30.03351	30.943495	257.35	22.0	2.2	8.0	8.38	13.48	18.58
22-gen	21h 42m 21.75s	-14° 08' 32.5"	30.03348	30.949938	257.40	21.0	2.2	8.0	8.34	13.44	18.54
23-gen	21h 42m 30.20s	-14° 07' 50.2"	30.03346	30.956107	257.45	20.1	2.2	8.0	8.30	13.40	18.50
24-gen	21h 42m 38.69s	-14° 07' 07.7"	30.03343	30.962001	257.50	19.1	2.2	8.0	8.26	13.36	18.47
25-gen	21h 42m 47.22s	-14° 06' 25.0"	30.03341	30.967617	257.55	18.1	2.2	8.0	8.22	13.33	18.43
26-gen	21h 42m 55.78s	-14° 05' 42.1"	30.03339	30.972954	257.59	17.1	2.2	8.0	8.18	13.29	18.39
27-gen	21h 43m 04.38s	-14° 04' 59.0"	30.03336	30.978010	257.64	16.1	2.2	8.0	8.15	13.25	18.35
28-gen	21h 43m 13.01s	-14° 04' 15.8"	30.03334	30.982784	257.68	15.2	2.2	8.0	8.11	13.21	18.32
29-gen	21h 43m 21.67s	-14° 03' 32.4"	30.03331	30.987274	257.71	14.2	2.2	8.0	8.07	13.17	18.28
30-gen	21h 43m 30.35s	-14° 02' 48.8"	30.03329	30.991480	257.75	13.2	2.2	8.0	8.03	13.14	18.24
31-gen	21h 43m 39.06s	-14° 02' 05.1"	30.03326	30.995400	257.78	12.2	2.2	8.0	7.59	13.10	18.20
1-feb	21h 43m 47.80s	-14° 01' 21.2"	30.03324	30.999034	257.81	11.2	2.2	8.0	7.55	13.06	18.17
2-feb	21h 43m 56.56s	-14° 00' 37.2"	30.03321	31.002381	257.84	10.3	2.2	8.0	7.52	13.02	18.13
3-feb	21h 44m 05.35s	-13° 59' 53.0"	30.03319	31.005441	257.86	9.3	2.2	8.0	7.48	12.58	18.09
4-feb	21h 44m 14.16s	-13° 59' 08.7"	30.03316	31.008212	257.89	8.3	2.2	8.0	7.44	12.55	18.06
5-feb	21h 44m 22.99s	-13° 58' 24.3"	30.03314	31.010696	257.91	7.3	2.2	8.0	7.40	12.51	18.02
6-feb	21h 44m 31.84s	-13° 57' 39.8"	30.03311	31.012891	257.93	6.4	2.2	8.0	7.36	12.47	17.58
7-feb	21h 44m 40.70s	-13° 56' 55.3"	30.03309	31.014798	257.94	5.4	2.2	8.0	7.32	12.43	17.54
8-feb	21h 44m 49.56s	-13° 56' 10.7"	30.03306	31.016417	257.96	4.4	2.2	8.0	7.29	12.40	17.51
9-feb	21h 44m 58.44s	-13° 55' 26.1"	30.03304	31.017747	257.97	3.5	2.2	8.0	7.25	12.36	17.47
10-feb	21h 45m 07.32s	-13° 54' 41.5"	30.03301	31.018789	257.98	2.5	2.2	8.0	7.21	12.32	17.43
11-feb	21h 45m 16.20s	-13° 53' 56.8"	30.03299	31.019543	257.98	1.6	2.2	8.0	7.17	12.28	17.39
12-feb	21h 45m 25.10s	-13° 53' 12.4"	30.03296	31.020007	257.99	0.7	2.2	8.0	7.13	12.24	17.36
13-feb	21h 45m 33.90s	-13° 52' 28.1"	30.03294	31.020183	257.99	0.7	2.2	8.0	7.09	12.21	17.32
14-feb	21h 45m 42.79s	-13° 51' 42.9"	30.03291	31.020070	257.99	1.5	2.2	8.0	7.06	12.17	17.28
15-feb	21h 45m 51.67s	-13° 50' 58.1"	30.03289	31.019668	257.98	2.4	2.2	8.0	7.02	12.13	17.24
16-feb	21h 46m 00.54s	-13° 50' 13.3"	30.03286	31.018976	257.98	3.4	2.2	8.0	6.58	12.09	17.21
17-feb	21h 46m 09.41s	-13° 49' 28.6"	30.03284	31.017995	257.97	4.4	2.2	8.0	6.54	12.05	17.17
18-feb	21h 46m 18.28s	-13° 48' 43.8"	30.03281	31.016725	257.96	5.3	2.2	8.0	6.50	12.02	17.13
19-feb	21h 46m 27.13s	-13° 47' 59.2"	30.03279	31.015166	257.95	6.3	2.2	8.0	6.46	11.58	17.09
20-feb	21h 46m 35.97s	-13° 47' 14.6"	30.03276	31.013319	257.93	7.3	2.2	8.0	6.43	11.54	17.06
21-feb	21h 46m 44.79s	-13° 46' 30.0"	30.03274	31.011183	257.91	8.2	2.2	8.0	6.39	11.50	17.02
22-feb	21h 46m 53.60s	-13° 45' 45.6"	30.03271	31.008760	257.89	9.2	2.2	8.0	6.35	11.47	16.58
23-feb	21h 47m 02.38s	-13° 45' 01.3"	30.03269	31.006051	257.87	10.2	2.2	8.0	6.31	11.43	16.54
24-feb	21h 47m 11.14s	-13° 44' 17.1"	30.03267	31.003055	257.84	11.1	2.2	8.0	6.27	11.39	16.51
25-feb	21h 47m 19.87s	-13° 43' 33.0"	30.03264	30.999774	257.82	12.1	2.2	8.0	6.23	11.35	16.47
26-feb	21h 47m 28.58s	-13° 42' 49.0"	30.03262	30.996209	257.79	13.1	2.2	8.0	6.20	11.31	16.43
27-feb	21h 47m 37.26s	-13° 42' 05.2"	30.03259	30.992361	257.76	14.0	2.2	8.0	6.16	11.28	16.40
28-feb	21h 47m 45.90s	-13° 41' 21.5"	30.03257	30.988232	257.72	15.0	2.2	8.0	6.12	11.24	16.36
1-mar	21h 47m 54.52s	-13° 40' 37.9"	30.03254	30.983824	257.68	16.0	2.2	8.0	6.08	11.20	16.32
2-mar	21h 48m 03.10s	-13° 39' 54.5"	30.03252	30.979137	257.65	16.9	2.2	8.0	6.04	11.16	16.28
3-mar	21h 48m 11.65s	-13° 39' 11.2"	30.03249	30.974174	257.60	17.9	2.2	8.0	6.00	11.12	16.25
4-mar	21h 48m 20.17s	-13° 38' 28.1"	30.03247	30.968937	257.56	18.9	2.2	8.0	5.57	11.09	16.21
5-mar	21h 48m 28.65s	-13° 37' 45.2"	30.03244	30.963427	257.51	19.8	2.2	8.0	5.53	11.05	16.17
6-mar	21h 48m 37.09s	-13° 37' 02.5"	30.03242	30.957647	257.47	20.8	2.2	8.0	5.49	11.01	16.13
7-mar	21h 48m 45.49s	-13° 36' 20.1"	30.03239	30.951600	257.42	21.8	2.2	8.0	5.45	10.57	16.10
8-mar	21h 48m 53.84s	-13° 35' 37.9"	30.03237	30.945287	257.36	22.7	2.2	8.0	5.41	10.54	16.06
9-mar	21h 49m 02.13s	-13° 34' 55.9"	30.03234	30.938710	257.31	23.7	2.2	8.0	5.37	10.50	16.02
10-mar	21h 49m 10.37s	-13° 34' 14.3"	30.03232	30.931871	257.25	24.7	2.2	8.0	5.34	10.46	15.58
11-mar	21h 49m 18.56s	-13° 33' 32.9"	30.03229	30.924773	257.19	25.6	2.2	8.0	5.30	10.42	15.55
12-mar	21h 49m 26.70s	-13° 32' 51.7"	30.03227	30.917417	257.13	26.6	2.2	8.0	5.26	10.38	15.51
13-mar	21h 49m 34.78s	-13° 32' 10.8"	30.03224	30.909805	257.07	27.6	2.2	8.0	5.22	10.35	15.47

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
14-mar	21h 49m 42.81s	-13° 31' 30.1"	30.03222	30.901940	257.00	28.5	2.2	8.0	5.18	10.31	15.43
15-mar	21h 49m 50.79s	-13° 30' 49.7"	30.03219	30.893823	256.94	29.5	2.2	8.0	5.14	10.27	15.40
16-mar	21h 49m 58.70s	-13° 30' 09.6"	30.03217	30.885457	256.87	30.4	2.2	8.0	5.10	10.23	15.36
17-mar	21h 50m 06.57s	-13° 29' 29.8"	30.03214	30.876843	256.79	31.4	2.2	8.0	5.07	10.19	15.32
18-mar	21h 50m 14.37s	-13° 28' 50.3"	30.03212	30.867984	256.72	32.4	2.2	8.0	5.03	10.16	15.28
19-mar	21h 50m 22.10s	-13° 28' 11.2"	30.03209	30.858882	256.65	33.3	2.2	8.0	4.99	10.12	15.25
20-mar	21h 50m 29.77s	-13° 27' 32.4"	30.03207	30.849539	256.57	34.3	2.2	8.0	4.95	10.08	15.21
21-mar	21h 50m 37.37s	-13° 26' 53.9"	30.03204	30.839959	256.49	35.3	2.2	8.0	4.91	10.04	15.17
22-mar	21h 50m 44.90s	-13° 26' 15.9"	30.03202	30.830143	256.41	36.2	2.2	8.0	4.87	10.00	15.13
23-mar	21h 50m 52.36s	-13° 25' 38.1"	30.03199	30.820094	256.32	37.2	2.2	8.0	4.84	9.96	15.09
24-mar	21h 50m 59.74s	-13° 25' 00.8"	30.03197	30.809816	256.24	38.1	2.2	8.0	4.80	9.93	15.06
25-mar	21h 51m 07.05s	-13° 24' 23.9"	30.03194	30.799311	256.15	39.1	2.2	8.0	4.76	9.89	15.02
26-mar	21h 51m 14.27s	-13° 23' 47.4"	30.03191	30.788583	256.06	40.1	2.2	8.0	4.72	9.85	14.98
27-mar	21h 51m 21.42s	-13° 23' 11.3"	30.03189	30.777633	255.97	41.0	2.2	8.0	4.68	9.81	14.94
28-mar	21h 51m 28.49s	-13° 22' 35.5"	30.03186	30.766467	255.88	42.0	2.2	8.0	4.64	9.77	14.91
29-mar	21h 51m 35.48s	-13° 22' 00.1"	30.03184	30.755088	255.78	42.9	2.2	8.0	4.60	9.74	14.87
30-mar	21h 51m 42.39s	-13° 21' 25.2"	30.03181	30.743498	255.69	43.9	2.2	8.0	4.56	9.70	14.83
31-mar	21h 51m 49.22s	-13° 20' 50.7"	30.03179	30.731702	255.59	44.9	2.2	8.0	4.52	9.66	14.79
1-apr	21h 51m 55.97s	-13° 20' 16.6"	30.03176	30.719704	255.49	45.8	2.2	8.0	4.48	9.62	14.75
2-apr	21h 52m 02.63s	-13° 19' 43.0"	30.03174	30.707507	255.39	46.8	2.2	8.0	4.44	9.58	14.71
3-apr	21h 52m 09.21s	-13° 19' 09.9"	30.03171	30.695116	255.28	47.7	2.2	8.0	4.40	9.54	14.67
4-apr	21h 52m 15.69s	-13° 18' 37.2"	30.03169	30.682534	255.18	48.7	2.2	8.0	4.36	9.50	14.63
5-apr	21h 52m 22.07s	-13° 18' 05.1"	30.03166	30.669765	255.07	49.6	2.2	8.0	4.32	9.46	14.59
6-apr	21h 52m 28.36s	-13° 17' 33.5"	30.03164	30.656813	254.96	50.6	2.2	8.0	4.28	9.42	14.55
7-apr	21h 52m 34.55s	-13° 17' 02.3"	30.03161	30.643681	254.86	51.6	2.2	7.9	4.24	9.38	14.51
8-apr	21h 52m 40.64s	-13° 16' 31.7"	30.03159	30.630373	254.74	52.5	2.2	7.9	4.20	9.34	14.47
9-apr	21h 52m 46.64s	-13° 16' 01.5"	30.03156	30.616893	254.63	53.5	2.2	7.9	4.16	9.30	14.43
10-apr	21h 52m 52.54s	-13° 15' 31.8"	30.03154	30.603244	254.52	54.4	2.2	7.9	4.12	9.26	14.39
11-apr	21h 52m 58.35s	-13° 15' 02.6"	30.03151	30.589430	254.40	55.4	2.2	7.9	4.08	9.22	14.35
12-apr	21h 53m 04.06s	-13° 14' 34.0"	30.03149	30.575455	254.29	56.3	2.2	7.9	4.04	9.18	14.31
13-apr	21h 53m 09.67s	-13° 14' 05.8"	30.03146	30.561321	254.17	57.3	2.2	7.9	4.00	9.14	14.27
14-apr	21h 53m 15.18s	-13° 13' 38.2"	30.03144	30.547033	254.05	58.3	2.2	7.9	3.96	9.10	14.23
15-apr	21h 53m 20.59s	-13° 13' 11.1"	30.03141	30.532595	253.93	59.2	2.2	7.9	3.92	9.06	14.19
16-apr	21h 53m 25.90s	-13° 12' 44.6"	30.03139	30.518010	253.81	60.2	2.2	7.9	3.88	9.02	14.15
17-apr	21h 53m 31.10s	-13° 12' 18.6"	30.03136	30.503282	253.69	61.1	2.2	7.9	3.84	8.98	14.11
18-apr	21h 53m 36.19s	-13° 11' 53.2"	30.03134	30.488414	253.56	62.1	2.2	7.9	3.80	8.94	14.07
19-apr	21h 53m 41.17s	-13° 11' 28.4"	30.03131	30.473413	253.44	63.0	2.2	7.9	3.76	8.90	14.03
20-apr	21h 53m 46.04s	-13° 11' 04.2"	30.03129	30.458280	253.31	64.0	2.2	7.9	3.72	8.86	13.99
21-apr	21h 53m 50.80s	-13° 10' 40.6"	30.03126	30.443021	253.19	64.9	2.2	7.9	3.68	8.82	13.95
22-apr	21h 53m 55.44s	-13° 10' 17.5"	30.03123	30.427639	253.06	65.9	2.2	7.9	3.64	8.78	13.91
23-apr	21h 53m 59.97s	-13° 09' 55.1"	30.03121	30.412140	252.93	66.9	2.2	7.9	3.60	8.74	13.87
24-apr	21h 54m 04.39s	-13° 09' 33.2"	30.03118	30.396527	252.80	67.8	2.2	7.9	3.56	8.70	13.83
25-apr	21h 54m 08.70s	-13° 09' 11.9"	30.03116	30.380806	252.67	68.8	2.2	7.9	3.52	8.66	13.79
26-apr	21h 54m 12.89s	-13° 08' 51.2"	30.03113	30.364981	252.54	69.7	2.2	7.9	3.48	8.62	13.75
27-apr	21h 54m 16.97s	-13° 08' 31.1"	30.03111	30.349056	252.41	70.7	2.2	7.9	3.44	8.58	13.71
28-apr	21h 54m 20.94s	-13° 08' 11.6"	30.03108	30.333038	252.27	71.6	2.2	7.9	3.40	8.54	13.67
29-apr	21h 54m 24.80s	-13° 07' 52.7"	30.03106	30.316931	252.14	72.6	2.2	7.9	3.36	8.50	13.63
30-apr	21h 54m 28.53s	-13° 07' 34.4"	30.03103	30.300739	252.00	73.5	2.2	7.9	3.32	8.46	13.59
1-mag	21h 54m 32.15s	-13° 07' 16.9"	30.03101	30.284468	251.87	74.5	2.2	7.9	3.28	8.42	13.55
2-mag	21h 54m 35.64s	-13° 06' 59.9"	30.03098	30.268123	251.73	75.5	2.2	7.9	3.24	8.38	13.51
3-mag	21h 54m 39.00s	-13° 06' 43.7"	30.03096	30.251708	251.60	76.4	2.2	7.9	3.20	8.34	13.47
4-mag	21h 54m 42.24s	-13° 06' 28.1"	30.03093	30.235227	251.46	77.4	2.2	7.9	3.16	8.30	13.43
5-mag	21h 54m 45.36s	-13° 06' 13.1"	30.03091	30.218686	251.32	78.3	2.2	7.9	3.12	8.26	13.39
6-mag	21h 54m 48.36s	-13° 05' 58.7"	30.03088	30.202089	251.18	79.3	2.2	7.9	3.08	8.22	13.35
7-mag	21h 54m 51.23s	-13° 05' 45.0"	30.03085	30.185440	251.04	80.2	2.2	7.9	3.04	8.18	13.31
8-mag	21h 54m 53.99s	-13° 05' 31.9"	30.03083	30.168743	250.91	81.2	2.2	7.9	3.00	8.14	13.27
9-mag	21h 54m 56.62s	-13° 05' 19.4"	30.03080	30.152004	250.77	82.2	2.2	7.9	2.96	8.10	13.23
10-mag	21h 54m 59.14s	-13° 05' 07.6"	30.03078	30.135226	250.63	83.1	2.2	7.9	2.92	8.06	13.19
11-mag	21h 55m 01.53s	-13° 04' 56.5"	30.03075	30.118413	250.49	84.1	2.2	7.9	2.88	8.02	13.15
12-mag	21h 55m 03.81s	-13° 04' 45.9"	30.03073	30.101571	250.35	85.0	2.2	7.9	2.84	7.98	13.11
13-mag	21h 55m 05.95s	-13° 04' 36.1"	30.03070	30.084703	250.21	86.0	2.2	7.9	2.80	7.94	13.07
14-mag	21h 55m 07.98s	-13° 04' 26.9"	30.03068	30.067815	250.07	86.9	2.2	7.9	2.76	7.90	13.03
15-mag	21h 55m 09.87s	-13° 04' 18.4"	30.03065	30.050910	249.93	87.9	2.2	7.9	2.72	7.86	12.99
16-mag	21h 55m 11.64s	-13° 04' 10.6"	30.03063	30.033993	249.78	88.8	2.2	7.9	2.68	7.82	12.95
17-mag	21h 55m 13.28s	-13° 04' 03.4"	30.03060	30.017069	249.64	89.8	2.2	7.9	2.64	7.78	12.91
18-mag	21h 55m 14.79s	-13° 03' 57.0"	30.03057	30.000143	249.50	90.8	2.2	7.9	2.60	7.74	12.87
19-mag	21h 55m 16.18s	-13° 03' 51.2"	30.03055	29.983219	249.36	91.7	2.2	7.9	2.56	7.70	12.83
20-mag	21h 55m 17.43s	-13° 03' 46.1"	30.03052	29.966302	249.22	92.7	2.2	7.9	2.52	7.66	12.79
21-mag	21h 55m 18.56s	-13° 03' 41.6"	30.03050	29.949397	249.08	93.6	2.2	7.9	2.48	7.62	12.75
22-mag	21h 55m 19.56s	-13° 03' 37.8"	30.03047	29.932509	248.94	94.6	2.2	7.9	2.44	7.58	12.71
23-mag	21h 55m 20.44s	-13° 03' 34.6"	30.03045	29.915643	248.80	95.5	2.2	7.9	2.40	7.54	12.67
24-mag	21h 55m 21.20s	-13° 03' 32.1"	30.03042	29.898804	248.66	96.5	2.2	7.9	2.36	7.50	12.63
25-mag	21h 55m 21.83s	-13° 03' 30.3"	30.03040	29.881998	248.52	97.5	2.2	7.9	2.32	7.46	12.59
26-mag	21h 55m 22.34s	-13° 03' 29.1"	30.03037	29.865229	248.38	98.4	2.2	7.9	2.28	7.42	12.55
27-mag	21h 55m 22.72s	-13° 03' 28.6"	30.03034	29.848503	248.24	99.4	2.2	7.9	2.24	7.38	12.51
28-mag	21h 55m 22.98s	-13° 03' 28.8"	30.03032	29.831825	248.10	100.3	2.3	7.9	2.20	7.34	12.47
29-mag	21h 55m 23.10s	-13° 03' 29.7"	30.03029	29.815200	247.97	101.3	2.3	7.9	2.16	7.30	12.43

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
30-mag	21h 55m 23.10s	-13° 03' 31.3"	30.03027	29.798633	247.83	102.3	2.3	7.9	0.19	5.34	10.48
31-mag	21h 55m 22.96s	-13° 03' 33.5"	30.03024	29.782129	247.69	103.2	2.3	7.9	0.15	5.30	10.44
1-giu	21h 55m 22.70s	-13° 03' 36.5"	30.03022	29.765691	247.55	104.2	2.3	7.9	0.11	5.26	10.40
2-giu	21h 55m 22.31s	-13° 03' 40.0"	30.03019	29.749326	247.42	105.1	2.3	7.9	0.07	5.22	10.36
3-giu	21h 55m 21.79s	-13° 03' 44.3"	30.03017	29.733036	247.28	106.1	2.3	7.9	0.04	5.18	10.32
4-giu	21h 55m 21.16s	-13° 03' 49.1"	30.03014	29.716827	247.15	107.1	2.3	7.9	23.56	5.14	10.28
5-giu	21h 55m 20.40s	-13° 03' 54.6"	30.03011	29.700703	247.01	108.0	2.3	7.9	23.52	5.10	10.24
6-giu	21h 55m 19.53s	-13° 04' 00.7"	30.03009	29.684668	246.88	109.0	2.3	7.9	23.48	5.06	10.20
7-giu	21h 55m 18.53s	-13° 04' 07.4"	30.03006	29.668727	246.75	109.9	2.3	7.9	23.44	5.02	10.16
8-giu	21h 55m 17.42s	-13° 04' 14.8"	30.03004	29.652882	246.62	110.9	2.3	7.9	23.40	4.58	10.12
9-giu	21h 55m 16.19s	-13° 04' 22.8"	30.03001	29.637140	246.48	111.9	2.3	7.9	23.36	4.54	10.08
10-giu	21h 55m 14.83s	-13° 04' 31.5"	30.02999	29.621504	246.35	112.8	2.3	7.9	23.32	4.50	10.04
11-giu	21h 55m 13.35s	-13° 04' 40.8"	30.02996	29.605978	246.23	113.8	2.3	7.9	23.28	4.46	10.00
12-giu	21h 55m 11.76s	-13° 04' 50.8"	30.02993	29.590567	246.10	114.8	2.3	7.9	23.24	4.42	9.56
13-giu	21h 55m 10.04s	-13° 05' 01.4"	30.02991	29.575274	245.97	115.7	2.3	7.9	23.20	4.38	9.53
14-giu	21h 55m 08.20s	-13° 05' 12.6"	30.02988	29.560105	245.84	116.7	2.3	7.9	23.16	4.34	9.49
15-giu	21h 55m 06.24s	-13° 05' 24.4"	30.02986	29.545064	245.72	117.6	2.3	7.9	23.12	4.30	9.45
16-giu	21h 55m 04.16s	-13° 05' 36.9"	30.02983	29.530154	245.59	118.6	2.3	7.9	23.08	4.26	9.41
17-giu	21h 55m 01.96s	-13° 05' 49.9"	30.02981	29.515381	245.47	119.6	2.3	7.9	23.04	4.22	9.37
18-giu	21h 54m 59.66s	-13° 06' 03.5"	30.02978	29.500749	245.35	120.5	2.3	7.9	23.00	4.18	9.33
19-giu	21h 54m 57.24s	-13° 06' 17.8"	30.02975	29.486262	245.23	121.5	2.3	7.9	22.56	4.15	9.29
20-giu	21h 54m 54.71s	-13° 06' 32.5"	30.02973	29.471925	245.11	122.5	2.3	7.9	22.52	4.11	9.25
21-giu	21h 54m 52.07s	-13° 06' 47.9"	30.02970	29.457742	244.99	123.4	2.3	7.9	22.48	4.07	9.21
22-giu	21h 54m 49.32s	-13° 07' 03.8"	30.02968	29.443719	244.88	124.4	2.3	7.9	22.45	4.03	9.17
23-giu	21h 54m 46.47s	-13° 07' 20.3"	30.02965	29.429859	244.76	125.4	2.3	7.9	22.41	3.59	9.13
24-giu	21h 54m 43.50s	-13° 07' 37.4"	30.02962	29.416167	244.65	126.3	2.3	7.9	22.37	3.55	9.09
25-giu	21h 54m 40.43s	-13° 07' 55.0"	30.02960	29.402648	244.53	127.3	2.3	7.8	22.33	3.51	9.05
26-giu	21h 54m 37.24s	-13° 08' 13.3"	30.02957	29.389306	244.42	128.3	2.3	7.8	22.29	3.47	9.01
27-giu	21h 54m 33.95s	-13° 08' 32.1"	30.02955	29.376144	244.31	129.2	2.3	7.8	22.25	3.43	8.57
28-giu	21h 54m 30.54s	-13° 08' 51.5"	30.02952	29.363166	244.21	130.2	2.3	7.8	22.21	3.39	8.53
29-giu	21h 54m 27.03s	-13° 09' 11.4"	30.02949	29.350377	244.10	131.2	2.3	7.8	22.17	3.35	8.49
30-giu	21h 54m 23.43s	-13° 09' 31.8"	30.02947	29.337779	243.99	132.1	2.3	7.8	22.13	3.31	8.45
1-lug	21h 54m 19.72s	-13° 09' 52.6"	30.02944	29.325377	243.89	133.1	2.3	7.8	22.09	3.27	8.41
2-lug	21h 54m 15.92s	-13° 10' 14.0"	30.02942	29.313173	243.79	134.1	2.3	7.8	22.05	3.23	8.37
3-lug	21h 54m 12.02s	-13° 10' 35.8"	30.02939	29.301171	243.69	135.1	2.3	7.8	22.01	3.19	8.33
4-lug	21h 54m 08.04s	-13° 10' 58.1"	30.02936	29.289374	243.59	136.0	2.3	7.8	21.57	3.15	8.29
5-lug	21h 54m 03.96s	-13° 11' 20.9"	30.02934	29.277786	243.50	137.0	2.3	7.8	21.53	3.11	8.25
6-lug	21h 53m 59.79s	-13° 11' 44.2"	30.02931	29.266408	243.40	138.0	2.3	7.8	21.49	3.07	8.20
7-lug	21h 53m 55.53s	-13° 12' 08.0"	30.02929	29.255245	243.31	138.9	2.3	7.8	21.45	3.03	8.16
8-lug	21h 53m 51.18s	-13° 12' 32.2"	30.02926	29.244300	243.22	139.9	2.3	7.8	21.41	2.59	8.12
9-lug	21h 53m 46.74s	-13° 12' 56.8"	30.02923	29.233576	243.13	140.9	2.3	7.8	21.37	2.55	8.08
10-lug	21h 53m 42.21s	-13° 13' 21.9"	30.02921	29.223075	243.04	141.9	2.3	7.8	21.33	2.51	8.04
11-lug	21h 53m 37.59s	-13° 13' 47.5"	30.02918	29.212802	242.96	142.8	2.3	7.8	21.29	2.47	8.00
12-lug	21h 53m 32.89s	-13° 14' 13.5"	30.02916	29.202758	242.87	143.8	2.3	7.8	21.25	2.43	7.56
13-lug	21h 53m 28.11s	-13° 14' 39.9"	30.02913	29.192948	242.79	144.8	2.3	7.8	21.21	2.39	7.52
14-lug	21h 53m 23.24s	-13° 15' 06.6"	30.02910	29.183373	242.71	145.8	2.3	7.8	21.17	2.35	7.48
15-lug	21h 53m 18.30s	-13° 15' 33.8"	30.02908	29.174038	242.63	146.7	2.3	7.8	21.13	2.31	7.44
16-lug	21h 53m 13.29s	-13° 16' 01.3"	30.02905	29.164945	242.56	147.7	2.3	7.8	21.09	2.27	7.40
17-lug	21h 53m 08.20s	-13° 16' 29.2"	30.02903	29.156098	242.48	148.7	2.3	7.8	21.05	2.23	7.36
18-lug	21h 53m 03.05s	-13° 16' 57.4"	30.02900	29.147499	242.41	149.7	2.3	7.8	21.01	2.19	7.32
19-lug	21h 52m 57.83s	-13° 17' 25.9"	30.02897	29.139151	242.34	150.6	2.3	7.8	20.57	2.15	7.28
20-lug	21h 52m 52.54s	-13° 17' 54.8"	30.02895	29.131058	242.28	151.6	2.3	7.8	20.53	2.11	7.24
21-lug	21h 52m 47.18s	-13° 18' 24.1"	30.02892	29.123222	242.21	152.6	2.3	7.8	20.49	2.07	7.20
22-lug	21h 52m 41.76s	-13° 18' 53.6"	30.02890	29.115647	242.15	153.6	2.3	7.8	20.45	2.03	7.16
23-lug	21h 52m 36.28s	-13° 19' 23.6"	30.02887	29.108335	242.09	154.6	2.3	7.8	20.41	1.58	7.12
24-lug	21h 52m 30.72s	-13° 19' 53.8"	30.02884	29.101289	242.03	155.5	2.3	7.8	20.37	1.54	7.08
25-lug	21h 52m 25.11s	-13° 20' 24.3"	30.02882	29.094510	241.97	156.5	2.3	7.8	20.33	1.50	7.04
26-lug	21h 52m 19.44s	-13° 20' 55.1"	30.02879	29.088000	241.92	157.5	2.3	7.8	20.29	1.46	7.00
27-lug	21h 52m 13.71s	-13° 21' 26.1"	30.02876	29.081763	241.87	158.5	2.3	7.8	20.25	1.42	6.56
28-lug	21h 52m 07.93s	-13° 21' 57.4"	30.02874	29.075798	241.82	159.5	2.3	7.8	20.21	1.38	6.51
29-lug	21h 52m 02.11s	-13° 22' 28.8"	30.02871	29.070109	241.77	160.4	2.3	7.8	20.17	1.34	6.47
30-lug	21h 51m 56.24s	-13° 23' 00.5"	30.02869	29.064695	241.72	161.4	2.3	7.8	20.13	1.30	6.43
31-lug	21h 51m 50.33s	-13° 23' 32.4"	30.02866	29.059560	241.68	162.4	2.3	7.8	20.09	1.26	6.39
1-ago	21h 51m 44.38s	-13° 24' 04.4"	30.02863	29.054703	241.64	163.4	2.3	7.8	20.05	1.22	6.35
2-ago	21h 51m 38.40s	-13° 24' 36.7"	30.02861	29.050127	241.60	164.4	2.3	7.8	20.01	1.18	6.31
3-ago	21h 51m 32.37s	-13° 25' 09.1"	30.02858	29.045832	241.57	165.3	2.3	7.8	19.57	1.14	6.27
4-ago	21h 51m 26.31s	-13° 25' 41.7"	30.02855	29.041820	241.53	166.3	2.3	7.8	19.53	1.10	6.23
5-ago	21h 51m 20.21s	-13° 26' 14.4"	30.02853	29.038093	241.50	167.3	2.3	7.8	19.49	1.06	6.19
6-ago	21h 51m 14.08s	-13° 26' 47.4"	30.02850	29.034650	241.47	168.3	2.3	7.8	19.45	1.02	6.15
7-ago	21h 51m 07.91s	-13° 27' 20.4"	30.02848	29.031493	241.45	169.3	2.3	7.8	19.41	0.58	6.11
8-ago	21h 51m 01.72s	-13° 27' 53.6"	30.02845	29.028623	241.42	170.2	2.3	7.8	19.37	0.54	6.07
9-ago	21h 50m 55.50s	-13° 28' 26.9"	30.02842	29.026042	241.40	171.2	2.3	7.8	19.33	0.50	6.03
10-ago	21h 50m 49.26s	-13° 29' 00.3"	30.02840	29.023750	241.38	172.2	2.3	7.8	19.29	0.46	5.59
11-ago	21h 50m 42.99s	-13° 29' 33.7"	30.02837	29.021748	241.37	173.2	2.3	7.8	19.25	0.42	5.55
12-ago	21h 50m 36.71s	-13° 30' 07.2"	30.02834	29.020037	241.35	174.2	2.3	7.8	19.21	0.38	5.50
13-ago	21h 50m 30.42s	-13° 30' 40.7"	30.02832	29.018618	241.34	175.2	2.3	7.8	19.17	0.34	5.46
14-ago	21h 50m 24.12s	-13° 31' 14.2"	30.02829	29.017493	241.33	176.2	2.3	7.8	19.13	0.30	5.42

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
15-ago	21h 50m 17.81s	-13° 31' 47.8"	30.02826	29.016661	241.32	177.2	2.3	7.8	19.09	0.26	5.38
16-ago	21h 50m 11.49s	-13° 32' 21.4"	30.02824	29.016124	241.32	178.1	2.3	7.8	19.05	0.22	5.34
17-ago	21h 50m 05.17s	-13° 32' 54.9"	30.02821	29.015882	241.32	179.1	2.3	7.8	19.01	0.18	5.30
18-ago	21h 49m 58.84s	-13° 33' 28.5"	30.02819	29.015937	241.32	179.8	2.3	7.8	18.57	0.14	5.26
19-ago	21h 49m 52.51s	-13° 34' 02.1"	30.02816	29.016288	241.32	178.9	2.3	7.8	18.53	0.10	5.22
20-ago	21h 49m 46.18s	-13° 34' 35.7"	30.02813	29.016936	241.33	177.9	2.3	7.8	18.49	0.06	5.18
21-ago	21h 49m 39.84s	-13° 35' 09.3"	30.02811	29.017881	241.33	176.9	2.3	7.8	18.45	0.02	5.14
22-ago	21h 49m 33.51s	-13° 35' 42.8"	30.02808	29.019122	241.34	175.9	2.3	7.8	18.41	23.53	5.10
23-ago	21h 49m 27.19s	-13° 36' 16.2"	30.02805	29.020660	241.36	174.9	2.3	7.8	18.37	23.49	5.06
24-ago	21h 49m 20.88s	-13° 36' 49.5"	30.02803	29.022494	241.37	173.9	2.3	7.8	18.33	23.45	5.02
25-ago	21h 49m 14.58s	-13° 37' 22.7"	30.02800	29.024623	241.39	172.9	2.3	7.8	18.29	23.41	4.58
26-ago	21h 49m 08.31s	-13° 37' 55.8"	30.02797	29.027045	241.41	171.9	2.3	7.8	18.25	23.37	4.53
27-ago	21h 49m 02.06s	-13° 38' 28.7"	30.02795	29.029762	241.43	170.9	2.3	7.8	18.21	23.33	4.49
28-ago	21h 48m 55.83s	-13° 39' 01.4"	30.02792	29.032770	241.46	169.9	2.3	7.8	18.17	23.29	4.45
29-ago	21h 48m 49.63s	-13° 39' 34.0"	30.02789	29.036069	241.49	168.9	2.3	7.8	18.13	23.25	4.41
30-ago	21h 48m 43.45s	-13° 40' 06.5"	30.02787	29.039658	241.52	168.0	2.3	7.8	18.09	23.21	4.37
31-ago	21h 48m 37.30s	-13° 40' 38.8"	30.02784	29.043536	241.55	167.0	2.3	7.8	18.05	23.17	4.33
1-set	21h 48m 31.18s	-13° 41' 10.9"	30.02781	29.047702	241.58	166.0	2.3	7.8	18.01	23.13	4.29
2-set	21h 48m 25.09s	-13° 41' 42.9"	30.02779	29.052154	241.62	165.0	2.3	7.8	17.57	23.09	4.25
3-set	21h 48m 19.04s	-13° 42' 14.6"	30.02776	29.056891	241.66	164.0	2.3	7.8	17.53	23.05	4.21
4-set	21h 48m 13.02s	-13° 42' 46.1"	30.02773	29.061912	241.70	163.0	2.3	7.8	17.49	23.01	4.17
5-set	21h 48m 07.03s	-13° 43' 17.4"	30.02771	29.067215	241.74	162.0	2.3	7.8	17.45	22.57	4.13
6-set	21h 48m 01.09s	-13° 43' 48.5"	30.02768	29.072798	241.79	161.0	2.3	7.8	17.41	22.53	4.09
7-set	21h 47m 55.19s	-13° 44' 19.3"	30.02765	29.078662	241.84	160.0	2.3	7.8	17.37	22.49	4.05
8-set	21h 47m 49.35s	-13° 44' 49.8"	30.02763	29.084803	241.89	159.0	2.3	7.8	17.33	22.45	4.01
9-set	21h 47m 43.55s	-13° 45' 20.0"	30.02760	29.091221	241.94	158.0	2.3	7.8	17.29	22.41	3.57
10-set	21h 47m 37.80s	-13° 45' 49.9"	30.02757	29.097914	242.00	157.0	2.3	7.8	17.25	22.37	3.52
11-set	21h 47m 32.12s	-13° 46' 19.5"	30.02755	29.104880	242.06	156.0	2.3	7.8	17.21	22.33	3.48
12-set	21h 47m 26.49s	-13° 46' 48.8"	30.02752	29.112119	242.12	155.0	2.3	7.8	17.17	22.29	3.44
13-set	21h 47m 20.92s	-13° 47' 17.7"	30.02749	29.119627	242.18	154.0	2.3	7.8	17.13	22.25	3.40
14-set	21h 47m 15.41s	-13° 47' 46.4"	30.02747	29.127405	242.25	153.0	2.3	7.8	17.09	22.21	3.36
15-set	21h 47m 09.96s	-13° 48' 14.7"	30.02744	29.135449	242.31	152.0	2.3	7.8	17.05	22.17	3.32
16-set	21h 47m 04.57s	-13° 48' 42.7"	30.02741	29.143757	242.38	151.0	2.3	7.8	17.01	22.13	3.28
17-set	21h 46m 59.24s	-13° 49' 10.3"	30.02739	29.152328	242.45	150.0	2.3	7.8	16.57	22.09	3.24
18-set	21h 46m 53.98s	-13° 49' 37.6"	30.02736	29.161158	242.53	149.0	2.3	7.8	16.53	22.05	3.20
19-set	21h 46m 48.79s	-13° 50' 04.5"	30.02733	29.170246	242.60	148.0	2.3	7.8	16.49	22.01	3.16
20-set	21h 46m 43.67s	-13° 50' 30.9"	30.02731	29.179588	242.68	147.0	2.3	7.8	16.45	21.57	3.12
21-set	21h 46m 38.63s	-13° 50' 56.9"	30.02728	29.189181	242.76	146.0	2.3	7.8	16.41	21.53	3.08
22-set	21h 46m 33.67s	-13° 51' 22.5"	30.02725	29.199022	242.84	145.0	2.3	7.8	16.37	21.49	3.04
23-set	21h 46m 28.80s	-13° 51' 47.6"	30.02723	29.209107	242.92	144.0	2.3	7.8	16.33	21.45	3.00
24-set	21h 46m 24.00s	-13° 52' 12.3"	30.02720	29.219434	243.01	143.0	2.3	7.8	16.29	21.41	2.56
25-set	21h 46m 19.30s	-13° 52' 36.5"	30.02717	29.229999	243.10	142.0	2.3	7.8	16.25	21.37	2.52
26-set	21h 46m 14.68s	-13° 53' 00.3"	30.02715	29.240798	243.19	141.0	2.3	7.8	16.21	21.33	2.48
27-set	21h 46m 10.15s	-13° 53' 23.6"	30.02712	29.251829	243.28	140.0	2.3	7.8	16.17	21.29	2.44
28-set	21h 46m 05.70s	-13° 53' 46.5"	30.02709	29.263087	243.37	139.0	2.3	7.8	16.14	21.25	2.40
29-set	21h 46m 01.35s	-13° 54' 08.9"	30.02707	29.274569	243.47	138.0	2.3	7.8	16.10	21.21	2.36
30-set	21h 45m 57.09s	-13° 54' 30.8"	30.02704	29.286272	243.57	137.0	2.3	7.8	16.06	21.17	2.32
1-ott	21h 45m 52.91s	-13° 54' 52.2"	30.02701	29.298192	243.67	136.0	2.3	7.8	16.02	21.13	2.28
2-ott	21h 45m 48.84s	-13° 55' 13.1"	30.02699	29.310325	243.77	135.0	2.3	7.8	15.58	21.09	2.24
3-ott	21h 45m 44.85s	-13° 55' 33.5"	30.02696	29.322668	243.87	134.0	2.3	7.8	15.54	21.05	2.20
4-ott	21h 45m 40.97s	-13° 55' 53.4"	30.02693	29.335218	243.97	133.0	2.3	7.8	15.50	21.01	2.16
5-ott	21h 45m 37.19s	-13° 56' 12.7"	30.02691	29.347970	244.08	132.0	2.3	7.8	15.46	20.57	2.11
6-ott	21h 45m 33.51s	-13° 56' 31.5"	30.02688	29.360921	244.19	131.0	2.3	7.8	15.42	20.53	2.07
7-ott	21h 45m 29.94s	-13° 56' 49.7"	30.02685	29.374068	244.30	130.0	2.3	7.8	15.38	20.49	2.03
8-ott	21h 45m 26.48s	-13° 57' 07.3"	30.02683	29.387407	244.41	129.0	2.3	7.8	15.34	20.45	1.59
9-ott	21h 45m 23.12s	-13° 57' 24.4"	30.02680	29.400934	244.52	128.0	2.3	7.8	15.30	20.41	1.55
10-ott	21h 45m 19.88s	-13° 57' 40.9"	30.02677	29.414647	244.63	127.0	2.3	7.9	15.26	20.37	1.51
11-ott	21h 45m 16.75s	-13° 57' 56.8"	30.02674	29.428540	244.75	126.0	2.3	7.9	15.22	20.33	1.47
12-ott	21h 45m 13.73s	-13° 58' 12.2"	30.02672	29.442611	244.87	125.0	2.3	7.9	15.18	20.29	1.43
13-ott	21h 45m 10.81s	-13° 58' 27.0"	30.02669	29.456854	244.99	124.0	2.3	7.9	15.14	20.25	1.39
14-ott	21h 45m 08.01s	-13° 58' 41.3"	30.02666	29.471267	245.11	123.0	2.3	7.9	15.10	20.21	1.35
15-ott	21h 45m 05.31s	-13° 58' 54.9"	30.02664	29.485845	245.23	122.0	2.3	7.9	15.06	20.17	1.31
16-ott	21h 45m 02.74s	-13° 59' 08.0"	30.02661	29.500583	245.35	121.0	2.3	7.9	15.02	20.13	1.27
17-ott	21h 45m 00.28s	-13° 59' 20.4"	30.02658	29.515476	245.47	120.0	2.3	7.9	14.58	20.09	1.24
18-ott	21h 44m 57.93s	-13° 59' 32.2"	30.02656	29.530521	245.60	119.0	2.3	7.9	14.54	20.05	1.20
19-ott	21h 44m 55.72s	-13° 59' 43.3"	30.02653	29.545711	245.72	118.0	2.3	7.9	14.50	20.01	1.16
20-ott	21h 44m 53.62s	-13° 59' 53.8"	30.02650	29.561042	245.85	117.0	2.3	7.9	14.46	19.57	1.12
21-ott	21h 44m 51.66s	-14° 00' 03.7"	30.02648	29.576510	245.98	116.0	2.3	7.9	14.42	19.53	1.08
22-ott	21h 44m 49.82s	-14° 00' 12.9"	30.02645	29.592108	246.11	115.0	2.3	7.9	14.38	19.49	1.04
23-ott	21h 44m 48.10s	-14° 00' 21.4"	30.02642	29.607833	246.24	114.0	2.3	7.9	14.34	19.45	1.00
24-ott	21h 44m 46.51s	-14° 00' 29.4"	30.02639	29.623678	246.37	113.0	2.3	7.9	14.30	19.41	0.56
25-ott	21h 44m 45.05s	-14° 00' 36.6"	30.02637	29.639639	246.51	112.0	2.3	7.9	14.26	19.37	0.52
26-ott	21h 44m 43.71s	-14° 00' 43.3"	30.02634	29.655711	246.64	111.0	2.3	7.9	14.23	19.33	0.48
27-ott	21h 44m 42.49s	-14° 00' 49.3"	30.02631	29.671889	246.77	110.0	2.3	7.9	14.19	19.29	0.44
28-ott	21h 44m 41.40s	-14° 00' 54.7"	30.02629	29.688167	246.91	109.0	2.3	7.9	14.15	19.25	0.40
29-ott	21h 44m 40.44s	-14° 00' 59.4"	30.02626	29.704542	247.05	108.0	2.3	7.9	14.11	19.21	0.36
30-ott	21h 44m 39.61s	-14° 01' 03.5"	30.02623	29.721007	247.18	107.0	2.3	7.9	14.07	19.17	0.32

Data	A.R. Geoc.	Dec. Geoc.	R U.A.	Distanza U.A.	Luce (m)	El. °	Diam. "	Mag.	Sorge	Transita	Tramonta
31-ott	21h 44m 38.90s	-14° 01' 06.8"	30.02621	29.737558	247.32	106.0	2.3	7.9	14.03	19.13	0.28
1-nov	21h 44m 38.32s	-14° 01' 09.5"	30.02618	29.754191	247.46	105.0	2.3	7.9	13.59	19.09	0.24
2-nov	21h 44m 37.88s	-14° 01' 11.6"	30.02615	29.770900	247.60	104.0	2.3	7.9	13.55	19.06	0.20
3-nov	21h 44m 37.57s	-14° 01' 12.9"	30.02612	29.787680	247.74	103.0	2.3	7.9	13.51	19.02	0.16
4-nov	21h 44m 37.39s	-14° 01' 13.5"	30.02610	29.804528	247.88	102.0	2.3	7.9	13.47	18.58	0.12
5-nov	21h 44m 37.35s	-14° 01' 13.4"	30.02607	29.821438	248.02	101.0	2.3	7.9	13.43	18.54	0.08
6-nov	21h 44m 37.45s	-14° 01' 12.7"	30.02604	29.838405	248.16	100.0	2.3	7.9	13.39	18.50	0.04
7-nov	21h 44m 37.67s	-14° 01' 11.3"	30.02602	29.855425	248.30	99.0	2.2	7.9	13.35	18.46	23.57
8-nov	21h 44m 38.03s	-14° 01' 09.3"	30.02599	29.872493	248.44	98.0	2.2	7.9	13.31	18.42	23.53
9-nov	21h 44m 38.52s	-14° 01' 06.6"	30.02596	29.889604	248.58	97.0	2.2	7.9	13.27	18.38	23.49
10-nov	21h 44m 39.13s	-14° 01' 03.3"	30.02593	29.906753	248.73	96.0	2.2	7.9	13.24	18.34	23.45
11-nov	21h 44m 39.88s	-14° 00' 59.2"	30.02591	29.923935	248.87	95.0	2.2	7.9	13.20	18.30	23.41
12-nov	21h 44m 40.76s	-14° 00' 54.5"	30.02588	29.941145	249.01	94.0	2.2	7.9	13.16	18.26	23.37
13-nov	21h 44m 41.77s	-14° 00' 49.1"	30.02585	29.958377	249.16	93.0	2.2	7.9	13.12	18.22	23.33
14-nov	21h 44m 42.91s	-14° 00' 43.0"	30.02583	29.975625	249.30	92.0	2.2	7.9	13.08	18.18	23.29
15-nov	21h 44m 44.19s	-14° 00' 36.2"	30.02580	29.992885	249.44	91.0	2.2	7.9	13.04	18.15	23.25
16-nov	21h 44m 45.61s	-14° 00' 28.7"	30.02577	30.010151	249.59	90.0	2.2	7.9	13.00	18.11	23.21
17-nov	21h 44m 47.16s	-14° 00' 20.5"	30.02574	30.027417	249.73	89.0	2.2	7.9	12.56	18.07	23.17
18-nov	21h 44m 48.85s	-14° 00' 11.6"	30.02572	30.044677	249.87	88.0	2.2	7.9	12.52	18.03	23.14
19-nov	21h 44m 50.68s	-14° 00' 02.1"	30.02569	30.061926	250.02	87.0	2.2	7.9	12.48	17.59	23.10
20-nov	21h 44m 52.64s	-13° 59' 51.8"	30.02566	30.079159	250.16	86.0	2.2	7.9	12.44	17.55	23.06
21-nov	21h 44m 54.73s	-13° 59' 40.9"	30.02564	30.096370	250.30	85.0	2.2	7.9	12.40	17.51	23.02
22-nov	21h 44m 56.95s	-13° 59' 29.4"	30.02561	30.113553	250.45	84.0	2.2	7.9	12.37	17.47	22.58
23-nov	21h 44m 59.30s	-13° 59' 17.2"	30.02558	30.130703	250.59	83.0	2.2	7.9	12.33	17.43	22.54
24-nov	21h 45m 01.78s	-13° 59' 04.3"	30.02555	30.147816	250.73	82.0	2.2	7.9	12.29	17.39	22.50
25-nov	21h 45m 04.38s	-13° 58' 50.8"	30.02553	30.164885	250.87	81.0	2.2	7.9	12.25	17.36	22.46
26-nov	21h 45m 07.12s	-13° 58' 36.6"	30.02550	30.181906	251.02	80.0	2.2	7.9	12.21	17.32	22.43
27-nov	21h 45m 09.98s	-13° 58' 21.8"	30.02547	30.198874	251.16	79.0	2.2	7.9	12.17	17.28	22.39
28-nov	21h 45m 12.97s	-13° 58' 06.2"	30.02545	30.215783	251.30	78.0	2.2	7.9	12.13	17.24	22.35
29-nov	21h 45m 16.10s	-13° 57' 50.1"	30.02542	30.232629	251.44	77.0	2.2	7.9	12.09	17.20	22.31
30-nov	21h 45m 19.35s	-13° 57' 33.2"	30.02539	30.249407	251.58	76.0	2.2	7.9	12.05	17.16	22.27
1-dic	21h 45m 22.73s	-13° 57' 15.7"	30.02536	30.266112	251.72	75.0	2.2	7.9	12.01	17.12	22.23
2-dic	21h 45m 26.24s	-13° 56' 57.5"	30.02534	30.282740	251.85	74.0	2.2	7.9	11.58	17.08	22.19
3-dic	21h 45m 29.88s	-13° 56' 38.7"	30.02531	30.299286	251.99	73.0	2.2	7.9	11.54	17.05	22.16
4-dic	21h 45m 33.64s	-13° 56' 19.3"	30.02528	30.315746	252.13	72.0	2.2	7.9	11.50	17.01	22.12
5-dic	21h 45m 37.52s	-13° 55' 59.3"	30.02525	30.332115	252.26	71.0	2.2	7.9	11.46	16.57	22.08
6-dic	21h 45m 41.53s	-13° 55' 38.6"	30.02523	30.348388	252.40	70.0	2.2	7.9	11.42	16.53	22.04
7-dic	21h 45m 45.65s	-13° 55' 17.4"	30.02520	30.364561	252.53	69.0	2.2	7.9	11.38	16.49	22.00
8-dic	21h 45m 49.89s	-13° 54' 55.5"	30.02517	30.380629	252.67	68.0	2.2	7.9	11.34	16.45	21.56
9-dic	21h 45m 54.25s	-13° 54' 33.1"	30.02514	30.396587	252.80	67.0	2.2	7.9	11.30	16.41	21.52
10-dic	21h 45m 58.72s	-13° 54' 10.0"	30.02512	30.412431	252.93	66.0	2.2	7.9	11.26	16.38	21.49
11-dic	21h 46m 03.31s	-13° 53' 46.4"	30.02509	30.428155	253.06	65.0	2.2	7.9	11.23	16.34	21.45
12-dic	21h 46m 08.02s	-13° 53' 22.1"	30.02506	30.443755	253.19	64.0	2.2	7.9	11.19	16.30	21.41
13-dic	21h 46m 12.85s	-13° 52' 57.1"	30.02504	30.459225	253.32	63.0	2.2	7.9	11.15	16.26	21.37
14-dic	21h 46m 17.80s	-13° 52' 31.6"	30.02501	30.474560	253.45	62.0	2.2	7.9	11.11	16.22	21.33
15-dic	21h 46m 22.87s	-13° 52' 05.5"	30.02498	30.489756	253.58	61.0	2.2	7.9	11.07	16.18	21.30
16-dic	21h 46m 28.05s	-13° 51' 38.8"	30.02495	30.504808	253.70	60.0	2.2	7.9	11.03	16.14	21.26
17-dic	21h 46m 33.34s	-13° 51' 11.5"	30.02493	30.519711	253.82	59.0	2.2	7.9	10.59	16.11	21.22
18-dic	21h 46m 38.74s	-13° 50' 43.7"	30.02490	30.534461	253.95	58.0	2.2	7.9	10.55	16.07	21.18
19-dic	21h 46m 44.25s	-13° 50' 15.4"	30.02487	30.549052	254.07	57.0	2.2	7.9	10.52	16.03	21.14
20-dic	21h 46m 49.86s	-13° 49' 46.5"	30.02484	30.563480	254.19	56.0	2.2	7.9	10.48	15.59	21.10
21-dic	21h 46m 55.58s	-13° 49' 17.1"	30.02482	30.577742	254.31	55.0	2.2	7.9	10.44	15.55	21.07
22-dic	21h 47m 01.39s	-13° 48' 47.1"	30.02479	30.591832	254.42	54.0	2.2	7.9	10.40	15.51	21.03
23-dic	21h 47m 07.31s	-13° 48' 16.7"	30.02476	30.605747	254.54	53.1	2.2	7.9	10.36	15.48	20.59
24-dic	21h 47m 13.33s	-13° 47' 45.7"	30.02473	30.619482	254.65	52.1	2.2	7.9	10.32	15.44	20.55
25-dic	21h 47m 19.45s	-13° 47' 14.2"	30.02471	30.633034	254.77	51.1	2.2	7.9	10.28	15.40	20.51
26-dic	21h 47m 25.67s	-13° 46' 42.1"	30.02468	30.646399	254.88	50.1	2.2	7.9	10.25	15.36	20.48
27-dic	21h 47m 31.98s	-13° 46' 09.6"	30.02465	30.659573	254.99	49.1	2.2	8.0	10.21	15.32	20.44
28-dic	21h 47m 38.39s	-13° 45' 36.5"	30.02462	30.672553	255.10	48.1	2.2	8.0	10.17	15.28	20.40
29-dic	21h 47m 44.90s	-13° 45' 03.0"	30.02460	30.685335	255.20	47.1	2.2	8.0	10.13	15.25	20.36
30-dic	21h 47m 51.51s	-13° 44' 28.9"	30.02457	30.697916	255.31	46.1	2.2	8.0	10.09	15.21	20.33
31-dic	21h 47m 58.20s	-13° 43' 54.5"	30.02454	30.710292	255.41	45.1	2.2	8.0	10.05	15.17	20.29

Legenda :

A.R., Dec. = coordinate apparenti

R. = distanza dal Sole in U.A.

Distanza = distanza dalla Terra in U.A.

Luce = distanza in minuti-luce

El. = elongazione dal Sole in °

Diam. = diametro in "

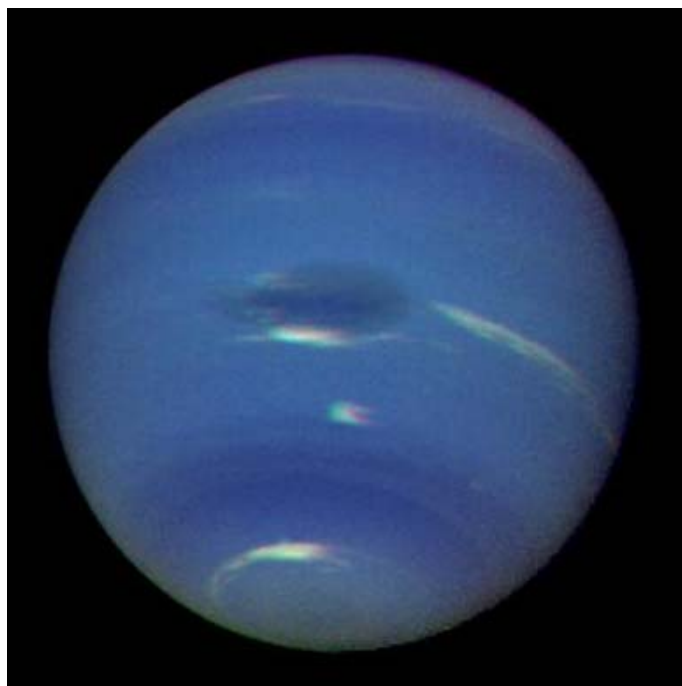
Mag. = magnitudine

Tempi di levata e tramonto in T.U.+1, calcolati per Roma (42°N, 12°E), aggiungere un'ora quando si adotta l'ora legale

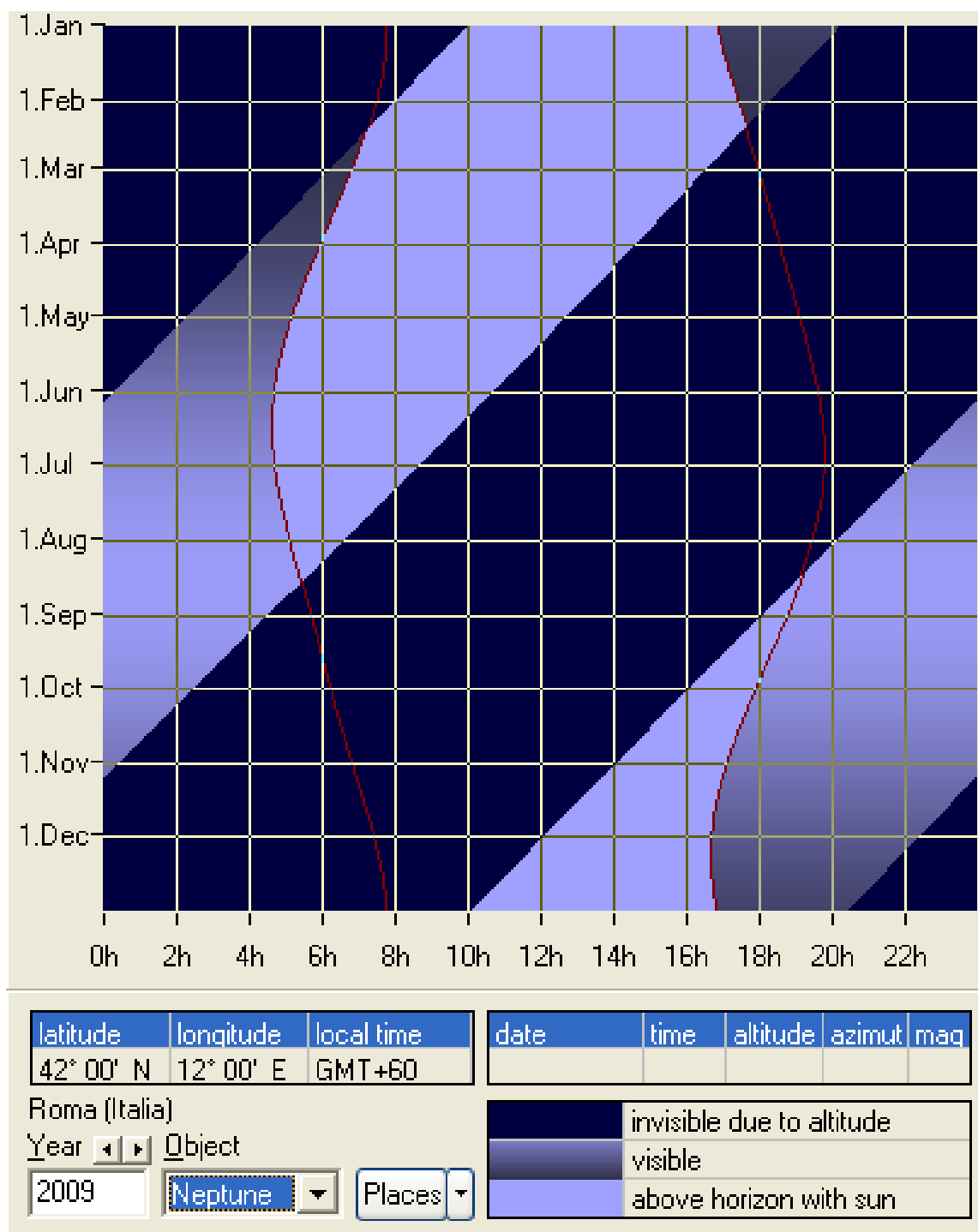
FENOMENI DI NETTUNO

Perielio	Quest'anno il fenomeno non avviene			
Afelio	Quest'anno il fenomeno non avviene			
Perigeo	17/08/2009	07.36	29.01578 U.A.	
Apogeo	13/02/2009	02.37	31.02010 U.A.	
Magnitudine massima	17/08/2009	09.40	7.8	mag
Magnitudine minima	13/02/2009	00.29	8.0	mag
Opposizione	17/08/2009	20.55		
Congiunzione	12/02/2009	12.41		
Moto retrogrado	29/05/2009	10.47		
Moto diretto	04/11/2009	19.09		

© (5)



VISIBILITA' DI NETTUNO



Visibilità di Nettuno nel corso dell'anno

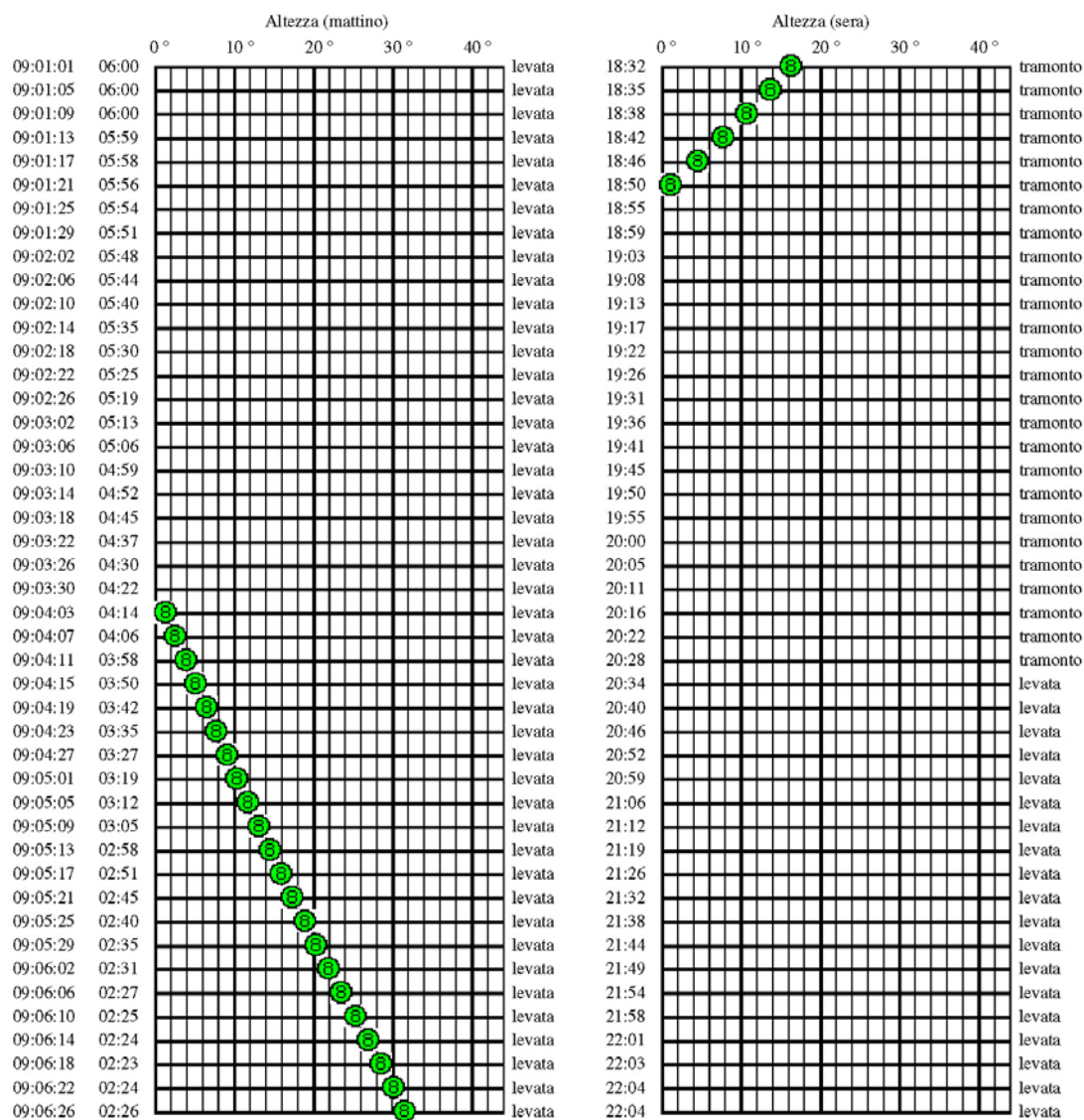
© (3)

Altezza ai crepuscoli

di Nettuno

nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: Roma 42:00 N, 12:00 E (UT +01:00)

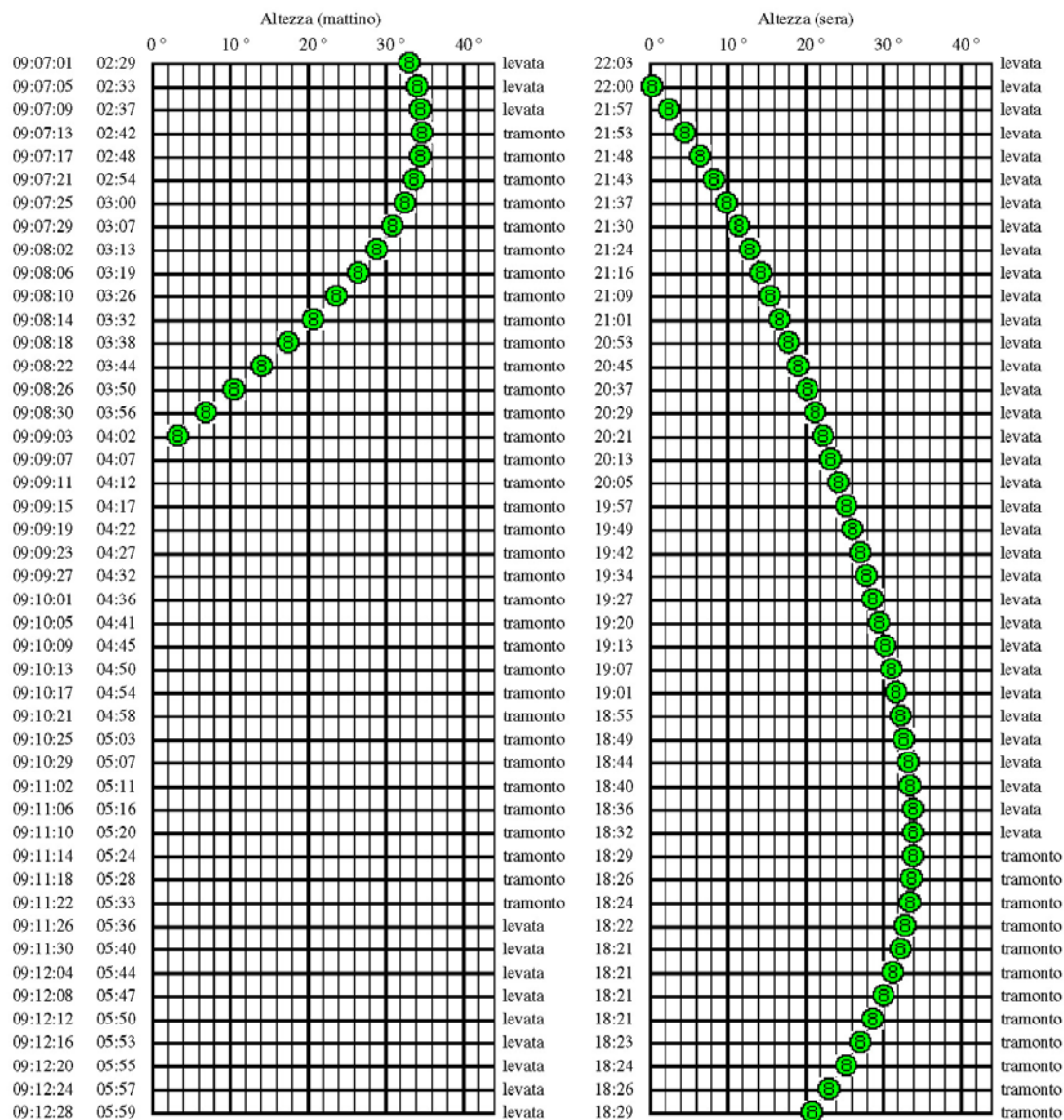


Altezza ai crepuscoli

di Nettuno

nel momento il cui il Sole è 18 ° sotto l'orizzonte

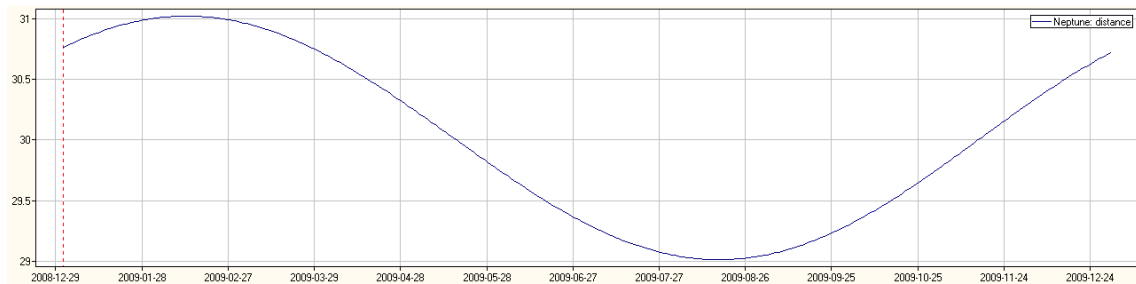
Postazione: Roma 42:00 N, 12:00 E (UT +01:00)



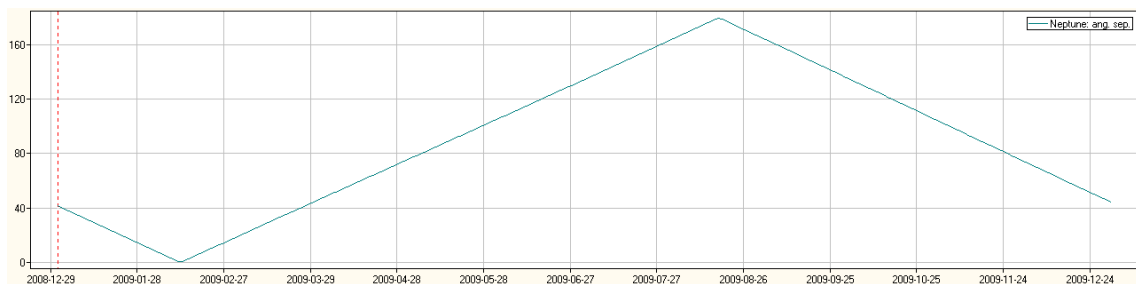
Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:01:01	06:00	-43.9	66.3	41.5	18:32	16.4	232.2	41.0
2009:01:05	06:00	-41.1	69.9	37.6	18:35	13.6	235.9	37.1
2009:01:09	06:00	-38.4	73.1	33.6	18:38	10.7	239.4	33.1
2009:01:13	05:59	-35.8	76.1	29.7	18:42	7.7	242.9	29.2
2009:01:17	05:58	-33.2	78.8	25.8	18:46	4.5	246.3	25.2
2009:01:21	05:56	-30.7	81.2	21.8	18:50	1.2	249.7	21.3
2009:01:25	05:54	-28.3	83.6	17.9	18:55	-2.2	253.0	17.4
2009:01:29	05:51	-26.0	85.7	14.0	18:59	-5.7	256.2	13.5
2009:02:02	05:48	-23.7	87.7	10.1	19:03	-9.2	259.4	9.5
2009:02:06	05:44	-21.6	89.6	6.2	19:08	-12.8	262.7	5.6
2009:02:10	05:40	-19.5	91.4	2.3	19:13	-16.4	265.9	1.8
2009:02:14	05:35	-17.6	93.0	1.6	19:17	-20.1	269.2	2.2
2009:02:18	05:30	-15.7	94.6	5.5	19:22	-23.7	272.6	6.1
2009:02:22	05:25	-13.8	96.2	9.4	19:26	-27.4	276.1	9.9
2009:02:26	05:19	-12.1	97.6	13.2	19:31	-31.0	279.7	13.8
2009:03:02	05:13	-10.4	99.1	17.1	19:36	-34.6	283.6	17.7
2009:03:06	05:06	-8.8	100.4	21.0	19:41	-38.1	287.7	21.6
2009:03:10	04:59	-7.2	101.8	24.8	19:45	-41.6	292.2	25.4
2009:03:14	04:52	-5.7	103.1	28.7	19:50	-45.0	297.1	29.3
2009:03:18	04:45	-4.3	104.3	32.5	19:55	-48.2	302.5	33.1
2009:03:22	04:37	-2.8	105.6	36.4	20:00	-51.2	308.5	37.0
2009:03:26	04:30	-1.4	106.8	40.2	20:05	-54.0	315.3	40.8
2009:03:30	04:22	-0.1	108.0	44.0	20:11	-56.5	323.0	44.7
2009:04:03	04:14	1.3	109.3	47.8	20:16	-58.6	331.6	48.5
2009:04:07	04:06	2.6	110.5	51.7	20:22	-60.1	341.2	52.3
2009:04:11	03:58	3.9	111.7	55.5	20:28	-61.0	351.5	56.2
2009:04:15	03:50	5.2	113.0	59.3	20:34	-61.2	2.3	60.0
2009:04:19	03:42	6.5	114.3	63.1	20:40	-60.6	13.0	63.8
2009:04:23	03:35	7.8	115.6	67.0	20:46	-59.3	23.3	67.6
2009:04:27	03:27	9.1	117.0	70.8	20:52	-57.4	32.8	71.5
2009:05:01	03:19	10.4	118.4	74.6	20:59	-54.9	41.4	75.3
2009:05:05	03:12	11.7	119.9	78.4	21:06	-52.0	49.0	79.1
2009:05:09	03:05	13.1	121.4	82.2	21:12	-48.7	55.8	82.9
2009:05:13	02:58	14.4	123.1	86.0	21:19	-45.1	61.8	86.8
2009:05:17	02:51	15.8	124.9	89.9	21:26	-41.4	67.2	90.6
2009:05:21	02:45	17.3	126.8	93.7	21:32	-37.5	72.1	94.4
2009:05:25	02:40	18.8	128.9	97.5	21:38	-33.6	76.5	98.3
2009:05:29	02:35	20.4	131.2	101.4	21:44	-29.7	80.6	102.1
2009:06:02	02:31	22.0	133.7	105.2	21:49	-25.8	84.4	106.0
2009:06:06	02:27	23.6	136.5	109.0	21:54	-22.0	88.0	109.8
2009:06:10	02:25	25.3	139.6	112.9	21:58	-18.3	91.3	113.7
2009:06:14	02:24	26.9	143.1	116.7	22:01	-14.8	94.4	117.5
2009:06:18	02:23	28.6	146.9	120.6	22:03	-11.5	97.4	121.4
2009:06:22	02:24	30.2	151.2	124.5	22:04	-8.4	100.1	125.2
2009:06:26	02:26	31.6	155.9	128.3	22:04	-5.5	102.8	129.1
2009:06:30	02:28	32.8	161.1	132.2	22:03	-2.8	105.2	133.0

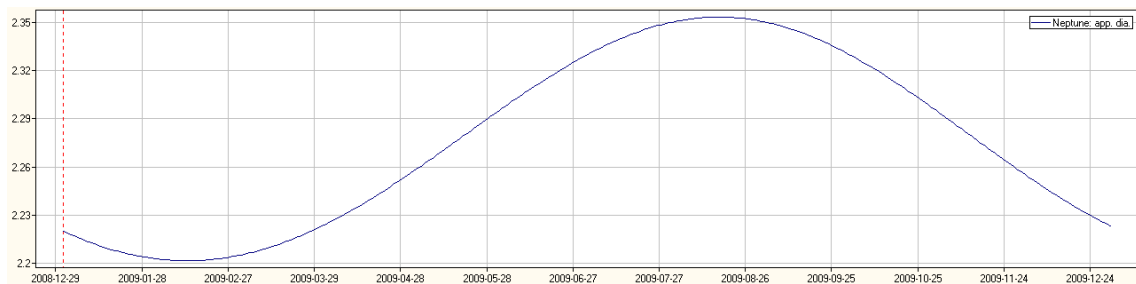
Data	Crepuscolo mattutino				Crepuscolo serale			
	Ora	Alt	Az	Elong	Ora	Alt	Az	Elong
2009:07:01	02:29	33.1	162.4	133.2	22:03	-2.2	105.8	134.0
2009:07:05	02:33	34.0	168.1	137.1	22:00	0.3	108.1	137.8
2009:07:09	02:37	34.6	174.1	140.9	21:57	2.5	110.3	141.7
2009:07:13	02:42	34.8	180.4	144.8	21:53	4.6	112.4	145.6
2009:07:17	02:48	34.5	186.8	148.8	21:48	6.5	114.4	149.5
2009:07:21	02:54	33.7	193.2	152.7	21:43	8.2	116.3	153.4
2009:07:25	03:00	32.5	199.6	156.6	21:37	9.9	118.2	157.3
2009:07:29	03:07	30.9	205.7	160.5	21:30	11.4	120.0	161.3
2009:08:02	03:13	28.8	211.6	164.4	21:24	12.9	121.8	165.2
2009:08:06	03:19	26.4	217.2	168.4	21:16	14.3	123.5	169.1
2009:08:10	03:26	23.7	222.5	172.3	21:09	15.6	125.2	173.0
2009:08:14	03:32	20.7	227.4	176.3	21:01	16.8	126.9	177.0
2009:08:18	03:38	17.5	232.1	179.5	20:53	18.0	128.6	179.0
2009:08:22	03:44	14.1	236.5	175.8	20:45	19.1	130.3	175.1
2009:08:26	03:50	10.6	240.6	171.8	20:37	20.2	132.1	171.1
2009:08:30	03:56	6.9	244.5	167.8	20:29	21.3	133.8	167.2
2009:09:03	04:02	3.2	248.3	163.9	20:21	22.3	135.6	163.2
2009:09:07	04:07	-0.6	251.9	159.9	20:13	23.4	137.5	159.2
2009:09:11	04:12	-4.4	255.4	155.9	20:05	24.3	139.4	155.2
2009:09:15	04:17	-8.3	258.8	151.9	19:57	25.3	141.3	151.3
2009:09:19	04:22	-12.1	262.2	147.9	19:49	26.2	143.3	147.3
2009:09:23	04:27	-16.0	265.6	143.9	19:42	27.1	145.4	143.3
2009:09:27	04:32	-19.9	269.0	139.9	19:34	27.9	147.5	139.3
2009:10:01	04:36	-23.8	272.5	135.9	19:27	28.8	149.7	135.3
2009:10:05	04:41	-27.6	276.0	131.9	19:20	29.6	152.1	131.3
2009:10:09	04:45	-31.4	279.7	127.9	19:13	30.3	154.5	127.3
2009:10:13	04:50	-35.1	283.6	123.9	19:07	31.0	157.0	123.3
2009:10:17	04:54	-38.7	287.8	119.9	19:01	31.7	159.7	119.3
2009:10:21	04:58	-42.3	292.3	115.9	18:55	32.3	162.5	115.3
2009:10:25	05:03	-45.7	297.2	111.8	18:49	32.8	165.4	111.3
2009:10:29	05:07	-49.0	302.6	107.8	18:44	33.2	168.5	107.3
2009:11:02	05:11	-52.0	308.6	103.8	18:40	33.6	171.7	103.3
2009:11:06	05:16	-54.8	315.3	99.8	18:36	33.8	175.1	99.2
2009:11:10	05:20	-57.2	322.8	95.8	18:32	34.0	178.6	95.2
2009:11:14	05:24	-59.3	331.2	91.8	18:29	34.0	182.2	91.2
2009:11:18	05:28	-60.8	340.4	87.8	18:26	33.8	186.0	87.2
2009:11:22	05:33	-61.7	350.1	83.8	18:24	33.5	189.9	83.2
2009:11:26	05:36	-62.0	0.2	79.8	18:22	32.9	194.0	79.2
2009:11:30	05:40	-61.6	10.1	75.8	18:21	32.2	198.0	75.2
2009:12:04	05:44	-60.7	19.5	71.8	18:21	31.3	202.2	71.2
2009:12:08	05:47	-59.3	28.2	67.8	18:21	30.1	206.4	67.3
2009:12:12	05:50	-57.4	36.0	63.8	18:21	28.7	210.5	63.3
2009:12:16	05:53	-55.2	42.9	59.8	18:23	27.1	214.7	59.3
2009:12:20	05:55	-52.8	49.0	55.8	18:24	25.2	218.8	55.3
2009:12:24	05:57	-50.3	54.4	51.9	18:26	23.1	222.8	51.3
2009:12:28	05:59	-47.7	59.1	47.9	18:29	20.8	226.8	47.4



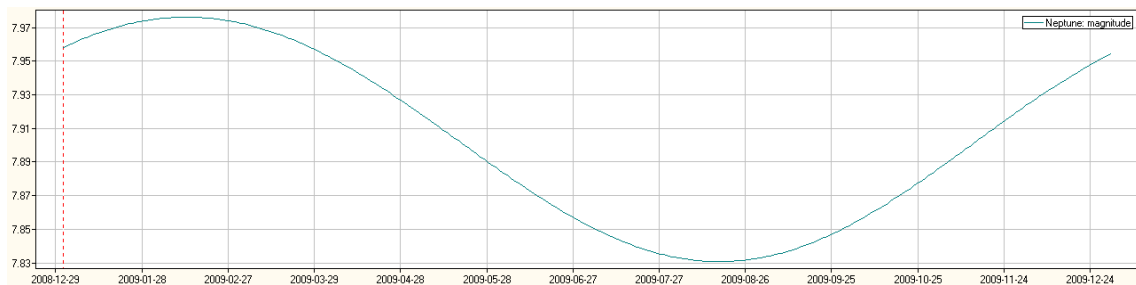
Distanza di Nettuno in U.A. nel corso dell'anno



Elongazione di Nettuno in ° nel corso dell'anno



Diametro di Nettuno in " nel corso dell'anno



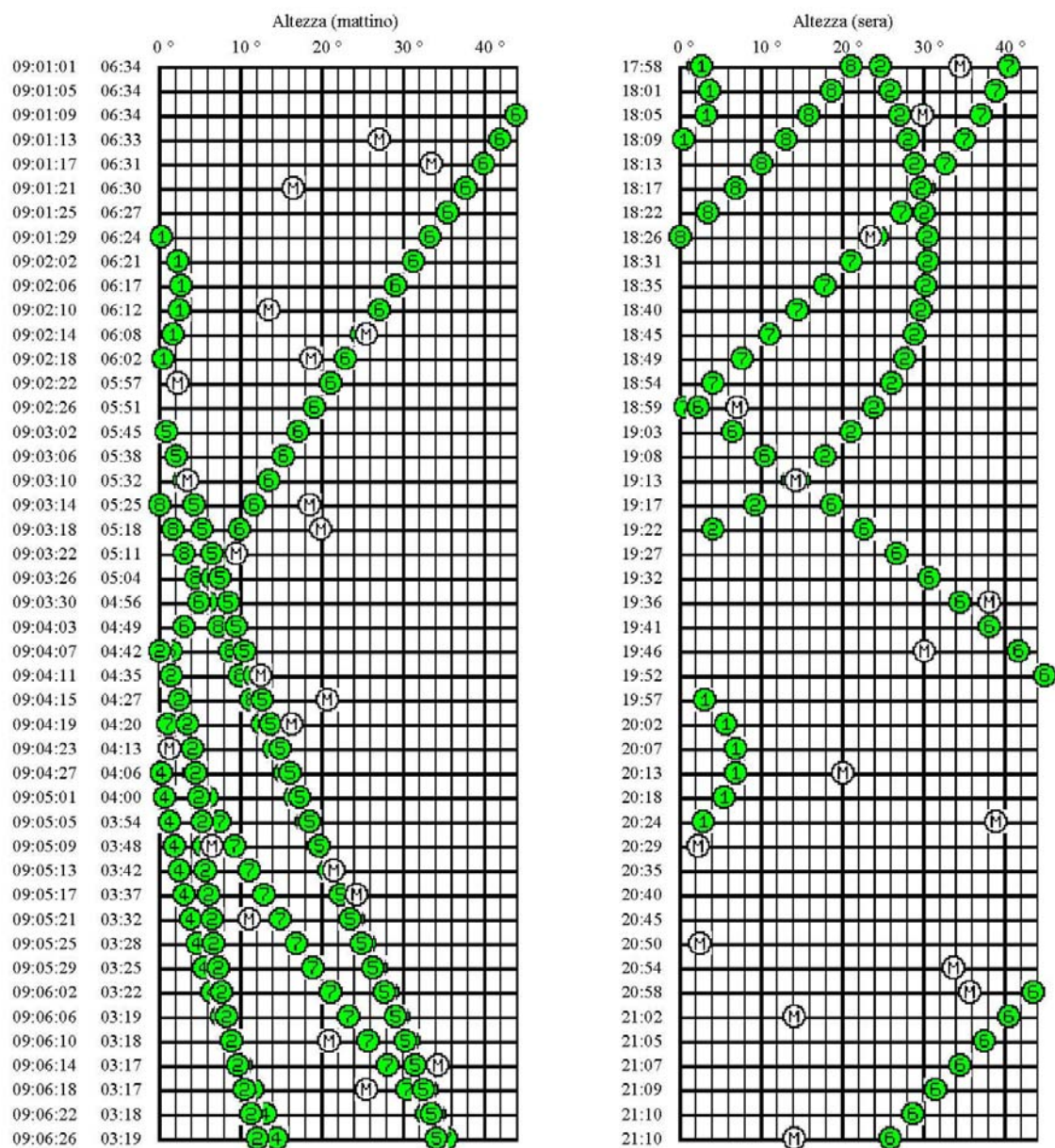
Magnitudine di Nettuno nel corso dell'anno

Altezza ai crepuscoli

di Luna e Pianeti

nel momento il cui il Sole è 12 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)



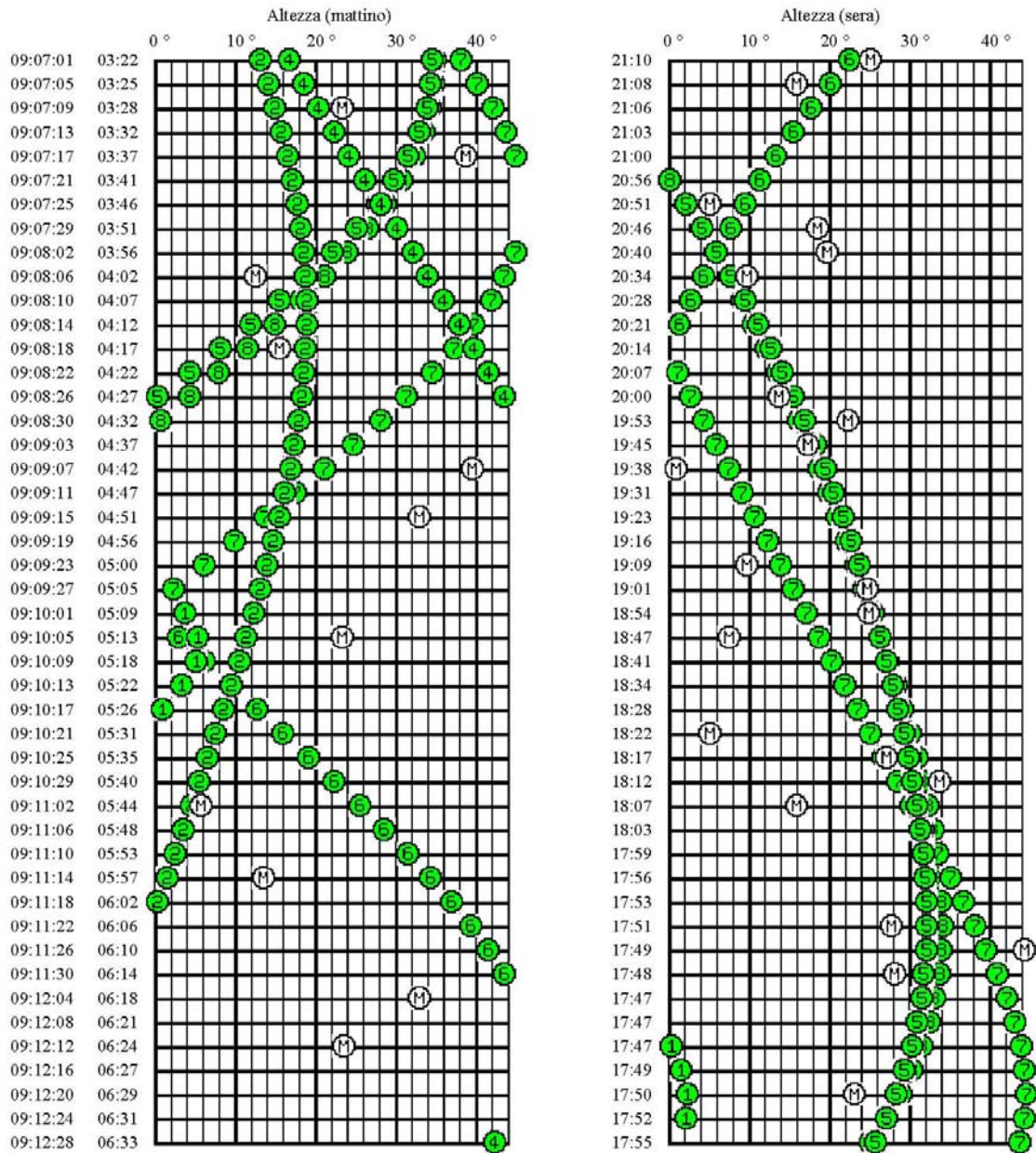
1 = Mercurio, 2 = Venere, 4 = Marte, 5 = Giove, 6 = Saturno, 7 = Urano, 8 = Nettuno, M = Luna

Altezza ai crepuscoli

di Luna e Pianeti

nel momento il cui il Sole è 12 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)



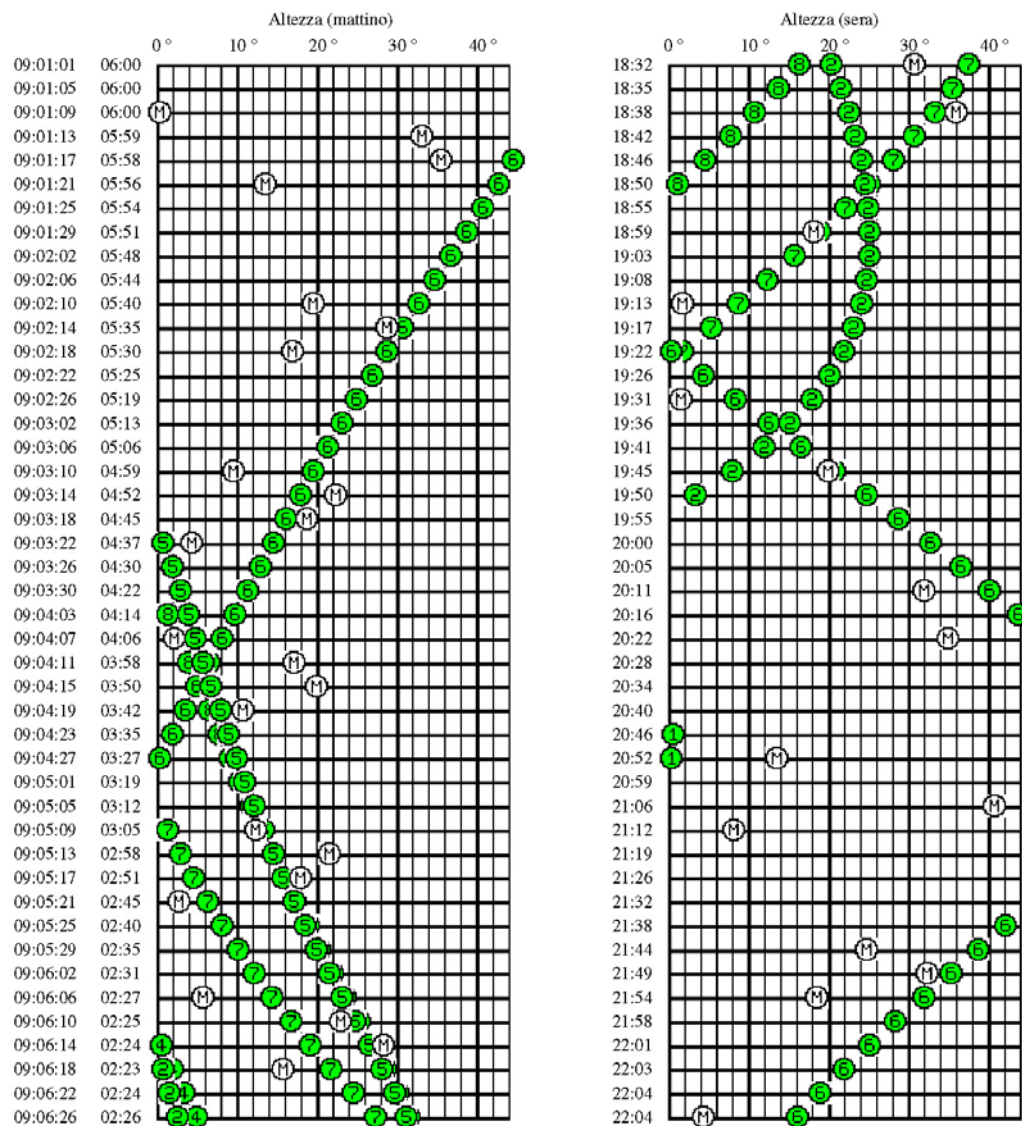
1 = Mercurio, 2 = Venere, 4 = Marte, 5 = Giove, 6 = Saturno, 7 = Urano, 8 = Nettuno, M = Luna

Altezza ai crepuscoli

di Luna e Pianeti

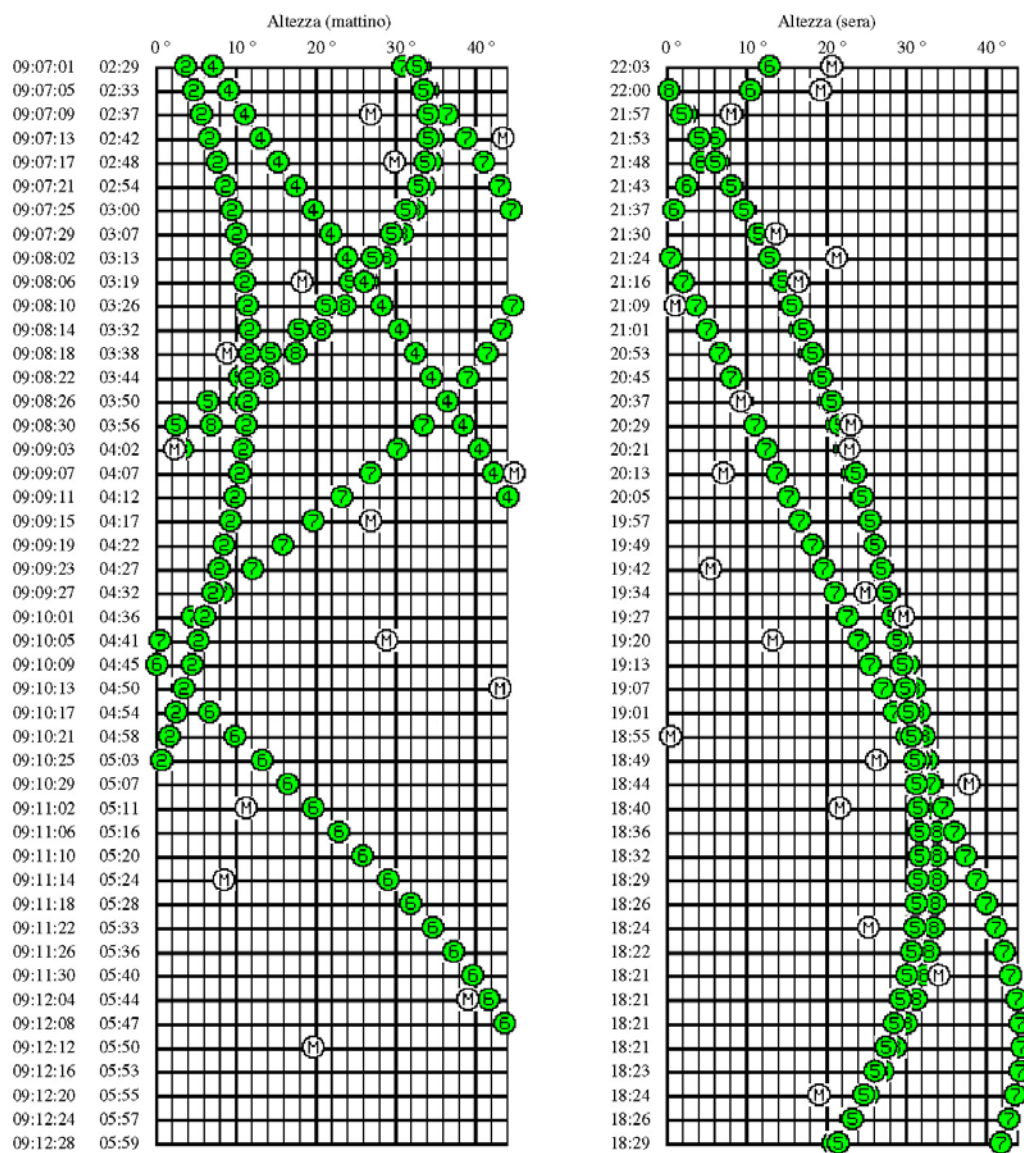
nel momento il cui il Sole è 18 ° sotto l'orizzonte

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)



1 = Mercurio, 2 = Venere, 4 = Marte, 5 = Giove, 6 = Saturno, 7 = Urano, 8 = Nettuno, M = Luna

Postazione: IT:Roma 42:00 N, 12:00 E (UT +01:00)



1 = Mercurio, 2 = Venere, 4 = Marte, 5 = Giove, 6 = Saturno, 7 = Urano, 8 = Nettuno, M = Luna

VISIBILITA' CONTEMPORANEE

6 ALL\ALBA	M	V	M	G	S	U	N	L
2009:07:10	0	1	1	1	0	1	1	1
2009:07:11	0	1	1	1	0	1	1	1
2009:07:12	0	1	1	1	0	1	1	1
2009:07:13	0	1	1	1	0	1	1	1
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2009:07:17	0	1	1	1	0	1	1	1
2009:07:18	0	1	1	1	0	1	1	1
2009:07:19	0	1	1	1	0	1	1	1
2009:08:04	0	1	1	1	0	1	1	1
2009:08:05	0	1	1	1	0	1	1	1
2009:08:06	0	1	1	1	0	1	1	1
2009:08:07	0	1	1	1	0	1	1	1
2009:08:08	0	1	1	1	0	1	1	1
2009:08:09	0	1	1	1	0	1	1	1
2009:08:10	0	1	1	1	0	1	1	1
2009:08:11	0	1	1	1	0	1	1	1
2009:08:12	0	1	1	1	0	1	1	1
2009:08:13	0	1	1	1	0	1	1	1
2009:08:14	0	1	1	1	0	1	1	1
2009:08:15	0	1	1	1	0	1	1	1
2009:08:16	0	1	1	1	0	1	1	1
2009:08:17	0	1	1	1	0	1	1	1
2009:08:18	0	1	1	1	0	1	1	1

S	A L L ' A L B A	M	V	M	G	S	U	N	L
2009:07:05		0	0	1	1	0	1	1	1
2009:07:06		0	0	1	1	0	1	1	1
2009:07:07		0	0	1	1	0	1	1	1
2009:07:08		0	0	1	1	0	1	1	1
2009:07:09		0	0	1	1	0	1	1	1
2009:07:10		0	1	1	1	0	1	1	1
2009:07:11		0	1	1	1	0	1	1	1
2009:07:12		0	1	1	1	0	1	1	1
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2009:07:19		0	1	1	1	0	1	1	1
2009:07:20		0	1	1	1	0	1	1	0
2009:07:21		0	1	1	1	0	1	1	0
2009:07:22		0	1	1	1	0	1	1	0
2009:07:23		0	1	1	1	0	1	1	0
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2009:07:31		0	1	1	1	0	1	1	0
2009:08:01		0	1	1	1	0	1	1	0
2009:08:02		0	1	1	1	0	1	1	0
2009:08:03		0	1	1	1	0	1	1	0
2009:08:04		0	1	1	1	0	1	1	1
2009:08:05		0	1	1	1	0	1	1	1
2009:08:06		0	1	1	1	0	1	1	1
2009:08:07		0	1	1	1	0	1	1	1
2009:08:08		0	1	1	1	0	1	1	1
2009:08:09		0	1	1	1	0	1	1	1
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2009:08:12		0	1	1	1	0	1	1	1
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2009:08:18		0	1	1	1	0	1	1	1
2009:08:19		0	1	1	1	0	1	1	0
2009:08:20		0	1	1	1	0	1	1	0
2009:08:21		0	1	1	1	0	1	1	0
2009:08:22		0	1	1	1	0	1	1	0
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2009:08:24		0	1	1	1	0	1	1	0
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2009:08:31		0	1	1	1	0	1	1	0
2009:09:01		0	1	1	1	0	1	1	0
2009:09:03		0	1	1	0	0	1	1	1
2009:09:04		0	1	1	0	0	1	1	1
2009:09:05		0	1	1	0	0	1	1	1
2009:09:06		0	1	1	0	0	1	1	1

4 AL TRAMONTO	M	V	M	G	S	U	N	L
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2009:01:02	0	1	0	0	0	1	1	1
2009:01:03	0	1	0	0	0	1	1	1
2009:01:04	0	1	0	0	0	1	1	1
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2009:01:06	0	1	0	0	0	1	1	1
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2009:01:08	0	1	0	0	0	1	1	1
2009:01:09	0	1	0	0	0	1	1	1
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2009:01:11	0	1	0	0	0	1	1	1
2009:06:27	0	0	0	1	1	0	1	1
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2009:06:29	0	0	0	1	1	0	1	1
2009:06:30	0	0	0	1	1	0	1	1
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2009:07:02	0	0	0	1	1	0	1	1
2009:07:03	0	0	0	1	1	0	1	1
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2009:07:06	0	0	0	1	1	0	1	1
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2009:07:31	0	0	0	1	0	1	1	1
2009:08:01	0	0	0	1	0	1	1	1
2009:08:02	0	0	0	1	0	1	1	1
2009:08:03	0	0	0	1	0	1	1	1
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2009:10:06	0	0	0	1	0	1	1	1
2009:10:07	0	0	0	1	0	1	1	1
2009:10:22	0	0	0	1	0	1	1	1
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2009:10:25	0	0	0	1	0	1	1	1
2009:10:26	0	0	0	1	0	1	1	1
2009:10:27	0	0	0	1	0	1	1	1
2009:10:28	0	0	0	1	0	1	1	1

4 AL TRAMONTO M V M G S U N L

2009:10:29	0	0	0	1	0	1	1	1
2009:10:30	0	0	0	1	0	1	1	1
2009:10:31	0	0	0	1	0	1	1	1
2009:11:01	0	0	0	1	0	1	1	1
2009:11:02	0	0	0	1	0	1	1	1
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2009:11:04	0	0	0	1	0	1	1	1
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2009:11:26	0	0	0	1	0	1	1	1
2009:11:27	0	0	0	1	0	1	1	1
2009:11:28	0	0	0	1	0	1	1	1
2009:11:29	0	0	0	1	0	1	1	1
2009:11:30	0	0	0	1	0	1	1	1
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2009:12:02	0	0	0	1	0	1	1	1
2009:12:03	0	0	0	1	0	1	1	1
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2009:12:25	0	0	0	1	0	1	1	1
2009:12:26	0	0	0	1	0	1	1	1
2009:12:27	0	0	0	1	0	1	1	1
2009:12:28	0	0	0	1	0	1	1	1
2009:12:29	0	0	0	1	0	1	1	1
2009:12:30	0	0	0	1	0	1	1	1
2009:12:31	0	0	0	1	0	1	1	1

M = Mercurio
V = Venere
M = Marte
G = Giove
S = Saturno
U = Urano
N = Nettuno
L = Luna

Nei giorni indicati con il valore "1" saranno visibili all'alba o al tramonto più pianeti contemporaneamente

CONGIUNZIONI GEOCENTRICHE <5° TRA PIANETI

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/01/18	09:36:05	3.25113	0.00895	0.680	6.088	177	6	2.2	-1.8		64.5	Mercurio	Giove
2009/01/22	21:04:37	1.21273	0.00792	0.626	20.755	150	47	-4.5	5.9		126.5	Venere	Urano
2009/01/27	10:19:43	4.31688	0.00435	0.697	2.364	167	-15	0.7	1.2		41.4	Mercurio	Marte
2009/02/17	16:19:03	0.56025	0.00565	2.305	6.022	345	-19	1.1	-1.9		217.6	Marte	Giove
2009/02/24	05:31:42	0.61420	0.00704	1.131	5.983	350	-24	0.1	-1.9		106.5	Mercurio	Giove
2009/03/02	00:41:02	0.59269	0.00231	1.200	2.270	348	-22	-0.1	1.1		174.0	Mercurio	Marte
2009/03/05	08:36:54	1.57264	0.00293	1.235	30.962	343	-20	-0.2	8.0		76.4	Mercurio	Nettuno
2009/03/08	12:45:18	0.76182	0.00186	2.251	30.943	341	-23	1.1	8.0		158.8	Marte	Nettuno
2009/03/22	05:37:39	1.26863	0.00281	1.348	21.084	335	-9	-1.1	5.9		64.3	Mercurio	Urano
2009/04/15	10:03:06	0.43322	0.00206	2.139	20.952	337	-31	1.0	5.9		164.5	Marte	Urano
2009/04/24	16:06:21	4.13117	0.01189	0.383	2.112	135	-35	-4.5	1.0		120.2	Venere	Marte
2009/05/27	09:26:58	0.38983	0.00629	4.794	29.845	344	-100	-2.3	7.9		2054.8	Giove	Nettuno
2009/06/21	05:20:45	1.97355	0.00518	0.824	1.929	346	-45	-4.1	1.0		352.8	Venere	Marte
2009/07/09	16:53:36	0.56194	0.00713	4.216	29.228	336	-142	-2.6	7.8		2157.6	Giove	Nettuno
2009/08/17	06:16:54	2.93828	0.00520	1.029	10.327	31	26	0.3	0.6		85.7	Mercurio	Saturno
2009/09/23	15:05:27	4.21807	0.00689	0.676	10.444	42	-7	2.2	0.7		61.4	Mercurio	Saturno
2009/10/08	07:11:41	0.30237	0.00520	1.025	10.397	18	-18	-0.6	0.7		107.0	Mercurio	Saturno
2009/10/13	10:58:54	0.51442	0.00501	1.537	10.368	23	-22	-3.9	0.7		106.6	Venere	Saturno
2009/12/21	09:24:04	0.52664	0.00550	5.510	30.581	340	55	-2.1	7.9		741.9	Giove	Nettuno

OCCULTAZIONI TRA PIANETI

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/11/05	09:28:10	0.20244	0.27026	0.991	1.438	28	-0		-1.0	49194	191.2	Sole	Mercurio

NB : quest'anno non avvengono vere e proprie occultazioni tra pianeti; si riporta pertanto questa singolare occultazione pianeta-Sole

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei pianeti

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i pianeti

R1 = distanza in U.A. del corpo 1 dalla Terra

R2 = distanza in U.A. del corpo 2 dalla Terra

P = angolo di posizione tra i pianeti, in gradi

e = elongazione, in gradi

m1 = magnitudine del primo pianeta

m2 = magnitudine del secondo pianeta

tm = se presente, uno dei pianeti viene occultato massimo per x secondi

tw = semiperiodo in ore in cui i due pianeti distano meno di 5° tra loro

CONGIUNZIONI MULTIPLE PLANETARIE

(eventi con 3 o più pianeti entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/02/24 06:07:51		3.008	3.664	-24	0.1	1.1	Mercurio	Marte	Giove
2009/03/05 08:37:52		2.209	2.486	-23	1.1	8.0	Mercurio	Marte	Nettuno

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri dei pianeti, in gradi

Dmax = diametro del cerchio comprendente i pianeti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo pianeta più debole

mmax = magnitudine del pianeta più debole

© (6)

Curiosità : non vi saranno simili trii Mercurio-Marte-Giove per almeno 40 anni

Per le congiunzioni multiple stellari o lunari consultare più avanti

CONGIUNZIONI MULTIPLE MISTE

CERCHI MINIMI TOPOCENTRICI TRA PIANETI

42°N - 12°E

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT	ALT	AZ
21 feb 2009	16:00	MERCURIO	MARTE	GIOVE	5.0	2.8	2.2	5.0	22	0.0	1.2	-2.0	-2.2	-12	257
21 feb 2009	20:00	MERCURIO	MARTE	GIOVE	4.9	2.6	2.3	4.9	22	0.0	1.2	-2.0	-2.2	-55	306
22 feb 2009	00:00	MERCURIO	MARTE	GIOVE	4.8	2.5	2.4	4.9	22	0.0	1.2	-2.0	-2.2	-55	60
22 feb 2009	04:00	MERCURIO	MARTE	GIOVE	4.7	2.3	2.5	4.8	22	0.0	1.2	-2.0	-2.2	-12	105
22 feb 2009	08:00	MERCURIO	MARTE	GIOVE	4.6	2.1	2.6	4.7	23	0.0	1.2	-2.0	-2.2	24	151
22 feb 2009	12:00	MERCURIO	MARTE	GIOVE	4.6	1.9	2.7	4.6	23	0.0	1.2	-2.0	-2.2	24	213
22 feb 2009	16:00	MERCURIO	MARTE	GIOVE	4.5	1.8	2.8	4.5	23	0.0	1.2	-2.0	-2.2	-12	257
22 feb 2009	20:00	MERCURIO	MARTE	GIOVE	4.4	1.6	2.8	4.4	23	-0.1	1.2	-2.0	-2.2	-55	306
23 feb 2009	00:00	MERCURIO	MARTE	GIOVE	4.3	1.4	2.9	4.3	23	-0.1	1.2	-2.0	-2.2	-55	59
23 feb 2009	04:00	MERCURIO	MARTE	GIOVE	4.2	1.3	3.0	4.2	23	-0.1	1.2	-2.0	-2.2	-12	105
23 feb 2009	08:00	MERCURIO	MARTE	GIOVE	4.1	1.1	3.1	4.2	23	-0.1	1.2	-2.0	-2.2	24	151
23 feb 2009	12:00	MERCURIO	MARTE	GIOVE	4.0	1.0	3.2	4.1	23	-0.1	1.2	-2.0	-2.2	24	213
23 feb 2009	16:00	MERCURIO	MARTE	GIOVE	3.9	0.8	3.3	4.0	23	-0.1	1.2	-2.0	-2.2	-12	257
23 feb 2009	20:00	MERCURIO	MARTE	GIOVE	3.8	0.7	3.4	3.9	23	-0.1	1.2	-2.0	-2.2	-55	306
24 feb 2009	00:00	MERCURIO	MARTE	GIOVE	3.7	0.6	3.5	3.8	23	-0.1	1.2	-2.0	-2.2	-54	58
24 feb 2009	04:00	MERCURIO	MARTE	GIOVE	3.7	0.6	3.6	3.7	23	-0.1	1.2	-2.0	-2.2	-11	105
24 feb 2009	08:00	MERCURIO	MARTE	GIOVE	3.6	0.6	3.7	3.7	23	-0.1	1.2	-2.0	-2.2	24	150
24 feb 2009	12:00	MERCURIO	MARTE	GIOVE	3.5	0.6	3.8	3.8	23	-0.1	1.2	-2.0	-2.2	24	212
24 feb 2009	16:00	MERCURIO	MARTE	GIOVE	3.4	0.7	3.8	3.9	23	-0.1	1.2	-2.0	-2.2	-12	257
24 feb 2009	20:00	MERCURIO	MARTE	GIOVE	3.3	0.9	3.9	4.0	23	-0.1	1.2	-2.0	-2.2	-55	305
25 feb 2009	00:00	MERCURIO	MARTE	GIOVE	3.2	1.0	4.0	4.1	23	-0.1	1.2	-2.0	-2.2	-54	58
25 feb 2009	04:00	MERCURIO	MARTE	GIOVE	3.1	1.2	4.1	4.2	23	-0.1	1.2	-2.0	-2.2	-11	104
25 feb 2009	08:00	MERCURIO	MARTE	GIOVE	3.0	1.3	4.2	4.3	23	-0.1	1.2	-2.0	-2.2	25	150
25 feb 2009	12:00	MERCURIO	MARTE	GIOVE	2.9	1.5	4.3	4.3	23	-0.1	1.2	-2.0	-2.2	24	212
25 feb 2009	16:00	MERCURIO	MARTE	GIOVE	2.8	1.7	4.4	4.4	23	-0.1	1.2	-2.0	-2.2	-12	257
25 feb 2009	20:00	MERCURIO	MARTE	GIOVE	2.7	1.9	4.5	4.5	23	-0.1	1.2	-2.0	-2.2	-55	305
26 feb 2009	00:00	MERCURIO	MARTE	GIOVE	2.6	2.1	4.6	4.6	23	-0.1	1.2	-2.0	-2.2	-54	57
26 feb 2009	04:00	MERCURIO	MARTE	GIOVE	2.5	2.2	4.7	4.7	23	-0.1	1.2	-2.0	-2.2	-11	104
26 feb 2009	08:00	MERCURIO	MARTE	GIOVE	2.4	2.4	4.8	4.8	23	-0.1	1.2	-2.0	-2.2	25	149
26 feb 2009	12:00	MERCURIO	MARTE	GIOVE	2.3	2.6	4.9	4.9	23	-0.1	1.2	-2.0	-2.2	24	212
26 feb 2009	16:00	MERCURIO	MARTE	GIOVE	2.2	2.8	4.9	5.0	24	-0.1	1.2	-2.0	-2.2	-12	257
02 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	0.6	4.9	4.8	4.9	20	-0.1	1.2	8.0	-0.4	-12	101
02 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	0.6	4.6	4.6	4.7	20	-0.1	1.2	8.0	-0.4	26	147
02 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	0.6	4.4	4.5	4.6	20	-0.1	1.2	8.0	-0.4	27	211
02 mar 2009	16:00	MERCURIO	MARTE	NETTUNO	0.7	4.2	4.4	4.4	20	-0.1	1.2	8.0	-0.4	-9	257
02 mar 2009	20:00	MERCURIO	MARTE	NETTUNO	0.8	4.0	4.3	4.3	20	-0.2	1.2	8.0	-0.5	-52	304
03 mar 2009	00:00	MERCURIO	MARTE	NETTUNO	0.8	3.7	4.1	4.2	20	-0.2	1.2	8.0	-0.5	-54	52
03 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	0.9	3.5	4.0	4.1	21	-0.2	1.2	8.0	-0.5	-11	101
03 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	1.0	3.3	3.9	4.0	21	-0.2	1.2	8.0	-0.5	26	146
03 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	1.1	3.1	3.8	3.8	21	-0.2	1.2	8.0	-0.5	27	210
03 mar 2009	16:00	MERCURIO	MARTE	NETTUNO	1.2	2.9	3.7	3.7	21	-0.2	1.2	8.0	-0.5	-9	257
03 mar 2009	20:00	MERCURIO	MARTE	NETTUNO	1.3	2.7	3.5	3.6	21	-0.2	1.2	8.0	-0.5	-52	304
04 mar 2009	00:00	MERCURIO	MARTE	NETTUNO	1.5	2.5	3.4	3.5	21	-0.2	1.2	8.0	-0.5	-54	51
04 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	1.6	2.3	3.3	3.3	21	-0.2	1.2	8.0	-0.5	-11	100
04 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	1.7	2.1	3.2	3.2	21	-0.2	1.2	8.0	-0.5	26	145
04 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	1.8	2.0	3.1	3.1	21	-0.2	1.2	8.0	-0.5	27	210
04 mar 2009	16:00	MERCURIO	MARTE	NETTUNO	1.9	1.8	2.9	3.0	21	-0.2	1.2	8.0	-0.5	-9	257
04 mar 2009	20:00	MERCURIO	MARTE	NETTUNO	2.0	1.7	2.8	2.9	21	-0.2	1.2	8.0	-0.5	-52	304
05 mar 2009	00:00	MERCURIO	MARTE	NETTUNO	2.1	1.6	2.7	2.7	21	-0.2	1.2	8.0	-0.5	-53	50
05 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	2.3	1.5	2.6	2.6	21	-0.2	1.2	8.0	-0.5	-11	99
05 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	2.4	1.5	2.5	2.6	21	-0.2	1.2	8.0	-0.5	26	145
05 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	2.5	1.5	2.3	2.6	21	-0.2	1.2	8.0	-0.5	28	210
05 mar 2009	16:00	MERCURIO	MARTE	NETTUNO	2.6	1.6	2.2	2.7	21	-0.2	1.2	8.0	-0.5	-9	257
05 mar 2009	20:00	MERCURIO	MARTE	NETTUNO	2.7	1.7	2.1	2.8	21	-0.2	1.2	8.0	-0.5	-51	304
06 mar 2009	00:00	MERCURIO	MARTE	NETTUNO	2.9	1.8	2.0	2.9	21	-0.2	1.2	8.0	-0.5	-53	49
06 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	3.0	1.9	1.9	3.0	21	-0.2	1.2	8.0	-0.5	-10	99
06 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	3.1	2.1	1.8	3.2	21	-0.2	1.2	8.0	-0.5	27	144
06 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	3.2	2.3	1.6	3.3	21	-0.2	1.2	8.0	-0.5	28	209
06 mar 2009	16:00	MERCURIO	MARTE	NETTUNO	3.4	2.5	1.5	3.4	21	-0.3	1.2	8.0	-0.5	-9	257
06 mar 2009	20:00	MERCURIO	MARTE	NETTUNO	3.5	2.7	1.4	3.5	21	-0.3	1.2	8.0	-0.5	-51	303
07 mar 2009	00:00	MERCURIO	MARTE	NETTUNO	3.6	2.9	1.3	3.7	21	-0.3	1.2	8.0	-0.5	-53	47
07 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	3.7	3.1	1.2	3.8	21	-0.3	1.2	8.0	-0.5	-10	98
07 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	3.9	3.3	1.1	3.9	21	-0.3	1.2	8.0	-0.5	27	143
07 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	4.0	3.5	1.0	4.1	22	-0.3	1.2	8.0	-0.5	28	209
07 mar 2009	16:00	MERCURIO	MARTE	NETTUNO	4.1	3.8	0.9	4.2	22	-0.3	1.2	8.0	-0.5	-9	257
07 mar 2009	20:00	MERCURIO	MARTE	NETTUNO	4.3	4.0	0.9	4.3	22	-0.3	1.2	8.0	-0.5	-51	303
08 mar 2009	00:00	MERCURIO	MARTE	NETTUNO	4.4	4.2	0.8	4.4	22	-0.3	1.2	8.0	-0.5	-52	46
08 mar 2009	04:00	MERCURIO	MARTE	NETTUNO	4.5	4.5	0.8	4.6	22	-0.3	1.2	8.0	-0.5	-10	97
08 mar 2009	08:00	MERCURIO	MARTE	NETTUNO	4.7	4.7	0.7	4.8	22	-0.3	1.2	8.0	-0.5	27	142
08 mar 2009	12:00	MERCURIO	MARTE	NETTUNO	4.8	5.0	0.7	5.0	22	-0.3	1.2	8.0	-0.5	28	209

Dxy = distanza tra il corpo x e quello y, in gradi
 CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
 EL = elongazione dal Sole, in gradi
 MAGx = magnitudine del corpo x
 MAGT = magnitudine totale del gruppo
 ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
 AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

3 PIANETI IN LINEA RETTA

DATA	ORA	CORPI	C
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Quest'anno non avvengono fenomeni

GEOMETRIE SPAZIALI PLANETARIE TRIANGOLI EQUILATERI

DATA	ORA	CORPI	D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT
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Quest'anno non avvengono fenomeni

GEOMETRIE SPAZIALI PLANETARIE – QUADRATI

DATA	ORA	CORPI	D12	D13	D14	D23	D24	D34	DQM	MAX	EL.	MAG1	MAG2	MAG3	MAG4	MAGT
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Quest'anno non avvengono fenomeni

Dxy = distanza tra il corpo x e quello y, in gradi
DQM = distanza media tra i 4 corpi, in gradi
MAX = distanza massima tra i 4 corpi, in gradi
CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
EL = elongazione dal Sole, in gradi
MAGx = magnitudine del corpo x
MAGT = magnitudine totale del gruppo
ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

Si è considerato equilatero ogni triangolo in cui ogni cateto differisce dall'altro per massimo $\pm 10\%$.
Si è considerato quadrato ogni quadrilatero in cui ogni lato differisce dall'altro per massimo $\pm 10\%$ e con diagonali diverse meno del 15%.

NB : queste tabelle sono state create esclusivamente ai fini di "foto d'effetto", con tre o quattro corpi celesti praticamente equidistanti!

CONGIUNZIONI GEOCENTRICHE <0,2°

PIANETI-STELLE m<6

Data	TT	Dm (°)	Dl	Ar (°)	Dec	r1	p (°)	e	m1	m*	tm(s)	tw(h)			
2009/01/06	17:59:57	0.07262	0.00155	278.611	-23.954	2.42	3	-9	1.2	5.7		15.7	Marte		SGR
2009/01/14	15:00:37	0.01675	0.00693	343.283	-7.545	0.69	208	47	-4.4	3.8		11.7	Venere	Lambda	AQR
2009/01/21	02:58:05	0.15271	0.00036	325.565	-14.151	30.94	199	22	8.0	5.2		319.2	Nettuno		CAP
2009/01/27	19:55:59	0.07237	0.00481	294.375	-18.143	0.70	19	-15	0.7	5.8		18.5	Mercurio		
2009/02/09	03:31:54	0.17133	0.00374	296.715	-19.910	0.90	176	-26	0.2	5.0		14.6	Mercurio		SGR
2009/02/22	13:36:29	0.00873	0.00487	313.830	-17.879	5.99	15	-23	-1.9	5.9		52.7	Giove		CAP
2009/03/06	18:09:04	0.05801	0.00166	326.152	-14.762	2.26	199	-23	1.1	6.0		15.2	Marte		CAP
2009/03/06	20:53:02	0.06953	0.00494	316.599	-17.129	5.90	16	-32	-1.9	4.2		54.5	Giove	Theta	CAP
2009/03/08	01:29:19	0.00155	0.00268	331.737	-13.823	1.26	19	-19	-0.3	4.3	66.0	7.6	Mercurio	Iota	AQR
2009/03/09	18:29:35	0.14418	0.00265	334.377	-12.920	1.28	200	-18	-0.4	5.5		7.1	Mercurio		AQR
2009/03/22	04:22:05	0.06853	0.00169	337.762	-10.566	2.21	21	-26	1.0	4.8		15.2	Marte	Sigma	AQR
2009/04/01	23:57:05	0.01643	0.01665	0.756	8.526	0.29	219	-11	-2.6	5.7	2388.7	20.4	Venere		PSC
2009/04/04	17:52:36	0.17520	0.00258	18.638	7.470	1.31	207	5	-1.8	5.2		5.4	Mercurio	Zeta1	PSC
2009/04/06	04:57:55	0.11916	0.00173	348.751	-6.107	2.17	203	-29	1.0	4.4		14.9	Marte	Phi	AQR
2009/04/17	18:15:29	0.17436	0.00175	357.039	-2.549	2.13	24	-32	1.0	5.6		14.5	Marte		PSC
2009/04/17	20:39:04	0.02943	0.00317	42.280	18.297	1.06	202	17	-0.6	6.0		7.3	Mercurio		ARI
2009/04/21	01:08:29	0.05600	0.01319	358.080	2.939	0.36	143	-32	-4.5	5.8		47.4	Venere		PSC
2009/04/23	14:49:36	0.01418	0.00367	50.450	21.169	0.92	198	20	-0.1	5.3		10.0	Mercurio	Tau1	ARI
2009/04/26	17:04:30	0.00590	0.00553	325.902	-14.362	5.27	198	-73	-2.1	5.9		86.1	Giove		CAP
2009/05/06	22:22:26	0.14926	0.00520	59.207	22.456	0.65	110	15	1.2	5.7		65.4	Mercurio		TAU
2009/05/20	09:13:44	0.06686	0.00595	328.476	-13.570	4.90	197	-94	-2.3	5.1		149.5	Giove	Mu	CAP
2009/05/24	05:53:53	0.06849	0.00794	17.237	5.636	0.60	197	-45	-4.4	5.7		13.9	Venere		PSC
2009/06/17	06:37:38	0.01485	0.00601	39.287	12.505	0.79	17	-45	-4.2	5.7		11.7	Venere		ARI
2009/06/21	07:54:37	0.13353	0.00345	67.258	19.331	0.98	16	-22	-0.0	3.7		8.2	Mercurio	Epsilon	TAU
2009/06/27	09:58:05	0.09705	0.00305	77.148	21.623	1.11	192	-18	-0.5	5.9		6.8	Mercurio		TAU
2009/06/28	22:06:38	0.02560	0.00297	79.961	22.132	1.14	10	-17	-0.7	5.1		6.6	Mercurio		TAU
2009/07/13	03:42:53	0.13267	0.00479	67.272	19.333	0.99	11	-42	-4.0	3.7		10.4	Venere	Epsilon	TAU
2009/07/21	20:28:27	0.14624	0.00207	65.033	21.023	1.81	191	-52	1.0	5.5		16.6	Marte		TAU
2009/07/23	04:08:40	0.18784	0.00207	65.994	21.190	1.80	10	-53	1.0	6.0		16.1	Marte		
2009/08/03	23:57:21	0.00486	0.00721	326.137	-14.700	4.05	21	-168	-2.8	6.0	6723	95.8	Giove		CAP
2009/08/11	11:44:59	0.06300	0.00396	103.039	21.813	1.20	358	-37	-3.9	5.3		10.2	Venere		GEM
2009/08/12	06:05:47	0.05066	0.00308	165.340	6.093	1.10	331	24	0.1	5.0		8.5	Mercurio		LEO
2009/09/03	02:05:20	0.06252	0.00355	131.328	18.179	1.34	347	-32	-3.8	4.1		9.9	Venere	Delta	CNC
2009/09/28	06:50:49	0.12232	0.00446	172.234	2.824	0.76	281	-14	0.5	5.1		30.3	Mercurio	Tau	LEO
2009/10/02	12:27:57	0.05039	0.00319	166.365	7.235	1.49	158	-25	-3.9	4.7		9.7	Venere	Chi	LEO
2009/10/18	22:48:48	0.17137	0.00306	185.173	-0.565	1.56	337	-21	-3.9	3.9		9.1	Venere	Eta	VIR
2009/10/21	13:24:30	0.05573	0.00257	197.595	-5.644	1.31	155	-10	-1.1	4.4		7.0	Mercurio	Theta	VIR
2009/10/22	01:35:32	0.06593	0.00297	125.247	20.781	1.26	350	-86	0.5	5.9		24.8	Marte		
2009/10/28	06:35:59	0.16156	0.00308	128.291	20.248	1.21	169	-89	0.4	5.5		25.1	Marte	Eta	CNC
2009/11/01	16:39:55	0.12317	0.00237	214.964	-13.304	1.42	337	-2	-1.0	4.5		7.1	Mercurio	Lambda	VIR
2009/11/13	07:14:57	0.15377	0.00234	233.250	-19.852	1.44	162	5	-0.8	5.5		7.2	Mercurio		
2009/11/23	02:07:57	0.15969	0.00287	226.750	-16.449	1.66	163	-12	-3.9	5.4		9.1	Venere	Nu	LIB
2009/12/09	16:27:05	0.01714	0.00282	248.190	-21.473	1.69	350	-8	-3.9	4.5		9.5	Venere	Omega	OPH
2009/12/10	05:01:00	0.18665	0.00284	277.164	-25.602	1.19	184	18	-0.5	2.9		7.9	Mercurio	Lambda	SGR
2009/12/16	03:36:34	0.16619	0.00317	285.738	-24.669	1.06	11	20	-0.4	5.8		9.4	Mercurio		
2009/12/16	17:35:17	0.11039	0.00535	326.105	-14.599	5.45	20	59	-2.1	6.0		66.0	Giove		CAP
2009/12/25	20:08:25	0.18166	0.00279	270.112	-23.636	1.70	358	-4	-3.9	4.7		8.9	Venere		SGR
2009/12/28	00:06:55	0.00850	0.00279	273.088	-23.691	1.71	359	-4	-3.9	5.1		9.5	Venere		SGR

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri degli oggetti

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

A.R. e DEC. = coordinate apparenti geocentriche

R1 = distanza in U.A. del pianeta

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del pianeta

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano meno di 0.2° tra loro

CONGIUNZIONI GEOCENTRICHE <5° PIANETI-STELLE m<2

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m*	tm(s)			
2009/06/22 00:00:26		3.17526	0.00340	0.993	165	-21	-0.1	1.2		Mercurio	Alpha	TAU Aldebaran
2009/07/14 06:20:34		3.07112	0.00475	1.002	170	-42	-4.0	1.2		Venere	Alpha	TAU Aldebaran
2009/08/02 23:08:11		0.59251	0.00278	1.212	204	19	-0.3	1.3		Mercurio	Alpha	LEO Regulus
2009/09/20 12:33:47		0.45197	0.00332	1.435	199	-28	-3.9	1.3		Venere	Alpha	LEO Regulus
2009/10/24 23:07:08		3.46646	0.00249	1.357	205	-8	-1.1	1.1		Mercurio	Alpha	VIR Spica
2009/11/03 05:31:58		3.53272	0.00296	1.608	202	-17	-3.9	1.1		Venere	Alpha	VIR Spica
2009/11/22 12:34:57		3.00361	0.00240	1.404	192	10	-0.7	1.0		Mercurio	Alpha	SCO Antares

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

R1 = distanza in U.A. del pianeta dalla Terra

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del pianeta

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

CONGIUNZIONI MULTIPLE PIANETI-STELLE (eventi con 2 o più pianeti ed una stella di mag<2 entro 5°)

Data	TDT	Dmed (°)	Dmax	emin	mmax
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Questo anno non avvengono fenomeni

CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI PIANETI-STELLE (eventi con 2 o più pianeti ed una stella di mag<2 entro 5°)

Questo anno non avvengono fenomeni

OCCULTAZIONI GEOCENTRICHE

PIANETI-STELLE m<9

Data	U.T.	Diametro	Durn	StellaMag	Elon	%	Stella	Pianeta	R.A. (J2000)	Dec.
a m g	h m	km "	m/sec	mag drop	o	Ill	No.		h m s	o ' "
2009 Gen 07	5 16.2	5268 1.20	106s	9.0 0.04	13		HIP 99385	Ganymede (III)	20 10 19.282	-20 29 39.75
2009 Gen 07	6 16.2	3130 0.71	74.9s	9.0 0.07	13		HIP 99385	Europa (II)	20 10 19.282	-20 29 39.75
2009 Gen 07	10 37.1142793	32.46	55.7m	9.0 0.00	13	100	HIP 99385	Giove	20 10 19.282	-20 29 39.75
2009 Gen 17	19 54.2142793	32.34	54.8m	9.0 0.00	5	100	TYC 6336 00305	Giove	20 20 28.054	-19 57 57.38
2009 Gen 19	10 41.9	4878 10.02	191s	8.9 0.02	4	1	HIP 99800	Mercurio	20 14 53.476	-16 45 2.96
2009 Feb 03	9 35.7	6794 3.99	124s	7.3 0.00	16	99	HIP 98896	Marte	20 4 58.078	-21 18 51.09
2009 Feb 03	9 36.7	12 0.01	0.2s	7.3 8.2	16		HIP 98896	Deimos (II)	20 4 58.078	-21 18 51.09
2009 Feb 25	11 7.3	3130 0.72	59.4s	8.9 0.07	25		TYC 6349 00557	Europa (II)	20 57 32.016	-17 43 57.62
2009 Feb 25	13 18.3	5268 1.22	102s	8.9 0.04	25		TYC 6349 00557	Ganymede (III)	20 57 32.016	-17 43 57.62
2009 Feb 25	13 26.2142793	32.96	58.4m	8.9 0.00	25	100	TYC 6349 00557	Giove	20 57 32.016	-17 43 57.62
2009 Mar 08	1 28.3	4878 5.33	81.0s	4.3 0.02	19	85	HIP 109139	Mercurio	22 6 26.255	-13 52 11.37
2009 Mar 12	12 17.8	12244 53.93	81.1m	7.8 0.00	24	9	HIP 3262	Venere	0 41 31.658	12 57 32.39
2009 Apr 01	23 56.0	12244 59.03	40.1m	5.8 0.00	11	2	HIP 194	Venere	0 2 29.644	8 29 7.23
2009 Apr 03	6 14.3	12244 58.62	41.4m	7.7 0.00	13	2	HIP 21	Venere	0 0 15.972	8 0 26.04
2009 Apr 04	20 43.6	12244 57.81	43.7m	8.5 0.00	15	3	TYC 593 01574	Venere	23 57 39.096	7 24 44.40
2009 Apr 07	3 54.7	12244 56.65	48.3m	8.7 0.00	17	4	TYC 593 00246	Venere	23 54 28.510	6 34 26.02
2009 Mag 09	1 9.0	12244 35.02	21.8m	7.8 0.00	42	32	HIP 1869	Venere	0 23 38.535	2 44 34.81
2009 Mag 16	0 4.6	12244 31.55	16.7m	8.9 0.00	44	37	HIP 3357	Venere	0 42 43.381	3 47 24.68
2009 Mag 22	18 50.3	12244 28.71	821s	7.8 0.00	45	41	HIP 4968	Venere	1 3 40.660	5 14 7.29
2009 Mag 24	23 36.9	4878 11.88	621s	8.4 0.01	10	4	HIP 16241	Mercurio	3 29 19.603	16 11 53.72
2009 Lug 02	21 46.7	4878 5.55	67.0s	8.3 0.00	13	85	HIP 27685	Mercurio	5 51 39.454	23 13 47.93
2009 Lug 08	17 21.0	4878 5.19	58.0s	8.9 0.00	7	96	HIP 32266	Mercurio	6 44 12.486	23 53 7.86
2009 Lug 20	20 54.8	4878 5.08	60.0s	8.9 0.00	8	96	TYC 1398 00400	Mercurio	8 34 43.852	20 33 41.37
2009 Lug 25	22 8.7	12244 15.52	327s	8.3 0.00	40	71	HIP 25694	Venere	5 29 15.604	21 18 56.96
2009 Lug 27	14 36.8	22 0.02	0.6s	8.3 5.6	54		HIP 21442	Phobos (I)	4 36 17.642	21 41 20.47
2009 Lug 27	14 37.7	6794 5.25	184s	8.3 0.00	54	91	HIP 21442	Marte	4 36 17.642	21 41 20.47
2009 Lug 28	15 55.2	12244 15.25	320s	9.0 0.00	40	72	TYC 1310 01587	Venere	5 42 39.816	21 34 43.24
2009 Ago 03	23 56.9142793	48.66	155m	6.0 0.00	168	100	HIP 107302	Giove	21 44 0.950	-14 44 57.63
2009 Ago 10	15 59.4	4878 6.02	100s	8.8 0.00	24	71	HIP 53201	Mercurio	10 52 50.649	7 13 3.76
2009 Ago 18	12 38.5	12 0.01	0.4s	7.6 7.2	60		HIP 26599	Deimos (II)	5 39 14.826	23 19 24.03
2009 Ago 18	12 39.7	6794 5.59	206s	7.6 0.00	60	90	HIP 26599	Marte	5 39 14.826	23 19 24.03
2009 Ago 18	12 44.1	22 0.02	0.7s	7.6 6.2	60		HIP 26599	Phobos (I)	5 39 14.826	23 19 24.03
2009 Ago 30	16 50.9	4878 8.07	303s	7.7 0.00	26	42	HIP 59182	Mercurio	12 8 12.459	- 4 17 13.23
2009 Ago 30	19 56.0	4878 8.09	308s	8.4 0.00	26	42	TYC 4942 00410	Mercurio	12 8 27.768	- 4 20 17.19
2009 Ago 31	5 0.8	12244 12.74	256s	8.7 0.00	33	83	HIP 41727	Venere	8 30 31.007	18 56 34.61
2009 Set 06	3 38.8	12 0.01	0.4s	8.3 6.4	67		HIP 31029	Deimos (II)	6 30 39.487	23 32 16.51
2009 Set 17	17 38.0	4878 10.46	243s	9.0 0.01	6	2	TYC 4935 00646	Mercurio	11 55 15.759	- 3 26 37.75
2009 Ott 19	22 19.8	4878 5.23	74.0s	8.8 0.00	11	92	HIP 63419	Mercurio	12 59 45.519	- 4 25 49.27
2009 Dic 14	23 55.7	4878 6.17	118s	9.0 0.00	20	72	TYC 6864 00260	Mercurio	18 56 10.908	-24 55 22.69

OCCULTAZIONI TOPOCENTRICHE

PIANETI-STELLE m<9

Data	U.T.	Diametro	Durn	StellaMag	Elon	%	Stella	Pianeta	Alt Sole Proba-	R.A. (J2000)	Dec.
a m g	h m	km "	m/sec	mag drop	o	Ill	No.		o Alt bilità	h m s	o ' "
2009 Apr 07	3 54.0	12244 56.65	48.3m	8.7 0.00	17	4	TYC 593 00246	Venere	2 -10 100%	23 54 28.510	6 34 26.02
2009 Ago 03	23 55.1142793	48.66	155m	6.0 0.00	168	100	HIP 107302	Giove	33 100%	21 44 0.950	-14 44 57.63

Data = data nel formato anno/mese/giorno
U.T. = ora dell'evento
Diametro = diametro in km ed in " del pianeta
Durn = durata dell'evento, in minuti o secondi
Stella mag = magnitudine della stella coinvolta
Mag drop = caduta di luce del pianeta
Elon = elongazione, in gradi
% ill = percentuale illuminata del pianeta
Stella = stella coinvolta
Alt = altezza sull'orizzonte del pianeta, in gradi
Sole alt = altezza sull'orizzonte del Sole, in gradi

CONGIUNZIONI <1° CON OGGETTI MESSIER m<9

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m*	tm(s)	tw(h)			
2009/01/03	21:27:43	0.82548	0.00154	2.422	178	-8	1.2	6.8		156.8	Marte	NGC6626	M28
2009/01/07	12:22:39	0.02763	0.00155	2.414	357	-9	1.2	5.1		158.5	Marte	NGC6656	M22
2009/02/03	13:43:51	0.64470	0.00159	2.345	168	-16	1.1	8.5		154.0	Marte	NGC6864	M75
2009/06/30	19:14:56	0.69048	0.00287	1.174	171	-15	-0.9	8.4		62.8	Mercurio	NGC1952	M1
2009/07/04	21:42:20	0.72745	0.00271	1.245	356	-11	-1.4	5.3		57.9	Mercurio	NGC2168	M35
2009/07/21	13:14:39	0.24058	0.00255	1.322	195	9	-1.3	3.7		60.0	Mercurio	NGC2632	M44
2009/07/27	01:09:17	0.58333	0.00434	1.096	355	-40	-3.9	8.4		104.4	Venere	NGC1952	M1
2009/08/29	04:02:22	0.76728	0.00231	1.619	359	-64	0.9	5.3		188.1	Marte	NGC2168	M35
2009/11/01	07:31:50	0.04326	0.00316	1.181	11	-92	0.4	3.7		276.9	Marte	NGC2632	M44
2009/11/20	06:09:44	0.24829	0.00238	1.418	193	9	-0.7	7.3		77.5	Mercurio	NGC6093	M80
2009/12/09	16:20:42	0.78267	0.00282	1.196	357	18	-0.5	6.8		83.9	Mercurio	NGC6626	M28
2009/12/26	07:42:02	0.67976	0.00279	1.705	1	-4	-3.9	9.0		94.4	Venere	NGC6514	M20
2009/12/26	13:25:41	0.71651	0.00279	1.705	181	-4	-3.9	6.0		94.3	Venere	NGC6523	M8

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

R1 = distanza in U.A. del pianeta dalla Terra

p = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del pianeta

m* = magnitudine dell'oggetto

tm = se presente, l'oggetto viene occultato massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano meno di 1° tra loro

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CONGIUNZIONI MULTIPLE PIANETI-OGGETTI

(eventi con 2 o più pianeti ed un oggetto Messier entro 5°)

Data TT Dmed (°) Dmax emin m2d mmax

Questo anno non avvengono fenomeni

CONGIUNZIONI MULTIPLE MISTE

CERCHI MINIMI PIANETI-OGGETTI

(eventi con 2 o più pianeti ed un oggetto Messier entro 5°)

Questo anno non avvengono fenomeni

EFFEMERIDI DELLA LUNA

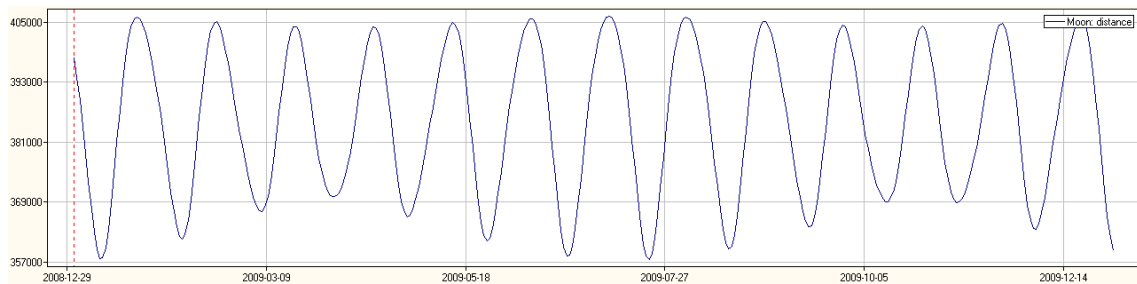
Data	A.R. Geoc.	Dec. Geoc.	A.R. Top.	Dec. Top.	Dist. km	El °	Diam. "	Mag	Fase	Ang. fase°	Par.	L1	L2	L3	L4	L5	L6
1-gen	22h 04m 53.14s	-09° 50' 37.6"	22h 03m 10.55s	-10° 20' 56.1"	397730	49.1	1802.59	-8.2	0.173	130.8	3307	-6.0	-2.3	-6.0	-2.3	-6.6	-1.9
2-gen	22h 49m 43.87s	-04° 23' 28.0"	22h 47m 40.06s	-04° 58' 00.0"	393893	60.4	1820.15	-8.8	0.254	119.4	3340	-6.9	-3.6	-6.9	-3.6	-7.6	-3.2
3-gen	23h 34m 47.12s	+01° 20' 16.4"	23h 32m 24.36s	+00° 42' 31.2"	389354	72.0	1841.37	-9.4	0.347	107.8	3379	-7.4	-4.8	-7.5	-4.8	-8.2	-4.4
4-gen	00h 21m 08.69s	+07° 08' 58.7"	00h 18m 28.95s	+06° 29' 31.8"	384209	83.9	1866.03	-9.9	0.449	95.9	3424	-7.7	-5.8	-7.7	-5.7	-8.5	-5.4
5-gen	01h 10m 01.01s	+12° 48' 47.8"	01h 07m 06.86s	+12° 09' 36.2"	378650	96.2	1893.43	-10.4	0.555	83.6	3474	-7.5	-6.4	-7.5	-6.4	-8.4	-6.0
6-gen	02h 02m 36.90s	+18° 02' 02.9"	01h 59m 32.97s	+17° 25' 17.7"	372972	108.9	1922.25	-10.8	0.663	71.0	3527	-6.9	-6.8	-6.9	-6.7	-7.8	-6.4
7-gen	02h 59m 54.79s	+22° 26' 07.3"	02h 56m 49.66s	+21° 53' 48.8"	367573	122.0	1950.48	-11.2	0.766	57.9	3579	-5.8	-6.7	-5.8	-6.7	-6.7	-6.3
8-gen	04h 02m 10.98s	+25° 34' 17.6"	03h 59m 18.55s	+25° 07' 34.5"	362920	135.5	1975.49	-11.6	0.857	44.4	3625	-4.4	-6.2	-4.4	-6.2	-5.1	-5.9
9-gen	05h 08m 26.54s	+27° 00' 25.5"	05h 06m 04.59s	+26° 38' 49.1"	359490	149.4	1994.34	-11.9	0.931	30.5	3659	-2.6	-5.3	-2.6	-5.3	-3.2	-4.9
10-gen	06h 16m 18.98s	+26° 27' 37.0"	06h 14m 43.38s	+26° 08' 46.7"	357695	163.5	2004.35	-12.3	0.980	16.5	3678	-0.6	-4.0	-0.6	-4.0	-1.0	-3.6
11-gen	07h 22m 48.66s	+23° 56' 13.5"	07h 22m 06.79s	+23° 36' 42.9"	357792	177.3	2003.80	-12.7	0.999	2.7	3677	1.4	-2.4	1.4	-2.4	1.3	-2.0
12-gen	08h 25m 36.00s	+19° 44' 34.4"	08h 25m 45.47s	+19° 21' 19.0"	359827	167.9	1992.47	-12.4	0.989	12.0	3656	3.3	-0.7	3.3	-0.6	3.3	-0.2
13-gen	09h 23m 45.57s	+14° 21' 46.1"	09h 24m 38.37s	+13° 53' 07.8"	363614	154.1	1971.72	-12.1	0.950	25.8	3618	4.9	1.1	4.9	1.1	4.8	1.7
14-gen	10h 17m 35.90s	+08° 18' 36.3"	10h 19m 03.09s	+07° 44' 36.1"	368774	140.6	1944.13	-11.7	0.887	39.3	3567	6.2	2.7	6.1	2.8	6.0	3.4
15-gen	11h 08m 06.07s	+02° 01' 48.2"	11h 10m 00.22s	+01° 23' 40.6"	374809	127.6	1912.83	-11.3	0.806	52.3	3510	7.0	4.2	7.0	4.2	6.8	5.0
16-gen	11h 56m 28.30s	-04° 07' 45.5"	11h 58m 43.81s	-04° 48' 07.7"	381183	115.1	1880.84	-11.0	0.713	64.8	3451	7.4	5.3	7.4	5.4	7.1	6.2
17-gen	12h 43m 52.94s	-09° 54' 20.4"	12h 46m 25.42s	-10° 34' 55.2"	387398	103.0	1850.67	-10.6	0.614	76.9	3396	7.3	6.2	7.3	6.2	7.0	7.1
18-gen	13h 31m 21.51s	-15° 05' 45.9"	13h 34m 06.86s	-15° 44' 40.7"	393043	91.3	1824.09	-10.2	0.513	88.5	3347	6.9	6.7	6.9	6.7	6.5	7.5
19-gen	14h 19m 42.37s	-19° 31' 52.8"	14h 22m 35.85s	-20° 07' 37.0"	397819	80.0	1802.19	-9.7	0.414	99.9	3307	6.2	6.8	6.2	6.9	5.7	7.7
20-gen	15h 09m 26.19s	-23° 03' 35.2"	15h 12m 21.71s	-23° 35' 08.3"	401544	68.9	1785.47	-9.2	0.321	111.0	3276	5.2	6.7	5.2	6.7	4.7	7.4
21-gen	16h 00m 40.85s	-25° 32' 38.5"	16h 03m 30.73s	-25° 59' 37.5"	404146	58.0	1773.98	-8.7	0.236	121.9	3255	4.0	6.3	4.0	6.3	3.5	6.9
22-gen	16h 53m 08.25s	-26° 52' 16.7"	16h 55m 43.76s	-27° 15' 01.2"	405642	47.2	1767.44	-8.0	0.161	132.7	3243	2.7	5.6	2.7	5.6	2.2	6.1
23-gen	17h 46m 07.05s	-26° 58' 22.5"	17h 48m 19.77s	-27° 17' 53.9"	406118	36.4	1765.36	-7.3	0.098	143.5	3239	1.4	4.6	1.3	4.7	0.9	5.0
24-gen	18h 38m 43.68s	-25° 50' 34.0"	18h 40m 27.08s	-26° 08' 26.6"	405702	25.5	1767.18	-6.4	0.049	154.4	3242	0.0	3.5	0.0	3.5	-0.4	3.8
25-gen	19h 30m 08.43s	-23° 32' 40.1"	19h 31m 18.91s	-23° 50' 44.5"	404539	14.7	1772.26	-5.4	0.016	165.3	3252	-1.3	2.2	-1.4	2.2	-1.7	2.5
26-gen	20h 19m 49.57s	-20° 12' 08.2"	20h 20m 26.39s	-20° 32' 11.4"	402769	3.7	1780.04	-4.3	0.001	176.3	3266	-2.6	0.8	-2.6	0.9	-2.8	1.2
27-gen	21h 07m 39.83s	-15° 58' 54.9"	21h 07m 44.19s	-16° 22' 23.8"	400508	7.4	1790.09	-4.7	0.004	172.5	3284	-3.7	-0.6	-3.8	-0.6	-3.9	-0.2
28-gen	21h 53m 55.30s	-11° 04' 14.0"	21h 53m 29.21s	-11° 32' 04.8"	397838	18.7	1802.10	-5.8	0.026	161.3	3306	-4.7	-2.1	-4.8	-2.0	-5.0	-1.6
29-gen	22h 39m 10.45s	-05° 39' 48.5"	22h 38m 15.85s	-06° 12' 20.6"	394806	30.1	1815.94	-6.8	0.068	149.8	3332	-5.5	-3.4	-5.6	-3.4	-6.0	-2.9
30-gen	23h 24m 12.98s	+00° 02' 25.3"	23h 22m 51.24s	-00° 34' 30.0"	391431	41.7	1831.60	-7.7	0.127	138.2	3361	-6.1	-4.6	-6.2	-4.6	-6.7	-4.1
31-gen	00h 09m 59.91s	+05° 50' 01.0"	00h 08m 11.81s	+05° 09' 37.3"	387723	53.5	1849.12	-8.4	0.203	126.4	3393	-6.5	-5.6	-6.5	-5.6	-7.2	-5.1
1-feb	00h 57m 34.58s	+11° 29' 20.1"	00h 55m 20.63s	+10° 46' 56.2"	383709	65.5	1868.46	-9.1	0.294	114.3	3428	-6.6	-6.4	-6.6	-6.3	-7.4	-5.9
2-feb	01h 48m 02.03s	+16° 44' 32.7"	01h 45m 23.37s	+16° 02' 03.9"	379457	77.8	1889.40	-9.6	0.396	102.0	3467	-6.4	-6.8	-6.4	-6.7	-7.2	-6.3
3-feb	02h 42m 19.42s	+21° 16' 44.9"	02h 39m 19.43s	+20° 36' 20.3"	375104	90.4	1911.33	-10.1	0.505	89.4	3507	-5.8	-6.8	-5.9	-6.8	-6.8	-6.3
4-feb	03h 40m 57.79s	+24° 43' 59.5"	03h 37m 44.10s	+24° 07' 37.1"	370866	103.3	1933.17	-10.6	0.616	76.5	3547	-5.0	-6.4	-5.0	-6.4	-5.9	-6.0
5-feb	04h 43m 36.83s	+26° 43' 29.2"	04h 40m 22.67s	+26° 12' 17.9"	367040	116.6	1953.32	-11.0	0.725	63.3	3584	-3.9	-5.7	-3.9	-5.6	-4.7	-5.2
6-feb	05h 48m 48.05s	+26° 56' 49.2"	05h 45m 50.74s	+26° 30' 30.3"	363976	130.1	1969.76	-11.4	0.823	49.8	3614	-2.5	-4.6	-2.5	-4.5	-3.2	-4.1
7-feb	06h 54m 11.27s	+25° 16' 39.4"	06h 51m 47.11s	+24° 53' 15.7"	362032	143.8	1980.34	-11.8	0.904	36.1	3634	-1.0	-3.1	-1.0	-3.1	-1.5	-2.6
8-feb	07h 57m 27.53s	+21° 50' 38.4"	07h 55m 46.50s	+21° 27' 12.3"	361509	157.7	1983.20	-12.2	0.963	22.2	3639	0.7	-1.4	0.6	-1.4	0.3	-0.9
9-feb	08h 57m 11.14s	+16° 59' 24.1"	08h 56m 15.61s	+16° 33' 04.5"	362581	171.5	1977.34	-12.5	0.995	8.4	3628	2.3	0.3	2.2	0.4	2.1	0.8
10-feb	09h 53m 04.56s	+11° 10' 24.5"	09h 52m 51.89s	+10° 39' 22.8"	365253	174.6	1962.87	-12.6	0.998	5.4	3602	3.7	2.0	3.7	2.1	3.8	2.6
11-feb	10h 45m 40.68s	+04° 51' 46.9"	10h 46m 06.39s	+04° 15' 37.3"	369341	161.2	1941.15	-12.2	0.973	18.8	3562	5.0	3.6	4.9	3.6	5.1	4.2
12-feb	11h 35m 57.14s	-01° 31' 30.1"	11h 36m 56.94s	-02° 12' 01.2"	374501	148.1	1914.40	-11.9	0.925	31.8	3513	5.9	4.9	5.8	4.9	5.9	5.7
13-feb	12h 24m 57.59s	-07° 38' 58.2"	12h 26m 27.96s	-08° 22' 16.9"	380288	135.5	1885.27	-11.6	0.857	44.4	3459	6.4	5.9	6.3	5.9	6.3	6.7
14-feb	13h 13m 41.03s	-13° 14' 26.2"	13h 15m 38.92s	-13° 58' 37.9"	386216	123.3	1856.34	-11.2	0.775	56.6	3406	6.5	6.5	6.4	6.6	6.3	7.4
15-feb	14h 02m 55.50s	-18° 05' 06.0"	14h 05m 17.62s	-18° 48' 16.4"	391826	111.5	1829.76	-10.9	0.684	68.4	3357	6.2	6.8	6.1	6.8	5.9	7.7
16-feb	14h 53m 13.07s	-22° 00' 37.2"	14h 55m 55.03s	-22° 41' 08.2"	396729	100.0	1807.14	-10.5	0.589	79.8	3316	5.5	6.7	5.5	6.8	5.1	7.6
17-feb	15h 44m 45.23s	-24° 52' 35.4"	15h 47m 40.79s	-25° 29' 17.1"	400634	88.9	1789.53	-10.1	0.492	90.9	3283	4.6	6.4	4.5	6.4	4.0	7.2
18-feb	16h 37m 20.01s	-26° 34' 37.8"	16h 40m 20.96s	-27° 06' 57.6"	403359	78.0	1777.44	-9.6	0.397	101.9	3261	3.4	5.7	3.4	5.8	2.8	6.4
19-feb	17h 30m 24.01s	-27° 02' 56.6"	17h 33m 20.93s	-27° 31' 04.8"	404832	67.1	1770.97	-9.2	0.307	112.7	3249	2.1	4.9	2.1	4.9	1.4	5.4
20-feb	18h 23m 11.32s	-26° 16' 59.4"	18h 25m 54.97s	-26° 41' 47.8"	405080	56.3	1769.89	-8.6	0.224	123.5	3247	0.7	3.8	0.7	3.8	0.1	4.2
21-feb	19h 14m 57.13s	-24° 19' 45.0"	19h 17m 19.99s	-24° 42' 38.1"	404214	45.5	1773.68	-7.9	0.150	134.4	3254	-0.7	2.5	-0.7	2.6	-1.3	2.9
22-feb	20h 05m 10.66s	-21° 17' 23.9"	20h 07m 07.72s	-21° 40' 03.9"	402409	34.6	1781.64	-7.2	0.089	145.4	3269	-1.9	1.2	-2.0	1.2	-2.5	1.5
23-feb	20h 53m 42.16s	-17° 18' 32.4"	20h 55m 10.80s	-17° 42' 42.8"	399877	23.5	1792.92	-6.3	0.042	156.5	3290	-3.1	-0.2	-3.1	-0.2	-3.6	0.1
24-feb	21h 40m 43.27s	-12° 33' 25.1"	21h 41m 42.50s	-13° 00' 35.6"	396844	12.3	1806.62	-5.2	0.012	167.7	3315	-4.0	-1.7	-4.1	-1.6	-4.4	-1.3
25-feb	22h 26m 43.21s	-07° 13' 22.9"	22h 27m 12.78s	-07° 44' 38.0"	393526	2.5	1821.85	-4.1	0.000	177.5	3343	-4.8	-3.1	-4.8	-3.0	-5.1	-2.6
26-feb	23h 12m 24.16s	-01° 30' 43.4"	23h 12m 23.80s	-02° 06' 34.3"	390102	11.4	1837.84	-5.1	0.010	168.5	3372	-5.2	-4.3	-5.3	-4.3	-5.5	-3.7
27-feb	23h 58m 37.19s	+04° 21' 11.5"	23h 58m 06.16s	+03° 40' 51.8"	386708	23.2	1853.97	-6.2	0.041	156.7	3402	-5.5	-5.4	-5.5	-5.3	-5.9	-4.8
28-feb	00h 46m 18.85s	+10° 07' 33.9"	00h 45m 15.84s	+09° 23' 32.8"	383427	35.3	1869.84	-7.2	0.093	144.6	3431	-5.4	-6.2	-5.5	-6.1	-6.0	-5.5
1-mar	01h 36m 26.48s	+15° 31' 45.1"	01h 34m 50.04s	+14° 45' 28.1"	380299	47.7	1885.21	-8.1	0.164	132.2	3459	-5.2	-6.6	-5.2	-6.6	-5.9	-6.0
2-mar	02h 29m																

Data	A.R. Geoc.	Dec. Geoc.	A.R. Top.	Dec. Top.	Dist. km	EI °	Diam. "	Mag	Fase	Ang. fase°	Par.	L1	L2	L3	L4	L5	L6
14-mar	13h 43m 25.41s	-16° 09' 12.1"	13h 44m 32.28s	-16° 56' 39.0"	387044	143.4	1852.36	-11.8	0.902	36.5	3399	5.3	6.6	5.3	6.7	5.3	7.5
15-mar	14h 34m 13.94s	-20° 30' 57.1"	14h 35m 53.99s	-21° 18' 10.6"	391990	131.7	1828.99	-11.4	0.833	48.2	3356	5.1	6.7	5.0	6.7	4.9	7.6
16-mar	15h 26m 15.05s	-23° 49' 54.9"	15h 28m 25.37s	-24° 35' 15.9"	396465	120.2	1808.35	-11.1	0.753	59.7	3318	4.4	6.4	4.4	6.4	4.1	7.3
17-mar	16h 19m 16.67s	-25° 58' 26.2"	16h 21m 51.83s	-26° 40' 36.9"	400132	109.0	1791.77	-10.8	0.664	70.8	3288	3.5	5.8	3.5	5.9	3.1	6.7
18-mar	17h 12m 45.40s	-26° 52' 14.0"	17h 15m 37.42s	-27° 30' 30.9"	402732	98.1	1780.20	-10.4	0.571	81.8	3266	2.4	5.0	2.4	5.0	1.8	5.7
19-mar	18h 05m 55.47s	-26° 30' 43.8"	18h 08m 54.85s	-27° 05' 04.3"	404100	87.2	1774.18	-10.0	0.477	92.6	3255	1.1	4.0	1.0	4.0	0.4	4.6
20-mar	18h 58m 02.50s	-24° 56' 55.7"	19h 00m 59.78s	-25° 27' 57.1"	404169	76.4	1773.88	-9.6	0.384	103.5	3255	-0.3	2.8	-0.3	2.8	-1.0	3.3
21-mar	19h 48m 36.24s	-22° 16' 43.4"	19h 51m 23.46s	-22° 45' 34.8"	402978	65.5	1779.12	-9.1	0.294	114.3	3264	-1.7	1.5	-1.7	1.5	-2.4	1.9
22-mar	20h 37m 27.45s	-18° 37' 58.8"	20h 39m 58.75s	-19° 06' 08.1"	400657	54.6	1789.43	-8.5	0.211	125.3	3283	-2.9	0.1	-2.9	0.1	-3.6	0.5
23-mar	21h 24m 48.09s	-14° 09' 45.3"	21h 26m 59.50s	-14° 38' 46.4"	397420	43.4	1804.00	-7.8	0.137	136.5	3310	-4.0	-1.3	-4.0	-1.3	-4.7	-1.0
24-mar	22h 11m 07.51s	-09° 01' 59.5"	22h 12m 56.30s	-09° 33' 20.3"	393542	32.0	1821.78	-7.0	0.077	147.9	3343	-4.8	-2.7	-4.8	-2.7	-5.4	-2.3
25-mar	22h 57m 07.77s	-03° 25' 41.4"	22h 58m 31.64s	-04° 00' 33.1"	389331	20.5	1841.48	-6.0	0.032	159.5	3379	-5.3	-4.0	-5.3	-3.9	-5.8	-3.5
26-mar	23h 43m 39.70s	+02° 26' 35.6"	23h 44m 36.12s	+01° 47' 27.8"	385102	9.1	1861.70	-4.9	0.006	170.9	3416	-5.4	-5.1	-5.5	-5.0	-5.9	-4.5
27-mar	00h 31m 39.36s	+08° 20' 05.5"	00h 32m 05.06s	+07° 36' 31.7"	381136	6.1	1881.07	-4.5	0.003	173.9	3451	-5.2	-5.9	-5.3	-5.9	-5.7	-5.2
28-mar	01h 22m 03.38s	+13° 57' 19.4"	01h 21m 54.27s	+13° 09' 51.7"	377657	17.4	1898.40	-5.7	0.023	162.5	3483	-4.8	-6.4	-4.8	-6.4	-5.1	-5.7
29-mar	02h 15m 40.35s	+18° 49' 00.9"	02h 12m 52.11s	+18° 07' 56.2"	374809	30.0	1912.83	-6.8	0.067	150.0	3510	-4.1	-6.6	-4.1	-6.6	-4.6	-5.8
30-mar	03h 12m 56.18s	+23° 00' 00.3"	03h 11m 25.85s	+22° 09' 13.2"	372652	42.8	1923.90	-7.8	0.134	137.1	3530	-3.2	-6.4	-3.2	-6.3	-3.8	-5.6
31-mar	04h 13m 35.07s	+25° 41' 41.2"	04h 11m 23.61s	+24° 52' 24.1"	371174	55.8	1931.57	-8.6	0.220	124.1	3544	-2.3	-5.8	-2.3	-5.7	-2.9	-5.0
1-apr	05h 16m 27.12s	+26° 46' 10.7"	05h 13m 41.66s	+26° 00' 18.6"	370318	68.9	1936.03	-9.2	0.321	111.0	3552	-1.3	-4.8	-1.3	-4.8	-2.0	-4.1
2-apr	06h 19m 39.71s	+26° 05' 52.9"	06h 16m 33.23s	+25° 24' 25.2"	370015	82.0	1937.61	-9.8	0.432	97.8	3555	-0.3	-3.5	-0.3	-3.5	-1.0	-2.8
3-apr	07h 21m 15.89s	+23° 44' 47.9"	07h 18m 03.71s	+23° 07' 28.3"	370211	95.2	1936.59	-10.3	0.546	84.7	3553	0.6	-2.1	0.6	-2.0	-0.1	-1.3
4-apr	08h 19m 56.13s	+19° 56' 55.8"	08h 16m 51.60s	+19° 22' 22.7"	370886	108.3	1933.06	-10.8	0.658	71.6	3547	1.5	-0.5	1.4	-0.4	0.8	0.3
5-apr	09h 15m 15.85s	+15° 02' 06.5"	09h 12m 28.24s	+14° 28' 24.8"	372059	121.3	1926.97	-11.2	0.761	58.6	3536	2.3	1.1	2.2	1.2	1.7	1.9
6-apr	10h 07m 36.52s	+09° 21' 58.0"	10h 05m 11.31s	+08° 47' 13.1"	373768	134.2	1918.15	-11.5	0.849	45.7	3519	3.0	2.7	3.0	2.7	2.6	3.5
7-apr	10h 57m 46.45s	+03° 17' 34.0"	10h 55m 46.86s	+02° 40' 16.2"	376055	147.0	1906.49	-11.9	0.920	33.0	3498	3.6	4.0	3.6	4.1	3.4	4.8
8-apr	11h 46m 44.19s	-02° 51' 28.1"	11h 45m 12.57s	-03° 32' 10.1"	378925	159.4	1892.05	-12.2	0.968	20.5	3472	4.2	5.2	4.1	5.2	4.0	6.0
9-apr	12h 35m 27.54s	-08° 47' 02.7"	12h 34m 26.30s	-09° 31' 18.1"	382328	171.1	1875.21	-12.5	0.994	8.9	3441	4.5	6.0	4.5	6.0	4.5	6.8
10-apr	13h 24m 46.30s	-14° 12' 33.0"	13h 24m 18.17s	-14° 59' 51.4"	386142	173.3	1856.69	-12.6	0.997	6.7	3407	4.6	6.4	4.6	6.5	4.8	7.3
11-apr	14h 15m 15.96s	-18° 52' 57.6"	14h 15m 23.68s	-19° 42' 16.1"	390171	162.6	1837.52	-12.3	0.977	17.3	3371	4.5	6.6	4.5	6.6	4.7	7.4
12-apr	15h 07m 11.49s	-22° 35' 17.7"	15h 07m 56.88s	-23° 25' 12.2"	394163	151.2	1818.91	-12.0	0.939	28.7	3337	4.1	6.3	4.1	6.4	4.1	7.2
13-apr	16h 00m 22.62s	-25° 09' 24.9"	16h 01m 45.26s	-25° 58' 24.7"	397830	139.9	1802.14	-11.7	0.883	40.0	3307	3.4	5.8	3.4	5.9	3.3	6.7
14-apr	16h 54m 14.28s	-26° 28' 59.3"	16h 56m 10.59s	-27° 15' 44.5"	400882	128.8	1788.42	-11.4	0.814	51.1	3281	2.5	5.1	2.4	5.1	2.1	5.9
15-apr	17h 47m 55.29s	-26° 32' 11.0"	17h 50m 18.50s	-27° 15' 47.6"	403056	117.8	1778.78	-11.1	0.734	62.0	3264	1.3	4.1	1.3	4.1	0.8	4.9
16-apr	18h 40m 33.72s	-25° 21' 35.7"	18h 43m 15.11s	-26° 01' 45.5"	404137	107.0	1774.02	-10.7	0.647	72.9	3255	0.0	2.9	-0.1	3.0	-0.7	3.6
17-apr	19h 31m 32.32s	-23° 03' 17.6"	19h 34m 22.96s	-23° 40' 18.7"	403990	96.1	1774.66	-10.4	0.555	83.7	3256	-1.4	1.7	-1.5	1.7	-2.2	2.2
18-apr	20h 20m 37.23s	-19° 45' 24.5"	20h 23m 29.38s	-20° 20' 04.5"	402565	85.3	1780.95	-9.9	0.460	94.6	3268	-2.8	0.3	-2.8	0.3	-3.6	0.8
19-apr	21h 07m 58.61s	-15° 36' 53.1"	21h 10m 46.25s	-16° 10' 20.0"	399911	74.3	1792.76	-9.5	0.366	105.6	3289	-4.0	-1.1	-4.1	-1.0	-4.9	-0.7
20-apr	21h 54m 06.17s	-10° 46' 53.3"	21h 56m 44.79s	-11° 20' 25.3"	396182	63.1	1809.64	-8.9	0.275	116.8	3320	-5.1	-2.4	-5.1	-2.4	-5.9	-2.1
21-apr	22h 39m 43.77s	-05° 24' 54.5"	22h 42m 09.73s	-05° 59' 51.6"	391624	51.7	1830.70	-8.3	0.191	128.2	3359	-5.8	-3.7	-5.8	-3.7	-6.6	-3.3
22-apr	23h 25m 45.02s	+00° 18' 32.0"	23h 27m 54.78s	-00° 19' 04.4"	386567	39.9	1854.65	-7.5	0.117	140.0	3403	-6.1	-4.8	-6.2	-4.8	-6.9	-4.4
23-apr	00h 13m 10.08s	+06° 10' 47.9"	00h 14m 59.40s	+05° 29' 33.1"	381397	27.8	1879.79	-6.6	0.058	152.1	3449	-6.1	-5.7	-6.1	-5.7	-6.8	-5.2
24-apr	01h 03m 01.69s	+11° 55' 58.4"	01h 04m 25.03s	+11° 10' 32.5"	376517	15.6	1904.15	-5.5	0.019	164.4	3494	-5.6	-6.3	-5.7	-6.3	-6.3	-5.7
25-apr	01h 56m 17.56s	+17° 14' 04.4"	01h 57m 07.73s	+16° 24' 33.7"	372304	5.3	1925.70	-4.5	0.002	174.7	3533	-4.8	-6.5	-4.8	-6.5	-5.3	-5.8
26-apr	02h 53m 35.27s	+21° 41' 21.3"	02h 53m 44.22s	+20° 48' 41.5"	369059	12.4	1942.63	-5.2	0.012	167.5	3564	-3.7	-6.4	-3.7	-6.4	-4.0	-5.5
27-apr	03h 54m 49.66s	+24° 52' 43.3"	03h 54m 10.80s	+23° 58' 40.2"	366966	25.3	1953.71	-6.4	0.048	154.7	3585	-2.4	-5.8	-2.4	-5.8	-2.7	-4.9
28-apr	04h 58m 53.00s	+26° 26' 47.3"	04h 57m 24.91s	+25° 33' 35.8"	366079	38.6	1958.45	-7.5	0.110	141.3	3593	-1.0	-4.9	-1.0	-4.9	-1.5	-4.0
29-apr	06h 03m 40.51s	+26° 12' 12.9"	06h 01m 29.46s	+25° 21' 55.9"	366324	52.1	1957.14	-8.3	0.193	127.8	3591	0.3	-3.6	0.3	-3.6	-0.2	-2.8
30-apr	07h 06m 52.62s	+24° 11' 34.2"	07h 04m 11.25s	+23° 25' 20.4"	367534	65.4	1950.69	-9.1	0.293	114.4	3579	1.5	-2.1	1.5	-2.1	1.0	-1.3
1-mag	08h 06m 48.76s	+20° 39' 46.3"	08h 03m 51.47s	+19° 57' 33.2"	369496	78.7	1940.33	-9.7	0.403	101.2	3560	2.6	-0.5	2.5	-0.5	2.0	0.3
2-mag	09h 02m 53.47s	+15° 58' 29.4"	08h 59m 52.33s	+15° 19' 17.8"	371993	91.8	1927.31	-10.2	0.517	88.1	3536	3.4	1.1	3.4	1.1	2.8	1.9
3-mag	09h 55m 26.93s	+10° 30' 35.8"	09h 52m 30.51s	+09° 52' 56.9"	374844	104.6	1912.65	-10.6	0.628	75.2	3509	4.0	2.6	4.0	2.6	3.5	3.5
4-mag	10h 45m 21.65s	+04° 37' 05.5"	10h 42m 35.61s	+03° 59' 26.6"	377917	117.3	1897.10	-11.0	0.730	62.6	3481	4.5	4.0	4.5	4.0	4.1	4.8
5-mag	11h 33m 42.20s	-01° 23' 35.3"	11h 31m 10.64s	-02° 02' 34.8"	381129	129.8	1881.11	-11.4	0.821	50.1	3451	4.8	5.1	4.8	5.1	4.5	6.0
6-mag	12h 21m 32.93s	-07° 15' 04.6"	12h 19m 19.62s	-07° 56' 22.8"	384434	142.0	1864.94	-11.7	0.894	37.9	3422	5.0	5.9	4.9	5.9	4.7	6.8
7-mag	13h 09m 50.90s	-12° 42' 17.7"	13h 08m 00.05s	-13° 26' 25.3"	387799	153.9	1848.76	-12.1	0.949	26.0	3392	4.9	6.4	4.9	6.4	4.8	7.3
8-mag	13h 59m 20.03s	-17° 30' 59.7"	13h 57m 56.61s	-18° 17' 57.0"	391176	165.4	1832.80	-12.4	0.984	14.5	3363	4.7	6.6	4.7	6.6	4.7	7.4
9-mag	14h 50m 24.82s	-21° 27' 50.9"	14h 49m 34.17s	-22° 17' 07.8"	394490	174.7	1817.40	-12.6	0.998	5.2	3335	4.3	6.4	4.3	6.4	4.3	7.3
10-mag	15h 43m 03.96s	-24° 21' 17.3"	15h 42m 50.71s	-25° 11' 55.8"	397626	169.4	1803.07	-12.4	0.992	10.6	3308	3.6	5.9	3.6	6.0	3.8	6.8
11-mag	16h 36m 47.76s	-26° 02' 48.5"	16h 37m 14.25s	-26° 53' 33.4"	400426	158.7	1790.46	-12.2	0.966	21.2	3285	2.7	5.2	2.7	5.2	2.8	6.1
12-mag	17h 30m 43.81s	-26° 28' 20.5"	17h 31m 48.87s	-27° 17' 54.6"	402704	147.8	1780.33	-11.9	0.924	32.1	3267	1.7	4.2	1.6	4.2	1.5	5.1
13-mag	18h 23m 52.04s	-25° 38' 53.6"															

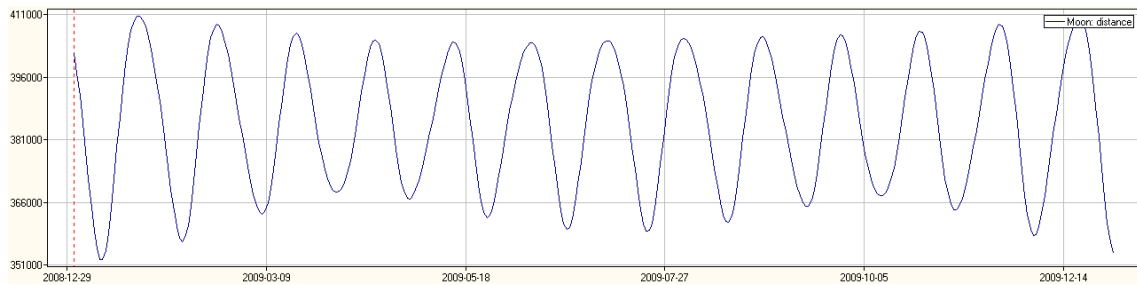
Data	A.R. Geoc.	Dec. Geoc.	A.R. Top.	Dec. Top.	Dist. km	EI °	Diam. "	Mag	Fase	Ang. fase°	Par.	L1	L2	L3	L4	L5	L6
30-mag	09h 42m 36.98s	+11° 40' 06.6"	09h 39m 53.61s	+10° 58' 00.8"	370769	75.3	1933.67	-9.5	0.374	104.6	3548	4.9	2.5	4.9	2.5	4.5	3.4
31-mag	10h 33m 42.98s	+05° 46' 45.7"	10h 30m 52.50s	+05° 07' 10.0"	375149	88.2	1911.10	-10.1	0.486	91.6	3507	5.6	3.9	5.6	4.0	5.2	4.8
1-giu	11h 22m 33.87s	-00° 14' 28.9"	11h 19m 42.01s	-00° 52' 54.3"	379664	100.8	1888.37	-10.5	0.595	79.0	3465	6.0	5.1	6.0	5.1	5.6	6.0
2-giu	12h 10m 20.35s	-06° 06' 58.8"	12h 07m 31.65s	-06° 45' 33.3"	384080	113.1	1866.66	-10.9	0.697	66.7	3425	6.2	5.9	6.2	6.0	5.8	6.8
3-giu	12h 58m 06.85s	-11° 36' 33.2"	12h 55m 25.84s	-12° 16' 26.1"	388240	125.1	1846.66	-11.3	0.789	54.7	3388	6.1	6.5	6.1	6.5	5.7	7.4
4-giu	13h 46m 45.99s	-16° 30' 20.1"	13h 44m 17.94s	-17° 12' 23.3"	392055	136.9	1828.69	-11.6	0.866	43.0	3355	5.8	6.7	5.8	6.7	5.4	7.6
5-giu	14h 36m 52.91s	-20° 36' 11.1"	14h 34m 44.22s	-21° 20' 52.8"	395479	148.4	1812.85	-11.9	0.926	31.5	3326	5.2	6.5	5.2	6.6	5.0	7.4
6-giu	15h 28m 38.79s	-23° 42' 54.4"	15h 26m 56.67s	-24° 30' 13.1"	398491	159.7	1799.15	-12.2	0.969	20.2	3301	4.5	6.1	4.5	6.1	4.3	7.0
7-giu	16h 21m 46.08s	-25° 41' 16.4"	16h 20m 37.35s	-26° 30' 39.2"	401066	170.6	1787.60	-12.5	0.993	9.4	3280	3.6	5.4	3.6	5.4	3.5	6.3
8-giu	17h 15m 30.10s	-26° 25' 33.5"	17h 14m 59.43s	-27° 16' 01.1"	403160	175.7	1778.31	-12.6	0.999	4.3	3263	2.5	4.4	2.5	4.4	2.5	5.3
9-giu	18h 08m 50.56s	-25° 54' 46.8"	18h 08m 59.16s	-26° 45' 06.9"	404705	166.1	1771.53	-12.4	0.985	13.9	3250	1.3	3.3	1.3	3.3	1.2	4.1
10-giu	19h 00m 50.05s	-24° 12' 54.0"	19h 01m 35.47s	-25° 01' 57.8"	405604	155.4	1767.60	-12.1	0.955	24.6	3243	-0.1	2.0	-0.1	2.0	-0.3	2.8
11-giu	19h 50m 50.71s	-21° 27' 44.8"	19h 52m 08.02s	-22° 14' 40.8"	405739	144.6	1767.01	-11.8	0.908	35.3	3242	-1.5	0.6	-1.5	0.7	-1.9	1.4
12-giu	20h 38m 41.94s	-17° 49' 14.9"	20h 40m 25.36s	-18° 33' 35.8"	404993	133.7	1770.27	-11.5	0.846	46.1	3248	-2.9	-0.7	-2.9	-0.7	-3.5	-0.1
13-giu	21h 24m 38.90s	-13° 27' 48.5"	21h 26m 43.06s	-14° 09' 31.7"	403262	122.8	1777.87	-11.2	0.772	57.0	3262	-4.3	-2.1	-4.3	-2.1	-5.0	-1.5
14-giu	22h 09m 16.56s	-08° 33' 23.6"	22h 11m 37.07s	-09° 12' 48.5"	400481	111.8	1790.21	-10.9	0.687	68.0	3285	-5.5	-3.4	-5.5	-3.4	-6.3	-2.9
15-giu	22h 53m 23.63s	-03° 15' 25.8"	22h 55m 57.07s	-03° 53' 10.5"	396652	100.6	1807.50	-10.5	0.593	79.2	3316	-6.5	-4.5	-6.5	-4.5	-7.4	-4.2
16-giu	23h 37m 58.63s	+02° 16' 37.0"	23h 40m 42.16s	+01° 39' 37.6"	391856	89.1	1829.62	-10.1	0.494	90.7	3357	-7.3	-5.5	-7.3	-5.5	-8.1	-5.2
17-giu	00h 24m 07.56s	+07° 52' 06.6"	00h 26m 58.15s	+07° 14' 43.2"	386279	77.3	1856.03	-9.6	0.392	102.5	3405	-7.6	-6.2	-7.6	-6.2	-8.5	-5.9
18-giu	01h 13m 01.19s	+13° 17' 44.3"	01h 15m 54.59s	+12° 38' 36.6"	380218	65.1	1885.62	-9.1	0.291	114.7	3460	-7.5	-6.7	-7.5	-6.6	-8.5	-6.3
19-giu	02h 05m 48.32s	+18° 15' 56.8"	02h 08m 37.72s	+17° 33' 43.2"	374070	52.5	1916.61	-8.4	0.196	127.4	3517	-7.0	-6.7	-7.0	-6.7	-7.9	-6.3
20-giu	03h 03m 19.98s	+22° 24' 04.7"	03h 05m 54.80s	+21° 37' 40.9"	368315	39.4	1946.56	-7.5	0.114	140.6	3572	-6.0	-6.4	-6.0	-6.4	-6.8	-5.8
21-giu	04h 05m 41.75s	+25° 15' 44.5"	04h 07m 47.74s	+24° 24' 52.9"	363460	25.8	1972.56	-6.5	0.050	154.1	3619	-4.5	-5.6	-4.5	-5.6	-5.2	-4.9
22-giu	05h 11m 44.34s	+26° 26' 04.6"	05h 13m 06.81s	+25° 31' 40.1"	359973	12.0	1991.67	-5.2	0.011	167.9	3654	-2.8	-4.5	-2.8	-4.5	-3.2	-3.6
23-giu	06h 19m 02.66s	+25° 40' 21.4"	06h 19m 32.24s	+24° 44' 29.4"	358201	3.5	2001.52	-4.3	0.001	176.5	3672	-0.9	-3.0	-0.9	-3.0	-1.0	-2.1
24-giu	07h 24m 46.22s	+23° 00' 55.1"	07h 24m 22.74s	+22° 06' 09.6"	358305	16.8	2000.94	-5.7	0.022	163.1	3671	1.0	-1.3	1.0	-1.3	1.0	-0.4
25-giu	08h 26m 50.57s	+18° 46' 40.0"	08h 25m 41.50s	+17° 55' 07.6"	360228	30.9	1990.25	-6.9	0.071	149.0	3652	2.8	0.4	2.8	0.5	2.8	1.4
26-giu	09h 24m 32.38s	+13° 25' 41.7"	09h 22m 48.01s	+12° 38' 27.7"	363713	44.7	1971.18	-7.9	0.145	135.2	3617	4.4	2.2	4.4	2.2	4.2	3.1
27-giu	10h 18m 15.98s	+07° 27' 01.6"	10h 16m 05.73s	+06° 44' 08.2"	368362	58.3	1946.31	-8.7	0.238	121.6	3571	5.7	3.7	5.7	3.7	5.4	4.6
28-giu	11h 09m 01.81s	+01° 15' 46.9"	11h 06m 32.98s	+00° 36' 29.3"	373714	71.4	1918.43	-9.3	0.341	108.5	3520	6.6	5.0	6.6	5.0	6.2	5.9
29-giu	11h 58m 01.42s	-04° 48' 01.2"	11h 55m 19.54s	-05° 24' 56.0"	379322	84.1	1890.07	-9.9	0.450	95.8	3468	7.1	5.9	7.1	6.0	6.7	6.8
30-giu	12h 46m 23.56s	-10° 28' 37.3"	12h 43m 33.31s	-11° 04' 34.6"	384805	96.4	1863.14	-10.4	0.557	83.5	3418	7.2	6.5	7.2	6.6	6.8	7.4
1-lug	13h 35m 06.78s	-15° 33' 05.7"	13h 32m 13.08s	-16° 09' 30.4"	389873	108.3	1838.92	-10.8	0.658	71.5	3374	7.0	6.8	7.0	6.8	6.6	7.6
2-lug	14h 24m 54.06s	-19° 50' 08.6"	14h 22m 02.83s	-20° 28' 14.8"	394339	120.0	1818.09	-11.1	0.751	59.9	3336	6.5	6.7	6.5	6.7	6.1	7.6
3-lug	15h 16m 06.95s	-23° 09' 37.0"	15h 13m 25.58s	-23° 50' 17.7"	398102	131.4	1800.91	-11.4	0.831	48.5	3304	5.8	6.3	5.8	6.3	5.4	7.1
4-lug	16h 08m 40.45s	-25° 22' 51.9"	16h 06m 17.42s	-26° 06' 29.8"	401128	142.6	1787.32	-11.8	0.898	37.3	3279	4.8	5.6	4.8	5.6	4.5	6.5
5-lug	17h 02m 02.13s	-26° 23' 50.9"	17h 00m 05.77s	-27° 10' 12.9"	403428	153.7	1777.13	-12.0	0.948	26.3	3261	3.7	4.7	3.7	4.7	3.4	5.5
6-lug	17h 55m 19.61s	-26° 10' 23.6"	17h 53m 56.34s	-26° 58' 43.7"	405030	164.6	1770.11	-12.3	0.982	15.3	3248	2.5	3.6	2.5	3.6	2.2	4.4
7-lug	18h 47m 36.03s	-24° 44' 53.8"	18h 46m 49.03s	-25° 34' 03.9"	405960	175.4	1766.05	-12.6	0.998	4.6	3240	1.1	2.3	1.1	2.3	0.9	3.1
8-lug	19h 38m 07.20s	-22° 13' 55.0"	19h 37m 56.30s	-23° 02' 40.5"	406228	173.3	1764.89	-12.6	0.997	6.6	3238	-0.3	0.9	-0.3	1.0	-0.4	1.8
9-lug	20h 26m 32.45s	-18° 46' 51.3"	20h 26m 55.11s	-19° 34' 05.7"	405819	162.5	1766.67	-12.3	0.977	17.4	3241	-1.7	-0.5	-1.7	-0.5	-2.0	0.3
10-lug	21h 12m 56.53s	-14° 34' 23.0"	21h 13m 49.14s	-15° 19' 17.1"	404694	151.6	1771.58	-12.0	0.940	28.3	3250	-3.1	-1.9	-3.1	-1.8	-3.5	-1.2
11-lug	21h 57m 45.24s	-09° 47' 15.3"	21h 59m 04.29s	-10° 29' 21.8"	402800	140.6	1779.90	-11.7	0.887	39.3	3266	-4.4	-3.2	-4.4	-3.2	-4.9	-2.6
12-lug	22h 41m 39.58s	-04° 35' 46.3"	22h 43m 22.18s	-05° 15' 01.0"	400089	129.5	1791.96	-11.4	0.819	50.4	3288	-5.5	-4.4	-5.5	-4.4	-6.2	-3.9
13-lug	23h 25m 31.14s	+00° 50' 06.3"	23h 27m 35.18s	+00° 13' 24.2"	396534	118.3	1808.03	-11.1	0.738	61.6	3317	-6.5	-5.4	-6.5	-5.4	-7.2	-5.0
14-lug	00h 10m 19.35s	+06° 20' 05.8"	00h 12m 43.18s	+05° 45' 13.3"	392158	106.8	1828.21	-10.7	0.645	73.1	3354	-7.1	-6.2	-7.1	-6.1	-7.9	-5.8
15-lug	00h 57m 09.42s	+11° 42' 33.2"	00h 59m 51.25s	+11° 08' 23.3"	387056	95.0	1852.31	-10.3	0.544	84.9	3399	-7.5	-6.7	-7.5	-6.6	-8.3	-6.4
16-lug	01h 47m 08.57s	+16° 43' 06.5"	01h 50m 05.33s	+16° 08' 10.2"	381415	82.8	1879.70	-9.8	0.439	97.1	3449	-7.5	-6.8	-7.5	-6.8	-8.4	-6.5
17-lug	02h 41m 16.63s	+21° 03' 28.3"	02h 44m 22.42s	+20° 26' 03.8"	375529	70.2	1909.16	-9.3	0.332	109.6	3503	-7.1	-6.6	-7.1	-6.6	-7.9	-6.2
18-lug	03h 40m 06.98s	+24° 21' 16.2"	03h 43m 11.41s	+23° 39' 48.0"	369791	57.2	1938.79	-8.6	0.230	122.6	3557	-6.2	-6.0	-6.2	-6.0	-7.1	-5.5
19-lug	04h 43m 19.05s	+26° 12' 19.0"	04h 46m 07.12s	+25° 25' 54.8"	364665	43.8	1966.04	-7.8	0.140	136.1	3607	-4.9	-5.0	-4.9	-5.0	-5.7	-4.3
20-lug	05h 49m 19.13s	+26° 16' 35.4"	05h 51m 34.25s	+25° 25' 40.0"	360639	30.0	1987.98	-6.8	0.067	150.0	3648	-3.3	-3.7	-3.4	-3.7	-3.9	-2.8
21-lug	06h 55m 37.66s	+24° 26' 00.4"	06h 57m 07.34s	+23° 32' 24.0"	358147	15.8	2001.82	-5.5	0.019	164.1	3673	-1.5	-2.1	-1.5	-2.0	-1.8	-1.1
22-lug	07h 59m 47.09s	+20° 48' 59.7"	08h 00m 26.94s	+19° 55' 23.1"	357486	1.5	2005.52	-4.0	0.000	178.5	3680	0.4	-0.3	0.4	-0.3	0.4	0.6
23-lug	09h 00m 18.43s	+15° 48' 06.0"	09h 00m 11.24s	+14° 57' 03.8"	358753	12.7	1998.44	-5.3	0.012	167.3	3667	2.4	1.5	2.4	1.5	2.6	2.4
24-lug	09h 56m 55.93s	+09° 52' 44.3"	09h 56m 07.97s	+09° 06' 01.4"	361819	26.8	1981.50	-6.5	0.054	153.2	3636	4.1	3.2	4.1	3.2	4.2	4.0
25-lug	10h 50m 16.43s	+03° 32' 12.6"	10h 48m 54.31s	+02° 50' 27.7"	366360	40.5	1956.94	-7.6	0.120	139.4	3591	5.6	4.6	5.6	4.6	5.5	5.4
26-lug	11h 41m 21.48s	-02° 48' 15.6"	11h 39m 30.76s	-03° 25' 24.4"	371916	53.8	1927.71	-8.4	0.206	126.1	3537	6.7	5.7	6.7	5.7	6.5	6.5
27-lug	12h 31m 17.35s	-08° 48' 32.6"	12h 29m 02.60s	-09° 22' 11.7"	377981	66.6	1896.78	-9.1	0.303	113.2	3480	7.4	6.4	7.4	6.5	7.1	7.2
28-lug	13h 21m 03.79s	-14° 12' 57.1"	13h 18m 29.23s	-14° 44' 39.0"	384072	79.0	1866.70	-9.7	0.406	100.8	3425	7.6	6.8	7.6	6.8	7.2	7.5
29-lug	14h 11m 27.00s																

Data	A.R. Geoc.	Dec. Geoc.	A.R. Top.	Dec. Top.	Dist. km	EI °	Diam. "	Mag	Fase	Ang. fase°	Par.	L1	L2	L3	L4	L5	L6
15-ago	04h 21m 24.34s	+25° 43' 24.3"	04h 24m 39.09s	+25° 07' 48.9"	372033	74.5	1927.10	-9.5	0.367	105.4	3536	-5.7	-5.4	-5.7	-5.3	-6.5	-4.9
16-ago	05h 24m 31.29s	+26° 26' 16.0"	05h 27m 42.58s	+25° 45' 29.5"	367425	61.3	1951.27	-8.8	0.261	118.6	3580	-4.7	-4.2	-4.7	-4.1	-5.4	-3.5
17-ago	06h 29m 01.59s	+25° 22' 34.9"	06h 31m 52.88s	+24° 36' 42.4"	363569	47.7	1971.96	-8.1	0.164	132.2	3618	-3.3	-2.7	-3.3	-2.7	-4.0	-1.9
18-ago	07h 32m 46.02s	+22° 32' 26.8"	07h 35m 03.85s	+21° 43' 02.5"	360871	33.9	1986.71	-7.1	0.085	146.0	3645	-1.8	-1.0	-1.8	-1.0	-2.2	-0.1
19-ago	08h 34m 03.31s	+18° 09' 19.3"	08h 35m 40.42s	+17° 18' 58.6"	359675	19.9	1993.31	-5.9	0.030	160.1	3657	-0.1	0.8	0.0	0.8	-0.2	1.7
20-ago	09h 32m 09.62s	+12° 36' 35.7"	09h 33m 04.52s	+11° 48' 04.9"	360194	6.1	1990.45	-4.5	0.003	173.8	3652	1.7	2.5	1.7	2.5	1.8	3.4
21-ago	10h 27m 15.48s	+06° 22' 04.1"	10h 27m 29.93s	+05° 37' 35.6"	362452	8.7	1978.04	-4.8	0.006	171.3	3629	3.4	4.0	3.5	4.1	3.7	4.8
22-ago	11h 20m 05.11s	-00° 06' 45.5"	11h 19m 41.88s	-00° 46' 00.7"	366275	22.2	1957.40	-6.1	0.037	157.8	3591	5.0	5.3	5.0	5.3	5.1	5.9
23-ago	12h 11m 35.79s	-06° 25' 30.3"	12h 10m 37.51s	-06° 59' 28.4"	371316	35.5	1930.83	-7.2	0.093	144.4	3543	6.1	6.2	6.2	6.2	6.2	6.8
24-ago	13h 02m 43.43s	-12° 13' 58.2"	13h 01m 12.49s	-12° 43' 33.5"	377117	48.4	1901.12	-8.1	0.169	131.5	3488	6.9	6.6	6.9	6.7	6.8	7.3
25-ago	13h 54m 13.20s	-17° 16' 04.5"	13h 52m 12.31s	-17° 42' 52.1"	383182	60.8	1871.03	-8.8	0.257	119.1	3433	7.3	6.7	7.3	6.8	7.0	7.4
26-ago	14h 46m 32.63s	-21° 19' 24.0"	14h 44m 05.73s	-21° 45' 19.0"	389044	72.8	1842.84	-9.4	0.354	107.0	3381	7.2	6.5	7.2	6.5	6.8	7.1
27-ago	15h 39m 46.58s	-24° 14' 50.4"	15h 36m 59.59s	-24° 41' 46.7"	394310	84.5	1818.23	-9.9	0.453	95.4	3336	6.6	5.9	6.7	5.9	6.2	6.5
28-ago	16h 33m 35.73s	-25° 56' 38.9"	16h 30m 36.81s	-26° 26' 09.8"	398686	95.8	1798.27	-10.3	0.552	84.1	3299	5.8	5.1	5.8	5.1	5.2	5.7
29-ago	17h 27m 21.43s	-26° 22' 44.0"	17h 24m 20.25s	-26° 55' 47.2"	401991	106.9	1783.49	-10.7	0.646	73.0	3272	4.7	4.0	4.7	4.1	4.1	4.7
30-ago	18h 20m 49.12s	-26° 34' 48.7"	18h 17m 23.33s	-26° 11' 38.8"	404145	117.8	1773.98	-11.1	0.734	62.1	3255	3.4	2.8	3.4	2.9	2.7	3.5
31-ago	19h 11m 42.26s	-23° 38' 03.6"	19h 09m 04.14s	-24° 18' 14.1"	405161	128.6	1769.53	-11.4	0.813	51.2	3247	2.0	1.5	2.0	1.5	1.3	2.2
1-set	20h 01m 13.71s	-20° 40' 15.7"	19h 58m 56.98s	-21° 22' 47.8"	405127	139.5	1769.68	-11.7	0.881	40.4	3247	0.6	0.1	0.6	0.2	-0.1	0.8
2-set	20h 48m 49.12s	-16° 50' 46.8"	20h 46m 57.21s	-17° 34' 21.8"	404178	150.3	1773.84	-11.9	0.935	29.6	3255	-0.8	-1.2	-0.8	-1.2	-1.4	-0.6
3-set	21h 34m 45.29s	-12° 19' 45.0"	21h 33m 19.96s	-13° 02' 56.7"	402476	161.2	1781.34	-12.2	0.974	18.7	3268	-2.0	-2.6	-2.0	-2.6	-2.6	-2.0
4-set	22h 19m 33.57s	-07° 17' 40.3"	22h 18m 35.71s	-07° 59' 05.8"	400191	171.9	1791.51	-12.5	0.995	8.1	3287	-3.1	-3.8	-3.1	-3.8	-3.6	-3.2
5-set	23h 03m 55.33s	-01° 55' 23.3"	23h 03m 25.73s	-02° 33' 52.8"	397475	174.7	1803.75	-12.6	0.998	5.3	3310	-4.0	-4.9	-4.0	-4.9	-4.4	-4.3
6-set	23h 48m 38.64s	+03° 35' 39.7"	23h 48m 38.47s	+03° 00' 53.2"	394450	164.1	1817.59	-12.3	0.981	15.9	3335	-4.7	-5.8	-4.7	-5.8	-4.9	-5.2
7-set	00h 34m 35.75s	+09° 03' 01.1"	00h 35m 06.75s	+08° 32' 12.6"	391204	152.6	1832.67	-12.0	0.944	27.3	3363	-5.2	-6.4	-5.2	-6.3	-5.5	-5.9
8-set	01h 22m 39.99s	+14° 12' 41.8"	01h 23m 44.32s	+13° 45' 26.6"	387793	140.8	1848.79	-11.7	0.888	39.1	3392	-5.4	-6.7	-5.4	-6.6	-5.9	-6.3
9-set	02h 13m 40.17s	+18° 48' 47.3"	02h 15m 19.63s	+18° 23' 55.9"	384253	128.8	1865.82	-11.4	0.814	51.1	3423	-5.5	-6.6	-5.5	-6.6	-6.0	-6.3
10-set	03h 08m 10.17s	+22° 33' 28.9"	03h 10m 24.75s	+22° 09' 09.8"	380622	116.5	1883.62	-11.0	0.724	63.4	3456	-5.3	-6.2	-5.3	-6.2	-5.9	-5.9
11-set	04h 06m 13.81s	+25° 08' 04.1"	04h 08m 59.63s	+24° 42' 00.3"	376962	104.0	1901.91	-10.6	0.622	75.9	3490	-4.9	-5.4	-4.9	-5.4	-5.6	-5.1
12-set	05h 07m 10.56s	+26° 15' 31.3"	05h 10m 18.36s	+25° 45' 32.1"	373384	91.2	1920.13	-10.2	0.512	88.6	3523	-4.3	-4.3	-4.3	-4.3	-5.1	-3.9
13-set	06h 09m 35.13s	+25° 44' 25.9"	06h 12m 50.93s	+25° 09' 09.7"	370061	78.2	1937.37	-9.7	0.399	101.7	3555	-3.5	-3.0	-3.5	-3.0	-4.2	-2.4
14-set	07h 11m 40.91s	+23° 32' 41.9"	07h 14m 49.37s	+22° 52' 07.8"	367226	64.9	1952.33	-9.0	0.289	114.9	3582	-2.5	-1.4	-2.5	-1.4	-3.1	-0.6
15-set	08h 11m 57.64s	+19° 48' 47.4"	08h 14m 46.04s	+19° 04' 19.6"	365155	51.5	1963.40	-8.3	0.189	128.4	3602	-1.3	0.3	-1.3	0.3	-1.8	1.1
16-set	09h 09m 38.89s	+14° 49' 56.1"	09h 11m 59.02s	+14° 03' 57.6"	364124	37.9	1968.96	-7.4	0.106	142.0	3613	0.1	1.9	0.1	2.0	-0.2	2.8
17-set	10h 04m 45.38s	+08° 58' 40.2"	10h 06m 33.08s	+08° 13' 52.7"	364356	24.3	1967.71	-6.3	0.045	155.6	3610	1.5	3.5	1.6	3.5	1.4	4.4
18-set	10h 57m 51.43s	+02° 39' 32.4"	10h 59m 04.85s	+01° 58' 17.1"	365969	11.2	1959.03	-5.1	0.010	168.8	3594	3.0	4.8	3.0	4.8	3.0	5.6
19-set	11h 49m 47.62s	-03° 43' 15.1"	11h 50m 25.77s	-04° 19' 26.6"	368936	5.3	1943.28	-4.5	0.002	174.7	3566	4.3	5.8	4.3	5.8	4.4	6.4
20-set	12h 41m 26.71s	-09° 47' 20.9"	12h 41m 28.73s	-10° 18' 01.1"	373073	16.9	1921.73	-5.7	0.022	163.1	3526	5.4	6.4	5.4	6.4	5.6	6.9
21-set	13h 33m 33.24s	-15° 13' 10.0"	13h 32m 58.37s	-15° 38' 55.5"	378063	29.5	1896.36	-6.8	0.065	150.4	3479	6.1	6.6	6.1	6.6	6.2	7.1
22-set	14h 26m 35.14s	-19° 44' 29.7"	14h 25m 23.45s	-20° 06' 48.8"	383504	41.8	1869.46	-7.7	0.128	138.1	3430	6.4	6.5	6.5	6.5	6.3	6.9
23-set	15h 20m 37.28s	-23° 08' 59.4"	15h 18m 50.68s	-23° 29' 51.7"	388956	53.8	1843.26	-8.4	0.206	126.1	3382	6.3	6.0	6.4	6.0	6.1	6.4
24-set	16h 15m 18.88s	-25° 18' 41.1"	16h 13m 02.05s	-25° 40' 12.2"	394004	65.4	1819.64	-9.1	0.293	114.4	3339	5.9	5.2	5.9	5.2	5.4	5.7
25-set	17h 09m 58.15s	-26° 10' 22.4"	17h 07m 18.61s	-26° 34' 19.3"	398291	76.7	1800.06	-9.6	0.386	103.1	3303	5.0	4.2	5.0	4.2	4.5	4.7
26-set	18h 03m 44.62s	-25° 45' 32.5"	18h 00m 51.75s	-26° 13' 05.6"	401550	87.8	1785.45	-10.0	0.482	92.1	3276	3.9	3.0	3.9	3.0	3.3	3.5
27-set	18h 55m 54.73s	-24° 09' 36.0"	18h 52m 58.06s	-24° 41' 11.3"	403613	98.7	1776.32	-10.4	0.577	81.1	3259	2.6	1.7	2.6	1.7	1.9	2.2
28-set	19h 46m 03.54s	-21° 30' 34.3"	19h 43m 11.30s	-22° 05' 55.6"	404418	109.5	1772.78	-10.8	0.668	70.3	3253	1.2	0.4	1.2	0.4	0.5	0.9
29-set	20h 34m 08.83s	-17° 57' 45.0"	20h 31m 27.26s	-18° 36' 02.3"	404001	120.4	1774.61	-11.1	0.754	59.5	3256	-0.2	-1.0	-0.2	-1.0	-1.0	-0.5
30-set	21h 20m 28.51s	-13° 40' 47.1"	21h 18m 02.00s	-14° 20' 46.8"	402482	131.2	1781.31	-11.4	0.830	48.6	3268	-1.5	-2.3	-1.5	-2.3	-2.3	-1.8
1-ott	22h 05m 35.40s	-08° 49' 22.3"	22h 03m 27.08s	-09° 29' 36.9"	400051	142.3	1792.13	-11.7	0.896	37.7	3288	-2.7	-3.6	-2.7	-3.6	-3.4	-3.1
2-ott	22h 50m 12.18s	-03° 33' 27.1"	22h 48m 24.64s	-04° 12' 24.9"	396945	153.4	1806.16	-12.0	0.947	26.5	3314	-3.6	-4.7	-3.6	-4.7	-4.2	-4.2
3-ott	23h 35m 07.83s	+01° 56' 13.8"	23h 33m 43.82s	+01° 19' 58.5"	393419	164.6	1822.35	-12.3	0.982	15.4	3344	-4.3	-5.6	-4.2	-5.5	-4.8	-5.1
4-ott	00h 21m 14.99s	+07° 27' 27.7"	00h 20m 17.92s	+06° 55' 02.0"	389723	174.4	1839.63	-12.6	0.998	5.6	3375	-4.6	-6.2	-4.6	-6.2	-5.1	-5.8
5-ott	01h 09m 26.71s	+12° 45' 55.5"	01h 09m 00.93s	+12° 17' 53.6"	386076	169.7	1857.01	-12.5	0.992	10.2	3407	-4.8	-6.5	-4.7	-6.5	-5.0	-6.1
6-ott	02h 00m 30.72s	+17° 34' 51.9"	02h 00m 41.28s	+17° 11' 00.2"	382645	158.2	1873.66	-12.2	0.964	21.8	3438	-4.6	-6.5	-4.6	-6.5	-4.8	-6.1
7-ott	02h 54m 58.99s	+21° 35' 23.5"	02h 55m 50.55s	+21° 14' 31.1"	379539	146.0	1888.99	-11.8	0.915	34.0	3466	-4.3	-6.1	-4.3	-6.1	-4.6	-5.8
8-ott	03h 52m 52.77s	+24° 27' 56.2"	03h 54m 27.51s	+24° 07' 58.6"	376808	133.4	1902.68	-11.5	0.844	46.5	3491	-3.8	-5.4	-3.8	-5.4	-4.2	-5.1
9-ott	04h 53m 29.25s	+25° 55' 12.5"	04h 55m 44.34s	+25° 33' 35.5"	374463	120.7	1914.59	-11.1	0.756	59.2	3513	-3.2	-4.4	-3.2	-4.3	-3.7	-4.0
10-ott	05h 55m 22.48s	+25° 46' 08.0"	05h 58m 08.93s	+25° 20' 31.9"	372502	107.9	1924.68	-10.8	0.654	72.0	3531	-2.5	-3.0	-2.4	-3.0	-3.1	-2.6
11-ott	06h 56m 47.44s	+23° 59' 02.0"	06h 59m 51.88s	+23° 28' 06.2"	370931	94.9	1932.83	-10.3	0.544	85.0	3546	-1.7	-1.5	-1.7	-1.5	-2.3	-0.9
12-ott	07h 56m 16.86s	+20° 42' 03.9"	07h 59m 25.34s	+20° 05' 51.3"	369788	81.8	1938.80	-9.8	0.430	98.1	3557	-0.8	0.1	-0.8	0.1	-1.4	0.8
13-ott	08h 53m 07.10s	+16° 10' 49.8"	08h 56m 08.23s	+15° 30' 41.1"	369156	68.6	1942.12	-9.2	0.319	111.3	3563	0.1	1.7	0.2	1.7	-0.4	2.5
14-ott	09h 47m 20.75s	+10° 44' 58.0"	09h 50m 06.6														

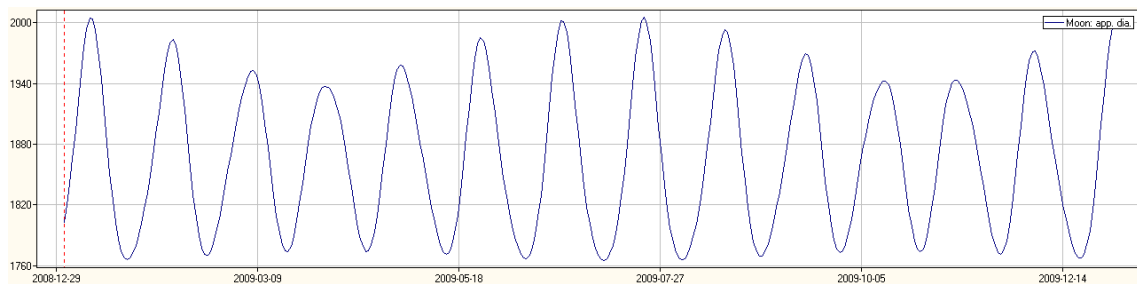
Data	A.R. Geoc.	Dec. Geoc.	A.R. Top.	Dec. Top.	Dist. km	El °	Diam. "	Mag	Fase	Ang. fase°	Par.	L1	L2	L3	L4	L5	L6
31-ott	00h 04m 23.31s	+05° 34' 54.2"	00h 02m 12.89s	+04° 59' 56.8"	390127	145.3	1837.72	-11.8	0.911	34.7	3372	-5.0	-6.1	-5.0	-6.1	-5.7	-5.8
1-nov	00h 52m 03.70s	+10° 58' 19.3"	00h 50m 13.13s	+10° 26' 59.9"	385456	157.0	1859.99	-12.1	0.961	22.9	3413	-5.2	-6.5	-5.1	-6.5	-5.8	-6.2
2-nov	01h 42m 43.19s	+15° 59' 52.9"	01h 41m 19.30s	+15° 33' 07.3"	380933	168.7	1882.08	-12.4	0.990	11.2	3453	-4.9	-6.5	-4.9	-6.5	-5.4	-6.2
3-nov	02h 37m 03.41s	+20° 20' 01.2"	02h 36m 14.58s	+19° 57' 53.2"	376880	174.6	1902.32	-12.6	0.998	5.4	3490	-4.4	-6.2	-4.4	-6.2	-4.7	-5.9
4-nov	03h 35m 15.05s	+23° 36' 57.0"	03h 35m 09.78s	+23° 18' 20.6"	373550	164.0	1919.28	-12.3	0.981	16.0	3522	-3.7	-5.5	-3.7	-5.5	-3.8	-5.2
5-nov	04h 36m 39.43s	+25° 30' 01.6"	04h 37m 23.23s	+25° 12' 42.2"	371099	151.3	1931.95	-12.0	0.939	28.7	3545	-2.8	-4.5	-2.7	-4.5	-3.0	-4.2
6-nov	05h 39m 43.88s	+25° 44' 53.5"	05h 41m 15.85s	+25° 26' 00.3"	369578	138.2	1939.91	-11.6	0.873	41.7	3559	-1.8	-3.1	-1.7	-3.1	-2.1	-2.8
7-nov	06h 42m 25.97s	+24° 18' 04.1"	06h 44m 37.94s	+23° 55' 07.0"	368938	125.0	1943.27	-11.3	0.788	54.8	3566	-0.7	-1.6	-0.7	-1.6	-1.2	-1.2
8-nov	07h 42m 58.48s	+21° 17' 57.5"	07h 45m 37.85s	+20° 49' 36.8"	369069	111.8	1942.58	-10.9	0.687	68.0	3564	0.3	0.0	0.3	0.0	-0.3	0.6
9-nov	08h 40m 24.15s	+17° 01' 38.0"	08h 43m 18.19s	+16° 28' 01.9"	369831	98.7	1938.57	-10.4	0.577	81.2	3557	1.2	1.6	1.2	1.7	0.7	2.4
10-nov	09h 34m 41.01s	+11° 49' 58.7"	09h 37m 39.44s	+11° 12' 28.5"	371096	85.6	1931.97	-10.0	0.463	94.2	3545	2.1	3.2	2.1	3.2	1.6	4.0
11-nov	10h 26m 26.55s	+06° 04' 02.3"	10h 29m 21.96s	+05° 24' 43.2"	372771	72.6	1923.29	-9.4	0.352	107.2	3529	2.9	4.5	2.9	4.5	2.5	5.4
12-nov	11h 16m 38.24s	+00° 03' 27.9"	11h 19m 25.14s	-00° 35' 21.0"	374809	59.8	1912.83	-8.8	0.250	120.1	3510	3.6	5.5	3.7	5.5	3.3	6.4
13-nov	12h 06m 18.75s	-05° 53' 33.8"	12h 08m 52.41s	-06° 29' 44.3"	377198	47.1	1900.71	-8.0	0.161	132.8	3487	4.3	6.2	4.3	6.2	3.9	7.0
14-nov	12h 56m 26.20s	-11° 29' 51.2"	12h 58m 41.60s	-12° 01' 46.3"	379947	34.6	1886.96	-7.2	0.089	145.3	3462	4.8	6.6	4.8	6.6	4.5	7.3
15-nov	13h 47m 46.05s	-16° 28' 54.6"	13h 49m 37.43s	-16° 55' 43.7"	383049	22.4	1871.68	-6.2	0.038	157.5	3434	5.1	6.6	5.1	6.6	4.8	7.1
16-nov	14h 40m 42.77s	-20° 35' 15.9"	14h 42m 03.80s	-20° 57' 03.9"	386461	10.7	1855.16	-5.0	0.009	169.3	3404	5.2	6.2	5.2	6.2	5.0	6.6
17-nov	15h 35m 11.85s	-23° 35' 37.5"	15h 35m 56.65s	-23° 53' 25.0"	390085	4.8	1837.92	-4.4	0.002	175.2	3372	5.0	5.5	5.0	5.5	4.9	5.8
18-nov	16h 30m 36.86s	-25° 20' 37.5"	16h 30m 41.66s	-25° 36' 09.0"	393760	14.5	1820.77	-5.4	0.016	165.5	3341	4.6	4.5	4.6	4.5	4.6	4.8
19-nov	17h 25m 56.86s	-25° 46' 29.0"	17h 25m 21.48s	-26° 01' 48.9"	397272	25.7	1804.67	-6.5	0.050	154.3	3311	3.9	3.4	3.9	3.4	3.8	3.7
20-nov	18h 20m 04.80s	-24° 55' 33.0"	18h 18m 52.89s	-25° 12' 38.3"	400372	36.8	1790.70	-7.3	0.100	143.1	3286	2.9	2.1	2.9	2.1	2.6	2.4
21-nov	19h 12m 08.51s	-22° 55' 16.0"	19h 10m 26.38s	-23° 15' 33.8"	402799	47.8	1779.91	-8.1	0.165	132.1	3266	1.7	0.7	1.7	0.7	1.3	1.0
22-nov	20h 01m 43.71s	-19° 56' 01.7"	19h 59m 38.53s	-20° 20' 19.1"	404313	58.6	1773.25	-8.7	0.241	121.2	3254	0.3	-0.7	0.4	-0.7	-0.2	-0.3
23-nov	20h 48m 55.38s	-16° 08' 59.8"	20h 46m 33.70s	-16° 37' 24.7"	404716	69.4	1771.48	-9.3	0.325	110.4	3250	-1.1	-2.0	-1.1	-2.0	-1.7	-1.7
24-nov	21h 34m 11.57s	-11° 44' 42.1"	21h 31m 38.69s	-12° 16' 48.8"	403881	80.2	1775.14	-9.7	0.416	99.6	3257	-2.5	-3.3	-2.5	-3.3	-3.2	-2.9
25-nov	22h 18m 15.62s	-06° 52' 36.1"	22h 15m 35.64s	-07° 27' 32.4"	401765	91.1	1784.49	-10.2	0.511	88.8	3274	-3.8	-4.4	-3.7	-4.4	-4.6	-4.1
26-nov	23h 02m 00.47s	-01° 41' 27.6"	22h 59m 16.68s	-02° 18' 00.5"	398428	102.1	1799.44	-10.6	0.606	77.7	3302	-4.9	-5.4	-4.8	-5.4	-5.7	-5.0
27-nov	23h 46m 25.33s	+03° 39' 45.0"	23h 43m 40.89s	+03° 03' 04.6"	394035	113.4	1819.50	-10.9	0.700	66.5	3338	-5.7	-6.1	-5.7	-6.1	-6.5	-5.8
28-nov	00h 32m 33.65s	+09° 00' 35.4"	00h 29m 52.41s	+08° 25' 26.4"	388857	125.0	1843.73	-11.3	0.788	54.9	3383	-6.1	-6.6	-6.1	-6.6	-7.0	-6.3
29-nov	01h 21m 29.89s	+14° 07' 45.5"	01h 18m 57.36s	+13° 35' 45.3"	383260	137.0	1870.65	-11.6	0.866	42.9	3432	-6.2	-6.7	-6.2	-6.7	-7.0	-6.4
30-nov	02h 14m 11.88s	+18° 43' 56.0"	02h 11m 56.22s	+18° 16' 21.0"	377674	149.3	1898.32	-11.9	0.930	30.6	3483	-5.8	-6.5	-5.8	-6.4	-6.5	-6.2
1-dic	03h 11m 15.10s	+22° 27' 37.3"	03h 09m 27.38s	+22° 04' 54.4"	372554	162.0	1924.41	-12.3	0.976	17.9	3531	-5.1	-5.8	-5.1	-5.8	-5.6	-5.6
2-dic	04h 12m 29.16s	+24° 55' 15.0"	04h 11m 21.90s	+24° 36' 33.7"	368324	174.4	1946.51	-12.6	0.998	5.6	3571	-4.0	-4.9	-4.0	-4.8	-4.3	-4.6
3-dic	05h 16m 38.79s	+25° 46' 20.6"	05h 16m 21.96s	+25° 29' 26.2"	365319	170.3	1962.52	-12.5	0.993	9.6	3601	-2.7	-3.5	-2.7	-3.5	-2.8	-3.2
4-dic	06h 21m 32.73s	+24° 50' 26.0"	06h 22m 09.09s	+24° 32' 15.0"	363732	157.0	1971.08	-12.1	0.961	22.9	3617	-1.3	-2.0	-1.2	-2.0	-1.4	-1.7
5-dic	07h 24m 50.10s	+22° 11' 28.8"	07h 26m 13.97s	+21° 49' 16.7"	363592	143.4	1971.84	-11.8	0.902	36.5	3618	0.2	-0.3	0.2	-0.3	-0.1	0.1
6-dic	08h 24m 54.60s	+18° 06' 21.3"	08h 26m 55.16s	+17° 38' 40.7"	364771	129.8	1965.47	-11.4	0.821	50.1	3606	1.6	1.4	1.6	1.4	1.3	2.0
7-dic	09h 21m 17.24s	+12° 58' 51.1"	09h 23m 43.06s	+12° 25' 48.8"	367027	116.3	1953.39	-11.0	0.723	63.5	3584	2.9	3.0	2.9	3.1	2.5	3.8
8-dic	10h 14m 24.10s	+07° 13' 38.3"	10h 17m 05.76s	+06° 36' 36.0"	370058	103.1	1937.39	-10.6	0.614	76.8	3555	3.9	4.4	3.9	4.4	3.5	5.3
9-dic	11h 05m 11.72s	+01° 12' 53.5"	11h 08m 02.12s	+00° 33' 55.2"	373564	90.1	1919.20	-10.1	0.502	89.7	3521	4.8	5.5	4.8	5.5	4.4	6.4
10-dic	11h 54m 46.99s	-04° 44' 27.4"	11h 57m 40.55s	-05° 23' 05.9"	377292	77.4	1900.24	-9.6	0.392	102.5	3487	5.4	6.3	5.4	6.3	5.0	7.2
11-dic	12h 44m 14.76s	-10° 22' 03.8"	12h 47m 06.30s	-10° 58' 18.6"	381055	65.0	1881.48	-9.0	0.289	114.9	3452	5.8	6.7	5.8	6.7	5.4	7.5
12-dic	13h 34m 29.71s	-15° 25' 12.2"	13h 37m 13.49s	-15° 57' 28.3"	384738	52.7	1863.47	-8.4	0.198	127.1	3419	5.9	6.7	6.0	6.7	5.5	7.5
13-dic	14h 26m 08.97s	-19° 40' 10.7"	14h 28m 38.11s	-20° 07' 35.4"	388283	40.8	1846.45	-7.6	0.122	139.1	3388	5.9	6.4	5.9	6.4	5.5	7.0
14-dic	15h 19m 24.25s	-22° 54' 33.7"	15h 21m 30.89s	-23° 17' 04.9"	391664	29.0	1830.51	-6.7	0.063	150.9	3359	5.6	5.7	5.6	5.8	5.2	6.3
15-dic	16h 13m 56.14s	-24° 58' 20.6"	16h 15m 32.50s	-25° 16' 49.0"	394863	17.4	1815.68	-5.7	0.023	162.5	3331	5.0	4.8	5.0	4.8	4.7	5.2
16-dic	17h 08m 55.79s	-25° 45' 38.3"	17h 09m 55.97s	-26° 01' 37.7"	397841	6.3	1802.09	-4.6	0.003	173.7	3306	4.3	3.7	4.3	3.7	4.1	4.0
17-dic	18h 03m 17.95s	-25° 16' 02.1"	18h 03m 39.42s	-25° 31' 29.4"	400527	5.9	1790.01	-4.5	0.003	174.1	3284	3.3	2.4	3.3	2.4	3.3	2.7
18-dic	18h 56m 01.32s	-23° 34' 41.5"	18h 55m 45.30s	-23° 51' 30.6"	402808	16.6	1779.87	-5.6	0.021	163.3	3266	2.2	1.0	2.2	1.0	2.1	1.3
19-dic	19h 46m 26.42s	-20° 50' 55.7"	19h 45m 36.87s	-21° 10' 37.1"	404538	27.5	1772.26	-6.6	0.057	152.4	3252	0.9	-0.4	0.9	-0.4	0.7	-0.1
20-dic	20h 34m 22.82s	-17° 16' 06.8"	20h 33m 04.84s	-17° 39' 36.0"	405545	38.4	1767.86	-7.4	0.109	141.5	3244	-0.5	-1.8	-0.5	-1.8	-0.9	-1.5
21-dic	21h 20m 06.40s	-13° 01' 46.1"	21h 18m 24.93s	-13° 29' 22.4"	405657	49.2	1767.37	-8.2	0.174	130.7	3243	-1.9	-3.1	-1.9	-3.1	-2.4	-2.7
22-dic	22h 04m 12.12s	-08° 18' 30.0"	22h 02m 11.25s	-08° 50' 00.1"	404724	59.9	1771.44	-8.8	0.251	119.9	3250	-3.3	-4.3	-3.3	-4.3	-3.9	-3.9
23-dic	22h 47m 27.23s	-03° 15' 47.5"	22h 45m 10.09s	-03° 50' 31.0"	402641	70.8	1780.61	-9.3	0.337	109.1	3267	-4.6	-5.3	-4.6	-5.3	-5.3	-4.9
24-dic	23h 30m 46.98s	+01° 57' 31.7"	23h 28m 15.99s	+01° 20' 37.7"	399378	81.8	1795.16	-9.8	0.430	98.1	3294	-5.7	-6.1	-5.7	-6.0	-6.5	-5.7
25-dic	00h 15m 12.38s	+07° 12' 20.5"	00h 12m 29.76s	+06° 34' 38.1"	394993	93.0	1815.09	-10.2	0.528	86.8	3330	-6.6	-6.6	-6.6	-6.6	-7.5	-6.3
26-dic	01h 01m 48.40s	+12° 17' 59.1"	00h 58m 57.03s	+11° 41' 04.6"	389655	104.6	1839.95	-10.6	0.627	75.3	3376	-7.1	-6.8	-7.1	-6.8	-8.0	-6.5
27-dic	01h 51m 40.04s	+17° 00' 49.7"	01h 48m 44.58s	+16° 26' 25.0"	383650	116.5	1868.75	-11.0	0.724	63.4	3429	-7.3	-6.7	-7.3	-6.7	-8.1	-6.4
28-dic	02h 45m 42.40s	+21° 03' 08.2"	02h 42m 50.68s	+20° 32' 43.2"	377372	128.9	1899.84	-11.4	0.814	51.0	3486	-7.0	-6.2	-7.0	-6.2	-7.8	-5.9
29-dic	03h 44m 21.52s	+24° 03' 09.4"	03h 41m 45.48s	+23° 37' 32.4"	371304	141.7	1930.89	-11.7	0.893	38.2	3543	-6.2	-5.4	-6.2	-5.4	-6.9	-5.1
30-dic	04h 47m 08.97s	+															



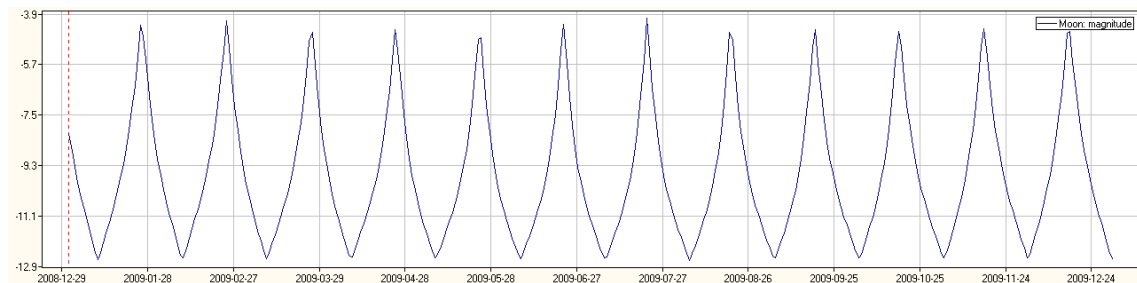
Distanza geocentrica della Luna in km nel corso dell'anno



Distanza topocentrica della Luna in km nel corso dell'anno



Diametro geocentrico della Luna in " nel corso dell'anno



Magnitudine della Luna nel corso dell'anno

EFFEMERIDI FISICHE DELLA LUNA

Data	l	b	Axis	Coln	Lat	%ill	Data	l	b	Axis	Coln	Lat	%ill
	o	o	o	o	o			o	o	o	o	o	
Gen 1	-6.0	-2.3	341.0	325.1	-0.8	17	Apr 3	0.6	-2.1	6.4	4.7	1.4	54
3	-7.4	-4.8	337.8	349.5	-0.7	35	5	2.2	1.2	15.9	29.1	1.4	76
5	-7.4	-6.4	338.1	13.8	-0.7	55	7	3.6	4.1	21.4	53.4	1.5	92
7	-5.7	-6.7	343.4	38.1	-0.6	77	9	4.5	6.0	22.6	77.8	1.5	100
9	-2.4	-5.2	354.0	62.3	-0.6	93	11	4.5	6.6	19.4	102.1	1.5	98
11	1.5	-2.4	6.7	86.6	-0.5	100	13	3.4	5.8	12.2	126.4	1.5	88
13	4.9	1.0	16.5	110.8	-0.5	95	15	1.3	4.1	2.4	150.8	1.5	73
15	7.0	4.1	21.6	135.1	-0.4	81	17	-1.3	1.7	352.6	175.2	1.5	55
17	7.3	6.1	22.4	159.4	-0.3	61	19	-4.0	-1.1	344.6	199.6	1.5	36
19	6.1	6.8	19.1	183.7	-0.3	41	21	-5.7	-3.7	339.3	224.0	1.5	19
21	3.9	6.2	12.1	208.1	-0.2	23	23	-6.0	-5.7	337.3	248.4	1.5	6
23	1.3	4.6	2.6	232.4	-0.2	10	25	-4.7	-6.5	339.6	272.9	1.5	0
25	-1.4	2.2	352.7	256.8	-0.1	2	27	-2.3	-5.8	347.4	297.4	1.5	5
27	-3.8	-0.6	344.7	281.2	-0.1	0	29	0.4	-3.7	359.1	321.8	1.5	19
29	-5.6	-3.4	339.4	305.5	0.0	7	Mag 1	2.6	-0.6	10.5	346.3	1.5	40
31	-6.5	-5.6	337.4	329.9	0.0	20	3	4.0	2.6	18.5	10.7	1.5	63
Feb 2	-6.3	-6.8	339.4	354.2	0.1	39	5	4.7	5.1	22.3	35.1	1.5	82
4	-4.9	-6.4	346.4	18.6	0.2	62	7	4.8	6.4	22.0	59.4	1.5	95
6	-2.4	-4.5	357.8	42.9	0.2	82	9	4.2	6.4	17.5	83.8	1.5	100
8	0.9	-1.4	9.8	67.1	0.3	96	11	2.6	5.2	9.1	108.2	1.5	97
10	3.9	2.0	18.4	91.4	0.3	100	13	0.3	3.1	359.0	132.5	1.5	87
12	6.0	4.9	22.3	115.7	0.4	92	15	-2.4	0.5	349.6	156.9	1.4	71
14	6.6	6.5	21.8	140.0	0.4	77	17	-5.0	-2.2	342.5	181.3	1.4	53
16	5.6	6.7	17.1	164.3	0.5	59	19	-6.7	-4.7	338.3	205.8	1.4	33
18	3.4	5.7	8.9	188.6	0.6	40	21	-6.9	-6.3	337.4	230.2	1.4	16
20	0.7	3.7	359.0	213.0	0.6	22	23	-5.2	-6.5	341.3	254.7	1.3	3
22	-2.0	1.2	349.6	237.3	0.7	9	25	-2.2	-5.2	350.7	279.2	1.3	0
24	-4.2	-1.7	342.5	261.7	0.7	1	27	1.2	-2.5	3.2	303.7	1.3	9
26	-5.4	-4.3	338.2	286.1	0.8	1	29	4.0	0.8	14.0	328.2	1.3	27
28	-5.5	-6.2	337.6	310.5	0.8	9	31	5.7	3.9	20.5	352.6	1.2	49
Mar 2	-4.7	-6.7	341.4	334.9	0.9	25	Giu 2	6.2	6.0	22.8	17.0	1.2	70
4	-3.3	-5.8	350.2	359.3	0.9	46	4	5.7	6.7	20.9	41.4	1.2	87
6	-1.3	-3.4	2.0	23.6	0.9	69	6	4.4	6.1	14.8	65.8	1.1	97
8	1.0	-0.2	12.9	47.9	1.0	88	8	2.4	4.4	5.6	90.2	1.1	100
10	3.3	3.0	20.0	72.2	1.0	98	10	-0.2	2.0	355.5	114.6	1.0	96
12	5.0	5.5	22.6	96.5	1.1	99	12	-3.0	-0.7	346.9	139.0	1.0	85
14	5.5	6.6	20.8	120.8	1.1	90	14	-5.6	-3.3	340.7	163.4	1.0	69
16	4.6	6.4	14.8	145.1	1.2	75	16	-7.4	-5.5	337.5	187.9	0.9	49
18	2.5	5.0	5.7	169.5	1.2	57	18	-7.6	-6.7	338.0	212.3	0.9	29
20	-0.2	2.8	355.7	193.9	1.2	38	20	-5.9	-6.4	343.4	236.8	0.8	11
22	-2.9	0.1	346.9	218.2	1.3	21	22	-2.8	-4.5	354.1	261.3	0.8	1
24	-4.8	-2.7	340.7	242.6	1.3	8	24	1.1	-1.4	6.8	285.8	0.7	2
26	-5.5	-5.1	337.5	267.1	1.3	1	26	4.5	2.1	16.6	310.3	0.7	15
28	-4.8	-6.4	338.4	291.5	1.3	2	28	6.7	4.9	21.8	334.8	0.7	34
30	-3.2	-6.4	344.2	315.9	1.4	13	30	7.3	6.5	22.6	359.2	0.6	56
Apr 1	-1.3	-4.8	354.6	340.3	1.4	32	Lug 2	6.6	6.7	19.0	23.7	0.6	75

Legenda:

l = librazione in longitudine, in °

b = librazione in latitudine, in °

axis = angolo di posizione del polo nord lunare, in °

coln = colongitudine del Sole, ossia longitudine del terminatore lunare, in °

lat = latitudine del Sole, riferita all'equatore lunare, in °

ill = percentuale di Luna illuminata

Data	l	b	Axis	Coln	Lat	%ill	Data	l	b	Axis	Coln	Lat	%ill		
	o	o	o	o	o			o	o	o	o	o			
Lug	1	7.1	6.8	21.3	11.5	0.6	66	Ott	1	-2.7	-3.6	340.8	55.0	-1.5	90
	3	5.9	6.3	15.7	35.9	0.5	83		3	-4.2	-5.6	337.4	79.4	-1.5	98
	5	3.8	4.6	6.8	60.3	0.5	95		5	-4.7	-6.5	337.7	103.7	-1.5	99
	7	1.1	2.3	356.7	84.7	0.4	100		7	-4.2	-6.1	342.7	128.0	-1.5	92
	9	-1.7	-0.4	347.8	109.1	0.4	98		9	-3.1	-4.4	352.3	152.3	-1.5	76
	11	-4.5	-3.1	341.3	133.5	0.3	89		11	-1.6	-1.5	4.1	176.7	-1.5	54
	13	-6.6	-5.4	337.7	157.9	0.3	74		13	0.2	1.7	14.4	201.1	-1.5	32
	15	-7.6	-6.7	337.6	182.3	0.2	54		15	2.2	4.6	20.9	225.5	-1.5	13
	17	-7.2	-6.6	341.9	206.8	0.2	33		17	4.2	6.2	22.9	249.9	-1.5	2
	19	-5.0	-5.0	351.4	231.3	0.1	14		19	5.4	6.4	20.2	274.3	-1.5	1
21	-1.6	-2.0	4.0	255.8	0.1	2	21	5.4	5.3	12.9	298.8	-1.5	9		
23	2.3	1.5	14.8	280.3	0.0	1	23	3.9	3.2	2.8	323.2	-1.5	23		
25	5.6	4.5	21.2	304.8	-0.1	12	25	1.4	0.5	352.9	347.5	-1.5	40		
27	7.4	6.4	22.8	329.3	-0.1	30	27	-1.4	-2.2	344.8	11.9	-1.5	59		
29	7.5	6.8	19.8	353.7	-0.2	51	29	-3.8	-4.5	339.4	36.2	-1.5	77		
Ago	31	6.2	5.8	12.7	18.1	-0.2	70	Nov	31	-5.1	-6.1	337.1	60.5	-1.5	91
	2	3.9	3.8	3.0	42.6	-0.3	86		2	-5.1	-6.5	338.8	84.8	-1.5	99
	4	1.1	1.2	353.1	66.9	-0.3	96		4	-3.8	-5.5	345.5	109.1	-1.5	98
	6	-1.7	-1.5	345.0	91.3	-0.4	100		6	-1.8	-3.2	356.6	133.4	-1.4	87
	8	-4.1	-4.1	339.6	115.7	-0.4	96		8	0.3	0.0	8.4	157.7	-1.4	69
	10	-5.9	-6.0	337.2	140.1	-0.5	86		10	2.1	3.1	17.4	182.1	-1.4	46
	12	-6.7	-6.8	338.5	164.5	-0.5	69		12	3.7	5.5	22.2	206.4	-1.4	25
	14	-6.4	-6.2	344.6	188.9	-0.6	48		14	4.8	6.6	22.6	230.8	-1.4	9
	16	-4.8	-4.1	355.2	213.4	-0.6	26		16	5.3	6.2	18.3	255.2	-1.3	1
	18	-1.9	-0.9	7.4	237.9	-0.7	9		18	4.7	4.5	9.8	279.6	-1.3	2
20	1.6	2.5	17.1	262.4	-0.7	0	20	3.0	2.1	359.4	304.0	-1.3	10		
22	4.9	5.2	22.2	286.8	-0.8	4	22	0.4	-0.6	349.9	328.3	-1.2	24		
24	6.9	6.6	22.4	311.3	-0.8	17	24	-2.5	-3.3	342.7	352.7	-1.2	41		
26	7.2	6.5	17.8	335.8	-0.9	35	26	-4.9	-5.4	338.2	17.0	-1.2	60		
28	5.9	5.1	9.5	0.2	-0.9	55	28	-6.2	-6.6	337.0	41.3	-1.1	79		
Set	30	3.5	2.8	359.4	24.6	-1.0	73	Dic	30	-6.0	-6.4	340.2	65.6	-1.1	93
	1	0.7	0.1	349.9	49.0	-1.0	88		2	-4.2	-4.9	348.5	89.9	-1.1	100
	3	-1.9	-2.6	342.7	73.4	-1.0	97		4	-1.4	-2.0	0.6	114.1	-1.0	96
	5	-3.9	-4.9	338.3	97.7	-1.1	100		6	1.5	1.3	12.1	138.4	-1.0	82
	7	-5.1	-6.4	337.2	122.1	-1.1	95		8	3.9	4.4	19.7	162.7	-0.9	61
	9	-5.4	-6.6	340.3	146.5	-1.2	81		10	5.4	6.3	22.9	187.0	-0.9	39
	11	-4.9	-5.4	348.1	170.8	-1.2	62		12	5.9	6.7	21.6	211.4	-0.8	20
	13	-3.5	-2.9	359.6	195.2	-1.2	40		14	5.6	5.7	15.7	235.7	-0.8	6
	15	-1.3	0.3	10.9	219.7	-1.3	19		16	4.4	3.7	6.3	260.1	-0.7	0
	17	1.5	3.5	19.1	244.1	-1.3	4		18	2.3	1.0	355.9	284.5	-0.7	2
19	4.2	5.8	22.8	268.6	-1.3	0	20	-0.4	-1.7	347.1	308.8	-0.6	11		
21	6.0	6.6	21.5	293.1	-1.3	6	22	-3.2	-4.2	340.8	333.2	-0.6	25		
23	6.3	6.0	15.5	317.5	-1.4	20	24	-5.6	-6.0	337.4	357.5	-0.5	43		
25	5.0	4.2	6.2	341.9	-1.4	38	26	-7.1	-6.8	337.4	21.8	-0.5	63		
27	2.6	1.7	356.0	6.3	-1.4	58	28	-7.0	-6.2	342.0	46.1	-0.4	81		
Set	29	-0.2	-1.1	347.2	30.7	-1.4	75	Dic	30	-5.1	-4.1	351.6	70.4	-0.4	95

Legenda:

l = librazione in longitudine, in °

b = librazione in latitudine, in °

axis = angolo di posizione del polo nord lunare, in °

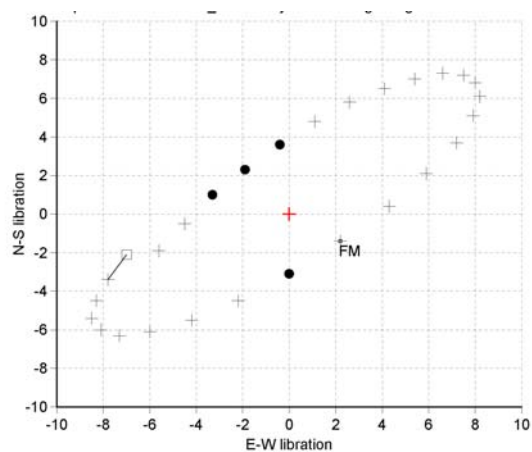
coln = colongitudine del Sole, ossia longitudine del terminatore lunare, in °

lat = latitudine del Sole, riferita all'equatore lunare, in °

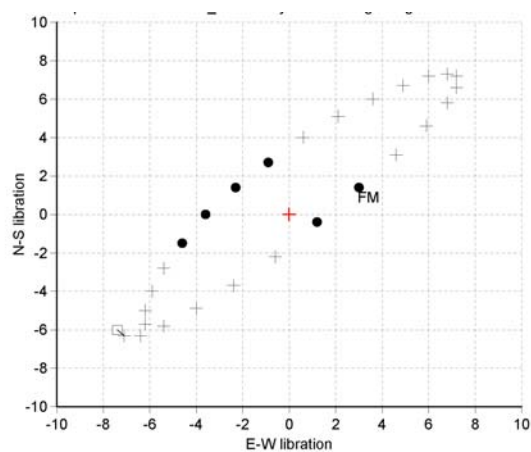
ill = percentuale di Luna illuminata

LIBRAZIONI DELLA LUNA

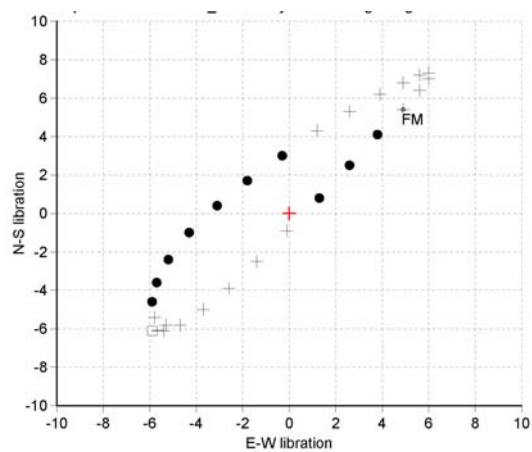
Gennaio



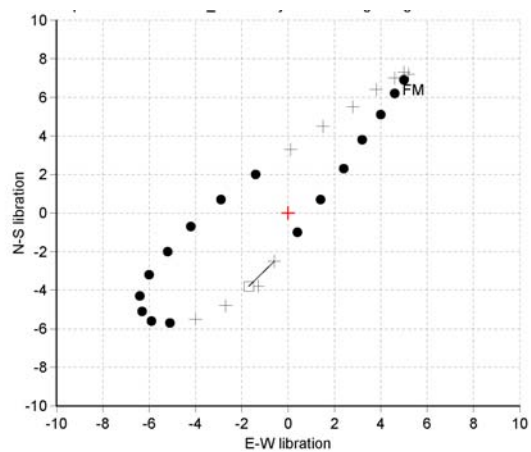
Febbraio



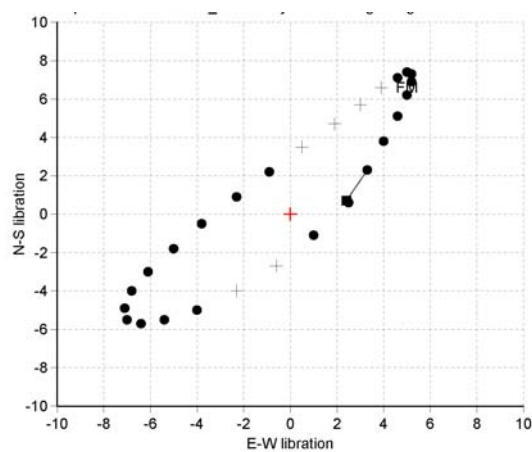
Marzo



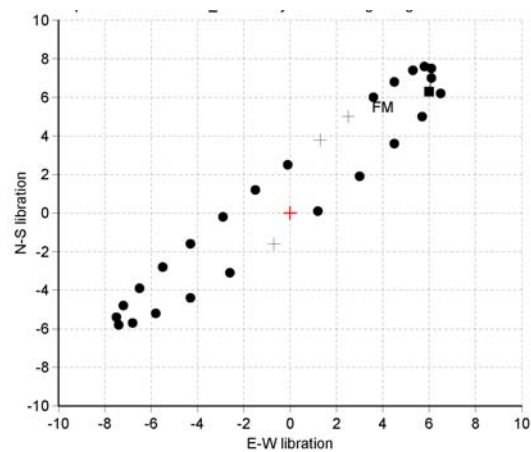
Aprile



Maggio

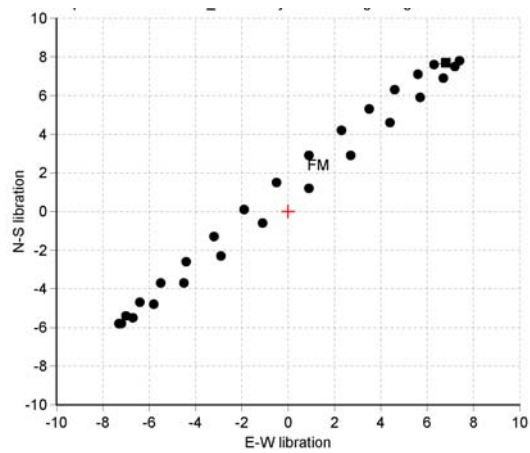


Giugno

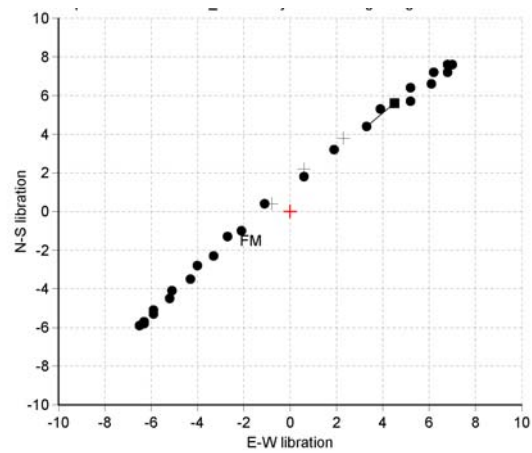


Luglio

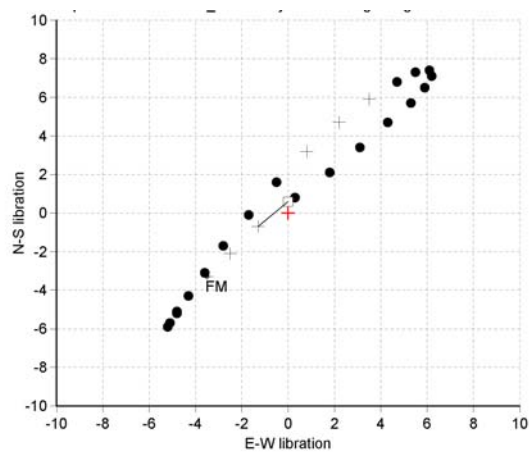
Agosto



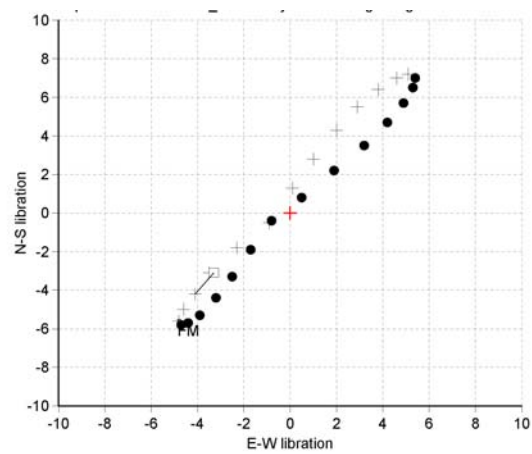
Settembre



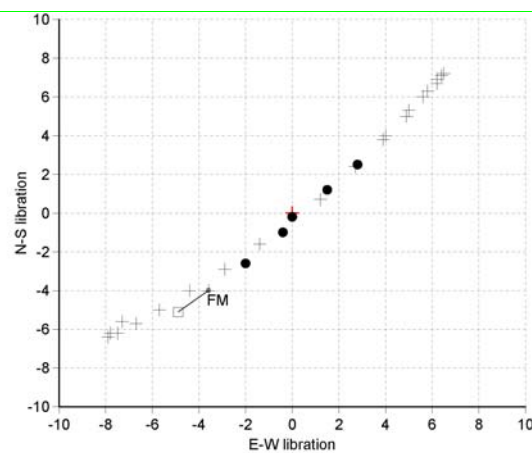
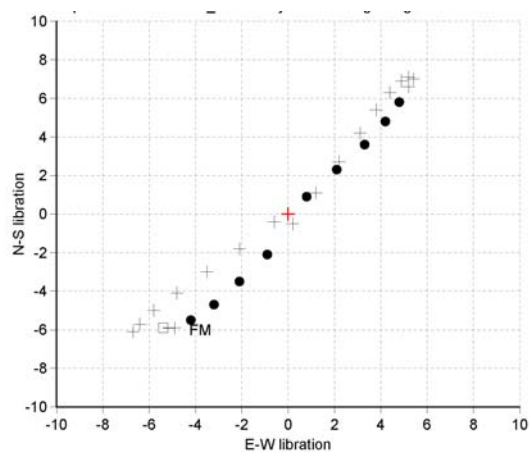
Ottobre



Novembre



Dicembre



Un quadratino indica l'inizio del mese, un cerchio significa che il lato librato è visibile, mentre una croce significa che il lato librato è in ombra.

FENOMENI LUNARI

Perigei				Apogei			
Gen 10	10:53	357497 km	F- 16h	Gen 23	0:12	406118 km	N-3d 7h
Feb 7	20:09	361488 km	F-1d18h	Feb 19	17:01	405129 km	N-5d 8h
Mar 7	15:08	367017 km	F-3d11h	Mar 19	13:17	404299 km	N-7d 2h
Apr 2	2:32	370013 km	N+6d10h	Apr 16	9:17	404231 km	F+6d18h
Apr 28	6:28	366039 km	N+3d 3h	Mag 14	2:58	404915 km	F+4d22h
Mag 26	3:45	361153 km	N+1d15h	Giu 10	16:05	405787 km	F+2d21h
Giu 23	10:40	358014 km	N+ 15h	Lug 7	21:40	406232 km	F+ 12h
Lug 21	20:17	357463 km	N- 6h	Ago 4	0:43	406028 km	F-2d 0h
Ago 19	4:54	359639 km	N-1d 5h	Ago 31	11:05	405269 km	F-4d 4h
Set 16	7:57	364053 km	N-2d10h	Set 28	3:34	404431 km	F-6d 2h
Ott 13	12:29	369067 km	N-4d17h	Ott 25	23:19	404166 km	N+7d17h
Nov 7	7:31	368903 km	F+4d12h	Nov 22	20:08	404733 km	N+6d 0h
Dic 4	14:13	363479 km	F+2d 6h	Dic 20	14:55	405731 km	N+4d 2h

Tutti gli orari sono in T.U., le distanze sono calcolate da centro Luna a centro Terra; F indica che il fenomeno avviene in prossimità della luna piena, N che avviene in prossimità della luna nuova, "-" o "+" indicano di quanti giorni ed ore il perigeo o l'apogeo precedono la fase lunare.

Passaggio al nodo	12/01/2009	08.34
Passaggio al nodo	26/01/2009	13.27
Passaggio al nodo	08/02/2009	19.47
Passaggio al nodo	22/02/2009	20.30
Passaggio al nodo	08/03/2009	04.06
Passaggio al nodo	22/03/2009	02.11
Passaggio al nodo	04/04/2009	07.22
Passaggio al nodo	18/04/2009	05.18
Passaggio al nodo	01/05/2009	07.50
Passaggio al nodo	15/05/2009	07.11
Passaggio al nodo	28/05/2009	10.20
Passaggio al nodo	11/06/2009	10.15
Passaggio al nodo	24/06/2009	17.24
Passaggio al nodo	08/07/2009	15.24
Passaggio al nodo	22/07/2009	03.48
Passaggio al nodo	04/08/2009	21.40
Passaggio al nodo	18/08/2009	14.07
Passaggio al nodo	01/09/2009	03.17
Passaggio al nodo	14/09/2009	20.56
Passaggio al nodo	28/09/2009	06.53
Passaggio al nodo	11/10/2009	23.01
Passaggio al nodo	25/10/2009	08.51
Passaggio al nodo	07/11/2009	23.24
Passaggio al nodo	21/11/2009	11.33
Passaggio al nodo	05/12/2009	03.17
Passaggio al nodo	18/12/2009	16.41

Librazione massima	04/01/2009	01.28	-7.7	°
Librazione massima	16/01/2009	10.02	+7.4	°
Librazione massima	31/01/2009	18.46	-6.6	°
Librazione massima	13/02/2009	18.10	+6.5	°
Librazione massima	27/02/2009	09.46	-5.5	°
Librazione massima	13/03/2009	17.27	+5.3	°
Librazione massima	25/03/2009	23.21	-5.4	°
Librazione massima	10/04/2009	00.14	+4.6	°
Librazione massima	22/04/2009	08.47	-6.2	°
Librazione massima	06/05/2009	07.33	+5.0	°
Librazione massima	20/05/2009	05.26	-7.1	°
Librazione massima	02/06/2009	02.28	+6.2	°
Librazione massima	17/06/2009	07.29	-7.6	°
Librazione massima	29/06/2009	22.19	+7.2	°
Librazione massima	15/07/2009	11.00	-7.5	°
Librazione massima	28/07/2009	02.08	+7.6	°
Librazione massima	12/08/2009	09.38	-6.7	°
Librazione massima	25/08/2009	06.33	+7.3	°
Librazione massima	08/09/2009	15.33	-5.5	°

Librazione massima	22/09/2009	06.58	+6.5	°
Librazione massima	04/10/2009	22.38	-4.7	°
Librazione massima	19/10/2009	22.50	+5.6	°
Librazione massima	15/11/2009	21.37	+5.2	°
Librazione massima	28/11/2009	15.34	-6.2	°
Librazione massima	12/12/2009	04.11	+6.0	°
Librazione massima	26/12/2009	20.03	-7.2	°

© (5)

FASE LUNARI

Lunazione	Luna Nuova		Primo Quarto		Luna Piena		Ultimo Quarto	
1064			Gen 04	11h57m	Gen 11	03h28m	Gen 18	02h47m
1065	Gen 26	07h56m	Feb 02	23h14m	Feb 09	14h50m	Feb 16	21h38m
1066	Feb 25	01h36m	Mar 04	07h47m	Mar 11	02h39m	Mar 18	17h48m
1067	Mar 26	16h07m	Apr 02	14h35m	Apr 09	14h57m	Apr 17	13h37m
1068	Apr 25	03h24m	Mag 01	20h45m	Mag 09	04h02m	Mag 17	07h27m
1069	Mag 24	12h12m	Mag 31	03h23m	Giu 07	18h13m	Giu 15	22h16m
1070	Giu 22	19h36m	Giu 29	11h30m	Lug 07	09h23m	Lug 15	09h54m
1071	Lug 22	02h36m	Lug 28	22h01m	Ago 06	00h56m	Ago 13	18h56m
1072	Ago 20	10h03m	Ago 27	11h43m	Set 04	16h04m	Set 12	02h17m
1073	Set 18	18h45m	Set 26	04h51m	Ott 04	06h11m	Ott 11	08h57m
1074	Ott 18	05h34m	Ott 26	00h43m	Nov 02	19h15m	Nov 09	15h57m
1075	Nov 16	19h15m	Nov 24	21h40m	Dic 02	07h32m	Dic 09	00h14m
1076	Dic 16	12h03m	Dic 24	17h37m	Dic 31	19h14m		

Tempi in TDT

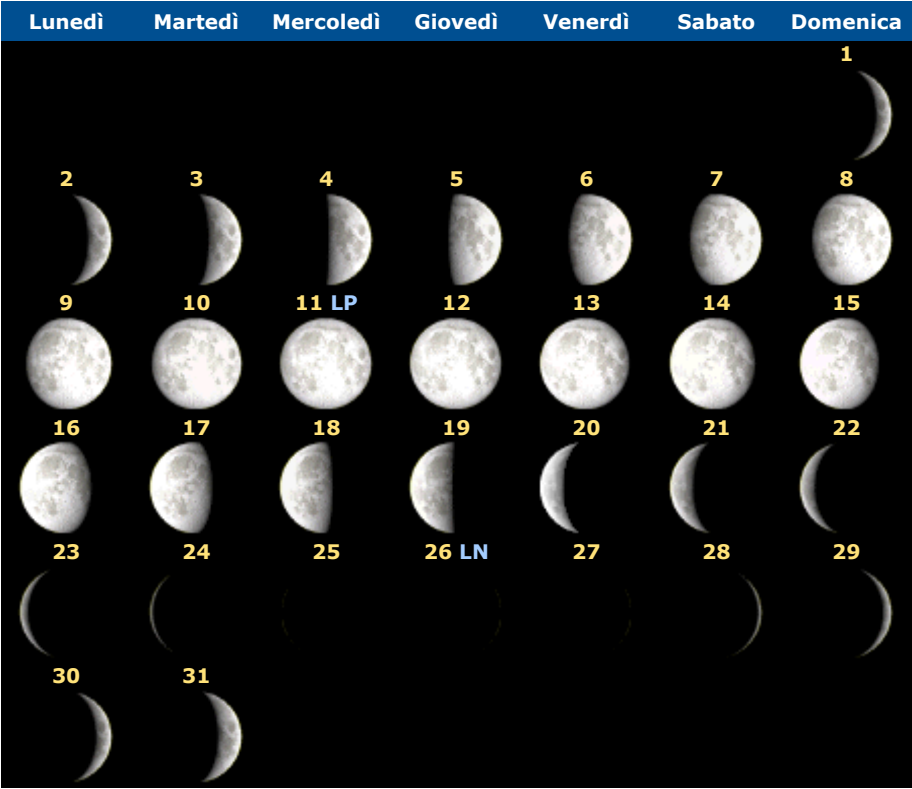




Gennaio



Febbraio



Marzo



Aprile



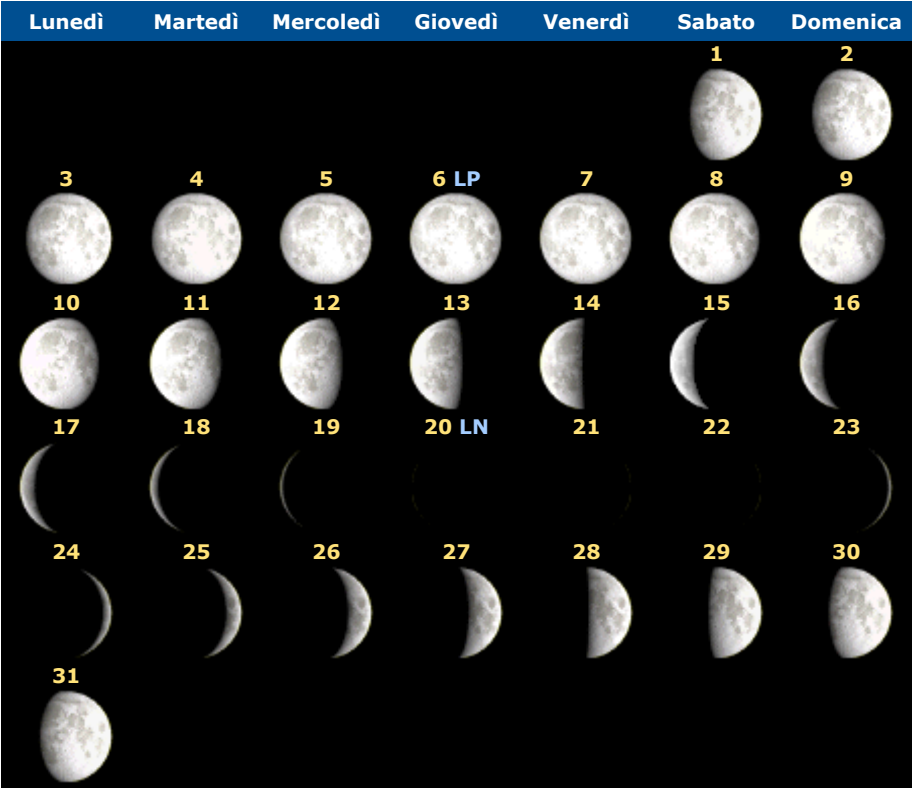
Maggio



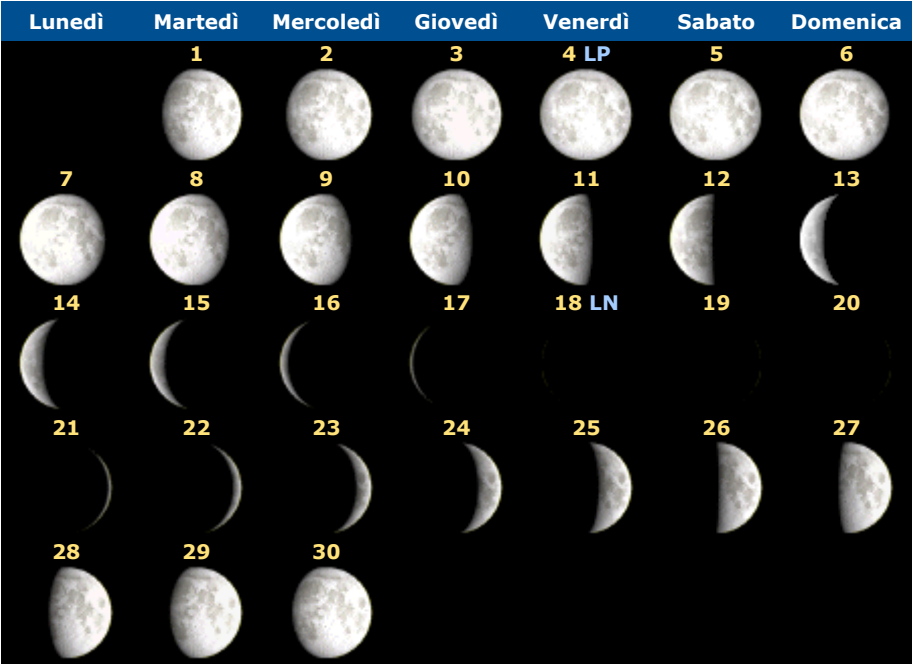
Giugno



Luglio



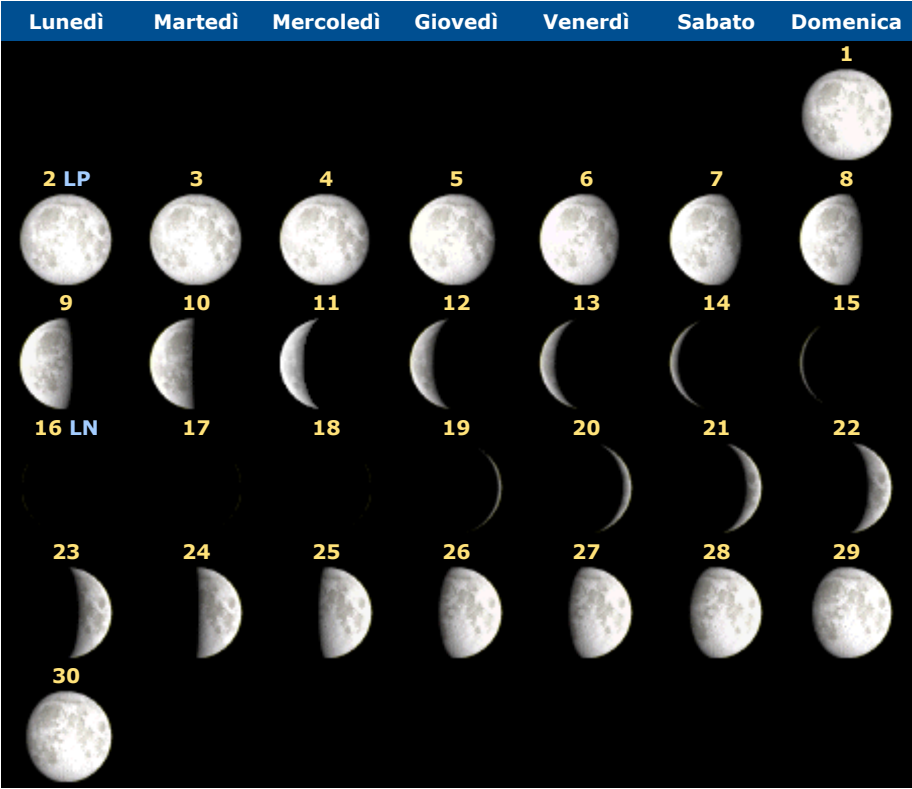
Agosto



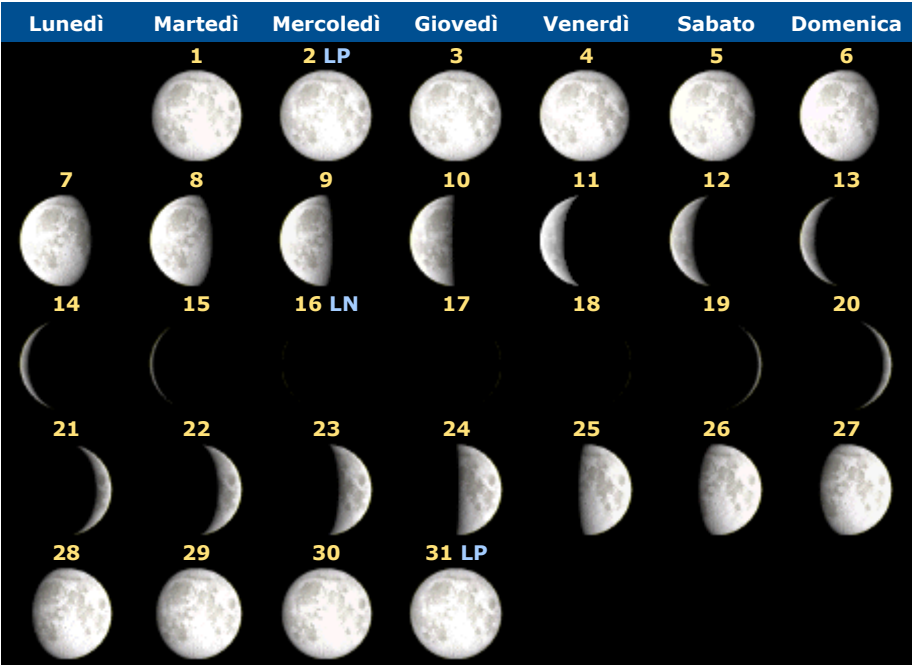
Settembre



Ottobre



Novembre



Dicembre

LEVATA E TRAMONTO DELLA LUNA

			Rispetto al meridiano di Greenwich	Per Roma	Longitudine E 12°	Latitudine N 42°	Fuso orario UT +1
			Transito				
			TDT JD	TDT	Sorge (Azm)	Trans (Alt)	Tramonta (Azm)
				h m s	h m °	h m °	h m °
2009	Gen	1	2454833.158821	15 48 42.2	10 19 (101)	15 59 (42)	21 50 (263)
2009	Gen	2	2454834.188078	16 30 49.9	10 39 (93)	16 41 (47)	22 54 (271)
2009	Gen	3	2454835.218053	17 13 59.8	11 00 (85)	17 25 (53)	f 0 01 (279)
2009	Gen	4	2454836.249676	17 59 32.0	11 23 (77)	18 10 (59)	f 1 10 (287)
2009	Gen	5	2454837.283924	18 48 51.1	11 49 (69)	18 59 (65)	f 2 23 (295)
2009	Gen	6	2454838.321668	19 43 12.1	12 20 (62)	19 53 (70)	f 3 40 (301)
2009	Gen	7	2454839.363308	20 43 09.8	12 59 (57)	20 53 (73)	f 4 56 (306)
2009	Gen	8	2454840.408260	21 47 53.7	13 51 (53)	21 58 (75)	f 6 08 (308)
2009	Gen	9	2454841.454698	22 54 45.9	14 55 (53)	23 05 (75)	f 7 09 (306)
2009	Gen	11	2454842.500151	0 00 13.1	p16 11 (55)	0 10 (72)	7 58 (301)
2009	Gen	12	2454843.542687	1 01 28.1	p17 33 (61)	1 11 (68)	8 36 (295)
2009	Gen	13	2454844.581599	1 57 30.2	p18 54 (69)	2 08 (62)	9 07 (287)
2009	Gen	14	2454845.617213	2 48 47.2	p20 11 (77)	2 59 (56)	9 33 (278)
2009	Gen	15	2454846.650368	3 36 31.8	p21 25 (86)	3 47 (49)	9 57 (269)
2009	Gen	16	2454847.682030	4 22 07.4	p22 35 (95)	4 33 (43)	10 19 (261)
2009	Gen	17	2454848.713112	5 06 52.8	p23 43 (103)	5 17 (37)	10 42 (254)
2009	Gen	18	2454849.744388	5 51 55.1	0 50 (111)	6 02 (32)	11 07 (247)
2009	Gen	19	2454850.776446	6 38 05.0	1 55 (117)	6 49 (28)	11 35 (241)
2009	Gen	20	2454851.809620	7 25 51.1	2 59 (122)	7 36 (24)	12 08 (236)
2009	Gen	21	2454852.843916	8 15 14.4	4 00 (126)	8 26 (22)	12 48 (233)
2009	Gen	22	2454853.878991	9 05 44.8	4 57 (128)	9 16 (21)	13 35 (232)
2009	Gen	23	2454854.914215	9 56 28.2	5 47 (128)	10 07 (21)	14 28 (233)
2009	Gen	24	2454855.948875	10 46 22.8	6 30 (125)	10 57 (23)	15 28 (236)
2009	Gen	25	2454856.982398	11 34 39.2	7 06 (122)	11 45 (26)	16 30 (240)
2009	Gen	26	2454858.014518	12 20 54.4	7 36 (116)	12 31 (30)	17 35 (246)
2009	Gen	27	2454859.045303	13 05 14.1	8 01 (110)	13 16 (34)	18 39 (253)
2009	Gen	28	2454860.075101	13 48 08.7	8 24 (103)	13 59 (40)	19 43 (261)
2009	Gen	29	2454861.104467	14 30 26.0	8 45 (95)	14 41 (46)	20 47 (269)
2009	Gen	30	2454862.134097	15 13 06.0	9 06 (87)	15 24 (52)	21 53 (277)
2009	Gen	31	2454863.164791	15 57 18.0	9 28 (80)	16 08 (57)	23 00 (285)
2009	Feb	1	2454864.197406	16 44 15.9	9 52 (72)	16 55 (63)	f 0 10 (292)
2009	Feb	2	2454865.232763	17 35 10.7	10 20 (65)	17 45 (68)	f 1 23 (299)
2009	Feb	3	2454866.271429	18 30 51.4	10 55 (59)	18 41 (72)	f 2 38 (304)
2009	Feb	4	2454867.313359	19 31 14.2	11 39 (54)	19 41 (74)	f 3 49 (307)
2009	Feb	5	2454868.357566	20 34 53.7	12 35 (52)	20 45 (75)	f 4 53 (307)
2009	Feb	6	2454869.402213	21 39 11.2	13 44 (54)	21 49 (74)	f 5 46 (304)
2009	Feb	7	2454870.445352	22 41 18.4	15 01 (58)	22 51 (70)	f 6 29 (298)
2009	Feb	8	2454871.485754	23 39 29.2	16 22 (64)	23 50 (65)	f 7 03 (291)
2009	Feb	10	2454872.523171	0 33 21.9	p17 42 (73)	0 44 (59)	7 31 (283)
2009	Feb	11	2454873.558062	1 23 36.6	p18 58 (81)	1 34 (53)	7 56 (274)
2009	Feb	12	2454874.591213	2 11 20.8	p20 12 (91)	2 22 (46)	8 20 (265)
2009	Feb	13	2454875.623466	2 57 47.5	p21 23 (99)	3 08 (40)	8 43 (257)
2009	Feb	14	2454876.655586	3 44 02.6	p22 32 (107)	3 55 (34)	9 08 (250)
2009	Feb	15	2454877.688177	4 30 58.5	p23 40 (114)	4 41 (29)	9 35 (243)
2009	Feb	16	2454878.721622	5 19 08.1	0 46 (120)	5 30 (25)	10 07 (238)
2009	Feb	17	2454879.756010	6 08 39.3	1 50 (125)	6 19 (23)	10 45 (234)
2009	Feb	18	2454880.791114	6 59 12.3	2 49 (127)	7 10 (21)	11 29 (232)
2009	Feb	19	2454881.826431	7 50 03.7	3 42 (128)	8 00 (21)	12 20 (232)
2009	Feb	20	2454882.861337	8 40 19.5	4 27 (126)	8 51 (22)	13 18 (235)
2009	Feb	21	2454883.895286	9 29 12.7	5 05 (123)	9 40 (25)	14 19 (239)
2009	Feb	22	2454884.927975	10 16 17.1	5 37 (118)	10 27 (28)	15 23 (244)
2009	Feb	23	2454885.959400	11 01 32.2	6 05 (112)	11 12 (33)	16 28 (250)
2009	Feb	24	2454886.989826	11 45 20.9	6 29 (106)	11 56 (38)	17 32 (258)
2009	Feb	25	2454888.019722	12 28 23.9	6 51 (98)	12 39 (44)	18 38 (266)
2009	Feb	26	2454889.049702	13 11 34.2	7 12 (90)	13 22 (50)	19 44 (274)
2009	Feb	27	2454890.080476	13 55 53.1	7 34 (82)	14 06 (56)	20 51 (282)
2009	Feb	28	2454891.112802	14 42 26.1	7 57 (74)	14 53 (61)	22 01 (290)
2009	Mar	1	2454892.147404	15 32 15.7	8 24 (67)	15 43 (67)	23 14 (297)
2009	Mar	2	2454893.184800	16 26 06.7	8 57 (60)	16 36 (71)	f 0 27 (303)
2009	Mar	3	2454894.225043	17 24 03.8	9 37 (56)	17 34 (74)	f 1 38 (306)
2009	Mar	4	2454895.267452	18 25 07.8	10 28 (53)	18 35 (75)	f 2 43 (307)
2009	Mar	5	2454896.310622	19 27 17.8	11 30 (53)	19 37 (74)	f 3 39 (305)
2009	Mar	6	2454897.352908	20 28 11.2	12 42 (56)	20 38 (72)	f 4 24 (301)
2009	Mar	7	2454898.393088	21 26 02.8	13 59 (61)	21 36 (68)	f 5 00 (294)
2009	Mar	8	2454899.430723	22 20 14.4	15 17 (69)	22 30 (62)	f 5 30 (287)
2009	Mar	9	2454900.466049	23 11 06.6	16 33 (77)	23 21 (56)	f 5 56 (278)
2009	Mar	10	2454901.499692	23 59 33.4	17 47 (86)	f 0 10 (49)	f 6 20 (270)
2009	Mar	12	2454902.532409	0 46 40.2	p18 59 (95)	0 57 (43)	6 44 (261)
2009	Mar	13	2454903.564933	1 33 30.2	p20 10 (103)	1 44 (37)	7 08 (253)
2009	Mar	14	2454904.597867	2 20 55.7	p21 20 (111)	2 31 (32)	7 35 (246)
2009	Mar	15	2454905.631609	3 09 31.0	p22 28 (118)	3 20 (27)	8 05 (240)
2009	Mar	16	2454906.666275	3 59 26.2	p23 34 (123)	4 10 (24)	8 41 (236)
2009	Mar	17	2454907.701662	4 50 23.6	0 36 (126)	5 01 (22)	9 23 (233)

Data		TDT JD	TDT			Sorge (Azim)		Trans (Alt)		Tramonta (Azim)	
			h	m	s	h	m	h	m	h	m
2009 Mar 18		2454908.737286	5	41	41.5	1	32 (128)	5	52 (21)	10	12 (232)
2009 Mar 19		2454909.772528	6	32	26.4	2	21 (127)	6	43 (22)	11	07 (234)
2009 Mar 20		2454910.806833	7	21	50.4	3	02 (124)	7	32 (24)	12	07 (237)
2009 Mar 21		2454911.839882	8	09	25.8	3	37 (120)	8	20 (27)	13	09 (242)
2009 Mar 22		2454912.871649	8	55	10.5	4	06 (115)	9	06 (31)	14	13 (248)
2009 Mar 23		2454913.902384	9	39	25.9	4	31 (108)	9	50 (36)	15	18 (255)
2009 Mar 24		2454914.932541	10	22	51.5	4	54 (101)	10	33 (41)	16	23 (262)
2009 Mar 25		2454915.962723	11	06	19.2	5	16 (93)	11	17 (47)	17	29 (271)
2009 Mar 26		2454916.993629	11	50	49.5	5	38 (85)	12	01 (53)	18	37 (279)
2009 Mar 27		2454918.026009	12	37	27.2	6	01 (77)	12	48 (59)	19	48 (287)
2009 Mar 28		2454919.060582	13	27	14.3	6	27 (70)	13	38 (65)	21	01 (295)
2009 Mar 29		2454920.097873	14	20	56.2	6	59 (63)	14	31 (69)	22	16 (301)
2009 Mar 30		2454921.137955	15	18	39.3	7	37 (57)	15	29 (73)	23	29 (305)
2009 Mar 31		2454922.180183	16	19	27.8	8	25 (54)	16	29 (75)	f 0	37 (307)
2009 Apr 1		2454923.223188	17	21	23.4	9	24 (53)	17	31 (74)	f 1	35 (306)
2009 Apr 2		2454924.265327	18	22	04.3	10	33 (55)	18	32 (73)	f 2	22 (302)
2009 Apr 3		2454925.305357	19	19	42.8	11	47 (60)	19	30 (69)	f 3	00 (297)
2009 Apr 4		2454926.342798	20	13	37.8	13	03 (66)	20	24 (64)	f 3	31 (289)
2009 Apr 5		2454927.377862	21	04	07.3	14	17 (74)	21	14 (58)	f 3	58 (281)
2009 Apr 6		2454928.411167	21	52	04.8	15	30 (82)	22	02 (52)	f 4	22 (273)
2009 Apr 7		2454929.443482	22	38	36.9	16	41 (91)	22	49 (46)	f 4	46 (265)
2009 Apr 8		2454930.475573	23	24	49.5	17	51 (100)	23	35 (40)	f 5	09 (257)
2009 Apr 10		2454931.508100	0	11	39.9	p19	00 (108)	0	22 (34)	5	35 (249)
2009 Apr 11		2454932.541533	0	59	48.5	p20	09 (115)	1	10 (29)	6	04 (243)
2009 Apr 12		2454933.576064	1	49	31.9	p21	17 (121)	2	00 (25)	6	37 (238)
2009 Apr 13		2454934.611539	2	40	36.9	p22	21 (125)	2	51 (23)	7	17 (234)
2009 Apr 14		2454935.647468	3	32	21.2	p23	21 (127)	3	43 (21)	8	04 (233)
2009 Apr 15		2454936.683158	4	23	44.8	0	13 (127)	4	34 (22)	8	57 (233)
2009 Apr 16		2454937.717940	5	13	50.0	0	57 (125)	5	24 (23)	9	55 (236)
2009 Apr 17		2454938.751380	6	01	59.2	1	34 (122)	6	12 (26)	10	56 (240)
2009 Apr 18		2454939.783378	6	48	03.8	2	05 (117)	6	59 (29)	11	59 (245)
2009 Apr 19		2454940.814147	7	32	22.3	2	31 (111)	7	43 (34)	13	03 (252)
2009 Apr 20		2454941.844140	8	15	33.7	2	55 (104)	8	26 (39)	14	07 (259)
2009 Apr 21		2454942.873975	8	58	31.4	3	17 (97)	9	09 (44)	15	12 (267)
2009 Apr 22		2454943.904387	9	42	19.0	3	39 (89)	9	53 (50)	16	18 (275)
2009 Apr 23		2454944.936183	10	28	06.2	4	02 (81)	10	39 (57)	17	28 (284)
2009 Apr 24		2454945.970185	11	17	04.0	4	27 (73)	11	27 (62)	18	41 (291)
2009 Apr 25		2454947.007086	12	10	12.2	4	57 (66)	12	20 (67)	19	57 (298)
2009 Apr 26		2454948.047171	13	07	55.6	5	34 (59)	13	18 (72)	21	13 (304)
2009 Apr 27		2454949.089968	14	09	33.2	6	19 (55)	14	19 (74)	22	25 (307)
2009 Apr 28		2454950.134080	15	13	04.5	7	16 (53)	15	23 (75)	23	28 (306)
2009 Apr 29		2454951.177587	16	15	43.6	8	24 (54)	16	26 (73)	f 0	20 (303)
2009 Apr 30		2454952.218871	17	15	10.5	9	38 (58)	17	25 (70)	f 1	01 (298)
2009 Mag 1		2454953.257195	18	10	21.6	10	54 (64)	18	21 (65)	f 1	34 (291)
2009 Mag 2		2454954.292681	19	01	27.7	12	08 (72)	19	12 (60)	f 2	02 (284)
2009 Mag 3		2454955.325975	19	49	24.3	13	21 (80)	20	00 (54)	f 2	26 (276)
2009 Mag 4		2454956.357922	20	35	24.5	14	31 (88)	20	46 (48)	f 2	50 (267)
2009 Mag 5		2454957.389376	21	20	42.1	15	39 (97)	21	31 (42)	f 3	13 (259)
2009 Mag 6		2454958.421101	22	06	23.2	16	47 (105)	22	17 (36)	f 3	37 (252)
2009 Mag 7		2454959.453695	22	53	19.2	17	55 (112)	23	04 (31)	f 4	04 (245)
2009 Mag 8		2454960.487499	23	41	59.9	19	02 (118)	23	52 (27)	f 4	36 (240)
2009 Mag 10		2454961.522513	0	32	25.1	p20	08 (123)	0	43 (24)	5	13 (236)
2009 Mag 11		2454962.558343	1	24	00.9	p21	09 (126)	1	34 (22)	5	57 (233)
2009 Mag 12		2454963.594287	2	15	46.4	p22	04 (127)	2	26 (22)	6	48 (233)
2009 Mag 13		2454964.629548	3	06	32.9	p22	52 (126)	3	17 (23)	7	45 (235)
2009 Mag 14		2454965.663506	3	55	26.9	p23	31 (123)	4	06 (25)	8	45 (238)
2009 Mag 15		2454966.695883	4	42	04.3	0	04 (119)	4	53 (28)	9	47 (243)
2009 Mag 16		2454967.726768	5	26	32.7	0	32 (113)	5	37 (32)	10	50 (249)
2009 Mag 17		2454968.756546	6	09	25.5	0	56 (107)	6	20 (37)	11	52 (256)
2009 Mag 18		2454969.785805	6	51	33.6	1	19 (100)	7	02 (42)	12	55 (264)
2009 Mag 19		2454970.815276	7	33	59.9	1	40 (92)	7	45 (48)	14	00 (272)
2009 Mag 20		2454971.845793	8	17	56.5	2	02 (84)	8	28 (54)	15	07 (280)
2009 Mag 21		2454972.878261	9	04	41.7	2	26 (77)	9	15 (60)	16	17 (288)
2009 Mag 22		2454973.913566	9	55	32.1	2	53 (69)	10	06 (65)	17	32 (295)
2009 Mag 23		2454974.952368	10	51	24.6	3	27 (62)	11	02 (70)	18	48 (301)
2009 Mag 24		2454975.994701	11	52	22.2	4	09 (57)	12	02 (73)	20	04 (305)
2009 Mag 25		2454977.039563	12	56	58.2	5	02 (54)	13	07 (74)	21	13 (307)
2009 Mag 26		2454978.084952	14	02	19.8	6	07 (54)	14	12 (74)	22	11 (305)
2009 Mag 27		2454979.128677	15	05	17.7	7	22 (57)	15	15 (71)	22	58 (300)
2009 Mag 28		2454980.169337	16	03	50.7	8	40 (62)	16	14 (67)	23	35 (294)
2009 Mag 29		2454981.206648	16	57	34.4	9	57 (70)	17	08 (62)	f 0	05 (286)
2009 Mag 30		2454982.241125	17	47	13.2	11	12 (78)	17	58 (56)	f 0	31 (278)
2009 Mag 31		2454983.273640	18	34	02.5	12	23 (86)	18	44 (49)	f 0	54 (270)
2009 Giu 1		2454984.305135	19	19	23.7	13	32 (95)	19	30 (43)	f 1	17 (262)
2009 Giu 2		2454985.336479	20	04	31.8	14	39 (103)	20	15 (37)	f 1	41 (254)
2009 Giu 3		2454986.368394	20	50	29.2	15	46 (110)	21	01 (32)	f 2	07 (247)
2009 Giu 4		2454987.401382	21	37	59.4	16	53 (117)	21	48 (28)	f 2	37 (241)
2009 Giu 5		2454988.435634	22	27	18.8	17	58 (122)	22	38 (25)	f 3	12 (237)
2009 Giu 6		2454989.470954	23	18	10.4	19	01 (125)	23	28 (22)	f 3	54 (234)
2009 Giu 8		2454990.506766	0	09	44.6	p19	58 (127)	0	20 (22)	4	42 (233)
2009 Giu 9		2454991.542270	1	00	52.2	p20	47 (126)	1	11 (22)	5	37 (234)
2009 Giu 10		2454992.576712	1	50	27.9	p21	30 (124)	2	01 (24)	6	36 (237)

Data	TDT JD	TDT			Sorge (Azim)		Trans (Alt)		Tramonta (Azim)	
		h	m	s	h	m	h	m	h	m
2009 Giu 11	2454993.609613	2	37	50.6	p22	05 (120)	2	48 (27)	7	38 (242)
2009 Giu 12	2454994.640876	3	22	51.7	p22	34 (115)	3	33 (31)	8	40 (247)
2009 Giu 13	2454995.670741	4	05	52.0	p22	59 (109)	4	16 (35)	9	42 (254)
2009 Giu 14	2454996.699699	4	47	34.0	p23	22 (102)	4	58 (40)	10	44 (261)
2009 Giu 15	2454997.728411	5	28	54.7	p23	43 (95)	5	40 (46)	11	46 (269)
2009 Giu 16	2454998.757657	6	11	01.6	0	04 (87)	6	22 (52)	12	50 (277)
2009 Giu 17	2454999.788318	6	55	10.6	0	26 (80)	7	06 (57)	13	57 (284)
2009 Giu 18	2455000.821333	7	42	43.2	0	51 (72)	7	53 (63)	15	08 (292)
2009 Giu 19	2455001.857589	8	34	55.7	1	21 (65)	8	45 (68)	16	22 (299)
2009 Giu 20	2455002.897641	9	32	36.1	1	58 (59)	9	43 (72)	17	38 (304)
2009 Giu 21	2455003.941252	10	35	24.2	2	45 (55)	10	45 (74)	18	51 (306)
2009 Giu 22	2455004.987025	11	41	19.0	3	44 (53)	11	51 (74)	19	55 (306)
2009 Giu 23	2455006.032685	12	47	04.0	4	56 (55)	12	57 (73)	20	48 (302)
2009 Giu 24	2455007.076109	13	49	35.8	6	15 (60)	14	00 (69)	21	31 (296)
2009 Giu 25	2455008.116217	14	47	21.2	7	36 (66)	14	57 (64)	22	04 (289)
2009 Giu 26	2455009.153043	15	40	22.9	8	55 (75)	15	51 (58)	22	33 (281)
2009 Giu 27	2455010.187284	16	29	41.4	10	10 (83)	16	40 (51)	22	58 (272)
2009 Giu 28	2455011.219880	17	16	37.6	11	21 (92)	17	27 (45)	23	21 (264)
2009 Giu 29	2455012.251761	18	02	32.2	12	31 (100)	18	13 (39)	23	45 (256)
2009 Giu 30	2455013.283741	18	48	35.2	13	39 (108)	18	59 (34)	f	0 11 (249)
2009 Lug 1	2455014.316436	19	35	40.1	14	46 (115)	19	46 (29)	f	0 39 (243)
2009 Lug 2	2455015.350195	20	24	16.9	15	51 (120)	20	35 (25)	f	1 13 (238)
2009 Lug 3	2455016.385018	21	14	25.5	16	54 (124)	21	25 (23)	f	1 52 (235)
2009 Lug 4	2455017.420521	22	05	33.0	17	53 (127)	22	16 (22)	f	2 38 (233)
2009 Lug 5	2455018.456030	22	56	41.0	18	45 (127)	23	07 (22)	f	3 31 (234)
2009 Lug 6	2455019.490786	23	46	43.9	19	29 (125)	23	57 (23)	f	4 29 (236)
2009 Lug 8	2455020.524202	0	34	51.0	p20	06 (122)	0	45 (26)	5	30 (240)
2009 Lug 9	2455021.556012	1	20	39.5	p20	37 (117)	1	31 (29)	6	32 (246)
2009 Lug 10	2455022.586299	2	04	16.2	p21	03 (111)	2	15 (34)	7	34 (252)
2009 Lug 11	2455023.615419	2	46	12.2	p21	27 (104)	2	57 (39)	8	36 (259)
2009 Lug 12	2455024.643923	3	27	14.9	p21	48 (97)	3	38 (44)	9	38 (266)
2009 Lug 13	2455025.672494	4	08	23.4	p22	09 (90)	4	19 (50)	10	40 (274)
2009 Lug 14	2455026.701916	4	50	45.6	p22	30 (82)	5	01 (55)	11	44 (282)
2009 Lug 15	2455027.733053	5	35	35.8	p22	53 (75)	5	46 (61)	12	52 (289)
2009 Lug 16	2455028.766791	6	24	10.7	p23	19 (68)	6	35 (66)	14	02 (296)
2009 Lug 17	2455029.803885	7	17	35.6	p23	52 (62)	7	28 (70)	15	15 (302)
2009 Lug 18	2455030.844646	8	16	17.4	0	32 (57)	8	26 (73)	16	28 (306)
2009 Lug 19	2455031.888518	9	19	27.9	1	24 (54)	9	29 (74)	17	36 (307)
2009 Lug 20	2455032.933890	10	24	48.1	2	29 (54)	10	35 (74)	18	34 (305)
2009 Lug 21	2455033.978609	11	29	11.8	3	45 (57)	11	39 (71)	19	22 (300)
2009 Lug 22	2455035.020957	12	30	10.7	5	07 (63)	12	40 (67)	20	00 (293)
2009 Lug 23	2455036.060250	13	26	45.6	6	28 (70)	13	37 (61)	20	31 (285)
2009 Lug 24	2455037.096727	14	19	17.2	7	47 (79)	14	30 (54)	20	58 (276)
2009 Lug 25	2455038.131125	15	08	49.2	9	03 (88)	15	19 (48)	21	23 (267)
2009 Lug 26	2455039.164329	15	56	38.0	10	15 (97)	16	07 (41)	21	48 (259)
2009 Lug 27	2455040.197170	16	43	55.5	11	26 (105)	16	54 (36)	22	13 (251)
2009 Lug 28	2455041.230323	17	31	39.9	12	35 (113)	17	42 (30)	22	41 (245)
2009 Lug 29	2455042.264224	18	20	28.9	13	42 (119)	18	31 (26)	23	13 (239)
2009 Lug 30	2455043.298997	19	10	33.4	14	47 (123)	19	21 (24)	23	51 (235)
2009 Lug 31	2455044.334419	20	01	33.8	15	47 (126)	20	12 (22)	f	0 35 (233)
2009 Ago 1	2455045.369958	20	52	44.4	16	41 (127)	21	03 (22)	f	1 25 (233)
2009 Ago 2	2455046.404947	21	43	07.4	17	28 (126)	21	53 (23)	f	2 22 (235)
2009 Ago 3	2455047.438793	22	31	51.7	18	07 (123)	22	42 (25)	f	3 22 (239)
2009 Ago 4	2455048.471159	23	18	28.1	18	40 (118)	23	29 (28)	f	4 24 (244)
2009 Ago 6	2455049.502017	0	02	54.2	p19	08 (113)	0	13 (32)	5	27 (250)
2009 Ago 7	2455050.531614	0	45	31.5	p19	32 (107)	0	56 (37)	6	29 (257)
2009 Ago 8	2455051.560401	1	26	58.6	p19	54 (100)	1	38 (42)	7	31 (264)
2009 Ago 9	2455052.588962	2	08	06.3	p20	15 (92)	2	19 (48)	8	33 (272)
2009 Ago 10	2455053.617981	2	49	53.6	p20	36 (85)	3	01 (53)	9	36 (279)
2009 Ago 11	2455054.648211	3	33	25.5	p20	58 (77)	3	44 (59)	10	42 (287)
2009 Ago 12	2455055.680437	4	19	49.7	p21	23 (70)	4	30 (64)	11	50 (294)
2009 Ago 13	2455056.715380	5	10	08.9	p21	52 (64)	5	20 (69)	13	00 (300)
2009 Ago 14	2455057.753505	6	05	02.8	p22	28 (58)	6	15 (72)	14	11 (304)
2009 Ago 15	2455058.794706	7	04	22.6	p23	14 (55)	7	14 (74)	15	19 (307)
2009 Ago 16	2455059.838056	8	06	48.1	0	11 (53)	8	17 (74)	16	20 (306)
2009 Ago 17	2455060.881928	9	09	58.6	1	20 (55)	9	20 (73)	17	11 (302)
2009 Ago 18	2455061.924620	10	11	27.2	2	37 (60)	10	21 (69)	17	53 (297)
2009 Ago 19	2455062.965054	11	09	40.7	3	58 (66)	11	20 (64)	18	27 (289)
2009 Ago 20	2455064.003001	12	04	19.3	5	18 (75)	12	14 (58)	18	57 (281)
2009 Ago 21	2455065.038871	12	55	58.4	6	36 (84)	13	06 (51)	19	23 (272)
2009 Ago 22	2455066.073381	13	45	40.1	7	52 (93)	13	56 (44)	19	48 (263)
2009 Ago 23	2455067.107300	14	34	30.7	9	05 (102)	14	45 (38)	20	14 (255)
2009 Ago 24	2455068.141295	15	23	27.9	10	17 (110)	15	34 (33)	20	42 (247)
2009 Ago 25	2455069.175830	16	13	11.7	11	27 (116)	16	24 (28)	21	13 (241)
2009 Ago 26	2455070.211075	17	03	56.9	12	35 (122)	17	14 (25)	21	49 (237)
2009 Ago 27	2455071.246874	17	55	29.9	13	38 (125)	18	06 (22)	22	31 (234)
2009 Ago 28	2455072.282770	18	47	11.3	14	35 (127)	18	57 (22)	23	20 (233)
2009 Ago 29	2455073.318153	19	38	08.4	15	25 (126)	19	48 (22)	f	0 14 (234)
2009 Ago 30	2455074.352458	20	27	32.4	16	06 (124)	20	38 (24)	f	1 14 (237)
2009 Ago 31	2455075.385339	21	14	53.3	16	41 (120)	21	25 (27)	f	2 15 (242)
2009 Set 1	2455076.416735	22	00	05.9	17	11 (115)	22	11 (31)	f	3 17 (248)
2009 Set 2	2455077.446848	22	43	27.6	17	36 (109)	22	54 (35)	f	4 20 (254)

Data	TDT JD		TDT			Sorge (Azim)		Trans (Alt)		Tramonta (Azim)	
			h	m	s	h	m	h	m	h	m
2009 Set 3	2455078.476078		23	25	33.1	17	59 (102)	23	36 (40)	f	5 22 (261)
2009 Set 5	2455079.504960		0	07	08.6	p18	21 (95)	0	18 (46)	6	25 (269)
2009 Set 6	2455080.534117		0	49	07.7	p18	42 (87)	1	00 (52)	7	29 (277)
2009 Set 7	2455081.564229		1	32	29.4	p19	04 (80)	1	43 (57)	8	34 (284)
2009 Set 8	2455082.595995		2	18	14.0	p19	28 (72)	2	29 (63)	9	41 (292)
2009 Set 9	2455083.630057		3	07	16.9	p19	56 (66)	3	18 (67)	10	51 (298)
2009 Set 10	2455084.666844		4	00	15.4	p20	30 (60)	4	10 (71)	12	01 (303)
2009 Set 11	2455085.706350		4	57	08.7	p21	11 (56)	5	07 (73)	13	09 (306)
2009 Set 12	2455086.747923		5	57	00.5	p22	03 (54)	6	07 (74)	14	11 (306)
2009 Set 13	2455087.790306		6	58	02.4	p23	06 (54)	7	08 (73)	15	04 (304)
2009 Set 14	2455088.832061		7	58	10.1	0	18 (58)	8	08 (71)	15	48 (299)
2009 Set 15	2455089.872125		8	55	51.6	1	35 (63)	9	06 (66)	16	24 (293)
2009 Set 16	2455090.910113		9	50	33.7	2	53 (71)	10	01 (61)	16	55 (285)
2009 Set 17	2455091.946247		10	42	35.7	4	10 (79)	10	53 (54)	17	22 (276)
2009 Set 18	2455092.981109		11	32	47.8	5	26 (88)	11	43 (48)	17	48 (267)
2009 Set 19	2455094.015406		12	22	11.1	6	41 (97)	12	33 (41)	18	13 (259)
2009 Set 20	2455095.049797		13	11	42.4	7	54 (106)	13	22 (35)	18	41 (251)
2009 Set 21	2455096.084767		14	02	03.9	9	06 (113)	14	12 (30)	19	11 (244)
2009 Set 22	2455097.120522		14	53	33.1	10	16 (119)	15	04 (26)	19	45 (239)
2009 Set 23	2455098.156923		15	45	58.2	11	23 (124)	15	56 (23)	20	26 (235)
2009 Set 24	2455099.193500		16	38	38.4	12	24 (126)	16	49 (22)	21	13 (234)
2009 Set 25	2455100.229597		17	30	37.2	13	17 (126)	17	41 (22)	22	06 (234)
2009 Set 26	2455101.264590		18	21	00.5	14	02 (125)	18	31 (23)	23	04 (236)
2009 Set 27	2455102.298080		19	09	14.1	14	40 (121)	19	20 (26)	f	0 04 (240)
2009 Set 28	2455103.329981		19	55	10.4	15	12 (117)	20	06 (29)	f	1 06 (245)
2009 Set 29	2455104.360489		20	39	06.2	15	39 (111)	20	50 (34)	f	2 09 (252)
2009 Set 30	2455105.390009		21	21	36.8	16	03 (105)	21	32 (38)	f	3 11 (259)
2009 Ott 1	2455106.419085		22	03	28.9	16	25 (98)	22	14 (44)	f	4 13 (266)
2009 Ott 2	2455107.448347		22	45	37.2	16	46 (90)	22	56 (49)	f	5 17 (274)
2009 Ott 3	2455108.478477		23	29	00.4	17	08 (83)	23	40 (55)	f	6 23 (282)
2009 Ott 5	2455109.510172		0	14	38.9	p17	32 (75)	0	25 (61)	7	30 (289)
2009 Ott 6	2455110.544068		1	03	27.5	p17	59 (68)	1	14 (66)	8	40 (296)
2009 Ott 7	2455111.580595		1	56	03.4	p18	32 (62)	2	06 (70)	9	51 (301)
2009 Ott 8	2455112.619755		2	52	26.8	p19	11 (57)	3	03 (73)	11	01 (305)
2009 Ott 9	2455113.660923		3	51	43.7	p20	01 (54)	4	02 (74)	12	05 (306)
2009 Ott 10	2455114.702877		4	52	08.6	p21	00 (54)	5	02 (74)	13	00 (305)
2009 Ott 11	2455115.744200		5	51	38.9	p22	08 (57)	6	02 (71)	13	46 (301)
2009 Ott 12	2455116.783825		6	48	42.5	p23	22 (61)	6	59 (68)	14	24 (295)
2009 Ott 13	2455117.821344		7	42	44.1	0	38 (68)	7	53 (63)	14	55 (288)
2009 Ott 14	2455118.856957		8	34	01.1	1	53 (76)	8	44 (57)	15	23 (280)
2009 Ott 15	2455119.891244		9	23	23.5	3	07 (84)	9	34 (51)	15	48 (271)
2009 Ott 16	2455120.924937		10	11	54.5	4	20 (93)	10	22 (44)	16	14 (263)
2009 Ott 17	2455121.958753		11	00	36.2	5	32 (102)	11	11 (38)	16	40 (255)
2009 Ott 18	2455122.993274		11	50	18.9	6	44 (110)	12	01 (33)	17	08 (247)
2009 Ott 19	2455124.028823		12	41	30.3	7	55 (116)	12	52 (28)	17	41 (241)
2009 Ott 20	2455125.065359		13	34	07.0	9	04 (122)	13	44 (25)	18	20 (237)
2009 Ott 21	2455126.102439		14	27	30.7	10	09 (125)	14	38 (23)	19	04 (234)
2009 Ott 22	2455127.139324		15	20	37.6	11	06 (126)	15	31 (22)	19	56 (234)
2009 Ott 23	2455128.175225		16	12	19.4	11	55 (125)	16	23 (23)	20	52 (235)
2009 Ott 24	2455129.209562		17	01	46.2	12	36 (123)	17	12 (25)	21	52 (239)
2009 Ott 25	2455130.242118		17	48	39.0	13	10 (119)	17	59 (28)	22	54 (243)
2009 Ott 26	2455131.273025		18	33	09.3	13	39 (113)	18	44 (32)	23	56 (249)
2009 Ott 27	2455132.302679		19	15	51.4	14	04 (107)	19	26 (37)	f	0 57 (256)
2009 Ott 28	2455133.331645		19	57	34.2	14	27 (100)	20	08 (42)	f	1 59 (263)
2009 Ott 29	2455134.360593		20	39	15.2	14	48 (93)	20	50 (47)	f	3 02 (271)
2009 Ott 30	2455135.390255		21	21	58.0	15	10 (86)	21	33 (53)	f	4 06 (278)
2009 Ott 31	2455136.421401		22	06	49.1	15	33 (78)	22	17 (58)	f	5 13 (286)
2009 Nov 1	2455137.454775		22	54	52.6	15	59 (71)	23	05 (64)	f	6 23 (293)
2009 Nov 2	2455138.490960		23	46	58.9	16	30 (64)	23	57 (68)	f	7 36 (299)
2009 Nov 4	2455139.530134		0	43	23.6	p17	08 (59)	0	54 (72)	8	48 (304)
2009 Nov 5	2455140.571790		1	43	22.6	p17	55 (55)	1	53 (74)	9	55 (306)
2009 Nov 6	2455141.614646		2	45	05.4	p18	53 (54)	2	55 (74)	10	55 (305)
2009 Nov 7	2455142.657029		3	46	07.3	p20	00 (56)	3	56 (72)	11	44 (302)
2009 Nov 8	2455143.697558		4	44	29.0	p21	13 (60)	4	55 (69)	12	24 (296)
2009 Nov 9	2455144.735607		5	39	16.5	p22	28 (66)	5	49 (64)	12	58 (290)
2009 Nov 10	2455145.771300		6	30	40.3	p23	43 (74)	6	41 (59)	13	26 (282)
2009 Nov 11	2455146.805236		7	19	32.4	0	56 (82)	7	30 (52)	13	52 (274)
2009 Nov 12	2455147.838217		8	07	01.9	2	07 (90)	8	17 (46)	14	16 (265)
2009 Nov 13	2455148.871061		8	54	19.7	3	18 (99)	9	05 (40)	14	41 (257)
2009 Nov 14	2455149.904487		9	42	27.7	4	28 (107)	9	53 (35)	15	08 (250)
2009 Nov 15	2455150.939002		10	32	09.8	5	38 (114)	10	43 (30)	15	39 (244)
2009 Nov 16	2455151.974784		11	23	41.3	6	47 (120)	11	34 (26)	16	15 (239)
2009 Nov 17	2455153.011579		12	16	40.4	7	53 (124)	12	27 (23)	16	57 (235)
2009 Nov 18	2455154.048720		13	10	09.4	8	54 (126)	13	20 (22)	17	46 (234)
2009 Nov 19	2455155.085315		14	02	51.2	9	47 (126)	14	13 (23)	18	41 (235)
2009 Nov 20	2455156.120555		14	53	35.9	10	31 (124)	15	04 (24)	19	40 (238)
2009 Nov 21	2455157.153967		15	41	42.8	11	08 (120)	15	52 (27)	20	42 (242)
2009 Nov 22	2455158.185493		16	27	06.6	11	39 (115)	16	38 (30)	21	43 (247)
2009 Nov 23	2455159.215418		17	10	12.2	12	05 (109)	17	21 (35)	22	45 (253)
2009 Nov 25	2455161.272685		18	32	40.0	12	50 (96)	18	43 (45)	f	0 46 (268)
2009 Nov 26	2455162.301437		19	14	04.1	13	11 (89)	19	25 (50)	f	1 49 (275)
2009 Nov 27	2455163.331332		19	57	07.1	13	33 (81)	20	08 (56)	f	2 54 (283)

Data		TDT JD	TDT			Sorge (Azm)		Trans (Alt)		Tramonta (Azm)	
			h	m	s	h	m	h	m	h	m
2009 Nov 24	24	2455160.244263	17	51	44.3	12	28 (103)	18	02 (40)	23	45 (260)
2009 Nov 28	28	2455164.363220	20	43	02.2	13	58 (74)	20	54 (61)	f 4	01 (290)
2009 Nov 29	29	2455165.397899	21	32	58.5	14	26 (67)	21	43 (66)	f 5	12 (296)
2009 Nov 30	30	2455166.435916	22	27	43.1	15	01 (61)	22	38 (70)	f 6	25 (302)
2009 Dic 1	1	2455167.477221	23	27	11.9	15	44 (57)	23	37 (73)	f 7	37 (305)
2009 Dic 3	3	2455168.520855	0	30	01.8	p16	38 (55)	0	40 (74)	8	42 (305)
2009 Dic 4	4	2455169.565032	1	33	38.8	p17	44 (55)	1	44 (73)	9	37 (303)
2009 Dic 5	5	2455170.607841	2	35	17.4	p18	57 (58)	2	45 (70)	10	22 (298)
2009 Dic 6	6	2455171.648051	3	33	11.6	p20	15 (64)	3	43 (66)	10	59 (292)
2009 Dic 7	7	2455172.685401	4	26	58.6	p21	32 (71)	4	37 (60)	11	29 (284)
2009 Dic 8	8	2455173.720345	5	17	17.8	p22	47 (80)	5	28 (54)	11	56 (276)
2009 Dic 9	9	2455174.753690	6	05	18.9	p23	59 (88)	6	16 (48)	12	21 (268)
2009 Dic 10	10	2455175.786328	6	52	18.8	1	10 (97)	7	03 (42)	12	45 (260)
2009 Dic 11	11	2455176.819086	7	39	29.0	2	19 (105)	7	50 (36)	13	11 (252)
2009 Dic 12	12	2455177.852624	8	27	46.7	3	28 (112)	8	38 (31)	13	40 (246)
2009 Dic 13	13	2455178.887335	9	17	45.7	4	36 (118)	9	28 (27)	14	14 (240)
2009 Dic 14	14	2455179.923228	10	09	26.9	5	43 (122)	10	20 (24)	14	53 (236)
2009 Dic 15	15	2455180.959880	11	02	13.7	6	44 (125)	11	12 (23)	15	39 (234)
2009 Dic 16	16	2455181.996515	11	54	58.9	7	40 (126)	12	05 (22)	16	32 (234)
2009 Dic 17	17	2455183.032254	12	46	26.8	8	27 (125)	12	57 (23)	17	30 (236)
2009 Dic 18	18	2455184.066415	13	35	38.2	9	06 (121)	13	46 (26)	18	31 (240)
2009 Dic 19	19	2455185.098691	14	22	06.9	9	39 (117)	14	33 (29)	19	32 (245)
2009 Dic 20	20	2455186.129167	15	06	00.0	10	07 (111)	15	17 (33)	20	34 (251)
2009 Dic 21	21	2455187.158220	15	47	50.2	10	31 (105)	15	58 (38)	21	34 (258)
2009 Dic 22	22	2455188.186419	16	28	26.6	10	53 (99)	16	39 (43)	22	35 (265)
2009 Dic 23	23	2455189.214449	17	08	48.4	11	14 (92)	17	19 (48)	23	35 (272)
2009 Dic 24	24	2455190.243079	17	50	02.0	11	35 (84)	18	01 (54)	f 0	37 (279)
2009 Dic 25	25	2455191.273145	18	33	19.7	11	58 (77)	18	44 (59)	f 1	42 (287)
2009 Dic 26	26	2455192.305510	19	19	56.1	12	23 (70)	19	30 (64)	f 2	49 (294)
2009 Dic 27	27	2455193.340964	20	10	59.3	12	54 (64)	20	21 (68)	f 4	00 (299)
2009 Dic 28	28	2455194.379973	21	07	09.7	13	31 (59)	21	17 (72)	f 5	12 (304)
2009 Dic 29	29	2455195.422306	22	08	07.3	14	19 (55)	22	18 (74)	f 6	20 (306)
2009 Dic 30	30	2455196.466749	23	12	07.1	15	19 (54)	23	22 (74)	f 7	21 (305)
2010 Gen 1	1	2455197.511344	0	16	20.1	p16	31 (56)	0	26 (72)	8	12 (301)

Tempi in T.U.+1, aggiungere un'ora quando si adotta l'ora legale

p = l'evento accade il giorno precedente

f = l'evento accade il giorno seguente

Legenda:

Sorge, transita, tramonta = orari di levata, altezza in gradi durante il transito a sud e tramonto.

Per località differenti da quella calcolata (42° N, 12°E) fare riferimento alla tabella correttiva posta in fondo all'almanacco.

VISIBILITA' DELLA LUNA

Prima ed ultima visibilità della Luna

Posizione : Roma

latitudine : 42° N

longitudine: 12° E

Probabilità di visibilità : alta

	data	Sole s/t	luna s/t	d s/t	fase luna	età luna	periodo
U.V.M.	2009-01-24	07:32	06:30	-1:01h	3.8%	-49:24h	
P.V.S.	2009-01-27	17:20	18:38	1:18h	1.7%	32:24h	30
U.V.M.	2009-02-23	06:56	06:05	-0:51h	3.2%	-43:39h	
P.V.S.	2009-02-25	17:57	18:37	0:39h	0.5%	15:21h	29
U.V.M.	2009-03-25	06:06	05:15	-0:51h	2.5%	-35:00h	
P.V.S.	2009-03-27	18:32	19:48	1:16h	1.5%	25:24h	30
U.V.M.	2009-04-24	05:17	04:27	-0:50h	1.4%	-23:05h	
P.V.S.	2009-04-25	19:04	19:56	0:52h	0.7%	14:40h	29
U.V.M.	2009-05-23	04:44	03:26	-1:17h	2.8%	-32:27h	
P.V.S.	2009-05-25	19:35	21:13	1:38h	2.4%	30:23h	30
U.V.M.	2009-06-22	04:36	03:44	-0:52h	0.8%	-15:59h	
P.V.S.	2009-06-23	19:51	20:48	0:57h	1.4%	23:15h	29
U.V.M.	2009-07-21	04:54	03:45	-1:09h	1.4%	-22:40h	
P.V.S.	2009-07-23	19:39	20:31	0:51h	4.2%	40:04h	30
U.V.M.	2009-08-19	05:23	03:57	-1:26h	2.3%	-29:38h	
P.V.S.	2009-08-21	19:03	19:23	0:19h	2.7%	32:00h	29
U.V.M.	2009-09-17	05:54	04:10	-1:43h	3.5%	-37:51h	
P.V.S.	2009-09-20	18:12	18:40	0:27h	5.0%	46:27h	30
U.V.M.	2009-10-17	06:26	05:32	-0:54h	1.4%	-24:07h	
P.V.S.	2009-10-19	17:24	17:41	0:16h	2.6%	34:50h	29
U.V.M.	2009-11-15	07:01	05:38	-1:23h	2.8%	-37:12h	
P.V.S.	2009-11-18	16:48	17:45	0:57h	3.6%	44:33h	30
U.V.M.	2009-12-15	07:32	06:44	-0:48h	1.6%	-29:30h	
P.V.S.	2009-12-17	16:41	17:29	0:47h	1.3%	27:38h	29

Legenda:

Data nel formato anno/mese/giorno

P.V.S.: primo giorno di visibilità serale dopo la congiunzione con il Sole

U.V.M.: ultimo giorno di visibilità mattutina prima della congiunzione con il Sole

Sole s/t : ora del tramonto o della levata del Sole

Luna s/t : ora del tramonto o della levata della Luna

D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due corpi

	data	Sole s/t	luna s/t	Sole lon	luna lon	luna lat	luna alt	fase luna	d az	d lon
L vis	2009-01-24	07:32	06:30	304° 24'	281° 56'	-2° 26'	7° 51'	3.8%	20° 35'	-22° 28'
F vis	2009-01-27	17:20	18:38	307° 52'	322° 54'	1° 15'	12° 01'	1.7%	-6° 24'	15° 02'
L vis	2009-02-23	06:56	06:05	334° 45'	314° 02'	0° 26'	7° 45'	3.2%	18° 33'	-20° 43'
F vis	2009-02-25	17:57	18:37	337° 14'	344° 43'	3° 02'	6° 24'	0.5%	0° 13'	7° 29'
L vis	2009-03-25	06:06	05:15	4° 41'	346° 57'	3° 13'	8° 36'	2.5%	14° 53'	-17° 44'
F vis	2009-03-27	18:32	19:48	7° 11'	20° 29'	4° 51'	12° 26'	1.5%	0° 21'	13° 18'
L vis	2009-04-24	05:17	04:27	34° 08'	21° 34'	4° 52'	8° 18'	1.4%	9° 03'	-12° 33'
F vis	2009-04-25	19:04	19:56	35° 40'	43° 47'	4° 57'	7° 46'	0.7%	1° 12'	8° 08'
L vis	2009-05-23	04:44	03:26	62° 10'	43° 41'	4° 58'	12° 20'	2.8%	13° 02'	-18° 28'
F vis	2009-05-25	19:35	21:13	64° 41'	82° 19'	3° 14'	14° 25'	2.4%	-7° 48'	17° 38'
L vis	2009-06-22	04:36	03:44	90° 52'	81° 27'	3° 17'	7° 06'	0.8%	4° 39'	-9° 25'
F vis	2009-06-23	19:51	20:48	92° 26'	106° 12'	1° 17'	8° 19'	1.4%	-9° 30'	13° 46'
L vis	2009-07-21	04:54	03:45	118° 32'	105° 07'	1° 23'	10° 06'	1.4%	6° 29'	-13° 26'
F vis	2009-07-23	19:39	20:31	121° 02'	144° 37'	-2° 12'	8° 31'	4.2%	-21° 26'	23° 34'
L vis	2009-08-19	05:23	03:57	146° 20'	129° 02'	-0° 49'	13° 43'	2.3%	7° 53'	-17° 19'
F vis	2009-08-21	19:03	19:23	148° 49'	167° 16'	-3° 50'	3° 01'	2.7%	-18° 16'	18° 27'
L vis	2009-09-17	05:54	04:10	174° 27'	153° 02'	-2° 52'	17° 30'	3.5%	9° 59'	-21° 25'
F vis	2009-09-20	18:12	18:40	177° 53'	203° 21'	-5° 04'	4° 05'	5.0%	-25° 20'	25° 28'
L vis	2009-10-17	06:26	05:32	203° 59'	191° 05'	-4° 50'	8° 33'	1.4%	9° 13'	-12° 54'
F vis	2009-10-19	17:24	17:41	206° 25'	224° 34'	-4° 44'	2° 09'	2.6%	-18° 23'	18° 08'
L vis	2009-11-15	07:01	05:38	233° 00'	214° 14'	-4° 58'	11° 55'	2.8%	13° 56'	-18° 46'
F vis	2009-11-18	16:48	17:45	236° 27'	258° 06'	-2° 53'	7° 08'	3.6%	-20° 04'	21° 40'
L vis	2009-12-15	07:32	06:44	263° 25'	249° 29'	-3° 29'	6° 03'	1.6%	12° 10'	-13° 56'
F vis	2009-12-17	16:41	17:29	265° 50'	278° 39'	-1° 08'	6° 05'	1.3%	-10° 21'	12° 49'

Legenda:

Sole lon : longitudine celeste del Sole

Luna lon : longitudine celeste della Luna Luna lat : latitudine celeste della Luna

Luna alt : altezza della Luna sull'orizzonte quando il Sole è sull'orizzonte

D az : differenza in azimuth tra i centri del Sole e della Luna nell'istante della sua visibilità

D lon : differenza in longitudine tra i centri del Sole e della Luna nell'istante della sua visibilità

Prima ed ultima visibilità della Luna

Posizione : Roma

latitudine : 42° N

longitudine: 12° E

Probabilità di visibilità : media

	data	Sole s/t	luna s/t	d s/t	fase luna	età luna	periodo
U.V.M.	2009-01-25	07:31	07:05	-0:25h	1.0%	-25:25h	
P.V.S.	2009-01-27	17:20	18:38	1:18h	1.7%	32:24h	30
U.V.M.	2009-02-24	06:54	06:28	-0:26h	0.7%	-19:41h	
P.V.S.	2009-02-25	17:57	18:37	0:39h	0.5%	15:21h	29
U.V.M.	2009-03-26	06:05	05:37	-0:27h	0.4%	-11:01h	
P.V.S.	2009-03-27	18:32	19:48	1:16h	1.5%	25:24h	30
U.V.M.	2009-04-24	05:17	04:27	-0:50h	1.4%	-23:05h	
P.V.S.	2009-04-25	19:04	19:56	0:52h	0.7%	14:40h	29
U.V.M.	2009-05-24	04:43	04:08	-0:35h	0.3%	-8:28h	
P.V.S.	2009-05-24	19:34	20:04	0:29h	0.2%	6:22h	29
U.V.M.	2009-06-22	04:36	03:44	-0:52h	0.8%	-15:59h	
P.V.S.	2009-06-23	19:51	20:48	0:57h	1.4%	23:15h	30
U.V.M.	2009-07-21	04:54	03:45	-1:09h	1.4%	-22:40h	
P.V.S.	2009-07-22	19:40	20:00	0:19h	0.7%	16:04h	29
U.V.M.	2009-08-19	05:23	03:57	-1:26h	2.3%	-29:38h	
P.V.S.	2009-08-21	19:03	19:23	0:19h	2.7%	32:00h	30
U.V.M.	2009-09-18	05:55	05:25	-0:29h	0.6%	-13:50h	
P.V.S.	2009-09-20	18:12	18:40	0:27h	5.0%	46:27h	30
U.V.M.	2009-10-17	06:26	05:32	-0:54h	1.4%	-24:07h	
P.V.S.	2009-10-19	17:24	17:41	0:16h	2.6%	34:50h	29
U.V.M.	2009-11-16	07:03	06:47	-0:15h	0.5%	-13:11h	
P.V.S.	2009-11-17	16:49	16:56	0:07h	0.9%	20:34h	29
U.V.M.	2009-12-15	07:32	06:44	-0:48h	1.6%	-29:30h	
P.V.S.	2009-12-17	16:41	17:29	0:47h	1.3%	27:38h	30

Legenda:

Data nel formato anno/mese/giorno

P.V.S.: primo giorno di visibilità serale dopo la congiunzione con il Sole

U.V.M.: ultimo giorno di visibilità mattutina prima della congiunzione con il Sole

Sole s/t : ora del tramonto o della levata del Sole

Luna s/t : ora del tramonto o della levata della Luna

D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due corpi

	data	Sole s/t	luna s/t	Sole lon	luna lon	luna lat	luna alt	fase luna	d az	d lon
L vis	2009-01-25	07:31	07:05	305° 25'	293° 49'	-1° 25'	3° 17'	1.0%	10° 40'	-11° 36'
F vis	2009-01-27	17:20	18:38	307° 52'	322° 54'	1° 15'	12° 01'	1.7%	-6° 24'	15° 02'
L vis	2009-02-24	06:54	06:28	335° 46'	326° 20'	1° 33'	3° 57'	0.7%	7° 49'	-9° 26'
F vis	2009-02-25	17:57	18:37	337° 14'	344° 43'	3° 02'	6° 24'	0.5%	0° 13'	7° 29'
L vis	2009-03-26	06:05	05:37	5° 41'	0° 01'	4° 01'	4° 25'	0.4%	3° 28'	-5° 39'
F vis	2009-03-27	18:32	19:48	7° 11'	20° 29'	4° 51'	12° 26'	1.5%	0° 21'	13° 18'
L vis	2009-04-24	05:17	04:27	34° 08'	21° 34'	4° 52'	8° 18'	1.4%	9° 03'	-12° 33'
F vis	2009-04-25	19:04	19:56	35° 40'	43° 47'	4° 57'	7° 46'	0.7%	1° 12'	8° 08'
L vis	2009-05-24	04:43	04:08	63° 07'	58° 16'	4° 33'	4° 48'	0.3%	1° 37'	-4° 52'
F vis	2009-05-24	19:34	20:04	63° 43'	67° 24'	4° 08'	3° 48'	0.2%	1° 16'	3° 41'
L vis	2009-06-22	04:36	03:44	90° 52'	81° 27'	3° 17'	7° 06'	0.8%	4° 39'	-9° 25'
F vis	2009-06-23	19:51	20:48	92° 26'	106° 12'	1° 17'	8° 19'	1.4%	-9° 30'	13° 46'
L vis	2009-07-21	04:54	03:45	118° 32'	105° 07'	1° 23'	10° 06'	1.4%	6° 29'	-13° 26'
F vis	2009-07-22	19:40	20:00	120° 05'	129° 36'	-0° 52'	2° 42'	0.7%	-8° 33'	9° 31'
L vis	2009-08-19	05:23	03:57	146° 20'	129° 02'	-0° 49'	13° 43'	2.3%	7° 53'	-17° 19'
F vis	2009-08-21	19:03	19:23	148° 49'	167° 16'	-3° 50'	3° 01'	2.7%	-18° 16'	18° 27'
L vis	2009-09-18	05:55	05:25	175° 25'	167° 39'	-3° 50'	4° 28'	0.6%	6° 09'	-7° 47'
F vis	2009-09-20	18:12	18:40	177° 53'	203° 21'	-5° 04'	4° 05'	5.0%	-25° 20'	25° 28'
L vis	2009-10-17	06:26	05:32	203° 59'	191° 05'	-4° 50'	8° 33'	1.4%	9° 13'	-12° 54'
F vis	2009-10-19	17:24	17:41	206° 25'	224° 34'	-4° 44'	2° 09'	2.6%	-18° 23'	18° 08'
L vis	2009-11-16	07:03	06:47	234° 01'	227° 26'	-4° 37'	1° 52'	0.5%	7° 18'	-6° 35'
F vis	2009-11-17	16:49	16:56	235° 26'	245° 33'	-3° 43'	0° 48'	0.9%	-10° 34'	10° 07'
L vis	2009-12-15	07:32	06:44	263° 25'	249° 29'	-3° 29'	6° 03'	1.6%	12° 10'	-13° 56'
F vis	2009-12-17	16:41	17:29	265° 50'	278° 39'	-1° 08'	6° 05'	1.3%	-10° 21'	12° 49'

Legenda:

Data nel formato anno/mese/giorno

Sole lon : longitudine celeste del Sole

Luna lon : longitudine celeste della Luna

Luna lat : latitudine celeste della Luna

Luna alt : altezza della Luna sull'orizzonte quando il Sole è sull'orizzonte

D az : differenza in azimut tra i centri del Sole e della Luna nell'istante della sua visibilità

D lon : differenza in longitudine tra i centri del Sole e della Luna nell'istante della sua visibilità

Prima ed ultima visibilità della Luna

Posizione : Roma

latitudine : 42° N

longitudine: 12° E

Probabilità di visibilità : bassa

	data	Sole s/t	luna s/t	d s/t	fase luna	età luna	periodo
U.V.M.	2009-01-25	07:31	07:05	-0:25h	1.0%	-25:25h	
P.V.S.	2009-01-26	17:18	17:34	0:15h	0.1%	8:22h	29
U.V.M.	2009-02-25	06:53	06:50	-0:02h	0.1%	4:16h	
P.V.S.	2009-02-25	17:57	18:37	0:39h	0.5%	15:21h	30
U.V.M.	2009-03-27	06:03	06:00	-0:02h	0.5%	12:56h	
P.V.S.	2009-03-26	18:31	18:37	0:06h	0.1%	1:24h	29
U.V.M.	2009-04-25	05:16	04:56	-0:19h	0.2%	0:52h	
P.V.S.	2009-04-25	19:04	19:56	0:52h	0.7%	14:40h	30
U.V.M.	2009-05-24	04:43	04:08	-0:35h	0.3%	-8:28h	
P.V.S.	2009-05-24	19:34	20:04	0:29h	0.2%	6:22h	29
U.V.M.	2009-06-22	04:36	03:44	-0:52h	0.8%	-15:59h	
P.V.S.	2009-06-23	19:51	20:48	0:57h	1.4%	23:15h	30
U.V.M.	2009-07-21	04:54	03:45	-1:09h	1.4%	-22:40h	
P.V.S.	2009-07-22	19:40	20:00	0:19h	0.7%	16:04h	29
U.V.M.	2009-08-20	05:25	05:17	-0:07h	0.1%	-5:37h	
P.V.S.	2009-08-21	19:03	19:23	0:19h	2.7%	32:00h	30
U.V.M.	2009-09-18	05:55	05:25	-0:29h	0.6%	-13:50h	
P.V.S.	2009-09-20	18:12	18:40	0:27h	5.0%	46:27h	30
U.V.M.	2009-10-17	06:26	05:32	-0:54h	1.4%	-24:07h	
P.V.S.	2009-10-19	17:24	17:41	0:16h	2.6%	34:50h	29
U.V.M.	2009-11-16	07:03	06:47	-0:15h	0.5%	-13:11h	
P.V.S.	2009-11-17	16:49	16:56	0:07h	0.9%	20:34h	29
U.V.M.	2009-12-15	07:32	06:44	-0:48h	1.6%	-29:30h	
P.V.S.	2009-12-17	16:41	17:29	0:47h	1.3%	27:38h	30

Legenda:

Data nel formato anno/mese/giorno

P.V.S.: primo giorno di visibilità serale dopo la congiunzione con il Sole

U.V.M.: ultimo giorno di visibilità mattutina prima della congiunzione con il Sole

Sole s/t : ora del tramonto o della levata del Sole

Luna s/t : ora del tramonto o della levata della Luna

D s/t : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due corpi

	data	Sole s/t	luna s/t	Sole lon	luna lon	luna lat	luna alt	fase luna	d az	d lon
L vis	2009-01-25	07:31	07:05	305° 25'	293° 49'	-1° 25'	3° 17'	1.0%	10° 40'	-11° 36'
F vis	2009-01-26	17:18	17:34	306° 51'	310° 43'	0° 08'	2° 01'	0.1%	-1° 49'	3° 52'
L vis	2009-02-25	06:53	06:50	336° 46'	338° 51'	2° 35'	0° 03'	0.1%	-3° 00'	2° 05'
F vis	2009-02-25	17:57	18:37	337° 14'	344° 43'	3° 02'	6° 24'	0.5%	0° 13'	7° 29'
L vis	2009-03-27	06:03	06:00	6° 40'	13° 24'	4° 38'	0° 03'	0.5%	-8° 03'	6° 44'
F vis	2009-03-26	18:31	18:37	6° 11'	6° 56'	4° 22'	0° 43'	0.1%	3° 54'	0° 44'
L vis	2009-04-25	05:16	04:56	35° 06'	35° 36'	5° 00'	2° 40'	0.2%	-2° 42'	0° 30'
F vis	2009-04-25	19:04	19:56	35° 40'	43° 47'	4° 57'	7° 46'	0.7%	1° 12'	8° 08'
L vis	2009-05-24	04:43	04:08	63° 07'	58° 16'	4° 33'	4° 48'	0.3%	1° 37'	-4° 52'
F vis	2009-05-24	19:34	20:04	63° 43'	67° 24'	4° 08'	3° 48'	0.2%	1° 16'	3° 41'
L vis	2009-06-22	04:36	03:44	90° 52'	81° 27'	3° 17'	7° 06'	0.8%	4° 39'	-9° 25'
F vis	2009-06-23	19:51	20:48	92° 26'	106° 12'	1° 17'	8° 19'	1.4%	-9° 30'	13° 46'
L vis	2009-07-21	04:54	03:45	118° 32'	105° 07'	1° 23'	10° 06'	1.4%	6° 29'	-13° 26'
F vis	2009-07-22	19:40	20:00	120° 05'	129° 36'	-0° 52'	2° 42'	0.7%	-8° 33'	9° 31'
L vis	2009-08-20	05:25	05:17	147° 18'	144° 02'	-2° 08'	0° 45'	0.1%	3° 15'	-3° 16'
F vis	2009-08-21	19:03	19:23	148° 49'	167° 16'	-3° 50'	3° 01'	2.7%	-18° 16'	18° 27'
L vis	2009-09-18	05:55	05:25	175° 25'	167° 39'	-3° 50'	4° 28'	0.6%	6° 09'	-7° 47'
F vis	2009-09-20	18:12	18:40	177° 53'	203° 21'	-5° 04'	4° 05'	5.0%	-25° 20'	25° 28'
L vis	2009-10-17	06:26	05:32	203° 59'	191° 05'	-4° 50'	8° 33'	1.4%	9° 13'	-12° 54'
F vis	2009-10-19	17:24	17:41	206° 25'	224° 34'	-4° 44'	2° 09'	2.6%	-18° 23'	18° 08'
L vis	2009-11-16	07:03	06:47	234° 01'	227° 26'	-4° 37'	1° 52'	0.5%	7° 18'	-6° 35'
F vis	2009-11-17	16:49	16:56	235° 26'	245° 33'	-3° 43'	0° 48'	0.9%	-10° 34'	10° 07'
L vis	2009-12-15	07:32	06:44	263° 25'	249° 29'	-3° 29'	6° 03'	1.6%	12° 10'	-13° 56'
F vis	2009-12-17	16:41	17:29	265° 50'	278° 39'	-1° 08'	6° 05'	1.3%	-10° 21'	12° 49'

Legenda:

Data nel formato anno/mese/giorno

Sole lon : longitudine celeste del Sole

Luna lon : longitudine celeste della Luna

Luna lat : latitudine celeste della Luna

Luna alt : altezza della Luna sull'orizzonte quando il Sole è sull'orizzonte

D az : differenza in azimut tra i centri del Sole e della Luna nell'istante della sua visibilità

D lon : differenza in longitudine tra i centri del Sole e della Luna nell'istante della sua visibilità

- Falce lunare sottile: Venerdì 27/03/2009
 - Calcoli effettuati per il tramonto: 18.31 LT
 - I calcoli sono topocentrici.
 - Roma, Long: 12:14:00.0, Lat: 41:48:00.0, Ele:0.0, Zone:1.00
 - I calcoli sono in ora invernale, in estate aggiungere un'ora
 - Delta T: 65.18 Secondi

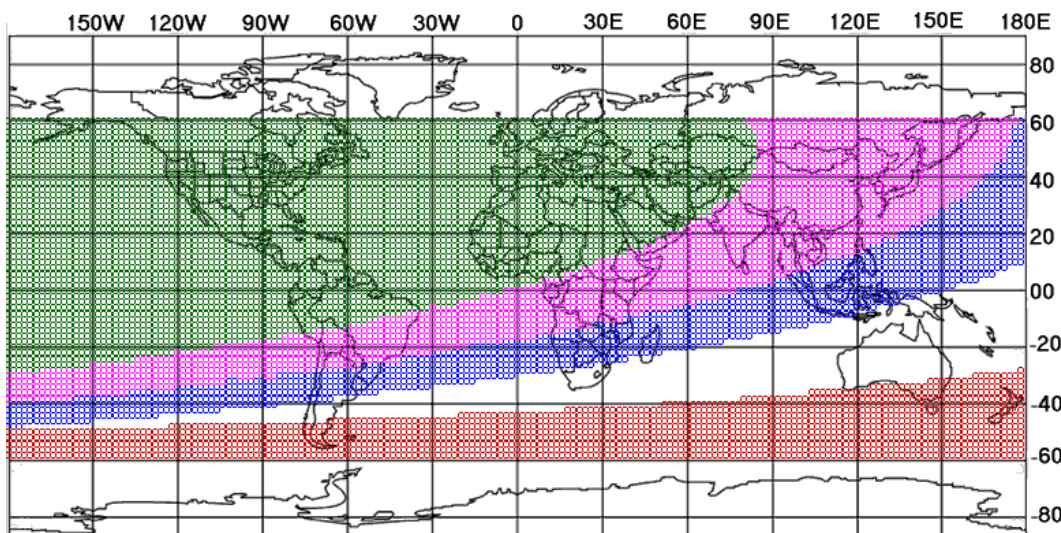
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- T. ora della congiunzione: 26/03/2009, 18.51 LT
 - Data giuliana della congiunzione: 2454918.22988

- Sole tramonta: 18.31 LT	T. Età della Luna: +23H 40M
- Luna tramonta: 19.47 LT	Moon Lag Time: +01H 16M
- T. Ascensione retta Luna: +01H 05M 13S	T. Declinazione Luna: +11°:52':18"
- T. Ascensione retta Sole: +00H 26M 22S	T. Declinazione Sole: +02°:50':56"
- T. Longitudine Luna: +19°:34':07"	T. Latitudine Luna: +04°:33':29"
- T. Longitudine Sole: +07°:10':45"	T. Latitudine Sole: -00°:00':02"
- T. Altitudine Luna: +12°:20':47"	T. Azimut Luna: +274°:58':44"
- T. Altitudine Sole: -00°:50':11"	T. Azimut Sole: +274°:34':23"
- T. Altitudine Relativa: +13°:10':58"	T. Elongazione: +13°:11':20"
- T. Azimut relativo: +00°:24':20"	T. Angolo di fase: +166°:46':40"
- T. Falce lunare: +00°:00':25"	T. Semidiametro lunare: +00°:15':51"
- T. Illuminazione: 01.33 %	G. Parallasse orizzontale: +00°:57':56"
- T. Magnitudine: -05.30	G. Distanza: 378540.51 Km

Note

- formato data : gg/mm/aaaa
 - Il prefisso "G" stà per geocentrico, "T" per topocentrico
 - LT = local time, ora locale



Rosso : non visibile
 Bianco : impossibile da vedere
 Blu : visibile con strumenti
 Rosa : potrebbe essere vista ad occhio nudo
 Verde : facilmente visibile ad occhio nudo

- Falce lunare sottile: Venerdì 24/04/2009
 - Calcoli effettuati per il sorgere: 05.17 LT
 - I calcoli sono topocentrici.
 - Roma, Long: 12:14:00.0, Lat: 41:48:00.0, Ele:0.0, Zone:1.00
 - I calcoli sono in ora invernale, in estate aggiungere un'ora
 - Delta T: 65.18 Secondi

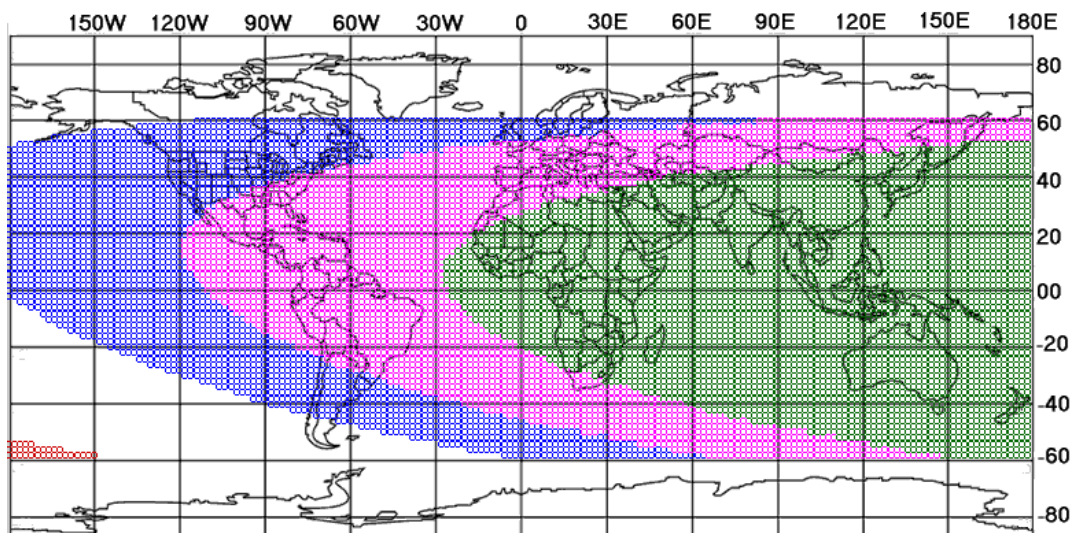
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- T. ora della congiunzione: 25/04/2009, 03.48 LT
 - Data giuliana della congiunzione: 2454945.67868

- Luna sorge: 04.26 LT	T. Età della Luna: -22H 30M
- Sole sorge: 05.17 LT	Moon Lag Time: +00H 51M
- T. Ascensione retta Luna: +01H 15M 15S	T. Declinazione Luna: +12°:17':40"
- T. Ascensione retta Sole: +02H 07M 30S	T. Declinazione Sole: +12°:53':38"
- T. Longitudine Luna: +22°:00':16"	T. Latitudine Luna: +04°:00':58"
- T. Longitudine Sole: +34°:07':45"	T. Latitudine Sole: -00°:00':07"
- T. Altitudine Luna: +08°:13':04"	T. Azimut Luna: +80°:49':25"
- T. Altitudine Sole: -00°:50':04"	T. Azimut Sole: +71°:47':49"
- T. Altitudine Relativa: +09°:03':07"	T. Elongazione: +12°:45':49"
- T. Azimut relativo: +09°:01':36"	T. Angolo di fase: +167°:12':17"
- T. Falce lunare: +00°:00':24"	T. Semidiametro lunare: +00°:15':57"
- T. Illuminazione: 01.24 %	G. Parallasse orizzontale: +00°:58':22"
- T. Magnitudine: -05.26	G. Distanza: 375706.64 Km

Note

- formato data : gg/mm/aaaa
 - Il prefisso "G" stà per geocentrico, "T" per topocentrico
 - LT = local time, ora locale



Rosso : non visibile
 Bianco : impossibile da vedere
 Blu : visibile con strumenti
 Rosa : potrebbe essere vista ad occhio nudo
 Verde : facilmente visibile ad occhio nudo

- Falce lunare sottile: Sabato 25/04/2009
 - Calcoli effettuati per il tramonto: 19.03 LT
 - I calcoli sono topocentrici.
 - Roma, Long: 12:14:00.0, Lat: 41:48:00.0, Ele:0.0, Zone:1.00
 - I calcoli sono in ora invernale, in estate aggiungere un'ora
 - Delta T: 65.18 Secondi

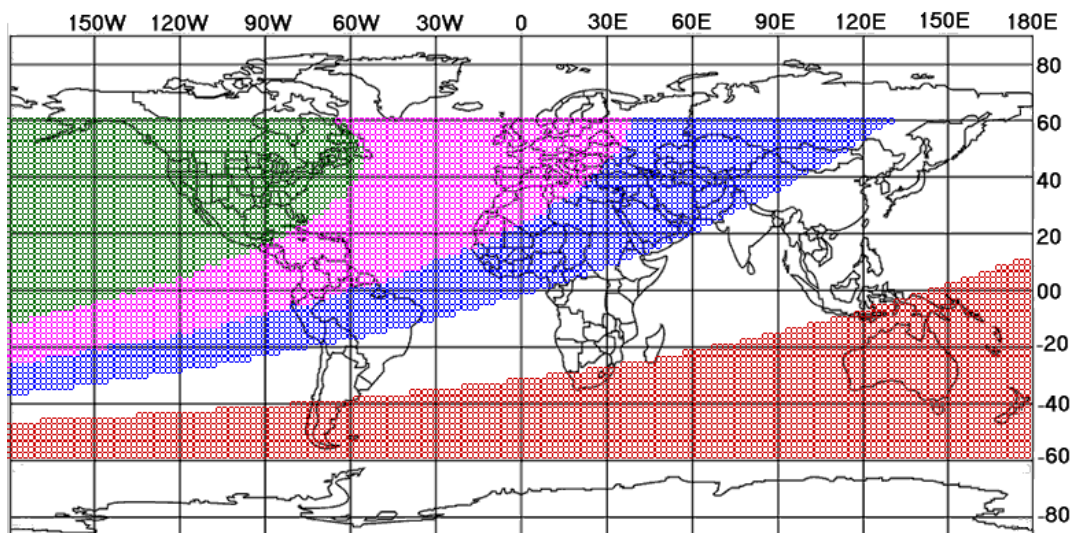
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- T. ora della congiunzione: 25/04/2009, 03.48 LT
 - Data giuliana della congiunzione: 2454947.25201

- Sole tramonta: 19.03 LT	T. Età della Luna: +15H 15M
- Luna tramonta: 19.55 LT	Moon Lag Time: +00H 52M
- T. Ascensione retta Luna: +02H 35M 52S	T. Declinazione Luna: +20°:02':15"
- T. Ascensione retta Sole: +02H 13M 25S	T. Declinazione Sole: +13°:24':27"
- T. Longitudine Luna: +42°:52':49"	T. Latitudine Luna: +04°:33':06"
- T. Longitudine Sole: +35°:39':31"	T. Latitudine Sole: -00°:00':03"
- T. Altitudine Luna: +07°:36':29"	T. Azimut Luna: +290°:08':15"
- T. Altitudine Sole: -00°:50':03"	T. Azimut Sole: +288°:54':39"
- T. Altitudine Relativa: +08°:26':32"	T. Elongazione: +08°:31':50"
- T. Azimut relativo: +01°:13':36"	T. Angolo di fase: +171°:26':55"
- T. Falce lunare: +00°:00':11"	T. Semidiametro lunare: +00°:16':12"
- T. Illuminazione: 00.56 %	G. Parallasse orizzontale: +00°:59':18"
- T. Magnitudine: -04.82	G. Distanza: 369762.00 Km

Note

- formato data : gg/mm/aaaa
 - Il prefisso "G" stà per geocentrico, "T" per topocentrico
 - LT = local time, ora locale



Rosso : non visibile
 Bianco : impossibile da vedere
 Blu : visibile con strumenti
 Rosa : potrebbe essere vista ad occhio nudo
 Verde : facilmente visibile ad occhio nudo

- Falce lunare sottile: Martedì 23/06/2009
- Calcoli effettuati per il tramonto: 19.50 LT
- I calcoli sono topocentrici.
- Roma, Long: 12:14:00.0, Lat: 41:48:00.0, Ele:0.0, Zone:1.00
- I calcoli sono in ora invernale, in estate aggiungere un'ora
- Delta T: 65.19 Secondi

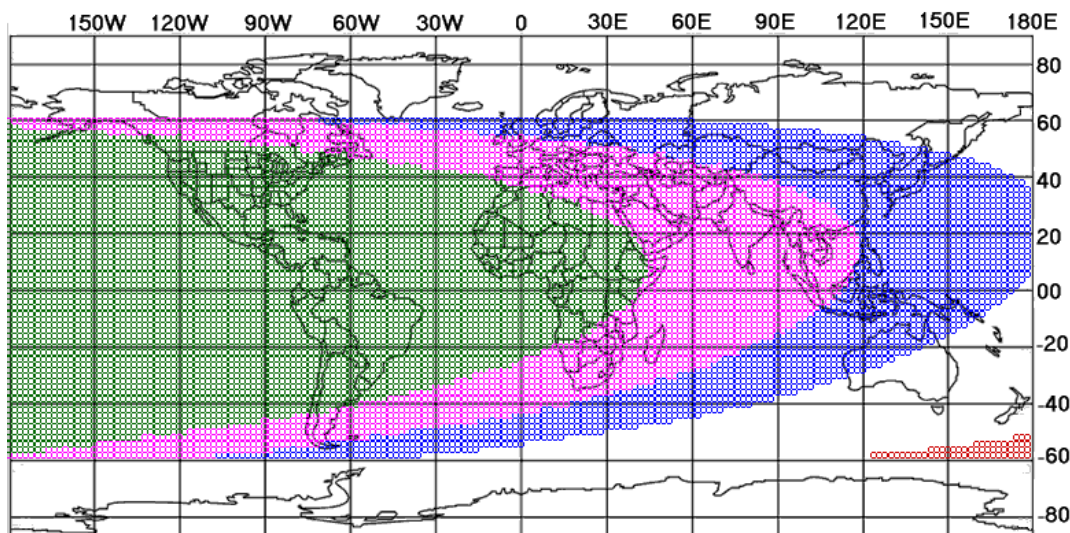
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- T. ora della congiunzione: 22/06/2009, 21.26 LT
- Data giuliana della congiunzione: 2455006.28457

- Sole tramonta: 19.50 LT	T. Età della Luna: +22H 24M
- Luna tramonta: 20.47 LT	Moon Lag Time: +00H 57M
- T. Ascensione retta Luna: +07H 07M 35S	T. Declinazione Luna: +23°:03':52"
- T. Ascensione retta Sole: +06H 10M 35S	T. Declinazione Sole: +23°:24':55"
- T. Longitudine Luna: +105°:30':35"	T. Latitudine Luna: +00°:31':49"
- T. Longitudine Sole: +92°:25':39"	T. Latitudine Sole: -00°:00':06"
- T. Altitudine Luna: +08°:15':49"	T. Azimut Luna: +293°:39':07"
- T. Altitudine Sole: -00°:49':53"	T. Azimut Sole: +303°:06':00"
- T. Altitudine Relativa: +09°:05':43"	T. Elongazione: +13°:05':35"
- T. Azimut relativo: -09°:26':53"	T. Angolo di fase: +166°:52':35"
- T. Falce lunare: +00°:00':26"	T. Semidiametro lunare: +00°:16':44"
- T. Illuminazione: 01.31 %	G. Parallasse orizzontale: +01°:01':14"
- T. Magnitudine: -05.29	G. Distanza: 358124.16 Km

Note

- formato data : gg/mm/aaaa
- Il prefisso "G" sta per geocentrico, "T" per topocentrico
- LT = local time, ora locale



Rosso : non visibile
 Bianco : impossibile da vedere
 Blu : visibile con strumenti
 Rosa : potrebbe essere vista ad occhio nudo
 Verde : facilmente visibile ad occhio nudo

- Falce lunare sottile: Martedì 21/07/2009
 - Calcoli effettuati per il sorgere: 04.55 LT
 - I calcoli sono topocentrici.
 - Roma, Long: 12:14:00.0, Lat: 41:48:00.0, Ele:0.0, Zone:1.00
 - I calcoli sono in ora invernale, in estate aggiungere un'ora
 - Delta T: 65.19 Secondi

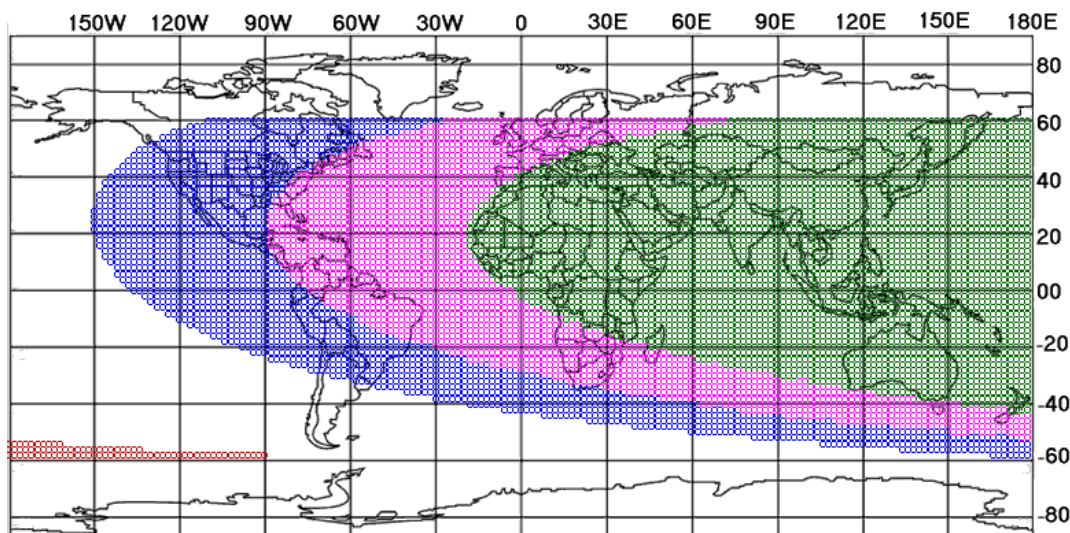
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- T. ora della congiunzione: 22/07/2009, 02.34 LT
 - Data giuliana della congiunzione: 2455033.66285

- Luna sorge: 03.45 LT	T. Età della Luna: -21H 40M
- Sole sorge: 04.55 LT	Moon Lag Time: +01H 10M
- T. Ascensione retta Luna: +07H 09M 35S	T. Declinazione Luna: +23°:17':57"
- T. Ascensione retta Sole: +08H 02M 38S	T. Declinazione Sole: +20°:27':05"
- T. Longitudine Luna: +105°:56':16"	T. Latitudine Luna: +00°:49':02"
- T. Longitudine Sole: +118°:32':31"	T. Latitudine Sole: -00°:00':05"
- T. Altitudine Luna: +10°:03':02"	T. Azimut Luna: +67°:38':34"
- T. Altitudine Sole: -00°:49':54"	T. Azimut Sole: +61°:12':03"
- T. Altitudine Relativa: +10°:52':56"	T. Elongazione: +12°:37':49"
- T. Azimut relativo: +06°:26':31"	T. Angolo di fase: +167°:20':25"
- T. Falce lunare: +00°:00':24"	T. Semidiametro lunare: +00°:16':45"
- T. Illuminazione: 01.22 %	G. Parallasse orizzontale: +01°:01':16"
- T. Magnitudine: -05.24	G. Distanza: 357910.32 Km

Note

- formato data : gg/mm/aaaa
 - Il prefisso "G" stà per geocentrico, "T" per topocentrico
 - LT = local time, ora locale



Rosso : non visibile
 Bianco : impossibile da vedere
 Blu : visibile con strumenti
 Rosa : potrebbe essere vista ad occhio nudo
 Verde : facilmente visibile ad occhio nudo

- Falce lunare sottile: Sabato 17/10/2009
 - Calcoli effettuati per il sorgere: 06.26 LT
 - I calcoli sono topocentrici.
 - Roma, Long: 12:14:00.0, Lat: 41:48:00.0, Ele:0.0, Zone:1.00
 - I calcoli sono in ora invernale, in estate aggiungere un'ora
 - Delta T: 65.19 Secondi

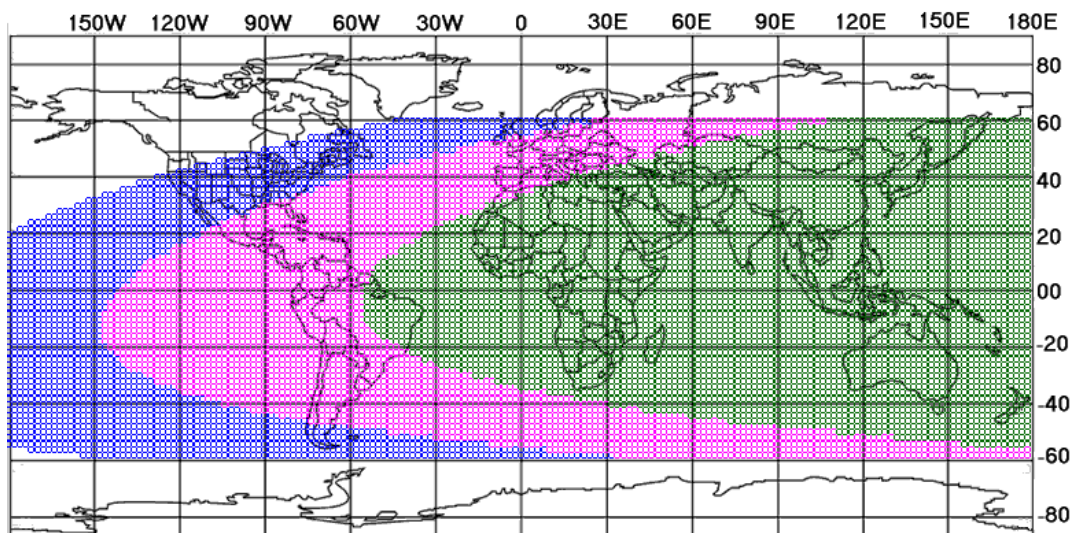
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- T. ora della congiunzione: 18/10/2009, 04.55 LT
 - Data giuliana della congiunzione: 2455121.72609

- Luna sorge: 05.31 LT	T. Età della Luna: -22H 29M
- Sole sorge: 06.26 LT	Moon Lag Time: +00H 55M
- T. Ascensione retta Luna: +12H 35M 48S	T. Declinazione Luna: -09°:30':34"
- T. Ascensione retta Sole: +13H 28M 49S	T. Declinazione Sole: -09°:18':20"
- T. Longitudine Luna: +191°:58':02"	T. Latitudine Luna: -05°:11':41"
- T. Longitudine Sole: +203°:58':58"	T. Latitudine Sole: -00°:00':03"
- T. Altitudine Luna: +08°:29':39"	T. Azimut Luna: +110°:57':12"
- T. Altitudine Sole: -00°:50':13"	T. Azimut Sole: +101°:45':48"
- T. Altitudine Relativa: +09°:19':51"	T. Elongazione: +13°:04':30"
- T. Azimut relativo: +09°:11':24"	T. Angolo di fase: +166°:53':32"
- T. Falce lunare: +00°:00':25"	T. Semidiametro lunare: +00°:15':59"
- T. Illuminazione: 01.30 %	G. Parallasse orizzontale: +00°:58':31"
- T. Magnitudine: -05.29	G. Distanza: 374685.55 Km

Note

- formato data : gg/mm/aaaa
 - Il prefisso "G" stà per geocentrico, "T" per topocentrico
 - LT = local time, ora locale



Rosso : non visibile
 Bianco : impossibile da vedere
 Blu : visibile con strumenti
 Rosa : potrebbe essere vista ad occhio nudo
 Verde : facilmente visibile ad occhio nudo

Altezza ai crepuscoli Il Sole è 12° sotto l'orizzonte

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:01:01	06:34	-40.6	60.7	51.7	17:58	34.5	215.9	57.1
2009:01:02	06:34	-42.2	45.6	63.1	17:59	43.7	206.7	68.6
2009:01:03	06:34	-41.7	29.9	74.8	17:59	52.1	194.0	80.4
2009:01:04	06:34	-39.2	14.4	86.7	18:00	58.6	175.5	92.6
2009:01:05	06:34	-34.7	360.0	99.1	18:01	61.4	150.5	105.1
2009:01:06	06:34	-28.7	346.7	111.9	18:02	58.9	124.4	118.1
2009:01:07	06:34	-21.3	334.5	125.1	18:03	51.7	104.0	131.6
2009:01:08	06:34	-13.1	322.9	138.7	18:04	41.6	90.0	145.4
2009:01:09	06:34	-4.4	311.8	152.7	18:05	29.9	80.2	159.4
2009:01:10	06:33	4.5	300.5	166.8	18:06	17.3	72.7	173.5
2009:01:11	06:33	13.0	288.7	178.0	18:07	4.6	66.5	171.9
2009:01:12	06:33	20.7	276.0	164.8	18:08	-8.2	60.9	158.1
2009:01:13	06:33	27.1	262.2	151.0	18:09	-20.5	55.2	144.5
2009:01:14	06:33	31.8	247.4	137.6	18:10	-32.3	49.1	131.3
2009:01:15	06:32	34.4	231.9	124.7	18:11	-43.2	41.5	118.6
2009:01:16	06:32	34.9	216.3	112.3	18:12	-53.1	31.3	106.4
2009:01:17	06:31	33.6	201.5	100.3	18:13	-61.3	16.2	94.6
2009:01:18	06:31	30.7	187.8	88.7	18:14	-66.6	353.5	83.2
2009:01:19	06:31	26.6	175.4	77.4	18:15	-67.4	325.4	72.0
2009:01:20	06:30	21.8	164.1	66.4	18:16	-63.5	301.2	61.0
2009:01:21	06:30	16.4	153.7	55.5	18:17	-56.6	285.0	50.2
2009:01:22	06:29	10.7	143.9	44.7	18:18	-48.2	274.4	39.4
2009:01:23	06:28	4.8	134.5	33.9	18:19	-39.0	267.2	28.6
2009:01:24	06:28	-1.1	125.1	23.1	18:21	-29.3	261.9	17.7
2009:01:25	06:27	-7.0	115.5	12.2	18:22	-19.2	257.6	6.8
2009:01:26	06:26	-12.6	105.6	1.2	18:23	-8.9	253.9	4.3
2009:01:27	06:26	-17.8	95.1	9.9	18:24	1.7	250.6	15.5
2009:01:28	06:25	-22.4	83.9	21.2	18:25	12.5	247.2	26.9
2009:01:29	06:24	-26.3	71.7	32.7	18:26	23.4	243.5	38.5
2009:01:30	06:23	-29.1	58.7	44.3	18:27	34.5	239.0	50.2
2009:01:31	06:23	-30.6	44.9	56.2	18:28	45.6	232.9	62.2
2009:02:01	06:22	-30.8	30.6	68.2	18:30	56.3	223.5	74.4
2009:02:02	06:21	-29.5	16.1	80.6	18:31	65.9	206.3	87.0
2009:02:03	06:20	-26.7	1.8	93.2	18:32	71.5	173.6	99.8
2009:02:04	06:19	-22.6	347.9	106.2	18:33	69.1	134.3	113.0
2009:02:05	06:18	-17.5	334.6	119.5	18:34	60.0	110.3	126.4
2009:02:06	06:17	-11.5	321.6	133.1	18:35	48.2	97.9	140.1
2009:02:07	06:16	-5.1	308.9	146.9	18:37	35.4	90.6	154.0
2009:02:08	06:15	1.4	296.2	160.7	18:38	22.2	85.6	167.9
2009:02:09	06:14	7.7	283.4	174.5	18:39	9.0	81.8	178.0
2009:02:10	06:12	13.5	270.3	171.7	18:40	-4.0	78.4	164.7
2009:02:11	06:11	18.3	256.8	158.3	18:41	-16.6	75.1	151.5
2009:02:12	06:10	22.0	243.0	145.4	18:42	-28.8	71.6	138.8
2009:02:13	06:09	24.4	229.1	132.8	18:44	-40.3	67.3	126.4
2009:02:14	06:08	25.5	215.2	120.7	18:45	-51.2	61.3	114.5
2009:02:15	06:06	25.3	201.7	109.0	18:46	-61.2	51.9	103.0
2009:02:16	06:05	24.0	188.7	97.7	18:47	-69.6	34.9	91.8
2009:02:17	06:04	21.7	176.4	86.6	18:48	-74.5	3.3	80.8
2009:02:18	06:02	18.8	164.7	75.7	18:49	-72.8	325.5	69.9
2009:02:19	06:01	15.2	153.5	64.9	18:51	-66.1	302.0	59.1
2009:02:20	06:00	11.2	142.6	54.1	18:52	-57.2	289.7	48.3
2009:02:21	05:58	6.8	132.0	43.2	18:53	-47.5	282.6	37.4
2009:02:22	05:57	2.3	121.5	32.3	18:54	-37.2	277.9	26.3
2009:02:23	05:55	-2.4	110.9	21.2	18:55	-26.6	274.4	15.2
2009:02:24	05:54	-7.0	100.0	10.0	18:56	-15.6	271.6	4.2
2009:02:25	05:53	-11.4	88.8	3.0	18:58	-4.4	269.1	8.5
2009:02:26	05:51	-15.5	76.9	13.8	18:59	7.2	266.6	20.2
2009:02:27	05:50	-19.0	64.5	25.6	19:00	18.9	263.8	32.3
2009:02:28	05:48	-21.8	51.4	37.8	19:01	30.8	260.5	44.6
2009:03:01	05:46	-23.6	37.7	50.1	19:02	42.7	255.8	57.1
2009:03:02	05:45	-24.3	23.5	62.7	19:03	54.5	248.5	69.7
2009:03:03	05:43	-23.8	9.2	75.4	19:05	65.5	234.7	82.6
2009:03:04	05:42	-22.2	354.8	88.3	19:06	73.5	204.1	95.6
2009:03:05	05:40	-19.4	340.7	101.4	19:07	73.0	156.8	108.8
2009:03:06	05:38	-15.8	326.9	114.6	19:08	64.1	128.3	122.1
2009:03:07	05:37	-11.4	313.4	128.0	19:09	52.4	115.4	135.5
2009:03:08	05:35	-6.5	300.2	141.3	19:10	39.8	108.3	148.9
2009:03:09	05:34	-1.4	287.3	154.6	19:12	27.0	103.7	162.1
2009:03:10	05:32	3.6	274.4	167.7	19:13	14.3	100.3	174.4
2009:03:11	05:30	8.3	261.6	176.3	19:14	1.8	97.3	170.7
2009:03:12	05:28	12.5	248.7	165.5	19:15	-10.4	94.4	158.5
2009:03:13	05:27	15.9	235.7	153.3	19:16	-22.1	91.3	146.3
2009:03:14	05:25	18.5	222.7	141.3	19:17	-33.4	87.7	134.5
2009:03:15	05:23	20.2	209.8	129.6	19:19	-44.0	82.9	122.9
2009:03:16	05:22	20.9	197.0	118.2	19:20	-54.1	76.0	111.7
2009:03:17	05:20	20.8	184.5	107.1	19:21	-63.2	64.9	100.6
2009:03:18	05:18	19.8	172.2	96.1	19:22	-70.4	44.8	89.8
2009:03:19	05:16	18.1	160.2	85.3	19:23	-73.4	11.8	78.9

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:03:20	05:15	15.8	148.6	74.5	19:24	-70.2	338.9	68.1
2009:03:21	05:13	12.9	137.1	63.6	19:26	-62.9	319.0	57.1
2009:03:22	05:11	9.5	125.9	52.6	19:27	-53.8	307.8	46.0
2009:03:23	05:09	5.7	114.6	41.5	19:28	-43.6	300.7	34.7
2009:03:24	05:07	1.6	103.3	30.1	19:29	-32.9	295.7	23.2
2009:03:25	05:06	-2.6	91.8	18.5	19:30	-21.7	291.7	11.6
2009:03:26	05:04	-6.9	79.9	7.4	19:32	-10.2	288.2	4.6
2009:03:27	05:02	-11.1	67.6	7.7	19:33	1.7	284.7	14.6
2009:03:28	05:00	-14.8	54.7	19.5	19:34	13.8	281.0	27.1
2009:03:29	04:58	-18.0	41.3	32.1	19:35	26.0	276.5	39.9
2009:03:30	04:56	-20.4	27.3	44.9	19:36	38.0	270.7	52.9
2009:03:31	04:55	-21.8	12.9	57.9	19:38	49.6	262.1	66.0
2009:04:01	04:53	-22.1	358.3	71.0	19:39	60.0	247.8	79.1
2009:04:02	04:51	-21.3	343.7	84.1	19:40	67.4	222.7	92.2
2009:04:03	04:49	-19.4	329.3	97.2	19:41	68.4	187.2	105.3
2009:04:04	04:47	-16.5	315.4	110.3	19:43	62.4	158.7	118.4
2009:04:05	04:45	-12.9	301.9	123.3	19:44	52.7	142.2	131.3
2009:04:06	04:44	-8.8	288.9	136.2	19:45	41.6	132.3	144.2
2009:04:07	04:42	-4.4	276.2	148.9	19:46	30.1	125.6	156.7
2009:04:08	04:40	0.2	263.9	161.3	19:48	18.6	120.4	168.7
2009:04:09	04:38	4.7	251.7	172.6	19:49	7.2	115.9	174.8
2009:04:10	04:36	8.8	239.5	171.9	19:50	-3.9	111.6	165.1
2009:04:11	04:35	12.5	227.4	161.0	19:52	-14.6	107.3	153.7
2009:04:12	04:33	15.7	215.2	149.6	19:53	-24.9	102.4	142.3
2009:04:13	04:31	18.1	203.0	138.3	19:54	-34.6	96.5	131.2
2009:04:14	04:29	19.8	190.7	127.2	19:55	-43.7	89.1	120.1
2009:04:15	04:27	20.7	178.4	116.3	19:57	-51.9	79.0	109.3
2009:04:16	04:26	20.8	166.2	105.4	19:58	-58.7	64.6	98.4
2009:04:17	04:24	20.1	154.0	94.6	19:59	-63.0	44.7	87.6
2009:04:18	04:22	18.6	142.0	83.8	20:01	-63.6	20.9	76.6
2009:04:19	04:20	16.4	130.1	72.8	20:02	-60.3	358.8	65.5
2009:04:20	04:18	13.4	118.2	61.6	20:03	-53.9	342.0	54.1
2009:04:21	04:17	9.9	106.4	50.1	20:05	-45.5	329.9	42.4
2009:04:22	04:15	5.8	94.6	38.3	20:06	-35.8	320.7	30.3
2009:04:23	04:13	1.3	82.6	26.2	20:07	-25.4	313.4	18.1
2009:04:24	04:12	-3.5	70.4	14.0	20:09	-14.3	306.9	6.7
2009:04:25	04:10	-8.4	57.8	5.0	20:10	-2.9	300.7	10.0
2009:04:26	04:08	-13.0	44.7	14.0	20:11	8.6	294.2	22.6
2009:04:27	04:06	-17.1	31.0	27.0	20:13	20.1	287.0	35.9
2009:04:28	04:05	-20.5	16.7	40.3	20:14	31.0	278.3	49.4
2009:04:29	04:03	-22.9	2.0	53.7	20:16	41.0	267.2	62.8
2009:04:30	04:02	-24.0	347.0	67.1	20:17	49.2	252.3	76.1
2009:05:01	04:00	-23.8	332.1	80.3	20:18	54.6	232.7	89.2
2009:05:02	03:58	-22.4	317.5	93.4	20:20	55.9	210.0	102.1
2009:05:03	03:57	-19.9	303.6	106.2	20:21	52.9	188.6	114.9
2009:05:04	03:55	-16.5	290.3	118.8	20:22	46.8	171.6	127.4
2009:05:05	03:54	-12.5	277.7	131.2	20:24	38.9	158.7	139.6
2009:05:06	03:52	-8.0	265.6	143.4	20:25	30.0	148.8	151.6
2009:05:07	03:51	-3.2	254.0	155.3	20:27	20.8	140.6	163.3
2009:05:08	03:49	1.7	242.8	166.7	20:28	11.5	133.4	173.5
2009:05:09	03:48	6.4	231.6	175.1	20:29	2.3	126.6	171.3
2009:05:10	03:46	10.9	220.4	168.3	20:31	-6.6	120.0	160.8
2009:05:11	03:45	15.0	209.2	157.5	20:32	-15.1	113.0	149.9
2009:05:12	03:43	18.6	197.7	146.6	20:33	-23.1	105.4	139.0
2009:05:13	03:42	21.4	185.9	135.7	20:35	-30.5	96.8	128.1
2009:05:14	03:41	23.5	173.9	124.9	20:36	-37.1	86.8	117.3
2009:05:15	03:39	24.8	161.5	114.1	20:37	-42.5	74.9	106.4
2009:05:16	03:38	25.0	149.0	103.2	20:39	-46.4	61.0	95.5
2009:05:17	03:37	24.3	136.4	92.2	20:40	-48.3	45.1	84.3
2009:05:18	03:36	22.5	123.8	81.0	20:41	-47.8	28.5	72.9
2009:05:19	03:35	19.7	111.4	69.5	20:42	-45.0	12.3	61.1
2009:05:20	03:33	15.9	99.1	57.7	20:44	-40.0	357.7	49.0
2009:05:21	03:32	11.2	86.9	45.4	20:45	-33.2	344.8	36.4
2009:05:22	03:31	5.7	74.8	32.8	20:46	-25.2	333.3	23.5
2009:05:23	03:30	-0.2	62.7	19.8	20:47	-16.3	322.9	10.5
2009:05:24	03:29	-6.5	50.3	7.2	20:49	-6.9	312.9	6.0
2009:05:25	03:28	-12.8	37.5	9.1	20:50	2.6	303.0	18.6
2009:05:26	03:27	-18.6	24.1	22.4	20:51	11.8	292.6	32.3
2009:05:27	03:26	-23.7	9.9	36.1	20:52	20.4	281.3	46.1
2009:05:28	03:25	-27.5	355.0	49.8	20:53	27.8	268.8	59.7
2009:05:29	03:25	-29.8	339.6	63.4	20:54	33.6	254.9	73.0
2009:05:30	03:24	-30.5	324.1	76.6	20:55	37.5	239.6	86.0
2009:05:31	03:23	-29.5	309.1	89.5	20:56	39.0	223.5	98.7
2009:06:01	03:22	-27.0	294.9	102.0	20:57	38.3	207.7	111.0
2009:06:02	03:22	-23.4	281.7	114.3	20:58	35.6	192.9	123.1
2009:06:03	03:21	-18.8	269.6	126.3	20:59	31.5	179.6	134.9
2009:06:04	03:20	-13.5	258.5	138.0	21:00	26.3	167.7	146.5
2009:06:05	03:20	-7.9	248.0	149.5	21:01	20.4	157.0	157.9
2009:06:06	03:19	-1.9	238.0	160.8	21:02	14.2	147.2	168.9
2009:06:07	03:19	4.0	228.2	171.6	21:03	7.8	138.0	176.4
2009:06:08	03:19	9.9	218.5	175.0	21:04	1.5	129.0	167.8

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:06:09	03:18	15.6	208.6	165.1	21:04	-4.7	120.1	157.2
2009:06:10	03:18	20.9	198.3	154.4	21:05	-10.6	110.9	146.4
2009:06:11	03:18	25.7	187.4	143.6	21:06	-16.0	101.4	135.5
2009:06:12	03:17	29.7	175.7	132.7	21:06	-21.0	91.3	124.6
2009:06:13	03:17	32.6	163.1	121.8	21:07	-25.3	80.3	113.6
2009:06:14	03:17	34.4	149.8	110.8	21:07	-28.7	68.5	102.5
2009:06:15	03:17	34.6	135.9	99.6	21:08	-31.1	55.7	91.0
2009:06:16	03:17	33.2	121.9	88.1	21:08	-32.3	42.1	79.3
2009:06:17	03:17	30.2	108.2	76.2	21:09	-32.0	27.9	67.2
2009:06:18	03:17	25.6	95.1	64.0	21:09	-30.3	13.4	54.6
2009:06:19	03:17	19.5	82.8	51.3	21:10	-27.1	359.1	41.5
2009:06:20	03:17	12.3	71.2	38.1	21:10	-22.6	345.2	28.0
2009:06:21	03:18	4.2	60.0	24.5	21:10	-17.0	331.7	14.3
2009:06:22	03:18	-4.5	49.0	10.7	21:10	-10.7	318.7	2.5
2009:06:23	03:18	-13.3	37.8	4.5	21:10	-4.1	305.9	14.6
2009:06:24	03:19	-21.9	25.9	18.2	21:10	2.5	293.3	28.6
2009:06:25	03:19	-29.6	13.0	32.2	21:10	8.7	280.6	42.5
2009:06:26	03:19	-35.9	358.5	46.1	21:10	14.1	267.8	56.1
2009:06:27	03:20	-40.4	342.4	59.5	21:10	18.7	254.7	69.3
2009:06:28	03:20	-42.4	325.4	72.6	21:10	22.1	241.3	82.1
2009:06:29	03:21	-42.0	308.6	85.3	21:10	24.3	227.9	94.4
2009:06:30	03:21	-39.4	293.0	97.5	21:10	25.3	214.5	106.4
2009:07:01	03:22	-34.9	279.3	109.5	21:10	25.2	201.3	118.1
2009:07:02	03:23	-29.2	267.6	121.1	21:09	24.0	188.6	129.5
2009:07:03	03:23	-22.6	257.5	132.5	21:09	22.0	176.3	140.8
2009:07:04	03:24	-15.4	248.5	143.7	21:09	19.2	164.6	151.9
2009:07:05	03:25	-7.9	240.4	154.8	21:08	15.9	153.3	162.9
2009:07:06	03:26	-0.1	232.8	165.7	21:08	12.1	142.5	173.7
2009:07:07	03:27	7.8	225.4	176.5	21:07	8.1	132.0	175.1
2009:07:08	03:28	15.6	217.8	172.3	21:07	3.9	121.6	164.3
2009:07:09	03:28	23.3	209.7	161.4	21:06	-0.4	111.3	153.4
2009:07:10	03:29	30.7	200.7	150.5	21:05	-4.6	101.0	142.5
2009:07:11	03:30	37.5	190.2	139.5	21:05	-8.7	90.4	131.4
2009:07:12	03:31	43.3	177.8	128.4	21:04	-12.6	79.4	120.1
2009:07:13	03:32	47.5	162.9	117.1	21:03	-16.1	67.9	108.7
2009:07:14	03:33	49.5	145.7	105.5	21:02	-19.1	55.8	96.9
2009:07:15	03:34	48.7	127.6	93.7	21:02	-21.5	43.0	84.9
2009:07:16	03:36	45.0	110.6	81.5	21:01	-23.0	29.4	72.4
2009:07:17	03:37	38.7	95.9	68.9	21:00	-23.5	15.1	59.5
2009:07:18	03:38	30.4	83.7	55.8	20:59	-22.9	0.3	46.1
2009:07:19	03:39	20.7	73.4	42.3	20:58	-21.1	345.4	32.3
2009:07:20	03:40	9.9	64.5	28.4	20:57	-18.1	330.5	18.2
2009:07:21	03:41	-1.4	56.2	14.2	20:56	-14.2	316.0	4.0
2009:07:22	03:42	-12.9	48.1	0.1	20:54	-9.6	301.9	10.3
2009:07:23	03:44	-24.3	39.4	14.3	20:53	-4.7	288.3	24.4
2009:07:24	03:45	-35.0	29.5	28.4	20:52	0.3	275.0	38.2
2009:07:25	03:46	-44.5	17.3	42.0	20:51	5.1	262.1	51.5
2009:07:26	03:47	-52.1	1.6	55.3	20:50	9.4	249.5	64.4
2009:07:27	03:49	-56.8	341.7	68.1	20:48	13.2	236.9	76.9
2009:07:28	03:50	-57.7	319.6	80.4	20:47	16.2	224.5	88.9
2009:07:29	03:51	-54.8	299.3	92.4	20:46	18.5	212.0	100.6
2009:07:30	03:53	-49.2	283.5	103.9	20:44	20.0	199.6	111.9
2009:07:31	03:54	-42.0	271.6	115.3	20:43	20.7	187.3	123.1
2009:08:01	03:55	-33.8	262.7	126.4	20:42	20.6	175.0	134.1
2009:08:02	03:56	-25.0	255.6	137.4	20:40	19.7	163.0	145.0
2009:08:03	03:58	-15.9	249.7	148.3	20:39	18.1	151.1	155.8
2009:08:04	03:59	-6.6	244.5	159.2	20:37	15.9	139.5	166.7
2009:08:05	04:00	2.9	239.6	170.0	20:36	13.0	128.1	177.4
2009:08:06	04:02	12.6	234.8	178.4	20:34	9.8	116.9	171.3
2009:08:07	04:03	22.3	229.6	167.8	20:33	6.1	105.8	160.2
2009:08:08	04:04	31.9	223.6	156.7	20:31	2.2	94.8	149.0
2009:08:09	04:06	41.4	216.2	145.4	20:29	-2.0	83.7	137.6
2009:08:10	04:07	50.4	206.0	134.0	20:28	-6.1	72.4	126.1
2009:08:11	04:08	58.1	191.1	122.3	20:26	-10.2	60.8	114.3
2009:08:12	04:09	63.3	169.1	110.4	20:25	-14.0	48.6	102.2
2009:08:13	04:11	63.8	141.6	98.2	20:23	-17.4	35.8	89.8
2009:08:14	04:12	59.0	117.2	85.7	20:21	-20.2	22.2	77.0
2009:08:15	04:13	50.5	100.3	72.8	20:20	-22.1	7.9	63.9
2009:08:16	04:15	39.9	89.1	59.5	20:18	-22.9	352.9	50.4
2009:08:17	04:16	28.0	81.1	45.9	20:16	-22.4	337.6	36.6
2009:08:18	04:17	15.4	74.9	32.0	20:14	-20.6	322.2	22.7
2009:08:19	04:19	2.5	69.6	18.0	20:13	-17.7	307.2	8.8
2009:08:20	04:20	-10.4	64.6	4.4	20:11	-13.7	292.8	6.0
2009:08:21	04:21	-23.2	59.5	10.5	20:09	-9.2	279.1	19.4
2009:08:22	04:22	-35.5	53.5	24.1	20:07	-4.3	266.0	32.8
2009:08:23	04:24	-47.1	45.6	37.3	20:06	0.7	253.4	45.8
2009:08:24	04:25	-57.5	34.1	50.2	20:04	5.4	241.3	58.3
2009:08:25	04:26	-65.6	15.3	62.6	20:02	9.8	229.3	70.4
2009:08:26	04:27	-69.7	346.3	74.5	20:00	13.7	217.5	82.0
2009:08:27	04:29	-67.8	315.4	86.1	19:58	16.9	205.6	93.4
2009:08:28	04:30	-61.6	294.1	97.4	19:57	19.5	193.6	104.5

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:08:29	04:31	-53.3	281.4	108.4	19:55	21.3	181.5	115.4
2009:08:30	04:32	-44.0	273.3	119.4	19:53	22.3	169.2	126.3
2009:08:31	04:34	-34.4	267.7	130.2	19:51	22.4	156.8	137.1
2009:09:01	04:35	-24.4	263.5	141.1	19:49	21.6	144.5	148.0
2009:09:02	04:36	-14.2	260.0	152.0	19:47	19.9	132.3	158.9
2009:09:03	04:37	-3.8	257.0	162.9	19:45	17.3	120.3	169.6
2009:09:04	04:38	6.8	254.0	173.4	19:44	14.1	108.5	176.2
2009:09:05	04:40	17.6	250.8	173.3	19:42	10.2	96.9	166.6
2009:09:06	04:41	28.6	247.2	162.4	19:40	5.7	85.4	155.2
2009:09:07	04:42	39.6	242.5	150.8	19:38	0.9	74.0	143.5
2009:09:08	04:43	50.5	235.8	139.0	19:36	-4.0	62.5	131.5
2009:09:09	04:44	60.9	224.6	126.9	19:34	-9.1	50.7	119.3
2009:09:10	04:45	69.4	203.0	114.6	19:32	-13.9	38.5	106.9
2009:09:11	04:47	72.6	164.7	102.0	19:31	-18.3	25.6	94.2
2009:09:12	04:48	67.5	129.2	89.2	19:29	-22.0	11.8	81.2
2009:09:13	04:49	57.5	110.4	76.1	19:27	-24.6	357.3	68.1
2009:09:14	04:50	45.7	100.4	62.8	19:25	-26.1	342.0	54.7
2009:09:15	04:51	33.0	94.2	49.3	19:23	-26.0	326.4	41.1
2009:09:16	04:52	19.9	89.8	35.7	19:21	-24.3	310.9	27.5
2009:09:17	04:53	6.7	86.2	22.2	19:19	-21.3	296.0	14.2
2009:09:18	04:55	-6.4	82.9	9.2	19:18	-17.1	281.9	4.3
2009:09:19	04:56	-19.2	79.6	6.8	19:16	-12.1	268.7	13.9
2009:09:20	04:57	-31.7	75.8	19.0	19:14	-6.7	256.3	26.5
2009:09:21	04:58	-43.6	70.8	31.5	19:12	-1.1	244.5	38.9
2009:09:22	04:59	-54.7	63.6	43.8	19:10	4.4	233.1	50.9
2009:09:23	05:00	-64.6	51.3	55.8	19:09	9.7	221.9	62.6
2009:09:24	05:01	-72.1	28.0	67.3	19:07	14.4	210.7	74.0
2009:09:25	05:02	-74.2	350.0	78.6	19:05	18.6	199.3	85.1
2009:09:26	05:03	-69.7	317.9	89.6	19:03	22.1	187.6	96.0
2009:09:27	05:05	-61.6	300.8	100.5	19:01	24.8	175.5	106.8
2009:09:28	05:06	-52.3	291.4	111.4	19:00	26.5	162.9	117.6
2009:09:29	05:07	-42.5	285.6	122.2	18:58	27.1	150.1	128.5
2009:09:30	05:08	-32.2	281.5	133.1	18:56	26.6	137.0	139.4
2009:10:01	05:09	-21.7	278.3	144.2	18:54	24.8	124.1	150.5
2009:10:02	05:10	-10.9	275.5	155.3	18:53	21.9	111.4	161.7
2009:10:03	05:11	0.2	272.8	166.5	18:51	17.9	99.1	172.3
2009:10:04	05:12	11.6	270.1	175.1	18:49	13.1	87.1	172.3
2009:10:05	05:13	23.2	266.9	167.8	18:47	7.5	75.5	161.3
2009:10:06	05:14	34.9	262.8	156.1	18:46	1.5	64.1	149.2
2009:10:07	05:16	46.6	257.0	143.7	18:44	-4.8	52.7	136.7
2009:10:08	05:17	57.9	247.4	131.2	18:42	-11.2	41.0	124.1
2009:10:09	05:18	67.7	228.9	118.4	18:41	-17.2	28.8	111.3
2009:10:10	05:19	73.0	192.6	105.5	18:39	-22.7	15.8	98.3
2009:10:11	05:20	69.4	152.5	92.5	18:38	-27.2	1.7	85.3
2009:10:12	05:21	59.8	130.7	79.4	18:36	-30.3	346.7	72.1
2009:10:13	05:22	48.2	119.5	66.2	18:34	-31.8	331.0	59.0
2009:10:14	05:23	35.9	112.8	53.0	18:33	-31.4	315.0	45.8
2009:10:15	05:24	23.3	108.1	39.9	18:31	-29.2	299.5	32.7
2009:10:16	05:25	10.7	104.3	26.9	18:30	-25.4	285.0	19.9
2009:10:17	05:26	-1.8	100.8	14.3	18:28	-20.3	271.7	8.1
2009:10:18	05:27	-14.0	97.3	5.0	18:27	-14.4	259.5	8.0
2009:10:19	05:29	-25.7	93.4	12.9	18:25	-8.0	248.2	19.2
2009:10:20	05:30	-37.0	88.6	24.6	18:24	-1.5	237.6	31.0
2009:10:21	05:31	-47.6	82.1	36.3	18:22	5.0	227.4	42.5
2009:10:22	05:32	-57.2	72.5	47.8	18:21	11.3	217.2	53.8
2009:10:23	05:33	-65.3	56.7	59.0	18:20	17.2	206.8	64.9
2009:10:24	05:34	-70.2	31.1	70.1	18:18	22.5	196.1	75.8
2009:10:25	05:35	-70.0	359.5	80.9	18:17	27.1	184.6	86.6
2009:10:26	05:36	-64.9	335.1	91.7	18:16	30.7	172.3	97.4
2009:10:27	05:37	-57.1	320.2	102.6	18:14	33.2	159.2	108.3
2009:10:28	05:38	-48.0	310.8	113.5	18:13	34.2	145.4	119.3
2009:10:29	05:40	-38.1	304.3	124.6	18:12	33.7	131.2	130.5
2009:10:30	05:41	-27.8	299.2	135.9	18:11	31.4	117.1	141.9
2009:10:31	05:42	-17.0	294.9	147.5	18:09	27.6	103.7	153.6
2009:11:01	05:43	-5.8	290.9	159.3	18:08	22.3	90.9	165.4
2009:11:02	05:44	5.7	286.8	170.9	18:07	15.9	79.0	175.0
2009:11:03	05:45	17.5	282.2	173.1	18:06	8.5	67.8	167.5
2009:11:04	05:46	29.3	276.5	161.5	18:05	0.6	56.9	155.0
2009:11:05	05:47	40.8	268.9	148.7	18:04	-7.5	46.1	142.0
2009:11:06	05:48	51.6	257.7	135.6	18:03	-15.5	34.9	128.9
2009:11:07	05:50	60.5	239.7	122.4	18:02	-23.1	23.1	115.7
2009:11:08	05:51	65.3	212.1	109.2	18:01	-29.9	10.0	102.5
2009:11:09	05:52	63.6	181.2	96.1	18:00	-35.3	355.5	89.4
2009:11:10	05:53	56.6	158.6	83.0	17:59	-38.8	339.6	76.5
2009:11:11	05:54	46.8	144.5	70.0	17:58	-40.1	322.7	63.6
2009:11:12	05:55	36.0	135.1	57.2	17:57	-39.0	305.9	50.9
2009:11:13	05:56	24.8	128.1	44.6	17:56	-35.7	290.3	38.3
2009:11:14	05:57	13.5	122.3	32.1	17:56	-30.6	276.4	26.0
2009:11:15	05:58	2.4	117.1	19.9	17:55	-24.3	264.3	14.1
2009:11:16	05:59	-8.5	112.0	8.5	17:54	-17.2	253.7	4.5
2009:11:17	06:01	-19.0	106.5	6.3	17:54	-9.6	244.1	11.2

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:11:18	06:02	-28.9	100.2	16.8	17:53	-1.8	235.2	22.3
2009:11:19	06:03	-38.2	92.6	28.0	17:52	5.9	226.6	33.5
2009:11:20	06:04	-46.5	82.9	39.1	17:52	13.5	217.9	44.5
2009:11:21	06:05	-53.4	70.1	50.0	17:51	20.8	209.0	55.4
2009:11:22	06:06	-58.3	53.1	60.9	17:51	27.6	199.3	66.2
2009:11:23	06:07	-60.2	32.7	71.7	17:50	33.8	188.4	77.0
2009:11:24	06:08	-58.7	11.9	82.5	17:50	38.8	176.0	87.8
2009:11:25	06:09	-54.2	354.3	93.4	17:49	42.5	161.8	98.8
2009:11:26	06:10	-47.5	340.6	104.5	17:49	44.3	146.1	110.0
2009:11:27	06:11	-39.4	330.0	115.8	17:48	43.7	129.6	121.5
2009:11:28	06:12	-30.3	321.4	127.5	17:48	40.6	113.6	133.3
2009:11:29	06:13	-20.5	313.9	139.6	17:48	35.3	99.0	145.6
2009:11:30	06:14	-10.0	307.0	152.1	17:48	28.1	86.3	158.2
2009:12:01	06:15	0.8	300.1	164.8	17:47	19.4	75.1	170.9
2009:12:02	06:16	11.8	292.7	176.2	17:47	9.9	65.0	174.0
2009:12:03	06:17	22.6	284.2	167.5	17:47	-0.3	55.6	161.1
2009:12:04	06:18	32.9	273.9	154.1	17:47	-10.6	46.3	147.5
2009:12:05	06:18	42.0	260.7	140.4	17:47	-20.8	36.7	133.9
2009:12:06	06:19	48.8	243.6	126.8	17:47	-30.4	25.9	120.4
2009:12:07	06:20	52.2	222.9	113.4	17:47	-38.8	13.4	107.1
2009:12:08	06:21	51.5	201.2	100.2	17:47	-45.6	358.3	94.0
2009:12:09	06:22	47.2	182.2	87.3	17:47	-50.0	340.4	81.2
2009:12:10	06:23	40.4	167.1	74.6	17:47	-51.2	320.7	68.7
2009:12:11	06:23	32.3	155.3	62.2	17:47	-49.1	301.8	56.4
2009:12:12	06:24	23.5	145.7	50.1	17:47	-44.4	285.7	44.4
2009:12:13	06:25	14.4	137.3	38.1	17:48	-37.8	272.6	32.5
2009:12:14	06:26	5.4	129.7	26.4	17:48	-30.0	262.2	20.9
2009:12:15	06:26	-3.5	122.3	14.9	17:48	-21.5	253.6	9.6
2009:12:16	06:27	-12.0	114.8	4.1	17:49	-12.7	246.1	3.1
2009:12:17	06:28	-20.1	106.7	8.2	17:49	-3.7	239.4	13.4
2009:12:18	06:28	-27.5	97.9	19.1	17:49	5.3	233.1	24.3
2009:12:19	06:29	-34.1	87.8	30.0	17:50	14.3	226.7	35.1
2009:12:20	06:29	-39.5	76.2	40.8	17:50	23.2	220.0	45.9
2009:12:21	06:30	-43.6	62.9	51.6	17:51	31.8	212.4	56.7
2009:12:22	06:30	-45.8	48.1	62.4	17:51	39.9	203.2	67.5
2009:12:23	06:31	-46.0	32.6	73.3	17:52	47.2	191.7	78.5
2009:12:24	06:31	-44.1	17.3	84.3	17:52	53.1	176.6	89.6
2009:12:25	06:32	-40.3	3.0	95.6	17:53	56.5	157.3	101.1
2009:12:26	06:32	-34.8	350.1	107.2	17:53	56.3	135.6	112.9
2009:12:27	06:32	-28.1	338.5	119.3	17:54	52.3	115.4	125.1
2009:12:28	06:33	-20.3	327.9	131.8	17:55	45.0	99.2	137.8
2009:12:29	06:33	-11.7	317.7	144.7	17:55	35.5	87.0	151.0
2009:12:30	06:33	-2.7	307.7	158.1	17:56	24.6	77.4	164.6
2009:12:31	06:33	6.5	297.3	171.9	17:57	12.7	69.5	178.2

Altezza ai crepuscoli Il Sole è 18° sotto l'orizzonte

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:01:01	06:00	-45.7	52.2	51.4	18:32	30.6	224.6	57.3
2009:01:02	06:00	-46.3	35.7	62.8	18:33	40.6	217.1	68.9
2009:01:03	06:00	-44.4	19.4	74.5	18:33	50.1	206.8	80.7
2009:01:04	06:00	-40.3	4.1	86.5	18:34	58.4	191.2	92.9
2009:01:05	06:00	-34.4	350.4	98.8	18:35	63.8	167.1	105.4
2009:01:06	06:00	-27.0	338.3	111.6	18:36	63.7	137.0	118.5
2009:01:07	06:00	-18.5	327.2	124.8	18:37	57.6	112.0	131.9
2009:01:08	06:00	-9.3	316.7	138.4	18:38	47.6	95.7	145.7
2009:01:09	06:00	0.3	306.3	152.3	18:38	35.8	85.0	159.8
2009:01:10	06:00	9.8	295.5	166.4	18:39	23.1	77.5	173.8
2009:01:11	06:00	18.8	283.9	178.2	18:40	10.1	71.7	171.6
2009:01:12	06:00	26.8	270.9	165.1	18:41	-2.9	66.6	157.8
2009:01:13	05:59	33.1	256.3	151.3	18:42	-15.5	61.7	144.2
2009:01:14	05:59	37.3	240.2	137.9	18:43	-27.6	56.6	131.0
2009:01:15	05:59	39.0	223.4	125.0	18:44	-39.1	50.6	118.3
2009:01:16	05:58	38.2	207.1	112.5	18:45	-49.6	42.7	106.1
2009:01:17	05:58	35.4	192.0	100.6	18:46	-59.0	31.1	94.3
2009:01:18	05:58	31.1	178.7	89.0	18:47	-66.4	12.5	82.9
2009:01:19	05:57	25.8	167.0	77.7	18:48	-70.0	344.5	71.8
2009:01:20	05:57	19.8	156.5	66.6	18:49	-68.2	314.6	60.8
2009:01:21	05:56	13.5	146.9	55.8	18:50	-62.2	293.6	49.9
2009:01:22	05:56	6.9	137.8	44.9	18:51	-54.0	280.7	39.1
2009:01:23	05:55	0.3	128.9	34.2	18:53	-44.8	272.6	28.3
2009:01:24	05:55	-6.2	119.9	23.3	18:54	-35.1	266.9	17.5
2009:01:25	05:54	-12.5	110.6	12.4	18:55	-25.0	262.6	6.5
2009:01:26	05:53	-18.4	100.7	1.5	18:56	-14.6	259.1	4.6
2009:01:27	05:53	-23.7	89.9	9.7	18:57	-3.9	256.0	15.8
2009:01:28	05:52	-28.3	78.2	21.0	18:58	7.0	253.0	27.2
2009:01:29	05:51	-31.8	65.3	32.4	18:59	18.1	249.9	38.7
2009:01:30	05:51	-34.0	51.4	44.0	19:00	29.3	246.2	50.5
2009:01:31	05:50	-34.6	36.9	55.9	19:01	40.6	241.4	62.5
2009:02:01	05:49	-33.5	22.1	68.0	19:02	51.9	234.3	74.7
2009:02:02	05:48	-30.8	7.6	80.3	19:03	62.6	221.9	87.3
2009:02:03	05:47	-26.6	353.7	93.0	19:05	71.1	196.5	100.1
2009:02:04	05:46	-21.1	340.5	105.9	19:06	72.6	153.2	113.3
2009:02:05	05:45	-14.7	327.9	119.2	19:07	65.3	120.5	126.7
2009:02:06	05:44	-7.7	315.7	132.8	19:08	54.0	104.7	140.4
2009:02:07	05:43	-0.4	303.6	146.5	19:09	41.2	96.2	154.3
2009:02:08	05:42	6.8	291.3	160.4	19:10	28.0	90.9	168.2
2009:02:09	05:41	13.6	278.5	174.2	19:11	14.7	87.0	177.7
2009:02:10	05:40	19.4	265.1	172.0	19:13	1.7	83.8	164.4
2009:02:11	05:39	24.1	251.0	158.6	19:14	-11.1	80.8	151.2
2009:02:12	05:38	27.2	236.4	145.7	19:15	-23.3	77.7	138.5
2009:02:13	05:36	28.7	221.8	133.1	19:16	-35.0	74.1	126.2
2009:02:14	05:35	28.6	207.4	121.0	19:17	-46.0	69.4	114.3
2009:02:15	05:34	27.1	193.6	109.3	19:18	-56.4	62.4	102.8
2009:02:16	05:33	24.5	180.8	97.9	19:19	-65.8	50.5	91.5
2009:02:17	05:31	21.0	168.8	86.8	19:21	-73.0	27.5	80.5
2009:02:18	05:30	16.9	157.6	75.9	19:22	-75.1	349.1	69.7
2009:02:19	05:29	12.3	146.9	65.1	19:23	-70.5	316.3	58.9
2009:02:20	05:27	7.4	136.6	54.3	19:24	-62.4	299.1	48.0
2009:02:21	05:26	2.3	126.5	43.5	19:25	-52.9	289.8	37.1
2009:02:22	05:25	-2.9	116.3	32.5	19:26	-42.8	284.1	26.1
2009:02:23	05:23	-8.0	105.9	21.5	19:28	-32.2	280.2	14.9
2009:02:24	05:22	-12.8	95.0	10.3	19:29	-21.3	277.1	4.0
2009:02:25	05:20	-17.3	83.5	2.8	19:30	-10.1	274.4	8.8
2009:02:26	05:19	-21.2	71.3	13.5	19:31	1.4	271.9	20.5
2009:02:27	05:17	-24.2	58.3	25.4	19:32	13.1	269.3	32.6
2009:02:28	05:16	-26.2	44.6	37.5	19:33	25.1	266.2	44.8
2009:03:01	05:14	-26.9	30.3	49.9	19:35	37.1	262.1	57.3
2009:03:02	05:13	-26.3	15.9	62.4	19:36	49.0	256.1	70.0
2009:03:03	05:11	-24.4	1.5	75.1	19:37	60.5	245.8	82.9
2009:03:04	05:09	-21.3	347.4	88.0	19:38	70.2	224.2	95.9
2009:03:05	05:08	-17.2	333.8	101.1	19:39	74.0	181.7	109.1
2009:03:06	05:06	-12.3	320.6	114.3	19:41	68.2	143.3	122.4
2009:03:07	05:04	-6.9	307.7	127.7	19:42	57.4	125.0	135.8
2009:03:08	05:03	-1.3	294.9	141.0	19:43	45.2	115.8	149.2
2009:03:09	05:01	4.3	282.2	154.3	19:44	32.6	110.1	162.4
2009:03:10	04:59	9.6	269.3	167.4	19:45	19.9	106.1	174.7
2009:03:11	04:57	14.2	256.1	176.4	19:47	7.5	102.8	170.5
2009:03:12	04:56	18.0	242.8	165.8	19:48	-4.7	99.7	158.2
2009:03:13	04:54	20.7	229.2	153.6	19:49	-16.3	96.6	146.0
2009:03:14	04:52	22.4	215.7	141.5	19:50	-27.6	93.1	134.2
2009:03:15	04:50	22.9	202.3	129.8	19:51	-38.3	88.7	122.7
2009:03:16	04:49	22.3	189.3	118.4	19:53	-48.4	82.8	111.4
2009:03:17	04:47	20.9	176.8	107.3	19:54	-57.7	73.9	100.4
2009:03:18	04:45	18.6	164.7	96.4	19:55	-65.8	59.1	89.5
2009:03:19	04:43	15.7	153.1	85.5	19:56	-71.0	34.0	78.7
2009:03:20	04:41	12.3	141.9	74.7	19:58	-71.2	1.0	67.8

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:03:21	04:39	8.5	130.9	63.9	19:59	-66.1	334.9	56.9
2009:03:22	04:37	4.3	120.0	52.9	20:00	-58.0	319.3	45.8
2009:03:23	04:36	-0.0	109.1	41.7	20:02	-48.4	309.8	34.4
2009:03:24	04:34	-4.4	97.9	30.4	20:03	-38.1	303.4	22.9
2009:03:25	04:32	-8.8	86.4	18.8	20:04	-27.1	298.4	11.4
2009:03:26	04:30	-13.0	74.3	7.6	20:05	-15.7	294.2	4.7
2009:03:27	04:28	-16.7	61.6	7.5	20:07	-4.0	290.3	14.9
2009:03:28	04:26	-19.7	48.2	19.2	20:08	7.9	286.3	27.4
2009:03:29	04:24	-21.8	34.1	31.8	20:09	20.0	281.7	40.2
2009:03:30	04:22	-22.9	19.7	44.6	20:11	31.9	276.0	53.2
2009:03:31	04:20	-22.8	5.0	57.6	20:12	43.4	268.2	66.3
2009:04:01	04:18	-21.5	350.4	70.7	20:13	54.1	256.3	79.4
2009:04:02	04:16	-19.1	336.1	83.8	20:15	62.6	236.9	92.6
2009:04:03	04:14	-15.8	322.2	96.9	20:16	66.4	207.4	105.7
2009:04:04	04:12	-11.8	308.8	110.0	20:18	63.6	176.7	118.7
2009:04:05	04:10	-7.3	295.8	123.0	20:19	55.9	155.7	131.7
2009:04:06	04:08	-2.6	283.1	135.8	20:20	45.9	142.8	144.5
2009:04:07	04:06	2.1	270.6	148.6	20:22	35.0	134.1	157.0
2009:04:08	04:04	6.6	258.1	161.0	20:23	23.8	127.7	169.0
2009:04:09	04:02	10.8	245.6	172.3	20:25	12.8	122.4	174.6
2009:04:10	04:00	14.3	233.0	172.1	20:26	1.9	117.5	164.8
2009:04:11	03:58	17.1	220.3	161.2	20:28	-8.6	112.7	153.4
2009:04:12	03:56	19.1	207.5	149.8	20:29	-18.7	107.6	142.0
2009:04:13	03:54	20.3	194.8	138.6	20:31	-28.2	101.8	130.9
2009:04:14	03:52	20.6	182.3	127.5	20:32	-37.2	94.8	119.9
2009:04:15	03:50	20.0	169.9	116.5	20:34	-45.4	85.9	109.0
2009:04:16	03:48	18.7	157.8	105.7	20:35	-52.5	73.9	98.1
2009:04:17	03:46	16.6	146.0	94.9	20:37	-57.7	57.9	87.3
2009:04:18	03:44	14.0	134.4	84.0	20:38	-60.3	37.8	76.3
2009:04:19	03:42	10.8	123.0	73.1	20:40	-59.3	16.3	65.2
2009:04:20	03:41	7.1	111.6	61.9	20:41	-54.9	357.4	53.8
2009:04:21	03:39	3.1	100.1	50.4	20:43	-48.1	342.7	42.0
2009:04:22	03:37	-1.3	88.5	38.6	20:44	-39.5	331.4	30.0
2009:04:23	03:35	-5.7	76.4	26.5	20:46	-29.9	322.3	17.8
2009:04:24	03:33	-10.1	63.9	14.3	20:48	-19.5	314.5	6.5
2009:04:25	03:31	-14.1	50.8	5.0	20:49	-8.6	307.4	10.3
2009:04:26	03:29	-17.7	37.0	13.7	20:51	2.4	300.2	23.0
2009:04:27	03:27	-20.4	22.6	26.6	20:52	13.4	292.6	36.3
2009:04:28	03:25	-22.0	7.8	40.0	20:54	24.0	283.9	49.7
2009:04:29	03:23	-22.5	352.7	53.4	20:56	33.7	273.5	63.2
2009:04:30	03:21	-21.7	337.7	66.7	20:57	42.1	260.5	76.5
2009:05:01	03:19	-19.8	323.2	80.0	20:59	48.2	244.0	89.6
2009:05:02	03:17	-17.0	309.3	93.0	21:01	51.2	224.6	102.5
2009:05:03	03:15	-13.4	295.9	105.8	21:02	50.6	204.5	115.2
2009:05:04	03:14	-9.3	283.2	118.5	21:04	46.8	186.5	127.7
2009:05:05	03:12	-4.9	270.9	130.9	21:06	40.7	171.8	140.0
2009:05:06	03:10	-0.3	259.0	143.0	21:07	33.2	160.0	152.0
2009:05:07	03:08	4.1	247.2	154.9	21:09	25.0	150.3	163.6
2009:05:08	03:06	8.4	235.5	166.4	21:11	16.6	141.9	173.8
2009:05:09	03:05	12.3	223.7	175.0	21:12	8.2	134.2	171.0
2009:05:10	03:03	15.6	211.9	168.6	21:14	-0.1	126.8	160.5
2009:05:11	03:01	18.3	199.9	157.8	21:16	-8.1	119.4	149.5
2009:05:12	02:59	20.3	187.7	146.9	21:17	-15.7	111.7	138.6
2009:05:13	02:58	21.5	175.5	136.1	21:19	-22.7	103.3	127.8
2009:05:14	02:56	21.9	163.2	125.3	21:21	-29.0	93.9	117.0
2009:05:15	02:54	21.4	151.0	114.4	21:22	-34.5	83.3	106.1
2009:05:16	02:53	20.1	138.8	103.6	21:24	-38.8	71.2	95.1
2009:05:17	02:51	18.0	126.8	92.6	21:26	-41.7	57.5	83.9
2009:05:18	02:50	15.1	115.0	81.4	21:27	-42.9	42.6	72.5
2009:05:19	02:48	11.5	103.2	69.9	21:29	-42.0	27.1	60.7
2009:05:20	02:47	7.3	91.4	58.1	21:30	-39.1	12.0	48.6
2009:05:21	02:45	2.6	79.6	45.8	21:32	-34.3	357.8	36.0
2009:05:22	02:44	-2.4	67.4	33.2	21:34	-28.1	344.8	23.0
2009:05:23	02:42	-7.6	54.9	20.2	21:35	-20.7	332.9	10.1
2009:05:24	02:41	-12.8	41.8	7.6	21:37	-12.7	321.6	6.3
2009:05:25	02:40	-17.5	28.0	8.7	21:38	-4.3	310.7	19.0
2009:05:26	02:38	-21.4	13.5	21.9	21:40	4.0	299.7	32.8
2009:05:27	02:37	-24.2	358.4	35.7	21:41	11.8	288.4	46.6
2009:05:28	02:36	-25.7	342.9	49.4	21:43	18.8	276.5	60.2
2009:05:29	02:35	-25.8	327.6	62.9	21:44	24.7	263.7	73.5
2009:05:30	02:34	-24.4	312.8	76.1	21:45	29.1	250.1	86.5
2009:05:31	02:33	-21.9	298.7	89.0	21:47	31.9	235.8	99.1
2009:06:01	02:32	-18.4	285.5	101.6	21:48	32.9	221.3	111.5
2009:06:02	02:31	-14.2	273.2	113.9	21:49	32.3	207.1	123.5
2009:06:03	02:30	-9.5	261.6	125.9	21:51	30.3	193.5	135.3
2009:06:04	02:29	-4.5	250.6	137.6	21:52	27.1	180.9	146.9
2009:06:05	02:28	0.6	239.9	149.1	21:53	23.0	169.1	158.3
2009:06:06	02:27	5.6	229.4	160.4	21:54	18.4	158.2	169.2
2009:06:07	02:27	10.5	218.8	171.2	21:55	13.5	148.0	176.3
2009:06:08	02:26	15.1	208.2	175.3	21:56	8.3	138.2	167.5
2009:06:09	02:26	19.3	197.2	165.5	21:57	3.2	128.6	156.8

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:06:10	02:25	22.9	185.8	154.8	21:58	-1.9	119.1	146.0
2009:06:11	02:25	25.7	174.0	144.0	21:59	-6.8	109.4	135.1
2009:06:12	02:24	27.6	161.8	133.1	21:59	-11.4	99.5	124.2
2009:06:13	02:24	28.5	149.2	122.2	22:00	-15.6	89.2	113.2
2009:06:14	02:24	28.3	136.3	111.2	22:01	-19.4	78.3	102.0
2009:06:15	02:24	26.9	123.5	100.0	22:02	-22.5	66.6	90.6
2009:06:16	02:23	24.3	110.9	88.5	22:02	-24.9	54.1	78.8
2009:06:17	02:23	20.6	98.5	76.7	22:03	-26.4	40.8	66.7
2009:06:18	02:23	15.7	86.5	64.4	22:03	-26.8	26.8	54.1
2009:06:19	02:23	9.9	74.8	51.8	22:03	-26.0	12.4	41.0
2009:06:20	02:24	3.3	63.2	38.6	22:04	-23.9	357.7	27.5
2009:06:21	02:24	-3.8	51.6	25.0	22:04	-20.6	343.2	13.7
2009:06:22	02:24	-11.2	39.6	11.3	22:04	-16.4	329.0	2.6
2009:06:23	02:24	-18.4	27.0	4.1	22:04	-11.4	315.2	15.1
2009:06:24	02:25	-24.9	13.5	17.6	22:04	-6.1	301.9	29.2
2009:06:25	02:25	-30.4	359.0	31.7	22:04	-0.8	288.9	43.0
2009:06:26	02:26	-34.2	343.4	45.5	22:04	4.4	276.2	56.6
2009:06:27	02:26	-36.1	327.2	59.1	22:04	9.0	263.7	69.8
2009:06:28	02:27	-35.9	311.2	72.2	22:04	13.1	251.1	82.5
2009:06:29	02:28	-33.8	296.2	84.8	22:03	16.4	238.6	94.9
2009:06:30	02:28	-30.2	282.6	97.1	22:03	18.9	226.1	106.8
2009:07:01	02:29	-25.4	270.4	109.0	22:03	20.6	213.6	118.5
2009:07:02	02:30	-19.8	259.6	120.7	22:02	21.5	201.1	130.0
2009:07:03	02:31	-13.5	249.9	132.1	22:02	21.5	188.7	141.2
2009:07:04	02:32	-6.9	240.8	143.3	22:01	20.7	176.6	152.3
2009:07:05	02:33	-0.1	232.3	154.4	22:00	19.3	164.6	163.3
2009:07:06	02:34	6.8	223.9	165.3	22:00	17.2	153.0	174.1
2009:07:07	02:35	13.7	215.5	176.1	21:59	14.6	141.7	174.7
2009:07:08	02:36	20.5	206.7	172.6	21:58	11.5	130.7	163.9
2009:07:09	02:37	26.9	197.2	161.8	21:57	8.1	119.9	153.0
2009:07:10	02:39	32.7	186.7	150.9	21:56	4.4	109.1	142.1
2009:07:11	02:40	37.7	174.8	139.9	21:55	0.5	98.4	131.0
2009:07:12	02:41	41.4	161.3	128.8	21:54	-3.5	87.6	119.7
2009:07:13	02:42	43.4	146.3	117.5	21:53	-7.4	76.4	108.3
2009:07:14	02:44	43.3	130.6	105.9	21:52	-11.2	64.9	96.5
2009:07:15	02:45	40.9	115.1	94.1	21:51	-14.8	52.7	84.4
2009:07:16	02:47	36.3	100.7	81.9	21:50	-17.9	39.8	72.0
2009:07:17	02:48	29.8	88.0	69.3	21:48	-20.4	26.0	59.0
2009:07:18	02:49	21.8	76.8	56.3	21:47	-22.0	11.5	45.6
2009:07:19	02:51	12.6	66.7	42.8	21:46	-22.5	356.3	31.9
2009:07:20	02:52	2.5	57.3	28.9	21:44	-21.7	340.8	17.8
2009:07:21	02:54	-8.0	48.2	14.7	21:43	-19.6	325.4	3.5
2009:07:22	02:56	-18.5	38.8	0.4	21:41	-16.5	310.4	10.7
2009:07:23	02:57	-28.7	28.5	13.8	21:40	-12.5	296.1	24.8
2009:07:24	02:59	-38.0	16.5	27.9	21:38	-8.0	282.5	38.6
2009:07:25	03:00	-45.7	1.9	41.6	21:37	-3.3	269.5	51.9
2009:07:26	03:02	-50.9	344.2	54.9	21:35	1.4	257.0	64.8
2009:07:27	03:03	-53.0	324.3	67.7	21:34	5.9	244.9	77.3
2009:07:28	03:05	-51.6	304.9	80.1	21:32	10.0	233.0	89.3
2009:07:29	03:07	-47.5	288.3	92.0	21:30	13.6	221.2	100.9
2009:07:30	03:08	-41.4	275.1	103.6	21:29	16.6	209.3	112.3
2009:07:31	03:10	-34.1	264.8	114.9	21:27	19.0	197.3	123.4
2009:08:01	03:11	-26.1	256.4	126.0	21:25	20.6	185.2	134.4
2009:08:02	03:13	-17.7	249.4	137.0	21:24	21.4	172.9	145.3
2009:08:03	03:15	-8.9	243.3	148.0	21:22	21.3	160.7	156.2
2009:08:04	03:16	0.1	237.7	158.8	21:20	20.5	148.5	167.0
2009:08:05	03:18	9.2	232.1	169.7	21:18	18.8	136.5	177.6
2009:08:06	03:19	18.4	226.4	178.6	21:16	16.4	124.6	170.9
2009:08:07	03:21	27.5	220.1	168.1	21:14	13.3	113.0	159.9
2009:08:08	03:23	36.5	212.6	157.0	21:13	9.7	101.6	148.7
2009:08:09	03:24	45.0	203.1	145.7	21:11	5.6	90.3	137.3
2009:08:10	03:26	52.6	190.3	134.3	21:09	1.1	79.0	125.7
2009:08:11	03:27	58.2	172.4	122.6	21:07	-3.5	67.6	113.9
2009:08:12	03:29	60.5	149.6	110.7	21:05	-8.2	55.9	101.8
2009:08:13	03:31	58.4	126.0	98.5	21:03	-12.8	43.6	89.4
2009:08:14	03:32	52.2	106.9	86.0	21:01	-17.0	30.7	76.7
2009:08:15	03:34	43.4	93.1	73.1	20:59	-20.6	16.8	63.5
2009:08:16	03:35	32.8	83.1	59.9	20:57	-23.2	2.1	50.0
2009:08:17	03:37	21.2	75.4	46.2	20:55	-24.6	346.6	36.3
2009:08:18	03:38	8.9	69.0	32.4	20:53	-24.5	330.7	22.3
2009:08:19	03:40	-3.7	63.3	18.4	20:51	-23.0	315.0	8.4
2009:08:20	03:41	-16.3	57.6	4.7	20:49	-20.0	299.8	6.4
2009:08:21	03:43	-28.7	51.4	10.2	20:47	-15.9	285.4	19.8
2009:08:22	03:44	-40.5	43.8	23.7	20:45	-11.2	272.0	33.1
2009:08:23	03:46	-51.2	33.5	37.0	20:43	-6.0	259.4	46.1
2009:08:24	03:47	-60.3	18.0	49.8	20:41	-0.7	247.4	58.6
2009:08:25	03:49	-66.1	354.6	62.2	20:39	4.4	235.9	70.7
2009:08:26	03:50	-66.9	325.3	74.2	20:37	9.2	224.6	82.3
2009:08:27	03:52	-62.7	300.8	85.8	20:35	13.6	213.2	93.7
2009:08:28	03:53	-55.4	284.7	97.1	20:33	17.5	201.8	104.8
2009:08:29	03:55	-46.9	274.4	108.2	20:31	20.7	190.0	115.7

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:08:30	03:56	-37.6	267.4	119.1	20:29	23.1	177.9	126.6
2009:08:31	03:57	-28.0	262.2	129.9	20:27	24.6	165.5	137.4
2009:09:01	03:59	-18.1	258.0	140.8	20:25	25.0	152.8	148.2
2009:09:02	04:00	-8.0	254.4	151.7	20:23	24.5	140.0	159.1
2009:09:03	04:02	2.3	251.1	162.6	20:21	22.8	127.3	169.9
2009:09:04	04:03	12.8	247.7	173.2	20:19	20.1	114.9	176.1
2009:09:05	04:04	23.5	244.0	173.5	20:17	16.5	102.8	166.3
2009:09:06	04:06	34.2	239.6	162.7	20:15	12.2	91.0	154.9
2009:09:07	04:07	44.9	233.6	151.1	20:13	7.2	79.5	143.2
2009:09:08	04:08	55.3	224.6	139.2	20:11	1.7	68.1	131.2
2009:09:09	04:10	64.6	209.0	127.2	20:09	-4.0	56.6	119.0
2009:09:10	04:11	70.7	180.3	114.9	20:07	-9.7	44.9	106.6
2009:09:11	04:12	69.8	142.6	102.3	20:05	-15.3	32.6	93.9
2009:09:12	04:13	62.3	116.5	89.5	20:03	-20.3	19.5	80.9
2009:09:13	04:15	51.6	102.4	76.4	20:01	-24.6	5.5	67.7
2009:09:14	04:16	39.6	94.1	63.1	19:59	-27.6	350.4	54.3
2009:09:15	04:17	26.9	88.5	49.7	19:57	-29.1	334.5	40.8
2009:09:16	04:18	13.9	84.3	36.0	19:55	-28.7	318.4	27.2
2009:09:17	04:20	0.8	80.7	22.5	19:53	-26.6	302.6	13.9
2009:09:18	04:21	-12.2	77.2	9.5	19:51	-23.0	287.8	4.3
2009:09:19	04:22	-25.0	73.5	6.6	19:49	-18.2	274.1	14.2
2009:09:20	04:23	-37.3	69.0	18.7	19:47	-12.6	261.4	26.8
2009:09:21	04:25	-48.9	62.9	31.2	19:46	-6.6	249.7	39.1
2009:09:22	04:26	-59.6	53.3	43.5	19:44	-0.6	238.6	51.2
2009:09:23	04:27	-68.6	36.1	55.5	19:42	5.4	227.9	62.9
2009:09:24	04:28	-73.7	4.2	67.1	19:40	11.1	217.2	74.2
2009:09:25	04:29	-72.1	326.7	78.3	19:38	16.3	206.5	85.3
2009:09:26	04:30	-65.2	303.4	89.4	19:36	21.0	195.3	96.2
2009:09:27	04:32	-56.4	291.1	100.3	19:34	24.9	183.7	107.1
2009:09:28	04:33	-46.8	283.9	111.1	19:32	27.9	171.3	117.9
2009:09:29	04:34	-36.8	279.1	122.0	19:31	29.8	158.3	128.7
2009:09:30	04:35	-26.5	275.6	132.9	19:29	30.4	144.9	139.7
2009:10:01	04:36	-15.9	272.7	143.9	19:27	29.6	131.3	150.8
2009:10:02	04:37	-5.1	270.0	155.1	19:25	27.4	117.8	162.0
2009:10:03	04:39	6.1	267.4	166.2	19:24	23.8	104.7	172.5
2009:10:04	04:40	17.4	264.6	175.1	19:22	19.1	92.3	172.1
2009:10:05	04:41	29.0	261.2	168.1	19:20	13.3	80.5	161.0
2009:10:06	04:42	40.7	256.6	156.3	19:18	6.9	69.1	148.9
2009:10:07	04:43	52.2	249.6	144.0	19:17	-0.0	58.0	136.4
2009:10:08	04:44	63.1	237.2	131.5	19:15	-7.1	46.8	123.8
2009:10:09	04:45	71.5	211.5	118.7	19:13	-14.2	35.3	111.0
2009:10:10	04:46	73.0	168.0	105.8	19:12	-20.8	23.1	98.0
2009:10:11	04:47	65.9	135.6	92.8	19:10	-26.7	9.8	85.0
2009:10:12	04:49	55.1	120.0	79.7	19:08	-31.3	355.2	71.9
2009:10:13	04:50	43.0	111.6	66.5	19:07	-34.3	339.5	58.7
2009:10:14	04:51	30.4	106.2	53.3	19:05	-35.3	322.9	45.5
2009:10:15	04:52	17.7	102.2	40.2	19:04	-34.2	306.5	32.4
2009:10:16	04:53	5.1	98.8	27.2	19:02	-31.0	291.0	19.6
2009:10:17	04:54	-7.4	95.6	14.6	19:01	-26.2	277.0	7.9
2009:10:18	04:55	-19.6	92.2	5.1	18:59	-20.2	264.4	8.2
2009:10:19	04:56	-31.4	88.2	12.7	18:58	-13.5	253.1	19.5
2009:10:20	04:57	-42.7	83.0	24.4	18:56	-6.5	242.6	31.2
2009:10:21	04:58	-53.2	75.5	36.1	18:55	0.6	232.8	42.8
2009:10:22	05:00	-62.5	63.6	47.6	18:53	7.6	223.2	54.1
2009:10:23	05:01	-69.7	42.6	58.8	18:52	14.3	213.6	65.2
2009:10:24	05:02	-72.3	10.1	69.8	18:51	20.6	203.6	76.1
2009:10:25	05:03	-69.0	339.1	80.7	18:49	26.3	192.9	86.9
2009:10:26	05:04	-61.9	320.1	91.5	18:48	31.2	181.2	97.7
2009:10:27	05:05	-53.0	309.1	102.3	18:47	34.9	168.4	108.5
2009:10:28	05:06	-43.4	302.0	113.3	18:46	37.3	154.3	119.5
2009:10:29	05:07	-33.2	296.8	124.3	18:44	37.9	139.5	130.7
2009:10:30	05:08	-22.7	292.7	135.7	18:43	36.6	124.4	142.2
2009:10:31	05:09	-11.7	289.1	147.3	18:42	33.3	109.8	153.9
2009:11:01	05:10	-0.3	285.5	159.1	18:41	28.3	96.3	165.7
2009:11:02	05:11	11.3	281.7	170.6	18:40	21.7	83.9	175.1
2009:11:03	05:13	23.2	277.2	173.3	18:39	14.1	72.5	167.2
2009:11:04	05:14	35.1	271.5	161.8	18:38	5.7	61.9	154.7
2009:11:05	05:15	46.7	263.3	149.0	18:37	-3.1	51.6	141.7
2009:11:06	05:16	57.3	250.2	135.9	18:36	-12.0	41.3	128.6
2009:11:07	05:17	65.4	227.7	122.7	18:35	-20.6	30.4	115.4
2009:11:08	05:18	67.7	194.2	109.5	18:34	-28.5	18.4	102.2
2009:11:09	05:19	63.0	164.1	96.4	18:33	-35.4	4.9	89.1
2009:11:10	05:20	53.9	145.6	83.3	18:32	-40.5	349.4	76.2
2009:11:11	05:21	43.1	134.5	70.3	18:31	-43.4	332.2	63.3
2009:11:12	05:22	31.6	126.9	57.5	18:30	-43.6	314.4	50.6
2009:11:13	05:23	20.0	121.2	44.9	18:29	-41.2	297.4	38.0
2009:11:14	05:24	8.4	116.3	32.4	18:29	-36.5	282.3	25.7
2009:11:15	05:25	-2.9	111.7	20.2	18:28	-30.2	269.4	13.8
2009:11:16	05:26	-14.0	106.9	8.7	18:27	-22.9	258.5	4.4
2009:11:17	05:27	-24.6	101.6	6.1	18:27	-15.0	248.9	11.5
2009:11:18	05:28	-34.7	95.3	16.5	18:26	-6.8	240.3	22.6

Data	Ora	Crepuscolo mattutino			Ora	Crepuscolo serale		
		Alt	Az	Elong		Alt	Az	Elong
2009:11:19	05:29	-44.0	87.3	27.7	18:25	1.4	232.2	33.7
2009:11:20	05:31	-52.3	76.4	38.8	18:25	9.7	224.3	44.7
2009:11:21	05:32	-58.8	61.1	49.8	18:24	17.7	216.2	55.6
2009:11:22	05:33	-62.7	40.7	60.6	18:24	25.3	207.5	66.4
2009:11:23	05:34	-62.8	17.4	71.4	18:23	32.5	197.8	77.2
2009:11:24	05:35	-59.3	356.7	82.2	18:23	38.8	186.4	88.0
2009:11:25	05:36	-53.0	341.0	93.2	18:23	44.0	172.9	99.0
2009:11:26	05:36	-45.1	329.5	104.2	18:22	47.3	157.0	110.2
2009:11:27	05:37	-36.1	320.7	115.6	18:22	48.1	139.4	121.7
2009:11:28	05:38	-26.4	313.6	127.3	18:22	46.1	121.6	133.6
2009:11:29	05:39	-16.0	307.2	139.3	18:21	41.3	105.4	145.8
2009:11:30	05:40	-5.1	301.1	151.8	18:21	34.2	91.5	158.5
2009:12:01	05:41	6.1	294.8	164.5	18:21	25.4	79.9	171.2
2009:12:02	05:42	17.4	287.8	176.1	18:21	15.4	69.9	173.7
2009:12:03	05:43	28.5	279.4	167.8	18:21	4.8	60.9	160.8
2009:12:04	05:44	39.0	268.6	154.4	18:21	-6.1	52.3	147.2
2009:12:05	05:45	48.0	254.0	140.7	18:21	-17.0	43.6	133.6
2009:12:06	05:46	54.1	234.3	127.1	18:21	-27.5	34.2	120.1
2009:12:07	05:46	56.0	210.6	113.7	18:21	-37.1	23.3	106.8
2009:12:08	05:47	53.2	188.0	100.5	18:21	-45.4	9.8	93.7
2009:12:09	05:48	46.9	170.0	87.6	18:21	-51.5	352.9	80.9
2009:12:10	05:49	38.6	156.7	74.9	18:21	-54.6	332.8	68.4
2009:12:11	05:49	29.4	146.5	62.5	18:21	-54.1	311.7	56.1
2009:12:12	05:50	19.8	138.1	50.3	18:21	-50.1	293.2	44.1
2009:12:13	05:51	10.1	130.8	38.4	18:22	-43.8	278.6	32.2
2009:12:14	05:52	0.5	123.9	26.6	18:22	-36.0	267.3	20.6
2009:12:15	05:52	-8.8	117.1	15.2	18:22	-27.4	258.4	9.3
2009:12:16	05:53	-17.7	109.8	4.3	18:23	-18.3	251.1	3.3
2009:12:17	05:54	-26.0	101.9	8.0	18:23	-9.1	244.7	13.6
2009:12:18	05:54	-33.6	92.7	18.8	18:23	0.3	238.9	24.5
2009:12:19	05:55	-40.2	81.9	29.7	18:24	9.7	233.2	35.4
2009:12:20	05:55	-45.4	69.1	40.6	18:24	19.0	227.4	46.2
2009:12:21	05:56	-48.8	54.2	51.3	18:25	28.2	220.9	57.0
2009:12:22	05:56	-50.1	37.8	62.1	18:25	37.1	213.3	67.8
2009:12:23	05:57	-48.9	21.3	73.0	18:26	45.4	203.5	78.7
2009:12:24	05:57	-45.4	5.9	84.1	18:26	52.8	190.4	89.9
2009:12:25	05:58	-40.2	352.4	95.4	18:27	58.2	172.2	101.4
2009:12:26	05:58	-33.4	340.7	107.0	18:27	60.2	148.9	113.2
2009:12:27	05:58	-25.5	330.3	119.0	18:28	57.7	125.2	125.4
2009:12:28	05:59	-16.8	320.8	131.5	18:29	51.0	106.1	138.1
2009:12:29	05:59	-7.5	311.6	144.4	18:29	41.6	92.4	151.3
2009:12:30	05:59	2.3	302.3	157.8	18:30	30.5	82.3	164.9
2009:12:31	05:59	12.0	292.3	171.5	18:31	18.5	74.5	178.5

CONGIUNZIONI GEOCENTRICHE <5° LUNA-PIANETI

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m2	tm(s)	
2009/01/02 13:09:05		4.10478	1.18793	20.461	333	67	5.9			Urano
2009/01/25 02:44:48		0.69187	1.14931	2.370	165	-13	1.2	-6.8	3041	Marte
2009/01/25 09:54:49		4.80981	1.14896	0.677	164	-11	1.2	-6.2		Mercurio
2009/01/26 04:36:52		0.03273	1.15948	6.090	341	-2	-1.8	-2.2	3670	Giove
2009/01/27 16:56:15		1.63905	1.16644	30.981	336	15	8.0	-7.2		Nettuno
2009/01/29 20:42:15		4.21024	1.18663	20.839	333	40	5.9	-9.2		Urano
2009/01/30 09:07:37		2.51401	1.19174	0.571	333	46	-4.6	-9.5		Venere
2009/02/22 21:19:37		0.98760	1.16044	1.113	338	-25	0.1	-8.2	2077	Mercurio
2009/02/23 00:30:44		0.68104	1.16692	5.991	339	-23	-1.9	-8.0	2966	Giove
2009/02/23 06:30:38		1.54242	1.16447	2.289	338	-20	1.1	-7.8		Marte
2009/02/24 01:51:28		1.72473	1.17252	31.003	336	-11	8.0	-6.5		Nettuno
2009/02/26 05:38:20		4.25852	1.19460	21.058	333	14	5.9	-7.0		Urano
2009/02/28 00:01:18		1.16774	1.21226	0.376	156	35	-4.6	-9.0	948.4	Venere
2009/03/22 20:18:48		1.37959	1.17250	5.742	337	-45	-2.0	-9.4		Giove
2009/03/23 11:51:19		1.88680	1.17557	30.817	336	-38	8.0	-9.1		Nettuno
2009/03/24 10:26:44		3.65639	1.18635	2.204	334	-27	1.0	-8.4		Marte
2009/03/25 16:23:49		4.35202	1.20348	21.074	333	-12	5.9	-6.8		Urano
2009/03/26 19:34:30		3.83245	1.21718	0.282	154	-8	-2.0	-4.7		Venere
2009/04/19 14:32:45		2.09812	1.17338	5.379	336	-67	-2.1			Giove
2009/04/19 21:55:48		2.15188	1.17268	30.462	336	-64	7.9			Nettuno
2009/04/22 04:10:35		4.55254	1.20585	20.889	333	-37	5.9	-9.1		Urano
2009/04/22 13:22:57		0.95306	1.21146	0.370	333	-33	-4.5	-8.9	2169	Venere
2009/04/26 15:50:18		1.89085	1.26321	0.848	348	20	0.1	-7.9		Mercurio
2009/05/17 05:21:04		2.73442	1.16924	4.953	336	-91	-2.3			Giove
2009/05/17 06:52:22		2.44467	1.16522	30.015	336	-90	7.9			Nettuno
2009/05/19 15:27:56		4.82554	1.19935	20.542	334	-63	5.9			Urano
2009/06/13 13:57:00		2.65114	1.15742	29.569	336	-116	7.9			Nettuno
2009/06/13 15:03:56		3.15545	1.16294	4.536	336	-116	-2.5			Giove
2009/06/16 00:48:45		5.06697	1.18735	20.101	334	-89	5.8			Urano
2009/07/10 19:10:23		3.26843	1.15876	4.205	336	-143	-2.6			Giove
2009/07/10 19:18:50		2.70761	1.15324	29.216	336	-143	7.8			Nettuno
2009/07/18 10:34:15		4.84749	1.26474	1.824	352	-52	1.0	-9.8		Marte
2009/07/22 18:29:16		2.66290	1.29650	1.315	201	10	-1.2	-6.3		Mercurio
2009/08/06 19:16:44		3.10472	1.15850	4.038	336	-171	-2.8			Giove
2009/08/06 23:54:20		2.64987	1.15372	29.032	336	-169	7.8			Nettuno
2009/08/16 03:23:08		3.17179	1.26677	1.690	2	-60	0.9			Marte
2009/08/17 21:30:37		1.68032	1.28750	1.244	14	-36	-3.9	-9.1		Venere
2009/08/22 09:23:19		2.58016	1.26142	0.956	206	27	0.3	-8.5		Mercurio
2009/09/02 18:58:14		2.85808	1.15996	4.079	337	159	-2.7			Giove
2009/09/03 04:54:58		2.59267	1.15663	29.057	336	164	7.8			Nettuno
2009/09/05 16:24:42		5.03987	1.17610	19.111	334	-168	5.7			Urano
2009/09/13 16:21:51		1.10065	1.26246	1.527	10	-69	0.8		1673	Marte
2009/09/16 15:42:28		3.02697	1.27679	1.415	205	-29	-3.8	-8.7		Venere
2009/09/18 23:51:53		1.06444	1.25795	0.644	207	4	3.3	-5.0	1621	Mercurio
2009/09/29 21:59:04		2.77596	1.16032	4.318	338	131	-2.6			Giove
2009/09/30 11:09:58		2.65054	1.15835	29.290	336	137	7.8			Nettuno
2009/10/02 21:35:59		4.98961	1.18103	19.133	334	164	5.7			Urano
2009/10/12 00:53:08		1.10810	1.25656	1.335	197	-81	0.6		1610	Marte
2009/10/27 06:11:18		2.96960	1.15860	4.693	338	104	-2.4			Giove
2009/10/27 18:45:01		2.84993	1.15659	29.682	337	109	7.9			Nettuno
2009/10/30 04:30:06		5.07221	1.18102	19.367	334	136	5.8			Urano
2009/11/09 03:51:54		3.22989	1.25555	1.119	201	-96	0.2			Marte
2009/11/17 09:49:58		2.81924	1.18625	1.432	187	7	-0.8	-5.8		Mercurio
2009/11/23 19:12:59		3.36595	1.15515	5.119	337	78	-2.2			Giove
2009/11/24 03:07:36		3.10522	1.15196	30.147	337	82	7.9			Nettuno
2009/12/06 23:08:39		5.06092	1.26584	0.902	203	-116	-0.3			Marte
2009/12/15 22:53:46		3.08562	1.16897	1.695	180	-6	-3.9	-5.4		Venere
2009/12/18 07:37:10		1.36188	1.15099	1.013	348	20	-0.4	-7.7		Mercurio
2009/12/21 11:33:05		3.82104	1.15142	5.511	336	55	-2.1	-9.8		Giove
2009/12/21 11:36:19		3.29469	1.14722	30.582	336	55	7.9	-9.8		Nettuno

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione del pianeta

Rl = distanza in U.A. del pianeta dalla Terra

P = angolo di posizione tra i corpi, in gradi

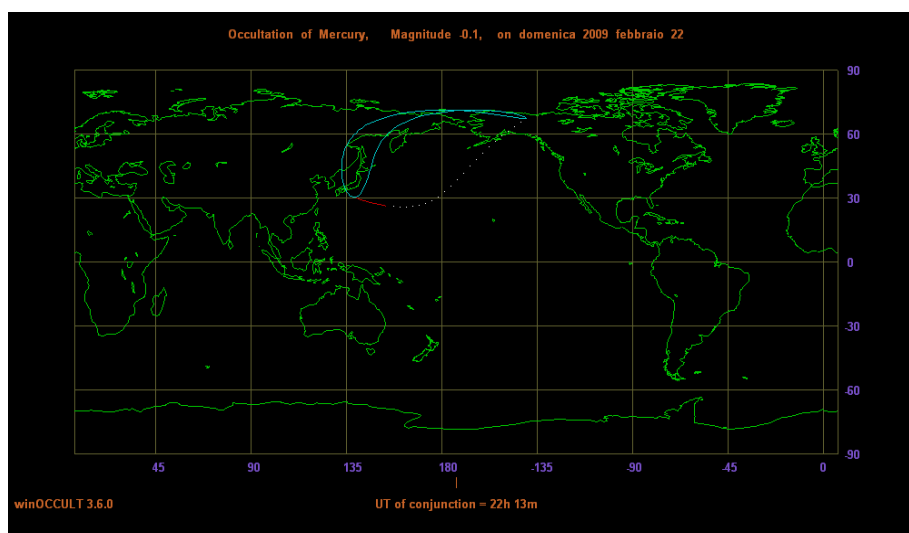
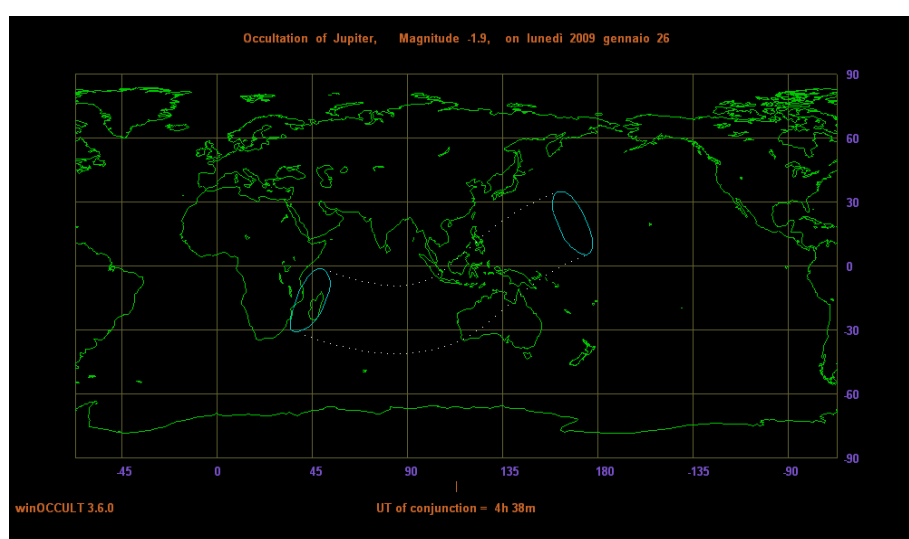
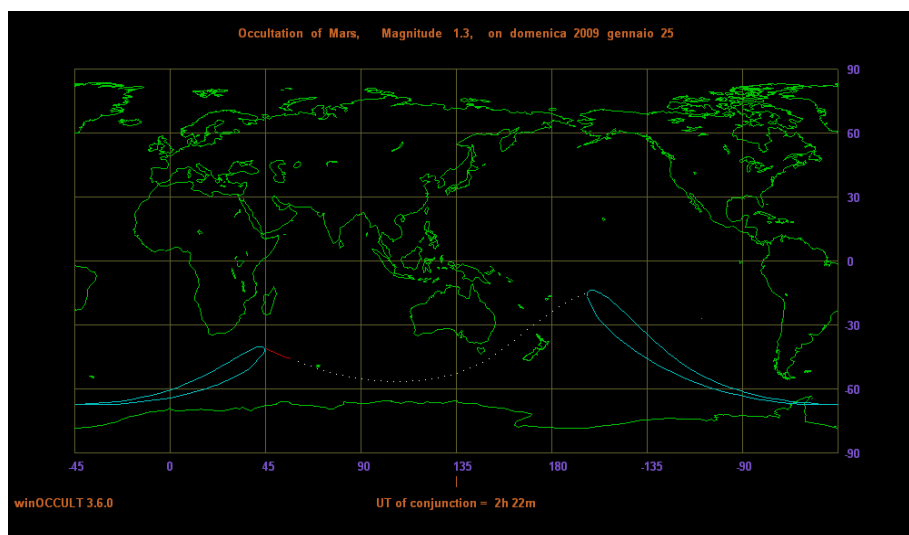
e = elongazione, in gradi

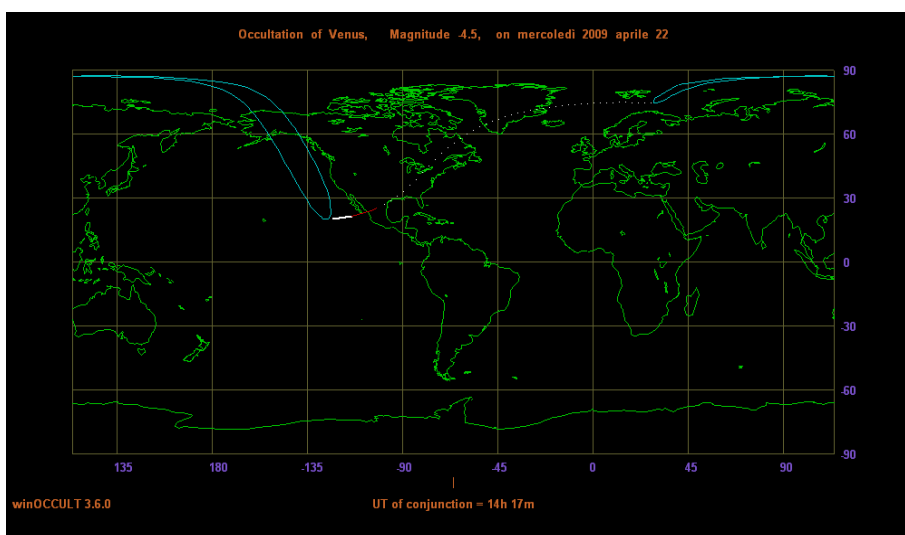
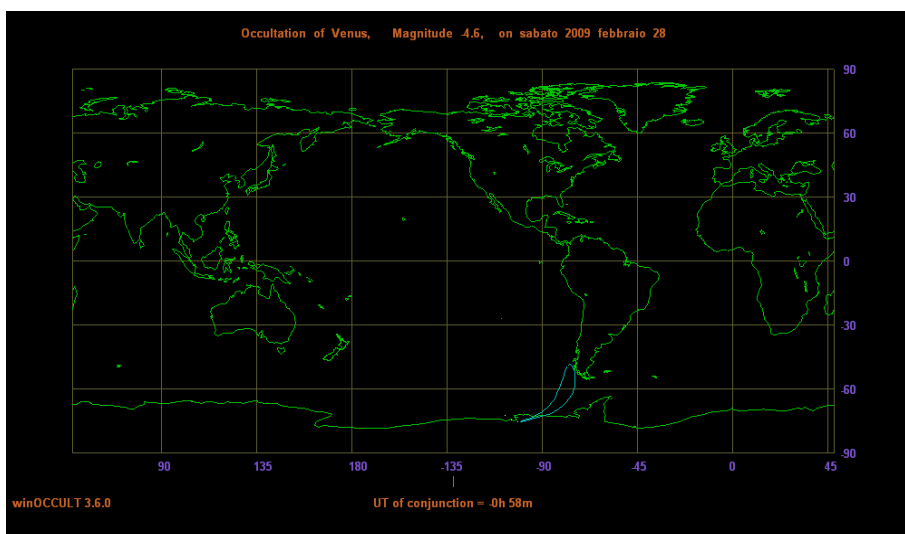
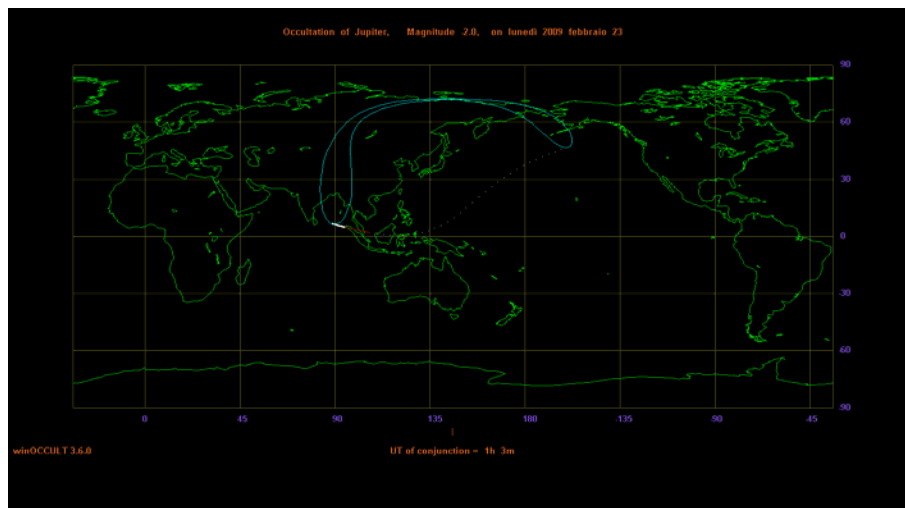
m1 = magnitudine del pianeta

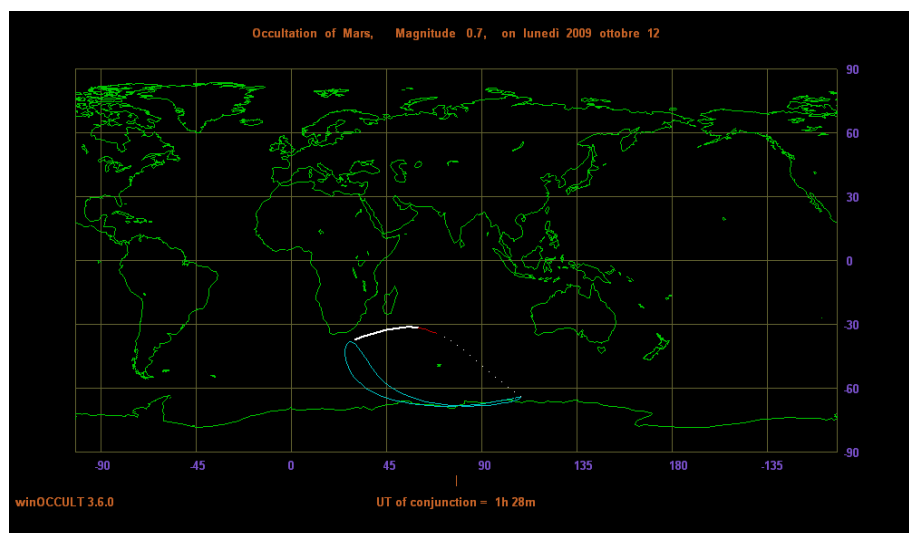
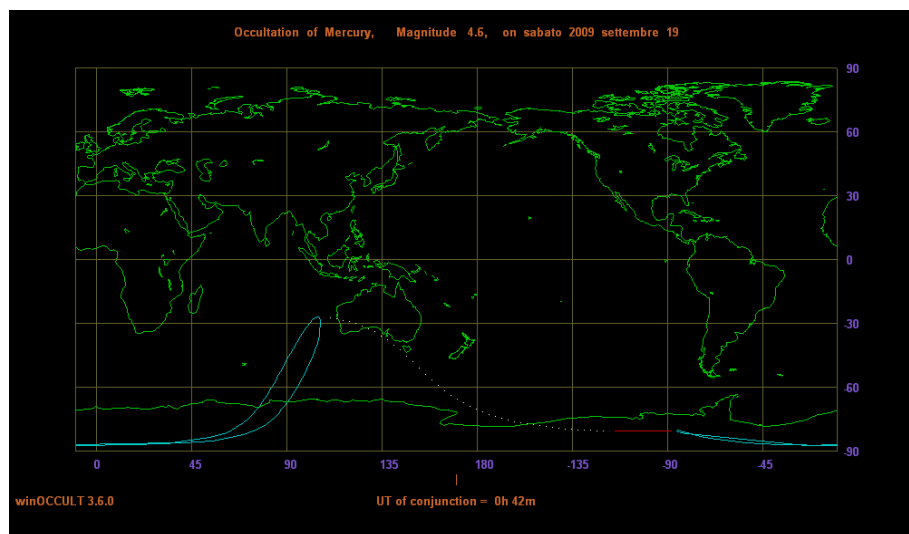
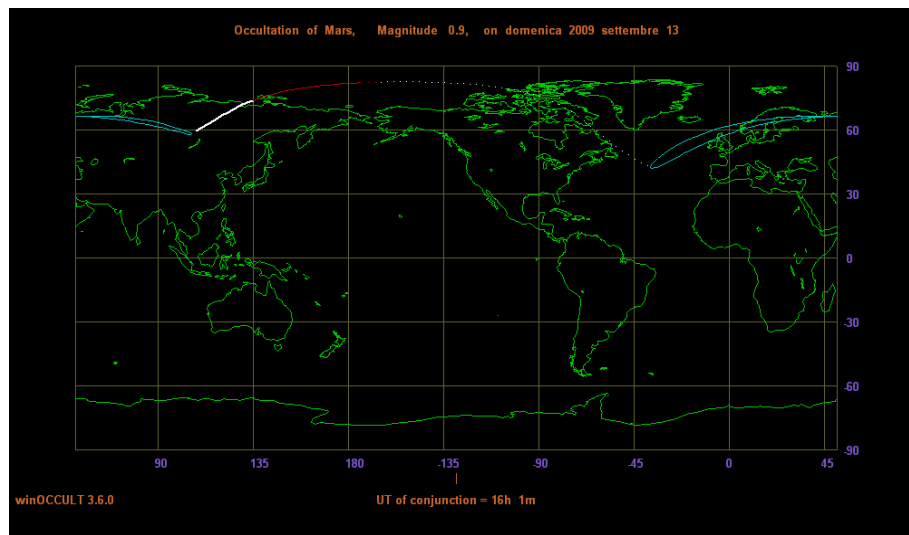
m2 = magnitudine della Luna

tm = se presente, il pianeta viene occultato massimo per x secondi

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CONGIUNZIONI TOPOCENTR. <5° LUNA-PIANETI

42°N - 12°E

Data	UT	Dm (°)	Alt.	r1	p (°)	e	m1	m2	tm(s)	
2009/01/02 12:05:09		3.30361	21.61	20.460	327	67	5.9			Urano
2009/01/27 18:25:56		1.38043	-9.25	30.981	332	15	8.0	-7.1		Nettuno
2009/01/30 08:22:34		1.64911	0.64	0.571	333	46	-4.6	-9.5		Venere
2009/02/23 05:54:06		0.68975	6.62	2.289	339	-20	1.1	-7.8		Marte
2009/02/26 05:16:25		3.39896	-14.08	21.057	335	14	5.9	-7.0		Urano
2009/03/23 13:00:19		1.54089	11.58	30.816	327	-38	8.0	-9.1		Nettuno
2009/03/24 09:35:43		3.11415	38.05	2.204	320	-27	1.0	-8.5		Marte
2009/03/25 18:25:11		4.07484	-22.40	21.074	337	-12	5.9	-6.7		Urano
2009/03/26 04:58:38		4.85652	-1.51	1.354	332	-5	-1.4	-5.2		Mercurio
2009/03/26 20:08:00		4.24008	-22.81	0.282	160	-8	-2.0	-4.4		Venere
2009/04/22 03:21:03		3.67902	3.41	20.890	332	-37	5.9	-9.1		Urano
2009/04/22 15:04:15		0.71796	1.49	0.370	334	-33	-4.5	-8.9		Venere
2009/04/22 15:51:49		4.99200	-8.31	2.118	336	-33	1.0	-8.8		Marte
2009/04/26 17:36:46		1.51801	23.88	0.846	356	20	0.1	-8.0		Mercurio
2009/05/17 04:59:04		2.08104	34.04	4.954	324	-91	-2.3			Giove
2009/05/17 07:10:09		1.96286	30.01	30.015	323	-90	7.9			Nettuno
2009/06/15 23:52:09		4.21234	4.03	20.102	332	-88	5.8			Urano
2009/07/10 18:53:01		2.49880	-19.88	4.205	341	-143	-2.6			Giove
2009/07/10 18:54:58		1.93352	-19.04	29.217	341	-143	7.8			Nettuno
2009/07/13 09:20:42		4.93506	1.27	19.656	334	-115	5.8			Urano
2009/07/18 13:04:09		4.43564	19.47	1.824	1	-52	1.0	-9.8		Marte
2009/07/22 18:55:04		3.58983	3.32	1.315	204	10	-1.2	-6.2		Mercurio
2009/08/06 18:45:01		2.27216	-0.63	4.038	338	-171	-2.8			Giove
2009/08/06 23:34:27		1.99969	34.22	29.032	324	-169	7.8			Nettuno
2009/08/16 01:21:37		2.65078	17.98	1.690	353	-60	0.9			Marte
2009/08/17 20:58:29		0.80952	-26.69	1.244	10	-36	-3.9	-9.1		Venere
2009/08/22 07:27:02		2.86476	6.04	0.957	208	27	0.3	-8.5		Mercurio
2009/09/02 18:24:06		2.01980	14.59	4.079	335	159	-2.7			Giove
2009/09/05 16:14:17		4.20986	-20.43	19.111	337	-168	5.7			Urano
2009/09/13 16:40:23		0.18761	-19.75	1.527	11	-69	0.8		2587	Marte
2009/09/16 16:14:27		3.95460	-0.53	1.415	205	-29	-3.8	-8.7		Venere
2009/09/29 22:19:24		2.30861	22.88	4.318	326	131	-2.6			Giove
2009/10/02 20:01:37		4.36849	36.97	19.132	323	164	5.7			Urano
2009/10/11 23:37:39		1.50939	12.28	1.335	190	-81	0.6			Marte
2009/10/27 18:23:36		2.21965	33.95	29.682	325	109	7.9			Nettuno
2009/11/09 02:28:46		3.52571	52.09	1.120	204	-96	0.2			Marte
2009/11/17 06:50:15		3.46408	0.31	1.432	199	7	-0.8	-5.8		Mercurio
2009/11/23 19:32:14		2.96972	18.74	5.119	327	78	-2.2			Giove
2009/11/26 12:03:51		4.39718	-6.20	19.763	335	108	5.8			Urano
2009/12/18 06:38:51		0.68609	-15.62	1.014	357	20	-0.4	-7.7		Mercurio
2009/12/21 10:52:05		2.98815	10.09	5.511	335	55	-2.1	-9.8		Giove
2009/12/21 10:56:37		2.46236	11.31	30.582	335	55	7.9	-9.8		Nettuno

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Alt = altezza in gradi sull'orizzonte dell'evento nel momento centrale

R1 = distanza in U.A. del pianeta dalla Terra

p = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del pianeta

m2 = magnitudine della Luna

tm = se presente, il pianeta viene occultato massimo per x secondi

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NB : i presenti dati, con una variazione di pochi centesimi di grado del valore Dm e di pochi minuti del valore U.T., sono altresì validi per il resto di Italia

OCCULTAZIONI DI PIANETI

Questo anno non avvengono occultazioni di pianeti da parte della Luna visibili in Italia

CONGIUNZIONI MULTIPLE PIANETI-LUNA

(eventi con 2 o più pianeti e la Luna entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax				
2009/02/22 23:12:22		1.278	1.520	-25	-1.9	0.1	Mercurio	Giove	Luna	
2009/02/23 02:21:20		3.207	4.283	-25	0.1	1.1	Mercurio	Marte	Luna	
2009/02/23 03:13:41		2.343	3.053	-23	-1.9	1.1	Marte	Giove	Luna	
2009/04/19 18:19:28		3.166	3.744	-68	-2.1	7.9	Giove	Nettuno	Luna	
2009/05/17 06:07:21		2.191	2.761	-91	-2.3	7.9	Giove	Nettuno	Luna	
2009/06/13 14:30:22		2.428	3.166	-116	-2.5	7.9	Giove	Nettuno	Luna	
2009/07/10 19:14:34		2.471	3.267	-143	-2.6	7.8	Giove	Nettuno	Luna	
2009/08/06 21:33:20		2.886	3.309	-171	-2.8	7.8	Giove	Nettuno	Luna	
2009/09/02 23:52:43		4.190	5.020	159	-2.7	7.8	Giove	Nettuno	Luna	
2009/11/23 23:15:09		3.809	3.897	78	-2.2	7.9	Giove	Nettuno	Luna	
2009/12/21 11:34:43		2.927	3.818	54	-2.1	7.9	Giove	Nettuno	Luna	
2009/02/23 01:40:01		2.676	4.298	-25	0.1	1.1	Mercurio	Marte	Giove	Luna

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax				
2009/02/23 01:45:18		3.087	4.295	-25	0.1	1.1	Mercurio	Marte	Luna	
2009/02/23 02:31:49		2.174	3.038	-23	-1.9	1.1	Marte	Giove	Luna	
2009/04/22 15:26:32		3.820	4.989	-33	-4.5	1.0	Venere	Marte	Luna	
2009/05/17 06:02:42		1.748	2.118	-91	-2.3	7.9	Giove	Nettuno	Luna	
2009/07/10 18:54:04		1.853	2.498	-143	-2.6	7.8	Giove	Nettuno	Luna	
2009/08/06 20:56:20		2.375	2.488	-171	-2.8	7.8	Giove	Nettuno	Luna	
2009/09/03 00:09:25		4.007	5.022	159	-2.7	7.8	Giove	Nettuno	Luna	
2009/11/24 00:47:08		3.668	3.874	78	-2.2	7.9	Giove	Nettuno	Luna	
2009/12/21 10:54:25		2.255	2.987	54	-2.1	7.9	Giove	Nettuno	Luna	
2009/02/23 01:08:33		2.593	4.309	-25	0.1	1.1	Mercurio	Marte	Giove	Luna

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri dei corpi, in gradi

Dmax = diametro del cerchio comprendente i corpi, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

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Curiosità : il quartetto Mercurio-Luna-Marte-Giove è l'unico di questo secolo

Per le congiunzioni multiple stellari consultare più avanti

CONGIUNZIONI MULTIPLE MISTE

CERCHI MINIMI GEOCENTRICI PIANETI-LUNA

(eventi con 2 pianeti e la Luna entro 5°)

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT
22 feb 2009	15:00	MERCURIO	GIOVE	LUNA	1.8	3.0	4.7	4.8	25	0.0	-2.0	-6.6	-6.6
22 feb 2009	16:00	MERCURIO	GIOVE	LUNA	1.8	2.6	4.2	4.3	25	0.0	-2.0	-6.6	-6.6
22 feb 2009	17:00	MERCURIO	GIOVE	LUNA	1.7	2.1	3.7	3.8	25	-0.1	-2.0	-6.5	-6.5
22 feb 2009	18:00	MERCURIO	GIOVE	LUNA	1.7	1.8	3.3	3.3	25	-0.1	-2.0	-6.5	-6.5
22 feb 2009	19:00	MERCURIO	GIOVE	LUNA	1.6	1.4	2.8	2.8	24	-0.1	-2.0	-6.5	-6.5
22 feb 2009	20:00	MERCURIO	GIOVE	LUNA	1.6	1.1	2.3	2.3	24	-0.1	-2.0	-6.4	-6.4
22 feb 2009	21:00	MERCURIO	GIOVE	LUNA	1.6	1.0	1.8	1.9	24	-0.1	-2.0	-6.4	-6.4
22 feb 2009	22:00	MERCURIO	GIOVE	LUNA	1.5	1.0	1.4	1.6	24	-0.1	-2.0	-6.3	-6.3
22 feb 2009	23:00	MERCURIO	GIOVE	LUNA	1.5	1.2	1.0	1.5	24	-0.1	-2.0	-6.3	-6.3
23 feb 2009	00:00	MERCURIO	GIOVE	LUNA	1.4	1.5	0.7	1.6	24	-0.1	-2.0	-6.3	-6.3
23 feb 2009	01:00	MERCURIO	GIOVE	LUNA	1.4	1.9	0.7	1.9	24	-0.1	-2.0	-6.2	-6.2
23 feb 2009	02:00	MERCURIO	GIOVE	LUNA	1.4	2.3	1.0	2.4	23	-0.1	-2.0	-6.2	-6.2
23 feb 2009	03:00	MERCURIO	GIOVE	LUNA	1.3	2.7	1.4	2.8	23	-0.1	-2.0	-6.1	-6.1
23 feb 2009	04:00	MERCURIO	GIOVE	LUNA	1.3	3.2	1.8	3.2	23	-0.1	-2.0	-6.1	-6.1
23 feb 2009	05:00	MERCURIO	GIOVE	LUNA	1.2	3.6	2.3	3.6	23	-0.1	-2.0	-6.0	-6.0
23 feb 2009	06:00	MERCURIO	GIOVE	LUNA	1.2	4.0	2.8	4.1	23	-0.1	-2.0	-6.0	-6.0
23 feb 2009	07:00	MERCURIO	GIOVE	LUNA	1.2	4.5	3.3	4.5	23	-0.1	-2.0	-6.0	-6.0
23 feb 2009	08:00	MERCURIO	GIOVE	LUNA	1.1	4.9	3.8	5.0	23	-0.1	-2.0	-5.9	-5.9
22 feb 2009	21:00	MARTE	GIOVE	LUNA	2.9	4.7	1.8	4.8	23	1.2	-2.0	-6.4	-6.4
22 feb 2009	22:00	MARTE	GIOVE	LUNA	2.9	4.3	1.4	4.3	23	1.2	-2.0	-6.3	-6.3
22 feb 2009	23:00	MARTE	GIOVE	LUNA	2.9	3.8	1.0	3.9	22	1.2	-2.0	-6.3	-6.3
23 feb 2009	00:00	MARTE	GIOVE	LUNA	2.9	3.4	0.7	3.5	22	1.2	-2.0	-6.3	-6.3
23 feb 2009	01:00	MARTE	GIOVE	LUNA	3.0	3.0	0.7	3.0	22	1.2	-2.0	-6.2	-6.2
23 feb 2009	02:00	MARTE	GIOVE	LUNA	3.0	2.6	1.0	3.0	22	1.2	-2.0	-6.2	-6.2
23 feb 2009	03:00	MARTE	GIOVE	LUNA	3.0	2.2	1.4	3.0	22	1.2	-2.0	-6.1	-6.1
23 feb 2009	04:00	MARTE	GIOVE	LUNA	3.0	1.9	1.8	3.1	22	1.2	-2.0	-6.1	-6.1
23 feb 2009	05:00	MARTE	GIOVE	LUNA	3.1	1.7	2.3	3.1	22	1.2	-2.0	-6.0	-6.0
23 feb 2009	06:00	MARTE	GIOVE	LUNA	3.1	1.5	2.8	3.1	21	1.2	-2.0	-6.0	-6.0
23 feb 2009	07:00	MARTE	GIOVE	LUNA	3.1	1.5	3.3	3.4	21	1.2	-2.0	-6.0	-6.0
23 feb 2009	08:00	MARTE	GIOVE	LUNA	3.1	1.7	3.8	3.8	21	1.2	-2.0	-5.9	-5.9
23 feb 2009	09:00	MARTE	GIOVE	LUNA	3.1	1.9	4.3	4.3	21	1.2	-2.0	-5.9	-5.9
23 feb 2009	10:00	MARTE	GIOVE	LUNA	3.2	2.2	4.8	4.8	21	1.2	-2.0	-5.8	-5.8
22 feb 2009	21:00	MERCURIO	MARTE	LUNA	4.4	1.0	4.7	4.8	23	-0.1	1.2	-6.4	-6.4
22 feb 2009	22:00	MERCURIO	MARTE	LUNA	4.3	1.0	4.3	4.4	23	-0.1	1.2	-6.3	-6.3
22 feb 2009	23:00	MERCURIO	MARTE	LUNA	4.3	1.2	3.8	4.4	23	-0.1	1.2	-6.3	-6.3
23 feb 2009	00:00	MERCURIO	MARTE	LUNA	4.3	1.5	3.4	4.3	23	-0.1	1.2	-6.3	-6.3
23 feb 2009	01:00	MERCURIO	MARTE	LUNA	4.3	1.9	3.0	4.3	23	-0.1	1.2	-6.2	-6.2
23 feb 2009	02:00	MERCURIO	MARTE	LUNA	4.2	2.3	2.6	4.3	23	-0.1	1.2	-6.2	-6.2
23 feb 2009	03:00	MERCURIO	MARTE	LUNA	4.2	2.7	2.2	4.3	22	-0.1	1.2	-6.1	-6.1
23 feb 2009	04:00	MERCURIO	MARTE	LUNA	4.2	3.2	1.9	4.2	22	-0.1	1.2	-6.1	-6.1
23 feb 2009	05:00	MERCURIO	MARTE	LUNA	4.2	3.6	1.7	4.2	22	-0.1	1.2	-6.0	-6.0
23 feb 2009	06:00	MERCURIO	MARTE	LUNA	4.2	4.0	1.5	4.2	22	-0.1	1.2	-6.0	-6.0
23 feb 2009	07:00	MERCURIO	MARTE	LUNA	4.1	4.5	1.5	4.5	22	-0.1	1.2	-6.0	-6.0
23 feb 2009	08:00	MERCURIO	MARTE	LUNA	4.1	4.9	1.7	5.0	22	-0.1	1.2	-5.9	-5.9
19 apr 2009	13:00	GIOVE	NETTUNO	LUNA	3.7	2.2	5.0	5.0	66	-2.2	7.9	-9.2	-9.2
19 apr 2009	14:00	GIOVE	NETTUNO	LUNA	3.7	2.1	4.5	4.6	66	-2.2	7.9	-9.2	-9.2
19 apr 2009	15:00	GIOVE	NETTUNO	LUNA	3.7	2.1	4.1	4.2	66	-2.2	7.9	-9.2	-9.2
19 apr 2009	16:00	GIOVE	NETTUNO	LUNA	3.7	2.2	3.7	3.9	66	-2.2	7.9	-9.1	-9.1
19 apr 2009	17:00	GIOVE	NETTUNO	LUNA	3.7	2.4	3.3	3.8	66	-2.2	7.9	-9.1	-9.1
19 apr 2009	18:00	GIOVE	NETTUNO	LUNA	3.7	2.7	2.9	3.8	66	-2.2	7.9	-9.1	-9.1
19 apr 2009	19:00	GIOVE	NETTUNO	LUNA	3.7	3.0	2.6	3.8	66	-2.2	7.9	-9.1	-9.1
19 apr 2009	20:00	GIOVE	NETTUNO	LUNA	3.7	3.4	2.3	3.8	65	-2.2	7.9	-9.0	-9.0
19 apr 2009	21:00	GIOVE	NETTUNO	LUNA	3.7	3.8	2.2	4.0	65	-2.2	7.9	-9.0	-9.0
19 apr 2009	22:00	GIOVE	NETTUNO	LUNA	3.7	4.3	2.1	4.3	65	-2.2	7.9	-9.0	-9.0
19 apr 2009	23:00	GIOVE	NETTUNO	LUNA	3.7	4.7	2.2	4.8	65	-2.2	7.9	-9.0	-9.0
16 mag 2009	23:00	GIOVE	NETTUNO	LUNA	0.8	4.1	4.6	4.7	91	-2.3	7.9	-10.3	-10.3
17 mag 2009	00:00	GIOVE	NETTUNO	LUNA	0.8	3.8	4.2	4.2	91	-2.3	7.9	-10.3	-10.3
17 mag 2009	01:00	GIOVE	NETTUNO	LUNA	0.8	3.4	3.8	3.8	91	-2.3	7.9	-10.2	-10.2
17 mag 2009	02:00	GIOVE	NETTUNO	LUNA	0.8	3.2	3.4	3.5	91	-2.3	7.9	-10.2	-10.2
17 mag 2009	03:00	GIOVE	NETTUNO	LUNA	0.8	2.9	3.1	3.1	91	-2.3	7.9	-10.2	-10.2
17 mag 2009	04:00	GIOVE	NETTUNO	LUNA	0.8	2.8	2.8	2.9	91	-2.3	7.9	-10.2	-10.2
17 mag 2009	05:00	GIOVE	NETTUNO	LUNA	0.8	2.7	2.6	2.7	91	-2.3	7.9	-10.2	-10.2
17 mag 2009	06:00	GIOVE	NETTUNO	LUNA	0.8	2.7	2.4	2.8	90	-2.3	7.9	-10.2	-10.2
17 mag 2009	07:00	GIOVE	NETTUNO	LUNA	0.8	2.8	2.4	2.9	90	-2.3	7.9	-10.1	-10.1
17 mag 2009	08:00	GIOVE	NETTUNO	LUNA	0.8	3.0	2.5	3.0	90	-2.3	7.9	-10.1	-10.1
17 mag 2009	09:00	GIOVE	NETTUNO	LUNA	0.8	3.3	2.6	3.3	90	-2.3	7.9	-10.1	-10.1
17 mag 2009	10:00	GIOVE	NETTUNO	LUNA	0.8	3.6	2.9	3.6	90	-2.3	7.9	-10.1	-10.1
17 mag 2009	11:00	GIOVE	NETTUNO	LUNA	0.8	3.9	3.2	3.9	90	-2.3	7.9	-10.1	-10.1

17	mag	2009	12:00	GIOVE	NETTUNO	LUNA	0.8	4.3	3.5	4.3	90	-2.3	7.9	-10.1	-10.1
17	mag	2009	13:00	GIOVE	NETTUNO	LUNA	0.8	4.7	3.9	4.7	90	-2.3	7.9	-10.0	-10.0
13	giu	2009	08:00	GIOVE	NETTUNO	LUNA	0.7	4.7	3.9	4.7	117	-2.5	7.9	-11.1	-11.1
13	giu	2009	09:00	GIOVE	NETTUNO	LUNA	0.7	4.3	3.6	4.4	117	-2.5	7.9	-11.1	-11.1
13	giu	2009	10:00	GIOVE	NETTUNO	LUNA	0.7	4.0	3.3	4.0	117	-2.5	7.9	-11.1	-11.1
13	giu	2009	11:00	GIOVE	NETTUNO	LUNA	0.7	3.7	3.0	3.7	117	-2.5	7.9	-11.1	-11.1
13	giu	2009	12:00	GIOVE	NETTUNO	LUNA	0.7	3.5	2.8	3.5	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	13:00	GIOVE	NETTUNO	LUNA	0.7	3.3	2.6	3.3	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	14:00	GIOVE	NETTUNO	LUNA	0.7	3.2	2.6	3.2	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	15:00	GIOVE	NETTUNO	LUNA	0.7	3.1	2.7	3.2	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	16:00	GIOVE	NETTUNO	LUNA	0.7	3.1	2.8	3.2	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	17:00	GIOVE	NETTUNO	LUNA	0.7	3.3	3.0	3.3	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	18:00	GIOVE	NETTUNO	LUNA	0.7	3.4	3.3	3.5	116	-2.5	7.9	-11.0	-11.0
13	giu	2009	19:00	GIOVE	NETTUNO	LUNA	0.7	3.7	3.6	3.7	116	-2.5	7.9	-10.9	-10.9
13	giu	2009	20:00	GIOVE	NETTUNO	LUNA	0.7	4.0	4.0	4.0	115	-2.5	7.9	-10.9	-10.9
13	giu	2009	21:00	GIOVE	NETTUNO	LUNA	0.7	4.3	4.4	4.4	115	-2.5	7.9	-10.9	-10.9
13	giu	2009	22:00	GIOVE	NETTUNO	LUNA	0.7	4.7	4.8	4.8	115	-2.5	7.9	-10.9	-10.9
10	lug	2009	12:00	GIOVE	NETTUNO	LUNA	0.5	4.8	4.5	4.9	144	-2.7	7.8	-11.8	-11.8
10	lug	2009	13:00	GIOVE	NETTUNO	LUNA	0.5	4.4	4.1	4.5	144	-2.7	7.8	-11.8	-11.8
10	lug	2009	14:00	GIOVE	NETTUNO	LUNA	0.5	4.1	3.7	4.2	143	-2.7	7.8	-11.8	-11.8
10	lug	2009	15:00	GIOVE	NETTUNO	LUNA	0.5	3.8	3.4	3.9	143	-2.7	7.8	-11.8	-11.8
10	lug	2009	16:00	GIOVE	NETTUNO	LUNA	0.5	3.6	3.1	3.6	143	-2.7	7.8	-11.8	-11.8
10	lug	2009	17:00	GIOVE	NETTUNO	LUNA	0.5	3.4	2.9	3.4	143	-2.7	7.8	-11.8	-11.8
10	lug	2009	18:00	GIOVE	NETTUNO	LUNA	0.5	3.3	2.7	3.3	143	-2.7	7.8	-11.8	-11.8
10	lug	2009	19:00	GIOVE	NETTUNO	LUNA	0.5	3.2	2.7	3.3	143	-2.7	7.8	-11.8	-11.8
10	lug	2009	20:00	GIOVE	NETTUNO	LUNA	0.5	3.3	2.7	3.3	143	-2.7	7.8	-11.7	-11.7
10	lug	2009	21:00	GIOVE	NETTUNO	LUNA	0.5	3.4	2.8	3.4	142	-2.7	7.8	-11.7	-11.7
10	lug	2009	22:00	GIOVE	NETTUNO	LUNA	0.5	3.5	3.0	3.6	142	-2.7	7.8	-11.7	-11.7
10	lug	2009	23:00	GIOVE	NETTUNO	LUNA	0.5	3.8	3.2	3.8	142	-2.7	7.8	-11.7	-11.7
11	lug	2009	00:00	GIOVE	NETTUNO	LUNA	0.5	4.0	3.5	4.1	142	-2.7	7.8	-11.7	-11.7
11	lug	2009	01:00	GIOVE	NETTUNO	LUNA	0.5	4.3	3.9	4.4	142	-2.7	7.8	-11.7	-11.7
11	lug	2009	02:00	GIOVE	NETTUNO	LUNA	0.5	4.7	4.3	4.7	142	-2.7	7.8	-11.7	-11.7
06	ago	2009	16:00	GIOVE	NETTUNO	LUNA	2.3	3.5	4.7	4.8	171	-2.8	7.8	-12.5	-12.5
06	ago	2009	17:00	GIOVE	NETTUNO	LUNA	2.3	3.3	4.3	4.4	171	-2.8	7.8	-12.5	-12.5
06	ago	2009	18:00	GIOVE	NETTUNO	LUNA	2.3	3.1	3.9	4.0	171	-2.8	7.8	-12.5	-12.5
06	ago	2009	19:00	GIOVE	NETTUNO	LUNA	2.3	3.1	3.6	3.7	171	-2.8	7.8	-12.5	-12.5
06	ago	2009	20:00	GIOVE	NETTUNO	LUNA	2.3	3.1	3.2	3.5	170	-2.8	7.8	-12.5	-12.5
06	ago	2009	21:00	GIOVE	NETTUNO	LUNA	2.3	3.2	3.0	3.4	170	-2.8	7.8	-12.5	-12.5
06	ago	2009	22:00	GIOVE	NETTUNO	LUNA	2.3	3.4	2.8	3.4	170	-2.8	7.8	-12.5	-12.5
06	ago	2009	23:00	GIOVE	NETTUNO	LUNA	2.3	3.6	2.6	3.6	170	-2.8	7.8	-12.5	-12.5
07	ago	2009	00:00	GIOVE	NETTUNO	LUNA	2.3	3.9	2.6	3.9	170	-2.8	7.8	-12.4	-12.4
07	ago	2009	01:00	GIOVE	NETTUNO	LUNA	2.3	4.2	2.7	4.3	170	-2.8	7.8	-12.4	-12.4
07	ago	2009	02:00	GIOVE	NETTUNO	LUNA	2.3	4.6	2.8	4.6	170	-2.8	7.8	-12.4	-12.4
07	ago	2009	03:00	GIOVE	NETTUNO	LUNA	2.4	5.0	3.0	5.0	170	-2.8	7.8	-12.4	-12.4
02	set	2009	23:00	GIOVE	NETTUNO	LUNA	5.0	3.5	3.9	5.0	161	-2.8	7.8	-12.2	-12.2
03	set	2009	00:00	GIOVE	NETTUNO	LUNA	5.0	3.8	3.5	5.0	161	-2.8	7.8	-12.2	-12.2
23	nov	2009	20:00	GIOVE	NETTUNO	LUNA	3.9	3.3	4.6	4.8	80	-2.3	7.9	-9.7	-9.7
23	nov	2009	21:00	GIOVE	NETTUNO	LUNA	3.8	3.4	4.3	4.6	80	-2.3	7.9	-9.7	-9.7
23	nov	2009	22:00	GIOVE	NETTUNO	LUNA	3.8	3.6	4.0	4.4	80	-2.3	7.9	-9.7	-9.7
23	nov	2009	23:00	GIOVE	NETTUNO	LUNA	3.8	3.8	3.7	4.4	80	-2.3	7.9	-9.7	-9.7
24	nov	2009	00:00	GIOVE	NETTUNO	LUNA	3.8	4.1	3.4	4.4	80	-2.3	7.9	-9.7	-9.7
24	nov	2009	01:00	GIOVE	NETTUNO	LUNA	3.8	4.4	3.2	4.5	80	-2.3	7.9	-9.8	-9.8
24	nov	2009	02:00	GIOVE	NETTUNO	LUNA	3.8	4.7	3.1	4.8	80	-2.3	7.9	-9.8	-9.8
21	dic	2009	05:00	GIOVE	NETTUNO	LUNA	0.5	4.9	4.6	5.0	54	-2.1	7.9	-8.3	-8.3
21	dic	2009	06:00	GIOVE	NETTUNO	LUNA	0.5	4.6	4.2	4.7	54	-2.1	7.9	-8.3	-8.3
21	dic	2009	07:00	GIOVE	NETTUNO	LUNA	0.5	4.4	3.9	4.4	54	-2.1	7.9	-8.3	-8.3
21	dic	2009	08:00	GIOVE	NETTUNO	LUNA	0.5	4.1	3.7	4.2	54	-2.1	7.9	-8.4	-8.4
21	dic	2009	09:00	GIOVE	NETTUNO	LUNA	0.5	4.0	3.5	4.0	54	-2.1	7.9	-8.4	-8.4
21	dic	2009	10:00	GIOVE	NETTUNO	LUNA	0.5	3.8	3.3	3.9	54	-2.1	7.9	-8.4	-8.4
21	dic	2009	11:00	GIOVE	NETTUNO	LUNA	0.5	3.8	3.3	3.8	54	-2.1	7.9	-8.4	-8.4
21	dic	2009	12:00	GIOVE	NETTUNO	LUNA	0.5	3.8	3.3	3.8	55	-2.1	7.9	-8.5	-8.5
21	dic	2009	13:00	GIOVE	NETTUNO	LUNA	0.5	3.8	3.3	3.9	55	-2.1	7.9	-8.5	-8.5
21	dic	2009	14:00	GIOVE	NETTUNO	LUNA	0.5	4.0	3.5	4.0	55	-2.1	7.9	-8.5	-8.5
21	dic	2009	15:00	GIOVE	NETTUNO	LUNA	0.5	4.1	3.7	4.2	55	-2.1	7.9	-8.6	-8.6
21	dic	2009	16:00	GIOVE	NETTUNO	LUNA	0.5	4.3	3.9	4.4	55	-2.1	7.9	-8.6	-8.6
21	dic	2009	17:00	GIOVE	NETTUNO	LUNA	0.5	4.6	4.2	4.6	55	-2.1	7.9	-8.6	-8.6
21	dic	2009	18:00	GIOVE	NETTUNO	LUNA	0.5	4.9	4.5	4.9	55	-2.1	7.9	-8.6	-8.6

Dxy = distanza tra il corpo x e quello y, in gradi
CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
EL = elongazione dal Sole, in gradi
MAGx = magnitudine del corpo x
MAGT = magnitudine totale del gruppo

Ore in T.U.

CONGIUNZIONI MULTIPLE MISTE

CERCHI MINIMI TOPOCENTRICI PIANETI-LUNA

(eventi con 2 pianeti e la Luna entro 5°)
42°N - 12°E

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT	ALT	AZ
22 feb 2009	17:00	MERCURIO	GIOVE	LUNA	1.7	2.8	4.5	4.5	25	-0.1	-2.0	-6.5	-6.5	-25	266
22 feb 2009	18:00	MERCURIO	GIOVE	LUNA	1.7	2.3	3.9	3.9	25	-0.1	-2.0	-6.5	-6.5	-36	277
22 feb 2009	19:00	MERCURIO	GIOVE	LUNA	1.6	1.7	3.3	3.3	24	-0.1	-2.0	-6.5	-6.5	-47	289
22 feb 2009	20:00	MERCURIO	GIOVE	LUNA	1.6	1.2	2.6	2.7	24	-0.1	-2.0	-6.4	-6.4	-57	306
22 feb 2009	21:00	MERCURIO	GIOVE	LUNA	1.6	0.8	2.0	2.0	24	-0.1	-2.0	-6.4	-6.4	-64	331
22 feb 2009	22:00	MERCURIO	GIOVE	LUNA	1.5	0.6	1.3	1.6	24	-0.1	-2.0	-6.3	-6.3	-66	5
22 feb 2009	23:00	MERCURIO	GIOVE	LUNA	1.5	0.9	0.7	1.5	24	-0.1	-2.0	-6.3	-6.3	-62	37
23 feb 2009	00:00	MERCURIO	GIOVE	LUNA	1.4	1.4	0.1	1.5	24	-0.1	-2.0	-6.3	-6.3	-54	59
23 feb 2009	01:00	MERCURIO	GIOVE	LUNA	1.4	1.9	0.5	2.0	24	-0.1	-2.0	-6.2	-6.2	-44	74
23 feb 2009	02:00	MERCURIO	GIOVE	LUNA	1.4	2.5	1.1	2.5	23	-0.1	-2.0	-6.2	-6.2	-33	86
23 feb 2009	03:00	MERCURIO	GIOVE	LUNA	1.3	2.9	1.6	3.0	23	-0.1	-2.0	-6.1	-6.1	-22	96
23 feb 2009	04:00	MERCURIO	GIOVE	LUNA	1.3	3.4	2.1	3.4	23	-0.1	-2.0	-6.1	-6.1	-11	105
23 feb 2009	05:00	MERCURIO	GIOVE	LUNA	1.2	3.8	2.6	3.9	23	-0.1	-2.0	-6.0	-6.0	0	115
23 feb 2009	06:00	MERCURIO	GIOVE	LUNA	1.2	4.2	3.0	4.2	23	-0.1	-2.0	-6.0	-6.0	9	125
23 feb 2009	07:00	MERCURIO	GIOVE	LUNA	1.2	4.5	3.4	4.6	23	-0.1	-2.0	-6.0	-6.0	18	137
23 feb 2009	08:00	MERCURIO	GIOVE	LUNA	1.1	4.9	3.8	4.9	23	-0.1	-2.0	-5.9	-5.9	24	151
22 feb 2009	21:00	MERCURIO	MARTE	LUNA	4.4	0.8	4.9	4.9	23	-0.1	1.2	-6.4	-6.4	-63	331
22 feb 2009	22:00	MERCURIO	MARTE	LUNA	4.3	0.6	4.3	4.4	23	-0.1	1.2	-6.3	-6.3	-66	5
22 feb 2009	23:00	MERCURIO	MARTE	LUNA	4.3	0.9	3.7	4.4	23	-0.1	1.2	-6.3	-6.3	-63	37
23 feb 2009	00:00	MERCURIO	MARTE	LUNA	4.3	1.4	3.0	4.3	23	-0.1	1.2	-6.3	-6.3	-55	59
23 feb 2009	01:00	MERCURIO	MARTE	LUNA	4.3	1.9	2.5	4.3	23	-0.1	1.2	-6.2	-6.2	-45	74
23 feb 2009	02:00	MERCURIO	MARTE	LUNA	4.2	2.5	1.9	4.3	23	-0.1	1.2	-6.2	-6.2	-34	86
23 feb 2009	03:00	MERCURIO	MARTE	LUNA	4.2	2.9	1.4	4.3	22	-0.1	1.2	-6.1	-6.1	-23	96
23 feb 2009	04:00	MERCURIO	MARTE	LUNA	4.2	3.4	1.0	4.2	22	-0.1	1.2	-6.1	-6.1	-12	105
23 feb 2009	05:00	MERCURIO	MARTE	LUNA	4.2	3.8	0.7	4.2	22	-0.1	1.2	-6.0	-6.0	-1	115
23 feb 2009	06:00	MERCURIO	MARTE	LUNA	4.2	4.2	0.6	4.2	22	-0.1	1.2	-6.0	-6.0	8	125
23 feb 2009	07:00	MERCURIO	MARTE	LUNA	4.1	4.5	0.8	4.6	22	-0.1	1.2	-6.0	-6.0	17	137
23 feb 2009	08:00	MERCURIO	MARTE	LUNA	4.1	4.9	1.0	4.9	22	-0.1	1.2	-5.9	-5.9	24	151
22 feb 2009	21:00	MARTE	GIOVE	LUNA	2.9	4.9	2.0	4.9	23	1.2	-2.0	-6.4	-6.4	-63	324
22 feb 2009	22:00	MARTE	GIOVE	LUNA	2.9	4.3	1.3	4.3	23	1.2	-2.0	-6.3	-6.3	-66	355
22 feb 2009	23:00	MARTE	GIOVE	LUNA	2.9	3.7	0.7	3.7	22	1.2	-2.0	-6.3	-6.3	-62	28
23 feb 2009	00:00	MARTE	GIOVE	LUNA	2.9	3.0	0.1	3.1	22	1.2	-2.0	-6.3	-6.3	-55	52
23 feb 2009	01:00	MARTE	GIOVE	LUNA	3.0	2.5	0.5	3.0	22	1.2	-2.0	-6.2	-6.2	-45	69
23 feb 2009	02:00	MARTE	GIOVE	LUNA	3.0	1.9	1.1	3.0	22	1.2	-2.0	-6.2	-6.2	-34	81
23 feb 2009	03:00	MARTE	GIOVE	LUNA	3.0	1.4	1.6	3.1	22	1.2	-2.0	-6.1	-6.1	-23	92
23 feb 2009	04:00	MARTE	GIOVE	LUNA	3.0	1.0	2.1	3.1	22	1.2	-2.0	-6.1	-6.1	-12	101
23 feb 2009	05:00	MARTE	GIOVE	LUNA	3.0	0.7	2.6	3.1	22	1.2	-2.0	-6.0	-6.0	-1	111
23 feb 2009	06:00	MARTE	GIOVE	LUNA	3.1	0.6	3.0	3.1	21	1.2	-2.0	-6.0	-6.0	8	121
23 feb 2009	07:00	MARTE	GIOVE	LUNA	3.1	0.8	3.4	3.5	21	1.2	-2.0	-6.0	-6.0	17	133
23 feb 2009	08:00	MARTE	GIOVE	LUNA	3.1	1.0	3.8	3.8	21	1.2	-2.0	-5.9	-5.9	24	146
23 feb 2009	09:00	MARTE	GIOVE	LUNA	3.1	1.3	4.1	4.2	21	1.2	-2.0	-5.9	-5.9	29	161
23 feb 2009	10:00	MARTE	GIOVE	LUNA	3.2	1.6	4.4	4.5	21	1.2	-2.0	-5.8	-5.8	31	177
23 feb 2009	11:00	MARTE	GIOVE	LUNA	3.2	1.9	4.8	4.8	21	1.2	-2.0	-5.8	-5.8	30	194
19 apr 2009	15:00	GIOVE	NETTUNO	LUNA	3.7	1.9	4.6	4.7	66	-2.2	7.9	-9.2	-9.2	-31	279
19 apr 2009	16:00	GIOVE	NETTUNO	LUNA	3.7	1.8	4.1	4.1	66	-2.2	7.9	-9.1	-9.1	-41	291
19 apr 2009	17:00	GIOVE	NETTUNO	LUNA	3.7	1.9	3.5	3.8	66	-2.2	7.9	-9.1	-9.1	-51	307
19 apr 2009	18:00	GIOVE	NETTUNO	LUNA	3.7	2.2	2.9	3.7	66	-2.2	7.9	-9.1	-9.1	-58	330
19 apr 2009	19:00	GIOVE	NETTUNO	LUNA	3.7	2.6	2.4	3.7	66	-2.2	7.9	-9.1	-9.1	-61	0
19 apr 2009	20:00	GIOVE	NETTUNO	LUNA	3.7	3.1	1.9	3.7	65	-2.2	7.9	-9.0	-9.0	-59	30
19 apr 2009	21:00	GIOVE	NETTUNO	LUNA	3.7	3.6	1.6	3.8	65	-2.2	7.9	-9.0	-9.0	-52	52
19 apr 2009	22:00	GIOVE	NETTUNO	LUNA	3.7	4.2	1.5	4.2	65	-2.2	7.9	-9.0	-9.0	-43	68
19 apr 2009	23:00	GIOVE	NETTUNO	LUNA	3.7	4.7	1.6	4.8	65	-2.2	7.9	-9.0	-9.0	-32	80
22 apr 2009	14:00	VENERE	MARTE	LUNA	4.2	0.8	5.0	5.0	33	-4.5	1.2	-7.0	-7.1	13	261
22 apr 2009	15:00	VENERE	MARTE	LUNA	4.2	0.7	5.0	5.0	33	-4.5	1.2	-7.0	-7.1	2	271
22 apr 2009	16:00	VENERE	MARTE	LUNA	4.2	0.8	4.9	5.0	33	-4.5	1.2	-7.0	-7.1	-9	281
22 apr 2009	17:00	VENERE	MARTE	LUNA	4.2	1.3	5.0	5.0	32	-4.5	1.2	-6.9	-7.0	-19	292
16 mag 2009	21:00	GIOVE	NETTUNO	LUNA	0.8	4.3	4.9	5.0	92	-2.3	7.9	-10.3	-10.3	-35	74
16 mag 2009	22:00	GIOVE	NETTUNO	LUNA	0.8	3.8	4.4	4.4	92	-2.3	7.9	-10.3	-10.3	-24	86
16 mag 2009	23:00	GIOVE	NETTUNO	LUNA	0.8	3.3	3.9	3.9	91	-2.3	7.9	-10.3	-10.3	-13	96
17 mag 2009	00:00	GIOVE	NETTUNO	LUNA	0.8	2.9	3.4	3.5	91	-2.3	7.9	-10.3	-10.3	-2	105
17 mag 2009	01:00	GIOVE	NETTUNO	LUNA	0.8	2.6	3.1	3.1	91	-2.3	7.9	-10.2	-10.2	8	116
17 mag 2009	02:00	GIOVE	NETTUNO	LUNA	0.8	2.4	2.7	2.8	91	-2.3	7.9	-10.2	-10.2	18	127
17 mag 2009	03:00	GIOVE	NETTUNO	LUNA	0.8	2.2	2.4	2.5	91	-2.3	7.9	-10.2	-10.2	26	140
17 mag 2009	04:00	GIOVE	NETTUNO	LUNA	0.8	2.1	2.2	2.3	91	-2.3	7.9	-10.2	-10.2	32	155
17 mag 2009	05:00	GIOVE	NETTUNO	LUNA	0.8	2.0	2.1	2.1	91	-2.3	7.9	-10.2	-10.2	35	172
17 mag 2009	06:00	GIOVE	NETTUNO	LUNA	0.8	2.1	2.0	2.1	90	-2.3	7.9	-10.2	-10.2	35	190
17 mag 2009	07:00	GIOVE	NETTUNO	LUNA	0.8	2.2	1.9	2.2	90	-2.3	7.9	-10.1	-10.1	31	207
17 mag 2009	08:00	GIOVE	NETTUNO	LUNA	0.8	2.3	1.9	2.4	90	-2.3	7.9	-10.1	-10.1	25	221
17 mag 2009	09:00	GIOVE	NETTUNO	LUNA	0.8	2.5	2.0	2.6	90	-2.3	7.9	-10.1	-10.1	16	234
17 mag 2009	10:00	GIOVE	NETTUNO	LUNA	0.8	2.8	2.2	2.8	90	-2.3	7.9	-10.1	-10.1	7	245
17 mag 2009	11:00	GIOVE	NETTUNO	LUNA	0.8	3.1	2.4	3.2	90	-2.3	7.9	-10.1	-10.1	-4	255
17 mag 2009	12:00	GIOVE	NETTUNO	LUNA	0.7	3.5	2.8	3.5	90	-2.3	7.9	-10.1	-10.1	-14	265
17 mag 2009	13:00	GIOVE	NETTUNO	LUNA	0.7	3.9	3.1	3.9	90	-2.3	7.9	-10.0	-10.0	-25	275
17 mag 2009	14:00	GIOVE	NETTUNO	LUNA	0.7	4.4	3.6	4.4	89	-2.3	7.9	-10.0	-10.0	-36	287
17 mag 2009	15:00	GIOVE	NETTUNO	LUNA	0.7	4.9	4.1	4.9	89	-2.3	7.9	-10.0	-10.0	-46	301

13 giu 2009 09:00	GIOVE	NETTUNO	LUNA	0.7	4.8	4.0	4.8	117	-2.5	7.9	-11.1	-11.1	-2	253
13 giu 2009 10:00	GIOVE	NETTUNO	LUNA	0.7	4.4	3.6	4.4	117	-2.5	7.9	-11.1	-11.1	-13	262
13 giu 2009 11:00	GIOVE	NETTUNO	LUNA	0.7	4.0	3.2	4.0	117	-2.5	7.9	-11.1	-11.1	-24	272
13 giu 2009 12:00	GIOVE	NETTUNO	LUNA	0.7	3.6	2.9	3.7	116	-2.5	7.9	-11.0	-11.0	-35	283
13 giu 2009 13:00	GIOVE	NETTUNO	LUNA	0.7	3.2	2.5	3.3	116	-2.5	7.9	-11.0	-11.0	-45	297
13 giu 2009 14:00	GIOVE	NETTUNO	LUNA	0.7	2.9	2.3	3.0	116	-2.5	7.9	-11.0	-11.0	-54	314
13 giu 2009 15:00	GIOVE	NETTUNO	LUNA	0.7	2.7	2.2	2.8	116	-2.5	7.9	-11.0	-11.0	-59	339
13 giu 2009 16:00	GIOVE	NETTUNO	LUNA	0.7	2.7	2.3	2.7	116	-2.5	7.9	-11.0	-11.0	-60	9
13 giu 2009 17:00	GIOVE	NETTUNO	LUNA	0.7	2.8	2.6	2.8	116	-2.5	7.9	-11.0	-11.0	-56	36
13 giu 2009 18:00	GIOVE	NETTUNO	LUNA	0.7	3.0	2.9	3.0	116	-2.5	7.9	-11.0	-11.0	-48	56
13 giu 2009 19:00	GIOVE	NETTUNO	LUNA	0.7	3.3	3.4	3.4	116	-2.5	7.9	-10.9	-10.9	-38	71
13 giu 2009 20:00	GIOVE	NETTUNO	LUNA	0.7	3.6	3.8	3.9	115	-2.5	7.9	-10.9	-10.9	-27	83
13 giu 2009 21:00	GIOVE	NETTUNO	LUNA	0.7	4.0	4.3	4.3	115	-2.5	7.9	-10.9	-10.9	-16	93
13 giu 2009 22:00	GIOVE	NETTUNO	LUNA	0.7	4.4	4.7	4.8	115	-2.5	7.9	-10.9	-10.9	-5	103
10 lug 2009 12:00	GIOVE	NETTUNO	LUNA	0.5	4.9	4.7	5.0	144	-2.7	7.8	-11.8	-11.8	-53	310
10 lug 2009 13:00	GIOVE	NETTUNO	LUNA	0.5	4.4	4.1	4.4	144	-2.7	7.8	-11.8	-11.8	-59	334
10 lug 2009 14:00	GIOVE	NETTUNO	LUNA	0.5	3.9	3.5	3.9	143	-2.7	7.8	-11.8	-11.8	-61	4
10 lug 2009 15:00	GIOVE	NETTUNO	LUNA	0.5	3.4	3.0	3.4	143	-2.7	7.8	-11.8	-11.8	-57	32
10 lug 2009 16:00	GIOVE	NETTUNO	LUNA	0.5	3.0	2.5	3.0	143	-2.7	7.8	-11.8	-11.8	-49	54
10 lug 2009 17:00	GIOVE	NETTUNO	LUNA	0.5	2.7	2.2	2.7	143	-2.7	7.8	-11.8	-11.8	-39	69
10 lug 2009 18:00	GIOVE	NETTUNO	LUNA	0.5	2.5	2.0	2.5	143	-2.7	7.8	-11.8	-11.8	-29	81
10 lug 2009 19:00	GIOVE	NETTUNO	LUNA	0.5	2.5	1.9	2.5	143	-2.7	7.8	-11.8	-11.8	-18	92
10 lug 2009 20:00	GIOVE	NETTUNO	LUNA	0.5	2.5	2.0	2.6	143	-2.7	7.8	-11.7	-11.7	-7	101
10 lug 2009 21:00	GIOVE	NETTUNO	LUNA	0.5	2.7	2.2	2.7	142	-2.7	7.8	-11.7	-11.7	4	111
10 lug 2009 22:00	GIOVE	NETTUNO	LUNA	0.5	2.9	2.4	3.0	142	-2.7	7.8	-11.7	-11.7	14	122
10 lug 2009 23:00	GIOVE	NETTUNO	LUNA	0.5	3.2	2.7	3.2	142	-2.7	7.8	-11.7	-11.7	23	134
11 lug 2009 00:00	GIOVE	NETTUNO	LUNA	0.5	3.4	3.0	3.5	142	-2.7	7.8	-11.7	-11.7	30	149
11 lug 2009 01:00	GIOVE	NETTUNO	LUNA	0.5	3.7	3.3	3.8	142	-2.7	7.8	-11.7	-11.7	34	165
11 lug 2009 02:00	GIOVE	NETTUNO	LUNA	0.5	4.0	3.6	4.1	142	-2.7	7.8	-11.7	-11.7	36	183
11 lug 2009 03:00	GIOVE	NETTUNO	LUNA	0.5	4.4	4.0	4.4	142	-2.7	7.8	-11.7	-11.7	34	200
11 lug 2009 04:00	GIOVE	NETTUNO	LUNA	0.5	4.7	4.3	4.7	142	-2.7	7.8	-11.6	-11.6	28	215
06 ago 2009 15:00	GIOVE	NETTUNO	LUNA	2.3	3.0	4.6	4.6	171	-2.8	7.8	-12.6	-12.6	-41	69
06 ago 2009 16:00	GIOVE	NETTUNO	LUNA	2.3	2.7	4.0	4.1	171	-2.8	7.8	-12.5	-12.5	-30	82
06 ago 2009 17:00	GIOVE	NETTUNO	LUNA	2.3	2.4	3.5	3.6	171	-2.8	7.8	-12.5	-12.5	-19	92
06 ago 2009 18:00	GIOVE	NETTUNO	LUNA	2.3	2.3	3.1	3.2	171	-2.8	7.8	-12.5	-12.5	-8	102
06 ago 2009 19:00	GIOVE	NETTUNO	LUNA	2.3	2.2	2.7	2.9	171	-2.8	7.8	-12.5	-12.5	3	112
06 ago 2009 20:00	GIOVE	NETTUNO	LUNA	2.3	2.3	2.4	2.8	170	-2.8	7.8	-12.5	-12.5	13	122
06 ago 2009 21:00	GIOVE	NETTUNO	LUNA	2.3	2.5	2.2	2.7	170	-2.8	7.8	-12.5	-12.5	21	134
06 ago 2009 22:00	GIOVE	NETTUNO	LUNA	2.3	2.7	2.0	2.8	170	-2.8	7.8	-12.5	-12.5	28	148
06 ago 2009 23:00	GIOVE	NETTUNO	LUNA	2.3	2.9	2.0	3.0	170	-2.8	7.8	-12.5	-12.5	33	164
07 ago 2009 00:00	GIOVE	NETTUNO	LUNA	2.3	3.2	2.0	3.2	170	-2.8	7.8	-12.4	-12.4	35	182
07 ago 2009 01:00	GIOVE	NETTUNO	LUNA	2.3	3.5	2.0	3.5	170	-2.8	7.8	-12.4	-12.4	33	199
07 ago 2009 02:00	GIOVE	NETTUNO	LUNA	2.3	3.8	2.1	3.8	170	-2.8	7.8	-12.4	-12.4	28	214
07 ago 2009 03:00	GIOVE	NETTUNO	LUNA	2.3	4.1	2.3	4.2	170	-2.8	7.8	-12.4	-12.4	21	228
07 ago 2009 04:00	GIOVE	NETTUNO	LUNA	2.4	4.5	2.6	4.5	170	-2.8	7.8	-12.4	-12.4	12	239
07 ago 2009 05:00	GIOVE	NETTUNO	LUNA	2.4	4.9	2.9	5.0	169	-2.8	7.8	-12.4	-12.4	2	250
02 set 2009 21:00	GIOVE	NETTUNO	LUNA	5.0	2.2	4.5	5.0	161	-2.8	7.8	-12.2	-12.2	32	165
02 set 2009 22:00	GIOVE	NETTUNO	LUNA	5.0	2.5	4.2	5.0	161	-2.8	7.8	-12.2	-12.2	34	181
02 set 2009 23:00	GIOVE	NETTUNO	LUNA	5.0	2.7	3.9	5.0	161	-2.8	7.8	-12.2	-12.2	32	198
03 set 2009 00:00	GIOVE	NETTUNO	LUNA	5.0	3.0	3.7	5.0	161	-2.8	7.8	-12.2	-12.2	27	214
03 set 2009 01:00	GIOVE	NETTUNO	LUNA	5.0	3.3	3.4	5.0	162	-2.8	7.8	-12.3	-12.3	20	227
03 set 2009 02:00	GIOVE	NETTUNO	LUNA	5.0	3.7	3.1	5.0	162	-2.8	7.8	-12.3	-12.3	12	239
03 set 2009 03:00	GIOVE	NETTUNO	LUNA	5.0	4.1	2.9	5.0	162	-2.8	7.8	-12.3	-12.3	2	249
23 nov 2009 20:00	GIOVE	NETTUNO	LUNA	3.9	2.9	5.0	5.0	80	-2.3	7.9	-9.7	-9.7	16	231
23 nov 2009 21:00	GIOVE	NETTUNO	LUNA	3.8	3.0	4.7	4.7	80	-2.3	7.9	-9.7	-9.7	7	243
23 nov 2009 22:00	GIOVE	NETTUNO	LUNA	3.8	3.1	4.3	4.5	80	-2.3	7.9	-9.7	-9.7	-3	253
23 nov 2009 23:00	GIOVE	NETTUNO	LUNA	3.8	3.2	4.0	4.3	80	-2.3	7.9	-9.7	-9.7	-14	262
24 nov 2009 00:00	GIOVE	NETTUNO	LUNA	3.8	3.4	3.6	4.3	80	-2.3	7.9	-9.7	-9.7	-25	272
24 nov 2009 01:00	GIOVE	NETTUNO	LUNA	3.8	3.7	3.3	4.3	80	-2.3	7.9	-9.8	-9.8	-36	283
24 nov 2009 02:00	GIOVE	NETTUNO	LUNA	3.8	4.1	3.0	4.3	80	-2.3	7.9	-9.8	-9.8	-46	297
24 nov 2009 03:00	GIOVE	NETTUNO	LUNA	3.8	4.5	2.8	4.6	80	-2.3	7.9	-9.8	-9.8	-55	316
24 nov 2009 04:00	GIOVE	NETTUNO	LUNA	3.8	5.0	2.7	5.0	81	-2.3	7.9	-9.8	-9.8	-61	344
21 dic 2009 04:00	GIOVE	NETTUNO	LUNA	0.5	4.9	4.6	4.9	54	-2.1	7.9	-8.3	-8.3	-58	29
21 dic 2009 05:00	GIOVE	NETTUNO	LUNA	0.5	4.4	4.0	4.4	54	-2.1	7.9	-8.3	-8.3	-51	52
21 dic 2009 06:00	GIOVE	NETTUNO	LUNA	0.5	3.9	3.6	4.0	54	-2.1	7.9	-8.3	-8.3	-41	68
21 dic 2009 07:00	GIOVE	NETTUNO	LUNA	0.5	3.6	3.2	3.6	54	-2.1	7.9	-8.3	-8.3	-30	80
21 dic 2009 08:00	GIOVE	NETTUNO	LUNA	0.5	3.3	2.8	3.3	54	-2.1	7.9	-8.4	-8.4	-19	91
21 dic 2009 09:00	GIOVE	NETTUNO	LUNA	0.5	3.1	2.6	3.1	54	-2.1	7.9	-8.4	-8.4	-8	100
21 dic 2009 10:00	GIOVE	NETTUNO	LUNA	0.5	3.0	2.5	3.0	54	-2.1	7.9	-8.4	-8.4	3	110
21 dic 2009 11:00	GIOVE	NETTUNO	LUNA	0.5	2.9	2.4	3.0	54	-2.1	7.9	-8.4	-8.4	13	121
21 dic 2009 12:00	GIOVE	NETTUNO	LUNA	0.5	3.0	2.5	3.0	55	-2.1	7.9	-8.5	-8.5	21	133
21 dic 2009 13:00	GIOVE	NETTUNO	LUNA	0.5	3.1	2.6	3.1	55	-2.1	7.9	-8.5	-8.5	29	147
21 dic 2009 14:00	GIOVE	NETTUNO	LUNA	0.5	3.2	2.7	3.3	55	-2.1	7.9	-8.5	-8.5	33	163
21 dic 2009 15:00	GIOVE	NETTUNO	LUNA	0.5	3.4	2.9	3.5	55	-2.1	7.9	-8.6	-8.6	35	180
21 dic 2009 16:00	GIOVE	NETTUNO	LUNA	0.5	3.6	3.2	3.7	55	-2.1	7.9	-8.6	-8.6	33	197
21 dic 2009 17:00	GIOVE	NETTUNO	LUNA	0.5	3.9	3.4	3.9	55	-2.1	7.9	-8.6	-8.6	29	213
21 dic 2009 18:00	GIOVE	NETTUNO	LUNA	0.5	4.1	3.7	4.2	55	-2.1	7.9	-8.6	-8.6	21	227
21 dic 2009 19:00	GIOVE	NETTUNO	LUNA	0.5	4.4	4.0	4.5	55	-2.1	7.9	-8.7	-8.7	12	239
21 dic 2009 20:00	GIOVE	NETTUNO	LUNA	0.5	4.7	4.4	4.8	56	-2.1	7.9	-8.7	-8.7	3	249

Dxy = distanza tra il corpo x e quello y, in gradi

CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi

EL = elongazione dal Sole, in gradi

MAGx = magnitudine del corpo x

MAGT = magnitudine totale del gruppo

ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi

AZ = azimuth del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

CONGIUNZIONI MULTIPLE MISTE QUARTETTI GEOCENTRICI PIANETI-LUNA (eventi con 3 pianeti e la Luna entro 5°)

DATA	ORA	CORPI				D12	D13	D14	D23	D24	D34	DQM	MAX	EL.	MAG1	MAG2	MAG3	MAG4	MAGT
22 feb 2009	21:00	MERCURIO	MARTE	GIOVE	LUNA	4.4	1.6	1.0	2.9	4.7	1.8	3.1	4.7	23	-0.1	1.2	-2.0	-6.4	-6.4
22 feb 2009	22:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.5	1.0	2.9	4.3	1.4	2.9	4.3	23	-0.1	1.2	-2.0	-6.3	-6.3
22 feb 2009	23:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.5	1.2	2.9	3.8	1.0	2.8	4.3	23	-0.1	1.2	-2.0	-6.3	-6.3
23 feb 2009	00:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.4	1.5	2.9	3.4	0.7	2.7	4.3	23	-0.1	1.2	-2.0	-6.3	-6.3
23 feb 2009	01:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.4	1.9	3.0	3.0	0.7	2.6	4.3	23	-0.1	1.2	-2.0	-6.2	-6.2
23 feb 2009	02:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.4	2.3	3.0	2.6	1.0	2.6	4.2	23	-0.1	1.2	-2.0	-6.2	-6.2
23 feb 2009	03:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.3	2.7	3.0	2.2	1.4	2.7	4.2	23	-0.1	1.2	-2.0	-6.1	-6.1
23 feb 2009	04:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.3	3.2	3.0	1.9	1.8	2.7	4.2	23	-0.1	1.2	-2.0	-6.1	-6.1
23 feb 2009	05:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.2	3.6	3.1	1.7	2.3	2.9	4.2	23	-0.1	1.2	-2.0	-6.0	-6.0
23 feb 2009	06:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.2	4.0	3.1	1.5	2.8	3.0	4.2	23	-0.1	1.2	-2.0	-6.0	-6.0
23 feb 2009	07:00	MERCURIO	MARTE	GIOVE	LUNA	4.1	1.2	4.5	3.1	1.5	3.3	3.2	4.5	23	-0.1	1.2	-2.0	-6.0	-6.0
23 feb 2009	08:00	MERCURIO	MARTE	GIOVE	LUNA	4.1	1.1	4.9	3.1	1.7	3.8	3.4	4.9	23	-0.1	1.2	-2.0	-5.9	-5.9

CONGIUNZIONI MULTIPLE MISTE QUARTETTI TOPOCENTRICI PIANETI-LUNA (eventi con 3 pianeti e la Luna entro 5°) 42°N - 12°E

DATA	ORA	CORPI				D12	D13	D14	D23	D24	D34	DQM	MAX	EL.	MAG1	MAG2	MAG3	MAG4	MAGT	ALT	AZ
22 feb 2009	21:00	MERCURIO	MARTE	GIOVE	LUNA	4.4	1.6	0.8	2.9	4.9	2.0	3.1	4.9	23	-0.1	1.2	-2.0	-6.4	-6.4	-63	331
22 feb 2009	22:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.5	0.6	2.9	4.3	1.3	2.9	4.3	23	-0.1	1.2	-2.0	-6.3	-6.3	-66	5
22 feb 2009	23:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.5	0.9	2.9	3.7	0.7	2.7	4.3	23	-0.1	1.2	-2.0	-6.3	-6.3	-63	37
23 feb 2009	00:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.4	1.4	2.9	3.1	0.1	2.6	4.3	23	-0.1	1.2	-2.0	-6.3	-6.3	-55	59
23 feb 2009	01:00	MERCURIO	MARTE	GIOVE	LUNA	4.3	1.4	2.0	3.0	2.5	0.5	2.5	4.3	23	-0.1	1.2	-2.0	-6.2	-6.2	-45	74
23 feb 2009	02:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.4	2.5	3.0	1.9	1.1	2.6	4.2	23	-0.1	1.2	-2.0	-6.2	-6.2	-34	86
23 feb 2009	03:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.3	3.0	3.0	1.5	1.6	2.6	4.2	23	-0.1	1.2	-2.0	-6.1	-6.1	-23	96
23 feb 2009	04:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.3	3.4	3.0	1.0	2.1	2.8	4.2	23	-0.1	1.2	-2.0	-6.1	-6.1	-12	105
23 feb 2009	05:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.2	3.8	3.1	0.7	2.6	2.9	4.2	23	-0.1	1.2	-2.0	-6.0	-6.0	-1	115
23 feb 2009	06:00	MERCURIO	MARTE	GIOVE	LUNA	4.2	1.2	4.2	3.1	0.6	3.0	3.0	4.2	23	-0.1	1.2	-2.0	-6.0	-6.0	9	125
23 feb 2009	07:00	MERCURIO	MARTE	GIOVE	LUNA	4.1	1.2	4.5	3.1	0.8	3.4	3.2	4.5	23	-0.1	1.2	-2.0	-6.0	-6.0	17	137
23 feb 2009	08:00	MERCURIO	MARTE	GIOVE	LUNA	4.1	1.1	4.9	3.1	1.0	3.8	3.3	4.9	23	-0.1	1.2	-2.0	-5.9	-5.9	24	151

Dxy = distanza tra il corpo x e quello y, in gradi
DQM = distanza media tra i 4 corpi, in gradi
MAX = distanza massima tra i 4 corpi, in gradi
EL = elongazione dal Sole, in gradi
MAGx = magnitudine del corpo x
MAGT = magnitudine totale del gruppo
ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

PIANETI-LUNA IN LINEA RETTA - GEOCENTRICI

DATA	ORA	CORPI			C
22 feb 2009	21:00	MARTE	GIOVE	LUNA	0.153
22 feb 2009	22:00	MARTE	GIOVE	LUNA	0.305
22 feb 2009	23:00	MARTE	GIOVE	LUNA	0.457
22 feb 2009	23:00	MERCURIO	GIOVE	LUNA	-0.445
23 feb 2009	00:00	MERCURIO	GIOVE	LUNA	-0.377
23 feb 2009	01:00	MERCURIO	GIOVE	LUNA	-0.307
23 feb 2009	02:00	MERCURIO	GIOVE	LUNA	-0.233
23 feb 2009	03:00	MERCURIO	GIOVE	LUNA	-0.157
23 feb 2009	04:00	MERCURIO	GIOVE	LUNA	-0.077
23 feb 2009	05:00	MERCURIO	GIOVE	LUNA	0.001
23 feb 2009	06:00	MERCURIO	GIOVE	LUNA	0.092
23 feb 2009	07:00	MERCURIO	GIOVE	LUNA	0.181
23 feb 2009	08:00	MERCURIO	GIOVE	LUNA	0.273
17 mag 2009	09:00	GIOVE	NETTUNO	LUNA	-0.498
17 mag 2009	10:00	GIOVE	NETTUNO	LUNA	-0.446
17 mag 2009	11:00	GIOVE	NETTUNO	LUNA	-0.395
17 mag 2009	12:00	GIOVE	NETTUNO	LUNA	-0.343
17 mag 2009	13:00	GIOVE	NETTUNO	LUNA	-0.291
13 giu 2009	08:00	GIOVE	NETTUNO	LUNA	-0.006
13 giu 2009	09:00	GIOVE	NETTUNO	LUNA	0.076
13 giu 2009	10:00	GIOVE	NETTUNO	LUNA	0.158
13 giu 2009	11:00	GIOVE	NETTUNO	LUNA	0.241
13 giu 2009	12:00	GIOVE	NETTUNO	LUNA	0.324
13 giu 2009	13:00	GIOVE	NETTUNO	LUNA	0.407
13 giu 2009	14:00	GIOVE	NETTUNO	LUNA	0.489
10 lug 2009	15:00	GIOVE	NETTUNO	LUNA	-0.449
10 lug 2009	16:00	GIOVE	NETTUNO	LUNA	-0.359
10 lug 2009	17:00	GIOVE	NETTUNO	LUNA	-0.269
10 lug 2009	18:00	GIOVE	NETTUNO	LUNA	-0.178
10 lug 2009	19:00	GIOVE	NETTUNO	LUNA	-0.089
10 lug 2009	20:00	GIOVE	NETTUNO	LUNA	0.001
10 lug 2009	21:00	GIOVE	NETTUNO	LUNA	0.090
10 lug 2009	22:00	GIOVE	NETTUNO	LUNA	0.179
10 lug 2009	23:00	GIOVE	NETTUNO	LUNA	0.269
11 lug 2009	00:00	GIOVE	NETTUNO	LUNA	0.358
11 lug 2009	01:00	GIOVE	NETTUNO	LUNA	0.448
21 dic 2009	07:00	GIOVE	NETTUNO	LUNA	-0.447
21 dic 2009	08:00	GIOVE	NETTUNO	LUNA	-0.355
21 dic 2009	09:00	GIOVE	NETTUNO	LUNA	-0.263
21 dic 2009	10:00	GIOVE	NETTUNO	LUNA	-0.170
21 dic 2009	11:00	GIOVE	NETTUNO	LUNA	-0.078
21 dic 2009	12:00	GIOVE	NETTUNO	LUNA	0.014
21 dic 2009	13:00	GIOVE	NETTUNO	LUNA	0.106
21 dic 2009	14:00	GIOVE	NETTUNO	LUNA	0.199
21 dic 2009	15:00	GIOVE	NETTUNO	LUNA	0.291
21 dic 2009	16:00	GIOVE	NETTUNO	LUNA	0.384
21 dic 2009	17:00	GIOVE	NETTUNO	LUNA	0.477

Quanto più il parametro C è prossimo a zero tanto più i corpi sono allineati

Ore in T.U.

PIANETI-LUNA IN LINEA RETTA - TOPOCENTRICI

42°N - 12°E

DATA	ORA	CORPI			C	ALT	AZ
22 feb 2009	21:00	MARTE	GIOVE	LUNA	-0.216	-63	324
22 feb 2009	22:00	MARTE	GIOVE	LUNA	-0.076	-66	355
22 feb 2009	23:00	MARTE	GIOVE	LUNA	0.048	-62	28
23 feb 2009	00:00	MARTE	GIOVE	LUNA	0.160	-55	52
23 feb 2009	01:00	MARTE	GIOVE	LUNA	0.261	-45	69
23 feb 2009	02:00	MARTE	GIOVE	LUNA	0.355	-34	81
23 feb 2009	03:00	MARTE	GIOVE	LUNA	0.446	-23	92
22 feb 2009	21:00	MERCURIO	GIOVE	LUNA	-0.433	-64	331
22 feb 2009	22:00	MERCURIO	GIOVE	LUNA	-0.328	-66	5
22 feb 2009	23:00	MERCURIO	GIOVE	LUNA	-0.215	-62	37
23 feb 2009	00:00	MERCURIO	GIOVE	LUNA	-0.098	-54	59
23 feb 2009	01:00	MERCURIO	GIOVE	LUNA	0.018	-44	74
23 feb 2009	02:00	MERCURIO	GIOVE	LUNA	0.131	-33	86
23 feb 2009	03:00	MERCURIO	GIOVE	LUNA	0.237	-22	96
23 feb 2009	04:00	MERCURIO	GIOVE	LUNA	0.333	-11	105
23 feb 2009	05:00	MERCURIO	GIOVE	LUNA	0.418	0	115
23 feb 2009	06:00	MERCURIO	GIOVE	LUNA	0.491	9	125
22 apr 2009	15:00	VENERE	MARTE	LUNA	0.001	2	271
17 mag 2009	09:00	GIOVE	NETTUNO	LUNA	-0.479	16	234
17 mag 2009	10:00	GIOVE	NETTUNO	LUNA	-0.449	7	245
17 mag 2009	11:00	GIOVE	NETTUNO	LUNA	-0.412	-4	255
17 mag 2009	12:00	GIOVE	NETTUNO	LUNA	-0.366	-14	265
17 mag 2009	13:00	GIOVE	NETTUNO	LUNA	-0.311	-25	275
17 mag 2009	14:00	GIOVE	NETTUNO	LUNA	-0.247	-36	287
17 mag 2009	15:00	GIOVE	NETTUNO	LUNA	-0.176	-46	301
13 giu 2009	09:00	GIOVE	NETTUNO	LUNA	-0.118	-2	253
13 giu 2009	10:00	GIOVE	NETTUNO	LUNA	-0.026	-13	262
13 giu 2009	11:00	GIOVE	NETTUNO	LUNA	0.068	-24	272
13 giu 2009	12:00	GIOVE	NETTUNO	LUNA	0.164	-35	283
13 giu 2009	13:00	GIOVE	NETTUNO	LUNA	0.261	-45	297
13 giu 2009	14:00	GIOVE	NETTUNO	LUNA	0.359	-54	314
13 giu 2009	15:00	GIOVE	NETTUNO	LUNA	0.455	-59	339
10 lug 2009	15:00	GIOVE	NETTUNO	LUNA	-0.435	-57	32
10 lug 2009	16:00	GIOVE	NETTUNO	LUNA	-0.318	-49	54
10 lug 2009	17:00	GIOVE	NETTUNO	LUNA	-0.207	-39	69
10 lug 2009	18:00	GIOVE	NETTUNO	LUNA	-0.101	-29	81
10 lug 2009	19:00	GIOVE	NETTUNO	LUNA	-0.003	-18	92
10 lug 2009	20:00	GIOVE	NETTUNO	LUNA	0.087	-7	101
10 lug 2009	21:00	GIOVE	NETTUNO	LUNA	0.171	4	111
10 lug 2009	22:00	GIOVE	NETTUNO	LUNA	0.247	14	122
10 lug 2009	23:00	GIOVE	NETTUNO	LUNA	0.316	23	134
11 lug 2009	00:00	GIOVE	NETTUNO	LUNA	0.380	30	149
11 lug 2009	01:00	GIOVE	NETTUNO	LUNA	0.441	34	165
21 dic 2009	06:00	GIOVE	NETTUNO	LUNA	-0.481	-41	68
21 dic 2009	07:00	GIOVE	NETTUNO	LUNA	-0.376	-30	80
21 dic 2009	08:00	GIOVE	NETTUNO	LUNA	-0.278	-19	91
21 dic 2009	09:00	GIOVE	NETTUNO	LUNA	-0.187	-8	100
21 dic 2009	10:00	GIOVE	NETTUNO	LUNA	-0.103	3	110
21 dic 2009	11:00	GIOVE	NETTUNO	LUNA	-0.025	13	121
21 dic 2009	12:00	GIOVE	NETTUNO	LUNA	0.045	21	133
21 dic 2009	13:00	GIOVE	NETTUNO	LUNA	0.113	29	147
21 dic 2009	14:00	GIOVE	NETTUNO	LUNA	0.177	33	163
21 dic 2009	15:00	GIOVE	NETTUNO	LUNA	0.241	35	180
21 dic 2009	16:00	GIOVE	NETTUNO	LUNA	0.306	33	197
21 dic 2009	17:00	GIOVE	NETTUNO	LUNA	0.373	29	213
21 dic 2009	18:00	GIOVE	NETTUNO	LUNA	0.445	21	227

Quanto più il parametro C è prossimo a zero tanto più i corpi sono allineati

ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi

AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

PIANETI-LUNA IN LINEA RETTA (4) - GEOCENTRICI

DATA	ORA	CORPI				C
22 feb 2009	21:00	MERCURIO	MARTE	GIOVE	LUNA	-2.682
22 feb 2009	22:00	MERCURIO	MARTE	GIOVE	LUNA	-2.560
22 feb 2009	23:00	MERCURIO	MARTE	GIOVE	LUNA	-2.431
23 feb 2009	00:00	MERCURIO	MARTE	GIOVE	LUNA	-2.297
23 feb 2009	01:00	MERCURIO	MARTE	GIOVE	LUNA	-2.155
23 feb 2009	02:00	MERCURIO	MARTE	GIOVE	LUNA	-2.008
23 feb 2009	03:00	MERCURIO	MARTE	GIOVE	LUNA	-1.854
23 feb 2009	04:00	MERCURIO	MARTE	GIOVE	LUNA	-1.694
23 feb 2009	05:00	MERCURIO	MARTE	GIOVE	LUNA	-1.528
23 feb 2009	06:00	MERCURIO	MARTE	GIOVE	LUNA	-1.356
23 feb 2009	07:00	MERCURIO	MARTE	GIOVE	LUNA	-1.177
23 feb 2009	08:00	MERCURIO	MARTE	GIOVE	LUNA	-0.993

PIANETI-LUNA IN LINEA RETTA (4) - TOPOCENTRICI

42°N - 12°E

DATA	ORA	CORPI				C	ALT	AZ
22 feb 2009	21:00	MERCURIO	MARTE	GIOVE	LUNA	-2.410	-63	331
22 feb 2009	22:00	MERCURIO	MARTE	GIOVE	LUNA	-2.201	-66	5
22 feb 2009	23:00	MERCURIO	MARTE	GIOVE	LUNA	-1.975	-63	37
23 feb 2009	00:00	MERCURIO	MARTE	GIOVE	LUNA	-1.741	-55	59
23 feb 2009	01:00	MERCURIO	MARTE	GIOVE	LUNA	-1.507	-45	74
23 feb 2009	02:00	MERCURIO	MARTE	GIOVE	LUNA	-1.281	-34	86
23 feb 2009	03:00	MERCURIO	MARTE	GIOVE	LUNA	-1.069	-23	96
23 feb 2009	04:00	MERCURIO	MARTE	GIOVE	LUNA	-0.877	-12	105
23 feb 2009	05:00	MERCURIO	MARTE	GIOVE	LUNA	-0.708	-1	115
23 feb 2009	06:00	MERCURIO	MARTE	GIOVE	LUNA	-0.563	9	125
23 feb 2009	07:00	MERCURIO	MARTE	GIOVE	LUNA	-0.440	17	137
23 feb 2009	08:00	MERCURIO	MARTE	GIOVE	LUNA	-0.337	24	151

Quanto più il parametro C è prossimo a zero tanto più i corpi sono allineati

ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi

AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

GEOMETRIE SPAZIALI LUNARI

TRIANGOLI EQUILATERI

geocentrici

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT
23 nov 2009	22:00	GIOVE	NETTUNO	LUNA	3.8	3.6	3.9	4.4	80	-2.3	7.9	-9.7	-9.7
23 nov 2009	23:00	GIOVE	NETTUNO	LUNA	3.8	3.8	3.7	4.4	80	-2.3	7.9	-9.7	-9.7

GEOMETRIE SPAZIALI LUNARI

TRIANGOLI EQUILATERI

42°N - 12°E

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT	ALT	AZ
06 ago 2009	20:00	GIOVE	NETTUNO	LUNA	2.3	2.3	2.4	2.8	170	-2.8	7.8	-12.5	-12.5	13	122
06 ago 2009	21:00	GIOVE	NETTUNO	LUNA	2.3	2.5	2.2	2.7	170	-2.8	7.8	-12.5	-12.5	21	134

GEOMETRIE SPAZIALI - QUADRATI

geocentrici

DATA	ORA	CORPI			D12	D13	D14	D23	D24	D34	DQM	MAX	EL.	MAG1	MAG2	MAG3	MAG4	MAGT
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Questo anno non avviene nessun fenomeno

GEOMETRIE SPAZIALI - QUADRATI

42°N - 12°E

DATA	ORA	CORPI			D12	D13	D14	D23	D24	D34	DQM	MAX	EL.	MAG1	MAG2	MAG3	MAG4	MAGT	ALT	AZ
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Questo anno non avviene nessun fenomeno

Dxy = distanza tra il corpo x e quello y, in gradi
DQM = distanza media tra i 4 corpi, in gradi
MAX = distanza massima tra i 4 corpi, in gradi
CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
EL = elongazione dal Sole, in gradi
MAGx = magnitudine del corpo x
MAGT = magnitudine totale del gruppo
ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

Si è considerato equilatero ogni triangolo in cui ogni cateto differisce dall'altro per massimo ±10%.
Si è considerato quadrato ogni quadrilatero in cui ogni lato differisce dall'altro per massimo ±10% e con diagonali diverse meno del 15%.

NB : queste tabelle sono state create esclusivamente ai fini di "foto d'effetto", con tre o quattro corpi celesti praticamente equidistanti!

CONGIUNZIONI GEOCENTR. <5° LUNA-STELLE m<2

Data	TT	Dm (°)	Dl	p (°)	e	ml	m*	tm(s)		
2009/01/09 06:32:52		1.55622	1.29566	0	153		1.7		Beta	TAU Elnath
2009/01/13 18:10:05		2.32344	1.26551	26	-144		1.3		Alpha	LEO Regulus
2009/01/17 18:41:22		3.04028	1.18662	23	-94		1.1		Alpha	VIR Spica
2009/01/21 13:28:26		0.01643	1.14776	186	-52	-9.7	1.0	3588	Alpha	SCO Antares
2009/02/05 15:59:51		1.53470	1.27407	0	126		1.7		Beta	TAU Elnath
2009/02/10 05:16:03		2.32465	1.27022	26	-172		1.3		Alpha	LEO Regulus
2009/02/14 03:30:38		3.03064	1.20131	23	-122		1.1		Alpha	VIR Spica
2009/02/17 20:41:38		0.03948	1.15365	186	-79		1.0	3582	Alpha	SCO Antares
2009/03/04 22:37:47		1.63162	1.25645	0	98		1.7		Beta	TAU Elnath
2009/03/09 15:11:58		2.33071	1.25937	25	160		1.3		Alpha	LEO Regulus
2009/03/13 13:15:34		2.92551	1.20841	23	-149		1.1		Alpha	VIR Spica
2009/03/17 04:52:44		0.19762	1.16028	186	-107		1.0	3508	Alpha	SCO Antares
2009/04/01 03:57:08		1.83675	1.25568	0	71		1.7		Beta	TAU Elnath
2009/04/05 22:38:20		2.44468	1.24421	25	133		1.3		Alpha	LEO Regulus
2009/04/09 22:16:55		2.85046	1.20497	23	-174		1.1		Alpha	VIR Spica
2009/04/13 13:19:24		0.40714	1.16355	186	-134		1.0	3311	Alpha	SCO Antares
2009/04/28 10:20:42		2.04938	1.27005	0	44	-9.6	1.7		Beta	TAU Elnath
2009/05/03 04:11:58		2.66447	1.23851	25	107		1.3		Alpha	LEO Regulus
2009/05/07 05:33:39		2.89124	1.19647	23	157		1.1		Alpha	VIR Spica
2009/05/10 21:07:03		0.54842	1.16206	186	-160		1.0	3106	Alpha	SCO Antares
2009/05/25 19:00:08		2.17031	1.28695	1	18	-7.7	1.7		Beta	TAU Elnath
2009/05/30 09:51:06		2.89973	1.24794	25	81		1.3		Alpha	LEO Regulus
2009/06/03 11:21:58		3.02821	1.19179	22	131		1.1		Alpha	VIR Spica
2009/06/07 03:49:37		0.56873	1.15819	186	172		1.0	3077	Alpha	SCO Antares
2009/06/22 05:22:26		2.18013	1.29360	1	-9	-6.2	1.7		Beta	TAU Elnath
2009/06/26 17:19:28		3.05180	1.26685	25	55	-9.9	1.3		Alpha	LEO Regulus
2009/06/30 16:59:22		3.16531	1.19681	22	105		1.1		Alpha	VIR Spica
2009/07/04 09:44:50		0.51545	1.15608	185	147		1.0	3176	Alpha	SCO Antares
2009/07/19 15:52:26		2.15030	1.28495	1	-35	-9.0	1.7		Beta	TAU Elnath
2009/07/24 02:55:46		3.08835	1.28324	25	28	-8.6	1.3		Alpha	LEO Regulus
2009/07/27 23:50:23		3.20780	1.21058	22	79		1.1		Alpha	VIR Spica
2009/07/31 15:42:00		0.49241	1.15891	185	121		1.0	3219	Alpha	SCO Antares
2009/08/16 00:51:27		2.18480	1.26602	1	-61		1.7		Beta	TAU Elnath
2009/08/20 13:34:22		3.06789	1.28698	25	3	-4.0	1.3		Alpha	LEO Regulus
2009/08/24 08:29:02		3.13220	1.22585	22	53	-9.8	1.1		Alpha	VIR Spica
2009/08/27 22:32:19		0.58171	1.16677	185	95		1.0	3071	Alpha	SCO Antares
2009/09/12 07:35:05		2.33851	1.24895	1	-87		1.7		Beta	TAU Elnath
2009/09/16 23:30:10		3.09662	1.27618	25	-25	-8.3	1.3		Alpha	LEO Regulus
2009/09/20 18:17:13		3.00740	1.23382	22	26	-8.4	1.1		Alpha	VIR Spica
2009/09/24 06:36:04		0.78081	1.17615	185	69		1.0	2625	Alpha	SCO Antares
2009/10/09 12:56:34		2.57253	1.24539	1	-114		1.7		Beta	TAU Elnath
2009/10/14 07:18:51		3.24379	1.25910	25	-51	-9.9	1.3		Alpha	LEO Regulus
2009/10/18 03:48:06		2.94594	1.23019	22	-5	-4.9	1.1		Alpha	VIR Spica
2009/10/21 15:25:16		0.99705	1.18189	185	42	-9.3	1.0	1867	Alpha	SCO Antares
2009/11/05 19:05:15		2.77996	1.25730	1	-141		1.7		Beta	TAU Elnath
2009/11/10 13:02:42		3.47970	1.25010	25	-79		1.3		Alpha	LEO Regulus
2009/11/14 11:39:12		3.01005	1.21907	22	-29	-8.6	1.1		Alpha	VIR Spica
2009/11/17 23:56:47		1.11782	1.18077	185	14	-7.1	1.0	1116	Alpha	SCO Antares
2009/12/03 03:43:46		2.87088	1.27390	1	-168		1.7		Beta	TAU Elnath
2009/12/07 18:37:05		3.69344	1.25901	25	-106		1.3		Alpha	LEO Regulus
2009/12/11 17:36:44		3.14920	1.21162	22	-56		1.1		Alpha	VIR Spica
2009/12/15 07:13:13		1.11287	1.17476	185	-14	-7.0	1.0	1115	Alpha	SCO Antares
2009/12/30 14:36:02		2.85962	1.27974	1	163		1.7		Beta	TAU Elnath

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

ml = magnitudine della Luna

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

OCCULTAZIONI GEOCENTRICHE LUNA-STELLE $m < 2$

Data	TT	Dm (°)	Dl	p (°)	e	m1	m*	tm(s)		
2009/01/21	13:28:26	0.01643	1.14776	186	-52	-9.7	1.0	3588	Alpha	SCO Antares
2009/02/17	20:41:38	0.03948	1.15365	186	-79		1.0	3582	Alpha	SCO Antares
2009/03/17	04:52:44	0.19762	1.16028	186	-107		1.0	3508	Alpha	SCO Antares
2009/04/13	13:19:24	0.40714	1.16355	186	-134		1.0	3311	Alpha	SCO Antares
2009/05/10	21:07:03	0.54842	1.16206	186	-160		1.0	3106	Alpha	SCO Antares
2009/06/07	03:49:37	0.56873	1.15819	186	172		1.0	3077	Alpha	SCO Antares
2009/07/04	09:44:50	0.51545	1.15608	185	147		1.0	3176	Alpha	SCO Antares
2009/07/31	15:42:00	0.49241	1.15891	185	121		1.0	3219	Alpha	SCO Antares
2009/08/27	22:32:19	0.58171	1.16677	185	95		1.0	3071	Alpha	SCO Antares
2009/09/24	06:36:04	0.78081	1.17615	185	69		1.0	2625	Alpha	SCO Antares
2009/10/21	15:25:16	0.99705	1.18189	185	42	-9.3	1.0	1867	Alpha	SCO Antares
2009/11/17	23:56:47	1.11782	1.18077	185	14	-7.1	1.0	1116	Alpha	SCO Antares
2009/12/15	07:13:13	1.11287	1.17476	185	-14	-7.0	1.0	1115	Alpha	SCO Antares

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se $Dm < Dl$ vi è una occultazione tra i corpi

P = angolo di posizione tra i corpi, in gradi

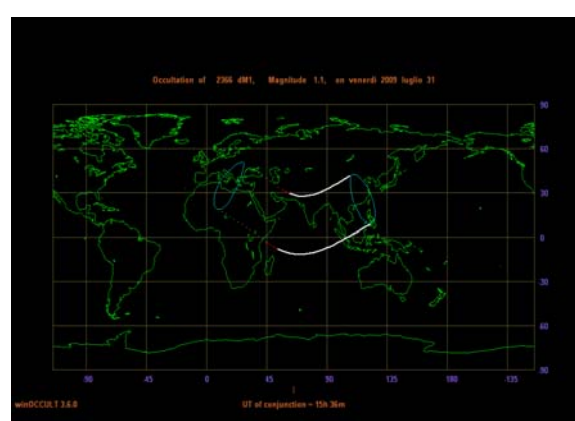
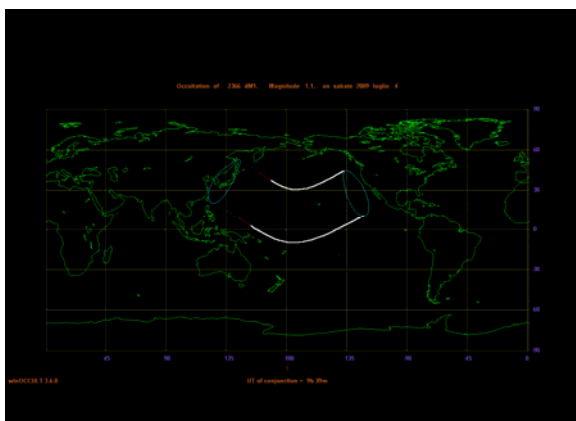
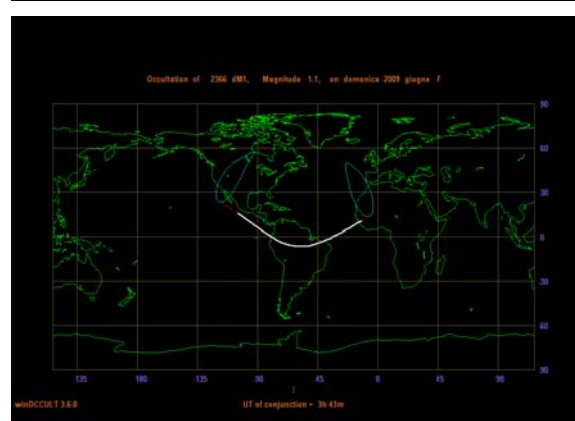
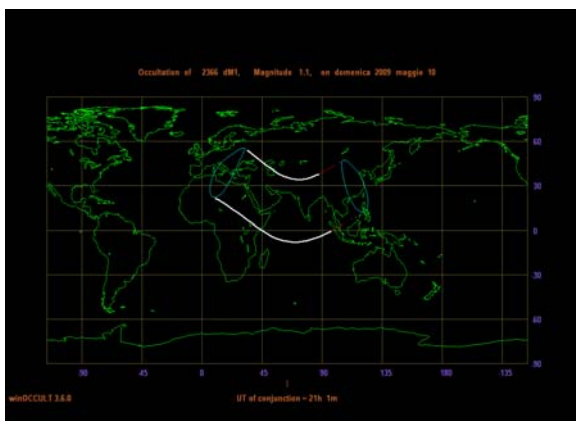
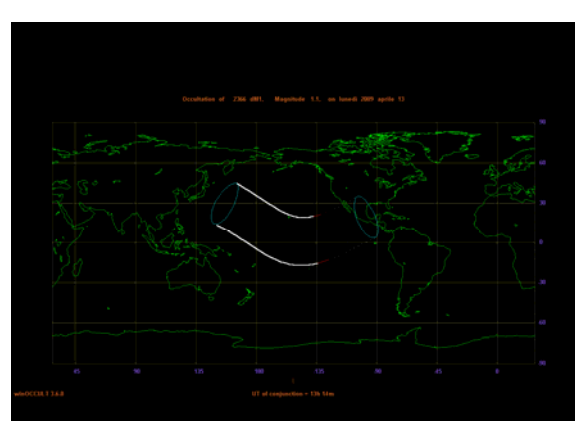
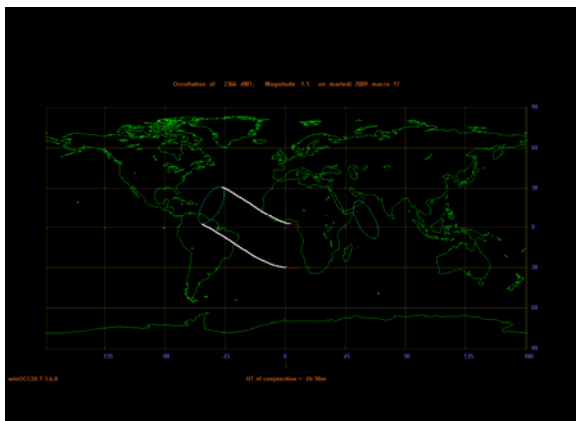
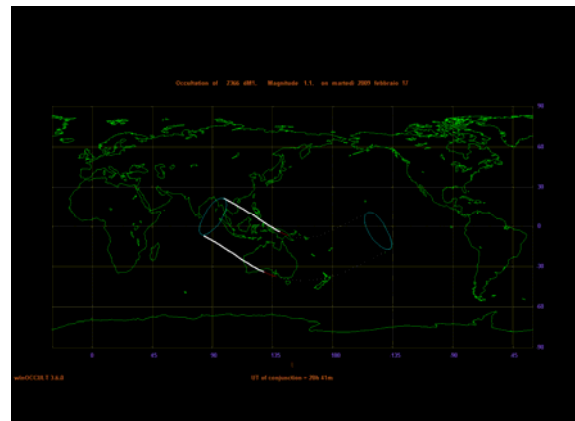
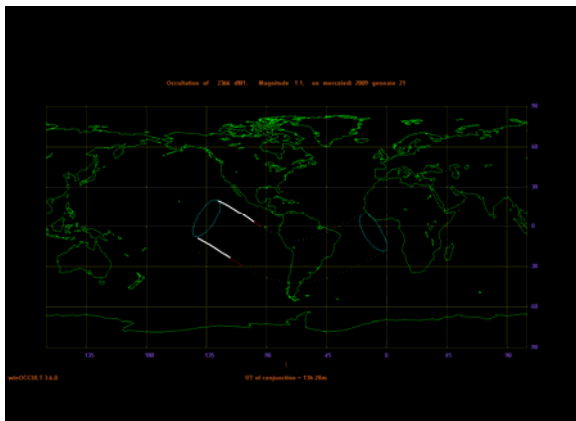
e = elongazione, in gradi

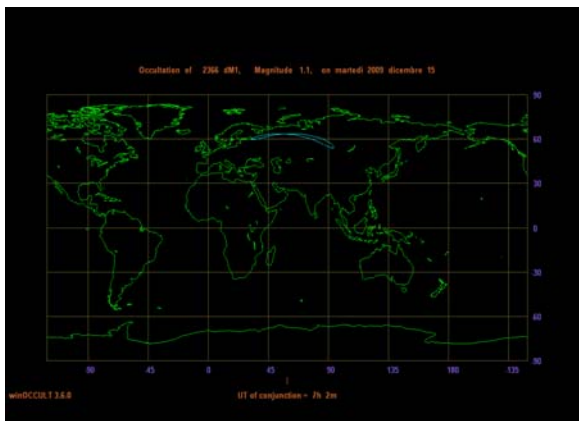
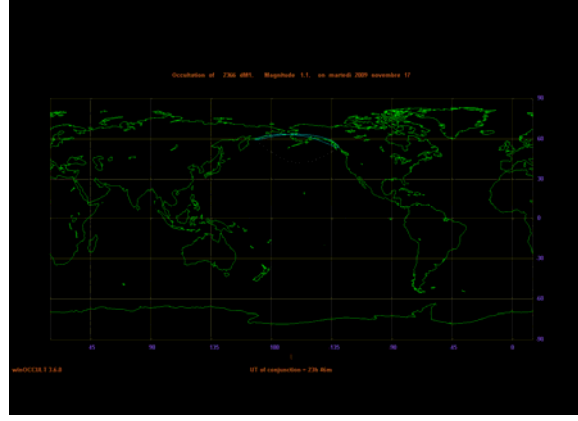
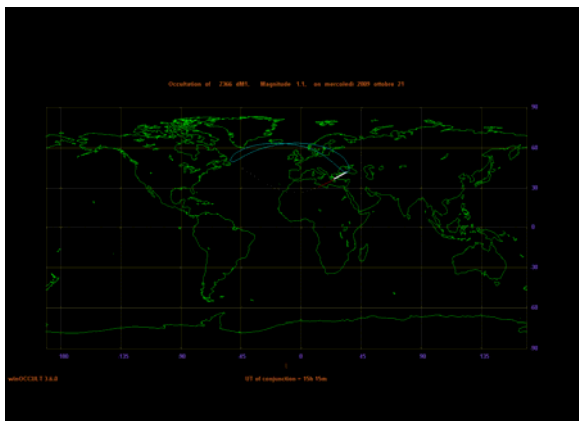
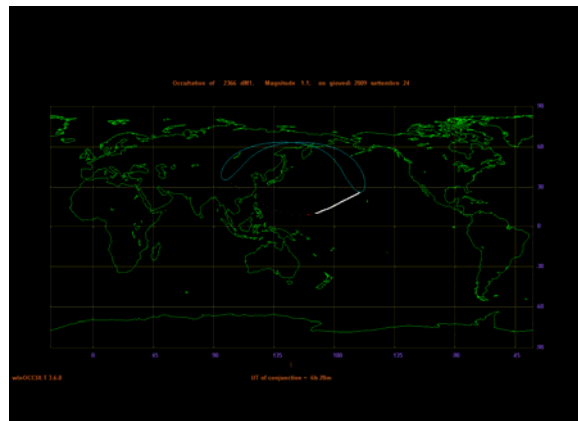
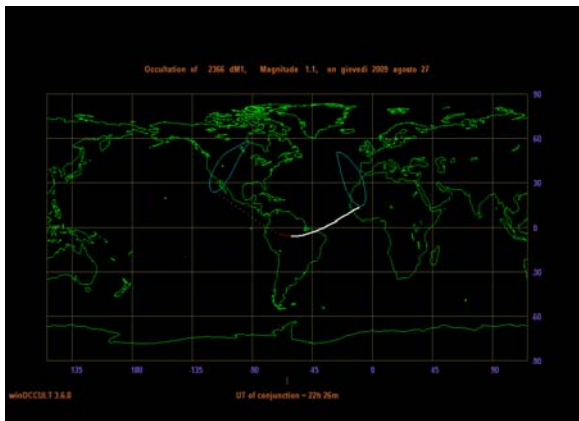
m1 = magnitudine della Luna

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

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CONGIUNZIONI TOPOC. <5° LUNA-STELLE m<2

42°N - 12°E

Data	UT	Dm (°)	Alt	p (°)	e	m1	m*	tm(s)		
2009/01/09 06:58:46		2.44244	-14.19	4	153		1.7		Beta	TAU Elnath
2009/01/13 17:13:41		2.74395	-19.78	19	-144		1.3		Alpha	LEO Regulus
2009/02/05 15:21:35		1.99900	36.43	352	126		1.7		Beta	TAU Elnath
2009/02/10 05:36:17		3.23161	9.13	29	-172		1.3		Alpha	LEO Regulus
2009/02/14 00:56:54		3.67131	27.83	35	-122		1.1		Alpha	VIR Spica
2009/03/04 23:17:12		2.20594	22.41	9	98		1.7		Beta	TAU Elnath
2009/03/09 14:08:47		2.71243	-14.73	20	161		1.3		Alpha	LEO Regulus
2009/03/17 05:02:51		0.65539	19.48	6	-107		1.0		Alpha	SCO Antares
2009/04/01 03:56:35		2.74845	-22.13	0	71		1.7		Beta	TAU Elnath
2009/04/05 21:33:27		3.08785	53.28	37	133		1.3		Alpha	LEO Regulus
2009/04/09 19:47:49		3.33437	16.10	32	-174		1.1		Alpha	VIR Spica
2009/04/28 09:48:19		2.53564	34.06	352	45	-9.6	1.7		Beta	TAU Elnath
2009/05/10 19:42:12		0.02628	-4.82	16	-160		1.0	3845	Alpha	SCO Antares
2009/05/25 19:34:28		2.90334	4.91	7	18	-7.6	1.7		Beta	TAU Elnath
2009/05/30 08:51:25		3.27692	-14.17	20	81		1.3		Alpha	LEO Regulus
2009/06/07 05:02:23		0.00591	-21.45	357	172		1.0	3420	Alpha	SCO Antares
2009/06/22 04:44:50		2.79325	18.08	353	-8	-6.0	1.7		Beta	TAU Elnath
2009/06/26 16:04:56		3.71392	53.26	36	54		1.3		Alpha	LEO Regulus
2009/06/30 14:20:53		3.65372	15.29	32	104		1.1		Alpha	VIR Spica
2009/07/19 16:25:42		2.91861	0.61	7	-35	-9.1	1.7		Beta	TAU Elnath
2009/07/31 14:15:14		0.07969	-5.58	15	121		1.0	3852	Alpha	SCO Antares
2009/08/16 00:13:37		2.85961	8.63	353	-60		1.7		Beta	TAU Elnath
2009/08/20 12:21:50		3.72667	53.88	36	3	-4.1	1.3		Alpha	LEO Regulus
2009/08/24 06:52:47		3.39004	-25.92	23	53	-9.8	1.1		Alpha	VIR Spica
2009/08/27 23:45:02		0.01134	-22.34	177	95		1.0	3403	Alpha	SCO Antares
2009/09/12 07:45:55		2.70273	54.57	8	-88		1.7		Beta	TAU Elnath
2009/09/20 19:42:55		3.81705	-22.61	16	27	-8.4	1.1		Alpha	VIR Spica
2009/10/09 13:14:45		3.43451	-16.41	4	-114		1.7		Beta	TAU Elnath
2009/10/14 05:34:18		3.61486	46.62	32	-52	-9.9	1.3		Alpha	LEO Regulus
2009/10/21 15:58:42		0.15838	14.67	180	42	-9.3	1.0	4853	Alpha	SCO Antares
2009/11/05 18:34:28		3.47475	5.43	354	-141		1.7		Beta	TAU Elnath
2009/11/10 13:43:03		4.38123	-14.12	23	-79		1.3		Alpha	LEO Regulus
2009/11/14 11:13:35		3.88441	25.04	26	-29	-8.6	1.1		Alpha	VIR Spica
2009/12/03 03:59:13		3.37451	36.36	10	-169		1.7		Beta	TAU Elnath
2009/12/15 06:06:04		0.46921	2.27	195	-14	-7.0	1.0		Alpha	SCO Antares
2009/12/30 14:06:21		3.62388	-2.70	355	164		1.7		Beta	TAU Elnath

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Alt = altezza in gradi sull'orizzonte dell'evento nel momento centrale

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine della Luna

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

OCCULTAZIONI TOPOCENTR. LUNA-STELLE m<2

42°N - 12°E

Data	UT	Dm (°)	Alt.	p (°)	e	m1	m*	tm(s)		
2009/05/10	19:42:12	0.02628	-4.82	16	-160		1.0	3845	Alpha	SCO Antares
2009/06/07	05:02:23	0.00591	-21.45	357	172		1.0	3420	Alpha	SCO Antares
2009/07/31	14:15:14	0.07969	-5.58	15	121		1.0	3852	Alpha	SCO Antares
2009/08/27	23:45:02	0.01134	-22.34	177	95		1.0	3403	Alpha	SCO Antares
2009/10/21	15:58:42	0.15838	14.67	180	42	-9.3	1.0	4853	Alpha	SCO Antares

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Alt = altezza in gradi sull'orizzonte dell'evento nel momento centrale

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

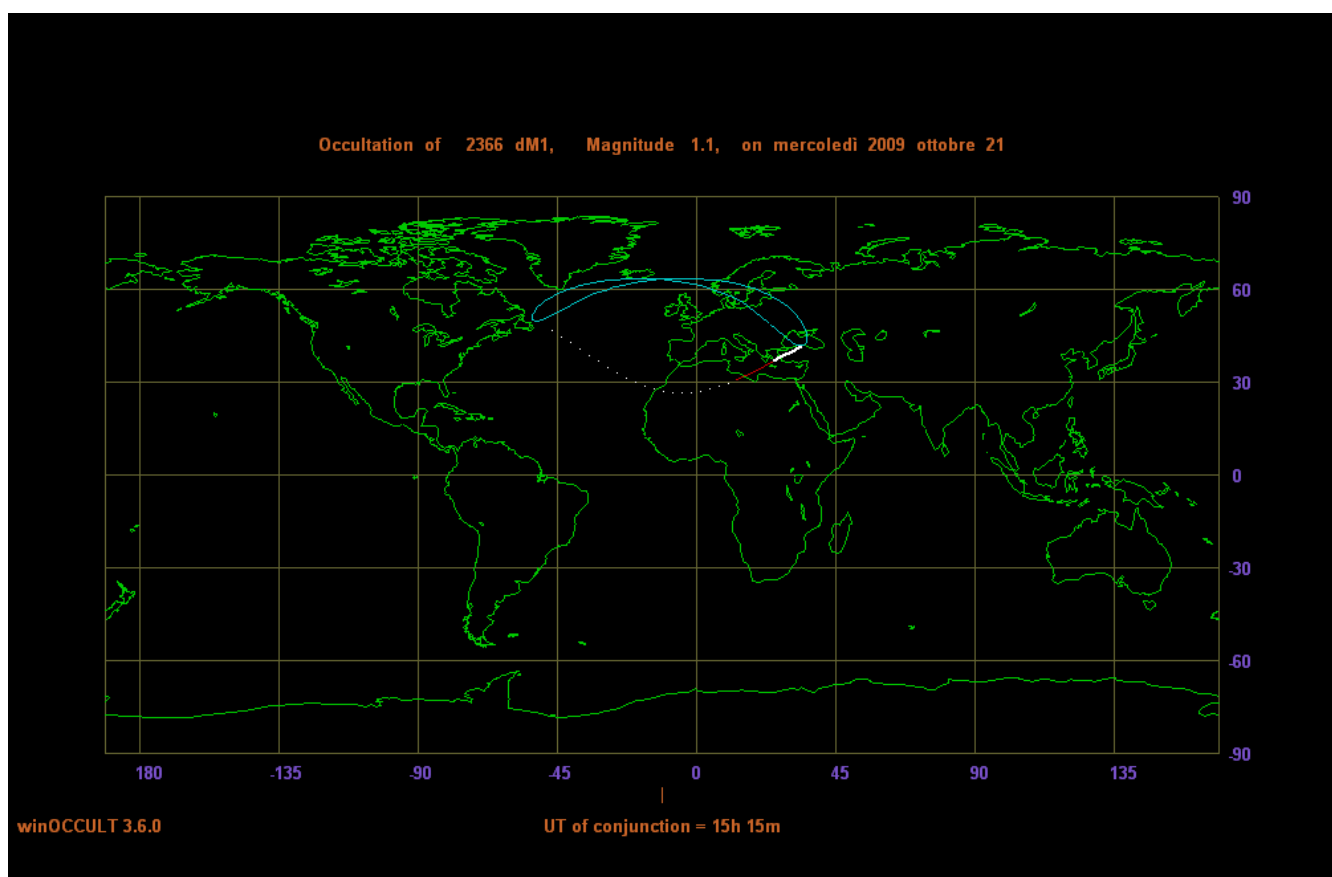
m1 = magnitudine della Luna

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

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Le occultazioni sono dettagliate nelle pagine seguenti per molte città



Sparizione								Riapparizione							
Luogo	U.T.			Sole Alt	Luna Alt	CA o	PA o	Luogo	U.T.			Sole Alt	Luna Alt	CA o	PA o
	h	m	s						h	m	s				
AGRIGENTO	15	39	31	7	20	53S	141	AGRIGENTO	16	30	17	-3	14	-23S	217
ALESSANDRIA	15	15	34	12	16	70S	124	ALESSANDRIA	16	25	4	0	11	-46S	240
ANCONA	15	26	52	7	16	66S	128	ANCONA	16	30	38	-4	9	-39S	233
AOSTA	15	12	10	13	16	72S	122	AOSTA	16	23	6	1	11	-48S	242
AREZZO	15	23	56	9	16	67S	127	AREZZO	16	29	11	-2	10	-40S	234
ASCOLI PICENO	15	28	14	7	16	65S	129	ASCOLI PICENO	16	30	54	-4	10	-38S	231
ASTI	15	14	48	12	17	70S	123	ASTI	16	24	35	1	11	-46S	240
AVELLINO	15	34	21	6	17	60S	134	AVELLINO	16	32	11	-5	11	-32S	225
BARI	15	38	21	4	16	59S	135	BARI	16	33	27	-6	9	-29S	223
BELLUNO	15	20	48	8	14	71S	123	BELLUNO	16	28	8	-3	8	-45S	239
BENEVENTO	15	33	54	6	17	61S	133	BENEVENTO	16	32	10	-5	10	-32S	226
BERGAMO	15	16	35	10	15	71S	123	BERGAMO	16	25	46	-1	10	-46S	240
BOLOGNA	15	21	25	9	16	69S	125	BOLOGNA	16	28	13	-2	10	-43S	237
BOLZANO	15	18	45	9	14	72S	122	BOLZANO	16	27	4	-2	8	-46S	240
BRESCIA	15	17	52	10	15	71S	123	BRESCIA	16	26	29	-1	10	-46S	239
BRINDISI	15	41	20	3	15	57S	137	BRINDISI	16	33	51	-7	9	-27S	221
CAGLIARI	15	24	58	12	21	61S	133	CAGLIARI	16	27	5	1	15	-34S	228
CALTANISSETTA	15	40	10	7	20	53S	141	CALTANISSETTA	16	30	40	-3	14	-23S	217
CAMPOBASSO	15	32	48	6	16	62S	132	CAMPOBASSO	16	32	2	-5	10	-33S	227
CASERTA	15	33	2	6	17	61S	133	CASERTA	16	31	50	-4	11	-33S	226
CATANIA	15	42	38	5	19	51S	142	CATANIA	16	31	14	-4	13	-22S	215
CATANZARO	15	42	44	4	17	54S	140	CATANZARO	16	32	46	-6	11	-24S	217
CHIETI	15	30	21	7	16	64S	130	CHIETI	16	31	31	-4	10	-36S	229
COMO	15	15	44	11	15	71S	123	COMO	16	25	17	-1	10	-47S	241
COSENZA	15	41	4	4	17	55S	139	COSENZA	16	32	46	-6	11	-25S	219
CREMONA	15	18	0	10	16	70S	124	CREMONA	16	26	30	-1	10	-45S	239
CUNEO	15	14	10	13	17	70S	124	CUNEO	16	24	6	1	12	-46S	240
ENNA	15	40	34	6	19	53S	141	ENNA	16	30	51	-3	14	-23S	217
FERRARA	15	21	23	9	15	69S	125	FERRARA	16	28	16	-2	9	-43S	237
FIRENZE	15	22	16	9	16	68S	126	FIRENZE	16	28	27	-2	10	-42S	235
FOGGIA	15	34	53	5	16	61S	133	FOGGIA	16	32	41	-5	10	-32S	226
FORLI`	15	23	7	9	16	68S	126	FORLI`	16	29	0	-3	10	-42S	235
FROSINONE	15	29	57	7	17	63S	131	FROSINONE	16	30	59	-3	11	-35S	229
GENOVA	15	16	48	11	17	70S	124	GENOVA	16	25	39	0	11	-45S	239
GORIZIA	15	23	39	7	14	70S	124	GORIZIA	16	29	33	-4	8	-43S	237
GROSSETO	15	23	24	10	17	66S	128	GROSSETO	16	28	41	-2	11	-40S	234
IMPERIA	15	15	43	12	18	69S	125	IMPERIA	16	24	53	1	12	-45S	238
ISERNIA	15	32	14	7	17	62S	132	ISERNIA	16	31	43	-4	11	-34S	227
LA SPEZIA	15	18	59	11	17	69S	125	LA SPEZIA	16	26	49	-1	11	-44S	237
L'AQUILA	15	28	45	7	17	64S	130	L'AQUILA	16	30	54	-4	10	-37S	230
LATINA	15	29	20	8	17	63S	131	LATINA	16	30	37	-3	11	-35S	229
LECCE	15	42	52	2	15	56S	138	LECCE	16	33	59	-7	9	-25S	219
LIVORNO	15	20	42	10	17	68S	126	LIVORNO	16	27	35	-1	11	-42S	236
LUCCA	15	20	40	10	17	68S	126	LUCCA	16	27	40	-1	11	-43S	236
MACERATA	15	27	14	7	16	66S	128	MACERATA	16	30	39	-4	10	-39S	232
MANTOVA	15	19	26	10	15	70S	124	MANTOVA	16	27	18	-2	10	-45S	238
MASSA	15	19	42	10	17	69S	125	MASSA	16	27	11	-1	11	-43S	237
MATERA	15	38	47	4	16	58S	136	MATERA	16	33	17	-6	10	-29S	222
MESSINA	15	42	4	5	18	53S	141	MESSINA	16	31	53	-5	12	-23S	217
MILANO	15	16	1	11	16	71S	123	MILANO	16	25	24	0	10	-46S	240
MODENA	15	20	19	10	16	69S	125	MODENA	16	27	40	-2	10	-44S	237
NAPOLI	15	33	19	7	17	61S	133	NAPOLI	16	31	48	-4	11	-32S	226
NOVARA	15	14	58	11	16	71S	123	NOVARA	16	24	46	0	11	-47S	240
NUORO	15	23	34	12	20	63S	131	NUORO	16	27	21	0	14	-37S	230
ORISTANO	15	22	37	13	21	62S	132	ORISTANO	16	26	33	1	15	-37S	230
PADOVA	15	21	9	8	15	70S	124	PADOVA	16	28	14	-3	9	-44S	238
PALERMO	15	36	59	7	20	55S	139	PALERMO	16	30	34	-3	14	-26S	220
PARMA	15	19	2	10	16	70S	124	PARMA	16	27	0	-1	10	-44S	238
PAVIA	15	16	17	11	16	71S	123	PAVIA	16	25	32	0	10	-46S	240
PERUGIA	15	25	27	8	16	66S	128	PERUGIA	16	29	50	-3	10	-39S	233
PESARO	15	25	15	8	16	67S	127	PESARO	16	29	57	-3	9	-40S	234
PESCARA	15	30	15	7	16	64S	130	PESCARA	16	31	31	-4	10	-36S	230
PIACENZA	15	17	28	11	16	70S	124	PIACENZA	16	26	11	-1	10	-45S	239
PISA	15	20	35	10	17	68S	126	PISA	16	27	36	-1	11	-42S	236
PISTOIA	15	21	22	10	16	68S	126	PISTOIA	16	28	3	-2	11	-42S	236
PORDENONE	15	21	49	8	14	70S	124	PORDENONE	16	28	38	-3	8	-44S	238
POTENZA	15	37	3	5	16	59S	135	POTENZA	16	32	51	-5	10	-30S	223
RAGUSA	15	43	15	6	19	50S	144	RAGUSA	16	30	40	-4	14	-20S	214

Sparizione								Riapparizione									
Luogo	U.T.				Sole Alt	Luna Alt	CA o	PA o	Luogo	U.T.				Sole Alt	Luna Alt	CA o	PA o
	h	m	s							h	m	s					
RAVENNA	15	23	9		8	15	68S	126	RAVENNA	16	29	4		-3	9	-42S	236
REGGIO CALABRIA	15	42	27		5	18	53S	141	REGGIO CALABRIA	16	31	53		-5	12	-23S	216
REGGIO EMILIA	15	19	45		10	16	69S	125	REGGIO EMILIA	16	27	21		-2	10	-44S	238
RIETI	15	27	32		8	17	65S	129	RIETI	16	30	24		-3	11	-37S	231
ROMA	15	27	32		8	17	64S	130	ROMA	16	30	9		-3	11	-37S	230
ROVIGO	15	21	27		9	15	69S	125	ROVIGO	16	28	20		-3	9	-44S	237
SALERNO	15	34	42		6	17	60S	134	SALERNO	16	32	7		-5	11	-31S	225
SASSARI	15	21	11		13	20	64S	130	SASSARI	16	26	27		1	14	-38S	232
SAVONA	15	16	6		12	17	70S	124	SAVONA	16	25	13		0	11	-45S	239
SIENA	15	23	2		9	17	67S	127	SIENA	16	28	42		-2	11	-41S	234
SIRACUSA	15	44	21		5	19	50S	144	SIRACUSA	16	31	0		-4	13	-20S	214
SONDRIO	15	16	26		10	15	72S	122	SONDRIO	16	25	43		-1	9	-47S	241
TARANTO	15	40	34		3	16	57S	137	TARANTO	16	33	33		-7	10	-27S	221
TERAMO	15	28	55		7	16	64S	129	TERAMO	16	31	5		-4	10	-37S	231
TERNI	15	26	50		8	17	65S	129	TERNI	16	30	11		-3	11	-38S	232
TORINO	15	13	37		12	17	71S	123	TORINO	16	23	53		1	11	-47S	241
TRAPANI	15	35	10		8	20	55S	138	TRAPANI	16	29	54		-2	14	-27S	221
TRENTO	15	18	53		9	15	71S	123	TRENTO	16	27	7		-2	9	-46S	239
TREVISO	15	21	30		8	14	70S	124	TREVISO	16	28	26		-3	9	-44S	238
TRIESTE	15	24	20		7	14	69S	125	TRIESTE	16	29	51		-4	8	-43S	236
UDINE	15	22	47		7	14	70S	124	UDINE	16	29	8		-4	8	-44S	237
VARESE	15	15	50		11	16	70S	123	VARESE	16	25	14		0	11	-46S	240
VENEZIA	15	21	59		8	15	70S	124	VENEZIA	16	28	40		-3	9	-44S	237
VERCELLI	15	14	44		12	16	71S	123	VERCELLI	16	24	37		0	11	-47S	240
VERONA	15	19	26		9	15	70S	124	VERONA	16	27	20		-2	9	-45S	238
VICENZA	15	20	20		9	15	70S	124	VICENZA	16	27	50		-2	9	-45S	238
VITERBO	15	25	59		9	17	65S	129	VITERBO	16	29	44		-2	11	-38S	232

Sole alt : altezza del Sole sull'orizzonte, in gradi

Luna alt : altezza della Luna sull'orizzonte, in gradi

Luna az : azimut della Luna, in gradi

CA : angolo di cuspidi, angolo dell'evento lungo il lembo della Luna, misurato dalla cuspidi più vicina;
un valore negativo indica che il fenomeno avviene lungo il bordo luminoso

PA : angolo di posizione, angolo dell'evento lungo il lembo della Luna, misurato da nord

Curiosità : la prossima occultazione di Antares avverrà nel 2023

OCCULTAZIONI LUNARI TOPOCENTRICHE m<6

Data	Ora	P	StellaSp	Mag	% Elon	Sole Luna			
a m g	h m s		No D	V	ill	Alt	Alt	Az	
Occultazioni per ANCONA									
09 01 07 16 17 56	D		536cB7	5.5	83+	132	-6 44	98	
09 01 07 16 28 12	D		537SB6	3.7s	83+	132	-8 46	100	
09 01 07 16 35 7	D		539SB6	4.3	83+	132	-9 47	101	
09 01 07 16 47 15	D		541cB8	3.9	83+	132	-11 49	103	
09 01 07 16 57 39	D		542 B8	5.8	83+	132	51	106	
09 01 07 17 0 35	r		537SB6	3.7s	83+	132	52	107	
09 01 07 17 53 58	r		541cB8	3.9	84+	132	61	122	
09 01 12 19 44 44	r		1375 K1	5.4	96-	156	20	88	
09 01 14 22 48 13	r		1611DG9	5.6	80-	127	25	113	
09 01 24 7 13 18	r		2750SB2	2.1	4-	22	6 12	145	
09 02 05 19 35 24	D		844SB9	5.8s	80+	128	73	177	
09 02 06 19 59 28	D		1030WA3	3.1s	89+	142	69	151	
09 02 06 20 49 21	r		1030WA3	3.1s	89+	142	71	185	
09 02 13 5 46 13	r		1800 A0	5.5	84-	133	-4 17	238	
09 02 17 2 44 34	R		2263cB1	4.6	47-	87	13	147	
09 02 17 7 50 13	r		2287SB1	2.9e	46-	86	17 12	215	
09 02 21 4 27 27	r		2834cA4	5.0	13-	43	3	128	
09 03 03 23 4 31	D		647WB9	5.4s	45+	84	13	293	
09 03 13 0 57 39	r		1852cA2	6.0	95-	155	35	186	
09 03 30 11 46 25	d		537SB6	3.7s	18+	49	50 53	109	
09 03 30 12 25 37	d		541cB8	3.9	18+	50	47 60	120	
09 03 30 13 2 58	D	Pleiade C	3.0	18+	50	43 65	134		
09 03 30 13 40 27	G	552SB7	2.9s	18+	50	38 69	153		
09 03 30 13 47 13	r	Pleiade C	3.0	18+	50	37 69	157		
09 04 08 23 15 40	d	1800 A0	5.5	99+	171	36	194		
09 04 13 1 35 54	R	2298 K3	5.0	88-	139	21	178		
09 05 01 22 43 16	d	1337 F0	5.7	50+	91	18	275		
09 05 01 23 1 9	D	1336 A5	5.2	51+	91	14	277		
09 05 10 20 16 43	r	2366dM1	1.1v	97-	160	128			
09 05 31 20 18 13	D	1623 A0	5.4	58+	99	34	230		
09 06 10 1 54 27	r	2771cK2	5.6	95-	155	20	194		
09 06 16 1 37 18	R	3494 A7	4.5	48-	88	27	116		
09 06 30 21 27 14	D	1931 K1	4.8s	64+	107	14	232		
09 07 03 19 28 15	D	2287SB1	2.9e	89+	141	-6 19	168		
09 07 03 20 4 3	r	2287SB1	2.9e	89+	141	-11 20	177		
09 07 03 22 5 54	D	2298 K3	5.0	89+	141	17	204		
09 07 10 2 20 37	R	3108 M2	5.3	94-	151	-11 29	200		
09 07 16 23 31 8	r	399SA0	5.7	33-	70	7	69		
09 07 18 1 26 53	D	Pleiade C	3.0	22-	56	19	75		
09 07 18 1 34 3	D	552SB7	2.9s	22-	56	20	76		
09 07 18 1 54 31	R	545 B6	4.1v	22-	56	24	79		
09 07 18 2 6 31	d	560cB8	3.6s	22-	55	26	81		
09 07 18 2 8 13	R	Pleiade C	3.0	22-	55	27	81		
09 07 18 2 23 30	R	552SB7	2.9s	22-	55	29	83		
09 07 18 3 5 26	R	560cB8	3.6s	21-	55	-6 37	90		
09 07 18 3 8 58	R	561cB7	5.1v	21-	55	-6 37	91		
09 08 30 19 24 6	d	2771cK2	5.6	80+	126	22	178		
09 09 04 0 56 47	d	3278 B8	5.4	100+	172	29	222		
09 09 05 19 54 23	R	3494 A7	4.5	99-	166	24	111		
09 09 15 4 9 28	R	1259 A9	5.9	17-	48	-7 37	100		
09 10 07 2 52 54	R X	54005DA2	5.6	91-	145	58	235		
09 10 07 2 52 57	R	440SA2	4.7	91-	145	58	235		
09 10 07 21 20 47	R	556cB8	5.4	85-	134	32	87		
09 10 13 1 8 51	R	1337 F0	5.7	31-	67	16	84		
09 10 13 1 14 32	R	1336 A5	5.2	31-	67	17	85		
09 10 21 15 26 52	D	2366dM1	1.1v	13+	42	7 16	206		
09 10 21 16 30 37	R	2366dM1	1.1v	13+	42	-4 9	219		
09 10 26 21 22 11	d	3064 A2	5.9	57+	99	12	234		
09 10 28 17 40 43	d	3285cG6	5.9	75+	119	36	155		
09 10 30 16 13 44	d	3512 K4	5.6	89+	142	-3 22	108		
09 11 05 19 10 59	r	822SB9	5.8	88-	140	16	71		
09 11 07 4 58 26	R	1050 K5	5.7	77-	123	-10 57	243		
09 11 26 18 58 15	D	3482cF6	5.7	68+	111	48	195		
09 11 30 18 3 33	D X	54005DA2	5.6	97+	159	43	101		
09 11 30 18 3 35	D	440SA2	4.7	97+	159	43	101		
09 12 01 19 58 46	d	598SG0	5.5s	100+	173	54	110		
09 12 03 19 42 58	r	936cK0	5.8	97-	159	30	84		
09 12 04 20 51 56	d	1110SF0	3.5	91-	144	29	87		
09 12 04 21 52 49	R	1110SF0	3.5	90-	144	40	97		
09 12 05 1 51 16	R	1129SF5	5.3	90-	142	68	188		
09 12 07 6 0 58	R	1409cK0	5.0	70-	113	-5 45	236		
09 12 19 17 18 28	D	2963WK2	5.3	9+	35	9	233		
09 12 29 2 45 36	d	556cB8	5.4	90+	142	12	291		

Data			Ora	P	StellaSp	Mag	% Elon	Sole	Luna			
a	m	g	h	m	s	No	D	V	ill	Alt	Alt	Az
Occultazioni per AOSTA												
09	01	07	16	16	33	D	536cB7	5.5	83+	132	-3 39	95
09	01	07	16	18	55	D	537SB6	3.7s	83+	132	-3 40	95
09	01	07	16	36	46	D	539SB6	4.3	83+	132	-6 43	98
09	01	07	16	44	29	D	541cB8	3.9	83+	132	-7 44	100
09	01	07	16	59	33	D	542 B8	5.8	83+	132	-9 47	103
09	01	07	17	7	44	r	537SB6	3.7s	83+	132	-11 48	105
09	01	07	17	51	5	r	541cB8	3.9	84+	132	55	116
09	01	09	16	29	1	D	900cB1	4.8	97+	160	-4 21	74
09	01	12	19	42	44	r	1375 K1	5.4	96-	156	15	84
09	01	14	22	43	58	r	1611DG9	5.6	80-	127	19	108
09	01	24	7	6	7	r	2750SB2	2.1	4-	22	0	7
09	02	05	19	29	46	D	844SB9	5.8s	81+	128	70	157
09	02	06	19	44	45	D	1030WA3	3.1s	89+	142	64	134
09	02	06	20	40	45	r	1030WA3	3.1s	89+	142	69	163
09	02	07	3	59	58	d	1070 G5	5.2v	91+	146	11	293
09	02	13	5	37	18	r	1800 A0	5.5	84-	133	-11 21	230
09	02	17	2	39	57	R	2263cB1	4.6	47-	87	8	141
09	02	17	5	44	15	R	2276 A3	5.6	47-	86	-9 18	182
09	02	17	7	32	0	r	2287SB1	2.9e	46-	86	9 14	206
09	03	03	23	1	58	D	647WB9	5.4s	45+	84	19	288
09	03	13	0	48	24	r	1852cA2	6.0	95-	155	33	176
09	03	30	11	42	39	d	537SB6	3.7s	18+	49	48 48	105
09	03	30	12	25	48	d	541cB8	3.9	18+	50	47 55	115
09	03	30	12	48	15	D	Pleiade C	3.0	18+	50	45 58	122
09	03	30	13	9	3	D	552SB7	2.9s	18+	50	44 61	129
09	03	30	13	48	19	r	Pleiade C	3.0	18+	50	39 65	147
09	03	30	13	56	42	r	552SB7	2.9s	18+	50	38 66	151
09	04	08	23	4	31	d	1800 A0	5.5	99+	171	35	183
09	04	13	1	27	53	R	2298 K3	5.0	88-	139	18	170
09	05	01	22	38	43	D	1337 F0	5.7	51+	91	23	269
09	05	01	22	59	40	D	1336 A5	5.2	51+	91	19	272
09	05	31	20	7	46	D	1623 A0	5.4	58+	99	-9 37	219
09	06	10	1	39	16	r	2771cK2	5.6	95-	155	19	185
09	06	16	1	38	6	R	3494 A7	4.5	48-	88	22	112
09	06	30	21	15	36	D	1931 K1	4.8s	64+	107	17	224
09	07	03	19	24	3	D	2287SB1	2.9e	89+	141	-1 16	162
09	07	03	19	47	51	r	2287SB1	2.9e	89+	141	-4 17	167
09	07	03	21	56	0	D	2298 K3	5.0	89+	142	17	196
09	07	10	2	19	10	R	3108 M2	5.3	94-	151	28	192
09	07	16	23	40	11	r	399SA0	5.7	33-	70	5	67
09	07	18	1	36	17	D	Pleiade C	3.0	22-	56	17	73
09	07	18	1	41	3	D	552SB7	2.9s	22-	56	18	74
09	07	18	1	55	53	R	545 B6	4.1v	22-	56	21	76
09	07	18	2	4	34	R	Pleiade C	3.0	22-	56	22	78
09	07	18	2	9	13	d	560cB8	3.6s	22-	55	22	78
09	07	18	2	21	49	R	552SB7	2.9s	22-	55	25	80
09	07	18	3	6	31	R	560cB8	3.6s	21-	55	-8 32	88
09	07	18	3	8	9	R	561cB7	5.1v	21-	55	-8 33	88
09	08	14	11	27	36	r	537SB6	3.7s	43-	82	58 20	285
09	08	14	12	17	36	r	Pleiade C	3.0	43-	82	57 12	293
09	08	14	12	29	45	r	552SB7	2.9s	43-	81	57 10	294
09	08	30	19	13	40	d	2771cK2	5.6	80+	126	-11 19	169
09	09	04	0	45	26	d	3278 B8	5.4	100+	172	31	212
09	09	05	19	55	45	R	3494 A7	4.5	99-	166	19	108
09	09	10	22	24	47	r	598SG0	5.5s	62-	104	19	74
09	09	15	4	13	33	R	1259 A9	5.9	17-	48	-10 33	97
09	10	07	2	47	42	R X	54005DA2	5.6	91-	145	61	221
09	10	07	2	47	45	R	440SA2	4.7	91-	145	61	221
09	10	07	21	30	21	R	556cB8	5.4	85-	134	30	86
09	10	11	11	12	19	r	1110SF0	3.5	49-	89	37 19	283
09	10	13	1	2	56	R	1337 F0	5.7	31-	67	11	79
09	10	13	1	16	5	R	1336 A5	5.2	31-	67	13	82
09	10	21	15	12	10	D	2366dM1	1.1v	13+	42	13 16	197
09	10	21	16	23	5	r	2366dM1	1.1v	13+	42	1	11
09	10	26	21	19	9	d	3064 A2	5.9	58+	99	15	228
09	10	28	17	38	29	d	3285cG6	5.9	75+	120	32	148
09	11	05	19	34	29	r	822SB9	5.8	88-	140	13	68
09	11	07	4	47	44	R	1050 K5	5.7	77-	123	61	227
09	11	26	19	0	28	D	3482cF6	5.7	68+	111	46	186
09	11	30	18	7	50	d X	54005DA2	5.6	97+	159	39	99
09	11	30	18	7	52	D	440SA2	4.7	97+	159	39	99
09	12	01	19	51	32	d	598SG0	5.5s	100+	173	48	105
09	12	03	19	47	55	r	936cK0	5.8	97-	159	27	82
09	12	04	20	50	5	d	1110SF0	3.5	91-	144	25	83
09	12	04	21	50	53	R	1110SF0	3.5	90-	144	35	99

Data	Ora	P	StellaSp	Mag	% Elon	Sole	Luna
a m g h m s	No D	V	ill	Alt	Alt	Az	
09 12 05 1 40 40 R	1129SF5	5.3	90- 142	65 167			
09 12 07 5 52 17 R	1409cK0	5.0	70- 113	-11 48 224			
09 12 09 3 34 15 R	1623 A0	5.4	48- 88	37 141			
09 12 19 17 7 59 D	2963WK2	5.3	9+ 35	12 226			
09 12 29 2 44 10 d	556cB8	5.4	90+ 142	17 286			

Occultazioni per BARI

09 01 07 16 18 54 D	536cB7	5.5	83+ 132	-7 47 98			
09 01 07 16 33 14 D	539SB6	4.3	83+ 132	-10 50 100			
09 01 07 16 49 21 D	541cB8	3.9	83+ 132	53 104			
09 01 07 16 55 37 D	542 B8	5.8	83+ 132	54 105			
09 01 07 17 52 5 r	541cB8	3.9	84+ 132	64 122			
09 01 12 19 45 15 r	1375 K1	5.4	96- 156	22 89			
09 01 14 22 51 45 R	1611DG9	5.6	80- 127	29 115			
09 01 21 2 56 24 r	2312 M2	5.4s	22- 56	2 129			
09 01 24 7 12 30 R	2750SB2	2.1	4- 22	9 15 148			
09 02 05 19 37 58 D	844SB9	5.8s	80+ 128	75 191			
09 02 06 20 13 57 D	1030WA3	3.1s	89+ 142	74 168			
09 02 06 20 50 59 r	1030WA3	3.1s	89+ 142	73 198			
09 02 17 2 47 42 R	2263cB1	4.6	47- 87	17 150			
09 02 17 8 3 8 r	2287SB1	2.9e	46- 86	22 11 221			
09 02 21 4 27 25 R	2834cA4	5.0	13- 43	6 130			
09 03 03 23 6 35 d	647WB9	5.4s	45+ 84	10 296			
09 03 13 1 5 6 r	1852cA2	6.0	95- 155	36 193			
09 03 30 11 49 19 d	537SB6	3.7s	18+ 50	51 57 110			
09 03 30 12 24 49 d	541cB8	3.9	18+ 50	48 63 120			
09 03 30 13 28 6 m	Pleiade C	3.0	18+ 50	40 71 151			
09 04 08 23 23 53 d	1800 A0	5.5	99+ 171	37 201			
09 04 13 1 46 2 R	2298 K3	5.0	88- 139	23 184			
09 05 01 22 47 21 d	1337 F0	5.7	50+ 91	14 278			
09 05 01 23 5 39 d	1336 A5	5.2	51+ 91	11 281			
09 05 10 20 16 41 R	2366dM1	1.1v	97- 160	4 131			
09 05 31 20 26 15 D	1623 A0	5.4	58+ 99	33 236			
09 06 10 2 3 11 r	2771cK2	5.6	95- 155	22 200			
09 06 16 1 33 50 R	3494 A7	4.5	48- 88	30 117			
09 06 30 21 37 51 D	1931 K1	4.8s	64+ 107	11 237			
09 07 03 19 35 35 D	2287SB1	2.9e	89+ 141	-11 23 173			
09 07 03 20 9 42 r	2287SB1	2.9e	89+ 141	23 181			
09 07 03 22 10 50 D	2298 K3	5.0	89+ 141	17 209			
09 07 10 2 15 30 R	3108 M2	5.3	94- 151	-12 31 202			
09 07 16 23 20 54 r	399SA0	5.7	33- 70	7 69			
09 07 18 0 57 19 M	537SB6	3.7s	22- 56	16 72			
09 07 18 1 20 9 D	Pleiade C	3.0	22- 56	20 75			
09 07 18 1 28 29 D	552SB7	2.9s	22- 56	21 76			
09 07 18 1 51 42 R	545 B6	4.1v	22- 56	26 80			
09 07 18 2 4 8 d	560cB8	3.6s	22- 55	28 81			
09 07 18 2 8 19 R	Pleiade C	3.0	22- 55	29 82			
09 07 18 2 22 32 R	552SB7	2.9s	22- 55	31 84			
09 07 18 3 1 57 R	560cB8	3.6s	21- 55	-6 38 90			
09 07 18 3 7 7 R	561cB7	5.1v	21- 55	-5 39 91			
09 08 30 19 30 2 d	2771cK2	5.6	80+ 126	24 183			
09 09 04 1 6 38 d	3278 B8	5.4	100+ 172	28 228			
09 09 05 19 50 40 R	3494 A7	4.5	99- 166	26 112			
09 10 07 2 50 24 R X	54005DA2	5.6	91- 145	58 242			
09 10 07 2 50 28 R	440SA2	4.7	91- 145	58 242			
09 10 07 21 40 22 d	560cB8	3.6s	85- 134	39 90			
09 10 07 21 57 14 R	560cB8	3.6s	85- 134	42 93			
09 10 13 1 11 18 R	1336 A5	5.2	31- 67	19 86			
09 10 13 1 11 46 R	1337 F0	5.7	31- 67	19 86			
09 10 21 15 38 21 D	2366dM1	1.1v	13+ 42	4 16 212			
09 10 21 16 33 27 R	2366dM1	1.1v	13+ 42	-6 9 222			
09 10 26 21 25 2 d	3064 A2	5.9	57+ 99	11 237			
09 10 28 17 40 46 D	3285cG6	5.9	75+ 119	39 158			
09 11 05 19 26 50 r	822SB9	5.8	88- 140	17 71			
09 11 07 5 6 41 R	1050 K5	5.7	77- 123	-5 55 252			
09 11 26 18 57 8 D	3482cF6	5.7	68+ 111	49 200			
09 11 30 17 59 37 D X	54005DA2	5.6	97+ 159	45 100			
09 11 30 17 59 39 D	440SA2	4.7	97+ 159	45 100			
09 12 01 20 6 6 d	598SG0	5.5s	100+ 173	58 112			
09 12 03 19 34 25 r	936cK0	5.8	97- 159	30 83			
09 12 04 20 54 2 d	1110SF0	3.5	91- 144	32 88			
09 12 04 21 51 23 R	1110SF0	3.5	90- 144	43 97			
09 12 05 1 55 48 R	1129SF5	5.3	90- 142	69 201			
09 12 07 6 8 23 r	1409cK0	5.0	70- 113	0 43 243			
09 12 09 3 46 33 r	1623 A0	5.4	48- 88	46 155			
09 12 19 17 28 43 D	2963WK2	5.3	9+ 35	7 238			

Occultazioni per BOLOGNA

09 01 07 16 17 18 D	536cB7	5.5	83+ 132	-5 43 97			
09 01 07 16 23 53 D	537SB6	3.7s	83+ 132	-6 44 98			
09 01 07 16 35 39 D	539SB6	4.3	83+ 132	-8 46 100			
09 01 07 16 46 2 D	541cB8	3.9	83+ 132	-9 47 102			

Data	Ora	P	StellaSp	Mag	% Elon	Sole	Luna
a m g h m s	No D	V	ill	Alt	Alt	Az	
09 01 07 16 58 12 D	542 B8	5.8	83+ 132	-11 50 105			
09 01 07 17 4 17 r	537SB6	3.7s	83+ 132	51 107			
09 01 07 17 53 21 r	541cB8	3.9	84+ 132	59 120			
09 01 12 19 44 2 r	1375 K1	5.4	96- 156	18 87			
09 01 14 22 46 35 r	1611DG9	5.6	80- 127	23 111			
09 01 24 7 11 12 r	2750SB2	2.1	4- 22	4 10 143			
09 02 05 19 33 21 D	844SB9	5.8s	81+ 128	72 169			
09 02 06 19 53 49 D	1030WA3	3.1s	89+ 142	67 144			
09 02 06 20 46 27 r	1030WA3	3.1s	89+ 142	71 177			
09 02 13 5 42 42 r	1800 A0	5.5	84- 133	-7 19 235			
09 02 17 2 42 49 R	2263cB1	4.6	47- 87	12 145			
09 02 17 5 52 54 r	2276 A3	5.6	47- 86	-4 19 187			
09 02 17 7 43 32 r	2287SB1	2.9e	46- 86	14 13 212			
09 03 03 23 3 38 D	647WB9	5.4s	45+ 84	15 291			
09 03 13 0 54 14 r	1852cA2	6.0	95- 155	34 182			
09 03 30 11 44 51 d	537SB6	3.7s	18+ 49	49 51 108			
09 03 30 12 25 32 d	541cB8	3.9	18+ 50	47 58 118			
09 03 30 12 56 42 D	Pleiade C	3.0	18+ 50	44 62 129			
09 03 30 13 22 2 D	552SB7	2.9s	18+ 50	41 65 140			
09 03 30 13 48 38 r	Pleiade C	3.0	18+ 50	38 68 154			
09 03 30 13 53 17 r	552SB7	2.9s	18+ 50	37 68 156			
09 04 08 23 11 30 d	1800 A0	5.5	99+ 171	36 190			
09 04 13 1 32 31 R	2298 K3	5.0	88- 139	20 175			
09 05 01 22 41 34 D	1337 F0	5.7	51+ 91	20 273			
09 05 01 23 0 19 D	1336 A5	5.2	51+ 91	16 276			
09 05 31 20 14 23 D	1623 A0	5.4	58+ 99	35 226			
09 06 10 1 49 11 r	2771cK2	5.6	95- 155	20 191			
09 06 16 1 37 50 R	3494 A7	4.5	48- 88	25 114			
09 06 30 21 22 45 D	1931 K1	4.8s	64+ 107	15 229			
09 07 03 19 25 59 D	2287SB1	2.9e	89+ 141	-4 18 166			
09 07 03 19 58 57 r	2287SB1	2.9e	89+ 141	-9 19 174			
09 07 03 22 2 35 D	2298 K3	5.0	89+ 141	17 202			
09 07 10 2 20 53 R	3108 M2	5.3	94- 151	-12 29 197			
09 07 16 23 34 47 r	399SA0	5.7	33- 70	7 68			
09 07 18 1 30 6 D	Pleiade C	3.0	22- 56	19 74			
09 07 18 1 36 34 D	552SB7	2.9s	22- 56	20 75			
09 07 18 1 55 9 R	545 B6	4.1v	22- 56	23 78			
09 07 18 2 7 15 R	Pleiade C	3.0	22- 55	25 80			
09 07 18 2 7 28 d	560cB8	3.6s	22- 55	25 80			
09 07 18 2 23 3 R	552SB7	2.9s	22- 55	28 83			
09 07 18 3 6 6 R	560cB8	3.6s	21- 55	-7 35 89			
09 07 18 3 8 54 R	561cB7	5.1v	21- 55	-7 36 90			
09 08 14 11 29 15 r	537SB6	3.7s	43- 82	60 16 288			
09 08 30 19 20 21 d	2771cK2	5.6	80+ 126	21 175			
09 09 04 0 52 22 d	3278 B8	5.4	100+ 172	30 218			
09 09 05 19 55 5 R	3494 A7	4.5	99- 166	22 110			
09 09 10 22 15 7 r	598SG0	5.5s	62- 104	19 75			
09 09 15 4 11 55 R	1259 A9	5.9	17- 48	-8 36 99			
09 10 07 2 51 30 R X	54005DA2	5.6	91- 145	59 230			
09 10 07 2 51 32 R	440SA2	4.7	91- 145	59 230			
09 10 07 21 25 8 R	556cB8	5.4	85- 134	32 87			
09 10 11 11 14 16 r	1110SF0	3.5	49- 89	38 15 286			
09 10 13 1 6 57 R	1337 F0	5.7	31- 67	14 82			
09 10 13 1 15 15 R	1336 A5	5.2	31- 67	16 84			
09 10 21 15 21 25 D	2366dM1	1.1v	13+ 42	9 16 203			
09 10 21 16 28 13 R	2366dM1	1.1v	13+ 42	-2 10 217			
09 10 26 21 20 58 d	3064 A2	5.9	57+ 99	13 232			
09 10 28 17 39 56 d	3285cG6	5.9	75+ 120	35 152			
09 11 05 19 32 23 r	822SB9	5.8	88- 140	15 70			
09 11 07 4 54 32 R	1050 K5	5.7	77- 123	-12 59 238			
09 11 26 18 58 37 D	3482cF6	5.7	68+ 111	47 191			
09 11 30 18 5 0 D X	54005DA2	5.6	97+ 159	41 100			
09 11 30 18 5 2 D	440SA2	4.7	97+ 159	41 100			
09 12 01 19 55 46 d	598SG0	5.5s	100+ 173	52 108			
09 12 03 19 45 12 r	936cK0	5.8	97- 159	29 83			
09 12 04 20 51 8 d	1110SF0	3.5	91- 144	28 85			
09 12 04 21 52 19 R	1110SF0	3.5	90- 144	38 96			</

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna	Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna
a m g h m s			No D	V	ill	Alt	Alt	Az	a m g h m s			No D	V	ill	Alt	Alt	Az
09 02 13	5 55 26	r	1800 A0	5.5	84-	133	-5	21 237	09 04 08	23 19 49	d	1800 A0	5.5	99+	171	38	197
09 02 17	2 38 15	R	2263cB1	4.6	47-	87		14 142	09 04 13	1 42 25	R	2298 K3	5.0	88-	139	23	181
09 02 17	5 47 26	R	2276 A3	5.6	47-	86	-6	25 184	09 05 01	22 46 36	d	1337 F0	5.7	50+	91	16	277
09 02 17	6 46 55	d	2287SB1	2.9e	46-	86	6	23 198	09 05 01	23 6 3	d	1336 A5	5.2	51+	91	12	280
09 02 17	7 51 39	r	2287SB1	2.9e	46-	86	17	17 212	09 05 10	20 15 49	R	2366dM1	1.1v	97-	160	2	129
09 03 03	23 9 0	D	647WB9	5.4s	45+	84		14 292	09 05 31	20 23 9	D	1623 A0	5.4	58+	99	34	233
09 03 13	0 57 54	r	1852cA2	6.0	95-	155		39 181	09 06 10	1 58 19	r	2771cK2	5.6	95-	155	22	197
09 03 30	11 35 57	d	537SB6	3.7s	18+	50	55	49 98	09 06 16	1 33 30	R	3494 A7	4.5	48-	88	28	115
09 03 30	12 12 22	d	541cB8	3.9	18+	50	53	56 105	09 06 30	21 34 9	D	1931 K1	4.8s	64+	107	13	234
09 03 30	13 1 31	D	Pleiade C	3.0	18+	50	49	64 119	09 07 03	19 33 27	D	2287SB1	2.9e	89+	141	-9	22 170
09 03 30	13 21 12	r	Pleiade C	3.0	18+	50	46	68 127	09 07 03	20 3 7	r	2287SB1	2.9e	89+	141	22	178
09 04 08	23 14 31	d	1800 A0	5.5	99+	171		41 189	09 07 03	22 7 23	D	2298 K3	5.0	89+	141	18	206
09 04 13	1 40 28	R	2298 K3	5.0	88-	139		25 175	09 07 10	2 16 58	R	3108 M2	5.3	94-	151	31	200
09 04 17	4 33 36	r	2875 K0	6.0	54-	94	-3	26 167	09 07 16	23 24 51	r	399SA0	5.7	33-	70	6	69
09 04 29	14 50 27	D	1030WA3	3.1s	25+	61	38	73 141	09 07 18	1 21 56	D	Pleiade C	3.0	22-	56	19	74
09 04 29	15 27 10	r	1030WA3	3.1s	26+	61	31	76 171	09 07 18	1 29 47	D	552SB7	2.9s	22-	56	20	75
09 05 01	22 49 57	D	1337 F0	5.7	51+	91		20 274	09 07 18	1 51 55	R	545 B6	4.1v	22-	56	24	79
09 05 31	20 21 28	D	1623 A0	5.4	58+	99		39 228	09 07 18	2 3 57	d	560cB8	3.6s	22-	55	26	80
09 06 10	1 46 41	r	2771cK2	5.6	95-	155		26 189	09 07 18	2 7 15	R	Pleiade C	3.0	22-	55	27	81
09 06 16	1 25 15	R	3494 A7	4.5	48-	88		24 108	09 07 18	2 21 48	R	552SB7	2.9s	22-	55	30	83
09 06 30	21 35 24	D	1931 K1	4.8s	64+	107		18 231	09 07 18	3 2 5	R	560cB8	3.6s	21-	55	-7	37 89
09 07 03	21 56 15	D	2298 K3	5.0	89+	141		23 199	09 07 18	3 6 27	R	561cB7	5.1v	21-	55	-7	38 90
09 07 10	2 10 41	R	3108 M2	5.3	94-	151		35 193	09 08 30	19 25 29	d	2771cK2	5.6	80+	126	24	179
09 07 18	1 20 10	D	Pleiade C	3.0	22-	56		14 70	09 09 04	1 1 28	d	3278 B8	5.4	100+	172	30	225
09 07 18	1 27 28	D	552SB7	2.9s	22-	56		15 71	09 09 05	19 50 28	R	3494 A7	4.5	99-	166	24	111
09 07 18	1 48 8	R	545 B6	4.1v	22-	56		19 74	09 09 15	3 55 18	m	1259 A9	5.9	17-	49	-9	36 97
09 07 18	1 59 48	d	560cB8	3.6s	22-	55		21 75	09 10 07	2 48 47	R X	54005DA2	5.6	91-	145	59	238
09 07 18	2 2 13	R	Pleiade C	3.0	22-	55		21 76	09 10 07	2 48 51	R	440SA2	4.7	91-	145	59	238
09 07 18	2 16 36	R	552SB7	2.9s	22-	55		24 78	09 10 07	21 9 29	r	556cB8	5.4	85-	134	31	85
09 07 18	2 56 18	R	560cB8	3.6s	21-	55		31 83	09 10 07	21 48 2	m	560cB8	3.6s	85-	134	38	90
09 07 18	3 0 8	R	561cB7	5.1v	21-	55		32 84	09 10 13	1 10 27	R	1337 F0	5.7	31-	67	17	84
09 08 30	19 12 9	d	2771cK2	5.6	80+	126		25 170	09 10 13	1 11 36	R	1336 A5	5.2	31-	67	17	85
09 09 04	0 53 12	d	3278 B8	5.4	100+	172		35 218	09 10 21	15 32 48	D	2366dM1	1.1v	13+	42	6	16 208
09 09 05	19 42 45	R	3494 A7	4.5	99-	166		20 104	09 10 21	16 32 2	R	2366dM1	1.1v	13+	42	-5	10 220
09 10 07	2 30 20	R X	54005DA2	5.6	91-	145		67 226	09 10 26	21 23 29	d	3064 A2	5.9	57+	99	13	235
09 10 07	2 30 25	R	440SA2	4.7	91-	145		67 226	09 10 28	17 38 28	d	3285cG6	5.9	75+	119	38	155
09 10 07	21 8 57	R	556cB8	5.4	85-	134		26 80	09 10 30	16 15 52	m	3512 K4	5.6	89+	142	-4	24 108
09 10 11	11 19 26	r	1110SF0	3.5	49-	89	44	14 287	09 11 05	19 27 52	r	822SB9	5.8	88-	140	16	70
09 10 13	1 7 8	R	1336 A5	5.2	31-	67		12 80	09 11 07	5 3 43	R	1050 K5	5.7	77-	123	-7	56 248
09 10 13	1 8 34	R	1337 F0	5.7	31-	67		12 80	09 11 26	18 55 24	D	3482cF6	5.7	68+	111	50	196
09 10 21	15 24 58	D	2366dM1	1.1v	13+	42	12	21 202	09 11 30	17 59 24	D X	54005DA2	5.6	97+	159	43	99
09 10 21	16 27 4	R	2366dM1	1.1v	13+	42	1	15 215	09 11 30	17 59 26	D	440SA2	4.7	97+	159	43	99
09 10 26	21 20 14	d	3064 A2	5.9	57+	99		18 231	09 12 01	20 0 57	d	598SG0	5.5s	100+	173	56	109
09 10 28	17 26 43	d	3285cG6	5.9	75+	119		37 144	09 12 03	19 36 51	r	936cK0	5.8	97-	159	29	82
09 11 07	5 0 53	R	1050 K5	5.7	77-	123	-11	62 245	09 12 04	20 52 4	d	1110SF0	3.5	91-	144	30	86
09 11 26	18 45 10	D	3482cF6	5.7	68+	111		53 183	09 12 04	21 50 18	R	1110SF0	3.5	90-	144	41	96
09 11 30	17 52 29	D X	54005DA2	5.6	97+	159		38 92	09 12 05	1 50 38	R	1129SF5	5.3	90-	142	70	191
09 11 30	17 52 30	D	440SA2	4.7	97+	159		38 92	09 12 07	6 6 12	R	1409cK0	5.0	70-	113	-2	44 240
09 12 01	19 50 38	d	598SG0	5.5s	100+	173		50 99	09 12 09	3 47 40	R	1623 A0	5.4	48-	88	45	153
09 12 03	19 31 58	r	936cK0	5.8	97-	159		24 77	09 12 19	17 24 21	D	2963WK2	5.3	9+	35	8	235
09 12 04	20 47 36	d	1110SF0	3.5	91-	144		25 81	Occultazioni per CATANZARO								
09 12 04	21 41 48	R	1110SF0	3.5	90-	144		35 89	09 01 07	16 16 34	D	536cB7	5.5	83+	132	-6	47 95
09 12 05	1 19 15	m	1129SF5	5.3	90-	142		70 153	09 01 07	16 29 28	D	539SB6	4.3	83+	132	-8	49 97
09 12 07	6 6 36	R	1409cK0	5.0	70-	113	-5	49 236	09 01 07	16 47 26	D	541cB8	3.9	83+	132	-11	53 100
09 12 09	3 55 15	R	1623 A0	5.4	48-	88		46 147	09 01 07	16 51 38	D	542 B8	5.8	83+	132		54 101
09 12 11	4 2 10	r	1852cA2	6.0	27-	62		25 131	09 01 07	17 46 15	r	541cB8	3.9	84+	132		64 115
09 12 19	17 21 1	D	2963WK2	5.3	9+	35		14 231	09 01 12	19 43 42	r	1375 K1	5.4	96-	156		22 88
09 12 29	2 9 4	D	545 B6	4.1v	89+	142		21 285	09 01 14	22 52 24	R	1611DG9	5.6	80-	127		30 114
Occultazioni per CAMPOBASSO									09 01 21	2 54 35	r	2312 M2	5.4s	22-	56		3 128
09 01 07	16 16 40	D	536cB7	5.5	83+	132	-6	45 96	09 01 24	6 55 55	M	2750SB2	2.1	4-	22	8	15 144
09 01 07	16 32 8	D	539SB6	4.3	83+	132	-8	48 99	09 02 05	19 35 5	D	844SB9	5.8s	80+	128		78 189
09 01 07	16 36 37	D	537SB6	3.7s	83+	132	-9	49 100	09 02 06	20 33 20	m	1030WA3	3.1s	89+	142		76 183
09 01 07	16 46 34	D	541cB8	3.9	83+	132	-11	51 102	09 02 08	17 30 35	d	1310SK0	3.9	99+	169		24 86
09 01 07	16 46 47	r	537SB6	3.7s	83+	132	-11	51 102	09 02 17	2 47 10	R	2263cB1	4.6	47-	87		19 149
09 01 07	16 54 25	D	542 B8	5.8	83+	132		52 103	09 02 17	8 7 57	r	2287SB1	2.9e	46-	86	24	12 221
09 01 07	17 50 57	r	541cB8	3.9	84+	132		62 119	09 02 21	4 24 35	R	2834cA4	5.0	13-	43		7 129
09 01 12	19 44 22	r	1375 K1	5.4	96-	156		20 88	09 03 03	23 8 31	d	647WB9	5.4s	45+	84		9 296
09 01 14	22 49 59	R	1611DG9	5.6	80-	127		27 113	09 03 13	1 8 30	r	1852cA2	6.0	95-	155		39 194
09 01 24	7 8 21	r	2750SB2	2.1	4-	22	7	14 145	09 03 30	11 47 35	d	537SB6	3.7s	18+	50	53	57 106
09 02 05	19 34 8	D	844SB9	5.8s	80+	128		75 179	09 03 30	12 20 56	d	541cB8	3.9	18+	50	50	63 114
09 02 06	20 9 2	D	1030WA3	3.1s	89+	142		72 158	09 04 08	23 26 21	d	1800 A0	5.5	99+	171		39 202
09 02 06	20 46 27	r	1030WA3	3.1s	89+	142		73 187	09 04 13	1 51 36	R	2298 K3	5.0	88-	139		25 185
09 02 17	2 45 17	R	2263cB1	4.6	47-	87		16 148	09 04 29	15 9 32	D	1030WA3	3.1s	25+	61	29	76 182
09 02 17	7 57 42	r	2287SB1	2.9e	46-	86	20	12 218	09 04 29	15 34 41	r	1030WA3	3.1s	26+	61	24	75 205

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna	Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna	
a m g h m s	No	D	V	ill	Alt	Alt	Az		a m g h m s	No	D	V	ill	Alt	Alt	Az		
09 07 03 19 44 20 d	2287SB1	2.9e	89+	141	25	175			09 07 18 2 6 20 d	560CB8	3.6s	22-	55	24	79			
09 07 03 20 1 4 r	2287SB1	2.9e	89+	141	25	179			09 07 18 2 6 41 R	Pleiade C	3.0	22-	55	25	80			
09 07 03 22 10 22 D	2298 K3	5.0	89+	141	19	209			09 07 18 2 22 16 R	552SB7	2.9s	22-	55	27	82			
09 07 18 0 50 32 d	537SB6	3.7s	22-	56	14	70			09 07 18 3 4 50 R	560CB8	3.6s	21-	55	-8	35	89		
09 07 18 0 58 10 R	537SB6	3.7s	22-	56	15	71			09 07 18 3 7 48 R	561CB7	5.1V	21-	55	-7	35	89		
09 07 18 1 15 58 D	Pleiade C	3.0	22-	56	18	73			09 08 14 11 30 25 r	537SB6	3.7s	43-	82	60	16	288		
09 07 18 1 24 37 D	552SB7	2.9s	22-	56	20	74			09 08 30 19 19 42 d	2771cK2	5.6	80+	126	21	175			
09 07 18 1 48 25 R	545 B6	4.1v	22-	56	24	78			09 09 04 0 52 45 d	3278 B8	5.4	100+	172	31	218			
09 07 18 2 1 29 d	560CB8	3.6s	22-	55	26	79			09 09 05 19 53 29 R	3494 A7	4.5	99-	166	22	110			
09 07 18 2 5 59 R	Pleiade C	3.0	22-	55	28	80			09 09 10 22 10 57 r	598SG0	5.5s	62-	104	18	74			
09 07 18 2 19 40 R	552SB7	2.9s	22-	55	30	82			09 09 15 4 8 44 R	1259 A9	5.9	17-	48	-9	35	98		
09 07 18 2 57 23 R	560CB8	3.6s	21-	55	-8	37	87		09 10 07 2 49 52 R	X 54005DA2	5.6	91-	145	60	231			
09 07 18 3 3 17 R	561CB7	5.1V	21-	55	-7	38	88		09 10 07 2 49 55 R	440SA2	4.7	91-	145	60	231			
09 08 30 19 28 50 D	2771cK2	5.6	80+	126	26	182			09 10 07 21 22 59 R	556CB8	5.4	85-	134	31	86			
09 09 04 1 11 38 d	3278 B8	5.4	100+	172	29	230			09 10 11 11 15 7 r	1110SF0	3.5	49-	89	39	15	286		
09 09 05 19 45 24 R	3494 A7	4.5	99-	166	26	110			09 10 13 1 7 33 R	1337 F0	5.7	31-	67	14	82			
09 09 26 19 58 49 d	2719cB8	5.8	56+	96	16	218			09 10 13 1 14 17 R	1336 A5	5.2	31-	67	16	84			
09 10 07 2 29 44 m	440SA2	4.7	91-	145	62	238			09 10 21 15 22 16 D	2366dM1	1.1v	13+	42	9	16	203		
09 10 07 21 30 11 d	560CB8	3.6s	85-	134	36	87			09 10 21 16 28 27 R	2366dM1	1.1v	13+	42	-2	10	217		
09 10 07 22 0 13 R	560CB8	3.6s	85-	134	42	91			09 10 26 21 20 58 d	3064 A2	5.9	57+	99	14	232			
09 10 13 1 6 52 R	1336 A5	5.2	31-	67	18	84			09 10 28 17 38 24 d	3285cG6	5.9	75+	120	35	152			
09 10 13 1 11 55 R	1337 F0	5.7	31-	67	19	85			09 11 05 19 31 26 r	822SB9	5.8	88-	140	15	69			
09 10 21 15 42 44 D	2366dM1	1.1v	13+	42	4	17	213		09 11 07 4 55 54 R	1050 K5	5.7	77-	123	-12	59	239		
09 10 21 16 32 45 R	2366dM1	1.1v	13+	42	-6	11	222		09 11 26 18 56 53 D	3482cF6	5.7	68+	111	48	191			
09 10 26 21 26 10 d	3064 A2	5.9	57+	99	12	238			09 11 30 18 3 14 D	X 54005DA2	5.6	97+	159	41	99			
09 10 28 17 36 36 D	3285cG6	5.9	75+	119	41	156			09 11 30 18 3 16 D	440SA2	4.7	97+	159	41	99			
09 11 05 19 23 24 r	822SB9	5.8	88-	140	15	70			09 12 01 19 55 15 d	598SG0	5.5s	100+	173	52	107			
09 11 07 5 10 39 R	1050 K5	5.7	77-	123	-4	55	256		09 12 03 19 43 27 r	936cK0	5.8	97-	159	28	82			
09 11 23 20 18 6 d	3131wF0	5.5	39+	78	12	243			09 12 04 20 50 35 d	1110SF0	3.5	91-	144	27	85			
09 11 26 18 53 23 D	3482cF6	5.7	68+	111	52	199			09 12 04 21 51 9 R	1110SF0	3.5	90-	144	38	95			
09 11 30 17 55 1 D	X 54005DA2	5.6	97+	159	44	97			09 12 05 1 46 12 R	1129SF5	5.3	90-	142	68	179			
09 11 30 17 55 3 D	440SA2	4.7	97+	159	44	97			09 12 07 5 59 16 R	1409cK0	5.0	70-	113	-6	46	233		
09 12 01 20 8 36 d	598SG0	5.5s	100+	173	59	109			09 12 09 3 40 16 R	1623 A0	5.4	48-	88	41	147			
09 12 04 20 54 16 d	1110SF0	3.5	91-	144	32	86			09 12 19 17 15 29 D	2963WK2	5.3	9+	35	10	231			
09 12 04 21 46 18 R	1110SF0	3.5	90-	144	42	94			09 12 29 2 47 5 d	556CB8	5.4	90+	142	14	290			
09 12 05 1 48 10 R	1129SF5	5.3	90-	142	72	197												
09 12 09 3 57 24 R	1623 A0	5.4	48-	88	49	157												
09 12 19 17 36 52 D	2963WK2	5.3	9+	35	7	239												
09 12 29 2 21 27 m	545 B6	4.1v	89+	142	13	291												
Occultazioni per FIRENZE																		
09 01 07 16 16 8 D	536cB7	5.5	83+	132	-4	42	96		09 01 07 16 15 27 D	536cB7	5.5	83+	132	-3	41	94		
09 01 07 16 23 43 D	537SB6	3.7s	83+	132	-5	44	97		09 01 07 16 20 8 D	537SB6	3.7s	83+	132	-4	41	95		
09 01 07 16 34 6 D	539SB6	4.3	83+	132	-7	46	99		09 01 07 16 34 26 D	539SB6	4.3	83+	132	-6	44	98		
09 01 07 16 45 2 D	541cB8	3.9	83+	132	-9	47	101		09 01 07 16 43 45 D	541cB8	3.9	83+	132	-7	45	100		
09 01 07 16 56 34 D	542 B8	5.8	83+	132	-11	50	103		09 01 07 16 56 55 D	542 B8	5.8	83+	132	-10	48	102		
09 01 07 17 1 49 r	537SB6	3.7s	83+	132	-12	50	105		09 01 07 17 4 9 r	537SB6	3.7s	83+	132	-11	49	105		
09 01 07 17 51 52 r	541cB8	3.9	84+	132	59	118			09 01 07 17 50 35 r	541cB8	3.9	84+	132	57	116			
09 01 12 19 43 47 r	1375 K1	5.4	96-	156	18	86			09 01 12 19 43 4 r	1375 K1	5.4	96-	156	16	85			
09 01 14 22 46 53 r	1611DG9	5.6	80-	127	23	111			09 01 14 22 45 23 r	1611DG9	5.6	80-	127	21	109			
09 01 24 7 8 22 r	2750SB2	2.1	4-	22	4	10	142		09 01 24 7 4 58 r	2750SB2	2.1	4-	22	1	8	140		
09 02 05 19 31 34 D	844SB9	5.8s	81+	128	73	167			09 02 05 19 28 58 D	844SB9	5.8s	81+	128	71	159			
09 02 06 19 55 37 D	1030WA3	3.1s	89+	142	68	144			09 02 06 19 50 8 D	1030WA3	3.1s	89+	142	66	137			
09 02 06 20 44 38 r	1030WA3	3.1s	89+	142	71	175			09 02 06 20 41 13 r	1030WA3	3.1s	89+	142	70	167			
09 02 13 5 44 38 r	1800 A0	5.5	84-	133	-6	19	236		09 02 07 4 1 5 d	1070 G5	5.2v	91+	146	9	295			
09 02 17 2 42 28 R	2263cB1	4.6	47-	87	12	145			09 02 13 5 41 34 r	1800 A0	5.5	84-	133	-9	20	233		
09 02 17 5 52 48 r	2276 A3	5.6	47-	86	-4	20	187		09 02 17 2 40 39 R	2263cB1	4.6	47-	87	10	143			
09 02 17 7 45 9 r	2287SB1	2.9e	46-	86	15	13	212		09 02 17 5 47 38 R	2276 A3	5.6	47-	86	-7	19	184		
09 03 03 23 4 19 D	647WB9	5.4s	45+	84	15	291			09 02 17 7 38 40 r	2287SB1	2.9e	46-	86	12	14	209		
09 03 13 0 55 5 r	1852cA2	6.0	95-	155	35	182			09 03 03 23 3 30 D	647WB9	5.4s	45+	84	17	289			
09 03 30 11 43 49 d	537SB6	3.7s	18+	49	50	51	106		09 03 13 0 51 36 r	1852cA2	6.0	95-	155	34	179			
09 03 30 12 23 48 d	541cB8	3.9	18+	50	48	58	116		09 03 30 11 42 9 d	537SB6	3.7s	18+	49	49	49	105		
09 03 30 12 57 7 D	Pleiade C	3.0	18+	50	45	63	128		09 03 30 12 23 29 d	541cB8	3.9	18+	50	48	56	115		
09 03 30 13 25 1 D	552SB7	2.9s	18+	50	42	66	140		09 03 30 12 51 23 D	Pleiade C	3.0	18+	50	46	60	123		
09 03 30 13 45 57 r	Pleiade C	3.0	18+	50	39	68	151		09 03 30 13 15 4 D	552SB7	2.9s	18+	50	43	63	132		
09 03 30 13 48 24 r	552SB7	2.9s	18+	50	38	68	152		09 03 30 13 46 11 r	Pleiade C	3.0	18+	50	40	67	147		
09 04 08 23 12 7 d	1800 A0	5.5	99+	171	36	190			09 03 30 13 52 12 r	552SB7	2.9s	18+	50	39	67	150		
09 04 13 1 34 11 R	2298 K3	5.0	88-	139	20	175			09 04 08 23 7 59 d	1800 A0	5.5	99+	171	36	186			
09 05 01 22 42 44 D	1337 F0	5.7	51+	91	20	273			09 04 13 1 31 16 R	2298 K3	5.0	88-	139	19	172			
09 05 01 23 2 21 D	1336 A5	5.2	51+	91	16	276			09 05 01 22 41 17 D	1337 F0	5.7	51+	91	22	271			
09 05 31 20 15 32 D	1623 A0	5.4	58+	99	36	227			09 05 01 23 2 17 D	1336 A5	5.2	51+	91	18	274			
09 06 10 1 49 23 r	2771cK2	5.6	95-	155	21	191			09 05 31 20 11 47 D	1623 A0	5.4	58+	99	-11	37	223		
09 06 16 1 36 13 R	3494 A7	4.5	48-	88	25	114			09 06 10 1 43 41 r	2771cK2	5.6	95-	155	21	187			
09 06 30 21 24 32 D	1931 K1	4.8s	64+	107	15	229			09 06 16 1 36 15 R	3494 A7	4.5	48-	88	24	112			
09 07 03 19 27 30 D	2287SB1	2.9e	89+	141	-5	19	166		09 06 30 21 20 25 D	1931 K1	4.8s	64+	107	17	226			
09 07 03 19 56 45 r	2287SB1	2.9e	89+	141	-9	20	173		09 07 03 19 27 3 D	2287SB1	2.9e	89+	141	-3	18	164		
09 07 03 22 2 10 D	2298 K3	5.0	89+	141	17	202			09 07 03 19									

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna	
a m g h m s			No D	V	ill	Alt	Alt	Az	
09 07 18	3 4 59	R	560cB8	3.6s	21-	55	-8 33	88	
09 07 18	3 7 21	R	561cB7	5.1V	21-	55	-8 34	88	
09 08 14	11 29 35	r	537SB6	3.7s	43-	82	60 18	286	
09 08 14	12 18 56	r	Pleiade C	3.0	43-	82	58 10	294	
09 08 30	19 15 40	d	2771cK2	5.6	80+	126	20 171		
09 09 04	0 48 29	d	3278 B8	5.4	100+	172	32 215		
09 09 05	19 53 45	R	3494 A7	4.5	99-	166	20 108		
09 09 10	22 18 56	r	598SG0	5.5s	62-	104	18 74		
09 09 15	4 10 9	R	1259 A9	5.9	17-	48	-10 34	97	
09 10 07	2 47 45	R X	54005DA2	5.6	91-	145	61 225		
09 10 07	2 47 47	R	440SA2	4.7	91-	145	61 225		
09 10 07	21 26 13	R	556cB8	5.4	85-	134	30 86		
09 10 11	11 14 6	r	1110SF0	3.5	49-	89	39 17	284	
09 10 13	1 5 38	R	1337 F0	5.7	31-	67	13 80		
09 10 13	1 14 47	R	1336 A5	5.2	31-	67	14 82		
09 10 21	15 16 48	D	2366dM1	1.1v	13+	42	11 17	199	
09 10 21	16 25 39	R	2366dM1	1.1v	13+	42	0 11	214	
09 10 26	21 19 43	d	3064 A2	5.9	57+	99	15 229		
09 10 28	17 37 18	d	3285cG6	5.9	75+	120	34 149		
09 11 05	19 32 37	r	822SB9	5.8	88-	140	14 68		
09 11 07	4 52 4	R	1050 K5	5.7	77-	123	61 233		
09 11 26	18 57 14	D	3482cF6	5.7	68+	111	48 187		
09 11 30	18 4 31	D X	54005DA2	5.6	97+	159	39 98		
09 11 30	18 4 33	D	440SA2	4.7	97+	159	39 98		
09 12 01	19 52 24	d	598SG0	5.5s	100+	173	49 105		
09 12 03	19 45 7	r	936cK0	5.8	97-	159	27 81		
09 12 04	20 49 44	d	1110SF0	3.5	91-	144	26 84		
09 12 04	21 50 24	R	1110SF0	3.5	90-	144	36 94		
09 12 05	1 41 58	R	1129SF5	5.3	90-	142	67 171		
09 12 07	5 56 12	R	1409cK0	5.0	70-	113	-9 48	229	
09 12 09	3 39 30	R	1623 A0	5.4	48-	88	40 144		
09 12 19	17 11 34	D	2963WK2	5.3	9+	35	12 228		
09 12 29	2 47 4	d	556cB8	5.4	90+	142	15 288		

Occultazioni per L'AQUILA

09 01 07	16 16 14	D	536cB7	5.5	83+	132	-5 44	96	
09 01 07	16 29 12	D	537SB6	3.7s	83+	132	-7 46	99	
09 01 07	16 32 39	D	539SB6	4.3	83+	132	-8 47	99	
09 01 07	16 45 42	D	541cB8	3.9	83+	132	-10 49	102	
09 01 07	16 54 55	r	537SB6	3.7s	83+	132	-12 51	104	
09 01 07	16 55 1	D	542 B8	5.8	83+	132	-12 51	103	
09 01 07	17 51 23	r	541cB8	3.9	84+	132	61 119		
09 01 12	19 44 11	r	1375 K1	5.4	96-	156	19 87		
09 01 14	22 48 49	r	1611DG9	5.6	80-	127	25 112		
09 01 24	7 8 28	r	2750SB2	2.1	4-	22	6 12	144	
09 02 05	19 32 58	D	844SB9	5.8s	80+	128	74 174		
09 02 06	20 3 39	D	1030WA3	3.1s	89+	142	71 152		
09 02 06	20 45 57	r	1030WA3	3.1s	89+	142	73 183		
09 02 13	5 49 40	r	1800 A0	5.5	84-	133	-4 18	239	
09 02 17	2 44 8	R	2263cB1	4.6	47-	87	14 147		
09 02 17	7 53 6	r	2287SB1	2.9e	46-	86	18 13	216	
09 02 21	4 25 53	R	2834cA4	5.0	13-	43	3 128		
09 03 03	23 5 41	D	647WB9	5.4s	45+	84	13 293		
09 03 13	0 59 23	r	1852cA2	6.0	95-	155	36 186		
09 03 30	11 44 56	d	537SB6	3.7s	18+	49	51 53	107	
09 03 30	12 22 57	d	541cB8	3.9	18+	50	48 60	117	
09 03 30	13 5 16	D	Pleiade C	3.0	18+	50	44 66	133	
09 03 30	13 41 17	r	Pleiade C	3.0	18+	50	39 70	152	
09 04 08	23 16 56	d	1800 A0	5.5	99+	171	37 194		
09 04 13	1 39 10	R	2298 K3	5.0	88-	139	22 179		
09 05 01	22 45 15	d	1337 F0	5.7	50+	91	18 275		
09 05 01	23 4 42	d	1336 A5	5.2	51+	91	14 278		
09 05 10	20 15 48	R	2366dM1	1.1v	97-	160	1 128		
09 05 31	20 20 22	D	1623 A0	5.4	58+	99	35 231		
09 06 10	1 55 6	r	2771cK2	5.6	95-	155	22 195		
09 06 16	1 34 31	R	3494 A7	4.5	48-	88	27 114		
09 06 30	21 30 33	D	1931 K1	4.8s	64+	107	14 232		
09 07 03	19 31 5	D	2287SB1	2.9e	89+	141	-8 21	169	
09 07 03	20 0 47	r	2287SB1	2.9e	89+	141	-12 22	176	
09 07 03	22 5 27	D	2298 K3	5.0	89+	141	18 204		
09 07 10	2 18 22	R	3108 M2	5.3	94-	151	31 199		
09 07 16	23 28 6	r	399SA0	5.7	33-	70	6 68		
09 07 18	1 24 14	D	Pleiade C	3.0	22-	56	18 74		
09 07 18	1 31 38	D	552SB7	2.9s	22-	56	20 75		
09 07 18	1 52 47	R	545 B6	4.1v	22-	56	24 78		
09 07 18	2 4 42	d	560cB8	3.6s	22-	55	25 80		
09 07 18	2 7 7	R	Pleiade C	3.0	22-	55	26 80		
09 07 18	2 22 2	R	552SB7	2.9s	22-	55	29 82		
09 07 18	3 3 6	R	560cB8	3.6s	21-	55	-7 36	89	
09 07 18	3 6 58	R	561cB7	5.1V	21-	55	-7 37	89	
09 08 30	19 23 18	d	2771cK2	5.6	80+	126	23 178		
09 09 04	0 58 6	d	3278 B8	5.4	100+	172	30 222		

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna	
a m g h m s			No D	V	ill	Alt	Alt	Az	
09 09 05	19 51 35	R	3494 A7	4.5	99-	166	24 110		
09 09 15	4 0 14	R	1259 A9	5.9	17-	48	-9 35	97	
09 10 07	2 49 32	R X	54005DA2	5.6	91-	145	59 236		
09 10 07	2 49 35	R	440SA2	4.7	91-	145	59 236		
09 10 07	21 15 57	R	556cB8	5.4	85-	134	31 86		
09 10 13	1 9 30	R	1337 F0	5.7	31-	67	16 83		
09 10 13	1 12 38	R	1336 A5	5.2	31-	67	17 84		
09 10 21	15 28 45	D	2366dM1	1.1v	13+	42	7 17	206	
09 10 21	16 30 54	R	2366dM1	1.1v	13+	42	-4 10	219	
09 10 26	21 22 26	d	3064 A2	5.9	57+	99	13 234		
09 10 28	17 38 17	d	3285cG6	5.9	75+	119	37 154		
09 10 30	16 16 46	m	3512 K4	5.6	89+	142	-3 23	108	
09 11 05	19 29 16	r	822SB9	5.8	88-	140	15 70		
09 11 07	5 0 54	R	1050 K5	5.7	77-	123	-9 58	245	
09 11 26	18 55 44	D	3482cF6	5.7	68+	111	49 194		
09 11 30	18 0 39	D X	54005DA2	5.6	97+	159	42 99		
09 11 30	18 0 41	D	440SA2	4.7	97+	159	42 99		
09 12 01	19 58 24	d	598SG0	5.5s	100+	173	54 108		
09 12 03	19 39 34	r	936cK0	5.8	97-	159	29 82		
09 12 04	20 51 18	d	1110SF0	3.5	91-	144	29 86		
09 12 04	21 50 40	R	1110SF0	3.5	90-	144	40 96		
09 12 05	1 48 56	R	1129SF5	5.3	90-	142	69 187		
09 12 07	6 3 41	R	1409cK0	5.0	70-	113	-4 45	238	
09 12 09	3 45 7	R	1623 A0	5.4	48-	88	44 150		
09 12 19	17 20 47	D	2963WK2	5.3	9+	35	9 234		
09 12 29	2 49 24	d	556cB8	5.4	90+	142	11 292		

Occultazioni per MILANO

09	01	07	16	17	13	D	536cB7	5.5	83+	132	-4	41	96
09	01	07	16	20	57	D	537SB6	3.7s	83+	132	-4	41	97
09	01	07	16	36	45	D	539SB6	4.3	83+	132	-7	44	99
09	01	07	16	45	31	D	541cB8	3.9	83+	132	-8	46	101
09	01	07	16	59	27	D	542 B8	5.8	83+	132	-11	48	104
09	01	07	17	7	15	r	537SB6	3.7s	83+	132	-12	49	107
09	01	07	17	52	36	r	541cB8	3.9	84+	132		57	118
09	01	12	19	43	22	r	1375 K1	5.4	96-	156		16	85
09	01	14	22	44	57	r	1611DG9	5.6	80-	127		21	109
09	01	24	7	9	27	r	2750SB2	2.1	4-	22	2	8	141
09	02	05	19	32	2	D	844SB9	5.8s	81+	128		71	163
09	02	06	19	48	17	D	1030WA3	3.1s	89+	142		65	138
09	02	06	20	43	52	r	1030WA3	3.1s	89+	142		69	170
09	02	07	4	0	7	d	1070 G5	5.2v	91+	146		10	295
09	02	13	5	38	59	r	1800 A0	5.5	84-	133	-9	20	232
09	02	17	2	41	19	R	2263cB1	4.6	47-	87		10	143
09	02	17	5	48	12	r	2276 A3	5.6	47-	86	-7	18	184
09	02	17	7	36	36	r	2287SB1	2.9e	46-	86	11	13	208
09	03	03	23	2	30	D	647WB9	5.4s	45+	84		17	289
09	03	13	0	50	45	r	1852cA2	6.0	95-	155		33	179
09	03	30	11	43	58	d	537SB6	3.7s	18+	49	48	49	106
09	03	30	12	26	13	d	541cB8	3.9	18+	50	47	56	117
09	03	30	12	51	46	D	Pleiade C	3.0	18+	50	45	60	125
09	03	30	13	13	54	D	552SB7	2.9s	18+	50	43	63	134
09	03	30	13	49	26	r	Pleiade C	3.0	18+	50	38	66	151
09	03	30	13	56	55	r	552SB7	2.9s	18+	50	37	67	154
09	04	08	23	7	23	d	1800 A0	5.5	99+	171		35	186
09	04	13	1	29	16	R	2298 K3	5.0	88-	139		18	172
09	05	01	22	39	34	D	1337 F0	5.7	51+	91		22	270
09	05	01	22	59	7	D	1336 A5	5.2	51+	91		18	274
09	05	31	20	10	19	D	1623 A0	5.4	58+	99	-10	36	222
09	06	10	1	43	40	r	2771cK2	5.6	95-	155		20	188
09	06	16	1	38	33	R	3494 A7	4.5	48-	88		24	113
09	06	30	21	18	11	D	1931 K1	4.8s	64+	107		16	226
09	07	03	19	23	51	D	2287SB1	2.9e	89+	141	-2	17	163
09	07	03	19	53	58	r	2287SB1	2.9e	89+	141	-6	18	170
09	07	03	21	59	15	D	2298 K3	5.0	89+	142		17	199
09	07	10	2	20	28	R	3108 M2	5.3	94-	151	-12	28	195
09	07	16	23	38	23	r	399SA0	5.7	33-	70		6	68
09	07	18	1	34	0	D	Pleiade C	3.0	22-	56		18	74
09	07	18	1	39	33	D	552SB7	2.9s	22-	56		19	74
09	07	18	1	55	54	R	545 B6	4.1v	22-	56		22	77
09	07	18	2	6	1	R	Pleiade C	3.0	22-	56		24	79
09	07	18	2	8	47	d	560cB8	3.6s	22-	55		24	79
09	07	18	2	22	41	R	552SB7	2.9s	22-	55		26	82
09	07	18	3	6	47	R	560cB8	3.6s	21-	55	-7	34	89
09	07	18	3	8	52	R	561cB7	5.1v	21-	55	-7	34	89
09	08	14	11	27	58	r	537SB6	3.7s	43-	82	59	18	286
09	08	14	12	17	30	r	Pleiade C	3.0	43-	82	57	10	294
09	08	30	19	16	53	d	2771cK2	5.6	80+	126		19	172
09	09	04	0	48	18	d	3278 B8	5.4	100+	172		31	214
09	09	05	19	56	2	R	3494 A7	4.5	99-	166		20	109
09	09	10	22	22	4	R	598SG0	5.5s	62-	104		19	75

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna	Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna
a m g h m s			No D	V	ill	Alt	Alt	Az	a m g h m s			No D	V	ill	Alt	Alt	Az
09 09 15	4 13 52	R	1259 A9	5.9	17-	48	-9	34 99	09 10 26	21 23 30	d	3064 A2	5.9	57+	99	13	235
09 10 07	2 49 58	R X	54005DA2	5.6	91-	145		60 225	09 10 28	17 36 39	d	3285cG6	5.9	75+	119	39	154
09 10 07	2 50 0	R	440SA2	4.7	91-	145		60 225	09 10 30	16 14 19	m	3512 K4	5.6	89+	142	-3	23 107
09 10 07	21 28 58	R	556cB8	5.4	85-	134		31 87	09 11 05	19 26 54	r	822SB9	5.8	88-	140	15	70
09 10 11	11 12 56	r	1110SF0	3.5	49-	89	37	17 284	09 11 07	5 4 37	R	1050 K5	5.7	77-	123	-7	57 249
09 10 13	1 4 34	R	1337 F0	5.7	31-	67		13 81	09 11 26	18 53 43	D	3482cF6	5.7	68+	111	50	195
09 10 13	1 16 5	R	1336 A5	5.2	31-	67		15 83	09 11 30	17 57 45	D X	54005DA2	5.6	97+	159	43	98
09 10 21	15 16 2	D	2366dM1	1.1v	13+	42	11	16 199	09 11 30	17 57 46	D	440SA2	4.7	97+	159	43	98
09 10 21	16 25 24	R	2366dM1	1.1v	13+	42	0	10 214	09 12 01	20 0 27	d	598SG0	5.5s	100+	173	56	108
09 10 26	21 19 56	d	3064 A2	5.9	57+	99		14 229	09 12 03	19 34 43	r	936cK0	5.8	97-	159	29	81
09 10 28	17 39 41	d	3285cG6	5.9	75+	120		33 150	09 12 04	20 51 41	d	1110SF0	3.5	91-	144	30	85
09 11 05	19 33 53	r	822SB9	5.8	88-	140		14 69	09 12 04	21 48 38	R	1110SF0	3.5	90-	144	40	95
09 11 07	4 50 20	R	1050 K5	5.7	77-	123		60 232	09 12 05	1 47 42	R	1129SF5	5.3	90-	142	70	189
09 11 26	19 0 3	D	3482cF6	5.7	68+	111		46 188	09 12 07	6 7 28	R	1409cK0	5.0	70-	113	-2	45 241
09 11 30	18 7 7	D X	54005DA2	5.6	97+	159		40 100	09 12 09	3 51 0	R	1623 A0	5.4	48-	88	46	153
09 11 30	18 7 9	D	440SA2	4.7	97+	159		40 100	09 12 19	17 25 25	D	2963WK2	5.3	9+	35	9	235
09 12 01	19 53 36	d	598SG0	5.5s	100+	173		49 107	Occultazioni per PALERMO								
09 12 03	19 47 22	r	936cK0	5.8	97-	159		28 83	09 01 07	16 11 53	d	536cB7	5.5	83+	132	-2	43 91
09 12 04	20 50 39	d	1110SF0	3.5	91-	144		26 84	09 01 07	16 25 23	D	539SB6	4.3	83+	132	-5	46 93
09 12 04	21 51 55	R	1110SF0	3.5	90-	144		37 95	09 01 07	16 41 55	D	541cB8	3.9	83+	132	-8	49 96
09 12 05	1 44 10	R	1129SF5	5.3	90-	142		66 173	09 01 07	16 47 13	D	542 B8	5.8	83+	132	-9	50 97
09 12 07	5 54 15	R	1409cK0	5.0	70-	113	-9	47 227	09 01 07	17 41 39	r	541cB8	3.9	84+	132	61	109
09 12 19	17 10 28	D	2963WK2	5.3	9+	35		11 228	09 01 12	19 41 41	r	1375 K1	5.4	96-	156	19	85
09 12 29	2 43 41	d	556cB8	5.4	90+	142		16 287	09 01 14	22 49 56	R	1611DG9	5.6	80-	127	27	111
Occultazioni per NAPOLI									09 02 05	19 27 49	D	844SB9	5.8s	80+	128	78	166
09 01 07	16 15 30	D	536cB7	5.5	83+	132	-5	45 95	09 02 08	17 27 33	d	1310SK0	3.9	99+	169	-10	21 83
09 01 07	16 30 35	D	539SB6	4.3	83+	132	-7	48 98	09 02 17	2 42 56	R	2263cB1	4.6	47-	87	18	146
09 01 07	16 40 10	M	537SB6	3.7s	83+	132	-9	49 100	09 02 17	8 3 21	r	2287SB1	2.9e	46-	86	22	15 218
09 01 07	16 45 24	D	541cB8	3.9	83+	132	-10	50 100	09 02 21	4 20 42	R	2834cA4	5.0	13-	43	5	126
09 01 07	16 52 47	D	542 B8	5.8	83+	132	-11	52 102	09 03 03	23 9 42	d	647WB9	5.4s	45+	84	10	294
09 01 07	17 49 0	r	541cB8	3.9	84+	132		62 117	09 03 13	1 5 23	r	1852cA2	6.0	95-	155	40	189
09 01 12	19 43 49	r	1375 K1	5.4	96-	156		20 87	09 03 30	11 41 28	d	537SB6	3.7s	18+	50	55	54 101
09 01 14	22 50 0	R	1611DG9	5.6	80-	127		27 113	09 03 30	12 15 20	d	541cB8	3.9	18+	50	53	60 108
09 01 24	6 46 42	d	2750SB2	2.1	4-	22	4	11 140	09 04 08	23 22 17	d	1800 A0	5.5	99+	171	41	197
09 01 24	7 3 15	r	2750SB2	2.1	4-	22	6	13 143	09 04 13	1 48 30	R	2298 K3	5.0	88-	139	26	181
09 02 05	19 32 25	D	844SB9	5.8s	80+	128		76 176	09 04 29	14 56 24	D	1030WA3	3.1s	25+	60	34	76 157
09 02 06	20 12 8	D	1030WA3	3.1s	89+	142		73 158	09 04 29	15 37 14	r	1030WA3	3.1s	26+	61	26	76 197
09 02 06	20 42 8	r	1030WA3	3.1s	89+	142		74 183	09 05 01	22 51 58	d	1337 F0	5.7	50+	91	16	278
09 02 13	5 54 26	r	1800 A0	5.5	84-	133	-2	17 241	09 05 10	20 12 30	R	2366dM1	1.1v	97-	160	3	127
09 02 17	2 44 44	R	2263cB1	4.6	47-	87		16 147	09 05 31	20 28 6	D	1623 A0	5.4	58+	99	36	235
09 02 17	7 58 36	r	2287SB1	2.9e	46-	86	20	13 218	09 06 10	1 57 8	r	2771cK2	5.6	95-	155	26	196
09 02 21	4 24 48	R	2834cA4	5.0	13-	43		4 128	09 06 16	1 24 55	R	3494 A7	4.5	48-	88	27	111
09 03 03	23 7 1	D	647WB9	5.4s	45+	84		11 294	09 06 30	21 44 6	D	1931 K1	4.8s	64+	107	14	236
09 03 13	1 2 35	r	1852cA2	6.0	95-	155		37 189	09 07 03	19 46 38	m	2287SB1	2.9e	89+	141	25	172
09 03 30	11 44 51	d	537SB6	3.7s	18+	50	52	54 106	09 07 03	22 4 33	D	2298 K3	5.0	89+	141	22	205
09 03 30	12 21 4	d	541cB8	3.9	18+	50	50	61 115	09 07 10	2 8 22	R	3108 M2	5.3	94-	151	35	197
09 03 30	13 16 41	D	Pleiade C	3.0	18+	50	43	69 137	09 07 18	0 53 49	M	537SB6	3.7s	22-	56	12	69
09 03 30	13 28 29	r	Pleiade C	3.0	18+	50	41	70 144	09 07 18	1 15 48	D	Pleiade C	3.0	22-	56	16	71
09 04 08	23 20 5	d	1800 A0	5.5	99+	171		38 197	09 07 18	1 24 5	D	552SB7	2.9s	22-	56	17	72
09 04 13	1 43 43	R	2298 K3	5.0	88-	139		23 181	09 07 18	1 46 57	R	545 B6	4.1v	22-	56	22	76
09 04 29	15 17 1	M	1030WA3	3.1s	25+	61	29	74 180	09 07 18	1 59 21	d	560cB8	3.6s	22-	55	23	77
09 05 01	22 47 43	d	1337 F0	5.7	50+	91		16 277	09 07 18	2 3 30	R	Pleiade C	3.0	22-	55	25	78
09 05 01	23 8 34	d	1336 A5	5.2	51+	91		12 280	09 07 18	2 17 12	R	552SB7	2.9s	22-	55	27	80
09 05 10	20 15 6	R	2366dM1	1.1v	97-	160		2 129	09 07 18	2 55 8	R	560cB8	3.6s	21-	55	-11	34 85
09 05 31	20 23 59	D	1623 A0	5.4	58+	99		35 233	09 07 18	3 0 27	R	561cB7	5.1V	21-	55	-10	35 85
09 06 10	1 57 51	r	2771cK2	5.6	95-	155		23 196	09 08 30	19 21 11	D	2771cK2	5.6	80+	126	27	177
09 06 16	1 31 41	R	3494 A7	4.5	48-	88		28 114	09 09 04	1 5 12	d	3278 B8	5.4	100+	172	32	226
09 06 30	21 35 52	D	1931 K1	4.8s	64+	107		14 234	09 09 05	19 42 6	R	3494 A7	4.5	99-	166	23	107
09 07 03	19 36 19	D	2287SB1	2.9e	89+	141	-10	23 171	09 09 26	19 59 37	d	2719cB8	5.8	56+	96	18	216
09 07 03	19 59 16	r	2287SB1	2.9e	89+	141		23 176	09 10 07	21 30 57	d	560cB8	3.6s	85-	134	34	84
09 07 03	22 6 35	D	2298 K3	5.0	89+	141		19 206	09 10 07	21 53 8	R	560cB8	3.6s	85-	134	38	88
09 07 10	2 15 22	R	3108 M2	5.3	94-	151		32 200	09 10 13	1 5 0	R	1336 A5	5.2	31-	67	15	82
09 07 16	23 23 14	r	399SA0	5.7	33-	70		5 68	09 10 13	1 10 23	R	1337 F0	5.7	31-	67	16	82
09 07 18	1 20 41	D	Pleiade C	3.0	22-	56		18 73	09 10 21	15 36 59	D	2366dM1	1.1v	13+	42	7	20 209
09 07 18	1 28 36	D	552SB7	2.9s	22-	56		19 74	09 10 21	16 30 34	R	2366dM1	1.1v	13+	42	-3	14 220
09 07 18	1 50 53	R	545 B6	4.1v	22-	56		24 78	09 10 26	21 24 10	d	3064 A2	5.9	57+	99	15	235
09 07 18	2 2 55	d	560cB8	3.6s	22-	55		25 79	09 10 28	17 30 21	D	3285cG6	5.9	75+	119	40	150
09 07 18	2 6 24	R	Pleiade C	3.0	22-	55		26 80	09 11 05	19 23 9	r	822SB9	5.8	88-	140	13	68
09 07 18	2 20 47	R	552SB7	2.9s	22-	55		29 82	09 11 07	5 8 15	R	1050 K5	5.7	77-	123	-6	58 253
09 07 18	3 0 36	R	560cB8	3.6s	21-	55	-8	36 88	09 11 23	20 17 59	d	3131wF0	5.5	39+	78	15	240
09 07 18	3 5 9	R	561cB7	5.1V	21-	55	-8	37 89	09 11 26	18 47 53	D	3482cF6	5.7	68+	111	54	192
09 08 30	19 24 20	d	2771cK2	5.6	80+	126		24 179	09 11 30	17 51 44	D X	54005DA2	5.6	97+	159	41	94
09 09 04	1 1 48	d	3278 B8	5.4	100+	172		30 225	09 11 30	17 51 46	D	440SA2	4.7	97+	159	41	94
09 09 05	19 48 43	R	3494 A7	4.5	99-	166		24 110	09 12 01	20 1 0	d	598SG0	5.5s	100+	173	56	103

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna
a m g h m s			No D	V	ill	Alt	Alt	Az
09 12 19 17 32 44	D		2963WK2	5.3	9+	35	10	236
09 12 29 2 13 18	D		545 B6	4.1v	89+	142	16	288

Occultazioni per PERUGIA

09 01 07 16 16 16	D		536cB7	5.5	83+	132	-5	43 96
09 01 07 16 26 4	D		537SB6	3.7s	83+	132	-6	45 98
09 01 07 16 33 26	D		539SB6	4.3	83+	132	-7	46 99
09 01 07 16 45 23	D		541cB8	3.9	83+	132	-9	48 101
09 01 07 16 55 51	D		542 B8	5.8	83+	132	-11	50 104
09 01 07 16 58 58	r		537SB6	3.7s	83+	132	-12	51 105
09 01 07 17 51 48	r		541cB8	3.9	84+	132	60	119
09 01 12 19 44 3	r		1375 K1	5.4	96-	156	19	87
09 01 14 22 47 51	r		1611DG9	5.6	80-	127	24	112
09 01 24 7 8 46	r		2750SB2	2.1	4-	22	5	11 143
09 02 05 19 32 21	D		844SB9	5.8s	80+	128	74	171
09 02 06 19 59 16	D		1030WA3	3.1s	89+	142	70	148
09 02 06 20 45 34	r		1030WA3	3.1s	89+	142	72	179
09 02 13 5 47 2	r		1800 A0	5.5	84-	133	-5	18 237
09 02 17 2 43 20	R		2263cB1	4.6	47-	87	13	146
09 02 17 5 55 22	r		2276 A3	5.6	47-	86	-3	20 189
09 02 17 7 49 12	r		2287SB1	2.9e	46-	86	16	13 214
09 02 21 4 26 1	r		2834cA4	5.0	13-	43	2	127
09 03 03 23 4 58	D		647WB9	5.4s	45+	84	14	292
09 03 13 0 57 11	r		1852cA2	6.0	95-	155	35	185
09 03 30 11 44 22	d		537SB6	3.7s	18+	49	50	52 107
09 03 30 12 23 26	d		541cB8	3.9	18+	50	48	59 117
09 03 30 13 0 52	D	Pleiade C	3.0	18+	50	44	64	130
09 03 30 13 37 50	M	552SB7	2.9s	18+	50	40	69	148
09 03 30 13 44 17	r	Pleiade C	3.0	18+	50	39	69	152
09 04 08 23 14 31	d		1800 A0	5.5	99+	171	37	192
09 04 13 1 36 30	R		2298 K3	5.0	88-	139	21	177
09 05 01 22 43 56	D		1337 F0	5.7	51+	91	19	274
09 05 01 23 3 21	D		1336 A5	5.2	51+	91	15	277
09 05 31 20 17 56	D		1623 A0	5.4	58+	99	35	229
09 06 10 1 52 18	r		2771cK2	5.6	95-	155	21	193
09 06 16 1 35 31	R		3494 A7	4.5	48-	88	26	114
09 06 30 21 27 25	D		1931 K1	4.8s	64+	107	15	231
09 07 03 19 29 5	D		2287SB1	2.9e	89+	141	-6	20 167
09 07 03 19 59 7	r		2287SB1	2.9e	89+	141	-10	21 174
09 07 03 22 3 55	D		2298 K3	5.0	89+	141	18	203
09 07 10 2 19 19	R		3108 M2	5.3	94-	151	30	198
09 07 16 23 30 51	r		399SA0	5.7	33-	70	6	68
09 07 18 1 26 23	D	Pleiade C	3.0	22-	56	18	74	
09 07 18 1 33 26	D		552SB7	2.9s	22-	56	19	75
09 07 18 1 53 34	R		545 B6	4.1v	22-	56	23	78
09 07 18 2 5 33	D		560cB8	3.6s	22-	55	25	79
09 07 18 2 7 3	R	Pleiade C	3.0	22-	55	26	80	
09 07 18 2 22 16	R		552SB7	2.9s	22-	55	28	82
09 07 18 3 4 5	R		560cB8	3.6s	21-	55	-7	36 89
09 07 18 3 7 32	R		561cB7	5.1v	21-	55	-7	36 89
09 08 30 19 21 38	d		2771cK2	5.6	80+	126	22	176
09 09 04 0 55 24	d		3278 B8	5.4	100+	172	30	220
09 09 05 19 52 41	R		3494 A7	4.5	99-	166	23	110
09 09 15 4 5 50	R		1259 A9	5.9	17-	48	-9	36 98
09 10 07 2 50 5	R	X 54005DA2	5.6	91-	145	59	233	
09 10 07 2 50 8	R		440SA2	4.7	91-	145	59	233
09 10 07 21 19 57	R		556cB8	5.4	85-	134	31	86
09 10 11 11 15 55	r		1110SF0	3.5	49-	89	40	14 287
09 10 13 1 8 35	R		1337 F0	5.7	31-	67	15	83
09 10 13 1 13 35	R		1336 A5	5.2	31-	67	16	84
09 10 21 15 25 27	D		2366dM1	1.1v	13+	42	8	16 205
09 10 21 16 29 50	R		2366dM1	1.1v	13+	42	-3	10 218
09 10 26 21 21 41	d		3064 A2	5.9	57+	99	13	233
09 10 28 17 38 27	d		3285cG6	5.9	75+	119	36	153
09 10 30 16 11 28	d		3512 K4	5.6	89+	142	-2	21 106
09 11 05 19 30 24	r		822SB9	5.8	88-	140	15	70
09 11 07 4 58 21	R		1050 K5	5.7	77-	123	-10	58 242
09 11 26 18 56 18	D		3482cF6	5.7	68+	111	49	192
09 11 30 18 2 1	D	X 54005DA2	5.6	97+	159	42	99	
09 11 30 18 2 2	D		440SA2	4.7	97+	159	42	99
09 12 01 19 56 46	d		598SG0	5.5s	100+	173	53	108
09 12 03 19 41 44	r		936cK0	5.8	97-	159	29	82
09 12 04 20 50 56	d		1110SF0	3.5	91-	144	28	85
09 12 04 21 51 4	R		1110SF0	3.5	90-	144	39	96
09 12 05 1 47 47	R		1129SF5	5.3	90-	142	68	183
09 12 07 6 1 24	R		1409cK0	5.0	70-	113	-5	46 235
09 12 09 3 42 24	R		1623 A0	5.4	48-	88	42	149
09 12 19 17 18 3	D		2963WK2	5.3	9+	35	10	232
09 12 29 2 48 5	d		556cB8	5.4	90+	142	12	291

Data	Ora	P	StellaSp	Mag	%	Elon	Sole	Luna
a m g h m s			No D	V	ill	Alt	Alt	Az
09 01 07 16 17 7	D		536cB7	5.5	83+	132	-6	46 96
09 01 07 16 31 29	D		539SB6	4.3	83+	132	-9	49 99
09 01 07 16 41 16	M		537SB6	3.7s	83+	132	-10	51 101
09 01 07 16 47 25	D		541cB8	3.9	83+	132	-11	52 102
09 01 07 16 53 46	D		542 B8	5.8	83+	132	53	103
09 01 07 17 49 55	r		541cB8	3.9	84+	132	63	119
09 01 12 19 44 26	r		1375 K1	5.4	96-	156	21	88
09 01 14 22 51 11	R		1611DG9	5.6	80-	127	28	114
09 01 24 6 46 22	d		2750SB2	2.1	4-	22	5	12 141
09 01 24 7 7 6	R		2750SB2	2.1	4-	22	8	15 145
09 02 05 19 35 15	D		844SB9	5.8s	80+	128	76	185
09 02 06 20 15 10	D		1030WA3	3.1s	89+	142	74	165
09 02 06 20 45 48	r		1030WA3	3.1s	89+	142	74	191
09 02 17 2 46 24	R		2263cB1	4.6	47-	87	17	149
09 02 17 8 2 13	r		2287SB1	2.9e	46-	86	22	12 220
09 02 21 4 25 53	R		2834cA4	5.0	13-	43	6	129
09 03 03 23 7 6	d		647WB9	5.4s	45+	84	10	295
09 03 13 1 4 43	r		1852cA2	6.0	95-	155	37	191
09 03 30 11 47 12	d		537SB6	3.7s	18+	50	52	56 108
09 03 30 12 22 37	d		541cB8	3.9	18+	50	49	62 117
09 03 30 13 25 28	m	Pleiade C	3.0	18+	50	41	71	145
09 04 08 23 22 46	d		1800 A0	5.5	99+	171	38	199
09 04 13 1 46 8	R		2298 K3	5.0	88-	139	24	183
09 04 29 15 19 44	M		1030WA3	3.1s	25+	61	27	74 188
09 05 01 22 48 4	d		1337 F0	5.7	50+	91	15	278
09 05 01 23 7 51	d		1336 A5	5.2	51+	91	11	281
09 05 10 20 15 47	R		2366dM1	1.1v	97-	160	4	130
09 05 31 20 26 2	D		1623 A0	5.4	58+	99	34	235
09 06 10 2 1 15	r		2771cK2	5.6	95-	155	22	199
09 06 16 1 32 5	R		3494 A7	4.5	48-	88	29	115
09 06 30 21 38 11	D		1931 K1	4.8s	64+	107	12	236
09 07 03 19 36 27	D		2287SB1	2.9e	89+	141	-11	23 172
09 07 03 20 4 43	r		2287SB1	2.9e	89+	141	23	179
09 07 03 22 9 8	D		2298 K3	5.0	89+	141	18	208
09 07 10 2 14 27	R		3108 M2	5.3	94-	151	32	201
09 07 16 23 20 44	r		399SA0	5.7	33-	70	6	68
09 07 18 0 56 45	M		537SB6	3.7s	22-	56	15	71
09 07 18 1 19 36	D	Pleiade C	3.0	22-	56	19	74	
09 07 18 1 27 50	D		552SB7	2.9s	22-	56	20	75
09 07 18 1 50 48	R		545 B6	4.1v	22-	56	25	79
09 07 18 2 3 6	D		560cB8	3.6s	22-	55	26	80
09 07 18 2 7 9	R	Pleiade C	3.0	22-	55	28	81	
09 07 18 2 21 21	R		552SB7	2.9s	22-	55	30	83
09 07 18 3 0 39	R		560cB8	3.6s	21-	55	-7	37 89
09 07 18 3 5 40	R		561cB7	5.1v	21-	55	-7	38 89
09 08 30 19 27 37	d		2771cK2	5.6	80+	126	25	181
09 09 04 1 5 24	d		3278 B8	5.4	100+	172	29	227
09 09 05 19 49 2	R		3494 A7	4.5	99-	166	25	111
09 10 07 2 46 36	R	X 54005DA2	5.6	91-	145	59	240	
09 10 07 2 46 41	R		440SA2	4.7	91-	145	59	240
09 10 07 21 40 2	d		560cB8	3.6s	85-	134	38	89
09 10 07 21 54 42	R		560cB8	3.6s	85-	134	40	91
09 10 13 1 10 12	R		1336 A5	5.2	31-	67	18	85
09 10 13 1 11 17	R		1337 F0	5.7	31-	67	18	85
09 10 21 15 37 3	D		2366dM1	1.1v	13+	42	5	16 210
09 10 21 16 32 50	R		2366dM1	1.1v	13+	42	-5	10 222
09 10 26 21 24 38	d		3064 A2	5.9	57+	99	12	236
09 10 28 17 38 25	D		3285cG6	5.9	75+	119	39	156
09 11 05 19 26 17	r		822SB9	5.8	88-	140	16	70
09 11 07 5 6 38	R		1050 K5	5.7	77-	123	-6	55 252
09 11 26 18 55 7	D		3482cF6	5.7	68+	111	50	198
09 11 30 17 58 2	D	X 54005DA2	5.6	97+	159	44	99	
09 11 30 17 58 3	D		440SA2	4.7	97+	159	44	99
09 12 01 20 4 3	d		598SG0	5.5s	100+	173	57	110
09 12 03 19 33 9	r		936cK0	5.8	97-	159	29	82

Data	Ora	P	StellaSp	Mag	% Elon	Sole Luna		Data	Ora	P	StellaSp	Mag	% Elon	Sole Luna	
a m g h m s			No D	V	ill	Alt Alt Az		a m g h m s			No D	V	ill	Alt Alt Az	
09 01 12 19 43 35	r		1375 K1	5.4	96-	156	19 86	09 01 24 7 4 25	r		2750SB2	2.1	4-	22	0 7 139
09 01 14 22 48 26	r		1611DG9	5.6	80-	127	25 111	09 02 05 19 28 34	D		844SB9	5.8s	81+	128	71 156
09 01 24 6 44 3	d		2750SB2	2.1	4-	22	2 9 139	09 02 06 19 46 39	D		1030WA3	3.1s	89+	142	64 134
09 01 24 7 3 23	r		2750SB2	2.1	4-	22	5 12 142	09 02 06 20 40 8	r		1030WA3	3.1s	89+	142	69 163
09 02 05 19 30 28	D		844SB9	5.8s	80+	128	75 169	09 02 07 4 0 34	d		1070 G5	5.2v	91+	146	11 294
09 02 06 20 4 1	D		1030WA3	3.1s	89+	142	71 149	09 02 13 5 39 12	r		1800 A0	5.5	84-	133	-10 21 231
09 02 06 20 42 1	r		1030WA3	3.1s	89+	142	73 177	09 02 17 2 39 55	R		2263cB1	4.6	47-	87	9 141
09 02 13 5 50 21	r		1800 A0	5.5	84-	133	-4 18 238	09 02 17 5 44 59	R		2276 A3	5.6	47-	86	-8 19 182
09 02 17 2 43 4	R		2263cB1	4.6	47-	87	14 146	09 02 17 7 34 29	r		2287SB1	2.9e	46-	86	10 14 207
09 02 17 5 55 39	r		2276 A3	5.6	47-	86	-2 21 189	09 03 03 23 2 42	D		647WB9	5.4s	45+	84	18 288
09 02 17 7 52 13	r		2287SB1	2.9e	46-	86	18 14 215	09 03 13 0 49 31	r		1852cA2	6.0	95-	155	33 177
09 02 21 4 24 39	R		2834cA4	5.0	13-	43	3 127	09 03 30 11 41 57	d		537SB6	3.7s	18+	49	49 48 104
09 03 03 23 6 5	D		647WB9	5.4s	45+	84	13 293	09 03 30 12 24 18	d		541cB8	3.9	18+	50	47 55 114
09 03 13 0 58 50	r		1852cA2	6.0	95-	155	36 185	09 03 30 12 48 53	D	Pleiade C	3.0	18+	50	46 59 122	
09 03 30 11 43 11	d		537SB6	3.7s	18+	49	52 52 105	09 03 30 13 10 44	D		552SB7	2.9s	18+	50	44 62 129
09 03 30 12 21 5	d		541cB8	3.9	18+	50	49 59 114	09 03 30 13 46 52	r	Pleiade C	3.0	18+	50	40 66 146	
09 03 30 13 3 30	D	Pleiade C	3.0	18+	50	45 65 129		09 03 30 13 54 24	r		552SB7	2.9s	18+	50	39 67 149
09 03 30 13 38 37	r	Pleiade C	3.0	18+	50	40 70 147		09 04 08 23 5 41	d		1800 A0	5.5	99+	171	35 183
09 04 08 23 15 57	d		1800 A0	5.5	99+	171	38 193	09 04 13 1 29 17	R		2298 K3	5.0	88-	139	19 171
09 04 13 1 39 19	R		2298 K3	5.0	88-	139	22 178	09 05 01 22 39 56	D		1337 F0	5.7	51+	91	23 270
09 05 01 22 45 53	d		1337 F0	5.7	50+	91	18 275	09 05 01 23 1 22	D		1336 A5	5.2	51+	91	19 273
09 05 01 23 6 52	d		1336 A5	5.2	51+	91	14 278	09 05 31 20 9 17	D		1623 A0	5.4	58+	99	-9 37 220
09 05 10 20 15 2	r		2366dM1	1.1v	97-	160	1 127	09 06 10 1 40 28	r		2771cK2	5.6	95-	155	20 185
09 05 31 20 20 5	D		1623 A0	5.4	58+	99	36 230	09 06 16 1 36 54	R		3494 A7	4.5	48-	88	23 111
09 06 10 1 53 14	r		2771cK2	5.6	95-	155	22 193	09 06 30 21 17 31	D		1931 K1	4.8s	64+	107	17 225
09 06 16 1 33 1	R		3494 A7	4.5	48-	88	26 113	09 07 03 19 25 55	d		2287SB1	2.9e	89+	141	-2 17 162
09 06 30 21 30 45	D		1931 K1	4.8s	64+	107	15 232	09 07 03 19 47 2	r		2287SB1	2.9e	89+	141	-5 18 167
09 07 03 19 33 9	D		2287SB1	2.9e	89+	141	-8 21 168	09 07 03 21 56 16	D		2298 K3	5.0	89+	142	17 197
09 07 03 19 55 39	r		2287SB1	2.9e	89+	141	-11 22 174	09 07 10 2 18 45	R		3108 M2	5.3	94-	151	29 193
09 07 03 22 3 40	D		2298 K3	5.0	89+	141	19 203	09 07 16 23 38 38	r		399SA0	5.7	33-	70	5 67
09 07 10 2 17 15	R		3108 M2	5.3	94-	151	31 198	09 07 18 1 34 15	D	Pleiade C	3.0	22-	56	17 73	
09 07 16 23 27 52	r		399SA0	5.7	33-	70	5 68	09 07 18 1 39 28	D		552SB7	2.9s	22-	56	18 73
09 07 18 1 23 49	D	Pleiade C	3.0	22-	56	18 73		09 07 18 1 55 9	R		545 B6	4.1v	22-	56	21 76
09 07 18 1 31 9	D		552SB7	2.9s	22-	56	19 74	09 07 18 2 4 40	R	Pleiade C	3.0	22-	56	22 78	
09 07 18 1 52 2	R		545 B6	4.1v	22-	56	23 77	09 07 18 2 8 9	d		560cB8	3.6s	22-	55	22 78
09 07 18 2 3 52	d		560cB8	3.6s	22-	55	24 79	09 07 18 2 21 27	R		552SB7	2.9s	22-	55	25 80
09 07 18 2 6 11	R	Pleiade C	3.0	22-	55	25 79		09 07 18 3 5 36	R		560cB8	3.6s	21-	55	-9 32 87
09 07 18 2 21 3	R		552SB7	2.9s	22-	55	28 82	09 07 18 3 7 28	R		561cB7	5.1v	21-	55	-8 33 87
09 07 18 3 1 59	R		560cB8	3.6s	21-	55	-8 35 88	09 08 14 11 28 39	r		537SB6	3.7s	43-	82	59 19 285
09 07 18 3 5 47	R		561cB7	5.1v	21-	55	-8 36 88	09 08 14 12 18 24	r	Pleiade C	3.0	43-	82	58 11 293	
09 08 30 19 21 6	d		2771cK2	5.6	80+	126	23 176	09 08 14 12 30 29	r		552SB7	2.9s	43-	81	57 9 295
09 09 04 0 56 51	d		3278 B8	5.4	100+	172	31 221	09 08 30 19 13 47	d		2771cK2	5.6	80+	126	-12 20 170
09 09 05 19 50 9	R		3494 A7	4.5	99-	166	23 109	09 09 04 0 46 12	d		3278 B8	5.4	100+	172	32 212
09 09 15 3 53 22	m		1259 A9	5.9	17-	49	-11 34 95	09 09 05 19 54 32	R		3494 A7	4.5	99-	166	19 107
09 10 07 2 46 47	R	X	54005DA2	5.6	91-	145	61 234	09 09 10 22 22 29	r		598SG0	5.5s	62-	104	18 74
09 10 07 2 46 50	R		440SA2	4.7	91-	145	61 234	09 09 15 4 11 43	R		1259 A9	5.9	17-	48	-11 33 97
09 10 07 21 15 25	R		556cB8	5.4	85-	134	30 85	09 10 07 2 47 6	R	X	54005DA2	5.6	91-	145	61 222
09 10 13 1 9 13	R		1337 F0	5.7	31-	67	15 83	09 10 07 2 47 8	R		440SA2	4.7	91-	145	61 222
09 10 13 1 11 48	R		1336 A5	5.2	31-	67	16 83	09 10 07 21 28 28	R		556cB8	5.4	85-	134	30 85
09 10 21 15 27 32	D		2366dM1	1.1v	13+	42	8 17 205	09 10 11 11 13 10	r		1110SF0	3.5	49-	89	38 18 283
09 10 21 16 30 9	R		2366dM1	1.1v	13+	42	-3 11 218	09 10 13 1 4 12	R		1337 F0	5.7	31-	67	12 80
09 10 26 21 21 57	d		3064 A2	5.9	57+	99	14 233	09 10 13 1 15 25	R		1336 A5	5.2	31-	67	13 82
09 10 28 17 36 17	d		3285cG6	5.9	75+	119	37 152	09 10 21 15 13 37	D		2366dM1	1.1v	13+	42	12 17 198
09 10 30 16 15 29	m		3512 K4	5.6	89+	142	-2 22 107	09 10 21 16 23 53	r		2366dM1	1.1v	13+	42	1 11 213
09 11 05 19 28 50	r		822SB9	5.8	88-	140	15 69	09 10 26 21 19 11	d		3064 A2	5.9	57+	99	15 228
09 11 07 5 0 40	R		1050 K5	5.7	77-	123	-10 58 245	09 10 28 17 37 26	d		3285cG6	5.9	75+	120	33 148
09 11 26 18 53 57	D		3482cF6	5.7	68+	111	50 192	09 11 05 19 33 37	r		822SB9	5.8	88-	140	13 68
09 11 30 17 59 21	D	X	54005DA2	5.6	97+	159	41 98	09 11 07 4 49 25	R		1050 K5	5.7	77-	123	61 230
09 11 30 17 59 23	D		440SA2	4.7	97+	159	41 98	09 11 26 18 58 35	D	X	3482cF6	5.7	68+	111	47 186
09 12 01 19 56 40	d		598SG0	5.5s	100+	173	53 106	09 11 30 18 6 5	D	X	54005DA2	5.6	97+	159	39 98
09 12 03 19 38 33	r		936cK0	5.8	97-	159	28 81	09 11 30 18 6 7	D		440SA2	4.7	97+	159	39 98
09 12 04 20 50 30	d		1110SF0	3.5	91-	144	28 85	09 12 01 19 51 23	d		598SG0	5.5s	100+	173	48 104
09 12 04 21 49 10	R		1110SF0	3.5	90-	144	39 94	09 12 03 19 46 33	r		936cK0	5.8	97-	159	27 81
09 12 05 1 45 27	R		1129SF5	5.3	90-	142	69 182	09 12 04 20 49 36	d		1110SF0	3.5	91-	144	25 83
09 12 07 6 3 59	R		1409cK0	5.0	70-	113	-4 46 237	09 12 04 21 50 21	R		1110SF0	3.5	90-	144	35 94
09 12 09 3 47 44	R		1623 A0	5.4	48-	88	44 150	09 12 05 1 40 21	R		1129SF5	5.3	90-	142	66 168
09 12 19 17 20 23	D		2963WK2	5.3	9+	35	10 233	09 12 07 5 53 54	R		1409cK0	5.0	70-	113	-10 48 226
09 12 29 2 51 47	d		556cB8	5.4	90+	142	11 291	09 12 09 3 37 30	R		1623 A0	5.4	48-	88	38 142
								09 12 19 17 9 17	D		2963WK2	5.3	9+	35	12 226
								09 12 29 2 46 1	d		556cB8	5.4	90+	142	17 287

Occultazioni per TORINO															
Data	Ora	P	StellaSp	Mag	% Elon	Sole Luna		Data	Ora	P	StellaSp	Mag	% Elon	Sole Luna	
a m g h m s			No D	V	ill	Alt Alt Az		a m g h m s			No D	V	ill	Alt Alt Az	
09 01 07 16 15 41	d		536cB7	5.5	83+	132	-2 40 94	09 01 07 16 19 27	D		536cB7	5.5	83+	132	-6 43 98
09 01 07 16 18 50	D		537SB6	3.7s	83+	132	-3 40 95	09 01 07 16 23 54	D		537SB6	3.7s	83+	132	-6 43 99
09 01 07 16 35 24	D		539SB6	4.3	83+	132	-6 43 98	09 01 07 16 38 51	D		539SB6	4.3	83+	132	-9 46 102
09 01 07 16 43 44	D		541cB8	3.9	83+	132	-7 44 99	09 01 07 16 48 3	D		541cB8	3.9	83+	132	-10 47 104
09 01 07 16 58 0	D		542 B8	5.8	83+	132	-9 47 102	09 01 07 17 1 41	D		542 B8	5.8	83+	132	50 107
09 01 07 17 5 56	r		537SB6	3.7s	83+	132	-10 48 105	09 01 07 17 9 17	r		537SB6	3.7s	83+	132	51 110
09 01 07 17 50 24	r		541cB8	3.9	84+	132	56 115	09 01							

Data	Ora	P	StellaSp	Mag	% Elon	Sole	Luna	
a m g h m s			No D	V	ill	Alt	Alt Az	
09 02 05 19 36 59	D		844SB9	5.8s	81+	128	71 172	
09 02 06 19 50 4	D		1030WA3	3.1s	89+	142	66 144	
09 02 06 20 48 40	r		1030WA3	3.1s	89+	142	69 178	
09 02 07 3 59 28	d		1070 G5	5.2v	91+	146	9 296	
09 02 13 5 38 21	r		1800 A0	5.5	84-	133	-8 19 233	
09 02 17 2 43 7	R		2263cB1	4.6	47-	87	10 145	
09 02 17 5 52 10	r		2276 A3	5.6	47-	86	-5 17 187	
09 02 17 7 39 2	r		2287SB1	2.9e	46-	86	13 12 210	
09 03 03 23 2 11	D		647WB9	5.4s	45+	84	16 290	
09 03 13 0 51 55	r		1852cA2	6.0	95-	155	32 181	
09 03 30 11 46 48	d		537SB6	3.7s	18+	49	48 51 110	
09 03 30 12 29 4	d		541cB8	3.9	18+	50	45 57 121	
09 03 30 12 55 27	D	Pleiade C		3.0	18+	50	43 61 130	
09 03 30 13 17 44	D	552SB7		2.9s	18+	50	41 64 139	
09 03 30 13 53 7	r	Pleiade C		3.0	18+	50	36 67 158	
09 03 30 14 0 46	r	552SB7		2.9s	18+	50	35 67 162	
09 04 08 23 9 36	d	1800 A0		5.5	99+	171	34 189	
09 04 13 1 28 7	R	2298 K3		5.0	88-	139	18 174	
09 05 01 22 39 0	D	1337 F0		5.7	51+	91	21 271	
09 05 01 22 56 18	D	1336 A5		5.2	51+	91	17 274	
09 05 31 20 11 27	D	1623 A0		5.4	58+	99	-11 35 224	
09 06 10 1 47 38	r	2771cK2		5.6	95-	155	19 190	
09 06 16 1 40 57	R	3494 A7		4.5	48-	88	25 116	
09 06 30 21 18 45	D	1931 K1		4.8s	64+	107	14 227	
09 07 03 19 22 58	D	2287SB1		2.9e	89+	141	-3 17 165	
09 07 03 20 1 14	r	2287SB1		2.9e	89+	141	-8 18 174	
09 07 03 22 2 52	D	2298 K3		5.0	89+	142	15 201	
09 07 10 2 22 36	R	3108 M2		5.3	94-	151	-10 27 197	
09 07 16 23 38 18	r	399SA0		5.7	33-	70	8 69	
09 07 18 1 34 2	D	Pleiade C		3.0	22-	56	20 75	
09 07 18 1 39 53	D	552SB7		2.9s	22-	56	20 76	
09 07 18 1 57 7	R	545 B6		4.1v	22-	56	23 79	
09 07 18 2 8 1	R	Pleiade C		3.0	22-	56	25 81	
09 07 18 2 9 52	d	560cB8		3.6s	22-	55	25 81	
09 07 18 2 24 27	R	552SB7		2.9s	22-	55	-11 28 83	
09 07 18 3 8 34	R	560cB8		3.6s	21-	55	-6 35 91	
09 07 18 3 10 53	R	561cB7		5.1v	21-	55	-5 36 91	
09 08 14 11 26 47	r	537SB6		3.7s	43-	82	58 17 287	
09 08 30 19 20 52	d	2771cK2		5.6	80+	126	19 175	
09 09 04 0 50 58	d	3278 B8		5.4	100+	172	29 217	
09 09 05 19 58 15	R	3494 A7		4.5	99-	166	22 111	
09 09 10 22 21 46	R	598SG0		5.5s	62-	104	21 76	
09 09 15 4 16 59	R	1259 A9		5.9	17-	48	-7 36 101	
09 10 07 2 53 45	R X	54005DA2		5.6	91-	145	58 229	
09 10 07 2 53 47	R	440SA2		4.7	91-	145	58 229	
09 10 07 21 29 53	R	556cB8		5.4	85-	134	32 89	
09 10 11 11 12 19	r	1110SF0		3.5	49-	89	37 16 285	
09 10 13 1 4 55	R	1337 F0		5.7	31-	67	14 82	
09 10 13 1 17 9	R	1336 A5		5.2	31-	67	16 85	
09 10 21 15 18 53	D	2366dM1		1.1v	13+	41	9 15 202	
09 10 21 16 27 6	R	2366dM1		1.1v	13+	42	-2 9 216	
09 10 26 21 20 50	d	3064 A2		5.9	57+	99	12 231	
09 10 28 17 42 43	d	3285cG6		5.9	75+	120	33 153	
09 10 30 16 9 5	d	3512 K4		5.6	89+	142	-2 19 106	
09 11 05 19 34 27	r	822SB9		5.8	88-	140	16 70	
09 11 07 4 51 3	R	1050 K5		5.7	77-	123	59 234	
09 11 26 19 2 20	D	3482cF6		5.7	68+	111	46 192	
09 11 30 18 8 50	D X	54005DA2		5.6	97+	159	41 102	
09 11 30 18 8 52	D	440SA2		4.7	97+	159	41 102	
09 12 01 19 56 37	d	598SG0		5.5s	100+	173	51 110	
09 12 03 19 48 43	r	936cK0		5.8	97-	159	29 84	
09 12 04 20 52 8	d	1110SF0		3.5	91-	144	28 86	
09 12 04 21 54 11	R	1110SF0		3.5	90-	144	38 98	
09 12 05 1 48 50	R	1129SF5		5.3	90-	142	65 181	
09 12 07 5 54 15	R	1409cK0		5.0	70-	113	-8 46 229	
09 12 19 17 11 46	D	2963WK2		5.3	9+	35	10 230	
09 12 29 2 40 49	d	556cB8		5.4	90+	142	15 288	

Occultazioni per TRIESTE

09 01 07 16 20 52	D	536cB7	5.5	83+	132	-7 45 100	
09 01 07 16 28 0	D	537SB6	3.7s	83+	132	-8 46 102	
09 01 07 16 39 18	D	539SB6	4.3	83+	132	-10 48 104	
09 01 07 16 50 3	D	541cB8	3.9	83+	132	50 107	
09 01 07 17 2 7	D	542 B8	5.8	83+	132	52 109	
09 01 07 17 8 8	r	537SB6	3.7s	83+	132	52 112	
09 01 07 17 57 57	r	541cB8	3.9	84+	132	60 126	
09 01 12 19 45 23	r	1375 K1	5.4	96-	156	20 89	
09 01 14 22 46 52	r	1611DG9	5.6	80-	127	24 114	
09 01 24 7 19 53	r	2750SB2	2.1	4-	22	6 11 147	
09 02 05 19 40 28	D	844SB9	5.8s	81+	128	71 181	
09 02 06 19 54 57	D	1030WA3	3.1s	89+	142	67 151	
09 02 06 20 53 19	r	1030WA3	3.1s	89+	142	69 188	

Data			Ora	P	StellaSp	Mag	% Elon	Sole	Luna		
a	m	g	h	m	s	No	D	V	ill	Alt	Alt Az
09	02	13	5	40	43	r	1800 A0	5.5	84-	133	-6 17 236
09	02	17	2	45	13	R	2263cB1	4.6	47-	87	12 148
09	02	17	7	45	32	r	2287SB1	2.9e	46-	86	15 11 214
09	02	21	4	30	3	r	2834cA4	5.0	13-	43	2 129
09	03	03	23	2	48	D	647WB9	5.4s	45+	84	14 292
09	03	13	0	54	58	r	1852cA2	6.0	95-	155	33 185
09	03	30	11	49	9	d	537SB6	3.7s	18+	49	47 53 113
09	03	30	12	30	14	d	541cB8	3.9	18+	50	45 59 124
09	03	30	13	1	10	D	Pleiade C	3.0	18+	50	42 63 136
09	03	30	13	25	38	D	552SB7	2.9s	18+	50	39 66 148
09	03	30	13	54	45	r	Pleiade C	3.0	18+	50	35 68 164
09	03	30	14	0	38	r	552SB7	2.9s	18+	50	34 68 168
09	04	08	23	13	54	d	1800 A0	5.5	99+	170	34 193
09	04	13	1	28	19	R	2298 K3	5.0	88-	139	19 176
09	05	01	22	40	5	D	1337 F0	5.7	51+	91	18 274
09	05	01	22	55	48	D	1336 A5	5.2	51+	91	15 276
09	05	31	20	15	3	D	1623 A0	5.4	58+	99	33 228
09	06	10	1	53	36	r	2771cK2	5.6	95-	155	-11 18 194
09	06	16	1	41	44	R	3494 A7	4.5	48-	88	27 118
09	06	30	21	22	25	D	1931 K1	4.8s	64+	107	13 231
09	07	03	19	24	37	D	2287SB1	2.9e	89+	141	-5 17 168
09	07	03	20	8	1	r	2287SB1	2.9e	89+	141	-10 18 178
09	07	03	22	6	45	d	2298 K3	5.0	89+	141	15 205
09	07	10	2	23	44	R	3108 M2	5.3	94-	151	-9 27 200
09	07	16	23	35	33	r	399SA0	5.7	33-	70	9 70
09	07	18	1	4	53	d	545 B6	4.1v	22-	56	16 72
09	07	18	1	31	19	D	Pleiade C	3.0	22-	56	21 76
09	07	18	1	38	0	D	552SB7	2.9s	22-	56	22 77
09	07	18	1	57	15	R	545 B6	4.1v	22-	56	25 81
09	07	18	2	9	36	d	560cB8	3.6s	22-	55	27 82
09	07	18	2	9	52	R	Pleiade C	3.0	22-	55	27 83
09	07	18	2	25	43	R	552SB7	2.9s	22-	55	-10 30 85
09	07	18	3	9	6	R	560cB8	3.6s	21-	55	-4 37 93
09	07	18	3	12	3	R	561cB7	5.1v	21-	55	-4 38 93
09	08	14	11	27	0	r	537SB6	3.7s	43-	82	58 15 289
09	08	30	19	25	28	d	2771cK2	5.6	80+	126	20 179
09	09	04	0	55	8	d	3278 B8	5.4	100+	172	28 221
09	09	05	19	58	47	R	3494 A7	4.5	99-	166	24 113
09	09	10	22	15	16	R	598SG0	5.5s	62-	104	21 77
09	09	15	4	17	46	r	1259 A9	5.9	17-	48	-5 38 103
09	10	07	2	56	57	R X	54005DA2	5.6	91-	145	56 234
09	10	07	2	56	59	R	440SA2	4.7	91-	145	56 234
09	10	07	21	27	24	R	556cB8	5.4	85-	134	34 90
09	10	11	11	12	47	r	1110SF0	3.5	49-	89	37 14 287
09	10	13	1	7	7	R	1337 F0	5.7	31-	67	16 84
09	10	13	1	17	19	R	1336 A5	5.2	31-	67	18 86
09	10	21	15	24	20	D	2366dM1	1.1v	13+	41	7 14 205
09	10	21	16	29	51	R	2366dM1	1.1v	13+	42	-4 8 219
09	10	26	21	21	59	d	3064 A2	5.9	57+	99	11 233
09	10	28	17	44	41	d	3285cG6	5.9	75+	119	35 157
09	10	30	16	12	37	d	3512 K4	5.6	89+	142	-4 21 109
09	11	05	19	33	41	r	822SB9	5.8	88-	140	18 72
09	11	07	4	54	20	R	1050 K5	5.7	77-	123	-11 57 239
09	11	26	19	2	39	D	3482cF6	5.7	68+	111	46 196
09	11	30	18	8	21	D X	54005DA2	5.6	97+	159	43 104
09	11	30	18	8	23	D	440SA2	4.7	97+	159	43 104
09	12	01	19	59	59	d	598SG0	5.5s	100+	173	53 113
09	12	03	19	47	58	r	936cK0	5.8	97-	159	31 86
09	12	04	20	53	25	d	1110SF0	3.5	91-	144	30 88
09	12	04	21	55	56	R	1110SF0	3.5	90-	144	41 100
09	12	05	1	53	54	R	1129SF5	5.3	90-	142	66 189
09	12	07	5	56	42	R	1409cK0	5.0	70-	113	-6 44 233
09	12	19	17	15	14	D	2963WK2	5.3	9+	35	8 232
09	12	29	2	40	19	d	556cB8	5.4	90+	142	14 292

Data	Ora	P	StellaSp	Mag	% Elon	Sole	Luna		Data	Ora	P	StellaSp	Mag	% Elon	Sole	Luna	
a m g h m s			No D	V	ill	Alt	Alt Az		a m g h m s			No D	V	ill	Alt	Alt Az	
09 02 17 7 43 10	r		2287SB1	2.9e	46-	86	14 12 212		09 09 04 0 53 9	d		3278 B8	5.4	100+	172	29 219	
09 03 03 23 2 51	D		647WB9	5.4s	45+	84	15 291		09 09 05 19 57 35	R		3494 A7	4.5	99-	166	23 112	
09 03 13 0 53 54	r		1852cA2	6.0	95-	155	33 183		09 09 10 22 17 41	R		598SG0	5.5s	62-	104	21 76	
09 03 30 11 47 14	d		537SB6	3.7s	18+	49	48 52 110		09 09 15 4 15 59	R		1259 A9	5.9	17-	48	-7 37 102	
09 03 30 12 28 32	d		541cB8	3.9	18+	50	46 58 122		09 10 07 2 54 34	R X		54005DA2	5.6	91-	145	57 232	
09 03 30 12 58 13	D		Pleiade C	3.0	18+	50	43 62 133		09 10 07 2 54 36	R		440SA2	4.7	91-	145	57 232	
09 03 30 13 22 13	D		552SB7	2.9s	18+	50	40 65 143		09 10 07 21 27 32	R		556cB8	5.4	85-	134	33 89	
09 03 30 13 52 40	r		Pleiade C	3.0	18+	50	36 68 159		09 10 11 11 13 6	r		1110SF0	3.5	49-	89	37 15 286	
09 03 30 13 58 51	r		552SB7	2.9s	18+	50	35 68 163		09 10 13 1 6 29	R		1337 F0	5.7	31-	67	15 83	
09 04 08 23 11 59	d		1800 A0	5.5	99+	171	35 191		09 10 13 1 16 42	R		1336 A5	5.2	31-	67	17 85	
09 04 13 1 29 56	R		2298 K3	5.0	88-	139	19 175		09 10 21 15 21 59	D		2366dM1	1.1v	13+	41	8 15 204	
09 05 01 22 40 12	D		1337 F0	5.7	51+	91	19 273		09 10 21 16 28 39	R		2366dM1	1.1v	13+	42	-3 9 218	
09 05 01 22 57 10	D		1336 A5	5.2	51+	91	16 276		09 10 26 21 21 23	d		3064 A2	5.9	57+	99	12 232	
09 05 31 20 13 50	D		1623 A0	5.4	58+	99	-12 34 226		09 10 28 17 42 48	d		3285cG6	5.9	75+	119	34 155	
09 06 10 1 50 44	r		2771cK2	5.6	95-	155	19 192		09 10 30 16 10 24	d		3512 K4	5.6	89+	142	-2 20 107	
09 06 16 1 40 26	R		3494 A7	4.5	48-	88	26 116		09 11 05 19 33 32	r		822SB9	5.8	88-	140	16 71	
09 06 30 21 21 28	D		1931 K1	4.8s	64+	107	14 229		09 11 07 4 53 31	R		1050 K5	5.7	77-	123	-12 58 237	
09 07 03 19 24 24	D		2287SB1	2.9e	89+	141	-4 17 166		09 11 26 19 1 24	D		3482cF6	5.7	68+	111	46 193	
09 07 03 20 3 44	r		2287SB1	2.9e	89+	141	-9 18 176		09 11 30 18 7 30	D X		54005DA2	5.6	97+	159	42 102	
09 07 03 22 4 32	D		2298 K3	5.0	89+	142	15 203		09 11 30 18 7 32	D		440SA2	4.7	97+	159	42 102	
09 07 10 2 22 42	R		3108 M2	5.3	94-	151	-10 28 199		09 12 01 19 57 48	d		598SG0	5.5s	100+	173	52 111	
09 07 16 23 36 6	r		399SA0	5.7	33-	70	8 69		09 12 03 19 47 26	r		936cK0	5.8	97-	159	30 85	
09 07 18 1 31 41	D		Pleiade C	3.0	22-	56	20 75		09 12 04 20 52 23	d		1110SF0	3.5	91-	144	29 87	
09 07 18 1 38 5	D		552SB7	2.9s	22-	56	21 76		09 12 04 21 54 27	R		1110SF0	3.5	90-	144	39 98	
09 07 18 1 56 36	R		545 B6	4.1v	22-	56	24 80		09 12 05 1 50 45	R		1129SF5	5.3	90-	142	66 184	
09 07 18 2 8 37	R		Pleiade C	3.0	22-	55	26 81		09 12 07 5 56 19	R		1409cK0	5.0	70-	113	-7 45 232	
09 07 18 2 9 4	d		560cB8	3.6s	22-	55	26 81		09 12 19 17 14 1	D		2963WK2	5.3	9+	35	9 231	
09 07 18 2 24 37	R		552SB7	2.9s	22-	55	-11 29 84		09 12 29 2 41 38	d		556cB8	5.4	90+	142	14 289	
09 07 18 3 8 7	R		560cB8	3.6s	21-	55	-5 36 91										
09 07 18 3 10 50	R		561cB7	5.1v	21-	55	-5 37 92										
09 08 14 11 27 37	r		537SB6	3.7s	43-	82	59 16 288										
09 08 30 19 22 45	d		2771cK2	5.6	80+	126	20 176										

Data nel formato anno/mese/giorno, ore in T.U.

P : tipo di fenomeno

D = sparizione	d = sparizione visibile con difficoltà
R = riapparizione	r = riapparizione visibile con difficoltà
G = radente	g = radente visibile con difficoltà
	m = missing

Stella : nnnn = ZC catalogue no.
 nnnnn or nnnnnn = SAO catalogue number
 Xnnnnn = XZ80 catalogue no.
 Pppnnnnn = Hubble catalogue

D : stella doppia (vedere codice XZ catalogue)
 Sp : tipo spettrale
 Mag : magnitudine
 V : stella variabile ad eclisse (e), varia (v), sospetta (s)
 % : percentuale di Luna illuminata
 Elon : elongazione della Luna, in gradi
 Sole alt : altezza del Sole, in gradi
 Luna alt : altezza della Luna sull'orizzonte, in gradi
 Luna az : azimut della Luna, in gradi

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CONGIUNZIONI MULTIPLE PIANETI-LUNA-STELLE

(eventi con 1 o più pianeti, la Luna ed una stella di mag<2 entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax				
2009/09/16 20:16:25		4.061	4.504	-29	-3.8	1.3	Alpha	LEO Regulus	Venere	Luna

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax
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Questo anno non avvengono fenomeni

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi

Dmax = diametro del cerchio comprendente gli oggetti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

© (6)

CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI GEOCENTRICI PIANETI - LUNA - STELLE

(eventi con 1 o più pianeti, la Luna ed una stella di mag<2
entro 5°)

DATA	ORA	CORPI				D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT
16 set 2009	18:00	VENERE	LUNA	α	LEO	3.2	4.6	4.5	4.9	28	-3.9	-6.6	1.3	-6.7
16 set 2009	19:00	VENERE	LUNA	α	LEO	3.5	4.5	4.1	4.8	28	-3.9	-6.6	1.3	-6.7
16 set 2009	20:00	VENERE	LUNA	α	LEO	3.8	4.5	3.7	4.7	28	-3.9	-6.5	1.3	-6.6
16 set 2009	21:00	VENERE	LUNA	α	LEO	4.2	4.4	3.4	4.8	27	-3.9	-6.5	1.3	-6.6
16 set 2009	22:00	VENERE	LUNA	α	LEO	4.6	4.4	3.2	4.9	27	-3.9	-6.4	1.3	-6.5

CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI TOPOCENTRICI PIANETI - LUNA - STELLE

(eventi con 1 o più pianeti, la Luna ed una stella di mag<2
entro 5°)
42°N - 12°E

Questo anno non avvengono fenomeni

CONGIUNZIONI GEOC. <5° LUNA-OGGETTI m<4

Data	TT	Dm (°)	Dl	p (°)	e	m1	m*	tm(s)		
2009/01/07	18:17:21	0.82927	1.27743	169	132		1.6	2452		M45
2009/01/12	05:14:38	1.37850	1.28970	20	-165		3.7		NGC2632	M44
2009/02/04	02:20:24	0.86298	1.25486	169	105		1.6	2387		M45
2009/02/08	16:24:30	1.37629	1.28410	20	167		3.7		NGC2632	M44
2009/03/03	08:04:27	0.76339	1.24400	169	77		1.6	2617		M45
2009/03/08	01:27:09	1.42469	1.26640	20	140		3.7		NGC2632	M44
2009/03/30	13:40:29	0.58145	1.25064	169	50	-9.8	1.6	2910		M45
2009/04/04	07:51:27	1.59495	1.25237	20	113		3.7		NGC2632	M44
2009/04/26	21:06:17	0.43274	1.26627	170	24	-8.2	1.6	3043		M45
2009/05/01	13:10:04	1.84569	1.25372	20	86		3.7		NGC2632	M44
2009/05/24	06:38:01	0.39603	1.27723	170	-6	-5.1	1.6	3051		M45
2009/05/28	19:36:27	2.07207	1.26958	20	60		3.7		NGC2632	M44
2009/06/20	17:05:00	0.45323	1.27477	170	-30	-8.7	1.6	3013		M45
2009/06/25	04:18:43	2.19334	1.28875	20	33	-9.0	3.7		NGC2632	M44
2009/07/18	02:46:58	0.50959	1.25955	170	-56		1.6	2993		M45
2009/07/22	14:46:06	2.21325	1.29855	20	7	-5.7	3.7		NGC2632	M44
2009/08/14	10:31:25	0.47062	1.24060	170	-82		1.6	3079		M45
2009/08/19	01:23:21	2.21667	1.29277	20	-19	-7.8	3.7		NGC2632	M44
2009/09/10	16:22:20	0.31515	1.22970	170	-108		1.6	3241		M45
2009/09/15	10:26:58	2.30411	1.27542	20	-46	-9.6	3.7		NGC2632	M44
2009/10/07	21:51:25	0.11351	1.23322	170	-135		1.6	3317		M45
2009/10/12	17:08:20	2.51033	1.25917	20	-72		3.7		NGC2632	M44
2009/11/04	04:57:07	0.02273	1.24662	350	-161		1.6	3285		M45
2009/11/08	22:27:17	2.77096	1.25751	20	-100		3.7		NGC2632	M44
2009/12/01	14:27:51	0.03301	1.25698	351	170		1.6	3258		M45
2009/12/06	04:49:14	2.96980	1.27340	20	-127		3.7		NGC2632	M44
2009/12/29	01:18:08	0.02636	1.25314	171	142		1.6	3280		M45

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine della Luna

m* = magnitudine dell'oggetto

tm = se presente, l'oggetto viene occultato massimo per x secondi

OCCULTAZIONI GEOCENTRICHE LUNA-OGGETTI $m < 4$

Data	TT	Dm (°)	Dl	p (°)	e	ml	m*	tm(s)	
2009/01/07	18:17:21	0.82927	1.27743	169	132		1.6	2452	M45
2009/02/04	02:20:24	0.86298	1.25486	169	105		1.6	2387	M45
2009/03/03	08:04:27	0.76339	1.24400	169	77		1.6	2617	M45
2009/03/30	13:40:29	0.58145	1.25064	169	50	-9.8	1.6	2910	M45
2009/04/26	21:06:17	0.43274	1.26627	170	24	-8.2	1.6	3043	M45
2009/05/24	06:38:01	0.39603	1.27723	170	-6	-5.1	1.6	3051	M45
2009/06/20	17:05:00	0.45323	1.27477	170	-30	-8.7	1.6	3013	M45
2009/07/18	02:46:58	0.50959	1.25955	170	-56		1.6	2993	M45
2009/08/14	10:31:25	0.47062	1.24060	170	-82		1.6	3079	M45
2009/09/10	16:22:20	0.31515	1.22970	170	-108		1.6	3241	M45
2009/10/07	21:51:25	0.11351	1.23322	170	-135		1.6	3317	M45
2009/11/04	04:57:07	0.02273	1.24662	350	-161		1.6	3285	M45
2009/12/01	14:27:51	0.03301	1.25698	351	170		1.6	3258	M45
2009/12/29	01:18:08	0.02636	1.25314	171	142		1.6	3280	M45

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se $Dm < Dl$ vi è una occultazione tra i corpi

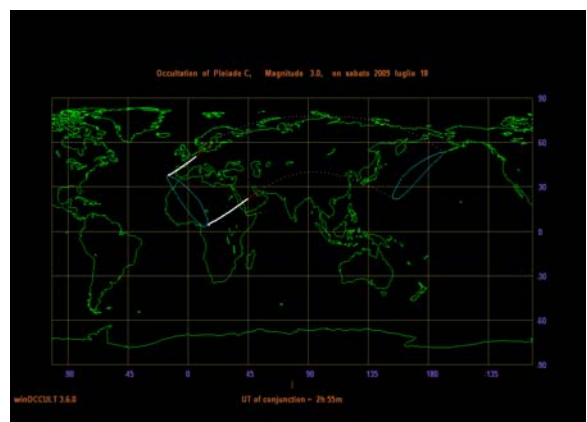
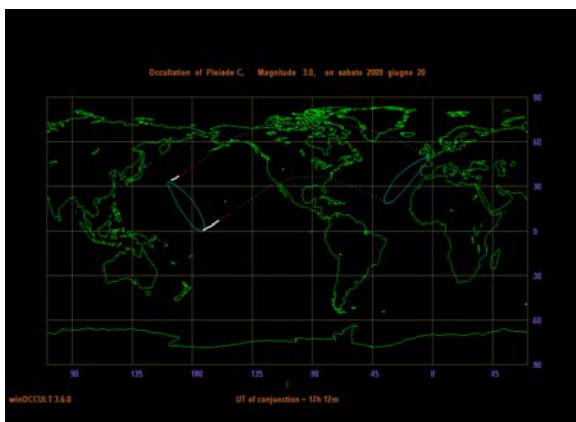
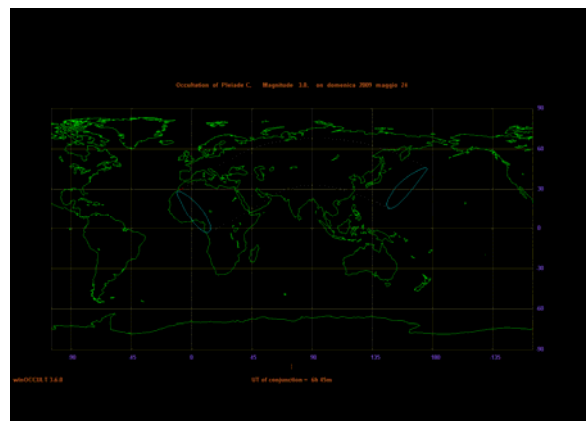
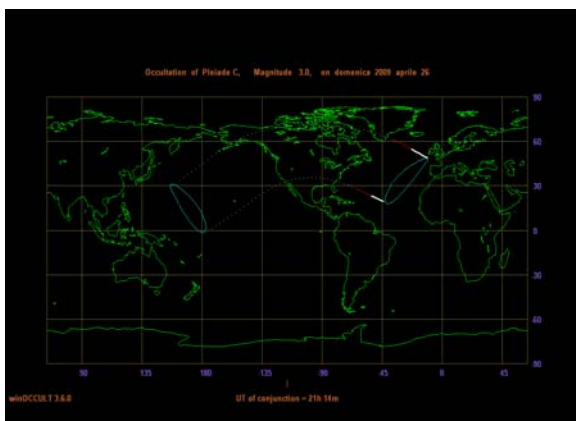
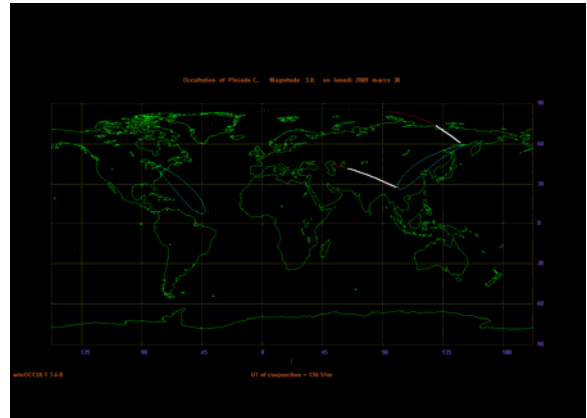
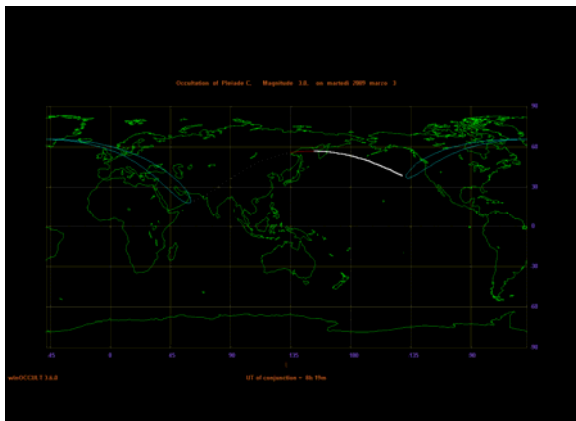
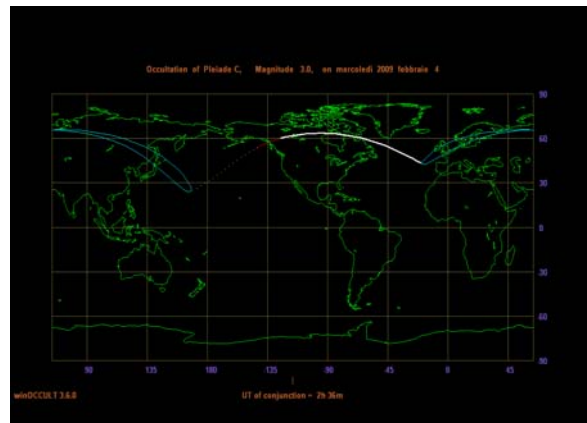
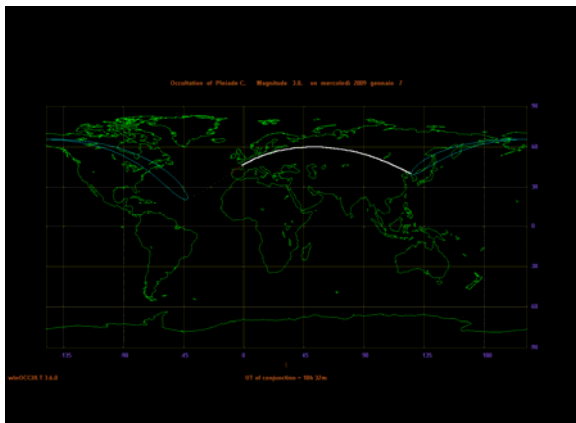
P = angolo di posizione tra i corpi, in gradi

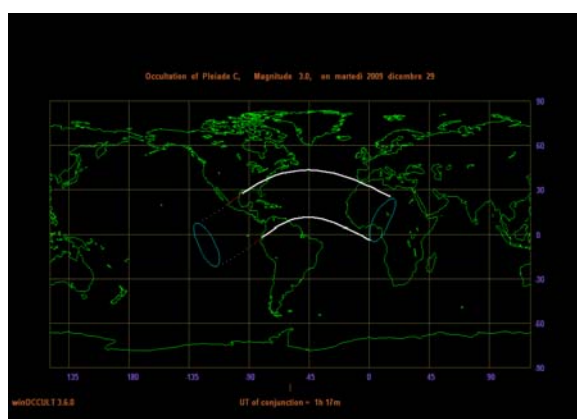
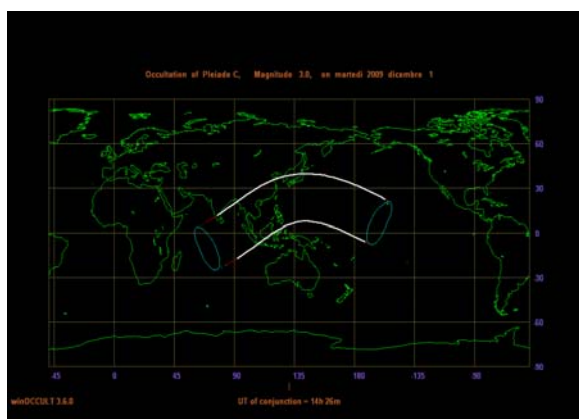
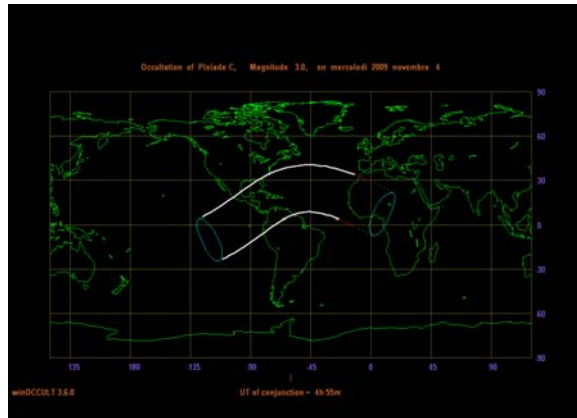
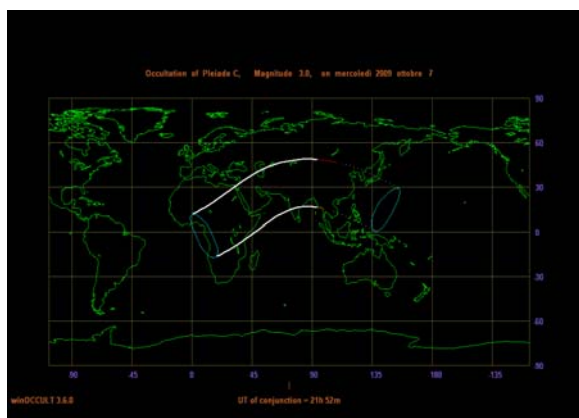
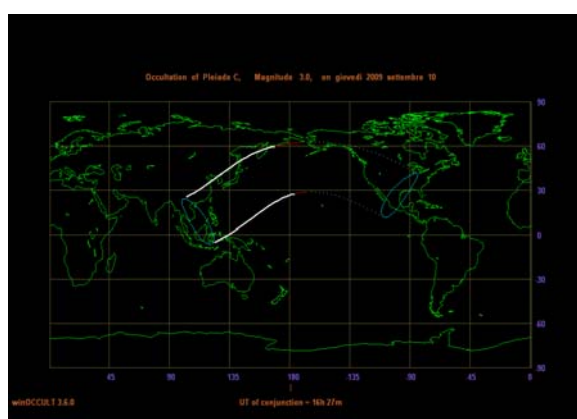
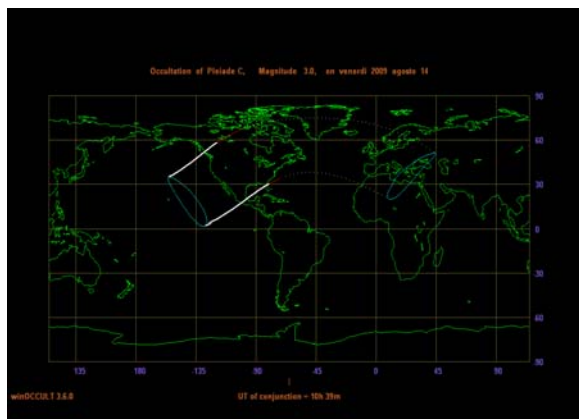
e = elongazione, in gradi

ml = magnitudine della Luna

m* = magnitudine dell'oggetto

tm = se presente, l'oggetto viene occultato massimo per x secondi





CONGIUNZIONI TOPOC. <5° LUNA-OGGETTI m<4

42°N - 12°E

Data	UT	Dm (°)	Alt.	p (°)	e	m1	m*	tm(s)		
2009/01/07	17:36:38	0.41615	57.55	160	132		1.6			M45
2009/01/12	05:37:12	2.20553	19.94	27	-165		3.7		NGC2632	M44
2009/02/04	03:23:25	0.13372	-14.29	175	105		1.6	2638		M45
2009/02/08	15:15:49	1.82183	-1.81	13	167		3.7		NGC2632	M44
2009/03/03	07:24:32	0.11718	-10.76	347	77		1.6	2663		M45
2009/03/08	01:46:56	2.22308	22.52	27	139		3.7		NGC2632	M44
2009/03/30	13:20:50	0.24404	67.68	162	50 -9.8		1.6	4575		M45
2009/04/04	07:33:32	2.36316	-29.81	14	113		3.7		NGC2632	M44
2009/04/26	22:02:54	0.30896	-14.87	355	23 -8.2		1.6			M45
2009/05/01	11:57:06	2.15625	20.08	15	86		3.7		NGC2632	M44
2009/05/24	05:39:44	0.27540	24.27	342	-5 -4.9		1.6	3242		M45
2009/05/28	19:40:42	2.83341	30.10	28	59		3.7		NGC2632	M44
2009/06/20	18:05:45	0.27111	-12.40	356	-30 -8.7		1.6			M45
2009/06/25	03:44:45	2.85837	-23.80	14	34 -9.0		3.7		NGC2632	M44
2009/07/18	01:45:16	0.17293	21.04	342	-56		1.6	3272		M45
2009/07/22	14:27:29	2.86980	47.59	30	7 -5.6		3.7		NGC2632	M44
2009/08/14	11:55:26	0.02462	11.00	358	-82		1.6	3243		M45
2009/08/19	00:42:30	2.83534	-19.93	13	-19 -7.8		3.7		NGC2632	M44
2009/09/10	16:22:06	0.56711	-23.72	352	-108		1.6			M45
2009/09/15	09:50:21	2.86746	57.25	30	-46 -9.7		3.7		NGC2632	M44
2009/10/07	20:55:28	0.51644	26.71	342	-135		1.6			M45
2009/10/12	17:19:19	3.37104	-29.47	16	-72		3.7		NGC2632	M44
2009/11/04	06:13:18	0.50527	14.14	358	-162		1.6			M45
2009/11/08	21:30:57	3.20456	1.65	13	-99		3.7		NGC2632	M44
2009/12/01	13:46:42	0.90025	-8.91	347	170		1.6			M45
2009/12/06	03:53:58	3.50328	60.89	30	-128		3.7		NGC2632	M44
2009/12/29	02:34:32	0.45991	14.61	358	142		1.6			M45

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Alt = altezza in gradi sull'orizzonte dell'evento nel momento centrale

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine della Luna

m* = magnitudine dell'oggetto

tm = se presente, l'oggetto viene occultato massimo per x secondi

OCCULTAZIONI TOPOCENTR. LUNA-OGGETTI $m < 2$

42°N - 12°E

Data	UT	Dm (°)	Alt	p (°)	e	m1	m*	tm(s)	
2009/02/04	03:23:25	0.13372	-14.29	175	105		1.6	2638	M45
2009/03/03	07:24:32	0.11718	-10.76	347	77		1.6	2663	M45
2009/03/30	13:20:50	0.24404	67.68	162	50 -9.8		1.6	4575	M45
2009/05/24	05:39:44	0.27540	24.27	342	-5 -4.9		1.6	3242	M45
2009/07/18	01:45:16	0.17293	21.04	342	-56		1.6	3272	M45
2009/08/14	11:55:26	0.02462	11.00	358	-82		1.6	3243	M45

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Alt = altezza in gradi sull'orizzonte dell'evento nel momento centrale

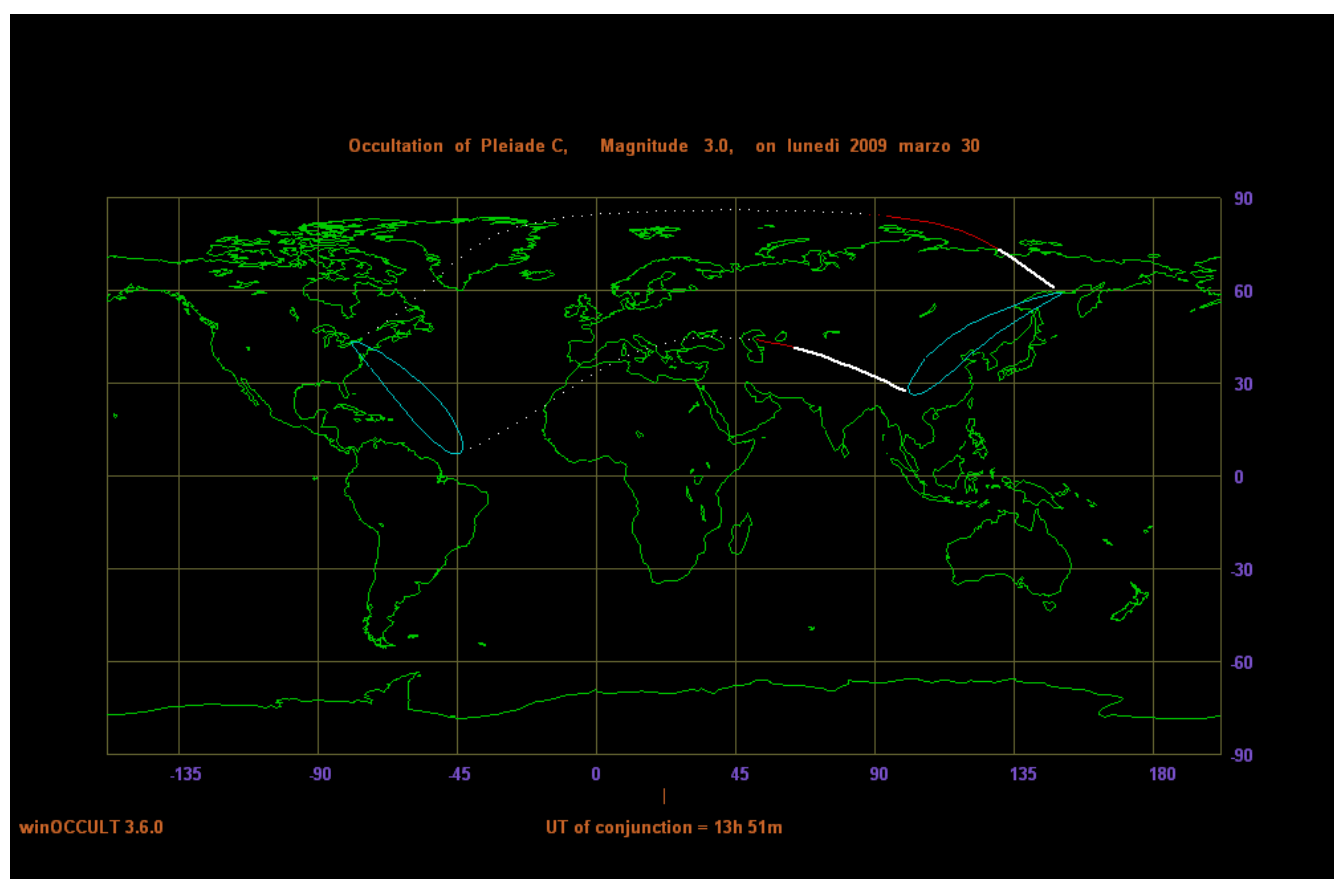
P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine della Luna

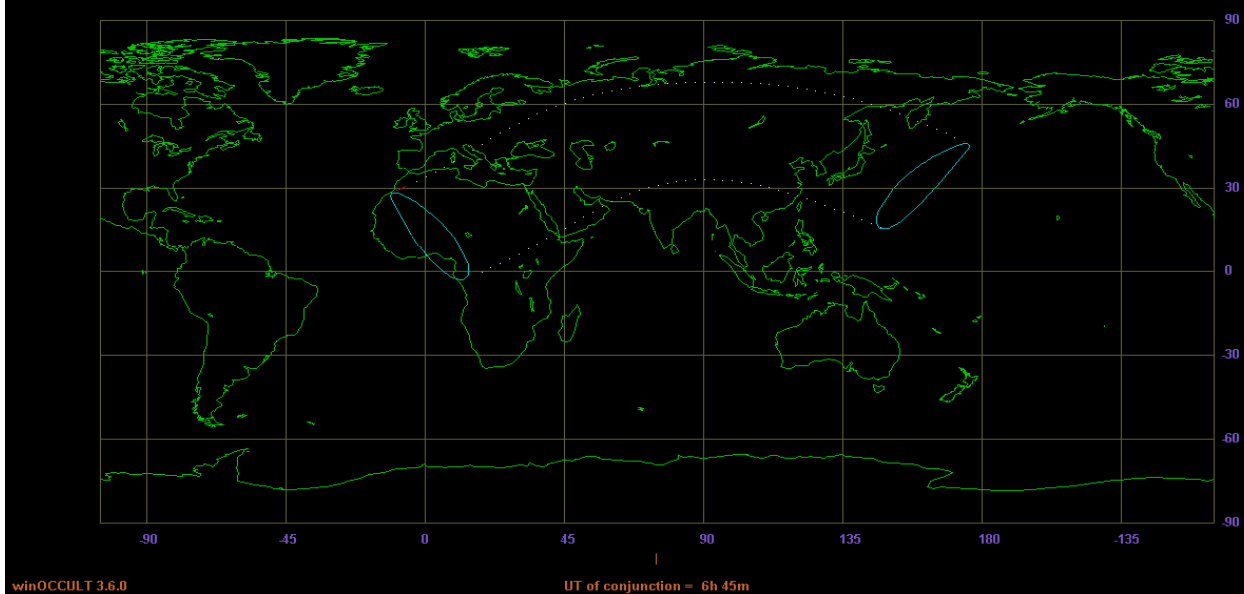
m* = magnitudine dell'oggetto

tm = se presente, l'oggetto viene occultato massimo per x secondi



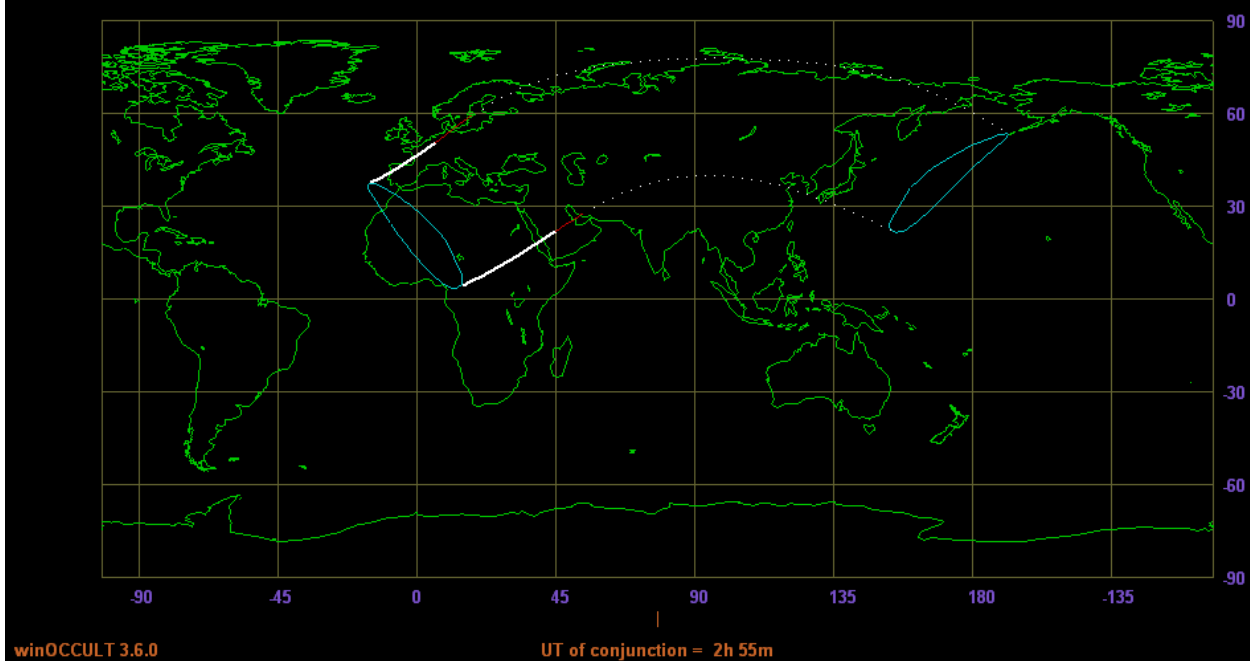
© (8)

Occultation of Pleiade C, Magnitude 3.0, on domenica 2009 maggio 24

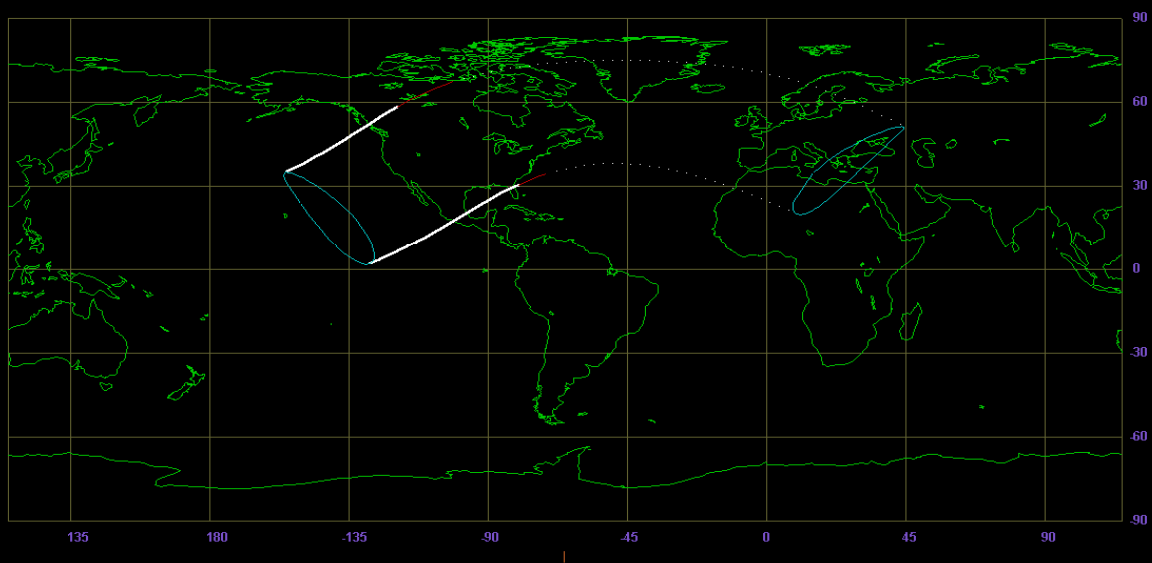


© (8)

Occultation of Pleiade C, Magnitude 3.0, on sabato 2009 luglio 18



Occultation of Pleiade C, Magnitude 3.0, on venerdì 2009 agosto 14



winOCCULT 3.6.0

UT of conjunction = 10h 39m

CONGIUNZIONI MULTIPLE PIANETI-LUNA-OGGETTI

(eventi con 1 pianeta, la Luna ed un oggetto di mag<4
entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/04/26 18:49:57		2.581	3.391	20	-0.4	1.6		M45	Mercurio
2009/07/22 16:07:03		2.541	2.964	8	-1.2	3.7	NGC2632	M44	Mercurio
2009/11/09 01:00:19		3.328	3.620	-98	0.2	3.7	NGC2632	M44	Marte

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/04/26 20:16:02		2.414	3.342	20	-0.4	1.6		M45	Mercurio
2009/07/22 15:59:15		3.091	3.858	8	-1.2	3.7	NGC2632	M44	Mercurio
2009/11/08 23:50:12		3.500	3.804	-98	0.2	3.7	NGC2632	M44	Marte

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi

Dmax = diametro del cerchio comprendente gli oggetti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI GEOCENTRICI PIANETI - LUNA - OGGETTI MESSIER

(eventi con 1 pianeta, la Luna ed un oggetto di mag<4
entro 5°)

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT
26 apr 2009	13:00	MERCURIO	LUNA	PLEIADI	2.4	3.4	4.7	4.8	20	0.3	-5.9	1.6	-5.9
26 apr 2009	14:00	MERCURIO	LUNA	PLEIADI	2.1	3.4	4.1	4.2	20	0.3	-5.9	1.6	-5.9
26 apr 2009	15:00	MERCURIO	LUNA	PLEIADI	1.9	3.4	3.5	3.6	20	0.3	-6.0	1.6	-6.0
26 apr 2009	16:00	MERCURIO	LUNA	PLEIADI	1.8	3.3	2.9	3.4	21	0.3	-6.0	1.6	-6.0
26 apr 2009	17:00	MERCURIO	LUNA	PLEIADI	2.0	3.3	2.3	3.3	21	0.3	-6.1	1.6	-6.1
26 apr 2009	18:00	MERCURIO	LUNA	PLEIADI	2.2	3.2	1.7	3.3	21	0.3	-6.1	1.6	-6.1
26 apr 2009	19:00	MERCURIO	LUNA	PLEIADI	2.6	3.2	1.2	3.3	21	0.3	-6.2	1.6	-6.2
26 apr 2009	20:00	MERCURIO	LUNA	PLEIADI	3.0	3.2	0.6	3.2	22	0.3	-6.2	1.6	-6.2
26 apr 2009	21:00	MERCURIO	LUNA	PLEIADI	3.4	3.1	0.4	3.5	22	0.4	-6.3	1.6	-6.3
26 apr 2009	22:00	MERCURIO	LUNA	PLEIADI	3.9	3.1	0.8	4.0	22	0.4	-6.3	1.6	-6.3
26 apr 2009	23:00	MERCURIO	LUNA	PLEIADI	4.4	3.1	1.3	4.5	23	0.4	-6.4	1.6	-6.4
27 apr 2009	00:00	MERCURIO	LUNA	PLEIADI	4.9	3.0	1.9	5.0	23	0.4	-6.4	1.6	-6.4
22 lug 2009	11:00	MERCURIO	LUNA	PRESEPE	4.9	1.8	3.0	4.9	7	-1.2	-4.4	3.7	-4.5
22 lug 2009	12:00	MERCURIO	LUNA	PRESEPE	4.4	1.9	2.6	4.4	8	-1.1	-4.5	3.7	-4.5
22 lug 2009	13:00	MERCURIO	LUNA	PRESEPE	4.0	2.0	2.2	4.0	8	-1.1	-4.6	3.7	-4.6
22 lug 2009	14:00	MERCURIO	LUNA	PRESEPE	3.6	2.0	2.0	3.6	8	-1.1	-4.6	3.7	-4.6
22 lug 2009	15:00	MERCURIO	LUNA	PRESEPE	3.2	2.1	1.9	3.3	9	-1.1	-4.7	3.7	-4.7
22 lug 2009	16:00	MERCURIO	LUNA	PRESEPE	2.9	2.2	2.0	3.0	9	-1.1	-4.8	3.7	-4.8
22 lug 2009	17:00	MERCURIO	LUNA	PRESEPE	2.7	2.3	2.3	2.9	9	-1.1	-4.8	3.7	-4.8
22 lug 2009	18:00	MERCURIO	LUNA	PRESEPE	2.6	2.4	2.8	3.1	10	-1.1	-4.9	3.7	-4.9
22 lug 2009	19:00	MERCURIO	LUNA	PRESEPE	2.6	2.4	3.2	3.4	10	-1.1	-4.9	3.7	-4.9
22 lug 2009	20:00	MERCURIO	LUNA	PRESEPE	2.7	2.5	3.8	3.8	10	-1.1	-5.0	3.7	-5.0
22 lug 2009	21:00	MERCURIO	LUNA	PRESEPE	3.0	2.6	4.3	4.4	10	-1.1	-5.1	3.7	-5.1
22 lug 2009	22:00	MERCURIO	LUNA	PRESEPE	3.2	2.7	4.9	4.9	11	-1.1	-5.1	3.7	-5.1
08 nov 2009	22:00	MARTE	LUNA	PRESEPE	4.6	3.1	2.5	4.7	98	0.3	-10.5	3.7	-10.5
08 nov 2009	23:00	MARTE	LUNA	PRESEPE	4.2	3.1	2.5	4.3	98	0.3	-10.5	3.7	-10.5
09 nov 2009	00:00	MARTE	LUNA	PRESEPE	3.9	3.2	2.6	3.9	97	0.3	-10.4	3.7	-10.4
09 nov 2009	01:00	MARTE	LUNA	PRESEPE	3.6	3.2	2.9	3.8	97	0.3	-10.4	3.7	-10.4
09 nov 2009	02:00	MARTE	LUNA	PRESEPE	3.3	3.2	3.2	3.8	97	0.3	-10.4	3.7	-10.4
09 nov 2009	03:00	MARTE	LUNA	PRESEPE	3.2	3.2	3.6	3.9	97	0.3	-10.4	3.7	-10.4
09 nov 2009	04:00	MARTE	LUNA	PRESEPE	3.2	3.2	4.1	4.2	96	0.3	-10.4	3.7	-10.4
09 nov 2009	05:00	MARTE	LUNA	PRESEPE	3.2	3.2	4.5	4.6	96	0.3	-10.4	3.7	-10.4

Dxy = distanza tra il corpo x e quello y, in gradi
CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
EL = elongazione dal Sole, in gradi
MAGx = magnitudine del corpo x
MAGT = magnitudine totale del gruppo

Ore in T.U.

CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI TOPOCENTRICI PIANETI - LUNA - OGGETTI MESSIER

(eventi con 1 pianeta, la Luna ed un oggetto di mag<4
entro 5°)
42°N - 12°E

DATA	ORA	CORPI			D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT	ALT	AZ
26 apr 2009 13:00		MERCURIO	LUNA	PLEIADI	2.3	3.4	4.9	4.9	20	0.3	-5.9	1.6	-5.9	69	201
26 apr 2009 14:00		MERCURIO	LUNA	PLEIADI	2.1	3.4	4.5	4.5	20	0.3	-5.9	1.6	-5.9	62	231
26 apr 2009 15:00		MERCURIO	LUNA	PLEIADI	1.9	3.4	4.0	4.1	20	0.3	-6.0	1.6	-6.0	53	249
26 apr 2009 16:00		MERCURIO	LUNA	PLEIADI	1.6	3.3	3.6	3.6	21	0.3	-6.0	1.6	-6.0	42	262
26 apr 2009 17:00		MERCURIO	LUNA	PLEIADI	1.5	3.3	3.1	3.4	21	0.3	-6.1	1.6	-6.1	31	273
26 apr 2009 18:00		MERCURIO	LUNA	PLEIADI	1.5	3.3	2.5	3.3	21	0.3	-6.1	1.6	-6.1	20	282
26 apr 2009 19:00		MERCURIO	LUNA	PLEIADI	1.6	3.2	1.9	3.3	21	0.3	-6.2	1.6	-6.2	10	291
26 apr 2009 20:00		MERCURIO	LUNA	PLEIADI	2.0	3.2	1.3	3.2	22	0.3	-6.2	1.6	-6.2	0	301
26 apr 2009 21:00		MERCURIO	LUNA	PLEIADI	2.5	3.1	0.6	3.2	22	0.4	-6.3	1.6	-6.3	-9	312
26 apr 2009 22:00		MERCURIO	LUNA	PLEIADI	3.0	3.1	0.3	3.2	22	0.4	-6.3	1.6	-6.3	-16	324
26 apr 2009 23:00		MERCURIO	LUNA	PLEIADI	3.7	3.1	0.8	3.7	23	0.4	-6.4	1.6	-6.4	-21	337
27 apr 2009 00:00		MERCURIO	LUNA	PLEIADI	4.4	3.0	1.6	4.4	23	0.4	-6.4	1.6	-6.4	-24	352
22 lug 2009 11:00		MERCURIO	LUNA	PRESEPE	4.8	1.8	3.1	4.9	7	-1.2	-4.4	3.7	-4.5	65	146
22 lug 2009 12:00		MERCURIO	LUNA	PRESEPE	4.6	1.9	2.9	4.6	8	-1.1	-4.5	3.7	-4.5	67	180
22 lug 2009 13:00		MERCURIO	LUNA	PRESEPE	4.4	2.0	2.7	4.4	8	-1.1	-4.6	3.7	-4.6	62	214
22 lug 2009 14:00		MERCURIO	LUNA	PRESEPE	4.2	2.0	2.6	4.2	8	-1.1	-4.6	3.7	-4.6	54	238
22 lug 2009 15:00		MERCURIO	LUNA	PRESEPE	4.0	2.1	2.6	4.0	9	-1.1	-4.7	3.7	-4.7	44	253
22 lug 2009 16:00		MERCURIO	LUNA	PRESEPE	3.8	2.2	2.7	3.9	9	-1.1	-4.8	3.7	-4.8	33	265
22 lug 2009 17:00		MERCURIO	LUNA	PRESEPE	3.7	2.3	2.9	3.7	9	-1.1	-4.8	3.7	-4.8	22	275
22 lug 2009 18:00		MERCURIO	LUNA	PRESEPE	3.6	2.4	3.2	3.7	10	-1.1	-4.9	3.7	-4.9	11	284
22 lug 2009 19:00		MERCURIO	LUNA	PRESEPE	3.5	2.4	3.6	3.8	10	-1.1	-4.9	3.7	-4.9	1	294
22 lug 2009 20:00		MERCURIO	LUNA	PRESEPE	3.6	2.5	4.1	4.2	10	-1.1	-5.0	3.7	-5.0	-9	304
22 lug 2009 21:00		MERCURIO	LUNA	PRESEPE	3.7	2.6	4.6	4.7	10	-1.1	-5.1	3.7	-5.1	-17	316
08 nov 2009 21:00		MARTE	LUNA	PRESEPE	4.7	3.1	2.9	4.8	98	0.3	-10.5	3.7	-10.5	-6	56
08 nov 2009 22:00		MARTE	LUNA	PRESEPE	4.3	3.1	2.9	4.4	98	0.3	-10.5	3.7	-10.5	4	67
08 nov 2009 23:00		MARTE	LUNA	PRESEPE	4.0	3.1	3.0	4.1	98	0.3	-10.5	3.7	-10.5	14	76
09 nov 2009 00:00		MARTE	LUNA	PRESEPE	3.7	3.2	3.2	4.0	97	0.3	-10.4	3.7	-10.4	25	86
09 nov 2009 01:00		MARTE	LUNA	PRESEPE	3.6	3.2	3.5	4.0	97	0.3	-10.4	3.7	-10.4	36	96
09 nov 2009 02:00		MARTE	LUNA	PRESEPE	3.5	3.2	3.8	4.1	97	0.3	-10.4	3.7	-10.4	47	108
09 nov 2009 03:00		MARTE	LUNA	PRESEPE	3.5	3.2	4.2	4.3	97	0.3	-10.4	3.7	-10.4	56	125
09 nov 2009 04:00		MARTE	LUNA	PRESEPE	3.6	3.2	4.5	4.6	96	0.3	-10.4	3.7	-10.4	63	150
09 nov 2009 05:00		MARTE	LUNA	PRESEPE	3.7	3.2	4.9	4.9	96	0.3	-10.4	3.7	-10.4	65	184

Dxy = distanza tra il corpo x e quello y, in gradi
 CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
 EL = elongazione dal Sole, in gradi
 MAGx = magnitudine del corpo x
 MAGT = magnitudine totale del gruppo
 ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
 AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

PIANETI-LUNA-OGGETTI IN LINEA RETTA GEOCENTRICI

DATA	ORA	CORPI			C
26 apr 2009	21:00	MERCURIO	LUNA	PLEIADI	0.450
26 apr 2009	22:00	MERCURIO	LUNA	PLEIADI	0.100
26 apr 2009	23:00	MERCURIO	LUNA	PLEIADI	-0.249

PIANETI-LUNA-OGGETTI IN LINEA RETTA TOPOCENTRICI

42°N - 12°E

DATA	ORA	CORPI			C	ALT	AZ
26 apr 2009	21:00	MERCURIO	LUNA	PLEIADI	0.130	-9	312
26 apr 2009	22:00	MERCURIO	LUNA	PLEIADI	-0.364	-16	324

Quanto più il parametro C è prossimo a zero tanto più i corpi sono allineati

ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
AZ = azimuth del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

GEOMETRIE SPAZIALI PIANETI-LUNA-OGGETTI

TRIANGOLI EQUILATERI

geocentrici

DATA	ORA	CORPI	D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT
09 nov 2009	02:00	MARTE LUNA	PRESEPE	3.3	3.2	3.2	3.8	97	0.3	-10.4	3.7 -10.4

GEOMETRIE SPAZIALI PIANETI-LUNA-OGGETTI

TRIANGOLI EQUILATERI

42°N - 12°E

DATA	ORA	CORPI	D12	D13	D23	CERCHIO	EL.	MAG1	MAG2	MAG3	MAGT	ALT	AZ
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Questo anno non avvengono fenomeni

Dxy = distanza tra il corpo x e quello y, in gradi
 CERCHIO = cerchio minimo comprendente tutto il gruppo, in gradi
 EL = elongazione dal Sole, in gradi
 MAGx = magnitudine del corpo x
 MAGT = magnitudine totale del gruppo
 ALT = altezza sull'orizzonte del baricentro geometrico del gruppo, in gradi
 AZ = azimut del baricentro geometrico del gruppo, in gradi da nord

Ore in T.U.

Si è considerato equilatero ogni triangolo in cui ogni cateto differisce dall'altro per massimo ±10%.
 Si è considerato quadrato ogni quadrilatero in cui ogni lato differisce dall'altro per massimo ±10% e con diagonali diverse meno del 15%.

NB : queste tabelle sono state create esclusivamente ai fini di "foto d'effetto", con tre o quattro corpi celesti praticamente equidistanti!

CONGIUNZIONI LUNARI TOPOCENTRICHE <1° CON LE PLEIADI 42°N - 12°E

Data	UT	Dm (°)	Alt.	p (°)	e	m1	m*	tm(s)	tw(h)		
2009/01/07	18:36:46	0.63906	66.86	18	133		3.6		2.0		TAU Atlas
2009/01/07	17:49:38	0.46468	59.71	20	132		3.0		2.2	Eta	TAU Alcyone
2009/01/07	16:40:02	0.25023	47.64	21	132		3.8		2.1		TAU Electra
2009/01/07	17:15:44	0.08816	53.96	20	132		3.9	4136	2.3		TAU Maia
2009/02/04	04:02:51	0.23898	-18.03	5	105		3.6	2539	1.4		TAU Atlas
2009/02/04	03:32:21	0.15445	-15.21	5	105		3.0	2618	1.5	Eta	TAU Alcyone
2009/02/04	02:42:54	0.09989	-9.66	4	104		3.8	2737	1.6		TAU Electra
2009/02/04	03:02:50	0.13752	-12.03	184	104		3.9	2682	1.5		TAU Maia
2009/03/03	08:04:07	0.06190	-5.58	14	78		3.6	2759	1.6		TAU Atlas
2009/03/03	07:33:22	0.08017	-9.66	193	77		3.0	2689	1.5	Eta	TAU Alcyone
2009/03/03	06:44:57	0.22161	-15.30	192	77		3.8	2567	1.5		TAU Electra
2009/03/03	07:07:19	0.42233	-12.82	193	77		3.9		1.4		TAU Maia
2009/03/30	14:29:27	0.44914	72.52	15	51 -9.8		3.6		2.5		TAU Atlas
2009/03/30	13:35:41	0.28958	69.41	18	50 -9.8		3.0		2.6	Eta	TAU Alcyone
2009/03/30	12:16:32	0.08572	58.01	20	50 -9.8		3.8	4369	2.5		TAU Electra
2009/03/30	12:56:20	0.08009	64.32	199	50 -9.8		3.9	4558	2.6		TAU Maia
2009/04/26	22:41:56	0.20418	-18.55	185	24 -8.3		3.6	2520	1.4		TAU Atlas
2009/04/26	22:11:44	0.28832	-15.77	185	24 -8.2		3.0		1.4	Eta	TAU Alcyone
2009/04/26	21:22:56	0.34249	-10.32	184	23 -8.2		3.8		1.5		TAU Electra
2009/04/26	21:42:34	0.58002	-12.64	184	24 -8.2		3.9		1.3		TAU Maia
2009/05/24	06:26:15	0.05793	32.60	199	-5 -4.8		3.6	3534	2.0		TAU Atlas
2009/05/24	05:50:01	0.22948	26.10	198	-5 -4.8		3.0	3314	1.8	Eta	TAU Alcyone
2009/05/24	04:53:59	0.42171	16.28	198	-5 -5.0		3.8		1.6		TAU Electra
2009/05/24	05:21:59	0.59744	21.14	198	-5 -4.9		3.9		1.5		TAU Maia
2009/06/20	18:44:56	0.17220	-16.53	184	-29 -8.7		3.6	2552	1.4		TAU Atlas
2009/06/20	18:14:38	0.25175	-13.40	184	-30 -8.7		3.0		1.4	Eta	TAU Alcyone
2009/06/20	17:25:33	0.29917	-7.44	184	-30 -8.7		3.8		1.5		TAU Electra
2009/06/20	17:45:05	0.53930	-9.93	184	-30 -8.7		3.9		1.3		TAU Maia
2009/07/18	02:32:19	0.04165	29.40	18	-55		3.6	3522	2.0		TAU Atlas
2009/07/18	01:55:40	0.12774	22.87	198	-56		3.0	3335	1.9	Eta	TAU Alcyone
2009/07/18	00:59:03	0.31539	13.08	197	-56		3.8		1.7		TAU Electra
2009/07/18	01:27:07	0.49358	17.88	198	-56		3.9		1.6		TAU Maia
2009/08/14	12:43:37	0.05705	3.33	2	-81		3.6	3046	1.8		TAU Atlas
2009/08/14	12:06:28	0.00875	9.20	182	-82		3.0	3198	1.8	Eta	TAU Alcyone
2009/08/14	11:04:32	0.04057	19.58	182	-82		3.8	3488	2.0		TAU Electra
2009/08/14	11:28:49	0.28568	15.44	182	-82		3.9		1.9		TAU Maia
2009/09/10	17:01:21	0.42771	-21.86	189	-108		3.6		1.4		TAU Atlas
2009/09/10	16:30:54	0.53895	-23.39	189	-108		3.0		1.3	Eta	TAU Alcyone
2009/09/10	15:42:35	0.63228	-24.48	188	-109		3.8		1.2		TAU Electra
2009/09/10	16:03:14	0.85425	-24.22	188	-108		3.9		0.9		TAU Maia
2009/10/07	21:47:09	0.29790	36.04	199	-134		3.6		2.1		TAU Atlas
2009/10/07	21:06:52	0.47028	28.75	199	-135		3.0		1.9	Eta	TAU Alcyone
2009/10/07	20:04:58	0.66356	17.79	198	-135		3.8		1.5		TAU Electra
2009/10/07	20:35:53	0.83886	23.22	198	-135		3.9		1.3		TAU Maia
2009/11/04	07:01:59	0.42486	6.16	182	-161		3.6		1.6		TAU Atlas
2009/11/04	06:24:26	0.48959	12.28	182	-162		3.0		1.7	Eta	TAU Alcyone
2009/11/04	05:22:12	0.52112	22.92	183	-162		3.8		1.8		TAU Electra
2009/11/04	06:13:15	0.50520	14.15	182	-162		1.6		1.4		TAU Maia
2009/12/01	14:27:30	0.72711	-3.24	193	170		3.6		1.2		TAU Atlas
2009/12/01	13:55:47	0.86455	-7.70	193	170		3.0		1.0	Eta	TAU Alcyone
2009/12/01	13:06:10	0.99897	-13.93	192	169		3.8		0.6		TAU Electra
2009/12/29	03:23:02	0.38246	6.64	182	143		3.6		1.6		TAU Atlas
2009/12/29	02:45:37	0.44489	12.75	182	142		3.0		1.7	Eta	TAU Alcyone
2009/12/29	01:43:35	0.47276	23.37	182	142		3.8		1.8		TAU Electra
2009/12/29	02:07:41	0.71917	19.19	182	142		3.9		1.5		TAU Maia

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Alt = altezza in gradi sull'orizzonte dell'evento nel momento centrale

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

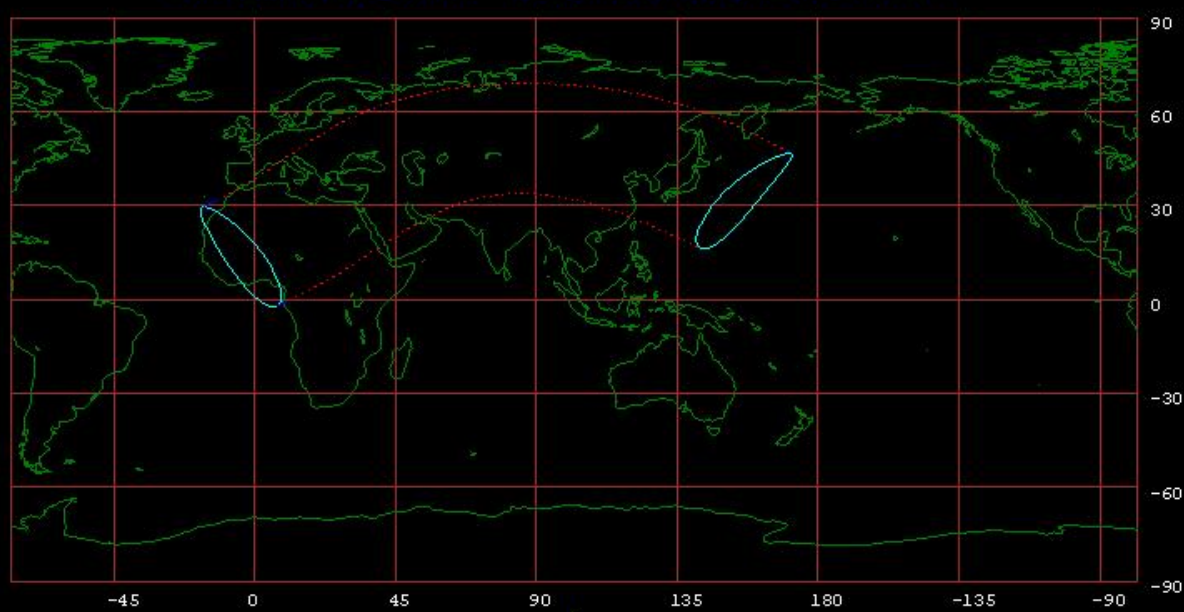
m1 = magnitudine della Luna

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

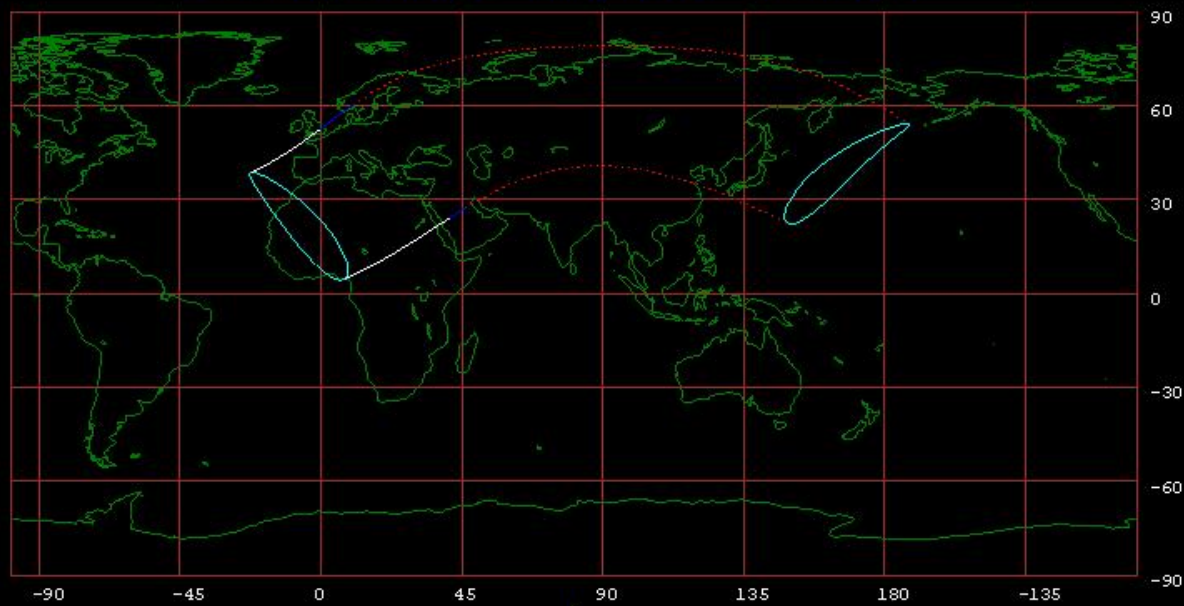
tw = semiperiodo in ore in cui i due corpi distano meno di 1° tra loro

Occultation of Pleiadi, Magnitude 1.5, on 2009 May 24



UT of conjunction = 7h 6.7m

Occultation of Pleiadi, Magnitude 1.5, on 2009 Jul 18



UT of conjunction = 3h 18.5m

© (8)

Non visibili dall'Italia in quanto avvengono di giorno

LUNA A BARCHETTA E LUNA A PONTE

ANCONA

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:30	179.5	1	-0	-8
27/ 3/2009	17:45	180.8	2	9	-4
27/ 3/2009	18: 0	181.4	2	7	-7
27/ 3/2009	18:15	182.1	2	4	-10
27/ 3/2009	18:30	183.0	2	2	-12
27/ 3/2009	18:45	183.9	2	-0	-15
25/ 4/2009	18:30	177.6	1	3	-6
25/ 4/2009	18:45	179.2	1	1	-8

AOSTA

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:45	182.0	1	1	-7
27/ 3/2009	18:15	183.4	2	9	-5
27/ 3/2009	18:30	184.0	2	6	-7
27/ 3/2009	18:45	184.7	2	4	-10
25/ 4/2009	19: 0	180.7	1	3	-6
25/ 4/2009	19:15	182.3	1	1	-8
25/ 4/2009	19:30	184.0	1	-0	-10

BARI

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:15	176.7	1	0	-8
27/ 3/2009	17:30	178.1	2	9	-4
27/ 3/2009	17:45	178.7	2	6	-7
27/ 3/2009	18: 0	179.5	2	4	-10
27/ 3/2009	18:15	180.3	2	1	-13
25/ 4/2009	18:30	176.4	1	0	-9

BOLOGNA

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:30	180.5	1	1	-7
27/ 3/2009	18: 0	182.0	2	8	-5
27/ 3/2009	18:15	182.7	2	6	-8
27/ 3/2009	18:30	183.4	2	3	-10
27/ 3/2009	18:45	184.3	2	1	-13
25/ 4/2009	18:45	179.3	1	3	-6
25/ 4/2009	19: 0	180.9	1	0	-9

CAGLIARI

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:45	175.4	1	0	-7
26/ 2/2009	18:15	184.9	3	6	-13
26/ 2/2009	18:30	184.9	3	4	-16
27/ 3/2009	18: 0	176.5	2	9	-4
27/ 3/2009	18:15	177.1	2	6	-7
27/ 3/2009	18:30	177.9	2	4	-10
27/ 3/2009	18:45	178.8	2	1	-13
25/ 4/2009	19: 0	175.5	1	-0	-10

CAMPOBASSO

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:15	177.3	1	1	-6
27/ 3/2009	17:45	178.9	2	8	-5
27/ 3/2009	18: 0	179.5	2	5	-8
27/ 3/2009	18:15	180.3	2	3	-11
27/ 3/2009	18:30	181.2	2	0	-14
25/ 4/2009	18:30	176.1	1	1	-7
25/ 4/2009	18:45	177.8	1	-0	-10

CATANZARO

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
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26/ 2/2009	17:15	184.9	3	12	-7
26/ 2/2009	17:30	184.6	3	9	-10
26/ 2/2009	17:45	184.5	3	6	-13
26/ 2/2009	18: 0	184.5	3	3	-16
26/ 2/2009	18:15	184.7	3	1	-19
27/ 3/2009	17:30	175.8	2	9	-4
27/ 3/2009	17:45	176.5	2	6	-7
27/ 3/2009	18: 0	177.3	2	3	-10
27/ 3/2009	18:15	178.1	2	1	-13
28/ 3/2009	16:15	184.9	5	35	10
28/ 3/2009	16:30	184.7	5	33	7
28/ 3/2009	16:45	184.6	5	30	4
28/ 3/2009	17: 0	184.7	5	27	1
28/ 3/2009	17:15	184.9	5	24	-1

FIRENZE

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:30	179.7	1	1	-7
27/ 3/2009	18: 0	181.3	2	8	-5
27/ 3/2009	18:15	181.9	2	6	-8
27/ 3/2009	18:30	182.7	2	3	-11
27/ 3/2009	18:45	183.6	2	1	-13
25/ 4/2009	18:45	178.6	1	2	-7
25/ 4/2009	19: 0	180.2	1	0	-9

GENOVA

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:45	180.6	1	0	-8
27/ 3/2009	18:15	182.3	2	7	-6
27/ 3/2009	18:30	183.0	2	5	-9
27/ 3/2009	18:45	183.8	2	2	-11
27/ 3/2009	19: 0	184.7	2	0	-14
25/ 4/2009	19: 0	180.0	1	2	-7
25/ 4/2009	19:15	181.7	1	0	-10

L AQUILA

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:30	178.2	1	-0	-8
27/ 3/2009	17:45	179.5	2	9	-4
27/ 3/2009	18: 0	180.2	2	6	-7
27/ 3/2009	18:15	180.9	2	4	-10
27/ 3/2009	18:30	181.7	2	1	-12
27/ 3/2009	18:45	182.7	2	-0	-15
25/ 4/2009	18:30	176.4	1	3	-6
25/ 4/2009	18:45	178.0	1	0	-9

MILANO

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:45	181.6	1	0	-8
27/ 3/2009	18:15	183.3	2	7	-6
27/ 3/2009	18:30	184.0	2	5	-9
27/ 3/2009	18:45	184.8	2	3	-11
25/ 4/2009	19: 0	181.0	1	2	-7
25/ 4/2009	19:15	182.7	1	0	-9

NAPOLI

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
25/ 2/2009	17:15	176.7	1	2	-6
25/ 2/2009	17:30	176.7	1	-0	-8
27/ 3/2009	17:45	178.1	2	8	-5
27/ 3/2009	18: 0	178.8	2	6	-8
27/ 3/2009	18:15	179.6	2	3	-11
27/ 3/2009	18:30	180.5	2	0	-13
25/ 4/2009	18:30	175.3	1	1	-7
25/ 4/2009	18:45	177.0	1	-0	-10

GG MM AAAA	HH MM	ZABL	K	ALT	ALT.S.
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26/	2/2009	17:15	184.4	3	14	-4
26/	2/2009	17:30	184.1	3	12	-7
26/	2/2009	17:45	183.9	3	9	-10
26/	2/2009	18: 0	183.8	3	6	-13
26/	2/2009	18:15	183.8	3	3	-16
26/	2/2009	18:30	184.0	3	0	-19

27/	3/2009	17:45	175.3	2	8	-5
27/	3/2009	18: 0	176.0	2	6	-8
27/	3/2009	18:15	176.8	2	3	-11
27/	3/2009	18:30	177.7	2	0	-14

28/	3/2009	16: 0	184.9	5	41	15
28/	3/2009	16:15	184.4	5	38	12
28/	3/2009	16:30	184.0	5	35	9
28/	3/2009	16:45	183.8	5	32	6
28/	3/2009	17: 0	183.8	5	29	3
28/	3/2009	17:15	183.9	5	27	0
28/	3/2009	17:30	184.1	5	24	-2
28/	3/2009	17:45	184.5	5	21	-5
28/	3/2009	18: 0	184.9	5	18	-8

PERUGIA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:30		179.0	1	0	-7
27/	3/2009		18: 0		180.8	2	7	-6
27/	3/2009		18:15		181.5	2	5	-9
27/	3/2009		18:30		182.3	2	2	-12
27/	3/2009		18:45		183.2	2	0	-14
25/	4/2009		18:45		178.4	1	1	-8
25/	4/2009		19: 0		180.1	1	-0	-10

POTENZA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:15		176.3	1	0	-7
27/	3/2009		17:45		178.1	2	7	-6
27/	3/2009		18: 0		178.8	2	4	-9
27/	3/2009		18:15		179.7	2	2	-12
27/	3/2009		18:30		180.6	2	-0	-15
25/	4/2009		18:30		175.6	1	0	-9

ROMA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:30		177.8	1	0	-7
27/	3/2009		17:45		179.0	2	10	-4
27/	3/2009		18: 0		179.6	2	7	-6
27/	3/2009		18:15		180.3	2	4	-9

27/	3/2009	18:30	181.1	2	2	-12
27/	3/2009	18:45	182.1	2	-0	-15
25/	4/2009	18:30	175.7	1	3	-6
25/	4/2009	18:45	177.3	1	1	-8

TORINO

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:45		181.3	1	1	-7
27/	3/2009		18:15		182.8	2	8	-5
27/	3/2009		18:30		183.4	2	6	-8
27/	3/2009		18:45		184.2	2	3	-10
25/	4/2009		19: 0		180.2	1	3	-6
25/	4/2009		19:15		181.9	1	1	-8

TRENTO

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:30		182.0	1	1	-7
27/	3/2009		18: 0		183.6	2	9	-5
27/	3/2009		18:15		184.2	2	6	-7
27/	3/2009		18:30		184.9	2	4	-10
25/	4/2009		19: 0		182.2	1	1	-8
25/	4/2009		19:15		183.9	1	-0	-10

TRIESTE

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:15		181.5	1	1	-6
25/	2/2009		17:30		181.5	1	-0	-8
27/	3/2009		17:45		182.9	2	9	-4
27/	3/2009		18: 0		183.4	2	7	-7
27/	3/2009		18:15		184.2	2	4	-9
25/	4/2009		18:45		181.1	1	2	-7
25/	4/2009		19: 0		182.8	1	-0	-10

VENEZIA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
25/	2/2009		17:30		181.3	1	0	-7
27/	3/2009		18: 0		183.1	2	8	-6
27/	3/2009		18:15		183.7	2	5	-8
27/	3/2009		18:30		184.5	2	3	-11
25/	4/2009		18:45		180.4	1	2	-7
25/	4/2009		19: 0		182.1	1	0	-9

Si definisce "luna a barchetta" quel curioso aspetto in cui la Luna al tramonto o all'alba appare sottile e con le cuspidi rivolte verso l'alto alla stessa altezza. La "luna a ponte" è il fenomeno opposto, con la Luna con le cuspidi rivolte verso il basso.

Ore in T.U.

ZABL = angolo zenitale del lembo illuminato della Luna, in °, nel range $355^\circ < \text{ZABL} < 5^\circ$ e $175^\circ < \text{ZABL} < 185^\circ$. Se l'angolo ZABL è prossimo a 180° si ha la Luna "a barchetta", se è prossimo a 0° si ha la luna "a ponte".

K = percentuale di Luna illuminata

ALT = altezza della Luna sull'orizzonte, in °

ALT.S. = altezza del Sole sull'orizzonte, in °

LUNA IN PIEDI

ANCONA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16:	0	265.3	5	14	11

AOSTA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16:20		267.6	5	14	11
20/	9/	2009	16:30		266.5	5	12	10
20/	9/	2009	16:40		265.5	5	11	8
21/	9/	2009	16:30		266.2	11	15	9
20/10/	2009		15:20		267.7	7	14	11
20/10/	2009		15:30		266.2	7	13	10

BARI

BOLOGNA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16: 0		267.0	5	15	12
20/	9/	2009	16:10		265.9	5	14	10
20/10/	2009		15:10		266.1	7	15	11

CAGLIARI

CAMPOBASSO

CATANZARO

FIRENZE

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16:10		265.3	5	14	11

GENOVA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16:10		266.9	5	15	12
20/	9/	2009	16:20		265.8	5	14	10
20/10/	2009		15:20		266.0	7	15	11

L AQUILA

MILANO

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16:10		267.6	5	14	12
20/	9/	2009	16:20		266.5	5	13	10
20/	9/	2009	16:30		265.5	5	11	8
21/	9/	2009	16:30		265.1	11	14	8
20/10/	2009		15:10		267.9	7	15	12
20/10/	2009		15:20		266.4	7	14	10

NAPOLI

PALERMO

PERUGIA

POTENZA

ROMA

TORINO

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16:20		266.9	5	14	11
20/	9/	2009	16:30		265.8	5	12	9
21/	9/	2009	16:30		265.6	11	15	9
20/10/	2009		15:20		267.1	7	15	11
20/10/	2009		15:30		265.6	7	14	10

TRENTO

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16: 0		268.4	5	14	12
20/	9/	2009	16:10		267.3	5	13	10
20/	9/	2009	16:20		266.3	5	11	9
20/	9/	2009	16:30		265.3	5	10	7
21/	9/	2009	16:10		267.1	11	15	10
21/	9/	2009	16:20		265.8	11	14	8
22/	9/	2009	16:30		265.7	18	15	6
20/10/	2009		15: 0		268.6	7	14	12
20/10/	2009		15:10		267.1	7	14	10
20/10/	2009		15:20		265.6	7	13	9

TRIESTE

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	15:50		268.0	5	14	12
20/	9/	2009	16: 0		266.9	5	13	10
20/	9/	2009	16:10		265.9	5	11	9
21/	9/	2009	16:10		265.4	11	14	8
20/10/	2009		14:50		268.3	7	15	12
20/10/	2009		15: 0		266.8	7	14	10
20/10/	2009		15:10		265.3	7	13	9

VENEZIA

GG	MM	AAAA	HH	MM	ZABL	K	ALT	ALT.S.
20/	9/	2009	16: 0		267.3	5	14	11
20/	9/	2009	16:10		266.3	5	12	10
20/	9/	2009	16:20		265.3	5	11	8
21/	9/	2009	16:10		266.0	11	15	9
20/10/	2009		15: 0		267.5	7	15	11
20/10/	2009		15:10		266.0	7	14	10

Si definisce "luna in piedi" il fenomeno in cui la Luna al tramonto o all'alba appare con le cuspidi allineate in verticale rispetto all'orizzonte dell'osservatore.

Ore in T.U.

ZABL = angolo zenitale del lembo illuminato della Luna, in $^{\circ}$, nel range $85^{\circ} < \text{ZABL} < 95^{\circ}$ e $265^{\circ} < \text{ZABL} < 275^{\circ}$.

K = percentuale di Luna illuminata

ALT = altezza della Luna sull'orizzonte, in $^{\circ}$

ALT.S. = altezza del Sole sull'orizzonte, in $^{\circ}$

NB: sono visualizzati solo i giorni in cui la Luna è in piedi vicino all'orizzonte, ossia con altezza inferiore a 15°

ASTEROIDI CON m<9

1 Ceres

Data			R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno	m	g	hh mm.mm	dd pp.p	U.A	U.A.	°	V	°
2009	1	1	11 17.41	+17 59.9	1.950	2.549	20.1	7.9	116.8W
2009	1	2	11 17.85	+18 3.8	1.939	2.549	20.0	7.8	117.7W
2009	1	3	11 18.26	+18 7.9	1.927	2.549	19.8	7.8	118.6W
2009	1	4	11 18.65	+18 12.2	1.916	2.549	19.6	7.8	119.5W
2009	1	5	11 19.01	+18 16.6	1.905	2.549	19.4	7.8	120.5W
2009	1	6	11 19.35	+18 21.2	1.894	2.549	19.2	7.8	121.4W
2009	1	7	11 19.66	+18 26.0	1.883	2.548	19.0	7.8	122.3W
2009	1	8	11 19.94	+18 30.9	1.873	2.548	18.8	7.7	123.3W
2009	1	9	11 20.20	+18 36.0	1.862	2.548	18.6	7.7	124.2W
2009	1	10	11 20.43	+18 41.3	1.852	2.548	18.4	7.7	125.2W
2009	1	11	11 20.63	+18 46.8	1.841	2.548	18.2	7.7	126.1W
2009	1	12	11 20.80	+18 52.4	1.831	2.548	17.9	7.7	127.1W
2009	1	13	11 20.95	+18 58.2	1.821	2.548	17.7	7.6	128.0W
2009	1	14	11 21.07	+19 4.1	1.811	2.548	17.5	7.6	129.0W
2009	1	15	11 21.16	+19 10.2	1.802	2.548	17.2	7.6	130.0W
2009	1	16	11 21.23	+19 16.4	1.792	2.547	17.0	7.6	130.9W
2009	1	17	11 21.26	+19 22.8	1.783	2.547	16.7	7.6	131.9W
2009	1	18	11 21.27	+19 29.4	1.774	2.547	16.4	7.5	132.9W
2009	1	19	11 21.25	+19 36.0	1.764	2.547	16.2	7.5	133.9W
2009	1	20	11 21.20	+19 42.9	1.756	2.547	15.9	7.5	134.9W
2009	1	21	11 21.12	+19 49.8	1.747	2.547	15.6	7.5	135.9W
2009	1	22	11 21.01	+19 56.9	1.738	2.547	15.3	7.4	136.8W
2009	1	23	11 20.87	+20 4.1	1.730	2.547	15.0	7.4	137.8W
2009	1	24	11 20.71	+20 11.4	1.722	2.547	14.7	7.4	138.8W
2009	1	25	11 20.51	+20 18.8	1.714	2.547	14.4	7.4	139.8W
2009	1	26	11 20.29	+20 26.4	1.706	2.547	14.1	7.4	140.8W
2009	1	27	11 20.04	+20 34.0	1.699	2.547	13.8	7.3	141.8W
2009	1	28	11 19.76	+20 41.7	1.692	2.547	13.5	7.3	142.8W
2009	1	29	11 19.45	+20 49.5	1.684	2.547	13.2	7.3	143.8W
2009	1	30	11 19.12	+20 57.4	1.677	2.547	12.9	7.3	144.8W
2009	1	31	11 18.75	+21 5.4	1.671	2.546	12.6	7.3	145.8W
2009	2	1	11 18.36	+21 13.4	1.664	2.546	12.2	7.2	146.8W
2009	2	2	11 17.94	+21 21.5	1.658	2.546	11.9	7.2	147.7W
2009	2	3	11 17.50	+21 29.6	1.652	2.546	11.6	7.2	148.7W
2009	2	4	11 17.03	+21 37.7	1.646	2.546	11.3	7.2	149.7W
2009	2	5	11 16.53	+21 45.9	1.641	2.546	10.9	7.2	150.6W
2009	2	6	11 16.01	+21 54.1	1.635	2.546	10.6	7.1	151.6W
2009	2	7	11 15.47	+22 2.3	1.630	2.546	10.3	7.1	152.5W
2009	2	8	11 14.89	+22 10.5	1.626	2.546	10	7.1	153.4W
2009	2	9	11 14.30	+22 18.7	1.621	2.546	9.7	7.1	154.3W
2009	2	10	11 13.68	+22 26.8	1.617	2.546	9.4	7.1	155.2W
2009	2	11	11 13.04	+22 35.0	1.613	2.546	9.1	7.0	156.1W
2009	2	12	11 12.38	+22 43.0	1.609	2.546	8.8	7.0	156.9W
2009	2	13	11 11.70	+22 51.1	1.605	2.546	8.5	7.0	157.7W
2009	2	14	11 11.00	+22 59.1	1.602	2.546	8.2	7.0	158.4W
2009	2	15	11 10.28	+23 7.0	1.599	2.546	7.9	7.0	159.2W
2009	2	16	11 9.54	+23 14.8	1.596	2.546	7.7	7.0	159.9W
2009	2	17	11 8.78	+23 22.5	1.593	2.546	7.4	6.9	160.5W
2009	2	18	11 8.01	+23 30.2	1.591	2.546	7.2	6.9	161.1W
2009	2	19	11 7.22	+23 37.7	1.589	2.546	7.0	6.9	161.6W
2009	2	20	11 6.41	+23 45.1	1.587	2.546	6.9	6.9	162.1W
2009	2	21	11 5.60	+23 52.4	1.586	2.546	6.7	6.9	162.5W
2009	2	22	11 4.77	+23 59.5	1.585	2.547	6.6	6.9	162.8W
2009	2	23	11 3.93	+24 6.5	1.584	2.547	6.5	6.9	163.0W
2009	2	24	11 3.08	+24 13.3	1.583	2.547	6.5	6.9	163.2W
2009	2	25	11 2.22	+24 20.0	1.583	2.547	6.4	6.9	163.3W
2009	2	26	11 1.36	+24 26.4	1.583	2.547	6.4	6.9	163.3W
2009	2	27	11 0.48	+24 32.7	1.583	2.547	6.5	6.9	163.2W
2009	2	28	10 59.61	+24 38.8	1.583	2.547	6.5	6.9	163.0W
2009	3	1	10 58.73	+24 44.7	1.584	2.547	6.6	6.9	162.7W
2009	3	2	10 57.84	+24 50.4	1.585	2.547	6.8	6.9	162.4W
2009	3	3	10 56.96	+24 55.9	1.586	2.547	6.9	6.9	162.0W
2009	3	4	10 56.07	+25 1.2	1.587	2.547	7.1	6.9	161.5E
2009	3	5	10 55.19	+25 6.2	1.589	2.547	7.3	6.9	160.9E
2009	3	6	10 54.31	+25 11.1	1.591	2.547	7.5	6.9	160.3E
2009	3	7	10 53.43	+25 15.6	1.593	2.547	7.8	7.0	159.7E
2009	3	8	10 52.55	+25 20.0	1.596	2.547	8.0	7.0	159.0E
2009	3	9	10 51.69	+25 24.1	1.599	2.548	8.3	7.0	158.3E
2009	3	10	10 50.83	+25 27.9	1.602	2.548	8.6	7.0	157.5E
2009	3	11	10 49.97	+25 31.5	1.605	2.548	8.9	7.0	156.7E
2009	3	12	10 49.13	+25 34.9	1.608	2.548	9.2	7.0	155.9E
2009	3	13	10 48.30	+25 38.0	1.612	2.548	9.5	7.1	155.0E
2009	3	14	10 47.48	+25 40.8	1.616	2.548	9.8	7.1	154.2E
2009	3	15	10 46.67	+25 43.4	1.620	2.548	10.1	7.1	153.3E

1 Ceres

Data		R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno	m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009	3 15	10 46.67	+25 43.4	1.620	2.548	10.1	7.1	153.3E
2009	3 16	10 45.88	+25 45.7	1.625	2.548	10.4	7.1	152.4E
2009	3 17	10 45.10	+25 47.7	1.630	2.548	10.7	7.1	151.5E
2009	3 18	10 44.34	+25 49.5	1.635	2.549	11.1	7.2	150.5E
2009	3 19	10 43.59	+25 51.0	1.640	2.549	11.4	7.2	149.6E
2009	3 20	10 42.86	+25 52.3	1.645	2.549	11.7	7.2	148.6E
2009	3 21	10 42.15	+25 53.3	1.651	2.549	12.1	7.2	147.7E
2009	3 22	10 41.46	+25 54.0	1.657	2.549	12.4	7.2	146.7E
2009	3 23	10 40.79	+25 54.5	1.663	2.549	12.7	7.3	145.8E
2009	3 24	10 40.14	+25 54.7	1.669	2.549	13.0	7.3	144.8E
2009	3 25	10 39.52	+25 54.7	1.676	2.550	13.3	7.3	143.8E
2009	3 26	10 38.91	+25 54.4	1.682	2.550	13.7	7.3	142.9E
2009	3 27	10 38.33	+25 53.9	1.689	2.550	14.0	7.3	141.9E
2009	3 28	10 37.77	+25 53.1	1.696	2.550	14.3	7.4	140.9E
2009	3 29	10 37.23	+25 52.1	1.704	2.550	14.6	7.4	140.0E
2009	3 30	10 36.72	+25 50.8	1.711	2.550	14.9	7.4	139.0E
2009	3 31	10 36.24	+25 49.3	1.719	2.551	15.2	7.4	138.0E
2009	4 1	10 35.78	+25 47.6	1.727	2.551	15.5	7.4	137.1E
2009	4 2	10 35.34	+25 45.6	1.735	2.551	15.8	7.5	136.1E
2009	4 3	10 34.94	+25 43.4	1.743	2.551	16.0	7.5	135.2E
2009	4 4	10 34.55	+25 41.0	1.751	2.551	16.3	7.5	134.2E
2009	4 5	10 34.20	+25 38.3	1.760	2.551	16.6	7.5	133.2E
2009	4 6	10 33.87	+25 35.5	1.768	2.552	16.9	7.5	132.3E
2009	4 7	10 33.57	+25 32.4	1.777	2.552	17.1	7.6	131.4E
2009	4 8	10 33.29	+25 29.1	1.786	2.552	17.4	7.6	130.4E
2009	4 9	10 33.04	+25 25.6	1.796	2.552	17.6	7.6	129.5E
2009	4 10	10 32.82	+25 21.9	1.805	2.552	17.9	7.6	128.5E
2009	4 11	10 32.63	+25 18.0	1.814	2.553	18.1	7.6	127.6E
2009	4 12	10 32.46	+25 13.9	1.824	2.553	18.3	7.7	126.7E
2009	4 13	10 32.33	+25 9.6	1.834	2.553	18.6	7.7	125.8E
2009	4 14	10 32.22	+25 5.2	1.844	2.553	18.8	7.7	124.9E
2009	4 15	10 32.13	+25 0.5	1.854	2.554	19.0	7.7	124.0E
2009	4 16	10 32.07	+24 55.7	1.864	2.554	19.2	7.7	123.1E
2009	4 17	10 32.05	+24 50.7	1.874	2.554	19.4	7.8	122.2E
2009	4 18	10 32.04	+24 45.6	1.884	2.554	19.6	7.8	121.3E
2009	4 19	10 32.07	+24 40.2	1.895	2.554	19.8	7.8	120.4E
2009	4 20	10 32.12	+24 34.7	1.906	2.555	20.0	7.8	119.5E
2009	4 21	10 32.20	+24 29.1	1.916	2.555	20.2	7.8	118.6E
2009	4 22	10 32.30	+24 23.3	1.927	2.555	20.4	7.9	117.8E
2009	4 23	10 32.43	+24 17.3	1.938	2.555	20.5	7.9	116.9E
2009	4 24	10 32.58	+24 11.2	1.949	2.556	20.7	7.9	116.1E
2009	4 25	10 32.77	+24 5.0	1.960	2.556	20.9	7.9	115.2E
2009	4 26	10 32.97	+23 58.6	1.971	2.556	21.0	7.9	114.4E
2009	4 27	10 33.20	+23 52.1	1.983	2.556	21.2	7.9	113.5E
2009	4 28	10 33.46	+23 45.4	1.994	2.557	21.3	8.0	112.7E
2009	4 29	10 33.74	+23 38.6	2.005	2.557	21.4	8.0	111.8E
2009	4 30	10 34.05	+23 31.7	2.017	2.557	21.6	8.0	111.0E
2009	5 1	10 34.37	+23 24.7	2.028	2.558	21.7	8.0	110.2E
2009	5 2	10 34.73	+23 17.5	2.040	2.558	21.8	8.0	109.4E
2009	5 3	10 35.10	+23 10.2	2.052	2.558	21.9	8.0	108.6E
2009	5 4	10 35.50	+23 2.8	2.064	2.558	22.0	8.1	107.8E
2009	5 5	10 35.92	+22 55.3	2.075	2.559	22.1	8.1	107.0E
2009	5 6	10 36.37	+22 47.7	2.087	2.559	22.2	8.1	106.2E
2009	5 7	10 36.83	+22 40.0	2.099	2.559	22.3	8.1	105.4E
2009	5 8	10 37.32	+22 32.2	2.111	2.560	22.4	8.1	104.6E
2009	5 9	10 37.83	+22 24.2	2.123	2.560	22.5	8.1	103.8E
2009	5 10	10 38.35	+22 16.2	2.136	2.560	22.6	8.2	103.1E
2009	5 11	10 38.90	+22 8.1	2.148	2.561	22.7	8.2	102.3E
2009	5 12	10 39.47	+21 59.8	2.160	2.561	22.7	8.2	101.5E
2009	5 13	10 40.06	+21 51.5	2.172	2.561	22.8	8.2	100.8E
2009	5 14	10 40.67	+21 43.1	2.185	2.562	22.9	8.2	100.0E
2009	5 15	10 41.30	+21 34.6	2.197	2.562	22.9	8.2	99.3E
2009	5 16	10 41.95	+21 26.0	2.209	2.562	23.0	8.2	98.5E
2009	5 17	10 42.62	+21 17.3	2.222	2.563	23.0	8.3	97.8E
2009	5 18	10 43.30	+21 8.5	2.234	2.563	23.1	8.3	97.0E
2009	5 19	10 44.00	+20 59.7	2.247	2.563	23.1	8.3	96.3E
2009	5 20	10 44.72	+20 50.8	2.259	2.564	23.1	8.3	95.6E
2009	5 21	10 45.46	+20 41.8	2.272	2.564	23.2	8.3	94.9E
2009	5 22	10 46.22	+20 32.7	2.284	2.564	23.2	8.3	94.1E
2009	5 23	10 46.99	+20 23.5	2.297	2.565	23.2	8.3	93.4E
2009	5 24	10 47.78	+20 14.3	2.309	2.565	23.2	8.3	92.7E
2009	5 25	10 48.58	+20 5.0	2.322	2.565	23.2	8.4	92.0E
2009	5 26	10 49.40	+19 55.6	2.334	2.566	23.2	8.4	91.3E
2009	5 27	10 50.23	+19 46.2	2.347	2.566	23.3	8.4	90.6E
2009	5 28	10 51.08	+19 36.7	2.359	2.566	23.3	8.4	89.9E
2009	5 29	10 51.95	+19 27.1	2.372	2.567	23.3	8.4	89.2E
2009	5 30	10 52.83	+19 17.5	2.385	2.567	23.3	8.4	88.5E
2009	5 31	10 53.72	+19 7.8	2.397	2.568	23.2	8.4	87.8E
2009	6 1	10 54.63	+18 58.0	2.410	2.568	23.2	8.4	87.2E

1 Ceres

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 6 2	10 55.55	+18 48.2	2.422	2.568	23.2	8.5	86.5E
2009 6 3	10 56.48	+18 38.3	2.435	2.569	23.2	8.5	85.8E
2009 6 4	10 57.43	+18 28.4	2.448	2.569	23.2	8.5	85.1E
2009 6 5	10 58.39	+18 18.4	2.460	2.569	23.1	8.5	84.5E
2009 6 6	10 59.37	+18 8.3	2.473	2.570	23.1	8.5	83.8E
2009 6 7	11 0.35	+17 58.2	2.485	2.570	23.1	8.5	83.2E
2009 6 8	11 1.35	+17 48.1	2.498	2.571	23.0	8.5	82.5E
2009 6 9	11 2.36	+17 37.8	2.511	2.571	23.0	8.5	81.8E
2009 6 10	11 3.38	+17 27.6	2.523	2.571	23.0	8.5	81.2E
2009 6 11	11 4.42	+17 17.3	2.536	2.572	22.9	8.5	80.5E
2009 6 12	11 5.46	+17 6.9	2.548	2.572	22.9	8.6	79.9E
2009 6 13	11 6.52	+16 56.5	2.561	2.573	22.8	8.6	79.3E
2009 6 14	11 7.58	+16 46.0	2.573	2.573	22.8	8.6	78.6E
2009 6 15	11 8.66	+16 35.5	2.585	2.574	22.7	8.6	78.0E
2009 6 16	11 9.75	+16 25.0	2.598	2.574	22.6	8.6	77.4E
2009 6 17	11 10.85	+16 14.4	2.610	2.574	22.6	8.6	76.7E
2009 6 18	11 11.95	+16 3.7	2.623	2.575	22.5	8.6	76.1E
2009 6 19	11 13.07	+15 53.1	2.635	2.575	22.5	8.6	75.5E
2009 6 20	11 14.20	+15 42.3	2.647	2.576	22.4	8.6	74.9E
2009 6 21	11 15.33	+15 31.6	2.659	2.576	22.3	8.6	74.2E
2009 6 22	11 16.48	+15 20.8	2.672	2.577	22.2	8.6	73.6E
2009 6 23	11 17.63	+15 9.9	2.684	2.577	22.2	8.6	73.0E
2009 6 24	11 18.80	+14 59.0	2.696	2.578	22.1	8.7	72.4E
2009 6 25	11 19.97	+14 48.1	2.708	2.578	22.0	8.7	71.8E
2009 6 26	11 21.15	+14 37.2	2.720	2.578	21.9	8.7	71.2E
2009 6 27	11 22.34	+14 26.2	2.732	2.579	21.8	8.7	70.6E
2009 6 28	11 23.53	+14 15.2	2.744	2.579	21.7	8.7	70.0E
2009 6 29	11 24.74	+14 4.1	2.756	2.580	21.6	8.7	69.4E
2009 6 30	11 25.95	+13 53.0	2.768	2.580	21.5	8.7	68.8E
2009 7 1	11 27.17	+13 41.9	2.780	2.581	21.4	8.7	68.2E
2009 7 2	11 28.40	+13 30.7	2.792	2.581	21.3	8.7	67.6E
2009 7 3	11 29.63	+13 19.5	2.804	2.582	21.2	8.7	67.0E
2009 7 4	11 30.88	+13 8.3	2.816	2.582	21.1	8.7	66.4E
2009 7 5	11 32.13	+12 57.1	2.827	2.583	21.0	8.7	65.8E
2009 7 6	11 33.38	+12 45.8	2.839	2.583	20.9	8.7	65.2E
2009 7 7	11 34.64	+12 34.5	2.851	2.584	20.8	8.7	64.6E
2009 7 8	11 35.91	+12 23.2	2.862	2.584	20.7	8.7	64.0E
2009 7 9	11 37.19	+12 11.8	2.874	2.585	20.6	8.8	63.5E
2009 7 10	11 38.47	+12 0.4	2.885	2.585	20.5	8.8	62.9E
2009 7 11	11 39.76	+11 49.0	2.897	2.586	20.4	8.8	62.3E
2009 7 12	11 41.06	+11 37.6	2.908	2.586	20.3	8.8	61.7E
2009 7 13	11 42.36	+11 26.2	2.919	2.587	20.1	8.8	61.1E
2009 7 14	11 43.67	+11 14.7	2.931	2.587	20.0	8.8	60.6E
2009 7 15	11 44.98	+11 3.2	2.942	2.588	19.9	8.8	60.0E
2009 7 16	11 46.30	+10 51.7	2.953	2.588	19.8	8.8	59.4E
2009 7 17	11 47.63	+10 40.1	2.964	2.589	19.6	8.8	58.9E
2009 7 18	11 48.96	+10 28.6	2.975	2.589	19.5	8.8	58.3E
2009 7 19	11 50.30	+10 17.0	2.986	2.590	19.4	8.8	57.7E
2009 7 20	11 51.64	+10 5.4	2.997	2.590	19.2	8.8	57.2E
2009 7 21	11 52.98	+ 9 53.8	3.008	2.591	19.1	8.8	56.6E
2009 7 22	11 54.34	+ 9 42.2	3.018	2.591	19.0	8.8	56.0E
2009 7 23	11 55.69	+ 9 30.5	3.029	2.592	18.8	8.8	55.5E
2009 7 24	11 57.06	+ 9 18.9	3.040	2.592	18.7	8.8	54.9E
2009 7 25	11 58.42	+ 9 7.2	3.050	2.593	18.6	8.8	54.3E
2009 7 26	11 59.80	+ 8 55.5	3.061	2.594	18.4	8.8	53.8E
2009 7 27	12 1.17	+ 8 43.8	3.071	2.594	18.3	8.8	53.2E
2009 7 28	12 2.56	+ 8 32.1	3.082	2.595	18.1	8.8	52.7E
2009 7 29	12 3.94	+ 8 20.4	3.092	2.595	18.0	8.8	52.1E
2009 7 30	12 5.34	+ 8 8.6	3.102	2.596	17.8	8.8	51.6E
2009 7 31	12 6.73	+ 7 56.9	3.112	2.596	17.7	8.8	51.0E
2009 8 1	12 8.13	+ 7 45.1	3.122	2.597	17.5	8.8	50.5E
2009 8 2	12 9.54	+ 7 33.3	3.132	2.597	17.4	8.8	49.9E
2009 8 3	12 10.95	+ 7 21.6	3.142	2.598	17.2	8.8	49.4E
2009 8 4	12 12.36	+ 7 9.8	3.152	2.599	17.1	8.8	48.8E
2009 8 5	12 13.78	+ 6 58.0	3.162	2.599	16.9	8.8	48.3E
2009 8 6	12 15.20	+ 6 46.2	3.172	2.600	16.8	8.9	47.7E
2009 8 7	12 16.63	+ 6 34.4	3.181	2.600	16.6	8.9	47.2E
2009 8 8	12 18.06	+ 6 22.6	3.191	2.601	16.5	8.9	46.6E
2009 8 9	12 19.49	+ 6 10.8	3.200	2.601	16.3	8.9	46.1E
2009 8 10	12 20.93	+ 5 59.0	3.210	2.602	16.1	8.9	45.5E
2009 8 11	12 22.37	+ 5 47.2	3.219	2.603	16.0	8.9	45.0E
2009 8 12	12 23.82	+ 5 35.4	3.228	2.603	15.8	8.9	44.4E
2009 8 13	12 25.27	+ 5 23.5	3.237	2.604	15.7	8.9	43.9E
2009 8 14	12 26.72	+ 5 11.7	3.246	2.604	15.5	8.9	43.4E
2009 8 15	12 28.18	+ 4 59.9	3.255	2.605	15.3	8.9	42.8E
2009 8 16	12 29.64	+ 4 48.1	3.264	2.605	15.2	8.9	42.3E
2009 8 17	12 31.10	+ 4 36.3	3.273	2.606	15.0	8.9	41.7E
2009 8 18	12 32.57	+ 4 24.5	3.282	2.607	14.8	8.9	41.2E
2009 8 19	12 34.04	+ 4 12.7	3.290	2.607	14.7	8.9	40.7E

1 Ceres

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 8 20	12 35.52	+ 4 0.9	3.299	2.608	14.5	8.9	40.1E
2009 8 21	12 37.00	+ 3 49.1	3.307	2.609	14.3	8.9	39.6E
2009 8 22	12 38.48	+ 3 37.3	3.316	2.609	14.1	8.9	39.0E
2009 8 23	12 39.97	+ 3 25.5	3.324	2.610	14.0	8.9	38.5E
2009 8 24	12 41.46	+ 3 13.7	3.332	2.610	13.8	8.9	38.0E
2009 8 25	12 42.95	+ 3 1.9	3.340	2.611	13.6	8.9	37.4E
2009 8 26	12 44.44	+ 2 50.1	3.348	2.612	13.4	8.9	36.9E
2009 8 27	12 45.94	+ 2 38.4	3.356	2.612	13.3	8.9	36.4E
2009 8 28	12 47.45	+ 2 26.6	3.364	2.613	13.1	8.9	35.8E
2009 8 29	12 48.95	+ 2 14.9	3.372	2.613	12.9	8.9	35.3E
2009 8 30	12 50.46	+ 2 3.2	3.379	2.614	12.7	8.9	34.8E
2009 8 31	12 51.97	+ 1 51.4	3.387	2.615	12.5	8.9	34.2E
2009 9 1	12 53.49	+ 1 39.7	3.394	2.615	12.4	8.8	33.7E
2009 9 2	12 55.00	+ 1 28.1	3.402	2.616	12.2	8.8	33.2E
2009 9 3	12 56.53	+ 1 16.4	3.409	2.617	12.0	8.8	32.6E
2009 9 4	12 58.05	+ 1 4.7	3.416	2.617	11.8	8.8	32.1E
2009 9 5	12 59.58	+ 0 53.1	3.423	2.618	11.6	8.8	31.6E
2009 9 6	13 1.11	+ 0 41.4	3.430	2.619	11.4	8.8	31.0E
2009 9 7	13 2.64	+ 0 29.8	3.437	2.619	11.3	8.8	30.5E
2009 9 8	13 4.18	+ 0 18.2	3.444	2.620	11.1	8.8	30.0E
2009 9 9	13 5.72	+ 0 6.6	3.450	2.620	10.9	8.8	29.4E
2009 9 10	13 7.26	- 0 4.9	3.457	2.621	10.7	8.8	28.9E
2009 9 11	13 8.80	- 0 16.5	3.463	2.622	10.5	8.8	28.4E
2009 9 12	13 10.35	- 0 28.0	3.470	2.622	10.3	8.8	27.9E
2009 9 13	13 11.90	- 0 39.5	3.476	2.623	10.1	8.8	27.3E
2009 9 14	13 13.45	- 0 51.0	3.482	2.624	10	8.8	26.8E
2009 9 15	13 15.01	- 1 2.4	3.488	2.624	9.8	8.8	26.3E
2009 9 16	13 16.57	- 1 13.9	3.494	2.625	9.6	8.8	25.7E
2009 9 17	13 18.13	- 1 25.3	3.500	2.626	9.4	8.8	25.2E
2009 9 18	13 19.70	- 1 36.7	3.506	2.626	9.2	8.8	24.7E
2009 9 19	13 21.26	- 1 48.0	3.511	2.627	9.0	8.8	24.2E
2009 9 20	13 22.83	- 1 59.4	3.517	2.628	8.8	8.8	23.6E
2009 9 21	13 24.41	- 2 10.7	3.522	2.628	8.6	8.8	23.1E
2009 9 22	13 25.98	- 2 22.0	3.527	2.629	8.4	8.8	22.6E
2009 9 23	13 27.56	- 2 33.2	3.533	2.630	8.2	8.8	22.1E
2009 9 24	13 29.14	- 2 44.4	3.538	2.630	8.0	8.8	21.5E
2009 9 25	13 30.72	- 2 55.6	3.543	2.631	7.9	8.8	21.0E
2009 9 26	13 32.31	- 3 6.8	3.548	2.632	7.7	8.8	20.5E
2009 9 27	13 33.90	- 3 17.9	3.552	2.633	7.5	8.8	20.0E
2009 9 28	13 35.49	- 3 29.0	3.557	2.633	7.3	8.7	19.4E
2009 9 29	13 37.08	- 3 40.1	3.561	2.634	7.1	8.7	18.9E
2009 9 30	13 38.67	- 3 51.1	3.566	2.635	6.9	8.7	18.4E
2009 10 1	13 40.27	- 4 2.1	3.570	2.635	6.7	8.7	17.9E
2009 10 2	13 41.87	- 4 13.1	3.574	2.636	6.5	8.7	17.4E
2009 10 3	13 43.48	- 4 24.0	3.578	2.637	6.3	8.7	16.8E
2009 10 4	13 45.08	- 4 34.9	3.582	2.637	6.1	8.7	16.3E
2009 10 5	13 46.69	- 4 45.8	3.586	2.638	5.9	8.7	15.8E
2009 10 6	13 48.30	- 4 56.6	3.590	2.639	5.7	8.7	15.3E
2009 10 7	13 49.91	- 5 7.4	3.594	2.639	5.5	8.7	14.8E
2009 10 8	13 51.53	- 5 18.2	3.597	2.640	5.4	8.7	14.3E
2009 10 9	13 53.14	- 5 28.9	3.600	2.641	5.2	8.7	13.8E
2009 10 10	13 54.76	- 5 39.6	3.604	2.642	5.0	8.7	13.3E
2009 10 11	13 56.38	- 5 50.2	3.607	2.642	4.8	8.7	12.8E
2009 10 12	13 58.01	- 6 0.8	3.610	2.643	4.6	8.7	12.3E
2009 10 13	13 59.63	- 6 11.3	3.613	2.644	4.4	8.6	11.8E
2009 10 14	14 1.26	- 6 21.8	3.615	2.644	4.2	8.6	11.3E
2009 10 15	14 2.89	- 6 32.3	3.618	2.645	4.1	8.6	10.8E
2009 10 16	14 4.52	- 6 42.7	3.621	2.646	3.9	8.6	10.3E
2009 10 17	14 6.16	- 6 53.1	3.623	2.647	3.7	8.6	9.9E
2009 10 18	14 7.79	- 7 3.4	3.625	2.647	3.5	8.6	9.4E
2009 10 19	14 9.43	- 7 13.7	3.628	2.648	3.3	8.6	8.9E
2009 10 20	14 11.07	- 7 23.9	3.630	2.649	3.2	8.6	8.5E
2009 10 21	14 12.71	- 7 34.1	3.632	2.650	3.0	8.6	8.1E
2009 10 22	14 14.36	- 7 44.2	3.633	2.650	2.9	8.6	7.6E
2009 10 23	14 16.00	- 7 54.3	3.635	2.651	2.7	8.6	7.3E
2009 10 24	14 17.65	- 8 4.4	3.637	2.652	2.6	8.5	6.9E
2009 10 25	14 19.30	- 8 14.3	3.638	2.652	2.4	8.5	6.5E
2009 10 26	14 20.95	- 8 24.3	3.639	2.653	2.3	8.5	6.2E
2009 10 27	14 22.60	- 8 34.2	3.640	2.654	2.2	8.5	5.9E
2009 10 28	14 24.26	- 8 44.0	3.642	2.655	2.1	8.5	5.7E
2009 10 29	14 25.92	- 8 53.8	3.642	2.655	2.0	8.5	5.5E
2009 10 30	14 27.57	- 9 3.5	3.643	2.656	2.0	8.5	5.3E
2009 10 31	14 29.23	- 9 13.2	3.644	2.657	2.0	8.5	5.2E
2009 11 1	14 30.90	- 9 22.8	3.645	2.658	1.9	8.5	5.2E
2009 11 2	14 32.56	- 9 32.4	3.645	2.658	1.9	8.5	5.2E
2009 11 3	14 34.22	- 9 41.9	3.645	2.659	2.0	8.5	5.3E
2009 11 4	14 35.89	- 9 51.4	3.645	2.660	2.0	8.5	5.4W
2009 11 5	14 37.56	-10 0.7	3.646	2.661	2.1	8.5	5.6W
2009 11 6	14 39.23	-10 10.1	3.645	2.661	2.2	8.5	5.9W

1 Ceres

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 11 7	14 40.90	-10 19.4	3.645	2.662	2.3	8.5	6.2W
2009 11 8	14 42.57	-10 28.6	3.645	2.663	2.4	8.6	6.5W
2009 11 9	14 44.24	-10 37.8	3.645	2.664	2.5	8.6	6.8W
2009 11 10	14 45.91	-10 46.9	3.644	2.664	2.7	8.6	7.2W
2009 11 11	14 47.59	-10 55.9	3.643	2.665	2.8	8.6	7.6W
2009 11 12	14 49.27	-11 4.9	3.642	2.666	3.0	8.6	8.0W
2009 11 13	14 50.94	-11 13.8	3.641	2.667	3.1	8.6	8.5W
2009 11 14	14 52.62	-11 22.7	3.640	2.667	3.3	8.6	8.9W
2009 11 15	14 54.30	-11 31.5	3.639	2.668	3.5	8.6	9.4W
2009 11 16	14 55.98	-11 40.2	3.638	2.669	3.7	8.6	9.9W
2009 11 17	14 57.66	-11 48.9	3.636	2.670	3.8	8.6	10.4W
2009 11 18	14 59.34	-11 57.5	3.635	2.670	4.0	8.7	10.9W
2009 11 19	15 1.03	-12 6.0	3.633	2.671	4.2	8.7	11.4W
2009 11 20	15 2.71	-12 14.5	3.631	2.672	4.4	8.7	11.9W
2009 11 21	15 4.39	-12 22.9	3.629	2.673	4.6	8.7	12.4W
2009 11 22	15 6.08	-12 31.3	3.627	2.674	4.7	8.7	12.9W
2009 11 23	15 7.76	-12 39.6	3.625	2.674	4.9	8.7	13.5W
2009 11 24	15 9.45	-12 47.8	3.622	2.675	5.1	8.7	14.0W
2009 11 25	15 11.13	-12 55.9	3.620	2.676	5.3	8.7	14.6W
2009 11 26	15 12.82	-13 4.0	3.617	2.677	5.5	8.7	15.1W
2009 11 27	15 14.51	-13 12.0	3.614	2.677	5.7	8.7	15.6W
2009 11 28	15 16.19	-13 20.0	3.612	2.678	5.9	8.8	16.2W
2009 11 29	15 17.88	-13 27.8	3.609	2.679	6.1	8.8	16.7W
2009 11 30	15 19.57	-13 35.6	3.605	2.680	6.3	8.8	17.3W
2009 12 1	15 21.25	-13 43.4	3.602	2.681	6.5	8.8	17.8W
2009 12 2	15 22.94	-13 51.1	3.599	2.681	6.7	8.8	18.4W
2009 12 3	15 24.63	-13 58.6	3.595	2.682	6.9	8.8	19.0W
2009 12 4	15 26.31	-14 6.2	3.591	2.683	7.1	8.8	19.5W
2009 12 5	15 28.00	-14 13.6	3.588	2.684	7.3	8.8	20.1W
2009 12 6	15 29.68	-14 21.0	3.584	2.684	7.4	8.8	20.7W
2009 12 7	15 31.37	-14 28.3	3.580	2.685	7.6	8.8	21.2W
2009 12 8	15 33.05	-14 35.6	3.576	2.686	7.8	8.8	21.8W
2009 12 9	15 34.74	-14 42.7	3.571	2.687	8.0	8.8	22.4W
2009 12 10	15 36.42	-14 49.8	3.567	2.688	8.2	8.8	23.0W
2009 12 11	15 38.10	-14 56.9	3.562	2.688	8.4	8.8	23.5W
2009 12 12	15 39.78	-15 3.8	3.558	2.689	8.6	8.9	24.1W
2009 12 13	15 41.47	-15 10.7	3.553	2.690	8.8	8.9	24.7W
2009 12 14	15 43.14	-15 17.5	3.548	2.691	9.0	8.9	25.3W
2009 12 15	15 44.82	-15 24.2	3.543	2.692	9.2	8.9	25.9W
2009 12 16	15 46.50	-15 30.9	3.538	2.692	9.4	8.9	26.5W
2009 12 17	15 48.18	-15 37.5	3.532	2.693	9.6	8.9	27.0W
2009 12 18	15 49.85	-15 44.0	3.527	2.694	9.8	8.9	27.6W
2009 12 19	15 51.52	-15 50.4	3.521	2.695	9.9	8.9	28.2W
2009 12 20	15 53.19	-15 56.8	3.516	2.696	10.1	8.9	28.8W
2009 12 21	15 54.86	-16 3.1	3.510	2.696	10.3	8.9	29.4W
2009 12 22	15 56.53	-16 9.3	3.504	2.697	10.5	8.9	30.0W
2009 12 23	15 58.20	-16 15.5	3.498	2.698	10.7	8.9	30.6W
2009 12 24	15 59.86	-16 21.5	3.492	2.699	10.9	8.9	31.2W
2009 12 25	16 1.52	-16 27.5	3.485	2.700	11.1	8.9	31.8W
2009 12 26	16 3.18	-16 33.4	3.479	2.700	11.3	8.9	32.4W
2009 12 27	16 4.84	-16 39.3	3.472	2.701	11.4	8.9	33.0W
2009 12 28	16 6.49	-16 45.1	3.466	2.702	11.6	8.9	33.6W
2009 12 29	16 8.14	-16 50.8	3.459	2.703	11.8	8.9	34.2W
2009 12 30	16 9.79	-16 56.4	3.452	2.704	12.0	8.9	34.8W
2009 12 31	16 11.44	-17 1.9	3.445	2.704	12.2	8.9	35.4W

2 Pallas

Data			R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno	m	g	hh mm.mm	dd pp.p	U.A	U.A.	°	V	°
2009	1	1	4 51.50	-31 38.2	1.584	2.231	22.7	8.0	118.9E
2009	1	2	4 50.90	-31 29.3	1.586	2.230	22.8	8.0	118.5E
2009	1	3	4 50.32	-31 20.0	1.588	2.228	22.9	8.0	118.2E
2009	1	4	4 49.77	-31 10.3	1.591	2.227	23.0	8.0	117.8E
2009	1	5	4 49.25	-31 0.2	1.594	2.225	23.1	8.0	117.4E
2009	1	6	4 48.75	-30 49.7	1.596	2.223	23.2	8.0	117.1E
2009	1	7	4 48.28	-30 38.7	1.599	2.222	23.3	8.0	116.7E
2009	1	8	4 47.84	-30 27.4	1.602	2.220	23.4	8.0	116.3E
2009	1	9	4 47.43	-30 15.7	1.605	2.219	23.5	8.1	115.9E
2009	1	10	4 47.05	-30 3.6	1.608	2.217	23.6	8.1	115.5E
2009	1	11	4 46.70	-29 51.1	1.612	2.216	23.7	8.1	115.1E
2009	1	12	4 46.38	-29 38.3	1.615	2.215	23.8	8.1	114.7E
2009	1	13	4 46.09	-29 25.2	1.619	2.213	23.9	8.1	114.3E
2009	1	14	4 45.84	-29 11.7	1.622	2.212	24.0	8.1	113.9E
2009	1	15	4 45.61	-28 57.9	1.626	2.210	24.1	8.1	113.5E
2009	1	16	4 45.41	-28 43.8	1.630	2.209	24.2	8.1	113.1E
2009	1	17	4 45.25	-28 29.4	1.633	2.207	24.3	8.1	112.6E
2009	1	18	4 45.12	-28 14.7	1.637	2.206	24.4	8.1	112.2E
2009	1	19	4 45.02	-27 59.7	1.641	2.205	24.5	8.1	111.8E
2009	1	20	4 44.96	-27 44.5	1.645	2.203	24.6	8.1	111.3E
2009	1	21	4 44.92	-27 29.0	1.650	2.202	24.7	8.1	110.9E
2009	1	22	4 44.92	-27 13.2	1.654	2.200	24.8	8.1	110.5E
2009	1	23	4 44.95	-26 57.2	1.658	2.199	24.9	8.1	110.0E
2009	1	24	4 45.02	-26 41.0	1.663	2.198	25.0	8.2	109.6E
2009	1	25	4 45.11	-26 24.5	1.667	2.196	25.1	8.2	109.1E
2009	1	26	4 45.24	-26 7.9	1.672	2.195	25.1	8.2	108.7E
2009	1	27	4 45.40	-25 51.0	1.677	2.194	25.2	8.2	108.2E
2009	1	28	4 45.60	-25 34.0	1.681	2.193	25.3	8.2	107.8E
2009	1	29	4 45.82	-25 16.7	1.686	2.191	25.4	8.2	107.3E
2009	1	30	4 46.08	-24 59.3	1.691	2.190	25.5	8.2	106.8E
2009	1	31	4 46.36	-24 41.7	1.696	2.189	25.6	8.2	106.4E
2009	2	1	4 46.68	-24 24.0	1.701	2.188	25.7	8.2	105.9E
2009	2	2	4 47.03	-24 6.2	1.707	2.186	25.8	8.2	105.5E
2009	2	3	4 47.42	-23 48.1	1.712	2.185	25.8	8.2	105.0E
2009	2	4	4 47.83	-23 30.0	1.717	2.184	25.9	8.2	104.5E
2009	2	5	4 48.27	-23 11.7	1.723	2.183	26.0	8.3	104.1E
2009	2	6	4 48.75	-22 53.4	1.728	2.182	26.1	8.3	103.6E
2009	2	7	4 49.25	-22 34.9	1.734	2.180	26.1	8.3	103.1E
2009	2	8	4 49.78	-22 16.3	1.739	2.179	26.2	8.3	102.6E
2009	2	9	4 50.35	-21 57.7	1.745	2.178	26.3	8.3	102.2E
2009	2	10	4 50.94	-21 38.9	1.751	2.177	26.4	8.3	101.7E
2009	2	11	4 51.56	-21 20.1	1.757	2.176	26.4	8.3	101.2E
2009	2	12	4 52.21	-21 1.3	1.763	2.175	26.5	8.3	100.7E
2009	2	13	4 52.88	-20 42.3	1.768	2.174	26.5	8.3	100.3E
2009	2	14	4 53.59	-20 23.4	1.775	2.173	26.6	8.3	99.8E
2009	2	15	4 54.32	-20 4.3	1.781	2.172	26.7	8.3	99.3E
2009	2	16	4 55.08	-19 45.3	1.787	2.171	26.7	8.3	98.8E
2009	2	17	4 55.87	-19 26.2	1.793	2.169	26.8	8.3	98.4E
2009	2	18	4 56.69	-19 7.1	1.799	2.168	26.8	8.4	97.9E
2009	2	19	4 57.53	-18 47.9	1.806	2.167	26.9	8.4	97.4E
2009	2	20	4 58.39	-18 28.8	1.812	2.166	26.9	8.4	96.9E
2009	2	21	4 59.28	-18 9.6	1.819	2.165	27.0	8.4	96.5E
2009	2	22	5 0.20	-17 50.5	1.825	2.165	27.0	8.4	96.0E
2009	2	23	5 1.14	-17 31.4	1.832	2.164	27.1	8.4	95.5E
2009	2	24	5 2.11	-17 12.2	1.838	2.163	27.1	8.4	95.0E
2009	2	25	5 3.10	-16 53.1	1.845	2.162	27.2	8.4	94.5E
2009	2	26	5 4.12	-16 34.0	1.852	2.161	27.2	8.4	94.1E
2009	2	27	5 5.16	-16 15.0	1.859	2.160	27.2	8.4	93.6E
2009	2	28	5 6.22	-15 56.0	1.865	2.159	27.3	8.4	93.1E
2009	3	1	5 7.30	-15 37.0	1.872	2.158	27.3	8.4	92.6E
2009	3	2	5 8.41	-15 18.1	1.879	2.157	27.3	8.5	92.1E
2009	3	3	5 9.54	-14 59.2	1.886	2.156	27.4	8.5	91.7E
2009	3	4	5 10.69	-14 40.4	1.894	2.156	27.4	8.5	91.2E
2009	3	5	5 11.87	-14 21.6	1.901	2.155	27.4	8.5	90.7E
2009	3	6	5 13.06	-14 2.9	1.908	2.154	27.4	8.5	90.2E
2009	3	7	5 14.28	-13 44.3	1.915	2.153	27.4	8.5	89.8E
2009	3	8	5 15.51	-13 25.7	1.922	2.152	27.5	8.5	89.3E
2009	3	9	5 16.77	-13 7.2	1.930	2.152	27.5	8.5	88.8E
2009	3	10	5 18.05	-12 48.8	1.937	2.151	27.5	8.5	88.3E
2009	3	11	5 19.35	-12 30.5	1.945	2.150	27.5	8.5	87.9E
2009	3	12	5 20.66	-12 12.2	1.952	2.149	27.5	8.5	87.4E
2009	3	13	5 22.00	-11 54.1	1.960	2.149	27.5	8.5	86.9E
2009	3	14	5 23.35	-11 36.0	1.967	2.148	27.5	8.6	86.4E
2009	3	15	5 24.72	-11 18.1	1.975	2.147	27.5	8.6	85.9E
2009	3	16	5 26.12	-11 0.3	1.983	2.147	27.5	8.6	85.5E
2009	3	17	5 27.52	-10 42.5	1.990	2.146	27.5	8.6	85.0E
2009	3	18	5 28.95	-10 24.9	1.998	2.145	27.5	8.6	84.5E
2009	3	19	5 30.39	-10 7.4	2.006	2.145	27.5	8.6	84.1E

2 Pallas

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 3 20	5 31.86	- 9 50.0	2.014	2.144	27.5	8.6	83.6E
2009 3 21	5 33.33	- 9 32.7	2.022	2.144	27.5	8.6	83.1E
2009 3 22	5 34.83	- 9 15.5	2.029	2.143	27.5	8.6	82.6E
2009 3 23	5 36.34	- 8 58.5	2.037	2.143	27.4	8.6	82.2E
2009 3 24	5 37.86	- 8 41.6	2.045	2.142	27.4	8.6	81.7E
2009 3 25	5 39.41	- 8 24.8	2.053	2.141	27.4	8.6	81.2E
2009 3 26	5 40.96	- 8 8.1	2.062	2.141	27.4	8.6	80.7E
2009 3 27	5 42.54	- 7 51.6	2.070	2.140	27.4	8.6	80.3E
2009 3 28	5 44.12	- 7 35.3	2.078	2.140	27.3	8.7	79.8E
2009 3 29	5 45.73	- 7 19.0	2.086	2.140	27.3	8.7	79.3E
2009 3 30	5 47.34	- 7 2.9	2.094	2.139	27.3	8.7	78.9E
2009 3 31	5 48.97	- 6 47.0	2.102	2.139	27.2	8.7	78.4E
2009 4 1	5 50.62	- 6 31.2	2.111	2.138	27.2	8.7	77.9E
2009 4 2	5 52.28	- 6 15.5	2.119	2.138	27.2	8.7	77.5E
2009 4 3	5 53.95	- 5 60.0	2.127	2.137	27.1	8.7	77.0E
2009 4 4	5 55.63	- 5 44.6	2.136	2.137	27.1	8.7	76.5E
2009 4 5	5 57.33	- 5 29.4	2.144	2.137	27.0	8.7	76.1E
2009 4 6	5 59.04	- 5 14.4	2.153	2.136	27.0	8.7	75.6E
2009 4 7	6 0.76	- 4 59.5	2.161	2.136	26.9	8.7	75.1E
2009 4 8	6 2.49	- 4 44.8	2.170	2.136	26.9	8.7	74.7E
2009 4 9	6 4.24	- 4 30.2	2.178	2.135	26.8	8.7	74.2E
2009 4 10	6 6.00	- 4 15.8	2.187	2.135	26.8	8.7	73.7E
2009 4 11	6 7.76	- 4 1.5	2.195	2.135	26.7	8.8	73.3E
2009 4 12	6 9.55	- 3 47.5	2.204	2.134	26.7	8.8	72.8E
2009 4 13	6 11.34	- 3 33.5	2.213	2.134	26.6	8.8	72.3E
2009 4 14	6 13.14	- 3 19.8	2.221	2.134	26.5	8.8	71.9E
2009 4 15	6 14.95	- 3 6.2	2.230	2.134	26.5	8.8	71.4E
2009 4 16	6 16.77	- 2 52.8	2.239	2.134	26.4	8.8	70.9E
2009 4 17	6 18.60	- 2 39.6	2.247	2.133	26.3	8.8	70.5E
2009 4 18	6 20.45	- 2 26.5	2.256	2.133	26.3	8.8	70.0E
2009 4 19	6 22.30	- 2 13.6	2.265	2.133	26.2	8.8	69.6E
2009 4 20	6 24.16	- 2 0.9	2.274	2.133	26.1	8.8	69.1E
2009 4 21	6 26.03	- 1 48.3	2.282	2.133	26.0	8.8	68.6E
2009 4 22	6 27.91	- 1 35.9	2.291	2.133	25.9	8.8	68.2E
2009 4 23	6 29.80	- 1 23.7	2.300	2.133	25.9	8.8	67.7E
2009 4 24	6 31.69	- 1 11.7	2.309	2.132	25.8	8.8	67.3E
2009 4 25	6 33.60	- 0 59.8	2.318	2.132	25.7	8.8	66.8E
2009 4 26	6 35.51	- 0 48.2	2.327	2.132	25.6	8.8	66.3E
2009 4 27	6 37.43	- 0 36.7	2.336	2.132	25.5	8.8	65.9E
2009 4 28	6 39.36	- 0 25.4	2.345	2.132	25.4	8.9	65.4E
2009 4 29	6 41.30	- 0 14.2	2.353	2.132	25.3	8.9	65.0E
2009 4 30	6 43.24	- 0 3.2	2.362	2.132	25.2	8.9	64.5E
2009 5 1	6 45.19	+ 0 7.5	2.371	2.132	25.1	8.9	64.0E
2009 5 2	6 47.15	+ 0 18.1	2.380	2.132	25.0	8.9	63.6E
2009 5 3	6 49.12	+ 0 28.6	2.389	2.132	24.9	8.9	63.1E
2009 5 4	6 51.09	+ 0 38.8	2.398	2.132	24.8	8.9	62.7E
2009 5 5	6 53.07	+ 0 48.9	2.407	2.132	24.7	8.9	62.2E
2009 5 6	6 55.05	+ 0 58.8	2.416	2.133	24.6	8.9	61.7E
2009 5 7	6 57.04	+ 1 8.5	2.425	2.133	24.5	8.9	61.3E
2009 5 8	6 59.04	+ 1 18.0	2.434	2.133	24.4	8.9	60.8E
2009 5 9	7 1.04	+ 1 27.4	2.443	2.133	24.3	8.9	60.4E
2009 5 10	7 3.05	+ 1 36.6	2.452	2.133	24.2	8.9	59.9E
2009 5 11	7 5.06	+ 1 45.6	2.461	2.133	24.1	8.9	59.5E
2009 5 12	7 7.08	+ 1 54.4	2.470	2.133	23.9	8.9	59.0E
2009 5 13	7 9.10	+ 2 3.0	2.479	2.134	23.8	8.9	58.5E
2009 5 14	7 11.13	+ 2 11.5	2.488	2.134	23.7	8.9	58.1E
2009 5 15	7 13.16	+ 2 19.8	2.497	2.134	23.6	8.9	57.6E
2009 5 16	7 15.20	+ 2 27.9	2.506	2.134	23.5	8.9	57.2E
2009 5 17	7 17.24	+ 2 35.8	2.515	2.135	23.3	8.9	56.7E
2009 5 18	7 19.28	+ 2 43.5	2.524	2.135	23.2	8.9	56.3E
2009 5 19	7 21.33	+ 2 51.1	2.533	2.135	23.1	8.9	55.8E
2009 5 20	7 23.39	+ 2 58.5	2.542	2.135	22.9	9.0	55.3E
2009 5 21	7 25.44	+ 3 5.7	2.551	2.136	22.8	9.0	54.9E
2009 5 22	7 27.50	+ 3 12.8	2.560	2.136	22.7	9.0	54.4E
2009 5 23	7 29.57	+ 3 19.7	2.569	2.136	22.5	9.0	54.0E
2009 5 24	7 31.64	+ 3 26.4	2.578	2.137	22.4	9.0	53.5E
2009 5 25	7 33.71	+ 3 32.9	2.586	2.137	22.3	9.0	53.1E
2009 5 26	7 35.78	+ 3 39.3	2.595	2.138	22.1	9.0	52.6E
2009 5 27	7 37.86	+ 3 45.5	2.604	2.138	22.0	9.0	52.2E
2009 5 28	7 39.93	+ 3 51.5	2.613	2.138	21.8	9.0	51.7E
2009 5 29	7 42.02	+ 3 57.3	2.622	2.139	21.7	9.0	51.2E
2009 5 30	7 44.10	+ 4 3.0	2.631	2.139	21.5	9.0	50.8E
2009 5 31	7 46.19	+ 4 8.5	2.640	2.140	21.4	9.0	50.3E
2009 6 1	7 48.28	+ 4 13.9	2.648	2.140	21.2	9.0	49.9E
2009 6 2	7 50.37	+ 4 19.1	2.657	2.141	21.1	9.0	49.4E
2009 6 3	7 52.46	+ 4 24.1	2.666	2.141	20.9	9.0	49.0E
2009 6 4	7 54.55	+ 4 29.0	2.675	2.142	20.8	9.0	48.5E
2009 7 24	9 39.36	+ 5 30.3	3.060	2.186	11.5	9.0	25.4E
2009 7 25	9 41.42	+ 5 28.5	3.066	2.187	11.3	9.0	24.9E

2 Pallas

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 7 26	9 43.49	+ 5 26.6	3.072	2.188	11.1	9.0	24.4E
2009 7 27	9 45.55	+ 5 24.7	3.078	2.189	10.9	9.0	24.0E
2009 7 28	9 47.61	+ 5 22.6	3.084	2.191	10.6	9.0	23.5E
2009 7 29	9 49.67	+ 5 20.5	3.090	2.192	10.4	9.0	23.0E
2009 7 30	9 51.72	+ 5 18.3	3.096	2.193	10.2	9.0	22.5E
2009 7 31	9 53.77	+ 5 15.9	3.102	2.195	10.0	9.0	22.1E
2009 8 1	9 55.82	+ 5 13.5	3.108	2.196	9.8	9.0	21.6E
2009 8 2	9 57.87	+ 5 11.1	3.113	2.197	9.6	9.0	21.1E
2009 8 3	9 59.92	+ 5 8.5	3.119	2.199	9.4	9.0	20.6E
2009 8 4	10 1.96	+ 5 5.9	3.124	2.200	9.1	9.0	20.2E
2009 8 5	10 4.01	+ 5 3.2	3.130	2.201	8.9	9.0	19.7E
2009 8 6	10 6.05	+ 5 0.4	3.135	2.203	8.7	9.0	19.2E
2009 8 7	10 8.08	+ 4 57.5	3.140	2.204	8.5	8.9	18.7E
2009 8 8	10 10.12	+ 4 54.6	3.145	2.205	8.3	8.9	18.2E
2009 8 9	10 12.15	+ 4 51.6	3.150	2.207	8.1	8.9	17.8E
2009 8 10	10 14.18	+ 4 48.5	3.155	2.208	7.8	8.9	17.3E
2009 8 11	10 16.21	+ 4 45.4	3.160	2.210	7.6	8.9	16.8E
2009 8 12	10 18.24	+ 4 42.2	3.165	2.211	7.4	8.9	16.3E
2009 8 13	10 20.26	+ 4 39.0	3.170	2.212	7.2	8.9	15.8E
2009 8 14	10 22.28	+ 4 35.6	3.174	2.214	7.0	8.9	15.3E
2009 8 15	10 24.30	+ 4 32.2	3.179	2.215	6.7	8.9	14.9E
2009 8 16	10 26.32	+ 4 28.8	3.183	2.217	6.5	8.9	14.4E
2009 8 17	10 28.33	+ 4 25.3	3.188	2.218	6.3	8.9	13.9E
2009 8 18	10 30.34	+ 4 21.8	3.192	2.220	6.1	8.9	13.4E
2009 8 19	10 32.35	+ 4 18.1	3.196	2.221	5.8	8.9	12.9E
2009 8 20	10 34.36	+ 4 14.5	3.200	2.223	5.6	8.9	12.4E
2009 8 21	10 36.36	+ 4 10.8	3.204	2.224	5.4	8.9	11.9E
2009 8 22	10 38.37	+ 4 7.0	3.208	2.226	5.2	8.9	11.5E
2009 8 23	10 40.37	+ 4 3.2	3.212	2.227	5.0	8.8	11.0E
2009 8 24	10 42.36	+ 3 59.3	3.216	2.229	4.7	8.8	10.5E
2009 8 25	10 44.36	+ 3 55.4	3.219	2.231	4.5	8.8	10E
2009 8 26	10 46.35	+ 3 51.5	3.223	2.232	4.3	8.8	9.5E
2009 8 27	10 48.34	+ 3 47.5	3.226	2.234	4.1	8.8	9.0E
2009 8 28	10 50.33	+ 3 43.5	3.229	2.235	3.8	8.8	8.5E
2009 8 29	10 52.32	+ 3 39.4	3.233	2.237	3.6	8.8	8.0E
2009 8 30	10 54.30	+ 3 35.3	3.236	2.239	3.4	8.8	7.5E
2009 8 31	10 56.28	+ 3 31.2	3.239	2.240	3.2	8.8	7.0E
2009 9 1	10 58.26	+ 3 27.0	3.242	2.242	2.9	8.8	6.6E
2009 9 2	11 0.24	+ 3 22.8	3.244	2.244	2.7	8.7	6.1E
2009 9 3	11 2.21	+ 3 18.6	3.247	2.245	2.5	8.7	5.6E
2009 9 4	11 4.18	+ 3 14.3	3.250	2.247	2.3	8.7	5.1E
2009 9 5	11 6.15	+ 3 10.1	3.252	2.249	2.1	8.7	4.6E
2009 9 6	11 8.12	+ 3 5.7	3.255	2.250	1.8	8.7	4.1E
2009 9 7	11 10.08	+ 3 1.4	3.257	2.252	1.6	8.7	3.7E
2009 9 8	11 12.04	+ 2 57.0	3.259	2.254	1.4	8.7	3.2E
2009 9 9	11 14.00	+ 2 52.7	3.261	2.255	1.2	8.6	2.7E
2009 9 10	11 15.96	+ 2 48.3	3.263	2.257	1.0	8.6	2.3E
2009 9 11	11 17.92	+ 2 43.8	3.265	2.259	0.9	8.6	1.9E
2009 9 12	11 19.87	+ 2 39.4	3.267	2.261	0.7	8.6	1.6W
2009 9 13	11 21.82	+ 2 35.0	3.268	2.262	0.6	8.6	1.4W
2009 9 14	11 23.77	+ 2 30.5	3.270	2.264	0.6	8.6	1.4W
2009 9 15	11 25.72	+ 2 26.0	3.271	2.266	0.7	8.6	1.5W
2009 9 16	11 27.66	+ 2 21.5	3.272	2.268	0.8	8.6	1.8W
2009 9 17	11 29.60	+ 2 17.0	3.274	2.270	1	8.6	2.2W
2009 9 18	11 31.54	+ 2 12.5	3.275	2.271	1.2	8.7	2.6W
2009 9 19	11 33.48	+ 2 8.0	3.276	2.273	1.4	8.7	3.1W
2009 9 20	11 35.41	+ 2 3.5	3.277	2.275	1.6	8.7	3.5W
2009 9 21	11 37.35	+ 1 59.0	3.277	2.277	1.8	8.7	4.0W
2009 9 22	11 39.28	+ 1 54.5	3.278	2.279	2.0	8.7	4.5W
2009 9 23	11 41.20	+ 1 50.0	3.279	2.281	2.2	8.8	5.0W
2009 9 24	11 43.13	+ 1 45.5	3.279	2.282	2.4	8.8	5.5W
2009 9 25	11 45.05	+ 1 41.0	3.279	2.284	2.6	8.8	6.0W
2009 9 26	11 46.98	+ 1 36.5	3.279	2.286	2.9	8.8	6.5W
2009 9 27	11 48.89	+ 1 32.0	3.280	2.288	3.1	8.8	7.1W
2009 9 28	11 50.81	+ 1 27.5	3.279	2.290	3.3	8.8	7.6W
2009 9 29	11 52.73	+ 1 23.0	3.279	2.292	3.5	8.9	8.1W
2009 9 30	11 54.64	+ 1 18.6	3.279	2.294	3.7	8.9	8.6W
2009 10 1	11 56.55	+ 1 14.1	3.279	2.296	4.0	8.9	9.1W
2009 10 2	11 58.46	+ 1 9.7	3.278	2.298	4.2	8.9	9.7W
2009 10 3	12 0.36	+ 1 5.3	3.278	2.300	4.4	8.9	10.2W
2009 10 4	12 2.27	+ 1 0.9	3.277	2.301	4.6	8.9	10.7W
2009 10 5	12 4.17	+ 0 56.5	3.276	2.303	4.9	9.0	11.2W
2009 10 6	12 6.07	+ 0 52.2	3.275	2.305	5.1	9.0	11.8W
2009 10 7	12 7.96	+ 0 47.8	3.274	2.307	5.3	9.0	12.3W
2009 10 8	12 9.86	+ 0 43.5	3.273	2.309	5.5	9.0	12.8W

3 Juno

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 8 3	0 13.31	+ 3 43.1	1.581	2.329	20.6	9.0	126.1W
2009 8 4	0 13.62	+ 3 39.8	1.569	2.326	20.4	9.0	127.0W
2009 8 5	0 13.91	+ 3 36.3	1.557	2.323	20.1	8.9	127.9W
2009 8 6	0 14.17	+ 3 32.5	1.545	2.320	19.9	8.9	128.9W
2009 8 7	0 14.41	+ 3 28.4	1.534	2.318	19.6	8.9	129.8W
2009 8 8	0 14.63	+ 3 24.1	1.522	2.315	19.4	8.8	130.7W
2009 8 9	0 14.82	+ 3 19.6	1.511	2.312	19.1	8.8	131.7W
2009 8 10	0 14.99	+ 3 14.8	1.499	2.310	18.8	8.8	132.6W
2009 8 11	0 15.13	+ 3 9.7	1.488	2.307	18.6	8.8	133.6W
2009 8 12	0 15.25	+ 3 4.3	1.477	2.304	18.3	8.7	134.6W
2009 8 13	0 15.35	+ 2 58.7	1.466	2.302	18.0	8.7	135.5W
2009 8 14	0 15.42	+ 2 52.9	1.456	2.299	17.6	8.7	136.5W
2009 8 15	0 15.46	+ 2 46.7	1.445	2.296	17.3	8.7	137.5W
2009 8 16	0 15.48	+ 2 40.3	1.435	2.294	17.0	8.6	138.5W
2009 8 17	0 15.47	+ 2 33.7	1.425	2.291	16.7	8.6	139.5W
2009 8 18	0 15.44	+ 2 26.7	1.415	2.288	16.3	8.6	140.5W
2009 8 19	0 15.38	+ 2 19.5	1.405	2.286	16.0	8.6	141.6W
2009 8 20	0 15.29	+ 2 12.1	1.395	2.283	15.6	8.5	142.6W
2009 8 21	0 15.19	+ 2 4.3	1.386	2.281	15.2	8.5	143.6W
2009 8 22	0 15.05	+ 1 56.3	1.376	2.278	14.9	8.5	144.7W
2009 8 23	0 14.89	+ 1 48.1	1.367	2.275	14.5	8.4	145.7W
2009 8 24	0 14.71	+ 1 39.6	1.358	2.273	14.1	8.4	146.8W
2009 8 25	0 14.50	+ 1 30.8	1.350	2.270	13.7	8.4	147.9W
2009 8 26	0 14.26	+ 1 21.8	1.341	2.268	13.3	8.4	149.0W
2009 8 27	0 14.00	+ 1 12.5	1.333	2.265	12.9	8.3	150.0W
2009 8 28	0 13.72	+ 1 2.9	1.325	2.262	12.4	8.3	151.1W
2009 8 29	0 13.41	+ 0 53.2	1.317	2.260	12.0	8.3	152.2W
2009 8 30	0 13.08	+ 0 43.2	1.309	2.257	11.6	8.2	153.3W
2009 8 31	0 12.73	+ 0 32.9	1.301	2.255	11.1	8.2	154.5W
2009 9 1	0 12.35	+ 0 22.4	1.294	2.252	10.7	8.2	155.6W
2009 9 2	0 11.96	+ 0 11.7	1.287	2.250	10.2	8.2	156.7W
2009 9 3	0 11.54	+ 0 0.8	1.280	2.247	9.8	8.1	157.8W
2009 9 4	0 11.09	- 0 10.3	1.274	2.244	9.3	8.1	159.0W
2009 9 5	0 10.63	- 0 21.7	1.267	2.242	8.8	8.1	160.1W
2009 9 6	0 10.15	- 0 33.2	1.261	2.239	8.3	8.0	161.2W
2009 9 7	0 9.65	- 0 44.9	1.255	2.237	7.8	8.0	162.4W
2009 9 8	0 9.13	- 0 56.8	1.250	2.234	7.3	8.0	163.5W
2009 9 9	0 8.59	- 1 8.9	1.244	2.232	6.8	8.0	164.7W
2009 9 10	0 8.04	- 1 21.1	1.239	2.229	6.3	7.9	165.8W
2009 9 11	0 7.46	- 1 33.4	1.234	2.227	5.8	7.9	167.0W
2009 9 12	0 6.88	- 1 45.9	1.230	2.224	5.3	7.9	168.1W
2009 9 13	0 6.28	- 1 58.5	1.225	2.222	4.8	7.8	169.3W
2009 9 14	0 5.66	- 2 11.3	1.221	2.219	4.3	7.8	170.4W
2009 9 15	0 5.04	- 2 24.1	1.217	2.217	3.8	7.8	171.5W
2009 9 16	0 4.40	- 2 37.0	1.214	2.215	3.4	7.7	172.6W
2009 9 17	0 3.75	- 2 50.0	1.210	2.212	2.9	7.7	173.6W
2009 9 18	0 3.09	- 3 3.1	1.207	2.210	2.4	7.7	174.6W
2009 9 19	0 2.42	- 3 16.2	1.204	2.207	2.1	7.6	175.5W
2009 9 20	0 1.75	- 3 29.3	1.202	2.205	1.8	7.6	176.1W
2009 9 21	0 1.07	- 3 42.5	1.199	2.202	1.6	7.6	176.4W
2009 9 22	0 0.39	- 3 55.7	1.197	2.200	1.7	7.6	176.3W
2009 9 23	23 59.70	- 4 8.8	1.195	2.198	1.9	7.6	175.9E
2009 9 24	23 59.01	- 4 22.0	1.194	2.195	2.2	7.6	175.1E
2009 9 25	23 58.32	- 4 35.1	1.193	2.193	2.6	7.6	174.2E
2009 9 26	23 57.63	- 4 48.2	1.192	2.190	3.1	7.7	173.2E
2009 9 27	23 56.94	- 5 1.2	1.191	2.188	3.6	7.7	172.1E
2009 9 28	23 56.25	- 5 14.1	1.190	2.186	4.1	7.7	171.0E
2009 9 29	23 55.57	- 5 26.9	1.190	2.183	4.6	7.7	169.9E
2009 9 30	23 54.89	- 5 39.7	1.190	2.181	5.1	7.7	168.7E
2009 10 1	23 54.22	- 5 52.3	1.190	2.179	5.7	7.8	167.6E
2009 10 2	23 53.56	- 6 4.8	1.191	2.176	6.2	7.8	166.4E
2009 10 3	23 52.90	- 6 17.1	1.191	2.174	6.7	7.8	165.2E
2009 10 4	23 52.26	- 6 29.3	1.192	2.172	7.3	7.8	164.0E
2009 10 5	23 51.63	- 6 41.3	1.194	2.169	7.8	7.8	162.8E
2009 10 6	23 51.01	- 6 53.2	1.195	2.167	8.3	7.9	161.7E
2009 10 7	23 50.40	- 7 4.8	1.197	2.165	8.9	7.9	160.5E
2009 10 8	23 49.81	- 7 16.3	1.199	2.163	9.4	7.9	159.3E
2009 10 9	23 49.23	- 7 27.5	1.201	2.160	9.9	7.9	158.1E
2009 10 10	23 48.67	- 7 38.5	1.203	2.158	10.4	7.9	156.9E
2009 10 11	23 48.13	- 7 49.3	1.206	2.156	11.0	7.9	155.8E
2009 10 12	23 47.60	- 7 59.8	1.209	2.154	11.5	8.0	154.6E
2009 10 13	23 47.10	- 8 10.1	1.212	2.151	12.0	8.0	153.4E
2009 10 14	23 46.62	- 8 20.2	1.215	2.149	12.5	8.0	152.3E
2009 10 15	23 46.15	- 8 30.0	1.219	2.147	13.0	8.0	151.1E
2009 10 16	23 45.71	- 8 39.5	1.223	2.145	13.4	8.0	150.0E
2009 10 17	23 45.30	- 8 48.7	1.227	2.143	13.9	8.1	148.9E
2009 10 18	23 44.91	- 8 57.7	1.231	2.140	14.4	8.1	147.7E
2009 10 19	23 44.54	- 9 6.3	1.235	2.138	14.9	8.1	146.6E
2009 10 20	23 44.20	- 9 14.7	1.240	2.136	15.3	8.1	145.5E

3 Juno

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°.
2009 10 21	23 43.88	- 9 22.8	1.244	2.134	15.8	8.1	144.4E
2009 10 22	23 43.59	- 9 30.5	1.249	2.132	16.2	8.2	143.3E
2009 10 23	23 43.33	- 9 38.0	1.255	2.130	16.7	8.2	142.2E
2009 10 24	23 43.09	- 9 45.2	1.260	2.128	17.1	8.2	141.1E
2009 10 25	23 42.88	- 9 52.0	1.265	2.125	17.5	8.2	140.0E
2009 10 26	23 42.71	- 9 58.6	1.271	2.123	17.9	8.2	138.9E
2009 10 27	23 42.55	-10 4.8	1.277	2.121	18.3	8.2	137.9E
2009 10 28	23 42.43	-10 10.7	1.283	2.119	18.7	8.3	136.8E
2009 10 29	23 42.34	-10 16.3	1.289	2.117	19.1	8.3	135.8E
2009 10 30	23 42.28	-10 21.6	1.295	2.115	19.5	8.3	134.7E
2009 10 31	23 42.25	-10 26.6	1.302	2.113	19.9	8.3	133.7E
2009 11 1	23 42.24	-10 31.2	1.308	2.111	20.2	8.3	132.7E
2009 11 2	23 42.27	-10 35.6	1.315	2.109	20.6	8.4	131.6E
2009 11 3	23 42.33	-10 39.6	1.322	2.107	20.9	8.4	130.6E
2009 11 4	23 42.42	-10 43.3	1.329	2.105	21.3	8.4	129.6E
2009 11 5	23 42.54	-10 46.7	1.336	2.103	21.6	8.4	128.7E
2009 11 6	23 42.68	-10 49.8	1.343	2.101	21.9	8.4	127.7E
2009 11 7	23 42.86	-10 52.6	1.351	2.099	22.2	8.5	126.7E
2009 11 8	23 43.07	-10 55.1	1.358	2.097	22.5	8.5	125.7E
2009 11 9	23 43.31	-10 57.3	1.366	2.095	22.8	8.5	124.8E
2009 11 10	23 43.58	-10 59.2	1.374	2.094	23.1	8.5	123.8E
2009 11 11	23 43.88	-11 0.8	1.382	2.092	23.4	8.5	122.9E
2009 11 12	23 44.21	-11 2.1	1.390	2.090	23.7	8.5	122.0E
2009 11 13	23 44.57	-11 3.1	1.398	2.088	24.0	8.6	121.0E
2009 11 14	23 44.96	-11 3.9	1.406	2.086	24.2	8.6	120.1E
2009 11 15	23 45.38	-11 4.3	1.414	2.084	24.5	8.6	119.2E
2009 11 16	23 45.83	-11 4.5	1.422	2.082	24.7	8.6	118.3E
2009 11 17	23 46.30	-11 4.4	1.431	2.081	24.9	8.6	117.4E
2009 11 18	23 46.81	-11 4.0	1.439	2.079	25.2	8.6	116.6E
2009 11 19	23 47.34	-11 3.3	1.448	2.077	25.4	8.7	115.7E
2009 11 20	23 47.90	-11 2.4	1.457	2.075	25.6	8.7	114.8E
2009 11 21	23 48.49	-11 1.3	1.465	2.074	25.8	8.7	114.0E
2009 11 22	23 49.11	-10 59.8	1.474	2.072	26.0	8.7	113.1E
2009 11 23	23 49.75	-10 58.1	1.483	2.070	26.2	8.7	112.3E
2009 11 24	23 50.42	-10 56.2	1.492	2.068	26.4	8.7	111.4E
2009 11 25	23 51.12	-10 54.0	1.501	2.067	26.6	8.8	110.6E
2009 11 26	23 51.84	-10 51.5	1.510	2.065	26.7	8.8	109.8E
2009 11 27	23 52.59	-10 48.9	1.519	2.063	26.9	8.8	109.0E
2009 11 28	23 53.37	-10 46.0	1.529	2.062	27.0	8.8	108.2E
2009 11 29	23 54.17	-10 42.8	1.538	2.060	27.2	8.8	107.4E
2009 11 30	23 54.99	-10 39.4	1.547	2.058	27.3	8.8	106.6E
2009 12 1	23 55.84	-10 35.9	1.556	2.057	27.5	8.8	105.8E
2009 12 2	23 56.72	-10 32.0	1.566	2.055	27.6	8.9	105.0E
2009 12 3	23 57.62	-10 28.0	1.575	2.054	27.7	8.9	104.2E
2009 12 4	23 58.54	-10 23.8	1.585	2.052	27.8	8.9	103.5E
2009 12 5	23 59.48	-10 19.3	1.594	2.050	28.0	8.9	102.7E
2009 12 6	0 0.45	-10 14.7	1.604	2.049	28.1	8.9	102.0E
2009 12 7	0 1.44	-10 9.8	1.613	2.047	28.2	8.9	101.2E
2009 12 8	0 2.45	-10 4.7	1.623	2.046	28.3	8.9	100.5E
2009 12 9	0 3.49	- 9 59.5	1.632	2.044	28.3	9.0	99.7E
2009 12 10	0 4.54	- 9 54.0	1.642	2.043	28.4	9.0	99.0E
2009 12 11	0 5.62	- 9 48.4	1.652	2.041	28.5	9.0	98.3E
2009 12 12	0 6.72	- 9 42.6	1.662	2.040	28.6	9.0	97.6E

4 Vesta

Data			R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno	m	g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009	1	1	2 2.68	+ 4 58.1	2.050	2.554	21.3	7.6	109.6E
2009	1	2	2 3.01	+ 5 4.1	2.063	2.554	21.4	7.6	108.7E
2009	1	3	2 3.36	+ 5 10.1	2.076	2.554	21.5	7.7	107.8E
2009	1	4	2 3.73	+ 5 16.3	2.089	2.555	21.6	7.7	106.9E
2009	1	5	2 4.13	+ 5 22.6	2.103	2.555	21.7	7.7	106.0E
2009	1	6	2 4.55	+ 5 28.9	2.116	2.555	21.8	7.7	105.1E
2009	1	7	2 4.99	+ 5 35.4	2.129	2.556	21.9	7.7	104.3E
2009	1	8	2 5.46	+ 5 41.9	2.143	2.556	22.0	7.7	103.4E
2009	1	9	2 5.95	+ 5 48.5	2.156	2.557	22.1	7.8	102.5E
2009	1	10	2 6.46	+ 5 55.2	2.169	2.557	22.1	7.8	101.7E
2009	1	11	2 6.99	+ 6 1.9	2.183	2.557	22.2	7.8	100.8E
2009	1	12	2 7.55	+ 6 8.8	2.196	2.558	22.3	7.8	100.0E
2009	1	13	2 8.12	+ 6 15.7	2.210	2.558	22.3	7.8	99.2E
2009	1	14	2 8.72	+ 6 22.7	2.223	2.558	22.4	7.8	98.3E
2009	1	15	2 9.33	+ 6 29.7	2.237	2.559	22.4	7.9	97.5E
2009	1	16	2 9.97	+ 6 36.8	2.251	2.559	22.4	7.9	96.7E
2009	1	17	2 10.63	+ 6 44.0	2.264	2.559	22.5	7.9	95.9E
2009	1	18	2 11.30	+ 6 51.2	2.278	2.560	22.5	7.9	95.0E
2009	1	19	2 12.00	+ 6 58.5	2.292	2.560	22.5	7.9	94.2E
2009	1	20	2 12.71	+ 7 5.9	2.305	2.560	22.6	7.9	93.4E
2009	1	21	2 13.45	+ 7 13.3	2.319	2.561	22.6	7.9	92.6E
2009	1	22	2 14.20	+ 7 20.7	2.333	2.561	22.6	7.9	91.8E
2009	1	23	2 14.97	+ 7 28.2	2.346	2.561	22.6	8.0	91.1E
2009	1	24	2 15.76	+ 7 35.8	2.360	2.561	22.6	8.0	90.3E
2009	1	25	2 16.57	+ 7 43.4	2.374	2.562	22.6	8.0	89.5E
2009	1	26	2 17.39	+ 7 51.0	2.388	2.562	22.6	8.0	88.7E
2009	1	27	2 18.23	+ 7 58.7	2.401	2.562	22.6	8.0	87.9E
2009	1	28	2 19.09	+ 8 6.4	2.415	2.563	22.6	8.0	87.2E
2009	1	29	2 19.97	+ 8 14.2	2.429	2.563	22.6	8.0	86.4E
2009	1	30	2 20.86	+ 8 22.0	2.442	2.563	22.5	8.0	85.6E
2009	1	31	2 21.77	+ 8 29.8	2.456	2.563	22.5	8.1	84.9E
2009	2	1	2 22.69	+ 8 37.7	2.470	2.564	22.5	8.1	84.1E
2009	2	2	2 23.63	+ 8 45.6	2.483	2.564	22.4	8.1	83.4E
2009	2	3	2 24.59	+ 8 53.5	2.497	2.564	22.4	8.1	82.6E
2009	2	4	2 25.56	+ 9 1.5	2.510	2.564	22.4	8.1	81.9E
2009	2	5	2 26.54	+ 9 9.5	2.524	2.565	22.3	8.1	81.2E
2009	2	6	2 27.55	+ 9 17.5	2.538	2.565	22.3	8.1	80.4E
2009	2	7	2 28.56	+ 9 25.5	2.551	2.565	22.2	8.1	79.7E
2009	2	8	2 29.59	+ 9 33.5	2.564	2.565	22.2	8.1	79.0E
2009	2	9	2 30.64	+ 9 41.6	2.578	2.566	22.1	8.2	78.2E
2009	2	10	2 31.70	+ 9 49.6	2.591	2.566	22.1	8.2	77.5E
2009	2	11	2 32.77	+ 9 57.7	2.605	2.566	22.0	8.2	76.8E
2009	2	12	2 33.85	+10 5.8	2.618	2.566	21.9	8.2	76.1E
2009	2	13	2 34.95	+10 13.9	2.631	2.567	21.9	8.2	75.4E
2009	2	14	2 36.07	+10 22.1	2.644	2.567	21.8	8.2	74.7E
2009	2	15	2 37.19	+10 30.2	2.658	2.567	21.7	8.2	74.0E
2009	2	16	2 38.33	+10 38.3	2.671	2.567	21.6	8.2	73.3E
2009	2	17	2 39.48	+10 46.5	2.684	2.567	21.5	8.2	72.6E
2009	2	18	2 40.65	+10 54.6	2.697	2.568	21.5	8.2	71.9E
2009	2	19	2 41.82	+11 2.7	2.710	2.568	21.4	8.2	71.2E
2009	2	20	2 43.01	+11 10.9	2.723	2.568	21.3	8.3	70.5E
2009	2	21	2 44.21	+11 19.0	2.736	2.568	21.2	8.3	69.8E
2009	2	22	2 45.43	+11 27.2	2.748	2.568	21.1	8.3	69.2E
2009	2	23	2 46.65	+11 35.3	2.761	2.569	21.0	8.3	68.5E
2009	2	24	2 47.89	+11 43.5	2.774	2.569	20.9	8.3	67.8E
2009	2	25	2 49.13	+11 51.6	2.786	2.569	20.8	8.3	67.1E
2009	2	26	2 50.39	+11 59.7	2.799	2.569	20.7	8.3	66.5E
2009	2	27	2 51.66	+12 7.8	2.811	2.569	20.6	8.3	65.8E
2009	2	28	2 52.94	+12 15.9	2.824	2.569	20.5	8.3	65.1E
2009	3	1	2 54.23	+12 24.0	2.836	2.570	20.4	8.3	64.5E
2009	3	2	2 55.53	+12 32.1	2.848	2.570	20.2	8.3	63.8E
2009	3	3	2 56.84	+12 40.1	2.861	2.570	20.1	8.3	63.1E
2009	3	4	2 58.17	+12 48.2	2.873	2.570	20.0	8.3	62.5E
2009	3	5	2 59.50	+12 56.2	2.885	2.570	19.9	8.3	61.8E
2009	3	6	3 0.84	+13 4.2	2.897	2.570	19.8	8.4	61.2E
2009	3	7	3 2.19	+13 12.2	2.909	2.570	19.6	8.4	60.5E
2009	3	8	3 3.56	+13 20.1	2.921	2.571	19.5	8.4	59.9E
2009	3	9	3 4.93	+13 28.1	2.932	2.571	19.4	8.4	59.3E
2009	3	10	3 6.31	+13 36.0	2.944	2.571	19.3	8.4	58.6E
2009	3	11	3 7.70	+13 43.9	2.956	2.571	19.1	8.4	58.0E
2009	3	12	3 9.10	+13 51.7	2.967	2.571	19.0	8.4	57.3E
2009	3	13	3 10.51	+13 59.6	2.979	2.571	18.9	8.4	56.7E
2009	3	14	3 11.93	+14 7.4	2.990	2.571	18.7	8.4	56.1E
2009	3	15	3 13.35	+14 15.2	3.001	2.571	18.6	8.4	55.5E
2009	3	16	3 14.79	+14 22.9	3.012	2.571	18.4	8.4	54.8E
2009	3	17	3 16.23	+14 30.6	3.023	2.572	18.3	8.4	54.2E
2009	3	18	3 17.69	+14 38.3	3.034	2.572	18.1	8.4	53.6E
2009	3	19	3 19.15	+14 46.0	3.045	2.572	18.0	8.4	53.0E
2009	3	20	3 20.62	+14 53.6	3.056	2.572	17.9	8.4	52.4E

4 Vesta

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 3 21	3 22.09	+15 1.2	3.067	2.572	17.7	8.4	51.7E
2009 3 22	3 23.58	+15 8.7	3.078	2.572	17.6	8.4	51.1E
2009 3 23	3 25.07	+15 16.2	3.088	2.572	17.4	8.4	50.5E
2009 3 24	3 26.58	+15 23.7	3.099	2.572	17.2	8.4	49.9E
2009 3 25	3 28.09	+15 31.1	3.109	2.572	17.1	8.4	49.3E
2009 3 26	3 29.60	+15 38.5	3.119	2.572	16.9	8.4	48.7E
2009 3 27	3 31.13	+15 45.8	3.129	2.572	16.8	8.4	48.1E
2009 3 28	3 32.66	+15 53.1	3.139	2.572	16.6	8.4	47.5E
2009 3 29	3 34.20	+16 0.4	3.149	2.572	16.5	8.4	46.9E
2009 3 30	3 35.75	+16 7.6	3.159	2.572	16.3	8.5	46.3E
2009 3 31	3 37.30	+16 14.8	3.169	2.572	16.1	8.5	45.7E
2009 4 1	3 38.86	+16 21.9	3.179	2.572	16.0	8.5	45.1E
2009 4 2	3 40.43	+16 29.0	3.188	2.573	15.8	8.5	44.5E
2009 4 3	3 42.01	+16 36.0	3.198	2.573	15.6	8.5	43.9E
2009 4 4	3 43.59	+16 42.9	3.207	2.573	15.5	8.5	43.3E
2009 4 5	3 45.18	+16 49.9	3.216	2.573	15.3	8.5	42.7E
2009 4 6	3 46.78	+16 56.7	3.225	2.573	15.1	8.5	42.1E
2009 4 7	3 48.38	+17 3.5	3.234	2.573	15.0	8.5	41.6E
2009 4 8	3 49.99	+17 10.3	3.243	2.573	14.8	8.5	41.0E
2009 4 9	3 51.60	+17 17.0	3.252	2.573	14.6	8.5	40.4E
2009 4 10	3 53.22	+17 23.7	3.261	2.573	14.4	8.5	39.8E
2009 4 11	3 54.85	+17 30.3	3.269	2.573	14.3	8.5	39.2E
2009 4 12	3 56.49	+17 36.8	3.278	2.573	14.1	8.5	38.7E
2009 4 13	3 58.13	+17 43.3	3.286	2.573	13.9	8.5	38.1E
2009 4 14	3 59.77	+17 49.7	3.295	2.573	13.7	8.5	37.5E
2009 4 15	4 1.43	+17 56.1	3.303	2.573	13.6	8.5	36.9E
2009 4 16	4 3.08	+18 2.4	3.311	2.573	13.4	8.5	36.4E
2009 4 17	4 4.75	+18 8.6	3.319	2.572	13.2	8.5	35.8E
2009 4 18	4 6.42	+18 14.8	3.327	2.572	13.0	8.5	35.2E
2009 4 19	4 8.09	+18 20.9	3.334	2.572	12.8	8.5	34.7E
2009 4 20	4 9.78	+18 26.9	3.342	2.572	12.6	8.5	34.1E
2009 4 21	4 11.46	+18 32.9	3.349	2.572	12.5	8.5	33.5E
2009 4 22	4 13.15	+18 38.9	3.357	2.572	12.3	8.5	33.0E
2009 4 23	4 14.85	+18 44.7	3.364	2.572	12.1	8.5	32.4E
2009 4 24	4 16.55	+18 50.5	3.371	2.572	11.9	8.5	31.9E
2009 4 25	4 18.26	+18 56.2	3.378	2.572	11.7	8.5	31.3E
2009 4 26	4 19.97	+19 1.9	3.385	2.572	11.5	8.5	30.7E
2009 4 27	4 21.69	+19 7.5	3.392	2.572	11.3	8.5	30.2E
2009 4 28	4 23.41	+19 13.0	3.398	2.572	11.2	8.5	29.6E
2009 4 29	4 25.14	+19 18.5	3.405	2.572	11.0	8.5	29.1E
2009 4 30	4 26.87	+19 23.9	3.411	2.572	10.8	8.5	28.5E
2009 5 1	4 28.61	+19 29.2	3.418	2.572	10.6	8.5	28.0E
2009 5 2	4 30.35	+19 34.4	3.424	2.572	10.4	8.5	27.4E
2009 5 3	4 32.10	+19 39.6	3.430	2.571	10.2	8.4	26.9E
2009 5 4	4 33.85	+19 44.7	3.436	2.571	10.0	8.4	26.3E
2009 5 5	4 35.60	+19 49.7	3.442	2.571	9.8	8.4	25.8E
2009 5 6	4 37.36	+19 54.7	3.448	2.571	9.6	8.4	25.2E
2009 5 7	4 39.12	+19 59.5	3.453	2.571	9.4	8.4	24.7E
2009 5 8	4 40.89	+20 4.3	3.459	2.571	9.2	8.4	24.1E
2009 5 9	4 42.66	+20 9.1	3.464	2.571	9.0	8.4	23.6E
2009 5 10	4 44.44	+20 13.7	3.469	2.571	8.8	8.4	23.0E
2009 5 11	4 46.22	+20 18.3	3.474	2.571	8.6	8.4	22.5E
2009 5 12	4 48.00	+20 22.8	3.479	2.570	8.4	8.4	22.0E
2009 5 13	4 49.79	+20 27.2	3.484	2.570	8.3	8.4	21.4E
2009 5 14	4 51.58	+20 31.6	3.489	2.570	8.1	8.4	20.9E
2009 5 15	4 53.38	+20 35.8	3.494	2.570	7.9	8.4	20.3E
2009 5 16	4 55.17	+20 40.0	3.498	2.570	7.7	8.4	19.8E
2009 5 17	4 56.98	+20 44.1	3.503	2.570	7.5	8.4	19.3E
2009 5 18	4 58.78	+20 48.2	3.507	2.570	7.3	8.4	18.7E
2009 5 19	5 0.59	+20 52.1	3.511	2.569	7.1	8.4	18.2E
2009 5 20	5 2.40	+20 56.0	3.515	2.569	6.9	8.4	17.7E
2009 5 21	5 4.22	+20 59.8	3.519	2.569	6.7	8.4	17.1E
2009 5 22	5 6.03	+21 3.5	3.523	2.569	6.5	8.4	16.6E
2009 5 23	5 7.86	+21 7.1	3.526	2.569	6.3	8.4	16.1E
2009 5 24	5 9.68	+21 10.7	3.530	2.569	6.1	8.4	15.5E
2009 5 25	5 11.51	+21 14.1	3.533	2.568	5.9	8.4	15.0E
2009 5 26	5 13.34	+21 17.5	3.537	2.568	5.7	8.4	14.5E
2009 5 27	5 15.17	+21 20.8	3.540	2.568	5.5	8.3	13.9E
2009 5 28	5 17.01	+21 24.0	3.543	2.568	5.3	8.3	13.4E
2009 5 29	5 18.84	+21 27.1	3.546	2.568	5.1	8.3	12.9E
2009 5 30	5 20.68	+21 30.2	3.548	2.567	4.8	8.3	12.4E
2009 5 31	5 22.53	+21 33.2	3.551	2.567	4.6	8.3	11.8E
2009 6 1	5 24.37	+21 36.0	3.554	2.567	4.4	8.3	11.3E
2009 6 2	5 26.22	+21 38.8	3.556	2.567	4.2	8.3	10.8E
2009 6 3	5 28.07	+21 41.5	3.558	2.567	4.0	8.3	10.3E
2009 6 4	5 29.92	+21 44.2	3.560	2.566	3.8	8.3	9.7E
2009 6 5	5 31.78	+21 46.7	3.562	2.566	3.6	8.3	9.2E
2009 6 6	5 33.63	+21 49.2	3.564	2.566	3.4	8.3	8.7E
2009 6 7	5 35.49	+21 51.5	3.566	2.566	3.2	8.3	8.2E

4 Vesta

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 6 8	5 37.35	+21 53.8	3.568	2.565	3.0	8.3	7.7E
2009 6 9	5 39.21	+21 56.0	3.569	2.565	2.8	8.2	7.1E
2009 6 10	5 41.08	+21 58.2	3.571	2.565	2.6	8.2	6.6E
2009 6 11	5 42.94	+22 0.2	3.572	2.565	2.4	8.2	6.1E
2009 6 12	5 44.81	+22 2.1	3.573	2.564	2.2	8.2	5.6E
2009 6 13	5 46.68	+22 4.0	3.574	2.564	2.0	8.2	5.1E
2009 6 14	5 48.55	+22 5.8	3.575	2.564	1.8	8.2	4.6E
2009 6 15	5 50.42	+22 7.4	3.576	2.564	1.6	8.2	4.1E
2009 6 16	5 52.29	+22 9.0	3.576	2.563	1.4	8.2	3.6E
2009 6 17	5 54.16	+22 10.6	3.577	2.563	1.2	8.2	3.1E
2009 6 18	5 56.04	+22 12.0	3.577	2.563	1.0	8.1	2.6E
2009 6 19	5 57.91	+22 13.3	3.578	2.563	0.9	8.1	2.2E
2009 6 20	5 59.79	+22 14.6	3.578	2.562	0.7	8.1	1.7E
2009 6 21	6 1.67	+22 15.7	3.578	2.562	0.6	8.1	1.4E
2009 6 22	6 3.54	+22 16.8	3.578	2.562	0.5	8.1	1.2E
2009 6 23	6 5.42	+22 17.8	3.578	2.561	0.5	8.1	1.2W
2009 6 24	6 7.30	+22 18.7	3.577	2.561	0.5	8.1	1.4W
2009 6 25	6 9.18	+22 19.6	3.577	2.561	0.7	8.1	1.7W
2009 6 26	6 11.06	+22 20.3	3.576	2.561	0.9	8.1	2.1W
2009 6 27	6 12.94	+22 20.9	3.575	2.560	1.0	8.1	2.6W
2009 6 28	6 14.82	+22 21.5	3.574	2.560	1.2	8.1	3.1W
2009 6 29	6 16.70	+22 22.0	3.573	2.560	1.4	8.2	3.6W
2009 6 30	6 18.59	+22 22.4	3.572	2.559	1.6	8.2	4.1W
2009 7 1	6 20.47	+22 22.7	3.571	2.559	1.8	8.2	4.6W
2009 7 2	6 22.35	+22 22.9	3.570	2.559	2.0	8.2	5.1W
2009 7 3	6 24.23	+22 23.1	3.568	2.558	2.2	8.2	5.6W
2009 7 4	6 26.11	+22 23.1	3.567	2.558	2.4	8.2	6.1W
2009 7 5	6 27.99	+22 23.1	3.565	2.558	2.6	8.2	6.6W
2009 7 6	6 29.88	+22 23.0	3.563	2.557	2.8	8.2	7.1W
2009 7 7	6 31.76	+22 22.8	3.561	2.557	3.0	8.2	7.6W
2009 7 8	6 33.64	+22 22.5	3.559	2.557	3.2	8.2	8.1W
2009 7 9	6 35.52	+22 22.1	3.557	2.556	3.4	8.3	8.6W
2009 7 10	6 37.40	+22 21.7	3.554	2.556	3.6	8.3	9.2W
2009 7 11	6 39.27	+22 21.2	3.552	2.555	3.8	8.3	9.7W
2009 7 12	6 41.15	+22 20.6	3.549	2.555	4.0	8.3	10.2W
2009 7 13	6 43.03	+22 19.9	3.547	2.555	4.2	8.3	10.7W
2009 7 14	6 44.91	+22 19.1	3.544	2.554	4.4	8.3	11.2W
2009 7 15	6 46.78	+22 18.2	3.541	2.554	4.6	8.3	11.7W
2009 7 16	6 48.66	+22 17.3	3.538	2.554	4.8	8.3	12.3W
2009 7 17	6 50.53	+22 16.3	3.535	2.553	5.1	8.3	12.8W
2009 7 18	6 52.40	+22 15.2	3.531	2.553	5.3	8.3	13.3W
2009 7 19	6 54.27	+22 14.0	3.528	2.552	5.5	8.3	13.8W
2009 7 20	6 56.14	+22 12.7	3.524	2.552	5.7	8.3	14.3W
2009 7 21	6 58.01	+22 11.4	3.520	2.552	5.9	8.3	14.9W
2009 7 22	6 59.88	+22 10	3.517	2.551	6.1	8.3	15.4W
2009 7 23	7 1.74	+22 8.5	3.513	2.551	6.3	8.3	15.9W
2009 7 24	7 3.60	+22 6.9	3.509	2.550	6.5	8.4	16.4W
2009 7 25	7 5.47	+22 5.3	3.504	2.550	6.7	8.4	16.9W
2009 7 26	7 7.33	+22 3.5	3.500	2.550	6.9	8.4	17.5W
2009 7 27	7 9.18	+22 1.7	3.496	2.549	7.1	8.4	18.0W
2009 7 28	7 11.04	+21 59.8	3.491	2.549	7.3	8.4	18.5W
2009 7 29	7 12.90	+21 57.9	3.487	2.548	7.5	8.4	19.0W
2009 7 30	7 14.75	+21 55.9	3.482	2.548	7.7	8.4	19.6W
2009 7 31	7 16.60	+21 53.8	3.477	2.547	7.9	8.4	20.1W
2009 8 1	7 18.45	+21 51.6	3.472	2.547	8.1	8.4	20.6W
2009 8 2	7 20.29	+21 49.3	3.467	2.547	8.3	8.4	21.1W
2009 8 3	7 22.14	+21 47.0	3.461	2.546	8.5	8.4	21.7W
2009 8 4	7 23.98	+21 44.6	3.456	2.546	8.7	8.4	22.2W
2009 8 5	7 25.82	+21 42.2	3.451	2.545	8.9	8.4	22.7W
2009 8 6	7 27.65	+21 39.6	3.445	2.545	9.1	8.4	23.3W
2009 8 7	7 29.49	+21 37.0	3.439	2.544	9.3	8.4	23.8W
2009 8 8	7 31.32	+21 34.4	3.433	2.544	9.4	8.4	24.3W
2009 8 9	7 33.15	+21 31.6	3.427	2.543	9.6	8.4	24.8W
2009 8 10	7 34.97	+21 28.8	3.421	2.543	9.8	8.4	25.4W
2009 8 11	7 36.79	+21 26.0	3.415	2.542	10.0	8.4	25.9W
2009 8 12	7 38.61	+21 23.0	3.409	2.542	10.2	8.4	26.4W
2009 8 13	7 40.43	+21 20.0	3.402	2.541	10.4	8.4	27.0W
2009 8 14	7 42.24	+21 17.0	3.396	2.541	10.6	8.4	27.5W
2009 8 15	7 44.05	+21 13.8	3.389	2.540	10.8	8.4	28.1W
2009 8 16	7 45.86	+21 10.6	3.383	2.540	11.0	8.4	28.6W
2009 8 17	7 47.66	+21 7.4	3.376	2.539	11.2	8.4	29.1W
2009 8 18	7 49.47	+21 4.1	3.369	2.539	11.4	8.4	29.7W
2009 8 19	7 51.26	+21 0.7	3.362	2.538	11.6	8.4	30.2W
2009 8 20	7 53.06	+20 57.3	3.354	2.538	11.8	8.4	30.7W
2009 8 21	7 54.85	+20 53.8	3.347	2.537	11.9	8.4	31.3W
2009 8 22	7 56.63	+20 50.2	3.340	2.537	12.1	8.4	31.8W
2009 8 23	7 58.42	+20 46.6	3.332	2.536	12.3	8.4	32.4W
2009 8 24	8 0.19	+20 43.0	3.324	2.536	12.5	8.4	32.9W
2009 8 25	8 1.97	+20 39.2	3.317	2.535	12.7	8.4	33.5W

4 Vesta

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 8 26	8 3.74	+20 35.5	3.309	2.535	12.9	8.4	34.0W
2009 8 27	8 5.51	+20 31.6	3.301	2.534	13.1	8.4	34.6W
2009 8 28	8 7.27	+20 27.8	3.293	2.534	13.3	8.4	35.1W
2009 8 29	8 9.03	+20 23.8	3.285	2.533	13.4	8.4	35.7W
2009 8 30	8 10.79	+20 19.9	3.276	2.533	13.6	8.4	36.2W
2009 8 31	8 12.54	+20 15.9	3.268	2.532	13.8	8.4	36.8W
2009 9 1	8 14.28	+20 11.8	3.259	2.532	14.0	8.4	37.3W
2009 9 2	8 16.02	+20 7.7	3.251	2.531	14.2	8.4	37.9W
2009 9 3	8 17.76	+20 3.5	3.242	2.530	14.3	8.4	38.4W
2009 9 4	8 19.49	+19 59.3	3.233	2.530	14.5	8.4	39.0W
2009 9 5	8 21.22	+19 55.0	3.224	2.529	14.7	8.4	39.5W
2009 9 6	8 22.95	+19 50.8	3.215	2.529	14.9	8.4	40.1W
2009 9 7	8 24.67	+19 46.4	3.206	2.528	15.1	8.4	40.6W
2009 9 8	8 26.38	+19 42.1	3.197	2.528	15.2	8.4	41.2W
2009 9 9	8 28.09	+19 37.6	3.188	2.527	15.4	8.4	41.8W
2009 9 10	8 29.79	+19 33.2	3.178	2.526	15.6	8.4	42.3W
2009 9 11	8 31.49	+19 28.7	3.169	2.526	15.7	8.4	42.9W
2009 9 12	8 33.19	+19 24.2	3.159	2.525	15.9	8.4	43.5W
2009 9 13	8 34.88	+19 19.6	3.149	2.525	16.1	8.4	44.0W
2009 9 14	8 36.56	+19 15.1	3.139	2.524	16.3	8.4	44.6W
2009 9 15	8 38.24	+19 10.4	3.129	2.523	16.4	8.4	45.2W
2009 9 16	8 39.91	+19 5.8	3.119	2.523	16.6	8.4	45.8W
2009 9 17	8 41.58	+19 1.1	3.109	2.522	16.8	8.4	46.3W
2009 9 18	8 43.24	+18 56.4	3.099	2.522	16.9	8.4	46.9W
2009 9 19	8 44.89	+18 51.7	3.089	2.521	17.1	8.4	47.5W
2009 9 20	8 46.54	+18 46.9	3.078	2.520	17.2	8.4	48.1W
2009 9 21	8 48.19	+18 42.2	3.068	2.520	17.4	8.4	48.6W
2009 9 22	8 49.83	+18 37.4	3.057	2.519	17.6	8.4	49.2W
2009 9 23	8 51.46	+18 32.5	3.047	2.519	17.7	8.4	49.8W
2009 9 24	8 53.09	+18 27.7	3.036	2.518	17.9	8.4	50.4W
2009 9 25	8 54.71	+18 22.8	3.025	2.517	18.0	8.4	51.0W
2009 9 26	8 56.32	+18 18.0	3.014	2.517	18.2	8.4	51.6W
2009 9 27	8 57.93	+18 13.1	3.003	2.516	18.3	8.3	52.2W
2009 9 28	8 59.53	+18 8.2	2.992	2.515	18.5	8.3	52.8W
2009 9 29	9 1.12	+18 3.3	2.981	2.515	18.6	8.3	53.4W
2009 9 30	9 2.71	+17 58.3	2.970	2.514	18.8	8.3	54.0W
2009 10 1	9 4.29	+17 53.4	2.958	2.513	18.9	8.3	54.5W
2009 10 2	9 5.87	+17 48.5	2.947	2.513	19.1	8.3	55.2W
2009 10 3	9 7.44	+17 43.5	2.935	2.512	19.2	8.3	55.8W
2009 10 4	9 9.00	+17 38.6	2.924	2.512	19.4	8.3	56.4W
2009 10 5	9 10.55	+17 33.6	2.912	2.511	19.5	8.3	57.0W
2009 10 6	9 12.10	+17 28.7	2.900	2.510	19.6	8.3	57.6W
2009 10 7	9 13.64	+17 23.7	2.888	2.510	19.8	8.3	58.2W
2009 10 8	9 15.17	+17 18.8	2.876	2.509	19.9	8.3	58.8W
2009 10 9	9 16.69	+17 13.8	2.864	2.508	20.1	8.3	59.4W
2009 10 10	9 18.21	+17 8.9	2.852	2.507	20.2	8.3	60.0W
2009 10 11	9 19.72	+17 3.9	2.840	2.507	20.3	8.3	60.7W
2009 10 12	9 21.22	+16 59.0	2.828	2.506	20.4	8.3	61.3W
2009 10 13	9 22.71	+16 54.1	2.816	2.505	20.6	8.3	61.9W
2009 10 14	9 24.20	+16 49.2	2.803	2.505	20.7	8.3	62.5W
2009 10 15	9 25.67	+16 44.3	2.791	2.504	20.8	8.2	63.2W
2009 10 16	9 27.14	+16 39.5	2.778	2.503	20.9	8.2	63.8W
2009 10 17	9 28.60	+16 34.6	2.766	2.503	21.1	8.2	64.4W
2009 10 18	9 30.06	+16 29.8	2.753	2.502	21.2	8.2	65.1W
2009 10 19	9 31.50	+16 25.0	2.741	2.501	21.3	8.2	65.7W
2009 10 20	9 32.93	+16 20.2	2.728	2.501	21.4	8.2	66.3W
2009 10 21	9 34.36	+16 15.4	2.715	2.500	21.5	8.2	67.0W
2009 10 22	9 35.77	+16 10.7	2.702	2.499	21.6	8.2	67.6W
2009 10 23	9 37.18	+16 6.0	2.689	2.498	21.7	8.2	68.3W
2009 10 24	9 38.58	+16 1.3	2.676	2.498	21.8	8.2	68.9W
2009 10 25	9 39.97	+15 56.7	2.663	2.497	21.9	8.2	69.6W
2009 10 26	9 41.35	+15 52.1	2.650	2.496	22.0	8.2	70.2W
2009 10 27	9 42.71	+15 47.6	2.637	2.495	22.1	8.1	70.9W
2009 10 28	9 44.07	+15 43.0	2.624	2.495	22.2	8.1	71.6W
2009 10 29	9 45.42	+15 38.6	2.611	2.494	22.3	8.1	72.2W
2009 10 30	9 46.76	+15 34.1	2.597	2.493	22.4	8.1	72.9W
2009 10 31	9 48.09	+15 29.8	2.584	2.493	22.5	8.1	73.6W
2009 11 1	9 49.41	+15 25.4	2.571	2.492	22.5	8.1	74.3W
2009 11 2	9 50.71	+15 21.1	2.557	2.491	22.6	8.1	74.9W
2009 11 3	9 52.01	+15 16.9	2.544	2.490	22.7	8.1	75.6W
2009 11 4	9 53.29	+15 12.7	2.530	2.490	22.8	8.1	76.3W
2009 11 5	9 54.57	+15 8.6	2.517	2.489	22.8	8.1	77.0W
2009 11 6	9 55.83	+15 4.6	2.503	2.488	22.9	8.0	77.7W
2009 11 7	9 57.08	+15 0.6	2.489	2.487	23.0	8.0	78.4W
2009 11 8	9 58.32	+14 56.6	2.476	2.486	23.0	8.0	79.1W
2009 11 9	9 59.55	+14 52.8	2.462	2.486	23.1	8.0	79.8W
2009 11 10	10 0.76	+14 49.0	2.448	2.485	23.1	8.0	80.5W
2009 11 11	10 1.96	+14 45.3	2.435	2.484	23.2	8.0	81.2W
2009 11 12	10 3.15	+14 41.6	2.421	2.483	23.2	8.0	81.9W

4 Vesta

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	V	°
2009 11 13	10 4.33	+14 38.0	2.407	2.483	23.3	8.0	82.6W
2009 11 14	10 5.49	+14 34.6	2.393	2.482	23.3	8.0	83.4W
2009 11 15	10 6.64	+14 31.2	2.380	2.481	23.4	7.9	84.1W
2009 11 16	10 7.78	+14 27.8	2.366	2.480	23.4	7.9	84.8W
2009 11 17	10 8.90	+14 24.6	2.352	2.479	23.4	7.9	85.5W
2009 11 18	10 10.01	+14 21.4	2.338	2.479	23.5	7.9	86.3W
2009 11 19	10 11.11	+14 18.4	2.324	2.478	23.5	7.9	87.0W
2009 11 20	10 12.19	+14 15.4	2.310	2.477	23.5	7.9	87.8W
2009 11 21	10 13.25	+14 12.6	2.296	2.476	23.5	7.9	88.5W
2009 11 22	10 14.30	+14 9.8	2.282	2.476	23.5	7.9	89.3W
2009 11 23	10 15.34	+14 7.2	2.269	2.475	23.5	7.8	90.0W
2009 11 24	10 16.36	+14 4.6	2.255	2.474	23.5	7.8	90.8W
2009 11 25	10 17.37	+14 2.2	2.241	2.473	23.5	7.8	91.6W
2009 11 26	10 18.35	+13 59.8	2.227	2.472	23.5	7.8	92.3W
2009 11 27	10 19.33	+13 57.6	2.213	2.471	23.5	7.8	93.1W
2009 11 28	10 20.28	+13 55.5	2.199	2.471	23.5	7.8	93.9W
2009 11 29	10 21.22	+13 53.5	2.185	2.470	23.5	7.8	94.7W
2009 11 30	10 22.14	+13 51.7	2.171	2.469	23.4	7.7	95.5W
2009 12 1	10 23.05	+13 49.9	2.158	2.468	23.4	7.7	96.3W
2009 12 2	10 23.94	+13 48.3	2.144	2.467	23.4	7.7	97.1W
2009 12 3	10 24.80	+13 46.9	2.130	2.467	23.3	7.7	97.9W
2009 12 4	10 25.65	+13 45.5	2.116	2.466	23.3	7.7	98.7W
2009 12 5	10 26.49	+13 44.3	2.102	2.465	23.2	7.7	99.5W
2009 12 6	10 27.30	+13 43.2	2.089	2.464	23.2	7.6	100.3W
2009 12 7	10 28.09	+13 42.3	2.075	2.463	23.1	7.6	101.2W
2009 12 8	10 28.87	+13 41.5	2.061	2.462	23.0	7.6	102.0W
2009 12 9	10 29.62	+13 40.9	2.048	2.461	23.0	7.6	102.8W
2009 12 10	10 30.36	+13 40.4	2.034	2.461	22.9	7.6	103.7W
2009 12 11	10 31.07	+13 40.1	2.021	2.460	22.8	7.6	104.5W
2009 12 12	10 31.76	+13 39.9	2.007	2.459	22.7	7.5	105.4W
2009 12 13	10 32.44	+13 39.8	1.994	2.458	22.6	7.5	106.2W
2009 12 14	10 33.09	+13 40.0	1.981	2.457	22.5	7.5	107.1W
2009 12 15	10 33.72	+13 40.3	1.967	2.456	22.4	7.5	108.0W
2009 12 16	10 34.32	+13 40.7	1.954	2.456	22.3	7.5	108.9W
2009 12 17	10 34.91	+13 41.4	1.941	2.455	22.2	7.4	109.7W
2009 12 18	10 35.47	+13 42.2	1.928	2.454	22.0	7.4	110.6W
2009 12 19	10 36.00	+13 43.1	1.915	2.453	21.9	7.4	111.5W
2009 12 20	10 36.52	+13 44.3	1.902	2.452	21.8	7.4	112.4W
2009 12 21	10 37.01	+13 45.6	1.889	2.451	21.6	7.4	113.3W
2009 12 22	10 37.47	+13 47.1	1.876	2.450	21.5	7.4	114.3W
2009 12 23	10 37.92	+13 48.8	1.864	2.449	21.3	7.3	115.2W
2009 12 24	10 38.33	+13 50.6	1.851	2.449	21.1	7.3	116.1W
2009 12 25	10 38.72	+13 52.7	1.838	2.448	21.0	7.3	117.0W
2009 12 26	10 39.09	+13 54.9	1.826	2.447	20.8	7.3	118.0W
2009 12 27	10 39.43	+13 57.3	1.814	2.446	20.6	7.3	118.9W
2009 12 28	10 39.74	+13 59.9	1.802	2.445	20.4	7.2	119.9W
2009 12 29	10 40.03	+14 2.7	1.789	2.444	20.2	7.2	120.9W
2009 12 30	10 40.29	+14 5.7	1.777	2.443	20.0	7.2	121.8W
2009 12 31	10 40.52	+14 8.9	1.766	2.442	19.8	7.2	122.8W

7 Iris

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	V	°.
2009 6 25	19 2.05	-19 29.1	1.596	2.600	4.5	9.0	168.4W
2009 6 26	19 1.04	-19 28.3	1.592	2.598	4.1	9.0	169.5W
2009 6 27	19 0.01	-19 27.5	1.587	2.596	3.7	8.9	170.6W
2009 6 28	18 58.97	-19 26.7	1.583	2.593	3.2	8.9	171.7W
2009 6 29	18 57.92	-19 26.0	1.579	2.591	2.8	8.9	172.8W
2009 6 30	18 56.86	-19 25.2	1.576	2.589	2.4	8.8	173.8W
2009 7 1	18 55.79	-19 24.5	1.573	2.587	2.1	8.8	174.8W
2009 7 2	18 54.72	-19 23.8	1.570	2.585	1.7	8.8	175.6W
2009 7 3	18 53.64	-19 23.0	1.567	2.582	1.5	8.7	176.2W
2009 7 4	18 52.55	-19 22.3	1.565	2.580	1.4	8.7	176.5W
2009 7 5	18 51.47	-19 21.7	1.562	2.578	1.4	8.7	176.4E
2009 7 6	18 50.38	-19 21.0	1.561	2.576	1.6	8.7	175.9E
2009 7 7	18 49.29	-19 20.3	1.559	2.573	1.9	8.8	175.1E
2009 7 8	18 48.20	-19 19.6	1.558	2.571	2.3	8.8	174.2E
2009 7 9	18 47.11	-19 19.0	1.557	2.569	2.7	8.8	173.2E
2009 7 10	18 46.03	-19 18.3	1.556	2.567	3.1	8.8	172.2E
2009 7 11	18 44.95	-19 17.7	1.555	2.564	3.5	8.9	171.1E
2009 7 12	18 43.88	-19 17.0	1.555	2.562	4.0	8.9	170.0E
2009 7 13	18 42.81	-19 16.4	1.555	2.560	4.4	8.9	168.8E
2009 7 14	18 41.75	-19 15.8	1.555	2.558	4.9	8.9	167.7E
2009 7 15	18 40.70	-19 15.2	1.556	2.555	5.3	8.9	166.5E
2009 7 16	18 39.66	-19 14.6	1.557	2.553	5.8	9.0	165.4E
2009 7 17	18 38.64	-19 14.0	1.558	2.551	6.2	9.0	164.2E

14 Irene

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	V	°.
2009 4 10	14 23.27	+ 0 50.2	1.208	2.179	8.7	9.0	160.7W
2009 4 11	14 22.46	+ 0 53.3	1.206	2.180	8.4	9.0	161.5W
2009 4 12	14 21.64	+ 0 56.2	1.204	2.181	8.0	9.0	162.3W
2009 4 13	14 20.79	+ 0 59.0	1.203	2.181	7.7	8.9	163.0W
2009 4 14	14 19.94	+ 1 1.7	1.202	2.182	7.4	8.9	163.6W
2009 4 15	14 19.07	+ 1 4.2	1.200	2.183	7.2	8.9	164.2W
2009 4 16	14 18.19	+ 1 6.6	1.200	2.184	6.9	8.9	164.8W
2009 4 17	14 17.30	+ 1 8.9	1.199	2.185	6.7	8.9	165.2W
2009 4 18	14 16.40	+ 1 11.0	1.199	2.185	6.6	8.9	165.6W
2009 4 19	14 15.49	+ 1 12.9	1.199	2.186	6.4	8.9	165.9W
2009 4 20	14 14.58	+ 1 14.7	1.199	2.187	6.4	8.9	166.1W
2009 4 21	14 13.66	+ 1 16.3	1.199	2.188	6.3	8.9	166.1W
2009 4 22	14 12.74	+ 1 17.8	1.200	2.189	6.3	8.9	166.1W
2009 4 23	14 11.82	+ 1 19.0	1.200	2.190	6.4	8.9	166.0W
2009 4 24	14 10.89	+ 1 20.1	1.202	2.191	6.5	8.9	165.8W
2009 4 25	14 9.97	+ 1 21.0	1.203	2.191	6.6	8.9	165.5E
2009 4 26	14 9.05	+ 1 21.7	1.204	2.192	6.8	8.9	165.1E
2009 4 27	14 8.13	+ 1 22.2	1.206	2.193	7.0	8.9	164.7E
2009 4 28	14 7.22	+ 1 22.5	1.208	2.194	7.2	8.9	164.1E
2009 4 29	14 6.32	+ 1 22.6	1.211	2.195	7.5	9.0	163.5E
2009 4 30	14 5.42	+ 1 22.6	1.213	2.196	7.8	9.0	162.9E
2009 5 1	14 4.53	+ 1 22.2	1.216	2.197	8.1	9.0	162.2E

18 Melpomene

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°
2009 8 19	1 29.03	+ 1 41.2	1.046	1.821	27.3	9.0	124.5W
2009 8 20	1 29.87	+ 1 34.8	1.038	1.820	27.0	9.0	125.3W
2009 8 21	1 30.69	+ 1 28.2	1.030	1.819	26.7	8.9	126.1W
2009 8 22	1 31.48	+ 1 21.2	1.022	1.818	26.4	8.9	126.9W
2009 8 23	1 32.24	+ 1 14.0	1.014	1.817	26.1	8.9	127.7W
2009 8 24	1 32.97	+ 1 6.4	1.006	1.816	25.8	8.9	128.5W
2009 8 25	1 33.67	+ 0 58.6	0.998	1.815	25.5	8.8	129.3W
2009 8 26	1 34.33	+ 0 50.5	0.991	1.815	25.2	8.8	130.1W
2009 8 27	1 34.97	+ 0 42.1	0.983	1.814	24.9	8.8	130.9W
2009 8 28	1 35.58	+ 0 33.4	0.976	1.813	24.6	8.8	131.8W
2009 8 29	1 36.15	+ 0 24.4	0.969	1.812	24.2	8.7	132.6W
2009 8 30	1 36.69	+ 0 15.2	0.962	1.811	23.9	8.7	133.5W
2009 8 31	1 37.20	+ 0 5.7	0.955	1.810	23.5	8.7	134.3W
2009 9 1	1 37.67	- 0 4.1	0.948	1.809	23.2	8.6	135.2W
2009 9 2	1 38.11	- 0 14.2	0.941	1.809	22.8	8.6	136.0W
2009 9 3	1 38.52	- 0 24.5	0.935	1.808	22.4	8.6	136.9W
2009 9 4	1 38.89	- 0 35.1	0.928	1.807	22.0	8.6	137.8W
2009 9 5	1 39.23	- 0 45.9	0.922	1.806	21.6	8.5	138.7W
2009 9 6	1 39.54	- 0 56.9	0.916	1.806	21.2	8.5	139.5W
2009 9 7	1 39.80	- 1 8.3	0.910	1.805	20.8	8.5	140.4W
2009 9 8	1 40.04	- 1 19.8	0.904	1.804	20.4	8.5	141.3W
2009 9 9	1 40.24	- 1 31.5	0.898	1.804	20.0	8.4	142.2W
2009 9 10	1 40.40	- 1 43.5	0.893	1.803	19.6	8.4	143.1W
2009 9 11	1 40.53	- 1 55.7	0.888	1.802	19.1	8.4	144.0W
2009 9 12	1 40.63	- 2 8.1	0.882	1.802	18.7	8.4	144.9W
2009 9 13	1 40.68	- 2 20.6	0.877	1.801	18.3	8.3	145.9W
2009 9 14	1 40.71	- 2 33.4	0.873	1.801	17.8	8.3	146.8W
2009 9 15	1 40.70	- 2 46.3	0.868	1.800	17.4	8.3	147.7W
2009 9 16	1 40.65	- 2 59.3	0.863	1.799	16.9	8.3	148.6W
2009 9 17	1 40.57	- 3 12.5	0.859	1.799	16.5	8.2	149.5W
2009 9 18	1 40.46	- 3 25.8	0.855	1.798	16.0	8.2	150.4W
2009 9 19	1 40.32	- 3 39.2	0.851	1.798	15.6	8.2	151.3W
2009 9 20	1 40.14	- 3 52.7	0.847	1.798	15.1	8.2	152.1W
2009 9 21	1 39.93	- 4 6.3	0.844	1.797	14.7	8.1	153.0W
2009 9 22	1 39.68	- 4 20.0	0.840	1.797	14.2	8.1	153.9W
2009 9 23	1 39.41	- 4 33.7	0.837	1.796	13.8	8.1	154.7W
2009 9 24	1 39.10	- 4 47.4	0.834	1.796	13.4	8.1	155.6W
2009 9 25	1 38.77	- 5 1.1	0.831	1.796	12.9	8.0	156.4W
2009 9 26	1 38.41	- 5 14.9	0.829	1.795	12.5	8.0	157.2W
2009 9 27	1 38.01	- 5 28.6	0.826	1.795	12.1	8.0	157.9W
2009 9 28	1 37.60	- 5 42.3	0.824	1.795	11.7	8.0	158.7W
2009 9 29	1 37.15	- 5 55.9	0.822	1.794	11.3	8.0	159.4W
2009 9 30	1 36.69	- 6 9.4	0.820	1.794	11.0	7.9	160.1W
2009 10 1	1 36.19	- 6 22.9	0.818	1.794	10.6	7.9	160.7W
2009 10 2	1 35.68	- 6 36.2	0.817	1.794	10.3	7.9	161.2W
2009 10 3	1 35.15	- 6 49.4	0.816	1.794	10.1	7.9	161.8W
2009 10 4	1 34.59	- 7 2.4	0.815	1.793	9.8	7.9	162.2W
2009 10 5	1 34.02	- 7 15.3	0.814	1.793	9.6	7.9	162.6W
2009 10 6	1 33.43	- 7 28.0	0.813	1.793	9.4	7.9	162.9W
2009 10 7	1 32.82	- 7 40.5	0.813	1.793	9.3	7.9	163.2W
2009 10 8	1 32.21	- 7 52.7	0.813	1.793	9.2	7.9	163.4W
2009 10 9	1 31.58	- 8 4.7	0.813	1.793	9.1	7.9	163.4W
2009 10 10	1 30.93	- 8 16.4	0.813	1.793	9.1	7.9	163.5W
2009 10 11	1 30.28	- 8 27.9	0.813	1.793	9.2	7.9	163.4W
2009 10 12	1 29.63	- 8 39.1	0.814	1.793	9.2	7.9	163.2W
2009 10 13	1 28.96	- 8 49.9	0.815	1.793	9.4	7.9	163.0W
2009 10 14	1 28.30	- 9 0.4	0.816	1.793	9.5	7.9	162.7W
2009 10 15	1 27.63	- 9 10.6	0.817	1.793	9.7	7.9	162.3W
2009 10 16	1 26.96	- 9 20.5	0.819	1.793	10	7.9	161.8W
2009 10 17	1 26.29	- 9 30.0	0.820	1.793	10.2	7.9	161.3E
2009 10 18	1 25.62	- 9 39.1	0.822	1.793	10.5	7.9	160.8E
2009 10 19	1 24.96	- 9 47.8	0.824	1.793	10.9	8.0	160.2E
2009 10 20	1 24.30	- 9 56.1	0.826	1.793	11.2	8.0	159.5E
2009 10 21	1 23.65	-10 4.0	0.829	1.794	11.6	8.0	158.8E
2009 10 22	1 23.01	-10 11.5	0.832	1.794	12.0	8.0	158.1E
2009 10 23	1 22.38	-10 18.6	0.835	1.794	12.4	8.0	157.3E
2009 10 24	1 21.77	-10 25.2	0.838	1.794	12.8	8.1	156.5E
2009 10 25	1 21.16	-10 31.4	0.841	1.795	13.2	8.1	155.7E
2009 10 26	1 20.57	-10 37.2	0.844	1.795	13.6	8.1	154.9E
2009 10 27	1 20.00	-10 42.5	0.848	1.795	14.0	8.1	154.0E
2009 10 28	1 19.45	-10 47.4	0.852	1.795	14.5	8.1	153.2E
2009 10 29	1 18.91	-10 51.9	0.856	1.796	14.9	8.2	152.3E
2009 10 30	1 18.40	-10 55.8	0.860	1.796	15.3	8.2	151.4E
2009 10 31	1 17.91	-10 59.4	0.864	1.796	15.8	8.2	150.5E
2009 11 1	1 17.43	-11 2.5	0.869	1.797	16.2	8.2	149.6E
2009 11 2	1 16.99	-11 5.1	0.874	1.797	16.7	8.3	148.7E
2009 11 3	1 16.56	-11 7.3	0.879	1.798	17.1	8.3	147.8E
2009 11 4	1 16.17	-11 9.0	0.884	1.798	17.5	8.3	146.9E
2009 11 5	1 15.80	-11 10.3	0.889	1.799	18.0	8.3	146.0E

18 Melpomene

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°.
2009 11 6	1 15.45	-11 11.2	0.894	1.799	18.4	8.4	145.1E
2009 11 7	1 15.14	-11 11.6	0.900	1.800	18.8	8.4	144.2E
2009 11 8	1 14.85	-11 11.6	0.906	1.800	19.2	8.4	143.3E
2009 11 9	1 14.59	-11 11.2	0.912	1.801	19.6	8.5	142.4E
2009 11 10	1 14.36	-11 10.3	0.918	1.801	20.0	8.5	141.5E
2009 11 11	1 14.17	-11 9.1	0.924	1.802	20.4	8.5	140.6E
2009 11 12	1 14.00	-11 7.4	0.930	1.802	20.8	8.5	139.7E
2009 11 13	1 13.86	-11 5.3	0.937	1.803	21.2	8.6	138.8E
2009 11 14	1 13.76	-11 2.9	0.943	1.804	21.6	8.6	137.9E
2009 11 15	1 13.68	-11 0.0	0.950	1.804	22.0	8.6	137.0E
2009 11 16	1 13.64	-10 56.8	0.957	1.805	22.3	8.6	136.1E
2009 11 17	1 13.63	-10 53.2	0.964	1.806	22.7	8.7	135.2E
2009 11 18	1 13.66	-10 49.2	0.971	1.807	23.0	8.7	134.4E
2009 11 19	1 13.71	-10 44.9	0.979	1.807	23.4	8.7	133.5E
2009 11 20	1 13.80	-10 40.2	0.986	1.808	23.7	8.7	132.7E
2009 11 21	1 13.92	-10 35.2	0.994	1.809	24.0	8.8	131.8E
2009 11 22	1 14.07	-10 29.8	1.001	1.810	24.3	8.8	131.0E
2009 11 23	1 14.25	-10 24.1	1.009	1.810	24.7	8.8	130.1E
2009 11 24	1 14.47	-10 18.2	1.017	1.811	25.0	8.9	129.3E
2009 11 25	1 14.72	-10 11.8	1.025	1.812	25.2	8.9	128.5E
2009 11 26	1 15.00	-10 5.2	1.033	1.813	25.5	8.9	127.6E
2009 11 27	1 15.31	- 9 58.3	1.041	1.814	25.8	8.9	126.8E
2009 11 28	1 15.65	- 9 51.2	1.050	1.815	26.1	9.0	126.0E
2009 11 29	1 16.03	- 9 43.7	1.058	1.816	26.3	9.0	125.2E

27 Euterpe

Data	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
Anno m g	hh mm.mm	dd pp.p	U.A	U.A.	°	v	°.
2009 1 28	9 20.80	+17 29.9	1.036	2.014	4.5	9.0	170.7W
2009 1 29	9 19.83	+17 35.5	1.035	2.015	3.9	9.0	172.0W
2009 1 30	9 18.85	+17 41.0	1.035	2.017	3.3	8.9	173.2W
2009 1 31	9 17.86	+17 46.6	1.035	2.018	2.7	8.9	174.4W
2009 2 1	9 16.86	+17 52.1	1.036	2.019	2.2	8.9	175.5W
2009 2 2	9 15.85	+17 57.6	1.036	2.021	1.6	8.8	176.6W
2009 2 3	9 14.85	+18 3.0	1.037	2.022	1.2	8.8	177.5W
2009 2 4	9 13.84	+18 8.4	1.038	2.023	1	8.8	178.0W
2009 2 5	9 12.83	+18 13.7	1.039	2.025	1.1	8.8	177.7E
2009 2 6	9 11.82	+18 19.0	1.041	2.026	1.5	8.8	176.9E
2009 2 7	9 10.82	+18 24.2	1.043	2.027	2.0	8.9	175.9E
2009 2 8	9 9.83	+18 29.3	1.045	2.029	2.6	8.9	174.7E
2009 2 9	9 8.84	+18 34.3	1.047	2.030	3.1	9.0	173.5E
2009 2 10	9 7.86	+18 39.2	1.049	2.032	3.7	9.0	172.3E

CONGIUNZIONI <1° PIANETI - ASTEROIDI m<9

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/08/25	16:41:13	0.48834	0.00297	1.29	3.31	171	-34	-3.8	8.3		27.2	Venere	Vesta
2009/10/13	03:48:49	0.29933	0.00221	1.15	3.27	151	-16	-0.9	8.9		20.8	Mercurio	Pallas

CONGIUNZIONI MULTIPLE PIANETI - ASTEROIDI (eventi con 2 o più pianeti ed un asteroide entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/09/23	10:34:39	2.987	4.218	-6	2.4	8.9	Mercurio	Saturno	Pallas

CONGIUNZIONI <1° ASTEROIDI m<9 - OGGETTI MESSIER m<9

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m*	tm(s)	tw(h)			
2009/06/06	11:20:46	0.17251	0.00071	3.564	355	8	8.4	8.4		54.6	Vesta	NGC1952	M1
2009/07/24	12:52:43	0.09779	0.00158	1.572	182	156	8.9	4.6		113.0	Iris		M25
2009/09/15	13:29:13	0.87631	0.00081	3.123	11	-45	8.2	3.7		28.7	Vesta	NGC2632	M44

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

R1 = distanza in U.A. del corpo 1 dalla Terra

R2 = distanza in U.A. del corpo 2 dalla Terra

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del primo corpo

m2 = magnitudine del secondo corpo

m* = magnitudine dell'oggetto

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano meno di 1° tra loro

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi

Dmax = diametro del cerchio comprendente gli oggetti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

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CONGIUNZIONI MULTIPLE PIANETI - ASTEROIDI - STELLE

(eventi con 1 pianeta, una stella di mag<2 ed un asteroide entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax					
2009/07/14	09:44:15	2.322	3.074	-42	1.2	11.4	Parthenop	Alpha	TAU	Aldebaran	Venus

CONGIUNZIONI MULTIPLE PIANETI - ASTEROIDI - OGGETTI MESSIER

(eventi con 1 pianeta, un oggetto mag<2 ed un asteroide entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax					
2009/07/21	08:49:05	1.657	2.199	8	1.7	10.9	Mercurio	NGC2632	M44	Metis	

CONGIUNZIONI <1° TRA ASTEROIDI m<9

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)
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Questo anno non si verificano congiunzioni a meno di 1° tra asteroidi più luminosi della magnitudine 9

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

R1 = distanza in U.A. del corpo 1 dalla Terra

R2 = distanza in U.A. del corpo 2 dalla Terra

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del primo corpo

m2 = magnitudine del secondo corpo

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano meno di 1° tra loro

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi

Dmax = diametro del cerchio comprendente gli oggetti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

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CONGIUNZIONI <1° LUNA-ASTEROIDI m<9

Geocentriche

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m2	tm(s)	
2009/08/18 07:06:49		0.38086	1.28977	3.366	16	-30	8.3	-8.7	3132	Vesta
2009/08/21 05:15:53		0.93870	1.27974	3.206	27	12	8.8	-6.7	2252	Pallas

Topocentriche 42°N - 12°E

Data	UT	Dm (°)	Alt.	r1	p (°)	e	m1	m2	tm(s)	
2009/08/18 05:58:39		0.10558	43.85	3.366	14	-30	8.3	-8.8	4234	Vesta
2009/08/21 03:41:14		0.59736	-20.42	3.206	22	12	8.8	-6.7		Pallas

CONGIUNZIONI MULTIPLE PIANETI-LUNA- ASTEROIDI

(eventi con 1 pianeta, la Luna ed un asteroide entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	mmax
------	----	----------	------	------	------

Questo anno non avvengono fenomeni

Data nel formato anno/mese/giorno

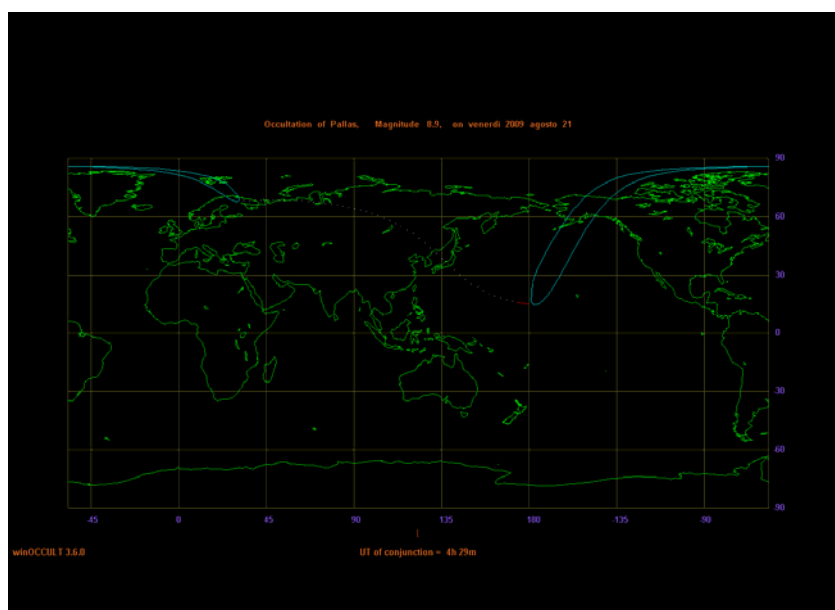
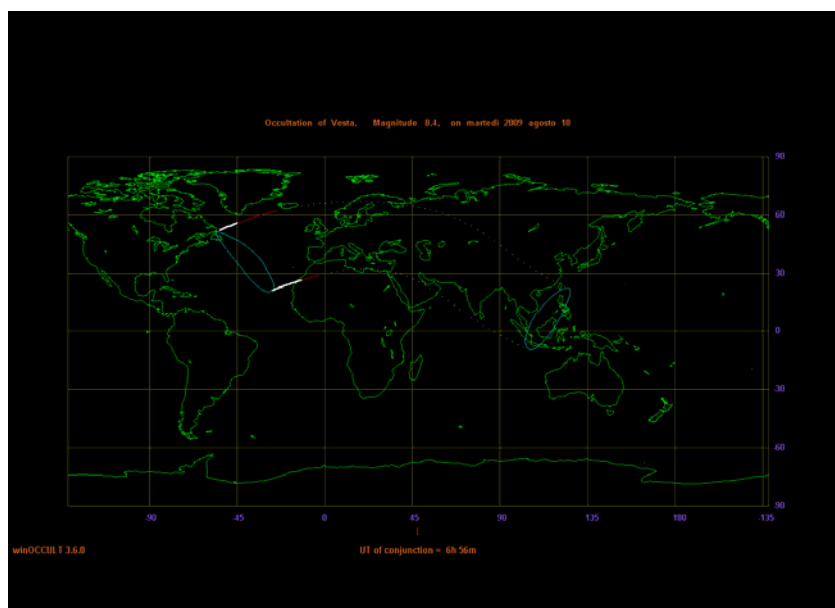
Dm = distanza minima in gradi tra i centri dei corpi
 Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi
 Alt = altezza sull'orizzonte dell'asteroide, in gradi
 R1 = distanza in U.A. dell'asteroide dalla Terra
 P = angolo di posizione tra i corpi, in gradi
 e = elongazione, in gradi
 m1 = magnitudine dell'asteroide
 m2 = magnitudine della Luna
 m* = magnitudine dell'oggetto
 tm = se presente, l'asteroide viene occultato massimo per x secondi

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi
 Dmax = diametro del cerchio comprendente gli oggetti, in gradi
 emin = elongazione minima, in gradi
 m2d = magnitudine del penultimo corpo più debole
 mmax = magnitudine del corpo più debole

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OCCULTAZIONI GEOCENTR. LUNA-ASTEROIDI $m < 9$

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m2	tm(s)	
2009/08/18	07:06:49	0.38086	1.28977	3.366	16	-30	8.3	-8.7	3132	Vesta
2009/08/21	05:15:53	0.93870	1.27974	3.206	27	12	8.8	-6.7	2252	Pallas



Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi
 Dl = parametro limite, se $Dm < Dl$ vi è una occultazione tra i corpi
 R1 = distanza in U.A. dell'asteroide dalla Terra
 P = angolo di posizione tra i corpi, in gradi
 e = elongazione, in gradi
 m1 = magnitudine dell'asteroide
 m2 = magnitudine della Luna
 tm = se presente, l'asteroide viene occultato massimo per x secondi
 © (6) (8)

OCCULTAZIONI TOPOCENTR. LUNA-ASTEROIDI $m < 9$

42°N - 12°E

Data	UT	Dm (°)	Alt.	r1	p (°)	e	m1	m2	tm(s)	
2009/08/18 05:58:39		0.10558	43.85	3.366	14	-30	8.3	-8.8	4234	Vesta
2009/08/21 03:41:14		0.59736	-20.42	3.206	22	12	8.8	-6.7		Pallas

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se $Dm < Dl$ vi è una occultazione tra i corpi

Alt = altezza sull'orizzonte dell'asteroide, in gradi

R1 = distanza in U.A. dell'asteroide dalla Terra

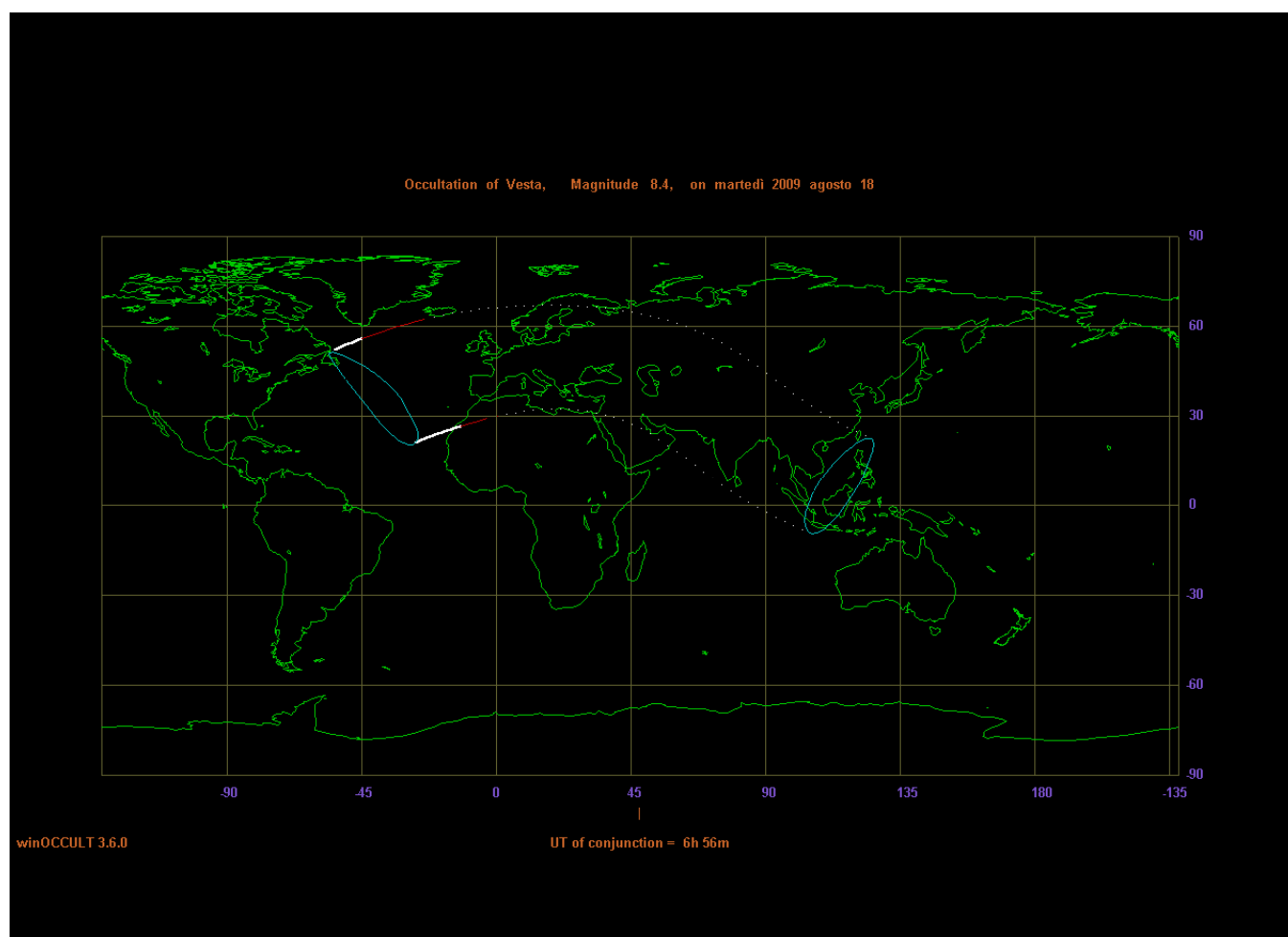
P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine dell'asteroide

m2 = magnitudine della Luna

tm = se presente, l'asteroide viene occultato massimo per x secondi



Non si riportano i dati relativi all'occultazione in quanto il fenomeno avviene di giorno

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CONGIUNZ. <0,5° ASTEROIDI m<9-STELLE m<6

Data	TDT	Dm (°)	Dl	AR (°)	Dec	r1	p (°)	e	m1	m*	tm(s)	tw(h)			
2009/03/03	19:36:30	0.28433	0.00164	164.155	24.961	1.59	337	162	6.8	4.5		105.4	Ceres		LEO
2009/03/08	16:13:13	0.43391	0.00132	79.210	-13.202	1.93	45	89	7.9	5.6		49.7	Pallas		
2009/03/09	14:47:16	0.39274	0.00086	46.581	13.590	2.94	21	59	8.1	5.8		61.1	Vesta		
2009/03/11	12:41:04	0.03553	0.00130	80.130	-12.331	1.95	223	88	7.9	5.3		54.2	Pallas	Nu	LEP
2009/03/19	22:38:55	0.45339	0.00158	160.829	25.826	1.65	173	149	6.9	5.5		131.1	Ceres		LMI
2009/04/01	12:58:34	0.48851	0.00202	217.401	0.332	1.23	158	-153	8.9	6.0		126.1	Irene		
2009/04/09	21:27:40	0.06248	0.00078	58.411	17.416	3.26	16	40	8.3	6.0		59.4	Vesta		
2009/04/10	07:55:07	0.01614	0.00116	91.772	-4.180	2.19	28	74	8.1	5.4		47.9	Pallas		
2009/04/13	22:49:50	0.45375	0.00114	93.390	-3.338	2.22	27	72	8.2	6.0		42.4	Pallas		
2009/04/14	19:00:27	0.28705	0.00077	60.419	17.944	3.30	195	37	8.3	5.9		56.4	Vesta		
2009/04/17	08:35:26	0.40749	0.00113	94.944	-2.579	2.25	25	70	8.2	5.1		43.1	Pallas		
2009/04/19	04:46:56	0.01897	0.00112	95.795	-2.183	2.27	25	69	8.2	6.0		47.0	Pallas		
2009/04/21	11:57:59	0.20727	0.00111	96.869	-1.702	2.29	204	68	8.2	5.9		45.8	Pallas		
2009/04/24	20:01:43	0.21113	0.00110	98.449	-1.031	2.32	22	67	8.2	5.1		45.5	Pallas		
2009/04/30	19:35:47	0.30135	0.00074	67.227	19.497	3.42	12	28	8.4	3.7		54.6	Vesta	Epsilon	TAU
2009/05/04	00:19:20	0.18858	0.00203	210.550	1.310	1.23	185	160	8.9	4.3		111.0	Irene	Tau	VIR
2009/05/10	18:10:50	0.10871	0.00198	209.215	1.109	1.26	13	154	9.0	5.9		127.5	Irene		VIR
2009/05/18	00:54:31	0.00667	0.00101	109.971	2.717	2.52	194	56	8.4	6.0		45.6	Pallas		
2009/05/24	15:41:45	0.22943	0.00098	113.378	3.495	2.58	12	53	8.4	5.6		44.2	Pallas	Delta2	CMI
2009/05/25	04:21:47	0.20439	0.00098	113.652	3.551	2.59	12	53	8.4	5.8		44.5	Pallas	Delta3	CMI
2009/05/28	16:13:26	0.30855	0.00097	115.468	3.906	2.62	11	51	8.5	6.0		43.2	Pallas		
2009/06/02	18:40:03	0.25140	0.00071	82.082	21.696	3.56	186	10	8.4	4.9		53.7	Vesta		TAU
2009/06/07	05:11:25	0.15369	0.00094	120.457	4.701	2.70	188	47	8.5	5.7		44.9	Pallas		
2009/06/20	13:33:25	0.22046	0.00098	168.814	15.561	2.66	327	74	8.1	3.3		71.6	Ceres	Theta	LEO
2009/06/24	11:51:24	0.12966	0.00089	129.550	5.541	2.85	183	39	8.6	4.1		45.3	Pallas	Delta	HYA
2009/06/27	23:25:07	0.14529	0.00071	93.870	22.359	3.57	181	-3	8.4	3.7		54.5	Vesta	Eta	GEM
2009/06/29	14:38:16	0.14971	0.00088	132.242	5.653	2.89	182	37	8.6	4.3		45.3	Pallas	Rho	HYA
2009/07/02	06:21:03	0.12760	0.00071	95.889	22.381	3.57	180	-5	8.4	3.2		54.7	Vesta	Mu	GEM
2009/07/02	22:05:58	0.21425	0.00087	133.982	5.694	2.91	181	35	8.6	3.2		44.9	Pallas	Zeta	HYA
2009/07/26	05:41:02	0.40921	0.00157	277.677	-19.132	1.58	178	154	8.9	5.8		108.0	Iris		
2009/07/29	06:22:01	0.49860	0.00084	181.179	8.245	3.10	150	52	8.4	4.2		52.6	Ceres	Omicron	VIR
2009/08/01	19:05:40	0.15296	0.00073	110.163	21.812	3.47	175	-21	8.4	3.5		55.1	Vesta	Delta	GEM
2009/08/06	00:21:06	0.21553	0.00074	112.105	21.640	3.44	354	-23	8.3	5.3		54.7	Vesta		GEM
2009/08/07	19:14:08	0.19031	0.00151	275.483	-19.046	1.64	178	140	9.0	5.9		189.6	Iris		
2009/08/09	09:02:31	0.22926	0.00081	153.354	4.794	3.15	354	18	8.8	5.9		46.0	Pallas		SEX
2009/09/02	02:38:32	0.24575	0.00078	165.234	3.321	3.25	172	6	8.8	5.0		46.8	Pallas		LEO
2009/09/17	12:03:36	0.08753	0.00204	0.654	-3.025	1.22	233	-174	7.9	5.1		87.6	Juno		PSC
2009/09/20	18:39:06	0.38603	0.00206	0.101	-3.738	1.21	232	-176	7.8	5.0		79.8	Juno		PSC
2009/09/27	20:57:21	0.29792	0.00077	177.759	1.414	3.28	171	-8	8.9	3.7		47.3	Pallas	Beta	VIR
2009/10/04	07:24:44	0.15225	0.00303	23.683	-7.058	0.82	237	-162	7.8	5.8		92.4	Melpomene		
2009/10/09	16:47:40	0.47746	0.00212	4.688	32.043	1.17	11	153	9.0	5.9		92.1	Julia		
2009/10/22	11:57:18	0.32149	0.00094	144.325	16.080	2.70	167	-68	7.9	5.9		65.4	Vesta		LEO
2009/11/15	10:24:16	0.34912	0.00072	223.853	-11.611	3.64	341	-10	8.7	5.9		51.5	Ceres	Xi1	LIB
2009/11/16	07:47:07	0.30634	0.00072	224.227	-11.740	3.64	161	-10	8.7	5.6		52.4	Ceres	Xi2	LIB
2009/11/18	11:02:08	0.35297	0.00081	201.655	-1.598	3.12	176	-36	9.0	6.0		50.4	Pallas		
2009/11/24	04:50:35	0.32149	0.00112	154.362	13.995	2.25	350	-91	7.5	5.6		91.4	Vesta		LEO
2009/12/04	20:15:16	0.30335	0.00084	208.807	-1.857	3.01	180	-46	9.0	5.3		53.5	Pallas		VIR
2009/12/09	14:28:39	0.02519	0.00073	234.033	-14.800	3.57	344	-23	8.7	4.0		56.7	Ceres	Gamma	LIB
2009/12/11	07:11:24	0.42734	0.00211	20.840	-7.818	1.17	43	116	8.9	3.7		86.2	Melpomene	Theta	CET
2009/12/14	18:03:55	0.46120	0.00205	21.521	-7.208	1.21	221	113	9.0	6.0		77.4	Melpomene		
2009/12/14	21:05:20	0.31216	0.00074	236.249	-15.405	3.54	345	-26	8.7	5.5		54.4	Ceres	Eta	LIB
2009/12/23	00:49:04	0.35005	0.00139	4.858	-8.441	1.79	21	90	8.8	3.7		64.5	Juno	Iota	CET
2009/12/24	11:50:50	0.14865	0.00075	240.264	-16.420	3.49	346	-32	8.7	5.5		57.8	Ceres		LIB

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

A.R. e Dec = coordinate apparenti della stella

R1 = distanza in U.A. dell'asteroide dalla Terra

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine dell'asteroide

m* = magnitudine della stella

tm = se presente, la stella viene occultata massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano meno di 0.5° tra loro

OCCULTAZIONI ASTEROIDALI TOPOCENTRICHE DI STELLE m<9 42°N - 12°E

Data	U.T.	Diametro	Durn	StellaMag	Drop	Elon	%	Star	Planet	Alt	Dist	Sun	Proba-	Moon	R.A. (J2000)	Dec.
y m d	h m	km "	sec/m	mag	V R	o	Ill	No.	No Name	o	km	Alt	bilità	Ill	h m s	o ' "
2009 Jan 14	20 43.5	55 0.032	2.7s	8.6	6.5	6.3	86	HIP 6630	307 Nike	27	43		14%	82	144	1 25 4.128 3 4 14.10
2009 Jan 28	22 11.2	11 0.007	1.2s	9.0	8.1	7.7	146	TYC 0736-00611-1	11078 1992 WH2	55	83		3%	6	119	6 28 17.585 10 20 51.16
2009 Feb 26	20 51.2	20 0.014	1.3s	8.6	6.0	6.1	152	HIP 50540	391 Ingeborg	22	227		3%	4	153	10 19 24.116 -18 47 5.31
2009 May 16	18 44.0	41 0.018	1.8s	8.0	8.5	8.2	74	HIP 43043	688 Melanie	48	160	-3	8%	55	170	8 46 11.467 14 3 43.36
2009 May 27	21 37.8	12 0.010	1.5s	7.7	8.5	8.5	143	HIP 67855	1619 Ueta	38	148		3%	16	96	13 53 55.220 - 8 29 4.43
2009 Jun 16	1 24.4	13 0.008	1.8s	8.3	8.7	8.6	113	HIP 67120	5803 Otzi	7	0		4%	49	146	13 45 22.973 11 28 45.33
2009 Jun 16	22 49.3	14 0.010	1.3s	8.1	8.0	8.6	163	HIP 84668	12949 4290 T-1	9	111		4%	40	107	17 18 33.190 -39 32 30.17
2009 Jun 18	22 35.1	34 0.030	3.1s	9.0	4.5	4.3	158	HIP 86320	619 Triberga	47	159		8%	20	124	17 38 15.057 - 1 8 58.61
2009 Jul 10	22 51.4	83 0.086	9.2s	8.0	3.3	3.7	177	TYC 6304-01595-1	213 Lilaea	29	112		20%	89	39	19 18 20.614 -19 21 39.77
2009 Aug 14	22 1.3	34 0.017	5.4s	7.1	9.2	9.1	119	HIP 7549	1999 Hirayama	8	205		4%	37	46	1 37 16.156 - 0 21 1.88
2009 Aug 17	0 53.9	11 0.014	1.5s	7.7	7.3	7.1	158	HIP 100633	2254 Requiem	13	120		3%	16	154	20 24 19.582 -23 28 33.05
2009 Aug 20	22 34.6	12 0.010	1.0s	8.6	7.5	7.1	162	HIP 104629	7300 Yoshisada	49	160		3%	0	160	21 11 39.286 0 40 42.13
2009 Aug 20	22 59.2	14 0.009	3.4s	8.8	8.0	8.6	132	TYC 6859-00077-1	6810 Juanclaria	13	140		3%	0	125	18 44 13.772 -23 0 28.67
2009 Sep 13	1 35.5	12 0.012	1.8s	8.6	7.1	6.8	142	TYC 0521-00344-1	8397 Chiakitanaka	16	264		1%	39	130	20 58 11.387 4 47 15.71
2009 Oct 2	2 34.4	18 0.006	1.4s	8.5	9.7	9.4	153	HIP 10549	13230 1997 VGL	51	99		4%	95	52	2 15 52.728 11 21 34.35
2009 Oct 12	0 45.2	15 0.013	1.0s	8.3	8.2	8.2	94	TYC 1352-00220-1	3478 Fanale	34	207		2%	42	14	7 0 54.846 18 54 56.19
2009 Nov 2	5 25.0	11 0.010	1.0s	8.8	7.3	7.5	105	TYC 1929-01002-1	1829 Dawson	68	149	-5	2%	99	82	7 49 30.852 25 5 30.52
2009 Dec 22	21 23.6	25 0.019	2.1s	7.8	8.1	7.9	177	HIP 28084	3584 Aisha	64	64		6%	33	108	5 56 12.875 25 19 47.55
2009 Dec 29	3 59.1	65 0.046	4.9s	6.4	6.6	6.7	159	HIP 26592	599 Luisa	30	131		14%	90	28	5 39 8.669 41 21 29.63

Data : anno/mese/giorno

Ora : in Tempo Universale

Diametro : dimensione dell'asteroide in km ed in "

Durn : durata dell'evento in secondi o minuti

Stella mag : magnitudine della stella

Mag drop : caduta di luce

Elon : elongazione, in gradi

% ill : valore nullo

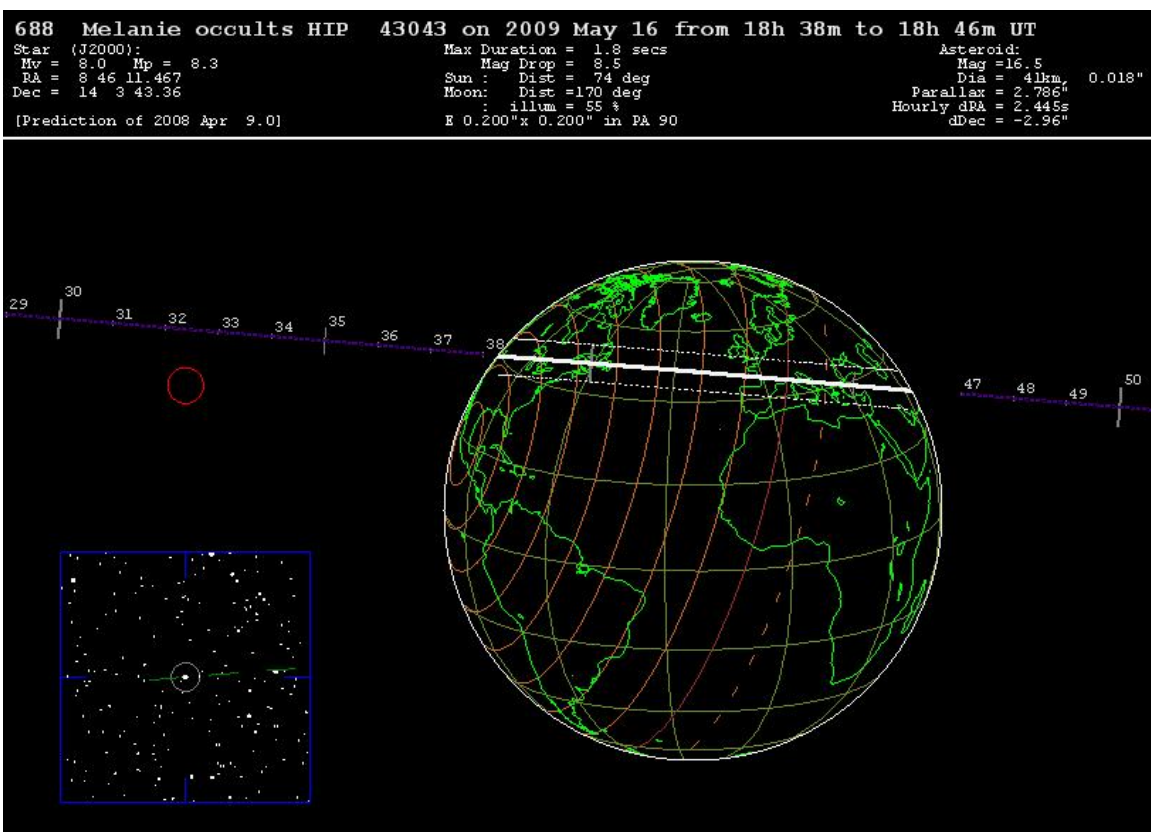
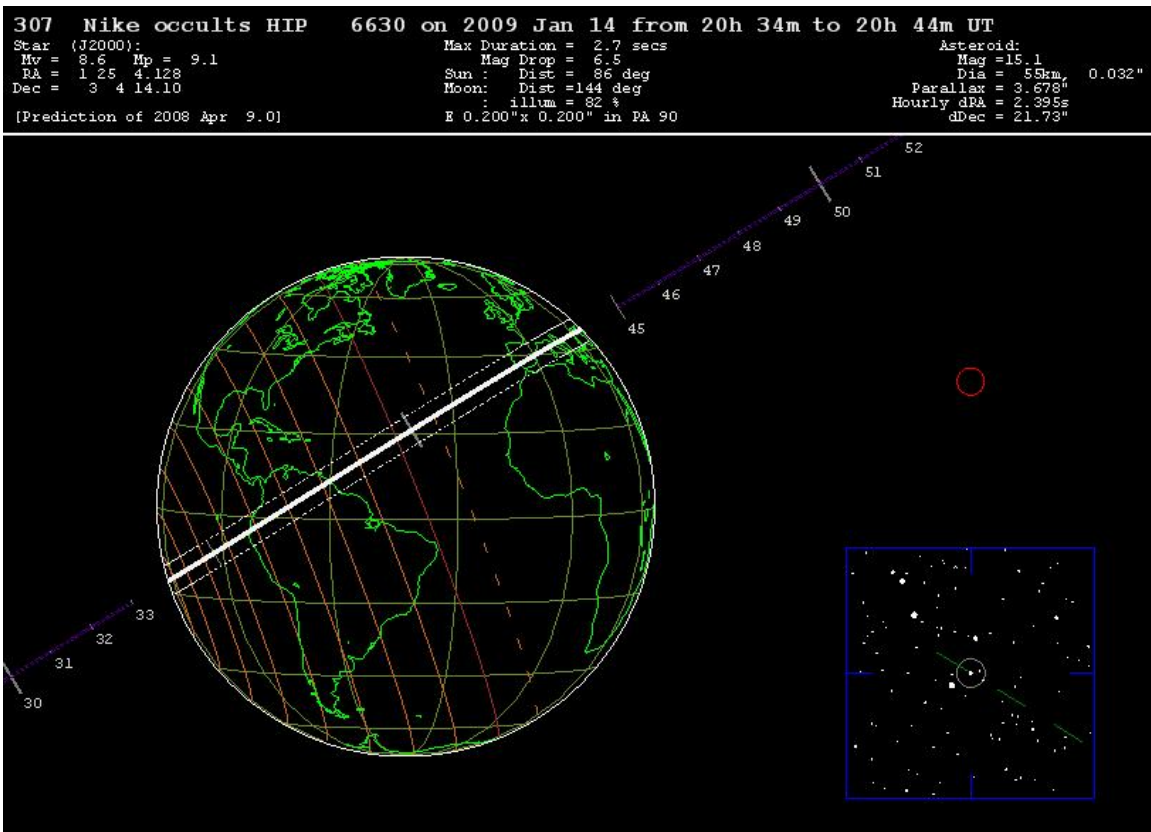
Star : stella

Alt : altezza sull'orizzonte, in gradi

Dist : distanza tra i corpi in "

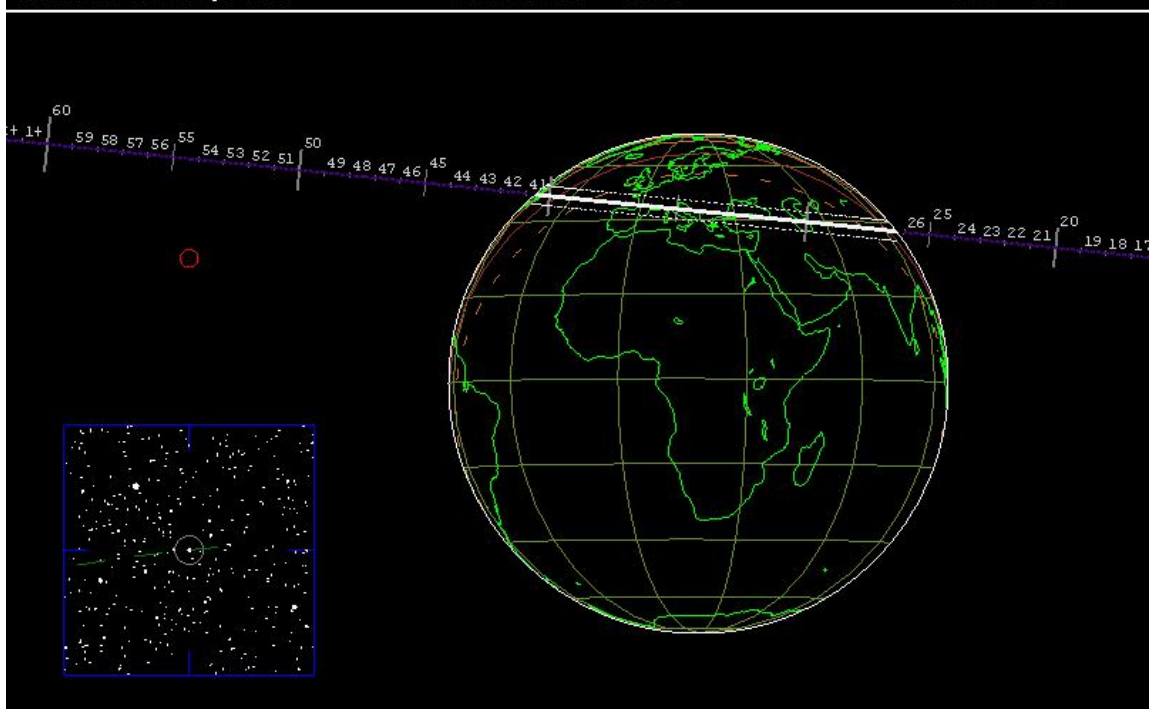
Sun alt : altezza del Sole sull'orizzonte in °

Probabilità : probabilità che l'evento accada



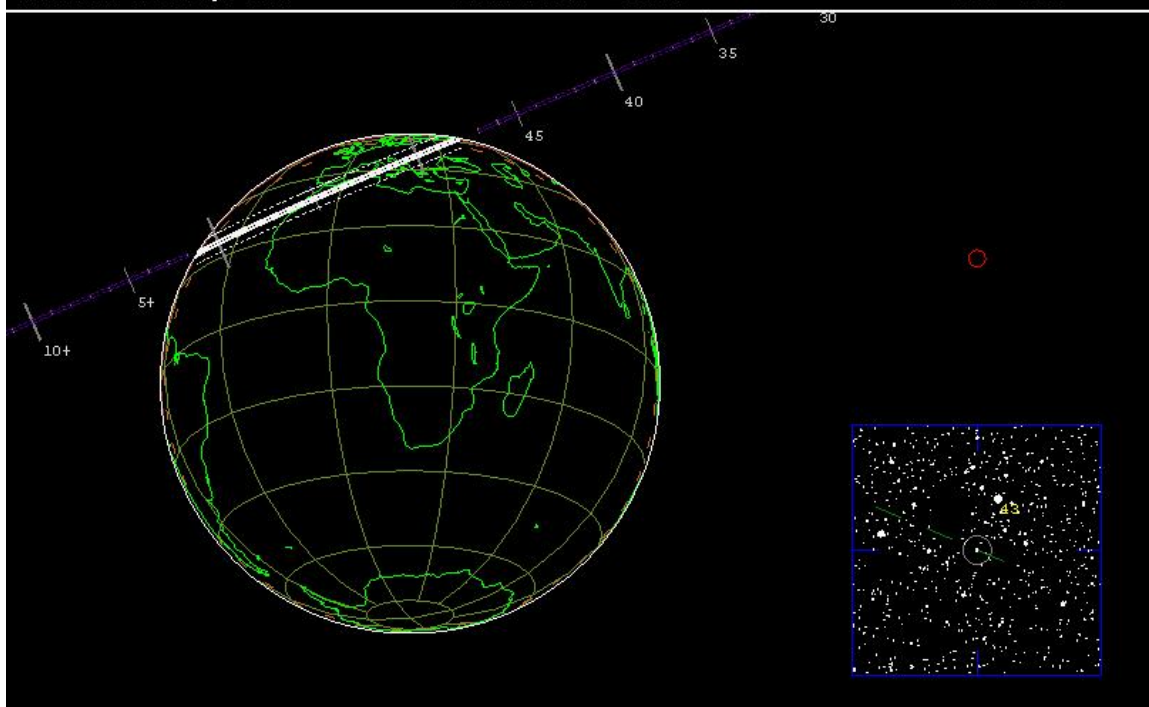
619 Triberga occults HIP 86320 on 2009 Jun 18 from 22h 26m to 22h 41m UT

Star (J2000):	Max Duration = 3.1 secs	Asteroid:
Mv = 9.0 Mp = 9.5	Mag Drop = 4.5	Mag = 13.5
RA = 17 38 15.057	Sun : Dist = 158 deg	Dia = 34km, 0.030"
Dec = -1 8 58.61	Moon: Dist = 124 deg	Parallax = 5.605"
	: illum = 20 %	Hourly dPA = -2.263s
[Prediction of 2008 Apr 9.0]	E 0.200"x 0.200" in PA 90	dDec = 3.48"



213 Lilaea occults TYC 6304-01595-1 on 2009 Jul 10 from 22h 48m to 23h 2m UT

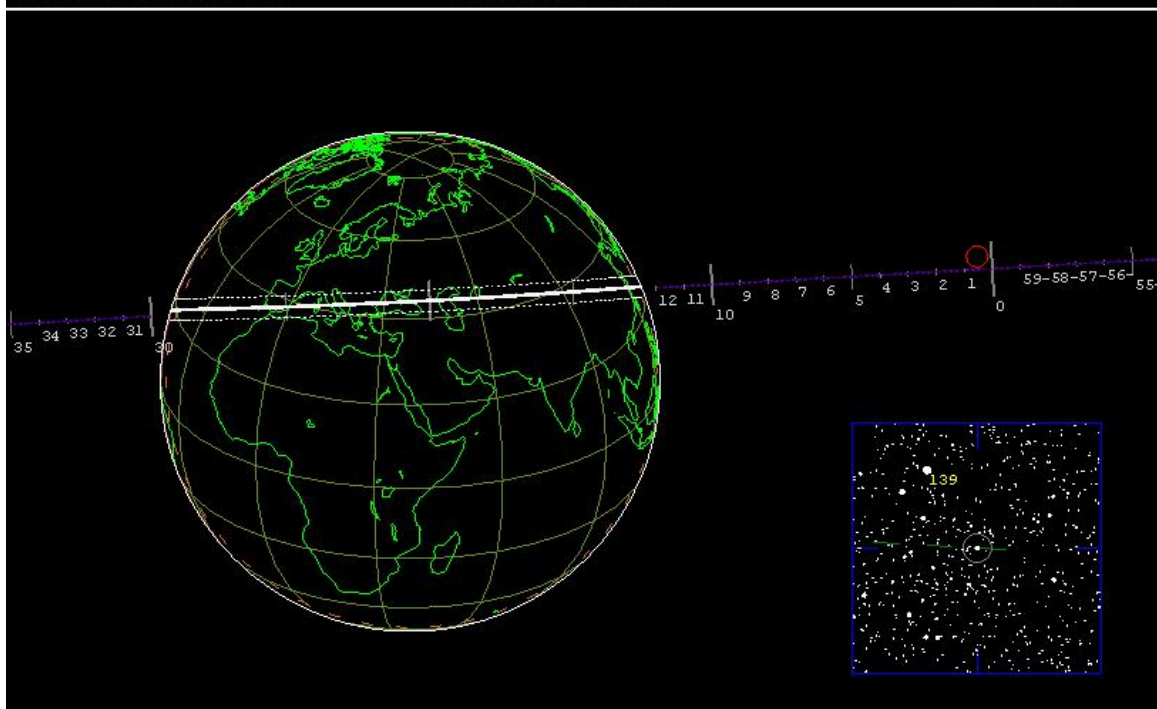
Star (J2000):	Max Duration = 9.2 secs	Asteroid:
Mv = 8.1 Mp = 9.7	Mag Drop = 3.3	Mag = 11.3
RA = 19 18 20.614	Sun : Dist = 177 deg	Dia = 83km, 0.086"
Dec = -19 21 39.77	Moon: Dist = 39 deg	Parallax = 6.572"
	: illum = 89 %	Hourly dPA = -2.163s
[Prediction of 2008 Apr 9.0]	E 0.219"x 0.219" in PA 90	dDec = -13.10"



3584 Aisha occults HIP 28084 on 2009 Dec 22 from 21h 12m to 21h 29m UT

Star (J2000):	Max Duration = 2.1 secs	Asteroid:
Mv = 7.8 Mp = 8.2	Mag Drop = 8.1	Mag = 15.9
RA = 5 56 12.875	Sun : Dist = 177 deg	Dia = 25km, 0.019"
Dec = 25 19 47.55	Moon: Dist = 108 deg	Parallax = 4.731"
	: illum = 33 %	Hourly dPA = -2.349s
		dDec = -1.81"

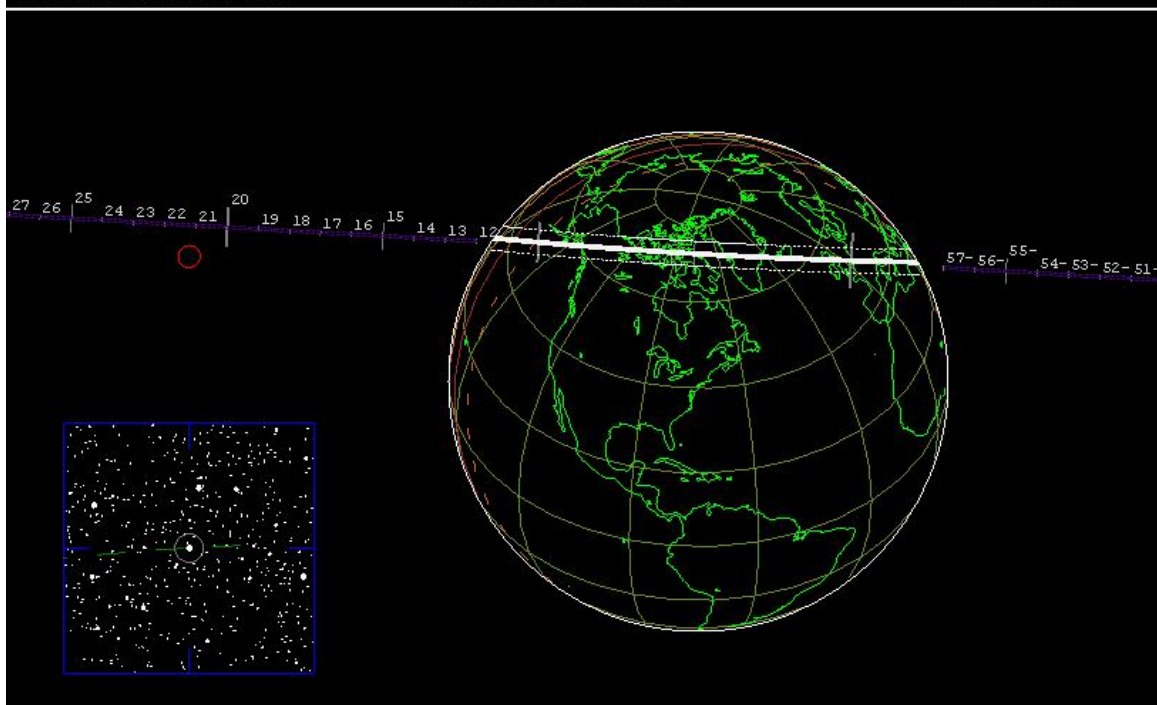
[Prediction of 2008 Apr 9.0] E 0.200"x 0.200" in PA 90



599 Luisa occults HIP 26592 on 2009 Dec 29 from 3h 58m to 4h 12m UT

Star (J2000):	Max Duration = 4.9 secs	Asteroid:
Mv = 6.4 Mp = 7.4	Mag Drop = 6.6	Mag = 13.0
RA = 5 39 8.669	Sun : Dist = 159 deg	Dia = 65km, 0.046"
Dec = 41 21 29.63	Moon: Dist = 28 deg	Parallax = 4.552"
	: illum = 90 %	Hourly dPA = -3.024s
		dDec = 1.92"

[Prediction of 2008 Apr 9.0] E 0.200"x 0.200" in PA 90



CONGIUNZIONI MULTIPLE LUNA-ASTEROIDI-STELLE

(eventi con la Luna, 1 asteroide di mag<9 ed 1 stella di mag<2 entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

CONGIUNZIONI MULTIPLE LUNA-ASTEROIDI-OGGETTI

(eventi con la Luna, 1 asteroide di mag<9 ed 1 oggetto di mag<2 entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi
Dmax = diametro del cerchio comprendente gli oggetti, in gradi
emin = elongazione minima, in gradi
m2d = magnitudine del penultimo corpo più debole
mmax = magnitudine del corpo più debole

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ASTEROIDI MOLTO VICINI $\Delta < 0.01$ U.A.

Oggetto	Data di avvicinamento (TDB)	Distanza Nominale	Distanza Minima	V relativa (km/s)	H (mag)
	AAAA-mm-DD HH:MM \pm D HH:MM	U.A.	U.A.		
2002 AO11	2009-Jan-15 10:04 \pm 05:25	0.0197	0.0034	7.84	22.8
2001 SG286	2009-Mag-17 10:29 \pm 22:12	0.0295	0.0059	10.56	20.9

Legenda :

Data di avvicinamento = data calcolata (anno-mese-giorno-ora-minuti \pm incertezza in giorni-ore-minuti) di avvicinamento alla Terra

Distanza = nominale è quella calcolata, minima è quella calcolata tenendo conto dell'incertezza $\pm 3\sigma$

V relativa = velocità relativa tra Terra ed asteroide

H = magnitudine assoluta dell'asteroide

AVVICINAMENTI ASTEROIDI-PIANETI $\Delta < 10^6$ KM

Data	TDT	Dm (Gm)	V(km/s)	Err(Gm)	r1 (AU)	r2
------	-----	---------	---------	---------	---------	----

Questo anno non si verificano avvicinamenti stretti tra asteroidi e pianeti

AVVICINAMENTI TRA ASTEROIDI

Data	TT	Dist	V(km/s)	Err	r1	r2		
2009/04/12 12:49:07		822	3.8801	276	2.8282	2.8282	2000GO80	2003RO5
2009/05/05 06:18:07		6969	5.5757	396	2.7559	2.7558	1995WP1	2003HC15
2009/05/23 14:02:54		7408	2.1970	417	2.7941	2.7941	2003UK234	2004VJ81
2009/06/10 23:52:41		8662	2.8328	268	2.9282	2.9283	2002TL195	2000OH44
2009/06/25 21:14:32		2250	5.7470	243	2.9915	2.9915	1999JB113	1999SH1
2009/07/16 03:58:34		9040	2.9864	322	2.9562	2.9562	1998SF42	2003SF163
2009/10/06 16:19:47		6042	6.8330	486	2.4600	2.4600	2000QP77	2001CW38
2009/10/26 19:10:09		4006	6.3284	514	2.4428	2.4427	2001BW72	1999XQ110
2009/11/09 12:09:51		8050	5.0636	360	2.6169	2.6169	2000WJ7	2005GY64
2009/11/23 17:28:33		8676	5.1411	202	2.2152	2.2152	1999FV51	1999CM99
2009/11/25 20:34:31		7056	1.2578	553	2.9605	2.9604	1998VZ16	2003UH217

Data nel formato anno/mese/giorno

Dist = distanza minima in km tra i centri dei corpi

V = velocità relativa tra i corpi

Err = incertezza del calcolo in km

R1 = distanza in U.A. del corpo 1 dalla Terra

R2 = distanza in U.A. del corpo 2 dalla Terra

Ultime 2 colonne : nomi dei corpi

TRANSITI DI ASTEROIDI SUI PIANETI

Data	TT	Dm(°)	r1	r2	p (°)	e	m1	m2	tm(s)
------	----	-------	----	----	-------	---	----	----	-------

Questo anno non si verificano transiti visibili di asteroidi sui pianeti

NB: SONO STATI PRESI IN CONSIDERAZIONE SOLO GLI ASTEROIDI CHE POTREBBERO SUPERARE 1" DI DIAMETRO ALL'OPPOSIZIONE (VEDI TABELLA SUCCESSIVA)

TRANSITI DI ASTEROIDI SUL SOLE

Data	TT	Dm(°)	r1	r2	p (°)	e	m1	m2	tm(s)
------	----	-------	----	----	-------	---	----	----	-------

Questo anno non si verificano transiti visibili di asteroidi sul Sole

NB: SONO STATI PRESI IN CONSIDERAZIONE SOLO GLI ASTEROIDI CHE POTREBBERO SUPERARE 1" DI DIAMETRO ALL'OPPOSIZIONE (VEDI TABELLA SUCCESSIVA)

OCCULTAZIONI TRA ASTEROIDI

Data	TT	Dm (°)	Dl	Err	r1	r2	p (°)	e	m1	m2	tm(s)		
2009/02/04 10:00:06		0.00031	0.00108	0.00001	3.528	1.380	182	60	14.3	16.1	1.0	Armor	Tezcatlip
2009/02/05 06:15:30		0.00027	0.00035	0.00003	3.920	2.518	161	-34	15.0	18.3	1.0	Kapteynia	1999XK142
2009/02/05 13:21:09		0.00249	0.00726	0.00003	2.111	0.290	169	-145	12.7	16.8	1.3	Ampella	1991DB
2009/03/08 22:43:50		0.00008	0.00012	0.00004	3.651	3.135	16	6	14.4	17.8	5.1	Melusina	Matsuura
2009/03/25 14:39:33		0.00015	0.00018	0.00004	3.222	2.607	169	-58	14.7	16.7	5.8	Maja	Schaumass
2009/04/30 10:13:04		0.00009	0.00028	0.00005	3.668	2.581	155	-22	14.8	18.3	2.3	Bathseba	2001QL59
2009/06/06 04:01:06		0.00112	0.00406	0.00007	2.599	0.489	337	-78	11.2	20.1	1.0	Massalia	2003EE16
2009/06/11 12:04:48		0.00039	0.00130	0.00003	1.802	0.924	166	-105	12.5	18.1	11.0	Freda	2001CV26
2009/06/25 17:27:20		0.00023	0.00028	0.00001	4.128	2.828	186	54	14.6	16.2	4.4	Marianna	Mora
2009/08/13 01:48:18		0.00011	0.00020	0.00002	3.682	2.862	235	25	13.7	17.9	6.8	Polyxo	Mueller
2009/11/03 15:00:59		0.00007	0.00023	0.00003	4.187	3.032	220	-49	14.7	17.7	4.4	Seppina	Jean-Loup
2009/11/07 16:19:13		0.00010	0.00041	0.00002	3.844	2.342	190	50	14.5	17.8	3.9	Carlova	Jewitt
2009/11/30 21:10:56		0.00050	0.00073	0.00002	3.096	1.616	192	-36	11.8	19.2	1.9	Harmonia	1993VA
2009/12/03 10:16:36		0.00005	0.00070	0.00003	2.386	1.424	324	-131	14.6	16.3	20.4	Erida	Crommelin
2009/12/31 09:41:37		0.00133	0.00284	0.00016	2.861	0.663	99	-144	14.6	15.1	1.7	Luscinia	2001YZ3

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

Err = incertezza del calcolo

R1 = distanza in U.A. del corpo 1 dalla Terra

R2 = distanza in U.A. del corpo 2 dalla Terra

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del primo corpo

m2 = magnitudine del secondo corpo

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

NB: SONO STATI PRESI IN CONSIDERAZIONE SOLO GLI EVENTI DI DURATA MAGGIORE DI 1 SECONDO ED IN CUI IL CORPO OCCULTATO HA MAG<15

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ELENCO ASTEROIDI CON m MIN. TEORICA <9

Asteroidi	mag. min.	H						
(1) Ceres	6.4	3.3	(39572) 1993 DQ1	8.8	16.5	1997 GL3	5.6	19.5
(2) Pallas	6.3	4.1	(52768) 1998 OR2	9.0	16.2	1997 US2	8.6	19.8
(3) Juno	7.0	5.3	(53319) 1999 JM8	8.9	15.3	1997 XR2	-5.3	20.8
(4) Vesta	5.1	3.2	(54509) YORP	5.6	22.7	1998 HH49	8.6	21.3
(5) Astraea	8.6	6.8	(66146) 1998 TU3	9.0	14.5	1998 KM3	7.2	19.7
(6) Hebe	7.1	5.7	(66391) 1999 KW4	7.2	16.5	1998 QA1	7.4	19.0
(7) Iris	6.5	5.5	(68216) 2001 CV26	8.4	16.4	1998 QK28	8.1	19.4
(8) Flora	7.6	6.5	(68372) 2001 PM9	6.8	18.9	1998 SC15	-0.7	19.4
(9) Metis	8.1	6.3	(68950) 2002 QF15	5.4	16.4	1999 RM45	6.2	19.4
(10) Hygiea	8.9	5.4	(69230) Hermes	5.4	17.5	1999 XS35	3.7	17.2
(11) Parthenope	8.6	6.6	(85182) 1991 AQ	8.4	17.1	1999 XL136	7.1	19.8
(12) Victoria	8.1	7.2	(85236) 1993 KH	4.3	18.9	1999 YR14	8.0	18.9
(14) Irene	8.3	6.3	(85640) 1998 OX4	6.6	21.2	2000 EJ26	8.5	19.3
(15) Eunomia	7.4	5.3	(85713) 1998 SS49	3.2	15.7	2000 EK26	2.8	18.0
(16) Psyche	8.8	5.9	(86039) 1999 NC43	8.0	16.0	2000 GV147	6.3	19.2
(18) Melpomene	7.3	6.5	(86819) 2000 GK137	8.5	17.4	2000 KA	7.0	21.6
(19) Fortuna	8.8	7.1	(88254) 2001 FM129	7.3	17.3	2000 QK130	3.1	20.9
(20) Massalia	8.3	6.5	(89830) 2002 CE	6.9	14.7	2000 RS11	8.7	19.1
(21) Lutetia	9.0	7.3	(89958) 2002 LY45	3.1	16.9	2000 TU28	6.2	21.0
(23) Thalia	8.6	6.9	(89959) 2002 NT7	1.2	16.5	2000 YG29	8.5	18.8
(27) Euterpe	8.4	7.0	(90075) 2002 VU94	8.0	15.7	2001 BF10	7.3	22.6
(29) Amphitrite	8.4	5.8	(90416) 2003 YK118	3.6	18.7	2001 EC	5.6	18.6
(39) Laetitia	8.9	6.1	(99942) Apophis	0.4	19.2	2001 FO32	6.4	17.7
(40) Harmonia	9.0	7.0	(100085) 1992 UY4	8.6	17.8	2001 HA4	8.7	17.6
(41) Daphne	8.8	7.1	(101869) 1999 MM	5.7	19.3	2001 TX44	8.9	19.2
(42) Isis	8.7	7.5	(101955) 1999 RQ36	8.3	20.9	2001 VK5	0.1	17.8
(43) Ariadne	8.8	7.9	(111253) 2001 XU10	7.7	15.3	2001 WS1	6.0	17.0
(44) Nysa	8.8	7.0	(136617) 1994 CC	8.9	17.8	2001 WV1	8.9	22.5
(80) Sappho	8.9	8.0	(136618) 1994 CN2	7.4	16.9	2001 XU	4.0	19.2
(89) Julia	8.4	6.6	(137108) 1999 AN10	1.4	17.9	2001 XP1	8.7	17.9
(115) Thyra	8.9	7.5	(137427) 1999 TF211	7.3	15.0	2001 YN2	8.8	25.4
(192) Nausikaa	8.0	7.1	(138127) 2000 EE14	9.0	17.1	2001 YB5	8.9	20.9
(324) Bamberga	7.6	6.8	(139622) 2001 QQ142	8.7	18.4	2002 AJ129	7.6	18.5
(344) Desiderata	9.0	8.1	(140288) 2001 SN289	7.5	16.4	2002 CY9	8.2	19.5
(433) Eros	7.3	11.2	(141495) 2002 EZ11	3.6	18.2	2002 EY2	3.0	19.0
(471) Papagena	9.0	6.7	(143404) 2003 BD44	8.0	16.7	2002 EM7	-0.9	24.4
(532) Herculina	8.3	5.8	(143487) 2003 CR20	2.6	18.8	2002 GM2	8.6	18.5
(887) Alinda	8.8	13.8	(143649) 2003 QQ47	4.5	17.4	2002 JZ8	7.4	21.1
(1036) Ganymed	7.8	9.4	(143651) 2003 QO104	4.1	16.0	2002 JB9	8.5	15.9
(1620) Geographos	8.1	15.6	(143992) 2004 AF	8.8	16.1	2002 LV	6.5	16.5
(1627) Ivar	8.7	13.2	(144332) 2004 DV24	5.6	16.6	2002 MN	7.9	23.6
(1685) Toro	7.9	14.2	(144898) 2004 VD17	4.9	18.9	2002 NY40	3.9	19.0
(1862) Apollo	8.4	16.3	(152664) 1998 FW4	8.9	19.6	2002 SZ	6.5	20.4
(1866) Sisypheus	8.3	13.0	(152680) 1998 KJ9	7.9	19.4	2002 SQ41	6.7	20.1
(1917) Cuyo	8.5	13.9	(153201) 2000 WO107	6.9	19.3	2002 TR190	7.5	19.0
(1981) Midas	3.2	15.5	(153220) 2000 YN29	8.4	17.5	2003 DZ15	4.2	22.2
(2135) Aristaeus	7.9	17.9	(153249) 2001 BW15	8.9	15.0	2003 EP4	8.6	23.9
(2201) Oljato	1.2	15.3	(153814) 2001 WN5	4.6	18.3	2003 HF2	7.2	19.6
(2340) Hathor	8.4	19.2	(154276) 2002 SY50	4.6	17.6	2003 KO2	6.0	20.2
(3122) Florence	7.5	14.2	(159857) 2004 LJ1	7.1	15.5	2003 LN6	8.6	24.7
(3200) Phaethon	6.2	14.6	(161989) Cacus	8.1	17.1	2003 MH4	6.9	20.0
(3362) Khufu	9.0	18.3	(162162) 1999 DB7	6.4	19.9	2003 MK4	7.1	20.9
(3671) Dionysus	7.8	16.3	(162173) 1999 JU3	3.0	19.2	2003 QC10	3.2	18.0
(4179) Toutatis	4.2	15.3	(162416) 2000 EH26	6.6	21.7	2003 RN10	5.8	15.9
(4183) Cuno	7.0	14.4	(162474) 2000 LB16	6.7	18.5	2003 UV11	8.5	19.3
(4581) Asclepius	8.0	20.4	(162825) 2001 BO61	8.5	17.9	2003 WP7	7.5	24.2
(4660) Nereus	5.8	18.2	(163132) 2002 CU11	2.9	18.3	2003 YG118	7.6	17.1
(4769) Castalia	8.5	16.9	(163243) 2002 FB3	4.2	16.3	2003 YH136	8.9	19.4
(4953) 1990 MU	6.4	14.1	(163373) 2002 PZ39	6.4	19.0	2004 BE68	8.6	18.5
(5143) Heracles	8.1	14.0	(163899) 2003 SD220	8.2	16.8	2004 BL86	8.5	18.9
(5693) 1993 EA	5.7	17.0	(164121) 2003 YT1	3.8	16.2	2004 DC	7.8	18.1
(7335) 1989 JA	8.7	17.0	(164207) 2004 GU9	6.4	21.2	2004 FH	1.9	25.7
(7482) 1994 PC1	0.3	16.8	(164216) 2004 OT11	8.0	17.3	2004 FU4	5.6	18.5
(7753) 1988 XB	7.8	18.6	(170086) 2002 XR14	8.3	18.1	2004 FU162	8.8	28.7
(8566) 1996 EN	8.3	16.5	(171576) 1999 VP11	5.0	18.7	2004 HE	1.3	26.8
(12538) 1998 OH	8.5	16.1	(172678) 2003 YM137	6.8	18.7	2004 HW	6.9	17.2
(12923) Zephyr	7.9	16.1	(177049) 2003 EE16	0.2	19.8	2004 HZ	5.6	22.6
(13651) 1997 BR	8.4	17.6	(177614) 2004 HK33	7.6	17.6	2004 HE12	7.2	17.5
(16960) 1998 QS52	4.8	14.2	(186844) 2004 GA1	8.4	17.5	2004 LV3	8.9	18.7
(20425) 1998 VD35	7.6	20.4	1990 HA	7.3	16.3	2004 MX2	6.5	19.3
(20826) 2000 UV13	7.6	13.5	1990 SM	8.3	16.1	2004 QY2	8.2	14.7
(23187) 2000 PN9	7.1	16.1	1994 AW1	9.0	17.5	2004 QT24	7.5	18.3
(27002) 1998 DV9	5.0	18.2	1994 WR12	8.2	22.0	2004 RQ252	4.6	22.5
(31669) 1999 JT6	3.9	16.0	1995 SA	9.0	17.4	2004 ST26	7.4	26.3
(33342) 1998 WT24	7.9	17.9	1996 AJ1	8.6	20.2	2004 TN1	7.3	21.8
(35107) 1991 VH	9.0	16.9	1996 JA1	8.6	21.0	2004 TL10	9.0	21.4
(35396) 1997 XF11	1.0	16.9	1996 RG3	5.8	18.5	2004 UE	5.5	21.2
(37638) 1993 VB	1.6	19.4	1996 SK	4.7	16.9	2004 VC17	5.7	18.4

2004 XN14	7.6	20.0	2006 DU62	5.8	18.0	2007 TB23	7.7	18.7
2004 XP14	5.7	19.4	2006 FX	6.3	20.0	2007 TU24	5.9	20.3
2004 XM29	8.3	22.9	2006 GY2	7.9	18.8	2007 TH72	3.7	24.2
2004 XL35	8.6	19.4	2006 JF42	6.3	19.0	2007 UW1	8.6	22.7
2004 XB45	8.0	26.2	2006 KV86	4.6	18.7	2007 UT3	7.9	25.9
2004 XN50	8.3	18.8	2006 QV89	1.9	25.3	2007 UO6	8.1	27.3
2005 AD13	8.8	17.9	2006 RJ1	8.0	22.2	2007 VD184	7.9	23.1
2005 BS1	7.1	27.5	2006 SC	5.8	25.2	2007 VK184	6.1	22.0
2005 CC37	8.7	22.7	2006 SU49	-1.2	19.6	2007 VE191	7.7	23.6
2005 EU2	7.5	23.1	2006 VV2	7.8	16.8	2007 VN243	8.7	22.4
2005 GY8	8.8	21.8	2006 WT1	7.5	20.1	2008 AF4	6.5	19.7
2005 GC120	8.7	19.7	2007 AG	8.0	20.1	2008 CF22	7.2	26.0
2005 LW3	6.2	21.7	2007 AB12	6.0	18.9	2008 CK70	7.6	25.4
2005 NZ6	7.2	17.6	2007 AE12	8.7	19.7	2008 CC71	8.9	24.9
2005 NB7	7.5	18.7	2007 CS5	8.8	24.6	2008 DE	8.3	19.6
2005 QK76	8.9	25.1	2007 CA19	2.0	17.6	2008 DJ	4.7	20.5
2005 QZ151	8.1	20.0	2007 CN26	7.8	21.1	2008 EX5	8.7	23.8
2005 SQ	8.8	20.3	2007 DX40	8.6	24.6	2008 ER7	5.7	20.0
2005 SE71	5.4	18.2	2007 EZ25	8.5	25.5	2008 EM68	8.1	27.5
2005 TS15	8.8	20.9	2007 FP3	8.8	28.4	2008 GD110	7.2	24.5
2005 VC	8.6	17.2	2007 GU1	7.0	25.0	2008 HB38	8.8	21.1
2005 VL1	1.1	27.0	2007 JD	7.7	23.1	2008 KO	2.5	24.4
2005 VN5	8.5	27.0	2007 JY2	4.3	21.7	2008 KZ5	7.2	20.0
2005 WK4	7.9	20.1	2007 LF	8.0	20.5	2008 KN11	8.2	23.2
2005 WY55	8.9	20.7	2007 LB15	8.5	19.4	2008 LA	8.7	23.1
2005 XJ8	8.1	17.0	2007 LQ19	0.5	17.3	2008 LV16	8.4	20.2
2005 YU55	7.0	21.9	2007 PA8	8.1	16.1	2008 MP1	8.0	21.9
2006 BC10	8.5	19.4	2007 PV27	0.8	20.2	2008 OB9	6.2	17.4
2006 BM55	8.2	23.0	2007 RU9	5.5	20.7	2008 PK3	4.9	22.0
2006 CT	8.3	22.3	2007 RY19	8.8	22.5	2008 QT3	8.3	18.4

La magnitudine minima teorica sarebbe quella che l'asteroide avrebbe se fosse al suo MOID (minimum orbital intersection distance).

Magnitudine assoluta (H)	Diametro
3	670 km - 1490 km
3.5	530 km - 1190 km
4	420 km - 940 km
4.5	330 km - 750 km
5	270 km - 590 km
5.5	210 km - 470 km
6	170 km - 380 km
6.5	130 km - 300 km
7	110 km - 240 km
7.5	85 km - 190 km
8	65 km - 150 km

8.5	50 km - 120 km
9	40 km - 90 km
9.5	35 km - 75 km
10	25 km - 60 km
11	15 km - 40 km
12	11 km - 24 km
13	7 km - 15 km
14	4 km - 9 km
15	3 km - 6 km
16	2 km - 4 km
17	1 km - 2 km
18	670 m - 1500 m
19	420 m - 940 m

20	270 m - 590 m
21	170 m - 380 m
22	110 m - 240 m
23	65 m - 150 m
24	40 m - 95 m
25	25 m - 60 m
26	17 m - 37 m
27	11 m - 24 m
28	7 m - 15 m
29	4 m - 9 m
30	3 m - 6 m

ELENCO ASTEROIDI CHE ALL'OPPOSIZIONE POTREBBERO SUPERARE 1" DI DIAMETRO

(1) Ceres		1.1	2007 CR13	5.2	11.6
(4) Vesta		1.6	2007 DS4	2.3	5.2
(1981) Midas		1.9	2007 EL38	3.4	7.5
(2201) Oljato	2.1	4.7	2007 EN53	3.4	7.6
(4179) Toutatis		1.2	2007 EO53	2	4.6
(7482) 1994 PC1	3.3	7.3	2007 EP56	2.9	6.5
(31669) 1999 JT6		1.4	2007 JG39	2	4.5
(35396) 1997 XF11	2.3	5.1	2007 JH39	2.6	5.9
(37638) 1993 VB	1.7	3.9	2007 JJ39	3.1	6.8
(85236) 1993 KH		1.1	2007 JK39	2.2	4.8
(85713) 1998 SS49		1.9	2007 JL39	4.1	9.1
(89958) 2002 LY45		1.9	2007 JG40	5.3	11.8
(89959) 2002 NT7	2.1	4.8	2007 KL	4.5	10
(90416) 2003 YK118		1.5	2007 KM	2.3	5.1
(99942) Apophis	3	6.7	2007 KG1	3.3	7.4
(137108) 1999 AN10	2	4.4	2007 KM1	2.8	6.2
(141495) 2002 EZ11		1.6	2007 XS23	3.4	7.6
(143487) 2003 CR20	1.1	2.5	2008 AS69	2.8	6.3
(143649) 2003 QQ47		1	2008 DN1	3.5	7.9
(143651) 2003 QO104		1.2	2008 EX80	2.7	6
(162173) 1999 JU3		2	2008 FR17	4.6	10.3
(163132) 2002 CU11		2.2	2008 FX24	2.1	4.8
(163243) 2002 FB3		1.2	2008 FY24	2.2	4.9
(164121) 2003 YT1		1.4	2008 FB25	3.4	7.7
(177049) 2003 EE16	3.4	7.6	2008 FH25	2.3	5.2
1997 XR2	41.5	92.9	2008 FR27	2.7	6
1998 SC15	5	11.3	2008 FS27	2.1	4.8
1999 XS35		1.5	2008 FH50	2.3	5.2
2000 EK26		2.2	2008 FL50	3.7	8.3
2000 QK130		2	2008 FM55	2.6	5.8
2001 VK5	3.6	7.9	2008 FA56	3.6	8.1
2001 XU		1.3	2008 FX58	1.8	3.9
2002 EY2		2	2008 FA59	4	8.9
2002 EM7	5.7	12.6	2008 GU2	3.4	7.6
2002 NY40		1.4	2008 GB13	3.3	7.3
2003 DZ15		1.2	2008 GG13	4.9	11
2003 QC10		1.9	2008 GC20	3	6.7
2004 FH	1.5	3.4	2008 JW30	2.4	5.5
2004 HE	2	4.6	2008 KQ5	3.9	8.7
2004 RQ252		1	2008 MH2	1.7	3.8
2005 VL1	2.2	4.9	2008 MN2	3.3	7.4
2006 QV89	1.6	3.5	2008 MR2	2	4.6
2006 SU49	6.5	14.4	2008 MS2	2.6	5.8
2007 CA19	1.5	3.3	2008 MA3	4.9	11
2007 JY2		1.2	2008 MK3	4.2	9.3
2007 LQ19	2.9	6.5	2008 QR5	4.2	9.3
2007 PV27	2.5	5.6	2008 RJ69	2.4	5.3
2007 TH72		1.5	2008 RD70	3.5	7.9
2008 KO	1.1	2.6	2008 RE70		2.2
2006 YO14	2.9	6.4	2008 RZ92	2	4.5

I due valori si riferiscono al massimo diametro in " che l'asteroide può raggiungere in base ad un albedo pari a 0.05 o 0.025

COMETE AL PERIELIO

Cometa	T	q	P	N	H ₁	K ₁	Peak mag
P/LINEAR (2002 CW ₁₃₄)	21/1	1.8	6.85	1	13	10	16
P/Christensen (2003 K2)	8.9/1	0.5	5.71	1	14	10	9
Lulin (2007 N3)	10.7/1	1.2			6.5	10	6
P/Hill (2006 W4)	20.2/1	4.4	16.5	0	8.5	10	18
68P/Klemola	21/1	1.8	10.8	4	6.8	15	13
P/LINEAR (2002 JN ₁₆)	25.1/1	1.8	6.49	1	15	10	19
144P/Kushida	26.9/1	1.4	7.6	2	10	15	11
P/LINEAR (2003 O3)	30/1	1.3	5.47	1	18	10	21
47P/Ashbrook-Jackson	1/2	2.8	8.34	8	5	15	14
P/Scotti (2001 X2)	7.1/2	2.5	7.34	1	14	10	19
14P/Wolf	1/2	2.7	8.74	15	10	15	19
67P/Churyumov-Gerasimenko	1/2	1.3	6.45	6	9.5	10	12
59P/Kearns-Kwee	1/3	2.4	9.51	5	7.5	15	15
P/Van Ness (2002 Q1)	28/2	1.6	6.71	1	13	10	17
145P/Shoemaker-Levy	1/3	1.9	8.39	2	13	10	18
P/Shoemaker (1994 J3)	1/4	2.9	14.6	1	10	10	16
P/LINEAR (2004 CB)	1/4	0.9	5.03	1	17	5	14
18D/Perrine-Mrkos	1/4	1.6	7.83	5	12	20	??
137P/Shoemaker-Levy	13.6/5	1.9	9.55	2	15	10	19
22P/Kopff	25.4/5	1.6	6.44	15	6.6	13	9
143P/Kowal-Mrkos	12.2/6	2.5	8.92	2	14	5	17
64P/Swift-Gehrels	14.3/6	1.4	9.34	5	9	20	13
P/LINEAR (2003 A1)	16/6	1.9	7.5	2?	6	15	12
P/LINEAR (2003 H4)	22.4/6	1.7	6.1	1	16	10	18
Christensen (2006 W3)	6.5/7	3.1			5	10	12
77P/Longmore	7.8/7	2.3	6.83	5	7	20	15
116P/Wild	19/7	2.2	6.49	3	1.2	25	11
P/LINEAR (1999 XB ₆₉)	25.9/7	1.7	9.47	1	18	5	21
74P/Smirnova-Chernykh	30.3/7	3.6	8.53	5	5	15	15
24P/Schaumasse	9.6/8	1.2	8.29	10	7.6	24	11
89P/Russell	17.2/8	2.3	7.4	4	10	15	16
P/LINEAR (2002 T1)	25.5/8	1.3	6.96	1	18	10	19
P/LINEAR (2004 X1)	3.3/9	0.8	4.84	1	18	10	13
P/LINEAR (2001 MD ₇)	9/9	1.2	7.83	1	12	10	12
88P/Howell	12.5/10	1.4	5.49	6	4.7	25	9
Siding Spring (2007 Q3)	19.2/10	2.3			4.5	10	10
127P/Holt-Olmstead	21.4/10	2.2	6.39	3	14	10	18
54P/de Vico-Swift-NEAT	1/11	2.2	7.37	4	10	15	16
169P/NEAT	1/11	0.6	4.21	4	16	5	12
100P/Hartley	6.1/12	2	6.3	4	8.9	15	16
P/McNaught (2004 K2)	15.5/12	1.6	5.5	1	15	10	19
P/Catalina (2005 JQ ₅)	28.8/12	0.8	4.42	1	18	10	18

T = epoca del perielio

q = perielio

P = periodo

N = numero di passaggi dall'anno della scoperta

H,K = parametri per il calcolo della luminosità

Peak = massima magnitudine prevista

COMETE CON m<9

85P/Boethin

Epoch 2008 Nov. 30.0 TT = JDT 2454800.5

T 2008 Dec. 16.3648 TT

q	1.147474	(2000.0)	P	Q	
n	0.0854166	Peri.	53.5814	+0.7976724	-0.6027272
a	5.106319	Node	343.4512	+0.5271172	+0.7136402
e	0.775283	Incl.	4.2171	+0.2930295	+0.3569840
P	11.5				

MPC

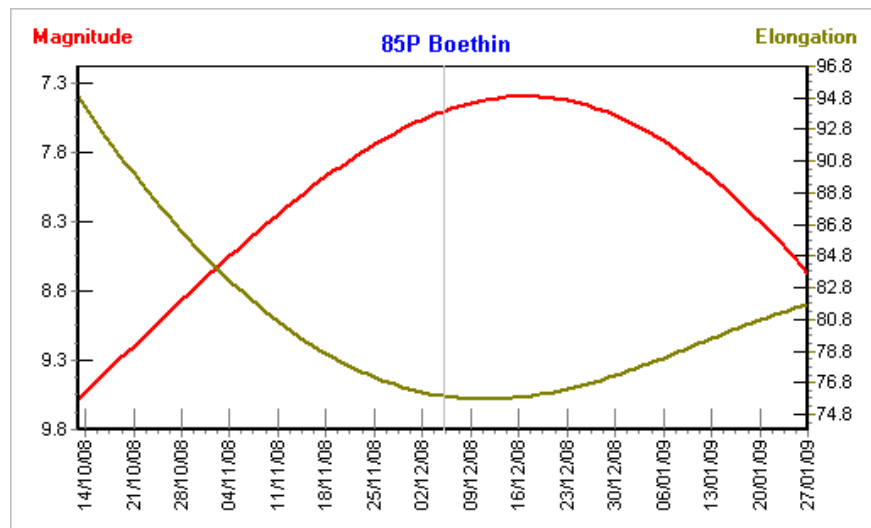
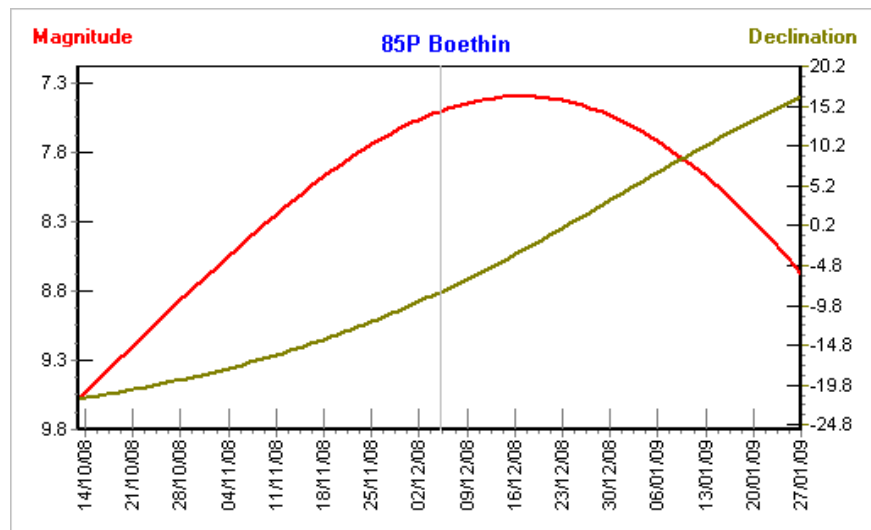
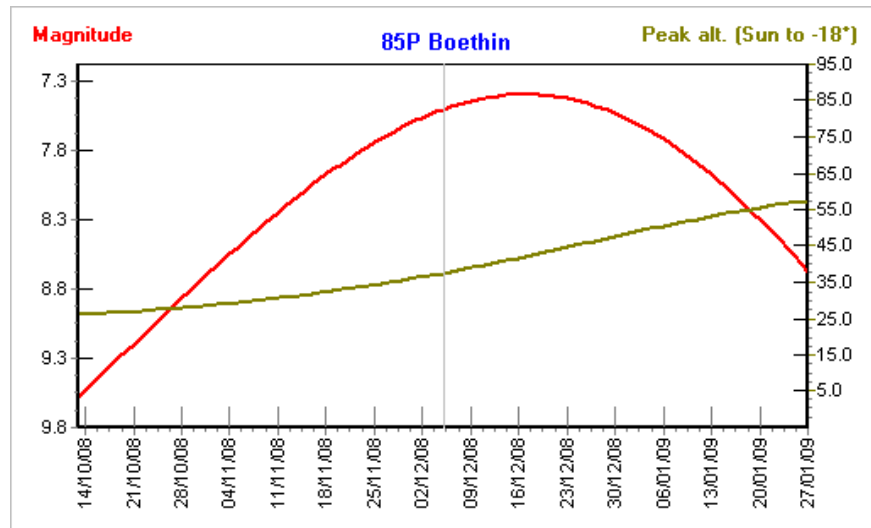
Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2008 10 26		20 10.93	-19 33.1	0.953	1.351	87.8	47.3	9.0	19.8
2008 10 27		20 12.88	-19 22.2	0.952	1.344	87.3	47.6	9.0	19.8
2008 10 28		20 14.87	-19 11.1	0.951	1.337	86.8	47.9	8.9	19.8
2008 10 29		20 16.90	-18 59.7	0.950	1.330	86.3	48.2	8.9	19.8
2008 10 30		20 18.98	-18 48.0	0.949	1.323	85.8	48.5	8.8	19.8
2008 10 31		20 21.10	-18 36.1	0.948	1.316	85.4	48.7	8.8	19.8
2008 11 01		20 23.27	-18 23.9	0.947	1.310	84.9	49.0	8.7	19.8
2008 11 02		20 25.48	-18 11.5	0.946	1.303	84.5	49.3	8.7	19.8
2008 11 03		20 27.72	-17 58.8	0.945	1.297	84.0	49.5	8.6	19.8
2008 11 04		20 30.01	-17 45.8	0.944	1.291	83.6	49.8	8.6	19.8
2008 11 05		20 32.35	-17 32.5	0.942	1.285	83.2	50.0	8.5	19.8
2008 11 06		20 34.72	-17 18.9	0.941	1.278	82.8	50.3	8.5	19.8
2008 11 07		20 37.13	-17 05.1	0.939	1.273	82.4	50.5	8.5	19.8
2008 11 08		20 39.58	-16 50.9	0.938	1.267	82.1	50.8	8.4	19.8
2008 11 09		20 42.07	-16 36.5	0.937	1.261	81.7	51.0	8.4	19.8
2008 11 10		20 44.61	-16 21.7	0.935	1.255	81.3	51.2	8.3	19.7
2008 11 11		20 47.18	-16 06.6	0.933	1.250	81.0	51.5	8.3	19.7
2008 11 12		20 49.79	-15 51.2	0.932	1.244	80.7	51.7	8.2	19.7
2008 11 13		20 52.43	-15 35.5	0.930	1.239	80.3	51.9	8.2	19.7
2008 11 14		20 55.12	-15 19.5	0.928	1.234	80.0	52.1	8.2	19.7
2008 11 15		20 57.84	-15 03.1	0.927	1.229	79.7	52.4	8.1	19.7
2008 11 16		21 00.61	-14 46.4	0.925	1.224	79.4	52.6	8.1	19.7
2008 11 17		21 03.40	-14 29.4	0.923	1.219	79.2	52.8	8.0	19.7
2008 11 18		21 06.24	-14 12.0	0.921	1.215	78.9	53.0	8.0	19.7
2008 11 19		21 09.11	-13 54.3	0.920	1.210	78.6	53.2	8.0	19.7
2008 11 20		21 12.03	-13 36.2	0.918	1.206	78.4	53.4	7.9	19.7
2008 11 21		21 14.97	-13 17.8	0.916	1.202	78.2	53.6	7.9	19.7
2008 11 22		21 17.96	-12 59.0	0.914	1.198	78.0	53.8	7.9	19.7
2008 11 23		21 20.98	-12 39.8	0.912	1.194	77.7	53.9	7.8	19.7
2008 11 24		21 24.04	-12 20.3	0.911	1.190	77.5	54.1	7.8	19.7
2008 11 25		21 27.13	-12 00.5	0.909	1.186	77.4	54.3	7.8	19.6
2008 11 26		21 30.26	-11 40.2	0.907	1.183	77.2	54.4	7.7	19.6
2008 11 27		21 33.42	-11 19.6	0.905	1.180	77.0	54.6	7.7	19.6
2008 11 28		21 36.62	-10 58.6	0.903	1.176	76.9	54.8	7.7	19.6
2008 11 29		21 39.86	-10 37.3	0.901	1.173	76.7	54.9	7.7	19.6
2008 11 30		21 43.13	-10 15.6	0.900	1.170	76.6	55.0	7.6	19.6
2008 12 01		21 46.44	-09 53.5	0.898	1.168	76.5	55.2	7.6	19.6
2008 12 02		21 49.78	-09 31.0	0.896	1.165	76.3	55.3	7.6	19.6
2008 12 03		21 53.15	-09 08.2	0.894	1.163	76.3	55.4	7.6	19.6
2008 12 04		21 56.56	-08 45.0	0.893	1.161	76.2	55.5	7.5	19.6
2008 12 05		22 00.00	-08 21.5	0.891	1.159	76.1	55.6	7.5	19.6
2008 12 06		22 03.47	-07 57.6	0.889	1.157	76.0	55.7	7.5	19.6
2008 12 07		22 06.98	-07 33.3	0.888	1.155	76.0	55.8	7.5	19.6
2008 12 08		22 10.52	-07 08.7	0.886	1.154	75.9	55.9	7.5	19.6
2008 12 09		22 14.10	-06 43.8	0.885	1.152	75.9	56.0	7.5	19.6
2008 12 10		22 17.70	-06 18.5	0.883	1.151	75.9	56.1	7.5	19.6
2008 12 11		22 21.34	-05 52.9	0.882	1.150	75.8	56.1	7.4	19.6
2008 12 12		22 25.01	-05 26.9	0.881	1.149	75.8	56.2	7.4	19.6
2008 12 13		22 28.71	-05 00.7	0.880	1.148	75.8	56.2	7.4	19.6
2008 12 14		22 32.43	-04 34.1	0.878	1.148	75.9	56.2	7.4	19.6
2008 12 15		22 36.20	-04 07.2	0.877	1.148	75.9	56.3	7.4	19.6
2008 12 16		22 39.99	-03 40.1	0.876	1.147	75.9	56.3	7.4	19.6
2008 12 17		22 43.81	-03 12.6	0.876	1.148	76.0	56.3	7.4	19.6
2008 12 18		22 47.66	-02 44.9	0.875	1.148	76.0	56.3	7.4	19.5
2008 12 19		22 51.53	-02 16.9	0.874	1.148	76.1	56.3	7.4	19.5
2008 12 20		22 55.44	-01 48.7	0.874	1.149	76.1	56.3	7.4	19.5
2008 12 21		22 59.38	-01 20.3	0.873	1.149	76.2	56.2	7.4	19.5
2008 12 22		23 03.34	-00 51.6	0.873	1.150	76.3	56.2	7.4	19.5
2008 12 23		23 07.34	-00 22.7	0.873	1.151	76.4	56.1	7.4	19.5
2008 12 24		23 11.36	+00 06.4	0.873	1.153	76.5	56.1	7.4	19.5
2008 12 25		23 15.40	+00 35.7	0.873	1.154	76.6	56.0	7.4	19.5
2008 12 26		23 19.48	+01 05.1	0.873	1.156	76.7	55.9	7.5	19.5
2008 12 27		23 23.58	+01 34.6	0.874	1.157	76.8	55.8	7.5	19.6
2008 12 28		23 27.70	+02 04.3	0.874	1.159	77.0	55.7	7.5	19.6
2008 12 29		23 31.85	+02 34.1	0.875	1.161	77.1	55.6	7.5	19.6
2008 12 30		23 36.02	+03 04.0	0.876	1.163	77.2	55.5	7.5	19.6
2008 12 31		23 40.21	+03 34.0	0.877	1.166	77.4	55.4	7.5	19.6
2009 01 01		23 44.43	+04 03.9	0.878	1.168	77.5	55.3	7.6	19.6
2009 01 02		23 48.67	+04 34.0	0.880	1.171	77.7	55.1	7.6	19.6

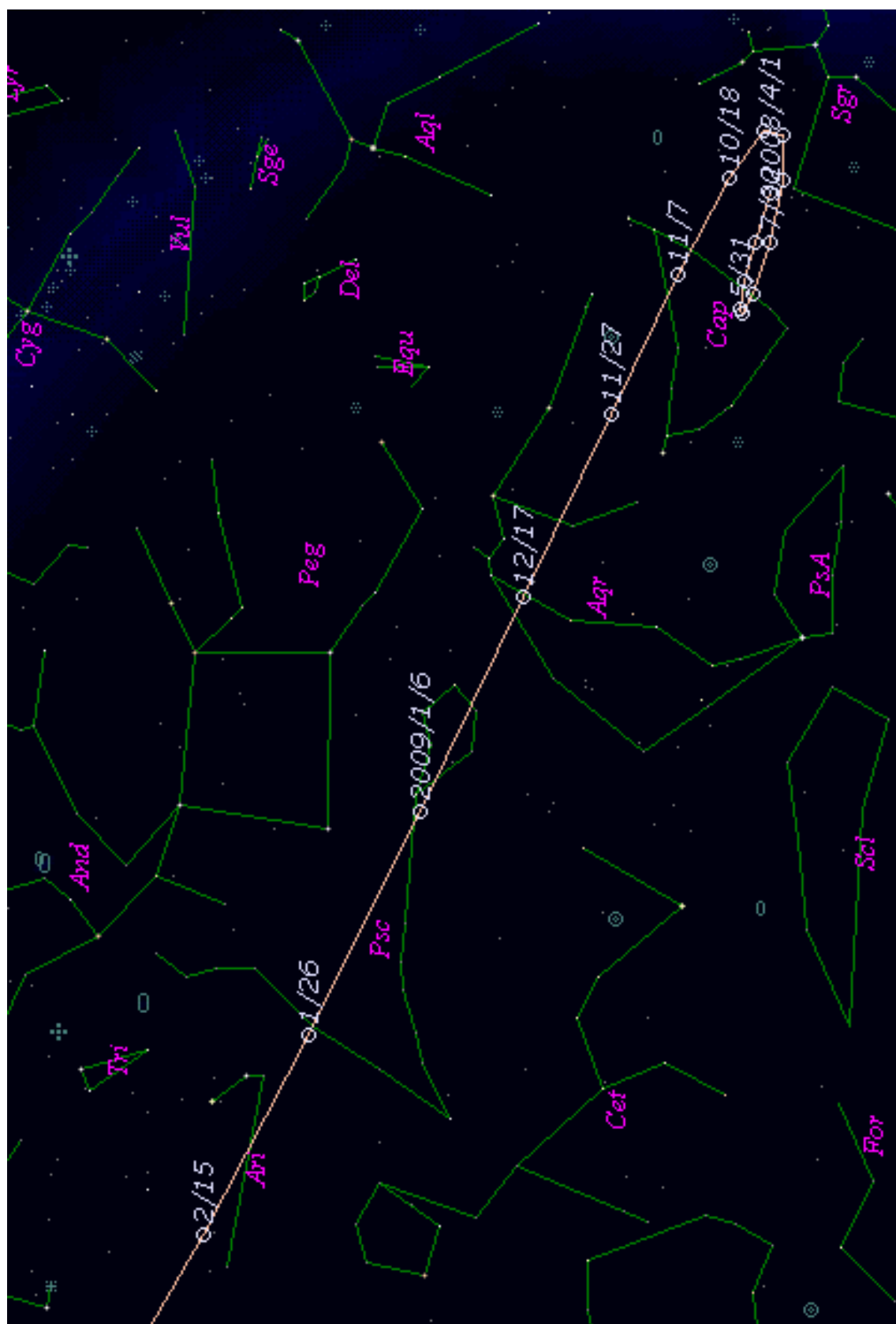
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2009 01 03		23 52.93	+05 04.0	0.881	1.174	77.8	55.0	7.6	19.6
2009 01 04		23 57.20	+05 34.0	0.883	1.177	78.0	54.8	7.6	19.6
2009 01 05		00 01.50	+06 04.0	0.885	1.180	78.2	54.6	7.7	19.6
2009 01 06		00 05.82	+06 33.9	0.887	1.184	78.3	54.4	7.7	19.6
2009 01 07		00 10.15	+07 03.7	0.890	1.187	78.5	54.3	7.7	19.6
2009 01 08		00 14.50	+07 33.4	0.892	1.191	78.7	54.1	7.8	19.6
2009 01 09		00 18.86	+08 03.0	0.895	1.195	78.8	53.9	7.8	19.6
2009 01 10		00 23.23	+08 32.4	0.898	1.199	79.0	53.6	7.8	19.6
2009 01 11		00 27.62	+09 01.7	0.901	1.203	79.2	53.4	7.9	19.6
2009 01 12		00 32.03	+09 30.8	0.904	1.207	79.4	53.2	7.9	19.6
2009 01 13		00 36.44	+09 59.6	0.908	1.211	79.6	53.0	8.0	19.7
2009 01 14		00 40.86	+10 28.2	0.912	1.216	79.7	52.7	8.0	19.7
2009 01 15		00 45.29	+10 56.6	0.916	1.221	79.9	52.5	8.0	19.7
2009 01 16		00 49.73	+11 24.7	0.920	1.225	80.1	52.3	8.1	19.7
2009 01 17		00 54.17	+11 52.5	0.924	1.230	80.2	52.0	8.1	19.7
2009 01 18		00 58.62	+12 20.0	0.929	1.235	80.4	51.7	8.2	19.7
2009 01 19		01 03.07	+12 47.1	0.934	1.241	80.6	51.5	8.2	19.7
2009 01 20		01 07.53	+13 13.9	0.939	1.246	80.7	51.2	8.3	19.7
2009 01 21		01 11.99	+13 40.4	0.944	1.251	80.9	50.9	8.3	19.7
2009 01 22		01 16.45	+14 06.5	0.950	1.257	81.0	50.7	8.4	19.8
2009 01 23		01 20.91	+14 32.1	0.955	1.262	81.2	50.4	8.4	19.8
2009 01 24		01 25.37	+14 57.4	0.962	1.268	81.3	50.1	8.5	19.8
2009 01 25		01 29.83	+15 22.3	0.968	1.274	81.5	49.8	8.5	19.8
2009 01 26		01 34.28	+15 46.7	0.974	1.280	81.6	49.5	8.6	19.8
2009 01 27		01 38.73	+16 10.7	0.981	1.286	81.7	49.3	8.6	19.8
2009 01 28		01 43.17	+16 34.2	0.988	1.292	81.9	49.0	8.7	19.9
2009 01 29		01 47.60	+16 57.3	0.995	1.299	82.0	48.7	8.8	19.9
2009 01 30		01 52.03	+17 19.9	1.002	1.305	82.1	48.4	8.8	19.9
2009 01 31		01 56.45	+17 42.0	1.010	1.312	82.2	48.1	8.9	19.9
2009 02 01		02 00.85	+18 03.6	1.018	1.318	82.3	47.8	8.9	19.9
2009 02 02		02 05.25	+18 24.7	1.026	1.325	82.4	47.5	9.0	20.0

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt Azi	FC ->	Alt Azi	LuSo	LuTr	F.L.
2008 10 26	14	1	18:36	23:12	5: 2			18:49	+23.7 183	4: 4	15:42	0.09
2008 10 27	13:57	18:34	23:11	5: 3				18:47	+24.0 183	5:13	16: 1	0.04
2008 10 28	13:54	18:32	23:11	5: 4				18:46	+24.2 183	6:21	16:22	0.01
2008 10 29	13:51	18:31	23:11	5: 5				18:44	+24.5 184	7:29	16:46	0.00
2008 10 30	13:48	18:29	23:10	5: 7				18:43	+24.8 184	8:36	17:16	0.01
2008 10 31	13:45	18:27	23:10	5: 8				18:42	+25.1 184	9:39	17:53	0.04
2008 11 1	13:42	18:25	23:10	5: 9				18:40	+25.4 184	10:37	18:37	0.09
2008 11 2	13:39	18:24	23:10	5:10				18:39	+25.7 184	11:27	19:31	0.15
2008 11 3	13:36	18:22	23:10	5:12				18:38	+26.0 184	12: 9	20:31	0.22
2008 11 4	13:33	18:21	23:10	5:13				18:37	+26.3 184	12:43	21:35	0.30
2008 11 5	13:30	18:19	23:10	5:14				18:35	+26.7 184	13:10	22:42	0.39
2008 11 6	13:27	18:18	23:10	5:15				18:34	+27.0 184	13:33	23:50	0.48
2008 11 7	13:24	18:17	23:10	5:17				18:33	+27.3 184	13:53s	1: 0	0.58
2008 11 8	13:21	18:15	23:11	5:18				18:32	+27.7 185	14:12		0.68
2008 11 9	13:18	18:14	23:11	5:19				18:31	+28.0 185	14:31	2:11	0.77
2008 11 10	13:15	18:13	23:12	5:20				18:30	+28.4 185	14:52	3:25	0.86
2008 11 11	13:12	18:12	23:12	5:22				18:29	+28.8 185	15:15	4:44	0.93
2008 11 12	13: 9	18:11	23:13	5:23				18:28	+29.1 185	15:44	6: 7	0.98
2008 11 13	13: 6	18:10	23:14	5:24				18:27	+29.5 185	16:23	7:32	1.00
2008 11 14	13: 4	18: 9	23:14	5:25				18:26	+29.9 185	17:13	8:56	0.99
2008 11 15	13: 1	18: 8	23:15	5:26				18:25	+30.3 185	18:19	10:10	0.95
2008 11 16	12:58	18: 7	23:16	5:28				18:25	+30.7 185	19:36	11: 9	0.89
2008 11 17	12:55	18: 6	23:17	5:29				18:24	+31.1 185	20:58	11:53	0.81
2008 11 18	12:53	18: 5	23:18	5:30				18:23	+31.5 185	22:18	12:26	0.71
2008 11 19	12:50	18: 4	23:19	5:31				18:22	+32.0 185	23:35	12:51	0.60
2008 11 20	12:47	18: 3	23:20	5:32				18:22	+32.4 185s	0:47	13:12	0.49
2008 11 21	12:45	18: 3	23:22	5:33				18:21	+32.8 185s	1:57	13:31	0.38
2008 11 22	12:42	18: 2	23:23	5:34				18:21	+33.3 185		13:49	0.29
2008 11 23	12:39	18: 1	23:24	5:36				18:20	+33.8 186	3: 5	14: 7	0.20
2008 11 24	12:37	18: 1	23:26	5:37				18:20	+34.2 186	4:13	14:27	0.13
2008 11 25	12:34	18: 0	23:27	5:38				18:19	+34.7 186	5:20	14:51	0.07
2008 11 26	12:32	18: 0	23:29	5:39				18:19	+35.2 186	6:27	15:19	0.03
2008 11 27	12:29	17:59	23:31	5:40				18:18	+35.7 186	7:31	15:53	0.01
2008 11 28	12:26	17:59	23:32	5:41				18:18	+36.1 186	8:31	16:35	0.00
2008 11 29	12:24	17:58	23:34	5:42				18:18	+36.6 186	9:23	17:26	0.02
2008 11 30	12:21	17:58	23:36	5:43				18:17	+37.2 186	10: 7	18:24	0.05
2008 12 1	12:19	17:58	23:38	5:44				18:17	+37.7 186	10:43	19:27	0.09
2008 12 2	12:17	17:58	23:40	5:45				18:17	+38.2 186	11:12	20:32	0.16
2008 12 3	12:14	17:57	23:42	5:46				18:17	+38.7 186	11:36	21:39	0.23
2008 12 4	12:12	17:57	23:44	5:47				18:17	+39.3 186	11:57	22:46	0.32
2008 12 5	12: 9	17:57	23:46	5:48				18:16	+39.8 186	12:15	23:53	0.41
2008 12 6	12: 7	17:57	23:48	5:49				18:16	+40.3 186	12:33s	1: 3	0.51
2008 12 7	12: 4	17:57	23:50	5:50				18:16	+40.9 186	12:52		0.62
2008 12 8	12: 2	17:57	23:52	5:51				18:16	+41.4 187	13:13	2:16	0.72
2008 12 9	12: 0	17:57	23:55	5:51				18:16	+42.0 187	13:38	3:34	0.81

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt Azi	FC ->	Alt Azi	LuSo	LuTr	F.L.	
2008	12	10	11:57	17:57	23:57	5:52		18:17	+42.6	187	14:11	4:57 0.89	
2008	12	11	11:55	17:57s	0: 0	5:53		18:17	+43.1	187	14:54	6:21 0.96	
2008	12	12	11:53	17:57s	0: 2	5:54		18:17	+43.7	187	15:52	7:41 0.99	
2008	12	13	11:51	17:57s	0: 5	5:54		18:17	+44.3	187	17: 6	8:50 1.00	
2008	12	14	11:48	17:57s	0: 7	5:55		18:17	+44.8	187	18:29	9:43 0.97	
2008	12	15	11:46	17:57s	0:10	5:56		18:18	+45.4	187	19:55	10:22 0.92	
2008	12	16	11:44	17:58s	0:12	5:57		18:18	+46.0	187	21:17	10:52 0.85	
2008	12	17	11:42	17:58s	0:15	5:57		18:18	+46.6	187	22:34	11:16 0.75	
2008	12	18	11:39	17:58s	0:18	5:58		18:19	+47.2	188	23:47	11:36 0.65	
2008	12	19	11:37	17:58s	0:21	5:58		18:19	+47.7	188s	0:57	11:54 0.55	
2008	12	20	11:35	17:59s	0:23	5:59		18:20	+48.3	188s	2: 5	12:13 0.44	
2008	12	21	11:33	17:59s	0:26	5:59		18:20	+48.9	188		12:33 0.34	
2008	12	22	11:31	17:59s	0:29	6: 0		18:21	+49.5	188	3:13	12:55 0.25	
2008	12	23	11:29	18: 0s	0:32	6: 0		18:21	+50.1	188	4:20	13:21 0.17	
2008	12	24	11:27	18: 0s	0:35	6: 1		18:22	+50.6	188	5:25	13:54 0.11	
2008	12	25	11:25	18: 0s	0:38	6: 1		18:22	+51.2	189	6:26	14:34 0.06	
2008	12	26	11:23	18: 1s	0:41	6: 2		18:23	+51.8	189	7:21	15:22 0.02	
2008	12	27	11:21	18: 1s	0:44	6: 2		18:24	+52.3	189	8: 8	16:19 0.00	
2008	12	28	11:19	18: 2s	0:46	6: 2		18:24	+52.9	189	8:46	17:20 0.00	
2008	12	29	11:17	18: 2s	0:49	6: 3		18:25	+53.4	189	9:16	18:25 0.02	
2008	12	30	11:15	18: 3s	0:52	6: 3		18:26	+54.0	190	9:41	19:32 0.05	
2008	12	31	11:13	18: 3s	0:55	6: 3		18:27	+54.5	190	10: 3	20:38 0.11	
2009	1	1	11:11	18: 4s	0:58	6: 3		18:27	+55.1	190	10:21	21:44 0.17	
2009	1	2	11: 9	18: 4s	1: 1	6: 3		18:28	+55.6	190	10:39	22:51 0.25	
2009	1	3	11: 7	18: 5	1: 1	6: 3		18:29	+56.1	191	10:57s	0: 1 0.35	
2009	1	4	11: 5	18: 6	1: 4	6: 3		18:30	+56.7	191	11:16s	1:13 0.45	
2009	1	5	11: 3	18: 6	1: 7	6: 3		18:31	+57.2	191	11:38		0.56
2009	1	6	11: 1	18: 7	1:10	6: 3		18:32	+57.7	191	12: 5	2:30	0.66
2009	1	7	11: 0	18: 7	1:13	6: 3		18:33	+58.1	192	12:41	3:50	0.77
2009	1	8	10:58	18: 8	1:16	6: 3		18:34	+58.6	192	13:30	5:10	0.86
2009	1	9	10:56	18: 8	1:19	6: 3		18:35	+59.1	192	14:34	6:24	0.93
2009	1	10	10:54	18: 9	1:22	6: 3		18:36	+59.5	193	15:52	7:25	0.98
2009	1	11	10:53	18: 9	1:25	6: 3		18:37	+60.0	193	17:19	8:12	1.00
2009	1	12	10:51	18:10	1:27	6: 2		18:38	+60.4	194	18:45	8:47	0.99
2009	1	13	10:49	18:10	1:30	6: 2		18:39	+60.9	194	20: 8	9:14	0.95
2009	1	14	10:48	18:11	1:33	6: 2		18:40	+61.3	194	21:26	9:37	0.89
2009	1	15	10:46	18:11	1:36	6: 1		18:41	+61.7	195	22:40	9:57	0.81
2009	1	16	10:44	18:12	1:38	6: 1		18:42	+62.1	195	23:52	10:16	0.71
2009	1	17	10:43	18:12	1:41	6: 0		18:43	+62.4	196s	1: 2	10:36	0.61
2009	1	18	10:41	18:13	1:43	6: 0		18:44	+62.8	196		10:58	0.51
2009	1	19	10:40	18:13	1:46	5:59		18:46	+63.1	197	2:11	11:23	0.41
2009	1	20	10:38	18:14	1:48	5:59		18:47	+63.5	198	3:18	11:54	0.32
2009	1	21	10:37	18:14	1:51	5:58		18:48	+63.8	198	4:21	12:32	0.24
2009	1	22	10:35	18:15	1:53	5:58		18:49	+64.1	199	5:18	13:18	0.16
2009	1	23	10:34	18:15	1:56	5:57		18:50	+64.4	199	6: 7	14:12	0.10
2009	1	24	10:32	18:15	1:58	5:56		18:52	+64.7	200	6:48	15:12	0.05
2009	1	25	10:31	18:16	2: 0	5:56		18:53	+65.0	201	7:21	16:17	0.02
2009	1	26	10:29	18:16	2: 2	5:55		18:54	+65.2	201	7:47	17:24	0.00
2009	1	27	10:28	18:16	2: 4	5:54		18:55	+65.5	202	8:10	18:31	0.00
2009	1	28	10:26	18:17	2: 6	5:53		18:57	+65.7	203	8:29	19:37	0.03
2009	1	29	10:25	18:17	2: 8	5:52		18:58	+65.9	203	8:47	20:44	0.07
2009	1	30	10:24	18:17	2:10	5:51		18:59	+66.1	204	9: 4	21:52	0.13
2009	1	31	10:22	18:17	2:12	5:50		19: 0	+66.3	205	9:23	23: 3	0.20
2009	2	1	10:21	18:18	2:14	5:49		19: 2	+66.4	206	9:43s	0:16	0.29
2009	2	2	10:20	18:18	2:15	5:48		19: 3	+66.6	207	10: 7s	1:32	0.40

IC = Ora di inizio del crepuscolo astronomico, in T.U.+1
 Alz = altezza della cometa all'IC o a FC
 Azi = azimut della cometa all'IC o a FC
 FC = Ora di fine del crepuscolo astronomico, in T.U.+1
 LuSo = Ora di levata della Luna
 LuTr = Ora di tramonto della Luna
 F.L. = Frazione di luna illuminata, 0 luna nuova, 1 luna piena





C/2007 N3 (Lulin)
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 10.6529 TT
q 1.210723 (2000.0) P Q
z +0.000332 Peri. 136.9139 -0.9295624 -0.3685183
+/-0.000141 Node 338.5315 -0.3454920 +0.8609487
e 0.999598 Incl. 178.3725 -0.1286431 +0.3506588

Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2008 12 22		16 04.56	-19 53.0	2.039	1.251	27.4	21.2	9.0	
2008 12 23		16 04.19	-19 52.1	2.020	1.247	28.5	22.1	9.0	
2008 12 24		16 03.80	-19 51.1	2.000	1.243	29.6	23.0	9.0	
2008 12 25		16 03.39	-19 50.1	1.979	1.240	30.7	23.9	8.9	
2008 12 26		16 02.97	-19 49.1	1.958	1.237	31.8	24.8	8.9	
2008 12 27		16 02.53	-19 47.9	1.937	1.234	33.0	25.7	8.8	
2008 12 28		16 02.07	-19 46.7	1.915	1.231	34.1	26.6	8.8	
2008 12 29		16 01.58	-19 45.5	1.893	1.229	35.2	27.5	8.8	
2008 12 30		16 01.08	-19 44.2	1.870	1.226	36.4	28.4	8.7	
2008 12 31		16 00.55	-19 42.8	1.847	1.224	37.5	29.3	8.7	
2009 01 01		15 59.99	-19 41.3	1.824	1.222	38.7	30.2	8.7	
2009 01 02		15 59.41	-19 39.7	1.800	1.220	39.8	31.1	8.6	
2009 01 03		15 58.80	-19 38.1	1.776	1.218	41.0	32.0	8.6	
2009 01 04		15 58.16	-19 36.3	1.751	1.217	42.2	32.8	8.6	
2009 01 05		15 57.49	-19 34.5	1.726	1.216	43.4	33.7	8.5	
2009 01 06		15 56.78	-19 32.5	1.701	1.215	44.5	34.6	8.5	
2009 01 07		15 56.04	-19 30.4	1.675	1.214	45.7	35.5	8.5	
2009 01 08		15 55.26	-19 28.2	1.649	1.213	46.9	36.3	8.4	
2009 01 09		15 54.44	-19 25.9	1.623	1.213	48.2	37.2	8.4	
2009 01 10		15 53.58	-19 23.4	1.596	1.213	49.4	38.0	8.4	
2009 01 11		15 52.68	-19 20.8	1.569	1.213	50.6	38.8	8.3	
2009 01 12		15 51.72	-19 18.0	1.541	1.213	51.9	39.6	8.3	
2009 01 13		15 50.71	-19 15.0	1.513	1.213	53.1	40.4	8.2	
2009 01 14		15 49.65	-19 11.9	1.485	1.214	54.4	41.2	8.2	
2009 01 15		15 48.53	-19 08.5	1.457	1.214	55.7	42.0	8.2	
2009 01 16		15 47.35	-19 04.9	1.428	1.215	57.0	42.7	8.1	
2009 01 17		15 46.10	-19 01.1	1.399	1.217	58.3	43.5	8.1	
2009 01 18		15 44.77	-18 57.0	1.370	1.218	59.7	44.2	8.0	
2009 01 19		15 43.37	-18 52.6	1.341	1.220	61.0	44.9	8.0	
2009 01 20		15 41.88	-18 47.8	1.311	1.221	62.4	45.6	8.0	
2009 01 21		15 40.30	-18 42.8	1.281	1.223	63.8	46.2	7.9	
2009 01 22		15 38.62	-18 37.3	1.251	1.225	65.2	46.8	7.9	
2009 01 23		15 36.84	-18 31.5	1.221	1.228	66.7	47.4	7.8	
2009 01 24		15 34.94	-18 25.1	1.190	1.230	68.1	48.0	7.8	
2009 01 25		15 32.91	-18 18.3	1.160	1.233	69.7	48.5	7.7	
2009 01 26		15 30.74	-18 10.9	1.129	1.236	71.2	49.0	7.7	
2009 01 27		15 28.43	-18 02.8	1.098	1.239	72.8	49.4	7.6	
2009 01 28		15 25.96	-17 54.1	1.067	1.242	74.4	49.8	7.6	
2009 01 29		15 23.30	-17 44.6	1.036	1.246	76.1	50.1	7.5	
2009 01 30		15 20.46	-17 34.2	1.004	1.249	77.8	50.4	7.5	
2009 01 31		15 17.40	-17 22.8	0.973	1.253	79.6	50.6	7.4	
2009 02 01		15 14.10	-17 10.4	0.942	1.257	81.4	50.8	7.4	
2009 02 02		15 10.55	-16 56.7	0.911	1.261	83.3	50.9	7.3	
2009 02 03		15 06.72	-16 41.6	0.880	1.266	85.3	50.9	7.2	
2009 02 04		15 02.57	-16 25.0	0.849	1.270	87.3	50.8	7.2	
2009 02 05		14 58.08	-16 06.6	0.818	1.275	89.4	50.6	7.1	
2009 02 06		14 53.21	-15 46.1	0.788	1.280	91.7	50.4	7.1	
2009 02 07		14 47.92	-15 23.3	0.757	1.285	94.0	50.0	7.0	
2009 02 08		14 42.16	-14 57.9	0.728	1.290	96.5	49.4	6.9	
2009 02 09		14 35.88	-14 29.4	0.698	1.295	99.1	48.8	6.8	
2009 02 10		14 29.03	-13 57.5	0.669	1.301	101.8	47.9	6.8	
2009 02 11		14 21.54	-13 21.6	0.641	1.306	104.8	46.9	6.7	
2009 02 12		14 13.36	-12 41.3	0.613	1.312	107.9	45.7	6.6	
2009 02 13		14 04.40	-11 55.8	0.586	1.318	111.2	44.3	6.5	
2009 02 14		13 54.61	-11 04.5	0.561	1.324	114.8	42.6	6.5	
2009 02 15		13 43.89	-10 06.6	0.536	1.330	118.6	40.7	6.4	
2009 02 16		13 32.20	-09 01.6	0.513	1.337	122.7	38.5	6.3	
2009 02 17		13 19.46	-07 48.8	0.492	1.343	127.0	36.0	6.2	
2009 02 18		13 05.64	-06 27.7	0.473	1.350	131.7	33.1	6.2	
2009 02 19		12 50.73	-04 58.1	0.455	1.357	136.7	30.0	6.1	
2009 02 20		12 34.74	-03 20.2	0.441	1.363	142.1	26.5	6.1	
2009 02 21		12 17.75	-01 34.7	0.429	1.370	147.7	22.7	6.0	
2009 02 22		11 59.89	+00 16.9	0.420	1.378	153.5	18.7	6.0	
2009 02 23		11 41.35	+02 12.6	0.414	1.385	159.5	14.5	6.0	
2009 02 24		11 22.35	+04 10.0	0.412	1.392	165.7	10.1	6.0	
2009 02 25		11 03.17	+06 06.1	0.413	1.400	171.8	5.8	6.0	
2009 02 26		10 44.11	+07 58.2	0.417	1.407	177.9	1.5	6.1	
2009 02 27		10 25.45	+09 43.9	0.425	1.415	176.1	2.7	6.2	
2009 02 28		10 07.42	+11 21.3	0.436	1.423	170.4	6.7	6.2	
2009 03 01		09 50.24	+12 49.5	0.450	1.431	165.0	10.4	6.3	
2009 03 02		09 34.04	+14 07.8	0.467	1.439	159.8	13.8	6.4	
2009 03 03		09 18.92	+15 16.6	0.486	1.447	155.0	16.8	6.5	
2009 03 04		09 04.89	+16 16.3	0.508	1.455	150.5	19.6	6.7	
2009 03 05		08 51.97	+17 07.8	0.531	1.463	146.2	22.1	6.8	

Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2009 03 06		08 40.11	+17 51.9	0.556	1.471	142.3	24.3	6.9	
2009 03 07		08 29.26	+18 29.6	0.582	1.480	138.7	26.3	7.0	
2009 03 08		08 19.36	+19 01.8	0.609	1.488	135.3	28.0	7.2	
2009 03 09		08 10.32	+19 29.3	0.638	1.497	132.1	29.5	7.3	
2009 03 10		08 02.09	+19 52.7	0.667	1.506	129.1	30.8	7.4	
2009 03 11		07 54.58	+20 12.7	0.698	1.515	126.3	31.9	7.5	
2009 03 12		07 47.73	+20 29.9	0.728	1.523	123.7	32.9	7.6	
2009 03 13		07 41.49	+20 44.6	0.760	1.532	121.2	33.7	7.8	
2009 03 14		07 35.78	+20 57.3	0.792	1.541	118.9	34.4	7.9	
2009 03 15		07 30.56	+21 08.3	0.825	1.550	116.6	35.0	8.0	
2009 03 16		07 25.78	+21 17.7	0.857	1.560	114.5	35.5	8.1	
2009 03 17		07 21.41	+21 25.9	0.891	1.569	112.5	35.9	8.2	
2009 03 18		07 17.40	+21 33.0	0.924	1.578	110.6	36.2	8.3	
2009 03 19		07 13.71	+21 39.3	0.958	1.587	108.7	36.4	8.4	
2009 03 20		07 10.33	+21 44.7	0.992	1.597	106.9	36.6	8.5	
2009 03 21		07 07.22	+21 49.5	1.026	1.606	105.2	36.8	8.6	
2009 03 22		07 04.35	+21 53.6	1.060	1.616	103.5	36.8	8.7	
2009 03 23		07 01.72	+21 57.3	1.095	1.625	101.9	36.9	8.8	
2009 03 24		06 59.29	+22 00.5	1.129	1.635	100.4	36.9	8.9	
2009 03 25		06 57.05	+22 03.4	1.164	1.645	98.9	36.8	9.0	

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt Azi	FC ->	Alt Azi	LuSo	LuTr	F.L.
2008 12 22			5:34	10:11	14:48	6: 0	+3.2 123	18:21		3:13	12:55	0.25
2008 12 23			5:30	10: 7	14:44	6: 0	+3.9 124	18:21		4:20	13:21	0.17
2008 12 24			5:26	10: 3	14:40	6: 1	+4.5 125	18:22		5:25	13:54	0.11
2008 12 25			5:21	9:58	14:35	6: 1	+5.2 126	18:22		6:26	14:34	0.06
2008 12 26			5:17	9:54	14:31	6: 2	+5.9 127	18:23		7:21	15:22	0.02
2008 12 27			5:12	9:50	14:27	6: 2	+6.5 127	18:24		8: 8	16:19	0.00
2008 12 28			5: 8	9:45	14:23	6: 2	+7.2 128	18:24		8:46	17:20	0.00
2008 12 29			5: 3	9:41	14:18	6: 3	+7.8 129	18:25		9:16	18:25	0.02
2008 12 30			4:59	9:36	14:14	6: 3	+8.5 130	18:26		9:41	19:32	0.05
2008 12 31			4:54	9:32	14:10	6: 3	+9.1 131	18:27		10: 3	20:38	0.11
2009 1 1			4:49	9:27	14: 5	6: 3	+9.7 132	18:27		10:21	21:44	0.17
2009 1 2			4:45	9:23	14: 1	6: 3	+10.3 133	18:28		10:39	22:51	0.25
2009 1 3			4:40	9:18	13:56	6: 3	+10.9 134	18:29		10:57s	0: 1	0.35
2009 1 4			4:35	9:14	13:52	6: 3	+11.5 135	18:30		11:16s	1:13	0.45
2009 1 5			4:31	9: 9	13:48	6: 3	+12.1 136	18:31		11:38		0.56
2009 1 6			4:26	9: 4	13:43	6: 3	+12.7 137	18:32		12: 5	2:30	0.66
2009 1 7			4:21	9: 0	13:39	6: 3	+13.3 137	18:33		12:41	3:50	0.77
2009 1 8			4:16	8:55	13:34	6: 3	+13.8 138	18:34		13:30	5:10	0.86
2009 1 9			4:11	8:50	13:29	6: 3	+14.4 139	18:35		14:34	6:24	0.93
2009 1 10			4: 6	8:45	13:25	6: 3	+14.9 140	18:36		15:52	7:25	0.98
2009 1 11			4: 1	8:41	13:20	6: 3	+15.5 141	18:37		17:19	8:12	1.00
2009 1 12			3:56	8:36	13:15	6: 2	+16.0 142	18:38		18:45	8:47	0.99
2009 1 13			3:51	8:31	13:11	6: 2	+16.6 143	18:39		20: 8	9:14	0.95
2009 1 14			3:46	8:26	13: 6	6: 2	+17.1 144	18:40		21:26	9:37	0.89
2009 1 15			3:40	8:21	13: 1	6: 1	+17.6 145	18:41		22:40	9:57	0.81
2009 1 16			3:35	8:16	12:56	6: 1	+18.1 146	18:42		23:52	10:16	0.71
2009 1 17			3:29	8:10	12:51	6: 0	+18.6 147	18:43	s 1: 2	10:36	0.61	
2009 1 18			3:24	8: 5	12:47	6: 0	+19.1 149	18:44		10:58	0.51	
2009 1 19			3:18	8: 0	12:42	5:59	+19.6 150	18:46		2:11	11:23	0.41
2009 1 20			3:12	7:54	12:36	5:59	+20.1 151	18:47		3:18	11:54	0.32
2009 1 21			3: 6	7:49	12:31	5:58	+20.6 152	18:48		4:21	12:32	0.24
2009 1 22			3: 0	7:43	12:26	5:58	+21.1 153	18:49		5:18	13:18	0.16
2009 1 23			2:54	7:37	12:21	5:57	+21.6 154	18:50		6: 7	14:12	0.10
2009 1 24			2:48	7:32	12:16	5:56	+22.1 155	18:52		6:48	15:12	0.05
2009 1 25			2:41	7:26	12:10	5:56	+22.5 157	18:53		7:21	16:17	0.02
2009 1 26			2:35	7:19	12: 5	5:55	+23.0 158	18:54		7:47	17:24	0.00
2009 1 27			2:28	7:13	11:59	5:54	+23.5 159	18:55		8:10	18:31	0.00
2009 1 28			2:21	7: 7	11:53	5:53	+24.0 161	18:57		8:29	19:37	0.03
2009 1 29			2:13	7: 0	11:47	5:52	+24.4 162	18:58		8:47	20:44	0.07
2009 1 30			2: 6	6:53	11:41	5:51	+24.9 164	18:59		9: 4	21:52	0.13
2009 1 31			1:58	6:46	11:35	5:50	+25.4 165	19: 0		9:23	23: 3	0.20
2009 2 1			1:50	6:39	11:29	5:49	+25.9 167	19: 2		9:43s	0:16	0.29
2009 2 2			1:41	6:32	11:22	5:48	+26.3 168	19: 3		10: 7s	1:32	0.40
2009 2 3			1:32	6:24	11:16	5:47	+26.8 170	19: 4		10:39		0.51
2009 2 4			1:23	6:16	11: 9	5:46	+27.3 172	19: 5		11:20	2:49	0.62
2009 2 5			1:13	6: 7	11: 2	5:45	+27.7 174	19: 7		12:14	4: 3	0.72
2009 2 6			1: 3	5:58	10:54	5:44	+28.2 176	19: 8		13:23	5: 8	0.82
2009 2 7s			0:40	5:49	10:47	5:43	+28.7 178	19: 9		14:43	6: 0	0.90
2009 2 8s			0:28	5:39	10:39	5:41	+29.1 181	19:11		16: 9	6:40	0.96
2009 2 9s			0:15	5:29	10:31	5:40	+29.5 183	19:12		17:34	7:11	0.99
2009 2 10s			0: 1	5:18	10:22	5:39	+30.0 186	19:13		18:55	7:36	1.00
2009 2 11			23:46	5: 7	10:14	5:38	+30.3 189	19:15		20:14	7:57	0.97
2009 2 12			23:30	4:54	10: 4	5:36	+30.7 192	19:16		21:29	8:18	0.92
2009 2 13			23:13	4:42	9:55	5:35	+31.0 195	19:17		22:43	8:38	0.86
2009 2 14			22:54	4:28	9:44	5:34	+31.2 199	19:19		23:54	8:59	0.78
2009 2 15			22:34	4:13	9:34	5:32	+31.3 203	19:20	s 1: 4	9:24	0.68	
2009 2 16			22:13	3:57	9:23	5:31	+31.3 208	19:21		9:53	0.59	
2009 2 17			21:50	3:41	9:11	5:29	+31.1 212	19:23		2:11	10:28	0.49
2009 2 18			21:25	3:23	8:59	5:28	+30.7 217	19:24		3:11	11:12	0.40
2009 2 19			20:59	3: 4	8:46	5:26	+30.1 223	19:25		4: 4	12: 3	0.31
2009 2 20			20:32	2:44	8:33	5:25	+29.3 228	19:27		4:47	13: 2	0.22

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt	Azi	FC ->	Alt	Azi	LuSo	LuTr	F.L.
2009	2	21	20:	3	2:24	8:19	5:23	+28.2	234	19:28		5:23	14: 6	0.15
2009	2	22	19:33	2: 2	8: 5	5:21	+26.7	240	19:29			5:52	15:12	0.09
2009	2	23	19: 3	1:40	7:51	5:20	+25.0	246	19:31	+4.3	89	6:15	16:20	0.04
2009	2	24	18:32	1:17	7:36	5:18	+23.0	252	19:32	+9.9	92	6:36	17:27	0.01
2009	2	25	18: 1s	0:32	7:21	5:16	+20.9	257	19:34	+15.4	95	6:55	18:35	0.00
2009	2	26	17:32s	0: 9	7: 6	5:15	+18.6	263	19:35	+20.9	98	7:12	19:44	0.01
2009	2	27	17: 3	23:48	6:51	5:13	+16.2	268	19:36	+26.1	101	7:31	20:54	0.04
2009	2	28	16:35	23:27	6:37	5:11	+13.9	273	19:38	+31.0	105	7:51	22: 7	0.09
2009	3	1	16: 9	23: 7	6:22	5: 9	+11.6	277	19:39	+35.6	108	8:14	23:22	0.16
2009	3	2	15:44	22:48	6: 8	5: 8	+9.4	281	19:41	+39.9	112	8:43s	0:38	0.25
2009	3	3	15:21	22:30	5:55	5: 6	+7.4	285	19:42	+43.7	116	9:20s	1:51	0.35
2009	3	4	15: 0	22:13	5:42	5: 4	+5.4	288	19:43	+47.3	120	10: 8		0.46
2009	3	5	14:40	21:58	5:29	5: 2	+3.7	291	19:45	+50.4	124	11: 9	2:57	0.58
2009	3	6	14:22	21:43	5:17	5: 0	+2.1	294	19:46	+53.2	129	12:23	3:51	0.69
2009	3	7	14: 5	21:29	5: 6	4:58	+0.7	297	19:48	+55.7	134	13:43	4:34	0.79
2009	3	8	13:49	21:16	4:55	4:56	-0.4	299	19:49	+57.9	138	15: 5	5: 8	0.88
2009	3	9	13:35	21: 4	4:45	4:54			19:51	+59.7	144	16:27	5:35	0.94
2009	3	10	13:21	20:53	4:35	4:53			19:52	+61.3	149	17:45	5:58	0.98
2009	3	11	13: 9	20:42	4:25	4:51			19:54	+62.6	155	19: 2	6:18	1.00
2009	3	12	12:57	20:32	4:16	4:49			19:55	+63.6	160	20:17	6:38	0.99
2009	3	13	12:46	20:22	4: 7	4:47			19:56	+64.4	166	21:31	7: 0	0.96
2009	3	14	12:36	20:13	3:59	4:45			19:58	+64.9	172	22:44	7:23	0.90
2009	3	15	12:26	20: 4	3:50	4:42			19:59	+65.3	177	23:54	7:51	0.83
2009	3	16	12:17	19:56	3:43	4:40			20: 1	+65.4	183s	0:58	8:24	0.75
2009	3	17	12: 8	19:48	3:35	4:38			20: 2	+65.4	188s	1:55	9: 5	0.66
2009	3	18	12: 0	19:40	3:28	4:36			20: 4	+65.2	193		9:54	0.57
2009	3	19	11:52	19:33	3:21	4:34			20: 5	+64.8	198	2:43	10:50	0.48
2009	3	20	11:44	19:26	3:14	4:32			20: 7	+64.4	203	3:22	11:53	0.38
2009	3	21	11:37	19:19	3: 8	4:30			20: 9	+63.8	207	3:53	12:58	0.29
2009	3	22	11:30	19:12	3: 1	4:28			20:10	+63.2	211	4:19	14: 5	0.21
2009	3	23	11:23	19: 6	2:55	4:26			20:12	+62.5	215	4:41	15:13	0.14
2009	3	24	11:17	19: 0	2:49	4:23			20:13	+61.7	218	5: 0	16:20	0.08
2009	3	25	11:10	18:54	2:43	4:21			20:15	+60.9	222	5:19	17:29	0.03

IC = Ora di inizio del crepuscolo astronomico, in T.U.+1

Alz = altezza della cometa all'IC o a FC

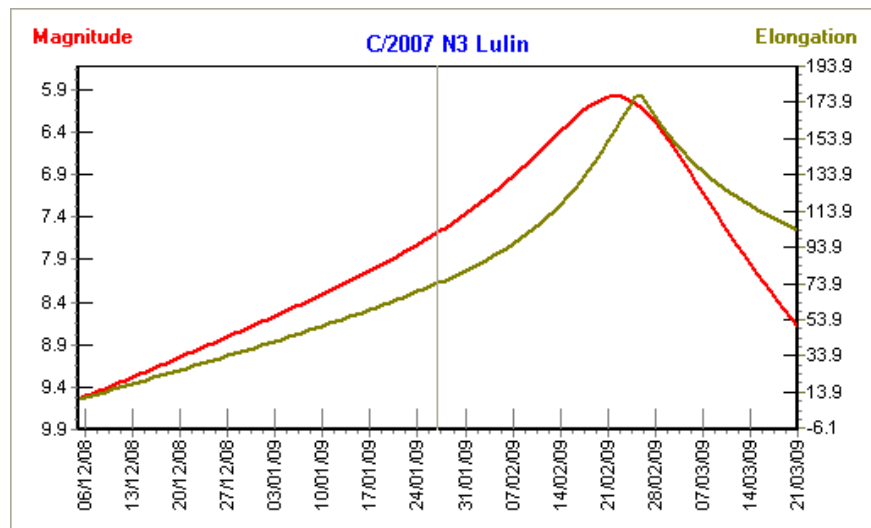
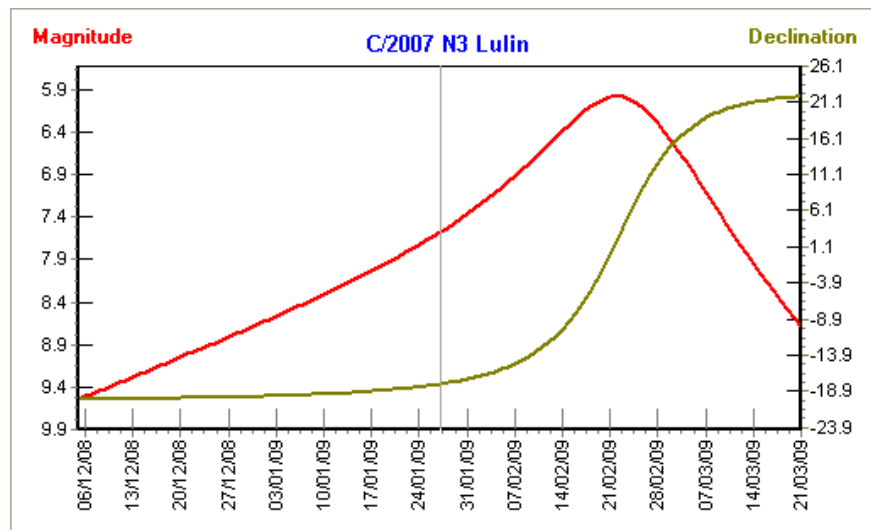
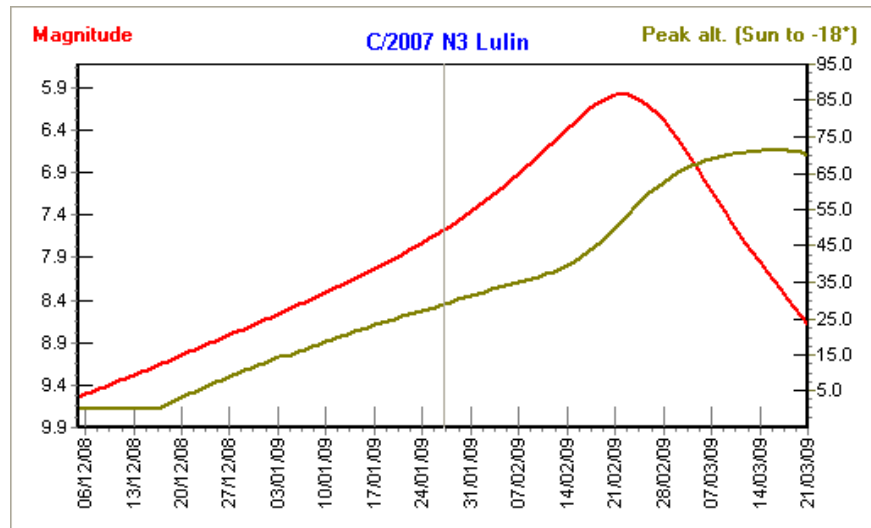
Azi = azimut della cometa all'IC o a FC

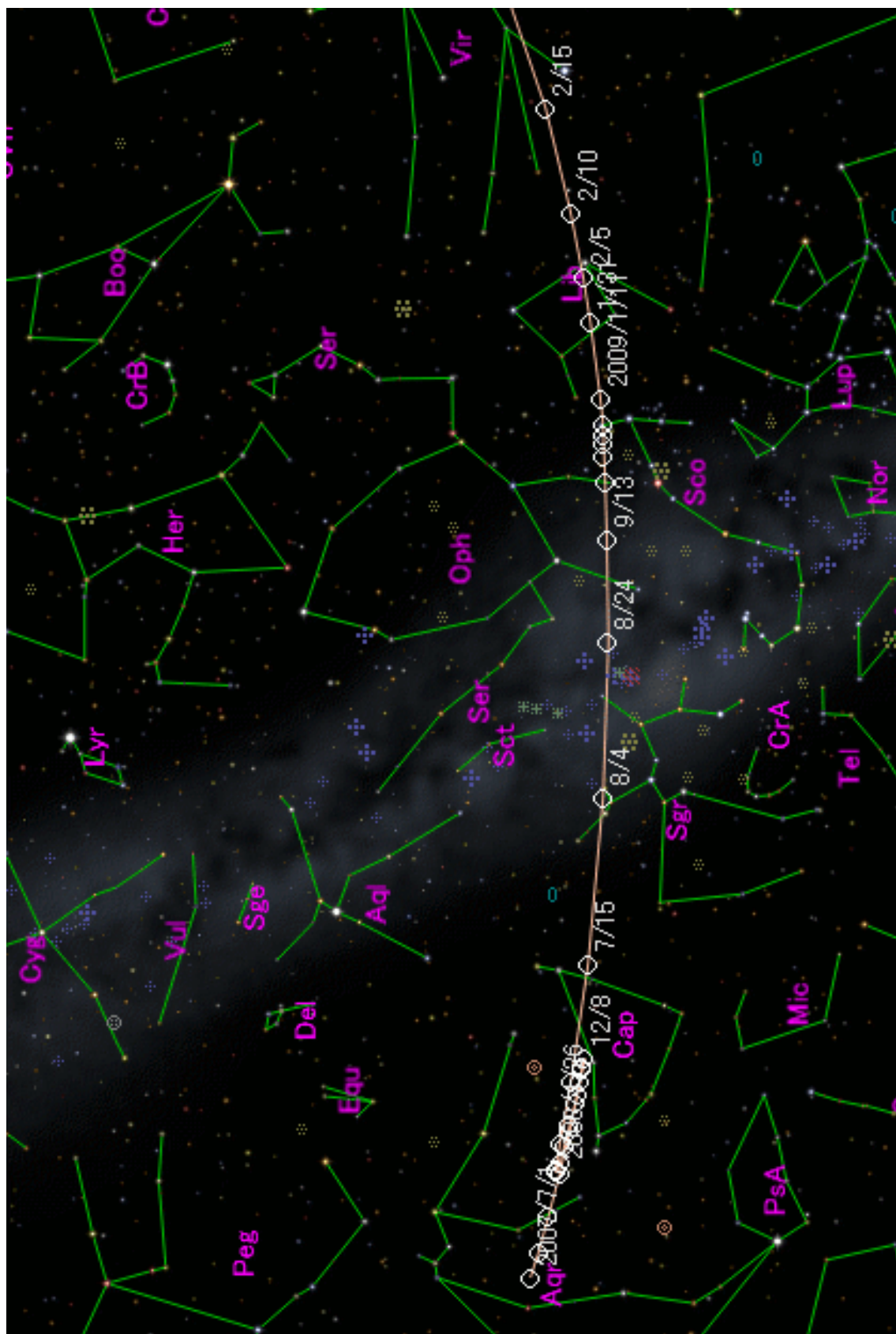
FC = Ora di fine del crepuscolo astronomico, in T.U.+1

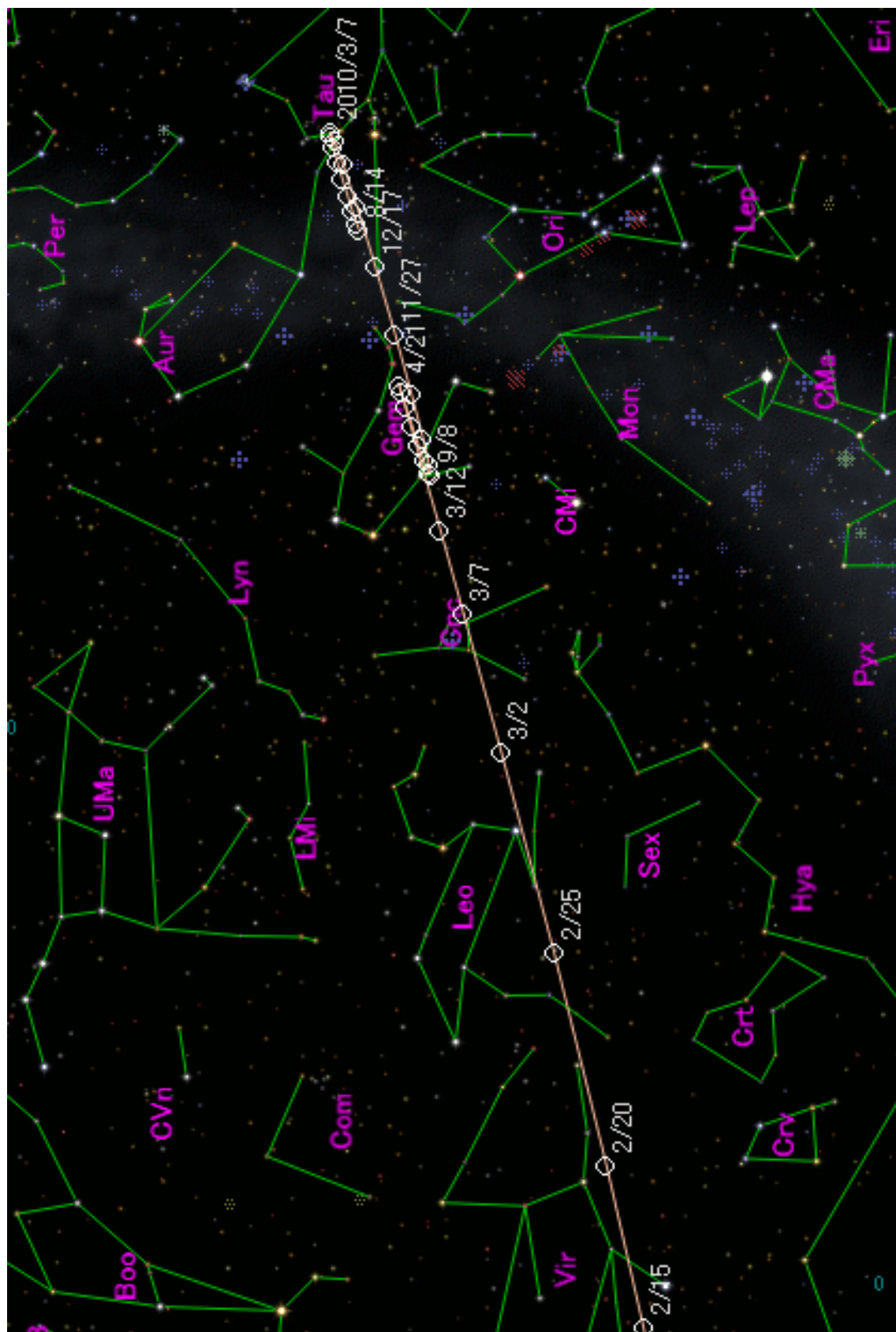
LuSo = Ora di levata della Luna

LuTr = Ora di tramonto della Luna

F.L. = Frazione di luna illuminata, 0 luna nuova, 1 luna piena







22P/Kopff

Epoch 2009 May 9.0 TT = JDT 2454960.5

T 2009 May 25.4020 TT

		(2000.0)	P	Q
q	1.577587			
n	0.1529943	Peri. 162.8161	+0.2379474	+0.9687039
a	3.462203	Node 120.8985	-0.9005287	+0.2472897
e	0.544340	Incl. 4.7239	-0.3639081	+0.0214590
P	6.44			

MPC

Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2009 04 18		20 02.99	-16 34.6	1.299	1.622	88.6	38.2	9.0	19.7
2009 04 19		20 05.72	-16 27.9	1.290	1.620	88.9	38.3	9.0	19.6
2009 04 20		20 08.45	-16 21.2	1.282	1.617	89.2	38.4	9.0	19.6
2009 04 21		20 11.17	-16 14.3	1.273	1.615	89.5	38.5	8.9	19.6
2009 04 22		20 13.89	-16 07.4	1.265	1.613	89.8	38.5	8.9	19.6
2009 04 23		20 16.59	-16 00.4	1.257	1.611	90.1	38.6	8.9	19.6
2009 04 24		20 19.29	-15 53.3	1.248	1.609	90.4	38.7	8.9	19.6
2009 04 25		20 21.98	-15 46.1	1.240	1.607	90.8	38.8	8.8	19.5
2009 04 26		20 24.66	-15 38.9	1.232	1.605	91.1	38.8	8.8	19.5
2009 04 27		20 27.32	-15 31.5	1.224	1.603	91.4	38.9	8.8	19.5
2009 04 28		20 29.98	-15 24.2	1.216	1.602	91.7	38.9	8.7	19.5
2009 04 29		20 32.63	-15 16.7	1.208	1.600	92.0	39.0	8.7	19.5
2009 04 30		20 35.27	-15 09.2	1.200	1.598	92.4	39.0	8.7	19.5
2009 05 01		20 37.90	-15 01.6	1.193	1.597	92.7	39.1	8.7	19.5
2009 05 02		20 40.51	-14 54.0	1.185	1.595	93.0	39.1	8.6	19.4
2009 05 03		20 43.11	-14 46.4	1.177	1.594	93.3	39.2	8.6	19.4
2009 05 04		20 45.71	-14 38.7	1.170	1.592	93.7	39.2	8.6	19.4
2009 05 05		20 48.29	-14 30.9	1.162	1.591	94.0	39.2	8.6	19.4
2009 05 06		20 50.85	-14 23.2	1.155	1.590	94.3	39.3	8.5	19.4
2009 05 07		20 53.41	-14 15.4	1.148	1.588	94.7	39.3	8.5	19.4
2009 05 08		20 55.95	-14 07.6	1.140	1.587	95.0	39.3	8.5	19.4
2009 05 09		20 58.48	-13 59.8	1.133	1.586	95.3	39.3	8.5	19.3
2009 05 10		21 00.99	-13 51.9	1.126	1.585	95.7	39.3	8.5	19.3
2009 05 11		21 03.49	-13 44.1	1.119	1.584	96.0	39.3	8.4	19.3
2009 05 12		21 05.98	-13 36.2	1.112	1.583	96.4	39.3	8.4	19.3
2009 05 13		21 08.45	-13 28.4	1.105	1.583	96.7	39.4	8.4	19.3
2009 05 14		21 10.91	-13 20.5	1.099	1.582	97.1	39.3	8.4	19.3
2009 05 15		21 13.34	-13 12.7	1.092	1.581	97.4	39.3	8.4	19.2
2009 05 16		21 15.77	-13 04.9	1.085	1.580	97.8	39.3	8.3	19.2
2009 05 17		21 18.17	-12 57.1	1.079	1.580	98.2	39.3	8.3	19.2
2009 05 18		21 20.56	-12 49.4	1.072	1.579	98.5	39.3	8.3	19.2
2009 05 19		21 22.94	-12 41.6	1.066	1.579	98.9	39.3	8.3	19.2
2009 05 20		21 25.29	-12 34.0	1.059	1.579	99.3	39.2	8.3	19.2
2009 05 21		21 27.62	-12 26.4	1.053	1.578	99.7	39.2	8.3	19.2
2009 05 22		21 29.94	-12 18.8	1.047	1.578	100.1	39.2	8.2	19.1
2009 05 23		21 32.24	-12 11.3	1.040	1.578	100.4	39.1	8.2	19.1
2009 05 24		21 34.51	-12 03.9	1.034	1.578	100.8	39.1	8.2	19.1
2009 05 25		21 36.77	-11 56.5	1.028	1.578	101.2	39.0	8.2	19.1
2009 05 26		21 39.01	-11 49.2	1.022	1.578	101.6	39.0	8.2	19.1
2009 05 27		21 41.22	-11 42.0	1.016	1.578	102.0	38.9	8.2	19.1
2009 05 28		21 43.42	-11 34.9	1.010	1.578	102.5	38.8	8.2	19.1
2009 05 29		21 45.59	-11 27.9	1.004	1.578	102.9	38.8	8.2	19.0
2009 05 30		21 47.74	-11 21.0	0.999	1.578	103.3	38.7	8.1	19.0
2009 05 31		21 49.86	-11 14.2	0.993	1.579	103.7	38.6	8.1	19.0
2009 06 01		21 51.97	-11 07.5	0.987	1.579	104.2	38.5	8.1	19.0
2009 06 02		21 54.05	-11 00.9	0.982	1.579	104.6	38.4	8.1	19.0
2009 06 03		21 56.11	-10 54.4	0.976	1.580	105.1	38.3	8.1	19.0
2009 06 04		21 58.14	-10 48.1	0.971	1.581	105.5	38.2	8.1	19.0
2009 06 05		22 00.15	-10 41.9	0.965	1.581	106.0	38.1	8.1	18.9
2009 06 06		22 02.13	-10 35.8	0.960	1.582	106.4	38.0	8.1	18.9
2009 06 07		22 04.09	-10 29.9	0.955	1.583	106.9	37.8	8.1	18.9
2009 06 08		22 06.03	-10 24.1	0.950	1.584	107.4	37.7	8.1	18.9
2009 06 09		22 07.93	-10 18.5	0.944	1.584	107.9	37.6	8.1	18.9
2009 06 10		22 09.81	-10 13.0	0.939	1.585	108.4	37.4	8.1	18.9
2009 06 11		22 11.67	-10 07.7	0.934	1.586	108.9	37.3	8.1	18.9
2009 06 12		22 13.49	-10 02.6	0.929	1.588	109.4	37.1	8.1	18.8
2009 06 13		22 15.29	-09 57.6	0.924	1.589	109.9	37.0	8.1	18.8
2009 06 14		22 17.06	-09 52.8	0.920	1.590	110.4	36.8	8.1	18.8
2009 06 15		22 18.80	-09 48.2	0.915	1.591	110.9	36.6	8.1	18.8
2009 06 16		22 20.51	-09 43.8	0.910	1.593	111.5	36.4	8.0	18.8
2009 06 17		22 22.19	-09 39.6	0.905	1.594	112.0	36.2	8.0	18.8
2009 06 18		22 23.83	-09 35.6	0.901	1.595	112.6	36.0	8.0	18.8

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt	Azi	FC ->	Alt	Azi	LuSo	LuTr	F.L.
2009	4	18	1:35	6:29	11:22	3:26	+15.1	135	20:57			2:20	11:50	0.46
2009	4	19	1:33	6:27	11:22	3:24	+15.1	134	20:59			2:43	12:56	0.37
2009	4	20	1:32	6:26	11:21	3:21	+15.0	134	21: 1			3: 4	14: 3	0.27
2009	4	21	1:30	6:25	11:20	3:19	+15.0	134	21: 3			3:23	15:11	0.19
2009	4	22	1:28	6:24	11:19	3:17	+15.0	134	21: 5			3:41	16:21	0.12
2009	4	23	1:26	6:22	11:19	3:14	+14.9	133	21: 7			4: 1	17:33	0.06
2009	4	24	1:24	6:21	11:18	3:12	+14.9	133	21: 9			4:22	18:49	0.02
2009	4	25	1:23	6:20	11:17	3: 9	+14.8	133	21:11			4:49	20: 7	0.00
2009	4	26	1:21	6:19	11:17	3: 7	+14.8	132	21:13			5:22	21:25	0.01
2009	4	27	1:19	6:17	11:16	3: 5	+14.7	132	21:15			6: 4	22:38	0.05
2009	4	28	1:17	6:16	11:15	3: 2	+14.7	132	21:17			6:59	23:40	0.11
2009	4	29	1:15	6:15	11:14	3: 0	+14.7	131	21:20			8: 6s	0:30	0.19
2009	4	30	1:13	6:13	11:14	2:57	+14.6	131	21:22			9:22s	1: 9	0.29
2009	5	1	1:11	6:12	11:13	2:55	+14.6	131	21:24			10:40		0.40
2009	5	2	1:10	6:11	11:12	2:53	+14.6	131	21:26			11:58	1:39	0.52
2009	5	3	1: 8	6: 9	11:11	2:50	+14.5	130	21:28			13:14	2: 4	0.63
2009	5	4	1: 6	6: 8	11:10	2:48	+14.5	130	21:30			14:28	2:25	0.73
2009	5	5	1: 4	6: 7	11:10	2:46	+14.5	130	21:33			15:41	2:45	0.82
2009	5	6	1: 2	6: 5	11: 9	2:43	+14.5	129	21:35			16:53	3: 5	0.89
2009	5	7	1: 0	6: 4	11: 8	2:41	+14.5	129	21:37			18: 5	3:26	0.95
2009	5	8s	0:56	6: 2	11: 7	2:39	+14.4	129	21:39			19:16	3:50	0.98
2009	5	9s	0:54	6: 1	11: 6	2:36	+14.4	129	21:41			20:26	4:19	1.00
2009	5	10s	0:52	6: 0	11: 6	2:34	+14.4	128	21:44			21:30	4:54	0.99
2009	5	11s	0:50	5:58	11: 5	2:32	+14.4	128	21:46			22:26	5:37	0.97
2009	5	12s	0:48	5:57	11: 4	2:29	+14.4	128	21:48			23:13	6:28	0.92
2009	5	13s	0:46	5:55	11: 3	2:27	+14.4	128	21:50			23:50	7:27	0.87
2009	5	14s	0:43	5:54	11: 2	2:25	+14.4	127	21:53		s	0:21	8:30	0.80
2009	5	15s	0:41	5:52	11: 1	2:23	+14.4	127	21:55		s	0:45	9:36	0.71
2009	5	16s	0:39	5:51	11: 0	2:20	+14.4	127	21:57		s	1: 7	10:42	0.63
2009	5	17s	0:37	5:49	10:59	2:18	+14.4	127	21:59			11:48		0.53
2009	5	18s	0:35	5:47	10:58	2:16	+14.4	127	22: 2			1:26	12:54	0.43
2009	5	19s	0:33	5:46	10:57	2:14	+14.5	126	22: 4			1:44	14: 2	0.34
2009	5	20s	0:31	5:44	10:56	2:12	+14.5	126	22: 6			2: 3	15:12	0.24
2009	5	21s	0:28	5:43	10:55	2:10	+14.5	126	22: 8			2:23	16:26	0.16
2009	5	22s	0:26	5:41	10:54	2: 8	+14.6	126	22:11			2:47	17:42	0.09
2009	5	23s	0:24	5:39	10:53	2: 5	+14.6	126	22:13			3:17	19: 1	0.03
2009	5	24s	0:22	5:38	10:52	2: 3	+14.7	126	22:15			3:56	20:18	0.01
2009	5	25s	0:20	5:36	10:50	2: 1	+14.7	125	22:17			4:47	21:27	0.00
2009	5	26s	0:17	5:34	10:49	1:59	+14.8	125	22:19			5:51	22:23	0.03
2009	5	27s	0:15	5:32	10:48	1:58	+14.8	125	22:22			7: 6	23: 7	0.09
2009	5	28s	0:13	5:31	10:47	1:56	+14.9	125	22:24			8:27	23:41	0.17
2009	5	29s	0:10	5:29	10:45	1:54	+15.0	125	22:26			9:47s	0: 7	0.27
2009	5	30s	0: 8	5:27	10:44	1:52	+15.1	125	22:28			11: 5s	0:30	0.37
2009	5	31s	0: 6	5:25	10:43	1:50	+15.2	125	22:30			12:19s	0:50	0.49
2009	6	1s	0: 3	5:23	10:41	1:49	+15.3	125	22:32			13:32s	1:10	0.60
2009	6	2s	0: 1	5:22	10:40	1:47	+15.4	125	22:34			14:43		0.70
2009	6	3	23:59	5:20	10:38	1:45	+15.6	125	22:35			15:54	1:30	0.79
2009	6	4	23:56	5:18	10:37	1:44	+15.7	125	22:37			17: 4	1:53	0.87
2009	6	5	23:54	5:16	10:35	1:42	+15.9	125	22:39			18:13	2:20	0.93
2009	6	6	23:52	5:14	10:34	1:41	+16.0	125	22:41			19:19	2:52	0.97
2009	6	7	23:49	5:12	10:32	1:40	+16.2	125	22:42			20:18	3:32	0.99
2009	6	8	23:47	5:10	10:31	1:39	+16.4	125	22:44			21: 8	4:20	1.00
2009	6	9	23:44	5: 8	10:29	1:37	+16.6	125	22:45			21:49	5:17	0.99
2009	6	10	23:42	5: 6	10:27	1:36	+16.8	125	22:47			22:21	6:19	0.95
2009	6	11	23:39	5: 4	10:26	1:35	+17.0	126	22:48			22:48	7:24	0.91
2009	6	12	23:37	5: 1	10:24	1:35	+17.3	126	22:49			23:10	8:30	0.85
2009	6	13	23:34	4:59	10:22	1:34	+17.6	126	22:50			23:30	9:36	0.77
2009	6	14	23:32	4:57	10:20	1:33	+17.8	126	22:51			23:48	10:41	0.69
2009	6	15	23:29	4:55	10:18	1:33	+18.1	127	22:52		s	0: 6	11:47	0.59
2009	6	16	23:27	4:53	10:16	1:32	+18.4	127	22:53		s	0:25	12:55	0.49
2009	6	17	23:24	4:50	10:14	1:32	+18.8	127	22:54		s	0:47	14: 5	0.39
2009	6	18	23:21	4:48	10:12	1:32	+19.1	128	22:54			15:19		0.29

IC = Ora di inizio del crepuscolo astronomico, in T.U.+1

Alz = altezza della cometa all'IC o a FC

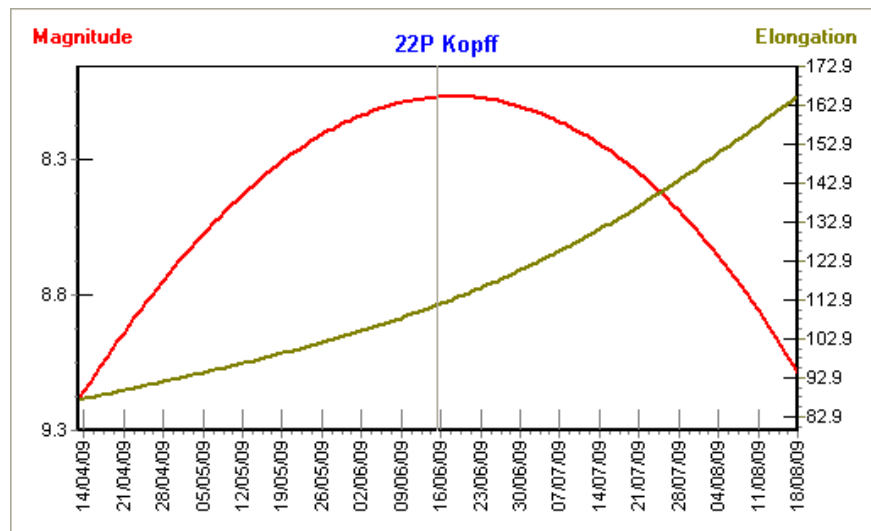
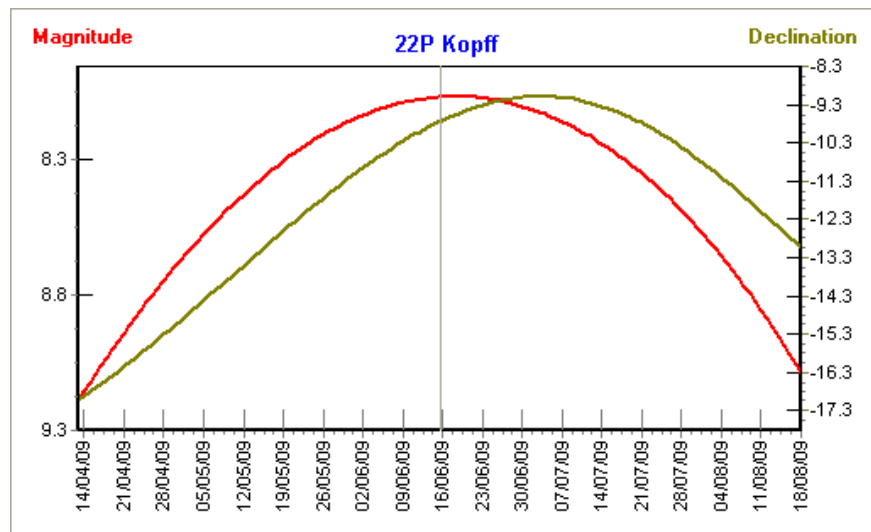
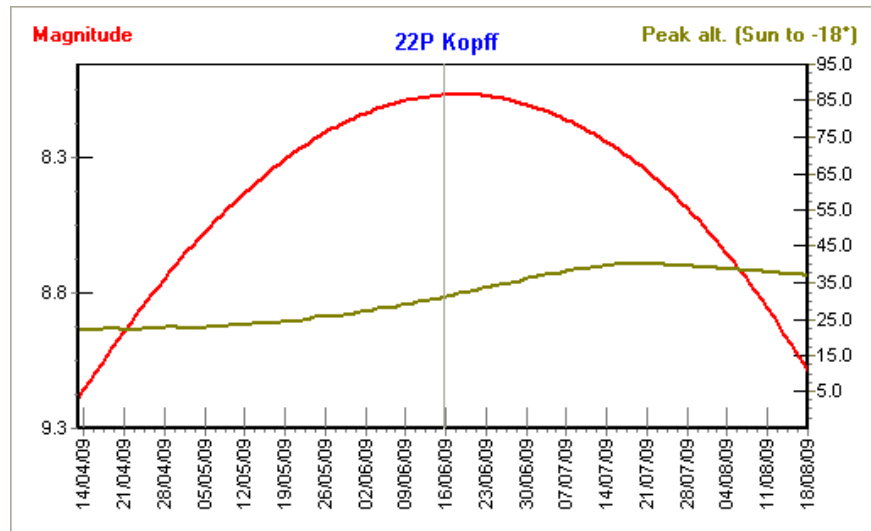
Azi = azimuth della cometa all'IC o a FC

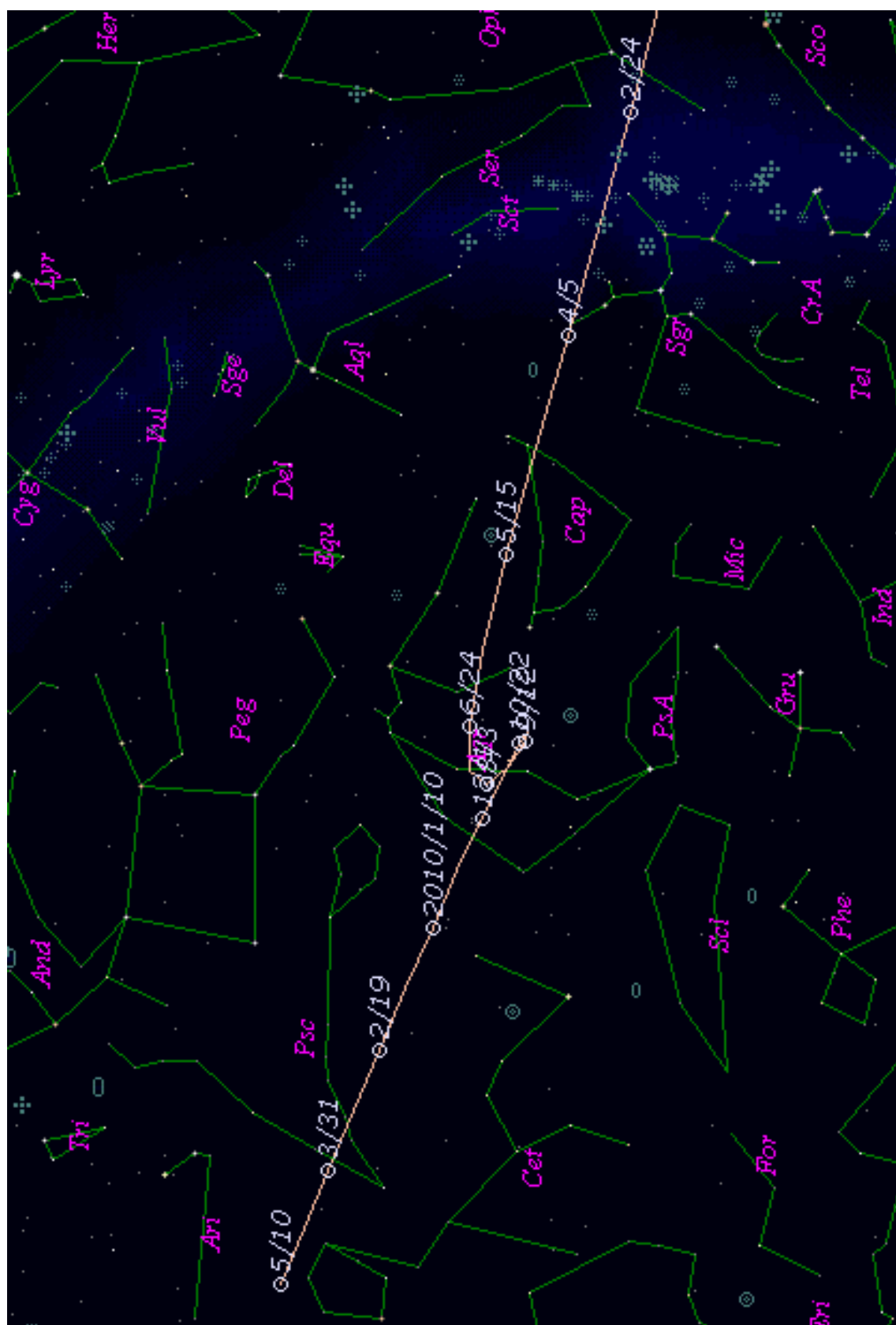
FC = Ora di fine del crepuscolo astronomico, in T.U.+1

LuSo = Ora di levata della Luna

LuTr = Ora di tramonto della Luna

F.L. = Frazione di luna illuminata, 0 luna nuova, 1 luna piena





C/2008 T2 (Cardinal)
T 2009 June 16.292 TT
q 1.22108

(2000.0)

P

MPC

Q

Peri.	214.987	-0.777226	+0.028871
Node	310.793	+0.566866	-0.401441
e	1.0	-0.273099	-0.915430

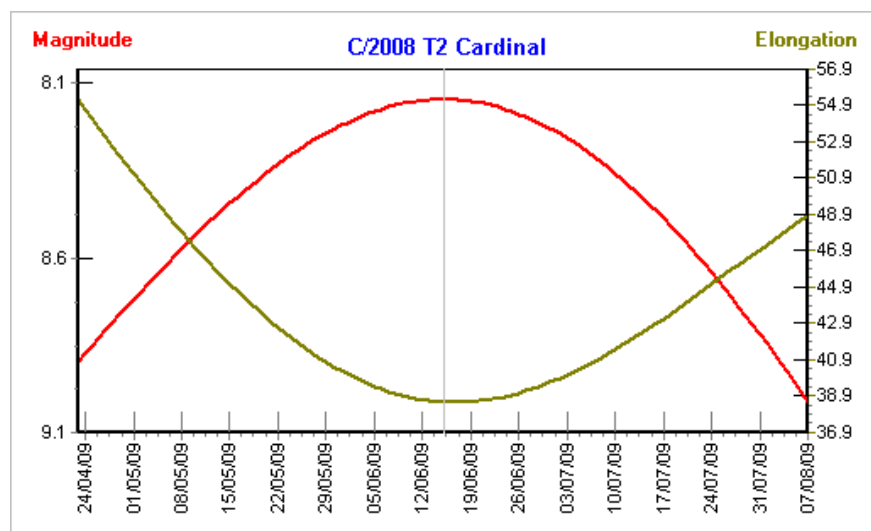
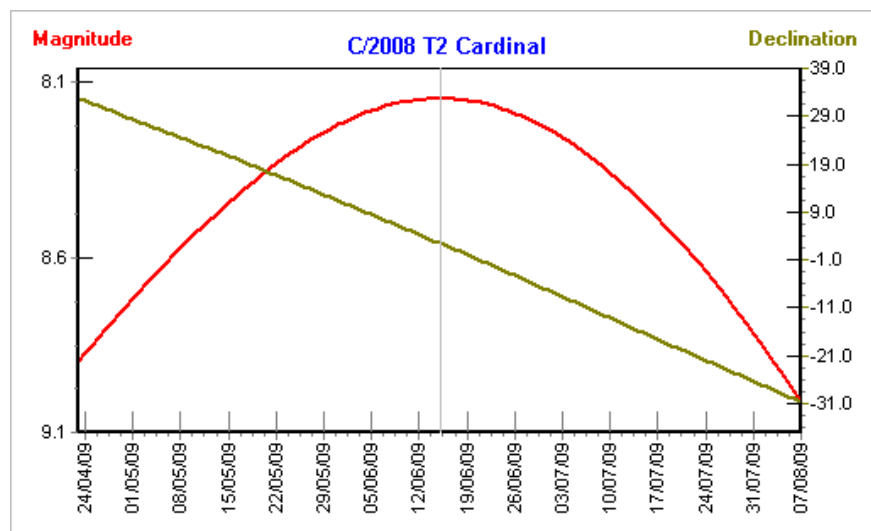
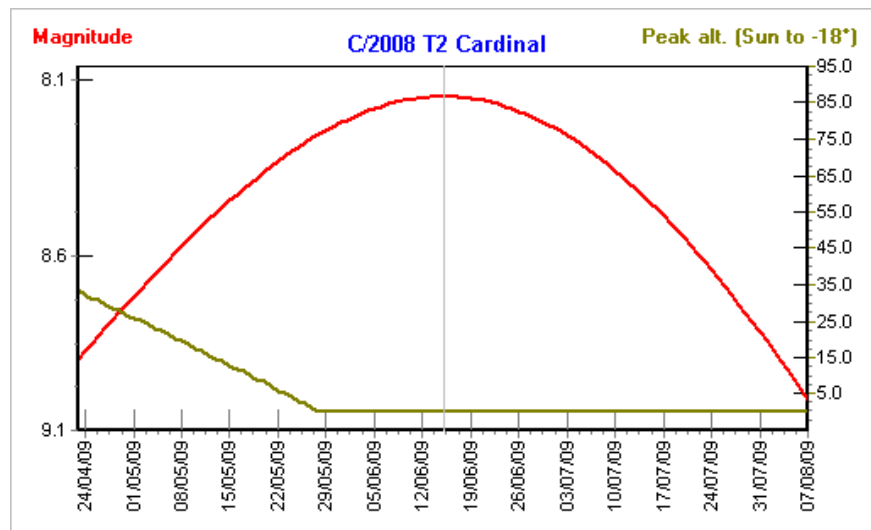
Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1
2009 04 19	05 41.00	+35 12.7	1.783	1.511	57.9	34.3	9.0	
2009 04 20	05 43.38	+34 41.1	1.784	1.502	57.3	34.3	9.0	
2009 04 21	05 45.76	+34 09.5	1.785	1.494	56.8	34.3	9.0	
2009 04 22	05 48.13	+33 37.8	1.786	1.485	56.2	34.2	9.0	
2009 04 23	05 50.50	+33 06.0	1.788	1.477	55.7	34.2	9.0	
2009 04 24	05 52.86	+32 34.2	1.789	1.468	55.2	34.2	8.9	
2009 04 25	05 55.21	+32 02.2	1.790	1.460	54.6	34.2	8.9	
2009 04 26	05 57.55	+31 30.2	1.792	1.452	54.1	34.2	8.9	
2009 04 27	05 59.89	+30 58.1	1.793	1.444	53.6	34.1	8.9	
2009 04 28	06 02.23	+30 25.9	1.794	1.436	53.1	34.1	8.8	
2009 04 29	06 04.55	+29 53.7	1.795	1.428	52.6	34.1	8.8	
2009 04 30	06 06.87	+29 21.3	1.797	1.421	52.1	34.0	8.8	
2009 05 01	06 09.19	+28 48.9	1.798	1.413	51.6	34.0	8.8	
2009 05 02	06 11.49	+28 16.4	1.799	1.406	51.1	33.9	8.8	
2009 05 03	06 13.80	+27 43.8	1.801	1.398	50.6	33.9	8.7	
2009 05 04	06 16.09	+27 11.1	1.802	1.391	50.1	33.8	8.7	
2009 05 05	06 18.38	+26 38.3	1.803	1.384	49.7	33.8	8.7	
2009 05 06	06 20.66	+26 05.5	1.804	1.377	49.2	33.7	8.7	
2009 05 07	06 22.94	+25 32.5	1.806	1.370	48.8	33.6	8.7	
2009 05 08	06 25.21	+24 59.5	1.807	1.363	48.3	33.6	8.6	
2009 05 09	06 27.48	+24 26.4	1.808	1.356	47.9	33.5	8.6	
2009 05 10	06 29.74	+23 53.2	1.809	1.350	47.4	33.4	8.6	
2009 05 11	06 31.99	+23 19.9	1.811	1.344	47.0	33.4	8.6	
2009 05 12	06 34.24	+22 46.5	1.812	1.337	46.6	33.3	8.6	
2009 05 13	06 36.49	+22 13.0	1.813	1.331	46.2	33.2	8.5	
2009 05 14	06 38.73	+21 39.4	1.814	1.325	45.8	33.1	8.5	
2009 05 15	06 40.96	+21 05.8	1.815	1.319	45.4	33.1	8.5	
2009 05 16	06 43.20	+20 32.0	1.816	1.314	45.0	33.0	8.5	
2009 05 17	06 45.42	+19 58.2	1.817	1.308	44.7	32.9	8.5	
2009 05 18	06 47.65	+19 24.3	1.818	1.303	44.3	32.8	8.4	
2009 05 19	06 49.87	+18 50.3	1.819	1.297	43.9	32.8	8.4	
2009 05 20	06 52.08	+18 16.1	1.821	1.292	43.6	32.7	8.4	
2009 05 21	06 54.30	+17 41.9	1.822	1.287	43.3	32.6	8.4	
2009 05 22	06 56.51	+17 07.6	1.822	1.283	42.9	32.5	8.4	
2009 05 23	06 58.71	+16 33.3	1.823	1.278	42.6	32.4	8.4	
2009 05 24	07 00.92	+15 58.8	1.824	1.273	42.3	32.4	8.4	
2009 05 25	07 03.12	+15 24.2	1.825	1.269	42.0	32.3	8.3	
2009 05 26	07 05.32	+14 49.5	1.826	1.265	41.7	32.2	8.3	
2009 05 27	07 07.52	+14 14.8	1.827	1.261	41.5	32.1	8.3	
2009 05 28	07 09.72	+13 39.9	1.828	1.257	41.2	32.1	8.3	
2009 05 29	07 11.91	+13 05.0	1.828	1.254	41.0	32.0	8.3	
2009 05 30	07 14.10	+12 29.9	1.829	1.250	40.7	31.9	8.3	
2009 05 31	07 16.30	+11 54.8	1.830	1.247	40.5	31.9	8.3	
2009 06 01	07 18.49	+11 19.6	1.831	1.244	40.3	31.8	8.3	
2009 06 02	07 20.68	+10 44.2	1.831	1.241	40.1	31.8	8.3	
2009 06 03	07 22.87	+10 08.8	1.832	1.238	39.9	31.7	8.2	
2009 06 04	07 25.06	+09 33.3	1.832	1.236	39.7	31.6	8.2	
2009 06 05	07 27.25	+08 57.8	1.833	1.234	39.6	31.6	8.2	
2009 06 06	07 29.44	+08 22.1	1.834	1.232	39.4	31.5	8.2	
2009 06 07	07 31.64	+07 46.3	1.834	1.230	39.3	31.5	8.2	
2009 06 08	07 33.83	+07 10.4	1.835	1.228	39.2	31.5	8.2	
2009 06 09	07 36.03	+06 34.5	1.835	1.226	39.0	31.4	8.2	
2009 06 10	07 38.22	+05 58.5	1.835	1.225	38.9	31.4	8.2	
2009 06 11	07 40.42	+05 22.3	1.836	1.224	38.8	31.4	8.2	
2009 06 12	07 42.63	+04 46.1	1.836	1.223	38.8	31.3	8.2	
2009 06 13	07 44.83	+04 09.8	1.837	1.222	38.7	31.3	8.2	
2009 06 14	07 47.05	+03 33.5	1.837	1.222	38.7	31.3	8.2	
2009 06 15	07 49.26	+02 57.0	1.837	1.221	38.6	31.3	8.2	
2009 06 16	07 51.48	+02 20.5	1.838	1.221	38.6	31.3	8.2	
2009 06 17	07 53.71	+01 43.8	1.838	1.221	38.6	31.3	8.2	
2009 06 18	07 55.94	+01 07.1	1.838	1.221	38.6	31.3	8.2	
2009 06 19	07 58.17	+00 30.3	1.839	1.222	38.6	31.3	8.2	
2009 06 20	08 00.42	-00 06.6	1.839	1.222	38.6	31.3	8.2	
2009 06 21	08 02.67	-00 43.5	1.839	1.223	38.7	31.3	8.2	
2009 06 22	08 04.92	-01 20.5	1.839	1.224	38.7	31.3	8.2	
2009 06 23	08 07.19	-01 57.7	1.840	1.226	38.8	31.3	8.2	
2009 06 24	08 09.46	-02 34.8	1.840	1.227	38.8	31.3	8.2	
2009 06 25	08 11.74	-03 12.1	1.840	1.229	38.9	31.3	8.2	
2009 06 26	08 14.03	-03 49.4	1.841	1.230	39.0	31.3	8.2	
2009 06 27	08 16.33	-04 26.8	1.841	1.232	39.1	31.4	8.2	
2009 06 28	08 18.64	-05 04.3	1.841	1.235	39.2	31.4	8.2	
2009 06 29	08 20.96	-05 41.9	1.842	1.237	39.4	31.4	8.2	
2009 06 30	08 23.29	-06 19.5	1.842	1.240	39.5	31.4	8.3	
2009 07 01	08 25.63	-06 57.1	1.842	1.242	39.6	31.5	8.3	
2009 07 02	08 27.99	-07 34.8	1.843	1.245	39.8	31.5	8.3	

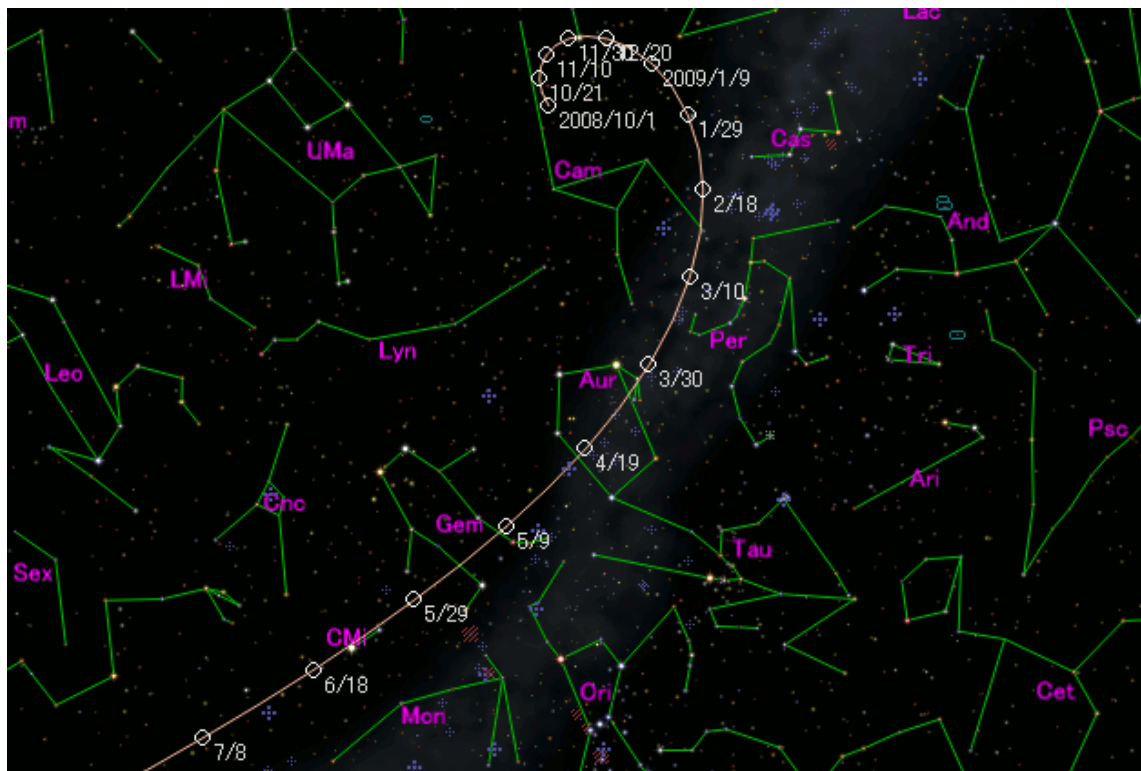
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2009 07 04		08 32.73	-08 50.4	1.844	1.252	40.1	31.6	8.3
2009 07 05		08 35.12	-09 28.3	1.844	1.255	40.3	31.6	8.3
2009 07 06		08 37.53	-10 06.2	1.845	1.259	40.5	31.6	8.3
2009 07 07		08 39.95	-10 44.2	1.845	1.263	40.7	31.7	8.3
2009 07 08		08 42.38	-11 22.2	1.846	1.267	40.9	31.7	8.4
2009 07 09		08 44.83	-12 00.2	1.847	1.271	41.1	31.7	8.4
2009 07 10		08 47.30	-12 38.3	1.848	1.275	41.3	31.8	8.4
2009 07 11		08 49.78	-13 16.4	1.848	1.280	41.6	31.8	8.4
2009 07 12		08 52.28	-13 54.5	1.849	1.284	41.8	31.8	8.4
2009 07 13		08 54.80	-14 32.6	1.850	1.289	42.0	31.9	8.4
2009 07 14		08 57.34	-15 10.8	1.851	1.294	42.3	31.9	8.5
2009 07 15		08 59.89	-15 48.9	1.852	1.299	42.5	31.9	8.5
2009 07 16		09 02.46	-16 27.1	1.854	1.305	42.8	31.9	8.5
2009 07 17		09 05.06	-17 05.2	1.855	1.310	43.0	31.9	8.5
2009 07 18		09 07.67	-17 43.4	1.856	1.316	43.3	32.0	8.5
2009 07 19		09 10.31	-18 21.5	1.858	1.322	43.5	32.0	8.6
2009 07 20		09 12.96	-18 59.6	1.859	1.327	43.8	32.0	8.6
2009 07 21		09 15.64	-19 37.7	1.861	1.334	44.1	32.0	8.6
2009 07 22		09 18.34	-20 15.7	1.863	1.340	44.3	32.0	8.6
2009 07 23		09 21.07	-20 53.7	1.865	1.346	44.6	32.0	8.6
2009 07 24		09 23.82	-21 31.7	1.867	1.352	44.9	32.0	8.7
2009 07 25		09 26.59	-22 09.6	1.869	1.359	45.1	32.0	8.7
2009 07 26		09 29.38	-22 47.4	1.871	1.366	45.4	32.0	8.7
2009 07 27		09 32.21	-23 25.2	1.874	1.373	45.7	32.0	8.7
2009 07 28		09 35.05	-24 02.9	1.876	1.380	46.0	32.0	8.8
2009 07 29		09 37.93	-24 40.5	1.879	1.387	46.3	31.9	8.8
2009 07 30		09 40.83	-25 17.9	1.882	1.394	46.5	31.9	8.8
2009 07 31		09 43.75	-25 55.3	1.885	1.401	46.8	31.9	8.8
2009 08 01		09 46.71	-26 32.6	1.888	1.409	47.1	31.8	8.9
2009 08 02		09 49.69	-27 09.7	1.891	1.416	47.3	31.8	8.9
2009 08 03		09 52.70	-27 46.7	1.894	1.424	47.6	31.8	8.9
2009 08 04		09 55.74	-28 23.5	1.898	1.432	47.9	31.7	8.9
2009 08 05		09 58.81	-29 00.1	1.902	1.439	48.2	31.7	9.0
2009 08 06		10 01.91	-29 36.6	1.906	1.447	48.4	31.6	9.0
2009 08 07		10 05.04	-30 12.9	1.910	1.455	48.7	31.6	9.0

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt Azi	FC ->	Alt Azi	LuSo	LuTr	F.L.
2009	4	19	7:19	16: 3s	0:44	3:41		20:42	+36.4 287	2:34	13: 5	0.37
2009	4	20	7:21	16: 2s	0:39	3:39		20:43	+35.6 287	2:58	14: 9	0.27
2009	4	21	7:24	16: 0s	0:34	3:37		20:45	+34.7 287	3:20	15:13	0.19
2009	4	22	7:26	15:59s	0:29	3:35		20:47	+33.9 286	3:41	16:19	0.12
2009	4	23	7:28	15:57s	0:24	3:33		20:48	+33.0 286	4: 4	17:28	0.06
2009	4	24	7:29	15:55s	0:19	3:31		20:50	+32.2 286	4:29	18:40	0.02
2009	4	25	7:31	15:54s	0:14	3:29		20:52	+31.3 286	4:59	19:55	0.00
2009	4	26	7:33	15:52s	0: 9	3:27		20:53	+30.4 286	5:35	21: 9	0.01
2009	4	27	7:34	15:51s	0: 4	3:25		20:55	+29.6 286	6:20	22:20	0.05
2009	4	28	7:36	15:49s	0: 0	3:23		20:56	+28.7 286	7:17	23:23	0.11
2009	4	29	7:38	15:47	23:55	3:21		20:58	+27.8 286	8:23s	0:15	0.19
2009	4	30	7:39	15:46	23:50	3:19		21: 0	+26.9 286	9:36s	0:56	0.29
2009	5	1	7:40	15:44	23:46	3:17		21: 1	+26.0 286	10:51s	1:30	0.40
2009	5	2	7:42	15:42	23:41	3:15		21: 3	+25.1 286	12: 6		0.52
2009	5	3	7:43	15:41	23:37	3:13		21: 5	+24.2 286	13:18	1:58	0.63
2009	5	4	7:44	15:39	23:32	3:11		21: 7	+23.2 286	14:28	2:23	0.73
2009	5	5	7:45	15:37	23:28	3:10		21: 8	+22.3 286	15:37	2:46	0.82
2009	5	6	7:47	15:36	23:23	3: 8		21:10	+21.4 286	16:46	3: 9	0.89
2009	5	7	7:48	15:34	23:19	3: 6		21:12	+20.4 286	17:54	3:34	0.95
2009	5	8	7:49	15:32	23:14	3: 4		21:13	+19.5 286	19: 3	4: 1	0.98
2009	5	9	7:50	15:31	23:10	3: 2		21:15	+18.5 286	20: 9	4:33	1.00
2009	5	10	7:51	15:29	23: 6	3: 0		21:17	+17.6 286	21:11	5:11	0.99
2009	5	11	7:52	15:27	23: 1	2:59		21:18	+16.6 286	22: 7	5:55	0.97
2009	5	12	7:53	15:26	22:57	2:57		21:20	+15.7 286	22:55	6:47	0.92
2009	5	13	7:53	15:24	22:53	2:55		21:22	+14.7 286	23:34	7:45	0.87
2009	5	14	7:54	15:22	22:49	2:54		21:23	+13.8 286s	0: 7	8:46	0.80
2009	5	15	7:55	15:21	22:45	2:52		21:25	+12.8 286s	0:35	9:49	0.71
2009	5	16	7:56	15:19	22:40	2:50		21:27	+11.8 286s	0:59	10:52	0.63
2009	5	17	7:57	15:17	22:36	2:49		21:28	+10.9 287s	1:22	11:54	0.53
2009	5	18	7:57	15:15	22:32	2:47		21:30	+9.9 287		12:58	0.43
2009	5	19	7:58	15:14	22:28	2:45		21:32	+8.9 287	1:43	14: 2	0.34
2009	5	20	7:59	15:12	22:24	2:44		21:33	+8.0 287	2: 5	15: 9	0.24
2009	5	21	7:59	15:10	22:20	2:42		21:35	+7.0 287	2:29	16:18	0.16
2009	5	22	8: 0	15: 9	22:15	2:41		21:37	+6.1 287	2:56	17:32	0.09
2009	5	23	8: 1	15: 7	22:11	2:40		21:38	+5.1 287	3:30	18:47	0.03
2009	5	24	8: 1	15: 5	22: 7	2:38		21:40	+4.1 287	4:11	20: 2	0.01
2009	5	25	8: 2	15: 3	22: 3	2:37		21:41	+3.2 287	5: 4	21:10	0.00
2009	5	26	8: 3	15: 2	21:59	2:35		21:43	+2.3 288	6: 8	22: 7	0.03
2009	5	27	8: 3	15: 0	21:55	2:34		21:44	+1.4 288	7:22	22:54	0.09
2009	5	28	8: 4	14:58	21:51	2:33		21:46	+0.5 288	8:39	23:31	0.17
2009	5	29	8: 4	14:56	21:47	2:32		21:47	-0.3 288	9:55s	0: 1	0.27
2009	5	30	8: 5	14:55	21:43	2:31		21:48		11: 9s	0:27	0.37

Anno	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt Azi	FC ->	Alt Azi	LuSo	LuTr	F.L.
2009	5	31	8: 5	14:53	21:39	2:30		21:50		12:20s	0:50	0.49
2009	6	1	8: 6	14:51	21:35	2:29		21:51		13:29s	1:13	0.60
2009	6	2	8: 6	14:49	21:31	2:28		21:52		14:37		0.70
2009	6	3	8: 7	14:48	21:27	2:27		21:54		15:44	1:37	0.79
2009	6	4	8: 7	14:46	21:23	2:26		21:55		16:52	2: 3	0.87
2009	6	5	8: 8	14:44	21:19	2:25		21:56		17:58	2:33	0.93
2009	6	6	8: 8	14:42	21:15	2:24		21:57		19: 1	3: 8	0.97
2009	6	7	8: 9	14:41	21:11	2:23		21:58		19:59	3:50	0.99
2009	6	8	8: 9	14:39	21: 7	2:23		21:59		20:49	4:39	1.00
2009	6	9	8:10	14:37	21: 3	2:22		22: 0		21:32	5:35	0.99
2009	6	10	8:10	14:35	20:59	2:22		22: 1		22: 7	6:35	0.95
2009	6	11	8:11	14:34	20:55	2:21		22: 2		22:37	7:38	0.91
2009	6	12	8:11	14:32	20:51	2:21		22: 3		23: 2	8:41	0.85
2009	6	13	8:11	14:30	20:48	2:20		22: 3		23:24	9:43	0.77
2009	6	14	8:12	14:28	20:44	2:20		22: 4		23:46	10:46	0.69
2009	6	15	8:12	14:27	20:40	2:20		22: 5	s	0: 7	11:48	0.59
2009	6	16	8:13	14:25	20:36	2:20		22: 5	s	0:29	12:53	0.49
2009	6	17	8:13	14:23	20:32	2:19		22: 6	s	0:54	13:59	0.39
2009	6	18	8:14	14:21	20:28	2:19		22: 6			15:10	0.29
2009	6	19	8:14	14:20	20:24	2:20		22: 6		1:24	16:23	0.20
2009	6	20	8:15	14:18	20:20	2:20		22: 7		2: 1	17:38	0.11
2009	6	21	8:15	14:16	20:16	2:20		22: 7		2:48	18:50	0.05
2009	6	22	8:16	14:15	20:12	2:20		22: 7		3:48	19:53	0.01
2009	6	23	8:17	14:13	20: 8	2:20		22: 7		4:59	20:46	0.00
2009	6	24	8:17	14:11	20: 5	2:21		22: 7		6:17	21:27	0.02
2009	6	25	8:18	14:10	20: 1	2:21		22: 7		7:36	22: 1	0.07
2009	6	26	8:18	14: 8	19:57	2:22		22: 7		8:54	22:29	0.15
2009	6	27	8:19	14: 6	19:53	2:22		22: 7		10: 8	22:54	0.24
2009	6	28	8:20	14: 5	19:49	2:23		22: 6		11:19	23:18	0.34
2009	6	29	8:20	14: 3	19:45	2:24		22: 6		12:28	23:42	0.45
2009	6	30	8:21	14: 2	19:41	2:24		22: 6		13:36s	0: 7	0.56
2009	7	1	8:22	14: 0	19:37	2:25		22: 5		14:43s	0:35	0.66
2009	7	2	8:22	13:58	19:33	2:26		22: 5		15:49s	1: 8	0.75
2009	7	3	8:23	13:57	19:30	2:27		22: 4		16:53		0.83
2009	7	4	8:24	13:55	19:26	2:28		22: 3		17:52	1:47	0.90
2009	7	5	8:25	13:54	19:22	2:29		22: 3		18:45	2:34	0.95
2009	7	6	8:25	13:52	19:18	2:30		22: 2		19:30	3:27	0.98
2009	7	7	8:26	13:51	19:14	2:31		22: 1		20: 7	4:26	1.00
2009	7	8	8:27	13:49	19:10	2:32		22: 0		20:38	5:28	1.00
2009	7	9	8:28	13:48	19: 6	2:33		21:59		21: 5	6:31	0.98
2009	7	10	8:29	13:46	19: 2	2:34		21:58		21:28	7:34	0.94
2009	7	11	8:30	13:45	18:58	2:36		21:57		21:50	8:36	0.89
2009	7	12	8:31	13:43	18:55	2:37		21:56		22:11	9:39	0.82
2009	7	13	8:32	13:42	18:51	2:38		21:55		22:32	10:42	0.74
2009	7	14	8:33	13:41	18:47	2:40		21:54		22:55	11:46	0.65
2009	7	15	8:34	13:39	18:43	2:41		21:53			12:54	0.54
2009	7	16	8:36	13:38	18:39	2:43		21:52		p23:22	14: 4	0.44
2009	7	17	8:37	13:36	18:35	2:44		21:50		p23:55	15:17	0.33
2009	7	18	8:38	13:35	18:31	2:46		21:49		0:36	16:29	0.23
2009	7	19	8:39	13:34	18:27	2:47		21:47		1:29	17:36	0.14
2009	7	20	8:41	13:33	18:23	2:49		21:46		2:34	18:33	0.07
2009	7	21	8:42	13:31	18:19	2:50		21:45		3:49	19:20	0.02
2009	7	22	8:44	13:30	18:15	2:52		21:43		5: 9	19:58	0.00
2009	7	23	8:45	13:29	18:12	2:53		21:42		6:29	20:29	0.01
2009	7	24	8:47	13:28	18: 8	2:55		21:40		7:47	20:56	0.05
2009	7	25	8:48	13:27	18: 4	2:56		21:38		9: 1	21:21	0.12
2009	7	26	8:50	13:25	18: 0	2:58		21:37		10:13	21:45	0.21
2009	7	27	8:52	13:24	17:56	3: 0		21:35		11:23	22:10	0.30
2009	7	28	8:54	13:23	17:52	3: 1		21:34		12:32	22:38	0.41
2009	7	29	8:56	13:22	17:48	3: 3		21:32		13:39	23: 9	0.51
2009	7	30	8:58	13:21	17:44	3: 5		21:30		14:44	23:47	0.61
2009	7	31	9: 0	13:20	17:40	3: 6		21:28		15:45s	0:30	0.70
2009	8	1	9: 2	13:19	17:36	3: 8		21:27		16:39s	1:21	0.79
2009	8	2	9: 4	13:18	17:32	3: 9		21:25		17:27		0.86
2009	8	3	9: 6	13:17	17:28	3:11		21:23		18: 7	2:18	0.92
2009	8	4	9: 8	13:16	17:24	3:13		21:21		18:40	3:19	0.96
2009	8	5	9:11	13:16	17:19	3:14		21:19		19: 8	4:21	0.99
2009	8	6	9:13	13:15	17:15	3:16		21:17		19:33	5:25	1.00
2009	8	7	9:16	13:14	17:11	3:18		21:16		19:55	6:28	0.99

IC = Ora di inizio del crepuscolo astronomico, in T.U.+1
 Alz = altezza della cometa all'IC o a FC
 Azi = azimut della cometa all'IC o a FC
 FC = Ora di fine del crepuscolo astronomico, in T.U.+1
 LuSo = Ora di levata della Luna
 LuTr = Ora di tramonto della Luna
 F.L. = Frazione di luna illuminata, 0 luna nuova, 1 luna piena





NB: TUTTI I DATI RELATIVI ALLE COMETE (PARAMETRI ORBITALI E MAGNITUDINE) SONO ALTAMENTE SOGGETTI A VARIAZIONI NEL TEMPO!

CONGIUNZIONI <5° PIANETI - COMETE

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)		
2009/02/24 01:26:07		2.15560	0.03739	8.420	0.411	202	-166	0.2	6.2		Saturno	C/2007 N3
2009/07/10 23:43:47		2.13056	0.00506	1.316	3.824	183	-4	-1.9	14.1		Mercurio	C/2007 N3
2009/07/30 13:15:13		0.63547	0.00517	1.249	3.865	203	17	-0.5	18.4		Mercurio	85P
2009/08/16 18:23:38		0.35719	0.00625	1.236	3.976	185	-36	-3.9	14.8		Venere	C/2007 N3
2009/09/24 06:03:30		2.04950	0.00509	1.459	3.773	185	-73	0.7	15.2		Marte	C/2007 N3
2009/10/03 12:40:00		1.04622	0.00538	1.495	4.331	201	-25	-3.9	19.3		Venere	85P

CONGIUNZIONI MULTIPLE PIANETI - COMETE (eventi con 2 o più pianeti ed una cometa entro 5°)

Data TT Dmed (°) Dmax emin m2d mmax

Questo anno non avvengono fenomeni

CONGIUNZIONI <5° TRA COMETE

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)		
2009/02/17 00:48:05		4.32602	0.03438	1.897	0.491	201	-127	18.0	6.4	88P		C/2007 N3
2009/04/21 10:51:38		3.17830	0.01129	2.168	2.089	186	67	15.5	11.1	85P		C/2007 N3

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se $Dm < Dl$ vi è una occultazione tra i corpi

R1 = distanza in U.A. del primo corpo dalla Terra

R2 = distanza in U.A. del secondo corpo dalla Terra

p = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del primo corpo

m2 = magnitudine del secondo corpo

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi

Dmax = diametro del cerchio comprendente gli oggetti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

CONGIUNZIONI <1° LUNA - COMETE

Geocentriche

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	
2009/02/02 08:51:15		0.07952	1.23972	1.029	0.003	160	82	12.1		3803	85P
2009/03/03 15:52:23		0.50090	1.25388	1.357	0.002	351	81	13.4		3336	85P
2009/04/01 09:46:31		0.31138	1.26141	1.809	0.002	2	74	14.7		3417	85P
2009/04/29 20:14:53		0.34229	1.26997	2.324	0.002	190	63	15.8		3319	85P
2009/10/22 19:12:10		0.63081	1.17384	1.674	0.003	358	55	14.9	-9.8	3292	88P

Topocentriche 42°N - 12°E

Data	UT	Dm (°)	Alt.	r1	r2	p (°)	e	m1	m2	tm(s)	
2009/02/02 08:15:57		0.97329	-9.92	1.028	0.003	159	82	12.1			85P
2009/03/03 15:32:57		0.19028	69.12	1.356	0.002	344	81	13.4		5304	85P
2009/03/07 18:11:28		0.77183	52.42	0.603	0.002	19	136	7.3			C/2007 N3
2009/04/01 08:36:35		0.39037	1.21	1.808	0.002	175	74	14.6			85P
2009/10/22 20:37:41		0.10853	-16.83	1.675	0.003	348	55	14.9	-9.8	3830	88P

CONGIUNZIONI MULTIPLE PIANETI-LUNA-COMETE (eventi con 1 o più pianeti, la Luna ed una cometa entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/08/17 20:21:26		1.831	2.276	-37	-3.9	14.8	Venere	Luna	C/2007 N3

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/08/17 20:09:10		1.238	1.394	-37	-3.9	14.8	Venere	Luna	C/2007 N3

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi
 Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi
 Alt = altezza sull'orizzonte della cometa, in gradi
 R1 = distanza in U.A. della cometa dalla Terra
 R2 = distanza in U.A. della Luna dalla Terra
 p = angolo di posizione tra i corpi, in gradi
 e = elongazione, in gradi
 m1 = magnitudine della cometa
 m2 = magnitudine della Luna
 tm = se presente, la cometa viene occultata massimo per x secondi

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi
 Dmax = diametro del cerchio comprendente gli oggetti, in gradi
 emin = elongazione minima, in gradi
 m2d = magnitudine del penultimo corpo più debole
 mmax = magnitudine del corpo più debole

© (6)

CONGIUNZIONI <1° ASTEROIDI m<9 - COMETE

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)		
2009/07/28	17:59:33	0.63677	0.00314	3.487	3.947	183	-19	8.4	14.4		Vesta	C/2007 N3

CONGIUNZIONI MULTIPLE ASTEROIDI m<9 -COMETE (eventi con 2 comete ed un asteroide o viceversa entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

CONGIUNZ. MULTIPLE PIANETI-COMETE-ASTEROIDI (eventi con 1 pianeta, una cometa ed un asteroide entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

R1 = distanza in U.A. dell'asteroide dalla Terra

R2 = distanza in U.A. della cometa dalla Terra

p = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine dell'asteroide

m* = magnitudine della cometa

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi

Dmax = diametro del cerchio comprendente gli oggetti, in gradi

emin = elongazione minima, in gradi

m2d = magnitudine del penultimo corpo più debole

mmax = magnitudine del corpo più debole

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CONGIUNZIONI <5° COMETE - STELLE m<2

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m*	tm(s)			
2009/02/16 05:40:31		2.60820	0.02839	0.508	201	-124	6.5	1.1		C/2007 N3	Alpha	VIR Spica
2009/02/27 23:17:50		0.65566	0.03305	0.436	20	170	6.4	1.3		C/2007 N3	Alpha	LEO Regulus
2009/03/27 07:54:37		2.18487	0.00837	1.722	360	76	14.4	1.7		85P	Beta	TAU Elnath
2009/05/19 10:20:36		4.96694	0.00536	2.691	13	55	16.5	1.2		85P	Beta	GEM Pollux
2009/08/02 03:02:55		1.59882	0.00959	1.502	206	74	15.2	1.1		88P	Alpha	VIR Spica
2009/08/15 07:11:13		0.15095	0.00356	4.043	202	7	18.6	1.3		85P	Alpha	LEO Regulus
2009/10/06 03:37:56		1.70479	0.00888	1.623	191	57	14.8	1.0		88P	Alpha	SCO Antares
2009/11/08 06:40:13		4.90543	0.00423	3.406	182	-127	15.5	2.0		C/2007 N3	Gamma	GEM Alhena

CONGIUNZIONI <5° COMETE-OGGETTI MESSIER m<9

Data	TT	Dm (°)	Dl	r1	p (°)	e	m1	m*	tm(s)			
2009/02/26 11:01:21		0.33042	0.01120	1.287	170	82	13.1	1.6		85P		M45
2009/03/06 03:44:52		2.05525	0.02574	0.560	14	142	7.1	3.7		C/2007 N3	NGC2632	M44
2009/03/30 02:27:12		4.40144	0.00814	1.769	181	75	14.6	8.4		85P	NGC1952	M1
2009/04/11 05:46:22		1.77920	0.00727	1.982	184	71	15.1	5.3		85P	NGC2168	M35
2009/06/19 01:19:45		0.34852	0.00444	3.242	17	39	17.4	3.7		85P	NGC2632	M44
2009/10/02 00:49:40		1.13919	0.00894	1.613	12	58	14.8	7.3		88P	NGC6093	M80
2009/10/04 15:26:05		2.04262	0.00890	1.619	191	57	14.8	7.1		88P	NGC6121	M4
2009/10/14 18:49:03		0.40031	0.00875	1.647	187	56	14.8	7.0		88P	NGC6273	M19
2009/10/14 23:30:32		4.25351	0.00875	1.648	187	56	14.8	6.5		88P	NGC6266	M62
2009/10/30 03:25:25		3.78033	0.00845	1.705	0	54	14.9	9.0		88P	NGC6514	M20
2009/10/30 10:56:11		2.37874	0.00845	1.706	0	54	15.0	6.0		88P	NGC6523	M8
2009/10/30 16:18:38		4.25652	0.00844	1.707	0	54	15.0	6.5		88P	NGC6531	M21
2009/11/04 20:10:57		1.82145	0.00832	1.732	358	53	15.0	6.8		88P	NGC6626	M28
2009/11/07 23:01:41		2.66585	0.00825	1.748	357	53	15.1	5.1		88P	NGC6656	M22
2009/11/12 02:54:54		4.19604	0.00814	1.771	175	52	15.1	7.6		88P	NGC6715	M54
2009/11/27 11:40:45		2.87696	0.00428	3.367	0	-153	15.6	5.3		C/2007 N3	NGC2168	M35
2009/12/01 20:18:19		1.77285	0.00756	1.905	347	49	15.5	8.5		88P	NGC6864	M75
2009/12/17 15:47:43		0.71091	0.00413	3.487	358	177	15.9	8.4		C/2007 N3	NGC1952	M1

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

Rl = distanza in U.A. della cometa dalla Terra

p = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine della cometa

m* = magnitudine del secondo corpo

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

CONGIUNZIONI MULTIPLE PIANETI-COMETE-STELLE

(eventi con 1 pianeta, 1 cometa ed 1 stella di mag<2 entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax				
2009/08/02	01:24:45	3.550	4.856	15	1.3	18.4	Mercurio	Alpha	LEO	Regulus 85P

CONGIUNZIONI MULTIPLE PIANETI - COMETE-OGGETTI

(eventi con 1 pianeta, 1 cometa ed un oggetto di mag<2 entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

CONGIUNZIONI MULTIPLE LUNA-COMETE-STELLE

(eventi con la Luna, 1 cometa ed 1 stella di mag<2 entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax				
2009/04/01	06:35:26	2.879	3.972	72	1.7	14.6	Beta	TAU	Elnath	85P
2009/08/20	15:01:53	2.931	3.462	4	1.3	18.7	Alpha	LEO	Regulus	85P

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax				
2009/04/01	06:07:23	3.100	3.963	73	1.7	14.6	Beta	TAU	Elnath	85P
2009/08/20	14:25:21	3.535	4.380	4	1.3	18.7	Alpha	LEO	Regulus	85P

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi
Dmax = diametro del cerchio comprendente gli oggetti, in gradi
emin = elongazione minima, in gradi
m2d = magnitudine del penultimo corpo più debole
mmax = magnitudine del corpo più debole

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CONGIUNZIONI MULTIPLE LUNA-COMETE-OGGETTI

(eventi con la Luna, 1 cometa ed un oggetto di mag<2 entro 5°)

Geocentriche

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/03/03 11:29:24		3.136	4.368	79	1.6	13.4	M45	85P	Luna

Topocentriche 42°N - 12°E

Data	UT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/03/03 10:24:21		3.068	4.331	79	1.6	13.4	M45	85P	Luna

CONGIUNZIONI MULTIPLE STELLE - COMETE - ASTEROIDI

(eventi con 1 stella di mag<2, 1 cometa ed un asteroide mag<9 entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax
------	----	----------	------	------	-----	------

Questo anno non avvengono fenomeni

CONGIUNZIONI MULTIPLE OGGETTI - COMETE - ASTEROIDI

(eventi con un oggetto di mag<2, 1 cometa ed un asteroide mag<9 entro 5°)

Data	TT	Dmed (°)	Dmax	emin	m2d	mmax			
2009/03/05 17:33:34		2.631	2.930	143	7.1	9.4	C/2007 N3 NGC2632	M44	Euterpe

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri degli oggetti, in gradi
Dmax = diametro del cerchio comprendente gli oggetti, in gradi
emin = elongazione minima, in gradi
m2d = magnitudine del penultimo corpo più debole
mmax = magnitudine del corpo più debole

ECLISSI DI SOLE E DI LUNA

Annular Solar Eclipse of 2009 Jan 26

Geocentric Conjunction = 07:46:24.8 UT J.D. = 2454857.823898

Greatest Eclipse = 07:58:39.0 UT J.D. = 2454857.832395

Eclipse Magnitude = 0.9282 Gamma = -0.2819

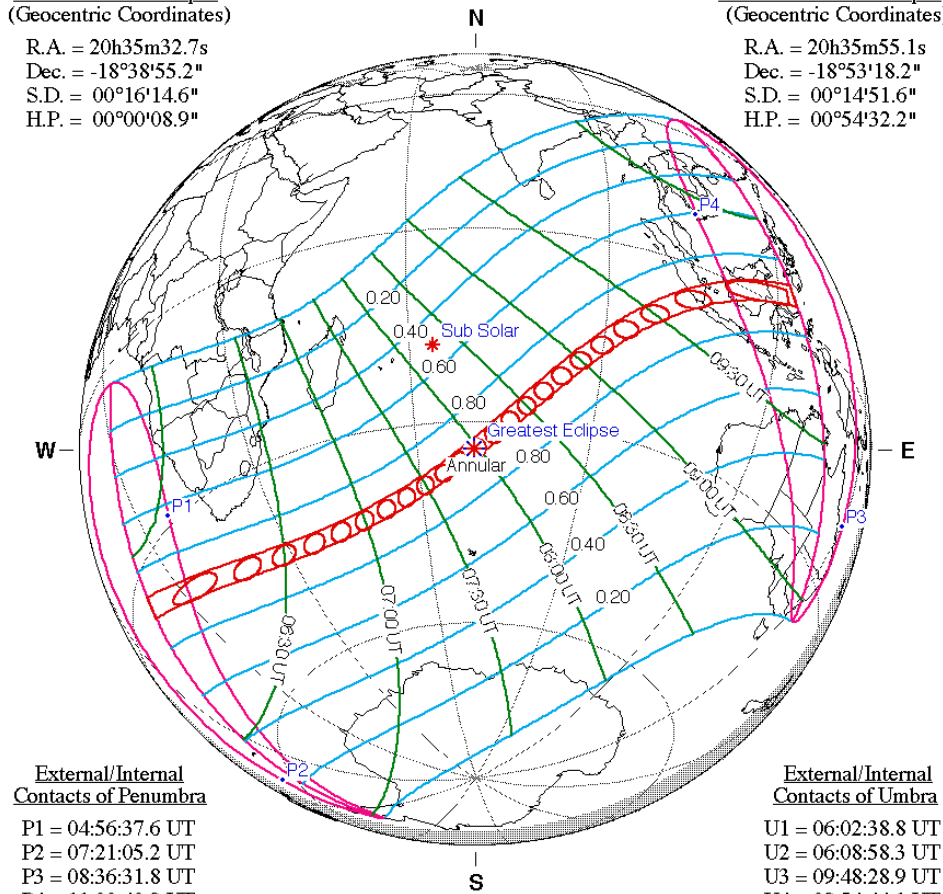
Saros Series = 131 Member = 51 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 20h35m32.7s
Dec. = -18°38'55.2"
S.D. = 00°16'14.6"
H.P. = 00°00'08.9"

Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 20h35m55.1s
Dec. = -18°53'18.2"
S.D. = 00°14'51.6"
H.P. = 00°54'32.2"



External/Internal Contacts of Penumbra

P1 = 04:56:37.6 UT
P2 = 07:21:05.2 UT
P3 = 08:36:31.8 UT
P4 = 11:00:40.9 UT

External/Internal Contacts of Umbra

U1 = 06:02:38.8 UT
U2 = 06:08:58.3 UT
U3 = 09:48:28.9 UT
U4 = 09:54:44.1 UT

Local Circumstances at Greatest Eclipse

Lat. = 34°04.2'S Sun Alt. = 73.4°
Long. = 070°14.0'E Sun Azm. = 337.0°
Path Width = 280.3 km Duration = 07m53.7s

Ephemeris & Constants

Eph. = Newcomb/ILE
 $\Delta T = 65.7$ s
 $k_1 = 0.2724880$
 $k_2 = 0.2722810$
 $\Delta b = 0.0''$ $\Delta l = 0.0''$

Geocentric Libration (Optical + Physical)

$l = -2.99^\circ$
 $b = 0.36^\circ$
 $c = -12.94^\circ$

Brown Lun. No. = 1065



F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center

CIRCOSTANZE GENERALI

		Data	Ist. (T.U.)	Long.	Lat.	Magnit.	Durata
Primo	Contatto	26/01/2009	04h56m37s	008°11'32" E	28°56'01" S		
Fase	Centrale	26/01/2009	07h58m39s	070°17'21" E	34°05'30" S	0.928	07m54s
Ultimo	Contatto	26/01/2009	11h00m41s	104°49'39" E	09°27'33" N		

P1, Primo contatto : punto della Terra in cui l'eclisse inizia come parziale al sorgere del Sole
P2, Secondo contatto : punto della Terra in cui l'eclisse finisce come parziale al sorgere del Sole
P3, Terzo contatto : punto della Terra in cui l'eclisse inizia come parziale al tramonto del Sole
P4, Quarto contatto : punto della Terra in cui l'eclisse finisce come parziale al tramonto del Sole

U1, Primo contatto : punto della Terra in cui l'eclisse inizia come totale al sorgere del Sole
U2, Secondo contatto : punto della Terra in cui l'eclisse finisce come totale al sorgere del Sole
U3, Terzo contatto : punto della Terra in cui l'eclisse inizia come totale al tramonto del Sole
U4, Quarto contatto : punto della Terra in cui l'eclisse finisce come totale al tramonto del Sole

Eclissi visibile in sud Africa, Antartide, sud-est Asia, Australia; l'anularità è visibile a sud dell'Oceano Indiano, a Sumatra e nel Borneo

Longitudine		Linea di centralità					Limiti della totalità						Limiti parzialità		
		U.T.	Durn.	Mag	Alt		Centro	Nord		Sud		Nord	Sud		
°	'	h	m	s	s	°	°	'	°	'	°	'	°	'	
- 70	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-69 19	
- 65	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-72 22	
- 60	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-75 7	
- 55	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-77 27	
- 50	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-79 20	
- 45	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-80 50	
- 40	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-82 0	
- 35	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-82 54	
- 30	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-83 37	
- 25	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-84 11	
- 20	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-84 38	
- 15	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	-84 59	
- 10	0.0	6	5	51	346.1A	0.915	2	-35	9.77	-33	24.50	-36	55.69	...	-85 16
- 5	0.0	6	6	29	353.7A	0.916	6	-36	48.84	-35	6.27	-38	31.98	...	-85 30
0	0.0	6	7	53	361.9A	0.917	11	-38	20.21	-36	40.57	-40	0.36	...	-85 41
5	0.0	6	10	2	370.6A	0.918	15	-39	42.67	-38	6.11	-41	19.69	- 4	-85 49
10	0.0	6	12	56	379.9A	0.919	20	-40	55.07	-39	21.66	-42	28.93	- 5	-85 55
15	0.0	6	16	33	389.5A	0.920	24	-41	56.37	-40	26.06	-43	27.14	- 7	-86 0
20	0.0	6	20	55	399.6A	0.921	29	-42	45.58	-41	18.20	-44	13.44	- 8	-86 2
25	0.0	6	26	1	409.9A	0.922	33	-43	21.73	-41	57.02	-44	46.98	- 9	-86 3
30	0.0	6	31	52	420.5A	0.923	38	-43	43.82	-42	21.39	-45	6.83	-10	-86 2
35	0.0	6	38	30	431.1A	0.924	42	-43	50.67	-42	30.03	-45	11.95	-10	-85 59
40	0.0	6	46	1	441.5A	0.925	47	-43	40.85	-42	21.37	-45	1.00	-10	-85 55
45	0.0	6	54	30	451.6A	0.926	52	-43	12.49	-41	53.42	-44	32.27	- 9	-85 49
50	0.0	7	4	6	460.7A	0.927	57	-42	23.12	-41	3.50	-43	43.43	- 6	-85 40
55	0.0	7	14	59	468.5A	0.927	62	-41	9.43	-39	48.05	-42	31.42	- 3	-85 29
60	0.0	7	27	25	474.0A	0.928	67	-39	27.05	-38	2.41	-40	52.16	1	-85 15
65	0.0	7	41	38	476.3A	0.928	71	-37	10.52	-35	40.76	-38	40.50	6	-84 58
70	0.0	7	57	50	474.0A	0.929	73	-34	13.92	-32	37.05	-35	50.70	11	-84 36
75	0.0	8	15	55	466.4A	0.929	71	-30	33.34	-28	48.01	-32	18.44	15	-84 8
80	0.0	8	35	10	453.4A	0.928	65	-26	12.35	-24	19.21	-28	5.52	19	-83 33
85	0.0	8	54	1	436.7A	0.927	57	-21	27.25	-19	29.70	-23	25.55	23	0
90	0.0	9	10	42	418.8A	0.926	48	-16	43.10	-14	45.35	-18	42.24	26	1
95	0.0	9	24	11	402.0A	0.924	39	-12	20.50	-10	25.25	-14	17.45	28	41
100	0.0	9	34	22	387.2A	0.922	31	- 8	28.68	- 6	36.73	-10	22.32	31	2
105	0.0	9	41	40	374.4A	0.921	23	- 5	8.37	- 3	19.52	- 6	58.79	33	6
110	0.0	9	46	37	363.4A	0.919	16	- 2	16.69	- 0	30.37	- 4	4.41	...	..
115	0.0	9	49	41	354.0A	0.918	10	0	10.11	1	54.49	- 1	35.53	...	..
120	0.0	9	51	14	345.9A	0.916	4	2	15.51	3	58.47	0	31.42	...	..
125	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	...	..
130	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	...	..
135	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	...	..
140	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	...	..
145	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	...	..
150	0.0	..	..	..	.....	....	..	...	...	...	...	...	...	...	..

Penumbral Lunar Eclipse of 2009 Feb 09

Geocentric Conjunction = 15:28:39.1 UT J.D. = 2454872.14490

Greatest Eclipse = 14:38:16.5 UT J.D. = 2454872.10991

Penumbral Magnitude = 0.9244 P. Radius = 1.3004° Gamma = -1.0641

Umbral Magnitude = -0.0830 U. Radius = 0.7493° Axis = 1.0682°

Saros Series = 143 Member = 18 of 73

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 21h33m30.0s

Dec. = -14°30'07.4"

S.D. = 00°16'12.6"

H.P. = 00°00'08.9"

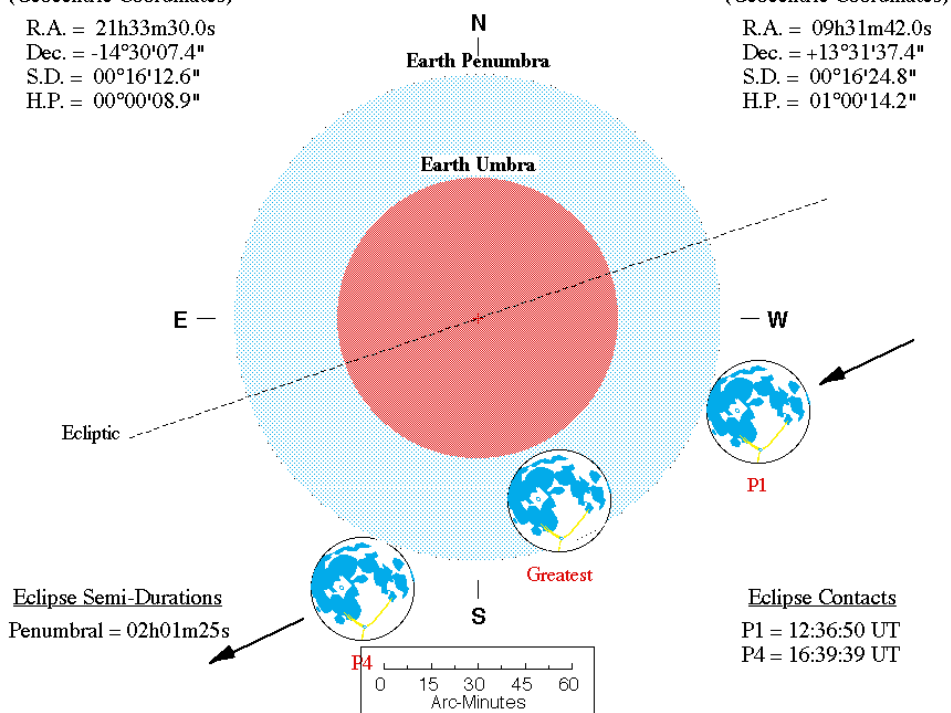
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 09h31m42.0s

Dec. = +13°31'37.4"

S.D. = 00°16'24.8"

H.P. = 01°00'14.2"



Eclipse Semi-Durations

Penumbral = 02h01m25s

Eclipse Contacts

P1 = 12:36:50 UT

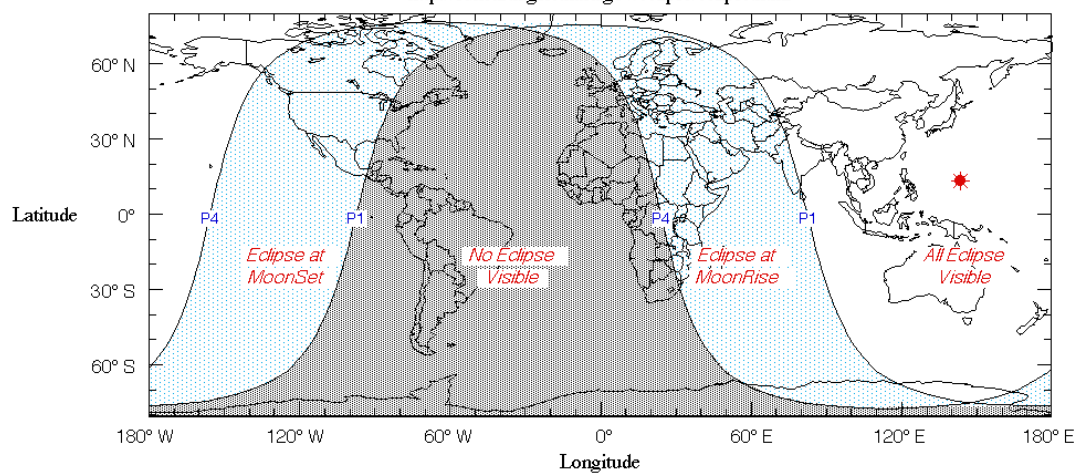
P4 = 16:39:39 UT

Eph. = Newcomb/ILE

ΔT = 65.7 s

F. Espenak, NASA's GSFC - 2004 Jul 07

<http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html>



Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center

CIRCOSTANZE GENERALI

	Data	Ist. (T.U.)	Magnit.	Durata
Inizio Eclisse di Penombra	09/02/2009	12h36m50s		
Massimo dell'Eclisse	09/02/2009	14h38m16s	0.924	04h03m
Fine Eclisse di Penombra	09/02/2009	16h39m21s		

Eclissi visibile in Oriente. In Italia sarà poco visibile poichè quando sorge la Luna il fenomeno è quasi finito. Inoltre, come tutte le eclissi di penombra, è poco visibile senza l'aiuto di strumenti ottici.



Allo Zenit		067°48'54" E	43°07'45" S	059°41'06" W	76°13'11" N
Longit.	Latit.	065°18'54" E	37°28'51" S	062°11'06" W	75°57'16" N
143°35'36" E	13°31'35" N	062°48'54" E	30°43'43" S	064°41'06" W	75°39'09" N
		060°18'54" E	22°46'01" S	067°11'06" W	75°18'36" N
Al sorgere e al tramonto		057°48'54" E	13°38'07" S	069°41'06" W	74°55'25" N
Longit.	Latit.	055°18'54" E	03°36'43" S	072°11'06" W	74°29'17" N
179°41'06" W	72°16'42" S	052°48'54" E	06°45'37" N	074°41'06" W	73°59'51" N
177°48'54" E	72°47'28" S	050°18'54" E	16°48'36" N	077°11'06" W	73°26'43" N
175°18'54" E	73°14'48" S	047°48'54" E	25°58'11" N	079°41'06" W	72°49'23" N
172°48'54" E	73°39'01" S	045°18'54" E	33°55'59" N	082°11'06" W	72°07'16" N
170°18'54" E	74°00'26" S	042°48'54" E	40°39'01" N	084°41'06" W	71°19'38" N
167°48'54" E	74°19'17" S	040°18'54" E	46°13'47" N	087°11'06" W	70°25'37" N
165°18'54" E	74°35'46" S	037°48'54" E	50°50'31" N	089°41'06" W	69°24'07" N
162°48'54" E	74°50'04" S	035°18'54" E	54°39'40" N	092°11'06" W	68°13'49" N
160°18'54" E	75°02'20" S	032°48'54" E	57°50'27" N	094°41'06" W	66°53'03" N
157°48'54" E	75°12'40" S	030°18'54" E	60°30'26" N	097°11'06" W	65°19'43" N
155°18'54" E	75°21'12" S	027°48'54" E	62°45'37" N	099°41'06" W	63°31'11" N
152°48'54" E	75°27'59" S	025°18'54" E	64°40'44" N	102°11'06" W	61°24'04" N
150°18'54" E	75°33'05" S	022°48'54" E	66°19'27" N	104°41'06" W	58°54'04" N
147°48'54" E	75°36'34" S	020°18'54" E	67°44'41" N	107°11'06" W	55°55'42" N
145°18'54" E	75°38'27" S	017°48'54" E	68°58'43" N	109°41'06" W	52°22'00" N
142°48'54" E	75°38'45" S	015°18'54" E	70°03'22" N	112°11'06" W	48°04'24" N
140°18'54" E	75°37'28" S	012°48'54" E	71°00'04" N	114°41'06" W	42°52'48" N
137°48'54" E	75°34'36" S	010°18'54" E	71°49'59" N	117°11'06" W	36°36'35" N
135°18'54" E	75°30'06" S	007°48'54" E	72°34'06" N	119°41'06" W	29°07'17" N
132°48'54" E	75°23'57" S	005°18'54" E	73°13'09" N	122°11'06" W	20°23'33" N
130°18'54" E	75°16'06" S	002°48'54" E	73°47'48" N	124°41'06" W	10°37'27" N
127°48'54" E	75°06'27" S	000°18'54" E	74°18'35" N	127°11'06" W	00°17'43" N
125°18'54" E	74°54'55" S	002°11'06" W	74°45'55" N	129°41'06" W	09°56'06" S
122°48'54" E	74°41'24" S	004°41'06" W	75°10'11" N	132°11'06" W	19°27'03" S
120°18'54" E	74°25'46" S	007°11'06" W	75°31'41" N	134°41'06" W	27°52'10" S
117°48'54" E	74°07'50" S	009°41'06" W	75°50'42" N	137°11'06" W	35°04'16" S
115°18'54" E	73°47'25" S	012°11'06" W	76°07'25" N	139°41'06" W	41°07'07" S
112°48'54" E	73°24'17" S	014°41'06" W	76°22'03" N	142°11'06" W	46°09'34" S
110°18'54" E	72°58'10" S	017°11'06" W	76°34'45" N	144°41'06" W	50°21'37" S
107°48'54" E	72°28'44" S	019°41'06" W	76°45'37" N	147°11'06" W	53°52'29" S
105°18'54" E	71°55'37" S	022°11'06" W	76°54'48" N	149°41'06" W	56°49'58" S
102°48'54" E	71°18'20" S	024°41'06" W	77°02'22" N	152°11'06" W	59°20'23" S
100°18'54" E	70°36'21" S	027°11'06" W	77°08'23" N	154°41'06" W	61°28'46" S
097°48'54" E	69°49'01" S	029°41'06" W	77°12'55" N	157°11'06" W	63°19'04" S
095°18'54" E	68°55'30" S	032°11'06" W	77°16'00" N	159°41'06" W	64°54'27" S
092°48'54" E	67°54'51" S	034°41'06" W	77°17'40" N	162°11'06" W	66°17'23" S
090°18'54" E	66°45'52" S	037°11'06" W	77°17'56" N	164°41'06" W	67°29'53" S
087°48'54" E	65°27'04" S	039°41'06" W	77°16'47" N	167°11'06" W	68°33'31" S
085°18'54" E	63°56'39" S	042°11'06" W	77°14'15" N	169°41'06" W	69°29'36" S
082°48'54" E	62°12'18" S	044°41'06" W	77°10'16" N	172°11'06" W	70°19'10" S
080°18'54" E	60°11'10" S	047°11'06" W	77°04'49" N	174°41'06" W	71°03'05" S
077°48'54" E	57°49'36" S	049°41'06" W	76°57'50" N	177°11'06" W	71°42'04" S
075°18'54" E	55°02'59" S	052°11'06" W	76°49'17" N	179°41'06" W	72°16'42" S
072°48'54" E	51°45'33" S	054°41'06" W	76°39'03" N		
070°18'54" E	47°50'02" S	057°11'06" W	76°27'04" N		

Penumbral Lunar Eclipse of 2009 Jul 07

Geocentric Conjunction = 09:00:36.7 UT J.D. = 2455019.87542

Greatest Eclipse = 09:38:38.4 UT J.D. = 2455019.90183

Penumbral Magnitude = 0.1824 P. Radius = 1.1862° Gamma = -1.4915
 Umbral Magnitude = -0.9084 U. Radius = 0.6513° Axis = 1.3419°

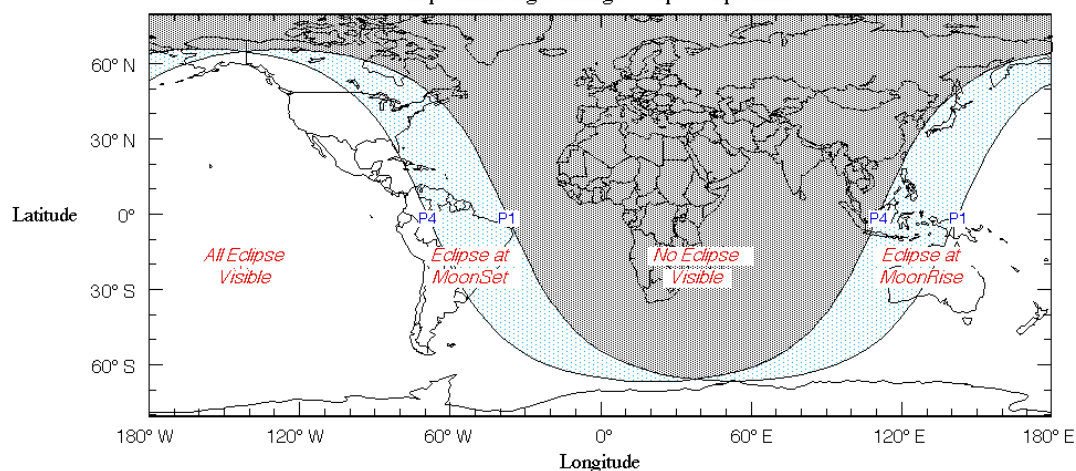
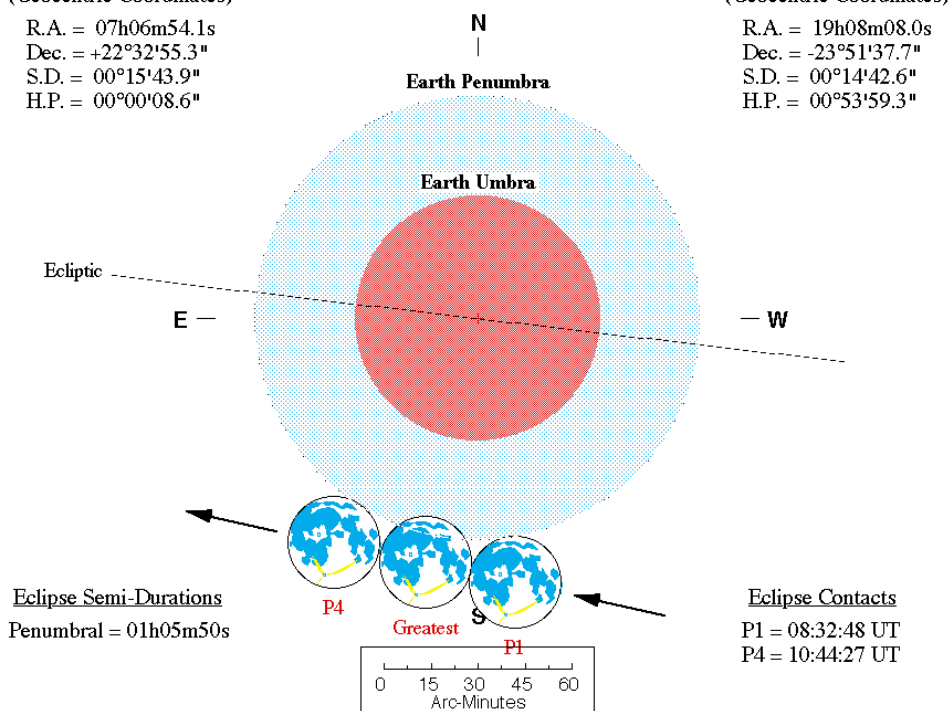
Saros Series = 110 Member = 71 of 72

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 07h06m54.1s
 Dec. = +22°32'55.3"
 S.D. = 00°15'43.9"
 H.P. = 00°00'08.6"

Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 19h08m08.0s
 Dec. = -23°51'37.7"
 S.D. = 00°14'42.6"
 H.P. = 00°53'59.3"



Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center

CIRCOSTANZE GENERALI

	Data	Ist. (T.U.)	Magnit.	Durata
Inizio Eclisse di Penombra	07/07/2009	08h32m48s		
Massimo dell'Eclisse	07/07/2009	09h38m38s	0.182	02h12m
Fine Eclisse di Penombra	07/07/2009	10h44m27s		

Eclissi visibile in America Occidentale ed Australia, non visibile in Italia. Comunque poco osservabile.



Allo Zenit		067°48'54" E	63°36'30" S	059°41'06" W	12°41'16" N
Longit.	Latit.	065°18'54" E	64°10'00" S	062°11'06" W	17°50'54" N
143°05'38" W	23°51'38" S	062°48'54" E	64°39'46" S	064°41'06" W	22°40'52" N
		060°18'54" E	65°06'04" S	067°11'06" W	27°08'48" N
Al sorgere e al tramonto		057°48'54" E	65°29'06" S	069°41'06" W	31°13'49" N
Longit.	Latit.	055°18'54" E	65°49'06" S	072°11'06" W	34°56'11" N
179°41'06" W	60°13'22" N	052°48'54" E	66°06'14" S	074°41'06" W	38°16'53" N
177°48'54" E	59°22'13" N	050°18'54" E	66°20'37" S	077°11'06" W	41°17'25" N
175°18'54" E	58°25'17" N	047°48'54" E	66°32'24" S	079°41'06" W	43°59'28" N
172°48'54" E	57°21'58" N	045°18'54" E	66°41'38" S	082°11'06" W	46°24'47" N
170°18'54" E	56°11'33" N	042°48'54" E	66°48'26" S	084°41'06" W	48°35'04" N
167°48'54" E	54°53'16" N	040°18'54" E	66°52'50" S	087°11'06" W	50°31'54" N
165°18'54" E	53°26'11" N	037°48'54" E	66°54'51" S	089°41'06" W	52°16'45" N
162°48'54" E	51°49'14" N	035°18'54" E	66°54'32" S	092°11'06" W	53°50'53" N
160°18'54" E	50°01'15" N	032°48'54" E	66°51'52" S	094°41'06" W	55°15'28" N
157°48'54" E	48°00'54" N	030°18'54" E	66°46'49" S	097°11'06" W	56°31'31" N
155°18'54" E	45°46'40" N	027°48'54" E	66°39'22" S	099°41'06" W	57°39'55" N
152°48'54" E	43°16'57" N	025°18'54" E	66°29'22" S	102°11'06" W	58°41'26" N
150°18'54" E	40°30'02" N	022°48'54" E	66°16'57" S	104°41'06" W	59°36'44" N
147°48'54" E	37°24'10" N	020°18'54" E	66°01'50" S	107°11'06" W	60°26'24" N
145°18'54" E	33°57'41" N	017°48'54" E	65°43'56" S	109°41'06" W	61°10'57" N
142°48'54" E	30°09'12" N	015°18'54" E	65°23'08" S	112°11'06" W	61°50'50" N
140°18'54" E	25°57'55" N	012°48'54" E	64°59'13" S	114°41'06" W	62°26'24" N
137°48'54" E	21°23'49" N	010°18'54" E	64°32'00" S	117°11'06" W	62°58'01" N
135°18'54" E	16°28'12" N	007°48'54" E	64°01'15" S	119°41'06" W	63°25'56" N
132°48'54" E	11°13'49" N	005°18'54" E	63°26'39" S	122°11'06" W	63°50'25" N
130°18'54" E	05°45'06" N	002°48'54" E	62°47'55" S	124°41'06" W	64°11'40" N
127°48'54" E	00°07'59" N	000°18'54" E	62°04'38" S	127°11'06" W	64°29'52" N
125°18'54" E	05°30'37" S	002°11'06" W	61°16'24" S	129°41'06" W	64°45'10" N
122°48'54" E	11°03'36" S	004°41'06" W	60°22'40" S	132°11'06" W	64°57'41" N
120°18'54" E	16°24'29" S	007°11'06" W	59°22'53" S	134°41'06" W	65°07'31" N
117°48'54" E	21°28'04" S	009°41'06" W	58°16'22" S	137°11'06" W	65°14'44" N
115°18'54" E	26°10'49" S	012°11'06" W	57°02'21" S	139°41'06" W	65°19'24" N
112°48'54" E	30°30'49" S	014°41'06" W	55°39'55" S	142°11'06" W	65°21'34" N
110°18'54" E	34°27'33" S	017°11'06" W	54°08'05" S	144°41'06" W	65°21'13" N
107°48'54" E	38°01'36" S	019°41'06" W	52°25'41" S	147°11'06" W	65°18'23" N
105°18'54" E	41°14'10" S	022°11'06" W	50°31'22" S	149°41'06" W	65°13'01" N
102°48'54" E	44°06'53" S	024°41'06" W	48°23'41" S	152°11'06" W	65°05'05" N
100°18'54" E	46°41'33" S	027°11'06" W	46°01'01" S	154°41'06" W	64°54'32" N
097°48'54" E	48°59'58" S	029°41'06" W	43°21'36" S	157°11'06" W	64°41'16" N
095°18'54" E	51°03'50" S	032°11'06" W	40°23'38" S	159°41'06" W	64°25'12" N
092°48'54" E	52°54'45" S	034°41'06" W	37°05'21" S	162°11'06" W	64°06'11" N
090°18'54" E	54°34'09" S	037°11'06" W	33°25'13" S	164°41'06" W	63°44'04" N
087°48'54" E	56°03'19" S	039°41'06" W	29°22'09" S	167°11'06" W	63°18'40" N
085°18'54" E	57°23'21" S	042°11'06" W	24°55'50" S	169°41'06" W	62°49'46" N
082°48'54" E	58°35'14" S	044°41'06" W	20°07'09" S	172°11'06" W	62°17'06" N
080°18'54" E	59°39'51" S	047°11'06" W	14°58'25" S	174°41'06" W	61°40'23" N
077°48'54" E	60°37'55" S	049°41'06" W	09°33'39" S	177°11'06" W	60°59'16" N
075°18'54" E	61°30'05" S	052°11'06" W	03°58'27" S	179°41'06" W	60°13'22" N
072°48'54" E	62°16'56" S	054°41'06" W	01°40'28" N		
070°18'54" E	62°58'55" S	057°11'06" W	07°15'56" N		

Total Solar Eclipse of 2009 Jul 22

Geocentric Conjunction = 02:33:04.4 UT J.D. = 2455034.606301
 Greatest Eclipse = 02:35:21.1 UT J.D. = 2455034.607884

Eclipse Magnitude = 1.0799 Gamma = 0.0696

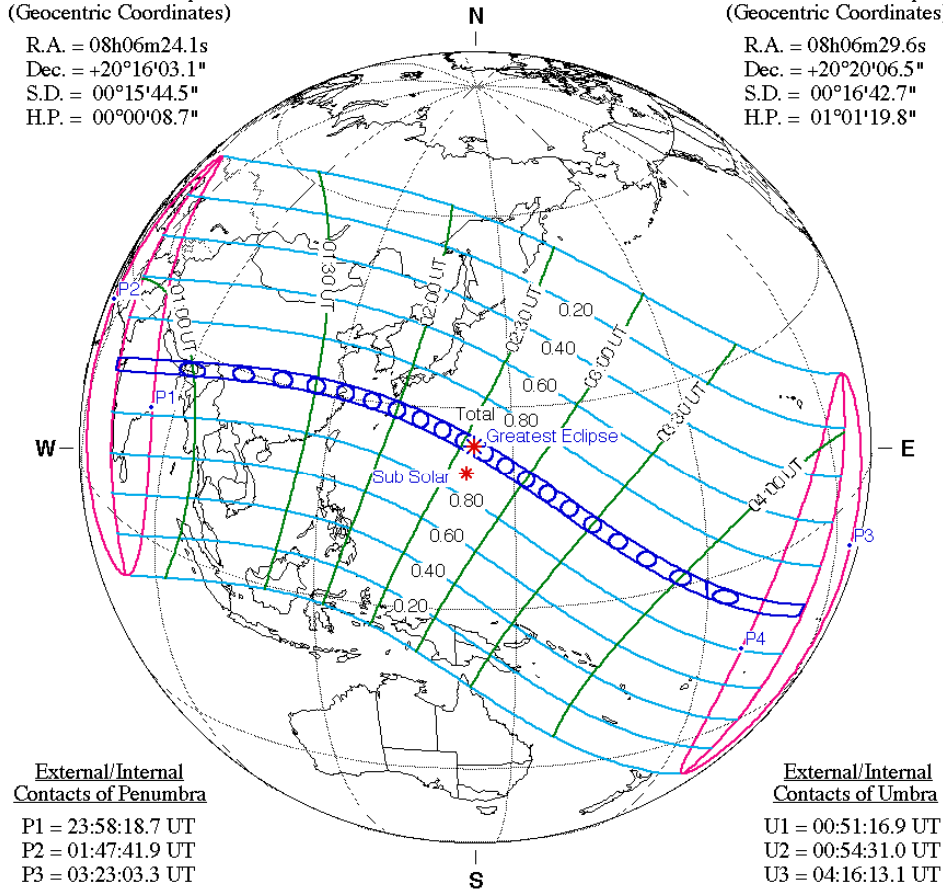
Saros Series = 136 Member = 37 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 08h06m24.1s
 Dec. = +20°16'03.1"
 S.D. = 00°15'44.5"
 H.P. = 00°00'08.7"

Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 08h06m29.6s
 Dec. = +20°20'06.5"
 S.D. = 00°16'42.7"
 H.P. = 01°01'19.8"



External/Internal Contacts of Penumbra

P1 = 23:58:18.7 UT
 P2 = 01:47:41.9 UT
 P3 = 03:23:03.3 UT
 P4 = 05:12:25.1 UT

External/Internal Contacts of Umbra

U1 = 00:51:16.9 UT
 U2 = 00:54:31.0 UT
 U3 = 04:16:13.1 UT
 U4 = 04:19:26.5 UT

Local Circumstances at Greatest Eclipse

Lat. = 24°12.6'N Sun Alt. = 85.9°
 Long. = 144°06.4'E Sun Azm. = 197.6°
 Path Width = 258.4 km Duration = 06m38.8s

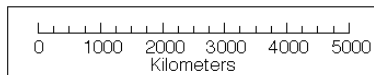
Ephemeris & Constants

Eph. = Newcomb/ILE
 $\Delta T = 66.2$ s
 $k_1 = 0.2724880$
 $k_2 = 0.2722810$
 $\Delta b = 0.0''$ $\Delta l = 0.0''$

Geocentric Libration (Optical + Physical)

$l = 0.66^\circ$
 $b = -0.09^\circ$
 $c = 10.53^\circ$

Brown Lun. No. = 1071



F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center

Con i suoi 6m39s questa eclissi è la più lunga del secolo. Una eclissi di pari magnitudine (1.080) avverrà il 25/06/2150, una con magnitudine più elevata, pari a 1.081, il 05/07/2168. Una eclissi con durata superiore, pari a 6m55s, avverrà il 13/06/2132. Una eclissi con pari percorso (258 km) avverrà il 2/08/2027, con larghezza superiore, pari a 260 km, il 25/06/2150

CIRCOSTANZE GENERALI

	Data	Ist.(T.U.)	Long.	Lat.	Magnit.	Durata
Primo Contatto	21/07/2009	23h58m19s	084°44'12" E	19°03'40" N		
Fase Centrale	22/07/2009	02h35m21s	144°10'36" E	24°13'55" N	1.080	06m39s
Ultimo Contatto	22/07/2009	05h12m25s	171°46'10" W	14°13'11" S		

P1, Primo contatto : punto della Terra in cui l'eclisse inizia come parziale al sorgere del Sole
P2, Secondo contatto : punto della Terra in cui l'eclisse finisce come parziale al sorgere del Sole
P3, Terzo contatto : punto della Terra in cui l'eclisse inizia come parziale al tramonto del Sole
P4, Quarto contatto : punto della Terra in cui l'eclisse finisce come parziale al tramonto del Sole

U1, Primo contatto : punto della Terra in cui l'eclisse inizia come totale al sorgere del Sole
U2, Secondo contatto : punto della Terra in cui l'eclisse finisce come totale al sorgere del Sole
U3, Terzo contatto : punto della Terra in cui l'eclisse inizia come totale al tramonto del Sole
U4, Quarto contatto : punto della Terra in cui l'eclisse finisce come totale al tramonto del Sole

Eclissi visibile in Asia, Oceano Pacifico, Hawaii. La totalità sarà visibile in India, Nepal, Cina ed Oceano Pacifico.

Longitudine		Linea di centralità					Limiti della totalità			Limiti parzialità	
		U.T.	Durn.	Mag	Alt		Centro	Nord	Sud	Nord	Sud
o	'	h m s	s		o		o	'	o	o	'
-180	0.0	4 6 20	257.3T	1.071	27		- 1 49.78	- 0 33.67	- 3 4.81	43 22	-37 40
-175	0.0	4 11 21	238.3T	1.069	20		- 4 50.80	- 3 39.12	- 6 1.53	39 30	-39 56
-170	0.0	4 14 45	221.6T	1.067	14		- 7 32.03	- 6 24.37	- 8 38.88	35 34	... ..
-165	0.0	4 16 46	207.0T	1.065	8		- 9 54.98	- 8 50.89	-10 58.39	31 47	... ..
-160	0.0	4 17 41	194.1T	1.063	2		-12 1.32	-11 0.37	-13 1.70	28 17	... ..
-155	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	25 10	... ..
-150	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	22 26	... ..
-145	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	20 4	... ..
-140	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	18 3	... ..
50	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	51 29	... ..
55	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	53 21	... ..
60	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	55 5	... ..
65	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	56 40	... ..
70	0.0	.. .. .	.....	.....	..		... ..	... ..	... ..	58 4	... ..
75	0.0	0 53 11	200.1T	1.064	5		22 0.54	23 1.72	20 59.84	59 19	... ..
80	0.0	0 54 20	213.2T	1.066	10		23 44.97	24 47.14	22 43.26	60 24	... ..
85	0.0	0 56 22	227.5T	1.067	15		25 21.74	26 24.73	24 19.17	61 18	- 7 22
90	0.0	0 59 17	242.8T	1.069	20		26 49.21	27 52.85	25 45.93	62 4	- 5 38
95	0.0	1 3 7	259.2T	1.071	26		28 5.72	29 9.88	27 1.86	62 40	- 4 3
100	0.0	1 7 52	276.5T	1.072	31		29 9.59	30 14.19	28 5.24	63 7	- 2 41
105	0.0	1 13 34	294.5T	1.074	37		29 59.15	31 4.17	28 54.31	63 25	- 1 35
110	0.0	1 20 14	313.1T	1.075	43		30 32.64	31 38.16	29 27.25	63 34	- 0 51
115	0.0	1 27 53	331.7T	1.077	49		30 48.21	31 54.43	29 42.07	63 35	- 0 35
120	0.0	1 36 36	349.9T	1.078	55		30 43.78	31 51.01	29 36.57	63 27	- 0 55
125	0.0	1 46 24	366.9T	1.079	61		30 16.96	31 25.66	29 8.20	63 9	- 1 59
130	0.0	1 57 25	381.7T	1.080	68		29 24.91	30 35.70	28 13.99	62 42	- 3 56
135	0.0	2 9 40	392.9T	1.081	75		28 4.38	29 17.99	26 50.55	62 3	- 6 46
140	0.0	2 23 13	398.9T	1.081	82		26 11.92	27 29.14	24 54.42	61 13	-10 19
145	0.0	2 37 59	398.3T	1.081	85		23 44.67	25 6.09	22 22.95	60 9	-14 16
150	0.0	2 53 40	389.9T	1.081	79		20 42.00	22 7.66	19 16.18	58 50	-18 19
155	0.0	3 9 36	374.0T	1.080	70		17 7.90	18 36.79	15 39.18	57 13	-22 15
160	0.0	3 24 54	352.3T	1.079	61		13 12.39	14 42.40	11 43.00	55 16	-25 55
165	0.0	3 38 38	327.6T	1.077	52		9 9.62	10 38.22	7 42.01	52 56	-29 18
170	0.0	3 50 11	302.4T	1.075	43		5 13.06	6 38.25	3 49.03	50 10	-32 22
175	0.0	3 59 22	278.7T	1.073	35		1 31.82	2 52.59	0 12.23	46 58	-35 9
180	0.0	4 6 20	257.3T	1.071	27		- 1 49.78	- 0 33.67	- 3 4.81	43 22	-37 40

Penumbral Lunar Eclipse of 2009 Aug 06

Geocentric Conjunction = 01:44:58.4 UT J.D. = 2455049.57290

Greatest Eclipse = 00:39:10.9 UT J.D. = 2455049.52721

Penumbral Magnitude = 0.4276

P. Radius = 1.1902°

Gamma = 1.3574

Umbral Magnitude = -0.6617

U. Radius = 0.6541°

Axis = 1.2259°

Saros Series = 148 Member = 3 of 71

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 09h04m41.9s

Dec. = +16°42'39.0"

S.D. = 00°15'46.1"

H.P. = 00°00'08.7"

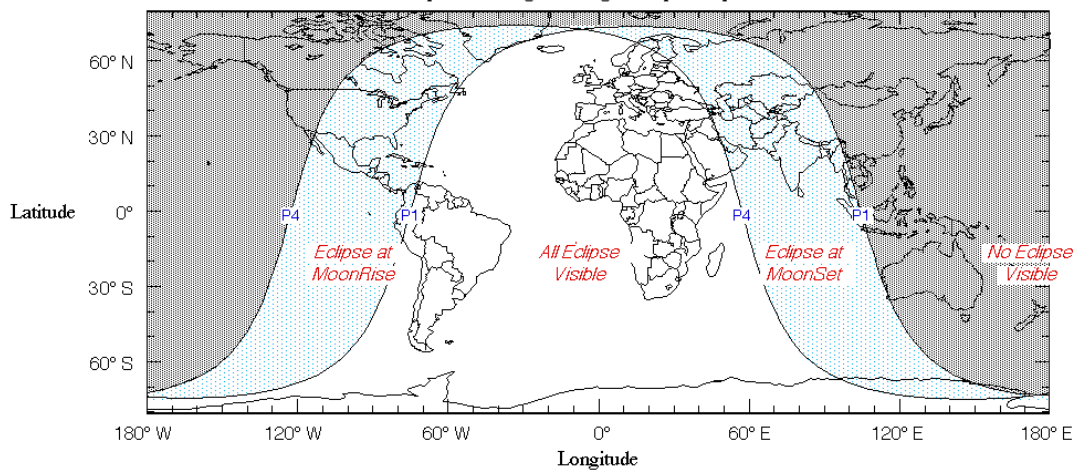
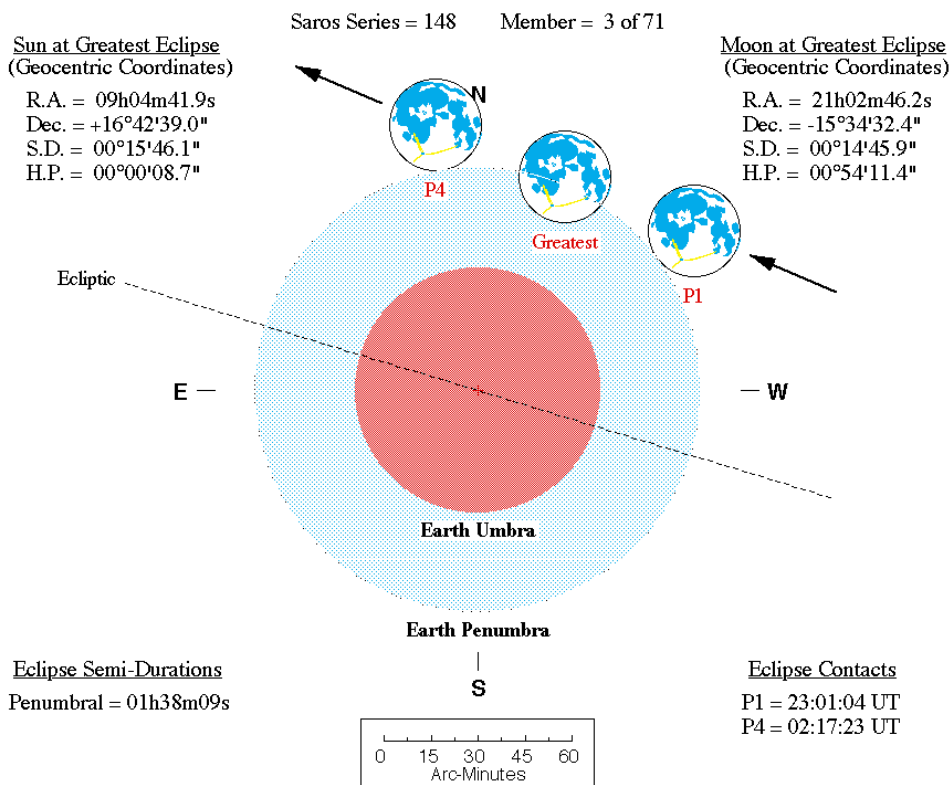
Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 21h02m46.2s

Dec. = -15°34'32.4"

S.D. = 00°14'45.9"

H.P. = 00°54'11.4"



Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center

CIRCOSTANZE GENERALI

	Data	Ist. (T.U.)	Magnit.	Durata
Inizio Eclisse di Penombra	05/08/2009	23h01m04s		
Massimo dell'Eclisse	06/08/2009	00h39m10s	0.429	03h16m
Fine Eclisse di Penombra	06/08/2009	02h17m23s		

Eclissi completamente visibile in Italia ed in Europa, ma come tutte le eclissi di penombra, è poco visibile senza l'aiuto di strumenti ottici. La bassa magnitudine di copertura in questo caso la rende praticamente inosservabile.



Allo Zenit		067°48'54" E	37°29'35" N	059°41'06" W	64°53'59" N
Longit.	Latit.	065°18'54" E	42°24'45" N	062°11'06" W	63°37'32" N
008°44'19" W	15°34'34" S	062°48'54" E	46°36'18" N	064°41'06" W	62°10'35" N
		060°18'54" E	50°10'47" N	067°11'06" W	60°31'20" N
Al sorgere e al tramonto		057°48'54" E	53°14'09" N	069°41'06" W	58°37'32" N
Longit.	Latit.	055°18'54" E	55°51'35" N	072°11'06" W	56°26'24" N
179°41'06" W	75°03'55" S	052°48'54" E	58°07'24" N	074°41'06" W	53°54'35" N
177°48'54" E	75°09'01" S	050°18'54" E	60°05'08" N	077°11'06" W	50°57'57" N
175°18'54" E	75°12'26" S	047°48'54" E	61°47'42" N	079°41'06" W	47°31'33" N
172°48'54" E	75°14'15" S	045°18'54" E	63°17'27" N	082°11'06" W	43°29'34" N
170°18'54" E	75°14'26" S	042°48'54" E	64°36'18" N	084°41'06" W	38°45'36" N
167°48'54" E	75°13'02" S	040°18'54" E	65°45'50" N	087°11'06" W	33°13'13" N
165°18'54" E	75°10'00" S	037°48'54" E	66°47'20" N	089°41'06" W	26°47'20" N
162°48'54" E	75°05'19" S	035°18'54" E	67°41'52" N	092°11'06" W	19°26'37" N
160°18'54" E	74°58'56" S	032°48'54" E	68°30'18" N	094°41'06" W	11°16'25" N
157°48'54" E	74°50'49" S	030°18'54" E	69°13'24" N	097°11'06" W	02°31'11" N
155°18'54" E	74°40'53" S	027°48'54" E	69°51'46" N	099°41'06" W	06°26'07" S
152°48'54" E	74°29'02" S	025°18'54" E	70°25'55" N	102°11'06" W	15°09'03" S
150°18'54" E	74°15'10" S	022°48'54" E	70°56'17" N	104°41'06" W	23°14'45" S
147°48'54" E	73°59'07" S	020°18'54" E	71°23'13" N	107°11'06" W	30°29'02" S
145°18'54" E	73°40'45" S	017°48'54" E	71°47'03" N	109°41'06" W	36°47'00" S
142°48'54" E	73°19'52" S	015°18'54" E	72°08'03" N	112°11'06" W	42°10'34" S
140°18'54" E	72°56'13" S	012°48'54" E	72°26'25" N	114°41'06" W	46°45'21" S
137°48'54" E	72°29'34" S	010°18'54" E	72°42'21" N	117°11'06" W	50°38'11" S
135°18'54" E	71°59'33" S	007°48'54" E	72°56'01" N	119°41'06" W	53°55'47" S
132°48'54" E	71°25'50" S	005°18'54" E	73°07'32" N	122°11'06" W	56°44'07" S
130°18'54" E	70°47'56" S	002°48'54" E	73°17'00" N	124°41'06" W	59°08'12" S
127°48'54" E	70°05'18" S	000°18'54" E	73°24'31" N	127°11'06" W	61°12'13" S
125°18'54" E	69°17'20" S	002°11'06" W	73°30'09" N	129°41'06" W	62°59'31" S
122°48'54" E	68°23'13" S	004°41'06" W	73°33'57" N	132°11'06" W	64°32'51" S
120°18'54" E	67°22'02" S	007°11'06" W	73°35'57" N	134°41'06" W	65°54'24" S
117°48'54" E	66°12'39" S	009°41'06" W	73°36'10" N	137°11'06" W	67°05'59" S
115°18'54" E	64°53'39" S	012°11'06" W	73°34'36" N	139°41'06" W	68°09'03" S
112°48'54" E	63°23'22" S	014°41'06" W	73°31'15" N	142°11'06" W	69°04'47" S
110°18'54" E	61°39'41" S	017°11'06" W	73°26'04" N	144°41'06" W	69°54'11" S
107°48'54" E	59°40'01" S	019°41'06" W	73°19'00" N	147°11'06" W	70°38'02" S
105°18'54" E	57°21'09" S	022°11'06" W	73°10'01" N	149°41'06" W	71°17'02" S
102°48'54" E	54°39'08" S	024°41'06" W	72°59'00" N	152°11'06" W	71°51'44" S
100°18'54" E	51°29'09" S	027°11'06" W	72°45'52" N	154°41'06" W	72°22'36" S
097°48'54" E	47°45'28" S	029°41'06" W	72°30'30" N	157°11'06" W	72°50'02" S
095°18'54" E	43°21'31" S	032°11'06" W	72°12'45" N	159°41'06" W	73°14'23" S
092°48'54" E	38°10'23" S	034°41'06" W	71°52'24" N	162°11'06" W	73°35'55" S
090°18'54" E	32°05'59" S	037°11'06" W	71°29'17" N	164°41'06" W	73°54'53" S
087°48'54" E	25°05'14" S	039°41'06" W	71°03'07" N	167°11'06" W	74°11'28" S
085°18'54" E	17°11'06" S	042°11'06" W	70°33'37" N	169°41'06" W	74°25'52" S
082°48'54" E	08°35'23" S	044°41'06" W	70°00'26" N	172°11'06" W	74°38'11" S
080°18'54" E	00°20'51" N	047°11'06" W	69°23'08" N	174°41'06" W	74°48'35" S
077°48'54" E	09°11'22" N	049°41'06" W	68°41'14" N	177°11'06" W	74°57'08" S
075°18'54" E	17°31'46" N	052°11'06" W	67°54'09" N	179°41'06" W	75°03'55" S
072°48'54" E	25°05'19" N	054°41'06" W	67°01'10" N		
070°18'54" E	31°44'35" N	057°11'06" W	66°01'27" N		

Partial Lunar Eclipse of 2009 Dec 31

Geocentric Conjunction = 19:04:48.2 UT J.D. = 2455197.29500

Greatest Eclipse = 19:22:41.4 UT J.D. = 2455197.30742

Penumbral Magnitude = 1.0808 P. Radius = 1.3136° Gamma = 0.9766
Umbral Magnitude = 0.0820 U. Radius = 0.7606° Axis = 0.9921°

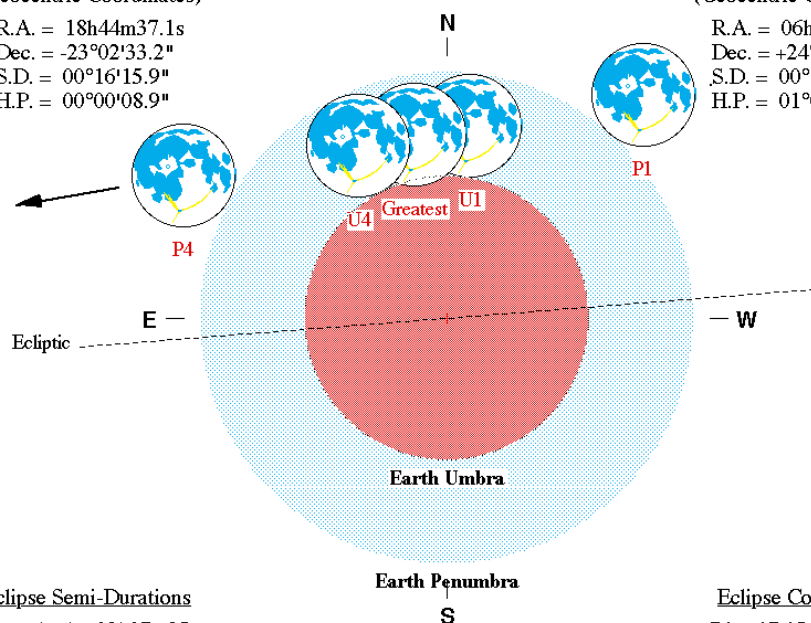
Saros Series = 115 Member = 57 of 72

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 18h44m37.1s
Dec. = -23°02'33.2"
S.D. = 00°16'15.9"
H.P. = 00°00'08.9"

Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 06h45m22.3s
Dec. = +24°01'10.3"
S.D. = 00°16'36.6"
H.P. = 01°00'57.6"



Eclipse Semi-Durations

Penumbral = 02h07m25s
Umbral = 00h31m06s

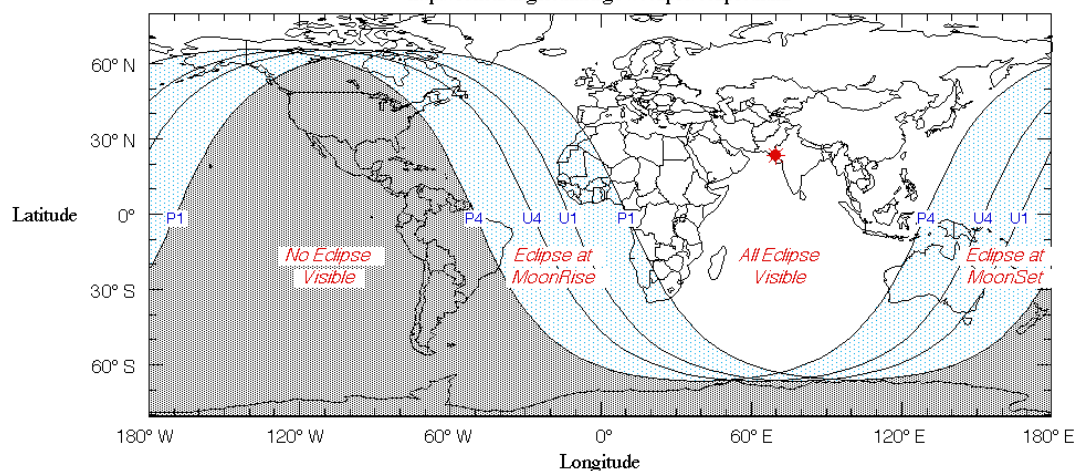
Eclipse Contacts

P1 = 17:15:18 UT
U1 = 18:51:38 UT
U4 = 19:53:51 UT
P4 = 21:30:07 UT

Eph. = Newcomb/ILE
ΔT = 66.6 s

F. Espenak, NASA's GSFC - 2004 Jul 07

<http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html>



Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center

CIRCOSTANZE GENERALI

	Data	Ist. (T.U.)	Magnit.	Durata
Inizio Eclisse di Penombra	31/12/2009	17h15m18s		
Inizio Eclisse Parziale	31/12/2009	18h51m38s		
Massimo dell'Eclisse	31/12/2009	19h22m41s	0.082	01h02m
Fine Eclisse Parziale	31/12/2009	19h53m51s		
Fine Eclisse di Penombra	31/12/2009	21h30m07s		

Eclissi completamente visibile in Italia ed in Europa.



Inizio Eclisse Parziale	055°18'54" E	63°22'56" S	089°41'06" W	66°11'35" N
	052°48'54" E	62°56'17" S	092°11'06" W	66°22'36" N
Allo Zenit	050°18'54" E	62°26'02" S	094°41'06" W	66°31'07" N
Longit.	047°48'54" E	61°51'55" S	097°11'06" W	66°37'11" N
Latit.	045°18'54" E	61°13'37" S	099°41'06" W	66°40'51" N
077°42'22" E	042°48'54" E	60°30'48" S	102°11'06" W	66°42'08" N
	040°18'54" E	59°43'02" S	104°41'06" W	66°41'03" N
Al sorgere e al tramonto	037°48'54" E	58°49'50" S	107°11'06" W	66°37'36" N
Longit.	035°18'54" E	57°50'40" S	109°41'06" W	66°31'45" N
Latit.	032°48'54" E	56°44'53" S	112°11'06" W	66°23'27" N
179°41'06" W	030°18'54" E	55°31'46" S	114°41'06" W	66°12'38" N
177°48'54" E	027°48'54" E	54°10'30" S	117°11'06" W	65°59'14" N
175°18'54" E	025°18'54" E	52°40'06" S	119°41'06" W	65°43'08" N
172°48'54" E	022°48'54" E	50°59'31" S	122°11'06" W	65°24'11" N
170°18'54" E	020°18'54" E	49°07'31" S	124°41'06" W	65°02'15" N
167°48'54" E	017°48'54" E	47°02'44" S	127°11'06" W	64°37'09" N
165°18'54" E	015°18'54" E	44°43'41" S	129°41'06" W	64°08'39" N
162°48'54" E	012°48'54" E	42°08'42" S	132°11'06" W	63°36'30" N
160°18'54" E	010°18'54" E	39°16'08" S	134°41'06" W	63°00'24" N
157°48'54" E	007°48'54" E	36°04'17" S	137°11'06" W	62°20'00" N
155°18'54" E	005°18'54" E	32°31'37" S	139°41'06" W	61°34'56" N
152°48'54" E	002°48'54" E	28°36'59" S	142°11'06" W	60°44'43" N
150°18'54" E	000°18'54" E	24°19'50" S	144°41'06" W	59°48'50" N
147°48'54" E	002°11'06" W	19°40'36" S	147°11'06" W	58°46'40" N
145°18'54" E	004°41'06" W	14°41'01" S	149°41'06" W	57°37'31" N
142°48'54" E	007°11'06" W	09°24'21" S	152°11'06" W	56°20'36" N
140°18'54" E	009°41'06" W	03°55'27" S	154°41'06" W	54°54'58" N
137°48'54" E	012°11'06" W	01°39'33" N	157°11'06" W	53°19'34" N
135°18'54" E	014°41'06" W	07°13'47" N	159°41'06" W	51°33'14" N
132°48'54" E	017°11'06" W	12°40'25" N	162°11'06" W	49°34'35" N
130°18'54" E	019°41'06" W	17°53'30" N	164°41'06" W	47°22'08" N
127°48'54" E	022°11'06" W	22°48'25" N	167°11'06" W	44°54'15" N
125°18'54" E	024°41'06" W	27°22'12" N	169°41'06" W	42°09'11" N
122°48'54" E	027°11'06" W	31°33'24" N	172°11'06" W	39°05'13" N
120°18'54" E	029°41'06" W	35°21'51" N	174°41'06" W	35°40'39" N
117°48'54" E	032°11'06" W	38°48'16" N	177°11'06" W	31°54'10" N
115°18'54" E	034°41'06" W	41°53'58" N	179°41'06" W	27°44'57" N
112°48'54" E	037°11'06" W	44°40'36" N		
110°18'54" E	039°41'06" W	47°09'54" N		
107°48'54" E	042°11'06" W	49°23'38" N		
105°18'54" E	044°41'06" W	51°23'25" N		
102°48'54" E	047°11'06" W	53°10'47" N		
100°18'54" E	049°41'06" W	54°47'04" N		
097°48'54" E	052°11'06" W	56°13'30" N		
095°18'54" E	054°41'06" W	57°31'09" N		
092°48'54" E	057°11'06" W	58°40'56" N		
090°18'54" E	059°41'06" W	59°43'41" N		
087°48'54" E	062°11'06" W	60°40'05" N		
085°18'54" E	064°41'06" W	61°30'47" N		
082°48'54" E	067°11'06" W	62°16'17" N		
080°18'54" E	069°41'06" W	62°57'03" N		
077°48'54" E	072°11'06" W	63°33'31" N		
075°18'54" E	074°41'06" W	64°06'00" N		
072°48'54" E	077°11'06" W	64°34'49" N		
070°18'54" E	079°41'06" W	65°00'12" N		
067°48'54" E	082°11'06" W	65°22'24" N		
065°18'54" E	084°41'06" W	65°41'36" N		
062°48'54" E	087°11'06" W	65°57'56" N		
060°18'54" E				
057°48'54" E				

Fine	Eclisse Parziale	007°48'54" E	50°57'42" S	Massimo dell'Eclisse	007°48'54" E	44°41'42" S
		005°18'54" E	49°04'39" S		005°18'54" E	42°06'00" S
Allo Zenit		002°48'54" E	46°58'39" S	Allo Zenit	002°48'54" E	39°12'35" S
Longit.	Latit.	000°18'54" E	44°38'10" S	Longit.	Latit.	000°18'54" E
062°56'41" E	23°57'55" N	002°11'06" W	42°01'33" S	070°18'44" E	24°01'12" N	002°11'06" W
		004°41'06" W	39°07'05" S			004°41'06" W
Al sorgere e al tramonto		007°11'06" W	35°53'04" S	Al sorgere e al tramonto		007°11'06" W
Longit.	Latit.	009°41'06" W	32°17'58" S	Longit.	Latit.	009°41'06" W
179°41'06" W	47°17'40" N	012°11'06" W	28°20'37" S	179°41'06" W	39°01'19" N	012°11'06" W
177°48'54" E	44°48'14" N	014°41'06" W	24°00'33" S	177°48'54" E	35°35'43" N	014°41'06" W
175°18'54" E	42°01'23" N	017°11'06" W	19°18'16" S	175°18'54" E	31°48'02" N	017°11'06" W
172°48'54" E	38°55'21" N	019°41'06" W	14°15'38" S	172°48'54" E	27°37'31" N	019°41'06" W
170°18'54" E	35°28'27" N	022°11'06" W	08°56'06" S	170°18'54" E	23°04'16" N	022°11'06" W
167°48'54" E	31°39'21" N	024°41'06" W	03°24'41" S	167°48'54" E	18°09'40" N	024°41'06" W
165°18'54" E	27°27'16" N	027°11'06" W	02°12'15" N	165°18'54" E	12°56'37" N	027°11'06" W
162°48'54" E	22°52'22" N	029°41'06" W	07°47'43" N	162°48'54" E	07°29'41" N	029°41'06" W
160°18'54" E	17°56'06" N	032°11'06" W	13°14'52" N	160°18'54" E	01°54'49" N	032°11'06" W
157°48'54" E	12°41'29" N	034°41'06" W	18°27'46" N	157°48'54" E	03°41'09" S	034°41'06" W
155°18'54" E	07°13'10" N	037°11'06" W	23°21'56" N	155°18'54" E	09°11'16" S	037°11'06" W
152°48'54" E	01°37'13" N	039°41'06" W	27°54'30" N	152°48'54" E	14°29'20" S	039°41'06" W
150°18'54" E	03°59'28" S	042°11'06" W	32°04'11" N	150°18'54" E	19°30'22" S	042°11'06" W
147°48'54" E	09°29'55" S	044°41'06" W	35°50'56" N	147°48'54" E	24°11'03" S	044°41'06" W
145°18'54" E	14°47'54" S	047°11'06" W	39°15'36" N	145°18'54" E	28°29'35" S	047°11'06" W
142°48'54" E	19°48'33" S	049°41'06" W	42°19'34" N	142°48'54" E	32°25'30" S	049°41'06" W
140°18'54" E	24°28'35" S	052°11'06" W	45°04'31" N	140°18'54" E	35°59'18" S	052°11'06" W
137°48'54" E	28°46'18" S	054°41'06" W	47°32'15" N	137°48'54" E	39°12'10" S	054°41'06" W
135°18'54" E	32°41'18" S	057°11'06" W	49°44'30" N	135°18'54" E	42°05'38" S	057°11'06" W
132°48'54" E	36°14'10" S	059°41'06" W	51°42'55" N	132°48'54" E	44°41'22" S	059°41'06" W
130°18'54" E	39°26'04" S	062°11'06" W	53°29'02" N	130°18'54" E	47°01'05" S	062°11'06" W
127°48'54" E	42°18'36" S	064°41'06" W	55°04'11" N	127°48'54" E	49°06'26" S	064°41'06" W
125°18'54" E	44°53'28" S	067°11'06" W	56°29'35" N	125°18'54" E	50°58'56" S	067°11'06" W
122°48'54" E	47°12'22" S	069°41'06" W	57°46'16" N	122°48'54" E	52°39'56" S	069°41'06" W
120°18'54" E	49°16'58" S	072°11'06" W	58°55'12" N	120°18'54" E	54°10'41" S	072°11'06" W
117°48'54" E	51°08'45" S	074°41'06" W	59°57'09" N	117°48'54" E	55°32'17" S	074°41'06" W
115°18'54" E	52°49'07" S	077°11'06" W	60°52'50" N	115°18'54" E	56°45'40" S	077°11'06" W
112°48'54" E	54°19'18" S	079°41'06" W	61°42'52" N	112°48'54" E	57°51'41" S	079°41'06" W
110°18'54" E	55°40'22" S	082°11'06" W	62°27'46" N	110°18'54" E	58°51'04" S	082°11'06" W
107°48'54" E	56°53'16" S	084°41'06" W	63°08'00" N	107°48'54" E	59°44'28" S	084°41'06" W
105°18'54" E	57°58'51" S	087°11'06" W	63°43'57" N	105°18'54" E	60°32'24" S	087°11'06" W
102°48'54" E	58°57'50" S	089°41'06" W	64°15'59" N	102°48'54" E	61°15'23" S	089°41'06" W
100°18'54" E	59°50'51" S	092°11'06" W	64°44'21" N	100°18'54" E	61°53'49" S	092°11'06" W
097°48'54" E	60°38'28" S	094°41'06" W	65°09'21" N	097°48'54" E	62°28'03" S	094°41'06" W
095°18'54" E	61°21'08" S	097°11'06" W	65°31'11" N	095°18'54" E	62°58'26" S	097°11'06" W
092°48'54" E	61°59'17" S	099°41'06" W	65°50'02" N	092°48'54" E	63°25'12" S	099°41'06" W
090°18'54" E	62°33'16" S	102°11'06" W	66°04'04" N	090°18'54" E	63°48'35" S	102°11'06" W
087°48'54" E	63°03'24" S	104°41'06" W	66°19'24" N	087°48'54" E	64°08'49" S	104°41'06" W
085°18'54" E	63°29'56" S	107°11'06" W	66°30'09" N	085°18'54" E	64°26'01" S	107°11'06" W
082°48'54" E	63°53'08" S	109°41'06" W	66°38'23" N	082°48'54" E	64°40'22" S	109°41'06" W
080°18'54" E	64°13'09" S	112°11'06" W	66°44'12" N	080°18'54" E	64°51'57" S	112°11'06" W
077°48'54" E	64°30'11" S	114°41'06" W	66°47'37" N	077°48'54" E	65°00'52" S	114°41'06" W
075°18'54" E	64°44'21" S	117°11'06" W	66°48'41" N	075°18'54" E	65°07'11" S	117°11'06" W
072°48'54" E	64°55'46" S	119°41'06" W	66°47'23" N	072°48'54" E	65°10'58" S	119°41'06" W
070°18'54" E	65°04'32" S	122°11'06" W	66°43'43" N	070°18'54" E	65°12'13" S	122°11'06" W
067°48'54" E	65°10'43" S	124°41'06" W	66°37'39" N	067°48'54" E	65°10'58" S	124°41'06" W
065°18'54" E	65°14'21" S	127°11'06" W	66°29'09" N	065°18'54" E	65°07'12" S	127°11'06" W
062°48'54" E	65°15'28" S	129°41'06" W	66°18'08" N	062°48'54" E	65°00'53" S	129°41'06" W
060°18'54" E	65°14'05" S	132°11'06" W	66°04'31" N	060°18'54" E	64°51'58" S	132°11'06" W
057°48'54" E	65°10'12" S	134°41'06" W	65°48'13" N	057°48'54" E	64°40'23" S	134°41'06" W
055°18'54" E	65°03'45" S	137°11'06" W	65°29'03" N	055°18'54" E	64°26'03" S	137°11'06" W
052°48'54" E	64°54'43" S	139°41'06" W	65°06'54" N	052°48'54" E	64°08'51" S	139°41'06" W
050°18'54" E	64°43'00" S	142°11'06" W	64°41'34" N	050°18'54" E	63°48'38" S	142°11'06" W
047°48'54" E	64°28'33" S	144°41'06" W	64°12'50" N	047°48'54" E	63°25'15" S	144°41'06" W
045°18'54" E	64°11'13" S	147°11'06" W	63°40'25" N	045°18'54" E	62°58'30" S	147°11'06" W
042°48'54" E	63°50'52" S	149°41'06" W	63°04'02" N	042°48'54" E	62°28'08" S	149°41'06" W
040°18'54" E	63°27'21" S	152°11'06" W	62°23'20" N	040°18'54" E	61°53'54" S	152°11'06" W
037°48'54" E	63°00'26" S	154°41'06" W	61°37'56" N	037°48'54" E	61°15'28" S	154°41'06" W
035°18'54" E	62°29'55" S	157°11'06" W	60°47'20" N	035°18'54" E	60°32'30" S	157°11'06" W
032°48'54" E	61°55'31" S	159°41'06" W	59°51'01" N	032°48'54" E	59°44'34" S	159°41'06" W
030°18'54" E	61°16'55" S	162°11'06" W	58°48'23" N	030°18'54" E	58°51'12" S	162°11'06" W
027°48'54" E	60°33'46" S	164°41'06" W	57°38'41" N	027°48'54" E	57°51'50" S	164°41'06" W
025°18'54" E	59°45'37" S	167°11'06" W	56°21'08" N	025°18'54" E	56°45'49" S	167°11'06" W
022°48'54" E	58°52'00" S	169°41'06" W	54°54'47" N	022°48'54" E	55°32'27" S	169°41'06" W
020°18'54" E	57°52'22" S	172°11'06" W	53°18'33" N	020°18'54" E	54°10'53" S	172°11'06" W
017°48'54" E	56°46'03" S	174°41'06" W	51°31'14" N	017°48'54" E	52°40'09" S	174°41'06" W
015°18'54" E	55°32'21" S	177°11'06" W	49°31'27" N	015°18'54" E	50°59'10" S	177°11'06" W
012°48'54" E	54°10'23" S	179°41'06" W	47°17'40" N	012°48'54" E	49°06'42" S	179°41'06" W
010°18'54" E	52°39'12" S			010°18'54" E	47°01'23" S	

SCIAMI METEORICI

Sciame	Attività	Max	λ_{sol}	α	δ	v_{inf}	r	ZHR
Antihelion Source (ANT)	Nov 26 – Set 24					30	3.0	3
Quadrantids (QUA)	Gen 01 – Gen 05	Gen 04	283°16	230°	+49°	41	2.1	120
α -Centaurids (ACE)	Gen 28 – Feb 21	Feb 08	319°2	211°	-59°	56	2.0	5
δ -Leonids (DLE)	Feb 15 – Mar 10	Feb 25	336°	168°	+16°	23	3.0	2
γ -Normids (GNO)	Feb 25 – Mar 22	Mar 13	353°	239°	-50°	56	2.4	4
Lyrids (LYR)	Apr 16 – Apr 25	Apr 22	32°32	271°	+34°	49	2.1	18
π -Puppids (PPU)	Apr 15 – Apr 28	Apr 23	33°5	110°	-45°	18	2.0	Var
η -Aquarids (ETA)	Apr 19 – Mag 28	Mag 05	45°5	338°	-01°	66	2.4	70+*
η -Lyrids (ELY)	Mag 03 – Mag 12	Mag 08	48°4	287°	+44°	44	3.0	3
June Bootids (JBO)	Giu 22 – Lug 02	Giu 27	95°7	224°	+48°	18	2.2	Var
Piscis Austrinids (PAU)	Lug 15 – Ago 10	Lug 27	125°	341°	-30°	35	3.2	5
South. δ -Aquarids (SDA)	Lug 12 – Ago 19	Lug 27	125°	339°	-16°	41	3.2	20
α -Capricornids (CAP)	Lug 03 – Ago 15	Lug 29	127°	307°	-10°	23	2.5	4
Perseids (PER)*	Lug 17 – Ago 24	Ago 12	140°0	46°	+58°	59	2.6	100
κ -Cygnids (KCG)	Ago 03 – Ago 25	Ago 17	145°	286°	+59°	25	3.0	3
α -Aurigids (AUR)	Ago 25 – Set 08	Ago 31	158°6	84°	+42°	66	2.6	7
September Perseids (SPE)	Set 05 – Set 17	Set 09	166°7	60°	+47°	64	2.9	5
δ -Aurigids (DAU)	Set 18 – Ott 10	Ott 03	191°	88°	+49°	64	2.9	3
Draconids (GIA)	Ott 06 – Ott 10	Ott 08	195°4	262°	+54°	20	2.6	Var
ϵ -Geminids (EGE)	Ott 14 – Ott 27	Ott 18	205°	102°	+27°	70	3.0	2
Orionids (ORI)	Ott 02 – Nov 07	Ott 21	208°	95°	+16°	66	2.5	30*
Leo Minorids (LMI)	Ott 19 – Ott 27	Ott 24	211°	162°	+37°	62	3.0	2
Southern Taurids (STA)	Set 25 – Nov 25	Nov 05	223°	52°	+15°	27	2.3	5
Northern Taurids (NTA)	Set 25 – Nov 25	Nov 12	230°	58°	+22°	29	2.3	5
Leonids (LEO)	Nov 10 – Nov 23	Nov 17	235°27	153°	+22°	71	2.5	20+*
α -Monocerotids (AMO)	Nov 15 – Nov 25	Nov 21	239°32	117°	+01°	65	2.4	Var
Dec Phoenicids (PHO)	Nov 28 – Dic 09	Dic 06	254°25	18°	-53°	18	2.8	Var
Puppids/Velids (PUP)	Dic 01 – Dic 15	Dic 06	255°	123°	-45°	40	2.9	10
Monocerotids (MON)	Nov 27 – Dic 17	Dic 08	257°	100°	+08°	42	3.0	2
σ -Hydrids (HYD)	Dic 03 – Dic 15	Dic 11	260°	127°	+02°	58	3.0	3
Geminids (GEM)	Dic 07 – Dic 17	Dic 13	262°2	112°	+33°	35	2.6	120
Coma Berenicids (COM)	Dic 12 – Gen 23	Dic 20	268°	177°	+25°	65	3.0	5
Ursids (URS)	Dic 17 – Dic 26	Dic 22	270°7	217°	+76°	33	3.0	10

* Sciami con più picchi

Quadrantidi: max 12.50 T.U. del 3 gennaio, ZHR=120 con variabilità 60-200

La Luna crescente tramonterà verso la mezzanotte locale ed il radiante che è circumpolare raggiunge la sua massima altezza nella seconda parte della notte. Le osservazioni sono favorite prima dell'alba. Il picco è breve e fluttuante negli anni.

Liridi: max 11 T.U. del 22 aprile, ZHR 18 variabile fino a 90

Il picco può variare tra le 3 e le 14 T.U., con attività pure variabile. La sua durata è di poche ore. Si consiglia di osservare dopo le 22.30 locali. La Luna crescente tramonterà tardi nella notte.

Eta Puppidi: max 16 T.U. del 23 aprile, ZHR fino a 140

Sono legate alla cometa 26P/Grigg-skjellerup, passata al perielio nel marzo 2008. La Luna sarà nuova.

Eta Aquaridi: max 0 T.U. del 6 maggio, ZHR 85 variabile tra 40 e 85

Sono associate alla cometa 1P/Halley. Le meteore sono spesso veloci e brillanti, con lunghe scie persistenti. In base ai dati rilevati negli ultimi anni (1984-201) vi sono buone possibilità che un massimo cada quest'anno o il prossimo.

Bootidi di giugno: max 8.30 T.U. del 27 giugno, ZHR variabile da 0 a 100

Sono legate alla cometa 7P/Pons-winnecke, passata al perielio nel settembre 2008. Il radiante è ben messo al calar della Luna.

Perseidi: max 17.30-20 T.U. del 12 agosto, ZHR variabile da 10 in su

La Luna disturberà completamente le osservazioni essendo all'ultimo quarto. Potrebbe esserci un massimo secondario alle 9 T.U. del 12 agosto.

Draconidi: max 16.40 T.U. dell'8 ottobre, ZHR variabile fino alla tempesta di meteore

Parenti della cometa 26P/Giacobini-Zinner sono famose per le piogge del 1946 e 1993. Il radiante è circumpolare e raggiunge la sua massima altezza nella prima parte della notte. La Luna calante disturberà le osservazioni nella seconda parte. Sono meteore lentissime.

Orionidi: max il 21 ottobre, ZHR 30

Il radiante è ben osservabile intorno a mezzanotte, con la Luna nuova.

Leonidi: max 15.10 T.U. del 18 novembre, ZHR 100 o maggiore fino alla tempesta di meteore

Sono legate alla cometa 55P/Tempel-Tuttle. Secondo alcuni studi potrebbe esserci una buona attività anche quest'anno. Un picco secondario potrebbe avvenire tra le 20.40 e le 22 T.U. del giorno 17.

Alfa Monocerotidi: max 15.25 T.U. del 21 novembre, ZHR 5, talora oltre 400

Da tenere sotto controllo.

Geminidi: max 5.10 T.U. del 14 dicembre, ZHR 120

Ottima visibilità visto che la Luna è nuova. Il radiante culmina alle 2 ore locale.

Ursidi: max 13.30 T.U. del 22 dicembre, ZHR 10, occasionalmente fino a 50

Sembrano correlate alla cometa 8P/tuttle, passata al perielio nel gennaio 2008. Vi sono stati negli anni recenti molti picchi. La Luna crescente causerà qualche disturbo alle osservazioni.

VISIBILITA' DEI RADIANTI

Roma : 42 N, 12 E (UT)

Oggetto: Quadrantidi

Data	Ora	Alt	Az	Sole	Luna
2009:01:04	16:00	12.2	327.5	Crep.c	Sopra
2009:01:04	17:00	6.9	336.0	Crep.a	Sopra
2009:01:04	18:00	3.1	345.1	Notte	Sopra
2009:01:04	19:00	1.2	354.8	Notte	Sopra
2009:01:04	20:00	1.1	4.6	Notte	Sopra
2009:01:04	21:00	2.9	14.3	Notte	Sopra
2009:01:04	22:00	6.6	23.5	Notte	Sopra
2009:01:04	23:00	11.8	32.0	Notte	Sopra
2009:01:05	00:00	18.3	39.6	Notte	Sopra
2009:01:05	01:00	26.0	46.3	Notte	Sotto
2009:01:05	02:00	34.5	52.1	Notte	Sotto
2009:01:05	03:00	43.6	56.9	Notte	Sotto
2009:01:05	04:00	53.2	60.4	Notte	Sotto
2009:01:05	05:00	63.0	61.8	Crep.a	Sotto
2009:01:05	06:00	72.7	58.0	Crep.n	Sotto
2009:01:05	07:00	81.2	33.8	Giorno	Sotto

Oggetto: Liridi

Data	Ora	Alt	Az	Sole	Luna
2009:04:22	16:00	-13.1	11.3	Giorno	Sotto
2009:04:22	17:00	-9.8	23.6	Giorno	Sotto
2009:04:22	18:00	-4.3	34.9	Crep.c	Sotto
2009:04:22	19:00	2.9	45.0	Crep.n	Sotto
2009:04:22	20:00	11.4	54.2	Notte	Sotto
2009:04:22	21:00	21.0	62.6	Notte	Sotto
2009:04:22	22:00	31.2	70.4	Notte	Sotto
2009:04:22	23:00	42.0	78.3	Notte	Sotto
2009:04:23	00:00	53.1	86.7	Notte	Sotto
2009:04:23	01:00	64.3	97.5	Notte	Sotto
2009:04:23	02:00	75.0	116.4	Notte	Sotto
2009:04:23	03:00	82.1	172.7	Crep.a	Sopra
2009:04:23	04:00	76.6	238.6	Crep.c	Sopra
2009:04:23	05:00	66.0	260.3	Giorno	Sopra
2009:04:23	06:00	54.9	271.8	Giorno	Sopra
2009:04:23	07:00	43.8	280.4	Giorno	Sopra

Oggetto: Perseidi

Data	Ora	Alt	Az	Sole	Luna
2009:08:12	16:00	10.3	354.0	Giorno	Sotto
2009:08:12	17:00	9.9	2.0	Giorno	Sotto
2009:08:12	18:00	11.1	10.0	Giorno	Sotto
2009:08:12	19:00	13.8	17.7	Crep.n	Sotto
2009:08:12	20:00	17.9	24.8	Crep.a	Sotto
2009:08:12	21:00	23.1	31.2	Notte	Sopra

2009:08:12	22:00	29.4	36.7	Notte	Sopra
2009:08:12	23:00	36.4	41.1	Notte	Sopra
2009:08:13	00:00	44.0	44.2	Notte	Sopra
2009:08:13	01:00	51.9	45.4	Notte	Sopra
2009:08:13	02:00	59.8	43.6	Notte	Sopra
2009:08:13	03:00	67.1	36.4	Crep.a	Sopra
2009:08:13	04:00	72.5	19.2	Crep.c	Sopra
2009:08:13	05:00	73.7	351.9	Giorno	Sopra
2009:08:13	06:00	69.8	329.5	Giorno	Sopra
2009:08:13	07:00	63.1	318.6	Giorno	Sopra

Oggetto: Leonidi

Data	Ora	Alt	Az	Sole	Luna
2009:11:17	16:00	-23.3	339.1	Crep.c	Sotto
2009:11:17	17:00	-25.9	354.2	Crep.a	Sotto
2009:11:17	18:00	-25.5	9.7	Notte	Sotto
2009:11:17	19:00	-22.2	24.5	Notte	Sotto
2009:11:17	20:00	-16.4	37.9	Notte	Sotto
2009:11:17	21:00	-8.6	49.8	Notte	Sotto
2009:11:17	22:00	0.5	60.3	Notte	Sotto
2009:11:17	23:00	10.7	70.0	Notte	Sotto
2009:11:18	00:00	21.5	79.2	Notte	Sotto
2009:11:18	01:00	32.6	88.6	Notte	Sotto
2009:11:18	02:00	43.7	99.3	Notte	Sotto
2009:11:18	03:00	54.5	113.0	Notte	Sotto
2009:11:18	04:00	63.9	133.4	Notte	Sotto
2009:11:18	05:00	69.7	166.2	Crep.n	Sotto
2009:11:18	06:00	68.4	205.8	Crep.c	Sotto
2009:11:18	07:00	61.2	234.2	Giorno	Sotto

Oggetto: Geminidi

Data	Ora	Alt	Az	Sole	Luna
2009:12:13	16:00	-5.6	34.7	Crep.c	Sotto
2009:12:13	17:00	1.6	45.0	Crep.a	Sotto
2009:12:13	18:00	10.2	54.4	Notte	Sotto
2009:12:13	19:00	19.7	62.9	Notte	Sotto
2009:12:13	20:00	30.0	70.9	Notte	Sotto
2009:12:13	21:00	40.8	78.9	Notte	Sotto
2009:12:13	22:00	51.9	87.6	Notte	Sotto
2009:12:13	23:00	63.1	98.6	Notte	Sotto
2009:12:14	00:00	73.8	117.5	Notte	Sotto
2009:12:14	01:00	81.0	168.4	Notte	Sotto
2009:12:14	02:00	76.5	233.1	Notte	Sotto
2009:12:14	03:00	66.3	257.2	Notte	Sotto
2009:12:14	04:00	55.1	269.6	Notte	Sotto
2009:12:14	05:00	44.0	278.7	Crep.a	Sopra
2009:12:14	06:00	33.1	286.8	Crep.c	Sopra
2009:12:14	07:00	22.6	294.8	Giorno	Sopra

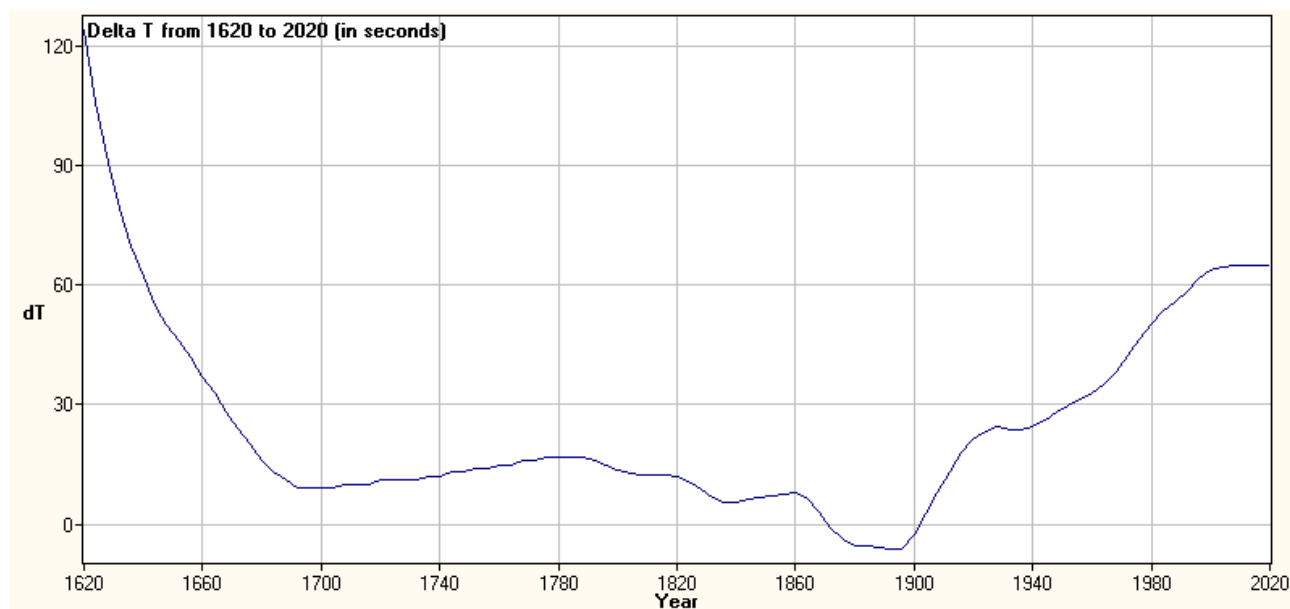
Data, ora, altezza ed azimut dei principali radianti; posizione del Sole (giorno, crepuscolo civile, crepuscolo nautico, crepuscolo astronomico, notte); Luna (sopra o sotto l'orizzonte)

TABELLA DI CONVERSIONE MAGNITUDINE ASSOLUTA

UA-H	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0,001	918,09	579,28	365,50	230,62	145,51	91,81	57,93	36,55	23,06	14,55	9,18	5,79	3,66	2,31	1,46	0,92	0,58	0,37
0,005	183,62	115,86	73,10	46,12	29,10	18,36	11,59	7,31	4,61	2,91	1,84	1,16	0,73	0,46	0,29	0,18	0,12	0,07
0,01	91,81	57,93	36,55	23,06	14,55	9,18	5,79	3,66	2,31	1,46	0,92	0,58	0,37	0,23	0,15	0,09	0,06	0,04
0,05	18,36	11,59	7,31	4,61	2,91	1,84	1,16	0,73	0,46	0,29	0,18	0,12	0,07	0,05	0,03	0,02	0,01	0,01
0,1	9,18	5,79	3,66	2,31	1,46	0,92	0,58	0,37	0,23	0,15	0,09	0,06	0,04	0,02	0,01	0,01	0,01	0,00
0,2	4,59	2,90	1,83	1,15	0,73	0,46	0,29	0,18	0,12	0,07	0,05	0,03	0,02	0,01	0,01	0,00	0,00	0,00
0,3	3,06	1,93	1,22	0,77	0,49	0,31	0,19	0,12	0,08	0,05	0,03	0,02	0,01	0,01	0,00	0,00	0,00	0,00
0,4	2,30	1,45	0,91	0,58	0,36	0,23	0,14	0,09	0,06	0,04	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00
0,5	1,84	1,16	0,73	0,46	0,29	0,18	0,12	0,07	0,05	0,03	0,02	0,01	0,01	0,00	0,00	0,00	0,00	0,00
0,6	1,53	0,97	0,61	0,38	0,24	0,15	0,10	0,06	0,04	0,02	0,02	0,01	0,01	0,00	0,00	0,00	0,00	0,00
0,7	1,31	0,83	0,52	0,33	0,21	0,13	0,08	0,05	0,03	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00
0,8	1,15	0,72	0,46	0,29	0,18	0,11	0,07	0,05	0,03	0,02	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00
0,9	1,02	0,64	0,41	0,26	0,16	0,10	0,06	0,04	0,03	0,02	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00
1	0,92	0,58	0,37	0,23	0,15	0,09	0,06	0,04	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00
1,5	0,61	0,39	0,24	0,15	0,10	0,06	0,04	0,02	0,02	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2	0,46	0,29	0,18	0,12	0,07	0,05	0,03	0,02	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Utilizzo: conoscendo la magnitudine assoluta di un asteroide (H) e la sua distanza dalla Terra (UA) la tabella fornisce il diametro minimo del corpo in secondi d'arco.
 Esempio: un asteroide con H=4 che si trovi a 0.05 U.A. dalla Terra avrà una dimensione minima di circa 11.6" d'arco. La dimensione massima è pari a circa il doppio.

ΔT DIFFERENZA TDT-UT



Differenza in secondi tra il Tempo Dinamico Terrestre ed il Tempo Universale, utile al fine di calcolare gli istanti geocentrici e topocentrici dei fenomeni celesti

CORREZIONI DELL'ISTANTE DEL SORGERE E TRAMONTARE DEL SOLE, DELLA LUNA E DEI PIANETI PER LATITUDINI DIVERSE DA 42°

	36	37	38	39	40	41	42	43	44	45	46	47	48
30	29	25	20	15	10	5	0	-5	-10	-16	-22	-28	-34
29	27	23	19	14	10	5	0	-5	-10	-15	-21	-27	-33
28	25	21	17	13	9	4	0	-5	-10	-15	-20	-25	-31
27	24	20	16	12	8	4	0	-5	-9	-14	-19	-24	-29
26	22	19	15	11	7	4	0	-5	-9	-13	-18	-23	-28
25	21	18	14	11	7	3	0	-4	-8	-13	-17	-21	-26
24	20	17	13	10	7	3	0	-4	-8	-12	-16	-20	-25
23	19	16	13	10	6	3	0	-4	-7	-11	-15	-19	-23
22	18	15	12	9	6	3	0	-3	-7	-10	-14	-18	-22
21	17	14	11	9	6	3	0	-3	-6	-10	-13	-17	-20
20	16	13	11	8	6	3	0	-3	-6	-9	-12	-15	-19
19	15	13	11	8	6	3	0	-2	-5	-8	-11	-14	-17
18	14	11	9	7	5	2	0	-3	-5	-8	-11	-14	-17
17	13	11	9	7	5	2	0	-2	-5	-7	-10	-13	-16
16	12	10	9	7	5	2	0	-2	-4	-7	-9	-12	-14
15	11	9	7	5	4	2	0	-2	-5	-7	-9	-11	-14
14	10	9	7	5	4	2	0	-2	-4	-6	-8	-10	-12
13	10	8	7	5	4	2	0	-1	-3	-5	-7	-9	-11
12	9	7	6	4	3	1	0	-2	-4	-5	-7	-9	-11
11	8	7	6	4	3	2	0	-1	-3	-4	-6	-8	-9
10	7	6	4	3	2	1	0	-2	-3	-5	-6	-8	-9
9	6	5	4	3	2	1	0	-1	-2	-4	-5	-6	-8
8	6	5	4	3	2	1	0	-1	-2	-3	-4	-5	-6
7	5	4	3	2	2	1	0	-1	-2	-3	-4	-5	-6
6	5	4	3	2	2	1	0	-1	-1	-2	-3	-4	-5
5	3	3	2	2	1	0	0	-1	-2	-2	-3	-4	-5
4	3	3	2	2	1	1	0	0	-1	-1	-2	-3	-3
3	2	1	1	1	0	0	0	-1	-1	-2	-2	-2	-3
2	1	1	1	1	1	0	0	0	0	-1	-1	-1	-2
1	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1	0	0	0	0	0	0	0	1	1	1	1	1	1
-2	-1	-1	-1	-1	-1	0	0	0	0	1	1	1	2
-3	-2	-1	-1	-1	0	0	0	1	1	2	2	2	3
-4	-3	-3	-2	-2	-1	-1	0	0	1	1	2	3	3
-5	-3	-3	-2	-2	-1	0	0	1	2	2	3	4	5
-6	-5	-4	-3	-2	-2	-1	0	1	1	2	3	4	5
-7	-5	-4	-3	-2	-2	-1	0	1	2	3	4	5	6
-8	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
-9	-6	-5	-4	-3	-2	-1	0	1	2	4	5	6	8
-10	-7	-6	-4	-3	-2	-1	0	2	3	5	6	8	9
-11	-8	-7	-6	-4	-3	-2	0	1	3	4	6	8	9
-12	-9	-7	-6	-4	-3	-1	0	2	4	5	7	9	11
-13	-10	-8	-7	-5	-4	-2	0	1	3	5	7	9	11
-14	-10	-9	-7	-5	-4	-2	0	2	4	6	8	10	12
-15	-11	-9	-7	-5	-4	-2	0	2	5	7	9	11	14
-16	-12	-10	-9	-7	-5	-2	0	2	4	7	9	12	14
-17	-13	-11	-9	-7	-5	-2	0	2	5	7	10	13	16
-18	-14	-11	-9	-7	-5	-2	0	3	5	8	11	14	17
-19	-15	-13	-11	-8	-6	-3	0	2	5	8	11	14	17
-20	-16	-13	-11	-8	-6	-3	0	3	6	9	12	15	19
-21	-17	-14	-11	-9	-6	-3	0	3	6	10	13	17	20
-22	-18	-15	-12	-9	-6	-3	0	3	7	10	14	18	22
-23	-19	-16	-13	-10	-6	-3	0	4	7	11	15	19	23
-24	-20	-17	-13	-10	-7	-3	0	4	8	12	16	20	25
-25	-21	-18	-14	-11	-7	-3	0	4	8	13	17	21	26
-26	-22	-19	-15	-11	-7	-4	0	5	9	13	18	23	28
-27	-24	-20	-16	-12	-8	-4	0	5	9	14	19	24	29
-28	-25	-21	-17	-13	-9	-4	0	5	10	15	20	25	31
-29	-27	-23	-19	-14	-10	-5	0	5	10	15	21	27	33
-30	-29	-25	-20	-15	-10	-5	0	5	10	16	22	28	34

I valori sono espressi in minuti di tempo e vanno presi con il segno indicato per il sorgere dell'oggetto, e col segno opposto per il tramonto.

In alto sono indicati i valori della latitudine, a sinistra i valori della declinazione.

Vanno aggiunti anche 4 minuti ogni grado di longitudine più verso ovest rispetto ai 12° di tutte le tabelle dell'almanacco. Sottratti se verso est.

Esempio : 01/01/2009, declinazione del Sole -23° circa. Esso sorge a Roma (42°N) alle 07.40 e tramonta alle 16.51. Per un luogo alla stessa longitudine, ma a 46° N, il Sole sorge alle 07.40+ 15 minuti =7.55 e tramonta alle 16.51- 15 minuti =16.36 circa.

ORIZZONTE REALE

E' la distanza dell'orizzonte visibile da un osservatore in una giornata perfettamente limpida, trascurando la rifrazione atmosferica.

h (m)	km
0	0,0
1	3,6
2	5,0
3	6,2
4	7,1
5	8,0
6	8,7
7	9,4
8	10,1
9	10,7
10	11,3
20	16,0

30	19,6
40	22,6
50	25,2
60	27,7
70	29,9
80	31,9
90	33,9
100	35,7
200	50,5
300	61,8
400	71,4
500	79,8
600	87,4

700	94,5
800	101,0
900	107,1
1000	112,9
1100	118,4
1200	123,7
1300	128,7
1400	133,6
1500	138,3
1600	142,8
1700	147,2
1800	151,5
1900	155,6

2000	159,7
2100	163,6
2200	167,4
2300	171,2
2400	174,9
2500	178,5
2600	182,0
2700	185,5
2800	188,9
2900	192,3

H è l'altezza a cui ci si trova sul livello del mare, in metri
Esempio, da quota 1600 metri l'orizzonte si estende per 143 km circa.

RIFRAZIONE

Angolo in gradi	Errore in primi	Angolo in gradi	Errore in primi
0	34.5	11	4.9
15'	31.4	12	4.5
30'	28.7	13	4.1
45'	26.4	14	3.8
1.00	24.3	15	3.6
1.15	22.5	16	3.3
1.30	20.9	17	3.1
1.45	19.5	18	2.9
2.00	18.3	19	2.8
2.15	17.2	20	2.6
2.30	16.1	25	2.1
2.45	15.2	30	1.7
3.00	14.4	35	1.4
4.30	10.7	50	0.8
5	9.9	55	0.7
6	8.5	60	0.6
7	7.4	65	0.5
8	6.6	70	0.4
9	5.9	80	0.2
10	5.3	90	0.0

COORDINATE DI ALCUNE CITTA' ITALIANE

Località	Longitudine	Latitudine	Altezza	Località	Longitudine	Latitudine	Altezza
AGRIGENTO	13 36	37 17	230	MESSINA	15 34	38 11	3
ALESSANDRIA	8 36	44 54	95	MILANO	9 11	45 27	122
ANCONA	13 30	43 37	16	MODENA	10 53	44 38	34
AOSTA	7 19	45 44	583	NAPOLI	14 15	40 51	115
AREZZO	11 53	43 27	296	NOVARA	8 37	45 26	159
ASCOLI PICENO	13 34	42 51	154	NUORO	9 20	40 19	532
ASTI	8 12	44 54	123	ORISTANO	8 36	39 54	3
AVELLINO	14 47	40 54	348	PADOVA	11 52	45 24	38
BARI	16 52	41 07	5	PALERMO	13 22	38 08	23
BELLUNO	12 13	46 08	383	PARMA	10 20	44 48	55
BENEVENTO	14 46	41 07	135	PAVIA	9 09	45 11	77
BERGAMO	9 39	45 42	249	PERUGIA	12 23	43 06	493
BOLOGNA	11 21	44 29	84	PESARO	12 54	43 54	11
BOLZANO	11 21	46 29	262	PESCARA	14 12	42 27	4
BRESCIA	10 13	45 32	149	PIACENZA	9 41	45 03	80
BRINDISI	17 46	40 39	15	PISA	10 23	43 43	4
CAGLIARI	9 07	39 13	4	PISTOIA	10 55	43 55	65
CALTANISSETTA	14 03	37 28	568	PORDENONE	12 38	45 57	0
CAMPOBASSO	14 39	41 33	786	POTENZA	15 48	40 38	820
CASERTA	14 19	41 04	68	RAGUSA	14 45	36 56	502
CATANIA	15 05	37 30	47	RAVENNA	12 12	44 25	4
CATANZARO	16 35	38 54	343	REGGIO CALABRIA	15 38	38 06	15
CHIETI	14 10	42 21	330	REGGIO EMILIA	10 37	44 41	58
COMO	9 15	45 47	201	RIETI	12 51	42 24	406
COSENZA	16 15	39 17	238	ROMA	12 27	41 55	143
CREMONA	10 01	45 08	45	ROVERETO	11 03	45 54	220
CUNEO	7 33	44 23	534	ROVIGO	11 47	45 04	7
ENNA	14 17	37 32	931	SALERNO	14 45	40 40	4
FERRARA	11 35	44 50	9	SASSARI	8 33	40 43	225
FIRENZE	11 15	43 45	184	SAVONA	8 29	44 18	4
FOGGIA	15 32	41 27	72	SIENA	11 20	43 19	322
FORLI`	12 02	44 13	34	SIRACUSA	15 18	37 03	17
FROSINONE	13 21	41 38	291	SONDRIO	9 52	46 10	307
GENOVA	8 55	44 25	108	TARANTO	17 13	40 28	15
GORIZIA	13 37	45 56	84	TERAMO	13 44	42 39	398
GROSSETO	11 06	42 45	10	TERNI	12 38	42 33	130
IMPERIA	8 01	43 52	22	TORINO	7 41	45 04	239
ISERNIA	14 15	41 24	0	TRAPANI	12 30	38 01	3
L'AQUILA	13 24	42 21	714	TRENTO	11 07	46 03	194
LA SPEZIA	9 49	44 05	3	TREVISI	12 14	45 39	15
LATINA	12 54	41 27	21	TRIESTE	13 45	45 38	67
LECCE	18 10	40 21	49	UDINE	13 14	46 03	113
LIVORNO	10 18	43 31	3	VARESE	8 48	45 00	000
LUCCA	10 30	43 50	327	VENEZIA	12 20	45 26	1
MACERATA	13 25	43 17	314	VERCELLI	8 25	45 19	130
MANTOVA	10 47	45 09	19	VERONA	10 59	45 26	59
MASSA	10 08	44 01	65	VICENZA	11 32	45 32	39
MATERA	16 36	40 39	399	VITERBO	12 06	42 24	325

Longitudine Est e Latitudine Nord

POTERE RISOLUTIVO DELL' OCCHIO

Potere risolutivo dell'occhio nudo in funzione della magnitudine visuale delle due stelle "osservate".

mag1	mag2	p"	mag1	mag2	p"
-3.0	-3.0	1910.18	0.0	0.0	480.56
-3.0	-2.0	1558.02	0.0	1.0	391.96
-3.0	-1.0	1335.71	0.0	2.0	336.04
-3.0	0.0	1195.37	0.0	3.0	300.73
-3.0	1.0	1106.77	0.0	4.0	278.44
-3.0	2.0	1050.85	0.0	5.0	264.37
-3.0	3.0	1015.54	0.0	6.0	255.49
-3.0	4.0	993.25			
-3.0	5.0	979.18	1.0	1.0	303.37
-3.0	6.0	970.30	1.0	2.0	247.44
			1.0	3.0	212.13
-2.0	-2.0	1205.86	1.0	4.0	189.85
-2.0	-1.0	983.55	1.0	5.0	175.78
-2.0	0.0	843.21	1.0	6.0	166.89
-2.0	1.0	754.62			
-2.0	2.0	698.69	2.0	2.0	191.51
-2.0	3.0	663.38	2.0	3.0	156.21
-2.0	4.0	641.09	2.0	4.0	133.92
-2.0	5.0	627.02	2.0	5.0	119.85
-2.0	6.0	618.14	2.0	6.0	110.96
-1.0	-1.0	761.24	3.0	3.0	120.90
-1.0	0.0	620.90	3.0	4.0	98.61
-1.0	1.0	532.31	3.0	5.0	84.54
-1.0	2.0	476.38	3.0	6.0	75.66
-1.0	3.0	441.07			
-1.0	4.0	418.78	4.0	4.0	76.32
-1.0	5.0	404.71	4.0	5.0	62.25
-1.0	6.0	395.83	4.0	6.0	53.37
			5.0	5.0	48.18
			5.0	6.0	39.30
			6.0	6.0	30.42

Prese due stelle o oggetti di magnitudine mag1 e mag2, se la loro distanza angolare è minore del valore p indicato, l'occhio le vedrà come un oggetto unico

ELENCO DELLE STELLE CON MAGNITUDINE < 5

-1.5	Alpha	CMA	Sirius	2.4	Eta	CEN	3.0	Delta	CAP	Deneb	3.4	Eta	ORI	Algiebbah	
-0.8	Alpha	CAR	Canopus	2.4	Epsilon	CEN	Algedi				3.4	Xi	GEM	Alzirr	
0.0	Alpha1	CEN		2.4	Zeta	UMA	Mizar	3.0	Beta	AQR	Sadalsuud	3.4	Xi	PUP	Asmidiske
Rigil	Kentaur			2.4	Gamma	CEN		3.0	Delta	CYG		3.4		CAR	
0.1	Alpha	LYR	Vega	2.5	Alpha	CAS	Schedar	3.0	Pi	SGR	Albaldah	3.4	Omega	CAR	
0.2	Beta	ORI	Rigel	2.5	Delta	ORI	Mintaka	3.0	Zeta	AQL	Dheneb	3.4		CAR	q Car
0.2	Alpha	AUR	Capella	2.5	Gamma	UMA	Phecda	3.0	Gamma2	SGR	Alnasl	3.4		CAR	p Car
0.2	Alpha	BOO	Arcturus	2.5	Epsilon	PEG	Enif	3.0	Iotal	SCO		3.4	Theta	LEO	Chertan
0.5	Alpha	CMI	Procyon	2.5	Epsilon	BOO	Izar	3.0	Alpha	ARA	Choo	3.4	Gamma	CEP	Alrai
0.6	Alpha	ERI	Achernar	2.6	Alpha	LEP	Arneb	3.0	Beta	DRA	Rastaban	3.4	Delta	AQR	Skat
0.6	Alpha	ORI	Betelgeuse	2.6	Kappa	VEL	Markeb	3.0	Zeta	HER	Ruticulus	3.4	Zeta	CYG	
0.8	Beta	CEN		2.6	Gammal	LEO	Algieba	3.0	Sigma	SCO	Alniyat	3.4	Theta	AQL	
Hadar	(Agena)			2.6	Delta	LEO	Zosma	3.0	Pi	SCO		3.4	Delta	AQL	
0.9	Alpha	AQL	Altair	2.6	Alpha	PEG	Markab	3.0	Gamma	LUP		3.4	Tau	SGR	
1.0	Alpha	SCO	Antares	2.6	Beta	PEG	Scheat	3.0	Gamma	TRA		3.4	Lambda	AQL	Althaimain
1.1	Alpha	TAU	Aldebaran	2.6	Alpha	CEP	Alderamin	3.0	Gamma	BOO	Seginus	3.4	Eta	SER	
1.1	Alpha	VIR	Spica	2.6	Epsilon	CYG	Gienah	3.0	Epsilon	VIR		3.4	Nu	OPH	
1.2	Beta	GEM	Pollux	2.6	Eta	OPH	Sabik	Vindemiatrix				3.4	Theta	OPH	
1.2	Alpha	PSA	Fomalhaut	2.6	Zeta	OPH	Han	3.0	Delta	CRV	Algoral	3.4	Pi	HER	
1.3	Alpha	LEO	Regulus	2.6	Beta	LIB		3.0	Delta	CRU		3.4	Eta	SCO	
1.3	Alpha	CYG	Deneb	Zubeneschamali				3.1	Beta	TRI		3.4	Kappa	OPH	
1.4	Alpha2	CEN		2.6	Alpha	LUP	Men	3.1	Gamma	PER		3.4	Zeta	LUP	
1.4	Beta	CRU	Mimosa	2.7	Beta	ARI	Sheratan	3.1	Delta	PER		3.4	Sigma	LIB	
1.4	Alpha1	CRU	Acrux	2.7	Alpha	COL	Phact	3.1		PUP	L2 (v)	3.4	Pi	HYA	
1.6	Epsilon	CMA	Adhara	2.7	Theta	AUR		3.1	Beta	CMI	Gomeisa	3.4	Zeta	VIR	Heze
1.6	Alpha	GEM	Castor	2.7	Pi	PUP		3.1	Iota	UMA	Talitha	3.4	Delta	UMA	Megrez
1.6	Lambda	SCO	Shaula	2.7	Zeta	SGR	Ascella	3.1	Epsilon	LEO	Asad Austr.	3.5	Delta	AND	
1.6	Gamma	CRU	Gacrux	2.7	Betal	SCO	Graffias	3.1	Psi	UMA		3.5	Eta	CET	
1.7	Gamma	ORI	Bellatrix	2.7	Beta	CRV	Kraz	3.1	Eta	PEG	Matar	3.5	Epsilon	AUR	
1.7	Epsilon	UMA	Alioth	2.7	Gamma	CRV	Minkar	3.1	Gamma	GRU		3.5	Delta	GEM	Wasat
1.8	Beta	TAU	Elnath	2.8	Beta	HYI		3.1	Zeta	ARA		3.5	Omicron	UMA	Muscida
1.8	Epsilon	ORI	Alnilam	2.8	Gamma	CAS	Cih	3.1	Mul	SCO		3.5	Epsilon	HYA	
1.8	Gamma2	VEL	Regor	2.8	Delta	CAS	Ruchbah	3.1	Gamma	UMI	Pherkad	3.5	Lambda	UMA	Tania Bor.
1.8	Epsilon	CAR	Avior	2.8	Alpha	CET	Menkar	3.1	Epsilon	CRV		3.5	Beta	PAV	
1.8	Beta	CAR	Miaplacidus	2.8	Beta	ERI	Kursa	3.2	Gamma	HYI		3.5	Beta	LYR	Sheliak
1.9	Alpha	PER	Mirfak	2.8	Iota	ORI	Hatysa	3.2	Epsilon	LEP		3.5	Mu	HER	
1.9	Gamma	GEM	Alhena	2.8	Tau	PUP		3.2	Beta	COL	Wazn	3.5	Gamma	ARA	
1.9	Epsilon	SGR	Kaus	2.8	Rho	PUP	Turais	3.2	Mu	GEM	Tejat	3.5	Alpha1	HER	Rasalgethi
Austral				2.8	Mu	VEL		3.2	Nu	PUP		3.5	Iota	DRA	Edasich
1.9	Alpha	TRA	Atria	2.8	Gamma	AQL	Tarazed	3.2	Epsilon	GEM	Mebsuta	3.5	Delta	BOO	
1.9	Eta	UMA	Alkaid	2.8	Lambda	SGR	Kaus	3.2	Mu	UMA	Tania	3.5	Nu	CEN	
2.0	Omicron	CET	Mira	Boreal.				Austr.				3.6	Eta	CAS	Achird
2.0	Zeta	ORI	Alnitak	2.8	Delta	SGR	Kaus Media	3.2	Nu	HYA		3.6	Tau	CET	
2.0	Beta	CMA	Mirzam	2.8	Upsilon	SCO	Lesath	3.2	Lambda	CEN		3.6	Alpha	TRI	
2.0	Delta	CMA	Wezea	2.8	Beta	ARA		3.2	Alpha	AQR	Sadalmelik	Rasalthothal.			
2.0	Delta	VEL	Koo She	2.8	Tau	SCO		3.2	Alpha	IND		3.6	Gamma	CET	
2.0	Alpha	UMA	Dubhe	2.8	Beta	HER	Kornephoros	3.2	Beta	CAP	Dabih	Alkaffaljid.			
2.0	Alpha	GRU	Al Na'ir	2.8	Delta	OPH	Yed Prior	3.2	Betal	CYG	Albireo	3.6	Delta	ERI	Rana
2.0	Alpha	PAV	Peacock	2.8	Alpha	SER	Unuk-al-hai	3.2	Delta	DRA	Altais	3.6	Upsilon4	ERI	
2.0	Sigma	SGR	Nunki	2.8	Beta	LUP	Kekouan	3.2	Phi	SGR		3.6	Epsilon	TAU	Ain
2.0	Theta	SCO	Sargas	2.8	Alpha2	LIB		3.2	Eta	SGR		3.6	Theta2	TAU	
2.1	Alpha	AND	Alpheratz	Zubenelgenubi				3.2		SCO	G Sco	3.6	Tau	ORI	
2.1	Beta	CET	Diphda	2.8	Zeta	CEN		3.2	Delta	HER	Sarin	3.6	Beta	DOR	
2.1	Alpha	UMI	Polaris	2.8	Eta	BOO	Muphrid	3.2	Zeta	DRA	Aldibah	3.6	Zeta	LEP	
2.1	Beta	AUR	Menkalinan	2.8	Iota	CEN		3.2	Epsilon	OPH	Yed Poster.	3.6	Theta	GEM	
2.1	Alpha	HYA	Alphard	2.8	Alpha	MUS		3.2	Eta	LUP		3.6	Sigma	CMA	
2.1	Alpha	OPH	Rasalhague	2.8	Delta	CEN		3.2	Epsilon	LUP		3.6	Lambda	GEM	
2.2	Alpha	ARI	Hamal	2.9	Gamma	PEG	Algenib	3.2	Kappa	CEN		3.6	Chi	CAR	
2.2	Kappa	ORI	Saiph	2.9	Beta	PER	Algol	3.2	Mu	CEN		3.6	Omicron	VEL	
2.2	Lambda	VEL	Al Suhail	2.9	Zeta	PER	Atik	3.2	Gamma	HYA		3.6	Psi	VEL	
2.2	Beta	LEO	Denebola	2.9	Iota	AUR	Hassaleh	3.3	Pi3	ORI		3.6	Phi	VEL	
2.2	Beta	GRU	Al Dhanab	2.9	Beta	LEP	Nihal	3.3	Eta	AUR		3.6	Eta	LEO	
2.2	Beta	UMI	Kochab	2.9	Upsilon	CAR		3.3	Mu	LEP		3.6	Zeta	LEO	Adhafera
2.2	Theta	CEN	Menkent	2.9	Theta	CAR		3.3	Alpha	PIC		3.6	Gamma2	LEO	
2.3	Gammal	AND	Almaak	2.9	Alpha	TUC		3.3	Sigma	PUP		3.6	Xi	HYA	
2.3	Zeta	PUP	Suhail	2.9	Beta	OPH	Cebalrai	3.3	Zeta	HYA		3.6	Omicron	AND	
Hadar				2.9	Eta	DRA	Aldibahin	3.3	Alpha	LYN		3.6	Epsilon	GRU	
2.3	Iota	CAR	Aspidiske	2.9	Beta	TRA		3.3	Theta	UMA		3.6	Zeta	PEG	Homam
2.3	Gamma	CYG	Sadr	2.9	Alpha2	CVN	Cor Caroli	3.3	Beta	CEP	Alfirk	3.6	Zeta	CEP	
2.3	Alpha	CRB	Alphecca	2.9	Gamma	VIR	Arich	3.3	Gamma	LYR	Sulafat	3.6	Beta	IND	
2.4	Beta	CAS	Caph	3.0	Alpha	HYI		3.3	Delta	LUP		3.6	Eta	CEP	
2.4	Alpha	PHE	Ankaa	3.0	Eta	TAU	Alcyone	3.3	Alpha	CIR		3.6	Delta	PAV	
2.4	Beta	AND	Mirach	3.0	Epsilon	PER		3.3	Beta	MUS		3.6	Xi2	SGR	
2.4	Eta	CMA	Aludra	3.0	Gamma	ERI	Zaurak	3.4	Beta	PHE		3.6	Alpha	TEL	
2.4	Beta	UMA	Merak	3.0	Zeta	TAU	Alheka	3.4	Gamma	PHE		3.6	Eta	PAV	
2.4	Gamma	DRA	Eltanin	3.0	Zeta	CMA	Furud	3.4	Epsilon	CAS	Segin	3.6	Xi	SER	
2.4	Kappa	SCO	Girtab	3.0	Omicron2	CMA		3.4	Thetal	ERI	Acamar	3.6	Mu2	SCO	
2.4	Epsilon	SCO	Wei	3.0		VEL	N Vel	3.4	Alpha	RET		3.6	Eta	HER	
2.4	Delta	SCO	Dschubba					3.4	Alpha	DOR		3.6	Mu	SER	

3.6	Phil	LUP	3.8	Epsilon	SER	4.0	Iota	GRU	4.1	Omega1	SCO
3.6	Beta	BOO Nekkar	3.8	Tau	LIB	4.0	Theta	GRU	Jabh.alAkrab		
3.6	Delta	OCT	3.8	Kappal	LUP	4.0	Delta1	GRU	4.1	Theta	DRA
3.6	Alpha	DRA Thuban	3.8	Alpha	APS	4.0	Delta	CEP	4.1	Epsilon	TRA
3.6	Delta	MUS	3.8		VIR	4.0	Gamma	AQR Sadachbia	4.1	Delta	SER
3.6	Epsilon	CRU	3.8	Rho	BOO	4.0	Iota	PEG	4.1		CEN
3.7	Iota	CET Shemali	3.8	Phi	CEN	4.0	Mu	CEP Granate	4.1	Theta	BOO
3.7	Zeta	CAS	3.9	Epsilon	PHE	Star			4.1	Psi	CEN
3.7	Theta	CET	3.9	Kappa	PHE	4.0	Nu	CYG	4.1	Iota	LUP
3.7	Eta	PSC Alpherq	3.9	Mu	AND	4.0	Epsilon	DEL	4.2	Zeta	TUC
3.7	Chi	ERI	3.9	Omicron	PER Ati	4.0		CYG	4.2	Beta2	TUC
3.7	Phi	ERI	3.9	Nu	PER	4.0	Epsilon	PAV	4.2	Kappa	CAS
3.7	ARI		3.9	Nu	TAU	4.0	Eta	CYG	4.2	Upsilon	AND
3.7	Rho	PER	3.9	Gamma	TAU Hyadum I	4.0	Eta	AQL	4.2	Phi	PER
3.7	Lambda	ORI Meissa	3.9	Delta1	TAU	4.0	Epsilon	DRA Tyl	4.2	Delta	HYI
3.7	Gamma	LEP	3.9	Pi5	ORI	4.0	Alpha	SGR Rukbat	4.2	Epsilon	HYI
3.7	Eta	GEM Propus	3.9	Zeta	AUR Sadatoni	4.0	Rho1	SGR	4.2	Theta	PER
3.7	Kappa	GEM	3.9	Epsilon	COL	4.0	Kappa	CYG	4.2	Tau3	ERI
3.7		PUP	3.9	Beta	PIC	4.0	Beta	CRA	4.2	Iota	PER
3.7	Beta	VOL	3.9	Delta	AUR	4.0	Gamma	CRA	4.2	Tau6	ERI
3.7	Alpha	PYX	3.9	Kappa	CMA	4.0		AQL	4.2	Epsilon	RET
3.7	Kappa	UMA	3.9	Zeta	GEM Mekbuda	4.0	Kappa	PAV	4.2	Delta3	TAU
3.7	Lambda	HYA	3.9	Iota	GEM	4.0	Zeta	PAV	4.2	Beta	CAM
3.7	Nu	UMA Alula Bor.	3.9	Zeta	VOL	4.0	Alpha	SCT	4.2	Gammal	CAE
3.7	Delta	CRT	3.9	Alpha	CHA	4.0	Mu	SGR Polis	4.2	Iota	LEP
3.7	Lambda	MUS	3.9		CAR	4.0		OPH	4.2	Kappa	LEP
3.7	Mu	PEG Sadalbari	3.9	Upsilon	UMA	4.0	Theta	HER	4.2		ORI
3.7	Iota	CEP	3.9	Rho	LEO	4.0	Gamma2	NOR	4.2	Nu	AUR
3.7	Theta	PEG Biham	3.9		VEL	4.0	Nu	SCO Jabbah	4.2	Mu	ORI
3.7	Beta	DEL Rotanev	3.9		LMI Praecipua	4.0	Chi	LUP	4.2	Theta	CMA
3.7	Alpha2	CAP Secunda	3.9		CAR	4.0	Omega	LUP	4.2	Rho	GEM
Gaedi			3.9	Xi	UMA Alula	4.0	Gamma	LIB	4.2	Upsilon	GEM
3.7	Gamma	SGE	Austr.			Zubeneh	hakrahi		4.2		PUP
3.7	Chi	DRA	3.9	Chi	UMA Alkafzah	4.0		LUP	4.2		PUP
3.7		OPH	3.9	Gamma	PSC	4.0	Mu	VIR	4.2		PUP
3.7	Gamma	OPH	3.9	Alpha	LAC	4.0	Rho	LUP	4.2	Zeta	MON
3.7	Delta	ARA	3.9	Xi	CYG	4.0	Upsilon1	CEN	4.2	Delta	HYA
3.7	Beta	SER	3.9	Alpha	DEL Sualocin	4.0		CEN	4.2	Delta	CNC Asellus
3.7	Upsilon	LIB	3.9	Beta	AQL Alshain	4.0		UMA Alcor	Aus.		
3.7	Beta	CRB Nusakan	3.9	Iota2	CYG	4.0	Zeta	UMA	4.2	Iotal	CNC
3.7	Pi	LUP	3.9	Omicron	SGR	4.0		CEN	4.2		CAR
3.7	Delta	VIR Minelauva	3.9	Lambda	PAV	4.0	Tau	CEN	4.2	Alpha	CRT Alkes
3.8		AND	3.9		HER	4.0	Gamma	MUS	4.2	Nu	VIR
3.8	Zeta	CET Baten	3.9	Xi	DRA Juza	4.0	Sigma	CEN	4.2	Zeta	GRU
Kaitos			(Grum.)			4.0	Eta	VIR Zaniah	4.2	Beta	OCT
3.8	Omicron	TAU	3.9	Epsilon	HER	4.0	Rho	CEN	4.2	Epsilon	PSA
3.8	Xi	TAU	3.9	Gamma	APS	4.0	Eta	CRU	4.2	Theta	AQR Ancha
3.8	Epsilon	ERI	3.9	Lambda	OPH Marfik	4.1	Zeta	PHE	4.2		LAC
3.8	Beta	RET	3.9	Tau	HER	4.1	Upsilon	CET	4.2	Epsilon	CEP
3.8		TAU Electra	3.9	Delta	TRA	4.1		CAS	4.2	Rho	CYG
3.8		TAU Atlas	3.9	Gamma	SER	4.1	Gamma	TRI	4.2	Gamma	PAV
3.8	Alpha	HOR	3.9	Gamma	CRB	4.1	Iota	ERI	4.2	Theta	IND
3.8	Upsilon2	ERI Theemini	3.9	Zeta	BOO	4.1	Tau	PER Kerb	4.2	Theta	CAP
3.8	Pi4	ORI	3.9	Kappa	DRA	4.1		ERI	4.2	Omega	CAP
3.8	Sigma	ORI	4.0	Delta	PHE	4.1	Mu	ERI	4.2	Psi	CAP
3.8	Delta	LEP	4.0	Delta	CET	4.1	Gamma	MON	4.2		CYG
3.8	Eta	LEP	4.0	Eta	PER	4.1	Nu	GEM	4.2	Iota	SGR
3.8	Gamma2	VOL	4.0	Eta	ERI Azha	4.1	Nu2	CMA	4.2	Chi	CYG
3.8	Omega	CMA	4.0	Kappa	PER Misam	4.1	Omicron1	CMA	4.2	Betal	SGR Arkab
3.8	Beta	CNC	4.0	Alpha	FOR	4.1	Gamma	CMA Mulifen	4.2	Epsilon	AQL
3.8	Theta	HYA	4.0	Tau4	ERI Angetenar	4.1	Delta	MON	4.2	Phi	DRA
3.8		LYN	4.0		TAU Mala	4.1		PUP	4.2		SCO
3.8		UMA	4.0	Xi	PER Menkib	4.1		VEL	4.2		OPH
3.8	Omicron	LEO Subra	4.0	Lambda	TAU	4.1		VEL	4.2	Xi	OPH
3.8		CAR l Car (v)	4.0	Upsilon	PER Nembus	4.1	Gamma	PYX	4.2	Nu	SER
3.8	Beta	VIR Zavijava	4.0	Omicron1	ERI Beid	4.1	Alpha	VOL	4.2	Beta	APS
3.8		AQR	4.0		ERI	4.1	Iota	HYA	4.2	Phi	OPH
3.8	Lambda	AQR	4.0	Thetal	TAU	4.1	Mu	LEO Rassalas	4.2	Theta	LUP
3.8	Nu	OCT	4.0	Nu	ERI	4.1	Gamma	CHA	4.2	Epsilon	CRB
3.8	Gamma	CAP Nashira	4.0		ERI Sceptrum	4.1	Pi	CEN	4.2	Theta	CRB
3.8	Zeta	CAP	4.0	Eta	COL	4.1	Sigma	LEO	4.2	Beta	CIR
3.8	Tau	CYG	4.0	Delta	COL	4.1	Gamma	CRT	4.2	Lambda	LUP
3.8	Epsilon	AQR Albali	4.0	Delta	VOL	4.1	Lambda	DRA Giansar	4.2	Tau2	LUP
3.8	Delta	SGE	4.0	Alpha	MON	4.1		AQR	4.2	Iota	VIR Syrma
3.8	Zeta	TEL	4.0	Beta	PYX	4.1	Tau2	AQR	4.2	Kappa	VIR
3.8	Omicron	HER	4.0		HYA	4.1	Lambda	PEG	4.2	Upsilon2	CEN
3.8	Theta	ARA	4.0		CAR	4.1	Eta	AQR	4.2	Eta	CRV
3.8	Xi	HER	4.0		CAR	4.1	Alpha	EQU Kitalpha	4.2	Zeta	CRU
3.8	Iota	HER	4.0	Mu	HYA	4.1		CYG	4.2	Epsilon	MUS
3.8	Zeta2	SCO	4.0	Iota	LEO	4.1	Alpha	CRA	4.2	Alpha	CRV Alchiba
3.8	Eta	ARA	4.0	Beta	HYA	4.1	Thetal	SER	4.2	Omicron	VIR
3.8	Gamma	HER	4.0	Omega	PSC	4.1		OPH	4.3		CET
3.8	Xi	SCO	4.0	Lambda	AND	4.1	Epsilon1	ARA	4.3	Betal	TUC
3.8	Rho	SCO	4.0	Gamma	TUC				4.3	Zeta	AND

4.3	Phi	AND		4.4	Kappal	TAU		4.5	Delta	PSC		4.6	Iota	CAS	
4.3	Alpha	PSC	Al-Rischa	4.4	Upsilon	TAU		4.5	Epsilon	PSC		4.6	Epsilon	CET	
4.3	Xi2	CET		4.4		TAU		4.5	Theta	CAS	Marfak	4.6		ARI	
4.3		PER		4.4	Alpha	CAE		4.5	Omicron	PSC		4.6	Tau1	ERI	
4.3		TAU		4.4	Pi2	ORI		4.5	Xi1	CET		4.6		ARI	
4.3	Tau5	ERI		4.4	Alpha	CAM		4.5	Beta	FOR		4.6	Pi	PER	
4.3	Psi	PER		4.4		CAM		4.5	Delta	ARI	Botein	4.6	Epsilon	ARI	
4.3		TAU	Merope	4.4		ORI		4.5	Sigma	PER		4.6		ERI	
4.3	Lambda	PER		4.4	Phi2	ORI		4.5		ERI		4.6		ERI	
4.3	Mu	PER		4.4	Delta	DOR		4.5	Delta	RET		4.6	Pi	ERI	
4.3	Mu	TAU		4.4	Gamma	PIC		4.5		TAU		4.6	Tau9	ERI	
4.3	Upsilon1	ERI		4.4	Gamma	COL		4.5	Omicron2	ERI	Klid	4.6		ERI	
4.3		TAU		4.4	Nu	ORI		4.5		PER		4.6		TAU	
4.3	Tau	TAU		4.4	Xi	ORI		4.5	Omega	ERI		4.6		ERI	
4.3	Omicron2	ORI		4.4	Kappa	COL		4.5	Phil	ORI		4.6		ORI	
4.3	Lambda	ERI		4.4		LYN		4.5	Omega	ORI		4.6	Rho	ORI	
4.3	Lambda	LEP		4.4	Epsilon	MON		4.5		TAU		4.6		ORI	
4.3		ORI		4.4	Lambda	CMA		4.5	Kappa	AUR		4.6	Upsilon	ORI	Thabit
4.3		GEM		4.4	Xi1	CMA		4.5		MON		4.6	Tau	AUR	
4.3	Sigma	GEM		4.4		CAR		4.5	Xi2	CMA		4.6	Lambda	COL	
4.3		PUP		4.4		CAR		4.5		LYN		4.6	Chi1	ORI	
4.3		PUP		4.4	Iota	CMA		4.5	Tau	GEM		4.6	Pi	AUR	
4.3		PUP		4.4	Tau	CMA		4.5		LYN		4.6	Beta	MON	
4.3	Theta	CHA		4.4		PUP		4.5		CMI		4.6	Nu3	CMA	
4.3	Eta	HYA		4.4	Epsilon	VOL		4.5	Sigma	HYA		4.6		GEM	
4.3	Alpha	CNC	Acubens	4.4		PUP		4.5		CAR		4.6	Pi	CMA	
4.3		VEL		4.4		PUP		4.5		CAR		4.6	Gamma	CMI	
4.3	Upsilon1	HYA		4.4		LYN		4.5		UMA		4.6		PUP	
4.3	Kappa	AND		4.4		CAR		4.5		HYA		4.6	Omicron	PUP	
4.3	Iota	PSC		4.4	Rho	HYA		4.5	Lambda	LEO	Alterf	4.6		PUP	
4.3	Iota	AND		4.4	Kappa	PYX		4.5	Tau2	HYA		4.6	Delta	PYX	
4.3	Phi	AQR		4.4	Alpha	ANT		4.5	Phi	UMA		4.6		HYA	
4.3	Delta	PSA		4.4	Beta	LMI		4.5		LMI		4.6	Kappa	LEO	
4.3	Gamma	PSA		4.4		LEO		4.5	Alpha	SEX		4.6	Epsilon	ANT	
4.3	Xi	PEG		4.4		CEN		4.5	Delta2	CHA		4.6		LMI	
4.3	Delta2	GRU		4.4	Beta	SCL		4.5		LEO		4.6		UMA	
4.3	Pi2	CYG		4.4	Gamma	SCL		4.5	Beta	CRT		4.6		UMA	
4.3	Kappa	PEG		4.4	Psil	AQR		4.5	Upsilon	LEO		4.6	Upsilon2	HYA	
4.3		CAP		4.4		AQR		4.5		LEO		4.6		LEO	
4.3	Iota	CAP		4.4	Beta	PSA		4.5	Theta	PSC		4.6		VEL	
4.3		PEG		4.4	Zeta1	AQR		4.5		AQR		4.6	Iota	ANT	
4.3	Sigma	CYG		4.4	Pi2	PEG		4.5		AQR		4.6	Phi	LEO	
4.3		CYG		4.4	Iota	AQR		4.5		LAC		4.6	Mu	MUS	
4.3	Theta	CEP		4.4	Xi	CEP	Kurhah	4.5	Delta	TUC		4.6	Epsilon	TUC	
4.3		CYG		4.4	Iota	PSA		4.5	Delta	IND		4.6	Delta	SCL	
4.3	Iota	AQL		4.4	Upsilon	CYG		4.5	Nu	CEP		4.6	Omega2	AQR	
4.3	Beta2	SGR		4.4	Alpha1	CAP	Prima Gaedi	4.5		PEG		4.6	Lambda	PSC	
4.3		LYR		4.4	Kappa	CEP		4.5	Kappa	CAP		4.6	Upsilon	PEG	
4.3		HER		4.4	Theta1	SGR		4.5	Nu	AQR		4.6	Tau	PEG	
4.3	Zeta1	LYR		4.4	Omega	SGR		4.5		AQR		4.6	Psi2	AQR	
4.3	Kappa	LYR		4.4	Alpha	SGE		4.5	Lambda	CYG		4.6	Chi	AQR	
4.3		HER		4.4	Beta	SCT		4.5	Gamma2	DEL		4.6		AND	
4.3	Iota	OPH		4.4		HER		4.5	Delta	DEL		4.6	Pi	CEP	
4.3		SCO		4.4	Xi	PAV		4.5		AQL		4.6	Beta	PSC	
4.3	Sigma	HER		4.4	Pi	PAV		4.5		VUL		4.6		LAC	
4.3	Phi	HER		4.4		OPH		4.5	Beta	SGE		4.6		LAC	
4.3	Iota1	NOR		4.4		HER		4.5	Theta	LYR		4.6	Zeta2	AQR	
4.3	Theta	LIB		4.4		SGR		4.5	Eta	LYR	Aladfar	4.6	Pi	AQR	
4.3	Kappa	SER		4.4	Omicron	SER		4.5	Delta2	LYR		4.6		LAC	
4.3	Zeta	UMI	Alifa	4.4	Mu	OPH		4.5	Zeta	SCT		4.6	Beta	LAC	
4.3	Gamma	CIR		4.4	Delta	UMI	Yildun	4.5	Gamma1	SGR		4.6	Mu	PSA	
4.3	Mu	LUP		4.4		OPH		4.5	Zeta	SER		4.6	Lambda	GRU	
4.3		CEN		4.4	Sigma	OPH		4.5	Nu	HER		4.6	Omicron	AQR	
4.3	Lambda	BOO		4.4	Rho	HER		4.5	Lambda	HER	Maasym	4.6	Epsilon	CAP	
4.3	Tau	VIR		4.4		OPH		4.5	Omega	OPH		4.6	Delta	EQU	
4.3	Upsilon	BOO		4.4	Epsilon	UMI		4.5	Chi	OPH		4.6		CAP	
4.3		CEN		4.4	Upsilon	OPH		4.5	Omega	HER	Cujam	4.6	Eta	IND	
4.3	Beta	COM		4.4	Psi	OPH		4.5	Eta	NOR		4.6	Phil	PAV	
4.3	Mu1	CRU		4.4	Omicron	SCO		4.5	Iota	SER		4.6	Rho	CAP	
4.3		CVN	Chara	4.4		SCO		4.5	Mu1	BOO	Alkalurops	4.6		CYG	
4.4	Theta	AND		4.4	Lambda	SER		4.5		LIB		4.6		SGR	
4.4	Eta	PHE		4.4	Omicron	LUP		4.5		HYA		4.6		SGR	
4.4	Nu	AND		4.4	Sigma	LUP		4.5	Sigma	BOO		4.6		SGR	
4.4	Alpha	SCL		4.4		UMI		4.5	Chi	CEN		4.6	Theta	CYG	
4.4	Psi	PHE		4.4		CEN		4.5	Tau	BOO		4.6	Mu	AQL	
4.4	Kappa	ERI		4.4		CEN		4.5	Alpha	COM	Diadema	4.6	Alpha	VUL	
4.4	Pi	CET		4.4		VIR		4.6		PSC		4.6	Upsilon	SGR	
4.4	Mu	CET		4.4	Theta	VIR		4.6		CET		4.6	Pi	DRA	
4.4	Theta2	ERI		4.4	Xi2	CEN		4.6		PSC		4.6		VUL	
4.4		TAU		4.4	Beta	CHA		4.6	Mu	PHE		4.6	Tau	DRA	
4.4		TAU	Taygete	4.4	Theta1	CRU		4.6	Phil	CET		4.6	Psi	SGR	
4.4	Tau8	ERI		4.5	Sigma	AND		4.6	Eta	AND		4.6	Delta	CRA	
4.4	Gamma	RET		4.5	Pi	AND		4.6	Phi	PSC		4.6	Nu2	SGR	
4.4	Gamma	DOR		4.5	Epsilon	AND		4.6		CAS		4.6		HER	

4.6	Theta	CRA		4.7	Omicron	BOO		4.8	Sigma	DRA		4.9		CEP	Alphirk
4.6	Nu	PAV		4.7		HYA R Hya (v)		4.8	Epsilon	CRA		4.9		CYG	
4.6		SGR		4.7		VIR		4.8	Omicron	DRA		4.9		CYG	
4.6	Epsilon	TEL		4.7		CVN		4.8		SGR		4.9	Zeta	IND	
4.6	Tau	OPH		4.7		CEN		4.8		OPH		4.9		CYG	
4.6	Sigma	ARA		4.8	Theta	OCT		4.8		SGR		4.9		CYG	
4.6		HER		4.8		CET		4.8	Lambda	ARA		4.9	Omega1	CYG	
4.6	Zeta1	SCO		4.8		CET		4.8		OPH		4.9		CYG	
4.6		OPH		4.8	Lambda1	PHE		4.8	Zeta	APS		4.9	Xi	TEL	
4.6	Omega2	SCO		4.8	Upsilon2	CAS		4.8		HER		4.9		CYG	
4.6	Upsilon	HER		4.8	Kappa	TUC		4.8		OPH		4.9	Xi	AQL	
4.6	Chi	HER		4.8		CET		4.8		DRA		4.9		VUL	
4.6		SCO		4.8	Chi	CET		4.8	Epsilon	NOR		4.9		VUL	
4.6	Psi1	LUP		4.8	Gamma2	ARI Mesartim		4.8	Rho	OPH		4.9		CYG	
4.6	Phi2	LUP		4.8	Gamma1	ARI		4.8	Sigma	SER		4.9	Nu	AQL	
4.6	Iota1	LIB		4.8	Xi	PSC		4.8	Delta1	APS		4.9		CYG	
4.6		VIR		4.8		CET		4.8	Delta	NOR		4.9		VUL	
4.6	Xi	BOO		4.8	Lambda	ARI		4.8	Pi	SER		4.9	Eta	SCT	
4.6		HYA		4.8		AND		4.8		LIB		4.9	Upsilon	DRA	
4.6	Tau1	LUP		4.8	Sigma	CET		4.8	Kappa	CRB		4.9		DRA	
4.6		HYA		4.8	Zeta	HYI		4.8	Kappa	LIB		4.9		OPH	
4.6	Lambda	VIR Khambalia		4.8	Tau2	ERI		4.8	Epsilon	CIR		4.9		OPH	
4.6	Kappa	BOO		4.8	Omega	PER		4.8		BOO		4.9	Psi1	DRA	
4.6		CEN		4.8	Zeta	ERI Zibal		4.8		DRA		4.9	Omega	DRA	
4.6		CVN		4.8	Kappa	RET		4.8		UMA		4.9		HER	
4.6	Iota	CRU		4.8		ERI		4.8		VIR		4.9		OPH	
4.6	Gamma	COM		4.8	Iota	RET		4.8	Lambda	CRU		4.9		HER	
4.6	Kappa	CHA		4.8	Delta	HOR		4.8	Psi	VIR		4.9		HER	
4.6	Pi	VIR		4.8	Omega2	TAU		4.8	Chi	VIR		4.9	Zeta	TRA	
4.7	Omicron	CAS		4.8	Delta2	TAU		4.8		COM		4.9	Gamma1	NOR	
4.7	Tau	PSC		4.8	Rho	TAU		4.8		COM		4.9	Psi	SCO	
4.7	Upsilon	PSC		4.8		ERI		4.9	Chi	PEG		4.9	Tau	CRB	
4.7	Nu	PSC		4.8	Zeta	DOR		4.9	Eta	SCL		4.9	Beta2	SCO	
4.7	Eta2	HYI		4.8	Mu	AUR		4.9	Lambda	CAS		4.9	Iota	CRB	
4.7	Nu	FOR		4.8	Theta	DOR		4.9	Xi	CAS		4.9	Rho	SER	
4.7	Omega	FOR		4.8	Omicron	COL		4.9		CET		4.9		LIB	
4.7	Nu	HYI		4.8		AUR		4.9	Chi	PSC		4.9		BOO	
4.7		PER		4.8		TAU		4.9	Zeta1	PSC		4.9	Omega	BOO	
4.7	Lambda	CET		4.8		ORI		4.9	Nu	PHE		4.9		BOO	
4.7		PER		4.8		MON		4.9	Chi	CAS		4.9	Pi1	BOO	
4.7		CAM		4.8	Delta	PIC		4.9	Tau	AND		4.9	Eta	APS	
4.7	Gamma	CAM		4.8	Eta2	DOR		4.9		AND		4.9	Iota	BOO	
4.7	Pi1	ORI		4.8		CMA		4.9	Rho	CET		4.9		CVN	
4.7	Pi6	ORI		4.8		LYN		4.9		PER		4.9		VIR	
4.7	Iota	TAU		4.8	Pi2	UMA Ta Tsun		4.9		PER		4.9	Eta	MUS	
4.7	Psi1	ORI		4.8		HYA		4.9	Pi	TAU		4.9		COM	
4.7	Psi2	ORI		4.8	Theta	PYX		4.9	Sigma2	TAU		4.9	Xi1	CEN	
4.7		TAU		4.8	Lambda	PYX		4.9	Psi	ERI		4.9		UMA	
4.7	Chi2	ORI		4.8	Tau1	HYA		4.9		ORI		4.9		COM	
4.7	Theta	LEP		4.8		LMI		4.9	Lambda	AUR		4.9		COM	
4.7	Beta	MON		4.8		CAR		4.9	Chi	AUR		5.0	Zeta	SCL	
4.7		MON		4.8		UMA		4.9		TAU		5.0	Pi	CAS	
4.7		MON		4.8		LMI		4.9		TAU		5.0	Lambda	HYI	
4.7		GEM		4.8	Omega	UMA		4.9	Xi	AUR		5.0	Nu	CAS	
4.7		CMA		4.8		UMA		4.9	Xi	COL		5.0	Upsilon1	CAS	
4.7	Gamma	CNC Asellus		4.8	Theta	CRT		4.9		TAU		5.0		PSC	
Bor.				4.8	Omicron	HYA		4.9		LEP		5.0		CET	
4.7	Tau	UMA		4.8	Zeta	CRT		4.9		ORI		5.0	Xi	AND Adhil	
4.7	Chi	LEO		4.8	Psi	PEG		4.9		LYN		5.0	Psi	CAS	
4.7		AQR		4.8	Rho	CAS		4.9	Mu	CMA		5.0	Omega	AND	
4.7		PEG		4.8		AQR		4.9		CMI		5.0	Phi	PHE	
4.7		PEG		4.8	Iota	PHE		4.9	Omicron	GEM		5.0	Omega	CAS	
4.7		LAC		4.8		AQR		4.9		MON		5.0	Chi	PHE	
4.7	Epsilon	IND		4.8	Rho	GRU		4.9		LYN		5.0		PER	
4.7	Mul	CYG		4.8		LAC		4.9	Zeta1	CNC Tegmine		5.0	Nu	CET	
4.7	Gamma	MIC		4.8	Sigma	AQR		4.9	Sigma2	UMA		5.0		PER	
4.7		CYG		4.8	Mul	GRU		4.9		UMA		5.0	Beta	HOR	
4.7	Zeta	DEL		4.8	Upsilon	PSA		4.9	Theta	ANT		5.0		PER	
4.7		VUL		4.8	Pi1	CYG Azelfalage		4.9	Pi	LEO		5.0	Zeta	ARI	
4.7	Rho	DRA		4.8	Xi	AQR		4.9		LEO		5.0	Kappa1	CET	
4.7		VUL		4.8		PEG		4.9	Sigma	CAS		5.0		PER	
4.7	Epsilon1	LYR		4.8	Theta1	MIC		4.9	Kappa	PSC		5.0	Delta	FOR	
4.7	Delta	SCT		4.8	Epsilon	MIC		4.9	Omicron	CEP		5.0		PER	
4.7	Gamma	SCT		4.8	Gamma	EQU		4.9		CAS		5.0		TAU	
4.7		OPH		4.8	Eta	CAP		4.9		AND		5.0		TAU	
4.7		HER		4.8	Mu	AQR		4.9	Eta	GRU		5.0		ERI	
4.7		SCO		4.8		VUL		4.9	Omicron	PEG		5.0	Beta	CAE	
4.7	Xi	CRB		4.8	Alpha	MIC		4.9		LAC		5.0		AUR	
4.7		SCO		4.8		VUL		4.9	Nu	TUC		5.0	Omega	AUR	
4.7	Delta	CRB		4.8	Nu	CAP Alshat		4.9		PEG		5.0	Eta2	PIC	
4.7	Psi2	LUP		4.8		CYG		4.9		PEG		5.0		AUR	
4.7		LUP		4.8		SGR		4.9		PEG		5.0		TAU	
4.7		LIB		4.8	Psi	CYG		4.9	Nu	PEG		5.0		ERI	
4.7	Psi	BOO		4.8	Phi	CYG		4.9		CEP		5.0		ORI	

5.0		ORI	5.0	Beta	SEX	5.0		CYG	5.0		DRA
5.0	Nu2	COL	5.0	Phi3	HYA	5.0	Zeta	SGE	5.0	Eta	UMI Alasco
5.0		TAU	5.0		LMI	5.0		CYG	5.0	Kappa	NOR
5.0		TAU	5.0		LEO	5.0		SGR	5.0	Lambda	LIB
5.0	Upsilon	AUR	5.0		LEO	5.0		CYG	5.0		LIB
5.0		ORI	5.0	Chi1	HYA	5.0	Kappa	AQL	5.0	Nu2	BOO
5.0		MON	5.0	Lambda	CRT	5.0	Iota	TEL	5.0	Epsilon	LIB
5.0	Theta	COL	5.0	Omicron1	CEN	5.0		AQL	5.0	Eta	CRB
5.0		MON	5.0	Epsilon	CHA	5.0	Chi1	SGR	5.0	Nu1	LUP
5.0		AUR	5.0		PSC	5.0		AQL	5.0		LUP
5.0		AUR	5.0		PEG	5.0		SGR	5.0		BOO
5.0		MON	5.0		AND	5.0		LYR	5.0		LIB
5.0	Psi7	AUR	5.0		PEG	5.0	Zeta	CRA	5.0		LIB
5.0		CAM	5.0	Rho	PEG	5.0	Lambda	TEL	5.0		BOO
5.0		MON	5.0		AQR	5.0	Nu1	SGR	5.0	Phi	VIR
5.0		MON	5.0	Tau	PSA	5.0		SGR	5.0		HYA
5.0		CMA	5.0		CEP	5.0		AQL	5.0		BOO
5.0		GEM	5.0		PEG	5.0	Epsilon	SCT	5.0		HYA
5.0		LYN	5.0		PEG	5.0		DRA	5.0		LEO
5.0		PUP	5.0	Theta	PSA	5.0	Delta1	TEL	5.0		UMI
5.0		GEM	5.0		CAP	5.0		DRA	5.0		VIR
5.0	Phi	GEM	5.0		CYG	5.0	Mu	LYR	5.0	Total	MUS
5.0		PUP	5.0	Omicron	PAV	5.0		HER	5.0	Sigma	VIR
5.0		MON	5.0	Iota	IND	5.0		HER	5.0		VIR
5.0	Chi	GEM	5.0		VUL	5.0		DRA	5.0	Psi	HYA
5.0		PUP	5.0	Rho	PAV	5.0		HER	5.0		COM
5.0	Zeta	PYX	5.0		AQL	5.0		DRA	5.0	Rho	VIR
5.0		HYA	5.0		AQL	5.0	Nu2	DRA Kuma	5.0		COM
5.0	Rho	UMA	5.0		CYG	5.0	Nu1	DRA Kuma	5.0		CVN
5.0	Kappa	HYA	5.0	Rho	AQL	5.0		DRA	5.0	Theta2	CRU
5.0	Gamma	SEX	5.0		CYG	5.0	Mu	NOR			
5.0		LEO	5.0		SGR	5.0		HER			

CATALOGO 100 STELLE PIU' LUMINOSE

Nome	HH MM SS	°° ' ' "	magn.	moto proprio	
Bayer	J2000	J2000	vis.	AR	DEC
Alp CMa	06 45 08.9	-16 42 58	-1.46	-0.553	-1.205
Alp Car	06 23 57.1	-52 41 45	-0.72	+0.022	+0.021
Alp Boo	14 15 39.7	+19 10 57	-0.04	-1.093	-1.998
Alp1Cen	14 39 35.9	-60 50 07	-0.01	-3.642	+0.699
Alp Lyr	18 36 56.3	+38 47 01	0.03	+0.202	+0.286
Alp Aur	05 16 41.4	+45 59 53	0.08	+0.076	-0.425
Bet Ori	05 14 32.3	-08 12 06	0.12	0.000	-0.001
Alp CMi	07 39 18.1	+05 13 30	0.38	-0.710	-1.023
Alp Eri	01 37 42.9	-57 14 12	0.46	+0.095	-0.035
Alp Ori	05 55 10.3	+07 24 25	0.50	+0.026	+0.009
Bet Cen	14 03 49.4	-60 22 23	0.61	-0.032	-0.019
Alp Aql	19 50 47.0	+08 52 06	0.77	+0.538	+0.386
Alp Tau	04 35 55.2	+16 30 33	0.85	+0.063	-0.190
Alp Sco	16 29 24.4	-26 25 55	0.96	-0.010	-0.020
Alp Vir	13 25 11.6	-11 09 41	0.98	-0.041	-0.028
Bet Gem	07 45 18.9	+28 01 34	1.14	-0.628	-0.046
Alp PsA	22 57 39.1	-29 37 20	1.16	+0.333	-0.165
Bet Cru	12 47 43.2	-59 41 19	1.25	-0.048	-0.014
Alp Cyg	20 41 25.9	+45 16 49	1.25	+0.003	+0.002
Alp1Cru	12 26 35.9	-63 05 57	1.33	-0.036	-0.012
Alp2Cen	14 39 36.1	-60 50 08	1.33	-3.646	+0.700
Alp Leo	10 08 22.3	+11 58 02	1.35	-0.248	+0.006
Eps CMa	06 58 37.5	-28 58 20	1.50	+0.004	+0.003
Lam Sco	17 33 36.5	-37 06 14	1.63	-0.001	-0.029
Gam Cru	12 31 09.9	-57 06 48	1.63	+0.023	-0.262
Gam Ori	05 25 07.9	+06 20 59	1.64	-0.009	-0.014
Bet Tau	05 26 17.5	+28 36 27	1.65	+0.022	-0.175
Bet Car	09 13 12.0	-69 43 02	1.68	-0.162	+0.108
Eps Ori	05 36 12.8	-01 12 07	1.70	+0.001	-0.002
Alp2Cru	12 26 36.5	-63 05 58	1.73	-0.034	-0.007
Alp Gru	22 08 14.0	-46 57 40	1.74	+0.129	-0.151
Eps UMa	12 54 01.7	+55 57 35	1.77	+0.112	-0.006
Gam2Vel	08 09 32.0	-47 20 12	1.78	-0.004	+0.006
Alp UMa	11 03 43.7	+61 45 03	1.79	-0.119	-0.067
Alp Per	03 24 19.4	+49 51 40	1.79	+0.024	-0.025
Del CMa	07 08 23.5	-26 23 36	1.84	-0.003	+0.004
Eps Sgr	18 24 10.3	-34 23 05	1.85	-0.038	-0.124
Eta UMa	13 47 32.4	+49 18 48	1.86	-0.122	-0.011
Eps Car	08 22 30.8	-59 30 35	1.86	-0.026	+0.014
The Sco	17 37 19.2	-42 59 52	1.87	+0.015	-0.002
Bet Aur	05 59 31.7	+44 56 51	1.90	-0.057	0.000
Alp TrA	16 48 39.9	-69 01 40	1.92	+0.014	-0.034
Gam Gem	06 37 42.7	+16 23 57	1.93	+0.042	-0.042
Alp Pav	20 25 38.9	-56 44 06	1.94	+0.007	-0.089
Del Vel	08 44 42.2	-54 42 30	1.96	+0.023	-0.078
Bet CMa	06 22 42.0	-17 57 21	1.98	-0.006	0.000
Alp Hya	09 27 35.2	-08 39 31	1.98	-0.014	+0.033
Alp Gem	07 34 36.0	+31 53 18	1.98	-0.171	-0.098
	15 59 30.2	+25 55 13	2.0	-0.005	+0.013
Alp Ari	02 07 10.4	+23 27 45	2.00	+0.190	-0.148
Sig Sgr	18 55 15.9	-26 17 48	2.02	+0.013	-0.054
Alp UMi	02 31 48.7	+89 15 51	2.02	+0.038	-0.015
Bet Cet	00 43 35.4	-17 59 12	2.04	+0.234	+0.033
Zet Ori	05 40 45.5	-01 56 34	2.05	+0.003	-0.002
Kap Ori	05 47 45.4	-09 40 11	2.06	+0.002	-0.002
The Cen	14 06 41.0	-36 22 12	2.06	-0.519	-0.519
Bet And	01 09 43.9	+35 37 14	2.06	+0.178	-0.114
Alp And	00 08 23.3	+29 05 26	2.06	+0.136	-0.163
Bet UMi	14 50 42.3	+74 09 20	2.08	-0.031	+0.012
Alp Oph	17 34 56.1	+12 33 36	2.08	+0.120	-0.226
Bet Gru	22 42 40.1	-46 53 05	2.10	+0.137	-0.008
Bet Per	03 08 10.1	+40 57 20	2.12	+0.004	-0.001
Bet Leo	11 49 03.6	+14 34 19	2.14	-0.497	-0.114
Gam Cen	12 41 31.0	-48 57 35	2.17	-0.189	-0.005
Gam Cyg	20 22 13.7	+40 15 24	2.20	+0.004	0.000
Lam Vel	09 07 59.8	-43 25 57	2.21	-0.019	+0.013

Del Ori	05 32 00.4	-00 17 57	2.23	+0.001	-0.002
Alp CrB	15 34 41.3	+26 42 53	2.23	+0.121	-0.089
Gam Dra	17 56 36.4	+51 29 20	2.23	-0.008	-0.019
Alp Cas	00 40 30.5	+56 32 14	2.23	+0.053	-0.032
Zet Pup	08 03 35.1	-40 00 12	2.25	-0.027	+0.012
Iot Car	09 17 05.4	-59 16 31	2.25	-0.020	+0.008
GamlAnd	02 03 54.0	+42 19 47	2.26	+0.045	-0.052
Zet UMa	13 23 55.5	+54 55 31	2.27	+0.122	-0.020
Bet Cas	00 09 10.7	+59 08 59	2.27	+0.525	-0.181
Eps Sco	16 50 09.8	-34 17 36	2.29	-0.611	-0.255
Alp Lup	14 41 55.8	-47 23 18	2.30	-0.021	-0.018
Eps Cen	13 39 53.2	-53 27 59	2.30	-0.028	-0.016
Eta Cen	14 35 30.4	-42 09 28	2.31	-0.035	-0.035
Del Sco	16 00 20.0	-22 37 18	2.32	-0.012	-0.022
Bet UMa	11 01 50.5	+56 22 57	2.37	+0.082	+0.034
Alp Phe	00 26 17.0	-42 18 22	2.39	+0.203	-0.396
Eps Peg	21 44 11.2	+09 52 30	2.39	+0.031	-0.001
Kap Sco	17 42 29.3	-39 01 48	2.41	-0.006	-0.027
Bet Peg	23 03 46.5	+28 04 58	2.42	+0.189	+0.137
Eta Oph	17 10 22.7	-15 43 29	2.43	+0.039	+0.098
Alp Cep	21 18 34.8	+62 35 08	2.44	+0.151	+0.049
Gam UMa	11 53 49.8	+53 41 41	2.44	+0.095	+0.012
Eta CMa	07 24 05.7	-29 18 11	2.45	-0.004	+0.005
Eps Cyg	20 46 12.7	+33 58 13	2.46	+0.356	+0.328
Gam Cas	00 56 42.5	+60 43 00	2.47	+0.026	-0.005
Alp Peg	23 04 45.7	+15 12 19	2.49	+0.063	-0.042
Kap Vel	09 22 06.8	-55 00 39	2.50	-0.008	+0.009
Alp Cet	03 02 16.8	+04 05 23	2.53	-0.009	-0.078
Zet Cen	13 55 32.4	-47 17 18	2.55	-0.057	-0.042
Del Leo	11 14 06.5	+20 31 25	2.56	+0.142	-0.130
Zet Oph	16 37 09.5	-10 34 02	2.56	+0.014	+0.026
Alp Lep	05 32 43.8	-17 49 20	2.58	+0.001	+0.002
Gam Crv	12 10 39.7	-16 59 12	2.59	-0.161	+0.023
Zet Sgr	18 56 15.0	-30 01 23	2.60	-0.015	-0.002

Moto proprio in secondi/anno

OGGETTI MESSIER

Numero Messier	Numero NGC	Nome comune	Tipo di oggetto	Distanza in migliaia di anni luce	Costellazione	Mag. app.
M1	NGC 1952	Neb del Granchio	Resto di supernova	6,3	Toro	9,0
M2	NGC 7089		Amm. glob.	36	Acquario	7,5
M3	NGC 5272		Amm. glob.	31	Cani da Caccia	7,0
M4	NGC 6121		Amm. glob.	7	Scorpione	7,5
M5	NGC 5904		Amm. glob.	23	Serpente	7,0
M6	NGC 6405	Amm. della Farfalla	Amm. ap.	2	Scorpione	4,5
M7	NGC 6475	Amm. di Tolomeo	Amm. ap.	1	Scorpione	3,5
M8	NGC 6523	Neb Laguna	Amm. con Neb	6,5	Sagittario	5,0
M9	NGC 6333		Amm. glob.	26	Ofiuco	9,0
M10	NGC 6254		Amm. glob.	13	Ofiuco	7,5
M11	NGC 6705	Amm. dell'Anitra Selvatica	Amm. ap.	6	Scudo	7,0
M12	NGC 6218		Amm. glob.	18	Ofiuco	8,0
M13	NGC 6205	Amm. glob. di Ercole	Amm. glob.	22	Ercole	7,0
M14	NGC 6402		Amm. glob.	27	Ofiuco	9,5
M15	NGC 7078		Amm. glob.	33	Pegaso	7,5
M16	NGC 6611	Amm. della Neb Aquila	Amm. con Neb	7	Serpente	6,5
M17	NGC 6618	Neb Omega	Amm. con Neb	5	Sagittario	7,0
M18	NGC 6613		Amm. ap.	6	Sagittario	8,0
M19	NGC 6273		Amm. glob.	27	Ofiuco	8,5
M20	NGC 6514	Neb Trifida	Amm. con Neb	2,2	Sagittario	5,0
M21	NGC 6531		Amm. ap.	3	Sagittario	7,0
M22	NGC 6656		Amm. glob.	10	Sagittario	6,5
M23	NGC 6494		Amm. ap.	4,5	Sagittario	6,0
M24	Nessuno, contiene NGC 6603		nube Delle Caustiche	10	Sagittario	11,5
M25	Nessuno, IC 4725		Amm. ap.	2	Sagittario	4,9
M26	NGC 6694		Amm. ap.	5	Scudo	9,5
M27	NGC 6853	Neb Manubrio	Neb planetaria	1,25	Volpetta	7,5
M28	NGC 6626		Amm. glob.	18	Sagittario	8,5
M29	NGC 6913		Amm. ap.	7,2	Cigno	9,0
M30	NGC 7099		Amm. glob.	25	Capricorno	8,5
M31	NGC 224	Galassia di Andromeda	Galassia	2200	Andromeda	4,5
M32	NGC 221		Galassia	2200	Andromeda	10,0
M33	NGC 598	Galassia del Triangolo	Galassia	2300	Triangolo	7,0
M34	NGC 1039		Amm. ap.	1,4	Perseo	6,0
M35	NGC 2168		Amm. ap.	2,8	Gemelli	5,5
M36	NGC 1960		Amm. ap.	4,1	Auriga	6,5
M37	NGC 2099		Amm. ap.	4,6	Auriga	6,0
M38	NGC 1912		Amm. ap.	4,2	Auriga	7,0
M39	NGC 7092		Amm. ap.	0,3	Cigno	5,5
M40	Nessuno		Stella doppia WNC4		Orsa Maggiore	9,0
M41	NGC 2287		Amm. ap.	2,4	Cane Maggiore	5,0
M42	NGC 1976	Neb di Orione	Neb diffusa	1,6	Orione	5,0
M43	NGC 1982	Neb De Mairan (parte della Neb di Orione)	Neb diffusa	1,6	Orione	7,0
M44	NGC 2632	Amm. Alveare	Amm. ap.	0,5	Cancro	4,0
M45	NGC 1432	Pleiadi	Amm. ap.	0,4	Toro	1,4
M46	NGC 2437		Amm. ap.	5,4	Poppa	6,5
M47	NGC 2422		Amm. ap.	1,6	Poppa	4,5
M48	NGC 2548		Amm. ap.	1,5	Idra	5,5
M49	NGC 4472		Galassia	60000	Vergine	10,0
M50	NGC 2323		Amm. ap.	3	Unicorno	7,0
M51	NGC 5194, NGC 5195	Galassia vortice	Galassia	37000	Cani da Caccia	8,0
M52	NGC 7654		Amm. ap.	7	Cassiopea	8,0
M53	NGC 5024		Amm. glob.	56	Chioma di Berenice	8,5
M54	NGC 6715		Amm. glob.	83	Sagittario	8,5

Numero Messier	Numero NGC	Nome comune	Tipo di oggetto	Distanza in migliaia di anni luce	Costellazione	Mag. app.
M55	NGC 6809		Amm. glob.	17	Sagittario	7,0
M56	NGC 6779		Amm. glob.	32	Lira	9,5
M57	NGC 6720	Neb anello	Neb planetaria	4,1	Lira	9,5
M58	NGC 4579		Galassia	60000	Vergine	11,0
M59	NGC 4621		Galassia	60000	Vergine	11,5
M60	NGC 4649		Galassia	60000	Vergine	10,5
M61	NGC 4303		Galassia	60000	Vergine	10,5
M62	NGC 6266		Amm. glob.	22	Ofiuco	8,0
M63	NGC 5055	Galassia Girasole	Galassia	37000	Cani da Caccia	8,5
M64	NGC 4826	Galassia Occhio Nero	Galassia	12000	Chioma di Berenice	9,0
M65	NGC 3623		Galassia	35000	Leone	10,5
M66	NGC 3627		Galassia	35000	Leone	10,0
M67	NGC 2682		Amm. ap.	2,25	Cancro	7,5
M68	NGC 4590		Amm. glob.	32	Idra	9,0
M69	NGC 6637		Amm. glob.	25	Sagittario	9,0
M70	NGC 6681		Amm. glob.	28	Sagittario	9,0
M71	NGC 6838		Amm. glob.	12	Freccia	8,5
M72	NGC 6981		Amm. glob.	53	Acquario	10,0
M73	NGC 6994				Acquario	9,0
M74	NGC 628		Galassia	35000	Pesci	10,5
M75	NGC 6864		Amm. glob.	58	Sagittario	9,5
M76	NGC 650, NGC 651	Neb piccola campana muta	Neb planetaria	3,4	Perseo	12,0
M77	NGC 1068		Galassia	60000	Balena	10,5
M78	NGC 2068		Neb diffusa	1,6	Orione	8,0
M79	NGC 1904		Amm. glob.	40	Lepre	8,5
M80	NGC 6093		Amm. glob.	27	Scorpione	8,5
M81	NGC 3031	Galassia di Bode	Galassia	11000	Orsa Maggiore	8,5
M82	NGC 3034	Galassia Sigaro	Galassia	11000	Orsa Maggiore	9,5
M83	NGC 5236	Galassia girandola del sud	Galassia	10000	Idra	8,5
M84	NGC 4374		Galassia	60000	Vergine	11,0
M85	NGC 4382		Galassia	60000	Chioma di Berenice	10,5
M86	NGC 4406		Galassia	60000	Vergine	11,0
M87	NGC 4486	Galassia Virgo A	Galassia	60000	Vergine	11,0
M88	NGC 4501		Galassia	60000	Chioma di Berenice	11,0
M89	NGC 4552		Galassia	60000	Vergine	11,5
M90	NGC 4569		Galassia	60000	Vergine	11,0
M91	NGC 4548		Galassia	60000	Chioma di Berenice	11,5
M92	NGC 6341		Amm. glob.	26	Ercole	7,5
M93	NGC 2447		Amm. ap.	4,5	Poppa	6,5
M94	NGC 4736		Galassia	14500	Cani da Caccia	9,5
M95	NGC 3351		Galassia	38000	Leone	11,0
M96	NGC 3368		Galassia	38000	Leone	10,5
M97	NGC 3587	Neb Gufo	Neb planetaria	2,6	Orsa Maggiore	12,0
M98	NGC 4192		Galassia	60000	Chioma di Berenice	11,0
M99	NGC 4254		Galassia	60000	Chioma di Berenice	10,5
M100	NGC 4321		Galassia	60000	Chioma di Berenice	10,5
M101	NGC 5457	Galassia girandola	Galassia	24000	Orsa Maggiore	8,5
M102		Galassia Fuso	Galassia	40000	Dragone	10,5
M103	NGC 581		Amm. ap.	8	Cassiopea	7,0
M104	NGC 4594	Galassia Sombrero	Galassia	50000	Vergine	9,5
M105	NGC 3379		Galassia	38000	Leone	11,0
M106	NGC 4258		Galassia	25000	Cani da Caccia	9,5
M107	NGC 6171		Amm. glob.	20	Ofiuco	10,0
M108	NGC 3556		Galassia	45000	Orsa Maggiore	11,0
M109	NGC 3992		Galassia	55000	Orsa Maggiore	11,0
M110	NGC 205		Galassia	2200	Andromeda	10,0

VISIBILITA' OGGETTI MESSIER

Catalogo Messier	Costellazione	Oggetto	Mesi di visibilità
M1	Toro	Nebulosa diffusa	XII-II
M2	Acquario	Ammasso globulare	X-XII
M3	Canis da Caccia	Ammasso globulare	I-IX
M4	Scorpione	Ammasso globulare	VII-VIII
M5	Serpente	Ammasso globulare	VII-X
M6	Scorpione	Ammasso aperto	VII-VIII
M7	Scorpione	Ammasso aperto	VII-VIII
M8	Sagittario	Nebulosa diffusa	VIII-IX
M9	Ofiuco	Ammasso globulare	VII-VIII
M10	Ofiuco	Ammasso globulare	VII-VIII
M11	Scudo	Ammasso aperto	VII-IX
M12	Ofiuco	Ammasso globulare	VII-VIII
M13	Ercole	Ammasso globulare	VI-IX
M14	Ofiuco	Ammasso globulare	VII-VIII
M15	Pegaso	Ammasso globulare	VIII-X
M16	Serpente	Nebulosa/ammasso	VII-X
M17	Sagittario	Nebulosa diffusa	VIII-IX
M18	Sagittario	Ammasso aperto	VIII-IX
M19	Ofiuco	Ammasso globulare	VII-VIII
M20	Sagittario	Nebulosa diffusa	VIII-IX
M21	Sagittario	Ammasso aperto	VIII-IX
M22	Sagittario	Ammasso globulare	VIII-IX
M23	Sagittario	Ammasso aperto	VIII-IX
M24	Sagittario	Ammasso aperto	VIII-IX
M25	Sagittario	Ammasso aperto	VIII-IX
M26	Scudo	Ammasso aperto	VII-IX
M27	Volpetta	Nebulosa planetaria	VIII-X
M28	Sagittario	Ammasso globulare	VIII-IX
M29	Cigno	Ammasso aperto	VIII-X
M30	Capricorno	Ammasso globulare	IX-X
M31	Andromeda	Galassia	X-XII
M32	Andromeda	Galassia	X-XII
M33	Triangolo	Galassia	X-XII
M34	Perseo	Ammasso aperto	X-XII
M35	Gemelli	Ammasso aperto	I-III
M36	Auriga	Ammasso aperto	I-III
M37	Auriga	Ammasso aperto	I-III

Catalogo Messier	Costellazione	Oggetto	Mesi di visibilità
M38	Auriga	Ammasso aperto	I-III
M39	Cigno	Ammasso aperto	VIII-X
M40			
M41	Cane maggiore	Ammasso aperto	XII-III
M42	Orione	Nebulosa diffusa	XII-III
M43	Orione	Nebulosa diffusa	XII-III
M44	Cancro	Ammasso aperto	II-V
M45	Toro	Ammasso aperto	XII-II
M46	Poppa	Ammasso aperto	II-IV
M47	Poppa	Ammasso aperto	II-IV
M48	Idra	Ammasso aperto	IV-VI
M49	Vergine	Galassia	V-VII
M50	Unicorno	Ammasso aperto	II-IV
M51	Can da caccia	Galassia	I-IX
M52	Cassiopea	Ammasso aperto	circumpolare
M53	Chioma Berenice	Ammasso globulare	VI-VIII
M54	Sagittario	Ammasso globulare	VIII-IX
M55	Sagittario	Ammasso globulare	VIII-IX
M56	Lira	Ammasso globulare	VII-IX
M57	Lira	Nebulosa planetaria	VII-IX
M58	Vergine	Galassia	V-VII
M59	Vergine	Galassia	V-VII
M60	Vergine	Galassia	V-VII
M61	Vergine	Galassia	V-VII
M62	Ofiuco	Ammasso globulare	VII-VIII
M63	Can da caccia	Galassia	I-IX
M64	Chioma Berenice	Galassia	IV-VIII
M65	Leone	Galassia	III-IV
M66	Leone	Galassia	III-IV
M67	Cancro	ammasso aperto	II-V
M68	Cancro	Ammasso globulare	IV-VI
M69	Idra	Ammasso globulare	VIII-IX
M70	Sagittario	Ammasso globulare	VIII-IX
M71	Sagittario	Ammasso globulare	VIII-X
M72	Acquario	Ammasso globulare	X-XII
M73	Acquario	ammasso aperto	X-XII
M74	Pesci	Galassia	X-XII
M75	Sagittario	Ammasso globulare	VIII-IX
M76	Perseo	Nebulosa planetaria	IX-IV
M77	Balena	Galassia	XI-I

Catalogo Messier	Costellazione	Oggetto	Mesi di visibilità
M78	Orione	Nebulosa diffusa	XII-III
M79	Lepre	Ammasso globulare	XII-III
M80	Scorpione	Ammasso globulare	VII-VIII
M81	Orsa maggiore	Galassia	circumpolare
M82	Orsa maggiore	Galassia	circumpolare
M83	Idra	Galassia	IV-VI
M84	Vergine	Galassia	V-VII
M85	Chioma Berenice	Galassia	VI-VII
M86	Vergine	Galassia	V-VII
M87	Vergine	Galassia	V-VII
M88	Chioma Berenice	Galassia	VI-VII
M89	Vergine	Galassia	V-VII
M91	Chioma Berenice	Galassia	VI-VIII
M92	Ercole	Ammasso globulare	VI-IX
M93	Poppa	Ammasso aperto	II-IV
M94	Cani da Caccia	Galassia	I-IX
M95	Leone	Galassia	III-IV
M96	Leone	Galassia	III-IV
M97	Orsa Maggiore	Nebulosa planetaria	circumpolare
M98	Chioma Berenice	Galassia	VI-VIII
M99	Chioma Berenice	Galassia	VI-VIII
M100	Chioma Berenice	Galassia	VI-VIII
M101	Orsa Maggiore	Galassia	circumpolare
M102			
M103	Cassiopea	Ammasso aperto	circumpolare
M104	Vergine	Galassia	V-VII
M105	Leone	Galassia	III-IV
M106	Cani da Caccia	Galassia	I-IX
M107	Ofiuco	Ammasso globulare	VII-VIII
M108	Orsa Maggiore	Galassia	circumpolare
M109	Orsa Maggiore	Galassia	circumpolare
M110	Andromeda	Galassia	X-XII

STELLE DOPPIE DI MAG.<6

COS	NOME	A.R.	DEC.	COMP	ALTRO NOME	Mag	Mag2	SEP	PA
AND	56 And	01 56.2	+37 15			5.7	6	190	300
AND	Gamma And	02 03.9	+42 20		Almach	2.3	5.5	9.8	63
AQR	Zeta Aqr	22 28.8	-00 01			4.3	4.5	2.3	183
ARI	Epsilon Ari	02 59.2	+21 20	AB		5.2	5.5	1.5	208
ARI	Gamma Ari	01 53.5	+19 18		Mesarthim	4.8	4.8	7.8	0
BOO	Epsilon Boo	14 45.0	+27 04		Izar	2.5	4.9	2.8	339
BOO	Pi Boo	14 40.7	+16 25			4.9	5.8	5.6	108
BOO	Zeta Boo	14 41.1	+13 44			4.5	4.6	1	307
CAM	32 Cam	12 49.2	+83 25		STF 1694	5.3	5.8	21.6	326
CAP	Alpha1/2 Cap	20 18.1	-12 33		Algedi	3.6	4.2	378	291
CAR	Upsilon Car	09 47.1	-65 04			3.2	6	5	128
CEN	3 Cen	13 51.8	-33 00		K Cen	4.5	6	11.9	112
CEN	Alpha Cen	14 39.7	-60 50			0	1.5	9.4	233
CEN	Beta Cen	14 03.9	-60 23			0.7	3.9	1.3	251
CNC	Zeta Cnc	08 12.2	+17 39	AB		5.6	6	6	72
CRA	Gamma CrA	19 06.4	-37 04		h 5084	4.8	5.1	1.3	54
CRA	h 5014	18 06.8	-43 25			5.8	5.8	1.6	221
CRB	Eta CrB	15 23.2	+30 17	AB		5.6	5.9	0.5	128
CRB	Nu1 CrB	16 22.4	+33 48		2 CrB	5.4	5.3	364.4	165
CRB	Zeta2 CrB	15 39.4	+36 38		STF 1965	5.1	6	6.3	305
CRU	Alpha Cru	12 26.6	-63 06	AB		1.4	1.9	4.1	111
CRU	Alpha Cru	12 26.6	-63 06	AC		1.4	4.9	90.1	202
CRU	Mu Cru	12 54.6	-57 11			4	5.2	34.9	17
CVN	Alpha CVn	12 56.0	+38 19		Cor Caroli	2.9	5.5	19.4	229
CYG	61 Cyg	21 06.9	+38 45			5.2	6	28	144
CYG	Beta Cyg	19 30.7	+27 58		Albireo	3.1	5.1	34.4	54
CYG	Omicron1 Cyg	20 13.6	+46 44	AD	31 Cygni2	4	5	338	338
DEL	Gamma Del	20 46.7	+16 07			4.5	5.5	9.6	268
DRA	Mu Dra	17 05.3	+54 28			5.7	5.7	2.3	10
DRA	Nu Dra	17 32.2	+55 11		Kuma	4.9	4.9	62	312
EQU	Delta Equ	21 14.5	+10 00	AB	STF 535	5.2	5.3		25
EQU	Gamma Equ	21 10.3	+10 08			4.7	5.9	353	153
ERI	Dunlop 16	03 48.6	-37 37		f Eri	4.8	5.3	7.9	212
ERI	Rho Eri	01 39.8	-56 12		p Eri	5.8	5.8	11.4	191
ERI	STF 470	03 54	-02 57			4.5	5.7	6.9	348
ERI	Theta Eri	02 58.3	-40 18		Acamar	3.4	4.5	8.2	88
GEM	Alpha Gem	07 34.6	+31 53		Castor	1.9	2.9	2.2	164
HER	100 Her	18 07.8	+26 06		STF 2280	5.9	6	14.2	183
HER	95 Her	18 01.5	+21 35		STF 2264	5.1	5.2	6.3	258
HER	Alpha Her	17 14.6	+14 23		Ras Algethi	3.5	5.4	4.7	107
HER	Rho Her	17 23.7	+37 09			4.6	5.6	4.1	316
HER	Zeta Her	16 41.3	+31 36			2.9	5.5	1.1	210
HYA	Beta Hya	11 52.9	-33 54			4.7	5.5	0.9	8
HYA	Epsilon Hya	08 46.8	+06 25	AB		3.8	4.7	2.7	113
HYA	N Hya	11 32.3	-29 16		17 Crt; H 96	5.8	5.9	9.2	210
LEO	Gamma Leo	10 20.0	+19 51		Algieba	2.2	3.5	4.4	122
LIB	Alpha Lib	14 50.9	-16 02		Zubenelgenubi	2.8	5.2	231	314
LIB	Sh 179	14 25.5	-19 58			6	6	35	295

LUP	Mu Lup	15 15.0	-47 42			4.8	5.2	1.6	150
LUP	Pi Lup	15 01.7	-46 51		h 4728	4.7	4.8	1.5	78
LUP	Xi Lup	15 56.9	-34 58			5.3	5.8	10.4	49
LYN	12 Lyn	06 46	+59 26	AB	STF 948	5.5	6	1.8	73
LYN	15 Lyn	06 57.3	+58 25	AB		4.8	5.9	0.9	33
LYR	Delta1/2 Lyr	18 54.5	+36 54			5.6	4.5	630	115
LYR	Epsilon2 Lyr	18 44.3	+39 40	CD		5.2	5.5	2.3	94
LYR	Zeta2 Lyr	18 44.8	+37 36			4.3	5.9	43.7	150
MON	Beta Mon	06 28.8	-07 02	AB	11 Mon	4.7	5.2	7.3	132
MUS	Beta Mus	12 46.3	-68 06			3.9	4.2	1.3	4
OPH	36 Oph	17 15.3	-26 36			5.1	5.1	4.8	
OPH	70 Oph	18 05.5	+02 30			4.2	6	5.2	136
OPH	Eta Oph	17 10.4	-15 43		Sabik	3	3.5	1	325
OPH	Lambda Oph	16 30.9	+01 59		Marfik	4.2	5.2	1.6	35
OPH	Rho Oph	16 25.6	-23 27		5 Oph	5.3	6	3.1	344
OPH	Tau Oph	18 03.1	-08 11			5.2	5.9	1.6	286
ORI	42/45 Ori	05 35.4	-04 50			4.7	5.3	252	105
ORI	Eta Ori	05 24.5	-02 24			3.8	4.8	1.5	77
ORI	Lambda Ori	05 35.1	+09 56		Meissa	3.6	5.5	4.4	43
ORI	Lambda Ori	05 35.4	+09 56	AB		4	6	4.4	44
ORI	Sh 49	04 59.2	+14 32	AB		5	6	39.4	305
ORI	Sigma Ori	05 38.7	-02 36	AB		4	6	0.2	
ORI	STF 747	05 35.0	-06 00			4.8	5.7	35.7	223
ORI	Theta1/2 Ori	05 35.4	-05 25			4.9	5	135	314
ORI	Zeta Ori	05 40.8	-01 57	AB	Alnitak	1.9	4	2.4	162
PAV	L 8550	20 51.6	-62 26		RMK 26	5.8	5.8	2.7	93
PHE	Beta Phe	01 06.1	-46 43			4.1	4.2	0.7	307
PSC	Alpha Psc	02 02.0	+02 46		Al Rischa (Alrescha)	4.2	5.1	1.8	267
PSC	Psi1 Psc	01 05.6	+21 28			5.6	5.8	30	159
PUP	Dunlop 67	08 14.0	-36 19			5.1	6	67.4	175
PUP	H N 19	07 34.3	-23 28		South 552	5.8	5.9	9.3	114
PUP	Kappa Pup	07 38.8	-26 48	AB	Markeb	3.8	4	8.8	318
SCO	Alpha Sco	16 29.4	-26 26		Antares	1.2	5.4	2.9	275
SCO	Beta Sco	16 05.4	-19 48		Graffias	2.6	4.9	13.6	21
SCO	Xi Sco	16 04.4	-11 22	AB	STF 1998	4.8	5.1	0.5	358
SER	Delta Ser	15 34.5	+10 32			4.2	5.2	3.9	178
SER	STF 2375	18 45.5	+05 30			5.8	5.8	2.6	119
SER	Theta1/2 Ser	18 56.2	+04 12	AB	Alya	4	5	22	104
TAU	27 Tau	03 49.2	+24 03		Atlas; H N 870	3.7	5	300	180
TAU	Kappa Tau	04 25.4	+22 18			4.4	5.4	340	173
TAU	Theta Tau	04 28.7	+15 52			3.4	3.8	337.4	346
TUC	Beta Tuc	00 31.5	-62 58			4.5	4.5	27.1	170
UMA	Xi UMa	11 18.2	+31 32		Alula Australis	4.3	4.8	1.6	273
UMA	Zeta UMa	13 23.9	+54 56		Mizar/Alcor; STF 1744	2.3	4	14.4	150
VEL	Gamma2 Vel	08 09.6	-47 20	AB	Regor; Dunlop 65	2.2	4.5	41.2	220
VIR	Gamma Vir	12 41.7	-01 27		Porrina; STF 1070	3.5	3.5	0.6	209
VOL	Gamma Vol	07 08.8	-70 30			3.9	5.8	13.7	297
VUL	6/8 Vul	19 28.7	+24 40			4.4	5.8	413.7	28

STELLE VARIABILI CON MAX MAG.<6

GCVS	Cos	A.R. J2000	DEC.J2000	magMax	Periodo	GCVS	Cos	A.R. J2000	DEC.J2000	magMax	Periodo
R	And	00 24 01.9	+38 34 37	5.800	409.3300000	V0762	Cas	01 16 11.9	+71 44 38	5.920	
S	And	00 42 43.1	+41 16 05	5.800		T	Cen	13 41 45.6	-33 35 51	5.500	90.4400000
AN	And	23 18 23.3	+41 46 25	6.000	3.2195665	V0716	Cen	14 13 39.8	-54 37 32	5.960	1.4900960
KK	And	01 34 16.6	+37 14 14	5.910	0.6684000	V0763	Cen	11 35 13.3	-47 22 21	5.550	60.0000000
OP	And	01 36 27.2	+48 43 22	5.920		V0767	Cen	13 53 57.2	-47 07 41	5.860	
OU	And	23 49 41.0	+36 25 31	5.900		V0768	Cen	14 48 38.0	-36 38 05	5.930	
PZ	And	02 20 58.2	+50 09 05	5.590		V0788	Cen	12 08 53.8	-44 19 34	5.740	4.9663770
V0340	And	23 34 37.5	+40 14 11	5.590		V0869	Cen	14 09 35.0	-51 30 17	5.920	
V0388	And	23 27 07.4	+42 54 43	5.730		V0893	Cen	14 00 29.3	-62 47 09	5.570	
NO	Aps	17 31 27.5	-80 51 33	5.710		V0914	Cen	11 40 42.5	-53 58 07	5.990	
R	Aqr	23 43 49.5	-15 17 04	5.800	386.9600000	omi 1	Cen	11 31 46.1	-59 26 31	5.800	200.0000000
DV	Aqr	20 58 41.8	-14 28 59	5.890	1.5755310	LZ	Cep	22 02 04.6	+58 00 01	5.560	3.0705100
HI	Aqr	22 53 28.7	-11 36 59	5.800		V0381	Cep	21 19 15.7	+58 37 25	5.510	
R	Aql	19 06 22.3	+08 13 48	5.500	284.2000000	V0388	Cep	23 15 37.7	+70 53 17	5.560	
EL	Aql	18 56 02.0	-03 19 20	5.500		V0414	Cep	20 44 22.1	+56 29 18	5.870	
QS	Aql	19 41 05.5	+13 48 56	5.930	2.5132940	AB	Cet	02 26 00.3	-15 20 28	5.710	2.9978140
V0606	Aql	19 20 24.3	-00 08 02	5.500		BK	Cet	01 52 52.1	-16 55 45	5.730	
V1208	Aql	19 19 39.3	+12 22 29	5.510	0.1496630	EL	Cet	03 12 26.4	+06 39 39	5.660	
V1286	Aql	18 58 46.9	+13 54 24	5.830	6.0500000	DR	Cha	10 41 51.5	-79 47 00	5.940	
V1291	Aql	19 53 18.7	-03 06 52	5.610	224.5000000	AX	Cir	14 52 35.3	-63 48 35	5.650	5.2732680
V1363	Aql	18 51 26.3	-01 03 52	5.800		CO	Cir	14 48 44.6	-66 35 37	5.790	
V1370	Aql	19 23 21.1	+02 29 26	6.000		SW	Col	05 23 24.0	-39 40 42	5.710	
R	Ara	16 39 44.7	-56 59 40	6.000	4.4250700	V0701	CrA	19 03 17.7	-38 15 11	5.690	
V0539	Ara	17 50 28.4	-53 36 45	5.660	3.1691280	V0710	CrA	19 01 50.7	-36 58 10	5.840	
V0854	Ara	17 11 38.7	-48 52 24	5.870		R	CrB	15 48 34.4	+28 09 24	5.710	
V0862	Ara	17 31 23.3	-56 55 15	5.920		S	CrB	15 21 24.0	+31 22 03	5.800	360.2600000
RZ	Ari	02 55 48.5	+18 19 54	5.620	30.0000000	TZ	CrB	16 14 40.9	+33 51 31	5.690	1.1397890
SX	Ari	03 12 14.2	+27 15 25	5.670	0.7278925	DS	Cru	12 51 18.0	-60 19 47	5.790	
VZ	Ari	02 48 45.9	+25 11 17	5.820		U	Cyg	20 19 36.6	+47 53 39	5.900	463.2400000
AV	Ari	02 10 37.6	+19 30 01	5.680		X	Cyg	20 43 24.2	+35 35 16	5.850	16.3863320
WW	Aur	06 32 27.2	+32 27 18	5.790	2.5250192	RT	Cyg	19 43 37.8	+48 46 41	6.000	190.2800000
AE	Aur	05 16 18.1	+34 18 44	5.780		CH	Cyg	19 24 33.1	+50 14 29	5.600	
OX	Aur	06 53 01.4	+38 52 09	5.940	0.1544120	DT	Cyg	21 06 30.2	+31 11 05	5.570	2.4992150
PU	Aur	05 18 15.7	+42 47 32	5.640		V0380	Cyg	19 50 37.3	+40 35 59	5.610	12.4256120
QZ	Aur	05 28 34.1	+33 18 22	6.000		V0389	Cyg	21 08 38.9	+30 12 20	5.550	
V0444	Aur	06 00 58.6	+47 54 07	5.700		V0460	Cyg	21 42 01.1	+35 30 37	5.570	180.0000000
CH	Boo	14 34 39.6	+49 22 06	5.740		V1143	Cyg	19 38 41.2	+54 58 26	5.850	7.6407613
CY	Boo	14 17 28.5	+15 15 48	5.740		V1334	Cyg	21 19 22.2	+38 14 15	5.770	3.3328160
DE	Boo	14 53 23.8	+19 09 10	6.000		V1339	Cyg	21 42 08.4	+45 45 57	5.900	35.0000000
i	Boo	15 03 47.3	+47 39 15	5.800	0.2678159	V1610	Cyg	21 02 18.7	+36 41 41	5.800	
AX	Cam	08 01 42.5	+60 19 28	5.950	8.0278000	V1668	Cyg	21 42 35.3	+44 01 55	6.000	
DL	Cam	04 32 01.8	+53 54 39	5.810		V1679	Cyg	20 14 31.8	+36 39 40	5.990	
X	Cnc	08 55 22.9	+17 13 53	5.600	195.0000000	V1743	Cyg	19 33 41.6	+49 15 44	5.960	40.0000000
BI	Cnc	08 44 45.0	+10 04 54	5.580	4.2359000	V1762	Cyg	19 08 25.8	+52 25 33	5.810	
BL	Cnc	08 06 18.4	+22 38 08	5.970		V1768	Cyg	20 04 36.2	+32 13 07	5.560	
BM	Cnc	08 13 08.9	+29 39 24	5.530	4.1160000	V2015	Cyg	20 33 54.8	+46 41 38	5.620	
BO	Cnc	08 52 28.6	+28 15 33	5.900		V2093	Cyg	19 50 46.9	+37 49 35	6.000	
TU	CVn	12 54 56.5	+47 11 48	5.550	50.0000000	V2119	Cyg	20 23 44.4	+37 28 35	5.740	
AI	CVn	12 23 47.0	+42 32 34	5.890	0.2085000	V2121	Cyg	20 27 02.2	+49 23 00	5.750	
R	CMa	07 19 28.2	-16 23 43	5.700	1.1359405	V2140	Cyg	20 55 49.8	+47 25 04	5.650	
FV	CMa	07 07 22.6	-23 50 27	5.640		V2157	Cyg	21 25 47.0	+36 40 03	5.870	
FY	CMa	07 26 59.5	-23 05 10	5.540		EU	Del	20 37 54.7	+18 16 07	5.790	59.7000000
HZ	CMa	06 50 23.3	-31 42 22	5.690		UX	Dra	19 21 35.5	+76 33 35	5.940	168.0000000
IY	CMa	06 28 39.2	-32 22 17	5.640		VW	Dra	17 16 29.4	+60 40 14	6.000	170.0000000
LS	CMa	07 01 05.9	-25 12 56	5.570		CX	Dra	18 46 43.1	+52 59 17	5.680	
LZ	CMa	07 09 43.0	-25 13 52	5.630		DE	Dra	20 19 36.7	+62 15 27	5.720	5.2980360
MM	CMa	07 12 12.2	-25 56 33	5.840		DQ	Dra	16 24 25.3	+55 12 18	5.740	
MZ	CMa	07 21 04.3	-25 53 30	5.870		EE	Dra	18 58 52.6	+69 31 53	5.840	
NR	CMa	07 27 08.0	-17 51 53	5.670		R	Eri	04 55 18.6	-16 25 04	5.720	
AG	Cap	21 46 16.3	-09 16 33	5.900	25.0000000	DO	Eri	03 55 16.1	-12 05 57	5.970	12.4580000
U	Car	10 57 48.2	-59 43 56	5.720	38.7681000	DX	Eri	04 44 05.3	-08 30 13	5.760	
QY	Car	10 11 46.5	-58 03 38	5.630		DZ	Eri	04 32 37.6	-03 12 34	5.730	1.3740000
V0366	Car	09 54 43.4	-57 18 52	5.700	433.0000000	EH	Eri	04 33 54.7	-06 44 20	5.720	3.8200000
V0372	Car	07 52 29.7	-54 22 02	5.690	0.1160000	EM	Eri	04 20 42.8	-07 35 33	5.840	
V0374	Car	07 58 50.6	-60 49 28	5.720		GW	Eri	04 11 36.2	-20 21 22	5.840	
V0448	Car	06 47 18.7	-55 32 24	5.660		GZ	Eri	04 18 16.1	-20 42 55	5.940	
V0482	Car	09 30 23.4	-58 21 43	5.850		S	For	03 46 13.2	-24 23 28	5.600	
V0514	Car	10 38 02.6	-57 15 23	5.830		AI	For	03 19 34.9	-24 07 22	5.650	
RU	Cas	01 11 41.4	+65 01 08	5.500		R	Gem	07 07 21.3	+22 42 13	6.000	369.9100000
SU	Cas	02 51 58.8	+68 53 19	5.700	1.9493190	BU	Gem	06 12 19.1	+22 54 31	5.740	
YZ	Cas	00 45 39.1	+74 59 17	5.710	4.4672240	NP	Gem	07 02 25.5	+17 45 20	5.890	
V0373	Cas	23 55 33.8	+57 24 44	5.900	13.4192000	NZ	Gem	07 42 03.2	+14 12 31	5.520	
V0557	Cas	01 42 20.5	+68 02 35	5.550	3.1848000	OT	Gem	07 24 27.6	+15 31 02	6.000	
V0567	Cas	00 05 06.1	+61 18 50	5.710	6.4322000	OV	Gem	06 49 49.8	+16 12 10	5.850	
V0638	Cas	23 02 43.9	+55 14 11	5.700	5.3600000	PU	Gem	06 09 44.0	+23 06 48	5.780	
V0640	Cas	00 06 15.8	+58 26 12	5.960		S	Gru	22 26 05.5	-48 26 19	6.000	401.5100000
V0705	Cas	23 41 47.2	+57 31 01	5.800		DL	Gru	23 10 09.7	-40 35 30	5.860	
V0746	Cas	00 24 15.7	+52 01 12	5.540		LQ	Her	16 11 38.0	+23 29 41	5.580	

GCVS	Cos	A.R.	J2000	DEC.J2000	magMax	Periodo	GCVS	Cos	A.R.	J2000	DEC.J2000	magMax	Periodo
OP	Her	17 56 48.5		+45 21 03	5.850	120.5000000	V0397	Pup	07 49 14.7		-35 14 36	5.910	
V0636	Her	16 47 19.7		+42 14 20	5.830		V0438	Pup	08 24 57.2		-42 46 11	5.900	
V0640	Her	17 25 54.4		+16 55 03	5.980		V0468	Pup	07 39 58.0		-37 34 46	5.920	
V0819	Her	17 21 43.6		+39 58 29	5.510		XY	Pyx	08 27 59.4		-35 06 50	5.680	
V0839	Her	15 55 30.6		+42 33 58	5.740		RT	Sgr	20 17 43.6		-39 06 46	6.000	306.4600000
TU	Hor	03 30 37.0		-47 22 30	5.900	0.9359710	RU	Sgr	19 58 42.9		-41 50 58	6.000	240.4900000
TW	Hor	03 12 33.2		-57 19 18	5.520	158.0000000	RY	Sgr	19 16 32.8		-33 31 20	5.800	
HV	Hya	08 35 28.2		-07 58 56	5.660	5.5700000	V0732	Sgr	17 56 07.5		-27 22 17	6.000	
LM	Hya	08 26 27.2		-03 59 15	5.800		V3970	Sgr	17 58 30.0		-29 13 08	6.000	350.0000000
V0335	Hya	12 13 12.9		-34 07 31	5.840		V3974	Sgr	17 58 57.0		-28 50 54	5.890	450.0000000
khi 2	Hya	11 05 57.6		-27 17 16	5.650	2.2677010	V3999	Sgr	18 02 19.0		-29 59 15	5.670	470.0000000
BN	Hyi	03 07 32.1		-78 59 21	5.700		V4001	Sgr	18 02 42.0		-30 05 25	5.770	465.0000000
V0360	Lac	22 50 21.8		+41 57 12	5.910	10.0750000	V4037	Sgr	18 02 35.0		-29 59 56	5.740	400.0000000
TX	Leo	10 35 02.2		+08 39 02	5.660	2.4450566	V4089	Sgr	19 34 08.4		-40 02 05	5.870	
VY	Leo	10 56 01.5		+06 11 07	5.690		V4452	Sgr	17 44 29.4		-29 04 59	5.930	
CX	Leo	10 27 39.0		+09 45 45	5.970	7.8970000	V4501	Sgr	17 45 31.5		-28 46 22	5.910	
DE	Leo	10 25 15.2		+08 47 05	5.600		V4530	Sgr	17 45 56.1		-28 55 51	5.570	
DR	Leo	09 41 35.1		+31 16 40	5.840		V4531	Sgr	17 45 55.8		-28 45 18	5.810	
EO	Leo	10 02 49.0		+21 56 57	5.590		V0906	Sco	17 53 54.8		-34 45 10	5.960	2.7858470
RX	LMi	10 42 11.3		+31 41 49	5.980	150.0000000	V0923	Sco	17 03 50.9		-38 09 09	5.860	34.8269000
R	Lep	04 59 36.3		-14 48 23	5.500	427.0700000	V0927	Sco	15 54 39.5		-25 14 37	5.800	1.4593700
S	Lep	06 05 45.5		-24 11 44	6.000	89.0000000	V0929	Sco	16 06 06.4		-23 36 23	5.890	
YY	Lep	06 06 57.5		-21 48 44	5.600		V0957	Sco	17 52 13.7		-34 47 57	5.870	
HR	Lup	15 08 12.1		-40 35 02	5.760		V1003	Sco	16 38 26.3		-43 23 54	5.830	
HZ	Lup	15 06 33.2		-30 55 07	5.960		V1036	Sco	17 34 42.5		-32 34 54	5.710	
RR	Lyn	06 26 25.8		+56 17 06	5.520	9.9450790	V1068	Sco	16 53 42.4		-43 03 03	5.710	
XY	Lyr	18 38 06.5		+39 40 06	5.800		V1075	Sco	17 15 19.2		-33 32 54	5.570	
V0471	Lyr	19 11 46.0		+31 17 00	5.910	1.1608980	S	ScI	00 15 22.3		-32 02 43	5.500	362.5700000
V0473	Lyr	19 15 59.5		+27 55 35	5.990	1.4907800	AI	ScI	01 12 45.4		-37 51 23	5.890	
V0542	Lyr	18 58 01.9		+38 15 58	5.830		BU	ScI	23 59 27.9		-29 29 07	5.700	
WX	Men	05 34 44.8		-73 44 29	5.720		sig	ScI	01 02 26.4		-31 33 07	5.500	
iot	Men	05 35 36.2		-78 49 15	6.000	5.2880000	V0373	Sct	18 55 27.0		-07 43 05	6.000	
T	Mon	06 25 13.0		+07 05 09	5.580	27.0246490	V0432	Sct	18 29 46.8		-14 34 55	5.960	2.1912000
V	Mon	06 22 43.6		-02 11 43	6.000	340.5000000	CT	Ser	15 45 39.1		+14 22 32	6.000	
V0474	Mon	05 59 01.1		-09 22 56	5.930	0.1361260	FL	Ser	15 12 04.3		+18 58 34	5.790	
R	Mus	12 42 05.0		-69 24 27	5.930	7.5102110	FS	Ser	16 08 28.1		+08 32 04	5.680	
S	Mus	12 12 47.0		-70 09 06	5.890	9.6600700	tau 4	Ser	15 36 28.2		+15 06 05	5.890	100.0000000
BO	Mus	12 34 54.4		-67 45 25	5.850		SS	Sex	10 23 27.0		-04 04 27	5.940	4.3700000
LS	Mus	13 03 05.4		-71 28 33	5.900		TU	Tau	05 45 13.7		+24 25 12	5.900	190.0000000
tet	Mus	13 08 07.2		-65 18 22	5.500	18.3410000	XX	Tau	05 19 24.4		+16 43 00	6.000	
V0360	Nor	15 51 06.8		-55 03 20	5.770		HU	Tau	04 38 15.8		+20 41 05	5.850	2.0562997
V0367	Nor	16 13 17.0		-53 40 16	5.940		V0483	Tau	04 19 57.7		+14 02 07	5.550	0.0540000
U	Oph	17 16 31.7		+01 12 38	5.840	1.6773461	V0711	Tau	03 36 47.3		+00 35 16	5.710	2.8406120
X	Oph	18 38 21.1		+08 50 03	5.900	328.8500000	V0731	Tau	05 43 19.5		+23 12 16	5.980	
Y	Oph	17 52 38.7		-06 08 37	5.870	17.1241300	V0775	Tau	04 22 03.5		+14 04 38	5.720	0.0625000
V2052	Oph	17 56 18.4		+00 40 13	5.810	0.1398903	V0809	Tau	05 52 22.3		+14 10 18	5.590	2.6541000
V2347	Oph	18 27 51.0		+07 52 21	5.800		V0892	Tau	04 18 40.6		+28 19 16	5.550	
CK	Ori	05 30 19.9		+04 12 17	5.900	120.0000000	V0960	Tau	05 33 31.6		+18 32 25	5.530	
V0529	Ori	05 58 20.2		+20 15 45	6.000		V1083	Tau	03 43 43.9		+06 55 30	5.990	
V1004	Ori	05 58 24.4		+01 50 14	5.880	0.0611000	V1141	Tau	04 23 32.4		+20 58 55	6.000	
AG	Peg	21 51 02.0		+12 37 32	6.000		V1155	Tau	05 07 55.4		+21 42 17	5.820	
HH	Peg	23 51 21.2		+09 18 48	5.740		V1156	Tau	05 09 45.1		+28 01 50	6.000	
HN	Peg	21 44 31.3		+14 46 19	5.920	24.9000000	PW	Tel	19 33 21.6		-45 16 18	5.610	2.9213000
HV	Peg	23 27 40.4		+25 10 02	5.960	6.9700000	YY	Tri	02 18 06.0		+28 36 45	5.840	
IM	Peg	22 53 02.3		+16 50 28	5.600	24.4400000	S	TrA	16 01 10.7		-63 46 36	5.950	6.3234400
MR	Peg	22 54 12.1		+22 39 35	5.710		LX	TrA	15 27 33.1		-64 31 53	5.810	
NV	Peg	21 28 59.8		+22 10 46	5.660		MX	TrA	16 59 34.0		-69 16 05	5.750	
NZ	Peg	21 39 01.2		+20 15 56	5.830		BQ	Tuc	00 53 37.9		-62 52 17	5.700	
V0342	Peg	23 07 28.7		+21 08 03	6.000		CG	Tuc	23 29 01.0		-63 06 38	5.660	2.3148000
IW	Per	03 33 35.0		+39 53 58	5.790	0.9171877	ST	UMa	11 27 50.4		+45 11 07	6.000	110.0000000
V0376	Per	03 49 08.1		+43 57 47	5.770	0.0993700	VY	UMa	10 45 04.0		+67 24 41	5.870	
V0472	Per	02 08 40.6		+58 25 25	5.640		CO	UMa	11 09 19.1		+36 18 34	5.740	
V0582	Per	04 08 36.6		+38 02 23	5.630		CR	UMa	13 46 35.7		+54 25 58	5.650	1.3799600
BD	Phe	01 50 54.4		-50 12 22	5.900		EN	UMa	10 21 03.3		+68 44 52	5.830	
ksi	Phe	00 41 46.4		-56 30 05	5.680	3.9516000	pi 1	UMa	08 39 11.7		+65 01 15	5.640	
VX	Psc	01 29 52.9		+18 21 20	5.900	0.1310000	RW	UMi	16 47 54.8		+77 02 12	6.000	
WW	Psc	00 59 49.7		+06 29 00	5.970		AH	Vel	08 12 00.0		-46 38 40	5.500	4.2271710
XZ	Psc	23 54 46.6		+00 06 34	5.610		HV	Vel	08 35 52.0		-50 58 11	5.770	2.6674500
AG	Psc	00 36 47.3		+15 13 54	5.810	0.0800000	IU	Vel	09 00 22.3		-43 10 26	5.970	
UU	PsA	22 04 36.8		-26 49 21	5.860		IV	Vel	09 57 10.9		-52 38 20	5.990	0.1608000
VZ	PsA	22 38 51.5		-33 04 53	5.680		IW	Vel	10 57 07.8		-50 45 54	5.900	0.1500000
WX	PsA	22 59 35.8		-29 27 44	5.570		IZ	Vel	09 01 20.9		-41 51 51	5.530	
MY	Pup	07 38 18.2		-48 36 05	5.540	5.6948200	KL	Vel	09 12 30.5		-43 36 48	5.560	
PR	Pup	07 14 46.0		-46 50 59	5.690	1.9347000	LR	Vel	09 18 42.4		-51 33 38	5.820	
PT	Pup	07 36 41.0		-19 42 08	5.720	0.1628400	NN	Vel	08 09 09.5		-48 41 04	5.620	
QS	Pup	07 49 12.9		-46 51 28	5.840	0.1182000	OP	Vel	08 46 30.5		-45 54 45	5.500	
V0336	Pup	08 02 44.8		-41 18 35	5.520		V0335	Vel	09 53 50.1		-51 08 48	5.880	
V0363	Pup	07 12 25.8		-36 32 40	5.890		SS	Vir	12 25 14.0		+00 46 12	6.000	364.1400000
V0378	Pup	07 36 03.9		-14 29 34	5.600		CS	Vir	14 18 38.5		-18 42 56	5.840	9.2954000
V0390	Pup	07 44 34.2		-24 40 27	5.530		FW	Vir	12 38 22.7		+01 51 17	5.630	15.0000000
V0392	Pup	07 46 10.5		-37 56 01	5.820		LN	Vir	13 14 31.3		+11 19 54	5.750	

COSTANTI ASTRONOMICHE

0,0027379093110	Anni per giorno al 2000
0,0748042315774	Anni per orbita lunare al 2000
0,999961212611	Anni per rivoluzione al 2000
365,25	Anno giuliano
365,2425	Anno gregoriano
365,24219876	Anno tropico in giorni al 1900
365,24219264	Anno tropico in giorni al 2000
13,4225120288	Cicli nodali lunari per rivoluzione solare terrestre al 2000
346,620031	Ciclo eclittico lunare, in giorni, al 1900
346,620063	Ciclo eclittico lunare, in giorni, al 2000
6.700,52877977	Ciclo lunare da punto fisso, in giorni
6.798,36320013	Ciclo lunare da punto fisso, in gradi
6.816,97578004	Ciclo lunare da punto fisso, rotazioni
40.030.005,6967	Circonferenza media terrestre, in metri
40.075.003,5535	Circonferenza terrestre, equatoriale, in metri
10.001.965,72930	Circonferenza terrestre, in metri, quadrante meridiano, IUGG
0,518102946	Diametro angolare lunare, medio geocentrico, in gradi
12.756.280,0	Diametro terrestre equatoriale, in metri, IUGG, WGS84
149.597.870.000	Distanza del Sole, in metri (unità astronomiche)
356.375.000,0	Distanza della Luna al perigeo, in metri
406.720.000,0	Distanza della Luna all'apogeo, in metri
384.400.000,0	Distanza media della Luna, in metri
25.781,5756912	Durata in anni della precessione, al 2000
9.416.519,24934	Durata in giorni della precessione, al 2000
0,054900489	Eccentricità dell'orbita lunare
0,01671022	Eccentricità dell'orbita terrestre
365,25964438	Giorni per anno anomalistico al 2000
365,25964134	Giorni per anno anomalistico, 1900
29,5305888844	Giorni per periodo sinodico medio al 2000
27,32166156	Giorni per rivoluzione lunare al 2000
365,2563605	Giorni per rivoluzione media
365,25636053	Giorni per rivoluzione, al 2000
0,99726967199	Giorni per rotazione al 2000
36525	Giorni per secolo giuliano
57,2957795131	Gradi per radiante
5,1453964	Inclinazione dell'orbita lunare
0,996647189318820	Inverso dello schiacciamento terrestre
298,257222101	Inverso dello schiacciamento terrestre, IUGG
298,257223563	Inverso dello schiacciamento terrestre, WGS84
111.950,42769	Lunghezza di un ° di circonferenza terrestre in metri
18,6133019052	Ciclo dei nodi lunari, in anni
0,00511666	Nutazione dell'asse terrestre
23,439291111	Obliquità dell'eclittica
26,8206129544	Orbita per periodo lunare nodale, °
13,3687462502	Orbite lunari per orbita solare terrestre al 2000
1,00003878889	Orbite per anno al 2000
27,55454650	Periodo anomalistico lunare in giorni
27,2122207637	Periodo nodale lunare in giorni
0,0367481951835	Periodo nodale lunare per giorno al 2000
0,0366478605569	Periodo nodale lunare per rotazione al 2000
29,5305888844	Periodo sinodico lunare, medio, al 2000
3,87873887918E-05	Precessione annuale al 2000

0,0139634599651	Precessione annuale in gradi
3,82306869946E-05	Precessione giornaliera
3,87888933117E-05	Precessione per rivoluzione al 2000
6.378.140,0	Raggio equatoriale terrestre, in metri, IAU 1979
6.371.000,79	Raggio in metri di una sfera con la stessa superficie della Terra, IUGG
6.371.007,18	Raggio in metri di una sfera con lo stesso volume della Terra, IUGG
1.738.000,0	Raggio lunare in metri
6.371.008,77	Raggio terrestre medio, in metri, IUGG
6.356.755,28816	Raggio terrestre polare, in metri
27,32166156	Rivoluzione lunare in giorni al 2000
13,1403824445	Rivoluzioni lunari per rotazione, in gradi
18,6140238945	Rivoluzioni lunari per ciclo nodale (lunar major)
0,0366009950677	Rivoluzioni lunari per giorno al 2000
0,985609119791	Rivoluzioni lunari per giorno, in gradi
13,1763582244	Rivoluzioni lunari per giorno, media, in gradi
0,036501066623457	Rivoluzioni lunari per rotazione al 2000
0,982918083604	Rivoluzioni lunari per rotazione, in gradi
359,98603654	Rivoluzioni per anno in gradi
0,00273780311053	Rivoluzioni per giorno al 2000
0,0745017026513	Rivoluzioni per mese nodale al 2000
0,0748013300039	Rivoluzioni per orbita lunare al 2000
26,9284788014	Rivoluzioni per orbita lunare in gradi
27,1580123221	Rivoluzioni per periodo anomalistico lunare, in gradi
29,1056177173	Rivoluzioni per periodo lunare sinodico in gradi
0,00273032801001	Rivoluzioni per rotazione al 2000
29,6114378225	Rotazioni lunari per ciclo sinodico
366,2421544	Rotazioni per anno tropico al 2000
366,242154403	Rotazioni per anno, al 2000
347,569040486	Rotazioni per ciclo lunare eclittico
1,00273780311	Rotazioni per giorno al 2000
27,6299854231	Rotazioni per periodo anomalistico
27,2867224663	Rotazioni per periodo nodale al 2000
366,25636053	Rotazioni per rivoluzione al 2000
27,39646289	Rotazioni per rivoluzione lunare al 2000
0,00335281068118	Schiacciamento terrestre
8640	Secondi per giorno giuliano
6.378.137,0	Semiasse maggiore terrestre, in metri, WGS84
6.356.752,3141	Semiasse minore terrestre, in metri, WGS84

SOLE

Classificazione	Sequenza principale
Classe spettrale	G2

PARAMETRI ORBITALI (epoca di riferimento: J2000)

Semiassse maggiore	26-28000 anni luce
Periodo orbitale	$2,25-2,50 \times 10^6$ anni
Velocità orbitale	217 km/s (media)
Sistema planetario	sì

DATI FISICI

Diametro medio	1 392 000 km
Superficie	$6,09 \times 10^{18} \text{ m}^2$
Volume	$1,41 \times 10^{27} \text{ m}^3$
Massa	$1,9891 \times 10^{30} \text{ kg}$
Densità	$1,411 \times 10^3 \text{ kg/m}^3$
Acceleraz. di gravità in superficie	274 m/s^2 (27,9 g)
Velocità di fuga	617,54 km/s
Periodo di rotazione	
All'equatore:	27 d 6 h 36 min
A 30° di latitudine:	28 d 4 h 48 min
A 60° di latitudine:	30 d 19 h 12 min
A 75° di latitudine:	31 d 19 h 12 min
Velocità di rotazione (all'equatore)	1993 m/s
Inclinaz. dell'asse sull'eclittica	7,25°
Inclinaz. dell'asse sul piano galattico	67,23°
A.R. polo nord	286,13° (19 h 4 min 30 s)
Declinazione	63,87° (63° 52')
Temperatura superficiale	5780 K (media)
T. della corona	$5 \times 10^6 \text{ K}$
T. del nucleo	$\sim 13,6 \times 10^6 \text{ K}$
Luminosità	$3,827 \times 10^{26} \text{ J/s}$
Radianza	$2,009 \times 10^7 \text{ W/(sr}\cdot\text{m}^2)$

DATI OSSERVATIVI

Magnitudine apparente da Terra	-26,8 (media)
Magnitudine ass.	4,8

PIANETI

	MERCURIO	VENERE	TERRA	LUNA	MARTE	GIOVE	SATURNO	URANO	NETTUNO
Massa (10 ²⁴ kg)	0,33	4,87	5,97	0,073	0,642	1899	568	86,8	102
Diametro (km)	4879	12104	12756	3475	6794	142984	120536	51118	49528
Densità (kg/m ³)	5427	5243	5515	3340	3933	1326	687	1270	1638
Gravità (m/s ²)	3,7	8,9	9,8	1,6	3,7	23,1	9	8,7	11
Velocità di fuga (km/s)	4,3	10,4	11,2	2,4	5	59,5	35,5	21,3	23,5
Periodo di rotazione (ore)	1407,6	-5832,5	23,9	655,7	24,6	9,9	10,7	-17,2	16,1
Lunghezza del giorno (ore)	4222,6	2802	24	708,7	24,7	9,9	10,7	17,2	16,1
Distanza dal Sole (10 ⁶ km)	57,9	108,2	149,6	0,384*	227,9	778,6	1433,5	2872,5	4495,1
Perielio (10 ⁶ km)	46	107,5	147,1	0,363*	206,6	740,5	1352,6	2741,3	4444,5
Afelio (10 ⁶ km)	69,8	108,9	152,1	0,406*	249,2	816,6	1514,5	3003,6	4545,7
Periodo orbitale (giorni)	88	224,7	365,2	27,3	687	4331	10,747	30,589	59,8
Velocità orbitale (km/s)	47,9	35	29,8	1	24,1	13,1	9,7	6,8	5,4
Inclinazione orbitale (gradi)	7	3,4	0	5,1	1,9	1,3	2,5	0,8	1,8
Eccentricità orbitale	0,205	0,007	0,017	0,055	0,094	0,049	0,057	0,046	0,011
Inclinazione dell'asse (gradi)	0,01	177,4	23,5	6,7	25,2	3,1	26,7	97,8	28,3
Temperatura media (C)	167	464	15	-20	-65	-110	-140	-195	-200
Pressione sulla superficie (bar)	0	92	1	0	0,01	Sconosciuta	Sconosciuta	Sconosciuta	Sconosciuta
Satelliti	0	0	1	0	2	63	60	27	13
Anelli	No	No	No	No	No	Yes	Yes	Yes	Yes
Campo magnetico	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes

* valori riferiti alla Terra

	Sole	Mercurio	Venere	Terra	Luna	Marte	Giove	Saturno	Urano	Nettuno
Sole	-	4960,5	2654,8	1920,2	1920,2	1260,5	369,0	200,4	100,0	63,9
Mercurio	17,4	-	20,0	11,0	11,0	5,9	1,4	0,7	0,4	0,2
Venere	23,1	49,7	-	60,3	60,3	20,9	3,7	1,9	0,9	0,6
Terra	17,6	28,7	63,6	-	-	33,6	4,2	2,1	1,0	0,6
Luna	4,8	7,8	17,3	-	-	9,2	1,1	0,6	0,3	0,2
Marte	6,2	8,2	11,7	17,9	17,9	-	2,5	1,2	0,5	0,3
Giove	37,9	40,9	44,0	46,9	46,9	53,6	-	45,1	14,1	7,9
Saturno	17,4	18,1	18,8	19,4	19,4	20,6	38,0	-	17,3	8,1
Urano	3,7	3,7	3,8	3,9	3,9	4,0	5,0	7,3	-	6,5
Nettuno	2,3	2,3	2,3	2,4	2,4	2,4	2,8	3,3	6,3	-

Diametri medi in " che i pianeti sottendono visti da un corpo all'altro

SATELLITI DI MARTE

Nome		Diametro medio	Massa	Raggio orbitale medio	Periodo orbitale	Scoperta
Marte I	Fobos	27,0x21,6x18,8 km	10,8x1015 kg	9 377 km	7,66 ore	1877
Marte II	Deimos	10x12x16 km	2x1015 kg	23 460 km	30,35 ore	1877

SATELLITI DI GIOVE

Nome		Diametro medio	Massa	Raggio Orbitale Medio	Periodo orbitale	Scoperta	Gruppo
Giove XVI	Metide	43 km	120x1015 kg	127 690 km	0,294780 giorni	1979	Gruppo di Amaltea
Giove XV	Adrastea	26x20x16 km	7,5x1015 kg	128 694 km	0,29826 giorni	1979	Gruppo di Amaltea
Giove V	Amaltea	262x146x134 km	2,1x1018 kg	181 170 km	0,498179 giorni	1892	Gruppo di Amaltea
Giove XIV	Tebe	110x90 km	1,5x1018 kg	221 700 km	0,6745 giorni	1979	Gruppo di Amaltea
Giove I	Io	3 643 km	89x1021 kg	421 700 km	1,769138 giorni	1610	Satelliti galileiani
Giove II	Europa	3 122 km	48x1021 kg	671 034 km	3,551181 giorni	1610	Satelliti galileiani
Giove III	Ganimede	5 262 km	150x1021 kg	1 070 412 km	7,154553 giorni	1610	Satelliti galileiani
Giove IV	Callisto	4 821 km	110x1021 kg	1 882 709 km	16,689018 giorni	1610	Satelliti galileiani
Giove XVIII	Temisto	8 km	0,69x1015 kg	7 391 645 km	129,8276 giorni	1975	
Giove XIII	Leda	20 km	11x1015 kg	11 097 245 km	238,8242 giorni	1974	Gruppo di Imalia
Giove VI	Imalia	170 km	6,7x1018 kg	11 432 435 km	249,7263 giorni	1904	Gruppo di Imalia
Giove X	Lisitea	36 km	63x1015 kg	11 653 225 km	256,9954 giorni	1938	Gruppo di Imalia
Giove VII	Elara	86 km	870x1015 kg	11 683 115 km	257,9849 giorni	1905	Gruppo di Imalia
S/2000 J 11		4 km	90x1012 kg	12 570 575 km	287,9310 giorni	2000	Gruppo di Imalia
Giove XLVI	Carpo	3 km	45x1012 kg	17 144 875 km	1,2556 anni	2003	
S/2003 J 12		1 km	1,5x1012 kg	17 739 540 km	1,3215 anni	2000	
Giove XXXIV	Euporia	2 km	15x1012 kg	19 088 435 km	1,4751 anni	2001	Gruppo di Ananke?
S/2003 J 3		2 km	15x1012 kg	19 621 780 km	1,5374 anni	2003	Gruppo di Ananke
S/2003 J 18		2 km	15x1012 kg	19 812 575 km	1,5598 anni	2003	Gruppo di Ananke
Giove XLII	Telsinoe	2 km	15x1012 kg	20 453 755 km	1,6362 anni	2003	Gruppo di Ananke
Giove XXXIII	Euante	3 km	45x1012 kg	20 464 855 km	1,6375 anni	2001	Gruppo di Ananke
Giove XLV	Elice	4 km	90x1012 kg	20 540 265 km	1,6465 anni	2003	Gruppo di Ananke?
Giove XXXV	Ortosia	2 km	15x1012 kg	20 567 970 km	1,6499 anni	2001	Gruppo di Ananke?
Giove XXIV	Iocaste	5 km	190x1012 kg	20 722 565 km	1,6685 anni	2000	Gruppo di Ananke
S/2003 J 16		2 km	15x1012 kg	20 743 780 km	1,6711 anni	2003	Gruppo di Ananke
Giove XII	Ananke	28 km	30x1015 kg	20 815 225 km	1,6797 anni	1951	Gruppo di Ananke
Giove XXVII	Praxidike	7 km	430x1012 kg	20 823 950 km	1,6808 anni	2000	Gruppo di Ananke
Giove XXII	Arpalice	4 km	120x1012 kg	21 063 815 km	1,7099 anni	2000	Gruppo di Ananke
Giove XXX	Ermippe	4 km	90x1012 kg	21 182 085 km	1,7243 anni	2001	Gruppo di Ananke?
Giove XXIX	Tione	4 km	90x1012 kg	21 405 570 km	1,7517 anni	2001	Gruppo di Ananke
Giove XL	Mneme	2 km	15x1012 kg	21 427 110 km	1,7543 anni	2003	Gruppo di Ananke
S/2003 J 17		2 km	15x1012 kg	22 134 305 km	1,8419 anni	2003	Gruppo di Carme
Giove XXXI	Aitne	3 km	45x1012 kg	22 285 160 km	1,8608 anni	2001	Gruppo di Carme
Giove XXXVII	Cale	2 km	15x1012 kg	22 409 210 km	1,8763 anni	2001	Gruppo di Carme
Giove XX	Taigete	5 km	160x1012 kg	22 438 650 km	1,8800 anni	2000	Gruppo di Carme
S/2003 J 19		2 km	15x1012 kg	22 709 060 km	1,9141 anni	2003	Gruppo di Carme
Giove XXI	Caldene	4 km	75x1012 kg	22 713 445 km	1,9147 anni	2000	Gruppo di Carme
S/2003 J 15		2 km	15x1012 kg	22 721 000 km	1,9156 anni	2003	Gruppo di Ananke?
S/2003 J 10		2 km	15x1012 kg	22 730 815 km	1,9168 anni	2003	Gruppo di Carme?
S/2003 J 23		2 km	15x1012 kg	22 739 655 km	1,9180 anni	2003	Gruppo di Pasife
Giove XXV	Erinome	3 km	45x1012 kg	22 986 265 km	1,9493 anni	2000	Gruppo di Carme
Giove XLI	Aede	4 km	90x1012 kg	23 044 175 km	1,9566 anni	2003	Gruppo di Pasife
Giove XLIV	Callicore	2 km	15x1012 kg	23 111 825 km	1,9652 anni	2003	Gruppo di Carme?
Giove XXIII	Calice	5 km	190x1012 kg	23 180 775 km	1,9740 anni	2000	Gruppo di Carme
Giove XXXII	Euridome	3 km	45x1012 kg	23 230 860 km	1,9804 anni	2001	Gruppo di Pasife?
S/2003 J 14		2 km	15x1012 kg	23 238 595 km	1,9814 anni	2003	Gruppo di Pasife
Giove XXXVIII	Pasitee	2 km	15x1012 kg	23 307 320 km	1,9902 anni	2001	Gruppo di Carme
Giove XLVIII	Cillene	2 km	15x1012 kg	23 396 270 km	2,0016 anni	2003	Gruppo di Pasife
Giove XLVII	Eukelade	4 km	90x1012 kg	23 483 695 km	2,0129 anni	2003	Gruppo di Carme
S/2003 J 4		2 km	15x1012 kg	23 570 790 km	2,0241 anni	2003	Gruppo di Pasife

Giove XXXIX	Egemone	3 km	45×1012 kg	23 702 510 km	2,0411 anni	2003	Gruppo di Pasife
Giove XLIII	Arche	3 km	45×1012 kg	23 717 050 km	2,0429 anni	2002	Gruppo di Carme
Giove XI	Carme	46 km	0,13×1018 kg	23 734 465 km	2,0452 anni	1938	Gruppo di Carme
Giove XXVI	Isonoe	4 km	75×1012 kg	23 832 630 km	2,0579 anni	2000	Gruppo di Carme
S/2003 J 9		1 km	1,5×1012 kg	23 857 810 km	2,0612 anni	2003	Gruppo di Carme
S/2003 J 5		4 km	90×1012 kg	23 973 925 km	2,0762 anni	2003	Gruppo di Carme
Giove VIII	Pasife	60 km	300×1015 kg	24 094 770 km	2,0919 anni	1908	Gruppo di Pasife
Giove IX	Sinope	38 km	75×1015 kg	24 214 390 km	2,1075 anni	1908	Gruppo di Pasife
Giove XXXVI	Sponde	2 km	15×1012 kg	24 252 625 km	2,1125 anni	2001	Gruppo di Pasife
Giove XXVIII	Autonoe	4 km	90×1012 kg	24 264 445 km	2,1141 anni	2001	Gruppo di Pasife
Giove XVII	Calliroe	9 km	870×1012 kg	24 356 030 km	2,1261 anni	1999	Gruppo di Pasife
Giove XIX	Megaclite	5 km	210×1012 kg	24 687 240 km	2,1696 anni	2000	Gruppo di Pasife
S/2003 J 2		2 km	15×1012 kg	30 290 845 km	2,9487 anni	2003	

SATELLITI DI SATURNO

Nome		Diametro medio	Massa	Raggio Orbitale medio	Periodo orbitale	Scoperta	Gruppo
Saturno XVIII	Pan	35×35×23 km	2,7×1015 kg	133 583 km	0,575 giorni	1990	
Saturno XXXV	Dafni	7 km	?	136 505 km	0,59537 giorni	2005	
Saturno XV	Atlante	40×20 km	?	137 670 km	0,6019 giorni	1980	
Saturno XVI	Prometeo	145×85×62 km	0,270×1018 kg	139 350 km	0,6130 giorni	1980	
Saturno XVII	Pandora	114×84×62 km	0,220×1018 kg	141 700 km	0,6285 giorni	1980	
Saturno XI	Epimeteo	144×108×98 km	0,560×1018 kg	151 422 km	0,6942 giorni	1980	
Saturno X	Giano	196×192×150 km	2,01×1018 kg	151 472 km	0,6945 giorni	1966	
Saturno I	Mimante	397 km	38,0×1018 kg	185 520 km	0,942422 giorni	1789	
Saturno XXXII	Metone	3 km	?	194 000 km	1,01 giorni	2004	
Saturno XLIX	Antea	2 km	?	197 700 km	1,04 giorni	2007	
Saturno XXXIII	Pallene	4 km	?	211 000 km	1,14 giorni	2004	
Saturno II	Encelado	499 km	73,0×1018 kg	238 020 km	1,370218 giorni	1789	
Saturno XIII	Telesto	34×28×36 km	?	294 660 km	1,887802 giorni	1980	
Saturno III	Teti	1 060 km	0,622×1021 kg	294 660 km	1,887802 giorni	1684	
Saturno XIV	Calipso	34×22×22 km	?	294 660 km	1,887802 giorni	1980	
Saturno XII	Elena	36×32×30 kg	?	377 400 km	2,736915 giorni	1980	
Saturno IV	Dione	1 118 km	1,05×1021 kg	377 400 km	2,736915 giorni	1684	
Saturno XXXIV	Polluce	13 km	?	377 400 km	2,736915 giorni	2004	
Saturno V	Rea	1 528 km	2,49×1021 kg	527 040 km	4,5175 giorni	1672	
Saturno VI	Titano	5 151 km	135×1021 kg	1 221 850 km	15,94542 giorni	1655	
Saturno VII	Iperione	410×260×220 km	17,7×1018 kg	1 481 100 km	21,27661 giorni	1848	
Saturno VIII	Giapeto	1 460 km	1,88×1021 kg	3 561 300 km	79,33018 giorni	1671	
Saturno XXIV	Kiviuq	16 km	3,3×1015 kg	11 365 000 km	1,2298 anni	2000	Gruppo Inuit
Saturno XXII	Ijiraq	12 km	?	11 442 000 km	1,2361 anni	2000	Gruppo Inuit
Saturno IX	Febe	220 km	4,00×1018 kg	12 944 300 km	-1,5009 anni	1899	Gruppo Nordico
Saturno XX	Paaliaq	22 km	?	15 199 000 km	1,8806 anni	2000	Gruppo Inuit
Saturno XXVII	Skadi	8 km	?	15 647 000 km	-1,9956 anni	2000	Gruppo Nordico
Saturno XXVI	Albiorix	32 km	?	16 404 000 km	2,1451 anni	2000	Gruppo Gallico
S/2007 S 2		6		16 560 000 km	-2,171 anni	2007	Gruppo Nordico
Saturno XXXVII	Bebhionn	6 km	?	16 950 000 km	2,25 anni	2004	Gruppo Inuit
Saturno XLVII	Skoll	6 km		17 610 000 km	-2,3792 anni	2006	
Saturno XXVIII	Erriapo	10 km	?	17 616 000 km	2,3871 anni	2000	Gruppo Gallico
S/2007 S 1		7 km	?	17 910 600 km	-2,44 anni	2007	Gruppo Inuit
S/2006 S 4		6 km		18 105 000 km	-2,4778 anni	2006	
Saturno XXIX	Siarnaq	40 km	?	18 160 000 km	2,4452 anni	2000	Gruppo Inuit
Saturno XLIV	Hyrrokkin	8 km		18 217 125 km	-2,4970 anni	2004	
Saturno XXI	Tarvos	15 km	?	18 247 000 km	2,5342 anni	2000	Gruppo Gallico
S/2004 S 13		6 km	?	18 450 000 km	-2,48 anni	2004	Gruppo Nordico
S/2006 S 6		6 km		18 600 000 km	-2,5791 anni	2006	
S/2004 S 17		4 km	?	18 600 000 km	-2,70 anni	2004	Gruppo Nordico
Saturno XXV	Mundilfari	7 km	?	18 722 000 km	-2,6048 anni	2000	Gruppo Nordico
Saturno XXXVIII	Bergelmir	6 km	?	18 750 000 km	-2,76 anni	2004	Gruppo Nordico
S/2006 S 1		6 km		18 981 135 km	-2,6558 anni	2006	
Saturno XXXVI	Ægir	6 km	?	19 350 000 km	-2,81 anni	2004	Gruppo Nordico
Saturno XXXI	Narvi	7 km	?	19 370 700 km	-2,7558 anni	2003	Gruppo Nordico
S/2004 S 12		5 km	?	19 650 000 km	-2,87 anni	2004	Gruppo Nordico

Saturno XXXIX	Bestla	7 km	?	19 650 000 km	-2,88 anni	2004	Gruppo Nordico
Saturno XXIII	Suttungr	7 km	?	19 666 700 km	-2,8192 anni	2000	Gruppo Nordico
Saturno XL	Farbauti	5 km	?	19 800 800 km	-2,95 anni	2004	Gruppo Nordico
S/2004 S 7		6 km	?	19 800 000 km	-3,02 anni	2004	Gruppo Nordico
Saturno XLIII	Hati	6 km	?	19 950 000 km	-2,96 anni	2004	Gruppo Nordico
S/2007 S 3		5 km		20 518 500 km	-3,01 anni	2007	
Saturno XXX	Thrymr	7 km	?	20 810 300 km	-3,07 anni	2000	Gruppo Nordico
S/2006 S 3		6 km		21 132 000 km	-3,13 anni	2006	

SATELLITI DI URANO

Nome		Diametro medio	Massa	Raggio orbitale medio	Periodo orbitale	Scoperta
Urano VI	Cordelia	13 ± 2 km	0,8×10 ¹⁸ kg	49 752 km	0,3350338 giorni	1986
Urano VII	Ofelia	15 ± 8 km	0,8×10 ¹⁸ kg	53 764	0,376400 giorni	1986
Urano VIII	Bianca	21 ± 4 km	0,8×10 ¹⁸ kg	59 166	0,43457899 giorni	1986
Urano IX	Cressida	80 ± 4 km	0,343×10 ¹⁸ kg	61 780 km	0,463570 giorni	1986
Urano X	Desdemona	64 ± 8 km	0,178×10 ¹⁸ kg	62 680 km	0,473650 giorni	1986
Urano XI	Juliet	94 ± 8 km	0,557×10 ¹⁸ kg	64 350 km	0,493065 giorni	1986
Urano XII	Porzia	135 ± 8 km	1,68×10 ¹⁸ kg	66 090 km	0,513196 giorni	1986
Urano XIII	Rosalind	72 ± 12 km	0,254×10 ¹⁸ kg	69 940 km	0,558460 giorni	1986
Urano XXVII	Cupido	~17,8 km	3,8×10 ¹⁵ kg	74 800 km	0,618 giorni	2003
Urano XIV	Belinda	81 ± 16 km	0,357×10 ¹⁸ kg	75 260 km	0,623527 giorni	1986
Urano XXV	Perdita	~26,6 km	13×10 ¹⁵ kg	76 420 km	0,638 giorni	1986
Urano XV	Puck	162 ± 4 km	2,89 × 10 ¹⁸ kg	86 010 km	0,761833 giorni	1986
Urano XXVI	Mab	~24,8 km	1,0 × 10 ¹⁶ kg	97 734 km	0,923 giorni	2003
Urano V	Miranda	471,6 ± 1,4 km	(66 ± 7) × 10 ¹⁸ kg	129 390 km	1,413479 giorni	1948
Urano I	Ariel	1157,8 ± 1,2 km	(1,35 ± 0,12) × 10 ²¹ kg	191 020 km	2,520379 giorni	1851
Urano II	Umbriel	1169,4 ± 5,6 km	(1,17 ± 0,13) × 10 ²¹ kg	266 300 km	4,144177 giorni	1851
Urano III	Titania	1577,8 ± 3,6 km	(3,53 ± 0,09) × 10 ²¹ kg	435 910 km	8,705872 giorni	1787
Urano IV	Oberon	1522,8 ± 5,2 km	(3,01 ± 0,07) × 10 ²¹ kg	583 520 km	13,463239 giorni	1787
Urano XXII	Francisco	~12 km	1,3×10 ¹⁵ kg	4 276 000 km	-0,7299 anni	2001
Urano XVI	Calibano	~98 km	0,73×10 ¹⁸ kg	7 231 000 km	-1,5871 anni	1997
Urano XX	Stefano	~20 km	6×10 ¹⁵ kg	8 004 000 km	-1,8546 anni	1999
Urano XXI	Trinculo	~10 km	0,75×10 ¹⁵ kg	8 504 000 km	-2,0780 anni	2001
Urano XVII	Sicorace	~190 km	5,4×10 ¹⁸ kg	12 179 000 km	-3,5272 anni	1997
Urano XXIII	Margherita	~11 km	1,3×10 ¹⁵ kg	14 345 000 km	4,6401 anni	2003
Urano XVIII	Prospero	~30 km	21×10 ¹⁵ kg	16 256 000 km	-5,4136 anni	1999
Urano XIX	Setebos	~30 km	21×10 ¹⁵ kg	17 418 000 km	-6,1185 anni	1999
Urano XXIV	Ferdinando	~12 km	1,3×10 ¹⁵ kg	20 901 000 km	-7,7300 anni	2001

SATELLITI DI NETTUNO

Nome		Diametro medio	Massa	Raggio orbitale medio	Periodo orbitale	Scoperta
Nettuno III	Naiade	58 km	~0,19×10 ¹⁸ kg	48 227 km	0,294 giorni	1989
Nettuno IV	Talassa	80 km	~0,37×10 ¹⁸ kg	50 075 km	0,311 giorni	1989
Nettuno V	Despina	148 km	~2,10×10 ¹⁸ kg	52 526 km	0,335 giorni	1989
Nettuno VI	Galatea	158 km	~3,70×10 ¹⁸ kg	61 593 km	0,429 giorni	1989
Nettuno VII	Larissa	208×178 km	~4,90×10 ¹⁸ kg	73 548 km	0,555 giorni	1981
Nettuno VIII	Proteo	436×416×402 km	~50×10 ¹⁸ kg	117 647 km	1,122 giorni	1989
Nettuno I	Tritone	2700 km	21,4×10 ²¹ kg	354 800 km	-5,877 giorni	1846
Nettuno II	Nereide	340 km	~31×10 ¹⁸ kg	5 513 400 km	0,99 anni	1949
Nettuno IX	Alimede	60 km	~0,09×10 ¹⁸ kg	15 728 000 km	-5,15 anni	2002
Nettuno XI	Sao	38 km	~0,09×10 ¹⁸ kg	22 422 000 km	7,98 anni	2002
Nettuno XII	Laomedea	38 km	~0,09×10 ¹⁸ kg	23 571 000 km	8,67 anni	2002
Nettuno X	Psamate	28 km	~0,015×10 ¹⁸ kg	46 695 000 km	-24,96 anni	2003
Nettuno XIII	Neso	60 km	~0,09×10 ¹⁸ kg	48 387 000 km	-25,67 anni	2002

EVENTI EXTRATERRESTRI

Nelle tabelle seguenti sono calcolati i transiti e le eclissi che potrebbe osservare un ipotetico essere vivente o sonda presente sul pianeta indicato.

Mercurio

Questo anno non avvengono fenomeni visibili da questo pianeta

Venere

Questo anno non avvengono fenomeni visibili da questo pianeta

Marte

Questo anno non avvengono fenomeni visibili da questo pianeta

Giove

Questo anno non avvengono fenomeni visibili da questo pianeta

Saturno

Questo anno non avvengono fenomeni visibili da questo pianeta

Urano

Questo anno non avvengono fenomeni visibili da questo pianeta

Nettuno

Questo anno non avvengono fenomeni visibili da questo pianeta

Luna

Data	TDT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/01/11 20:02:51		0.29643	1.29832	0.00	6.08	198	10		-1.8	11570	3.2	Terra	Giove
2009/01/12 06:11:51		1.09134	1.28975	0.79	0.00	19	16	0.1		6222	2.7	Mercurio	Terra
2009/02/08 17:40:32		0.34567	1.28839	0.00	6.06	20	-12		-1.8	11531	3.2	Terra	Giove
2009/02/08 09:20:25		0.39365	1.28581	0.00	2.33	19	-17		1.1	11782	3.3	Terra	Marte
2009/02/09 14:39:21		1.06550	1.54624	0.99	0.00	204	-0		-5.4	11657	3.0	Sole	Terra
2009/02/12 21:23:58		1.10394	1.22837	0.48	0.00	206	43	-4.7		5753	3.1	Venere	Terra
2009/03/08 13:11:38		1.01726	1.26994	0.00	5.89	22	-34		-1.9	7275	2.9	Terra	Giove
2009/07/07 09:39:42		1.33854	1.40579	1.02	0.00	168	-0		-5.6	5641	3.3	Sole	Terra
2009/08/06 00:40:15		1.22251	1.41067	1.02	0.00	338	-0		-5.4	9171	3.5	Sole	Terra
2009/09/01 18:18:13		0.74491	1.15092	1.34	0.00	339	-32	-3.8		11140	4.2	Venere	Terra
2009/09/06 13:59:02		0.74133	1.18487	0.74	0.00	335	22	0.5		10006	3.6	Mercurio	Terra
2009/12/03 10:28:03		0.06472	1.27616	1.30	0.00	184	15	-0.6		13138	3.6	Mercurio	Terra
2009/12/31 19:23:43		0.98974	1.56252	0.99	0.00	10	-0		-5.2	12269	3.0	Sole	Terra
2009/12/31 14:44:50		0.83124	1.29228	1.71	0.00	9	-3	-3.9	-7.6	9767	3.2	Venere	Terra

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = parametro limite, se Dm<Dl vi è una occultazione tra i corpi

R1 = distanza in U.A. del primo corpo

R2 = distanza in U.A. del secondo corpo

P = angolo di posizione tra i corpi, in gradi

e = elongazione, in gradi

m1 = magnitudine del primo corpo

m2 = magnitudine del secondo corpo

tm = se presente, uno dei due corpi viene occultato massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano meno di 1° tra loro

Esempio di lettura :

Luna. Il giorno 11 gennaio la Terra occluderà Giove se vista dalla nostra Luna.

EVENTI EXTRATERRESTRI

Nelle tabelle seguenti sono calcolati i fenomeni Terra-Luna che potrebbe osservare un ipotetico essere vivente o sonda presente sul pianeta indicato.

Mercurio

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/01/12 06:18:02		0.00334	0.00394	0.789	0.791	19	-121	-4.0	-0.1	7846	1099.6	Earth	Moon
2009/02/22 21:31:14		0.00239	0.00279	1.114	1.111	22	63	-3.1	0.7	9565	1923.1	Earth	Moon
2009/09/06 14:05:11		0.00264	0.00423	0.735	0.738	335	-117	-4.0	-0.1	12710	1126.0	Earth	Moon
2009/09/18 23:56:24		0.00410	0.00484	0.644	0.641	153	-168	-4.4	-0.7	7488	851.6	Earth	Moon
2009/12/03 10:41:15		0.00013	0.00240	1.294	1.297	184	-37	-2.9	0.9	16694	2034.6	Earth	Moon

Venere

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/02/12 21:28:00		0.00591	0.00658	0.474	0.476	206	-110	-4.5	-0.7	7291	739.6	Earth	Moon
2009/02/28 00:04:26		0.00803	0.00833	0.376	0.373	205	-127	-5.2	-1.4	4276	565.3	Earth	Moon
2009/04/22 13:26:18		0.00666	0.00846	0.370	0.367	27	131	-5.2	-1.5	9827	553.7	Earth	Moon
2009/09/01 18:31:51		0.00152	0.00233	1.334	1.337	339	48	-2.5	1.3	14101	2326.4	Earth	Moon
2009/12/31 15:01:42		0.00117	0.00182	1.708	1.710	9	4	-2.4	1.4	12438	2601.6	Earth	Moon

Marte

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/01/25 03:07:10		0.00079	0.00131	2.370	2.367	195	9	-1.6	2.2	14192	3951.0	Earth	Moon
2009/02/08 09:41:56		0.00041	0.00133	2.331	2.334	199	12	-1.6	2.2	14969	3448.1	Earth	Moon
2009/09/13 16:35:38		0.00177	0.00204	1.527	1.525	350	39	-1.3	2.5	7813	2279.7	Earth	Moon
2009/09/27 14:38:19		0.00005	0.00216	1.436	1.439	166	39	-1.3	2.5	17635	2381.9	Earth	Moon
2009/10/12 01:04:59		0.00206	0.00233	1.335	1.332	163	40	-1.3	2.5	7463	1990.7	Earth	Moon

Giove

Data	TT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2009/01/11 20:54:59		0.00012	0.00051	6.077	6.079	18	-2	0.4	4.2	14660	8598.4	Earth	Moon
2009/01/26 05:29:29		0.00002	0.00051	6.090	6.087	19	0	0.4	4.2	16845	9644.1	Earth	Moon
2009/02/08 18:32:33		0.00014	0.00051	6.061	6.064	200	2	0.4	4.2	14600	8637.7	Earth	Moon
2009/02/23 01:22:25		0.00030	0.00052	5.990	5.988	21	4	0.6	4.4	13594	9435.3	Earth	Moon
2009/03/08 14:02:03		0.00043	0.00053	5.886	5.889	202	6	0.7	4.6	9186	8514.6	Earth	Moon

Saturno

Questo anno non avvengono fenomeni visibili da questo pianeta

Urano

Questo anno non avvengono fenomeni visibili da questo pianeta

Nettuno

Questo anno non avvengono fenomeni visibili da questo pianeta

Esempio di lettura :

Il giorno 11 gennaio la Terra occulterà la Luna se vista da Giove.

GLOSSARIO ASTRONOMICO

- Aberrazione** - Deviazione della direzione dei raggi luminosi provenienti da un corpo celeste.
- Aberrazione annua** - Spostamento angolare apparente delle stelle rispetto alla volta celeste, dovuto al moto di rivoluzione della Terra attorno al Sole.
- Aberrazione astronomica** (o aberrazione della luce) - Variazione apparente della posizione di un astro dovuta al movimento della Terra e alla velocità finita della luce. L'aberrazione annua, scoperta da Bradley nel 1727, dipende dal moto di rivoluzione, quella diurna dal moto di rotazione.
- Aberrazione diurna** - Spostamento angolare apparente delle stelle rispetto alla volta celeste, dovuto al moto di rotazione della Terra attorno al proprio asse.
- Absidi** - Punti estremi dell'asse maggiore di un'orbita ellittica. La retta che li congiunge si dice linea degli absidi.
- Afelio** - Punto dell'orbita di un corpo del sistema solare di massima distanza dal Sole.
- Albedo** - Rapporto fra la luce incidente e fra quella riflessa dalla superficie di ogni corpo celeste.
- Alumcântarat** - Circolo sulla sfera celeste parallelo all'orizzonte, che unisce i punti con la stessa altezza.
- Altazimutali, coordinate** - Sistema di coordinate celesti relative all'orizzonte terrestre ed alla verticale del luogo, le cui componenti sono l'azimut e l'altezza.
- Altezza** - Distanza angolare di un oggetto celeste dall'orizzonte. E' tracciata sul cerchio verticale passante per lo zenit, il nadir e per l'astro in osservazione e si misura da 0 e 90 gradi, partendo dall'orizzonte, positivamente sopra di esso e negativamente al contrario.
- Ammasso** - Insieme di stelle o di galassie che si raggruppano per via delle forze gravitazionali reciproche.
- Ammasso aperto** - Ammasso stellare situato nel disco della Galassia e contenente migliaia di stelle giovani e molto luminose.
- Ammasso di Galassie** - Gruppo di galassie legate dall'attrazione gravitazionale. La nostra Galassia appartiene al cosiddetto Gruppo Locale.
- Ammasso globulare (cluster)** - Ammasso sferico situato nell'alone della Galassia e contenente centinaia di migliaia di stelle molto vecchie e ravvicinate.
- Ammasso stellare** - Gruppo di stelle tenute insieme dalle interazioni gravitazionali. Può essere aperto, qualora abbia una forma irregolare, o globulare se è caratterizzato da una forma sferica.
- Anello** - Insieme di detriti e particelle che disponendosi sul piano equatoriale caratterizza i pianeti gioviani. Può avere diverse dimensioni: maestose, come in Saturno, od impercettibili all'osservazione telescopica come in Giove, Urano e Nettuno.
- Angolo orario** - Distanza angolare di un corpo celeste dal meridiano del luogo.
- Anno** - Periodo di tempo corrispondente alla durata di una intera rivoluzione della Terra attorno al Sole.
- Anno anomalistico** - Periodo di tempo compreso fra due successivi passaggi della Terra al perielio.
- Anno astronomico** - Periodo definito da due passaggi consecutivi della Terra per lo stesso punto della sua orbita.
- Anno bisestile** - Anno di 366 giorni introdotto per recuperare la differenza di 0,25 giorni (6 ore) fra l'anno civile e l'anno solare. Comporta l'aggiunta, all'anno civile, di un giorno ogni 4 anni.
- Anno civile** - Periodo di tempo usato in ambito civile, che basandosi sull'anno solare tiene conto solo della parte intera di tale valore (365 giorni).
- Anno draconico** - Periodo orbitale misurato tra due passaggi della Terra al nodo lunare ascendente (346g 14h 53m).
- Anno luce** - Unità di misura delle distanze interstellari corrispondente alla distanza coperta dalla luce in un anno, alla velocità propria di 300000 km al secondo. Ammonta a circa 9.460 miliardi di km o 63 U.A.
- Anno siderale** - Intervallo di tempo fra due successivi allineamenti di una stella con la Terra. Corrisponde ad una completa rivoluzione del nostro pianeta attorno al Sole. Dura 365 giorni, 6 ore, 9 minuti.
- Anno solare o tropico** - Intervallo di tempo fra due successivi passaggi del Sole all'equinozio di primavera. E' piu' corto di quello siderale per effetto della precessione degli equinozi, ammonta infatti a circa 365 giorni, 5 ore, 48 minuti.
- Anomalia** - Distanza angolare, calcolata per un dato istante, fra la posizione di un pianeta ed il perielio della sua orbita. Può essere media, se si tiene conto della velocità orbitale media, o vera, nel caso si consideri quella effettiva.
- Apastro** - Punto dell'orbita ellittica di una stella binaria di maggior distanza dal fuoco.
- Apogeo** - Punto dell'orbita lunare, o di un satellite artificiale, di maggior distanza dalla Terra.
- Apsidi** - I due punti di intersezione tra l'orbita ellittica percorsa da un corpo e il suo asse maggiore (detto linea degli apsid). Nel caso di un'orbita intorno al Sole i punti sono detti afelio e perielio.
- Arco diurno** - Traiettoria descritta nel cielo da ogni corpo celeste, fra l'istante di levata e quello del tramonto.
- Argomento del perielio** - Angolo compreso fra il nodo ascendente ed il perielio, misurato in direzione del senso di rivoluzione del corpo celeste attorno al Sole.
- Ascensione retta** - Componente delle coordinate equatoriali che rappresenta la distanza angolare fra il punto di Ariete e l'intersezione del cerchio orario passante per l'astro in osservazione con l'equatore celeste. Si misura in ore, a partire dal punto d'ariete, in senso antiorario (verso Est), ed è compresa fra 0 e 24.
- Asse** - Retta ideale attorno alla quale ruotano su se stessi i corpi celesti. Quello della Terra, passante per i poli Nord e Sud è detto asse terrestre.
- Asse celeste** - Prolungamento dell'asse terrestre attorno al quale, per effetto della rotazione della Terra, ruota apparentemente la sfera celeste.
- Asse maggiore** - Diametro massimo di un'orbita ellittica.
- Asse polare** - Asse puntato parallelamente all'asse terrestre intorno al quale ruota un telescopio

equatoriale per variare solamente l'ascensione retta.

Associazione stellare - Raggruppamento di giovani stelle avente origine comune.

Asterismo - Struttura di stelle che non costituisce una costellazione, ma che è conosciuta con un nome (per esempio il Grande Carro).

Asteroidi - Corpi del sistema solare dalle piccole dimensioni che ruotano attorno al Sole con orbite ellittiche. Detti anche pianetini occupano principalmente una posizione fra l'orbita di Marte e Giove chiamata fascia degli asteroidi.

Astro - Corpo celeste generico (stella, pianeta, satellite).

Astrometria - Branca dell'astronomia che studia i moti stellari.

Attività solare - Insieme dei fenomeni che caratterizzano la vita del Sole. Si distinguono in macchie solari, protuberanze, brillamenti, vento solare. Raggiungono il massimo di intensità ogni 11 anni, così si parla di ciclo undecennale delle attività solari.

Aurora polare - Fenomeno luminoso creato nell'atmosfera dall'interazione di particelle solari ionizzate con il campo magnetico terrestre. Può essere boreale od australe, a seconda dell'emisfero in cui si verifica.

Azimut - Distanza angolare fra l'intersezione con l'orizzonte del cerchio verticale passante per l'oggetto osservato ed il polo Nord. Si misura sull'orizzonte, in senso orario, da 0 a 360 gradi a partire dal polo Nord.

Binaria - Sistema costituito da due stelle legate dall'attrazione gravitazionale e orbitanti attorno al baricentro. Nell'Universo almeno la metà delle stelle è doppia o multipla. Le stelle binarie si dividono in binarie visuali, astrometriche, spettroscopiche, e a eclisse, mentre le binarie ottiche appaiono doppie solamente per causa prospettica.

Bolide - Meteorite che attraversando l'atmosfera terrestre dà vita ad eccezionali fenomeni luminosi ed acustici causati dall'attrito con gli strati atmosferici.

Calendario - Suddivisione del tempo basata sul movimento degli astri. Può essere solare, centrato sul moto apparente del Sole, lunare, riferito alle fasi lunari o lunisolare, se si riferisce ad ambedue gli astri.

Calendario giuliano - Calendario istituito da Giulio Cesare nel 46 a.C. costituito da 12 mesi per anno, con tre anni di 365 giorni seguiti da uno di 366 giorni. Dato che l'anno medio su 4 anni vale 365,25 giorni, dura oltre 11 minuti più lungo dell'anno tropico, nel XVI secolo venne riformato perché le stagioni non corrispondevano più all'anno civile.

Calendario gregoriano - Calendario civile utilizzato in molti paesi e istituito nel 1582 da Papa Gregorio XIII, quando vennero eliminati dieci giorni di calendario. Sono bisestili gli anni divisibili per 4, mentre gli anni di fine secolo sono bisestili solo se divisibili per 400. Dato che l'anno medio su 400 anni vale 365,2425 giorni, questo ha una durata molto simile ai 365,2422 giorni dell'anno tropico.

Cassini, divisione di - Separazione fra gli anelli del pianeta Saturno scoperta dall'omonimo astronomo.

Cerchio di altezza - Cerchio ottenuto intersecando la sfera celeste con un piano passante per lo zenit e l'osservatore.

Cerchio massimo - Intersezione di un piano con una sfera che la taglia in due parti uguali detti emisferi, ed il cui centro è corrispondente a quello della sfera.

Cerchio meridiano - Cerchio massimo della sfera celeste passante per i poli celesti Nord e Sud e per i punti detti Zenit e Nadir.

Cerchio orario - Cerchio massimo della sfera celeste passante per i poli celesti.

Cerchio di perpetua apparizione - Parallelo della sfera celeste che delimita le stelle circumpolari, ossia quelle stelle che in un determinato posto della Terra distano dal polo celeste visibile, attorno a cui ruotano, di una distanza angolare pari o minore alla latitudine del luogo.

Cerchio di perpetua occultazione - Analogamente a quello di perpetua apparizione delimita quelle stelle che ruotano ad una distanza pari o inferiore alla latitudine del luogo dal polo celeste invisibile, così da restare permanentemente occultate sotto l'orizzonte.

Cerchio verticale - Cerchio massimo della sfera celeste passante per lo zenit ed il nadir. Su di esso viene misurata l'altezza di un astro dall'orizzonte nel sistema di coordinate altazimutali.

Chioma - Involucro di gas che circonda il nucleo di una cometa per effetto della radiazione solare.

Ciclo metonico - Periodo scoperto da Metone nel V secolo a.C., costituito da 19 anni tropici, dopo i quali le fasi della Luna ricorrono negli stessi giorni dell'anno.

Circolo polare - Parallelo della superficie terrestre, distante dall'equatore 66,5 gradi, che delimita la zona polare. Può essere antartico o artico a seconda dell'emisfero cui si riferisce.

Circumpolari - Detto di quelle stelle che descrivendo un arco di cerchio completo, attorno al polo visibile e da un determinato posto della Terra, rimangono sempre sopra l'orizzonte ruotando attorno al polo celeste.

Cluster - Nome inglese di un Ammasso globulare.

Coda - La parte di una cometa espulsa quando questa è vicina al Sole.

Coluro - Nome dei cerchi orari passanti per i punti equinoziali e solstiziali.

Cometa - Piccolo corpo del sistema solare, orbitante attorno al Sole su un'orbita fortemente eccentrica, che in prossimità del Sole inizia ad evaporare dando vita alla classica coda.

Congiunzione - Configurazione planetaria di due o più corpi celesti che hanno più o meno le medesime coordinate astronomiche. Per i pianeti inferiori si distingue in inferiore e superiore.

Congiunzione inferiore - Configurazione planetaria di un pianeta inferiore che si trova fra la Terra ed il Sole.

Congiunzione superiore - Configurazione planetaria di un pianeta inferiore che si trova oltre il Sole lungo la direzione Terra-Sole-Pianeta.

Cono d'ombra - Regione occupata dall'ombra proiettata da un pianeta o un satellite illuminato dal Sole. Se un oggetto passa nel cono d'ombra di un corpo si è in presenza di un'eclissi.

Contatto - Fase di un'eclisse dove i bordi dei dischi lunari e solari sembrano apparentemente toccarsi.

Coordinate astronomiche - Insieme di valori che permettono l'orientamento lungo la sfera celeste. A seconda del sistema cui si riferiscono abbiamo quelle altazimutali, quelle equatoriali, quelle eclittiche e quelle galattiche.

Coordinate Celesti (o astronomiche) - Sistemi di coordinate che descrivono la posizione di un astro sulla

sfera celeste. Le principali coordinate utilizzate sono le altazimutali, le equatoriali, le eclittiche e le galattiche.

Coordinate Eclittiche - Sistema di coordinate celesti in cui la posizione di un oggetto è definita dalla latitudine eclittica (b), misurata in gradi a nord e a sud dell'eclittica, e dalla longitudine eclittica (l), misurata in gradi lungo l'eclittica a partire dal punto g .

Coordinate equatoriali - Sistema di coordinate celesti in cui la posizione di un oggetto è definita dalla declinazione (d), misurata in gradi a nord e a sud dell'equatore celeste, e dall'ascensione retta (a , A.R.), misurata in ore, minuti e secondi lungo l'equatore celeste a partire dal punto g . A causa della precessione degli equinozi le coordinate equatoriali sono specifiche per una particolare epoca.

Coordinate galattiche - Sistema di coordinate in cui la posizione di un oggetto è definita dalla latitudine, misurata dal piano galattico, e dalla longitudine, misurata in gradi lungo il piano galattico a partire dal centro della Galassia.

Coordinate geografiche - Sistema di coordinate in cui la posizione di un punto sulla superficie è individuato dalla latitudine, misurata in gradi a nord e a sud dell'equatore, la longitudine, misurata in gradi est e ovest lungo l'equatore a partire dal meridiano di Greenwich, e l'altitudine, misurata in metri rispetto al livello del mare.

Corona solare - La zona più esterna dell'atmosfera solare visibile durante le eclissi totali.

Costellazioni - Gruppo di stelle sulla sfera celeste che unite da linee immaginarie formano delle figure. Fin dall'antichità le configurazioni celesti sono state associate a figure mitologiche o di animali, e ben 48 delle odierne costellazioni sono quelle elencate da Tolomeo nel periodo ellenistico. Dal XVII secolo furono proposte altre denominazioni, finché nel 1930 l'Unione Astronomica Internazionale ha definitivamente diviso il cielo in 88 aree, ciascuna della quali corrisponde ad una costellazione. Le stelle più luminose sono denominate con una lettera greca minuscola seguita dal genitivo del nome latino della costellazione.

Crepuscolo - Passaggio graduale dal giorno alla notte per effetto dell'atmosfera terrestre che diffonde la luce solare. Si distingue in civile, nautico ed astronomico a seconda che il Sole sia sotto l'orizzonte rispettivamente di 6, 12 o 18 gradi.

Culminazione - Rappresenta il passaggio di un corpo celeste al meridiano. Può essere superiore, il punto di minor distanza zenitale, od inferiore, il punto di maggior distanza zenitale. Nelle stelle circumpolari ambedue i punti si trovano sopra l'orizzonte.

Cuspide - Una delle due estremità della falce lunare, o di quella di un pianeta inferiore.

Data giuliana (DG) - Intervallo di tempo in giorni trascorso dal mezzogiorno dell'1 gennaio 4713 a.C. di Greenwich.

Declinazione - Distanza angolare di un corpo dall'equatore celeste. Tracciata sul cerchio orario passante per i poli celesti e l'astro osservato, è compresa fra 0 e 90 gradi e si conta a partire dall'equatore celeste, positivamente verso il polo Nord celeste e negativamente verso quello Sud.

Deep sky - Termine con il quale si indicano alcuni oggetti celesti: ammassi stellari, galassie, nebulose.

Dicotomia - Aspetto di un corpo celeste illuminato per metà durante le fasi parziali.

Disco apparente - Diametro apparente del Sole e della Luna che a causa delle loro diverse distanze sembra avere le medesime dimensioni.

Diretto - Direzione del moto celeste di un pianeta da Ovest verso Est, od anche in senso antiorario, se osservato dal Nord dell'eclittica.

Distanza Angolare - Lunghezza di un arco espressa in radianti o gradi, corrispondente alla misura dell'angolo fra le linee immaginarie che congiungono l'osservatore con i due estremi dell'arco.

Doppie, stelle - Stelle ruotanti attorno ad un comune centro di massa per effetto di reciproci vincoli gravitazionali.

Dracónico - Periodo di tempo riferito ai nodi lunari, detti dagli antichi testa e coda del drago che mangiava il Sole durante le eclissi.

Eccentricità - Elemento orbitale dell'orbita di un corpo celeste pari al rapporto fra il semiasse maggiore e la distanza di un fuoco dal centro dell'orbita. Può essere uguale a 0 (circolare), ad 1 (parabolica) o compresa fra questi due valori (ellittica).

Eclisse - Fenomeno astronomico in cui la luce di un corpo celeste è temporaneamente oscurata a causa del passaggio nel cono d'ombra di un altro astro. Nella eclisse di Luna il nostro satellite attraversa il cono d'ombra della terra e non riceve più la luce del Sole, nella eclissi di Sole la Luna proietta il suo cono d'ombra sulla Terra. Poiché l'orbita lunare è inclinata sul piano dell'orbita terrestre, si ha una eclissi soltanto quando la Luna si trova vicino ai suoi nodi: ogni anno non si verificano più di sette eclissi e ci sono almeno due eclissi solari.

Eclisse anulare - Eclissi di Sole in cui il disco lunare non riesce ad ostruire completamente quello solare lasciandone visibile una parte a forma di anello.

Eclisse Lunare - Una eclisse di Luna si verifica al plenilunio quando la Luna passa nell'ombra della Terra. Il nostro satellite non compare del tutto, ma assume una luce rossastra a causa della luce riflessa dall'atmosfera terrestre.

Eclisse parziale - Tipo di eclisse, solare o lunare, nella quale i dischi dei rispettivi corpi celesti sono interessati dal fenomeno solo parzialmente.

Eclissi Solare - Una eclisse di Sole si verifica al novilunio quando la Luna passa davanti al disco solare. Quando il diametro apparente della Luna è minore di quello del Sole l'eclisse è detta anulare. L'ombra proiettata dalla Luna è larga qualche centinaio di chilometri e si muove sulla superficie terrestre: la fase di totalità può durare al massimo 7 minuti e 40 secondi e in tutta la regione circostante si vede un'eclisse parziale.

Eclisse totale - Tipo di eclisse che interessa integralmente i dischi lunari e solari.

Eclittica - Fascia del cielo lungo la quale si muove apparentemente il Sole. Il nome significa cerchio delle eclissi, in quanto affinché possa verificarsi una di queste, è necessario che la Luna sia in prossimità di quei punti chiamati nodi che sono le intersezioni del suo piano orbitale con l'eclittica. E' anche il piano disegnato dall'orbita della Terra, nel suo moto di rivoluzione attorno al Sole, che è inclinato rispetto all'equatore celeste di 23,5 gradi.

Eclittiche, coordinate - Sistema di coordinate che come riferimento si basa sul piano dell'eclittica. Le sue componenti sono la longitudine eclittica e la latitudine eclittica.

Effemeridi - Raccolta di dati astronomici che sulla base delle coordinate astronomiche permettono di risalire alla posizione dei corpi celesti.

Elementi orbitali - Parametri che determinano il moto e la posizione nel sistema solare di un corpo celeste e della sua orbita. Sono: l'eccentricità, il semiasse maggiore, l'inclinazione, la distanza e la longitudine del perielio dal nodo ed il passaggio al perielio.

Elongazione - Distanza angolare vista dalla Terra tra il Sole e un pianeta. Valori particolari di elongazione sono la congiunzione (0°), la quadratura (90°) e l'opposizione (180°).

Emersione - Successiva apparizione di un corpo celeste, da dietro il disco di un altro, o dell'ombra di questo, durante il fenomeno delle occultazioni o delle eclissi.

Emisfero - Parti uguali di una sfera tagliata in due da un piano equatoriale. Quelli terrestri si indicano come emisferi boreale (settentrionale) ed australe (meridionale).

Epatta - Numero di giorni che separano la prima Luna Nuova dell'anno dal primo di Gennaio. Grazie ad un calcolo ad esso legato si ottiene la data della Pasqua.

Epoca - Riferimento temporale di validità, per cui sono state calcolate le effemeridi di un dato corpo celeste, al fine di correggere l'errore derivante dal fenomeno della precessione degli equinozi.

Equatore - Intersezione di un piano perpendicolare all'asse di una sfera con la superficie della stessa, che la taglia diametralmente in due parti uguali.

Equatore celeste - Prolungamento di quello terrestre è quel cerchio massimo che essendo perpendicolare all'asse di rotazione taglia la sfera celeste in due emisferi uguali.

Equatore terrestre - Cerchio massimo di latitudine 0 gradi che taglia la Terra in due emisferi.

Equazione delle effemeridi - Differenza fra il tempo siderale e quello siderale medio.

Equazione del tempo - Differenza fra il tempo solare e quello siderale medio.

Equatoriali, coordinate - Sistema di coordinate astronomiche basate sull'equatore celeste e sull'asse di rotazione del cielo. Le sue componenti sono l'ascensione retta e la declinazione.

Equinozi - Punti dell'orbita terrestre che segnano l'inizio della primavera e dell'autunno e nei quali la durata del giorno è uguale a quella della notte. Rappresentano inoltre le intersezioni dell'equatore celeste con l'eclittica e sono anche chiamati nodo discendente e nodo ascendente o anche rispettivamente punto della Bilancia e punto d'Ariete. La linea che congiunge i suddetti punti è detta linea degli equinozi e ruota per effetto della precessione degli equinozi.

Evezione - Perturbazione causata nel moto della Luna dalla variazione nella spinta gravitazionale del Sole.

Fasi - Variazione della porzione illuminata del disco lunare (o di quello dei due pianeti inferiori) per effetto dei rispettivi moti orbitali.

Fuga, velocità di - Velocità necessaria a sfuggire all'attrazione gravitazionale di qualsiasi corpo celeste.

Galassie - Insieme di stelle, gas e polvere interstellare. Hanno forme diverse: di disco a spirale, ellittiche o irregolari. Furono classificate in passato da E.Hubble che studiandole scoprì anche la legge che porta il suo nome e che dimostra, basandosi sulla reciproca velocità di allontanamento delle galassie, come l'universo sia in perenne espansione. Le galassie hanno la caratteristica di aggregarsi in ammassi e superammassi.

Galattiche, coordinate - Sistema di coordinate astronomiche relative alla galassia le cui componenti sono la longitudine e la latitudine galattiche. Il piano di riferimento è quello equatoriale della galassia.

Galileiani, satelliti - Le 4 lune maggiori del pianeta Giove, scoperte da G.Galilei.

Geocentrico - Sistema di riferimento relativo alla Terra.

Giorno - Durata media del periodo di rotazione della Terra attorno al proprio asse.

Giorno lunare - Intervallo di tempo fra due successivi passaggi della Luna al meridiano.

Giorno solare - Intervallo di tempo fra due successivi passaggi del Sole al meridiano.

Giorno siderale - Intervallo di tempo fra due successivi passaggi di una stella per il meridiano. E' più breve del giorno solare di circa 4 minuti per effetto del moto orbitale della Terra attorno al Sole.

Giorno giuliano - Unità di misura del calendario omonimo che conta i giorni, in modo progressivo, a partire dal 1 gennaio del 4713 A.C.

Greenwich, meridiano di - Circolo della sfera terrestre di longitudine 0° .

Immersione - Inizio della occultazione di un corpo celeste da parte di un altro.

Inclinazione - Distanza angolare fra l'equatore di un corpo celeste ed il suo piano orbitale.

Inclinazione orbitale - Elemento orbitale di un corpo del sistema solare che misura la differenza angolare fra il suo piano orbitale e quello dell'eclittica.

Index Catalogue (IC) - Catalogo di oggetti non stellari compilato e pubblicato da J.L.E.Dreyer nel 1895 (IC 1) e nel 1908 (IC 2) e contenente circa 5.000 nuovi oggetti che si aggiungono a quelli indicati nel New General Catalogue (NGC).

Inferiore - Pianeta la cui orbita attorno al Sole è contenuta entro quella della Terra.

Latitudine - Distanza angolare, positiva o negativa, di un punto da un piano equatoriale di riferimento (terrestre, celeste, galattico).

Latitudine eclittica - Distanza angolare, positiva o negativa, di un punto situato a Nord od a Sud del piano dell'eclittica.

Latitudine galattica - Distanza angolare di un punto posto a Nord od a Sud del piano galattico.

Levare eliaco - Prima apparizione di una stella ad oriente dopo la congiunzione con il Sole.

Librazione lunare - Oscillazione della Luna che permette di vedere fino al 10 % in più della superficie rivolta verso la Terra. Opera sia in latitudine che in longitudine.

Limbo - Bordo estremo del disco apparente di un corpo celeste.

Longitudine - Distanza angolare, positiva o negativa, di un punto della superficie terrestre dal meridiano di Greenwich. Può essere orientale od occidentale. In generale, distanza angolare di un punto da un cerchio massimo di riferimento.

Longitudine del perielio - Somma dell'argomento del perielio e della longitudine del nodo ascendente dell'orbita.

Longitudine del nodo ascendente - Angolo compreso fra il punto d'Ariete e l'intersezione del piano orbitale con l'eclittica.

Longitudine eclittica - Distanza angolare di un punto del piano dell'eclittica dal punto d'ariete.

Longitudine galattica - Distanza angolare di un punto del piano galattico dal punto di centro galattico.

Luce cinerea - Debole illuminazione del disco lunare, durante le fasi crescenti o calanti, da parte della luce solare riflessa dalla Terra verso la Luna.

Luce zodiacale - Fenomeno luminoso creato per diffusione della luce solare da parte di particelle di materia giacenti sul piano dell'eclittica.

Lunazione - Periodo di tempo compreso fra due fasi lunari uguali la cui durata è di circa 29,5 giorni. E' detta anche mese sinodico.

M - Riferita al catalogo Messier e sguita da un numero d'ordine (es. M32) riporta l'oggetto relativo che ha quel numero d'ordine nel catalogo (nell'esempio precedente, la galassia di Andromeda).

Magnitudine - Misura della luminosità dei corpi celesti. Data la differente distanza che ci separa dalle stelle essa si distingue in apparente, quella che appare nel cielo, ed in assoluta che corrisponde alla luminosità effettiva osservata dalla distanza di 10 parsec. Viene divisa in classi decrescenti con una differenza fra le piu' luminose e le meno luminose di circa 500 volte.

Meccanica celeste - Branchia dell'astronomia avente come studio la dinamica dei movimenti degli astri posti sotto l'effetto di campi gravitazionali.

Megaparsec - Unita' di misura delle distanze galattiche e cosmologiche, pari a 1 milione di parsec.

Meridiano - Cerchio massimo della sfera celeste passante per i poli celesti, lo zenit ed il nadir di una data località terrestre.

Mese anomalistico - Periodo di tempo fra due successivi passaggi della Luna all'apogeo od al perigeo. E' uguale a 27,6 giorni.

Mese draconico - Intervallo di tempo fra due successivi passaggi della Luna allo stesso nodo. E' uguale a 27,2 giorni.

Mese siderale - Durata del periodo di rivoluzione della Luna attorno alla Terra. Durata 27,3 giorni.

Mese sinodico - Periodo di tempo fra due fasi lunari uguali. E' uguale a 29,5 giorni.

Meteora (stella cadente) - Raggio di luce causato da un meteorioide che si consuma per attrito con gli strati atmosferici.

Meteorite - Meteorioide, che attraversando l'atmosfera terrestre, resiste all'attrito con essa per via delle sue grandi dimensioni, riuscendo così a raggiungere la superficie e causando un impatto con essa.

Meteorioide - Corpo roccioso vagante nel sistema solare.

Mezzanotte - Culminazione inferiore del Sole.

Mezzocielo - Punto di intersezione fra il meridiano del luogo e l'equatore celeste.

Mezzogiorno - Culminazione superiore del Sole.

Moto diurno - Rotazione apparente della sfera celeste, da Est ad Ovest, dovuto al moto rotatorio della Terra attorno al proprio asse nella direzione contraria.

Moto planetario - Moto apparente dei pianeti nel cielo (od orbitale nel sistema solare). Si distingue in retrogrado, se avviene da oriente verso occidente (od in senso orario, se visto dal Nord dell'eclittica), ed in diretto (antiorario) nella direzione contraria.

Nadir - Punto di intersezione inferiore della verticale del luogo con la sfera celeste. E' l'opposto dello Zenit.

Nebulosa - Nube di gas e polvere interstellare che può essere oscura, se assorbe la luce di una stella impedendone la visuale, o luminosa, se riflette (nebulosa a riflessione) o viene ionizzata (nebulosa ad emissione) dalla luce di stelle vicine.

Nebulosa planetaria - Gas emessi, sotto forma di anello in rapida espansione, dagli strati esterni di una stella nelle sue ultime fasi di vita.

Nodo - Generalmente indica l'intersezione di un'orbita con il piano dell'eclittica. Può essere ascendente o discendente.

Numero d'oro - Numero d'ordine, compreso fra 1 e 19, che indicava ognuno degli anni nell'ambito del ciclo di Metone.

Nutazione - Movimento oscillatorio dell'asse del pianeta Terra. E' causato dal fatto che l'attrazione gravitazionale della Luna e del Sole sul rigonfiamento equatoriale terrestre varia nel tempo a seconda delle loro posizioni relative. Per l'effetto congiunto della nutazione e di un'altra perturbazione di ampiezza maggiore (la precessione), l'asse di rotazione terrestre compie un moto sinuoso nel cielo, anzichè mantenere una direzione fissa nello spazio.

Occultazione - Fenomeno astronomico che si verifica allorchè un corpo celeste passando davanti ad un altro ne oscura la sua visuale nel cielo.

Opposizione - Configurazione planetaria di un corpo del sistema solare che dista dal Sole, rispetto alla Terra, di un angolo di 180° o di 12 ore in ascensione retta.

Orarie, stelle - Stelle che descrivono nel cielo un arco di cerchio per metà sopra l'orizzonte e per l'altra sotto di esso.

Orbita - Traiettoria di un corpo celeste che ruota attorno ad un altro per via della forza gravitazionale. Generalmente è di forma ellittica.

Orizzonte - Intersezione del piano tangente al luogo d'osservazione con la sfera celeste.

Parallasse - Apparente spostamento angolare di una stella. Può essere annua, se riferita al moto di rivoluzione della Terra attorno al Sole, o diurna se riferita al moto di rotazione terrestre. Da essa si risale alla distanza astronomica di un corpo celeste.

Parallelo - Circolo paralleli all'equatore terrestre sui quali viene misurata la longitudine.

Parsec - Unità di misura delle distanze interstellari, equivalente a circa 3 anni luce, che corrispondono ad uno spostamento angolare nel cielo di un primo d'arco da parte di una stella che viene osservata da due punti distanti fra loro una unità astronomica (dist. media fra Sole e Terra).

Passaggio al perielio - Istante del transito di ogni corpo del sistema solare per il punto più prossimo al Sole.

Periastro - Punto dell'orbita ellittica di una stella binaria di minor distanza dal fuoco.

Perigeo - Punto dell'orbita della Luna, o di un satellite artificiale, di minima distanza dalla Terra.

Perielio - Punto dell'orbita di un corpo del sistema solare di minima distanza dal Sole.

Periodo orbitale - Intervallo di tempo impiegato da un corpo celeste a descrivere una rivoluzione completa.

Periodo siderale - Intervallo di tempo compreso fra due successivi passaggi di un corpo celeste per lo stesso punto della sua orbita.

Periselenio - Punto dell'orbita di un corpo celeste più vicino alla Luna.

Perturbazioni - Variazioni dell'orbita di un corpo celeste causate da passaggi ravvicinati a grandi masse che con la loro forza gravitazionale ne sconvolgono gli elementi orbitali.

Pianeta - Corpo celeste orbitante attorno al Sole, caratterizzato da grandi dimensioni e dalla mancanza di emissione di energia.

Pianeti esterni - Marte, Giove, Saturno, Urano, Nettuno e Plutone sono i pianeti esterni all'orbita terrestre.

Pianeti interni - Mercurio e Venere sono i pianeti interni all'orbita della Terra.

Pianetini - Piccoli corpi del sistema solare caratterizzati dalle dimensioni e dalle orbite irregolari. Detti anche asteroidi occupano un'orbita fra Marte e Giove che per questo viene detta fascia degli asteroidi.

Piano orbitale - Piano descritto dall'orbita di un corpo celeste.

Planetesimi - Oggetti rocciosi primordiali, formati per aggregazione di polveri nella nube protosolare, dai quali si pensa si siano formati asteroidi e pianeti per mutua attrazione gravitazionale.

Polare, stella - Stella dell'Orsa minore che approssimativamente indica il polo Nord celeste.

Poli - In generale, estremità dell'asse di rotazione di ogni corpo celeste.

Poli celesti - Punti di intersezione del prolungamento dell'asse terrestre, l'asse celeste, con la sfera celeste.

Poli terrestri - Punti di intersezione dell'asse terrestre con la superficie terrestre.

Precessione degli equinozi - Oscillazione dell'asse terrestre, per effetto della forza gravitazionale del Sole e della Luna sul nostro pianeta, che conferisce un movimento a forma di trottola all'asse celeste, che descrive così un cerchio in circa 26000 anni. Una sua conseguenza è la variazione di tutti i riferimenti celesti, principalmente degli equinozi, che anticipano ogni anno di circa 20 minuti.

Punti cardinali - Intersezioni del meridiano e dell'equatore celeste con l'orizzonte, che in tal modo generano i 4 punti cardinali: Nord, Sud, Est ed Ovest.

Quadratura - Configurazione di un corpo celeste che dalla Terra viene visto ad una distanza angolare di 90 gradi dal Sole.

Raggio vettore - Linea congiungente il Sole con la posizione di un pianeta lungo la sua orbita.

Radiante - Punto apparente del cielo dal quale sembrano provenire le meteore durante una pioggia di stelle cadenti.

Retrogradazione - Particolare spostamento apparente di un pianeta rispetto alla Terra durante il quale la longitudine geocentrica decresce. La retrogradazione è un effetto ottico dovuto ai movimenti della Terra e del pianeta considerato attorno al Sole; accade così che durante la sua normale orbita apparente, il pianeta rallenti, si fermi e poi torni indietro rispetto alle stelle fisse. In seguito rallenterà di nuovo e tornerà a seguire il percorso originario, compiendo una specie di asola tra le stelle.

Retrogrado - Direzione del moto celeste di un pianeta da Est verso Ovest, od anche in senso orario, se osservato dal Nord dell'eclittica.

Rivoluzione - Moto orbitale di uno o più corpi attorno ad un centro di massa.

Rotazione - Moto rotatorio di un corpo celeste attorno ad un asse.

Saros, ciclo di - Periodo di tempo uguale a 18 anni 10 giorni ed 8 ore dopo il quale le eclissi solari e lunari si ripetono alle medesime condizioni.

Satellite - In genere ogni corpo minore che orbita attorno ad un altro di dimensioni molto maggiori. Nel caso della Terra possono essere anche artificiali.

Schiacciamento polare - Appiattimento delle regioni polari di un pianeta, dovuto alla forza centrifuga derivante dal moto di rotazione. In generale rapporto fra il raggio equatoriale e quello polare.

Semiasse maggiore - La metà dell'asse maggiore di ogni orbita ellittica. Si misura in unità astronomiche.

Sestante - Strumento astronomico atto alla misurazione dell'altezza sull'orizzonte del Sole o di qualsiasi altro corpo celeste.

Sfera celeste - Astrazione geometrica di forma sferica, concentrica alla Terra, sulla quale appaiono proiettati tutti i corpi celesti per effetto prospettico.

Siderite - Meteorite costituito quasi completamente da ferro e nickel.

Sigizie - Punti dell'orbita lunare dove la Luna, il Sole e la Terra sono allineati.

Solstizi - Punti dell'eclittica, e corrispondentemente della sfera celeste, dove il Sole raggiunge la massima e minima declinazione del suo percorso annuale apparente. Relativi alle stagioni sono detti solstizio d'inverno e solstizio d'estate.

Stagioni - Intervallo di tempo impiegato dalla Terra per passare da un punto equinoziale ad uno solstiziale e viceversa.

Stelle orarie - Stelle delle quali si conosce con esattezza la posizione celeste, ed usate per la determinazione del tempo siderale.

Superiore - Pianeta la cui orbita è dislocata al di là di quella terrestre.

Tempo solare - Misurazione del tempo basata sul moto diurno ed annuale del Sole nel cielo, e conseguentemente sui moti del pianeta Terra. L'unità di misura è il secondo, sottomultiplo del giorno che è pari a circa 24 ore.

Tempo siderale - Misurazione del tempo basato sull'intervallo di tempo compreso fra due successivi passaggi di una stella al meridiano. Inferiore a quello solare, è pari a 23 ore e 56 minuti.

Tempo universale - Tempo locale del meridiano di Greenwich di longitudine 0°.

Terminatore - Linea di separazione fra l'emisfero illuminato e quello buio di un corpo celeste.

Transito - Passaggio di un corpo celeste al meridiano o davanti al disco di un altro corpo di dimensioni

maggiori.

Troiano - Aggettivo riferito a un asteroide appartenente alla famiglia dei Troiani (vedi Lagrange, punti di).

Tropici - Paralleli delle coordinate geografiche terrestri distanti dall'equatore +23.5 gradi, quello del Cancro, e -23,5 gradi quello del Capricorno. Sono chiamati con i rispettivi nomi delle costellazioni sulle quali appariva proiettato il Sole nell'antichità, ai rispettivi solstizi d'estate e d'inverno, cui ora non corrispondono più per effetto della precessione degli equinozi.

UA , Ua, Unità astronomica - Distanza media della Terra dal Sole. E' pari a 149,6 milioni di km.

Universale, tempo (T.U.) - Corrispondente al tempo medio di Greenwich.

Variabili, stelle - Stelle che variano la propria luminosità in funzione di caratteristiche geometriche (eclissi) o fisiche (alternanza di espansioni e contrazioni).

Velocità radiale - Misura della velocità in relazione alla direzione di osservazione.

Via Lattea - Fascia celeste lattiginosa creata dal piano equatoriale della nostra galassia.

Zenit - Intersezione della verticale del luogo con la volta celeste.

Zodiaco - Settore celeste, concentrico all'eclittica, e suddiviso in dodici segni zodiacali di 30 gradi ciascuno. Rappresenta l'insieme delle 12 costellazioni che il Sole attraversa durante il suo ciclo annuale. A causa della precessione degli equinozi le costellazioni che originariamente occupavano un segno sono attualmente spostate in quello a fianco, anche se per convenzione gli astronomi hanno sinora mantenuto la disposizione iniziale dei segni zodiacali.

Zodiacale, luce - Luminosità dovuta a nubi di polvere interplanetaria, che illuminata dalla luce solare è vista all'alba od al tramonto in direzione dell'eclittica essendo appunto situata lungo il suo piano.

ELENCO DEI COPYRIGHT DI ALCUNE TABELLE ED ILLUSTRAZIONI

- (1) ICE - Interactive computer ephemeris
- (2) www.sym454.org
- (3) Planets visibility, Alcyone software, freeware
- (4) Alcyone ephemeris
- (5) Ephemeris tools, <http://virtualskysoft.de>
- (6) Solex, A.Vitagliano
- (7) <http://www.iota-es.de/>
- (8) Win Occult
- (9) Minor Planets software, S.Foglia
- (10) <http://www.aerith.net>
- (11) Accurate times

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