

# **ALMANACCO ASTRONOMICO 2007**



**Pierpaolo Ricci**

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Buona lettura.**

**Ricci Pier Paolo**

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

**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

Il presente almanacco astronomico riporta tutti i principali fenomeni celesti che avvengono nel corrente anno.

Ho volutamente scelto di includere principalmente fenomeni che saranno visibili ad occhio nudo e che saranno notevoli per la loro spettacolarità e rarità, oltre alle classiche tabelle di effemeridi di Sole, Luna, pianeti e corpi minori.

E' stato posto il massimo rigore nei calcoli e salvo ove indicato tutti i tempi sono espressi in Tempo Universale: ricordarsi pertanto di aggiungere un'ora in inverno e due ore in estate per il calcolo della visibilità. Generalmente gli eventi topocentrici sono espressi in UT, mentri quelli geocentrici in TDT. La differenza TDT-UT nel 2007 sarà 65 secondi.

Salvo evidenti tabelle di provenienza siti astronomici internet l'Almanacco si basa su software sviluppati da me mediante utilizzo delle formule di J.Meeus. Le tabelle relative alle congiunzioni tra pianeti e quelle degli asteroidi sono state elaborate mediante il programma Solex.

Le tabelle di visibilità sono state fatte con software commerciali.

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

Gli eventi in coordinate topocentriche sono calcolati per Rovereto, 46° N - 11° E.

Tutti i dati sono aggiornati al 1/1/2007. Aggiornamenti ulteriori e dettagli di tutti i fenomeni saranno resi noti nella sede astronomica mese per mese.

Per qualsiasi chiarimento o inesattezza scrivetemi: [ricci.pierpaolo@libero.it](mailto:ricci.pierpaolo@libero.it)

Per i copyright © relativi ad alcune tabelle fare riferimento all'indice (x) presente e consultare la nota a fine almanacco.





# CALENDARIO

Gennaio	Febbraio	Marzo	Aprile	Maggio	Giugno	Luglio	Agosto	Settembre	Ottobre	Novembre	Dicembre
1 L	1 G	1 G	1 D	1 M	1 V	1 D	1 M	1 S	1 L	1 G	1 S
2 M	2 V	2 V	2 L	2 M	2 S	2 L	2 G	2 D	2 M	2 V	2 D
3 M	3 S	3 S	3 M	3 G	3 D	3 M	3 V	3 L	3 M	3 S	3 L
4 G	4 D	4 D	4 M	4 V	4 L	4 M	4 S	4 M	4 G	4 D	4 M
5 V	5 L	5 L	5 G	5 S	5 M	5 G	5 D	5 M	5 V	5 L	5 M
6 S	6 M	6 M	6 V	6 D	6 M	6 V	6 L	6 G	6 S	6 M	6 G
7 D	7 M	7 M	7 S	7 L	7 G	7 S	7 M	7 V	7 D	7 M	7 V
8 L	8 G	8 G	8 D	8 M	8 V	8 D	8 M	8 S	8 L	8 G	8 S
9 M	9 V	9 V	9 L	9 M	9 S	9 L	9 G	9 D	9 M	9 V	9 D
10 M	10 S	10 S	10 M	10 G	10 D	10 M	10 V	10 L	10 M	10 S	10 L
11 G	11 D	11 D	11 M	11 V	11 L	11 M	11 S	11 M	11 G	11 D	11 M
12 V	12 L	12 L	12 G	12 S	12 M	12 G	12 D	12 M	12 V	12 L	12 M
13 S	13 M	13 M	13 V	13 D	13 M	13 V	13 L	13 G	13 S	13 M	13 G
14 D	14 M	14 M	14 S	14 L	14 G	14 S	14 M	14 V	14 D	14 M	14 V
15 L	15 G	15 G	15 D	15 M	15 V	15 D	15 M	15 S	15 L	15 G	15 S
16 M	16 V	16 V	16 L	16 M	16 S	16 L	16 G	16 D	16 M	16 V	16 D
17 M	17 S	17 S	17 M	17 G	17 D	17 M	17 V	17 L	17 M	17 S	17 L
18 G	18 D	18 D	18 M	18 V	18 L	18 M	18 S	18 M	18 G	18 D	18 M
19 V	19 L	19 L	19 G	19 S	19 M	19 G	19 D	19 M	19 V	19 L	19 M
20 S	20 M	20 M	20 V	20 D	20 M	20 V	20 L	20 G	20 S	20 M	20 G
21 D	21 M	21 M	21 S	21 L	21 G	21 S	21 M	21 V	21 D	21 M	21 V
22 L	22 G	22 G	22 D	22 M	22 V	22 D	22 M	22 S	22 L	22 G	22 S
23 M	23 V	23 V	23 L	23 M	23 S	23 L	23 G	23 D	23 M	23 V	23 D
24 M	24 S	24 S	24 M	24 G	24 D	24 M	24 V	24 L	24 M	24 S	24 L
25 G	25 D	25 D	25 M	25 V	25 L	25 M	25 S	25 M	25 G	25 D	25 M
26 V	26 L	26 L	26 G	26 S	26 M	26 G	26 D	26 M	26 V	26 L	26 M
27 S	27 M	27 M	27 V	27 D	27 M	27 V	27 L	27 G	27 S	27 M	27 G
28 D	28 M	28 M	28 S	28 L	28 G	28 S	28 M	28 V	28 D	28 M	28 V
29 L		29 G	29 D	29 M	29 V	29 D	29 M	29 S	29 L	29 G	29 S
30 M		30 V	30 L	30 M	30 S	30 L	30 G	30 D	30 M	30 V	30 D
31 M		31 S		31 G		31 M	31 V		31 M		31 L
Gennaio	Febbraio	Marzo	Aprile	Maggio	Giugno	Luglio	Agosto	Settembre	Ottobre	Novembre	Dicembre

# 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, 27-09-2008), trovare la lettera (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 07): quindi G.

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.

Ricordiamo 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 (settembre): nel nostro caso, nella seconda colonna. Infine, nella stessa colonna verticale (cioè la seconda), 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 27): e abbiamo che era G, giovedì. Si tenga presente che M (maiuscolo) sta per martedì e m (minuscolo) sta per mercoledì.

# PASQUA

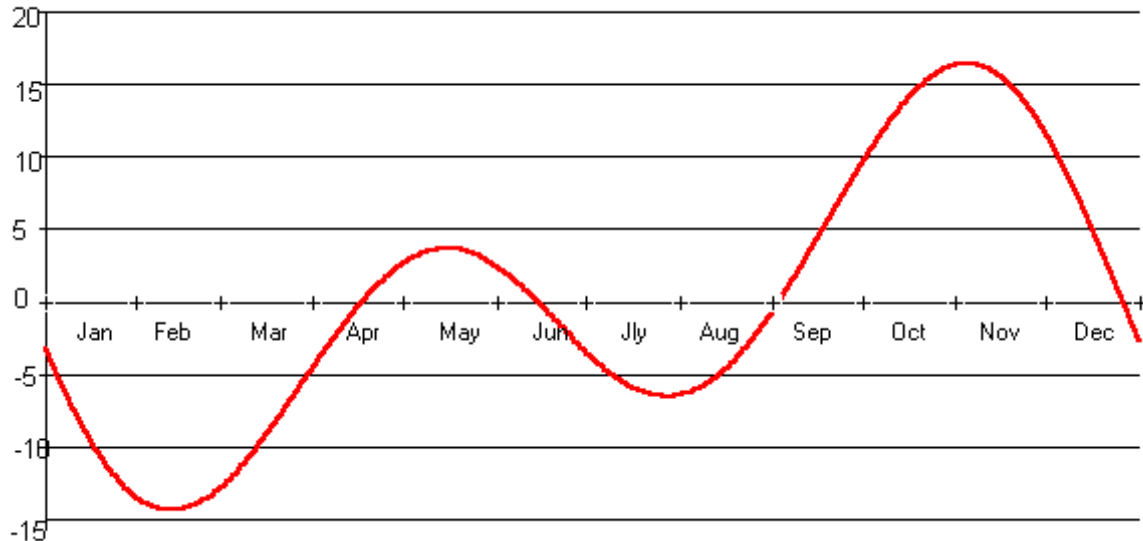
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07/04/1901	14/04/1968	25/03/2035
30/03/1902	06/04/1969	13/04/2036
12/04/1903	29/03/1970	05/04/2037
03/04/1904	11/04/1971	25/04/2038
23/04/1905	02/04/1972	10/04/2039
15/04/1906	22/04/1973	01/04/2040
31/03/1907	14/04/1974	21/04/2041
19/04/1908	30/03/1975	06/04/2042
11/04/1909	18/04/1976	29/03/2043
27/03/1910	10/04/1977	17/04/2044
16/04/1911	26/03/1978	09/04/2045
07/04/1912	15/04/1979	25/03/2046
23/03/1913	06/04/1980	14/04/2047
12/04/1914	19/04/1981	05/04/2048
04/04/1915	11/04/1982	18/04/2049
23/04/1916	03/04/1983	10/04/2050
08/04/1917	22/04/1984	02/04/2051
31/03/1918	07/04/1985	21/04/2052
20/04/1919	30/03/1986	06/04/2053
04/04/1920	19/04/1987	29/03/2054
27/03/1921	03/04/1988	18/04/2055
16/04/1922	26/03/1989	02/04/2056
01/04/1923	15/04/1990	22/04/2057
20/04/1924	31/03/1991	14/04/2058
12/04/1925	19/04/1992	30/03/2059
04/04/1926	11/04/1993	18/04/2060
17/04/1927	03/04/1994	10/04/2061
08/04/1928	16/04/1995	26/03/2062
31/03/1929	07/04/1996	15/04/2063
20/04/1930	30/03/1997	06/04/2064
05/04/1931	12/04/1998	29/03/2065
27/03/1932	04/04/1999	11/04/2066
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01/04/1934	15/04/2001	22/04/2068
21/04/1935	31/03/2002	14/04/2069
12/04/1936	20/04/2003	30/03/2070
28/03/1937	11/04/2004	19/04/2071
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09/04/1939	16/04/2006	26/03/2073
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01/04/1956	09/04/2023	16/04/2090
21/04/1957	31/03/2024	08/04/2091
06/04/1958	20/04/2025	30/03/2092
29/03/1959	05/04/2026	12/04/2093
17/04/1960	28/03/2027	04/04/2094
02/04/1961	16/04/2028	24/04/2095
22/04/1962	01/04/2029	15/04/2096
14/04/1963	21/04/2030	31/03/2097
29/03/1964	13/04/2031	20/04/2098
18/04/1965	28/03/2032	12/04/2099
10/04/1966	17/04/2033	28/03/2100

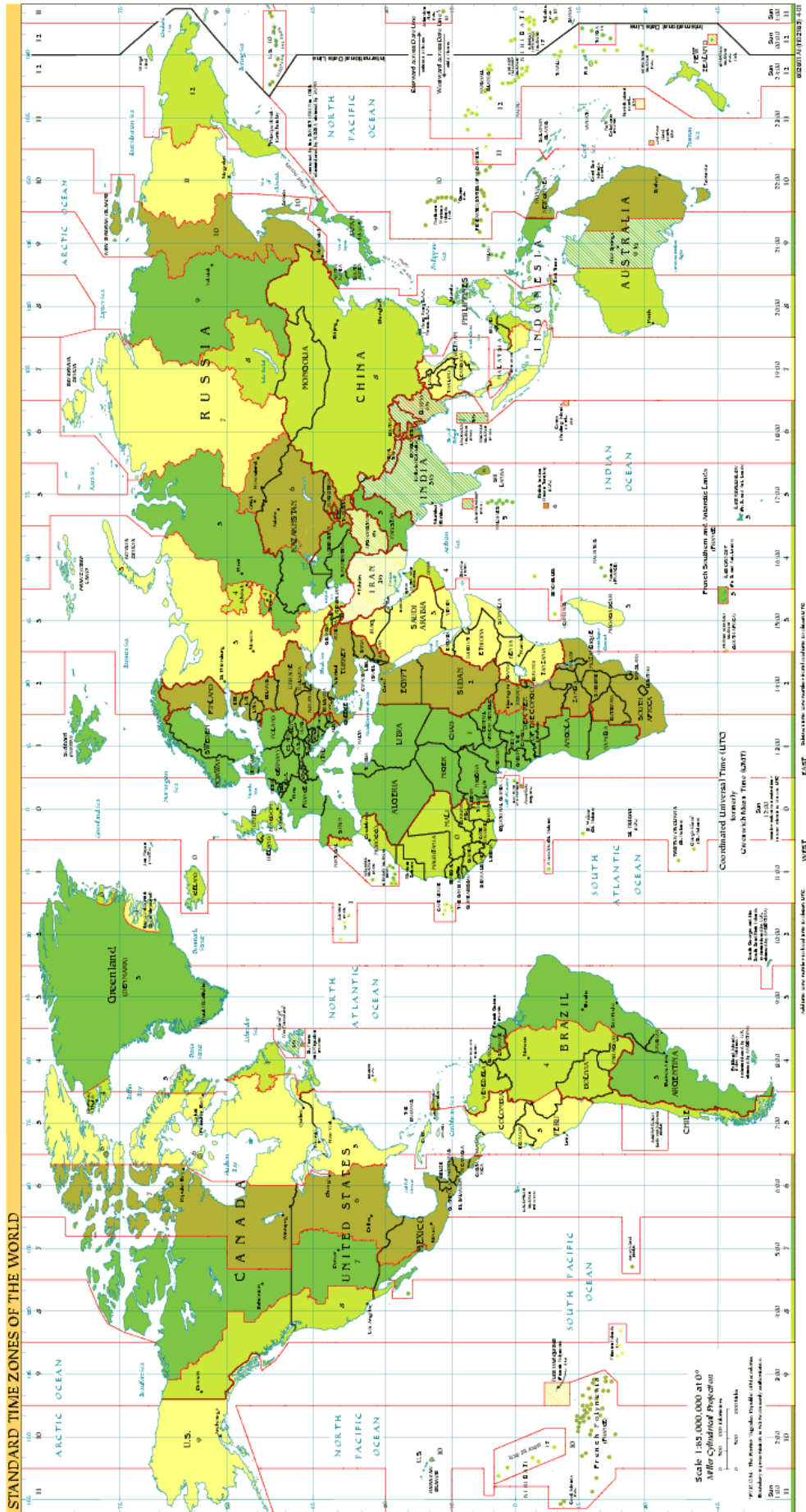
# EQUAZIONE DEL TEMPO

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





# 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\*, Goiás\*, Maranhão, Minas Gerais\*, Para (orientale), Paraíba, Parana\*, Pernambuco, Piauí, 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-Occidentale, Kasai-Orientale, 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 , Azerbaigian\* ,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

# EFFEMERIDI DEL SOLE

		LATITUDINE 46 N		LONGITUDINE -11 E		ALTEZZA S.L.M. 220							
DATA	(G,MS,AA,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PARAL.	DIAM.' ''	ALT.	POLO	Bø	Lø	NRC
1/	1/2007/ 0/ 0	18 44 16	-23 3 2	18 44 16	-23 3 5	0.9832855	8.94	32 31.88	-65.61	2.23	-2.98	98.73	2051
2/	1/2007/ 0/ 0	18 48 41	-22 58 8	18 48 41	-22 58 12	0.9832705	8.94	32 31.91	-65.56	1.75	-3.10	85.56	2051
3/	1/2007/ 0/ 0	18 53 5	-22 52 47	18 53 5	-22 52 50	0.9832620	8.94	32 31.93	-65.50	1.26	-3.21	72.39	2051
4/	1/2007/ 0/ 0	18 57 29	-22 46 58	18 57 30	-22 47 2	0.9832599	8.94	32 31.94	-65.44	0.78	-3.33	59.22	2051
5/	1/2007/ 0/ 0	19 1 53	-22 40 43	19 1 53	-22 40 46	0.9832644	8.94	32 31.93	-65.37	0.29	-3.44	46.05	2051
6/	1/2007/ 0/ 0	19 6 17	-22 33 60	19 6 17	-22 34 4	0.9832753	8.94	32 31.91	-65.29	-0.19	-3.55	32.88	2051
7/	1/2007/ 0/ 0	19 10 39	-22 26 51	19 10 40	-22 26 54	0.9832923	8.94	32 31.87	-65.21	-0.67	-3.67	19.71	2051
8/	1/2007/ 0/ 0	19 15 2	-22 19 15	19 15 2	-22 19 18	0.9833155	8.94	32 31.83	-65.11	-1.16	-3.78	6.54	2051
9/	1/2007/ 0/ 0	19 19 24	-22 11 13	19 19 24	-22 11 16	0.9833445	8.94	32 31.77	-65.01	-1.64	-3.88	353.37	2052
10/	1/2007/ 0/ 0	19 23 45	-22 2 44	19 23 45	-22 2 48	0.9833791	8.94	32 31.70	-64.90	-2.12	-3.99	340.20	2052
11/	1/2007/ 0/ 0	19 28 6	-21 53 50	19 28 6	-21 53 54	0.9834192	8.94	32 31.62	-64.78	-2.60	-4.10	327.03	2052
12/	1/2007/ 0/ 0	19 32 26	-21 44 30	19 32 27	-21 44 34	0.9834644	8.94	32 31.53	-64.65	-3.07	-4.21	313.87	2052
13/	1/2007/ 0/ 0	19 36 46	-21 34 45	19 36 46	-21 34 48	0.9835146	8.94	32 31.43	-64.52	-3.55	-4.31	300.70	2052
14/	1/2007/ 0/ 0	19 41 5	-21 24 34	19 41 5	-21 24 38	0.9835695	8.94	32 31.32	-64.37	-4.02	-4.41	287.53	2052
15/	1/2007/ 0/ 0	19 45 24	-21 13 59	19 45 24	-21 14 3	0.9836289	8.94	32 31.20	-64.22	-4.49	-4.51	274.36	2052
16/	1/2007/ 0/ 0	19 49 42	-21 2 59	19 49 42	-21 3 3	0.9836925	8.94	32 31.08	-64.07	-4.96	-4.61	261.20	2052
17/	1/2007/ 0/ 0	19 53 59	-20 51 35	19 53 59	-20 51 39	0.9837601	8.94	32 30.94	-63.90	-5.43	-4.71	248.03	2052
18/	1/2007/ 0/ 0	19 58 16	-20 39 47	19 58 16	-20 39 51	0.9838314	8.94	32 30.80	-63.73	-5.89	-4.81	234.86	2052
19/	1/2007/ 0/ 0	20 2 31	-20 27 35	20 2 32	-20 27 39	0.9839063	8.94	32 30.65	-63.55	-6.35	-4.91	221.69	2052
20/	1/2007/ 0/ 0	20 6 47	-20 15 1	20 6 47	-20 15 5	0.9839847	8.94	32 30.50	-63.36	-6.81	-5.00	208.53	2052
21/	1/2007/ 0/ 0	20 11 1	-20 2 3	20 11 1	-20 2 7	0.9840665	8.94	32 30.34	-63.16	-7.26	-5.09	195.36	2052
22/	1/2007/ 0/ 0	20 15 15	-19 48 43	20 15 15	-19 48 47	0.9841518	8.94	32 30.17	-62.96	-7.71	-5.18	182.20	2052
23/	1/2007/ 0/ 0	20 19 27	-19 35 1	20 19 27	-19 35 5	0.9842407	8.93	32 29.99	-62.75	-8.16	-5.27	169.03	2052
24/	1/2007/ 0/ 0	20 23 39	-19 20 57	20 23 39	-19 21 1	0.9843334	8.93	32 29.81	-62.54	-8.60	-5.36	155.86	2052
25/	1/2007/ 0/ 0	20 27 51	-19 6 32	20 27 51	-19 6 36	0.9844302	8.93	32 29.62	-62.31	-9.05	-5.45	142.70	2052
26/	1/2007/ 0/ 0	20 32 1	-18 51 45	20 32 1	-18 51 49	0.9845313	8.93	32 29.41	-62.08	-9.48	-5.53	129.53	2052
27/	1/2007/ 0/ 0	20 36 11	-18 36 38	20 36 11	-18 36 43	0.9846372	8.93	32 29.21	-61.85	-9.92	-5.61	116.36	2052
28/	1/2007/ 0/ 0	20 40 19	-18 21 11	20 40 19	-18 21 16	0.9847481	8.93	32 28.99	-61.61	-10.34	-5.69	103.20	2052
29/	1/2007/ 0/ 0	20 44 27	-18 5 25	20 44 27	-18 5 29	0.9848646	8.93	32 28.76	-61.36	-10.77	-5.77	90.03	2052
30/	1/2007/ 0/ 0	20 48 34	-17 49 18	20 48 35	-17 49 23	0.9849860	8.93	32 28.52	-61.10	-11.19	-5.85	76.86	2052
31/	1/2007/ 0/ 0	20 52 41	-17 32 53	20 52 41	-17 32 57	0.9851134	8.93	32 28.26	-60.84	-11.61	-5.92	63.70	2052
1/	2/2007/ 0/ 0	20 56 46	-17 16 9	20 56 46	-17 16 14	0.9852466	8.93	32 28.00	-60.58	-12.02	-6.00	50.53	2052
2/	2/2007/ 0/ 0	21 0 51	-16 59 7	21 0 51	-16 59 12	0.9853856	8.92	32 27.72	-60.30	-12.42	-6.07	37.36	2052
3/	2/2007/ 0/ 0	21 4 55	-16 41 48	21 4 55	-16 41 52	0.9855303	8.92	32 27.44	-60.02	-12.83	-6.14	24.20	2052
4/	2/2007/ 0/ 0	21 8 58	-16 24 10	21 8 58	-16 24 15	0.9856806	8.92	32 27.14	-59.74	-13.22	-6.20	11.03	2052
5/	2/2007/ 0/ 0	21 12 60	-16 6 16	21 12 60	-16 6 20	0.9858365	8.92	32 26.83	-59.45	-13.62	-6.27	357.86	2053
6/	2/2007/ 0/ 0	21 17 1	-15 48 5	21 17 1	-15 48 9	0.9859977	8.92	32 26.52	-59.15	-14.01	-6.33	344.70	2053
7/	2/2007/ 0/ 0	21 21 2	-15 29 37	21 21 2	-15 29 42	0.9861640	8.92	32 26.19	-58.85	-14.39	-6.40	331.53	2053
8/	2/2007/ 0/ 0	21 25 2	-15 10 54	21 25 2	-15 10 59	0.9863352	8.92	32 25.85	-58.55	-14.77	-6.45	318.36	2053
9/	2/2007/ 0/ 0	21 29 1	-14 51 55	21 29 1	-14 51 60	0.9865111	8.91	32 25.50	-58.24	-15.14	-6.51	305.20	2053
10/	2/2007/ 0/ 0	21 32 59	-14 32 41	21 32 59	-14 32 46	0.9866914	8.91	32 25.15	-57.92	-15.51	-6.57	292.03	2053
11/	2/2007/ 0/ 0	21 36 57	-14 13 12	21 36 57	-14 13 17	0.9868757	8.91	32 24.78	-57.61	-15.87	-6.62	278.86	2053
12/	2/2007/ 0/ 0	21 40 53	-13 53 29	21 40 53	-13 53 34	0.9870639	8.91	32 24.41	-57.28	-16.23	-6.67	265.70	2053
13/	2/2007/ 0/ 0	21 44 49	-13 33 32	21 44 49	-13 33 37	0.9872556	8.91	32 24.04	-56.95	-16.58	-6.72	252.53	2053
14/	2/2007/ 0/ 0	21 48 45	-13 13 22	21 48 45	-13 13 27	0.9874505	8.91	32 23.65	-56.62	-16.93	-6.77	239.36	2053
15/	2/2007/ 0/ 0	21 52 39	-12 52 59	21 52 39	-12 53 4	0.9876482	8.90	32 23.26	-56.28	-17.27	-6.81	226.19	2053
16/	2/2007/ 0/ 0	21 56 33	-12 32 23	21 56 33	-12 32 28	0.9878485	8.90	32 22.87	-55.94	-17.60	-6.86	213.03	2053
17/	2/2007/ 0/ 0	22 0 26	-12 11 35	22 0 26	-12 11 40	0.9880510	8.90	32 22.47	-55.60	-17.93	-6.90	199.86	2053
18/	2/2007/ 0/ 0	22 4 19	-11 50 35	22 4 19	-11 50 40	0.9882557	8.90	32 22.07	-55.25	-18.26	-6.93	186.69	2053
19/	2/2007/ 0/ 0	22 8 10	-11 29 24	22 8 10	-11 29 29	0.9884623	8.90	32 21.66	-54.90	-18.58	-6.97	173.52	2053
20/	2/2007/ 0/ 0	22 12 1	-11 8 2	22 12 1	-11 8 7	0.9886710	8.89	32 21.25	-54.54	-18.89	-7.01	160.35	2053
21/	2/2007/ 0/ 0	22 15 52	-10 46 30	22 15 52	-10 46 35	0.9888817	8.89	32 20.84	-54.19	-19.19	-7.04	147.18	2053
22/	2/2007/ 0/ 0	22 19 41	-10 24 47	22 19 41	-10 24 53	0.9890946	8.89	32 20.42	-53.82	-19.49	-7.07	134.02	2053
23/	2/2007/ 0/ 0	22 23 30	-10 2 56	22 23 30	-10 3 1	0.9893099	8.89	32 20.00	-53.46	-19.79	-7.09	120.85	2053
24/	2/2007/ 0/ 0	22 27 19	-9 40 55	22 27 19	-9 41 0	0.9895279	8.89	32 19.57	-53.09	-20.08	-7.12	107.68	2053
25/	2/2007/ 0/ 0	22 31 7	-9 18 45	22 31 7	-9 18 51	0.9897489	8.89	32 19.14	-52.72	-20.36	-7.14	94.50	2053
26/	2/2007/ 0/ 0	22 34 54	-8 56 28	22 34 54	-8 56 33	0.9899731	8.88	32 18.70	-52.35	-20.64	-7.16	81.33	2053
27/	2/2007/ 0/ 0	22 38 40	-8 34 2	22 38 40	-8 34 7	0.9902008	8.88	32 18.25	-51.97	-20.91	-7.18	68.16	2053
28/	2/2007/ 0/ 0	22 42 26	-8 11 29	22 42 26	-8 11 34	0.9904321	8.88	32 17.80	-51.59	-21.17	-7.20	54.99	2053
1/	3/2007/ 0/ 0	22 46 12	-7 48 49	22 46 12	-7 48 54	0.9906673	8.88	32 17.34	-51.21	-21.43	-7.21	41.82	2053
2/	3/2007/ 0/ 0	22 49 57	-7 26 2	22 49 57	-7 26 7	0.9909063	8.87	32 16.87	-50.83	-21.68	-7.22	28.64	2053
3/	3/2007/ 0/ 0	22 53 41	-7 3 9	22 53 41	-7 3 14	0.9911493	8.87	32 16.40	-50.45	-21.92	-7.23	15.47	2053
4/	3/2007/ 0/ 0	22 57 25	-6 40 10	22 57 25	-6 40 15	0.9913961	8.87	32 15.92	-50.06	-22.16	-7.24	2.30	2053
5/	3/2007/ 0/ 0	23 1 9	-6 17 5	23 1 9	-6 17 11	0.9916466	8.87	32 15.43	-49.67	-22.40	-7.25	349.12	2054
6/	3/2007/ 0/ 0	23 4 52	-5 53 55	23 4 52	-5 54 1	0.9919008	8.87	32 14.93	-49.28	-22.62	-7.25	335.95	2054
7/	3/2007/ 0/ 0	23 8 34	-5 30 40	23 8 34	-5 30 46	0.9921585	8.86	32 14.43	-48.89	-22.84	-7.25	324.77	2054
8/	3/2007/ 0/ 0	23 12 16	-5 7 21	23 12 16	-5 7 27	0.9924195	8.86	32 13.92	-48.50	-23.05	-7.25	313.60	2054
9/	3/2007/ 0/ 0	23 15 58	-4 43 57	23 15 58	-4 44 3	0.9926835	8.86	32 13.41	-48.10	-23.26	-7.24	302.42	2054
10/	3/2007/ 0/ 0	23 19 40	-4 20 30	23 19 40	-4 20 36	0.9929505	8.86	32 12.89	-47.71	-23.46	-7.24	291.24	2054
11/	3/2007/ 0/ 0	23 23 21	-3 56 59	23 23 21	-3 57 5	0.9932200	8.85	32 12.36	-47.31	-23.65	-7.23	280.07	2054
12/	3/2007/ 0/ 0	23 27 2	-3 33 26	23 27 2	-3 33 31	0.9934917	8.85	32 11.83	-46.91	-23.84	-7.22	268.89	2054
13/	3/2007/ 0/ 0	23 30 42	-3 9 49	23 30 42	-3 9 55	0.9937654	8.85	32 11.30	-46.51	-24.02	-7.21	257.71	2054
14/	3/2007/ 0/ 0	23 34 23	-2 46 10	23 34 23	-2 46 16	0.9940406	8.85	32 10.77	-46.11	-24.20	-7.19	246.53	2054
15/	3/2007/ 0/ 0	23 38 3	-2 22 3										



DATA	(G,MS,AA,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PARAL.	DIAM.' ''	ALT.	POLO	Bø	Lø	NRC
10/	4/2007/ 0/ 0	1 12 56	7 43 30	1 12 56	7 43 23	1.0016595	8.78	31 56.08	-35.44	-26.26	-6.01	54.43	2055
11/	4/2007/ 0/ 0	1 16 36	8 5 42	1 16 36	8 5 35	1.0019511	8.78	31 55.52	-35.07	-26.23	-5.94	41.23	2055
12/	4/2007/ 0/ 0	1 20 17	8 27 46	1 20 17	8 27 39	1.0022420	8.77	31 54.97	-34.69	-26.20	-5.87	28.03	2055
13/	4/2007/ 0/ 0	1 23 58	8 49 42	1 23 58	8 49 35	1.0025317	8.77	31 54.41	-34.32	-26.16	-5.80	14.83	2055
14/	4/2007/ 0/ 0	1 27 39	9 11 29	1 27 39	9 11 22	1.0028198	8.77	31 53.86	-33.96	-26.12	-5.72	1.63	2055
15/	4/2007/ 0/ 0	1 31 21	9 33 7	1 31 21	9 32 60	1.0031060	8.77	31 53.32	-33.59	-26.06	-5.64	-11.57	2055
16/	4/2007/ 0/ 0	1 35 3	9 54 35	1 35 3	9 54 28	1.0033899	8.76	31 52.78	-33.23	-26.00	-5.57	-24.78	2055
17/	4/2007/ 0/ 0	1 38 45	10 15 54	1 38 45	10 15 47	1.0036712	8.76	31 52.24	-32.87	-25.94	-5.49	-37.98	2055
18/	4/2007/ 0/ 0	1 42 28	10 37 3	1 42 28	10 36 55	1.0039499	8.76	31 51.71	-32.51	-25.86	-5.40	308.82	2055
19/	4/2007/ 0/ 0	1 46 11	10 58 1	1 46 11	10 57 53	1.0042258	8.76	31 51.18	-32.16	-25.78	-5.32	295.61	2055
20/	4/2007/ 0/ 0	1 49 55	11 18 48	1 49 55	11 18 40	1.0044990	8.75	31 50.66	-31.81	-25.69	-5.24	282.40	2055
21/	4/2007/ 0/ 0	1 53 39	11 39 23	1 53 39	11 39 16	1.0047695	8.75	31 50.15	-31.46	-25.59	-5.15	269.20	2055
22/	4/2007/ 0/ 0	1 57 23	11 59 48	1 57 23	11 59 40	1.0050375	8.75	31 49.64	-31.12	-25.49	-5.06	255.99	2055
23/	4/2007/ 0/ 0	2 1 8	12 19 60	2 1 8	12 19 52	1.0053033	8.75	31 49.14	-30.78	-25.37	-4.97	242.78	2055
24/	4/2007/ 0/ 0	2 4 53	12 39 60	2 4 53	12 39 52	1.0055671	8.75	31 48.63	-30.44	-25.25	-4.88	229.57	2055
25/	4/2007/ 0/ 0	2 8 39	12 59 47	2 8 39	12 59 39	1.0058290	8.74	31 48.14	-30.11	-25.13	-4.79	216.36	2055
26/	4/2007/ 0/ 0	2 12 25	13 19 21	2 12 25	13 19 14	1.0060894	8.74	31 47.64	-29.78	-24.99	-4.70	203.15	2055
27/	4/2007/ 0/ 0	2 16 11	13 38 42	2 16 12	13 38 35	1.0063484	8.74	31 47.15	-29.45	-24.85	-4.60	189.93	2055
28/	4/2007/ 0/ 0	2 19 59	13 57 50	2 19 59	13 57 42	1.0066061	8.74	31 46.66	-29.13	-24.70	-4.51	176.72	2056
29/	4/2007/ 0/ 0	2 23 46	14 16 43	2 23 46	14 16 36	1.0068626	8.73	31 46.18	-28.82	-24.55	-4.41	163.51	2056
30/	4/2007/ 0/ 0	2 27 34	14 35 23	2 27 34	14 35 15	1.0071181	8.73	31 45.70	-28.50	-24.38	-4.31	150.29	2056
1/	5/2007/ 0/ 0	2 31 23	14 53 48	2 31 23	14 53 40	1.0073725	8.73	31 45.21	-28.19	-24.21	-4.21	137.07	2056
2/	5/2007/ 0/ 0	2 35 12	15 11 58	2 35 12	15 11 50	1.0076259	8.73	31 44.73	-27.89	-24.04	-4.11	123.86	2056
3/	5/2007/ 0/ 0	2 39 2	15 29 53	2 39 2	15 29 45	1.0078782	8.73	31 44.26	-27.59	-23.85	-4.01	110.64	2056
4/	5/2007/ 0/ 0	2 42 52	15 47 33	2 42 52	15 47 25	1.0081294	8.72	31 43.78	-27.30	-23.66	-3.91	97.42	2056
5/	5/2007/ 0/ 0	2 46 43	16 4 57	2 46 43	16 4 49	1.0083794	8.72	31 43.31	-27.01	-23.46	-3.80	84.20	2056
6/	5/2007/ 0/ 0	2 50 34	16 22 5	2 50 34	16 21 58	1.0086281	8.72	31 42.84	-26.72	-23.25	-3.70	70.98	2056
7/	5/2007/ 0/ 0	2 54 26	16 38 57	2 54 26	16 38 50	1.0088753	8.72	31 42.38	-26.44	-23.04	-3.59	57.76	2056
8/	5/2007/ 0/ 0	2 58 18	16 55 33	2 58 19	16 55 25	1.0091207	8.71	31 41.91	-26.17	-22.82	-3.49	44.54	2056
9/	5/2007/ 0/ 0	3 2 12	17 11 52	3 2 12	17 11 44	1.0093640	8.71	31 41.45	-25.90	-22.59	-3.38	31.32	2056
10/	5/2007/ 0/ 0	3 6 5	17 27 53	3 6 5	17 27 46	1.0096049	8.71	31 41.00	-25.63	-22.36	-3.27	18.10	2056
11/	5/2007/ 0/ 0	3 9 59	17 43 37	3 9 60	17 43 30	1.0098431	8.71	31 40.55	-25.37	-22.12	-3.16	4.88	2056
12/	5/2007/ 0/ 0	3 13 54	17 59 4	3 13 54	17 58 56	1.0100779	8.71	31 40.11	-25.11	-21.87	-3.05	-8.35	2056
13/	5/2007/ 0/ 0	3 17 50	18 14 12	3 17 50	18 14 4	1.0103092	8.70	31 39.68	-24.86	-21.62	-2.94	-21.57	2056
14/	5/2007/ 0/ 0	3 21 46	18 29 2	3 21 46	18 28 54	1.0105365	8.70	31 39.25	-24.62	-21.35	-2.83	325.21	2056
15/	5/2007/ 0/ 0	3 25 42	18 43 33	3 25 43	18 43 25	1.0107594	8.70	31 38.83	-24.38	-21.09	-2.72	311.98	2056
16/	5/2007/ 0/ 0	3 29 40	18 57 45	3 29 40	18 57 37	1.0109778	8.70	31 38.42	-24.15	-20.81	-2.60	298.76	2056
17/	5/2007/ 0/ 0	3 33 37	19 11 38	3 33 38	19 11 30	1.0111914	8.70	31 38.02	-23.92	-20.53	-2.49	285.53	2056
18/	5/2007/ 0/ 0	3 37 36	19 25 12	3 37 36	19 25 4	1.0114002	8.69	31 37.63	-23.70	-20.24	-2.37	272.31	2056
19/	5/2007/ 0/ 0	3 41 35	19 38 25	3 41 35	19 38 17	1.0116042	8.69	31 37.24	-23.48	-19.95	-2.26	259.08	2056
20/	5/2007/ 0/ 0	3 45 34	19 51 19	3 45 34	19 51 11	1.0118036	8.69	31 36.87	-23.27	-19.65	-2.14	245.85	2056
21/	5/2007/ 0/ 0	3 49 34	20 3 52	3 49 34	20 3 44	1.0119985	8.69	31 36.50	-23.07	-19.34	-2.03	232.62	2056
22/	5/2007/ 0/ 0	3 53 35	20 16 4	3 53 35	20 15 56	1.0121891	8.69	31 36.15	-22.87	-19.03	-1.91	219.39	2056
23/	5/2007/ 0/ 0	3 57 36	20 27 56	3 57 36	20 27 48	1.0123756	8.69	31 35.80	-22.68	-18.71	-1.79	206.16	2056
24/	5/2007/ 0/ 0	4 1 37	20 39 26	4 1 37	20 39 18	1.0125583	8.68	31 35.46	-22.49	-18.39	-1.67	192.93	2056
25/	5/2007/ 0/ 0	4 5 39	20 50 35	4 5 39	20 50 27	1.0127373	8.68	31 35.12	-22.31	-18.05	-1.56	179.70	2057
26/	5/2007/ 0/ 0	4 9 42	21 1 23	4 9 42	21 1 15	1.0129130	8.68	31 34.79	-22.13	-17.72	-1.44	166.47	2057
27/	5/2007/ 0/ 0	4 13 44	21 11 48	4 13 45	21 11 40	1.0130853	8.68	31 34.47	-21.97	-17.38	-1.32	153.24	2057
28/	5/2007/ 0/ 0	4 17 48	21 21 52	4 17 48	21 21 44	1.0132546	8.68	31 34.15	-21.80	-17.03	-1.20	140.01	2057
29/	5/2007/ 0/ 0	4 21 52	21 31 33	4 21 52	21 31 25	1.0134209	8.68	31 33.84	-21.65	-16.68	-1.08	126.78	2057
30/	5/2007/ 0/ 0	4 25 56	21 40 52	4 25 56	21 40 44	1.0135843	8.68	31 33.54	-21.50	-16.32	-0.96	113.55	2057
31/	5/2007/ 0/ 0	4 30 1	21 49 49	4 30 1	21 49 41	1.0137450	8.67	31 33.24	-21.36	-15.96	-0.84	100.31	2057
1/	6/2007/ 0/ 0	4 34 6	21 58 23	4 34 6	21 58 15	1.0139028	8.67	31 32.94	-21.22	-15.59	-0.72	87.08	2057
2/	6/2007/ 0/ 0	4 38 11	22 6 33	4 38 12	22 6 25	1.0140580	8.67	31 32.65	-21.09	-15.22	-0.60	73.84	2057
3/	6/2007/ 0/ 0	4 42 17	22 14 21	4 42 18	22 14 13	1.0142104	8.67	31 32.37	-20.97	-14.84	-0.48	60.61	2057
4/	6/2007/ 0/ 0	4 46 24	22 21 46	4 46 24	22 21 38	1.0143600	8.67	31 32.09	-20.85	-14.45	-0.36	47.38	2057
5/	6/2007/ 0/ 0	4 50 30	22 28 47	4 50 31	22 28 39	1.0145066	8.67	31 31.82	-20.74	-14.07	-0.24	34.14	2057
6/	6/2007/ 0/ 0	4 54 38	22 35 25	4 54 38	22 35 17	1.0146500	8.67	31 31.55	-20.64	-13.68	-0.12	20.91	2057
7/	6/2007/ 0/ 0	4 58 45	22 41 39	4 58 45	22 41 31	1.0147900	8.67	31 31.29	-20.54	-13.28	0.00	7.67	2057
8/	6/2007/ 0/ 0	5 2 53	22 47 29	5 2 53	22 47 21	1.0149261	8.66	31 31.03	-20.45	-12.88	0.13	354.44	2057
9/	6/2007/ 0/ 0	5 7 1	22 52 55	5 7 1	22 52 47	1.0150582	8.66	31 30.79	-20.37	-12.48	0.25	341.20	2057
10/	6/2007/ 0/ 0	5 11 9	22 57 57	5 11 9	22 57 49	1.0151857	8.66	31 30.55	-20.29	-12.07	0.37	327.97	2057
11/	6/2007/ 0/ 0	5 15 17	23 2 35	5 15 18	23 2 27	1.0153082	8.66	31 30.32	-20.22	-11.66	0.49	314.73	2057
12/	6/2007/ 0/ 0	5 19 26	23 6 48	5 19 26	23 6 40	1.0154255	8.66	31 30.10	-20.16	-11.24	0.61	301.49	2057
13/	6/2007/ 0/ 0	5 23 35	23 10 37	5 23 35	23 10 29	1.0155371	8.66	31 29.90	-20.10	-10.82	0.73	288.26	2057
14/	6/2007/ 0/ 0	5 27 44	23 14 1	5 27 44	23 13 53	1.0156430	8.66	31 29.70	-20.05	-10.40	0.85	275.02	2057
15/	6/2007/ 0/ 0	5 31 54	23 17 1	5 31 54	23 16 53	1.0157429	8.66	31 29.51	-20.01	-9.97	0.97	261.79	2057
16/	6/2007/ 0/ 0	5 36 3	23 19 36	5 36 3	23 19 28	1.0158367	8.66	31 29.34	-19.98	-9.55	1.09	248.55	2057
17/	6/2007/ 0/ 0	5 40 13	23 21 46	5 40 13	23 21 38	1.0159246	8.66	31 29.18	-19.95	-9.12	1.21	235.31	2057
18/	6/2007/ 0/ 0	5 44 22	23 23 32	5 44 23	23 23 24	1.0160066	8.66	31 29.02	-19.92	-8.68	1.32	222.08	2057
19/	6/2007/ 0/ 0	5 48 32	23 24 52	5 48 32	23 24 44	1.0160830	8.65	31 28.88	-19.91	-8.25	1.44	208.84	2057
20/	6/2007/ 0/ 0	5 52 42	23 25 48	5 52 42	23 25 40	1.0161538	8.65	31 28.75	-19.90	-7.81	1.56	195.60	2057
21/	6/2007/ 0/ 0	5 56 51	23 26 19	5 56 52	23 26 11	1.0162194	8.65	31 28.63	-19.90	-7.37	1.68	182.37	2057
22/	6/2007/ 0/ 0	6 1 1	23 26 25	6 1 1	23 26 17	1.0162800	8.65	31 28.51	-19.90	-6.92	1.80	169.13	2058
23/	6/2007/ 0/ 0	6 5 11	23 26 7	6 5 11	23 25 59	1.0163358	8.65	31 28.41	-19.92	-6.48	1.91	155.89	2058
24/	6/20												

DATA	(G,MS,AA,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PARAL.	DIAM.' ''	ALT.	POLO	Bø	Lø	NRC
27/	7/2007/	0/ 0	8 23 43	19 20 42	8 23 44	19 20 34	1.0156028	8.66	31 29.77	-24.11	8.61	5.36	65.94 2059
28/	7/2007/	0/ 0	8 27 39	19 7 10	8 27 39	19 7 2	1.0154970	8.66	31 29.97	-24.33	9.02	5.44	52.71 2059
29/	7/2007/	0/ 0	8 31 35	18 53 19	8 31 35	18 53 11	1.0153880	8.66	31 30.17	-24.56	9.44	5.52	39.49 2059
30/	7/2007/	0/ 0	8 35 29	18 39 10	8 35 30	18 39 2	1.0152759	8.66	31 30.38	-24.79	9.84	5.60	26.26 2059
31/	7/2007/	0/ 0	8 39 24	18 24 42	8 39 24	18 24 34	1.0151607	8.66	31 30.60	-25.03	10.25	5.67	13.03 2059
1/	8/2007/	0/ 0	8 43 17	18 9 56	8 43 17	18 9 48	1.0150427	8.66	31 30.82	-25.27	10.65	5.75	359.80 2059
2/	8/2007/	0/ 0	8 47 10	17 54 52	8 47 10	17 54 44	1.0149216	8.66	31 31.04	-25.52	11.04	5.82	346.58 2059
3/	8/2007/	0/ 0	8 51 2	17 39 31	8 51 2	17 39 23	1.0147975	8.67	31 31.27	-25.77	11.44	5.89	333.35 2059
4/	8/2007/	0/ 0	8 54 54	17 23 52	8 54 54	17 23 44	1.0146701	8.67	31 31.51	-26.03	11.83	5.96	320.13 2059
5/	8/2007/	0/ 0	8 58 45	17 7 56	8 58 45	17 7 49	1.0145391	8.67	31 31.76	-26.29	12.21	6.03	306.90 2059
6/	8/2007/	0/ 0	9 2 36	16 51 44	9 2 36	16 51 36	1.0144042	8.67	31 32.01	-26.55	12.60	6.10	293.68 2059
7/	8/2007/	0/ 0	9 6 26	16 35 15	9 6 26	16 35 7	1.0142651	8.67	31 32.27	-26.82	12.97	6.16	280.46 2059
8/	8/2007/	0/ 0	9 10 15	16 18 30	9 10 15	16 18 22	1.0141215	8.67	31 32.53	-27.10	13.35	6.23	267.23 2059
9/	8/2007/	0/ 0	9 14 4	16 1 29	9 14 4	16 1 21	1.0139731	8.67	31 32.81	-27.37	13.72	6.29	254.01 2059
10/	8/2007/	0/ 0	9 17 52	15 44 13	9 17 52	15 44 5	1.0138197	8.67	31 33.10	-27.65	14.09	6.35	240.79 2059
11/	8/2007/	0/ 0	9 21 40	15 26 41	9 21 40	15 26 34	1.0136610	8.68	31 33.39	-27.94	14.45	6.40	227.57 2059
12/	8/2007/	0/ 0	9 25 27	15 8 55	9 25 27	15 8 47	1.0134971	8.68	31 33.70	-28.23	14.81	6.46	214.35 2059
13/	8/2007/	0/ 0	9 29 13	14 50 54	9 29 14	14 50 46	1.0133278	8.68	31 34.02	-28.52	15.16	6.51	201.13 2059
14/	8/2007/	0/ 0	9 32 59	14 32 38	9 32 60	14 32 31	1.0131533	8.68	31 34.34	-28.82	15.51	6.57	187.91 2059
15/	8/2007/	0/ 0	9 36 45	14 14 9	9 36 45	14 14 2	1.0129736	8.68	31 34.68	-29.11	15.85	6.62	174.69 2060
16/	8/2007/	0/ 0	9 40 30	13 55 27	9 40 30	13 55 19	1.0127890	8.68	31 35.02	-29.42	16.19	6.67	161.47 2060
17/	8/2007/	0/ 0	9 44 14	13 36 31	9 44 14	13 36 24	1.0125997	8.68	31 35.38	-29.72	16.53	6.71	148.26 2060
18/	8/2007/	0/ 0	9 47 58	13 17 22	9 47 58	13 17 15	1.0124058	8.69	31 35.74	-30.03	16.86	6.76	135.04 2060
19/	8/2007/	0/ 0	9 51 41	12 58 1	9 51 41	12 57 54	1.0122077	8.69	31 36.11	-30.34	17.18	6.80	121.82 2060
20/	8/2007/	0/ 0	9 55 24	12 38 28	9 55 24	12 38 20	1.0120055	8.69	31 36.49	-30.66	17.50	6.84	108.60 2060
21/	8/2007/	0/ 0	9 59 6	12 18 42	9 59 7	12 18 35	1.0117996	8.69	31 36.88	-30.98	17.82	6.88	95.39 2060
22/	8/2007/	0/ 0	10 2 48	11 58 45	10 2 48	11 58 38	1.0115902	8.69	31 37.27	-31.30	18.13	6.92	82.17 2060
23/	8/2007/	0/ 0	10 6 30	11 38 37	10 6 30	11 38 30	1.0113777	8.70	31 37.67	-31.62	18.44	6.96	68.96 2060
24/	8/2007/	0/ 0	10 10 11	11 18 18	10 10 11	11 18 11	1.0111623	8.70	31 38.07	-31.95	18.74	6.99	55.74 2060
25/	8/2007/	0/ 0	10 13 51	10 57 48	10 13 51	10 57 41	1.0109444	8.70	31 38.48	-32.27	19.03	7.02	42.53 2060
26/	8/2007/	0/ 0	10 17 31	10 37 8	10 17 31	10 37 1	1.0107241	8.70	31 38.90	-32.60	19.32	7.05	29.32 2060
27/	8/2007/	0/ 0	10 21 11	10 16 18	10 21 11	10 16 11	1.0105020	8.70	31 39.31	-32.94	19.61	7.08	16.10 2060
28/	8/2007/	0/ 0	10 24 50	9 55 18	10 24 50	9 55 11	1.0102780	8.70	31 39.73	-33.27	19.89	7.10	2.89 2060
29/	8/2007/	0/ 0	10 28 29	9 34 9	10 28 29	9 34 2	1.0100525	8.71	31 40.16	-33.61	20.16	7.13	349.68 2060
30/	8/2007/	0/ 0	10 32 7	9 12 51	10 32 7	9 12 44	1.0098254	8.71	31 40.59	-33.95	20.43	7.15	336.47 2060
31/	8/2007/	0/ 0	10 35 45	8 51 24	10 35 45	8 51 17	1.0095969	8.71	31 41.02	-34.29	20.70	7.17	323.26 2060
1/	9/2007/	0/ 0	10 39 23	8 29 48	10 39 23	8 29 41	1.0093669	8.71	31 41.45	-34.63	20.96	7.18	310.05 2060
2/	9/2007/	0/ 0	10 43 1	8 8 4	10 43 1	8 7 57	1.0091351	8.71	31 41.89	-34.98	21.21	7.20	296.84 2060
3/	9/2007/	0/ 0	10 46 38	7 46 12	10 46 38	7 46 5	1.0089013	8.72	31 42.33	-35.32	21.46	7.21	283.63 2060
4/	9/2007/	0/ 0	10 50 15	7 24 12	10 50 15	7 24 5	1.0086654	8.72	31 42.77	-35.67	21.70	7.22	270.42 2060
5/	9/2007/	0/ 0	10 53 52	7 2 5	10 53 52	7 1 58	1.0084269	8.72	31 43.22	-36.02	21.93	7.23	257.21 2060
6/	9/2007/	0/ 0	10 57 28	6 39 51	10 57 28	6 39 44	1.0081856	8.72	31 43.68	-36.37	22.17	7.24	244.01 2060
7/	9/2007/	0/ 0	11 1 5	6 17 30	11 1 5	6 17 24	1.0079413	8.72	31 44.14	-36.73	22.39	7.25	230.80 2060
8/	9/2007/	0/ 0	11 4 41	5 55 3	11 4 41	5 54 57	1.0076937	8.73	31 44.61	-37.08	22.61	7.25	217.59 2060
9/	9/2007/	0/ 0	11 8 17	5 32 30	11 8 17	5 32 24	1.0074427	8.73	31 45.08	-37.43	22.82	7.25	24.39 2060
10/	9/2007/	0/ 0	11 11 52	5 9 52	11 11 53	5 9 45	1.0071882	8.73	31 45.56	-37.79	23.03	7.25	11.18 2060
11/	9/2007/	0/ 0	11 15 28	4 47 8	11 15 28	4 47 1	1.0069303	8.73	31 46.05	-38.15	23.23	7.25	-2.02 2061
12/	9/2007/	0/ 0	11 19 4	4 24 19	11 19 4	4 24 12	1.0066689	8.74	31 46.55	-38.51	23.43	7.24	-15.23 2061
13/	9/2007/	0/ 0	11 22 39	4 1 26	11 22 39	4 1 19	1.0064043	8.74	31 47.05	-38.87	23.62	7.23	-28.43 2061
14/	9/2007/	0/ 0	11 26 14	3 38 28	11 26 15	3 38 21	1.0061365	8.74	31 47.55	-39.22	23.80	7.22	-41.63 2061
15/	9/2007/	0/ 0	11 29 50	3 15 26	11 29 50	3 15 20	1.0058657	8.74	31 48.07	-39.59	23.98	7.21	-54.84 2061
16/	9/2007/	0/ 0	11 33 25	2 52 21	11 33 25	2 52 15	1.0055922	8.75	31 48.59	-39.95	24.15	7.20	-68.04 2061
17/	9/2007/	0/ 0	11 37 0	2 29 13	11 37 0	2 29 7	1.0053162	8.75	31 49.11	-40.31	24.31	7.18	-81.24 2061
18/	9/2007/	0/ 0	11 40 35	2 6 2	11 40 35	2 5 56	1.0050380	8.75	31 49.64	-40.67	24.47	7.16	265.56 2061
19/	9/2007/	0/ 0	11 44 10	1 42 48	11 44 11	1 42 42	1.0047578	8.75	31 50.17	-41.03	24.63	7.14	252.36 2061
20/	9/2007/	0/ 0	11 47 46	1 19 33	11 47 46	1 19 26	1.0044759	8.75	31 50.71	-41.39	24.77	7.12	239.16 2061
21/	9/2007/	0/ 0	11 51 21	0 56 15	11 51 21	0 56 9	1.0041928	8.76	31 51.25	-41.75	24.91	7.10	225.96 2061
22/	9/2007/	0/ 0	11 54 56	0 32 56	11 54 56	0 32 50	1.0039086	8.76	31 51.79	-42.12	25.04	7.07	212.76 2061
23/	9/2007/	0/ 0	11 58 31	0 9 36	11 58 31	0 9 30	1.0036239	8.76	31 52.33	-42.48	25.17	7.04	199.56 2061
24/	9/2007/	0/ 0	12 2 7	-0 13 45	12 2 7	-0 13 51	1.0033389	8.76	31 52.87	-42.84	25.29	7.01	186.36 2061
25/	9/2007/	0/ 0	12 5 42	-0 37 6	12 5 42	-0 37 12	1.0030539	8.77	31 53.42	-43.20	25.40	6.98	173.16 2061
26/	9/2007/	0/ 0	12 9 18	-1 0 28	12 9 18	-1 0 34	1.0027694	8.77	31 53.96	-43.56	25.51	6.94	159.96 2061
27/	9/2007/	0/ 0	12 12 54	-1 23 49	12 12 54	-1 23 55	1.0024854	8.77	31 54.50	-43.92	25.61	6.91	146.76 2061
28/	9/2007/	0/ 0	12 16 30	-1 47 10	12 16 30	-1 47 16	1.0022021	8.77	31 55.04	-44.28	25.70	6.87	133.57 2061
29/	9/2007/	0/ 0	12 20 6	-2 10 31	12 20 6	-2 10 37	1.0019195	8.78	31 55.58	-44.64	25.79	6.83	120.37 2061
30/	9/2007/	0/ 0	12 23 43	-2 33 50	12 23 43	-2 33 56	1.0016377	8.78	31 56.12	-45.00	25.87	6.78	107.17 2061
1/10/2007/	0/ 0	0	12 27 20	-2 57 8	12 27 20	-2 57 14	1.0013564	8.78	31 56.66	-45.36	25.94	6.74	93.98 2061
2/10/2007/	0/ 0	0	12 30 57	-3 20 24	12 30 57	-3 20 30	1.0010755	8.78	31 57.20	-45.72	26.01	6.69	80.78 2061
3/10/2007/	0/ 0	0	12 34 34	-3 43 38	12 34 34	-3 43 44	1.0007947	8.79	31 57.74	-46.07	26.07	6.64	67.58 2061
4/10/2007/	0/ 0	0	12 38 12	-4 6 50	12 38 12	-4 6 56	1.0005138	8.79	31 58.27	-46.43	26.12	6.59	54.39 2061
5/10/2007/	0/ 0	0	12 41 50	-4 29 59	12 41 50	-4 30 5	1.0002326	8.79	31 58.81	-46.79	26.16	6.54	41.19 2061
6/10/2007/	0/ 0	0	12 45 28	-4 53 5	12 45 28	-4 53 11	0.9999507	8.79	31 59.35	-47.14	26.20	6.49	28.00 2061
7/10/2007/	0/ 0	0	12 49 7	-5 16 7	12 49 7	-5 16 13	0.9996680	8.80	31 59.90	-47.50	26.23	6.43	14.81 2061
8/10/2007/	0/ 0	0	12 52 46	-5 39 6	12 52 47	-5 39 11	0.9993843	8.80	32 0.44	-47.85	26.26	6.37	1.61 2061
9/10/2007/	0/ 0	0	12 56 26	-6 1 60	12 56 26	-6 2 5	0.9990997	8.80	32 0.99	-48.20	26.27	6.31	-11.58 2062
10/10													

12/11/2007/	0/ 0	15 7 2	-17 31 44	15 7 2	-17 31 48	0.9899776	8.88	32 18.69	-58.92	22.30	3.25	260.03	2063
13/11/2007/	0/ 0	15 11 6	-17 48 1	15 11 6	-17 48 6	0.9897433	8.89	32 19.15	-59.19	22.05	3.13	246.84	2063
14/11/2007/	0/ 0	15 15 11	-18 4 1	15 15 11	-18 4 5	0.9895110	8.89	32 19.60	-59.45	21.79	3.02	233.66	2063
15/11/2007/	0/ 0	15 19 17	-18 19 41	15 19 17	-18 19 45	0.9892809	8.89	32 20.06	-59.70	21.52	2.90	220.48	2063
16/11/2007/	0/ 0	15 23 23	-18 35 2	15 23 23	-18 35 6	0.9890532	8.89	32 20.50	-59.96	21.24	2.78	207.30	2063
17/11/2007/	0/ 0	15 27 31	-18 50 3	15 27 31	-18 50 7	0.9888282	8.89	32 20.94	-60.21	20.96	2.67	194.11	2063
18/11/2007/	0/ 0	15 31 39	-19 4 44	15 31 39	-19 4 48	0.9886064	8.90	32 21.38	-60.45	20.67	2.55	180.93	2063
19/11/2007/	0/ 0	15 35 48	-19 19 4	15 35 48	-19 19 8	0.9883880	8.90	32 21.81	-60.69	20.37	2.43	167.75	2063
20/11/2007/	0/ 0	15 39 57	-19 33 3	15 39 58	-19 33 7	0.9881735	8.90	32 22.23	-60.93	20.07	2.31	154.57	2063
21/11/2007/	0/ 0	15 44 8	-19 46 42	15 44 8	-19 46 46	0.9879632	8.90	32 22.64	-61.16	19.76	2.19	141.39	2063
22/11/2007/	0/ 0	15 48 19	-19 59 58	15 48 20	-20 0 2	0.9877575	8.90	32 23.05	-61.39	19.44	2.06	128.20	2063
23/11/2007/	0/ 0	15 52 32	-20 12 53	15 52 32	-20 12 57	0.9875568	8.90	32 23.44	-61.61	19.11	1.94	115.02	2063
24/11/2007/	0/ 0	15 56 45	-20 25 25	15 56 45	-20 25 29	0.9873612	8.91	32 23.83	-61.83	18.78	1.82	101.84	2063
25/11/2007/	0/ 0	16 0 58	-20 37 35	16 0 58	-20 37 39	0.9871710	8.91	32 24.20	-62.04	18.44	1.69	88.66	2063
26/11/2007/	0/ 0	16 5 13	-20 49 22	16 5 13	-20 49 26	0.9869861	8.91	32 24.57	-62.25	18.09	1.57	75.48	2063
27/11/2007/	0/ 0	16 9 28	-21 0 46	16 9 28	-21 0 49	0.9868067	8.91	32 24.92	-62.45	17.74	1.44	62.30	2063
28/11/2007/	0/ 0	16 13 44	-21 11 46	16 13 44	-21 11 50	0.9866324	8.91	32 25.26	-62.65	17.38	1.32	49.12	2063
29/11/2007/	0/ 0	16 18 1	-21 22 22	16 18 1	-21 22 26	0.9864633	8.91	32 25.60	-62.84	17.01	1.19	35.94	2063
30/11/2007/	0/ 0	16 22 18	-21 32 34	16 22 18	-21 32 38	0.9862989	8.92	32 25.92	-63.03	16.64	1.07	22.76	2063
1/12/2007/	0/ 0	16 26 36	-21 42 22	16 26 37	-21 42 26	0.9861392	8.92	32 26.24	-63.22	16.26	0.94	9.58	2063
2/12/2007/	0/ 0	16 30 55	-21 51 45	16 30 55	-21 51 48	0.9859839	8.92	32 26.54	-63.39	15.87	0.81	-3.60	2064
3/12/2007/	0/ 0	16 35 15	-22 0 42	16 35 15	-22 0 46	0.9858326	8.92	32 26.84	-63.56	15.48	0.69	343.22	2064
4/12/2007/	0/ 0	16 39 35	-22 9 15	16 39 35	-22 9 18	0.9856853	8.92	32 27.13	-63.73	15.09	0.56	330.05	2064
5/12/2007/	0/ 0	16 43 56	-22 17 21	16 43 56	-22 17 25	0.9855418	8.92	32 27.42	-63.89	14.69	0.43	316.87	2064
6/12/2007/	0/ 0	16 48 17	-22 25 2	16 48 17	-22 25 6	0.9854018	8.92	32 27.69	-64.04	14.28	0.30	303.69	2064
7/12/2007/	0/ 0	16 52 39	-22 32 16	16 52 39	-22 32 20	0.9852654	8.93	32 27.96	-64.19	13.86	0.17	290.51	2064
8/12/2007/	0/ 0	16 57 1	-22 39 4	16 57 1	-22 39 8	0.9851324	8.93	32 28.23	-64.33	13.45	0.05	277.34	2064
9/12/2007/	0/ 0	17 1 24	-22 45 26	17 1 24	-22 45 29	0.9850028	8.93	32 28.48	-64.47	13.02	-0.08	264.16	2064
10/12/2007/	0/ 0	17 5 47	-22 51 20	17 5 48	-22 51 24	0.9848765	8.93	32 28.73	-64.60	12.60	-0.21	250.98	2064
11/12/2007/	0/ 0	17 10 11	-22 56 48	17 10 11	-22 56 51	0.9847537	8.93	32 28.97	-64.72	12.16	-0.34	237.81	2064
12/12/2007/	0/ 0	17 14 35	-23 1 48	17 14 36	-23 1 52	0.9846342	8.93	32 29.21	-64.84	11.73	-0.47	224.63	2064
13/12/2007/	0/ 0	17 19 0	-23 6 21	17 19 0	-23 6 24	0.9845182	8.93	32 29.44	-64.95	11.28	-0.59	211.46	2064
14/12/2007/	0/ 0	17 23 25	-23 10 26	17 23 25	-23 10 30	0.9844058	8.93	32 29.66	-65.05	10.84	-0.72	198.28	2064
15/12/2007/	0/ 0	17 27 50	-23 14 4	17 27 50	-23 14 7	0.9842972	8.93	32 29.88	-65.14	10.39	-0.85	185.11	2064
16/12/2007/	0/ 0	17 32 16	-23 17 14	17 32 16	-23 17 17	0.9841928	8.94	32 30.09	-65.23	9.94	-0.98	171.93	2064
17/12/2007/	0/ 0	17 36 41	-23 19 56	17 36 41	-23 19 59	0.9840927	8.94	32 30.28	-65.31	9.48	-1.10	158.76	2064
18/12/2007/	0/ 0	17 41 7	-23 22 9	17 41 7	-23 22 13	0.9839974	8.94	32 30.47	-65.39	9.02	-1.23	145.58	2064
19/12/2007/	0/ 0	17 45 33	-23 23 55	17 45 33	-23 23 59	0.9839072	8.94	32 30.65	-65.45	8.56	-1.36	132.41	2064
20/12/2007/	0/ 0	17 49 59	-23 25 13	17 49 59	-23 25 16	0.9838226	8.94	32 30.82	-65.51	8.09	-1.48	119.23	2064
21/12/2007/	0/ 0	17 54 25	-23 26 2	17 54 26	-23 26 6	0.9837437	8.94	32 30.98	-65.56	7.62	-1.61	106.06	2064
22/12/2007/	0/ 0	17 58 52	-23 26 24	17 58 52	-23 26 27	0.9836710	8.94	32 31.12	-65.61	7.15	-1.73	92.89	2064
23/12/2007/	0/ 0	18 3 18	-23 26 17	18 3 18	-23 26 20	0.9836047	8.94	32 31.25	-65.64	6.68	-1.86	79.71	2064
24/12/2007/	0/ 0	18 7 44	-23 25 42	18 7 45	-23 25 45	0.9835449	8.94	32 31.37	-65.67	6.21	-1.98	66.54	2064
25/12/2007/	0/ 0	18 12 11	-23 24 38	18 12 11	-23 24 42	0.9834916	8.94	32 31.48	-65.69	5.73	-2.11	53.37	2064
26/12/2007/	0/ 0	18 16 37	-23 23 7	18 16 37	-23 23 10	0.9834448	8.94	32 31.57	-65.70	5.25	-2.23	40.19	2064
27/12/2007/	0/ 0	18 21 3	-23 21 7	18 21 3	-23 21 11	0.9834043	8.94	32 31.65	-65.71	4.77	-2.35	27.02	2064
28/12/2007/	0/ 0	18 25 29	-23 18 40	18 25 29	-23 18 43	0.9833701	8.94	32 31.72	-65.71	4.29	-2.47	13.85	2064
29/12/2007/	0/ 0	18 29 55	-23 15 44	18 29 55	-23 15 47	0.9833418	8.94	32 31.77	-65.69	3.80	-2.59	0.68	2064
30/12/2007/	0/ 0	18 34 21	-23 12 20	18 34 21	-23 12 23	0.9833192	8.94	32 31.82	-65.68	3.32	-2.71	347.51	2065
31/12/2007/	0/ 0	18 38 46	-23 8 28	18 38 47	-23 8 32	0.9833020	8.94	32 31.85	-65.65	2.84	-2.83	334.34	2065
1/ 1/2008/	0/ 0	18 43 12	-23 4 9	18 43 12	-23 4 12	0.9832901	8.94	32 31.88	-65.61	2.35	-2.95	321.17	2065

Legenda :

ALT. = altezza in ° sull'orizzonte

POLO = angolo di posizione dell'estremità nord dell'asse di rotazione del Sole, misurato positivamente verso est a partire dal punto nord del disco solare

Bø = Latitudine eliografia del centro del disco solare

Lø = Longitudine eliografia del centro del disco solare

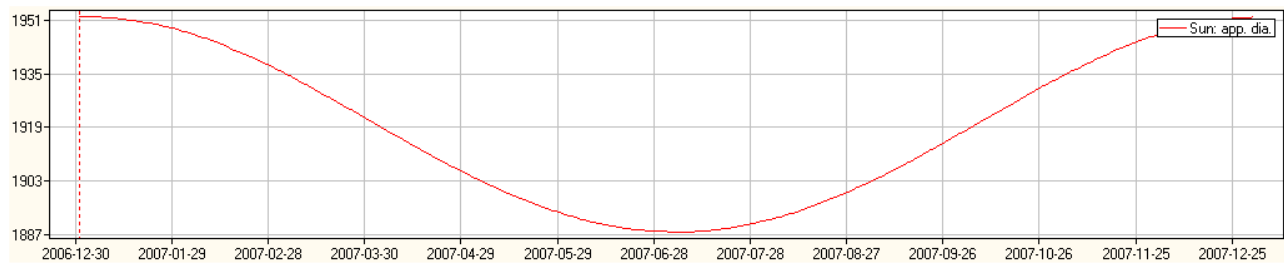
NRC = numero rotazione di Carrington

## SOLSTIZI ED EQUINOZI

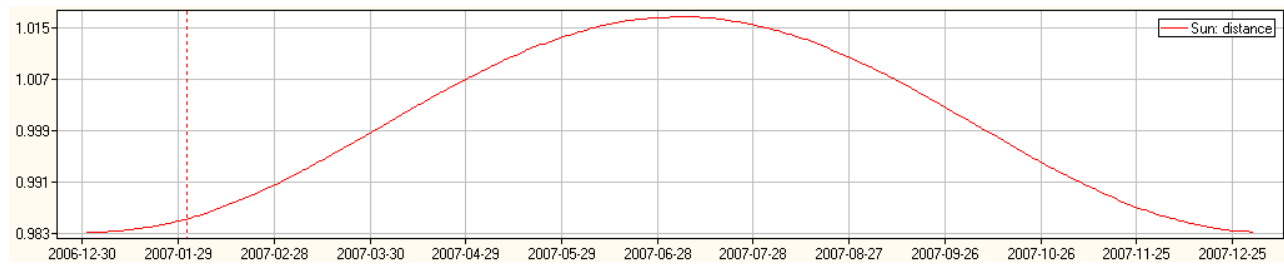
Equinozio di primavera	21/03	00.08
Solstizio d'estate	21/06	18.07
Equinozio d'autunno	23/09	09.52
Solstizio d'inverno	22/12	06.09

## PERIGEO ED APOGEO

Perigeo	03/01	19.44	0.98326 U.A.
Apogeo	06/07	23.54	1.01671 U.A.



Diametro del Sole in " nel corso dell'anno



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

© (4)

## LEVATA E TRAMONTO DEL SOLE

for Greenwich Meridian

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for location: Longitude E 11 00.0
```

Latitude N 46 00.0

Time Zone UT +1

## Ephemeris Transit

Data				TDJ JD	TDJ Time			Sorge (AzM)	Trans (Alt)			Tramonta (AzM)				
					h	m	s	h	m	°	h	m	°	h	m	°
2007	Gen	1	2454102.002381		12	03	25.7	7 58 (123)	12 20 (s21)		16	42	(237)			
2007	Gen	2	2454103.002706		12	03	53.8	7 58 (123)	12 20 (s21)		16	42	(237)			
2007	Gen	3	2454104.003027		12	04	21.6	7 58 (123)	12 20 (s21)		16	43	(237)			
2007	Gen	4	2454105.003344		12	04	49.0	7 58 (123)	12 21 (s21)		16	44	(237)			
2007	Gen	5	2454106.003657		12	05	15.9	7 58 (123)	12 21 (s21)		16	45	(237)			
2007	Gen	6	2454107.003964		12	05	42.5	7 58 (122)	12 22 (s22)		16	46	(238)			
2007	Gen	7	2454108.004266		12	06	08.6	7 57 (122)	12 22 (s22)		16	47	(238)			
2007	Gen	8	2454109.004563		12	06	34.2	7 57 (122)	12 23 (s22)		16	48	(238)			
2007	Gen	9	2454110.004854		12	06	59.4	7 57 (122)	12 23 (s22)		16	49	(238)			
2007	Gen	10	2454111.005139		12	07	24.0	7 57 (122)	12 23 (s22)		16	50	(238)			
2007	Gen	11	2454112.005417		12	07	48.1	7 56 (121)	12 24 (s22)		16	52	(239)			
2007	Gen	12	2454113.005689		12	08	11.6	7 56 (121)	12 24 (s22)		16	53	(239)			
2007	Gen	13	2454114.005955		12	08	34.5	7 55 (121)	12 25 (s23)		16	54	(239)			
2007	Gen	14	2454115.006213		12	08	56.8	7 55 (121)	12 25 (s23)		16	55	(239)			
2007	Gen	15	2454116.006463		12	09	18.4	7 54 (120)	12 25 (s23)		16	57	(240)			
2007	Gen	16	2454117.006706		12	09	39.4	7 54 (120)	12 26 (s23)		16	58	(240)			
2007	Gen	17	2454118.006942		12	09	59.8	7 53 (120)	12 26 (s23)		16	59	(240)			
2007	Gen	18	2454119.007169		12	10	19.4	7 52 (119)	12 26 (s23)		17	01	(241)			
2007	Gen	19	2454120.007388		12	10	38.3	7 52 (119)	12 27 (s24)		17	02	(241)			
2007	Gen	20	2454121.007598		12	10	56.5	7 51 (119)	12 27 (s24)		17	03	(241)			
2007	Gen	21	2454122.007800		12	11	13.9	7 50 (118)	12 27 (s24)		17	05	(242)			
2007	Gen	22	2454123.007993		12	11	30.6	7 49 (118)	12 28 (s24)		17	06	(242)			
2007	Gen	23	2454124.008177		12	11	46.5	7 48 (118)	12 28 (s25)		17	08	(242)			
2007	Gen	24	2454125.008351		12	12	01.5	7 47 (117)	12 28 (s25)		17	09	(243)			
2007	Gen	25	2454126.008516		12	12	15.8	7 47 (117)	12 28 (s25)		17	10	(243)			
2007	Gen	26	2454127.008672		12	12	29.2	7 46 (117)	12 28 (s25)		17	12	(243)			
2007	Gen	27	2454128.008818		12	12	41.9	7 45 (116)	12 29 (s26)		17	13	(244)			
2007	Gen	28	2454129.008954		12	12	53.6	7 43 (116)	12 29 (s26)		17	15	(244)			
2007	Gen	29	2454130.009081		12	13	04.6	7 42 (115)	12 29 (s26)		17	16	(245)			
2007	Gen	30	2454131.009199		12	13	14.8	7 41 (115)	12 29 (s26)		17	18	(245)			
2007	Gen	31	2454132.009306		12	13	24.1	7 40 (115)	12 29 (s27)		17	19	(246)			
2007	Feb	1	2454133.009405		12	13	32.6	7 39 (114)	12 30 (s27)		17	21	(246)			
2007	Feb	2	2454134.009493		12	13	40.2	7 38 (114)	12 30 (s27)		17	22	(246)			
2007	Feb	3	2454135.009573		12	13	47.1	7 37 (113)	12 30 (s27)		17	24	(247)			
2007	Feb	4	2454136.009643		12	13	53.1	7 35 (113)	12 30 (s28)		17	25	(247)			
2007	Feb	5	2454137.009704		12	13	58.4	7 34 (112)	12 30 (s28)		17	27	(248)			
2007	Feb	6	2454138.009755		12	14	02.8	7 33 (112)	12 30 (s28)		17	28	(248)			
2007	Feb	7	2454139.009797		12	14	06.5	7 31 (112)	12 30 (s29)		17	30	(249)			
2007	Feb	8	2454140.009831		12	14	09.4	7 30 (111)	12 30 (s29)		17	31	(249)			
2007	Feb	9	2454141.009855		12	14	11.5	7 28 (111)	12 30 (s29)		17	33	(250)			
2007	Feb	10	2454142.009870		12	14	12.8	7 27 (110)	12 30 (s30)		17	34	(250)			
2007	Feb	11	2454143.009877		12	14	13.4	7 26 (110)	12 30 (s30)		17	36	(251)			
2007	Feb	12	2454144.009875		12	14	13.2	7 24 (109)	12 30 (s30)		17	37	(251)			
2007	Feb	13	2454145.009864		12	14	12.3	7 23 (109)	12 30 (s31)		17	38	(252)			
2007	Feb	14	2454146.009845		12	14	10.6	7 21 (108)	12 30 (s31)		17	40	(252)			
2007	Feb	15	2454147.009818		12	14	08.3	7 19 (108)	12 30 (s31)		17	41	(253)			
2007	Feb	16	2454148.009782		12	14	05.2	7 18 (107)	12 30 (s32)		17	43	(253)			
2007	Feb	17	2454149.009738		12	14	01.4	7 16 (107)	12 30 (s32)		17	44	(254)			
2007	Feb	18	2454150.009686		12	13	56.9	7 15 (106)	12 30 (s32)		17	46	(254)			
2007	Feb	19	2454151.009626		12	13	51.7	7 13 (106)	12 30 (s33)		17	47	(255)			
2007	Feb	20	2454152.009558		12	13	45.8	7 11 (105)	12 30 (s33)		17	49	(255)			
2007	Feb	21	2454153.009482		12	13	39.3	7 10 (105)	12 30 (s33)		17	50	(256)			
2007	Feb	22	2454154.009399		12	13	32.1	7 08 (104)	12 30 (s34)		17	52	(256)			
2007	Feb	23	2454155.009308		12	13	24.2	7 06 (104)	12 29 (s34)		17	53	(257)			
2007	Feb	24	2454156.009210		12	13	15.7	7 05 (103)	12 29 (s34)		17	55	(257)			
2007	Feb	25	2454157.009105		12	13	06.6	7 03 (102)	12 29 (s35)		17	56	(258)			
2007	Feb	26	2454158.008992		12	12	56.9	7 01 (102)	12 29 (s35)		17	57	(258)			
2007	Feb	27	2454159.008874		12	12	46.7	6 59 (101)	12 29 (s36)		17	59	(259)			
2007	Feb	28	2454160.008748		12	12	35.9	6 58 (101)	12 29 (s36)		18	00	(259)			
2007	Mar	1	2454161.008617		12	12	24.5	6 56 (100)	12 28 (s36)		18	02	(260)			
2007	Mar	2	2454162.008479		12	12	12.6	6 54 (100)	12 28 (s37)		18	03	(261)			
2007	Mar	3	2454163.008336		12	12	00.3	6 52 ( 99)	12 28 (s37)		18	05	(261)			
2007	Mar	4	2454164.008188		12	11	47.4	6 50 ( 99)	12 28 (s38)		18	06	(262)			
2007	Mar	5	2454165.008034		12	11	34.1	6 49 ( 98)	12 28 (s38)		18	07	(262)			
2007	Mar	6	2454166.007875		12	11	20.4	6 47 ( 98)	12 27 (s38)		18	09	(263)			
2007	Mar	7	2454167.007711		12	11	06.3	6 45 ( 97)	12 27 (s39)		18	10	(263)			
2007	Mar	8	2454168.007543		12	10	51.7	6 43 ( 96)	12 27 (s39)		18	12	(264)			
2007	Mar	9	2454169.007371		12	10	36.8	6 41 ( 96)	12 27 (s39)		18	13	(264)			
2007	Mar	10	2454170.007195		12	10	21.6	6 39 ( 95)	12 26 (s40)		18	14	(265)			
2007	Mar	11	2454171.007015		12	10	06.1	6 37 ( 95)	12 26 (s40)		18	16	(266)			
2007	Mar	12	2454172.006831		12	09	50.2	6 35 ( 94)	12 26 (s41)		18	17	(266)			

Data	TDT JD	TDT Time			Sorge (Azm)			Trans (Alt)			Tramonta (Azm)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Mar 13	2454173.006645	12	09	34.1	6	34	( 94)	12	26	(s41)	18	18	(267)
2007 Mar 14	2454174.006455	12	09	17.7	6	32	( 93)	12	25	(s41)	18	20	(267)
2007 Mar 15	2454175.006263	12	09	01.1	6	30	( 92)	12	25	(s42)	18	21	(268)
2007 Mar 16	2454176.006067	12	08	44.2	6	28	( 92)	12	25	(s42)	18	22	(268)
2007 Mar 17	2454177.005870	12	08	27.2	6	26	( 91)	12	24	(s43)	18	24	(269)
2007 Mar 18	2454178.005671	12	08	09.9	6	24	( 91)	12	24	(s43)	18	25	(270)
2007 Mar 19	2454179.005469	12	07	52.5	6	22	( 90)	12	24	(s43)	18	27	(270)
2007 Mar 20	2454180.005266	12	07	35.0	6	20	( 90)	12	24	(s44)	18	28	(271)
2007 Mar 21	2454181.005061	12	07	17.3	6	18	( 89)	12	23	(s44)	18	29	(271)
2007 Mar 22	2454182.004854	12	06	59.4	6	16	( 88)	12	23	(s45)	18	31	(272)
2007 Mar 23	2454183.004647	12	06	41.5	6	14	( 88)	12	23	(s45)	18	32	(272)
2007 Mar 24	2454184.004438	12	06	23.5	6	12	( 87)	12	22	(s45)	18	33	(273)
2007 Mar 25	2454185.004229	12	06	05.4	6	10	( 87)	12	22	(s46)	18	35	(274)
2007 Mar 26	2454186.004019	12	05	47.2	6	09	( 86)	12	22	(s46)	18	36	(274)
2007 Mar 27	2454187.003809	12	05	29.1	6	07	( 86)	12	21	(s47)	18	37	(275)
2007 Mar 28	2454188.003598	12	05	10.9	6	05	( 85)	12	21	(s47)	18	39	(275)
2007 Mar 29	2454189.003388	12	04	52.7	6	03	( 84)	12	21	(s47)	18	40	(276)
2007 Mar 30	2454190.003178	12	04	34.6	6	01	( 84)	12	21	(s48)	18	41	(276)
2007 Mar 31	2454191.002969	12	04	16.5	5	59	( 83)	12	20	(s48)	18	43	(277)
2007 Apr 1	2454192.002761	12	03	58.6	5	57	( 83)	12	20	(s48)	18	44	(277)
2007 Apr 2	2454193.002554	12	03	40.7	5	55	( 82)	12	20	(s49)	18	45	(278)
2007 Apr 3	2454194.002349	12	03	22.9	5	53	( 82)	12	19	(s49)	18	46	(279)
2007 Apr 4	2454195.002145	12	03	05.3	5	51	( 81)	12	19	(s50)	18	48	(279)
2007 Apr 5	2454196.001943	12	02	47.8	5	49	( 81)	12	19	(s50)	18	49	(280)
2007 Apr 6	2454197.001743	12	02	30.6	5	47	( 80)	12	19	(s50)	18	50	(280)
2007 Apr 7	2454198.001546	12	02	13.5	5	46	( 79)	12	18	(s51)	18	52	(281)
2007 Apr 8	2454199.001351	12	01	56.7	5	44	( 79)	12	18	(s51)	18	53	(281)
2007 Apr 9	2454200.001159	12	01	40.2	5	42	( 78)	12	18	(s52)	18	54	(282)
2007 Apr 10	2454201.000971	12	01	23.9	5	40	( 78)	12	17	(s52)	18	56	(282)
2007 Apr 11	2454202.000785	12	01	07.8	5	38	( 77)	12	17	(s52)	18	57	(283)
2007 Apr 12	2454203.000604	12	00	52.2	5	36	( 77)	12	17	(s53)	18	58	(284)
2007 Apr 13	2454204.000425	12	00	36.8	5	34	( 76)	12	17	(s53)	19	00	(284)
2007 Apr 14	2454205.000251	12	00	21.7	5	33	( 76)	12	16	(s53)	19	01	(285)
2007 Apr 15	2454206.000081	12	00	07.0	5	31	( 75)	12	16	(s54)	19	02	(285)
2007 Apr 16	2454206.999915	11	59	52.7	5	29	( 75)	12	16	(s54)	19	04	(286)
2007 Apr 17	2454207.999754	11	59	38.7	5	27	( 74)	12	16	(s54)	19	05	(286)
2007 Apr 18	2454208.999596	11	59	25.1	5	25	( 74)	12	15	(s55)	19	06	(287)
2007 Apr 19	2454209.999444	11	59	11.9	5	24	( 73)	12	15	(s55)	19	08	(287)
2007 Apr 20	2454210.999296	11	58	59.1	5	22	( 73)	12	15	(s55)	19	09	(288)
2007 Apr 21	2454211.999152	11	58	46.7	5	20	( 72)	12	15	(s56)	19	10	(288)
2007 Apr 22	2454212.999014	11	58	34.8	5	19	( 72)	12	15	(s56)	19	12	(289)
2007 Apr 23	2454213.998880	11	58	23.2	5	17	( 71)	12	14	(s56)	19	13	(289)
2007 Apr 24	2454214.998752	11	58	12.2	5	15	( 71)	12	14	(s57)	19	14	(290)
2007 Apr 25	2454215.998629	11	58	01.5	5	13	( 70)	12	14	(s57)	19	15	(290)
2007 Apr 26	2454216.998511	11	57	51.4	5	12	( 70)	12	14	(s57)	19	17	(291)
2007 Apr 27	2454217.998399	11	57	41.7	5	10	( 69)	12	14	(s58)	19	18	(291)
2007 Apr 28	2454218.998292	11	57	32.5	5	09	( 69)	12	14	(s58)	19	19	(292)
2007 Apr 29	2454219.998191	11	57	23.7	5	07	( 68)	12	13	(s58)	19	21	(292)
2007 Apr 30	2454220.998097	11	57	15.5	5	05	( 68)	12	13	(s59)	19	22	(293)
2007 Mag 1	2454221.998008	11	57	07.9	5	04	( 67)	12	13	(s59)	19	23	(293)
2007 Mag 2	2454222.997925	11	57	00.7	5	02	( 67)	12	13	(s59)	19	25	(293)
2007 Mag 3	2454223.997849	11	56	54.1	5	01	( 66)	12	13	(s60)	19	26	(294)
2007 Mag 4	2454224.997779	11	56	48.1	4	59	( 66)	12	13	(s60)	19	27	(294)
2007 Mag 5	2454225.997715	11	56	42.6	4	58	( 65)	12	13	(s60)	19	28	(295)
2007 Mag 6	2454226.997658	11	56	37.7	4	56	( 65)	12	13	(s60)	19	30	(295)
2007 Mag 7	2454227.997608	11	56	33.3	4	55	( 65)	12	13	(s61)	19	31	(296)
2007 Mag 8	2454228.997564	11	56	29.5	4	54	( 64)	12	12	(s61)	19	32	(296)
2007 Mag 9	2454229.997527	11	56	26.4	4	52	( 64)	12	12	(s61)	19	34	(296)
2007 Mag 10	2454230.997497	11	56	23.8	4	51	( 63)	12	12	(s62)	19	35	(297)
2007 Mag 11	2454231.997474	11	56	21.8	4	50	( 63)	12	12	(s62)	19	36	(297)
2007 Mag 12	2454232.997458	11	56	20.4	4	48	( 63)	12	12	(s62)	19	37	(298)
2007 Mag 13	2454233.997449	11	56	19.6	4	47	( 62)	12	12	(s62)	19	38	(298)
2007 Mag 14	2454234.997446	11	56	19.3	4	46	( 62)	12	12	(s63)	19	40	(298)
2007 Mag 15	2454235.997450	11	56	19.7	4	45	( 61)	12	12	(s63)	19	41	(299)
2007 Mag 16	2454236.997461	11	56	20.6	4	43	( 61)	12	12	(s63)	19	42	(299)
2007 Mag 17	2454237.997479	11	56	22.2	4	42	( 61)	12	12	(s63)	19	43	(300)
2007 Mag 18	2454238.997502	11	56	24.2	4	41	( 60)	12	12	(s64)	19	44	(300)
2007 Mag 19	2454239.997533	11	56	26.8	4	40	( 60)	12	12	(s64)	19	46	(300)
2007 Mag 20	2454240.997569	11	56	30.0	4	39	( 60)	12	12	(s64)	19	47	(301)
2007 Mag 21	2454241.997611	11	56	33.6	4	38	( 59)	12	13	(s64)	19	48	(301)
2007 Mag 22	2454242.997660	11	56	37.8	4	37	( 59)	12	13	(s64)	19	49	(301)
2007 Mag 23	2454243.997714	11	56	42.5	4	36	( 59)	12	13	(s65)	19	50	(301)
2007 Mag 24	2454244.997774	11	56	47.7	4	35	( 58)	12	13	(s65)	19	51	(302)
2007 Mag 25	2454245.997840	11	56	53.4	4	34	( 58)	12	13	(s65)	19	52	(302)
2007 Mag 26	2454246.997911	11	56	59.5	4	33	( 58)	12	13	(s65)	19	53	(302)
2007 Mag 27	2454247.997988	11	57	06.1	4	33	( 58)	12	13	(s65)	19	54	(303)
2007 Mag 28	2454248.998070	11	57	13.2	4	32	( 57)	12	13	(s65)	19	55	(303)
2007 Mag 29	2454249.998157	11	57	20.8	4	31	( 57)	12	13	(s66)	19	56	(303)
2007 Mag 30	2454250.998249	11	57	28.7	4	30	( 57)	12	13	(s66)	19	57	(303)
2007 Mag 31	2454251.998346	11	57	37.1	4	30	( 57)	12	14	(s66)	19	58	(304)

Data	TDT JD	TDT Time			Sorge (Azm)			Trans (Alt)			Tramonta (Azm)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Giu 1	2454252.998448	11	57	45.9	4	29	( 56)	12	14	(s66)	19	59	(304)
2007 Giu 2	2454253.998554	11	57	55.1	4	29	( 56)	12	14	(s66)	20	00	(304)
2007 Giu 3	2454254.998665	11	58	04.7	4	28	( 56)	12	14	(s66)	20	01	(304)
2007 Giu 4	2454255.998781	11	58	14.6	4	28	( 56)	12	14	(s66)	20	01	(304)
2007 Giu 5	2454256.998900	11	58	25.0	4	27	( 56)	12	14	(s67)	20	02	(305)
2007 Giu 6	2454257.999023	11	58	35.6	4	27	( 55)	12	15	(s67)	20	03	(305)
2007 Giu 7	2454258.999151	11	58	46.6	4	26	( 55)	12	15	(s67)	20	04	(305)
2007 Giu 8	2454259.999281	11	58	57.9	4	26	( 55)	12	15	(s67)	20	04	(305)
2007 Giu 9	2454260.999415	11	59	09.5	4	26	( 55)	12	15	(s67)	20	05	(305)
2007 Giu 10	2454261.999553	11	59	21.4	4	25	( 55)	12	15	(s67)	20	06	(305)
2007 Giu 11	2454262.999693	11	59	33.5	4	25	( 55)	12	16	(s67)	20	06	(305)
2007 Giu 12	2454263.999836	11	59	45.8	4	25	( 55)	12	16	(s67)	20	07	(306)
2007 Giu 13	2454264.999981	11	59	58.3	4	25	( 54)	12	16	(s67)	20	07	(306)
2007 Giu 14	2454266.000128	12	00	11.0	4	25	( 54)	12	16	(s67)	20	08	(306)
2007 Giu 15	2454267.000276	12	00	23.9	4	25	( 54)	12	16	(s67)	20	08	(306)
2007 Giu 16	2454268.000426	12	00	36.8	4	25	( 54)	12	17	(s67)	20	09	(306)
2007 Giu 17	2454269.000577	12	00	49.9	4	25	( 54)	12	17	(s67)	20	09	(306)
2007 Giu 18	2454270.000729	12	01	03.0	4	25	( 54)	12	17	(s67)	20	10	(306)
2007 Giu 19	2454271.000881	12	01	16.1	4	25	( 54)	12	17	(s67)	20	10	(306)
2007 Giu 20	2454272.001033	12	01	29.2	4	25	( 54)	12	17	(s67)	20	10	(306)
2007 Giu 21	2454273.001185	12	01	42.4	4	25	( 54)	12	18	(s67)	20	10	(306)
2007 Giu 22	2454274.001336	12	01	55.4	4	25	( 54)	12	18	(s67)	20	11	(306)
2007 Giu 23	2454275.001486	12	02	08.4	4	26	( 54)	12	18	(s67)	20	11	(306)
2007 Giu 24	2454276.001636	12	02	21.3	4	26	( 54)	12	18	(s67)	20	11	(306)
2007 Giu 25	2454277.001784	12	02	34.1	4	26	( 54)	12	19	(s67)	20	11	(306)
2007 Giu 26	2454278.001930	12	02	46.8	4	27	( 54)	12	19	(s67)	20	11	(306)
2007 Giu 27	2454279.002075	12	02	59.3	4	27	( 54)	12	19	(s67)	20	11	(306)
2007 Giu 28	2454280.002217	12	03	11.6	4	27	( 54)	12	19	(s67)	20	11	(306)
2007 Giu 29	2454281.002358	12	03	23.7	4	28	( 54)	12	19	(s67)	20	11	(306)
2007 Giu 30	2454282.002496	12	03	35.6	4	28	( 54)	12	20	(s67)	20	11	(306)
2007 Lug 1	2454283.002631	12	03	47.3	4	29	( 55)	12	20	(s67)	20	10	(305)
2007 Lug 2	2454284.002763	12	03	58.7	4	29	( 55)	12	20	(s67)	20	10	(305)
2007 Lug 3	2454285.002892	12	04	09.9	4	30	( 55)	12	20	(s67)	20	10	(305)
2007 Lug 4	2454286.003018	12	04	20.7	4	31	( 55)	12	20	(s67)	20	10	(305)
2007 Lug 5	2454287.003140	12	04	31.3	4	31	( 55)	12	21	(s67)	20	09	(305)
2007 Lug 6	2454288.003258	12	04	41.5	4	32	( 55)	12	21	(s67)	20	09	(305)
2007 Lug 7	2454289.003373	12	04	51.4	4	33	( 55)	12	21	(s67)	20	09	(305)
2007 Lug 8	2454290.003484	12	05	01.0	4	33	( 55)	12	21	(s66)	20	08	(304)
2007 Lug 9	2454291.003590	12	05	10.2	4	34	( 56)	12	21	(s66)	20	08	(304)
2007 Lug 10	2454292.003692	12	05	19.0	4	35	( 56)	12	21	(s66)	20	07	(304)
2007 Lug 11	2454293.003789	12	05	27.3	4	36	( 56)	12	21	(s66)	20	07	(304)
2007 Lug 12	2454294.003881	12	05	35.3	4	37	( 56)	12	22	(s66)	20	06	(304)
2007 Lug 13	2454295.003967	12	05	42.8	4	38	( 57)	12	22	(s66)	20	05	(303)
2007 Lug 14	2454296.004049	12	05	49.8	4	39	( 57)	12	22	(s66)	20	05	(303)
2007 Lug 15	2454297.004124	12	05	56.3	4	39	( 57)	12	22	(s66)	20	04	(303)
2007 Lug 16	2454298.004194	12	06	02.4	4	40	( 57)	12	22	(s65)	20	03	(303)
2007 Lug 17	2454299.004258	12	06	07.9	4	41	( 58)	12	22	(s65)	20	02	(302)
2007 Lug 18	2454300.004315	12	06	12.8	4	42	( 58)	12	22	(s65)	20	01	(302)
2007 Lug 19	2454301.004366	12	06	17.2	4	43	( 58)	12	22	(s65)	20	01	(302)
2007 Lug 20	2454302.004411	12	06	21.1	4	44	( 58)	12	22	(s65)	20	00	(301)
2007 Lug 21	2454303.004448	12	06	24.3	4	45	( 59)	12	22	(s64)	19	59	(301)
2007 Lug 22	2454304.004479	12	06	27.0	4	47	( 59)	12	22	(s64)	19	58	(301)
2007 Lug 23	2454305.004504	12	06	29.1	4	48	( 59)	12	22	(s64)	19	57	(301)
2007 Lug 24	2454306.004521	12	06	30.6	4	49	( 60)	12	23	(s64)	19	56	(300)
2007 Lug 25	2454307.004531	12	06	31.5	4	50	( 60)	12	23	(s64)	19	55	(300)
2007 Lug 26	2454308.004535	12	06	31.8	4	51	( 60)	12	23	(s63)	19	53	(300)
2007 Lug 27	2454309.004531	12	06	31.4	4	52	( 61)	12	23	(s63)	19	52	(299)
2007 Lug 28	2454310.004520	12	06	30.5	4	53	( 61)	12	23	(s63)	19	51	(299)
2007 Lug 29	2454311.004502	12	06	29.0	4	54	( 61)	12	22	(s63)	19	50	(298)
2007 Lug 30	2454312.004477	12	06	26.8	4	55	( 62)	12	22	(s63)	19	49	(298)
2007 Lug 31	2454313.004445	12	06	24.1	4	57	( 62)	12	22	(s62)	19	47	(298)
2007 Ago 1	2454314.004406	12	06	20.7	4	58	( 62)	12	22	(s62)	19	46	(297)
2007 Ago 2	2454315.004361	12	06	16.8	4	59	( 63)	12	22	(s62)	19	45	(297)
2007 Ago 3	2454316.004308	12	06	12.2	5	00	( 63)	12	22	(s62)	19	43	(297)
2007 Ago 4	2454317.004248	12	06	07.1	5	01	( 64)	12	22	(s61)	19	42	(296)
2007 Ago 5	2454318.004182	12	06	01.4	5	03	( 64)	12	22	(s61)	19	41	(296)
2007 Ago 6	2454319.004109	12	05	55.0	5	04	( 64)	12	22	(s61)	19	39	(295)
2007 Ago 7	2454320.004030	12	05	48.2	5	05	( 65)	12	22	(s60)	19	38	(295)
2007 Ago 8	2454321.003944	12	05	40.7	5	06	( 65)	12	22	(s60)	19	36	(294)
2007 Ago 9	2454322.003851	12	05	32.7	5	07	( 66)	12	22	(s60)	19	35	(294)
2007 Ago 10	2454323.003751	12	05	24.1	5	09	( 66)	12	21	(s60)	19	33	(294)
2007 Ago 11	2454324.003646	12	05	15.0	5	10	( 67)	12	21	(s59)	19	32	(293)
2007 Ago 12	2454325.003533	12	05	05.3	5	11	( 67)	12	21	(s59)	19	30	(293)
2007 Ago 13	2454326.003414	12	04	55.0	5	12	( 68)	12	21	(s59)	19	29	(292)
2007 Ago 14	2454327.003289	12	04	44.2	5	14	( 68)	12	21	(s58)	19	27	(292)
2007 Ago 15	2454328.003157	12	04	32.8	5	15	( 68)	12	21	(s58)	19	25	(291)
2007 Ago 16	2454329.003019	12	04	20.9	5	16	( 69)	12	20	(s58)	19	24	(291)
2007 Ago 17	2454330.002875	12	04	08.4	5	17	( 69)	12	20	(s57)	19	22	(290)
2007 Ago 18	2454331.002725	12	03	55.4	5	19	( 70)	12	20	(s57)	19	20	(290)
2007 Ago 19	2454332.002569	12	03	42.0	5	20	( 70)	12	20	(s57)	19	19	(289)

Data	TDT JD	TDT Time			Sorge (Azm)			Trans (Alt)			Tramonta (Azm)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Ago 20	2454333.002407	12	03	28.0	5	21	( 71)	12	19	(s56)	19	17	(289)
2007 Ago 21	2454334.002239	12	03	13.5	5	22	( 71)	12	19	(s56)	19	15	(288)
2007 Ago 22	2454335.002066	12	02	58.5	5	24	( 72)	12	19	(s56)	19	14	(288)
2007 Ago 23	2454336.001887	12	02	43.1	5	25	( 72)	12	19	(s55)	19	12	(287)
2007 Ago 24	2454337.001703	12	02	27.2	5	26	( 73)	12	18	(s55)	19	10	(287)
2007 Ago 25	2454338.001514	12	02	10.8	5	27	( 73)	12	18	(s55)	19	08	(286)
2007 Ago 26	2454339.001320	12	01	54.1	5	29	( 74)	12	18	(s54)	19	06	(286)
2007 Ago 27	2454340.001122	12	01	36.9	5	30	( 74)	12	18	(s54)	19	05	(285)
2007 Ago 28	2454341.000919	12	01	19.4	5	31	( 75)	12	17	(s54)	19	03	(285)
2007 Ago 29	2454342.000712	12	01	01.5	5	32	( 75)	12	17	(s53)	19	01	(284)
2007 Ago 30	2454343.000501	12	00	43.3	5	34	( 76)	12	17	(s53)	18	59	(284)
2007 Ago 31	2454344.000286	12	00	24.7	5	35	( 76)	12	16	(s53)	18	57	(283)
2007 Set 1	2454345.000067	12	00	05.8	5	36	( 77)	12	16	(s52)	18	55	(283)
2007 Set 2	2454345.999846	11	59	46.7	5	37	( 77)	12	16	(s52)	18	53	(282)
2007 Set 3	2454346.999621	11	59	27.2	5	38	( 78)	12	15	(s52)	18	52	(282)
2007 Set 4	2454347.999393	11	59	07.6	5	40	( 79)	12	15	(s51)	18	50	(281)
2007 Set 5	2454348.999163	11	58	47.7	5	41	( 79)	12	15	(s51)	18	48	(281)
2007 Set 6	2454349.998930	11	58	27.6	5	42	( 80)	12	14	(s50)	18	46	(280)
2007 Set 7	2454350.998695	11	58	07.3	5	43	( 80)	12	14	(s50)	18	44	(280)
2007 Set 8	2454351.998458	11	57	46.8	5	45	( 81)	12	14	(s50)	18	42	(279)
2007 Set 9	2454352.998219	11	57	26.1	5	46	( 81)	12	13	(s49)	18	40	(278)
2007 Set 10	2454353.997978	11	57	05.3	5	47	( 82)	12	13	(s49)	18	38	(278)
2007 Set 11	2454354.997736	11	56	44.4	5	48	( 82)	12	13	(s49)	18	36	(277)
2007 Set 12	2454355.997492	11	56	23.3	5	50	( 83)	12	12	(s48)	18	34	(277)
2007 Set 13	2454356.997248	11	56	02.2	5	51	( 83)	12	12	(s48)	18	32	(276)
2007 Set 14	2454357.997002	11	55	41.0	5	52	( 84)	12	12	(s47)	18	30	(276)
2007 Set 15	2454358.996755	11	55	19.7	5	53	( 85)	12	11	(s47)	18	28	(275)
2007 Set 16	2454359.996508	11	54	58.3	5	55	( 85)	12	11	(s47)	18	26	(275)
2007 Set 17	2454360.996260	11	54	36.9	5	56	( 86)	12	11	(s46)	18	24	(274)
2007 Set 18	2454361.996013	11	54	15.5	5	57	( 86)	12	10	(s46)	18	23	(273)
2007 Set 19	2454362.995765	11	53	54.1	5	58	( 87)	12	10	(s46)	18	21	(273)
2007 Set 20	2454363.995518	11	53	32.7	6	00	( 87)	12	10	(s45)	18	19	(272)
2007 Set 21	2454364.995271	11	53	11.4	6	01	( 88)	12	09	(s45)	18	17	(272)
2007 Set 22	2454365.995025	11	52	50.2	6	02	( 88)	12	09	(s44)	18	15	(271)
2007 Set 23	2454366.994780	11	52	29.0	6	03	( 89)	12	08	(s44)	18	13	(271)
2007 Set 24	2454367.994536	11	52	07.9	6	05	( 90)	12	08	(s44)	18	11	(270)
2007 Set 25	2454368.994294	11	51	47.0	6	06	( 90)	12	08	(s43)	18	09	(270)
2007 Set 26	2454369.994053	11	51	26.2	6	07	( 91)	12	07	(s43)	18	07	(269)
2007 Set 27	2454370.993815	11	51	05.6	6	09	( 91)	12	07	(s42)	18	05	(268)
2007 Set 28	2454371.993579	11	50	45.2	6	10	( 92)	12	07	(s42)	18	03	(268)
2007 Set 29	2454372.993346	11	50	25.1	6	11	( 92)	12	06	(s42)	18	01	(267)
2007 Set 30	2454373.993116	11	50	05.2	6	12	( 93)	12	06	(s41)	17	59	(267)
2007 Ott 1	2454374.992888	11	49	45.6	6	14	( 94)	12	06	(s41)	17	57	(266)
2007 Ott 2	2454375.992665	11	49	26.2	6	15	( 94)	12	05	(s40)	17	55	(266)
2007 Ott 3	2454376.992445	11	49	07.2	6	16	( 95)	12	05	(s40)	17	53	(265)
2007 Ott 4	2454377.992229	11	48	48.6	6	18	( 95)	12	05	(s40)	17	51	(265)
2007 Ott 5	2454378.992018	11	48	30.3	6	19	( 96)	12	05	(s39)	17	49	(264)
2007 Ott 6	2454379.991810	11	48	12.4	6	20	( 96)	12	04	(s39)	17	48	(263)
2007 Ott 7	2454380.991608	11	47	54.9	6	21	( 97)	12	04	(s39)	17	46	(263)
2007 Ott 8	2454381.991410	11	47	37.8	6	23	( 97)	12	04	(s38)	17	44	(262)
2007 Ott 9	2454382.991217	11	47	21.2	6	24	( 98)	12	03	(s38)	17	42	(262)
2007 Ott 10	2454383.991030	11	47	05.0	6	25	( 99)	12	03	(s37)	17	40	(261)
2007 Ott 11	2454384.990848	11	46	49.2	6	27	( 99)	12	03	(s37)	17	38	(261)
2007 Ott 12	2454385.990671	11	46	34.0	6	28	(100)	12	03	(s37)	17	36	(260)
2007 Ott 13	2454386.990500	11	46	19.2	6	29	(100)	12	02	(s36)	17	35	(260)
2007 Ott 14	2454387.990336	11	46	05.0	6	31	(101)	12	02	(s36)	17	33	(259)
2007 Ott 15	2454388.990177	11	45	51.3	6	32	(101)	12	02	(s36)	17	31	(259)
2007 Ott 16	2454389.990025	11	45	38.1	6	33	(102)	12	02	(s35)	17	29	(258)
2007 Ott 17	2454390.989879	11	45	25.5	6	35	(102)	12	01	(s35)	17	27	(257)
2007 Ott 18	2454391.989740	11	45	13.5	6	36	(103)	12	01	(s34)	17	26	(257)
2007 Ott 19	2454392.989607	11	45	02.1	6	38	(103)	12	01	(s34)	17	24	(256)
2007 Ott 20	2454393.989482	11	44	51.3	6	39	(104)	12	01	(s34)	17	22	(256)
2007 Ott 21	2454394.989364	11	44	41.1	6	40	(104)	12	01	(s33)	17	20	(255)
2007 Ott 22	2454395.989254	11	44	31.5	6	42	(105)	12	01	(s33)	17	19	(255)
2007 Ott 23	2454396.989151	11	44	22.6	6	43	(105)	12	00	(s33)	17	17	(254)
2007 Ott 24	2454397.989055	11	44	14.4	6	44	(106)	12	00	(s32)	17	15	(254)
2007 Ott 25	2454398.988968	11	44	06.8	6	46	(106)	12	00	(s32)	17	14	(253)
2007 Ott 26	2454399.988889	11	44	00.0	6	47	(107)	12	00	(s32)	17	12	(253)
2007 Ott 27	2454400.988818	11	43	53.9	6	49	(107)	12	00	(s31)	17	10	(252)
2007 Ott 28	2454401.988757	11	43	48.6	6	50	(108)	12	00	(s31)	17	09	(252)
2007 Ott 29	2454402.988703	11	43	44.0	6	51	(108)	12	00	(s31)	17	07	(251)
2007 Ott 30	2454403.988660	11	43	40.2	6	53	(109)	12	00	(s30)	17	06	(251)
2007 Ott 31	2454404.988625	11	43	37.2	6	54	(109)	12	00	(s30)	17	04	(250)
2007 Nov 1	2454405.988599	11	43	35.0	6	56	(110)	12	00	(s30)	17	03	(250)
2007 Nov 2	2454406.988583	11	43	33.6	6	57	(110)	12	00	(s29)	17	01	(249)
2007 Nov 3	2454407.988577	11	43	33.0	6	59	(111)	12	00	(s29)	17	00	(249)
2007 Nov 4	2454408.988580	11	43	33.3	7	00	(111)	12	00	(s29)	16	58	(248)
2007 Nov 5	2454409.988593	11	43	34.4	7	01	(112)	12	00	(s28)	16	57	(248)
2007 Nov 6	2454410.988615	11	43	36.4	7	03	(112)	12	00	(s28)	16	56	(248)
2007 Nov 7	2454411.988648	11	43	39.2	7	04	(113)	12	00	(s28)	16	54	(247)

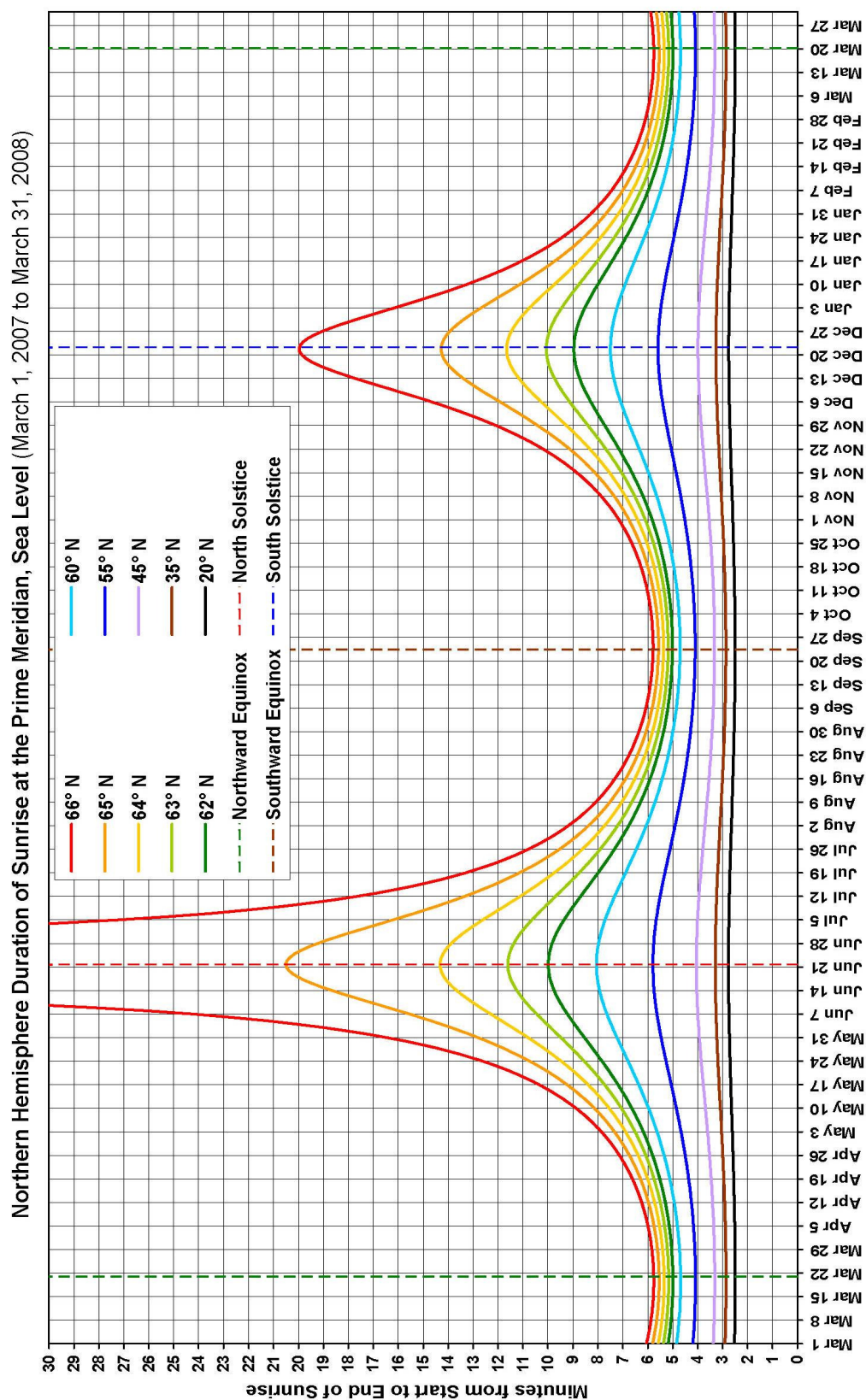


Data	TDT JD	TDT Time			Sorge (Azm)			Trans (Alt)			Tramonta (Azm)		
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2007 Nov 8	2454412.988690	11	43	42.8	7	06	(113)	12	00	(s28)	16	53	(247)
2007 Nov 9	2454413.988742	11	43	47.3	7	07	(114)	12	00	(s27)	16	52	(246)
2007 Nov 10	2454414.988804	11	43	52.7	7	09	(114)	12	00	(s27)	16	51	(246)
2007 Nov 11	2454415.988876	11	43	58.9	7	10	(114)	12	00	(s27)	16	49	(245)
2007 Nov 12	2454416.988957	11	44	05.9	7	11	(115)	12	00	(s26)	16	48	(245)
2007 Nov 13	2454417.989048	11	44	13.8	7	13	(115)	12	00	(s26)	16	47	(245)
2007 Nov 14	2454418.989149	11	44	22.5	7	14	(116)	12	00	(s26)	16	46	(244)
2007 Nov 15	2454419.989260	11	44	32.1	7	16	(116)	12	01	(s26)	16	45	(244)
2007 Nov 16	2454420.989380	11	44	42.5	7	17	(116)	12	01	(s25)	16	44	(243)
2007 Nov 17	2454421.989510	11	44	53.7	7	19	(117)	12	01	(s25)	16	43	(243)
2007 Nov 18	2454422.989649	11	45	05.7	7	20	(117)	12	01	(s25)	16	42	(243)
2007 Nov 19	2454423.989798	11	45	18.5	7	21	(118)	12	01	(s25)	16	41	(242)
2007 Nov 20	2454424.989956	11	45	32.2	7	23	(118)	12	02	(s24)	16	40	(242)
2007 Nov 21	2454425.990123	11	45	46.6	7	24	(118)	12	02	(s24)	16	39	(242)
2007 Nov 22	2454426.990299	11	46	01.8	7	25	(119)	12	02	(s24)	16	38	(241)
2007 Nov 23	2454427.990484	11	46	17.8	7	27	(119)	12	02	(s24)	16	38	(241)
2007 Nov 24	2454428.990678	11	46	34.6	7	28	(119)	12	03	(s24)	16	37	(241)
2007 Nov 25	2454429.990882	11	46	52.2	7	29	(120)	12	03	(s23)	16	36	(240)
2007 Nov 26	2454430.991094	11	47	10.5	7	31	(120)	12	03	(s23)	16	35	(240)
2007 Nov 27	2454431.991314	11	47	29.6	7	32	(120)	12	03	(s23)	16	35	(240)
2007 Nov 28	2454432.991543	11	47	49.4	7	33	(120)	12	04	(s23)	16	34	(239)
2007 Nov 29	2454433.991781	11	48	09.9	7	34	(121)	12	04	(s23)	16	34	(239)
2007 Nov 30	2454434.992027	11	48	31.1	7	36	(121)	12	05	(s22)	16	33	(239)
2007 Dic 1	2454435.992281	11	48	53.1	7	37	(121)	12	05	(s22)	16	33	(239)
2007 Dic 2	2454436.992542	11	49	15.7	7	38	(121)	12	05	(s22)	16	32	(238)
2007 Dic 3	2454437.992811	11	49	38.9	7	39	(122)	12	06	(s22)	16	32	(238)
2007 Dic 4	2454438.993088	11	50	02.8	7	40	(122)	12	06	(s22)	16	32	(238)
2007 Dic 5	2454439.993371	11	50	27.3	7	41	(122)	12	06	(s22)	16	31	(238)
2007 Dic 6	2454440.993661	11	50	52.3	7	42	(122)	12	07	(s22)	16	31	(238)
2007 Dic 7	2454441.993957	11	51	17.9	7	43	(123)	12	07	(s21)	16	31	(237)
2007 Dic 8	2454442.994259	11	51	44.0	7	44	(123)	12	08	(s21)	16	31	(237)
2007 Dic 9	2454443.994567	11	52	10.6	7	45	(123)	12	08	(s21)	16	31	(237)
2007 Dic 10	2454444.994880	11	52	37.6	7	46	(123)	12	09	(s21)	16	31	(237)
2007 Dic 11	2454445.995197	11	53	05.0	7	47	(123)	12	09	(s21)	16	31	(237)
2007 Dic 12	2454446.995519	11	53	32.9	7	48	(123)	12	10	(s21)	16	31	(237)
2007 Dic 13	2454447.995845	11	54	01.1	7	49	(123)	12	10	(s21)	16	31	(237)
2007 Dic 14	2454448.996175	11	54	29.5	7	50	(123)	12	10	(s21)	16	31	(236)
2007 Dic 15	2454449.996508	11	54	58.3	7	51	(124)	12	11	(s21)	16	31	(236)
2007 Dic 16	2454450.996844	11	55	27.3	7	51	(124)	12	11	(s21)	16	31	(236)
2007 Dic 17	2454451.997182	11	55	56.6	7	52	(124)	12	12	(s21)	16	32	(236)
2007 Dic 18	2454452.997523	11	56	26.0	7	53	(124)	12	12	(s21)	16	32	(236)
2007 Dic 19	2454453.997864	11	56	55.5	7	54	(124)	12	13	(s21)	16	32	(236)
2007 Dic 20	2454454.998208	11	57	25.1	7	54	(124)	12	13	(s21)	16	33	(236)
2007 Dic 21	2454455.998552	11	57	54.9	7	55	(124)	12	14	(s21)	16	33	(236)
2007 Dic 22	2454456.998896	11	58	24.6	7	55	(124)	12	14	(s21)	16	34	(236)
2007 Dic 23	2454457.999241	11	58	54.4	7	56	(124)	12	15	(s21)	16	34	(236)
2007 Dic 24	2454458.999586	11	59	24.2	7	56	(124)	12	15	(s21)	16	35	(236)
2007 Dic 25	2454459.999930	11	59	54.0	7	56	(124)	12	16	(s21)	16	35	(236)
2007 Dic 26	2454461.000273	12	00	23.6	7	57	(124)	12	16	(s21)	16	36	(236)
2007 Dic 27	2454462.000616	12	00	53.2	7	57	(124)	12	17	(s21)	16	37	(236)
2007 Dic 28	2454463.000957	12	01	22.6	7	57	(124)	12	17	(s21)	16	37	(236)
2007 Dic 29	2454464.001296	12	01	51.9	7	58	(124)	12	18	(s21)	16	38	(236)
2007 Dic 30	2454465.001632	12	02	21.0	7	58	(123)	12	18	(s21)	16	39	(237)
2007 Dic 31	2454466.001967	12	02	49.9	7	58	(123)	12	19	(s21)	16	40	(237)
2008 Gen 1	2454467.002298	12	03	18.5	7	58	(123)	12	19	(s21)	16	41	(237)

Tempi in ore locali, non in T.U.

© (1)

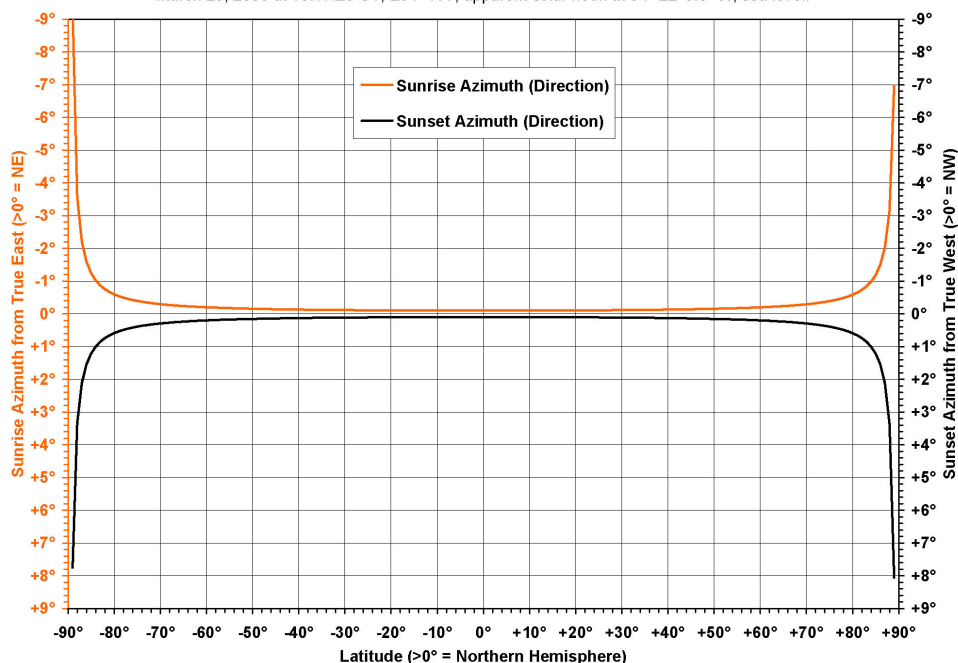
# DURATA DELLA LEVATA E DEL TRAMONTO



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

### Northward Equinox: Sunrise and Sunset Azimuth (Direction) vs. Latitude

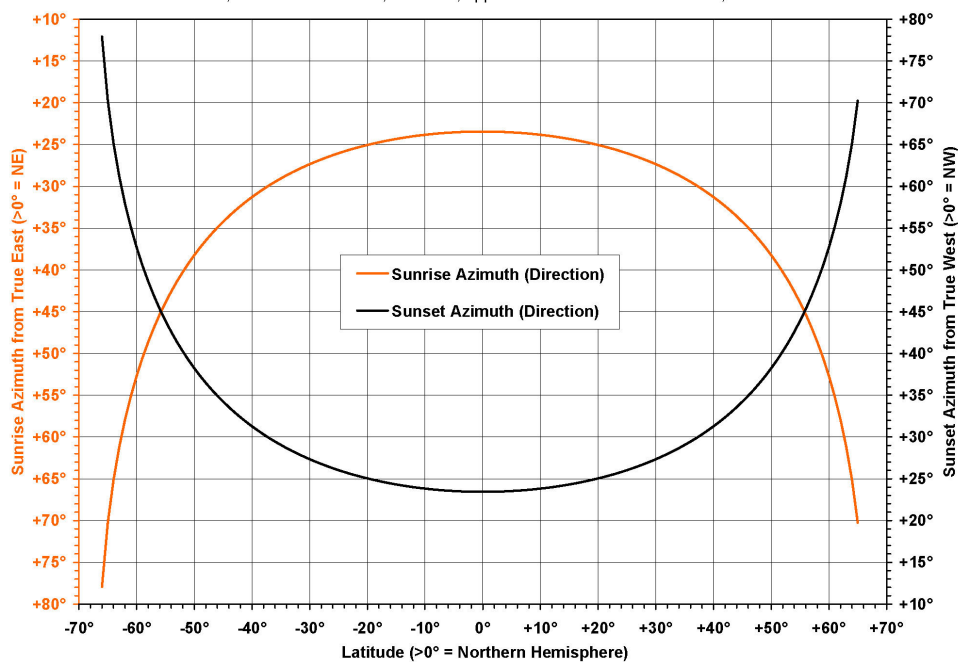
March 20, 2006 at 18:17:28 UT, EoT -7.4', apparent solar noon at 94° 22' 5.3" W, sea level.



Posizione dell'azimut del Sole all'alba ed al tramonto, all'equinozio di primavera, alle varie latitudini  
© (2)

### North Solstice: Sunrise and Sunset Azimuth (Direction) vs. Latitude

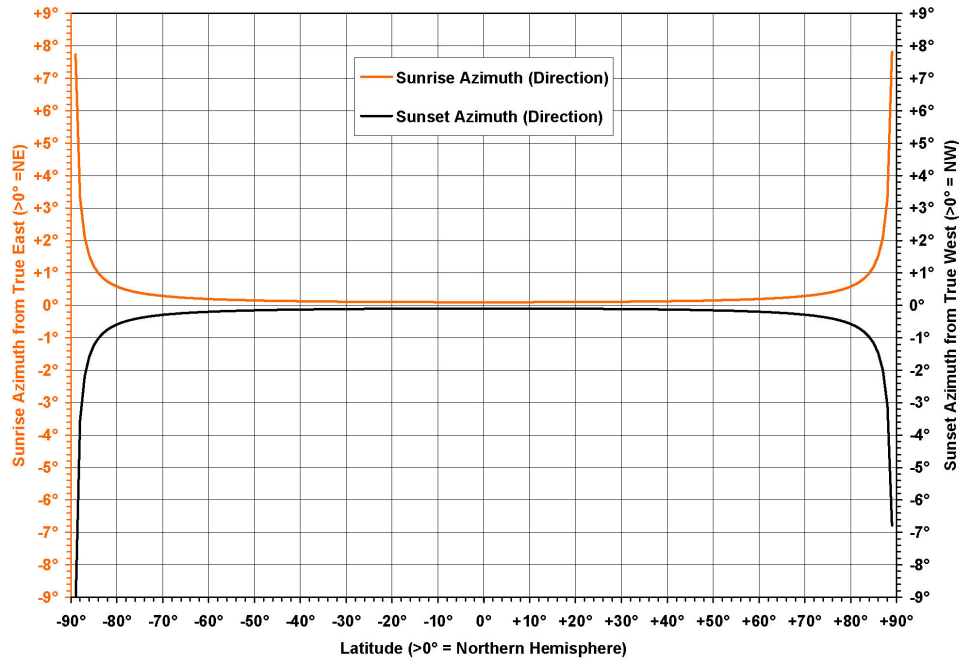
June 21, 2006 at 12:23:34 UT, EoT -1.7', apparent solar noon at 5° 53' 33" W, sea level.



Posizione dell'azimut del Sole all'alba ed al tramonto, al solstizio d'estate, alle varie latitudini © (2)

### Southward Equinox: Sunrise and Sunset Azimuth (Direction) vs. Latitude

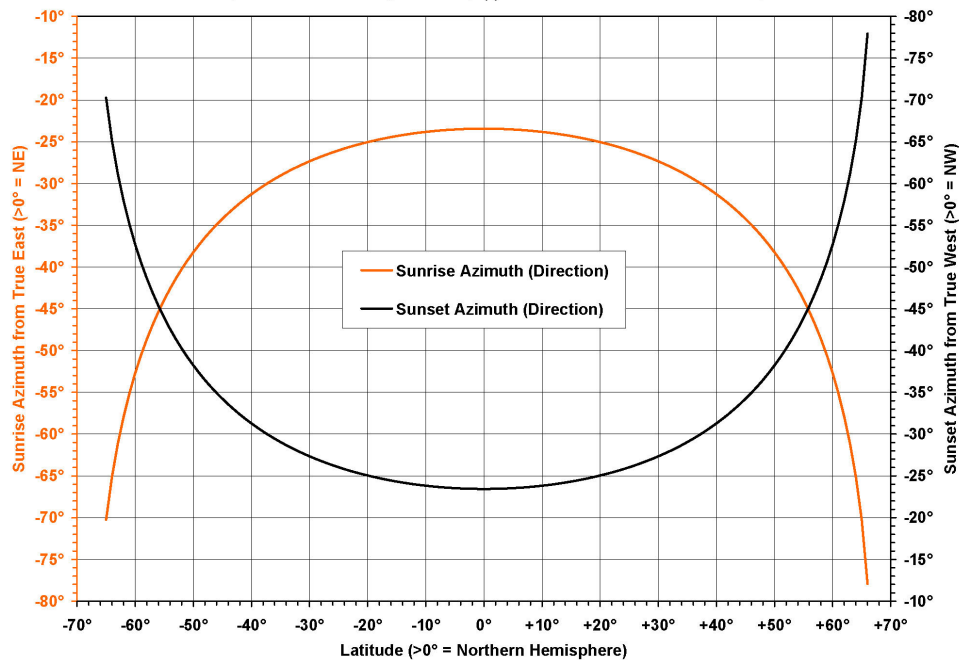
September 23, 2006 at 04:10:39 UT, EoT +7.5', apparent solar noon at 117° 20' 16.8" E, sea level.



Posizione dell'azimut del Sole all'alba ed al tramonto, all'equinozio d'autunno, alle varie latitudini  
© (2)

### South Solstice: Sunrise and Sunset Azimuth (Direction) vs. Latitude

December 22, 2006 at 00:23:15 UT, EoT +1.7', apparent solar noon at 174° 11' 13.1" E, sea level.



Posizione dell'azimut del Sole all'alba ed al tramonto, al solstizio d'inverno, alle varie latitudini  
© (2)

# CREPUSCOLI

Longitudine:E 11 00.0

Latitudine:N 46 00.0

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
2007 Gen 1	7 24	17 15	6 46	17 53	6 10	18 29
2007 Gen 2	7 24	17 16	6 46	17 54	6 10	18 30
2007 Gen 3	7 24	17 17	6 46	17 55	6 10	18 31
2007 Gen 4	7 24	17 18	6 46	17 56	6 10	18 32
2007 Gen 5	7 24	17 19	6 46	17 57	6 10	18 33
2007 Gen 6	7 23	17 20	6 46	17 58	6 10	18 34
2007 Gen 7	7 23	17 21	6 46	17 59	6 10	18 35
2007 Gen 8	7 23	17 22	6 46	18 00	6 10	18 36
2007 Gen 9	7 23	17 23	6 45	18 01	6 09	18 37
2007 Gen 10	7 23	17 24	6 45	18 02	6 09	18 38
2007 Gen 11	7 22	17 25	6 45	18 03	6 09	18 39
2007 Gen 12	7 22	17 27	6 45	18 04	6 09	18 40
2007 Gen 13	7 22	17 28	6 44	18 05	6 09	18 41
2007 Gen 14	7 21	17 29	6 44	18 06	6 08	18 42
2007 Gen 15	7 21	17 30	6 44	18 07	6 08	18 43
2007 Gen 16	7 20	17 31	6 43	18 08	6 07	18 44
2007 Gen 17	7 20	17 33	6 43	18 10	6 07	18 45
2007 Gen 18	7 19	17 34	6 42	18 11	6 07	18 46
2007 Gen 19	7 18	17 35	6 42	18 12	6 06	18 48
2007 Gen 20	7 18	17 36	6 41	18 13	6 06	18 49
2007 Gen 21	7 17	17 38	6 40	18 14	6 05	18 50
2007 Gen 22	7 16	17 39	6 40	18 16	6 04	18 51
2007 Gen 23	7 16	17 40	6 39	18 17	6 04	18 52
2007 Gen 24	7 15	17 42	6 38	18 18	6 03	18 54
2007 Gen 25	7 14	17 43	6 38	18 19	6 02	18 55
2007 Gen 26	7 13	17 44	6 37	18 21	6 01	18 56
2007 Gen 27	7 12	17 46	6 36	18 22	6 01	18 57
2007 Gen 28	7 11	17 47	6 35	18 23	6 00	18 58
2007 Gen 29	7 10	17 48	6 34	18 25	5 59	19 00
2007 Gen 30	7 09	17 50	6 33	18 26	5 58	19 01
2007 Gen 31	7 08	17 51	6 32	18 27	5 57	19 02
2007 Feb 1	7 07	17 53	6 31	18 28	5 56	19 04
2007 Feb 2	7 06	17 54	6 30	18 30	5 55	19 05
2007 Feb 3	7 05	17 55	6 29	18 31	5 54	19 06
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2007 Feb 5	7 02	17 58	6 27	18 34	5 52	19 09
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2007 Feb 7	7 00	18 01	6 24	18 36	5 50	19 11
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2007 Feb 16	6 47	18 14	6 12	18 49	5 38	19 23
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2007 Feb 20	6 41	18 19	6 06	18 54	5 32	19 29
2007 Feb 21	6 39	18 21	6 05	18 55	5 30	19 30
2007 Feb 22	6 38	18 22	6 03	18 57	5 29	19 31
2007 Feb 23	6 36	18 23	6 01	18 58	5 27	19 33
2007 Feb 24	6 34	18 25	6 00	19 00	5 25	19 34
2007 Feb 25	6 33	18 26	5 58	19 01	5 24	19 36
2007 Feb 26	6 31	18 28	5 56	19 02	5 22	19 37
2007 Feb 27	6 29	18 29	5 55	19 04	5 20	19 38
2007 Feb 28	6 28	18 30	5 53	19 05	5 18	19 40
2007 Mar 1	6 26	18 32	5 51	19 06	5 17	19 41
2007 Mar 2	6 24	18 33	5 50	19 08	5 15	19 42
2007 Mar 3	6 22	18 35	5 48	19 09	5 13	19 44
2007 Mar 4	6 21	18 36	5 46	19 10	5 11	19 45
2007 Mar 5	6 19	18 37	5 44	19 12	5 09	19 47
2007 Mar 6	6 17	18 39	5 42	19 13	5 08	19 48
2007 Mar 7	6 15	18 40	5 41	19 15	5 06	19 50
2007 Mar 8	6 13	18 41	5 39	19 16	5 04	19 51
2007 Mar 9	6 11	18 43	5 37	19 17	5 02	19 52
2007 Mar 10	6 10	18 44	5 35	19 19	5 00	19 54
2007 Mar 11	6 08	18 45	5 33	19 20	4 58	19 55
2007 Mar 12	6 06	18 47	5 31	19 22	4 56	19 57
2007 Mar 13	6 04	18 48	5 29	19 23	4 54	19 58

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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2007 Mar 15	6 00	18 51	5 25	19 26	4 50	20 01
2007 Mar 16	5 58	18 52	5 23	19 27	4 48	20 03
2007 Mar 17	5 56	18 54	5 21	19 29	4 46	20 04
2007 Mar 18	5 54	18 55	5 19	19 30	4 44	20 06
2007 Mar 19	5 52	18 56	5 17	19 31	4 42	20 07
2007 Mar 20	5 50	18 58	5 15	19 33	4 40	20 09
2007 Mar 21	5 48	18 59	5 13	19 34	4 37	20 10
2007 Mar 22	5 46	19 00	5 11	19 36	4 35	20 12
2007 Mar 23	5 45	19 02	5 09	19 37	4 33	20 13
2007 Mar 24	5 43	19 03	5 07	19 38	4 31	20 15
2007 Mar 25	5 41	19 05	5 05	19 40	4 29	20 17
2007 Mar 26	5 39	19 06	5 03	19 41	4 27	20 18
2007 Mar 27	5 37	19 07	5 01	19 43	4 25	20 20
2007 Mar 28	5 35	19 09	4 59	19 44	4 22	20 21
2007 Mar 29	5 33	19 10	4 57	19 46	4 20	20 23
2007 Mar 30	5 31	19 11	4 55	19 47	4 18	20 25
2007 Mar 31	5 29	19 13	4 53	19 49	4 16	20 26
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2007 Apr 2	5 25	19 15	4 49	19 52	4 11	20 30
2007 Apr 3	5 23	19 17	4 47	19 53	4 09	20 31
2007 Apr 4	5 21	19 18	4 45	19 55	4 07	20 33
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2007 Apr 7	5 15	19 22	4 38	19 59	4 00	20 38
2007 Apr 8	5 13	19 24	4 36	20 01	3 57	20 40
2007 Apr 9	5 11	19 25	4 34	20 02	3 55	20 42
2007 Apr 10	5 09	19 27	4 32	20 04	3 53	20 43
2007 Apr 11	5 07	19 28	4 30	20 05	3 50	20 45
2007 Apr 12	5 05	19 29	4 28	20 07	3 48	20 47
2007 Apr 13	5 03	19 31	4 26	20 09	3 46	20 49
2007 Apr 14	5 02	19 32	4 24	20 10	3 43	20 51
2007 Apr 15	5 00	19 34	4 22	20 12	3 41	20 53
2007 Apr 16	4 58	19 35	4 20	20 13	3 39	20 54
2007 Apr 17	4 56	19 36	4 18	20 15	3 36	20 56
2007 Apr 18	4 54	19 38	4 16	20 16	3 34	20 58
2007 Apr 19	4 52	19 39	4 14	20 18	3 32	21 00
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2007 Apr 23	4 45	19 45	4 05	20 25	3 22	21 08
2007 Apr 24	4 43	19 46	4 03	20 26	3 20	21 10
2007 Apr 25	4 41	19 48	4 01	20 28	3 18	21 12
2007 Apr 26	4 39	19 49	3 59	20 30	3 15	21 14
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2007 Apr 28	4 36	19 52	3 56	20 33	3 11	21 18
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2007 Apr 30	4 32	19 55	3 52	20 36	3 06	21 22
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2007 Mag 4	4 26	20 01	3 44	20 43	2 57	21 31
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2007 Mag 6	4 23	20 04	3 40	20 46	2 52	21 35
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2007 Mag 8	4 20	20 06	3 37	20 50	2 47	21 39
2007 Mag 9	4 18	20 08	3 35	20 51	2 45	21 42
2007 Mag 10	4 17	20 09	3 33	20 53	2 43	21 44
2007 Mag 11	4 15	20 11	3 31	20 54	2 40	21 46
2007 Mag 12	4 14	20 12	3 30	20 56	2 38	21 48
2007 Mag 13	4 12	20 13	3 28	20 58	2 36	21 50
2007 Mag 14	4 11	20 15	3 26	20 59	2 34	21 53
2007 Mag 15	4 10	20 16	3 25	21 01	2 32	21 55
2007 Mag 16	4 08	20 17	3 23	21 03	2 29	21 57
2007 Mag 17	4 07	20 19	3 22	21 04	2 27	21 59
2007 Mag 18	4 06	20 20	3 20	21 06	2 25	22 02
2007 Mag 19	4 04	20 21	3 19	21 07	2 23	22 04
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2007 Mag 21	4 02	20 24	3 16	21 11	2 19	22 08
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2007 Mag 24	3 59	20 28	3 12	21 15	2 13	22 15
2007 Mag 25	3 58	20 29	3 10	21 16	2 11	22 17
2007 Mag 26	3 57	20 30	3 09	21 18	2 09	22 19
2007 Mag 27	3 56	20 31	3 08	21 19	2 07	22 21
2007 Mag 28	3 55	20 32	3 07	21 21	2 05	22 23
2007 Mag 29	3 54	20 33	3 06	21 22	2 03	22 25
2007 Mag 30	3 53	20 34	3 05	21 23	2 02	22 27
2007 Mag 31	3 53	20 35	3 03	21 25	2 00	22 29

Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
	h m	h m	h m	h m	h m	h m
2007 Giu 1	3 52	20 36	3 03	21 26	1 58	22 31
2007 Giu 2	3 51	20 37	3 02	21 27	1 57	22 33
2007 Giu 3	3 50	20 38	3 01	21 28	1 55	22 34
2007 Giu 4	3 50	20 39	3 00	21 29	1 54	22 36
2007 Giu 5	3 49	20 40	2 59	21 30	1 52	22 38
2007 Giu 6	3 49	20 41	2 58	21 32	1 51	22 40
2007 Giu 7	3 48	20 42	2 58	21 33	1 50	22 41
2007 Giu 8	3 48	20 43	2 57	21 33	1 49	22 43
2007 Giu 9	3 47	20 43	2 56	21 34	1 47	22 44
2007 Giu 10	3 47	20 44	2 56	21 35	1 46	22 45
2007 Giu 11	3 47	20 45	2 56	21 36	1 45	22 47
2007 Giu 12	3 47	20 45	2 55	21 37	1 45	22 48
2007 Giu 13	3 46	20 46	2 55	21 38	1 44	22 49
2007 Giu 14	3 46	20 46	2 55	21 38	1 43	22 50
2007 Giu 15	3 46	20 47	2 54	21 39	1 43	22 51
2007 Giu 16	3 46	20 47	2 54	21 39	1 42	22 52
2007 Giu 17	3 46	20 48	2 54	21 40	1 42	22 52
2007 Giu 18	3 46	20 48	2 54	21 40	1 42	22 53
2007 Giu 19	3 46	20 48	2 54	21 41	1 41	22 53
2007 Giu 20	3 46	20 49	2 54	21 41	1 41	22 54
2007 Giu 21	3 46	20 49	2 54	21 41	1 41	22 54
2007 Giu 22	3 47	20 49	2 55	21 41	1 42	22 54
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2007 Giu 25	3 48	20 49	2 56	21 41	1 43	22 54
2007 Giu 26	3 48	20 50	2 56	21 41	1 44	22 54
2007 Giu 27	3 48	20 49	2 56	21 41	1 44	22 53
2007 Giu 28	3 49	20 49	2 57	21 41	1 45	22 53
2007 Giu 29	3 49	20 49	2 58	21 41	1 46	22 52
2007 Giu 30	3 50	20 49	2 58	21 41	1 47	22 51
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2007 Lug 15	4 02	20 41	3 14	21 29	2 11	22 31
2007 Lug 16	4 03	20 40	3 15	21 28	2 13	22 29
2007 Lug 17	4 05	20 39	3 16	21 27	2 15	22 28
2007 Lug 18	4 06	20 38	3 18	21 26	2 17	22 26
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2007 Lug 29	4 19	20 25	3 34	21 10	2 41	22 03
2007 Lug 30	4 20	20 24	3 36	21 08	2 43	22 00
2007 Lug 31	4 22	20 22	3 37	21 06	2 45	21 58
2007 Ago 1	4 23	20 21	3 39	21 05	2 47	21 56
2007 Ago 2	4 24	20 19	3 41	21 03	2 49	21 54
2007 Ago 3	4 26	20 18	3 42	21 01	2 51	21 51
2007 Ago 4	4 27	20 16	3 44	20 59	2 53	21 49
2007 Ago 5	4 28	20 15	3 45	20 57	2 55	21 47
2007 Ago 6	4 30	20 13	3 47	20 56	2 58	21 45
2007 Ago 7	4 31	20 12	3 49	20 54	3 00	21 42
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2007 Ago 13	4 39	20 02	3 58	20 42	3 12	21 28
2007 Ago 14	4 41	20 00	4 00	20 40	3 14	21 26
2007 Ago 15	4 42	19 58	4 01	20 38	3 16	21 23
2007 Ago 16	4 43	19 56	4 03	20 36	3 18	21 21
2007 Ago 17	4 45	19 55	4 05	20 34	3 20	21 19
2007 Ago 18	4 46	19 53	4 06	20 32	3 22	21 16

Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
	h m	h m	h m	h m	h m	h m
2007 Ago 19	4 48	19 51	4 08	20 30	3 24	21 14
2007 Ago 20	4 49	19 49	4 09	20 28	3 26	21 12
2007 Ago 21	4 50	19 47	4 11	20 26	3 28	21 09
2007 Ago 22	4 52	19 45	4 12	20 24	3 30	21 07
2007 Ago 23	4 53	19 44	4 14	20 22	3 32	21 04
2007 Ago 24	4 54	19 42	4 16	20 20	3 33	21 02
2007 Ago 25	4 56	19 40	4 17	20 18	3 35	21 00
2007 Ago 26	4 57	19 38	4 19	20 16	3 37	20 57
2007 Ago 27	4 58	19 36	4 20	20 14	3 39	20 55
2007 Ago 28	5 00	19 34	4 22	20 12	3 41	20 53
2007 Ago 29	5 01	19 32	4 23	20 10	3 42	20 50
2007 Ago 30	5 02	19 30	4 25	20 08	3 44	20 48
2007 Ago 31	5 04	19 28	4 26	20 06	3 46	20 45
2007 Set 1	5 05	19 26	4 28	20 03	3 48	20 43
2007 Set 2	5 06	19 24	4 29	20 01	3 49	20 41
2007 Set 3	5 08	19 22	4 31	19 59	3 51	20 38
2007 Set 4	5 09	19 20	4 32	19 57	3 53	20 36
2007 Set 5	5 10	19 18	4 33	19 55	3 54	20 34
2007 Set 6	5 12	19 16	4 35	19 53	3 56	20 31
2007 Set 7	5 13	19 14	4 36	19 51	3 58	20 29
2007 Set 8	5 14	19 12	4 38	19 49	3 59	20 27
2007 Set 9	5 16	19 10	4 39	19 47	4 01	20 25
2007 Set 10	5 17	19 08	4 41	19 44	4 03	20 22
2007 Set 11	5 18	19 06	4 42	19 42	4 04	20 20
2007 Set 12	5 19	19 04	4 43	19 40	4 06	20 18
2007 Set 13	5 21	19 02	4 45	19 38	4 07	20 15
2007 Set 14	5 22	19 00	4 46	19 36	4 09	20 13
2007 Set 15	5 23	18 58	4 48	19 34	4 11	20 11
2007 Set 16	5 25	18 56	4 49	19 32	4 12	20 09
2007 Set 17	5 26	18 54	4 50	19 30	4 14	20 06
2007 Set 18	5 27	18 52	4 52	19 28	4 15	20 04
2007 Set 19	5 28	18 50	4 53	19 26	4 17	20 02
2007 Set 20	5 30	18 48	4 54	19 24	4 18	20 00
2007 Set 21	5 31	18 46	4 56	19 22	4 20	19 58
2007 Set 22	5 32	18 44	4 57	19 19	4 21	19 56
2007 Set 23	5 34	18 42	4 59	19 17	4 22	19 53
2007 Set 24	5 35	18 41	5 00	19 15	4 24	19 51
2007 Set 25	5 36	18 39	5 01	19 13	4 25	19 49
2007 Set 26	5 37	18 37	5 03	19 11	4 27	19 47
2007 Set 27	5 39	18 35	5 04	19 09	4 28	19 45
2007 Set 28	5 40	18 33	5 05	19 07	4 30	19 43
2007 Set 29	5 41	18 31	5 06	19 05	4 31	19 41
2007 Set 30	5 43	18 29	5 08	19 03	4 32	19 39
2007 Ott 1	5 44	18 27	5 09	19 01	4 34	19 37
2007 Ott 2	5 45	18 25	5 10	19 00	4 35	19 35
2007 Ott 3	5 46	18 23	5 12	18 58	4 37	19 33
2007 Ott 4	5 48	18 21	5 13	18 56	4 38	19 31
2007 Ott 5	5 49	18 19	5 14	18 54	4 39	19 29
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2007 Ott 14	6 01	18 03	5 26	18 37	4 51	19 12
2007 Ott 15	6 02	18 01	5 27	18 36	4 53	19 10
2007 Ott 16	6 03	17 59	5 29	18 34	4 54	19 08
2007 Ott 17	6 05	17 58	5 30	18 32	4 55	19 07
2007 Ott 18	6 06	17 56	5 31	18 30	4 57	19 05
2007 Ott 19	6 07	17 54	5 33	18 29	4 58	19 03
2007 Ott 20	6 09	17 52	5 34	18 27	4 59	19 02
2007 Ott 21	6 10	17 51	5 35	18 25	5 01	19 00
2007 Ott 22	6 11	17 49	5 36	18 24	5 02	18 58
2007 Ott 23	6 13	17 48	5 38	18 22	5 03	18 57
2007 Ott 24	6 14	17 46	5 39	18 21	5 04	18 55
2007 Ott 25	6 15	17 44	5 40	18 19	5 06	18 54
2007 Ott 26	6 17	17 43	5 42	18 18	5 07	18 52
2007 Ott 27	6 18	17 41	5 43	18 16	5 08	18 51
2007 Ott 28	6 19	17 40	5 44	18 15	5 09	18 49
2007 Ott 29	6 21	17 38	5 45	18 13	5 11	18 48
2007 Ott 30	6 22	17 37	5 47	18 12	5 12	18 47
2007 Ott 31	6 23	17 35	5 48	18 11	5 13	18 45
2007 Nov 1	6 25	17 34	5 49	18 09	5 15	18 44
2007 Nov 2	6 26	17 33	5 51	18 08	5 16	18 43
2007 Nov 3	6 27	17 31	5 52	18 07	5 17	18 41
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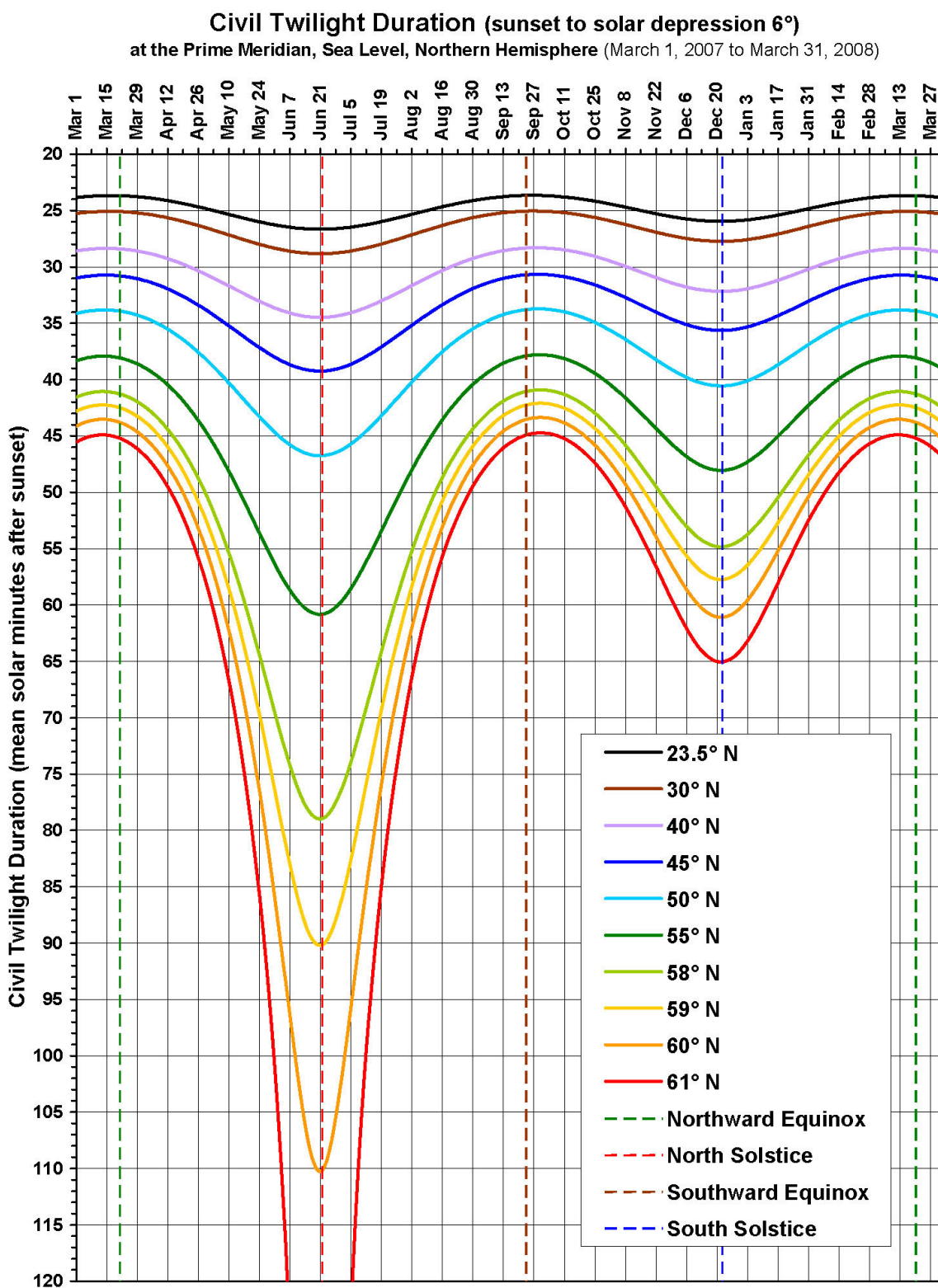


Data	Civile		Nautico		Astronomico	
	Mattino	Sera	Mattino	Sera	Mattino	Sera
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2007 Nov 13	6 41	17 19	6 05	17 55	5 29	18 30
2007 Nov 14	6 42	17 18	6 06	17 54	5 31	18 30
2007 Nov 15	6 43	17 17	6 07	17 53	5 32	18 29
2007 Nov 16	6 45	17 16	6 08	17 53	5 33	18 28
2007 Nov 17	6 46	17 15	6 10	17 52	5 34	18 27
2007 Nov 18	6 47	17 14	6 11	17 51	5 35	18 26
2007 Nov 19	6 48	17 14	6 12	17 50	5 37	18 26
2007 Nov 20	6 50	17 13	6 13	17 49	5 38	18 25
2007 Nov 21	6 51	17 12	6 14	17 49	5 39	18 24
2007 Nov 22	6 52	17 11	6 16	17 48	5 40	18 24
2007 Nov 23	6 54	17 11	6 17	17 47	5 41	18 23
2007 Nov 24	6 55	17 10	6 18	17 47	5 42	18 22
2007 Nov 25	6 56	17 09	6 19	17 46	5 43	18 22
2007 Nov 26	6 57	17 09	6 20	17 46	5 44	18 22
2007 Nov 27	6 58	17 08	6 21	17 45	5 45	18 21
2007 Nov 28	7 00	17 08	6 22	17 45	5 47	18 21
2007 Nov 29	7 01	17 07	6 23	17 44	5 48	18 20
2007 Nov 30	7 02	17 07	6 25	17 44	5 49	18 20
2007 Dic 1	7 03	17 06	6 26	17 44	5 50	18 20
2007 Dic 2	7 04	17 06	6 27	17 44	5 51	18 20
2007 Dic 3	7 05	17 06	6 28	17 43	5 52	18 19
2007 Dic 4	7 06	17 06	6 29	17 43	5 53	18 19
2007 Dic 5	7 07	17 05	6 30	17 43	5 54	18 19
2007 Dic 6	7 08	17 05	6 31	17 43	5 54	18 19
2007 Dic 7	7 09	17 05	6 32	17 43	5 55	18 19
2007 Dic 8	7 10	17 05	6 32	17 43	5 56	18 19
2007 Dic 9	7 11	17 05	6 33	17 43	5 57	18 19
2007 Dic 10	7 12	17 05	6 34	17 43	5 58	18 19
2007 Dic 11	7 13	17 05	6 35	17 43	5 59	18 19
2007 Dic 12	7 14	17 05	6 36	17 43	6 00	18 19
2007 Dic 13	7 15	17 05	6 37	17 43	6 00	18 20
2007 Dic 14	7 15	17 05	6 37	17 43	6 01	18 20
2007 Dic 15	7 16	17 06	6 38	17 44	6 02	18 20
2007 Dic 16	7 17	17 06	6 39	17 44	6 03	18 20
2007 Dic 17	7 18	17 06	6 40	17 44	6 03	18 21
2007 Dic 18	7 18	17 07	6 40	17 45	6 04	18 21
2007 Dic 19	7 19	17 07	6 41	17 45	6 04	18 21
2007 Dic 20	7 19	17 07	6 41	17 45	6 05	18 22
2007 Dic 21	7 20	17 08	6 42	17 46	6 06	18 22
2007 Dic 22	7 21	17 08	6 42	17 46	6 06	18 23
2007 Dic 23	7 21	17 09	6 43	17 47	6 07	18 23
2007 Dic 24	7 21	17 09	6 43	17 47	6 07	18 24
2007 Dic 25	7 22	17 10	6 44	17 48	6 07	18 24
2007 Dic 26	7 22	17 11	6 44	17 49	6 08	18 25
2007 Dic 27	7 23	17 11	6 45	17 49	6 08	18 26
2007 Dic 28	7 23	17 12	6 45	17 50	6 08	18 26
2007 Dic 29	7 23	17 13	6 45	17 51	6 09	18 27
2007 Dic 30	7 23	17 14	6 45	17 51	6 09	18 28
2007 Dic 31	7 23	17 14	6 46	17 52	6 09	18 29
2008 Gen 1	7 24	17 15	6 46	17 53	6 09	18 29

Tempi in ore locali, non in T.U.

© (1)

# DURATA DEI CREPUSCOLI

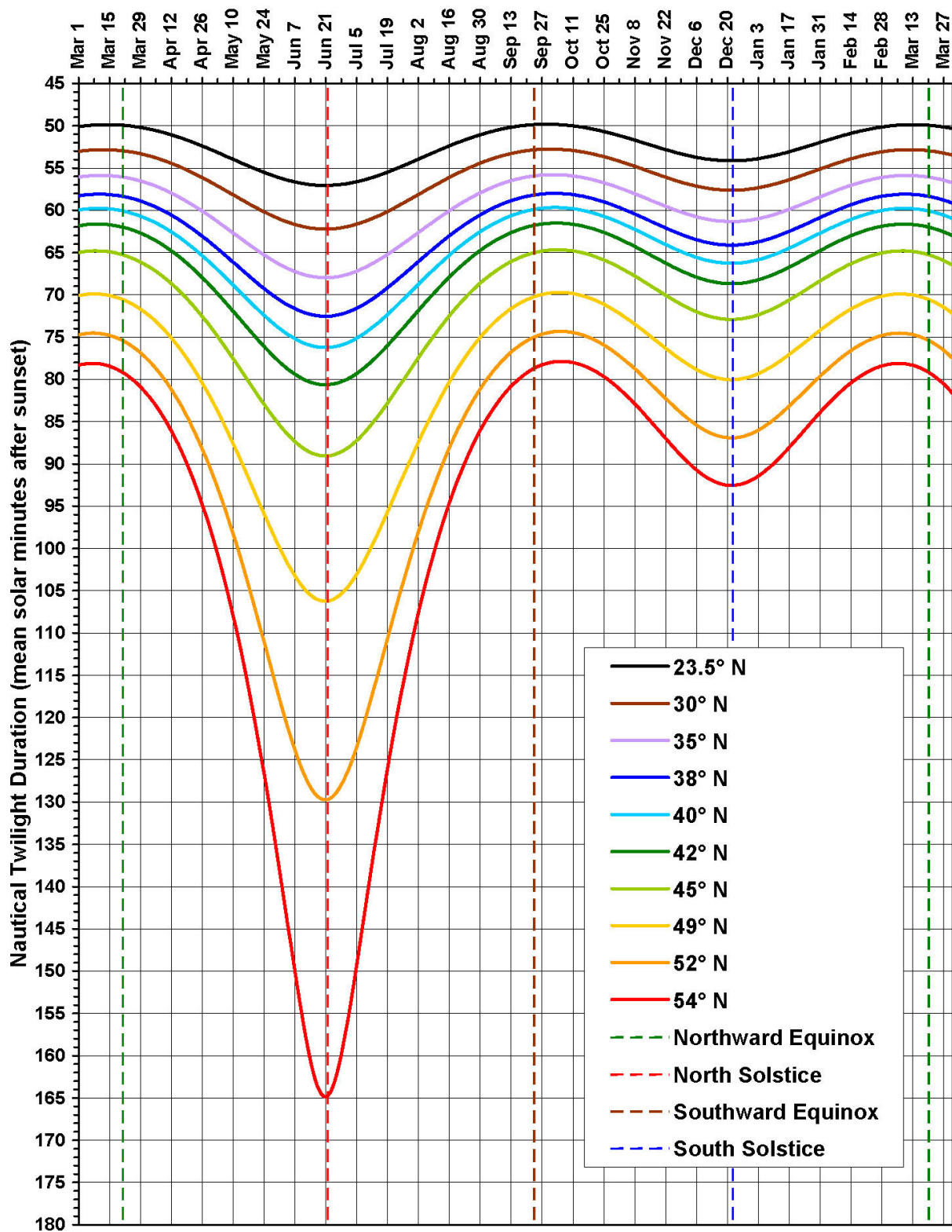


Analysis by Dr. Irv Bromberg, University of Toronto, Canada

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

Durata in minuti del cruscolo civile a varie latitudini.  
(Ovviamente i grafici dei cruposcoli per alba e tramonto, o per l'emisfero sud, sono simmetrici o capovolti) © (2)

**Nautical Twilight Duration (sunset to solar depression 12°)**  
at the Prime Meridian, Sea Level, Northern Hemisphere (March 1, 2007 to March 31, 2008)

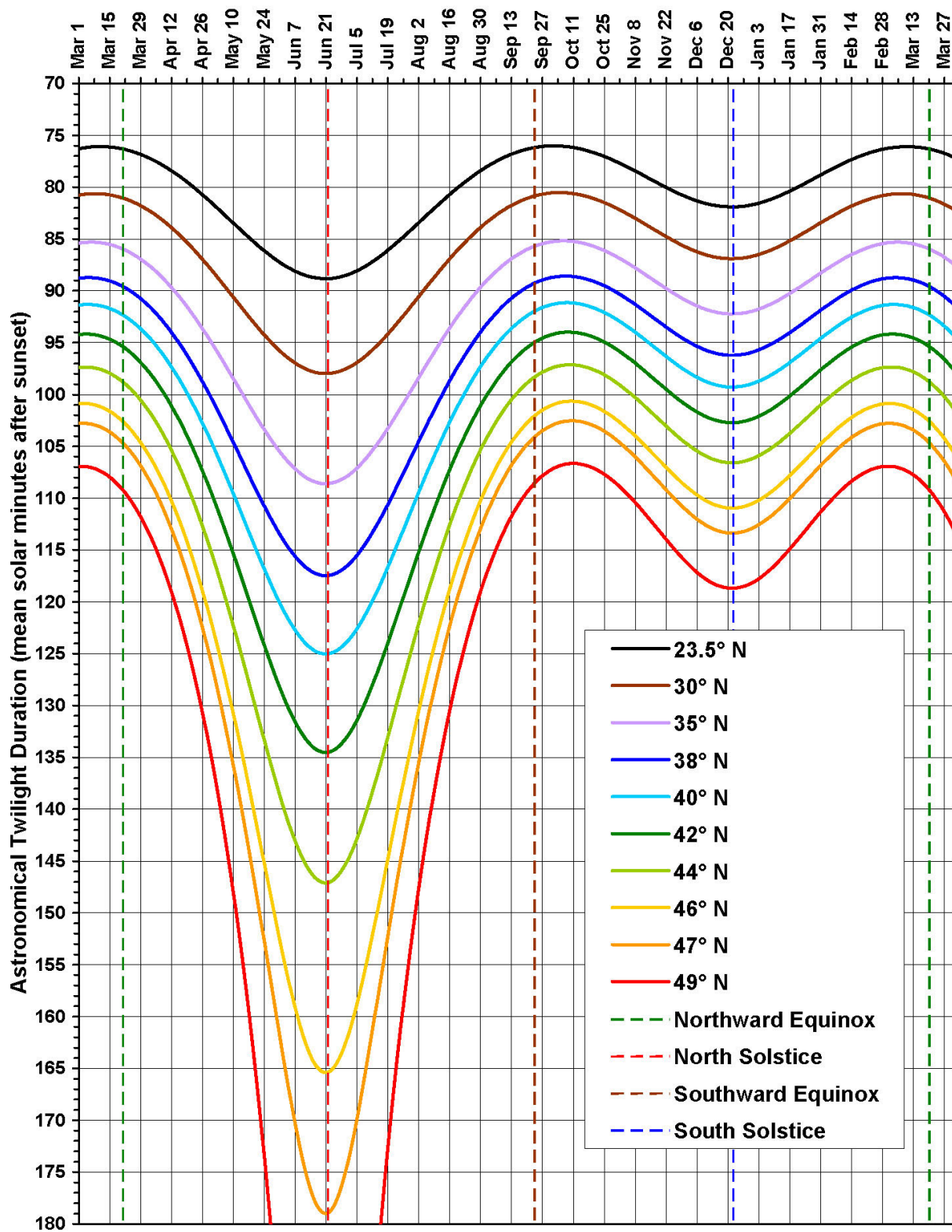


Analysis by Dr. Irv Bromberg, University of Toronto, Canada

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

Durata in minuti del cruscolo nautico a varie latitudini.  
(Ovviamente i grafici dei cruposcoli per alba e tramonto, o per l'emisfero sud, sono simmetrici o capovolti) © (2)

**Astronomical Twilight Duration (sunset to solar depression 18°)**  
 at the Prime Meridian, Sea Level, Northern Hemisphere (March 1, 2007 to March 31, 2008)



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

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

Durata in minuti del cruscolo astronomico a varie latitudini.  
 (Ovviamente i grafici dei cruposcoli per alba e tramonto, o per l'emisfero sud, sono simmetrici o capovolti) © (2)

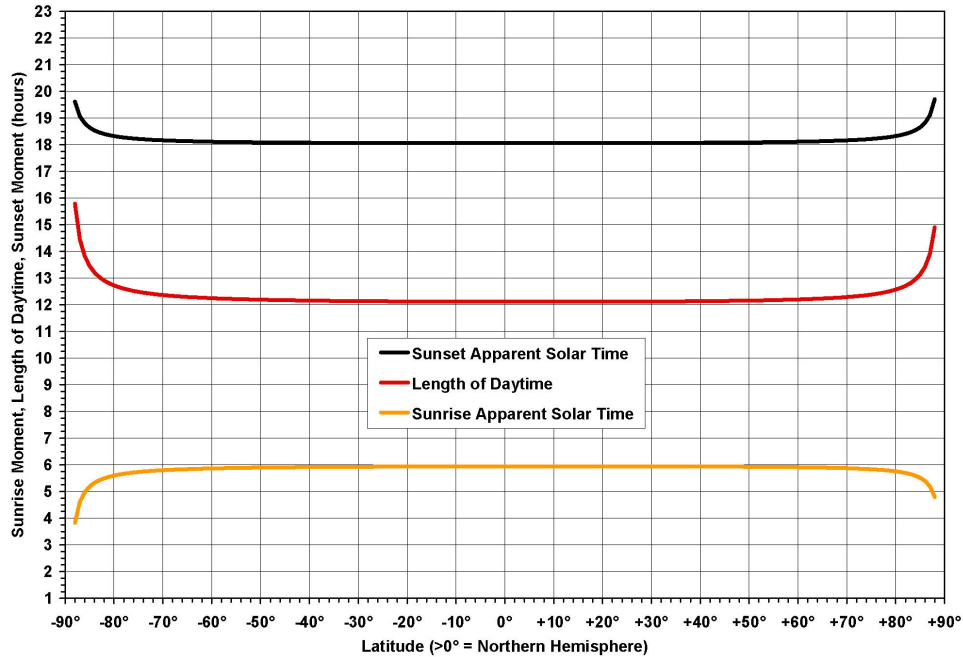
# DURATA DEL GIORNO

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

(mese e giorno)

### Northward Equinox: Sunrise, Length of Daytime, Sunset vs. Latitude

March 20, 2006 at 18:17:28 UT, EoT -7.4', apparent solar noon at 94° 22' 5.3" W, sea level.



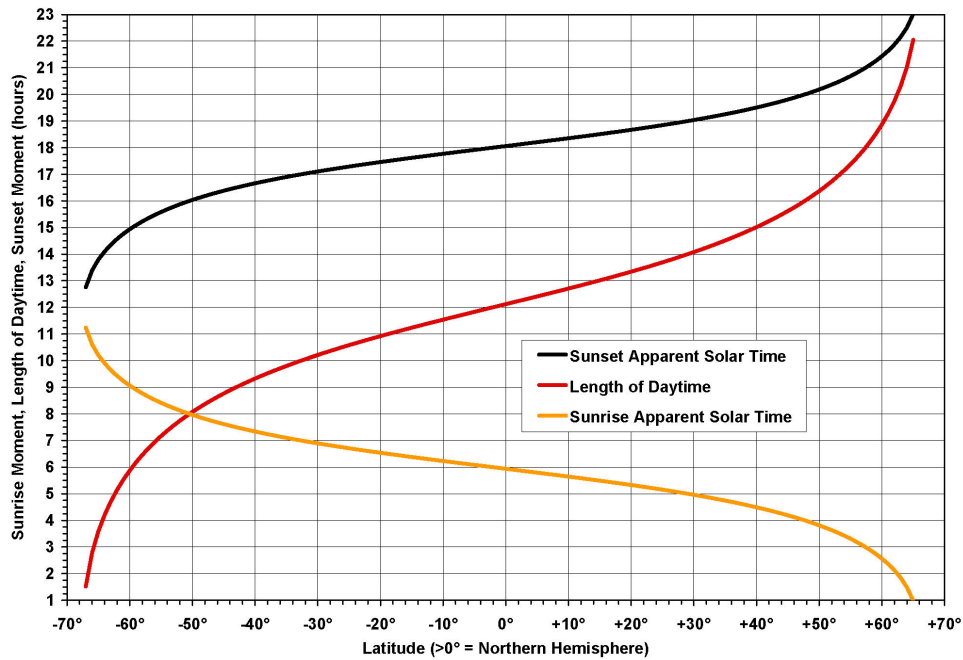
Analysis by Dr. Irv Bromberg, University of Toronto, Canada

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

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

### North Solstice: Sunrise, Length of Daytime, and Sunset vs. Latitude

June 21, 2006 at 12:23:34 UT, EoT -1.7', apparent solar noon at 5° 53' 33" W, sea level.



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

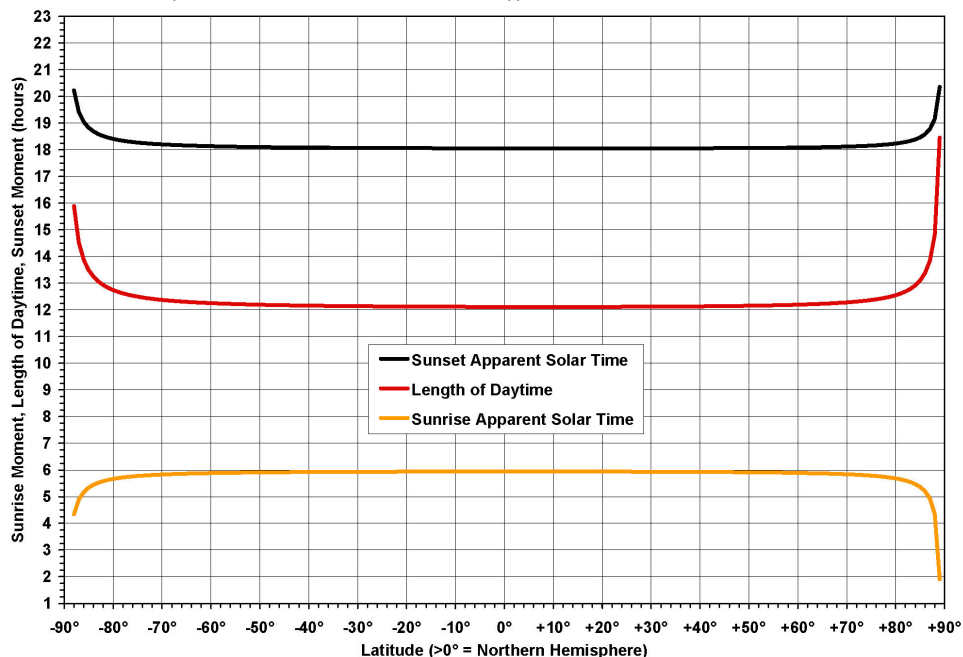
<http://www.sym454.org/seasons/>

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



### Southward Equinox: Sunrise, Length of Daytime, and Sunset vs. Latitude

September 23, 2006 at 04:10:39 UT, EoT +7.5', apparent solar noon at 117° 20' 16.8" E, sea level.



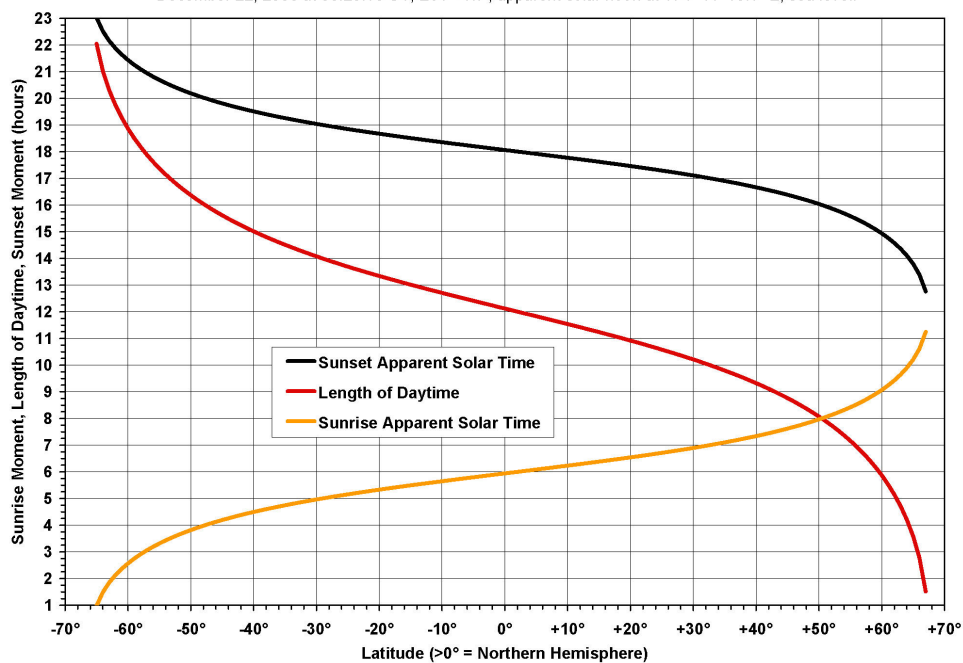
Analysis by Dr. Irv Bromberg, University of Toronto, Canada

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

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

### South Solstice: Sunrise, Length of Daytime, and Sunset vs. Latitude

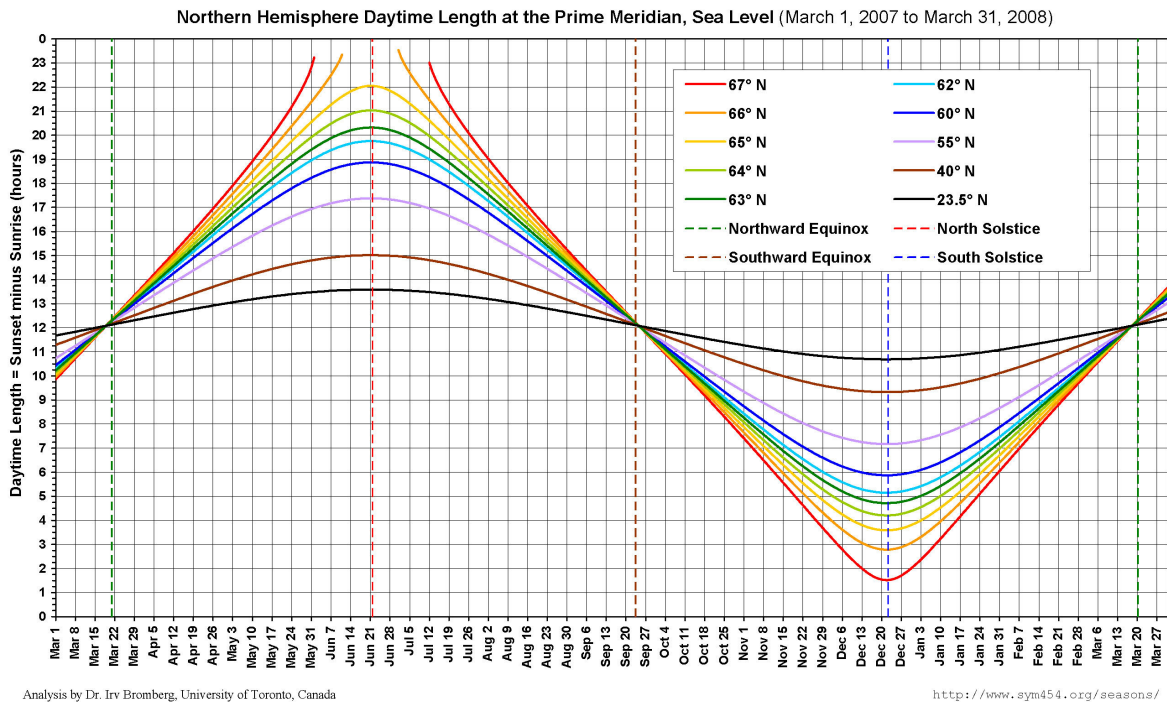
December 22, 2006 at 00:23:15 UT, EoT +1.7', apparent solar noon at 174° 11' 13.1" E, sea level.



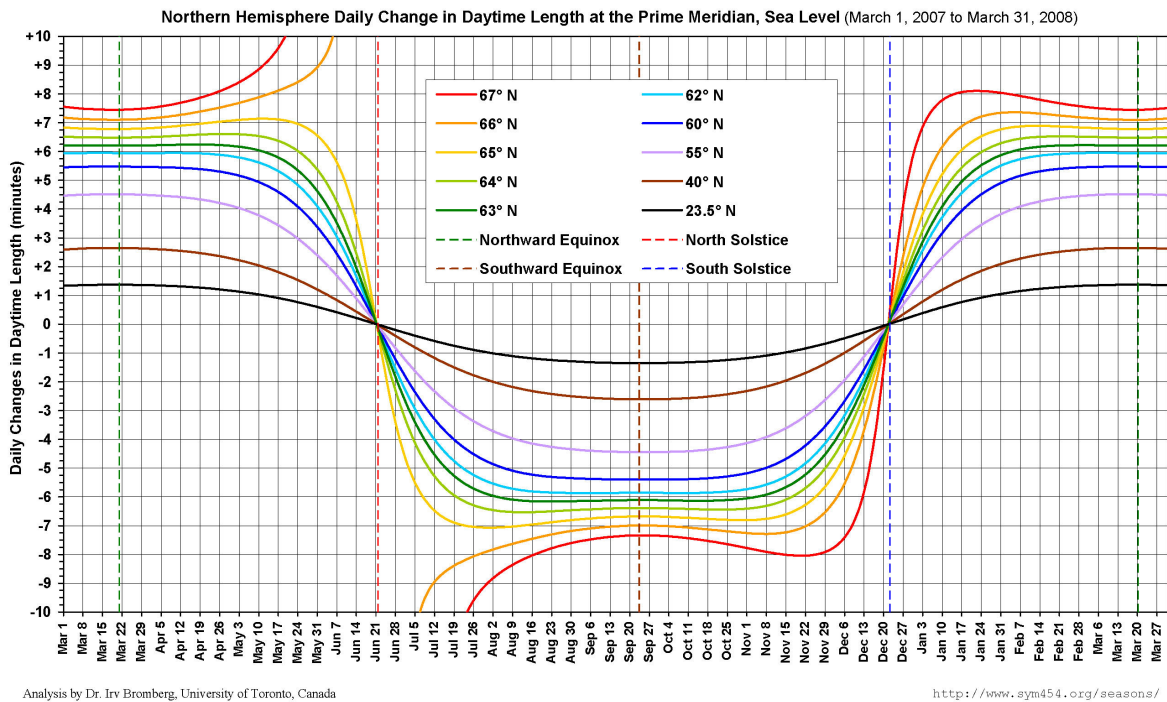
Analysis by Dr. Irv Bromberg, University of Toronto, Canada

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

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



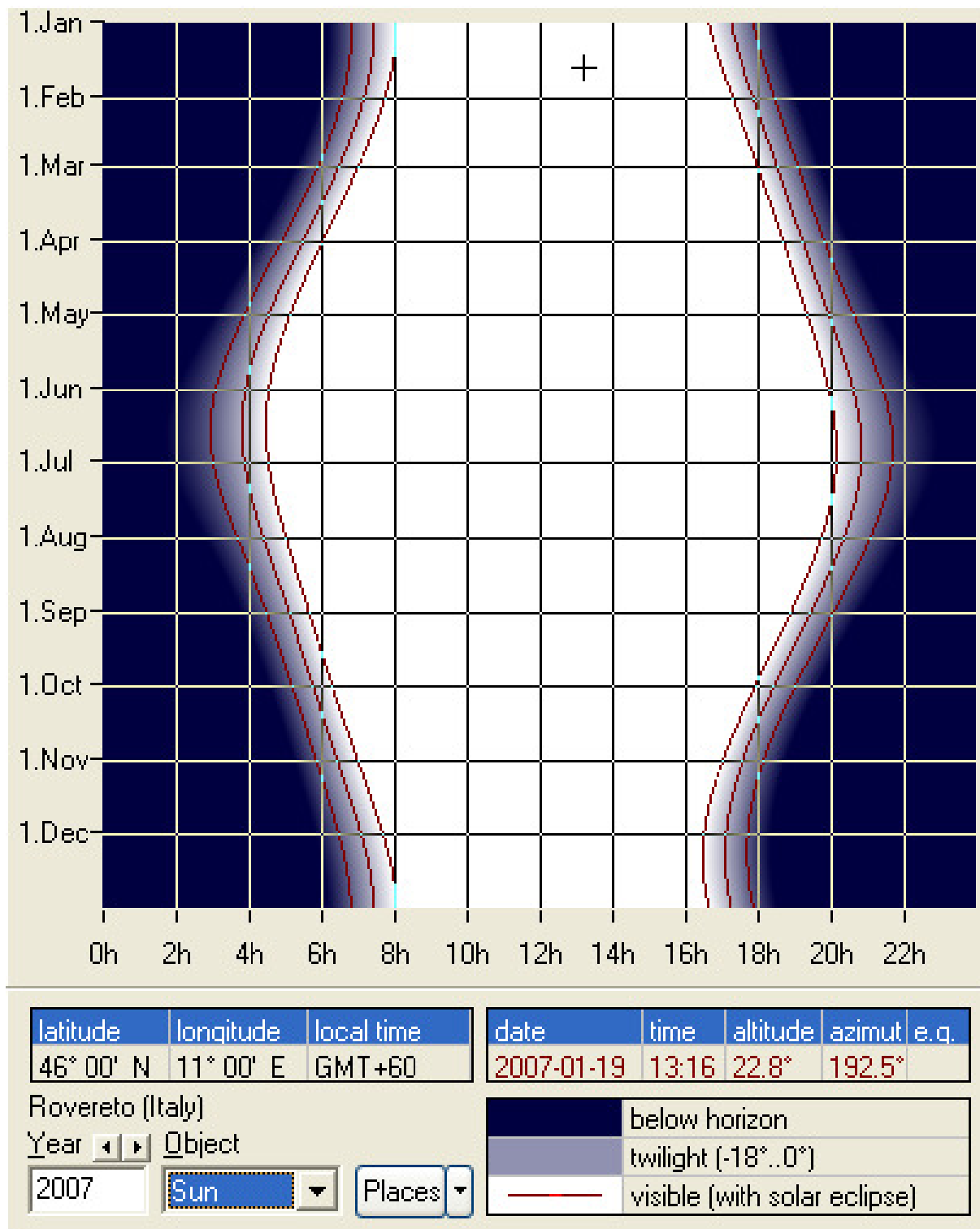
Durata del giorno nel corso dell'anno alle varie latitudini



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

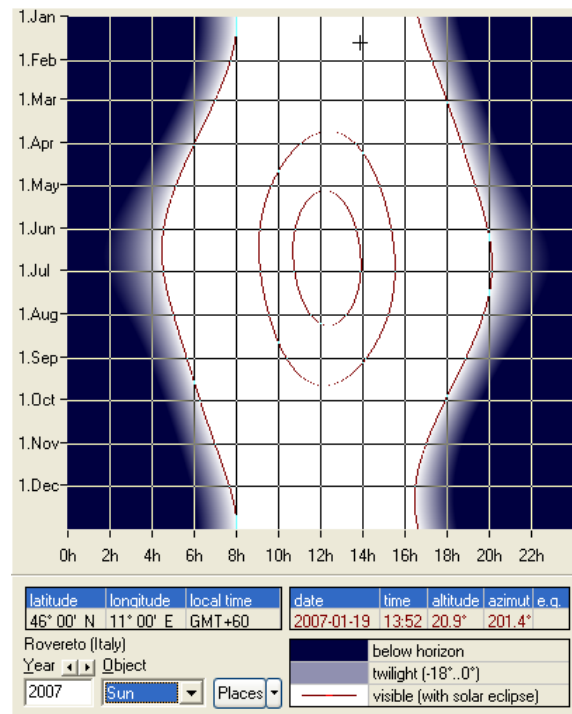
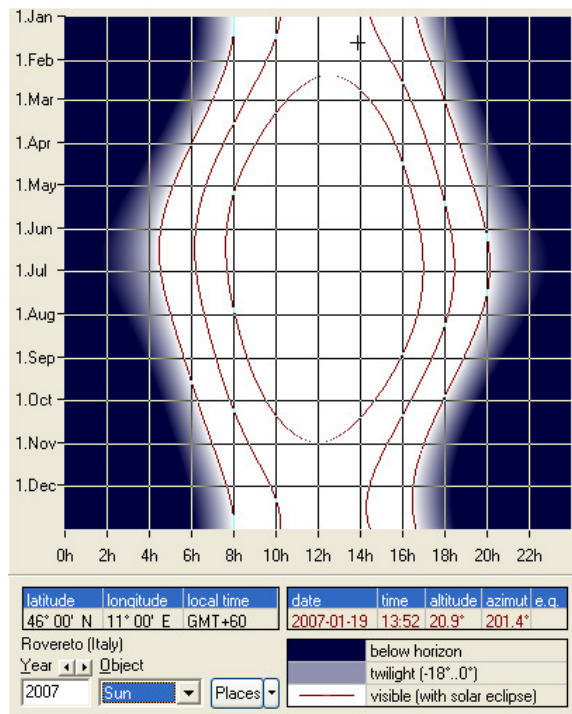


# VISIBILITA' DEL SOLE



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



Altezza del Sole sull'orizzonte nel corso dell'anno

Figura di sinistra:

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

Figura di destra:

la linea continua interna indica gli istanti del giorno in cui il Sole supera i 60° sull'orizzonte  
le linee continue intermedie indicano gli istanti del giorno in cui il Sole supera i 45° sull'orizzonte

Esempio : il 1° luglio il Sole sorge alle 4.30 circa, alle 6.15 circa si trova a 15° sull'orizzonte, alle 7.30 circa a 30°, alle 9 i 45°, dalle 10.45 alle 13.45 circa sarà ad oltre 60°, ecc.

© (3)

# EFFEMERIDI DI MERCURIO

DATA GG/MM/AAAA/HH/MM	A.R. h m s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	SORGE h m	TRAMONTA h m
1/ 1/2007/ 0/ 0	18 28 40	- 24 44 32	0.46434	1.44036	11.98	3.9	4.66	-0.99	0.995	8.4	0.02	7 57	16 7
2/ 1/2007/ 0/ 0	18 35 41	- 24 43 50	0.46305	1.44075	11.98	3.5	4.66	-1.03	0.996	7.4	0.01	7 60	16 10
3/ 1/2007/ 0/ 0	18 42 42	- 24 41 44	0.46149	1.44057	11.98	3.0	4.66	-1.07	0.997	6.4	0.01	8 2	16 13
4/ 1/2007/ 0/ 0	18 49 45	- 24 38 11	0.45966	1.43984	11.97	2.6	4.66	-1.12	0.998	5.5	0.01	8 5	16 17
5/ 1/2007/ 0/ 0	18 56 49	- 24 33 12	0.45756	1.43853	11.96	2.2	4.67	-1.15	0.998	4.7	0.00	8 8	16 20
6/ 1/2007/ 0/ 0	19 3 53	- 24 26 46	0.45518	1.43665	11.95	2.0	4.67	-1.19	0.999	4.2	0.00	8 10	16 24
7/ 1/2007/ 0/ 0	19 10 58	- 24 18 51	0.45255	1.43418	11.93	1.9	4.68	-1.21	0.999	4.1	0.00	8 13	16 28
8/ 1/2007/ 0/ 0	19 18 4	- 24 9 26	0.44965	1.43112	11.90	2.0	4.69	-1.22	0.999	4.3	0.00	8 15	16 32
9/ 1/2007/ 0/ 0	19 25 11	- 23 58 31	0.44649	1.42745	11.87	2.2	4.70	-1.22	0.998	4.9	0.00	8 17	16 36
10/ 1/2007/ 0/ 0	19 32 18	- 23 46 5	0.44309	1.42315	11.84	2.6	4.72	-1.21	0.997	5.8	0.01	8 19	16 41
11/ 1/2007/ 0/ 0	19 39 25	- 23 32 7	0.43943	1.41823	11.80	3.1	4.73	-1.20	0.996	6.9	0.01	8 21	16 45
12/ 1/2007/ 0/ 0	19 46 32	- 23 16 38	0.43554	1.41265	11.75	3.6	4.75	-1.18	0.995	8.1	0.02	8 23	16 50
13/ 1/2007/ 0/ 0	19 53 39	- 22 59 35	0.43142	1.40640	11.70	4.2	4.77	-1.17	0.993	9.5	0.03	8 24	16 54
14/ 1/2007/ 0/ 0	20 0 46	- 22 40 60	0.42707	1.39947	11.64	4.7	4.80	-1.15	0.991	11.0	0.04	8 26	16 59
15/ 1/2007/ 0/ 0	20 7 52	- 22 20 51	0.42251	1.39183	11.58	5.3	4.82	-1.14	0.988	12.5	0.05	8 27	17 4
16/ 1/2007/ 0/ 0	20 14 57	- 21 59 9	0.41774	1.38346	11.51	5.9	4.85	-1.12	0.985	14.1	0.07	8 28	17 9
17/ 1/2007/ 0/ 0	20 22 2	- 21 35 53	0.41279	1.37434	11.43	6.6	4.88	-1.11	0.981	15.8	0.09	8 30	17 14
18/ 1/2007/ 0/ 0	20 29 6	- 21 11 4	0.40765	1.36444	11.35	7.2	4.92	-1.10	0.976	17.7	0.11	8 30	17 20
19/ 1/2007/ 0/ 0	20 36 8	- 20 44 43	0.40236	1.35373	11.26	7.9	4.96	-1.09	0.971	19.6	0.14	8 31	17 25
20/ 1/2007/ 0/ 0	20 43 8	- 20 16 50	0.39692	1.34219	11.16	8.5	5.00	-1.07	0.965	21.6	0.17	8 32	17 30
21/ 1/2007/ 0/ 0	20 50 6	- 19 47 27	0.39136	1.32979	11.06	9.2	5.05	-1.06	0.958	23.7	0.21	8 33	17 36
22/ 1/2007/ 0/ 0	20 57 1	- 19 16 35	0.38570	1.31651	10.95	9.9	5.10	-1.06	0.950	25.9	0.25	8 33	17 41
23/ 1/2007/ 0/ 0	21 3 54	- 18 44 16	0.37996	1.30230	10.83	10.5	5.16	-1.05	0.940	28.2	0.30	8 33	17 47
24/ 1/2007/ 0/ 0	21 10 43	- 18 10 32	0.37417	1.28715	10.71	11.2	5.22	-1.04	0.930	30.7	0.36	8 33	17 53
25/ 1/2007/ 0/ 0	21 17 27	- 17 35 27	0.36836	1.27103	10.57	11.9	5.28	-1.03	0.918	33.3	0.43	8 33	17 58
26/ 1/2007/ 0/ 0	21 24 7	- 16 59 6	0.36257	1.25392	10.43	12.5	5.35	-1.02	0.904	36.1	0.51	8 33	18 4
27/ 1/2007/ 0/ 0	21 30 41	- 16 21 32	0.35683	1.23579	10.28	13.2	5.43	-1.01	0.888	39.0	0.60	8 33	18 9
28/ 1/2007/ 0/ 0	21 37 9	- 15 42 52	0.35118	1.21663	10.12	13.8	5.52	-1.00	0.871	42.1	0.71	8 32	18 15
29/ 1/2007/ 0/ 0	21 43 29	- 15 3 13	0.34566	1.19643	9.95	14.5	5.61	-0.99	0.851	45.4	0.83	8 32	18 20
30/ 1/2007/ 0/ 0	21 49 40	- 14 22 43	0.34032	1.17520	9.78	15.1	5.71	-0.97	0.829	48.8	0.97	8 31	18 26
31/ 1/2007/ 0/ 0	21 55 41	- 13 41 33	0.33521	1.15293	9.59	15.6	5.82	-0.95	0.805	52.4	1.13	8 30	18 31
1/ 2/2007/ 0/ 0	22 1 30	- 12 59 54	0.33038	1.12967	9.40	16.2	5.94	-0.93	0.778	56.2	1.31	8 28	18 36
2/ 2/2007/ 0/ 0	22 7 6	- 12 17 59	0.32588	1.10544	9.20	16.7	6.07	-0.90	0.748	60.2	1.52	8 27	18 41
3/ 2/2007/ 0/ 0	22 12 26	- 11 36 5	0.32176	1.08030	8.99	17.1	6.22	-0.86	0.716	64.5	1.76	8 25	18 45
4/ 2/2007/ 0/ 0	22 17 30	- 10 54 27	0.31808	1.05435	8.77	17.5	6.37	-0.82	0.680	68.9	2.03	8 23	18 49
5/ 2/2007/ 0/ 0	22 22 13	- 10 13 26	0.31488	1.02767	8.55	17.8	6.53	-0.76	0.642	73.5	2.33	8 21	18 53
6/ 2/2007/ 0/ 0	22 26 35	- 9 33 23	0.31221	1.00039	8.32	18.1	6.71	-0.68	0.601	78.3	2.67	8 19	18 56
7/ 2/2007/ 0/ 0	22 30 32	- 8 54 41	0.31011	0.97266	8.09	18.2	6.90	-0.59	0.558	83.3	3.04	8 16	18 59
8/ 2/2007/ 0/ 0	22 34 2	- 8 17 44	0.30861	0.94467	7.86	18.2	7.11	-0.48	0.513	88.5	3.46	8 13	19 1
9/ 2/2007/ 0/ 0	22 37 3	- 7 42 58	0.30774	0.91660	7.62	18.1	7.33	-0.35	0.466	93.9	3.91	8 9	19 3
10/ 2/2007/ 0/ 0	22 39 32	- 7 10 49	0.30750	0.88867	7.39	17.9	7.56	-0.19	0.419	99.4	4.39	8 6	19 4
11/ 2/2007/ 0/ 0	22 41 27	- 6 41 44	0.30791	0.86112	7.16	17.5	7.80	-0.01	0.371	105.0	4.90	8 2	19 4
12/ 2/2007/ 0/ 0	22 42 46	- 6 16 8	0.30895	0.83418	6.94	17.0	8.05	0.21	0.323	110.8	5.45	7 57	19 3
13/ 2/2007/ 0/ 0	22 43 27	- 5 54 25	0.31061	0.80811	6.72	16.3	8.31	0.47	0.276	116.6	6.01	7 52	19 1
14/ 2/2007/ 0/ 0	22 43 30	- 5 36 55	0.31287	0.78316	6.51	15.5	8.58	0.76	0.231	122.5	6.59	7 47	18 59
15/ 2/2007/ 0/ 0	22 42 55	- 5 23 56	0.31568	0.75955	6.32	14.5	8.84	1.10	0.189	128.5	7.17	7 42	18 55
16/ 2/2007/ 0/ 0	22 41 42	- 5 15 42	0.31901	0.73751	6.13	13.3	9.11	1.48	0.149	134.5	7.74	7 36	18 50
17/ 2/2007/ 0/ 0	22 39 53	- 5 12 18	0.32281	0.71725	5.97	12.0	9.36	1.90	0.114	140.5	8.29	7 30	18 45
18/ 2/2007/ 0/ 0	22 37 30	- 5 13 46	0.32703	0.69895	5.81	10.5	9.61	2.37	0.083	146.5	8.80	7 24	18 38
19/ 2/2007/ 0/ 0	22 34 36	- 5 19 58	0.33162	0.68274	5.68	9.0	9.84	2.87	0.057	152.3	9.27	7 18	18 31
20/ 2/2007/ 0/ 0	22 31 17	- 5 30 40	0.33653	0.66874	5.56	7.4	10.04	3.41	0.037	157.9	9.66	7 11	18 23
21/ 2/2007/ 0/ 0	22 27 37	- 5 45 30	0.34171	0.65702	5.46	5.8	10.22	3.94	0.022	163.0	9.99	7 5	18 15
22/ 2/2007/ 0/ 0	22 23 42	- 6 3 59	0.34710	0.64761	5.39	4.5	10.37	4.41	0.012	167.2	10.24	6 58	18 5
23/ 2/2007/ 0/ 0	22 19 38	- 6 25 35	0.35266	0.64051	5.33	3.7	10.49	4.68	0.008	169.4	10.40	6 51	17 56
24/ 2/2007/ 0/ 0	22 15 31	- 6 49 38	0.35834	0.63568	5.29	4.1	10.57	4.61	0.010	168.7	10.46	6 45	17 46
25/ 2/2007/ 0/ 0	22 11 28	- 7 15 30	0.36410	0.63304	5.26	5.3	10.61	4.27	0.016	165.5	10.44	6 39	17 36
26/ 2/2007/ 0/ 0	22 7 33	- 7 42 31	0.36990	0.63248	5.26	6.9	10.62	3.85	0.026	161.3	10.34	6 33	17 27
27/ 2/2007/ 0/ 0	22 3 53	- 8 10 2	0.37570	0.63388	5.27	8.6	10.60	3.42	0.041	156.7	10.16	6 27	17 17
28/ 2/2007/ 0/ 0	22 0 30	- 8 37 29	0.38148	0.63710	5.30	10.4	10.54	3.01	0.058	152.1	9.92	6 22	17 8
1/ 3/2007/ 0/ 0	21 57 29	- 9 4 22	0.38720	0.64198	5.34	12.1	10.46	2.64	0.078	147.5	9.64	6 17	16 59
2/ 3/2007/ 0/ 0	21 54 52	- 9 30 15	0.39284	0.64836	5.39	13.8	10.36	2.32	0.100	143.1	9.32	6 12	16 51
3/ 3/2007/ 0/ 0	21 52 41	- 9 54 45	0.39837	0.65609	5.46	15.3	10.24	2.03	0.124	138.8	8.97	6 8	16 43
4/ 3/2007/ 0/ 0	21 50 57	- 10 17 38	0.40377	0.66502	5.53	16.8	10.10	1.78	0.148	134.7	8.60	6 4	16 35
5/ 3/2007/ 0/ 0	21 49 39	- 10 38 39	0.40903	0.67498	5.61	18.2	9.95	1.56	0.173	130.8	8.22	6 0	16 29
6/ 3/2007/ 0/ 0	21 48 49	- 10 57 41	0.41411	0.68586	5.70	19.5	9.79	1.37	0.199	127.0	7.84	5 57	16 23
7/ 3/2007/ 0/ 0	21 48 25	- 11 14 38	0.41902	0.69752	5.80	20.6	9.63	1.20	0.224	123.5	7.47	5 54	16 17
8/ 3/2007/ 0/ 0	21 48 27	- 11 29 25	0.42373	0.70984	5.90	21.7	9.46	1.06	0.249	120.1	7.10	5 51	16 12
9/ 3/2007/ 0/ 0	21 48 54	- 11 42 2	0.42824	0.72272	6.01	22.6	9.29	0.94	0.274	116.9	6.74	5 48	16 8
10/ 3/2007/ 0/ 0	21 49 43	- 11 52 28	0.43253	0.73607	6.12	23.5	9.12	0.83	0.298	113.8	6.40	5 46	16 4
11/ 3/2007/ 0/ 0	21 50 55	- 12 0 45	0.43659	0.74981	6.24	24.2	8.96	0.74	0.321	110.9	6.08	5 44	16 0
12/ 3/2007/ 0/ 0	21 52 28	- 12 6 55	0.44042	0.76385	6.35	24.9	8.79	0.66	0.344	108.2	5.76	5 42	15 58
13/ 3/2007/ 0/ 0	21 54 20	- 12 10 59	0.44401	0.77814	6.47	25.5	8.63	0.59	0.366	105.5	5.47	5 40	15 55
14/ 3/2007/ 0/ 0	21 56 31	- 12 13 1	0.44735	0.79261	6.59	26.0	8.47	0.53	0.387	103.0	5.19	5 39	15 53
15/ 3/2007/ 0/ 0	21 58 58	- 12 13 3	0.45044	0.80723	6.71	26.4	8.32	0.48	0.408	100.6	4.92	5 37	15 52
16/ 3/2007/ 0/ 0	22 1 41	- 12 11 8	0.45327	0.82195	6.84	26.8	8.17	0.44	0.427	98.4	4.67	5 36	15 51
17/ 3/2007/ 0/ 0	22 4 38	- 12 7 21	0.45584	0.83673	6.96	27.1	8.03	0.40	0.446	96.2	4.44	5 35	15 50
18/ 3/2007/ 0/ 0	22 7 49	- 12 1 42	0.45814	0.85154	7.08								

DATA	A.R.	DEC.	RV	DELTA	LUCE	EL.	DIAM.	MAG	K	I	Q	SORGE	TRAMONTA
GG/MM/AAAA/HH/MM	h m s	° ' ''	U.A.	U.A.	min	°	''			°	''	h m	h m
11/ 4/2007/ 0/ 0	0 4 10	- 2 15 6	0.43129	1.18013	9.81	20.8	5.69	-0.27	0.782	55.6	1.23	5 17	16 57
12/ 4/2007/ 0/ 0	0 10 8	- 1 35 2	0.42693	1.19184	9.91	20.2	5.63	-0.32	0.794	54.0	1.16	5 17	17 2
13/ 4/2007/ 0/ 0	0 16 11	- 0 53 56	0.42237	1.20331	10.01	19.5	5.58	-0.36	0.805	52.3	1.08	5 16	17 6
14/ 4/2007/ 0/ 0	0 22 19	- 0 11 50	0.41759	1.21451	10.10	18.8	5.53	-0.41	0.817	50.6	1.01	5 15	17 12
15/ 4/2007/ 0/ 0	0 28 33	+ 0 31 15	0.41263	1.22543	10.19	18.0	5.48	-0.46	0.829	48.8	0.93	5 15	17 17
16/ 4/2007/ 0/ 0	0 34 51	+ 1 15 17	0.40750	1.23603	10.28	17.3	5.43	-0.52	0.841	47.0	0.86	5 14	17 22
17/ 4/2007/ 0/ 0	0 41 15	+ 2 0 14	0.40220	1.24629	10.36	16.5	5.39	-0.58	0.853	45.1	0.79	5 13	17 28
18/ 4/2007/ 0/ 0	0 47 44	+ 2 46 3	0.39676	1.25617	10.45	15.7	5.34	-0.64	0.865	43.1	0.72	5 13	17 33
19/ 4/2007/ 0/ 0	0 54 20	+ 3 32 42	0.39119	1.26565	10.53	14.8	5.30	-0.71	0.877	41.1	0.65	5 12	17 39
20/ 4/2007/ 0/ 0	1 1 1	+ 4 20 8	0.38553	1.27468	10.60	14.0	5.27	-0.78	0.889	39.0	0.58	5 12	17 45
21/ 4/2007/ 0/ 0	1 7 49	+ 5 8 19	0.37979	1.28322	10.67	13.1	5.23	-0.85	0.901	36.7	0.51	5 11	17 52
22/ 4/2007/ 0/ 0	1 14 43	+ 5 57 10	0.37400	1.29122	10.74	12.1	5.20	-0.93	0.912	34.4	0.45	5 11	17 58
23/ 4/2007/ 0/ 0	1 21 44	+ 6 46 39	0.36819	1.29862	10.80	11.2	5.17	-1.02	0.924	32.0	0.39	5 10	18 4
24/ 4/2007/ 0/ 0	1 28 51	+ 7 36 40	0.36239	1.30538	10.86	10.2	5.14	-1.11	0.935	29.4	0.33	5 10	18 11
25/ 4/2007/ 0/ 0	1 36 6	+ 8 27 10	0.35665	1.31143	10.91	9.2	5.12	-1.21	0.946	26.8	0.27	5 9	18 18
26/ 4/2007/ 0/ 0	1 43 28	+ 9 18 2	0.35101	1.31670	10.95	8.2	5.10	-1.31	0.957	24.0	0.22	5 9	18 25
27/ 4/2007/ 0/ 0	1 50 58	+ 10 9 10	0.34549	1.32113	10.99	7.1	5.08	-1.42	0.967	21.1	0.16	5 9	18 32
28/ 4/2007/ 0/ 0	1 58 35	+ 11 0 28	0.34016	1.32464	11.02	6.0	5.07	-1.54	0.975	18.0	0.12	5 9	18 40
29/ 4/2007/ 0/ 0	2 6 19	+ 11 51 48	0.33506	1.32715	11.04	4.9	5.06	-1.67	0.983	14.8	0.08	5 9	18 47
30/ 4/2007/ 0/ 0	2 14 11	+ 12 43 0	0.33024	1.32860	11.05	3.8	5.05	-1.80	0.990	11.5	0.05	5 9	18 55
1/ 5/2007/ 0/ 0	2 22 10	+ 13 33 57	0.32575	1.32890	11.05	2.6	5.05	-1.95	0.995	8.1	0.02	5 9	19 3
2/ 5/2007/ 0/ 0	2 30 16	+ 14 24 26	0.32164	1.32799	11.04	1.4	5.06	-2.10	0.998	4.5	0.00	5 10	19 11
3/ 5/2007/ 0/ 0	2 38 29	+ 15 14 19	0.31798	1.32580	11.03	0.3	5.06	-2.26	1.000	0.9	0.00	5 10	19 19
4/ 5/2007/ 0/ 0	2 46 49	+ 16 3 22	0.31479	1.32228	11.00	1.0	5.08	-2.21	0.999	3.2	0.00	5 11	19 27
5/ 5/2007/ 0/ 0	2 55 14	+ 16 51 25	0.31214	1.31739	10.96	2.2	5.10	-2.09	0.996	7.1	0.01	5 11	19 35
6/ 5/2007/ 0/ 0	3 3 43	+ 17 38 13	0.31006	1.31108	10.90	3.4	5.12	-1.98	0.991	11.1	0.04	5 12	19 44
7/ 5/2007/ 0/ 0	3 12 17	+ 18 23 36	0.30858	1.30335	10.84	4.6	5.15	-1.88	0.983	15.2	0.09	5 13	19 52
8/ 5/2007/ 0/ 0	3 20 53	+ 19 7 21	0.30772	1.29420	10.76	5.8	5.19	-1.77	0.972	19.4	0.14	5 14	20 0
9/ 5/2007/ 0/ 0	3 29 32	+ 19 49 15	0.30751	1.28366	10.68	7.0	5.23	-1.67	0.958	23.5	0.21	5 15	20 8
10/ 5/2007/ 0/ 0	3 38 11	+ 20 29 10	0.30793	1.27176	10.58	8.2	5.28	-1.57	0.942	27.8	0.30	5 17	20 16
11/ 5/2007/ 0/ 0	3 46 49	+ 21 6 55	0.30899	1.25857	10.47	9.3	5.33	-1.47	0.924	32.0	0.40	5 18	20 24
12/ 5/2007/ 0/ 0	3 55 26	+ 21 42 22	0.31067	1.24415	10.35	10.4	5.40	-1.37	0.904	36.1	0.51	5 20	20 32
13/ 5/2007/ 0/ 0	4 3 59	+ 22 15 24	0.31294	1.22861	10.22	11.5	5.46	-1.28	0.882	40.2	0.64	5 21	20 39
14/ 5/2007/ 0/ 0	4 12 28	+ 22 45 56	0.31577	1.21203	10.08	12.6	5.54	-1.18	0.858	44.3	0.78	5 23	20 47
15/ 5/2007/ 0/ 0	4 20 51	+ 23 13 56	0.31912	1.19453	9.94	13.6	5.62	-1.09	0.833	48.3	0.93	5 25	20 54
16/ 5/2007/ 0/ 0	4 29 7	+ 23 39 20	0.32293	1.17622	9.78	14.6	5.71	-1.00	0.807	52.2	1.10	5 27	21 0
17/ 5/2007/ 0/ 0	4 37 15	+ 24 2 9	0.32717	1.15721	9.63	15.5	5.80	-0.91	0.780	55.9	1.27	5 29	21 7
18/ 5/2007/ 0/ 0	4 45 14	+ 24 22 24	0.33177	1.13761	9.46	16.4	5.90	-0.82	0.753	59.6	1.45	5 31	21 13
19/ 5/2007/ 0/ 0	4 53 4	+ 24 40 6	0.33669	1.11754	9.30	17.3	6.01	-0.73	0.725	63.2	1.65	5 34	21 18
20/ 5/2007/ 0/ 0	5 0 42	+ 24 55 20	0.34187	1.09708	9.13	18.1	6.12	-0.64	0.698	66.7	1.84	5 36	21 23
21/ 5/2007/ 0/ 0	5 8 10	+ 25 8 8	0.34727	1.07635	8.95	18.8	6.24	-0.55	0.671	70.0	2.05	5 38	21 28
22/ 5/2007/ 0/ 0	5 15 25	+ 25 18 36	0.35283	1.05542	8.78	19.5	6.36	-0.46	0.644	73.3	2.26	5 40	21 32
23/ 5/2007/ 0/ 0	5 22 27	+ 25 26 49	0.35851	1.03438	8.60	20.1	6.49	-0.37	0.617	76.4	2.48	5 43	21 36
24/ 5/2007/ 0/ 0	5 29 17	+ 25 32 52	0.36427	1.01330	8.43	20.7	6.63	-0.28	0.591	79.5	2.71	5 45	21 40
25/ 5/2007/ 0/ 0	5 35 52	+ 25 36 52	0.37007	0.99226	8.25	21.2	6.77	-0.20	0.565	82.5	2.94	5 47	21 43
26/ 5/2007/ 0/ 0	5 42 13	+ 25 38 53	0.37588	0.97131	8.08	21.7	6.91	-0.11	0.540	85.4	3.17	5 49	21 45
27/ 5/2007/ 0/ 0	5 48 20	+ 25 39 3	0.38166	0.95051	7.91	22.1	7.06	-0.02	0.516	88.2	3.41	5 52	21 47
28/ 5/2007/ 0/ 0	5 54 11	+ 25 37 28	0.38738	0.92990	7.73	22.5	7.22	0.06	0.492	90.9	3.66	5 54	21 49
29/ 5/2007/ 0/ 0	5 59 47	+ 25 34 14	0.39301	0.90953	7.57	22.8	7.38	0.15	0.468	93.6	3.92	5 56	21 50
30/ 5/2007/ 0/ 0	6 5 7	+ 25 29 27	0.39854	0.88944	7.40	23.0	7.55	0.24	0.446	96.3	4.18	5 57	21 51
31/ 5/2007/ 0/ 0	6 10 11	+ 25 23 14	0.40393	0.86966	7.23	23.2	7.72	0.33	0.423	98.8	4.45	5 59	21 52
1/ 6/2007/ 0/ 0	6 14 58	+ 25 15 40	0.40918	0.85023	7.07	23.3	7.90	0.42	0.401	101.4	4.73	6 1	21 52
2/ 6/2007/ 0/ 0	6 19 29	+ 25 6 51	0.41426	0.83118	6.91	23.4	8.08	0.51	0.380	103.9	5.01	6 2	21 52
3/ 6/2007/ 0/ 0	6 23 42	+ 24 56 54	0.41916	0.81253	6.76	23.4	8.27	0.60	0.359	106.4	5.30	6 3	21 51
4/ 6/2007/ 0/ 0	6 27 37	+ 24 45 54	0.42387	0.79431	6.61	23.3	8.46	0.70	0.338	108.9	5.60	6 4	21 50
5/ 6/2007/ 0/ 0	6 31 15	+ 24 33 57	0.42837	0.77656	6.46	23.2	8.65	0.80	0.318	111.4	5.90	6 5	21 49
6/ 6/2007/ 0/ 0	6 34 34	+ 24 21 9	0.43265	0.75928	6.32	23.0	8.85	0.90	0.298	113.8	6.21	6 6	21 47
7/ 6/2007/ 0/ 0	6 37 34	+ 24 7 35	0.43671	0.74251	6.18	22.7	9.05	1.01	0.278	116.3	6.53	6 6	21 45
8/ 6/2007/ 0/ 0	6 40 16	+ 23 53 21	0.44053	0.72628	6.04	22.4	9.25	1.12	0.259	118.8	6.85	6 6	21 42
9/ 6/2007/ 0/ 0	6 42 38	+ 23 38 32	0.44411	0.71060	5.91	21.9	9.45	1.24	0.240	121.3	7.18	6 6	21 39
10/ 6/2007/ 0/ 0	6 44 41	+ 23 23 13	0.44745	0.69551	5.79	21.5	9.66	1.36	0.222	123.8	7.51	6 6	21 36
11/ 6/2007/ 0/ 0	6 46 24	+ 23 7 30	0.45053	0.68102	5.66	20.9	9.86	1.49	0.203	126.4	7.85	6 5	21 32
12/ 6/2007/ 0/ 0	6 47 47	+ 22 51 28	0.45335	0.66717	5.55	20.3	10.07	1.63	0.186	129.0	8.20	6 4	21 28
13/ 6/2007/ 0/ 0	6 48 50	+ 22 35 13	0.45591	0.65399	5.44	19.6	10.27	1.78	0.168	131.6	8.54	6 2	21 24
14/ 6/2007/ 0/ 0	6 49 33	+ 22 18 49	0.45820	0.64151	5.34	18.9	10.47	1.94	0.151	134.2	8.88	6 0	21 19
15/ 6/2007/ 0/ 0	6 49 57	+ 22 2 22	0.46023	0.62975	5.24	18.0	10.67	2.11	0.135	136.9	9.23	5 58	21 14
16/ 6/2007/ 0/ 0	6 50 0	+ 21 45 58	0.46198	0.61876	5.15	17.1	10.86	2.29	0.119	139.6	9.56	5 56	21 9
17/ 6/2007/ 0/ 0	6 49 44	+ 21 29 41	0.46346	0.60855	5.06	16.2	11.04	2.48	0.104	142.4	9.89	5 53	21 3
18/ 6/2007/ 0/ 0	6 49 9	+ 21 13 37	0.46466	0.59918	4.98	15.1	11.21	2.69	0.089	145.2	10.20	5 50	20 57
19/ 6/2007/ 0/ 0	6 48 16	+ 20 57 51	0.46559	0.59068	4.91	14.0	11.37	2.91	0.076	148.0	10.50	5 47	20 51
20/ 6/2007/ 0/ 0	6 47 6	+ 20 42 29	0.46624	0.58307	4.85	12.9	11.52	3.14	0.063	150.9	10.79	5 43	20 45
21/ 6/2007/ 0/ 0	6 45 39	+ 20 27 36	0.46661	0.57641	4.79	11.7	11.65	3.39	0.051	153.8	11.05	5 39	20 38
22/ 6/2007/ 0/ 0	6 43 57	+ 20 13 18	0.46670	0.57071	4.75	10.5	11.77	3.65	0.041	156.7	11.28	5 34	20 31
23/ 6/2007/ 0/ 0	6 42 2	+ 19 59 40	0.46651	0.56603	4.71	9.2	11.87	3.93	0.031	159.6	11.49	5 30	20 24
24/ 6/2007/ 0/ 0	6 39 55	+ 19 46 47	0.46604	0.56238	4.68	8.0	11.94	4.21	0.024	162.4	11.65	5 25	20 17
25/ 6/2007/ 0/ 0	6 37 39	+ 19 34 46	0.46529	0.55980	4.66	6.8	12.00	4.48	0.017	165.0	11.79	5 19	20 10
26/ 6/2007/ 0/ 0	6 35 15	+ 19 23 40	0.46427	0.55831	4.64	5.7	12.03	4.74	0.012	167.4			

DATA	A.R.	DEC.	RV	DELTA	LUCE	EL.	DIAM.	MAG	K	I	Q	SORGE	TRAMONTA
GG/MM/AAAA/HH/MM	h m s	° ' "	U.A.	U.A.	min	°	"			°	"	h m	h m
27/ 7/2007/ 0/ 0	7 4 27	+ 21 40 54	0.33009	1.01699	8.46	18.7	6.60	-0.46	0.583	80.4	2.75	3 30	18 41
28/ 7/2007/ 0/ 0	7 10 54	+ 21 44 28	0.32561	1.04171	8.66	18.2	6.45	-0.57	0.618	76.4	2.46	3 32	18 44
29/ 7/2007/ 0/ 0	7 17 40	+ 21 46 12	0.32152	1.06625	8.87	17.6	6.30	-0.67	0.652	72.3	2.19	3 34	18 47
30/ 7/2007/ 0/ 0	7 24 43	+ 21 45 55	0.31787	1.09048	9.07	16.9	6.16	-0.77	0.687	68.1	1.92	3 38	18 50
31/ 7/2007/ 0/ 0	7 32 2	+ 21 43 27	0.31470	1.11427	9.27	16.1	6.03	-0.86	0.721	63.8	1.68	3 41	18 53
1/ 8/2007/ 0/ 0	7 39 37	+ 21 38 39	0.31207	1.13749	9.46	15.4	5.90	-0.95	0.754	59.5	1.45	3 45	18 57
2/ 8/2007/ 0/ 0	7 47 24	+ 21 31 24	0.31000	1.15999	9.65	14.5	5.79	-1.04	0.786	55.1	1.23	3 50	18 60
3/ 8/2007/ 0/ 0	7 55 24	+ 21 21 36	0.30854	1.18165	9.83	13.6	5.68	-1.12	0.816	50.8	1.04	3 55	19 3
4/ 8/2007/ 0/ 0	8 3 33	+ 21 9 11	0.30770	1.20236	10.00	12.7	5.58	-1.20	0.845	46.4	0.86	3 60	19 6
5/ 8/2007/ 0/ 0	8 11 50	+ 20 54 6	0.30751	1.22199	10.16	11.7	5.49	-1.28	0.871	42.0	0.70	4 5	19 9
6/ 8/2007/ 0/ 0	8 20 13	+ 20 36 22	0.30795	1.24046	10.32	10.7	5.41	-1.36	0.895	37.7	0.56	4 11	19 12
7/ 8/2007/ 0/ 0	8 28 40	+ 20 16 0	0.30903	1.25768	10.46	9.7	5.34	-1.43	0.917	33.5	0.44	4 18	19 15
8/ 8/2007/ 0/ 0	8 37 10	+ 19 53 4	0.31073	1.27360	10.59	8.6	5.27	-1.50	0.936	29.3	0.33	4 24	19 18
9/ 8/2007/ 0/ 0	8 45 40	+ 19 27 39	0.31302	1.28818	10.71	7.6	5.21	-1.57	0.952	25.3	0.25	4 31	19 20
10/ 8/2007/ 0/ 0	8 54 9	+ 18 59 53	0.31586	1.30140	10.82	6.5	5.16	-1.64	0.966	21.4	0.17	4 38	19 22
11/ 8/2007/ 0/ 0	9 2 36	+ 18 29 52	0.31922	1.31325	10.92	5.5	5.11	-1.71	0.976	17.7	0.12	4 45	19 24
12/ 8/2007/ 0/ 0	9 10 59	+ 17 57 46	0.32305	1.32375	11.01	4.5	5.07	-1.78	0.985	14.1	0.07	4 52	19 26
13/ 8/2007/ 0/ 0	9 19 17	+ 17 23 44	0.32730	1.33292	11.08	3.5	5.04	-1.84	0.991	10.9	0.04	4 59	19 28
14/ 8/2007/ 0/ 0	9 27 30	+ 16 47 56	0.33191	1.34080	11.15	2.6	5.01	-1.89	0.995	8.0	0.02	5 6	19 29
15/ 8/2007/ 0/ 0	9 35 36	+ 16 10 32	0.33684	1.34745	11.21	2.0	4.98	-1.92	0.997	5.9	0.01	5 13	19 30
16/ 8/2007/ 0/ 0	9 43 35	+ 15 31 41	0.34203	1.35290	11.25	1.8	4.96	-1.90	0.998	5.2	0.01	5 20	19 31
17/ 8/2007/ 0/ 0	9 51 26	+ 14 51 33	0.34743	1.35723	11.29	2.1	4.95	-1.82	0.997	6.3	0.01	5 27	19 32
18/ 8/2007/ 0/ 0	9 59 10	+ 14 10 17	0.35300	1.36048	11.31	2.9	4.93	-1.72	0.995	8.2	0.02	5 34	19 33
19/ 8/2007/ 0/ 0	10 6 46	+ 13 28 2	0.35868	1.36273	11.33	3.7	4.93	-1.60	0.992	10.5	0.04	5 41	19 33
20/ 8/2007/ 0/ 0	10 14 14	+ 12 44 55	0.36445	1.36403	11.34	4.6	4.92	-1.49	0.987	12.8	0.06	5 47	19 33
21/ 8/2007/ 0/ 0	10 21 34	+ 12 1 4	0.37025	1.36444	11.35	5.5	4.92	-1.38	0.983	15.2	0.08	5 54	19 34
22/ 8/2007/ 0/ 0	10 28 46	+ 11 16 36	0.37605	1.36401	11.34	6.4	4.92	-1.28	0.977	17.4	0.11	6 1	19 34
23/ 8/2007/ 0/ 0	10 35 50	+ 10 31 37	0.38183	1.36280	11.33	7.3	4.93	-1.18	0.971	19.6	0.14	6 7	19 33
24/ 8/2007/ 0/ 0	10 42 46	+ 9 46 14	0.38755	1.36086	11.32	8.2	4.93	-1.09	0.964	21.7	0.17	6 13	19 33
25/ 8/2007/ 0/ 0	10 49 36	+ 9 0 32	0.39318	1.35824	11.30	9.0	4.94	-1.01	0.958	23.8	0.20	6 19	19 33
26/ 8/2007/ 0/ 0	10 56 17	+ 8 14 35	0.39870	1.35497	11.27	9.9	4.95	-0.93	0.951	25.7	0.24	6 25	19 32
27/ 8/2007/ 0/ 0	11 2 52	+ 7 28 28	0.40410	1.35109	11.24	10.7	4.97	-0.85	0.943	27.6	0.28	6 31	19 32
28/ 8/2007/ 0/ 0	11 9 21	+ 6 42 16	0.40934	1.34665	11.20	11.5	4.99	-0.78	0.936	29.4	0.32	6 37	19 31
29/ 8/2007/ 0/ 0	11 15 42	+ 5 56 2	0.41442	1.34161	11.16	12.2	5.00	-0.72	0.928	31.1	0.36	6 43	19 30
30/ 8/2007/ 0/ 0	11 21 58	+ 5 9 50	0.41931	1.33617	11.11	13.0	5.02	-0.65	0.920	32.8	0.40	6 48	19 29
31/ 8/2007/ 0/ 0	11 28 7	+ 4 23 42	0.42401	1.33020	11.06	13.7	5.05	-0.60	0.912	34.5	0.44	6 54	19 28
1/ 9/2007/ 0/ 0	11 34 11	+ 3 37 43	0.42850	1.32377	11.01	14.5	5.07	-0.54	0.904	36.0	0.48	6 59	19 27
2/ 9/2007/ 0/ 0	11 40 9	+ 2 51 54	0.43278	1.31690	10.95	15.2	5.10	-0.49	0.896	37.6	0.52	7 4	19 26
3/ 9/2007/ 0/ 0	11 46 2	+ 2 6 18	0.43683	1.30961	10.89	15.8	5.13	-0.45	0.888	39.1	0.57	7 9	19 25
4/ 9/2007/ 0/ 0	11 51 50	+ 1 20 57	0.44065	1.30192	10.83	16.5	5.16	-0.40	0.880	40.5	0.61	7 14	19 23
5/ 9/2007/ 0/ 0	11 57 33	+ 0 35 55	0.44422	1.29383	10.76	17.1	5.19	-0.36	0.872	42.0	0.66	7 19	19 22
6/ 9/2007/ 0/ 0	12 3 11	- 0 8 48	0.44755	1.28537	10.69	17.8	5.22	-0.32	0.863	43.4	0.71	7 24	19 21
7/ 9/2007/ 0/ 0	12 8 45	- 0 53 9	0.45062	1.27653	10.62	18.3	5.26	-0.29	0.855	44.8	0.76	7 29	19 19
8/ 9/2007/ 0/ 0	12 14 14	- 1 37 5	0.45343	1.26734	10.54	18.9	5.30	-0.25	0.847	46.1	0.81	7 33	19 18
9/ 9/2007/ 0/ 0	12 19 39	- 2 20 36	0.45599	1.25779	10.46	19.5	5.34	-0.22	0.838	47.5	0.86	7 38	19 16
10/ 9/2007/ 0/ 0	12 24 59	- 3 3 40	0.45827	1.24790	10.38	20.0	5.38	-0.20	0.829	48.8	0.91	7 42	19 15
11/ 9/2007/ 0/ 0	12 30 16	- 3 46 13	0.46029	1.23766	10.29	20.5	5.42	-0.17	0.820	50.2	0.97	7 46	19 13
12/ 9/2007/ 0/ 0	12 35 28	- 4 28 16	0.46203	1.22709	10.21	21.0	5.47	-0.15	0.811	51.5	1.03	7 50	19 11
13/ 9/2007/ 0/ 0	12 40 37	- 5 9 45	0.46350	1.21618	10.12	21.5	5.52	-0.12	0.802	52.8	1.09	7 55	19 10
14/ 9/2007/ 0/ 0	12 45 41	- 5 50 39	0.46470	1.20494	10.02	22.0	5.57	-0.10	0.793	54.2	1.15	7 58	19 8
15/ 9/2007/ 0/ 0	12 50 42	- 6 30 57	0.46562	1.19337	9.93	22.4	5.63	-0.09	0.783	55.5	1.22	8 2	19 6
16/ 9/2007/ 0/ 0	12 55 39	- 7 10 36	0.46626	1.18148	9.83	22.8	5.68	-0.07	0.773	56.9	1.28	8 6	19 4
17/ 9/2007/ 0/ 0	13 0 31	- 7 49 34	0.46662	1.16926	9.73	23.2	5.74	-0.05	0.763	58.2	1.35	8 10	19 3
18/ 9/2007/ 0/ 0	13 5 20	- 8 27 50	0.46670	1.15671	9.62	23.6	5.80	-0.04	0.753	59.6	1.43	8 13	19 1
19/ 9/2007/ 0/ 0	13 10 4	- 9 5 22	0.46650	1.14384	9.51	24.0	5.87	-0.03	0.742	61.0	1.51	8 17	18 59
20/ 9/2007/ 0/ 0	13 14 44	- 9 42 7	0.46602	1.13064	9.40	24.3	5.94	-0.01	0.731	62.5	1.59	8 20	18 57
21/ 9/2007/ 0/ 0	13 19 20	- 10 18 2	0.46527	1.11712	9.29	24.6	6.01	-0.00	0.719	64.0	1.68	8 24	18 55
22/ 9/2007/ 0/ 0	13 23 51	- 10 53 6	0.46424	1.10328	9.18	24.9	6.09	0.01	0.708	65.5	1.78	8 23	18 49
23/ 9/2007/ 0/ 0	13 28 16	- 11 27 16	0.46293	1.08912	9.06	25.1	6.17	0.02	0.695	67.0	1.88	8 26	18 47
24/ 9/2007/ 0/ 0	13 32 37	- 12 0 29	0.46134	1.07465	8.94	25.4	6.25	0.03	0.682	68.6	1.98	8 29	18 45
25/ 9/2007/ 0/ 0	13 36 51	- 12 32 42	0.45948	1.05986	8.82	25.5	6.34	0.03	0.669	70.3	2.10	8 31	18 43
26/ 9/2007/ 0/ 0	13 40 60	- 13 3 52	0.45736	1.04476	8.69	25.7	6.43	0.04	0.655	72.0	2.22	8 34	18 41
27/ 9/2007/ 0/ 0	13 45 2	- 13 33 55	0.45496	1.02936	8.56	25.8	6.52	0.05	0.640	73.8	2.34	8 36	18 39
28/ 9/2007/ 0/ 0	13 48 56	- 14 2 48	0.45230	1.01367	8.43	25.9	6.62	0.06	0.624	75.6	2.48	8 38	18 36
29/ 9/2007/ 0/ 0	13 52 43	- 14 30 25	0.44938	0.99769	8.30	26.0	6.73	0.08	0.608	77.5	2.63	8 40	18 34
30/ 9/2007/ 0/ 0	13 56 22	- 14 56 42	0.44620	0.98144	8.16	26.0	6.84	0.09	0.591	79.5	2.79	8 42	18 32
1/10/2007/ 0/ 0	13 59 51	- 15 21 35	0.44277	0.96493	8.03	25.9	6.96	0.10	0.573	81.6	2.97	8 43	18 29
2/10/2007/ 0/ 0	14 3 9	- 15 44 57	0.43909	0.94818	7.89	25.9	7.08	0.12	0.554	83.8	3.15	8 45	18 27
3/10/2007/ 0/ 0	14 6 17	- 16 6 41	0.43518	0.93122	7.75	25.7	7.21	0.14	0.534	86.1	3.35	8 45	18 24
4/10/2007/ 0/ 0	14 9 12	- 16 26 42	0.43103	0.91407	7.60	25.5	7.35	0.17	0.513	88.5	3.57	8 46	18 22
5/10/2007/ 0/ 0	14 11 54	- 16 44 50	0.42666	0.89677	7.46	25.2	7.49	0.20	0.491	91.0	3.81	8 46	18 19
6/10/2007/ 0/ 0	14 14 20	- 17 0 58	0.42208	0.87936	7.31	24.9	7.64	0.24	0.468	93.7	4.06	8 46	18 16
7/10/2007/ 0/ 0	14 16 30	- 17 14 54	0.41730	0.86188	7.17	24.5	7.79	0.28	0.443	96.6	4.33	8 45	18 14
8/10/2007/ 0/ 0	14 18 21	- 17 26 29	0.41233	0.84441	7.02	24.0	7.95	0.34	0.417	99.5	4.63	8 44	18 11
9/10/2007/ 0/ 0	14 19 53	- 17 35 30	0.40718	0.82700	6.88	23.4	8.12	0.41	0.390	102.7	4.95	8 42	18 7
10/10/2007/ 0/ 0	14 21 3	- 17 41 45	0.40187	0.80975	6.74	22.7	8.29	0.49	0.362	106.1	5.29	8 40	18 4
11/10/2007/ 0/ 0	14 21 50	- 17 44 58	0.39642	0.79274	6.59	22.0	8.47	0.59	0.332	109.6			

DATA GG/MM/AAAA/HH/MM	A.R. h m s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	SORGE h m	TRAMONTA h m
11/11/2007/ 0/ 0	13 53 12	- 9 12 51	0.33699	1.04733	8.71	18.8	6.41	-0.64	0.663	71.0	2.16	5 28	16 9
12/11/2007/ 0/ 0	13 57 48	- 9 39 55	0.34219	1.07224	8.92	18.6	6.26	-0.67	0.695	67.0	1.90	5 31	16 8
13/11/2007/ 0/ 0	14 2 37	- 10 8 41	0.34760	1.09638	9.12	18.3	6.12	-0.70	0.725	63.3	1.68	5 34	16 6
14/11/2007/ 0/ 0	14 7 38	- 10 38 51	0.35317	1.11971	9.31	17.9	6.00	-0.71	0.752	59.7	1.48	5 37	16 5
15/11/2007/ 0/ 0	14 12 50	- 11 10 7	0.35886	1.14219	9.50	17.6	5.88	-0.73	0.777	56.3	1.31	5 40	16 4
16/11/2007/ 0/ 0	14 18 11	- 11 42 12	0.36462	1.16378	9.68	17.2	5.77	-0.73	0.800	53.2	1.15	5 44	16 3
17/11/2007/ 0/ 0	14 23 40	- 12 14 54	0.37043	1.18447	9.85	16.7	5.67	-0.74	0.820	50.2	1.01	5 48	16 2
18/11/2007/ 0/ 0	14 29 15	- 12 47 60	0.37623	1.20426	10.01	16.2	5.58	-0.74	0.839	47.3	0.89	5 52	16 2
19/11/2007/ 0/ 0	14 34 57	- 13 21 18	0.38201	1.22316	10.17	15.8	5.49	-0.74	0.856	44.6	0.79	5 57	16 1
20/11/2007/ 0/ 0	14 40 44	- 13 54 40	0.38772	1.24116	10.32	15.3	5.41	-0.74	0.871	42.1	0.69	6 1	16 0
21/11/2007/ 0/ 0	14 46 35	- 14 27 57	0.39335	1.25828	10.46	14.7	5.34	-0.74	0.885	39.7	0.61	6 5	15 60
22/11/2007/ 0/ 0	14 52 31	- 15 1 2	0.39887	1.27454	10.60	14.2	5.27	-0.75	0.897	37.4	0.54	6 10	15 59
23/11/2007/ 0/ 0	14 58 31	- 15 33 49	0.40426	1.28995	10.73	13.7	5.20	-0.75	0.908	35.2	0.47	6 14	15 59
24/11/2007/ 0/ 0	15 4 34	- 16 6 11	0.40950	1.30453	10.85	13.1	5.15	-0.75	0.919	33.2	0.41	6 19	15 58
25/11/2007/ 0/ 0	15 10 41	- 16 38 4	0.41457	1.31830	10.96	12.6	5.09	-0.75	0.928	31.2	0.36	6 24	15 58
26/11/2007/ 0/ 0	15 16 50	- 17 9 24	0.41946	1.33128	11.07	12.0	5.04	-0.76	0.936	29.3	0.32	6 28	15 58
27/11/2007/ 0/ 0	15 23 3	- 17 40 5	0.42415	1.34349	11.17	11.4	5.00	-0.76	0.944	27.5	0.28	6 33	15 57
28/11/2007/ 0/ 0	15 29 18	- 18 10 6	0.42864	1.35495	11.27	10.9	4.95	-0.77	0.950	25.8	0.24	6 38	15 57
29/11/2007/ 0/ 0	15 35 35	- 18 39 21	0.43291	1.36568	11.36	10.3	4.92	-0.78	0.956	24.1	0.21	6 43	15 57
30/11/2007/ 0/ 0	15 41 55	- 19 7 50	0.43695	1.37570	11.44	9.8	4.88	-0.79	0.962	22.5	0.18	6 47	15 57
1/12/2007/ 0/ 0	15 48 17	- 19 35 28	0.44076	1.38502	11.52	9.2	4.85	-0.80	0.967	21.0	0.16	6 52	15 57
2/12/2007/ 0/ 0	15 54 41	- 20 2 13	0.44433	1.39366	11.59	8.7	4.82	-0.81	0.971	19.5	0.13	6 57	15 58
3/12/2007/ 0/ 0	16 1 8	- 20 28 3	0.44765	1.40163	11.66	8.1	4.79	-0.82	0.975	18.1	0.11	7 1	15 58
4/12/2007/ 0/ 0	16 7 37	- 20 52 57	0.45071	1.40895	11.72	7.5	4.76	-0.84	0.979	16.7	0.10	7 6	15 58
5/12/2007/ 0/ 0	16 14 8	- 21 16 51	0.45352	1.41563	11.77	7.0	4.74	-0.86	0.982	15.3	0.08	7 11	15 59
6/12/2007/ 0/ 0	16 20 41	- 21 39 45	0.45606	1.42169	11.82	6.4	4.72	-0.88	0.985	14.0	0.07	7 15	15 59
7/12/2007/ 0/ 0	16 27 16	- 22 1 35	0.45834	1.42713	11.87	5.9	4.70	-0.90	0.988	12.8	0.05	7 20	16 0
8/12/2007/ 0/ 0	16 33 53	- 22 22 22	0.46035	1.43196	11.91	5.4	4.69	-0.92	0.990	11.5	0.04	7 24	16 1
9/12/2007/ 0/ 0	16 40 32	- 22 42 2	0.46208	1.43620	11.94	4.8	4.67	-0.95	0.992	10.3	0.03	7 29	16 2
10/12/2007/ 0/ 0	16 47 13	- 23 0 35	0.46354	1.43984	11.97	4.3	4.66	-0.97	0.994	9.1	0.02	7 33	16 3
11/12/2007/ 0/ 0	16 53 56	- 23 17 59	0.46473	1.44290	12.00	3.8	4.65	-1.00	0.995	8.0	0.02	7 38	16 4
12/12/2007/ 0/ 0	17 0 41	- 23 34 12	0.46564	1.44539	12.02	3.2	4.64	-1.03	0.996	6.9	0.01	7 42	16 5
13/12/2007/ 0/ 0	17 7 28	- 23 49 14	0.46627	1.44730	12.04	2.7	4.64	-1.06	0.997	5.8	0.01	7 46	16 7
14/12/2007/ 0/ 0	17 14 16	- 24 3 2	0.46662	1.44864	12.05	2.3	4.63	-1.09	0.998	4.8	0.00	7 50	16 8
15/12/2007/ 0/ 0	17 21 7	- 24 15 35	0.46670	1.44941	12.05	1.8	4.63	-1.12	0.999	3.9	0.00	7 54	16 10
16/12/2007/ 0/ 0	17 27 59	- 24 26 53	0.46649	1.44961	12.06	1.5	4.63	-1.15	0.999	3.2	0.00	7 58	16 12
17/12/2007/ 0/ 0	17 34 52	- 24 36 53	0.46601	1.44925	12.05	1.3	4.63	-1.17	0.999	2.8	0.00	8 2	16 14
18/12/2007/ 0/ 0	17 41 48	- 24 45 34	0.46524	1.44832	12.05	1.4	4.63	-1.17	0.999	3.0	0.00	8 6	16 16
19/12/2007/ 0/ 0	17 48 44	- 24 52 55	0.46420	1.44682	12.03	1.7	4.64	-1.15	0.999	3.5	0.00	8 10	16 18
20/12/2007/ 0/ 0	17 55 43	- 24 58 55	0.46288	1.44475	12.02	2.0	4.65	-1.13	0.999	4.3	0.00	8 13	16 21
21/12/2007/ 0/ 0	18 2 42	- 25 3 33	0.46129	1.44210	11.99	2.5	4.65	-1.11	0.998	5.3	0.01	8 17	16 24
22/12/2007/ 0/ 0	18 9 43	- 25 6 47	0.45942	1.43887	11.97	3.0	4.67	-1.09	0.997	6.4	0.01	8 20	16 26
23/12/2007/ 0/ 0	18 16 45	- 25 8 36	0.45728	1.43505	11.94	3.5	4.68	-1.06	0.996	7.6	0.02	8 23	16 29
24/12/2007/ 0/ 0	18 23 48	- 25 8 60	0.45488	1.43064	11.90	4.0	4.69	-1.04	0.994	8.8	0.02	8 26	16 32
25/12/2007/ 0/ 0	18 30 51	- 25 7 56	0.45221	1.42561	11.86	4.6	4.71	-1.02	0.992	10.0	0.03	8 29	16 35
26/12/2007/ 0/ 0	18 37 56	- 25 5 25	0.44928	1.41997	11.81	5.1	4.73	-1.00	0.990	11.3	0.04	8 32	16 39
27/12/2007/ 0/ 0	18 45 1	- 25 1 24	0.44609	1.41370	11.76	5.7	4.75	-0.98	0.988	12.7	0.05	8 35	16 42
28/12/2007/ 0/ 0	18 52 6	- 24 55 54	0.44266	1.40679	11.70	6.3	4.77	-0.96	0.985	14.1	0.07	8 38	16 46
29/12/2007/ 0/ 0	18 59 11	- 24 48 53	0.43897	1.39923	11.64	6.9	4.80	-0.95	0.982	15.5	0.08	8 40	16 50
30/12/2007/ 0/ 0	19 6 17	- 24 40 20	0.43505	1.39099	11.57	7.4	4.83	-0.93	0.978	17.0	0.10	8 42	16 54
31/12/2007/ 0/ 0	19 13 22	- 24 30 15	0.43090	1.38206	11.50	8.0	4.86	-0.92	0.974	18.6	0.12	8 45	16 58
1/ 1/2008/ 0/ 0	19 20 26	- 24 18 37	0.42652	1.37243	11.41	8.6	4.89	-0.91	0.969	20.2	0.15	8 47	17 2

Legenda :

K = fase

I = angolo di fase

Q = difetto di illuminazione

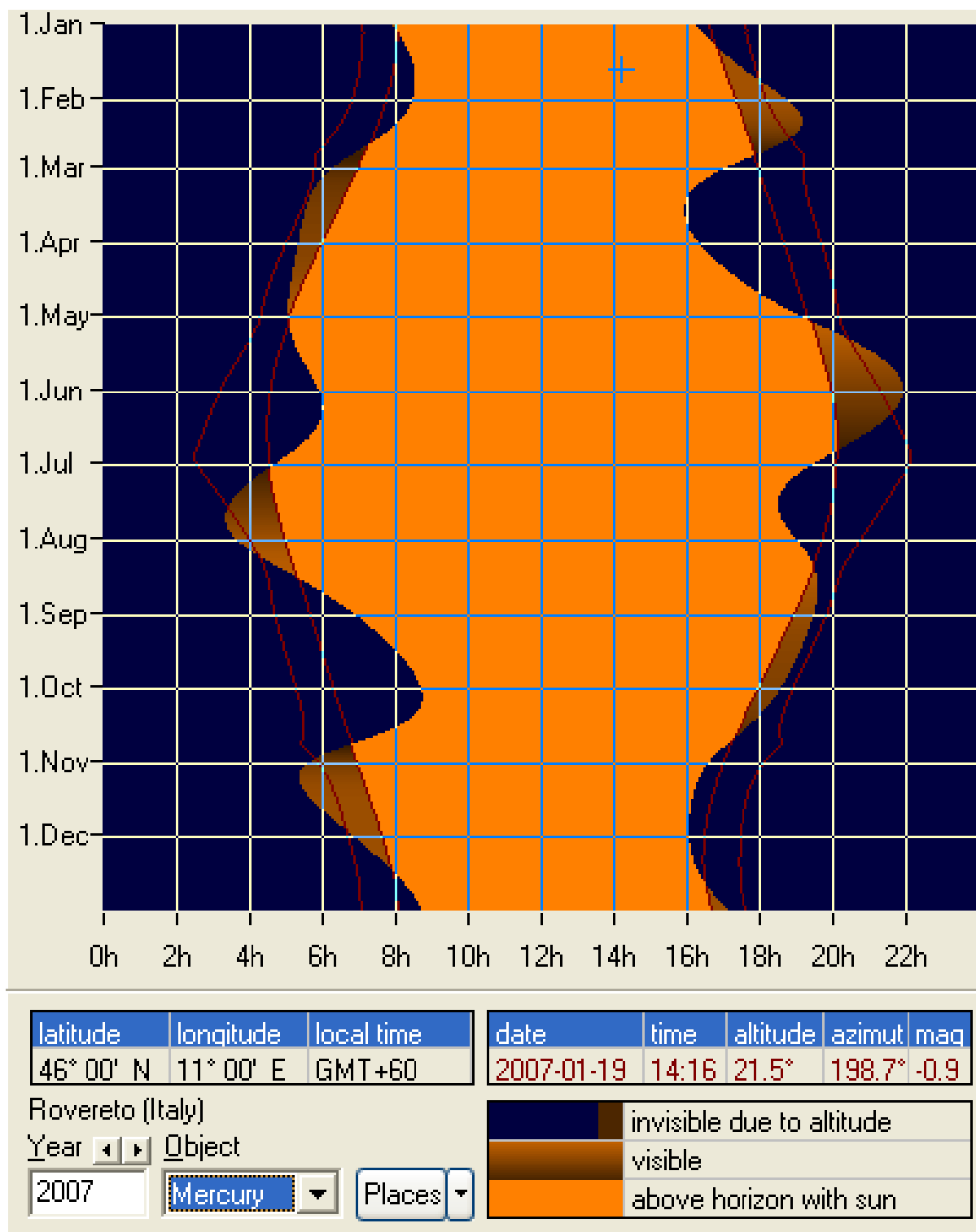
Tempi di levata e tramonto in ore locali, non in T.U.

# FENOMENI DI MERCURIO

Perielio	09/02/07	20.48.30	0,30750 U.A.
Perielio	08/05/07	20.04.52	0,30750 U.A.
Perielio	04/08/07	19.21.52	0,30749 U.A.
Perielio	31/10/07	18.37.16	0,30749 U.A.
Afelio	25/03/07	20.26.35	0,46670 U.A.
Afelio	21/06/07	19.43.34	0,46670 U.A.
Afelio	17/09/07	18.59.31	0,46670 U.A.
Afelio	14/12/07	18.14.47	0,46670 U.A.
Perigeo	25/02/07	18.53.29	0,63243 U.A.
Perigeo	26/06/07	19.54.28	0,55792 U.A.
Perigeo	22/10/07	16.55.18	0,66708 U.A.
Apogeo	02/01/07	04.46.35	1,44076 U.A.
Apogeo	30/04/07	18.11.06	1,32894 U.A.
Apogeo	20/08/07	23.52.58	1,36444 U.A.
Apogeo	15/12/07	20.51.30	1,44962 U.A.
Magnitudine massima	08/01/07	09.22.14	-1,2 mag
Magnitudine massima	03/05/07	09.21.26	-2,2 mag
Magnitudine massima	15/08/07	02.25.56	-1,9 mag
Magnitudine massima	17/12/07	12.41.28	-1,2 mag
Magnitudine minima	23/02/07	07.22.19	4,7 mag
Magnitudine minima	28/06/07	10.42.57	5,1 mag
Massima elongazione est	07/02/07	17.13.56	18,2 °
Massima elongazione est	02/06/07	09.57.55	23,4 °
Massima elongazione est	29/09/07	15.53.20	26,0 °
Massima elongazione ovest	22/03/07	01.59.58	27,7 °
Massima elongazione ovest	20/07/07	15.00.44	20,3 °
Massima elongazione ovest	08/11/07	20.53.11	19,0 °
Congiunzione inferiore	23/02/07	04.46.18	
Congiunzione inferiore	28/06/07	18.40.07	
Congiunzione inferiore	23/10/07	23.56.18	
Congiunzione superiore	07/01/07	06.05.00	
Congiunzione superiore	03/05/07	04.05.38	
Congiunzione superiore	15/08/07	19.56.18	
Congiunzione superiore	17/12/07	15.26.16	

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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. I valori sono riportati nelle due tabelle seguenti.



heliacal dates for Mercury in 2007  
location : Rovereto (Italy)  
latitude : 46° 00' 00'' N  
longitude: 11° 00' 00'' E  
variable arcus visionis:  
arcvis [°] = 10.5 + 1.4 \* magnitude  
critical altitude: 0.00°

	date	obj r/s	sun r/s	d r/s	age	mag
evening visibility begins	2007-01-24	18:02	17:09	0:53h	17d 11h	-0.9
evening visibility ends	2007-02-16	18:52	17:43	1:08h	-6d 11h	1.3
evening visibility begins	2007-05-11	20:32	19:36	0:56h	8d 16h	-1.3
evening visibility ends	2007-06-09	21:39	20:04	1:34h	-18d 22h	1.2
morning visibility begins	2007-07-19	03:21	04:43	-1:21h	20d 08h	0.6
morning visibility ends	2007-08-07	04:11	05:05	-0:53h	-8d 16h	-1.4
morning visibility begins	2007-10-31	05:40	06:54	-1:14h	7d 05h	0.9
morning visibility ends	2007-11-28	06:36	07:33	-0:56h	-19d 09h	-0.6

Legenda:

Evening visibility begins : inizio della visibilità serale

Evening visibility ends : fine della visibilità serale

Morning visibility begins : inizio della visibilità mattutina

Morning visibility ends : fine della visibilità mattutina

Obj r/s : ora del tramonto o della levata del pianeta

Sun r/s : ora del tramonto o della levata del Sole

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

Age : giorni trascorsi dalla congiunzione col Sole

Mag : magnitudine

	date	obj r/s	sun r/s	sun alt	sun lon	obj lon	obj lat	mag	d az	d lon
EF	01-24	18:02	17:09	-9° 24'	304° 20'	315° 52'	-1° 46'	-0.9	-7° 34'	11° 33'
EL	02-16	18:52	17:43	-12° 36'	327° 40'	339° 40'	2° 57'	1.3	-2° 18'	11° 59'
EF	05-11	20:32	19:36	-9° 09'	50° 44'	60° 53'	1° 17'	-1.3	-5° 27'	10° 10'
EL	06-09	21:39	20:04	-12° 31'	78° 38'	100° 11'	0° 22'	1.2	-18° 03'	21° 33'
MF	07-19	03:21	04:43	-11° 43'	116° 05'	96° 02'	-2° 48'	0.6	16° 55'	-20° 02'
ML	08-07	04:11	05:05	-8° 49'	134° 16'	124° 48'	1° 11'	-1.4	4° 42'	-9° 28'
MF	10-31	05:40	06:54	-13° 22'	217° 22'	203° 39'	1° 12'	0.9	4° 48'	-13° 43'
ML	11-28	06:36	07:33	-9° 41'	245° 36'	234° 52'	0° 43'	-0.6	5° 38'	-10° 44'

Legenda:

Obj r/s : ora del tramonto o della levata del pianeta

Sun r/s : ora del tramonto o della levata del Sole

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

Obj lon : longitudine celeste del pianeta

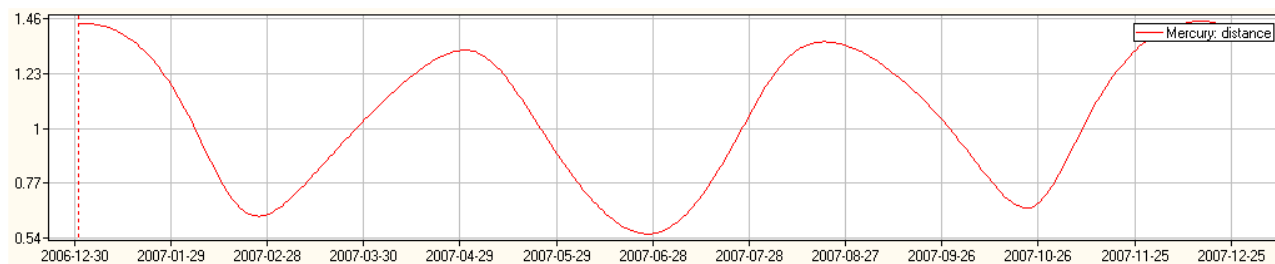
Obj lat : latitudine celeste del pianeta

Mag : magnitudine

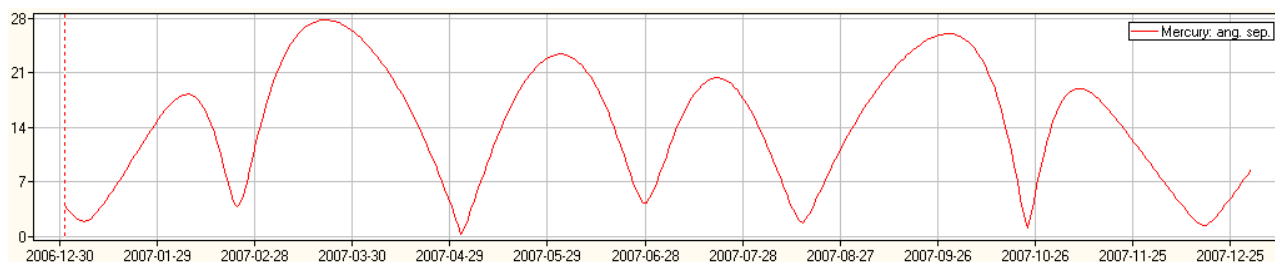
D az : differenza in azimuth tra i centri del Sole e del pianeta nell'istante della sua visibilità

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

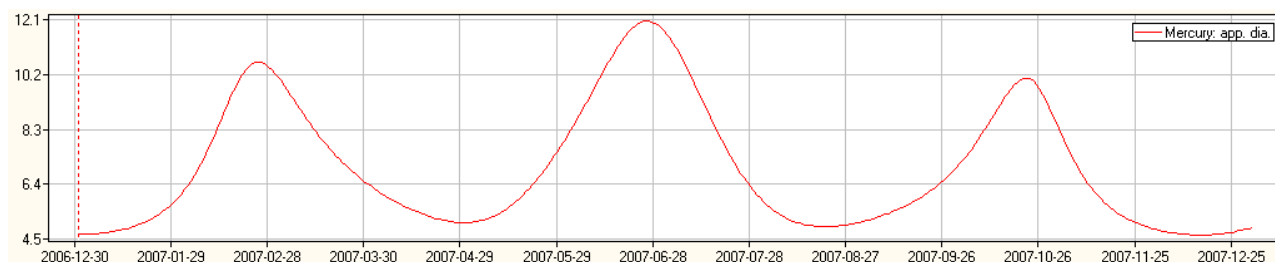
© (3)



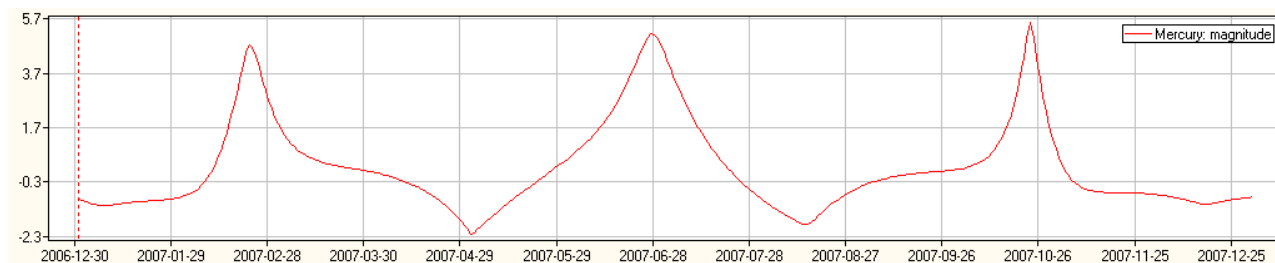
Distanza di Mercurio in U.A. nel corso dell'anno



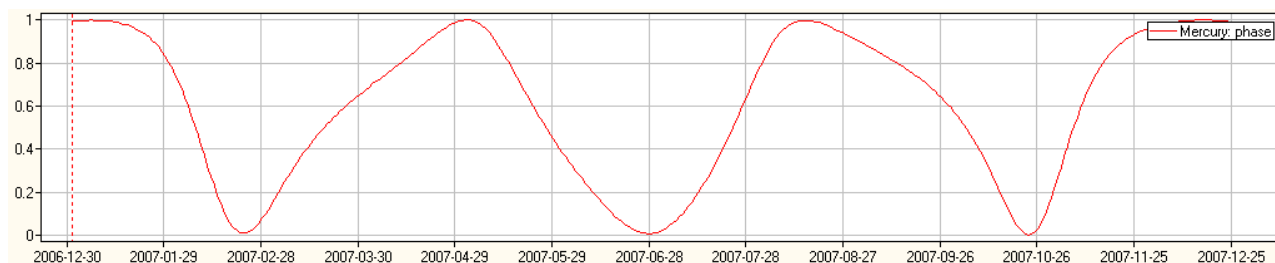
Elongazione di Mercurio in ° nel corso dell'anno



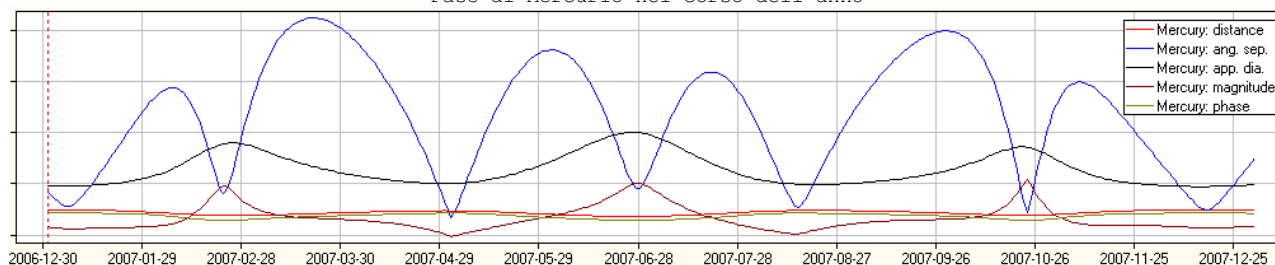
Diametro di Mercurio in " nel corso dell'anno



Magnitudine di Mercurio nel corso dell'anno

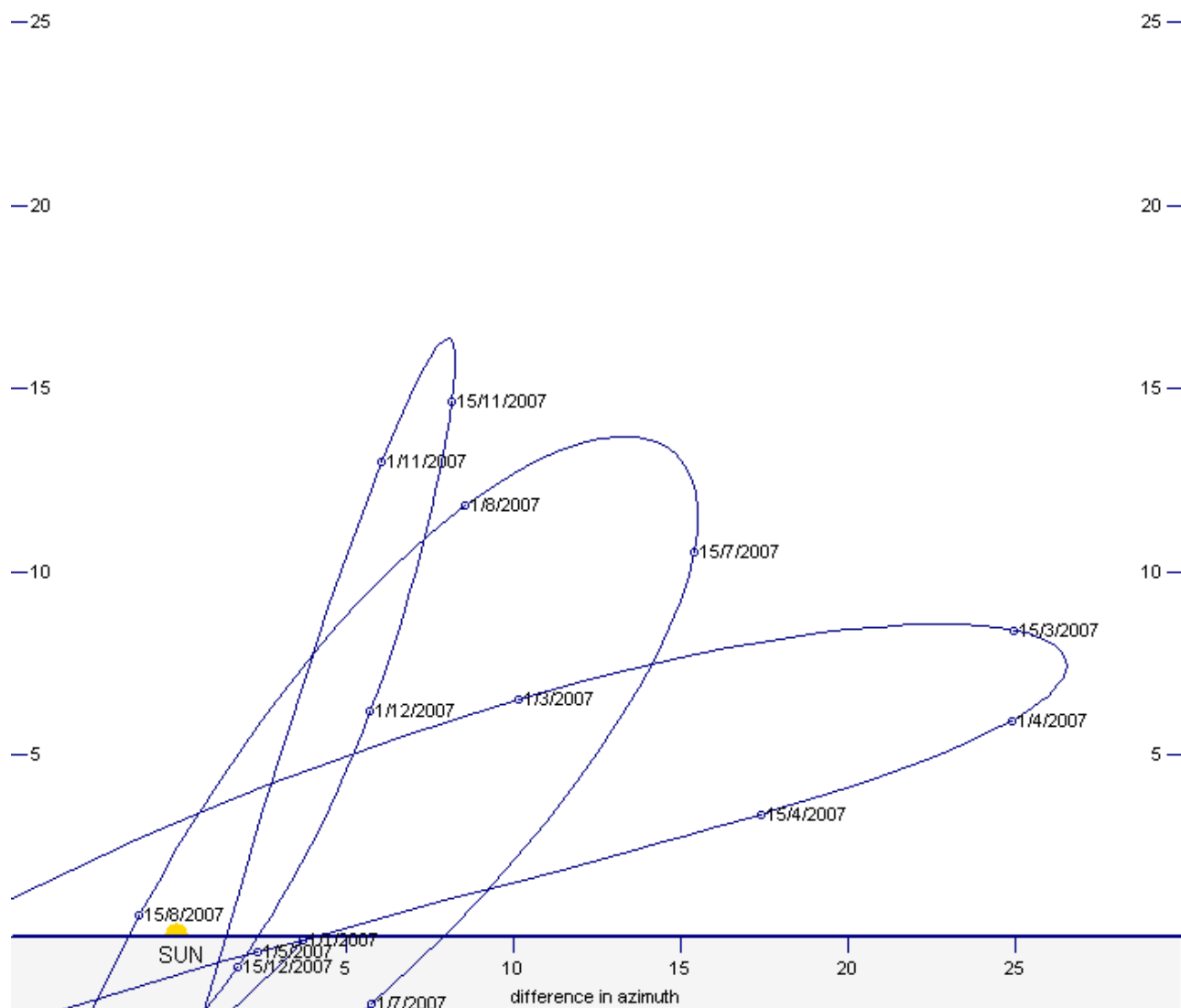


Fase di Mercurio nel corso dell'anno



# The position of Mercury with respect to the rising sun

location: Rovereto (Italy)  
geographic latitude: 46° 00' 00" N  
geographic longitude: 11° 00' 00" E

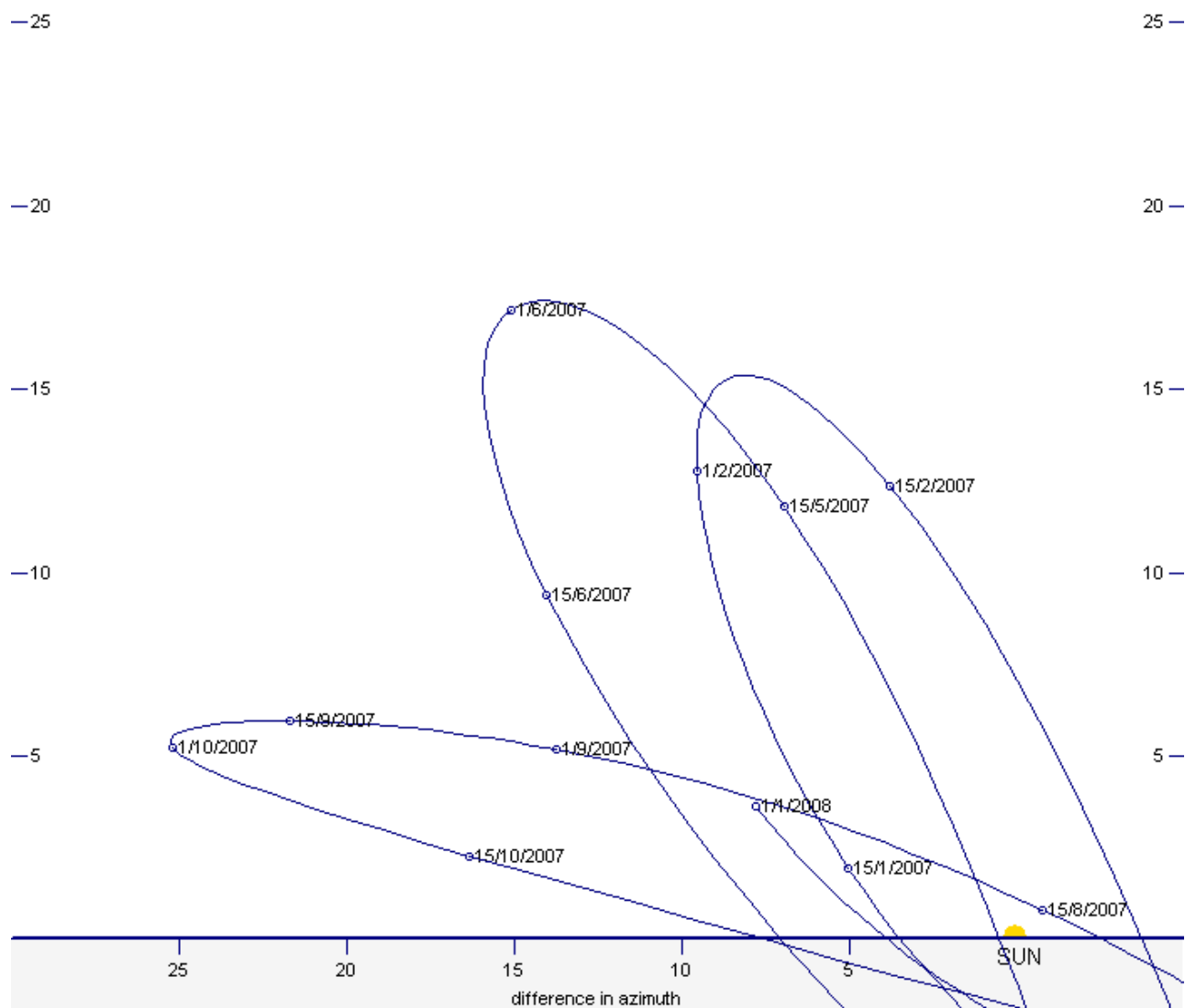


Posizione relativa di Mercurio rispetto al Sole al suo momento del sorgere

© (3)

## The position of Mercury with respect to the setting sun

location: Rovereto (Italy)  
 geographic latitude:  $46^{\circ} 00' 00''$  N  
 geographic longitude:  $11^{\circ} 00' 00''$  E



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

© (3)

# EFFEMERIDI DI VENERE

DATA GG/MM/AAAA/HH/MM	A.R. h m s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	SORGE h m	TRAMONTA h m
1/ 1/2007/ 0/ 0	19 53 18	- 22 14 54	0.72820	1.62172	13.49	15.9	10.28	-3.91	0.964	21.8	0.36	9 7	17 45
2/ 1/2007/ 0/ 0	19 58 37	- 22 1 42	0.72818	1.61901	13.47	16.2	10.30	-3.91	0.963	22.1	0.37	9 7	17 48
3/ 1/2007/ 0/ 0	20 3 56	- 21 47 51	0.72816	1.61626	13.44	16.4	10.32	-3.91	0.962	22.4	0.39	9 8	17 50
4/ 1/2007/ 0/ 0	20 9 13	- 21 33 20	0.72814	1.61348	13.42	16.6	10.33	-3.91	0.961	22.8	0.40	9 8	17 53
5/ 1/2007/ 0/ 0	20 14 30	- 21 18 12	0.72811	1.61066	13.40	16.9	10.35	-3.91	0.960	23.1	0.41	9 8	17 56
6/ 1/2007/ 0/ 0	20 19 45	- 21 2 26	0.72807	1.60781	13.37	17.1	10.37	-3.91	0.959	23.4	0.42	9 8	17 58
7/ 1/2007/ 0/ 0	20 24 59	- 20 46 2	0.72804	1.60492	13.35	17.3	10.39	-3.91	0.958	23.7	0.43	9 7	18 1
8/ 1/2007/ 0/ 0	20 30 11	- 20 29 3	0.72800	1.60200	13.32	17.6	10.41	-3.91	0.957	24.1	0.45	9 7	18 4
9/ 1/2007/ 0/ 0	20 35 23	- 20 11 27	0.72796	1.59904	13.30	17.8	10.43	-3.92	0.955	24.4	0.46	9 7	18 6
10/ 1/2007/ 0/ 0	20 40 33	- 19 53 16	0.72791	1.59605	13.27	18.0	10.45	-3.92	0.954	24.7	0.47	9 7	18 9
11/ 1/2007/ 0/ 0	20 45 42	- 19 34 31	0.72786	1.59302	13.25	18.3	10.47	-3.92	0.953	25.1	0.49	9 6	18 12
12/ 1/2007/ 0/ 0	20 50 49	- 19 15 12	0.72781	1.58995	13.22	18.5	10.49	-3.92	0.952	25.4	0.50	9 6	18 15
13/ 1/2007/ 0/ 0	20 55 56	- 18 55 20	0.72775	1.58684	13.20	18.7	10.51	-3.92	0.950	25.7	0.52	9 5	18 17
14/ 1/2007/ 0/ 0	21 1 1	- 18 34 55	0.72769	1.58370	13.17	19.0	10.53	-3.92	0.949	26.1	0.53	9 5	18 20
15/ 1/2007/ 0/ 0	21 6 4	- 18 13 59	0.72762	1.58052	13.15	19.2	10.55	-3.92	0.948	26.4	0.55	9 4	18 23
16/ 1/2007/ 0/ 0	21 11 7	- 17 52 32	0.72756	1.57731	13.12	19.4	10.57	-3.92	0.947	26.7	0.56	9 4	18 26
17/ 1/2007/ 0/ 0	21 16 8	- 17 30 35	0.72749	1.57405	13.09	19.7	10.59	-3.92	0.945	27.1	0.58	9 3	18 29
18/ 1/2007/ 0/ 0	21 21 8	- 17 8 9	0.72741	1.57076	13.06	19.9	10.61	-3.92	0.944	27.4	0.59	9 2	18 32
19/ 1/2007/ 0/ 0	21 26 6	- 16 45 14	0.72733	1.56743	13.04	20.1	10.64	-3.92	0.943	27.7	0.61	9 1	18 34
20/ 1/2007/ 0/ 0	21 31 3	- 16 21 52	0.72725	1.56406	13.01	20.4	10.66	-3.92	0.941	28.1	0.62	9 1	18 37
21/ 1/2007/ 0/ 0	21 35 59	- 15 58 2	0.72717	1.56065	12.98	20.6	10.68	-3.92	0.940	28.4	0.64	8 60	18 40
22/ 1/2007/ 0/ 0	21 40 53	- 15 33 46	0.72708	1.55721	12.95	20.8	10.71	-3.92	0.938	28.8	0.66	8 59	18 43
23/ 1/2007/ 0/ 0	21 45 47	- 15 9 5	0.72700	1.55372	12.92	21.1	10.73	-3.92	0.937	29.1	0.67	8 58	18 46
24/ 1/2007/ 0/ 0	21 50 39	- 14 43 59	0.72690	1.55019	12.89	21.3	10.75	-3.92	0.935	29.4	0.69	8 57	18 49
25/ 1/2007/ 0/ 0	21 55 29	- 14 18 30	0.72681	1.54663	12.86	21.5	10.78	-3.92	0.934	29.8	0.71	8 56	18 52
26/ 1/2007/ 0/ 0	22 0 19	- 13 52 37	0.72671	1.54303	12.83	21.7	10.80	-3.93	0.932	30.1	0.72	8 55	18 54
27/ 1/2007/ 0/ 0	22 5 7	- 13 26 23	0.72661	1.53938	12.80	22.0	10.83	-3.93	0.931	30.5	0.74	8 54	18 57
28/ 1/2007/ 0/ 0	22 9 54	- 12 59 47	0.72651	1.53570	12.77	22.2	10.86	-3.93	0.929	30.8	0.76	8 52	19 0
29/ 1/2007/ 0/ 0	22 14 40	- 12 32 50	0.72640	1.53199	12.74	22.4	10.88	-3.93	0.928	31.1	0.78	8 51	19 3
30/ 1/2007/ 0/ 0	22 19 25	- 12 5 34	0.72630	1.52823	12.71	22.7	10.91	-3.93	0.926	31.5	0.80	8 50	19 6
31/ 1/2007/ 0/ 0	22 24 8	- 11 37 58	0.72619	1.52443	12.68	22.9	10.94	-3.93	0.925	31.8	0.82	8 49	19 9
1/ 2/2007/ 0/ 0	22 28 51	- 11 10 5	0.72607	1.52060	12.65	23.1	10.96	-3.93	0.923	32.2	0.84	8 48	19 11
2/ 2/2007/ 0/ 0	22 33 32	- 10 41 54	0.72596	1.51673	12.62	23.3	10.99	-3.93	0.922	32.5	0.86	8 46	19 14
3/ 2/2007/ 0/ 0	22 38 12	- 10 13 26	0.72584	1.51282	12.58	23.6	11.02	-3.93	0.920	32.9	0.88	8 45	19 17
4/ 2/2007/ 0/ 0	22 42 52	- 9 44 42	0.72572	1.50888	12.55	23.8	11.05	-3.93	0.918	33.2	0.90	8 44	19 20
5/ 2/2007/ 0/ 0	22 47 30	- 9 15 44	0.72560	1.50490	12.52	24.0	11.08	-3.93	0.917	33.6	0.92	8 42	19 22
6/ 2/2007/ 0/ 0	22 52 8	- 8 46 31	0.72548	1.50087	12.48	24.2	11.11	-3.93	0.915	33.9	0.94	8 41	19 25
7/ 2/2007/ 0/ 0	22 56 44	- 8 17 4	0.72536	1.49681	12.45	24.5	11.14	-3.94	0.913	34.3	0.96	8 39	19 28
8/ 2/2007/ 0/ 0	23 1 20	- 7 47 25	0.72523	1.49272	12.42	24.7	11.17	-3.94	0.911	34.6	0.98	8 38	19 31
9/ 2/2007/ 0/ 0	23 5 55	- 7 17 33	0.72511	1.48858	12.38	24.9	11.20	-3.94	0.910	35.0	1.01	8 36	19 34
10/ 2/2007/ 0/ 0	23 10 29	- 6 47 30	0.72498	1.48440	12.35	25.2	11.23	-3.94	0.908	35.3	1.03	8 35	19 36
11/ 2/2007/ 0/ 0	23 15 3	- 6 17 16	0.72485	1.48019	12.31	25.4	11.26	-3.94	0.906	35.7	1.05	8 33	19 39
12/ 2/2007/ 0/ 0	23 19 36	- 5 46 53	0.72472	1.47594	12.28	25.6	11.30	-3.94	0.904	36.1	1.08	8 32	19 42
13/ 2/2007/ 0/ 0	23 24 8	- 5 16 20	0.72459	1.47164	12.24	25.8	11.33	-3.94	0.902	36.4	1.10	8 30	19 44
14/ 2/2007/ 0/ 0	23 28 39	- 4 45 39	0.72445	1.46731	12.20	26.1	11.36	-3.94	0.901	36.8	1.13	8 29	19 47
15/ 2/2007/ 0/ 0	23 33 10	- 4 14 51	0.72432	1.46293	12.17	26.3	11.40	-3.94	0.899	37.1	1.15	8 27	19 50
16/ 2/2007/ 0/ 0	23 37 41	- 3 43 56	0.72419	1.45852	12.13	26.5	11.43	-3.95	0.897	37.5	1.18	8 26	19 53
17/ 2/2007/ 0/ 0	23 42 10	- 3 12 54	0.72405	1.45406	12.09	26.7	11.47	-3.95	0.895	37.9	1.20	8 24	19 55
18/ 2/2007/ 0/ 0	23 46 40	- 2 41 48	0.72391	1.44956	12.06	26.9	11.50	-3.95	0.893	38.2	1.23	8 22	19 58
19/ 2/2007/ 0/ 0	23 51 9	- 2 10 37	0.72378	1.44502	12.02	27.2	11.54	-3.95	0.891	38.6	1.25	8 21	20 1
20/ 2/2007/ 0/ 0	23 55 37	- 1 39 22	0.72364	1.44043	11.98	27.4	11.57	-3.95	0.889	39.0	1.28	8 19	20 3
21/ 2/2007/ 0/ 0	0 0 6	- 1 8 4	0.72350	1.43581	11.94	27.6	11.61	-3.95	0.887	39.3	1.31	8 19	20 10
22/ 2/2007/ 0/ 0	0 4 34	- 0 36 44	0.72337	1.43114	11.90	27.8	11.65	-3.95	0.885	39.7	1.34	8 20	20 13
23/ 2/2007/ 0/ 0	0 9 1	- 0 5 23	0.72323	1.42643	11.86	28.1	11.69	-3.95	0.883	40.1	1.37	8 18	20 15
24/ 2/2007/ 0/ 0	0 13 29	+ 0 25 60	0.72309	1.42168	11.82	28.3	11.73	-3.96	0.881	40.4	1.40	8 17	20 18
25/ 2/2007/ 0/ 0	0 17 56	+ 0 57 22	0.72296	1.41688	11.78	28.5	11.77	-3.96	0.878	40.8	1.43	8 15	20 21
26/ 2/2007/ 0/ 0	0 22 23	+ 1 28 44	0.72282	1.41204	11.74	28.7	11.81	-3.96	0.876	41.2	1.46	8 13	20 23
27/ 2/2007/ 0/ 0	0 26 50	+ 2 0 4	0.72268	1.40716	11.70	29.0	11.85	-3.96	0.874	41.6	1.49	8 12	20 26
28/ 2/2007/ 0/ 0	0 31 17	+ 2 31 21	0.72255	1.40224	11.66	29.2	11.89	-3.96	0.872	41.9	1.52	8 10	20 29
1/ 3/2007/ 0/ 0	0 35 44	+ 3 2 36	0.72241	1.39728	11.62	29.4	11.93	-3.96	0.870	42.3	1.55	8 8	20 31
2/ 3/2007/ 0/ 0	0 40 11	+ 3 33 47	0.72228	1.39228	11.58	29.6	11.98	-3.96	0.868	42.7	1.58	8 7	20 34
3/ 3/2007/ 0/ 0	0 44 38	+ 4 4 54	0.72214	1.38723	11.54	29.8	12.02	-3.97	0.865	43.1	1.61	8 5	20 37
4/ 3/2007/ 0/ 0	0 49 5	+ 4 35 55	0.72201	1.38214	11.50	30.1	12.06	-3.97	0.863	43.4	1.65	8 3	20 39
5/ 3/2007/ 0/ 0	0 53 32	+ 5 6 51	0.72188	1.37702	11.45	30.3	12.11	-3.97	0.861	43.8	1.68	8 2	20 42
6/ 3/2007/ 0/ 0	0 57 59	+ 5 37 40	0.72175	1.37185	11.41	30.5	12.15	-3.97	0.858	44.2	1.72	8 0	20 45
7/ 3/2007/ 0/ 0	1 2 27	+ 6 8 22	0.72162	1.36664	11.37	30.7	12.20	-3.97	0.856	44.6	1.75	7 58	20 47
8/ 3/2007/ 0/ 0	1 6 54	+ 6 38 56	0.72149	1.36139	11.32	30.9	12.25	-3.97	0.854	45.0	1.79	7 57	20 50
9/ 3/2007/ 0/ 0	1 11 23	+ 7 9 22	0.72136	1.35610	11.28	31.1	12.29	-3.98	0.851	45.4	1.82	7 55	20 53
10/ 3/2007/ 0/ 0	1 15 51	+ 7 39 38	0.72124	1.35077	11.23	31.4	12.34	-3.98	0.849	45.8	1.86	7 54	20 55
11/ 3/2007/ 0/ 0	1 20 20	+ 8 9 44	0.72112	1.34539	11.19	31.6	12.39	-3.98	0.846	46.2	1.90	7 52	20 58
12/ 3/2007/ 0/ 0	1 24 49	+ 8 39 39	0.72099	1.33998	11.15	31.8	12.44	-3.98	0.844	46.6	1.94	7 50	21 1
13/ 3/2007/ 0/ 0	1 29 19	+ 9 9 22	0.72087	1.33452	11.10	32.0	12.49	-3.98	0.841	47.0	1.98	7 49	21 3
14/ 3/2007/ 0/ 0	1 33 49	+ 9 38 54	0.72076	1.32902	11.05	32.2	12.55	-3.98	0.839	47.4	2.02	7 47	21 6
15/ 3/2007/ 0/ 0	1 38 19	+ 10 8 12	0.72064	1.32348	11.01	32.4	12.60	-3.99	0.836	47.8	2.06	7 46	21 9
16/ 3/2007/ 0/ 0	1 42 51	+ 10 37 17	0.72053	1.31789	10.96	32.7	12.65	-3.99	0.834	48.2	2.10	7 44	21 11
17/ 3/2007/ 0/ 0	1 47 22	+ 11 6 8	0.72041	1.31227	10.91	32.9	12.71	-3.99	0.831	48.6	2.14	7 43	21 14
18/ 3/2007/ 0/ 0	1 51 55												

DATA GG/MM/AAAA/HH/MM	A.R. h m s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	SORGE h m	TRAMONTA h m
11/ 4/2007/ 0/ 0	3 44 38	+ 21 13 40	0.71856	1.15777	9.63	38.0	14.40	-4.04	0.756	59.2	3.50	7 13	22 21
12/ 4/2007/ 0/ 0	3 49 30	+ 21 32 5	0.71853	1.15107	9.57	38.2	14.49	-4.05	0.753	59.6	3.57	7 13	22 23
13/ 4/2007/ 0/ 0	3 54 23	+ 21 49 58	0.71850	1.14433	9.52	38.4	14.57	-4.05	0.750	60.1	3.64	7 12	22 26
14/ 4/2007/ 0/ 0	3 59 16	+ 22 7 18	0.71848	1.13755	9.46	38.6	14.66	-4.05	0.746	60.5	3.72	7 12	22 28
15/ 4/2007/ 0/ 0	4 4 10	+ 22 24 3	0.71846	1.13073	9.40	38.8	14.75	-4.06	0.743	61.0	3.79	7 11	22 30
16/ 4/2007/ 0/ 0	4 9 5	+ 22 40 14	0.71845	1.12387	9.35	39.0	14.84	-4.06	0.739	61.4	3.86	7 11	22 33
17/ 4/2007/ 0/ 0	4 14 1	+ 22 55 50	0.71844	1.11697	9.29	39.1	14.93	-4.06	0.736	61.9	3.94	7 10	22 35
18/ 4/2007/ 0/ 0	4 18 57	+ 23 10 51	0.71843	1.11004	9.23	39.3	15.02	-4.06	0.732	62.3	4.02	7 10	22 38
19/ 4/2007/ 0/ 0	4 23 54	+ 23 25 16	0.71843	1.10307	9.17	39.5	15.12	-4.07	0.729	62.8	4.10	7 9	22 40
20/ 4/2007/ 0/ 0	4 28 51	+ 23 39 4	0.71843	1.09605	9.12	39.7	15.21	-4.07	0.725	63.3	4.18	7 9	22 42
21/ 4/2007/ 0/ 0	4 33 49	+ 23 52 15	0.71844	1.08900	9.06	39.9	15.31	-4.07	0.721	63.7	4.26	7 9	22 44
22/ 4/2007/ 0/ 0	4 38 47	+ 24 4 50	0.71844	1.08192	9.00	40.1	15.41	-4.08	0.718	64.2	4.35	7 9	22 47
23/ 4/2007/ 0/ 0	4 43 46	+ 24 16 46	0.71846	1.07479	8.94	40.2	15.51	-4.08	0.714	64.7	4.43	7 9	22 49
24/ 4/2007/ 0/ 0	4 48 44	+ 24 28 5	0.71847	1.06763	8.88	40.4	15.62	-4.08	0.710	65.1	4.52	7 9	22 51
25/ 4/2007/ 0/ 0	4 53 44	+ 24 38 45	0.71849	1.06044	8.82	40.6	15.72	-4.09	0.706	65.6	4.61	7 9	22 53
26/ 4/2007/ 0/ 0	4 58 43	+ 24 48 47	0.71852	1.05321	8.76	40.8	15.83	-4.09	0.703	66.1	4.70	7 9	22 55
27/ 4/2007/ 0/ 0	5 3 42	+ 24 58 9	0.71855	1.04594	8.70	40.9	15.94	-4.09	0.699	66.6	4.80	7 9	22 57
28/ 4/2007/ 0/ 0	5 8 42	+ 25 6 53	0.71858	1.03864	8.64	41.1	16.05	-4.10	0.695	67.0	4.89	7 9	22 59
29/ 4/2007/ 0/ 0	5 13 42	+ 25 14 57	0.71861	1.03131	8.58	41.3	16.17	-4.10	0.691	67.5	4.99	7 9	23 1
30/ 4/2007/ 0/ 0	5 18 41	+ 25 22 22	0.71865	1.02394	8.52	41.4	16.29	-4.10	0.687	68.0	5.09	7 10	23 2
1/ 5/2007/ 0/ 0	5 23 40	+ 25 29 7	0.71870	1.01654	8.46	41.6	16.40	-4.11	0.683	68.5	5.19	7 10	23 4
2/ 5/2007/ 0/ 0	5 28 40	+ 25 35 12	0.71874	1.00912	8.39	41.8	16.52	-4.11	0.679	69.0	5.30	7 11	23 6
3/ 5/2007/ 0/ 0	5 33 39	+ 25 40 37	0.71879	1.00166	8.33	41.9	16.65	-4.11	0.675	69.5	5.40	7 11	23 7
4/ 5/2007/ 0/ 0	5 38 37	+ 25 45 22	0.71885	0.99417	8.27	42.1	16.77	-4.12	0.671	70.0	5.51	7 12	23 9
5/ 5/2007/ 0/ 0	5 43 36	+ 25 49 28	0.71890	0.98665	8.21	42.2	16.90	-4.12	0.667	70.5	5.62	7 12	23 10
6/ 5/2007/ 0/ 0	5 48 34	+ 25 52 53	0.71897	0.97911	8.14	42.4	17.03	-4.13	0.663	71.0	5.74	7 13	23 12
7/ 5/2007/ 0/ 0	5 53 31	+ 25 55 39	0.71903	0.97153	8.08	42.5	17.16	-4.13	0.659	71.5	5.85	7 14	23 13
8/ 5/2007/ 0/ 0	5 58 28	+ 25 57 45	0.71910	0.96393	8.02	42.7	17.30	-4.13	0.654	72.0	5.97	7 15	23 14
9/ 5/2007/ 0/ 0	6 3 24	+ 25 59 10	0.71917	0.95631	7.95	42.8	17.44	-4.14	0.650	72.5	6.10	7 15	23 15
10/ 5/2007/ 0/ 0	6 8 19	+ 25 59 57	0.71924	0.94865	7.89	43.0	17.58	-4.14	0.646	73.0	6.22	7 16	23 16
11/ 5/2007/ 0/ 0	6 13 14	+ 26 0 3	0.71932	0.94097	7.83	43.1	17.72	-4.15	0.642	73.6	6.35	7 17	23 17
12/ 5/2007/ 0/ 0	6 18 7	+ 25 59 31	0.71940	0.93327	7.76	43.2	17.87	-4.15	0.637	74.1	6.48	7 18	23 18
13/ 5/2007/ 0/ 0	6 22 60	+ 25 58 19	0.71948	0.92554	7.70	43.4	18.02	-4.16	0.633	74.6	6.61	7 19	23 19
14/ 5/2007/ 0/ 0	6 27 52	+ 25 56 28	0.71957	0.91779	7.63	43.5	18.17	-4.16	0.628	75.1	6.75	7 20	23 20
15/ 5/2007/ 0/ 0	6 32 42	+ 25 53 59	0.71966	0.91001	7.57	43.6	18.32	-4.16	0.624	75.7	6.89	7 22	23 20
16/ 5/2007/ 0/ 0	6 37 31	+ 25 50 51	0.71975	0.90221	7.50	43.7	18.48	-4.17	0.619	76.2	7.03	7 23	23 21
17/ 5/2007/ 0/ 0	6 42 20	+ 25 47 5	0.71985	0.89439	7.44	43.9	18.64	-4.17	0.615	76.7	7.17	7 24	23 21
18/ 5/2007/ 0/ 0	6 47 6	+ 25 42 42	0.71995	0.88654	7.37	44.0	18.81	-4.18	0.610	77.3	7.33	7 25	23 22
19/ 5/2007/ 0/ 0	6 51 52	+ 25 37 41	0.72005	0.87867	7.31	44.1	18.98	-4.18	0.606	77.8	7.48	7 27	23 22
20/ 5/2007/ 0/ 0	6 56 36	+ 25 32 4	0.72015	0.87078	7.24	44.2	19.15	-4.19	0.601	78.3	7.64	7 28	23 22
21/ 5/2007/ 0/ 0	7 1 18	+ 25 25 50	0.72026	0.86286	7.18	44.3	19.33	-4.19	0.596	78.9	7.80	7 29	23 22
22/ 5/2007/ 0/ 0	7 5 59	+ 25 19 0	0.72037	0.85493	7.11	44.4	19.51	-4.20	0.592	79.5	7.96	7 31	23 23
23/ 5/2007/ 0/ 0	7 10 37	+ 25 11 35	0.72048	0.84698	7.04	44.5	19.69	-4.20	0.587	80.0	8.13	7 32	23 23
24/ 5/2007/ 0/ 0	7 15 15	+ 25 3 35	0.72059	0.83901	6.98	44.6	19.88	-4.21	0.582	80.6	8.31	7 33	23 22
25/ 5/2007/ 0/ 0	7 19 50	+ 24 55 1	0.72070	0.83102	6.91	44.7	20.07	-4.21	0.577	81.1	8.48	7 35	23 22
26/ 5/2007/ 0/ 0	7 24 23	+ 24 45 54	0.72082	0.82301	6.85	44.8	20.26	-4.22	0.572	81.7	8.66	7 36	23 22
27/ 5/2007/ 0/ 0	7 28 54	+ 24 36 13	0.72094	0.81499	6.78	44.8	20.46	-4.22	0.567	82.3	8.85	7 38	23 22
28/ 5/2007/ 0/ 0	7 33 24	+ 24 26 0	0.72106	0.80696	6.71	44.9	20.67	-4.23	0.562	82.9	9.05	7 39	23 21
29/ 5/2007/ 0/ 0	7 37 51	+ 24 15 15	0.72118	0.79891	6.65	45.0	20.87	-4.24	0.557	83.4	9.24	7 41	23 21
30/ 5/2007/ 0/ 0	7 42 16	+ 24 3 59	0.72131	0.79086	6.58	45.1	21.09	-4.24	0.552	84.0	9.44	7 42	23 20
31/ 5/2007/ 0/ 0	7 46 38	+ 23 52 13	0.72143	0.78279	6.51	45.1	21.30	-4.25	0.547	84.6	9.65	7 44	23 19
1/ 6/2007/ 0/ 0	7 50 58	+ 23 39 57	0.72156	0.77471	6.44	45.2	21.53	-4.25	0.542	85.2	9.86	7 45	23 19
2/ 6/2007/ 0/ 0	7 55 16	+ 23 27 12	0.72169	0.76662	6.38	45.2	21.75	-4.26	0.536	85.8	10.08	7 47	23 18
3/ 6/2007/ 0/ 0	7 59 32	+ 23 13 59	0.72182	0.75853	6.31	45.3	21.98	-4.26	0.531	86.4	10.30	7 49	23 17
4/ 6/2007/ 0/ 0	8 3 44	+ 23 0 18	0.72195	0.75043	6.24	45.3	22.22	-4.27	0.526	87.1	10.54	7 50	23 16
5/ 6/2007/ 0/ 0	8 7 55	+ 22 46 11	0.72208	0.74232	6.17	45.3	22.46	-4.28	0.520	87.7	10.77	7 52	23 15
6/ 6/2007/ 0/ 0	8 12 3	+ 22 31 38	0.72222	0.73422	6.11	45.4	22.71	-4.28	0.515	88.3	11.02	7 53	23 14
7/ 6/2007/ 0/ 0	8 16 8	+ 22 16 39	0.72235	0.72611	6.04	45.4	22.97	-4.29	0.509	88.9	11.27	7 55	23 13
8/ 6/2007/ 0/ 0	8 20 10	+ 22 1 16	0.72248	0.71800	5.97	45.4	23.23	-4.29	0.504	89.6	11.53	7 56	23 11
9/ 6/2007/ 0/ 0	8 24 9	+ 21 45 30	0.72262	0.70988	5.90	45.4	23.49	-4.30	0.498	90.2	11.79	7 57	23 10
10/ 6/2007/ 0/ 0	8 28 6	+ 21 29 20	0.72275	0.70177	5.84	45.4	23.76	-4.31	0.492	90.9	12.06	7 59	23 9
11/ 6/2007/ 0/ 0	8 32 0	+ 21 12 49	0.72289	0.69366	5.77	45.4	24.04	-4.31	0.487	91.5	12.34	8 0	23 7
12/ 6/2007/ 0/ 0	8 35 51	+ 20 55 56	0.72303	0.68556	5.70	45.4	24.33	-4.32	0.481	92.2	12.63	8 2	23 6
13/ 6/2007/ 0/ 0	8 39 39	+ 20 38 43	0.72316	0.67745	5.63	45.3	24.62	-4.32	0.475	92.9	12.92	8 3	23 4
14/ 6/2007/ 0/ 0	8 43 24	+ 20 21 10	0.72330	0.66936	5.57	45.3	24.91	-4.33	0.469	93.6	13.22	8 4	23 2
15/ 6/2007/ 0/ 0	8 47 6	+ 20 3 19	0.72344	0.66126	5.50	45.3	25.22	-4.34	0.463	94.3	13.54	8 5	23 1
16/ 6/2007/ 0/ 0	8 50 44	+ 19 45 10	0.72357	0.65317	5.43	45.2	25.53	-4.34	0.457	95.0	13.86	8 7	22 59
17/ 6/2007/ 0/ 0	8 54 20	+ 19 26 44	0.72371	0.64510	5.37	45.1	25.85	-4.35	0.451	95.7	14.19	8 8	22 57
18/ 6/2007/ 0/ 0	8 57 52	+ 19 8 3	0.72385	0.63703	5.30	45.1	26.18	-4.36	0.444	96.4	14.54	8 9	22 55
19/ 6/2007/ 0/ 0	9 1 20	+ 18 49 6	0.72398	0.62897	5.23	45.0	26.51	-4.36	0.438	97.1	14.89	8 10	22 53
20/ 6/2007/ 0/ 0	9 4 45	+ 18 29 56	0.72412	0.62092	5.16	44.9	26.86	-4.37	0.432	97.8	15.26	8 11	22 51
21/ 6/2007/ 0/ 0	9 8 7	+ 18 10 33	0.72425	0.61289	5.10	44.8	27.21	-4.37	0.425	98.6	15.63	8 12	22 49
22/ 6/2007/ 0/ 0	9 11 25	+ 17 50 58	0.72439	0.60487	5.03	44.7	27.57	-4.38	0.419	99.3	16.02	8 13	22 46
23/ 6/2007/ 0/ 0	9 14 39	+ 17 31 13	0.72452	0.59687	4.96	44.6	27.94	-4.39	0.412	100.1	16.41	8 14	22 44
24/ 6/2007/ 0/ 0	9 17 49	+ 17 11 17	0.72465	0.58889	4.90	44.4	28.32	-4.39	0.406	100.9	16.83	8 15	22 42
25/ 6/2007/ 0/ 0	9 20 56	+ 16 51 13	0.72478	0.58094	4.83	44.3	28.71	-4.40	0.399	101.7	17.25	8 16	22 39
26/ 6/2007/ 0/ 0	9 23 58	+ 16 31 0	0.72491	0.57301	4.77	44.1	29.10	-4.41	0.392				

DATA	A.R.	DEC.	RV	DELTA	LUCE	EL.	DIAM.	MAG	K	I	Q	SORGE	TRAMONTA
GG/MM/AAAA/HH/MM	h m s	° ' ''	U.A.	U.A.	min	°	''			°	''	h m	h m
27/ 7/2007/ 0/ 0	10 14 4	+ 6 52 37	0.72788	0.35532	2.96	29.5	46.94	-4.41	0.137	136.5	40.50	7 47	20 42
28/ 7/2007/ 0/ 0	10 13 47	+ 6 40 3	0.72793	0.34995	2.91	28.6	47.66	-4.40	0.128	138.0	41.54	7 44	20 37
29/ 7/2007/ 0/ 0	10 13 21	+ 6 28 13	0.72798	0.34474	2.87	27.7	48.38	-4.39	0.119	139.6	42.60	7 40	20 32
30/ 7/2007/ 0/ 0	10 12 46	+ 6 17 10	0.72802	0.33971	2.83	26.7	49.10	-4.37	0.110	141.2	43.67	7 36	20 27
31/ 7/2007/ 0/ 0	10 12 2	+ 6 6 54	0.72806	0.33487	2.79	25.7	49.81	-4.36	0.102	142.8	44.73	7 33	20 21
1/ 8/2007/ 0/ 0	10 11 9	+ 5 57 29	0.72809	0.33022	2.75	24.7	50.51	-4.34	0.093	144.4	45.79	7 28	20 16
2/ 8/2007/ 0/ 0	10 10 8	+ 5 48 55	0.72812	0.32577	2.71	23.6	51.20	-4.32	0.085	146.1	46.84	7 24	20 10
3/ 8/2007/ 0/ 0	10 8 58	+ 5 41 16	0.72815	0.32153	2.67	22.5	51.87	-4.30	0.077	147.8	47.87	7 19	20 5
4/ 8/2007/ 0/ 0	10 7 39	+ 5 34 31	0.72817	0.31752	2.64	21.4	52.53	-4.28	0.069	149.5	48.89	7 15	19 59
5/ 8/2007/ 0/ 0	10 6 11	+ 5 28 42	0.72819	0.31373	2.61	20.2	53.16	-4.25	0.062	151.2	49.88	7 10	19 53
6/ 8/2007/ 0/ 0	10 4 36	+ 5 23 52	0.72821	0.31017	2.58	19.0	53.77	-4.23	0.055	153.0	50.83	7 5	19 47
7/ 8/2007/ 0/ 0	10 2 53	+ 5 19 59	0.72822	0.30686	2.55	17.8	54.35	-4.20	0.048	154.8	51.75	6 59	19 41
8/ 8/2007/ 0/ 0	10 1 3	+ 5 17 6	0.72823	0.30380	2.53	16.6	54.90	-4.17	0.041	156.5	52.62	6 54	19 35
9/ 8/2007/ 0/ 0	9 59 6	+ 5 15 12	0.72823	0.30099	2.50	15.4	55.41	-4.14	0.036	158.3	53.43	6 48	19 29
10/ 8/2007/ 0/ 0	9 57 3	+ 5 14 19	0.72823	0.29845	2.48	14.2	55.88	-4.11	0.030	160.0	54.19	6 42	19 23
11/ 8/2007/ 0/ 0	9 54 54	+ 5 14 24	0.72823	0.29618	2.46	13.1	56.31	-4.09	0.025	161.7	54.87	6 36	19 17
12/ 8/2007/ 0/ 0	9 52 40	+ 5 15 29	0.72823	0.29418	2.45	11.9	56.70	-4.06	0.021	163.3	55.49	6 30	19 11
13/ 8/2007/ 0/ 0	9 50 22	+ 5 17 32	0.72821	0.29246	2.43	10.9	57.03	-4.03	0.018	164.8	56.02	6 23	19 5
14/ 8/2007/ 0/ 0	9 48 0	+ 5 20 31	0.72820	0.29102	2.42	9.9	57.31	-4.00	0.015	166.1	56.47	6 17	18 59
15/ 8/2007/ 0/ 0	9 45 36	+ 5 24 26	0.72818	0.28987	2.41	9.1	57.54	-3.98	0.012	167.3	56.83	6 10	18 53
16/ 8/2007/ 0/ 0	9 43 9	+ 5 29 13	0.72816	0.28901	2.40	8.5	57.71	-3.96	0.011	168.2	57.09	6 3	18 47
17/ 8/2007/ 0/ 0	9 40 42	+ 5 34 51	0.72814	0.28845	2.40	8.1	57.82	-3.95	0.010	168.7	57.26	5 57	18 41
18/ 8/2007/ 0/ 0	9 38 14	+ 5 41 17	0.72811	0.28818	2.40	8.0	57.88	-3.95	0.009	168.9	57.33	5 50	18 35
19/ 8/2007/ 0/ 0	9 35 47	+ 5 48 27	0.72807	0.28821	2.40	8.2	57.87	-3.96	0.010	168.6	57.30	5 43	18 29
20/ 8/2007/ 0/ 0	9 33 21	+ 5 56 17	0.72804	0.28853	2.40	8.6	57.81	-3.97	0.011	168.0	57.17	5 36	18 23
21/ 8/2007/ 0/ 0	9 30 58	+ 6 4 46	0.72800	0.28914	2.40	9.3	57.68	-4.00	0.013	167.0	56.93	5 29	18 18
22/ 8/2007/ 0/ 0	9 28 39	+ 6 13 47	0.72795	0.29004	2.41	10.2	57.50	-4.02	0.015	165.8	56.61	5 22	18 12
23/ 8/2007/ 0/ 0	9 26 24	+ 6 23 18	0.72791	0.29123	2.42	11.2	57.27	-4.05	0.019	164.3	56.20	5 15	18 6
24/ 8/2007/ 0/ 0	9 24 13	+ 6 33 14	0.72786	0.29271	2.43	12.3	56.98	-4.08	0.022	162.8	55.70	5 9	18 1
25/ 8/2007/ 0/ 0	9 22 9	+ 6 43 30	0.72780	0.29446	2.45	13.5	56.64	-4.11	0.027	161.1	55.12	5 2	17 56
26/ 8/2007/ 0/ 0	9 20 11	+ 6 54 4	0.72774	0.29649	2.47	14.6	56.25	-4.15	0.032	159.4	54.45	4 55	17 51
27/ 8/2007/ 0/ 0	9 18 20	+ 7 4 50	0.72768	0.29879	2.48	15.9	55.82	-4.18	0.037	157.7	53.73	4 49	17 46
28/ 8/2007/ 0/ 0	9 16 36	+ 7 15 44	0.72762	0.30134	2.51	17.1	55.35	-4.21	0.043	155.9	52.94	4 42	17 41
29/ 8/2007/ 0/ 0	9 15 1	+ 7 26 43	0.72755	0.30415	2.53	18.3	54.84	-4.24	0.050	154.2	52.10	4 36	17 36
30/ 8/2007/ 0/ 0	9 13 35	+ 7 37 42	0.72748	0.30721	2.55	19.5	54.29	-4.27	0.057	152.4	51.20	4 30	17 31
31/ 8/2007/ 0/ 0	9 12 17	+ 7 48 38	0.72741	0.31050	2.58	20.7	53.72	-4.29	0.064	150.7	50.27	4 24	17 27
1/ 9/2007/ 0/ 0	9 11 9	+ 7 59 27	0.72733	0.31402	2.61	21.8	53.11	-4.32	0.072	148.9	49.29	4 18	17 23
2/ 9/2007/ 0/ 0	9 10 10	+ 8 10 6	0.72725	0.31776	2.64	23.0	52.49	-4.34	0.080	147.2	48.30	4 12	17 18
3/ 9/2007/ 0/ 0	9 9 21	+ 8 20 33	0.72717	0.32171	2.68	24.1	51.84	-4.37	0.088	145.5	47.28	4 7	17 14
4/ 9/2007/ 0/ 0	9 8 41	+ 8 30 44	0.72708	0.32587	2.71	25.2	51.18	-4.39	0.096	143.8	46.25	4 2	17 11
5/ 9/2007/ 0/ 0	9 8 11	+ 8 40 37	0.72699	0.33021	2.75	26.2	50.51	-4.41	0.105	142.2	45.21	3 56	17 7
6/ 9/2007/ 0/ 0	9 7 51	+ 8 50 10	0.72690	0.33474	2.78	27.2	49.82	-4.42	0.114	140.6	44.15	3 51	17 3
7/ 9/2007/ 0/ 0	9 7 41	+ 8 59 21	0.72680	0.33945	2.82	28.2	49.13	-4.44	0.123	139.0	43.11	3 47	16 60
8/ 9/2007/ 0/ 0	9 7 40	+ 9 8 8	0.72671	0.34432	2.86	29.2	48.44	-4.46	0.131	137.5	42.07	3 42	16 57
9/ 9/2007/ 0/ 0	9 7 49	+ 9 16 30	0.72661	0.34935	2.91	30.1	47.74	-4.47	0.141	136.0	41.03	3 38	16 51
10/ 9/2007/ 0/ 0	9 8 6	+ 9 24 24	0.72650	0.35454	2.95	31.0	47.04	-4.48	0.150	134.5	40.00	3 34	16 50
11/ 9/2007/ 0/ 0	9 8 33	+ 9 31 51	0.72640	0.35986	2.99	31.8	46.35	-4.49	0.159	133.0	38.99	3 30	16 47
12/ 9/2007/ 0/ 0	9 9 9	+ 9 38 48	0.72629	0.36533	3.04	32.6	45.65	-4.50	0.168	131.6	37.98	3 26	16 45
13/ 9/2007/ 0/ 0	9 9 54	+ 9 45 15	0.72618	0.37092	3.08	33.4	44.96	-4.51	0.177	130.2	37.00	3 22	16 42
14/ 9/2007/ 0/ 0	9 10 47	+ 9 51 11	0.72607	0.37664	3.13	34.2	44.28	-4.52	0.186	128.9	36.03	3 19	16 39
15/ 9/2007/ 0/ 0	9 11 48	+ 9 56 35	0.72595	0.38247	3.18	34.9	43.61	-4.53	0.195	127.6	35.09	3 15	16 37
16/ 9/2007/ 0/ 0	9 12 58	+ 10 1 26	0.72584	0.38842	3.23	35.6	42.94	-4.53	0.204	126.3	34.17	3 12	16 34
17/ 9/2007/ 0/ 0	9 14 15	+ 10 5 44	0.72572	0.39447	3.28	36.2	42.28	-4.54	0.213	125.0	33.26	3 9	16 32
18/ 9/2007/ 0/ 0	9 15 39	+ 10 9 29	0.72560	0.40062	3.33	36.9	41.63	-4.54	0.222	123.8	32.38	3 6	16 30
19/ 9/2007/ 0/ 0	9 17 11	+ 10 12 40	0.72548	0.40687	3.38	37.5	40.99	-4.55	0.231	122.6	31.52	3 4	16 27
20/ 9/2007/ 0/ 0	9 18 50	+ 10 15 15	0.72535	0.41320	3.44	38.1	40.36	-4.55	0.240	121.4	30.68	3 1	16 25
21/ 9/2007/ 0/ 0	9 20 36	+ 10 17 17	0.72523	0.41962	3.49	38.6	39.74	-4.55	0.248	120.2	29.87	2 59	16 23
22/ 9/2007/ 0/ 0	9 22 28	+ 10 18 43	0.72510	0.42613	3.54	39.1	39.14	-4.55	0.257	119.1	29.08	2 53	16 17
23/ 9/2007/ 0/ 0	9 24 26	+ 10 19 33	0.72497	0.43271	3.60	39.6	38.54	-4.55	0.265	118.0	28.31	2 51	16 16
24/ 9/2007/ 0/ 0	9 26 31	+ 10 19 49	0.72484	0.43936	3.65	40.1	37.96	-4.55	0.274	116.9	27.57	2 49	16 14
25/ 9/2007/ 0/ 0	9 28 41	+ 10 19 28	0.72471	0.44608	3.71	40.6	37.39	-4.55	0.282	115.9	26.84	2 47	16 12
26/ 9/2007/ 0/ 0	9 30 57	+ 10 18 32	0.72458	0.45286	3.77	41.0	36.83	-4.55	0.290	114.8	26.14	2 46	16 10
27/ 9/2007/ 0/ 0	9 33 18	+ 10 16 60	0.72445	0.45970	3.82	41.4	36.28	-4.55	0.298	113.8	25.46	2 44	16 8
28/ 9/2007/ 0/ 0	9 35 45	+ 10 14 52	0.72432	0.46660	3.88	41.8	35.74	-4.55	0.306	112.8	24.80	2 43	16 7
29/ 9/2007/ 0/ 0	9 38 16	+ 10 12 8	0.72418	0.47356	3.94	42.1	35.22	-4.54	0.314	111.8	24.16	2 42	16 5
30/ 9/2007/ 0/ 0	9 40 52	+ 10 8 48	0.72405	0.48056	4.00	42.5	34.70	-4.54	0.322	110.9	23.53	2 40	16 4
1/10/2007/ 0/ 0	9 43 33	+ 10 4 52	0.72391	0.48761	4.05	42.8	34.20	-4.54	0.329	110.0	22.93	2 39	16 2
2/10/2007/ 0/ 0	9 46 18	+ 10 0 21	0.72378	0.49471	4.11	43.1	33.71	-4.53	0.337	109.0	22.35	2 39	16 1
3/10/2007/ 0/ 0	9 49 7	+ 9 55 14	0.72364	0.50184	4.17	43.4	33.23	-4.53	0.344	108.1	21.78	2 38	15 59
4/10/2007/ 0/ 0	9 52 1	+ 9 49 33	0.72350	0.50901	4.23	43.7	32.76	-4.53	0.352	107.3	21.24	2 37	15 58
5/10/2007/ 0/ 0	9 54 58	+ 9 43 17	0.72337	0.51621	4.29	43.9	32.31	-4.52	0.359	106.4	20.71	2 37	15 56
6/10/2007/ 0/ 0	9 57 58	+ 9 36 26	0.72323	0.52345	4.35	44.2	31.86	-4.52	0.366	105.5	20.19	2 36	15 55
7/10/2007/ 0/ 0	10 1 2	+ 9 29 1	0.72309	0.53072	4.41	44.4	31.42	-4.51	0.373	104.7	19.69	2 36	15 53
8/10/2007/ 0/ 0	10 4 10	+ 9 21 3	0.72295	0.53801	4.47	44.6	31.00	-4.51	0.380	103.9	19.22	2 36	15 52
9/10/2007/ 0/ 0	10 7 20	+ 9 12 32	0.72282	0.54533	4.53	44.8	30.58	-4.50	0.387	103.1	18.75	2 36	15 51
10/10/2007/ 0/ 0	10 10 34	+ 9 3 27	0.72268	0.55267	4.60	45.0	30.18	-4.50	0.394	102.3	18.30	2 35	15 49

DATA GG/MM/AAAA/HH/MM	A.R. h m s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	SORGE h m	TRAMONTA h m
11/11/2007/ 0/ 0	12 10 21	+ 0 14 7	0.71913	0.79254	6.59	45.9	21.04	-4.31	0.572	81.7	9.00	3 6	15 6
12/11/2007/ 0/ 0	12 14 26	- 0 8 1	0.71906	0.80000	6.65	45.9	20.85	-4.30	0.577	81.2	8.82	3 8	15 5
13/11/2007/ 0/ 0	12 18 31	- 0 30 21	0.71900	0.80744	6.71	45.8	20.65	-4.30	0.581	80.6	8.64	3 9	15 3
14/11/2007/ 0/ 0	12 22 38	- 0 52 53	0.71894	0.81488	6.78	45.7	20.46	-4.29	0.586	80.1	8.46	3 11	15 2
15/11/2007/ 0/ 0	12 26 45	- 1 15 36	0.71888	0.82230	6.84	45.6	20.28	-4.28	0.591	79.6	8.30	3 13	15 0
16/11/2007/ 0/ 0	12 30 53	- 1 38 28	0.71882	0.82971	6.90	45.5	20.10	-4.28	0.595	79.0	8.13	3 15	14 59
17/11/2007/ 0/ 0	12 35 2	- 2 1 31	0.71877	0.83710	6.96	45.4	19.92	-4.27	0.599	78.5	7.97	3 16	14 58
18/11/2007/ 0/ 0	12 39 12	- 2 24 41	0.71872	0.84449	7.02	45.3	19.75	-4.27	0.604	78.0	7.82	3 18	14 56
19/11/2007/ 0/ 0	12 43 23	- 2 48 0	0.71868	0.85186	7.08	45.2	19.58	-4.26	0.608	77.5	7.67	3 20	14 55
20/11/2007/ 0/ 0	12 47 35	- 3 11 26	0.71864	0.85922	7.15	45.1	19.41	-4.26	0.613	77.0	7.51	3 22	14 53
21/11/2007/ 0/ 0	12 51 47	- 3 34 58	0.71860	0.86656	7.21	45.0	19.24	-4.25	0.617	76.5	7.37	3 24	14 52
22/11/2007/ 0/ 0	12 56 0	- 3 58 36	0.71857	0.87390	7.27	44.9	19.08	-4.25	0.621	76.0	7.22	3 26	14 51
23/11/2007/ 0/ 0	13 0 15	- 4 22 19	0.71854	0.88121	7.33	44.8	18.92	-4.24	0.625	75.5	7.08	3 28	14 49
24/11/2007/ 0/ 0	13 4 30	- 4 46 7	0.71851	0.88852	7.39	44.7	18.77	-4.24	0.630	75.0	6.95	3 30	14 48
25/11/2007/ 0/ 0	13 8 46	- 5 9 57	0.71849	0.89580	7.45	44.5	18.62	-4.23	0.634	74.5	6.82	3 32	14 47
26/11/2007/ 0/ 0	13 13 3	- 5 33 51	0.71847	0.90308	7.51	44.4	18.47	-4.23	0.638	74.0	6.69	3 34	14 45
27/11/2007/ 0/ 0	13 17 21	- 5 57 46	0.71846	0.91033	7.57	44.3	18.32	-4.22	0.642	73.5	6.56	3 36	14 44
28/11/2007/ 0/ 0	13 21 40	- 6 21 42	0.71845	0.91757	7.63	44.1	18.17	-4.22	0.646	73.0	6.43	3 38	14 43
29/11/2007/ 0/ 0	13 26 0	- 6 45 39	0.71844	0.92479	7.69	44.0	18.03	-4.21	0.650	72.6	6.31	3 40	14 41
30/11/2007/ 0/ 0	13 30 21	- 7 9 35	0.71844	0.93199	7.75	43.9	17.89	-4.21	0.654	72.1	6.19	3 42	14 40
1/12/2007/ 0/ 0	13 34 43	- 7 33 30	0.71844	0.93917	7.81	43.7	17.76	-4.20	0.658	71.6	6.07	3 44	14 39
2/12/2007/ 0/ 0	13 39 6	- 7 57 22	0.71844	0.94633	7.87	43.6	17.62	-4.20	0.662	71.1	5.96	3 46	14 38
3/12/2007/ 0/ 0	13 43 30	- 8 21 12	0.71845	0.95347	7.93	43.5	17.49	-4.19	0.665	70.7	5.85	3 48	14 36
4/12/2007/ 0/ 0	13 47 55	- 8 44 57	0.71846	0.96059	7.99	43.3	17.36	-4.19	0.669	70.2	5.74	3 50	14 35
5/12/2007/ 0/ 0	13 52 21	- 9 8 38	0.71848	0.96769	8.05	43.2	17.23	-4.18	0.673	69.8	5.63	3 53	14 34
6/12/2007/ 0/ 0	13 56 48	- 9 32 13	0.71850	0.97476	8.11	43.0	17.11	-4.18	0.677	69.3	5.53	3 55	14 33
7/12/2007/ 0/ 0	14 1 16	- 9 55 42	0.71853	0.98181	8.16	42.9	16.98	-4.18	0.680	68.8	5.42	3 57	14 32
8/12/2007/ 0/ 0	14 5 45	- 10 19 4	0.71855	0.98884	8.22	42.7	16.86	-4.17	0.684	68.4	5.32	3 59	14 31
9/12/2007/ 0/ 0	14 10 16	- 10 42 18	0.71859	0.99585	8.28	42.5	16.74	-4.17	0.688	67.9	5.22	4 2	14 29
10/12/2007/ 0/ 0	14 14 47	- 11 5 22	0.71862	1.00284	8.34	42.4	16.63	-4.16	0.691	67.5	5.13	4 4	14 28
11/12/2007/ 0/ 0	14 19 20	- 11 28 17	0.71866	1.00980	8.40	42.2	16.51	-4.16	0.695	67.0	5.03	4 6	14 27
12/12/2007/ 0/ 0	14 23 53	- 11 51 2	0.71870	1.01673	8.46	42.1	16.40	-4.15	0.699	66.6	4.94	4 8	14 26
13/12/2007/ 0/ 0	14 28 28	- 12 13 35	0.71875	1.02365	8.51	41.9	16.29	-4.15	0.702	66.1	4.85	4 11	14 25
14/12/2007/ 0/ 0	14 33 4	- 12 35 56	0.71880	1.03054	8.57	41.7	16.18	-4.15	0.706	65.7	4.76	4 13	14 24
15/12/2007/ 0/ 0	14 37 41	- 12 58 3	0.71885	1.03741	8.63	41.6	16.07	-4.14	0.709	65.3	4.67	4 15	14 23
16/12/2007/ 0/ 0	14 42 19	- 13 19 57	0.71891	1.04425	8.68	41.4	15.97	-4.14	0.713	64.8	4.58	4 18	14 22
17/12/2007/ 0/ 0	14 46 59	- 13 41 37	0.71897	1.05107	8.74	41.2	15.86	-4.13	0.716	64.4	4.50	4 20	14 21
18/12/2007/ 0/ 0	14 51 40	- 14 3 0	0.71904	1.05787	8.80	41.0	15.76	-4.13	0.719	64.0	4.42	4 22	14 20
19/12/2007/ 0/ 0	14 56 21	- 14 24 8	0.71910	1.06464	8.85	40.9	15.66	-4.12	0.723	63.5	4.34	4 25	14 20
20/12/2007/ 0/ 0	15 1 5	- 14 44 59	0.71918	1.07139	8.91	40.7	15.56	-4.12	0.726	63.1	4.26	4 27	14 19
21/12/2007/ 0/ 0	15 5 49	- 15 5 31	0.71925	1.07812	8.97	40.5	15.47	-4.12	0.729	62.7	4.18	4 29	14 18
22/12/2007/ 0/ 0	15 10 34	- 15 25 46	0.71933	1.08482	9.02	40.3	15.37	-4.11	0.733	62.3	4.10	4 32	14 17
23/12/2007/ 0/ 0	15 15 21	- 15 45 40	0.71941	1.09150	9.08	40.2	15.28	-4.11	0.736	61.8	4.03	4 34	14 16
24/12/2007/ 0/ 0	15 20 9	- 16 5 15	0.71949	1.09815	9.13	40.0	15.18	-4.11	0.739	61.4	3.95	4 37	14 16
25/12/2007/ 0/ 0	15 24 59	- 16 24 29	0.71958	1.10478	9.19	39.8	15.09	-4.10	0.742	61.0	3.88	4 39	14 15
26/12/2007/ 0/ 0	15 29 49	- 16 43 21	0.71967	1.11139	9.24	39.6	15.00	-4.10	0.746	60.6	3.81	4 41	14 15
27/12/2007/ 0/ 0	15 34 41	- 17 1 50	0.71976	1.11797	9.30	39.4	14.91	-4.09	0.749	60.2	3.74	4 44	14 14
28/12/2007/ 0/ 0	15 39 34	- 17 19 56	0.71986	1.12452	9.35	39.2	14.83	-4.09	0.752	59.8	3.67	4 46	14 14
29/12/2007/ 0/ 0	15 44 29	- 17 37 38	0.71995	1.13104	9.41	39.0	14.74	-4.09	0.755	59.3	3.61	4 48	14 13
30/12/2007/ 0/ 0	15 49 24	- 17 54 55	0.72005	1.13754	9.46	38.8	14.66	-4.08	0.758	58.9	3.54	4 51	14 13
31/12/2007/ 0/ 0	15 54 21	- 18 11 46	0.72016	1.14401	9.51	38.7	14.58	-4.08	0.761	58.5	3.48	4 53	14 12
1/ 1/2008/ 0/ 0	15 59 19	- 18 28 10	0.72026	1.15045	9.57	38.5	14.49	-4.08	0.764	58.1	3.41	4 56	14 12

Legenda :

K = fase

I = angolo di fase

Q = difetto di illuminazione

Tempi di levata e tramonto in ore locali, non in T.U.

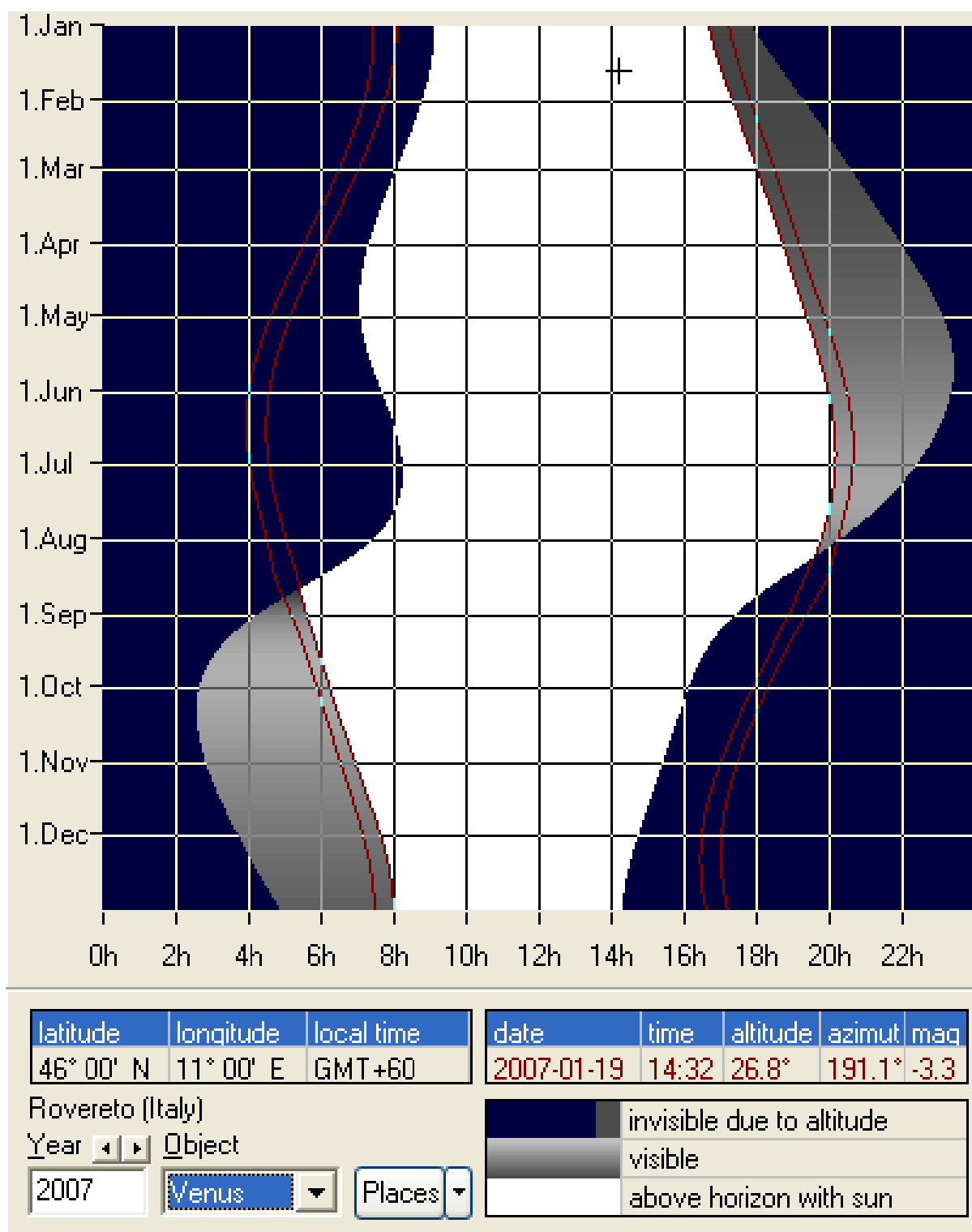
## FENOMENI DI VENERE

Perielio	19/04/07	05.20.23	0,71843 U.A.
Perielio	30/11/07	04.44.58	0,71843 U.A.
Afelio	09/08/07	17.36.16	0,72823 U.A.
Perigeo	18/08/07	09.58.24	0,28816 U.A.
Magnitudine massima	14/07/07	17.55.29	-4,5 mag
Magnitudine massima	23/09/07	04.47.43	-4,6 mag
Magnitudine minima	17/08/07	16.23.17	-4,0 mag
Massima elongazione est	09/06/07	02.40.34	45,4 °
Massima elongazione ovest	28/10/07	15.17.53	46,5 °
Congiunzione inferiore	18/08/07	03.40.41	

© (5)



## 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. I valori sono riportati nelle due tabelle seguenti.

heliacal dates for Venus in 2007  
location : Rovereto (Italy)  
latitude : 46° 00' 00'' N  
longitude: 11° 00' 00'' E  
variable arcus visionis:  
arcvis [°] = 10.5 + 1.4 \* magnitude  
critical altitude: 0.00°

	date	obj r/s	sun r/s	d r/s	age	mag
evening visibility ends	2007-07-31	20:18	19:47	0:31h	-17d 08h	-3.9
morning visibility begins	2007-08-25	04:54	05:27	-0:32h	7d 00h	-3.5

Legenda:

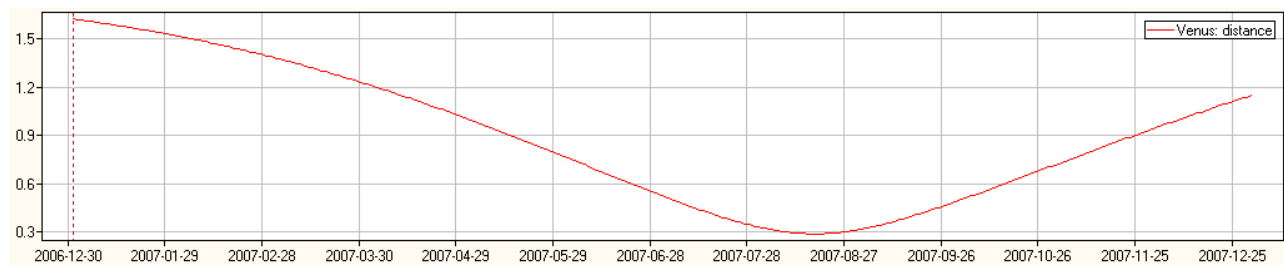
Evening visibility begins : inizio della visibilità serale  
Evening visibility ends : fine della visibilità serale  
Morning visibility begins : inizio della visibilità mattutina  
Morning visibility ends : fine della visibilità mattutina  
Obj r/s : ora del tramonto o della levata del pianeta  
Sun r/s : ora del tramonto o della levata del Sole  
D r/s : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due corpi  
Age : giorni trascorsi dalla congiunzione col Sole  
Mag : magnitudine

	date	obj r/s	sun r/s	sun alt	sun lon	obj lon	obj lat	mag	d az	d lon
EL	07-31	20:18	19:47	-5° 30'	128° 13'	152° 38'	-4° 52'	-3.9	-24° 23'	24° 25'
MF	08-25	04:54	05:27	-6° 10'	151° 36'	140° 42'	-8° 15'	-3.5	12° 26'	-10° 54'

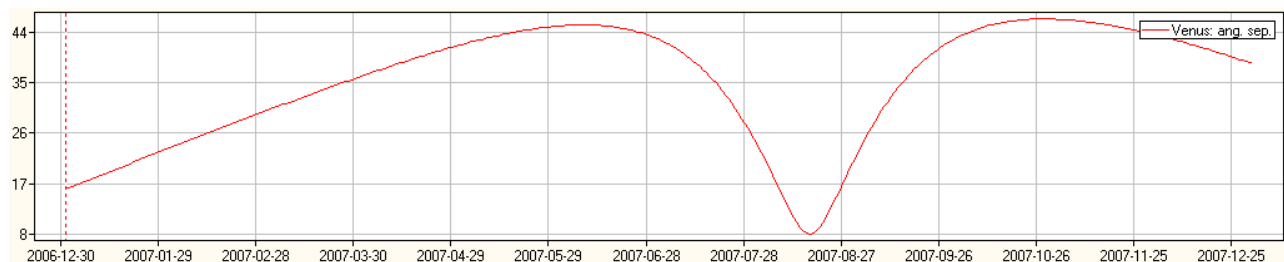
Legenda:

Obj r/s : ora del tramonto o della levata del pianeta  
Sun r/s : ora del tramonto o della levata del Sole  
Sun alt : altezza del Sole nell'istante di visibilità del pianeta  
Obj lon : longitudine celeste del pianeta  
Obj 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

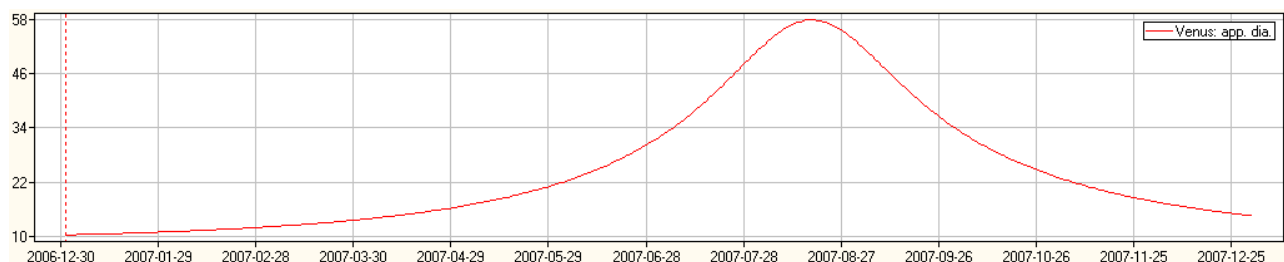
© (3)



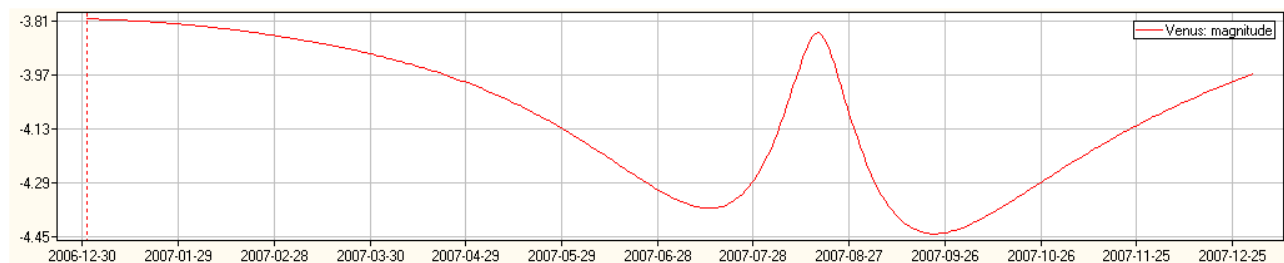
Distanza di Venere in U.A. nel corso dell'anno



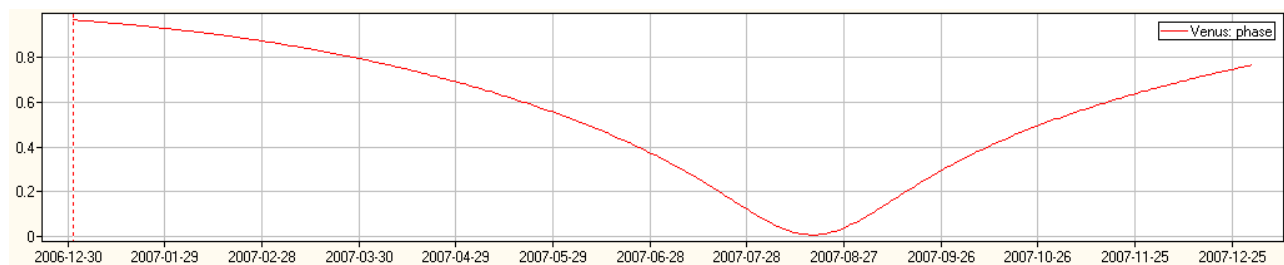
Elongazione di Venere in ° nel corso dell'anno



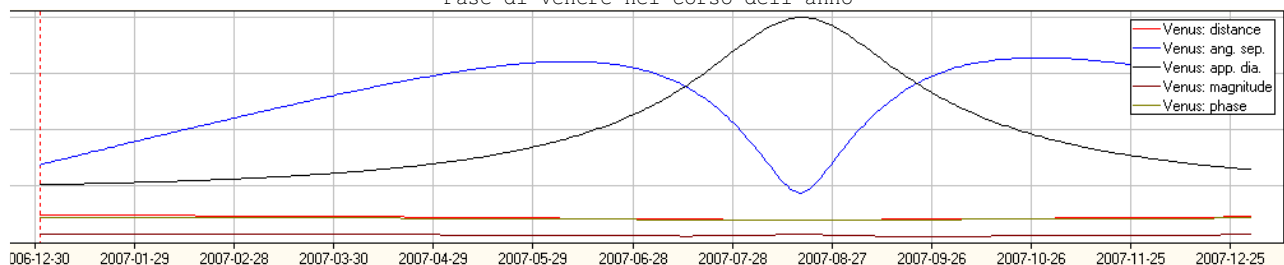
Diametro di Venere in " nel corso dell'anno

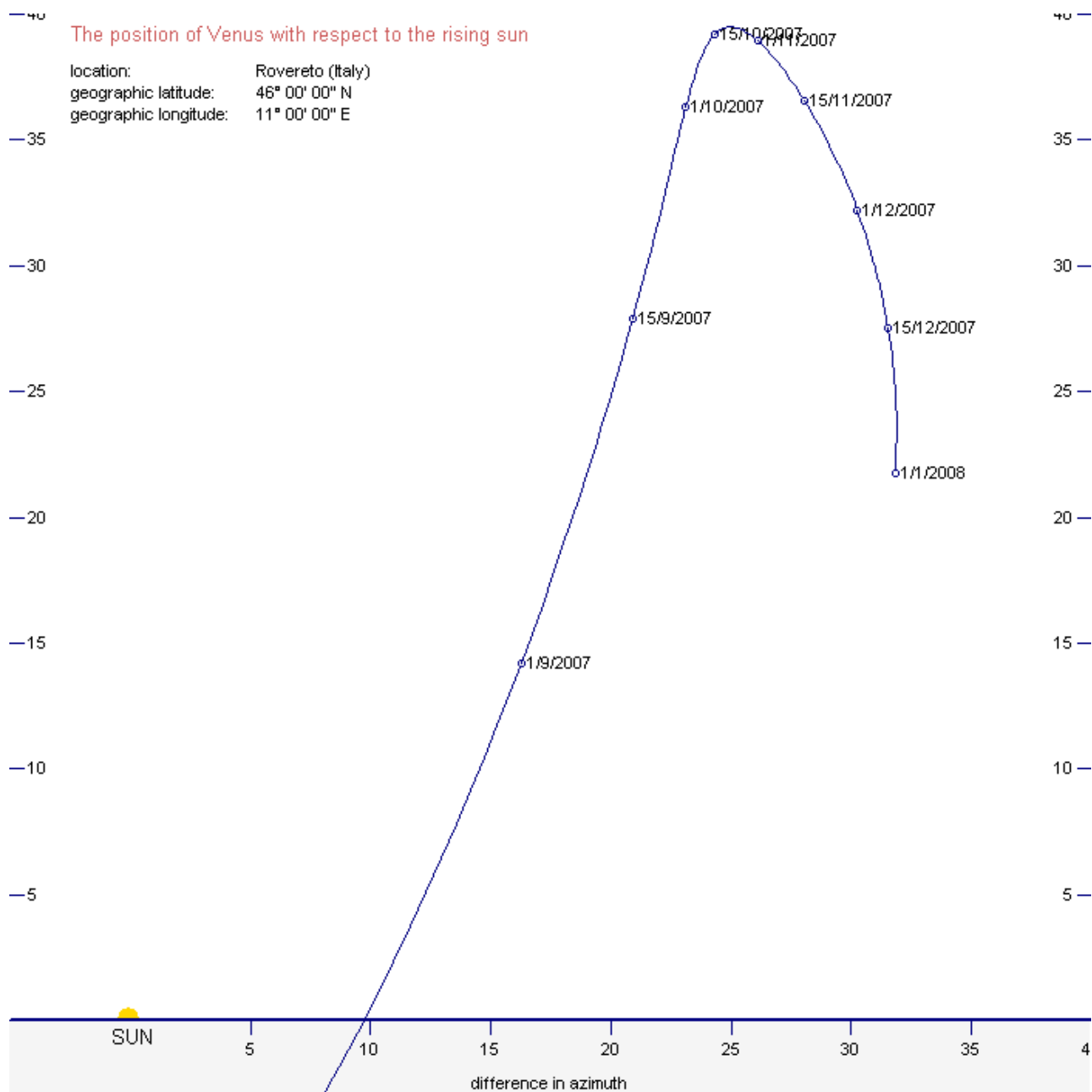


Magnitudine di Venere nel corso dell'anno



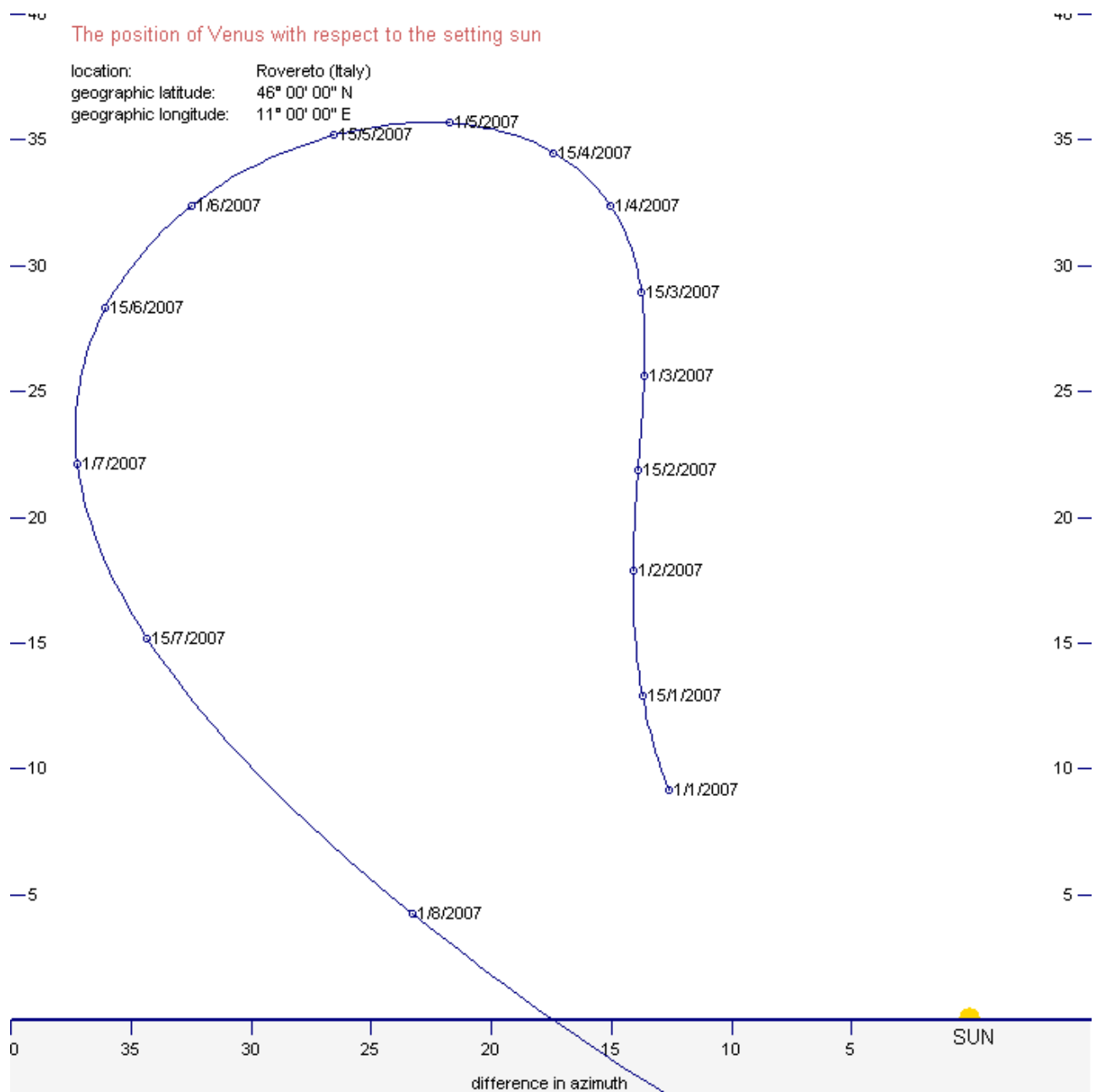
Fase di Venere nel corso dell'anno





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

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

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# EFFEMERIDI DI MARTE

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	D(T) °	D(S) °	LMC °	SORGE h,m	TRAM h,m
1/ 1/2007/ 0/ 0	17 9 34	- 23 14 16	1.5145	2.3834	19.82	21.7	3.9	1.5	0.985	13.9	0.05	2.3	8.6	98.1	6 29	14 57
2/ 1/2007/ 0/ 0	17 12 42	- 23 18 34	1.5132	2.3790	19.79	22.0	3.9	1.5	0.985	14.1	0.05	2.0	8.4	88.5	6 29	14 55
3/ 1/2007/ 0/ 0	17 15 51	- 23 22 39	1.5119	2.3745	19.75	22.3	3.9	1.5	0.984	14.3	0.06	1.7	8.2	78.9	6 28	14 54
4/ 1/2007/ 0/ 0	17 18 60	- 23 26 29	1.5106	2.3701	19.71	22.6	3.9	1.5	0.984	14.5	0.06	1.4	8.0	69.2	6 28	14 53
5/ 1/2007/ 0/ 0	17 22 9	- 23 30 6	1.5093	2.3656	19.67	22.9	4.0	1.5	0.984	14.7	0.06	1.1	7.8	59.6	6 28	14 52
6/ 1/2007/ 0/ 0	17 25 19	- 23 33 29	1.5080	2.3610	19.64	23.2	4.0	1.5	0.983	14.9	0.06	0.7	7.5	49.4	6 27	14 51
7/ 1/2007/ 0/ 0	17 28 29	- 23 36 38	1.5067	2.3565	19.60	23.5	4.0	1.5	0.983	15.1	0.06	0.4	7.3	39.7	6 27	14 50
8/ 1/2007/ 0/ 0	17 31 39	- 23 39 33	1.5054	2.3519	19.56	23.8	4.0	1.5	0.982	15.3	0.07	0.1	7.1	30.1	6 26	14 49
9/ 1/2007/ 0/ 0	17 34 49	- 23 42 14	1.5041	2.3473	19.52	24.1	4.0	1.5	0.982	15.5	0.07	-0.2	6.9	20.4	6 26	14 48
10/ 1/2007/ 0/ 0	17 38 0	- 23 44 41	1.5028	2.3427	19.48	24.4	4.0	1.5	0.981	15.7	0.07	-0.5	6.7	10.7	6 25	14 47
11/ 1/2007/ 0/ 0	17 41 12	- 23 46 53	1.5015	2.3380	19.44	24.7	4.0	1.5	0.981	15.9	0.07	-0.9	6.4	0.4	6 24	14 46
12/ 1/2007/ 0/ 0	17 44 23	- 23 48 51	1.5002	2.3333	19.41	25.0	4.0	1.5	0.980	16.1	0.07	-1.2	6.2	350.7	6 24	14 45
13/ 1/2007/ 0/ 0	17 47 35	- 23 50 34	1.4989	2.3286	19.37	25.2	4.0	1.5	0.980	16.3	0.08	-1.5	6.0	341.0	6 23	14 44
14/ 1/2007/ 0/ 0	17 50 47	- 23 52 3	1.4976	2.3239	19.33	25.5	4.0	1.5	0.980	16.4	0.08	-1.8	5.8	331.2	6 23	14 43
15/ 1/2007/ 0/ 0	17 53 59	- 23 53 17	1.4963	2.3191	19.29	25.8	4.0	1.4	0.979	16.6	0.08	-2.1	5.6	321.5	6 22	14 42
16/ 1/2007/ 0/ 0	17 57 12	- 23 54 17	1.4950	2.3144	19.25	26.1	4.0	1.4	0.979	16.8	0.08	-2.4	5.3	311.2	6 21	14 41
17/ 1/2007/ 0/ 0	18 0 25	- 23 55 2	1.4937	2.3096	19.21	26.4	4.1	1.4	0.978	17.0	0.08	-2.8	5.1	301.4	6 21	14 41
18/ 1/2007/ 0/ 0	18 3 38	- 23 55 32	1.4924	2.3047	19.17	26.7	4.1	1.4	0.978	17.2	0.09	-3.1	4.9	291.6	6 20	14 40
19/ 1/2007/ 0/ 0	18 6 51	- 23 55 48	1.4911	2.2999	19.13	27.0	4.1	1.4	0.977	17.4	0.09	-3.4	4.6	281.8	6 19	14 39
20/ 1/2007/ 0/ 0	18 10 4	- 23 55 48	1.4898	2.2950	19.09	27.2	4.1	1.4	0.977	17.6	0.09	-3.7	4.4	272.0	6 19	14 38
21/ 1/2007/ 0/ 0	18 13 18	- 23 55 34	1.4885	2.2902	19.05	27.5	4.1	1.4	0.976	17.8	0.09	-4.0	4.2	262.1	6 18	14 38
22/ 1/2007/ 0/ 0	18 16 31	- 23 55 5	1.4872	2.2852	19.01	27.8	4.1	1.4	0.976	18.0	0.09	-4.4	4.0	251.8	6 17	14 37
23/ 1/2007/ 0/ 0	18 19 45	- 23 54 21	1.4859	2.2803	18.96	28.1	4.1	1.4	0.975	18.2	0.10	-4.7	3.7	241.9	6 16	14 36
24/ 1/2007/ 0/ 0	18 22 59	- 23 53 22	1.4846	2.2754	18.92	28.4	4.1	1.4	0.975	18.4	0.10	-5.0	3.5	232.0	6 16	14 36
25/ 1/2007/ 0/ 0	18 26 13	- 23 52 8	1.4833	2.2704	18.88	28.6	4.1	1.4	0.974	18.5	0.10	-5.3	3.3	222.1	6 15	14 35
26/ 1/2007/ 0/ 0	18 29 27	- 23 50 39	1.4821	2.2654	18.84	28.9	4.1	1.4	0.974	18.7	0.10	-5.6	3.0	212.2	6 14	14 35
27/ 1/2007/ 0/ 0	18 32 41	- 23 48 56	1.4808	2.2604	18.80	29.2	4.1	1.4	0.973	18.9	0.11	-5.9	2.8	201.8	6 13	14 34
28/ 1/2007/ 0/ 0	18 35 55	- 23 46 57	1.4795	2.2554	18.76	29.5	4.1	1.4	0.972	19.1	0.11	-6.2	2.6	191.8	6 12	14 34
29/ 1/2007/ 0/ 0	18 39 10	- 23 44 43	1.4782	2.2504	18.72	29.7	4.2	1.4	0.972	19.3	0.11	-6.6	2.3	181.9	6 11	14 33
30/ 1/2007/ 0/ 0	18 42 24	- 23 42 15	1.4770	2.2454	18.67	30.0	4.2	1.4	0.971	19.5	0.11	-6.9	2.1	171.9	6 10	14 33
31/ 1/2007/ 0/ 0	18 45 38	- 23 39 31	1.4757	2.2403	18.63	30.3	4.2	1.4	0.971	19.7	0.12	-7.2	1.9	161.9	6 9	14 32
1/ 2/2007/ 0/ 0	18 48 53	- 23 36 33	1.4744	2.2352	18.59	30.6	4.2	1.4	0.970	19.9	0.12	-7.5	1.6	151.4	6 8	14 32
2/ 2/2007/ 0/ 0	18 52 7	- 23 33 19	1.4732	2.2302	18.55	30.8	4.2	1.4	0.970	20.0	0.12	-7.8	1.4	141.4	6 7	14 31
3/ 2/2007/ 0/ 0	18 55 21	- 23 29 51	1.4719	2.2251	18.51	31.1	4.2	1.4	0.969	20.2	0.12	-8.1	1.1	131.3	6 6	14 31
4/ 2/2007/ 0/ 0	18 58 35	- 23 26 8	1.4707	2.2200	18.46	31.4	4.2	1.4	0.969	20.4	0.13	-8.4	0.9	121.3	6 5	14 30
5/ 2/2007/ 0/ 0	19 1 50	- 23 22 10	1.4694	2.2149	18.42	31.6	4.2	1.4	0.968	20.6	0.13	-8.7	0.7	111.2	6 4	14 30
6/ 2/2007/ 0/ 0	19 5 4	- 23 17 57	1.4682	2.2097	18.38	31.9	4.2	1.4	0.967	20.8	0.13	-9.0	0.4	100.6	6 3	14 30
7/ 2/2007/ 0/ 0	19 8 18	- 23 13 30	1.4669	2.2046	18.33	32.2	4.2	1.4	0.967	21.0	0.14	-9.3	0.2	90.5	6 2	14 30
8/ 2/2007/ 0/ 0	19 11 32	- 23 8 47	1.4657	2.1995	18.29	32.4	4.3	1.4	0.966	21.2	0.14	-9.6	-0.1	80.4	6 1	14 29
9/ 2/2007/ 0/ 0	19 14 46	- 23 3 50	1.4645	2.1943	18.25	32.7	4.3	1.4	0.966	21.3	0.14	-9.9	-0.3	70.3	5 60	14 29
10/ 2/2007/ 0/ 0	19 18 0	- 22 58 38	1.4632	2.1891	18.21	33.0	4.3	1.4	0.965	21.5	0.14	-10.2	-0.5	60.1	5 59	14 29
11/ 2/2007/ 0/ 0	19 21 14	- 22 53 12	1.4620	2.1840	18.16	33.2	4.3	1.3	0.965	21.7	0.15	-10.5	-0.8	49.4	5 57	14 29
12/ 2/2007/ 0/ 0	19 24 28	- 22 47 31	1.4608	2.1788	18.12	33.5	4.3	1.3	0.964	21.9	0.15	-10.8	-1.0	39.3	5 56	14 28
13/ 2/2007/ 0/ 0	19 27 41	- 22 41 35	1.4596	2.1736	18.08	33.7	4.3	1.3	0.963	22.1	0.15	-11.1	-1.3	29.1	5 55	14 28
14/ 2/2007/ 0/ 0	19 30 55	- 22 35 25	1.4584	2.1684	18.03	34.0	4.3	1.3	0.963	22.3	0.16	-11.4	-1.5	18.8	5 54	14 28
15/ 2/2007/ 0/ 0	19 34 8	- 22 29 1	1.4572	2.1632	17.99	34.3	4.3	1.3	0.962	22.4	0.16	-11.7	-1.7	8.6	5 52	14 28
16/ 2/2007/ 0/ 0	19 37 21	- 22 22 22	1.4560	2.1579	17.95	34.5	4.3	1.3	0.962	22.6	0.16	-12.0	-2.0	357.9	5 51	14 28
17/ 2/2007/ 0/ 0	19 40 34	- 22 15 29	1.4548	2.1527	17.90	34.8	4.3	1.3	0.961	22.8	0.16	-12.3	-2.2	347.6	5 50	14 28
18/ 2/2007/ 0/ 0	19 43 47	- 22 8 22	1.4536	2.1475	17.86	35.0	4.4	1.3	0.960	23.0	0.17	-12.6	-2.5	337.3	5 48	14 28
19/ 2/2007/ 0/ 0	19 46 60	- 22 1 2	1.4524	2.1422	17.82	35.3	4.4	1.3	0.960	23.2	0.17	-12.9	-2.7	327.1	5 47	14 27
20/ 2/2007/ 0/ 0	19 50 12	- 21 53 27	1.4512	2.1370	17.77	35.6	4.4	1.3	0.959	23.3	0.17	-13.2	-3.0	316.8	5 46	14 27
21/ 2/2007/ 0/ 0	19 53 24	- 21 45 38	1.4500	2.1317	17.73	35.8	4.4	1.3	0.958	23.5	0.18	-13.5	-3.2	306.0	5 44	14 27
22/ 2/2007/ 0/ 0	19 56 36	- 21 37 36	1.4489	2.1264	17.68	36.1	4.4	1.3	0.958	23.7	0.18	-13.7	-3.4	295.6	5 43	14 27
23/ 2/2007/ 0/ 0	19 59 48	- 21 29 20	1.4477	2.1212	17.64	36.3	4.4	1.3	0.957	23.9	0.18	-14.0	-3.7	285.3	5 41	14 27
24/ 2/2007/ 0/ 0	20 2 59	- 21 20 50	1.4466	2.1159	17.60	36.6	4.4	1.3	0.957	24.0	0.19	-14.3	-3.9	275.0	5 40	14 27
25/ 2/2007/ 0/ 0	20 6 10	- 21 12 7	1.4454	2.1106	17.55	36.8	4.4	1.3	0.956	24.2	0.19	-14.6	-4.2	264.6	5 38	14 27
26/ 2/2007/ 0/ 0	20 9 21	- 21 3 11	1.4443	2.1053	17.51	37.1	4.4	1.3	0.955	24.4	0.19	-14.8	-4.4	253.8	5 37	14 27
27/ 2/2007/ 0/ 0	20 12 32	- 20 54 2	1.4431	2.1001	17.47	37.3	4.5	1.3	0.955	24.6	0.20	-15.1	-4.7	243.5	5 35	14 27
28/ 2/2007/ 0/ 0	20 15 42	- 20 44 40	1.4420	2.0948	17.42	37.6	4.5	1.3	0.954	24.8	0.20	-15.4	-4.9	233.1	5 34	14 27
1/ 3/2007/ 0/ 0	20 18 52	- 20 35 4	1.4409	2.0895	17.38	37.8	4.5	1.3	0.953	24.9	0.20	-15.6	-5.1	222.7	5 32	14 27
2/ 3/2007/ 0/ 0	20 22 2	- 20 25 16	1.4398	2.0842	17.33	38.0	4.5	1.3	0.953	25.1	0.21	-15.9	-5.4	212.4	5 30	14 27
3/ 3/2007/ 0/ 0	20 25 11	- 20 15 15	1.4387	2.0789	17.29	38.3	4.5	1.3	0.952	25.3	0.21	-16.2	-5.6	202.0	5 29	14 27
4/ 3/2007/ 0/ 0	20 28 20	- 20 5 2	1.4376	2.0737	17.25	38.5	4.5	1.3	0.951	25.4	0.21	-16.4	-5.9	191.1	5 27	14 28
5/ 3/2007/ 0/ 0	20 31 29	- 19 54 36	1.4365	2.0684	17.20	38.8	4.5	1.3	0.951	25.6	0.22	-16.7	-6.1	180.8	5 25	14 28
6/ 3/2007/ 0/ 0	20 34 37	- 19 43 58	1.4354	2.0631	17.16	39.0	4.5	1.3	0.950	25.8	0.22	-16.9	-6.4	170.4	5 24	14 28
7/ 3/2007/ 0/ 0	20 37 45	- 19 33 7	1.4343	2.0578	17.11	39.3	4.5	1.2	0.950	26.0	0.22	-17.2	-6.6	160.1	5 22	14 28
8/ 3/2007/ 0/ 0	20 40 53	- 19 22 5	1.4332	2.0525	17.07	39.5	4.6	1.2	0.949	26.						

	DATA	A.R.	DEC.	RV	DELTA	LUCE	EL.	DIAM.	MAG	K	I	Q	D(T)	D(S)	LMC	SORGE	TRAM
	GG/MM/AAAA/HH/MM	h,m,s	° ' ''	U.A.	U.A.	min	°	''			°	''	°	°	°	h,m	h,m
11/	4/2007/ 0/ 0	22 23 50	- 11 25 57	1.4022	1.8751	15.59	47.2	5.0	1.1	0.926	31.6	0.37	-23.8	-14.8	161.3	4 12	14 34
12/	4/2007/ 0/ 0	22 26 45	- 11 9 35	1.4015	1.8700	15.55	47.4	5.0	1.1	0.925	31.8	0.37	-23.9	-15.0	151.4	4 10	14 34
13/	4/2007/ 0/ 0	22 29 40	- 10 53 7	1.4008	1.8649	15.51	47.6	5.0	1.1	0.924	31.9	0.37	-24.0	-15.2	141.6	4 8	14 34
14/	4/2007/ 0/ 0	22 32 35	- 10 36 33	1.4001	1.8598	15.47	47.8	5.0	1.1	0.924	32.1	0.38	-24.1	-15.4	131.2	4 6	14 34
15/	4/2007/ 0/ 0	22 35 30	- 10 19 54	1.3994	1.8547	15.42	48.0	5.0	1.1	0.923	32.2	0.38	-24.2	-15.6	121.4	4 3	14 35
16/	4/2007/ 0/ 0	22 38 24	- 10 3 10	1.3987	1.8496	15.38	48.3	5.1	1.1	0.922	32.4	0.39	-24.3	-15.8	111.5	4 1	14 35
17/	4/2007/ 0/ 0	22 41 18	- 9 46 20	1.3980	1.8445	15.34	48.5	5.1	1.1	0.922	32.5	0.39	-24.4	-16.0	101.7	3 59	14 35
18/	4/2007/ 0/ 0	22 44 12	- 9 29 26	1.3974	1.8394	15.30	48.7	5.1	1.1	0.921	32.7	0.40	-24.5	-16.3	91.9	3 57	14 35
19/	4/2007/ 0/ 0	22 47 5	- 9 12 26	1.3967	1.8344	15.26	48.9	5.1	1.0	0.920	32.8	0.40	-24.6	-16.5	81.6	3 54	14 35
20/	4/2007/ 0/ 0	22 49 58	- 8 55 23	1.3961	1.8293	15.21	49.1	5.1	1.0	0.920	32.9	0.41	-24.7	-16.7	71.9	3 52	14 35
21/	4/2007/ 0/ 0	22 52 51	- 8 38 14	1.3955	1.8243	15.17	49.3	5.1	1.0	0.919	33.1	0.41	-24.7	-16.9	62.1	3 50	14 36
22/	4/2007/ 0/ 0	22 55 43	- 8 21 2	1.3949	1.8192	15.13	49.5	5.1	1.0	0.918	33.2	0.42	-24.8	-17.1	52.4	3 48	14 36
23/	4/2007/ 0/ 0	22 58 36	- 8 3 46	1.3943	1.8142	15.09	49.7	5.2	1.0	0.918	33.4	0.42	-24.9	-17.3	42.6	3 45	14 36
24/	4/2007/ 0/ 0	23 1 27	- 7 46 26	1.3937	1.8092	15.05	49.9	5.2	1.0	0.917	33.5	0.42	-24.9	-17.5	32.4	3 43	14 36
25/	4/2007/ 0/ 0	23 4 19	- 7 29 3	1.3931	1.8041	15.00	50.1	5.2	1.0	0.916	33.7	0.43	-25.0	-17.7	22.7	3 41	14 36
26/	4/2007/ 0/ 0	23 7 10	- 7 11 36	1.3926	1.7991	14.96	50.4	5.2	1.0	0.915	33.8	0.43	-25.0	-17.9	13.0	3 38	14 36
27/	4/2007/ 0/ 0	23 10 2	- 6 54 5	1.3920	1.7941	14.92	50.6	5.2	1.0	0.915	33.9	0.44	-25.1	-18.1	3.3	3 36	14 37
28/	4/2007/ 0/ 0	23 12 52	- 6 36 32	1.3915	1.7892	14.88	50.8	5.2	1.0	0.914	34.1	0.44	-25.1	-18.2	353.6	3 34	14 37
29/	4/2007/ 0/ 0	23 15 43	- 6 18 56	1.3910	1.7842	14.84	51.0	5.2	1.0	0.913	34.2	0.45	-25.1	-18.4	343.4	3 31	14 37
30/	4/2007/ 0/ 0	23 18 33	- 6 1 17	1.3905	1.7792	14.80	51.2	5.3	1.0	0.913	34.4	0.45	-25.2	-18.6	333.8	3 29	14 37
1/	5/2007/ 0/ 0	23 21 23	- 5 43 36	1.3900	1.7742	14.76	51.4	5.3	1.0	0.912	34.5	0.46	-25.2	-18.8	324.1	3 27	14 37
2/	5/2007/ 0/ 0	23 24 13	- 5 25 52	1.3895	1.7693	14.71	51.6	5.3	1.0	0.911	34.6	0.46	-25.2	-19.0	314.5	3 24	14 37
3/	5/2007/ 0/ 0	23 27 3	- 5 8 6	1.3890	1.7643	14.67	51.8	5.3	1.0	0.911	34.8	0.47	-25.2	-19.2	304.8	3 22	14 37
4/	5/2007/ 0/ 0	23 29 52	- 4 50 18	1.3886	1.7594	14.63	52.0	5.3	1.0	0.910	34.9	0.47	-25.2	-19.4	294.7	3 20	14 37
5/	5/2007/ 0/ 0	23 32 42	- 4 32 28	1.3881	1.7545	14.59	52.2	5.3	1.0	0.909	35.0	0.48	-25.3	-19.5	285.1	3 17	14 38
6/	5/2007/ 0/ 0	23 35 31	- 4 14 36	1.3877	1.7496	14.55	52.4	5.3	1.0	0.909	35.2	0.48	-25.3	-19.7	275.5	3 15	14 38
7/	5/2007/ 0/ 0	23 38 20	- 3 56 43	1.3873	1.7446	14.51	52.6	5.4	1.0	0.908	35.3	0.49	-25.2	-19.9	265.9	3 13	14 38
8/	5/2007/ 0/ 0	23 41 8	- 3 38 49	1.3869	1.7397	14.47	52.8	5.4	1.0	0.907	35.4	0.49	-25.2	-20.0	256.3	3 10	14 38
9/	5/2007/ 0/ 0	23 43 57	- 3 20 53	1.3865	1.7348	14.43	53.0	5.4	1.0	0.907	35.6	0.50	-25.2	-20.2	246.2	3 8	14 38
10/	5/2007/ 0/ 0	23 46 45	- 3 2 57	1.3862	1.7299	14.39	53.2	5.4	1.0	0.906	35.7	0.50	-25.2	-20.4	236.6	3 5	14 38
11/	5/2007/ 0/ 0	23 49 34	- 2 44 60	1.3858	1.7250	14.35	53.4	5.4	0.9	0.905	35.8	0.51	-25.2	-20.5	227.0	3 3	14 38
12/	5/2007/ 0/ 0	23 52 22	- 2 27 2	1.3855	1.7202	14.31	53.7	5.4	0.9	0.905	36.0	0.51	-25.2	-20.7	217.4	3 1	14 38
13/	5/2007/ 0/ 0	23 55 9	- 2 9 4	1.3851	1.7153	14.26	53.9	5.5	0.9	0.904	36.1	0.52	-25.1	-20.9	207.9	2 58	14 38
14/	5/2007/ 0/ 0	23 57 57	- 1 51 6	1.3848	1.7104	14.22	54.1	5.5	0.9	0.903	36.2	0.52	-25.1	-21.0	197.8	2 56	14 39
15/	5/2007/ 0/ 0	0 0 45	- 1 33 8	1.3845	1.7055	14.18	54.3	5.5	0.9	0.903	36.3	0.53	-25.0	-21.2	188.3	2 57	14 43
16/	5/2007/ 0/ 0	0 3 32	- 1 15 10	1.3842	1.7007	14.14	54.5	5.5	0.9	0.902	36.5	0.53	-25.0	-21.3	178.7	2 55	14 43
17/	5/2007/ 0/ 0	0 6 19	- 0 57 13	1.3839	1.6958	14.10	54.7	5.5	0.9	0.901	36.6	0.54	-24.9	-21.5	169.2	2 53	14 43
18/	5/2007/ 0/ 0	0 9 7	- 0 39 16	1.3837	1.6909	14.06	54.9	5.5	0.9	0.901	36.7	0.54	-24.9	-21.6	159.7	2 50	14 43
19/	5/2007/ 0/ 0	0 11 54	- 0 21 21	1.3834	1.6861	14.02	55.1	5.6	0.9	0.900	36.8	0.55	-24.8	-21.8	149.7	2 48	14 43
20/	5/2007/ 0/ 0	0 14 40	- 0 3 26	1.3832	1.6812	13.98	55.3	5.6	0.9	0.899	37.0	0.55	-24.7	-21.9	140.1	2 46	14 43
21/	5/2007/ 0/ 0	0 17 27	+ 0 14 28	1.3830	1.6764	13.94	55.5	5.6	0.9	0.899	37.1	0.56	-24.7	-22.0	130.4	2 43	14 43
22/	5/2007/ 0/ 0	0 20 14	+ 0 32 20	1.3828	1.6715	13.90	55.7	5.6	0.9	0.898	37.2	0.56	-24.6	-22.2	120.5	2 41	14 43
23/	5/2007/ 0/ 0	0 23 0	+ 0 50 10	1.3826	1.6667	13.86	55.9	5.6	0.9	0.898	37.3	0.57	-24.5	-22.3	110.7	2 38	14 43
24/	5/2007/ 0/ 0	0 25 47	+ 1 7 59	1.3824	1.6619	13.82	56.1	5.6	0.9	0.897	37.5	0.58	-24.4	-22.4	100.4	2 36	14 43
25/	5/2007/ 0/ 0	0 28 33	+ 1 25 46	1.3823	1.6570	13.78	56.3	5.6	0.9	0.896	37.6	0.58	-24.3	-22.6	90.6	2 34	14 43
26/	5/2007/ 0/ 0	0 31 19	+ 1 43 31	1.3821	1.6522	13.74	56.5	5.7	0.9	0.896	37.7	0.59	-24.2	-22.7	80.8	2 31	14 43
27/	5/2007/ 0/ 0	0 34 5	+ 2 1 14	1.3820	1.6474	13.70	56.7	5.7	0.9	0.895	37.8	0.59	-24.1	-22.8	70.9	2 29	14 43
28/	5/2007/ 0/ 0	0 36 51	+ 2 18 54	1.3819	1.6426	13.66	57.0	5.7	0.9	0.894	37.9	0.60	-24.0	-22.9	61.1	2 26	14 43
29/	5/2007/ 0/ 0	0 39 37	+ 2 36 32	1.3818	1.6378	13.62	57.2	5.7	0.9	0.894	38.0	0.60	-23.9	-23.1	50.8	2 24	14 43
30/	5/2007/ 0/ 0	0 42 23	+ 2 54 7	1.3817	1.6330	13.58	57.4	5.7	0.9	0.893	38.2	0.61	-23.8	-23.2	41.0	2 22	14 44
1/	6/2007/ 0/ 0	0 45 9	+ 3 11 40	1.3816	1.6282	13.54	57.6	5.7	0.9	0.893	38.3	0.61	-23.7	-23.3	31.2	2 19	14 44
2/	6/2007/ 0/ 0	0 47 54	+ 3 29 9	1.3816	1.6234	13.50	57.8	5.8	0.8	0.892	38.4	0.62	-23.6	-23.4	21.4	2 17	14 44
3/	6/2007/ 0/ 0	0 50 40	+ 3 46 36	1.3815	1.6186	13.46	58.0	5.8	0.8	0.891	38.5	0.62	-23.5	-23.5	11.6	2 14	14 44
4/	6/2007/ 0/ 0	0 53 26	+ 4 3 59	1.3815	1.6138	13.42	58.2	5.8	0.8	0.891	38.6	0.63	-23.3	-23.6	1.3	2 12	14 44
5/	6/2007/ 0/ 0	0 56 11	+ 4 21 19	1.3815	1.6090	13.38	58.4	5.8	0.8	0.890	38.7	0.63	-23.2	-23.7	351.5	2 10	14 44
6/	6/2007/ 0/ 0	0 58 57	+ 4 38 35	1.3815	1.6042	13.34	58.6	5.8	0.8	0.889	38.8	0.64	-23.1	-23.8	341.7	2 7	14 44
7/	6/2007/ 0/ 0	1 1 42	+ 4 55 47	1.3815	1.5994	13.30	58.8	5.9	0.8	0.889	38.9	0.65	-22.9	-23.9	331.9	2 5	14 44
8/	6/2007/ 0/ 0	1 4 28	+ 5 12 55	1.3815	1.5946	13.26	59.1	5.9	0.8	0.888	39.1	0.65	-22.8	-24.0	322.1	2 3	14 44
9/	6/2007/ 0/ 0	1 7 13	+ 5 29 60	1.3816	1.5899	13.22	59.3	5.9	0.8	0.888	39.2	0.66	-22.6	-24.1	311.8	2 0	14 44
10/	6/2007/ 0/ 0	1 9 59	+ 5 46 60	1.3816	1.5851	13.18	59.5	5.9	0.8	0.887	39.3	0.66	-22.5	-24.1	302.0	1 58	14 44
11/	6/2007/ 0/ 0	1 12 44	+ 6 3 55	1.3817	1.5803	13.14	59.7	5.9	0.8	0.887	39.4	0.67	-22.3	-24.2	292.2	1 55	14 44
12/	6/2007/ 0/ 0	1 15 30	+ 6 20 46	1.3818	1.5755	13.10	59.9	5.9	0.8	0.886	39.5	0.67	-22.2	-24.3	282.4	1 53	14 44
13/	6/2007/ 0/ 0	1 18 15	+ 6 37 32	1.3819	1.5707	13.06	60.1	6.0	0.8	0.885	39.6	0.68	-22.0	-24.4	272.7	1 51	14 44
14/	6/2007/ 0/ 0	1 21 0	+ 6 54 13	1.3820	1.5659	13.02	60.4	6.0	0.8	0.885	39.7	0.68	-21.8	-24.4	262.9	1 48	14 44
15/	6/2007/ 0/ 0	1 23 46	+ 7 10 49	1.3821	1.5611	12.98	60.6	6.0	0.8	0.884	39.8	0.69	-21.7	-24.5	252.6	1 46	14 44
16/	6/2007																

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	D(T) °	D(S) °	LMC °	SORGE h,m	TRAM h,m
27/ 7/2007/ 0/ 0	3 21 51	+ 17 12 4	1.4008	1.3485	11.21	71.1	6.9	0.6	0.864	43.3	0.94	-12.0	-24.4	191.3	0 10	14 37
28/ 7/2007/ 0/ 0	3 24 34	+ 17 22 50	1.4015	1.3433	11.17	71.4	7.0	0.5	0.863	43.4	0.95	-11.8	-24.3	181.7	0 8	14 37
29/ 7/2007/ 0/ 0	3 27 17	+ 17 33 27	1.4022	1.3381	11.13	71.7	7.0	0.5	0.863	43.4	0.95	-11.5	-24.2	171.6	0 6	14 36
30/ 7/2007/ 0/ 0	3 29 60	+ 17 43 53	1.4029	1.3329	11.08	71.9	7.0	0.5	0.863	43.5	0.96	-11.3	-24.2	161.9	0 4	14 36
31/ 7/2007/ 0/ 0	3 32 43	+ 17 54 10	1.4037	1.3276	11.04	72.2	7.1	0.5	0.863	43.5	0.96	-11.0	-24.1	152.3	0 2	14 36
1/ 8/2007/ 0/ 0	3 35 25	+ 18 4 16	1.4045	1.3224	11.00	72.5	7.1	0.5	0.862	43.6	0.97	-10.7	-24.0	142.7	23 60	14 35
2/ 8/2007/ 0/ 0	3 38 7	+ 18 14 13	1.4052	1.3171	10.95	72.8	7.1	0.5	0.862	43.6	0.98	-10.5	-23.9	133.1	23 58	14 35
3/ 8/2007/ 0/ 0	3 40 50	+ 18 23 59	1.4060	1.3118	10.91	73.1	7.1	0.5	0.862	43.7	0.98	-10.2	-23.8	123.4	23 56	14 34
4/ 8/2007/ 0/ 0	3 43 32	+ 18 33 35	1.4068	1.3065	10.87	73.4	7.2	0.5	0.861	43.7	0.99	-10.0	-23.7	113.3	23 54	14 34
5/ 8/2007/ 0/ 0	3 46 13	+ 18 43 1	1.4076	1.3012	10.82	73.7	7.2	0.5	0.861	43.8	0.99	-9.7	-23.6	103.7	23 52	14 33
6/ 8/2007/ 0/ 0	3 48 55	+ 18 52 17	1.4084	1.2958	10.78	74.0	7.2	0.5	0.861	43.8	1.00	-9.4	-23.5	94.1	23 50	14 33
7/ 8/2007/ 0/ 0	3 51 36	+ 19 1 22	1.4093	1.2905	10.73	74.3	7.3	0.5	0.861	43.9	1.01	-9.2	-23.4	84.5	23 48	14 32
8/ 8/2007/ 0/ 0	3 54 17	+ 19 10 17	1.4101	1.2851	10.69	74.6	7.3	0.5	0.860	43.9	1.01	-8.9	-23.3	74.9	23 46	14 32
9/ 8/2007/ 0/ 0	3 56 57	+ 19 19 2	1.4110	1.2797	10.64	74.9	7.3	0.5	0.860	43.9	1.02	-8.6	-23.2	64.8	23 44	14 31
10/ 8/2007/ 0/ 0	3 59 38	+ 19 27 37	1.4118	1.2743	10.60	75.2	7.3	0.5	0.860	44.0	1.02	-8.4	-23.1	55.2	23 42	14 31
11/ 8/2007/ 0/ 0	4 2 18	+ 19 36 2	1.4127	1.2688	10.55	75.6	7.4	0.5	0.860	44.0	1.03	-8.1	-23.0	45.6	23 40	14 30
12/ 8/2007/ 0/ 0	4 4 57	+ 19 44 16	1.4136	1.2634	10.51	75.9	7.4	0.4	0.859	44.1	1.04	-7.9	-22.9	36.0	23 38	14 30
13/ 8/2007/ 0/ 0	4 7 37	+ 19 52 20	1.4145	1.2579	10.46	76.2	7.4	0.4	0.859	44.1	1.04	-7.6	-22.8	26.4	23 36	14 29
14/ 8/2007/ 0/ 0	4 10 16	+ 20 0 13	1.4154	1.2524	10.42	76.5	7.5	0.4	0.859	44.1	1.05	-7.3	-22.7	16.3	23 34	14 28
15/ 8/2007/ 0/ 0	4 12 54	+ 20 7 57	1.4163	1.2469	10.37	76.8	7.5	0.4	0.859	44.1	1.05	-7.1	-22.6	6.7	23 32	14 28
16/ 8/2007/ 0/ 0	4 15 32	+ 20 15 30	1.4172	1.2413	10.32	77.2	7.5	0.4	0.859	44.2	1.06	-6.8	-22.4	357.2	23 30	14 27
17/ 8/2007/ 0/ 0	4 18 10	+ 20 22 53	1.4181	1.2358	10.28	77.5	7.6	0.4	0.858	44.2	1.07	-6.6	-22.3	347.6	23 28	14 26
18/ 8/2007/ 0/ 0	4 20 47	+ 20 30 5	1.4191	1.2302	10.23	77.8	7.6	0.4	0.858	44.2	1.07	-6.3	-22.2	338.0	23 26	14 26
19/ 8/2007/ 0/ 0	4 23 24	+ 20 37 8	1.4200	1.2246	10.18	78.2	7.6	0.4	0.858	44.2	1.08	-6.0	-22.1	327.9	23 24	14 25
20/ 8/2007/ 0/ 0	4 26 0	+ 20 44 1	1.4210	1.2190	10.14	78.5	7.7	0.4	0.858	44.3	1.08	-5.8	-21.9	318.4	23 22	14 24
21/ 8/2007/ 0/ 0	4 28 36	+ 20 50 43	1.4220	1.2133	10.09	78.9	7.7	0.4	0.858	44.3	1.09	-5.5	-21.8	308.8	23 20	14 23
22/ 8/2007/ 0/ 0	4 31 11	+ 20 57 16	1.4229	1.2077	10.04	79.2	7.8	0.4	0.858	44.3	1.10	-5.3	-21.7	299.3	23 18	14 23
23/ 8/2007/ 0/ 0	4 33 46	+ 21 3 39	1.4239	1.2020	10.00	79.6	7.8	0.4	0.858	44.3	1.10	-5.0	-21.5	289.7	23 16	14 22
24/ 8/2007/ 0/ 0	4 36 20	+ 21 9 52	1.4249	1.1963	9.95	79.9	7.8	0.3	0.858	44.3	1.11	-4.8	-21.4	279.6	23 14	14 21
25/ 8/2007/ 0/ 0	4 38 54	+ 21 15 56	1.4259	1.1906	9.90	80.3	7.9	0.3	0.858	44.3	1.11	-4.5	-21.2	270.1	23 13	14 20
26/ 8/2007/ 0/ 0	4 41 27	+ 21 21 50	1.4269	1.1848	9.85	80.6	7.9	0.3	0.858	44.3	1.12	-4.3	-21.1	260.5	23 11	14 19
27/ 8/2007/ 0/ 0	4 43 60	+ 21 27 34	1.4280	1.1791	9.81	81.0	7.9	0.3	0.858	44.3	1.12	-4.0	-21.0	251.0	23 9	14 18
28/ 8/2007/ 0/ 0	4 46 32	+ 21 33 9	1.4290	1.1733	9.76	81.4	8.0	0.3	0.858	44.3	1.13	-3.8	-20.8	241.4	23 7	14 17
29/ 8/2007/ 0/ 0	4 49 3	+ 21 38 34	1.4300	1.1675	9.71	81.8	8.0	0.3	0.858	44.3	1.14	-3.5	-20.7	231.4	23 5	14 16
30/ 8/2007/ 0/ 0	4 51 34	+ 21 43 50	1.4311	1.1617	9.66	82.1	8.1	0.3	0.858	44.3	1.14	-3.3	-20.5	221.9	23 3	14 16
31/ 8/2007/ 0/ 0	4 54 4	+ 21 48 56	1.4321	1.1559	9.61	82.5	8.1	0.3	0.858	44.3	1.15	-3.0	-20.4	212.3	23 1	14 15
1/ 9/2007/ 0/ 0	4 56 33	+ 21 53 54	1.4332	1.1500	9.56	82.9	8.1	0.3	0.858	44.3	1.15	-2.8	-20.2	202.8	22 59	14 14
2/ 9/2007/ 0/ 0	4 59 2	+ 21 58 42	1.4343	1.1441	9.51	83.3	8.2	0.3	0.858	44.3	1.16	-2.5	-20.0	193.3	22 57	14 12
3/ 9/2007/ 0/ 0	5 1 30	+ 22 3 21	1.4353	1.1382	9.47	83.7	8.2	0.3	0.858	44.3	1.16	-2.3	-19.9	183.8	22 56	14 11
4/ 9/2007/ 0/ 0	5 3 57	+ 22 7 51	1.4364	1.1323	9.42	84.1	8.3	0.2	0.858	44.3	1.17	-2.1	-19.7	173.7	22 54	14 10
5/ 9/2007/ 0/ 0	5 6 24	+ 22 12 13	1.4375	1.1264	9.37	84.5	8.3	0.2	0.858	44.3	1.17	-1.8	-19.6	164.2	22 52	14 9
6/ 9/2007/ 0/ 0	5 8 49	+ 22 16 26	1.4386	1.1204	9.32	84.9	8.4	0.2	0.858	44.3	1.18	-1.6	-19.4	154.7	22 50	14 8
7/ 9/2007/ 0/ 0	5 11 14	+ 22 20 30	1.4397	1.1144	9.27	85.3	8.4	0.2	0.858	44.2	1.18	-1.4	-19.2	145.2	22 48	14 7
8/ 9/2007/ 0/ 0	5 13 38	+ 22 24 26	1.4408	1.1084	9.22	85.7	8.4	0.2	0.858	44.2	1.19	-1.1	-19.1	135.7	22 46	14 6
9/ 9/2007/ 0/ 0	5 16 2	+ 22 28 14	1.4420	1.1024	9.17	86.1	8.5	0.2	0.859	44.2	1.20	-0.9	-18.9	125.7	22 44	14 5
10/ 9/2007/ 0/ 0	5 18 24	+ 22 31 53	1.4431	1.0963	9.12	86.5	8.5	0.2	0.859	44.2	1.20	-0.7	-18.7	116.2	22 42	14 4
11/ 9/2007/ 0/ 0	5 20 45	+ 22 35 24	1.4442	1.0903	9.07	87.0	8.6	0.2	0.859	44.1	1.21	-0.4	-18.5	106.7	22 40	14 3
12/ 9/2007/ 0/ 0	5 23 5	+ 22 38 48	1.4454	1.0842	9.02	87.4	8.6	0.2	0.859	44.1	1.21	-0.2	-18.4	97.2	22 39	14 1
13/ 9/2007/ 0/ 0	5 25 25	+ 22 42 3	1.4465	1.0781	8.97	87.8	8.7	0.1	0.859	44.0	1.22	0.0	-18.2	87.7	22 37	13 59
14/ 9/2007/ 0/ 0	5 27 43	+ 22 45 11	1.4477	1.0720	8.91	88.3	8.7	0.1	0.860	44.0	1.22	0.2	-18.0	77.7	22 35	13 58
15/ 9/2007/ 0/ 0	5 30 0	+ 22 48 12	1.4488	1.0658	8.86	88.7	8.8	0.1	0.860	44.0	1.22	0.5	-17.8	68.2	22 33	13 57
16/ 9/2007/ 0/ 0	5 32 17	+ 22 51 6	1.4500	1.0597	8.81	89.2	8.8	0.1	0.860	43.9	1.23	0.7	-17.7	58.7	22 31	13 55
17/ 9/2007/ 0/ 0	5 34 32	+ 22 53 52	1.4512	1.0535	8.76	89.6	8.9	0.1	0.861	43.8	1.23	0.9	-17.5	49.3	22 29	13 54
18/ 9/2007/ 0/ 0	5 36 46	+ 22 56 32	1.4523	1.0473	8.71	90.1	8.9	0.1	0.861	43.8	1.24	1.1	-17.3	39.8	22 27	13 52
19/ 9/2007/ 0/ 0	5 38 59	+ 22 59 5	1.4535	1.0411	8.66	90.5	9.0	0.1	0.861	43.7	1.24	1.3	-17.1	29.8	22 25	13 51
20/ 9/2007/ 0/ 0	5 41 11	+ 23 1 32	1.4547	1.0349	8.61	91.0	9.0	0.1	0.862	43.7	1.25	1.5	-16.9	20.4	22 23	13 49
21/ 9/2007/ 0/ 0	5 43 21	+ 23 3 52	1.4559	1.0287	8.55	91.5	9.1	0.1	0.862	43.6	1.25	1.7	-16.7	10.9	22 21	13 48
22/ 9/2007/ 0/ 0	5 45 31	+ 23 6 6	1.4571	1.0224	8.50	92.0	9.2	0.0	0.863	43.5	1.25	1.9	-16.6	1.5	22 15	13 42
23/ 9/2007/ 0/ 0	5 47 39	+ 23 8 15	1.4583	1.0161	8.45	92.4	9.2	0.0	0.863	43.4	1.26	2.1	-16.4	352.0	22 13	13 41
24/ 9/2007/ 0/ 0	5 49 46	+ 23 10 17	1.4595	1.0099	8.40	92.9	9.3	0.0	0.864	43.4	1.26	2.3	-16.2	342.1	22 11	13 39
25/ 9/2007/ 0/ 0	5 51 51	+ 23 12 14	1.4607	1.0036	8.35	93.4	9.3	0.0	0.864	43.3	1.26	2.5	-16.0	332.6	22 9	13 37
26/ 9/2007/ 0/ 0	5 53 56	+ 23 14 6	1.4619	0.9973	8.29	93.9	9.4	-0.0	0.865	43.2	1.27	2.7	-15.8	323.2	22 7	13 36
27/ 9/2007/ 0/ 0	5 55 59	+ 23 15 53	1.4632	0.9910	8.24	94.4	9.4	-0.0	0.865	43.1	1.27	2.9	-15.6	313.7	22 5	13 34
28/ 9/2007/ 0/ 0	5 58 0	+ 23 17 35	1.4644	0.9847	8.19	95.0	9.5	-0.0	0.866	43.0	1.27	3.1	-15.4	304.3	22 3	13 32
29/ 9/2007/ 0/ 0	6 0 0	+ 23 19 12	1.4656	0.9783	8.14	95.5	9.6	-0.1	0.866	42.9	1.27	3.3	-15.2	294.9	22 1	13 30
30/ 9/2007/ 0/ 0	6 1 59	+ 23 20 45	1.4669	0.9720	8.08	96.0	9.6	-0.1	0.867	42.8	1.27	3.4	-15.0	285.0	21 59	13 29
1/10/2007/ 0/ 0	6 3 56	+ 23 22 13	1.4681	0.9656	8.03	96.5	9.7	-0.1	0.868	42.7	1.28	3.6	-14.8	275.6	21 57	13 27



DATA GG/MM/AAAA/HH/MM	A.R. h, m, s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	K	I °	Q ''	D(T) °	D(S) °	LMC °	SORGE h, m	TRAM h, m
11/11/2007/ 0/ 0	6 54 8	+ 24 16 17	1.5210	0.7118	5.92	125.9	13.1	-0.8	0.925	31.8	0.98	7.3	-6.2	251.6	20 1	11 41
12/11/2007/ 0/ 0	6 54 23	+ 24 18 44	1.5223	0.7063	5.87	126.8	13.3	-0.9	0.927	31.4	0.96	7.3	-6.0	242.5	19 57	11 37
13/11/2007/ 0/ 0	6 54 34	+ 24 21 17	1.5236	0.7009	5.83	127.8	13.4	-0.9	0.929	30.9	0.94	7.2	-5.8	233.5	19 53	11 34
14/11/2007/ 0/ 0	6 54 42	+ 24 23 57	1.5249	0.6956	5.79	128.8	13.5	-0.9	0.931	30.4	0.92	7.2	-5.5	224.4	19 49	11 30
15/11/2007/ 0/ 0	6 54 46	+ 24 26 42	1.5262	0.6904	5.74	129.8	13.6	-0.9	0.934	29.9	0.90	7.2	-5.3	215.4	19 45	11 26
16/11/2007/ 0/ 0	6 54 47	+ 24 29 34	1.5275	0.6853	5.70	130.8	13.7	-1.0	0.936	29.4	0.87	7.1	-5.1	205.9	19 40	11 23
17/11/2007/ 0/ 0	6 54 44	+ 24 32 32	1.5288	0.6802	5.66	131.8	13.8	-1.0	0.938	28.8	0.85	7.1	-4.9	196.9	19 36	11 19
18/11/2007/ 0/ 0	6 54 37	+ 24 35 36	1.5301	0.6753	5.62	132.8	13.9	-1.0	0.940	28.3	0.82	7.0	-4.7	187.9	19 32	11 15
19/11/2007/ 0/ 0	6 54 27	+ 24 38 46	1.5313	0.6704	5.58	133.9	14.0	-1.0	0.943	27.7	0.80	7.0	-4.4	178.9	19 27	11 12
20/11/2007/ 0/ 0	6 54 13	+ 24 42 2	1.5326	0.6656	5.54	135.0	14.1	-1.0	0.945	27.1	0.77	6.9	-4.2	169.9	19 23	11 8
21/11/2007/ 0/ 0	6 53 55	+ 24 45 23	1.5339	0.6610	5.50	136.0	14.2	-1.1	0.947	26.6	0.74	6.8	-4.0	160.5	19 18	11 4
22/11/2007/ 0/ 0	6 53 33	+ 24 48 49	1.5352	0.6564	5.46	137.1	14.3	-1.1	0.950	26.0	0.71	6.7	-3.8	151.5	19 14	10 60
23/11/2007/ 0/ 0	6 53 7	+ 24 52 21	1.5365	0.6520	5.42	138.2	14.4	-1.1	0.952	25.3	0.69	6.6	-3.6	142.6	19 9	10 56
24/11/2007/ 0/ 0	6 52 38	+ 24 55 58	1.5378	0.6477	5.39	139.4	14.5	-1.1	0.954	24.7	0.66	6.5	-3.4	133.7	19 4	10 52
25/11/2007/ 0/ 0	6 52 5	+ 24 59 39	1.5391	0.6435	5.35	140.5	14.5	-1.2	0.956	24.1	0.63	6.4	-3.1	124.8	18 59	10 48
26/11/2007/ 0/ 0	6 51 28	+ 25 3 25	1.5403	0.6394	5.32	141.6	14.6	-1.2	0.959	23.4	0.60	6.3	-2.9	115.4	18 55	10 43
27/11/2007/ 0/ 0	6 50 47	+ 25 7 15	1.5416	0.6354	5.28	142.8	14.7	-1.2	0.961	22.8	0.57	6.2	-2.7	106.5	18 50	10 39
28/11/2007/ 0/ 0	6 50 2	+ 25 11 9	1.5429	0.6316	5.25	144.0	14.8	-1.2	0.963	22.1	0.54	6.1	-2.5	97.7	18 44	10 35
29/11/2007/ 0/ 0	6 49 14	+ 25 15 6	1.5442	0.6279	5.22	145.2	14.9	-1.2	0.966	21.4	0.51	6.0	-2.3	88.8	18 39	10 31
30/11/2007/ 0/ 0	6 48 22	+ 25 19 5	1.5454	0.6244	5.19	146.4	15.0	-1.3	0.968	20.7	0.48	5.8	-2.1	80.0	18 34	10 26
1/12/2007/ 0/ 0	6 47 26	+ 25 23 8	1.5467	0.6210	5.16	147.6	15.1	-1.3	0.970	20.0	0.45	5.7	-1.9	70.6	18 29	10 22
2/12/2007/ 0/ 0	6 46 26	+ 25 27 12	1.5480	0.6177	5.14	148.9	15.2	-1.3	0.972	19.2	0.42	5.6	-1.6	61.8	18 24	10 17
3/12/2007/ 0/ 0	6 45 23	+ 25 31 17	1.5492	0.6146	5.11	150.1	15.2	-1.3	0.974	18.5	0.39	5.4	-1.4	53.0	18 18	10 13
4/12/2007/ 0/ 0	6 44 16	+ 25 35 23	1.5505	0.6117	5.09	151.4	15.3	-1.4	0.976	17.7	0.36	5.3	-1.2	44.2	18 13	10 8
5/12/2007/ 0/ 0	6 43 6	+ 25 39 30	1.5517	0.6089	5.06	152.6	15.4	-1.4	0.978	17.0	0.33	5.1	-1.0	35.5	18 7	10 3
6/12/2007/ 0/ 0	6 41 53	+ 25 43 36	1.5530	0.6063	5.04	153.9	15.4	-1.4	0.980	16.2	0.30	4.9	-0.8	26.2	18 2	9 58
7/12/2007/ 0/ 0	6 40 36	+ 25 47 41	1.5542	0.6038	5.02	155.2	15.5	-1.4	0.982	15.4	0.27	4.8	-0.6	17.4	17 56	9 54
8/12/2007/ 0/ 0	6 39 16	+ 25 51 44	1.5555	0.6016	5.00	156.5	15.6	-1.4	0.984	14.6	0.25	4.6	-0.4	8.7	17 50	9 49
9/12/2007/ 0/ 0	6 37 53	+ 25 55 45	1.5567	0.5995	4.99	157.8	15.6	-1.4	0.986	13.8	0.22	4.4	-0.1	360.0	17 45	9 44
10/12/2007/ 0/ 0	6 36 27	+ 25 59 43	1.5580	0.5976	4.97	159.2	15.7	-1.5	0.987	13.0	0.20	4.2	0.1	351.2	17 39	9 39
11/12/2007/ 0/ 0	6 34 59	+ 26 3 37	1.5592	0.5959	4.96	160.5	15.7	-1.5	0.989	12.2	0.17	4.0	0.3	342.0	17 33	9 34
12/12/2007/ 0/ 0	6 33 28	+ 26 7 27	1.5604	0.5944	4.94	161.8	15.7	-1.5	0.990	11.3	0.15	3.9	0.5	333.3	17 27	9 29
13/12/2007/ 0/ 0	6 31 54	+ 26 11 12	1.5616	0.5930	4.93	163.2	15.8	-1.5	0.992	10.5	0.13	3.7	0.7	324.6	17 22	9 24
14/12/2007/ 0/ 0	6 30 19	+ 26 14 52	1.5629	0.5919	4.92	164.5	15.8	-1.5	0.993	9.7	0.11	3.5	0.9	315.9	17 16	9 19
15/12/2007/ 0/ 0	6 28 41	+ 26 18 25	1.5641	0.5910	4.92	165.9	15.8	-1.5	0.994	8.8	0.09	3.3	1.1	306.7	17 10	9 13
16/12/2007/ 0/ 0	6 27 2	+ 26 21 51	1.5653	0.5903	4.91	167.2	15.9	-1.6	0.995	8.0	0.07	3.1	1.3	298.0	17 4	9 8
17/12/2007/ 0/ 0	6 25 21	+ 26 25 10	1.5665	0.5898	4.90	168.6	15.9	-1.6	0.996	7.2	0.06	2.9	1.5	289.4	16 58	9 3
18/12/2007/ 0/ 0	6 23 39	+ 26 28 22	1.5677	0.5894	4.90	169.9	15.9	-1.6	0.997	6.3	0.04	2.7	1.8	280.7	16 52	8 58
19/12/2007/ 0/ 0	6 21 55	+ 26 31 24	1.5689	0.5893	4.90	171.2	15.9	-1.6	0.998	5.5	0.03	2.5	2.0	272.0	16 46	8 52
20/12/2007/ 0/ 0	6 20 11	+ 26 34 19	1.5701	0.5895	4.90	172.5	15.9	-1.6	0.998	4.7	0.02	2.3	2.2	262.9	16 40	8 47
21/12/2007/ 0/ 0	6 18 26	+ 26 37 3	1.5713	0.5898	4.90	173.7	15.9	-1.6	0.999	3.9	0.01	2.1	2.4	254.2	16 34	8 41
22/12/2007/ 0/ 0	6 16 41	+ 26 39 39	1.5725	0.5903	4.91	174.8	15.9	-1.6	0.999	3.2	0.01	1.9	2.6	245.5	16 28	8 36
23/12/2007/ 0/ 0	6 14 55	+ 26 42 5	1.5737	0.5910	4.92	175.8	15.8	-1.6	0.999	2.6	0.00	1.7	2.8	236.9	16 22	8 31
24/12/2007/ 0/ 0	6 13 9	+ 26 44 21	1.5748	0.5920	4.92	176.5	15.8	-1.6	1.000	2.2	0.00	1.5	3.0	228.2	16 16	8 25
25/12/2007/ 0/ 0	6 11 24	+ 26 46 27	1.5760	0.5932	4.93	176.6	15.8	-1.6	1.000	2.1	0.00	1.3	3.2	219.1	16 10	8 20
26/12/2007/ 0/ 0	6 9 38	+ 26 48 23	1.5772	0.5945	4.94	176.2	15.7	-1.6	1.000	2.4	0.00	1.1	3.4	210.4	16 5	8 14
27/12/2007/ 0/ 0	6 7 54	+ 26 50 9	1.5783	0.5961	4.96	175.4	15.7	-1.6	0.999	2.9	0.00	0.9	3.6	201.7	15 59	8 9
28/12/2007/ 0/ 0	6 6 10	+ 26 51 45	1.5795	0.5979	4.97	174.4	15.7	-1.6	0.999	3.5	0.01	0.7	3.8	193.1	15 53	8 3
29/12/2007/ 0/ 0	6 4 27	+ 26 53 10	1.5806	0.5999	4.99	173.2	15.6	-1.6	0.999	4.2	0.02	0.5	4.0	183.9	15 47	7 58
30/12/2007/ 0/ 0	6 2 46	+ 26 54 26	1.5818	0.6022	5.01	171.9	15.5	-1.5	0.998	5.0	0.02	0.3	4.2	175.2	15 41	7 52
31/12/2007/ 0/ 0	6 1 6	+ 26 55 32	1.5829	0.6046	5.03	170.7	15.5	-1.5	0.997	5.8	0.03	0.1	4.4	166.6	15 36	7 47
1/ 1/2008/ 0/ 0	5 59 28	+ 26 56 28	1.5841	0.6072	5.05	169.4	15.4	-1.5	0.997	6.6	0.05	-0.0	4.6	157.9	15 30	7 41

Legenda :

K = fase

I = angolo di fase

Q = difetto di illuminazione

D(T) = latitudine aerografica della Terra

D(S) = latitudine aerografica del Sole

LMC = longitudine del meridiano centrale

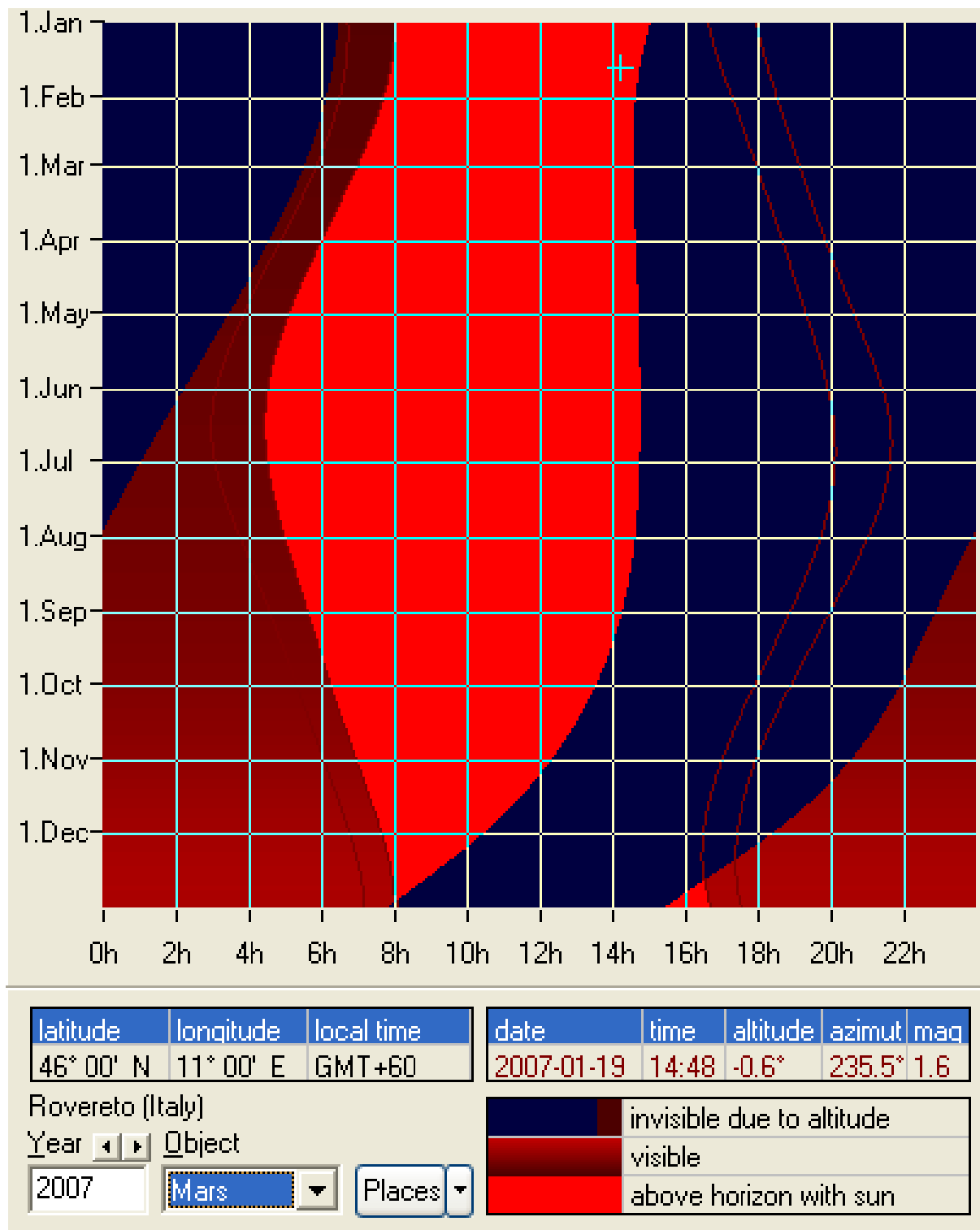
Tempi di levata e tramonto in ore locali, non in T.U.

## FENOMENI DI MARTE

Perielio	04.06.2007	12.31.47	1,38147 U.A.
Perigeo	18.12.2007	23.51.00	0,58936 U.A.
Magnitudine massima	23.12.2007	17.39.55	-1,6 mag
Opposizione	24.12.2007	19.46.58	

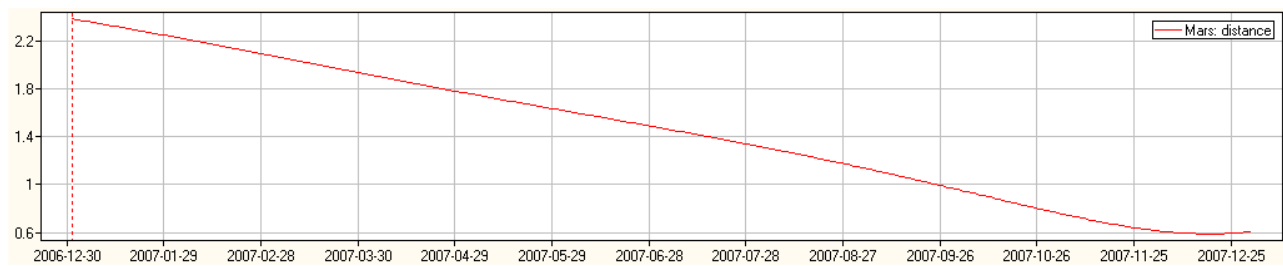
© (5)

## VISIBILITA' DI MARTE

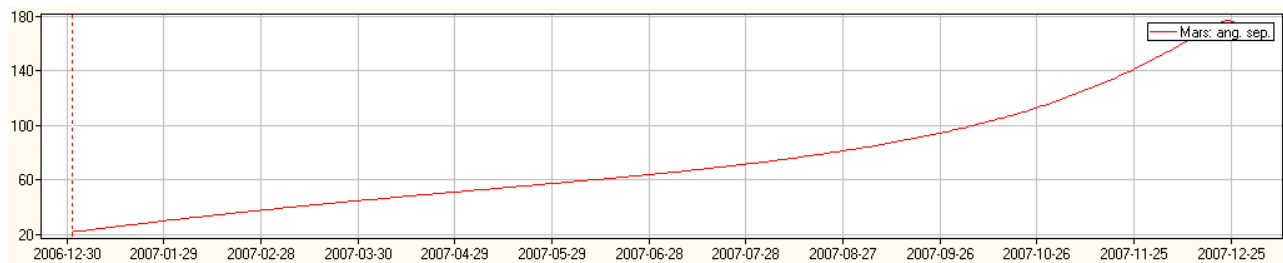


Visibilità di Marte nel corso dell'anno

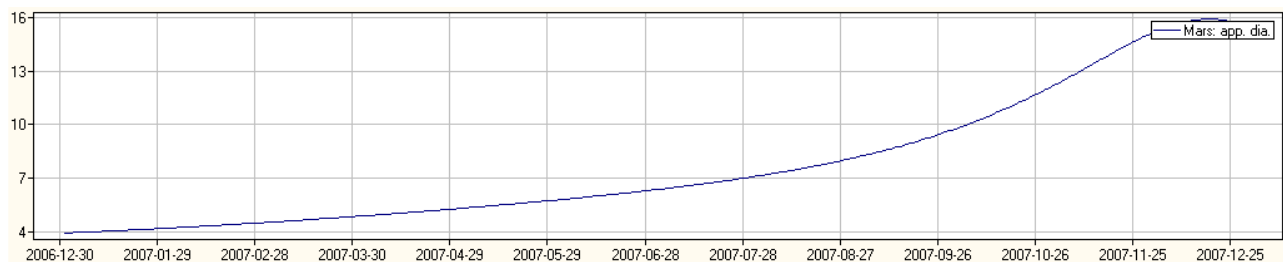
Le righe rosse più esterne indicano in quali periodi dell'anno il pianeta è sufficientemente distante dal Sole per poter essere osservato agevolmente. I valori sono riportati nelle due tabelle seguenti.



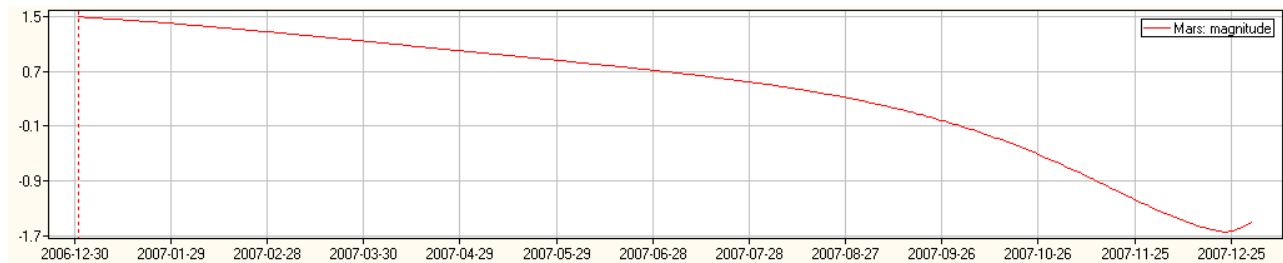
Distanza di Marte in U.A. nel corso dell'anno



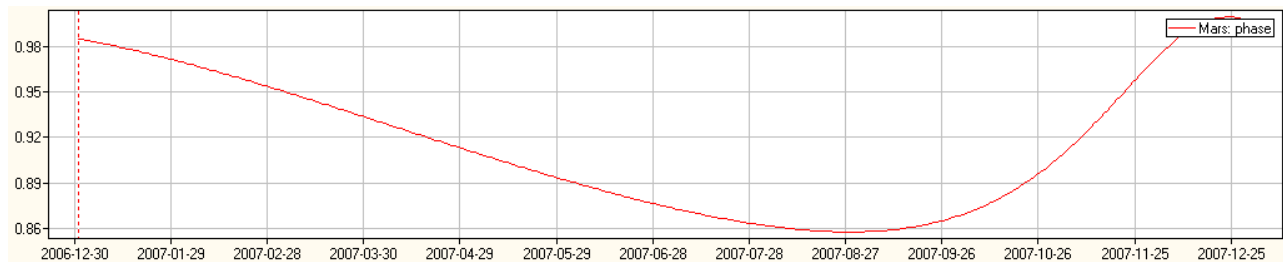
Elongazione di Marte in ° nel corso dell'anno



Diametro di Marte in " nel corso dell'anno



Magnitudine di Marte nel corso dell'anno



Fase di Marte nel corso dell'anno

© (4)

# MERIDIANO CENTRALE DI MARTE

Meridiano Centrale di Marte nel 2007

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	70.5	127.9	213.3	267.2	329.4	21.6	85.7	142.9	203.0	275.9	344.2	71.1
2	60.8	118.1	203.5	257.4	319.4	11.6	75.9	133.1	193.4	266.4	335.0	62.2
3	51.0	108.3	193.6	247.4	309.4	1.8	66.1	123.4	183.8	256.9	325.8	53.2
4	41.2	98.5	183.8	237.5	299.5	351.8	56.2	113.7	174.1	247.4	316.5	44.4
5	31.5	88.8	173.9	227.6	289.6	341.9	46.4	104.0	164.5	237.9	307.2	35.5
6	21.8	78.9	164.1	217.7	279.6	332.1	36.6	94.3	154.9	228.4	298.0	26.6
7	12.0	69.1	154.2	207.8	269.7	322.2	26.8	84.6	145.3	218.9	288.8	17.8
8	2.2	59.4	144.4	197.9	259.8	312.2	17.0	74.9	135.7	209.4	279.6	8.9
9	352.4	49.6	134.6	187.9	249.8	302.4	7.2	65.2	126.1	200.0	270.4	0.1
10	342.7	39.8	124.7	178.0	239.9	292.5	357.4	55.5	116.5	190.6	261.2	351.2
11	332.9	30.0	114.8	168.1	229.9	282.6	347.7	45.8	106.9	181.1	252.0	342.4
12	323.2	20.2	105.0	158.1	220.0	272.8	337.9	36.1	97.3	171.6	242.8	333.6
13	313.4	10.4	95.1	148.2	210.1	262.9	328.1	26.4	87.8	162.2	233.7	324.8
14	303.7	0.6	85.2	138.3	200.1	253.0	318.3	16.8	78.1	152.8	224.6	316.0
15	293.9	350.8	75.4	128.4	190.2	243.1	308.6	7.1	68.6	143.3	215.4	307.2
16	284.2	341.0	65.5	118.4	180.2	233.2	298.8	357.4	59.0	133.9	206.3	298.4
17	274.4	331.2	55.6	108.5	170.3	223.4	289.0	347.8	49.4	124.5	197.2	289.6
18	264.6	321.4	45.8	98.6	160.4	213.6	279.2	338.1	39.9	115.1	188.1	280.9
19	254.9	311.6	35.9	88.6	150.4	203.7	269.5	328.4	30.3	105.7	179.0	272.1
20	245.1	301.8	26.0	78.7	140.6	193.9	259.8	318.8	20.8	96.3	169.9	263.3
21	235.4	291.9	16.1	68.8	130.6	184.0	249.9	309.1	11.2	86.9	160.9	254.6
22	225.6	282.1	6.2	58.8	120.7	174.1	240.2	299.4	1.6	77.6	151.9	245.8
23	215.8	272.2	356.4	48.9	110.8	164.3	230.4	289.8	352.1	68.2	142.8	237.0
24	206.1	262.4	346.4	38.9	100.8	154.4	220.7	280.1	342.6	58.8	133.8	228.2
25	196.3	252.6	336.6	29.0	90.9	144.6	211.0	270.4	333.0	49.5	124.8	219.4
26	186.5	242.8	326.7	19.1	81.0	134.8	201.2	260.8	323.4	40.1	115.8	210.7
27	176.8	233.0	316.8	9.1	71.1	124.9	191.5	251.2	313.9	30.8	106.9	201.9
28	166.9	223.1	306.9	359.2	61.2	115.1	181.8	241.5	304.4	21.5	97.9	193.1
29	157.2		297.0	349.2	51.2	105.3	172.1	231.9	294.9	12.2	88.9	184.4
30	147.4		287.1	339.3	41.4	95.5	162.3	222.2	285.4	2.9	80.0	175.6
31	137.6		277.2		31.4		152.6	212.6		353.6		166.8

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	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

# EFFEMERIDI DI GIOVE

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM.E. ''	DIAM.P. ''	MAG	K	I °	SORGE h,m	TRAMONTA h,m
1/ 1/2007/ 0/ 0	16 26 14	- 20 59 13	5.36586	6.17454	51.35	32.0	31.88	29.81	-1.77	0.998	5.57	5 34	14 25
2/ 1/2007/ 0/ 0	16 27 6	- 21 1 10	5.36559	6.16561	51.28	32.8	31.93	29.86	-1.77	0.998	5.70	5 31	14 22
3/ 1/2007/ 0/ 0	16 27 58	- 21 3 6	5.36532	6.15649	51.20	33.6	31.97	29.90	-1.78	0.997	5.82	5 28	14 19
4/ 1/2007/ 0/ 0	16 28 49	- 21 4 60	5.36504	6.14719	51.12	34.4	32.02	29.95	-1.78	0.997	5.95	5 25	14 16
5/ 1/2007/ 0/ 0	16 29 41	- 21 6 52	5.36477	6.13769	51.05	35.2	32.07	29.99	-1.78	0.997	6.07	5 22	14 12
6/ 1/2007/ 0/ 0	16 30 32	- 21 8 43	5.36449	6.12802	50.97	36.1	32.12	30.04	-1.78	0.997	6.19	5 20	14 9
7/ 1/2007/ 0/ 0	16 31 23	- 21 10 32	5.36421	6.11816	50.88	36.9	32.17	30.09	-1.79	0.997	6.32	5 17	14 6
8/ 1/2007/ 0/ 0	16 32 13	- 21 12 19	5.36394	6.10813	50.80	37.7	32.23	30.14	-1.79	0.997	6.44	5 14	14 3
9/ 1/2007/ 0/ 0	16 33 4	- 21 14 5	5.36366	6.09791	50.71	38.5	32.28	30.19	-1.79	0.997	6.56	5 11	13 59
10/ 1/2007/ 0/ 0	16 33 54	- 21 15 49	5.36338	6.08752	50.63	39.3	32.34	30.24	-1.80	0.997	6.68	5 8	13 56
11/ 1/2007/ 0/ 0	16 34 44	- 21 17 32	5.36311	6.07695	50.54	40.2	32.39	30.29	-1.80	0.996	6.79	5 5	13 53
12/ 1/2007/ 0/ 0	16 35 33	- 21 19 13	5.36283	6.06620	50.45	41.0	32.45	30.35	-1.80	0.996	6.91	5 2	13 50
13/ 1/2007/ 0/ 0	16 36 22	- 21 20 52	5.36255	6.05529	50.36	41.8	32.51	30.40	-1.81	0.996	7.02	4 59	13 46
14/ 1/2007/ 0/ 0	16 37 12	- 21 22 30	5.36227	6.04420	50.27	42.6	32.57	30.46	-1.81	0.996	7.14	4 56	13 43
15/ 1/2007/ 0/ 0	16 38 0	- 21 24 6	5.36199	6.03294	50.17	43.5	32.63	30.51	-1.81	0.996	7.25	4 53	13 40
16/ 1/2007/ 0/ 0	16 38 49	- 21 25 41	5.36172	6.02152	50.08	44.3	32.69	30.57	-1.82	0.996	7.36	4 50	13 37
17/ 1/2007/ 0/ 0	16 39 37	- 21 27 14	5.36144	6.00993	49.98	45.1	32.75	30.63	-1.82	0.996	7.47	4 47	13 33
18/ 1/2007/ 0/ 0	16 40 25	- 21 28 46	5.36116	5.99818	49.89	46.0	32.82	30.69	-1.83	0.996	7.58	4 44	13 30
19/ 1/2007/ 0/ 0	16 41 12	- 21 30 15	5.36088	5.98626	49.79	46.8	32.88	30.75	-1.83	0.996	7.69	4 41	13 27
20/ 1/2007/ 0/ 0	16 41 59	- 21 31 44	5.36060	5.97419	49.69	47.6	32.95	30.81	-1.83	0.995	7.79	4 38	13 23
21/ 1/2007/ 0/ 0	16 42 46	- 21 33 10	5.36032	5.96196	49.58	48.5	33.02	30.88	-1.84	0.995	7.90	4 35	13 20
22/ 1/2007/ 0/ 0	16 43 32	- 21 34 35	5.36004	5.94958	49.48	49.3	33.09	30.94	-1.84	0.995	8.00	4 32	13 17
23/ 1/2007/ 0/ 0	16 44 18	- 21 35 59	5.35975	5.93705	49.38	50.1	33.16	31.01	-1.85	0.995	8.10	4 29	13 14
24/ 1/2007/ 0/ 0	16 45 4	- 21 37 21	5.35947	5.92437	49.27	51.0	33.23	31.07	-1.85	0.995	8.20	4 26	13 10
25/ 1/2007/ 0/ 0	16 45 49	- 21 38 41	5.35919	5.91155	49.16	51.8	33.30	31.14	-1.85	0.995	8.30	4 23	13 7
26/ 1/2007/ 0/ 0	16 46 34	- 21 39 60	5.35891	5.89858	49.06	52.7	33.37	31.21	-1.86	0.995	8.40	4 20	13 4
27/ 1/2007/ 0/ 0	16 47 19	- 21 41 17	5.35863	5.88548	48.95	53.5	33.45	31.28	-1.86	0.995	8.49	4 17	13 0
28/ 1/2007/ 0/ 0	16 48 3	- 21 42 33	5.35834	5.87224	48.84	54.4	33.52	31.35	-1.87	0.994	8.59	4 13	12 57
29/ 1/2007/ 0/ 0	16 48 47	- 21 43 47	5.35806	5.85886	48.73	55.2	33.60	31.42	-1.87	0.994	8.68	4 10	12 54
30/ 1/2007/ 0/ 0	16 49 30	- 21 44 60	5.35778	5.84535	48.61	56.0	33.68	31.49	-1.88	0.994	8.77	4 7	12 50
31/ 1/2007/ 0/ 0	16 50 13	- 21 46 11	5.35749	5.83172	48.50	56.9	33.76	31.57	-1.88	0.994	8.86	4 4	12 47
1/ 2/2007/ 0/ 0	16 50 55	- 21 47 21	5.35721	5.81795	48.39	57.7	33.84	31.64	-1.89	0.994	8.95	4 1	12 44
2/ 2/2007/ 0/ 0	16 51 37	- 21 48 29	5.35692	5.80407	48.27	58.6	33.92	31.72	-1.89	0.994	9.03	3 58	12 40
3/ 2/2007/ 0/ 0	16 52 19	- 21 49 36	5.35664	5.79006	48.15	59.4	34.00	31.79	-1.90	0.994	9.12	3 55	12 37
4/ 2/2007/ 0/ 0	16 53 0	- 21 50 41	5.35635	5.77594	48.04	60.3	34.08	31.87	-1.90	0.994	9.20	3 52	12 34
5/ 2/2007/ 0/ 0	16 53 41	- 21 51 45	5.35607	5.76169	47.92	61.2	34.17	31.95	-1.91	0.993	9.28	3 48	12 30
6/ 2/2007/ 0/ 0	16 54 21	- 21 52 48	5.35578	5.74734	47.80	62.0	34.25	32.03	-1.91	0.993	9.36	3 45	12 27
7/ 2/2007/ 0/ 0	16 55 1	- 21 53 49	5.35550	5.73287	47.68	62.9	34.34	32.11	-1.92	0.993	9.43	3 42	12 24
8/ 2/2007/ 0/ 0	16 55 40	- 21 54 48	5.35521	5.71829	47.56	63.7	34.42	32.19	-1.92	0.993	9.51	3 39	12 20
9/ 2/2007/ 0/ 0	16 56 19	- 21 55 46	5.35492	5.70361	47.44	64.6	34.51	32.28	-1.93	0.993	9.58	3 36	12 17
10/ 2/2007/ 0/ 0	16 56 57	- 21 56 43	5.35464	5.68883	47.31	65.5	34.60	32.36	-1.93	0.993	9.65	3 32	12 14
11/ 2/2007/ 0/ 0	16 57 35	- 21 57 39	5.35435	5.67395	47.19	66.3	34.69	32.45	-1.94	0.993	9.72	3 29	12 10
12/ 2/2007/ 0/ 0	16 58 12	- 21 58 33	5.35406	5.65896	47.06	67.2	34.79	32.53	-1.94	0.993	9.78	3 26	12 7
13/ 2/2007/ 0/ 0	16 58 49	- 21 59 25	5.35377	5.64389	46.94	68.1	34.88	32.62	-1.95	0.993	9.85	3 23	12 3
14/ 2/2007/ 0/ 0	16 59 25	- 22 0 16	5.35349	5.62872	46.81	68.9	34.97	32.71	-1.96	0.993	9.91	3 20	12 0
15/ 2/2007/ 0/ 0	17 0 1	- 22 1 6	5.35320	5.61347	46.69	69.8	35.07	32.79	-1.96	0.992	9.97	3 16	11 57
16/ 2/2007/ 0/ 0	17 0 36	- 22 1 55	5.35291	5.59813	46.56	70.7	35.16	32.88	-1.97	0.992	10.03	3 13	11 53
17/ 2/2007/ 0/ 0	17 1 11	- 22 2 42	5.35262	5.58272	46.43	71.5	35.26	32.98	-1.97	0.992	10.08	3 10	11 50
18/ 2/2007/ 0/ 0	17 1 45	- 22 3 29	5.35233	5.56732	46.30	72.4	35.36	33.07	-1.98	0.992	10.14	3 6	11 46
19/ 2/2007/ 0/ 0	17 2 18	- 22 4 13	5.35204	5.55166	46.17	73.3	35.46	33.16	-1.98	0.992	10.19	3 3	11 43
20/ 2/2007/ 0/ 0	17 2 51	- 22 4 57	5.35175	5.53602	46.04	74.2	35.56	33.25	-1.99	0.992	10.24	2 56	11 39
21/ 2/2007/ 0/ 0	17 3 24	- 22 5 39	5.35146	5.52032	45.91	75.1	35.66	33.35	-2.00	0.992	10.29	2 56	11 36
22/ 2/2007/ 0/ 0	17 3 55	- 22 6 20	5.35117	5.50455	45.78	76.0	35.76	33.44	-2.00	0.992	10.33	2 53	11 33
23/ 2/2007/ 0/ 0	17 4 26	- 22 6 59	5.35088	5.48873	45.65	76.8	35.86	33.54	-2.01	0.992	10.37	2 50	11 29
24/ 2/2007/ 0/ 0	17 4 57	- 22 7 38	5.35059	5.47286	45.52	77.7	35.97	33.64	-2.01	0.992	10.41	2 46	11 26
25/ 2/2007/ 0/ 0	17 5 27	- 22 8 15	5.35029	5.45693	45.38	78.6	36.07	33.74	-2.02	0.992	10.45	2 43	11 22
26/ 2/2007/ 0/ 0	17 5 56	- 22 8 51	5.35000	5.44096	45.25	79.5	36.18	33.83	-2.03	0.992	10.48	2 40	11 19
27/ 2/2007/ 0/ 0	17 6 25	- 22 9 26	5.34971	5.42495	45.12	80.4	36.29	33.93	-2.03	0.992	10.52	2 36	11 15
28/ 2/2007/ 0/ 0	17 6 53	- 22 9 60	5.34942	5.40890	44.98	81.3	36.39	34.04	-2.04	0.992	10.55	2 33	11 12
1/ 3/2007/ 0/ 0	17 7 20	- 22 10 32	5.34912	5.39281	44.85	82.2	36.50	34.14	-2.05	0.992	10.57	2 29	11 8
2/ 3/2007/ 0/ 0	17 7 47	- 22 11 4	5.34883	5.37669	44.72	83.1	36.61	34.24	-2.05	0.991	10.60	2 26	11 5
3/ 3/2007/ 0/ 0	17 8 13	- 22 11 34	5.34854	5.36054	44.58	84.0	36.72	34.34	-2.06	0.991	10.62	2 22	11 1
4/ 3/2007/ 0/ 0	17 8 38	- 22 12 4	5.34824	5.34437	44.45	84.9	36.83	34.45	-2.07	0.991	10.64	2 19	10 57
5/ 3/2007/ 0/ 0	17 9 3	- 22 12 32	5.34795	5.32817	44.31	85.8	36.95	34.55	-2.07	0.991	10.66	2 15	10 54
6/ 3/2007/ 0/ 0	17 9 27	- 22 12 59	5.34765	5.31196	44.18	86.7	37.06	34.66	-2.08	0.991	10.67	2 12	10 50
7/ 3/2007/ 0/ 0	17 9 50	- 22 13 25	5.34736	5.29573	44.04	87.6	37.17	34.76	-2.09	0.991	10.68	2 8	10 47
8/ 3/2007/ 0/ 0	17 10 13	- 22 13 50	5.34706	5.27949	43.91	88.5	37.29	34.87	-2.09	0.991	10.69	2 5	10 43
9/ 3/2007/ 0/ 0	17 10 35	- 22 14 14	5.34677	5.26325	43.77	89.5	37.40	34.98	-2.10	0.991	10.70	2 1	10 40
10/ 3/2007/ 0/ 0	17 10 57	- 22 14 36	5.34647	5.24700	43.64	90.4	37.52	35.09	-2.11	0.991	10.70	1 58	10 36
11/ 3/2007/ 0/ 0	17 11 17	- 22 14 58	5.34618	5.23075	43.50	91.3	37.63	35.19	-2.11	0.991	10.70	1 54	10 32
12/ 3/2007/ 0/ 0	17 11 37	- 22 15 19	5.34588	5.21451	43.37	92.2	37.75	35.30	-2.12	0.991	10.70	1 51	10 29
13/ 3/2007/ 0/ 0	17 11 56	- 22 15 39	5.34558	5.19828	43.23	93.1	37.87	35.41	-2.13	0.991	10.70	1 47	10 25
14/ 3/2007/ 0/ 0	17 12 15	- 22 15 58	5.34529	5.18205	43.10	94.1	37.99	35.53	-2.13	0.991	10.69	1 44	10 21
15/ 3/2007/ 0/ 0	17 12 32	- 22 16 16	5.34499	5.16585	42.96	95.0	38.11	35.64	-2.14	0.991	10.68	1 40	10 18
16/ 3/2007/ 0/ 0	17 12 49	- 22 16 33	5.34469	5.14967	42.83	95.9	38.23	35.75	-2.15	0.991	10.67	1 36	10 14
17/													

DATA	A.R.	DEC.	RV	DELTA	LUCE	EL.	DIAM.E.	DIAM.P.	MAG	K	I	SORGE	TRAMONTA
GG/MM/AAAA/HH/MM	h,m,s	° ' ''	U.A.	U.A.	min	°	''	''			°	h,m	h,m
11/ 4/2007/ 0/ 0	17 15 36	- 22 18 44	5.33685	4.75133	39.52	121.0	41.43	38.75	-2.33	0.993	9.26	23 57	8 34
12/ 4/2007/ 0/ 0	17 15 32	- 22 18 38	5.33655	4.73742	39.40	122.0	41.55	38.86	-2.34	0.994	9.17	23 53	8 30
13/ 4/2007/ 0/ 0	17 15 27	- 22 18 31	5.33624	4.72365	39.29	123.0	41.67	38.97	-2.35	0.994	9.07	23 49	8 26
14/ 4/2007/ 0/ 0	17 15 21	- 22 18 24	5.33593	4.71004	39.17	124.0	41.80	39.09	-2.35	0.994	8.96	23 45	8 22
15/ 4/2007/ 0/ 0	17 15 14	- 22 18 15	5.33563	4.69657	39.06	125.0	41.91	39.20	-2.36	0.994	8.86	23 41	8 18
16/ 4/2007/ 0/ 0	17 15 6	- 22 18 6	5.33532	4.68327	38.95	126.0	42.03	39.31	-2.37	0.994	8.75	23 37	8 14
17/ 4/2007/ 0/ 0	17 14 58	- 22 17 56	5.33501	4.67013	38.84	127.0	42.15	39.42	-2.37	0.994	8.64	23 33	8 10
18/ 4/2007/ 0/ 0	17 14 49	- 22 17 45	5.33471	4.65716	38.73	128.0	42.27	39.53	-2.38	0.994	8.52	23 29	8 6
19/ 4/2007/ 0/ 0	17 14 39	- 22 17 33	5.33440	4.64436	38.63	129.1	42.39	39.64	-2.39	0.995	8.41	23 25	8 2
20/ 4/2007/ 0/ 0	17 14 28	- 22 17 21	5.33409	4.63175	38.52	130.1	42.50	39.75	-2.39	0.995	8.29	23 20	7 58
21/ 4/2007/ 0/ 0	17 14 16	- 22 17 8	5.33378	4.61931	38.42	131.1	42.62	39.85	-2.40	0.995	8.16	23 16	7 54
22/ 4/2007/ 0/ 0	17 14 4	- 22 16 54	5.33347	4.60706	38.32	132.1	42.73	39.96	-2.41	0.995	8.03	23 12	7 50
23/ 4/2007/ 0/ 0	17 13 51	- 22 16 39	5.33317	4.59501	38.22	133.1	42.84	40.06	-2.41	0.995	7.90	23 8	7 46
24/ 4/2007/ 0/ 0	17 13 37	- 22 16 24	5.33286	4.58315	38.12	134.2	42.95	40.17	-2.42	0.995	7.77	23 4	7 41
25/ 4/2007/ 0/ 0	17 13 22	- 22 16 7	5.33255	4.57148	38.02	135.2	43.06	40.27	-2.43	0.996	7.64	22 60	7 37
26/ 4/2007/ 0/ 0	17 13 7	- 22 15 50	5.33224	4.56002	37.92	136.2	43.17	40.37	-2.43	0.996	7.50	22 55	7 33
27/ 4/2007/ 0/ 0	17 12 51	- 22 15 32	5.33193	4.54877	37.83	137.3	43.28	40.47	-2.44	0.996	7.36	22 51	7 29
28/ 4/2007/ 0/ 0	17 12 34	- 22 15 14	5.33162	4.53773	37.74	138.3	43.38	40.57	-2.45	0.996	7.21	22 47	7 25
29/ 4/2007/ 0/ 0	17 12 17	- 22 14 54	5.33131	4.52690	37.65	139.4	43.49	40.67	-2.45	0.996	7.07	22 43	7 21
30/ 4/2007/ 0/ 0	17 11 59	- 22 14 34	5.33100	4.51629	37.56	140.4	43.59	40.76	-2.46	0.996	6.92	22 38	7 16
1/ 5/2007/ 0/ 0	17 11 40	- 22 14 13	5.33069	4.50590	37.47	141.4	43.69	40.86	-2.46	0.997	6.77	22 34	7 12
2/ 5/2007/ 0/ 0	17 11 20	- 22 13 51	5.33038	4.49573	37.39	142.5	43.79	40.95	-2.47	0.997	6.61	22 30	7 8
3/ 5/2007/ 0/ 0	17 11 0	- 22 13 28	5.33006	4.48580	37.31	143.5	43.88	41.04	-2.47	0.997	6.45	22 26	7 4
4/ 5/2007/ 0/ 0	17 10 39	- 22 13 5	5.32975	4.47609	37.23	144.6	43.98	41.13	-2.48	0.997	6.29	22 21	6 60
5/ 5/2007/ 0/ 0	17 10 18	- 22 12 41	5.32944	4.46662	37.15	145.6	44.07	41.22	-2.49	0.997	6.13	22 17	6 55
6/ 5/2007/ 0/ 0	17 9 56	- 22 12 16	5.32913	4.45738	37.07	146.7	44.16	41.30	-2.49	0.997	5.97	22 13	6 51
7/ 5/2007/ 0/ 0	17 9 33	- 22 11 50	5.32882	4.44839	37.00	147.7	44.25	41.39	-2.50	0.997	5.80	22 8	6 47
8/ 5/2007/ 0/ 0	17 9 9	- 22 11 23	5.32850	4.43964	36.92	148.8	44.34	41.47	-2.50	0.998	5.63	22 4	6 42
9/ 5/2007/ 0/ 0	17 8 46	- 22 10 56	5.32819	4.43114	36.85	149.9	44.43	41.55	-2.51	0.998	5.46	21 59	6 38
10/ 5/2007/ 0/ 0	17 8 21	- 22 10 28	5.32788	4.42289	36.78	150.9	44.51	41.62	-2.51	0.998	5.28	21 55	6 34
11/ 5/2007/ 0/ 0	17 7 56	- 22 9 59	5.32756	4.41490	36.72	152.0	44.59	41.70	-2.52	0.998	5.11	21 51	6 30
12/ 5/2007/ 0/ 0	17 7 30	- 22 9 29	5.32725	4.40716	36.65	153.1	44.67	41.77	-2.52	0.998	4.93	21 46	6 25
13/ 5/2007/ 0/ 0	17 7 4	- 22 8 59	5.32694	4.39969	36.59	154.1	44.74	41.84	-2.53	0.998	4.75	21 42	6 21
14/ 5/2007/ 0/ 0	17 6 37	- 22 8 27	5.32662	4.39248	36.53	155.2	44.82	41.91	-2.53	0.998	4.57	21 37	6 17
15/ 5/2007/ 0/ 0	17 6 10	- 22 7 55	5.32631	4.38554	36.47	156.3	44.89	41.98	-2.54	0.999	4.38	21 33	6 12
16/ 5/2007/ 0/ 0	17 5 43	- 22 7 23	5.32599	4.37887	36.42	157.3	44.96	42.04	-2.54	0.999	4.20	21 29	6 8
17/ 5/2007/ 0/ 0	17 5 15	- 22 6 49	5.32568	4.37247	36.36	158.4	45.02	42.10	-2.54	0.999	4.01	21 24	6 4
18/ 5/2007/ 0/ 0	17 4 46	- 22 6 15	5.32536	4.36635	36.31	159.5	45.09	42.16	-2.55	0.999	3.82	21 20	5 59
19/ 5/2007/ 0/ 0	17 4 17	- 22 5 40	5.32504	4.36051	36.27	160.6	45.15	42.22	-2.55	0.999	3.63	21 15	5 55
20/ 5/2007/ 0/ 0	17 3 48	- 22 5 5	5.32473	4.35495	36.22	161.6	45.20	42.27	-2.56	0.999	3.43	21 11	5 50
21/ 5/2007/ 0/ 0	17 3 18	- 22 4 28	5.32441	4.34968	36.18	162.7	45.26	42.32	-2.56	0.999	3.24	21 6	5 46
22/ 5/2007/ 0/ 0	17 2 48	- 22 3 52	5.32410	4.34468	36.13	163.8	45.31	42.37	-2.56	0.999	3.04	21 2	5 42
23/ 5/2007/ 0/ 0	17 2 17	- 22 3 14	5.32378	4.33998	36.09	164.9	45.36	42.42	-2.57	0.999	2.85	20 57	5 37
24/ 5/2007/ 0/ 0	17 1 47	- 22 2 36	5.32346	4.33556	36.06	165.9	45.41	42.46	-2.57	0.999	2.65	20 53	5 33
25/ 5/2007/ 0/ 0	17 1 16	- 22 1 57	5.32314	4.33143	36.02	167.0	45.45	42.50	-2.57	1.000	2.45	20 48	5 29
26/ 5/2007/ 0/ 0	17 0 44	- 22 1 18	5.32283	4.32759	35.99	168.1	45.49	42.54	-2.58	1.000	2.25	20 44	5 24
27/ 5/2007/ 0/ 0	17 0 13	- 22 0 38	5.32251	4.32404	35.96	169.2	45.53	42.58	-2.58	1.000	2.05	20 39	5 20
28/ 5/2007/ 0/ 0	16 59 41	- 21 59 58	5.32219	4.32078	35.93	170.3	45.56	42.61	-2.58	1.000	1.85	20 35	5 15
29/ 5/2007/ 0/ 0	16 59 9	- 21 59 17	5.32187	4.31782	35.91	171.3	45.59	42.64	-2.59	1.000	1.64	20 30	5 11
30/ 5/2007/ 0/ 0	16 58 37	- 21 58 36	5.32155	4.31515	35.89	172.4	45.62	42.66	-2.59	1.000	1.44	20 26	5 7
31/ 5/2007/ 0/ 0	16 58 5	- 21 57 54	5.32124	4.31277	35.87	173.5	45.65	42.69	-2.59	1.000	1.24	20 21	5 2
1/ 6/2007/ 0/ 0	16 57 32	- 21 57 12	5.32092	4.31069	35.85	174.6	45.67	42.71	-2.59	1.000	1.03	20 17	4 58
2/ 6/2007/ 0/ 0	16 56 60	- 21 56 29	5.32060	4.30891	35.84	175.7	45.69	42.73	-2.59	1.000	0.83	20 12	4 53
3/ 6/2007/ 0/ 0	16 56 27	- 21 55 46	5.32028	4.30742	35.82	176.7	45.70	42.74	-2.60	1.000	0.63	20 8	4 49
4/ 6/2007/ 0/ 0	16 55 54	- 21 55 2	5.31996	4.30622	35.81	177.8	45.71	42.75	-2.60	1.000	0.43	20 3	4 45
5/ 6/2007/ 0/ 0	16 55 22	- 21 54 19	5.31964	4.30533	35.81	178.7	45.72	42.76	-2.60	1.000	0.24	19 58	4 40
6/ 6/2007/ 0/ 0	16 54 49	- 21 53 35	5.31932	4.30473	35.80	179.3	45.73	42.77	-2.60	1.000	0.13	19 54	4 36
7/ 6/2007/ 0/ 0	16 54 16	- 21 52 50	5.31900	4.30443	35.80	178.7	45.73	42.77	-2.60	1.000	0.25	19 49	4 31
8/ 6/2007/ 0/ 0	16 53 43	- 21 52 6	5.31867	4.30442	35.80	177.7	45.73	42.77	-2.60	1.000	0.44	19 45	4 27
9/ 6/2007/ 0/ 0	16 53 10	- 21 51 21	5.31835	4.30471	35.80	176.6	45.73	42.77	-2.60	1.000	0.64	19 40	4 22
10/ 6/2007/ 0/ 0	16 52 38	- 21 50 36	5.31803	4.30531	35.81	175.6	45.72	42.76	-2.60	1.000	0.85	19 36	4 18
11/ 6/2007/ 0/ 0	16 52 5	- 21 49 51	5.31771	4.30619	35.81	174.5	45.72	42.75	-2.60	1.000	1.05	19 31	4 14
12/ 6/2007/ 0/ 0	16 51 33	- 21 49 6	5.31739	4.30738	35.82	173.4	45.70	42.74	-2.59	1.000	1.25	19 27	4 9
13/ 6/2007/ 0/ 0	16 51 0	- 21 48 21	5.31707	4.30886	35.84	172.3	45.69	42.73	-2.59	1.000	1.46	19 22	4 5
14/ 6/2007/ 0/ 0	16 50 28	- 21 47 36	5.31674	4.31064	35.85	171.3	45.67	42.71	-2.59	1.000	1.66	19 18	4 0
15/ 6/2007/ 0/ 0	16 49 56	- 21 46 51	5.31642	4.31272	35.87	170.2	45.65	42.69	-2.59	1.000	1.87	19 13	3 56
16/ 6/2007/ 0/ 0	16 49 24	- 21 46 6	5.31610	4.31509	35.89	169.1	45.62	42.66	-2.59	1.000	2.07	19 9	3 52
17/ 6/2007/ 0/ 0	16 48 52	- 21 45 22	5.31578	4.31775	35.91	168.0	45.59	42.64	-2.58	1.000	2.27	19 4	3 47
18/ 6/2007/ 0/ 0	16 48 21	- 21 44 37	5.31545	4.32070	35.93	167.0	45.56	42.61	-2.58	1.000	2.47	18 60	3 43
19/ 6/2007/ 0/ 0	16 47 50	- 21 43 53	5.31513	4.32394	35.96	165.9	45.53	42.58	-2.58	0.999	2.67	18 55	3 38
20/ 6/2007/ 0/ 0	16 47 19	- 21 43 9	5.31480	4.32747	35.99	164.8	45.49	42.54	-2.58	0.999	2.87	18 51	3 34
21/ 6/2007/ 0/ 0	16 46 49	- 21 42 25	5.31448	4.33129	36.02	163.7	45.45	42.50	-2.57	0.999	3.07	18 46	3 30
22/ 6/2007/ 0/ 0	16 46 19	- 21 41 42	5.31416	4.33539	36.06	162.7	45.41	42.46	-2.57	0.999	3.27	18 42	3 25
23/ 6/2007/ 0/ 0	16 45 49	- 21 40 59	5.31383	4.33976	36.09	161.6	45.36	42.42	-2.57	0.999	3.46	18 37	3 21
24/ 6/2007/ 0/ 0	16 45 19	- 21 40 17	5.31351	4.34442	36.13	160.5	45.31	42.38	-2.5				

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM.E. ''	DIAM.P. ''	MAG	K	I °	SORGE h,m	TRAMONTA h,m
27/ 7/2007/ 0/ 0	16 34 18	- 21 25 29	5.30265	4.63545	38.55	126.5	42.47	39.71	-2.40	0.994	8.86	16 11	0 57
28/ 7/2007/ 0/ 0	16 34 9	- 21 25 24	5.30232	4.64773	38.65	125.5	42.36	39.61	-2.40	0.994	8.97	16 6	0 53
29/ 7/2007/ 0/ 0	16 34 2	- 21 25 21	5.30198	4.66017	38.76	124.5	42.24	39.50	-2.39	0.994	9.08	16 2	0 49
30/ 7/2007/ 0/ 0	16 33 55	- 21 25 19	5.30165	4.67276	38.86	123.5	42.13	39.40	-2.38	0.994	9.19	15 58	0 45
31/ 7/2007/ 0/ 0	16 33 49	- 21 25 19	5.30132	4.68550	38.97	122.6	42.01	39.29	-2.38	0.993	9.29	15 54	0 41
1/ 8/2007/ 0/ 0	16 33 44	- 21 25 21	5.30098	4.69839	39.08	121.6	41.90	39.18	-2.37	0.993	9.39	15 50	0 37
2/ 8/2007/ 0/ 0	16 33 39	- 21 25 24	5.30065	4.71141	39.18	120.6	41.78	39.07	-2.37	0.993	9.49	15 46	0 33
3/ 8/2007/ 0/ 0	16 33 35	- 21 25 29	5.30032	4.72457	39.29	119.6	41.67	38.97	-2.36	0.993	9.58	15 42	0 29
4/ 8/2007/ 0/ 0	16 33 32	- 21 25 35	5.29998	4.73787	39.40	118.7	41.55	38.86	-2.35	0.993	9.67	15 38	0 25
5/ 8/2007/ 0/ 0	16 33 30	- 21 25 43	5.29965	4.75129	39.52	117.7	41.43	38.75	-2.35	0.993	9.76	15 34	0 21
6/ 8/2007/ 0/ 0	16 33 29	- 21 25 52	5.29931	4.76484	39.63	116.7	41.31	38.64	-2.34	0.993	9.84	15 30	0 17
7/ 8/2007/ 0/ 0	16 33 28	- 21 26 3	5.29898	4.77851	39.74	115.8	41.20	38.53	-2.33	0.993	9.92	15 26	0 13
8/ 8/2007/ 0/ 0	16 33 28	- 21 26 16	5.29864	4.79229	39.86	114.8	41.08	38.42	-2.33	0.992	10.00	15 23	0 9
9/ 8/2007/ 0/ 0	16 33 29	- 21 26 30	5.29831	4.80619	39.97	113.9	40.96	38.30	-2.32	0.992	10.08	15 19	0 5
10/ 8/2007/ 0/ 0	16 33 31	- 21 26 46	5.29797	4.82019	40.09	112.9	40.84	38.19	-2.31	0.992	10.15	15 15	0 1
11/ 8/2007/ 0/ 0	16 33 34	- 21 27 4	5.29763	4.83430	40.21	112.0	40.72	38.08	-2.31	0.992	10.22	15 11	23 57
12/ 8/2007/ 0/ 0	16 33 37	- 21 27 23	5.29730	4.84850	40.32	111.0	40.60	37.97	-2.30	0.992	10.29	15 7	23 53
13/ 8/2007/ 0/ 0	16 33 41	- 21 27 44	5.29696	4.86280	40.44	110.1	40.48	37.86	-2.29	0.992	10.35	15 3	23 50
14/ 8/2007/ 0/ 0	16 33 46	- 21 28 6	5.29662	4.87720	40.56	109.1	40.36	37.75	-2.29	0.992	10.41	14 59	23 46
15/ 8/2007/ 0/ 0	16 33 52	- 21 28 30	5.29629	4.89167	40.68	108.2	40.24	37.63	-2.28	0.992	10.47	14 56	23 42
16/ 8/2007/ 0/ 0	16 33 58	- 21 28 56	5.29595	4.90623	40.80	107.3	40.12	37.52	-2.27	0.992	10.52	14 52	23 38
17/ 8/2007/ 0/ 0	16 34 6	- 21 29 23	5.29561	4.92086	40.93	106.3	40.00	37.41	-2.27	0.992	10.57	14 48	23 34
18/ 8/2007/ 0/ 0	16 34 14	- 21 29 51	5.29528	4.93556	41.05	105.4	39.89	37.30	-2.26	0.991	10.62	14 44	23 30
19/ 8/2007/ 0/ 0	16 34 22	- 21 30 21	5.29494	4.95033	41.17	104.5	39.77	37.19	-2.25	0.991	10.67	14 41	23 26
20/ 8/2007/ 0/ 0	16 34 32	- 21 30 53	5.29460	4.96516	41.29	103.6	39.65	37.08	-2.25	0.991	10.71	14 37	23 23
21/ 8/2007/ 0/ 0	16 34 42	- 21 31 26	5.29426	4.98005	41.42	102.6	39.53	36.97	-2.24	0.991	10.75	14 33	23 19
22/ 8/2007/ 0/ 0	16 34 53	- 21 31 60	5.29392	4.99500	41.54	101.7	39.41	36.86	-2.23	0.991	10.78	14 29	23 15
23/ 8/2007/ 0/ 0	16 35 5	- 21 32 36	5.29359	5.01000	41.67	100.8	39.29	36.75	-2.23	0.991	10.82	14 26	23 11
24/ 8/2007/ 0/ 0	16 35 18	- 21 33 13	5.29325	5.02504	41.79	99.9	39.17	36.64	-2.22	0.991	10.85	14 22	23 7
25/ 8/2007/ 0/ 0	16 35 31	- 21 33 52	5.29291	5.04012	41.92	99.0	39.06	36.53	-2.21	0.991	10.87	14 18	23 4
26/ 8/2007/ 0/ 0	16 35 45	- 21 34 32	5.29257	5.05524	42.04	98.1	38.94	36.42	-2.21	0.991	10.90	14 15	22 60
27/ 8/2007/ 0/ 0	16 36 0	- 21 35 13	5.29223	5.07040	42.17	97.2	38.82	36.31	-2.20	0.991	10.92	14 11	22 56
28/ 8/2007/ 0/ 0	16 36 16	- 21 35 56	5.29189	5.08558	42.30	96.3	38.71	36.20	-2.20	0.991	10.94	14 8	22 52
29/ 8/2007/ 0/ 0	16 36 32	- 21 36 40	5.29155	5.10080	42.42	95.4	38.59	36.09	-2.19	0.991	10.96	14 4	22 49
30/ 8/2007/ 0/ 0	16 36 49	- 21 37 25	5.29121	5.11603	42.55	94.5	38.48	35.98	-2.18	0.991	10.97	14 0	22 45
31/ 8/2007/ 0/ 0	16 37 7	- 21 38 12	5.29087	5.13129	42.68	93.6	38.36	35.88	-2.18	0.991	10.98	13 57	22 41
1/ 9/2007/ 0/ 0	16 37 25	- 21 38 59	5.29053	5.14656	42.80	92.7	38.25	35.77	-2.17	0.991	10.99	13 53	22 38
2/ 9/2007/ 0/ 0	16 37 44	- 21 39 48	5.29019	5.16185	42.93	91.8	38.14	35.66	-2.16	0.991	10.99	13 50	22 34
3/ 9/2007/ 0/ 0	16 38 4	- 21 40 38	5.28985	5.17714	43.06	90.9	38.02	35.56	-2.16	0.991	10.99	13 46	22 30
4/ 9/2007/ 0/ 0	16 38 25	- 21 41 29	5.28951	5.19244	43.18	90.0	37.91	35.45	-2.15	0.991	10.99	13 43	22 27
5/ 9/2007/ 0/ 0	16 38 46	- 21 42 22	5.28917	5.20775	43.31	89.1	37.80	35.35	-2.14	0.991	10.99	13 39	22 23
6/ 9/2007/ 0/ 0	16 39 8	- 21 43 15	5.28882	5.22305	43.44	88.2	37.69	35.25	-2.14	0.991	10.98	13 36	22 19
7/ 9/2007/ 0/ 0	16 39 30	- 21 44 10	5.28848	5.23834	43.57	87.3	37.58	35.14	-2.13	0.991	10.98	13 32	22 16
8/ 9/2007/ 0/ 0	16 39 54	- 21 45 5	5.28814	5.25363	43.69	86.5	37.47	35.04	-2.13	0.991	10.96	13 29	22 12
9/ 9/2007/ 0/ 0	16 40 18	- 21 46 2	5.28780	5.26890	43.82	85.6	37.36	34.94	-2.12	0.991	10.95	13 25	22 8
10/ 9/2007/ 0/ 0	16 40 42	- 21 46 60	5.28746	5.28416	43.95	84.7	37.25	34.84	-2.11	0.991	10.93	13 22	22 5
11/ 9/2007/ 0/ 0	16 41 8	- 21 47 58	5.28712	5.29939	44.07	83.8	37.15	34.74	-2.11	0.991	10.91	13 18	22 1
12/ 9/2007/ 0/ 0	16 41 34	- 21 48 58	5.28677	5.31460	44.20	83.0	37.04	34.64	-2.10	0.991	10.89	13 15	21 58
13/ 9/2007/ 0/ 0	16 42 0	- 21 49 58	5.28643	5.32978	44.33	82.1	36.93	34.54	-2.10	0.991	10.87	13 12	21 54
14/ 9/2007/ 0/ 0	16 42 28	- 21 50 59	5.28609	5.34493	44.45	81.2	36.83	34.44	-2.09	0.991	10.84	13 8	21 50
15/ 9/2007/ 0/ 0	16 42 56	- 21 52 1	5.28574	5.36004	44.58	80.4	36.73	34.35	-2.08	0.991	10.81	13 5	21 47
16/ 9/2007/ 0/ 0	16 43 24	- 21 53 4	5.28540	5.37511	44.70	79.5	36.62	34.25	-2.08	0.991	10.78	13 1	21 43
17/ 9/2007/ 0/ 0	16 43 53	- 21 54 7	5.28506	5.39013	44.83	78.7	36.52	34.15	-2.07	0.991	10.75	12 58	21 40
18/ 9/2007/ 0/ 0	16 44 23	- 21 55 12	5.28471	5.40511	44.95	77.8	36.42	34.06	-2.07	0.991	10.71	12 55	21 36
19/ 9/2007/ 0/ 0	16 44 54	- 21 56 16	5.28437	5.42004	45.08	76.9	36.32	33.97	-2.06	0.991	10.67	12 51	21 33
20/ 9/2007/ 0/ 0	16 45 25	- 21 57 22	5.28403	5.43491	45.20	76.1	36.22	33.87	-2.06	0.991	10.63	12 48	21 29
21/ 9/2007/ 0/ 0	16 45 56	- 21 58 28	5.28368	5.44972	45.32	75.2	36.12	33.78	-2.05	0.991	10.59	12 45	21 26
22/ 9/2007/ 0/ 0	16 46 28	- 21 59 35	5.28334	5.46448	45.45	74.4	36.02	33.69	-2.04	0.992	10.54	12 38	21 18
23/ 9/2007/ 0/ 0	16 47 1	- 22 0 42	5.28299	5.47917	45.57	73.5	35.93	33.60	-2.04	0.992	10.50	12 34	21 15
24/ 9/2007/ 0/ 0	16 47 35	- 22 1 50	5.28265	5.49379	45.69	72.7	35.83	33.51	-2.03	0.992	10.45	12 31	21 11
25/ 9/2007/ 0/ 0	16 48 9	- 22 2 58	5.28230	5.50835	45.81	71.8	35.74	33.42	-2.03	0.992	10.39	12 28	21 8
26/ 9/2007/ 0/ 0	16 48 43	- 22 4 7	5.28196	5.52283	45.93	71.0	35.64	33.33	-2.02	0.992	10.34	12 25	21 4
27/ 9/2007/ 0/ 0	16 49 18	- 22 5 16	5.28161	5.53723	46.05	70.1	35.55	33.25	-2.02	0.992	10.28	12 21	21 1
28/ 9/2007/ 0/ 0	16 49 54	- 22 6 26	5.28127	5.55156	46.17	69.3	35.46	33.16	-2.01	0.992	10.23	12 18	20 57
29/ 9/2007/ 0/ 0	16 50 30	- 22 7 35	5.28092	5.56581	46.29	68.5	35.37	33.08	-2.01	0.992	10.16	12 15	20 54
30/ 9/2007/ 0/ 0	16 51 7	- 22 8 46	5.28057	5.57998	46.41	67.6	35.28	32.99	-2.00	0.992	10.10	12 12	20 51
1/10/2007/ 0/ 0	16 51 44	- 22 9 56	5.28023	5.59406	46.52	66.8	35.19	32.91	-2.00	0.992	10.04	12 8	20 47
2/10/2007/ 0/ 0	16 52 22	- 22 11 7	5.27988	5.60805	46.64	66.0	35.10	32.83	-1.99	0.992	9.97	12 5	20 44
3/10/2007/ 0/ 0	16 53 0	- 22 12 17	5.27954	5.62195	46.76	65.1	35.01	32.75	-1.99	0.993	9.90	12 2	20 40
4/10/2007/ 0/ 0	16 53 39	- 22 13 29	5.27919	5.63575	46.87	64.3	34.93	32.66	-1.98	0.993	9.83	11 59	20 37
5/10/2007/ 0/ 0	16 54 19	- 22 14 40	5.27884	5.64946	46.99	63.5	34.84	32.59	-1.98	0.993	9.76	11 56	20 34
6/10/2007/ 0/ 0	16 54 58	- 22 15 51	5.27850	5.66307	47.10	62.6	34.76	32.51	-1.97	0.993	9.68	11 52	20 30
7/10/2007/ 0/ 0	16 55 39	- 22 17 3	5.27815	5.67657	47.21	61.8	34.68	32.43	-1.97	0.993	9.61	11 49	20 27
8/10/2007/ 0/ 0	16 56 20	- 22 18 14	5.27780	5.68997	47.32	61.0	34.60	32.35	-1.96	0.993	9.53	11 46	20 24
9/10/2007/ 0/ 0	16 57 1	- 22 19 26	5.27745	5.70326	47.43								

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM.E. ''	DIAM.P. ''	MAG	K	I °	SORGE h,m	TRAMONTA h,m
11/11/2007/ 0/ 0	17 23 38	- 22 55 20	5.26589	6.06397	50.43	33.4	32.46	30.36	-1.85	0.997	5.95	10 3	18 34
12/11/2007/ 0/ 0	17 24 32	- 22 56 13	5.26554	6.07213	50.50	32.6	32.42	30.32	-1.85	0.997	5.82	10 0	18 31
13/11/2007/ 0/ 0	17 25 27	- 22 57 6	5.26518	6.08011	50.57	31.8	32.38	30.28	-1.84	0.998	5.69	9 57	18 28
14/11/2007/ 0/ 0	17 26 21	- 22 57 57	5.26483	6.08789	50.63	31.0	32.33	30.24	-1.84	0.998	5.56	9 54	18 24
15/11/2007/ 0/ 0	17 27 16	- 22 58 47	5.26448	6.09549	50.69	30.2	32.29	30.20	-1.84	0.998	5.43	9 51	18 21
16/11/2007/ 0/ 0	17 28 11	- 22 59 37	5.26412	6.10290	50.76	29.4	32.26	30.16	-1.84	0.998	5.30	9 48	18 18
17/11/2007/ 0/ 0	17 29 7	- 23 0 25	5.26377	6.11012	50.82	28.6	32.22	30.13	-1.84	0.998	5.17	9 45	18 15
18/11/2007/ 0/ 0	17 30 2	- 23 1 12	5.26341	6.11714	50.88	27.9	32.18	30.09	-1.84	0.998	5.03	9 42	18 12
19/11/2007/ 0/ 0	17 30 58	- 23 1 58	5.26306	6.12397	50.93	27.1	32.14	30.06	-1.83	0.998	4.90	9 40	18 9
20/11/2007/ 0/ 0	17 31 54	- 23 2 43	5.26271	6.13061	50.99	26.3	32.11	30.03	-1.83	0.998	4.77	9 37	18 6
21/11/2007/ 0/ 0	17 32 51	- 23 3 27	5.26235	6.13705	51.04	25.5	32.08	30.00	-1.83	0.998	4.63	9 34	18 3
22/11/2007/ 0/ 0	17 33 47	- 23 4 9	5.26200	6.14330	51.09	24.7	32.04	29.97	-1.83	0.998	4.50	9 31	17 60
23/11/2007/ 0/ 0	17 34 44	- 23 4 51	5.26164	6.14935	51.14	23.9	32.01	29.94	-1.83	0.999	4.36	9 28	17 57
24/11/2007/ 0/ 0	17 35 41	- 23 5 31	5.26129	6.15520	51.19	23.1	31.98	29.91	-1.83	0.999	4.22	9 25	17 54
25/11/2007/ 0/ 0	17 36 38	- 23 6 10	5.26093	6.16085	51.24	22.3	31.95	29.88	-1.83	0.999	4.08	9 22	17 51
26/11/2007/ 0/ 0	17 37 35	- 23 6 47	5.26058	6.16630	51.28	21.5	31.92	29.85	-1.82	0.999	3.95	9 19	17 48
27/11/2007/ 0/ 0	17 38 33	- 23 7 24	5.26022	6.17155	51.33	20.7	31.90	29.83	-1.82	0.999	3.81	9 16	17 45
28/11/2007/ 0/ 0	17 39 30	- 23 7 59	5.25987	6.17660	51.37	19.9	31.87	29.80	-1.82	0.999	3.67	9 13	17 42
29/11/2007/ 0/ 0	17 40 28	- 23 8 33	5.25951	6.18145	51.41	19.1	31.85	29.78	-1.82	0.999	3.53	9 10	17 39
30/11/2007/ 0/ 0	17 41 26	- 23 9 5	5.25915	6.18609	51.45	18.4	31.82	29.76	-1.82	0.999	3.39	9 7	17 36
1/12/2007/ 0/ 0	17 42 24	- 23 9 37	5.25880	6.19053	51.49	17.6	31.80	29.74	-1.82	0.999	3.24	9 4	17 33
2/12/2007/ 0/ 0	17 43 22	- 23 10 7	5.25844	6.19476	51.52	16.8	31.78	29.72	-1.82	0.999	3.10	9 1	17 30
3/12/2007/ 0/ 0	17 44 21	- 23 10 36	5.25809	6.19879	51.55	16.0	31.76	29.70	-1.82	0.999	2.96	8 59	17 27
4/12/2007/ 0/ 0	17 45 19	- 23 11 3	5.25773	6.20261	51.59	15.2	31.74	29.68	-1.82	0.999	2.82	8 56	17 24
5/12/2007/ 0/ 0	17 46 18	- 23 11 29	5.25737	6.20621	51.62	14.4	31.72	29.66	-1.82	0.999	2.67	8 53	17 21
6/12/2007/ 0/ 0	17 47 17	- 23 11 53	5.25702	6.20961	51.64	13.6	31.70	29.65	-1.82	1.000	2.53	8 50	17 18
7/12/2007/ 0/ 0	17 48 16	- 23 12 16	5.25666	6.21279	51.67	12.8	31.68	29.63	-1.82	1.000	2.38	8 47	17 15
8/12/2007/ 0/ 0	17 49 15	- 23 12 38	5.25630	6.21576	51.70	12.0	31.67	29.62	-1.82	1.000	2.24	8 44	17 12
9/12/2007/ 0/ 0	17 50 14	- 23 12 59	5.25595	6.21852	51.72	11.2	31.66	29.60	-1.82	1.000	2.09	8 41	17 9
10/12/2007/ 0/ 0	17 51 13	- 23 13 18	5.25559	6.22107	51.74	10.5	31.64	29.59	-1.82	1.000	1.95	8 38	17 6
11/12/2007/ 0/ 0	17 52 12	- 23 13 35	5.25523	6.22340	51.76	9.7	31.63	29.58	-1.82	1.000	1.80	8 35	17 3
12/12/2007/ 0/ 0	17 53 12	- 23 13 51	5.25487	6.22551	51.78	8.9	31.62	29.57	-1.82	1.000	1.66	8 32	16 60
13/12/2007/ 0/ 0	17 54 11	- 23 14 6	5.25452	6.22741	51.79	8.1	31.61	29.56	-1.82	1.000	1.51	8 29	16 57
14/12/2007/ 0/ 0	17 55 11	- 23 14 19	5.25416	6.22909	51.81	7.3	31.60	29.55	-1.82	1.000	1.36	8 26	16 54
15/12/2007/ 0/ 0	17 56 10	- 23 14 31	5.25380	6.23056	51.82	6.5	31.59	29.55	-1.82	1.000	1.22	8 24	16 51
16/12/2007/ 0/ 0	17 57 10	- 23 14 42	5.25344	6.23181	51.83	5.7	31.59	29.54	-1.82	1.000	1.07	8 21	16 48
17/12/2007/ 0/ 0	17 58 10	- 23 14 51	5.25308	6.23285	51.84	4.9	31.58	29.54	-1.82	1.000	0.92	8 18	16 45
18/12/2007/ 0/ 0	17 59 10	- 23 14 58	5.25273	6.23367	51.84	4.1	31.58	29.53	-1.82	1.000	0.78	8 15	16 42
19/12/2007/ 0/ 0	18 0 9	- 23 15 5	5.25237	6.23427	51.85	3.4	31.58	29.53	-1.82	1.000	0.63	8 12	16 39
20/12/2007/ 0/ 0	18 1 9	- 23 15 9	5.25201	6.23466	51.85	2.6	31.57	29.53	-1.82	1.000	0.48	8 9	16 36
21/12/2007/ 0/ 0	18 2 9	- 23 15 12	5.25165	6.23483	51.85	1.8	31.57	29.53	-1.82	1.000	0.33	8 6	16 33
22/12/2007/ 0/ 0	18 3 9	- 23 15 14	5.25129	6.23478	51.85	1.0	31.57	29.53	-1.82	1.000	0.19	8 3	16 30
23/12/2007/ 0/ 0	18 4 9	- 23 15 14	5.25093	6.23452	51.85	0.3	31.57	29.53	-1.82	1.000	0.05	8 0	16 27
24/12/2007/ 0/ 0	18 5 9	- 23 15 13	5.25057	6.23405	51.85	0.6	31.58	29.53	-1.82	1.000	0.12	7 57	16 24
25/12/2007/ 0/ 0	18 6 9	- 23 15 11	5.25022	6.23336	51.84	1.4	31.58	29.53	-1.82	1.000	0.26	7 54	16 21
26/12/2007/ 0/ 0	18 7 9	- 23 15 7	5.24986	6.23246	51.83	2.2	31.58	29.54	-1.82	1.000	0.41	7 51	16 18
27/12/2007/ 0/ 0	18 8 9	- 23 15 1	5.24950	6.23134	51.82	3.0	31.59	29.54	-1.82	1.000	0.56	7 48	16 15
28/12/2007/ 0/ 0	18 9 8	- 23 14 54	5.24914	6.23000	51.81	3.8	31.60	29.55	-1.82	1.000	0.70	7 45	16 13
29/12/2007/ 0/ 0	18 10 8	- 23 14 46	5.24878	6.22845	51.80	4.5	31.60	29.56	-1.82	1.000	0.85	7 42	16 10
30/12/2007/ 0/ 0	18 11 8	- 23 14 36	5.24842	6.22669	51.79	5.3	31.61	29.56	-1.82	1.000	1.00	7 39	16 7
31/12/2007/ 0/ 0	18 12 8	- 23 14 25	5.24806	6.22471	51.77	6.1	31.62	29.57	-1.82	1.000	1.15	7 37	16 4
1/ 1/2008/ 0/ 0	18 13 8	- 23 14 13	5.24770	6.22251	51.75	6.9	31.63	29.58	-1.82	1.000	1.29	7 34	16 1

Legenda :

DIAM. E. = diametro equatoriale

DIAM. P. = diametro polare

K = fase

I = angolo di fase

Tempi di levata e tramonto in ore locali, non in T.U.

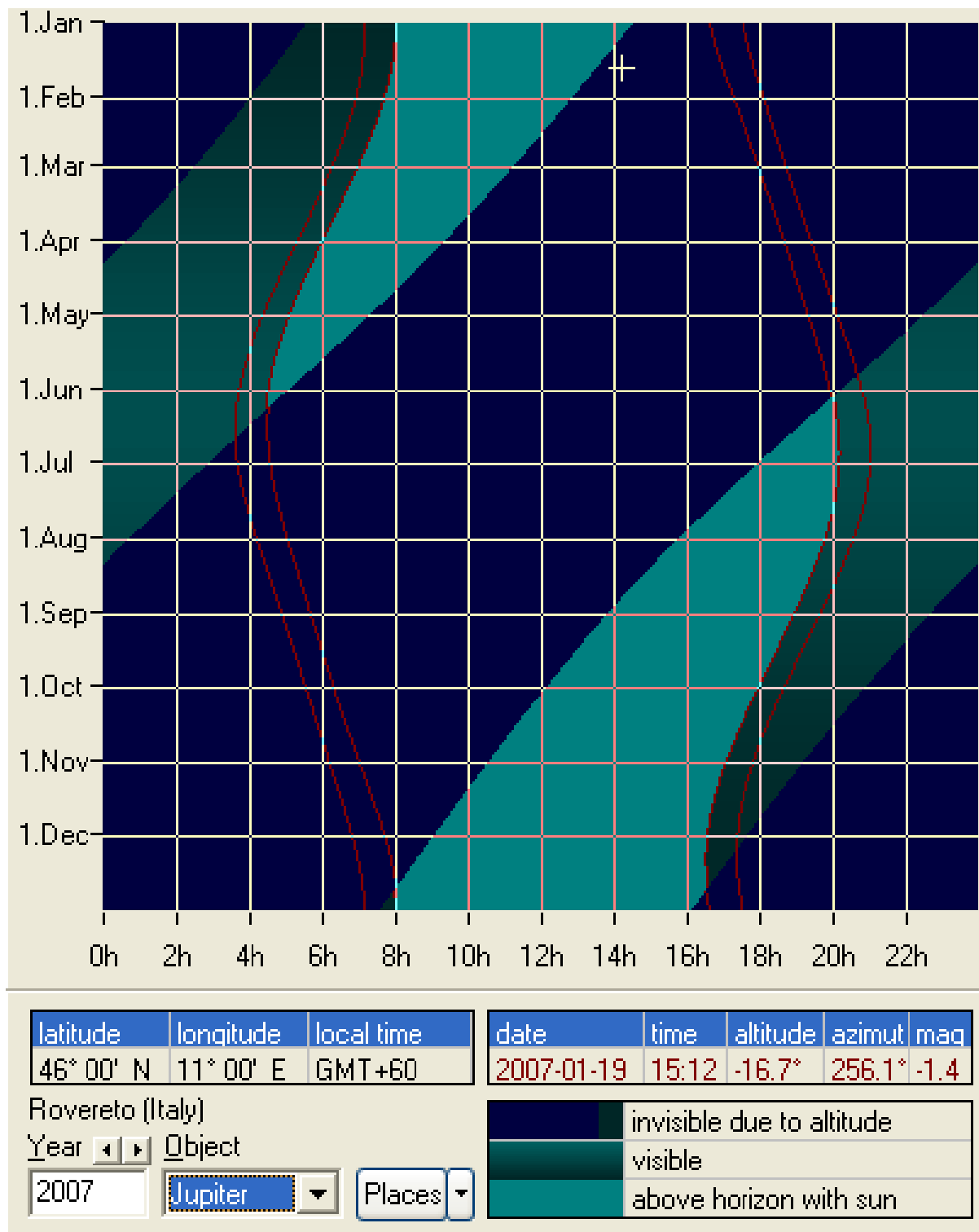
## FENOMENI DI GIOVE

Perigeo	07.06.2007	12.57.24	4,30436 U.A.
Apogeo	21.12.2007	07.55.53	6,23480 U.A.
Magnitudine massima	06.06.2007	06.34.57	-2,6 mag
Magnitudine minima	09.12.2007	16.05.05	-1,8 mag
Opposizione	05.06.2007	23.12.30	
Congiunzione	23.12.2007	05.55.21	

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## 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. I valori sono riportati nelle due tabelle seguenti.

heliacal / acronychal dates for Jupiter in 2007

location : Rovereto (Italy)  
latitude : 46° 00' 00'' N  
longitude: 11° 00' 00'' E  
variable arcus visionis:  
heliacal:  $\text{arcvis}[\circ] = 10.5 + 1.4 * \text{magnitude}$   
acr/cos :  $\text{arcvis}[\circ] = 8.9 + 1.1 * \text{magnitude}$   
critical altitude: 0.00°

	date	obj r/s	sun r/s	d r/s	age	mag
last visibility	2007-12-06	17:21	16:30	0:51h	-16d 15h	-1.4

Legenda:

First visibility : primo giorno di visibilità mattutina dopo la congiunzione con il Sole

Last visibility: ultimo giorno di visibilità serale prima della congiunzione con il Sole

Obj r/s : ora del tramonto o della levata del pianeta

Sun r/s : ora del tramonto o della levata del Sole

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

Age : giorni trascorsi dalla congiunzione col Sole

Mag : magnitudine

	date	obj r/s	sun r/s	sun alt	sun lon	obj lon	obj lat	mag	d az	d lon
L	12-06	17:21	16:30	-8° 37'	254° 10'	267° 14'	0° 13'	-1.4	-10° 18'	13° 04'

Legenda:

Obj r/s : ora del tramonto o della levata del pianeta

Sun r/s : ora del tramonto o della levata del Sole

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

Obj lon : longitudine celeste del pianeta

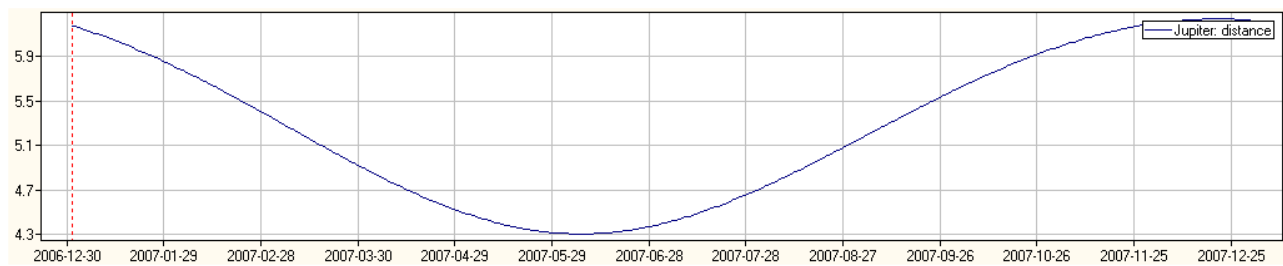
Obj lat : latitudine celeste del pianeta

Mag : magnitudine

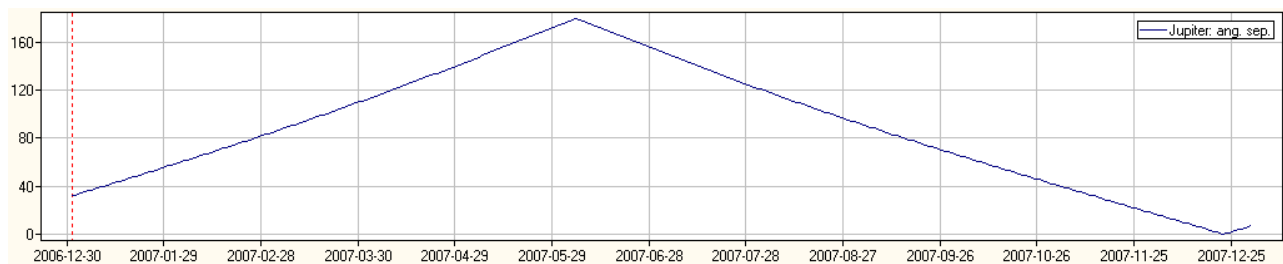
D az : differenza in azimut tra i centri del Sole e del pianeta nell'istante della sua visibilità

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

© (3)



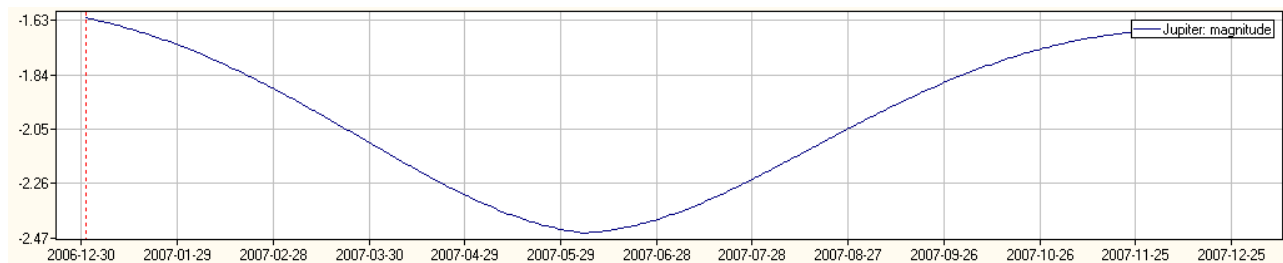
Distanza di Giove in U.A. nel corso dell'anno



Elongazione di Giove in ° nel corso dell'anno



Diametro di Giove in " nel corso dell'anno



Magnitudine di Giove nel corso dell'anno

# FENOMENI MUTUI SATELLITI DI GIOVE E TRANSITI MACCHIA ROSSA

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 nell'ombra  
Sh.E. : uscita dall'ombra

I : Io  
II : Europa  
III: Ganymede  
IV : Callisto  
GRS : Grande macchia rossa

TEMPI IN T.U.

Gennaio 2007																			
D	H	M	Sat.	Phe.	GRS (hh: mm)														
01	02:38		I	Sh.I.	02: 33	12: 29	22: 25			12	17:49	I	Oc.R.						
01	03:17		I	Tr.I.						13	10:46	III	Ec.D.	02: 31	12: 27	22: 22			
01	04:48		I	Sh.E.						13	11:57	I	Sh.I.						
01	05:28		I	Tr.E.						13	12:44	III	Ec.R.						
01	14:48		II	Ec.D.						13	12:47	I	Tr.I.						
01	18:43		II	Oc.R.						13	14:06	III	Oc.D.						
01	23:59		I	Ec.D.						13	14:07	I	Sh.E.						
02	02:49		I	Oc.R.	08: 21	18: 16				13	14:58	I	Tr.E.						
02	16:37		III	Sh.I.						13	16:10	III	Oc.R.						
02	18:33		III	Sh.E.						14	01:46	II	Sh.I.	08: 18	18: 14				
02	19:21		III	Tr.I.						14	03:27	II	Tr.I.						
02	21:06		I	Sh.I.						14	04:18	II	Sh.E.						
02	21:24		III	Tr.E.						14	05:59	II	Tr.E.						
02	21:47		I	Tr.I.						14	09:17	I	Ec.D.						
02	23:17		I	Sh.E.						14	12:18	I	Oc.R.						
02	23:58		I	Tr.E.						15	06:25	I	Sh.I.	04: 10	14: 05				
03	09:55		II	Sh.I.	04: 12	14: 08				15	07:17	I	Tr.I.						
03	11:18		II	Tr.I.						15	08:36	I	Sh.E.						
03	12:27		II	Sh.E.						15	09:28	I	Tr.E.						
03	13:51		II	Tr.E.						15	19:58	II	Ec.D.						
03	18:27		I	Ec.D.						16	00:18	II	Oc.R.	00: 01	09: 57	19: 53			
03	21:19		I	Oc.R.						16	03:46	I	Ec.D.						
04	15:35		I	Sh.I.	00: 04	10: 00	19: 55			16	06:48	I	Oc.R.						
04	16:17		I	Tr.I.						17	00:34	III	Sh.I.	05: 49	15: 44				
04	17:45		I	Sh.E.						17	00:54	I	Sh.I.						
04	18:28		I	Tr.E.						17	01:47	I	Tr.I.						
05	04:06		II	Ec.D.	05: 51	15: 47				17	02:30	III	Sh.E.						
05	08:07		II	Oc.R.						17	03:04	I	Sh.E.						
05	12:56		I	Ec.D.						17	03:58	I	Tr.E.						
05	15:49		I	Oc.R.						17	04:06	III	Tr.I.						
06	06:49		III	Ec.D.	01: 43	11: 38	21: 34			17	06:09	III	Tr.E.						
06	08:46		III	Ec.R.						17	15:03	II	Sh.I.						
06	09:44		III	Oc.D.						17	16:49	II	Tr.I.						
06	10:03		I	Sh.I.						17	17:35	II	Sh.E.						
06	10:47		I	Tr.I.						17	19:22	II	Tr.E.						
06	11:48		III	Oc.R.						17	22:14	I	Ec.D.						
06	12:14		I	Sh.E.						18	01:18	I	Oc.R.	01: 40	11: 36	21: 32			
06	12:58		I	Tr.E.						18	19:22	I	Sh.I.						
06	23:12		II	Sh.I.						18	20:16	I	Tr.I.						
07	00:41		II	Tr.I.	07: 30	17: 26				18	21:32	I	Sh.E.						
07	01:44		II	Sh.E.						18	22:27	I	Tr.E.						
07	03:14		II	Tr.E.						19	09:16	II	Ec.D.	07: 27	17: 23				
07	07:24		I	Ec.D.						19	13:41	II	Oc.R.						
07	10:19		I	Oc.R.						19	16:42	I	Ec.D.						
08	04:32		I	Sh.I.	03: 22	13: 17	23: 13			19	19:47	I	Oc.R.						
08	05:17		I	Tr.I.						20	13:50	I	Sh.I.	03: 19	13: 15	23: 10			
08	06:42		I	Sh.E.						20	14:43	III	Ec.D.						
08	07:28		I	Tr.E.						20	14:46	I	Tr.I.						
08	17:23		II	Ec.D.						20	16:01	I	Sh.E.						
08	21:30		II	Oc.R.						20	16:42	III	Ec.R.						
09	01:52		I	Ec.D.	09: 09	19: 05				20	16:57	I	Tr.E.						
09	04:49		I	Oc.R.						20	18:26	III	Oc.D.						
09	20:36		III	Sh.I.						20	20:30	III	Oc.R.						
09	22:32		III	Sh.E.						21	04:20	II	Sh.I.	09: 06	19: 02				
09	23:00		I	Sh.I.						21	06:11	II	Tr.I.						
09	23:45		III	Tr.I.						21	06:52	II	Sh.E.						
09	23:47		I	Tr.I.						21	08:44	II	Tr.E.						
10	01:10		I	Sh.E.	05: 00	14: 56				21	11:11	I	Ec.D.						
10	01:48		III	Tr.E.						21	14:17	I	Oc.R.						
10	01:58		I	Tr.E.						22	08:19	I	Sh.I.	04: 58	14: 53				
10	12:29		II	Sh.I.						22	09:16	I	Tr.I.						
10	14:04		II	Tr.I.						22	10:29	I	Sh.E.						
10	15:01		II	Sh.E.						22	11:27	I	Tr.E.						
10	16:37		II	Tr.E.						22	22:34	II	Ec.D.						
10	20:21		I	Ec.D.						23	03:04	II	Oc.R.	00: 49	10: 45	20: 41			
10	23:19		I	Oc.R.						23	05:39	I	Ec.D.						
11	17:28		I	Sh.I.	00: 52	10: 48	20: 44			23	08:47	I	Oc.R.						
11	18:17		I	Tr.I.						24	02:47	I	Sh.I.	06: 36	16: 32				
11	19:39		I	Sh.E.						24	03:46	I	Tr.I.						
11	20:28		I	Tr.E.						24	04:32	III	Sh.I.						
12	06:41		II	Ec.D.	06: 39	16: 35				24	04:58	I	Sh.E.						
12	10:54		II	Oc.R.						24	05:57	I	Tr.E.						
12	14:49		I	Ec.D.						24	06:29	III	Sh.E.						
										24	08:26	III	Tr.I.						
										24	10:29	III	Tr.E.						

24	17:37	II	Sh.I.				08	03:29	II	Tr.E.			
24	19:33	II	Tr.I.				08	03:53	I	Ec.D.			
24	20:09	II	Sh.E.				08	07:11	I	Oc.R.			
24	22:06	II	Tr.E.				09	01:03	I	Sh.I.	09: 50	19: 46	
25	00:07	I	Ec.D.	02: 28	12: 24	22: 19	09	02:11	I	Tr.I.			
25	03:16	I	Oc.R.				09	03:13	I	Sh.E.			
25	21:16	I	Sh.I.				09	04:22	I	Tr.E.			
25	22:15	I	Tr.I.				09	17:02	II	Ec.D.			
25	23:26	I	Sh.E.				09	21:55	II	Oc.R.			
26	00:26	I	Tr.E.	08: 15	18: 11		09	22:22	I	Ec.D.			
26	11:52	II	Ec.D.				10	01:40	I	Oc.R.	05: 42	15: 38	
26	16:27	II	Oc.R.				10	19:31	I	Sh.I.			
26	18:35	I	Ec.D.				10	20:40	I	Tr.I.			
26	21:46	I	Oc.R.				10	21:42	I	Sh.E.			
27	15:44	I	Sh.I.	04: 07	14: 02	23: 58	10	22:51	I	Tr.E.			
27	16:45	I	Tr.I.				11	02:36	III	Ec.D.	01: 33	11: 29	21: 25
27	17:55	I	Sh.E.				11	04:36	III	Ec.R.			
27	18:40	III	Ec.D.				11	07:13	III	Oc.D.			
27	18:56	I	Tr.E.				11	09:17	III	Oc.R.			
27	20:40	III	Ec.R.				11	12:00	II	Sh.I.			
27	22:44	III	Oc.D.				11	14:17	II	Tr.I.			
28	00:48	III	Oc.R.	09: 54	19: 50		11	14:32	II	Sh.E.			
28	06:54	II	Sh.I.				11	16:49	II	Tr.E.			
28	08:55	II	Tr.I.				11	16:50	I	Ec.D.			
28	09:26	II	Sh.E.				11	20:09	I	Oc.R.			
28	11:27	II	Tr.E.				12	13:59	I	Sh.I.	07: 20	17: 16	
28	13:04	I	Ec.D.				12	15:09	I	Tr.I.			
28	16:15	I	Oc.R.				12	16:10	I	Sh.E.			
29	10:12	I	Sh.I.	05: 45	15: 41		12	17:21	I	Tr.E.			
29	11:14	I	Tr.I.				13	06:20	II	Ec.D.	03: 12	13: 08	23: 03
29	12:23	I	Sh.E.				13	11:16	II	Oc.R.			
29	13:25	I	Tr.E.				13	11:18	I	Ec.D.			
30	01:09	II	Ec.D.	01: 37	11: 33	21: 28	13	14:38	I	Oc.R.			
30	05:49	II	Oc.R.				14	08:28	I	Sh.I.	08: 59	18: 55	
30	07:32	I	Ec.D.				14	09:39	I	Tr.I.			
30	10:44	I	Oc.R.				14	10:39	I	Sh.E.			
31	04:41	I	Sh.I.	07: 24	17: 20		14	11:50	I	Tr.E.			
31	05:44	I	Tr.I.				14	16:24	III	Sh.I.			
31	06:51	I	Sh.E.				14	18:23	III	Sh.E.			
31	07:55	I	Tr.E.				14	21:09	III	Tr.I.			
31	08:29	III	Sh.I.				14	23:11	III	Tr.E.			
31	10:27	III	Sh.E.				15	01:17	II	Sh.I.	04: 51	14: 46	
31	12:43	III	Tr.I.				15	03:37	II	Tr.I.			
31	14:46	III	Tr.E.				15	03:49	II	Sh.E.			
31	20:10	II	Sh.I.				15	05:46	I	Ec.D.			
31	22:16	II	Tr.I.				15	06:09	II	Tr.E.			
31	22:42	II	Sh.E.				15	09:07	I	Oc.R.			
Febbraio 2007							16	02:56	I	Sh.I.	00: 42	10: 38	20: 33
D	H	M	Sat.	Phe.	GRS (hh: mm)		16	04:08	I	Tr.I.			
01	00:48	II		Tr.E.	03: 16 13: 11 23: 07		16	05:07	I	Sh.E.			
01	02:00	I		Ec.D.			16	06:19	I	Tr.E.			
01	05:14	I		Oc.R.			16	19:38	II	Ec.D.			
01	23:09	I		Sh.I.			17	00:15	I	Ec.D.	06: 29	16: 25	
02	00:13	I		Tr.I.	09: 03 18: 59		17	00:37	II	Oc.R.			
02	01:20	I		Sh.E.			17	03:36	I	Oc.R.			
02	02:24	I		Tr.E.			17	21:25	I	Sh.I.			
02	14:27	II		Ec.D.			17	22:37	I	Tr.I.			
02	19:12	II		Oc.R.			17	23:35	I	Sh.E.			
02	20:29	I		Ec.D.			18	00:48	I	Tr.E.	02: 21	12: 16	22: 12
02	23:43	I		Oc.R.			18	06:33	III	Ec.D.			
03	17:38	I		Sh.I.	04: 54 14: 50		18	08:35	III	Ec.R.			
03	18:43	I		Tr.I.			18	11:23	III	Oc.D.			
03	19:48	I		Sh.E.			18	13:27	III	Oc.R.			
03	20:54	I		Tr.E.			18	14:34	II	Sh.I.			
03	22:38	III		Ec.D.			18	16:56	II	Tr.I.			
04	00:38	III		Ec.R.	00: 46 10: 42 20: 37		18	17:05	II	Sh.E.			
04	03:00	III		Oc.D.			18	18:43	I	Ec.D.			
04	05:04	III		Oc.R.			18	19:28	II	Tr.E.			
04	09:27	II		Sh.I.			18	22:05	I	Oc.R.			
04	11:37	II		Tr.I.			19	15:53	I	Sh.I.	08: 08	18: 03	
04	11:59	II		Sh.E.			19	17:06	I	Tr.I.			
04	14:09	II		Tr.E.			19	18:04	I	Sh.E.			
04	14:57	I		Ec.D.			19	19:17	I	Tr.E.			
04	18:12	I		Oc.R.			20	08:55	II	Ec.D.	03: 59	13: 55	23: 50
05	12:06	I		Sh.I.	06: 33 16: 29		20	13:11	I	Ec.D.			
05	13:12	I		Tr.I.			20	13:57	II	Oc.R.			
05	14:17	I		Sh.E.			20	16:34	I	Oc.R.			
05	15:23	I		Tr.E.			21	10:21	I	Sh.I.	09: 46	19: 42	
06	03:44	II		Ec.D.	02: 25 12: 20 22: 16		21	11:35	I	Tr.I.			
06	08:33	II		Oc.R.			21	12:32	I	Sh.E.			
06	09:25	I		Ec.D.			21	13:46	I	Tr.E.			
06	12:42	I		Oc.R.			21	20:21	III	Sh.I.			
07	06:34	I		Sh.I.	08: 12 18: 07		21	22:21	III	Sh.E.			
07	07:42	I		Tr.I.			22	01:18	III	Tr.I.	05: 38	15: 33	
07	08:45	I		Sh.E.			22	03:20	III	Tr.E.			
07	09:53	I		Tr.E.			22	03:50	II	Sh.I.			
07	12:26	III		Sh.I.			22	06:15	II	Tr.I.			
07	14:25	III		Sh.E.			22	06:22	II	Sh.E.			
07	16:57	III		Tr.I.			22	07:39	I	Ec.D.			
07	19:00	III		Tr.E.			22	08:46	II	Tr.E.			
07	22:44	II		Sh.I.			22	11:03	I	Oc.R.			
08	00:57	II		Tr.I.	04: 03 13: 59 23: 55		23	04:50	I	Sh.I.	01: 29	11: 25	21: 20
08	01:16	II		Sh.E.			23	06:04	I	Tr.I.			
							23	07:01	I	Sh.E.			

23	08:15	I	Tr.E.			10	03:25	II	Ec.D.	08: 50	18: 45		
23	22:13	II	Ec.D.			10	05:53	I	Ec.D.				
24	02:08	I	Ec.D.	07: 16	17: 12	10	05:59	II	Ec.R.				
24	03:18	II	Oc.R.			10	06:00	II	Oc.D.				
24	05:31	I	Oc.R.			10	08:34	II	Oc.R.				
24	23:18	I	Sh.I.			10	09:19	I	Oc.R.				
25	00:33	I	Tr.I.	03: 08	13: 03	22: 59	11	03:05	I	Sh.I.	04: 41	14: 37	
25	01:29	I	Sh.E.				11	04:21	I	Tr.I.			
25	02:44	I	Tr.E.				11	05:16	I	Sh.E.			
25	10:30	III	Ec.D.				11	06:33	I	Tr.E.			
25	12:32	III	Ec.R.				11	18:24	III	Ec.D.			
25	15:29	III	Oc.D.				11	20:27	III	Ec.R.			
25	17:07	II	Sh.I.				11	22:12	II	Sh.I.			
25	17:32	III	Oc.R.				11	23:30	III	Oc.D.			
25	19:34	II	Tr.I.				12	00:22	I	Ec.D.	00: 32	10: 28	20: 24
25	19:38	II	Sh.E.				12	00:42	II	Tr.I.			
25	20:36	I	Ec.D.				12	00:44	II	Sh.E.			
25	22:05	II	Tr.E.				12	01:33	III	Oc.R.			
26	00:00	I	Oc.R.	08: 55	18: 50		12	03:13	II	Tr.E.			
26	17:46	I	Sh.I.				12	03:47	I	Oc.R.			
26	19:01	I	Tr.I.				12	21:33	I	Sh.I.			
26	19:57	I	Sh.E.				12	22:50	I	Tr.I.			
26	21:13	I	Tr.E.				12	23:45	I	Sh.E.			
27	11:31	II	Ec.D.	04: 46	14: 42		13	01:01	I	Tr.E.	06: 19	16: 15	
27	15:04	I	Ec.D.				13	16:42	II	Ec.D.			
27	16:37	II	Oc.R.				13	18:50	I	Ec.D.			
27	18:29	I	Oc.R.				13	19:16	II	Ec.R.			
28	12:15	I	Sh.I.	00: 37	10: 33	20: 29	13	19:18	II	Oc.D.			
28	13:30	I	Tr.I.				13	21:51	II	Oc.R.			
28	14:26	I	Sh.E.				13	22:15	I	Oc.R.			
28	15:41	I	Tr.E.				14	16:02	I	Sh.I.	02: 11	12: 06	22: 02
							14	17:18	I	Tr.I.			
							14	18:13	I	Sh.E.			
							14	19:29	I	Tr.E.			
							15	08:15	III	Sh.I.	07: 58	17: 53	
							15	10:17	III	Sh.E.			
							15	11:29	II	Sh.I.			
							15	13:18	I	Ec.D.			
							15	13:23	III	Tr.I.			
							15	13:59	II	Tr.I.			
							15	14:01	II	Sh.E.			
							15	15:24	III	Tr.E.			
							15	16:29	II	Tr.E.			
							15	16:44	I	Oc.R.			
							16	10:30	I	Sh.I.	03: 49	13: 45	23: 40
							16	11:46	I	Tr.I.			
							16	12:41	I	Sh.E.			
							16	13:58	I	Tr.E.			
							17	06:01	II	Ec.D.	09: 36	19: 32	
							17	07:46	I	Ec.D.			
							17	11:08	II	Oc.R.			
							17	11:12	I	Oc.R.			
							18	04:59	I	Sh.I.	05: 27	15: 23	
							18	06:15	I	Tr.I.			
							18	07:10	I	Sh.E.			
							18	08:26	I	Tr.E.			
							18	22:21	III	Ec.D.			
							19	00:25	III	Ec.R.	01: 19	11: 14	21: 10
							19	00:45	II	Sh.I.			
							19	02:15	I	Ec.D.			
							19	03:14	II	Tr.I.			
							19	03:17	II	Sh.E.			
							19	03:25	III	Oc.D.			
							19	05:28	III	Oc.R.			
							19	05:40	I	Oc.R.			
							19	05:45	II	Tr.E.			
							19	23:27	I	Sh.I.			
							20	00:43	I	Tr.I.	07: 06	17: 01	
							20	01:38	I	Sh.E.			
							20	02:54	I	Tr.E.			
							20	19:18	II	Ec.D.			
							20	20:43	I	Ec.D.			
							21	00:07	I	Oc.R.	02: 57	12: 53	22: 48
							21	00:25	II	Oc.R.			
							21	17:55	I	Sh.I.			
							21	19:11	I	Tr.I.			
							21	20:07	I	Sh.E.			
							21	21:22	I	Tr.E.			
							22	12:12	III	Sh.I.	08: 44	18: 39	
							22	14:02	II	Sh.I.			
							22	14:15	III	Sh.E.			
							22	15:11	I	Ec.D.			
							22	16:29	II	Tr.I.			
							22	16:34	II	Sh.E.			
							22	17:15	III	Tr.I.			
							22	18:35	I	Oc.R.			
							22	19:00	II	Tr.E.			
							22	19:17	III	Tr.E.			
							23	12:24	I	Sh.I.	04: 35	14: 31	
							23	13:39	I	Tr.I.			
							23	14:35	I	Sh.E.			
							23	15:50	I	Tr.E.			
							24	08:36	II	Ec.D.	00: 26	10: 22	20: 18
							24	09:39	I	Ec.D.			

24	13:03	I	Oc.R.		08	11:47	I	Tr.I.		
24	13:41	II	Oc.R.		08	12:51	I	Sh.E.		
25	06:52	I	Sh.I.	06: 13 16: 09	08	13:58	I	Tr.E.		
25	08:06	I	Tr.I.		09	07:53	I	Ec.D.	03: 36 13: 32 23: 27	
25	09:03	I	Sh.E.		09	08:24	II	Sh.I.		
25	10:18	I	Tr.E.		09	10:13	III	Ec.D.		
26	02:18	III	Ec.D.	02: 05 12: 00 21: 56	09	10:36	II	Tr.I.		
26	03:18	II	Sh.I.		09	10:56	II	Sh.E.		
26	04:07	I	Ec.D.		09	11:10	I	Oc.R.		
26	04:24	III	Ec.R.		09	12:20	III	Ec.R.		
26	05:44	II	Tr.I.		09	13:07	II	Tr.E.		
26	05:50	II	Sh.E.		09	14:44	III	Oc.D.		
26	07:16	III	Oc.D.		09	16:46	III	Oc.R.		
26	07:31	I	Oc.R.		10	05:08	I	Sh.I.	09: 23 19: 19	
26	08:14	II	Tr.E.		10	06:15	I	Tr.I.		
26	09:19	III	Oc.R.		10	07:19	I	Sh.E.		
27	01:21	I	Sh.I.	07: 52 17: 47	10	08:26	I	Tr.E.		
27	02:34	I	Tr.I.		11	02:22	I	Ec.D.	05: 14 15: 10	
27	03:32	I	Sh.E.		11	03:06	II	Ec.D.		
27	04:45	I	Tr.E.		11	05:37	I	Oc.R.		
27	21:54	II	Ec.D.		11	07:53	II	Oc.R.		
27	22:36	I	Ec.D.		11	23:36	I	Sh.I.		
28	01:58	I	Oc.R.	03: 43 13: 39 23: 34	12	00:42	I	Tr.I.	01: 06 11: 01 20: 57	
28	02:56	II	Oc.R.		12	01:48	I	Sh.E.		
28	19:49	I	Sh.I.		12	02:53	I	Tr.E.		
28	21:02	I	Tr.I.		12	20:50	I	Ec.D.		
28	22:00	I	Sh.E.		12	21:40	II	Sh.I.		
28	23:13	I	Tr.E.		12	23:48	II	Tr.I.		
29	16:09	III	Sh.I.	09: 30 19: 25	13	00:04	I	Oc.R.	06: 52 16: 48	
29	16:34	II	Sh.I.		13	00:04	III	Sh.I.		
29	17:04	I	Ec.D.		13	00:13	II	Sh.E.		
29	18:14	III	Sh.E.		13	02:10	III	Sh.E.		
29	18:57	II	Tr.I.		13	02:18	II	Tr.E.		
29	19:07	II	Sh.E.		13	04:28	III	Tr.I.		
29	20:26	I	Oc.R.		13	06:28	III	Tr.E.		
29	21:04	III	Tr.I.		13	18:05	I	Sh.I.		
29	21:28	II	Tr.E.		13	19:09	I	Tr.I.		
29	23:05	III	Tr.E.		13	20:16	I	Sh.E.		
30	14:17	I	Sh.I.	05: 21 15: 17	13	21:20	I	Tr.E.		
30	15:30	I	Tr.I.		14	15:18	I	Ec.D.	02: 44 12: 39 22: 35	
30	16:29	I	Sh.E.		14	16:24	II	Ec.D.		
30	17:41	I	Tr.E.		14	18:31	I	Oc.R.		
31	11:12	II	Ec.D.	01: 12 11: 08 21: 04	14	21:06	II	Oc.R.		
31	11:32	I	Ec.D.		15	12:33	I	Sh.I.	08: 30 18: 26	
31	14:53	I	Oc.R.		15	13:36	I	Tr.I.		
31	16:12	II	Oc.R.		15	14:44	I	Sh.E.		
Aprile 2007					15	15:47	I	Tr.E.		
D	H	M	Sat.	Phe.	GRS (hh: mm)	16	09:46	I	Ec.D.	04: 22 14: 17
01	08:46	I		Sh.I.	06: 59 16: 55	16	10:57	II	Sh.I.	
01	09:57	I		Tr.I.		16	12:58	I	Oc.R.	
01	10:57	I		Sh.E.		16	12:59	II	Tr.I.	
01	12:09	I		Tr.E.		16	13:29	II	Sh.E.	
02	05:51	II		Sh.I.	02: 51 12: 46 22: 42	16	14:10	III	Ec.D.	
02	06:00	I		Ec.D.		16	15:30	II	Tr.E.	
02	06:16	III		Ec.D.		16	16:18	III	Ec.R.	
02	08:11	II		Tr.I.		16	18:21	III	Oc.D.	
02	08:22	III		Ec.R.		16	20:23	III	Oc.R.	
02	08:23	II		Sh.E.		17	07:01	I	Sh.I.	00: 13 10: 09 20: 04
02	09:21	I		Oc.R.		17	08:03	I	Tr.I.	
02	10:41	II		Tr.E.		17	09:13	I	Sh.E.	
02	11:02	III		Oc.D.		17	10:14	I	Tr.E.	
02	13:05	III		Oc.R.		18	04:15	I	Ec.D.	06: 00 15: 55
03	03:14	I		Sh.I.	08: 37 18: 33	18	05:42	II	Ec.D.	
03	04:25	I		Tr.I.		18	07:25	I	Oc.R.	
03	05:25	I		Sh.E.		18	10:18	II	Oc.R.	
03	06:36	I		Tr.E.		19	01:30	I	Sh.I.	01: 51 11: 47 21: 42
04	00:29	I		Ec.D.	04: 29 14: 24	19	02:30	I	Tr.I.	
04	00:30	II		Ec.D.		19	03:41	I	Sh.E.	
04	03:48	I		Oc.R.		19	04:41	I	Tr.E.	
04	05:26	II		Oc.R.		19	22:43	I	Ec.D.	
04	21:43	I		Sh.I.		20	00:13	II	Sh.I.	07: 38 17: 33
04	22:52	I		Tr.I.		20	01:52	I	Oc.R.	
04	23:54	I		Sh.E.		20	02:10	II	Tr.I.	
05	01:04	I		Tr.E.	00: 20 10: 16 20: 11	20	02:46	II	Sh.E.	
05	18:57	I		Ec.D.		20	04:03	III	Sh.I.	
05	19:07	II		Sh.I.		20	04:40	II	Tr.E.	
05	20:07	III		Sh.I.		20	06:10	III	Sh.E.	
05	21:24	II		Tr.I.		20	08:04	III	Tr.I.	
05	21:40	II		Sh.E.		20	10:03	III	Tr.E.	
05	22:12	III		Sh.E.		20	19:58	I	Sh.I.	
05	22:16	I		Oc.R.		20	20:57	I	Tr.I.	
05	23:54	II		Tr.E.		20	22:10	I	Sh.E.	
06	00:48	III		Tr.I.	06: 07 16: 02	20	23:08	I	Tr.E.	
06	02:49	III		Tr.E.		21	17:11	I	Ec.D.	03: 29 13: 25 23: 20
06	16:11	I		Sh.I.		21	19:00	II	Ec.D.	
06	17:20	I		Tr.I.		21	20:18	I	Oc.R.	
06	18:22	I		Sh.E.		21	23:30	II	Oc.R.	
06	19:31	I		Tr.E.		22	14:27	I	Sh.I.	09: 16 19: 11
07	13:25	I		Ec.D.	01: 58 11: 54 21: 49	22	15:24	I	Tr.I.	
07	13:48	II		Ec.D.		22	16:38	I	Sh.E.	
07	16:43	I		Oc.R.		22	17:35	I	Tr.E.	
07	18:40	II		Oc.R.		23	11:39	I	Ec.D.	05: 07 15: 03
08	10:39	I		Sh.I.	07: 45 17: 41	23	13:30	II	Sh.I.	
						23	14:45	I	Oc.R.	

23	15:20	II	Tr.I.		08	02:02	III	Ec.D.	02: 28	12: 24	22: 19
23	16:02	II	Sh.E.		08	04:13	III	Ec.R.			
23	17:51	II	Tr.E.		08	04:46	III	Oc.D.			
23	18:07	III	Ec.D.		08	06:47	III	Oc.R.			
23	20:16	III	Ec.R.		08	12:43	I	Sh.I.			
23	21:53	III	Oc.D.		08	13:23	I	Tr.I.			
23	23:54	III	Oc.R.		08	14:55	I	Sh.E.			
24	08:55	I	Sh.I.	00: 58	10: 54	20: 49	08	15:34	I	Tr.E.	
24	09:51	I	Tr.I.				09	09:54	I	Ec.D.	08: 15
24	11:07	I	Sh.E.				09	12:43	I	Oc.R.	18: 11
24	12:02	I	Tr.E.				09	13:30	II	Ec.D.	
25	06:08	I	Ec.D.	06: 45	16: 41		09	17:21	II	Oc.R.	
25	08:18	II	Ec.D.				10	07:12	I	Sh.I.	04: 06
25	09:12	I	Oc.R.				10	07:49	I	Tr.I.	14: 02
25	12:41	II	Oc.R.				10	09:23	I	Sh.E.	23: 57
26	03:24	I	Sh.I.	02: 36	12: 32	22: 27	10	10:00	I	Tr.E.	
26	04:17	I	Tr.I.				11	04:23	I	Ec.D.	09: 53
26	05:35	I	Sh.E.				11	07:09	I	Oc.R.	19: 49
26	06:28	I	Tr.E.				11	07:53	II	Sh.I.	
27	00:36	I	Ec.D.	08: 23	18: 19		11	09:05	II	Tr.I.	
27	02:46	II	Sh.I.				11	10:26	II	Sh.E.	
27	03:38	I	Oc.R.				11	11:35	II	Tr.E.	
27	04:30	II	Tr.I.				11	15:56	III	Sh.I.	
27	05:19	II	Sh.E.				11	18:06	III	Sh.E.	
27	07:00	II	Tr.E.				11	18:25	III	Tr.I.	
27	08:01	III	Sh.I.				11	20:24	III	Tr.E.	
27	10:09	III	Sh.E.				12	01:40	I	Sh.I.	05: 44
27	11:35	III	Tr.I.				12	02:15	I	Tr.I.	15: 40
27	13:34	III	Tr.E.				12	03:52	I	Sh.E.	
27	21:52	I	Sh.I.				12	04:26	I	Tr.E.	
27	22:44	I	Tr.I.				12	22:51	I	Ec.D.	
28	00:04	I	Sh.E.	04: 14	14: 10		13	01:35	I	Oc.R.	01: 35
28	00:55	I	Tr.E.				13	02:49	II	Ec.D.	11: 31
28	19:04	I	Ec.D.				13	06:30	II	Oc.R.	21: 26
28	21:36	II	Ec.D.				13	20:09	I	Sh.I.	
28	22:05	I	Oc.R.				13	20:42	I	Tr.I.	
29	01:52	II	Oc.R.	00: 05	10: 01	19: 57	13	22:20	I	Sh.E.	
29	16:21	I	Sh.I.				13	22:53	I	Tr.E.	
29	17:11	I	Tr.I.				14	17:19	I	Ec.D.	07: 22
29	18:32	I	Sh.E.				14	20:01	I	Oc.R.	17: 18
29	19:22	I	Tr.E.				14	21:10	II	Sh.I.	
30	13:33	I	Ec.D.	05: 52	15: 48		14	22:13	II	Tr.I.	
30	16:03	II	Sh.I.				14	23:43	II	Sh.E.	
30	16:31	I	Oc.R.				15	00:43	II	Tr.E.	03: 13
30	17:39	II	Tr.I.				15	06:00	III	Ec.D.	13: 09
30	18:36	II	Sh.E.				15	10:10	III	Oc.R.	23: 04
30	20:10	II	Tr.E.				15	14:37	I	Sh.I.	
30	22:04	III	Ec.D.				15	15:08	I	Tr.I.	
							15	16:49	I	Sh.E.	
							15	17:19	I	Tr.E.	
							16	11:48	I	Ec.D.	09: 00
							16	14:27	I	Oc.R.	18: 56
							16	16:06	II	Ec.D.	
							16	19:39	II	Oc.R.	
							17	09:06	I	Sh.I.	04: 51
							17	09:34	I	Tr.I.	14: 47
							17	11:17	I	Sh.E.	
							17	11:45	I	Tr.E.	
							18	06:16	I	Ec.D.	00: 42
							18	08:53	I	Oc.R.	10: 38
							18	10:27	II	Sh.I.	20: 33
							18	11:20	II	Tr.I.	
							18	13:00	II	Sh.E.	
							18	13:51	II	Tr.E.	
							18	19:54	III	Sh.I.	
							18	21:44	III	Tr.I.	
							18	22:05	III	Sh.E.	
							18	23:44	III	Tr.E.	
							19	03:34	I	Sh.I.	06: 29
							19	04:00	I	Tr.I.	16: 25
							19	05:46	I	Sh.E.	
							19	06:11	I	Tr.E.	
							20	00:45	I	Ec.D.	02: 20
							20	03:19	I	Oc.R.	12: 16
							20	05:25	II	Ec.D.	22: 11
							20	08:47	II	Oc.R.	
							20	22:03	I	Sh.I.	
							20	22:26	I	Tr.I.	
							21	00:14	I	Sh.E.	08: 07
							21	00:37	I	Tr.E.	18: 02
							21	19:13	I	Ec.D.	
							21	21:45	I	Oc.R.	
							21	23:44	II	Sh.I.	
							22	00:28	II	Tr.I.	03: 58
							22	02:17	II	Sh.E.	13: 54
							22	02:58	II	Tr.E.	23: 49
							22	09:58	III	Ec.D.	
							22	13:29	III	Oc.R.	
							22	16:31	I	Sh.I.	
							22	16:52	I	Tr.I.	
							22	18:43	I	Sh.E.	
							22	19:03	I	Tr.E.	
							23	13:41	I	Ec.D.	09: 45
							23	16:11	I	Oc.R.	19: 40

Maggio 2007											
D	H	M	Sat.	Phe.	GRS (hh: mm)						
01	00:14	III	Ec.R.	01: 43	11: 39	21: 34					
01	01:21	III	Oc.D.								
01	03:23	III	Oc.R.								
01	10:49	I	Sh.I.								
01	11:37	I	Tr.I.								
01	13:01	I	Sh.E.								
01	13:48	I	Tr.E.								
02	08:01	I	Ec.D.	07: 30	17: 26						
02	10:54	II	Ec.D.								
02	10:58	I	Oc.R.								
02	15:02	II	Oc.R.								
03	05:18	I	Sh.I.	03: 21	13: 17	23: 12					
03	06:04	I	Tr.I.								
03	07:29	I	Sh.E.								
03	08:15	I	Tr.E.								
04	02:29	I	Ec.D.	09: 08	19: 04						
04	05:20	II	Sh.I.								
04	05:24	I	Oc.R.								
04	06:48	II	Tr.I.								
04	07:52	II	Sh.E.								
04	09:19	II	Tr.E.								
04	11:59	III	Sh.I.								
04	14:08	III	Sh.E.								
04	15:02	III	Tr.I.								
04	17:01	III	Tr.E.								
04	23:46	I	Sh.I.								
05	00:30	I	Tr.I.	04: 59	14: 55						
05	01:58	I	Sh.E.								
05	02:41	I	Tr.E.								
05	20:58	I	Ec.D.								
05	23:50	I	Oc.R.								
06	00:12	II	Ec.D.	00: 50	10: 46	20: 42					
06	04:12	II	Oc.R.								
06	18:15	I	Sh.I.								
06	18:56	I	Tr.I.								
06	20:26	I	Sh.E.								
06	21:07	I	Tr.E.								
07	15:26	I	Ec.D.	06: 37	16: 33						
07	18:17	I	Oc.R.								
07	18:36	II	Sh.I.								
07	19:57	II	Tr.I.								
07	21:09	II	Sh.E.								
07	22:27	II	Tr.E.								



23	18:43	II	Ec.D.		08	14:09	I	Ec.R.	
23	21:55	II	Oc.R.		08	18:02	II	Tr.I.	
24	11:00	I	Sh.I.	05: 36 15: 32	08	18:09	II	Sh.I.	
24	11:18	I	Tr.I.		08	20:33	II	Tr.E.	
24	13:11	I	Sh.E.		08	20:43	II	Sh.E.	
24	13:29	I	Tr.E.		09	07:35	III	Tr.I.	08: 44 18: 39
25	08:10	I	Ec.D.	01: 27 11: 23 21: 18	09	07:50	III	Sh.I.	
25	10:37	I	Oc.R.		09	09:12	I	Tr.I.	
25	13:01	II	Sh.I.		09	09:17	I	Sh.I.	
25	13:35	II	Tr.I.		09	09:37	III	Tr.E.	
25	15:34	II	Sh.E.		09	10:04	III	Sh.E.	
25	16:05	II	Tr.E.		09	11:23	I	Tr.E.	
25	23:52	III	Sh.I.		09	11:29	I	Sh.E.	
26	01:02	III	Tr.I.	07: 14 17: 09	10	06:20	I	Oc.D.	04: 35 14: 31
26	02:04	III	Sh.E.		10	08:37	I	Ec.R.	
26	03:02	III	Tr.E.		10	13:01	II	Oc.D.	
26	05:28	I	Sh.I.		10	15:49	II	Ec.R.	
26	05:44	I	Tr.I.		11	03:38	I	Tr.I.	00: 26 10: 22 20: 17
26	07:40	I	Sh.E.		11	03:46	I	Sh.I.	
26	07:55	I	Tr.E.		11	05:49	I	Tr.E.	
27	02:38	I	Ec.D.	03: 05 13: 01 22: 56	11	05:57	I	Sh.E.	
27	05:03	I	Oc.R.		12	00:46	I	Oc.D.	06: 13 16: 09
27	08:01	II	Ec.D.		12	03:06	I	Ec.R.	
27	11:03	II	Oc.R.		12	07:09	II	Tr.I.	
27	23:57	I	Sh.I.		12	07:26	II	Sh.I.	
28	00:10	I	Tr.I.	08: 52 18: 47	12	09:40	II	Tr.E.	
28	02:09	I	Sh.E.		12	10:00	II	Sh.E.	
28	02:21	I	Tr.E.		12	21:16	III	Oc.D.	
28	21:07	I	Ec.D.		12	22:04	I	Tr.I.	
28	23:29	I	Oc.R.		12	22:14	I	Sh.I.	
29	02:18	II	Sh.I.	04: 43 14: 39	13	00:08	III	Ec.R.	02: 04 12: 00 21: 55
29	02:42	II	Tr.I.		13	00:15	I	Tr.E.	
29	04:51	II	Sh.E.		13	00:26	I	Sh.E.	
29	05:12	II	Tr.E.		13	19:12	I	Oc.D.	
29	13:56	III	Ec.D.		13	21:34	I	Ec.R.	
29	16:47	III	Oc.R.		14	02:08	II	Oc.D.	07: 51 17: 47
29	18:25	I	Sh.I.		14	05:07	II	Ec.R.	
29	18:36	I	Tr.I.		14	16:30	I	Tr.I.	
29	20:37	I	Sh.E.		14	16:43	I	Sh.I.	
29	20:47	I	Tr.E.		14	18:41	I	Tr.E.	
30	15:35	I	Ec.D.	00: 34 10: 30 20: 25	14	18:55	I	Sh.E.	
30	17:55	I	Oc.R.		15	13:38	I	Oc.D.	03: 42 13: 38 23: 33
30	21:19	II	Ec.D.		15	16:03	I	Ec.R.	
31	00:11	II	Oc.R.	06: 21 16: 16	15	20:16	II	Tr.I.	
31	12:54	I	Sh.I.		15	20:44	II	Sh.I.	
31	13:02	I	Tr.I.		15	22:48	II	Tr.E.	
31	15:06	I	Sh.E.		15	23:18	II	Sh.E.	
31	15:13	I	Tr.E.		16	10:52	III	Tr.I.	09: 29 19: 25
Giugno 2007									
D	H	M	Sat.	Phe.	GRS (hh: mm)				
01	10:03	I	Ec.D.	02: 12 12: 08 22: 03	16	11:11	I	Sh.I.	
01	12:21	I	Oc.R.		16	11:48	III	Sh.I.	
01	15:35	II	Sh.I.		16	12:55	III	Tr.E.	
01	15:48	II	Tr.I.		16	13:07	I	Tr.E.	
01	18:08	II	Sh.E.		16	13:23	I	Sh.E.	
01	18:19	II	Tr.E.		16	14:03	III	Sh.E.	
02	03:50	III	Sh.I.	07: 59 17: 54	17	08:04	I	Oc.D.	05: 20 15: 16
02	04:19	III	Tr.I.		17	10:32	I	Ec.R.	
02	06:03	III	Sh.E.		17	15:17	II	Oc.D.	
02	06:20	III	Tr.E.		17	18:25	II	Ec.R.	
02	07:23	I	Sh.I.		18	05:22	I	Tr.I.	01: 11 11: 07 21: 03
02	07:28	I	Tr.I.		18	05:40	I	Sh.I.	
02	09:34	I	Sh.E.		18	07:33	I	Tr.E.	
02	09:39	I	Tr.E.		18	07:52	I	Sh.E.	
03	04:32	I	Ec.D.	03: 50 13: 46 23: 41	19	02:30	I	Oc.D.	06: 58 16: 54
03	06:47	I	Oc.R.		19	05:00	I	Ec.R.	
03	10:37	II	Ec.D.		19	09:23	II	Tr.I.	
03	13:19	II	Oc.R.		19	10:01	II	Sh.I.	
04	01:51	I	Sh.I.	09: 37 19: 32	19	11:55	II	Tr.E.	
04	01:54	I	Tr.I.		19	12:35	II	Sh.E.	
04	04:03	I	Sh.E.		19	23:49	I	Tr.I.	
04	04:05	I	Tr.E.		20	00:09	I	Sh.I.	02: 49 12: 45 22: 41
04	23:00	I	Ec.D.		20	00:33	III	Oc.D.	
05	01:13	I	Oc.R.	05: 28 15: 23	20	02:00	I	Tr.E.	
05	04:52	II	Sh.I.		20	02:20	I	Sh.E.	
05	04:55	II	Tr.I.		20	04:07	III	Ec.R.	
05	07:26	II	Tr.E.		20	20:56	I	Oc.D.	
05	07:26	II	Sh.E.		20	23:29	I	Ec.R.	
05	17:54	III	Ec.D.		21	04:24	II	Oc.D.	08: 36 18: 32
05	20:09	III	Ec.R.		21	07:43	II	Ec.R.	
05	20:20	I	Tr.I.		21	18:15	I	Tr.I.	
05	20:20	I	Sh.I.		21	18:37	I	Sh.I.	
05	22:31	I	Tr.E.		21	20:26	I	Tr.E.	
05	22:31	I	Sh.E.		21	20:49	I	Sh.E.	
06	17:28	I	Oc.D.	01: 19 11: 15 21: 10	22	15:22	I	Oc.D.	04: 27 14: 23
06	19:40	I	Ec.R.		22	17:57	I	Ec.R.	
06	23:53	II	Oc.D.		22	22:31	II	Tr.I.	
07	02:30	II	Ec.R.	07: 06 17: 01	22	23:19	II	Sh.I.	
07	14:46	I	Tr.I.		23	01:03	II	Tr.E.	00: 19 10: 14 20: 10
07	14:48	I	Sh.I.		23	01:53	II	Sh.E.	
07	16:57	I	Tr.E.		23	12:41	I	Tr.I.	
07	17:00	I	Sh.E.		23	13:06	I	Sh.I.	
08	11:54	I	Oc.D.	02: 57 12: 53 22: 48	23	14:10	III	Tr.I.	
					23	14:52	I	Tr.E.	
					23	15:18	I	Sh.E.	

23	15:47	III	Sh.I.		08	22:09	II	Oc.D.	
23	16:15	III	Tr.E.		09	02:14	II	Ec.R.	03: 28 13: 24 23: 20
23	18:03	III	Sh.E.		09	10:39	I	Tr.I.	
24	09:48	I	Oc.D.	06: 05 16: 01	09	11:24	I	Sh.I.	
24	12:26	I	Ec.R.		09	12:50	I	Tr.E.	
24	17:33	II	Oc.D.		09	13:36	I	Sh.E.	
24	21:01	II	Ec.R.		10	07:46	I	Oc.D.	09: 15 19: 11
25	07:07	I	Tr.I.	01: 57 11: 52 21: 48	10	10:44	I	Ec.R.	
25	07:35	I	Sh.I.		10	16:14	II	Tr.I.	
25	09:18	I	Tr.E.		10	17:47	II	Sh.I.	
25	09:46	I	Sh.E.		10	18:47	II	Tr.E.	
26	04:14	I	Oc.D.	07: 44 17: 39	10	20:22	II	Sh.E.	
26	06:54	I	Ec.R.		11	05:05	I	Tr.I.	05: 07 15: 02
26	11:39	II	Tr.I.		11	05:53	I	Sh.I.	
26	12:36	II	Sh.I.		11	07:17	I	Tr.E.	
26	14:11	II	Tr.E.		11	08:05	I	Sh.E.	
26	15:10	II	Sh.E.		11	10:38	III	Oc.D.	
27	01:33	I	Tr.I.	03: 35 13: 30 23: 26	11	12:49	III	Oc.R.	
27	02:03	I	Sh.I.		11	13:47	III	Ec.D.	
27	03:45	I	Tr.E.		11	16:07	III	Ec.R.	
27	03:51	III	Oc.D.		12	02:12	I	Oc.D.	00: 58 10: 53 20: 49
27	04:15	I	Sh.E.		12	05:12	I	Ec.R.	
27	08:06	III	Ec.R.		12	11:19	II	Oc.D.	
27	22:41	I	Oc.D.		12	15:32	II	Ec.R.	
28	01:23	I	Ec.R.	09: 22 19: 17	12	23:32	I	Tr.I.	
28	06:41	II	Oc.D.		13	00:21	I	Sh.I.	06: 45 16: 40
28	10:19	II	Ec.R.		13	01:43	I	Tr.E.	
28	20:00	I	Tr.I.		13	02:33	I	Sh.E.	
28	20:32	I	Sh.I.		13	20:39	I	Oc.D.	
28	22:11	I	Tr.E.		13	23:41	I	Ec.R.	
28	22:44	I	Sh.E.		14	05:24	II	Tr.I.	02: 36 12: 32 22: 27
29	17:07	I	Oc.D.	05: 13 15: 09	14	07:05	II	Sh.I.	
29	19:52	I	Ec.R.		14	07:57	II	Tr.E.	
30	00:47	II	Tr.I.	01: 04 11: 00 20: 55	14	09:40	II	Sh.E.	
30	01:54	II	Sh.I.		14	17:59	I	Tr.I.	
30	03:19	II	Tr.E.		14	18:50	I	Sh.I.	
30	04:28	II	Sh.E.		14	20:10	I	Tr.E.	
30	14:26	I	Tr.I.		14	21:02	I	Sh.E.	
30	15:01	I	Sh.I.		15	00:17	III	Tr.I.	08: 23 18: 19
30	16:37	I	Tr.E.		15	02:28	III	Tr.E.	
30	17:12	I	Sh.E.		15	03:43	III	Sh.I.	
30	17:29	III	Tr.I.		15	06:02	III	Sh.E.	
30	19:36	III	Tr.E.		15	15:06	I	Oc.D.	
30	19:46	III	Sh.I.		15	18:10	I	Ec.R.	
30	22:03	III	Sh.E.		16	00:29	II	Oc.D.	04: 14 14: 10
Luglio 2007									
D	H	M	Sat.	Phe.	GRS (hh: mm)				
01	11:33	I		Oc.D.	06: 51 16: 47	16	12:26	I	Ec.R.
01	14:20	I		Ec.R.		16	13:19	I	Sh.I.
01	19:50	II		Oc.D.		16	14:37	I	Tr.E.
01	23:38	II		Ec.R.		16	15:31	I	Sh.E.
02	08:53	I		Tr.I.	02: 42 12: 38 22: 34	17	09:33	I	Oc.D.
02	09:29	I		Sh.I.		17	12:39	I	Ec.R.
02	11:04	I		Tr.E.		17	18:34	II	Tr.I.
02	11:41	I		Sh.E.		17	20:23	II	Sh.I.
03	06:00	I		Oc.D.	08: 29 18: 25	17	21:08	II	Tr.E.
03	08:49	I		Ec.R.		17	22:58	II	Sh.E.
03	13:55	II		Tr.I.		18	06:53	I	Tr.I.
03	15:11	II		Sh.I.		18	07:48	I	Sh.I.
03	16:28	II		Tr.E.		18	09:04	I	Tr.E.
03	17:46	II		Sh.E.		18	09:59	I	Sh.E.
04	03:19	I		Tr.I.	04: 21 14: 16	18	14:06	III	Oc.D.
04	03:58	I		Sh.I.		18	16:20	III	Oc.R.
04	05:30	I		Tr.E.		18	17:46	III	Ec.D.
04	06:10	I		Sh.E.		18	20:07	III	Ec.R.
04	07:13	III		Oc.D.		19	04:00	I	Oc.D.
04	09:23	III		Oc.R.		19	07:07	I	Ec.R.
04	09:48	III		Ec.D.		19	13:40	II	Oc.D.
04	12:07	III		Ec.R.		19	18:08	II	Ec.R.
05	00:26	I		Oc.D.	00: 12 10: 07 20: 03	20	01:20	I	Tr.I.
05	03:18	I		Ec.R.		20	02:16	I	Sh.I.
05	08:59	II		Oc.D.		20	03:31	I	Tr.E.
05	12:56	II		Ec.R.		20	04:28	I	Sh.E.
05	21:46	I		Tr.I.		20	22:27	I	Oc.D.
05	22:27	I		Sh.I.		21	01:36	I	Ec.R.
05	23:57	I		Tr.E.		21	07:45	II	Tr.I.
06	00:39	I		Sh.E.	05: 59 15: 54	21	09:41	II	Sh.I.
06	18:53	I		Oc.D.		21	10:19	II	Tr.E.
06	21:46	I		Ec.R.		21	12:16	II	Sh.E.
07	03:04	II		Tr.I.	01: 50 11: 46 21: 41	21	19:47	I	Tr.I.
07	04:29	II		Sh.I.		21	20:45	I	Sh.I.
07	05:37	II		Tr.E.		21	21:58	I	Tr.E.
07	07:04	II		Sh.E.		21	22:57	I	Sh.E.
07	16:12	I		Tr.I.		22	03:47	III	Tr.I.
07	16:55	I		Sh.I.		22	06:00	III	Tr.E.
07	18:23	I		Tr.E.		22	07:42	III	Sh.I.
07	19:07	I		Sh.E.		22	10:02	III	Sh.E.
07	20:51	III		Tr.I.		22	16:54	I	Oc.D.
07	23:00	III		Tr.E.		22	20:05	I	Ec.R.
07	23:44	III		Sh.I.		23	02:52	II	Oc.D.
08	02:02	III		Sh.E.	07: 37 17: 33	23	07:26	II	Ec.R.
08	13:19	I		Oc.D.		23	14:14	I	Tr.I.
08	16:15	I		Ec.R.		23	15:14	I	Sh.I.
						23	16:25	I	Tr.E.
						23	17:26	I	Sh.E.

24	11:21	I	Oc.D.	00: 52	10: 48	20: 44	08	04:12	II	Sh.I.				
24	14:34	I	Ec.R.				08	04:24	II	Tr.E.				
24	20:57	II	Tr.I.				08	06:47	II	Sh.E.				
24	22:59	II	Sh.I.				08	12:21	I	Tr.I.				
24	23:31	II	Tr.E.				08	13:32	I	Sh.I.				
25	01:34	II	Sh.E.	06: 39	16: 35		08	14:33	I	Tr.E.				
25	08:41	I	Tr.I.				08	15:44	I	Sh.E.				
25	09:42	I	Sh.I.				09	00:56	III	Oc.D.	04: 05	14: 01	23: 56	
25	10:53	I	Tr.E.				09	03:15	III	Oc.R.				
25	11:54	I	Sh.E.				09	05:42	III	Ec.D.				
25	17:38	III	Oc.D.				09	08:06	III	Ec.R.				
25	19:54	III	Oc.R.				09	09:29	I	Oc.D.				
25	21:44	III	Ec.D.				09	12:53	I	Ec.R.				
26	00:07	III	Ec.R.	02: 31	12: 26	22: 22	09	20:57	II	Oc.D.				
26	05:48	I	Oc.D.				10	01:56	II	Ec.R.	09: 52	19: 48		
26	09:02	I	Ec.R.				10	06:49	I	Tr.I.				
26	16:04	II	Oc.D.				10	08:01	I	Sh.I.				
26	20:44	II	Ec.R.				10	09:01	I	Tr.E.				
27	03:09	I	Tr.I.	08: 18	18: 14		10	10:13	I	Sh.E.				
27	04:11	I	Sh.I.				11	03:56	I	Oc.D.	05: 44	15: 39		
27	05:20	I	Tr.E.				11	07:21	I	Ec.R.				
27	06:23	I	Sh.E.				11	15:04	II	Tr.I.				
28	00:15	I	Oc.D.	04: 09	14: 05		11	17:30	II	Sh.I.				
28	03:31	I	Ec.R.				11	17:39	II	Tr.E.				
28	10:09	II	Tr.I.				11	20:06	II	Sh.E.				
28	12:17	II	Sh.I.				12	01:17	I	Tr.I.	01: 35	11: 31	21: 27	
28	12:43	II	Tr.E.				12	02:30	I	Sh.I.				
28	14:52	II	Sh.E.				12	03:29	I	Tr.E.				
28	21:36	I	Tr.I.				12	04:42	I	Sh.E.				
28	22:40	I	Sh.I.				12	14:46	III	Tr.I.				
28	23:47	I	Tr.E.				12	17:05	III	Tr.E.				
29	00:52	I	Sh.E.	00: 01	09: 56	19: 52	12	19:40	III	Sh.I.				
29	07:23	III	Tr.I.				12	22:04	III	Sh.E.				
29	09:38	III	Tr.E.				12	22:24	I	Oc.D.				
29	11:42	III	Sh.I.				13	01:50	I	Ec.R.	07: 22	17: 18		
29	14:03	III	Sh.E.				13	10:12	II	Oc.D.				
29	18:43	I	Oc.D.				13	15:14	II	Ec.R.				
29	22:00	I	Ec.R.				13	19:45	I	Tr.I.				
30	05:17	II	Oc.D.	05: 48	15: 43		13	20:58	I	Sh.I.				
30	10:02	II	Ec.R.				13	21:57	I	Tr.E.				
30	16:03	I	Tr.I.				13	23:11	I	Sh.E.				
30	17:09	I	Sh.I.				14	16:52	I	Oc.D.	03: 14	13: 10	23: 05	
30	18:15	I	Tr.E.				14	20:19	I	Ec.R.				
30	19:21	I	Sh.E.				15	04:18	II	Tr.I.	09: 01	18: 57		
31	13:10	I	Oc.D.	01: 39	11: 35	21: 31	15	06:48	II	Sh.I.				
31	16:29	I	Ec.R.				15	06:54	II	Tr.E.				
31	23:22	II	Tr.I.				15	09:24	II	Sh.E.				
Agosto 2007							15	14:13	I	Tr.I.				
D	H	M	Sat.	Phe.	GRS (hh: mm)		15	15:27	I	Sh.I.				
01	01:35	II	Sh.I.		07: 26	17: 22	15	16:25	I	Tr.E.				
01	01:56	II	Tr.E.				15	17:39	I	Sh.E.				
01	04:10	II	Sh.E.				16	04:42	III	Oc.D.	04: 53	14: 48		
01	10:31	I	Tr.I.				16	07:03	III	Oc.R.				
01	11:37	I	Sh.I.				16	09:41	III	Ec.D.				
01	12:42	I	Tr.E.				16	11:21	I	Oc.D.				
01	13:49	I	Sh.E.				16	12:07	III	Ec.R.				
01	21:15	III	Oc.D.				16	14:48	I	Ec.R.				
01	23:32	III	Oc.R.				16	23:27	II	Oc.D.				
02	01:43	III	Ec.D.	03: 18	13: 13	23: 09	17	04:32	II	Ec.R.	00: 44	10: 40	20: 36	
02	04:06	III	Ec.R.				17	08:41	I	Tr.I.				
02	07:38	I	Oc.D.				17	09:56	I	Sh.I.				
02	10:57	I	Ec.R.				17	10:53	I	Tr.E.				
02	18:29	II	Oc.D.				17	12:08	I	Sh.E.				
02	23:20	II	Ec.R.				18	05:49	I	Oc.D.	06: 31	16: 27		
03	04:58	I	Tr.I.	09: 05	19: 01		18	09:17	I	Ec.R.				
03	06:06	I	Sh.I.				18	17:34	II	Tr.I.				
03	07:10	I	Tr.E.				18	20:07	II	Sh.I.				
03	08:18	I	Sh.E.				18	20:10	II	Tr.E.				
04	02:05	I	Oc.D.	04: 56	14: 52		18	22:43	II	Sh.E.				
04	05:26	I	Ec.R.				19	03:09	I	Tr.I.	02: 23	12: 19	22: 14	
04	12:35	II	Tr.I.				19	04:25	I	Sh.I.				
04	14:53	II	Sh.I.				19	05:21	I	Tr.E.				
04	15:10	II	Sh.E.				19	06:37	I	Sh.E.				
04	17:29	II	Tr.E.				19	18:34	III	Tr.I.				
04	23:26	I	Sh.E.				19	20:54	III	Tr.E.				
05	00:35	I	Tr.I.				19	23:39	III	Sh.I.				
05	01:37	I	Sh.I.	00: 48	10: 43	20: 39	20	00:17	I	Oc.D.	08: 10	18: 06		
05	02:47	I	Tr.E.				20	02:04	III	Sh.E.				
05	02:47	I	Sh.E.				20	03:45	I	Ec.R.				
05	11:02	III	Tr.I.				20	12:43	II	Oc.D.				
05	13:19	III	Tr.E.				20	17:50	II	Ec.R.				
05	15:41	III	Sh.I.				20	21:38	I	Tr.I.				
05	18:04	III	Sh.E.				20	22:53	I	Sh.I.				
05	20:33	I	Oc.D.				20	23:49	I	Tr.E.				
05	23:55	I	Ec.R.				21	01:05	I	Sh.E.	04: 02	13: 57	23: 53	
06	07:43	II	Oc.D.	06: 35	16: 31		21	18:45	I	Oc.D.				
06	12:39	II	Ec.R.				21	22:14	I	Ec.R.				
06	17:54	I	Tr.I.				22	06:50	II	Tr.I.	09: 49	19: 45		
06	19:04	I	Sh.I.				22	09:25	II	Sh.I.				
06	20:05	I	Tr.E.				22	09:27	II	Tr.E.				
06	21:16	I	Sh.E.				22	12:01	II	Sh.E.				
07	15:01	I	Oc.D.	02: 26	12: 22	22: 18	22	16:06	I	Tr.I.				
07	18:24	I	Ec.R.				22	17:22	I	Sh.I.				
08	01:49	II	Tr.I.	08: 14	18: 09		22	18:18	I	Tr.E.				

22	19:34	I	Sh.E.				06	18:54	III	Oc.R.				
23	08:33	III	Oc.D.	05: 40	15: 36		06	20:34	I	Ec.R.				
23	10:56	III	Oc.R.				06	21:41	III	Ec.D.				
23	13:14	I	Oc.D.				07	00:09	III	Ec.R.	03: 08	13: 04	23: 00	
23	13:42	III	Ec.D.				07	07:09	II	Oc.D.				
23	16:08	III	Ec.R.				07	12:19	II	Ec.R.				
23	16:43	I	Ec.R.				07	14:24	I	Tr.I.				
24	01:59	II	Oc.D.	01: 32	11: 28	21: 23	07	15:41	I	Sh.I.				
24	07:08	II	Ec.R.				07	16:35	I	Tr.E.				
24	10:34	I	Tr.I.				07	17:53	I	Sh.E.				
24	11:51	I	Sh.I.				08	11:32	I	Oc.D.	08: 56	18: 52		
24	12:46	I	Tr.E.				08	15:03	I	Ec.R.				
24	14:03	I	Sh.E.				09	01:21	II	Tr.I.	04: 47	14: 43		
25	07:42	I	Oc.D.	07: 19	17: 15		09	03:58	II	Tr.E.				
25	11:12	I	Ec.R.				09	03:58	II	Sh.I.				
25	20:08	II	Tr.I.				09	06:35	II	Sh.E.				
25	22:44	II	Tr.E.				09	08:52	I	Tr.I.				
25	22:44	II	Sh.I.				09	10:09	I	Sh.I.				
26	01:20	II	Sh.E.	03: 11	13: 06	23: 02	09	11:04	I	Tr.E.				
26	05:03	I	Tr.I.				09	12:22	I	Sh.E.				
26	06:20	I	Sh.I.				10	06:01	I	Oc.D.	00: 39	10: 35	20: 31	
26	07:15	I	Tr.E.				10	06:24	III	Tr.I.				
26	08:32	I	Sh.E.				10	08:49	III	Tr.E.				
26	22:26	III	Tr.I.				10	09:32	I	Ec.R.				
27	00:48	III	Tr.E.	08: 58	18: 54		10	11:37	III	Sh.I.				
27	02:11	I	Oc.D.				10	14:05	III	Sh.E.				
27	03:38	III	Sh.I.				10	20:28	II	Oc.D.				
27	05:41	I	Ec.R.				11	01:37	II	Ec.R.	06: 26	16: 22		
27	06:04	III	Sh.E.				11	03:21	I	Tr.I.				
27	15:16	II	Oc.D.				11	04:38	I	Sh.I.				
27	20:26	II	Ec.R.				11	05:33	I	Tr.E.				
27	23:31	I	Tr.I.				11	06:50	I	Sh.E.				
28	00:48	I	Sh.I.	04: 50	14: 45		12	00:30	I	Oc.D.	02: 18	12: 14	22: 10	
28	01:43	I	Tr.E.				12	04:00	I	Ec.R.				
28	03:00	I	Sh.E.				12	14:40	II	Tr.I.				
28	20:39	I	Oc.D.				12	17:17	II	Tr.E.				
29	00:10	I	Ec.R.	00: 41	10: 37	20: 33	12	17:17	II	Sh.I.				
29	09:25	II	Tr.I.				12	19:54	II	Sh.E.				
29	12:01	II	Tr.E.				12	21:50	I	Tr.I.				
29	12:02	II	Sh.I.				12	23:07	I	Sh.I.				
29	14:39	II	Sh.E.				13	00:02	I	Tr.E.	08: 05	18: 01		
29	18:00	I	Tr.I.				13	01:19	I	Sh.E.				
29	19:17	I	Sh.I.				13	18:59	I	Oc.D.				
29	20:12	I	Tr.E.				13	20:30	III	Oc.D.				
29	21:29	I	Sh.E.				13	22:29	I	Ec.R.				
30	12:28	III	Oc.D.	06: 28	16: 24		13	22:58	III	Oc.R.				
30	14:53	III	Oc.R.				14	01:40	III	Ec.D.	03: 57	13: 53	23: 49	
30	15:08	I	Oc.D.				14	04:10	III	Ec.R.				
30	17:41	III	Ec.D.				14	09:47	II	Oc.D.				
30	18:38	I	Ec.R.				14	14:55	II	Ec.R.				
30	20:09	III	Ec.R.				14	16:19	I	Tr.I.				
31	04:33	II	Oc.D.	02: 20	12: 16	22: 12	14	17:36	I	Sh.I.				
31	09:44	II	Ec.R.				14	18:31	I	Tr.E.				
31	12:28	I	Tr.I.				14	19:48	I	Sh.E.				
31	13:46	I	Sh.I.				15	13:28	I	Oc.D.	09: 44	19: 40		
31	14:40	I	Tr.E.				15	16:58	I	Ec.R.				
31	15:58	I	Sh.E.				16	04:00	II	Tr.I.	05: 36	15: 32		
Settembre 2007														
D	H	M	Sat.	Phe.	GRS (hh: mm)		16	06:36	II	Sh.I.				
01	09:36	I	Oc.D.	08: 07	18: 03		16	06:38	II	Tr.E.				
01	13:07	I	Ec.R.				16	09:13	II	Sh.E.				
01	22:43	II	Tr.I.				16	10:49	I	Tr.I.				
02	01:20	II	Tr.E.	03: 59	13: 55	23: 50	16	12:04	I	Sh.I.				
02	01:21	II	Sh.I.				16	13:01	I	Tr.E.				
02	03:58	II	Sh.E.				16	14:17	I	Sh.E.				
02	06:57	I	Tr.I.				17	07:58	I	Oc.D.	01: 28	11: 23	21: 19	
02	08:15	I	Sh.I.				17	10:29	III	Tr.I.				
02	09:09	I	Tr.E.				17	11:27	I	Ec.R.				
02	10:27	I	Sh.E.				17	12:56	III	Tr.E.				
03	02:23	III	Tr.I.	09: 46	19: 42		17	15:37	III	Sh.I.				
03	04:05	I	Oc.D.				17	18:06	III	Sh.E.				
03	04:47	III	Tr.E.				17	23:06	II	Oc.D.				
03	07:36	I	Ec.R.				18	04:13	II	Ec.R.	07: 15	17: 11		
03	07:37	III	Sh.I.				18	05:18	I	Tr.I.				
03	10:04	III	Sh.E.				18	06:33	I	Sh.I.				
03	17:51	II	Oc.D.				18	07:30	I	Tr.E.				
03	23:02	II	Ec.R.				18	08:45	I	Sh.E.				
04	01:26	I	Tr.I.	05: 38	15: 34		19	02:27	I	Oc.D.	03: 07	13: 02	22: 58	
04	02:43	I	Sh.I.				19	05:56	I	Ec.R.				
04	03:38	I	Tr.E.				19	17:21	II	Tr.I.				
04	04:55	I	Sh.E.				19	19:54	II	Sh.I.				
04	22:34	I	Oc.D.				19	19:58	II	Tr.E.				
05	02:05	I	Ec.R.	01: 29	11: 25	21: 21	19	22:32	II	Sh.E.				
05	12:01	II	Tr.I.				19	23:47	I	Tr.I.				
05	14:38	II	Tr.E.				20	01:02	I	Sh.I.	08: 54	18: 50		
05	14:39	II	Sh.I.				20	01:59	I	Tr.E.				
05	17:16	II	Sh.E.				20	03:14	I	Sh.E.				
05	19:55	I	Tr.I.				20	20:56	I	Oc.D.				
05	21:12	I	Sh.I.				21	00:25	I	Ec.R.	04: 46	14: 41		
05	22:07	I	Tr.E.				21	00:37	III	Oc.D.				
05	23:24	I	Sh.E.				21	03:05	III	Oc.R.				
06	16:28	III	Oc.D.	07: 17	17: 13		21	05:39	III	Ec.D.				
06	17:03	I	Oc.D.				21	08:10	III	Ec.R.				
							21	12:26	II	Oc.D.				
							21	17:30	II	Ec.R.				

21	18:16	I	Tr.I.		06	01:32	I	Sh.E.	
21	19:31	I	Sh.I.		06	19:22	I	Oc.D.	
21	20:28	I	Tr.E.		06	22:44	I	Ec.R.	
21	21:43	I	Sh.E.		07	12:10	II	Tr.I.	08: 03 17: 59
22	15:26	I	Oc.D.	00: 37 10: 33 20: 29	07	14:29	II	Sh.I.	
22	18:54	I	Ec.R.		07	14:48	II	Tr.E.	
23	06:42	II	Tr.I.	06: 25 16: 21	07	16:42	I	Tr.I.	
23	09:13	II	Sh.I.		07	17:07	II	Sh.E.	
23	09:20	II	Tr.E.		07	17:49	I	Sh.I.	
23	11:51	II	Sh.E.		07	18:54	I	Tr.E.	
23	12:46	I	Tr.I.		07	20:01	I	Sh.E.	
23	13:59	I	Sh.I.		08	13:52	I	Oc.D.	03: 54 13: 50 23: 46
23	14:58	I	Tr.E.		08	17:13	I	Ec.R.	
23	16:11	I	Sh.E.		08	23:03	III	Tr.I.	
24	09:55	I	Oc.D.	02: 16 12: 12 22: 08	09	01:35	III	Tr.E.	09: 42 19: 38
24	13:22	I	Ec.R.		09	03:34	III	Sh.I.	
24	14:38	III	Tr.I.		09	06:07	III	Sh.E.	
24	17:06	III	Tr.E.		09	07:10	II	Oc.D.	
24	19:36	III	Sh.I.		09	11:11	I	Tr.I.	
24	22:06	III	Sh.E.		09	11:58	II	Ec.R.	
25	01:46	II	Oc.D.	08: 04 18: 00	09	12:17	I	Sh.I.	
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26	04:25	I	Oc.D.	03: 55 13: 51 23: 47	11	03:47	II	Sh.I.	
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27	01:09	II	Sh.E.	09: 43 19: 39	11	07:53	I	Tr.E.	
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27	02:57	I	Sh.I.		12	02:52	I	Oc.D.	07: 13 17: 09
27	03:56	I	Tr.E.		12	06:11	I	Ec.R.	
27	05:09	I	Sh.E.		12	13:17	III	Oc.D.	
27	22:54	I	Oc.D.		12	15:49	III	Ec.R.	
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28	04:47	III	Oc.D.		12	20:12	III	Ec.R.	
28	07:17	III	Oc.R.		12	20:32	II	Oc.D.	
28	09:38	III	Ec.D.		13	00:11	I	Tr.I.	03: 04 13: 00 22: 56
28	12:10	III	Ec.R.		13	01:15	I	Sh.I.	
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28	20:05	II	Ec.R.		13	02:23	I	Tr.E.	
28	20:14	I	Tr.I.		13	03:27	I	Sh.E.	
28	21:25	I	Sh.I.		13	21:22	I	Oc.D.	
28	22:26	I	Tr.E.		14	00:40	I	Ec.R.	08: 52 18: 48
28	23:38	I	Sh.E.		14	14:56	II	Tr.I.	
29	17:24	I	Oc.D.	01: 26 11: 22 21: 18	14	17:06	II	Sh.I.	
29	20:49	I	Ec.R.		14	17:35	II	Tr.E.	
30	09:25	II	Tr.I.	07: 14 17: 10	14	18:41	I	Tr.I.	
30	11:51	II	Sh.I.		14	19:43	I	Sh.I.	
30	12:03	II	Tr.E.		14	19:45	II	Sh.E.	
30	14:29	II	Sh.E.		14	20:53	I	Tr.E.	
30	14:43	I	Tr.I.		14	21:56	I	Sh.E.	
30	15:54	I	Sh.I.		15	15:52	I	Oc.D.	04: 44 14: 40
30	16:55	I	Tr.E.		15	19:09	I	Ec.R.	
30	18:06	I	Sh.E.		16	03:20	III	Tr.I.	00: 35 10: 31 20: 27
Ottobre 2007									
D	H	M	Sat.	Phe.	GRS (hh: mm)				
01	11:53	I		Oc.D.	03: 05 13: 01 22: 57	16	05:53	III	Tr.E.
01	15:18	I		Ec.R.		16	07:33	III	Sh.I.
01	18:49	III		Tr.I.		16	09:54	II	Oc.D.
01	21:19	III		Tr.E.		16	10:07	III	Sh.E.
01	23:35	III		Sh.I.		16	13:10	I	Tr.I.
02	02:07	III		Sh.E.	08: 53 18: 49	16	14:12	I	Sh.I.
02	04:27	II		Oc.D.		16	14:33	II	Ec.R.
02	09:13	I		Tr.I.		16	15:23	I	Tr.E.
02	09:23	II		Ec.R.		16	16:25	I	Sh.E.
02	10:23	I		Sh.I.		17	10:22	I	Oc.D.
02	11:25	I		Tr.E.		17	13:38	I	Ec.R.
02	12:35	I		Sh.E.		18	04:20	II	Tr.I.
03	06:23	I		Oc.D.	04: 44 14: 40	18	06:25	II	Sh.I.
03	09:47	I		Ec.R.		18	06:58	II	Tr.E.
03	22:47	II		Tr.I.		18	07:40	I	Tr.I.
04	01:09	II		Sh.I.	00: 36 10: 32 20: 28	18	08:41	I	Sh.I.
04	01:25	II		Tr.E.		18	09:03	II	Sh.E.
04	03:42	I		Tr.I.		18	09:53	I	Tr.E.
04	03:47	II		Sh.E.		18	10:53	I	Sh.E.
04	04:51	I		Sh.I.		19	04:52	I	Oc.D.
04	05:55	I		Tr.E.		19	08:06	I	Ec.R.
04	07:04	I		Sh.E.		19	17:35	III	Oc.D.
05	00:53	I		Oc.D.	06: 24 16: 19	19	20:09	III	Oc.R.
05	04:16	I		Ec.R.		19	21:37	III	Ec.D.
05	09:00	III		Oc.D.		19	23:16	II	Oc.D.
05	11:31	III		Oc.R.		20	00:13	III	Ec.R.
05	13:38	III		Ec.D.		20	02:10	I	Tr.I.
05	16:11	III		Ec.R.		20	03:09	I	Sh.I.
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05	22:41	II		Ec.R.		20	05:22	I	Sh.E.
05	23:20	I		Sh.I.		20	23:22	I	Oc.D.
06	00:24	I		Tr.E.	02: 15 12: 11 22: 07	21	02:35	I	Ec.R.
						21	17:44	II	Tr.I.
						21	19:44	II	Sh.I.
						21	20:23	II	Tr.E.

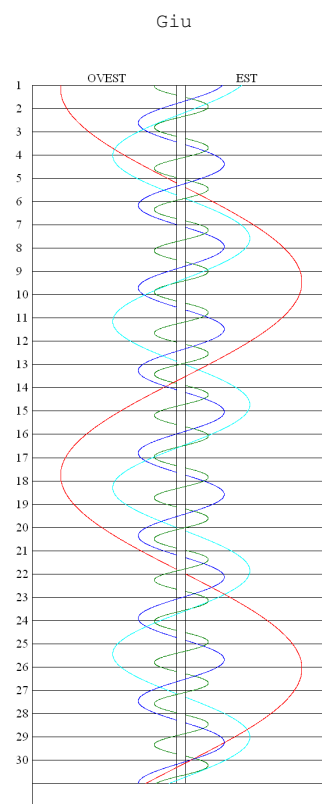
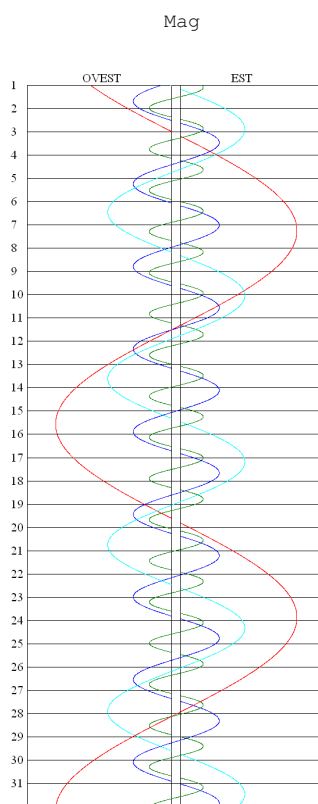
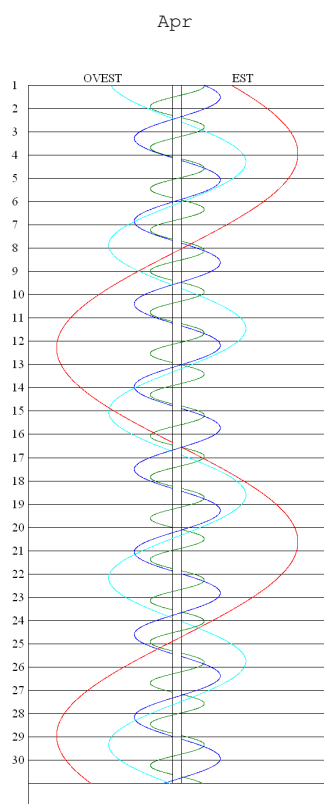
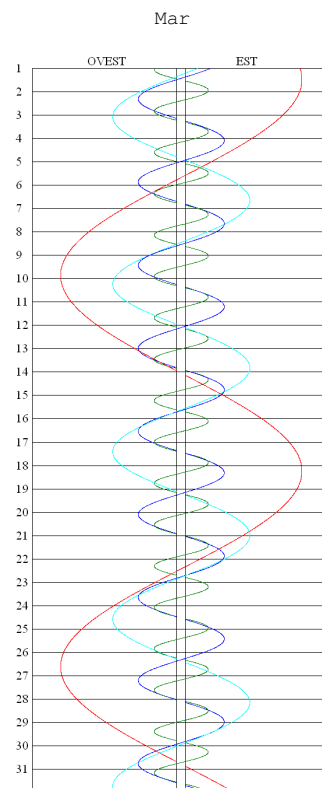
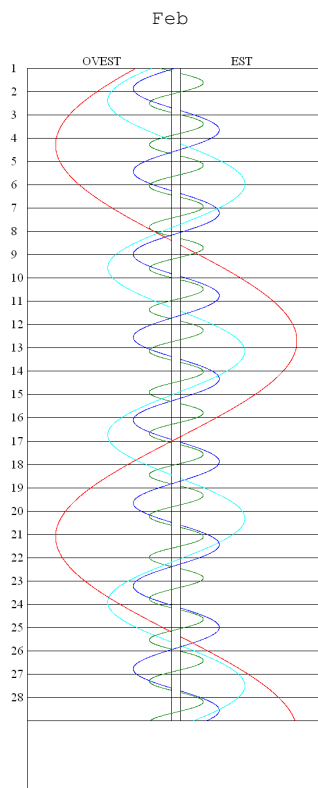
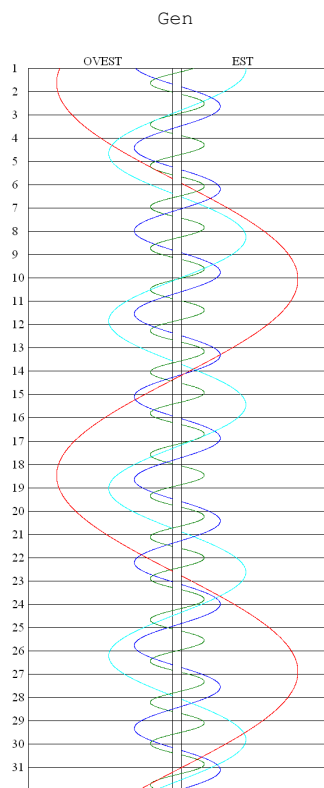
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23	14:07	III	Sh.E.		06	22:08	I	Sh.E.	
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30	19:43	II	Ec.R.		14	21:18	I	Ec.R.	
30	20:14	I	Sh.E.		15	15:38	II	Tr.I.	05: 32 15: 28
31	14:23	I	Oc.D.	08: 02 17: 57	15	15:41	I	Tr.I.	
31	17:28	I	Ec.R.		15	16:19	I	Sh.I.	
Novembre 2007					15	16:56	II	Sh.I.	
					15	17:54	I	Tr.E.	
D	H M	Sat.	Phe.	GRS (hh: mm)	15	18:17	II	Tr.E.	
01	09:57	II	Tr.I.	03: 53 13: 49 23: 45	15	18:31	I	Sh.E.	
01	11:40	I	Tr.I.		15	19:35	II	Sh.E.	
01	11:40	II	Sh.I.		16	12:56	I	Oc.D.	01: 24 11: 20 21: 15
01	12:30	I	Sh.I.		16	15:47	I	Ec.R.	
01	12:36	II	Tr.E.		17	10:11	I	Tr.I.	07: 11 17: 07
01	13:53	I	Tr.E.		17	10:21	II	Oc.D.	
01	14:19	II	Sh.E.		17	10:47	I	Sh.I.	
01	14:42	I	Sh.E.		17	11:08	III	Oc.D.	
02	08:53	I	Oc.D.	09: 41 19: 37	17	12:24	I	Tr.E.	
02	11:57	I	Ec.R.		17	13:00	I	Sh.E.	
03	02:18	III	Oc.D.	05: 32 15: 28	17	14:10	II	Ec.R.	
03	04:47	II	Oc.D.		17	16:14	III	Ec.R.	
03	04:55	III	Oc.R.		18	07:26	I	Oc.D.	03: 03 12: 59 22: 55
03	05:36	III	Ec.D.		18	10:16	I	Ec.R.	
03	06:10	I	Tr.I.		19	04:42	I	Tr.I.	08: 51 18: 46
03	06:58	I	Sh.I.		19	05:04	II	Tr.I.	
03	08:13	III	Ec.R.		19	05:16	I	Sh.I.	
03	08:23	I	Tr.E.		19	06:15	II	Sh.I.	
03	09:00	II	Ec.R.		19	06:54	I	Tr.E.	
03	09:11	I	Sh.E.		19	07:29	I	Sh.E.	
04	03:23	I	Oc.D.	01: 24 11: 20 21: 16	19	07:44	II	Tr.E.	
04	06:26	I	Ec.R.		19	08:54	II	Sh.E.	
04	23:22	II	Tr.I.		20	01:57	I	Oc.D.	04: 42 14: 38
05	00:40	I	Tr.I.	07: 12 17: 08	20	04:45	I	Ec.R.	
05	01:00	II	Sh.I.		20	23:12	I	Tr.I.	
05	01:27	I	Sh.I.		20	23:44	I	Sh.I.	
05	02:02	II	Tr.E.		20	23:45	II	Oc.D.	
05	02:53	I	Tr.E.		21	01:16	III	Tr.I.	00: 34 10: 30 20: 26

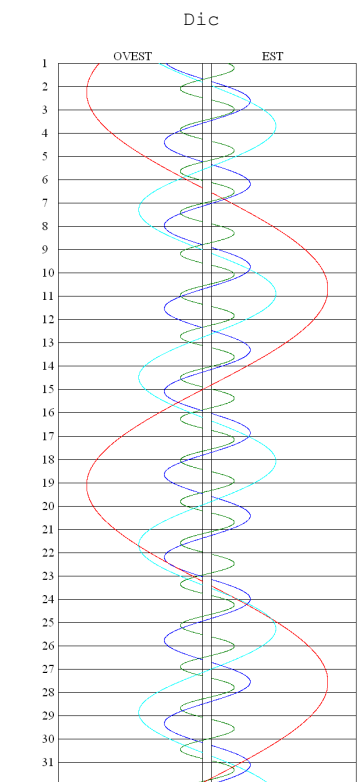
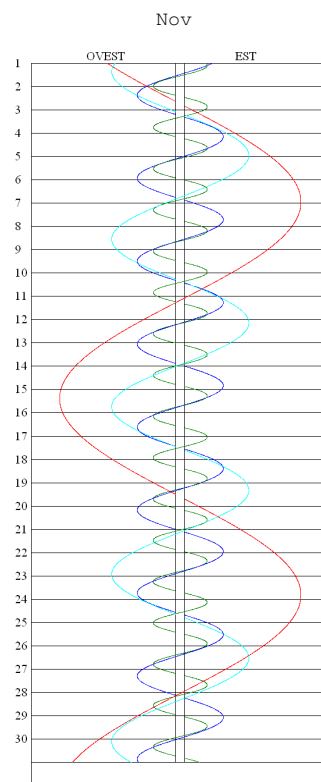
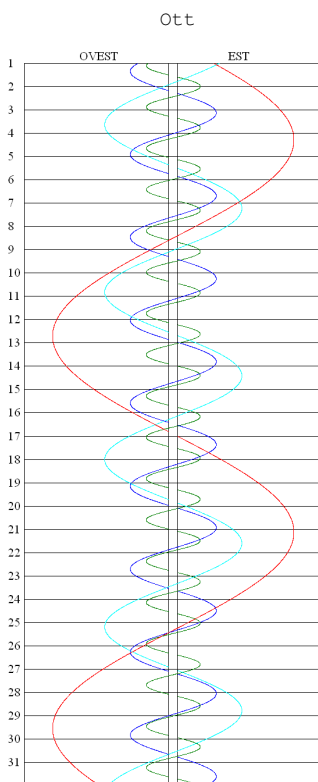
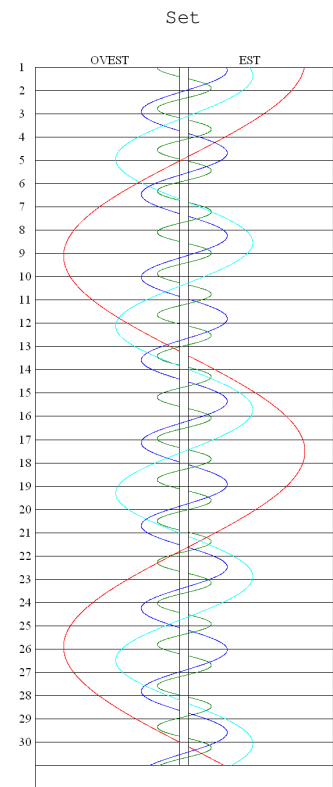
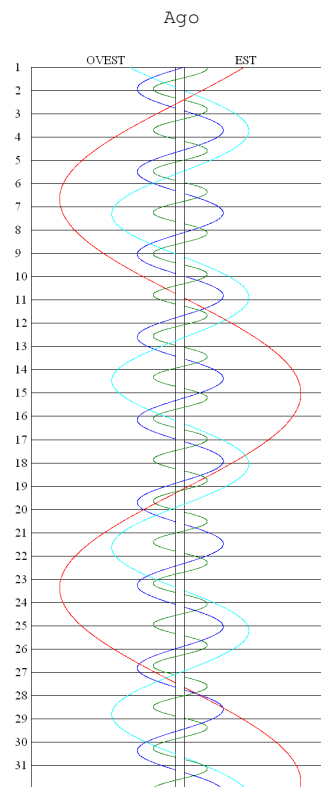
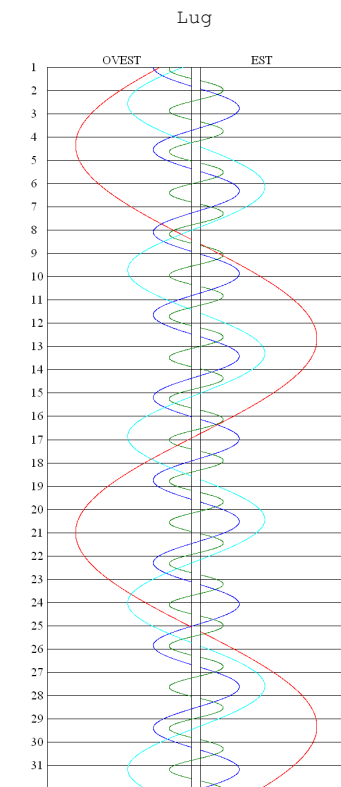
21	01:25	I	Tr.E.				06	03:03	I	Ec.R.				
21	01:57	I	Sh.E.				06	21:44	I	Tr.I.				
21	03:27	II	Ec.R.				06	22:01	I	Sh.I.				
21	03:29	III	Sh.I.				06	23:58	I	Tr.E.				
21	03:55	III	Tr.E.				07	00:13	II	Tr.I.	03: 52	13: 48	23: 44	
21	06:08	III	Sh.E.				07	00:14	I	Sh.E.				
21	20:27	I	Oc.D.				07	00:48	II	Sh.I.				
21	23:14	I	Ec.R.				07	02:53	II	Tr.E.				
22	17:42	I	Tr.I.	06: 21	16: 17		07	03:27	II	Sh.E.				
22	18:13	I	Sh.I.				07	19:02	I	Oc.D.				
22	18:29	II	Tr.I.				07	21:32	I	Ec.R.				
22	19:33	II	Sh.I.				08	16:15	I	Tr.I.	09: 39	19: 35		
22	19:55	I	Tr.E.				08	16:30	I	Sh.I.				
22	20:26	I	Sh.E.				08	18:28	I	Tr.E.				
22	21:09	II	Tr.E.				08	18:43	I	Sh.E.				
22	22:12	II	Sh.E.				08	18:46	II	Oc.D.				
23	14:58	I	Oc.D.	02: 13	12: 09	22: 05	08	21:53	II	Ec.R.				
23	17:42	I	Ec.R.				09	00:32	III	Oc.D.	05: 31	15: 27		
24	12:12	I	Tr.I.	08: 01	17: 57		09	04:15	III	Ec.R.				
24	12:42	I	Sh.I.				09	13:32	I	Oc.D.				
24	13:09	II	Oc.D.				09	16:01	I	Ec.R.				
24	14:25	I	Tr.E.				10	10:45	I	Tr.I.	01: 23	11: 19	21: 14	
24	14:54	I	Sh.E.				10	10:58	I	Sh.I.				
24	15:35	III	Oc.D.				10	12:58	I	Tr.E.				
24	16:44	II	Ec.R.				10	13:12	I	Sh.E.				
24	20:14	III	Ec.R.				10	13:39	II	Tr.I.				
25	09:28	I	Oc.D.	03: 52	13: 48	23: 44	10	14:07	II	Sh.I.				
25	12:11	I	Ec.R.				10	16:20	II	Tr.E.				
26	06:43	I	Tr.I.	09: 40	19: 36		10	16:46	II	Sh.E.				
26	07:10	I	Sh.I.				11	08:03	I	Oc.D.	07: 10	17: 06		
26	07:55	II	Tr.I.				11	10:30	I	Ec.R.				
26	08:52	II	Sh.I.				12	05:15	I	Tr.I.	03: 02	12: 58	22: 54	
26	08:56	I	Tr.E.				12	05:27	I	Sh.I.				
26	09:23	I	Sh.E.				12	07:29	I	Tr.E.				
26	10:35	II	Tr.E.				12	07:40	I	Sh.E.				
26	11:31	II	Sh.E.				12	08:10	II	Oc.D.				
27	03:59	I	Oc.D.	05: 32	15: 27		12	11:11	II	Ec.R.				
27	06:40	I	Ec.R.				12	14:38	III	Tr.I.				
28	01:13	I	Tr.I.	01: 23	11: 19	21: 15	12	15:24	III	Sh.I.				
28	01:39	I	Sh.I.				12	17:23	III	Tr.E.				
28	02:33	II	Oc.D.				12	18:07	III	Sh.E.				
28	03:26	I	Tr.E.				13	02:33	I	Oc.D.	08: 49	18: 45		
28	03:52	I	Sh.E.				13	04:58	I	Ec.R.				
28	05:43	III	Tr.I.				13	23:46	I	Tr.I.				
28	06:02	II	Ec.R.				13	23:55	I	Sh.I.				
28	07:27	III	Sh.I.				14	01:59	I	Tr.E.	04: 41	14: 37		
28	08:24	III	Tr.E.				14	02:09	I	Sh.E.				
28	10:08	III	Sh.E.				14	03:05	II	Tr.I.				
28	22:29	I	Oc.D.				14	03:25	II	Sh.I.				
29	01:09	I	Ec.R.	07: 11	17: 07		14	05:45	II	Tr.E.				
29	19:43	I	Tr.I.				14	06:04	II	Sh.E.				
29	20:07	I	Sh.I.				14	21:04	I	Oc.D.				
29	21:21	II	Tr.I.				14	23:27	I	Ec.R.				
29	21:56	I	Tr.E.				15	18:16	I	Tr.I.	00: 33	10: 29	20: 25	
29	22:10	II	Sh.I.				15	18:24	I	Sh.I.				
29	22:20	I	Sh.E.				15	20:30	I	Tr.E.				
30	00:01	II	Tr.E.	03: 03	12: 58	22: 54	15	20:37	I	Sh.E.				
30	00:50	II	Sh.E.				15	21:35	II	Oc.D.				
30	17:00	I	Oc.D.				16	00:28	II	Ec.R.	06: 20	16: 16		
30	19:37	I	Ec.R.				16	05:01	III	Oc.D.				
Dicembre 2007							16	08:15	III	Ec.R.				
D H M Sat. Phe. GRS (hh: mm)							16	15:34	I	Oc.D.				
01	14:14	I	Tr.I.				16	17:56	I	Ec.R.				
01	14:36	I	Sh.I.				17	12:46	I	Tr.I.	02: 12	12: 08	22: 04	
01	15:57	II	Oc.D.				17	12:52	I	Sh.I.				
01	16:27	I	Tr.E.				17	15:00	I	Tr.E.				
01	16:49	I	Sh.E.				17	15:06	I	Sh.E.				
01	19:19	II	Ec.R.				17	16:32	II	Tr.I.				
01	20:03	III	Oc.D.				17	16:44	II	Sh.I.				
02	00:15	III	Ec.R.	04: 42	14: 38		17	19:12	II	Tr.E.				
02	11:30	I	Oc.D.				17	19:23	II	Sh.E.				
02	14:06	I	Ec.R.				18	10:05	I	Oc.D.	08: 00	17: 55		
03	08:44	I	Tr.I.	00: 33	10: 29	20: 25	18	12:24	I	Ec.R.				
03	09:04	I	Sh.I.				19	07:17	I	Tr.I.	03: 51	13: 47	23: 43	
03	10:47	II	Tr.I.				19	07:21	I	Sh.I.				
03	10:57	I	Tr.E.				19	09:30	I	Tr.E.				
03	11:17	I	Sh.E.				19	09:34	I	Sh.E.				
03	11:29	II	Sh.I.				19	10:59	II	Oc.D.				
03	13:27	II	Tr.E.				19	13:45	II	Ec.R.				
03	14:09	II	Sh.E.				19	19:07	III	Tr.I.				
04	06:01	I	Oc.D.	06: 21	16: 17		19	19:22	III	Sh.I.				
04	08:35	I	Ec.R.				19	21:53	III	Tr.E.				
05	03:14	I	Tr.I.	02: 13	12: 09	22: 04	19	22:07	III	Sh.E.				
05	03:33	I	Sh.I.				20	04:35	I	Oc.D.	09: 39	19: 35		
05	05:22	II	Oc.D.				20	06:53	I	Ec.R.				
05	05:27	I	Tr.E.				21	01:47	I	Tr.I.	05: 30	15: 26		
05	05:46	I	Sh.E.				21	01:49	I	Sh.I.				
05	08:36	II	Ec.R.				21	04:01	I	Tr.E.				
05	10:10	III	Tr.I.				21	04:03	I	Sh.E.				
05	11:25	III	Sh.I.				21	05:57	II	Tr.I.				
05	12:53	III	Tr.E.				21	06:02	II	Sh.I.				
05	14:07	III	Sh.E.				21	08:38	II	Tr.E.				
06	00:31	I	Oc.D.	08: 00	17: 56		21	08:42	II	Sh.E.				
							21	23:06	I	Oc.D.				

[illegible]



# POSIZIONE DEI SATELLITI DI GIOVE





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

# MERIDIANI CENTRALI DI GIOVE

Meridiano Centrale di Giove, Sistema I, nel 2007

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	77.8	288.8	28.2	243.8	303.8	162.8	223.0	78.2	290.0	341.5	189.0	238.5
2	235.5	86.5	186.2	41.8	101.8	321.0	21.0	236.2	87.8	139.2	346.8	36.2
3	33.2	244.2	344.0	199.8	259.8	119.0	179.0	34.0	245.5	296.8	144.2	194.0
4	191.0	42.2	142.0	357.8	57.8	277.0	337.0	192.0	43.2	94.5	302.0	351.5
5	348.8	200.0	299.8	155.8	215.8	75.0	135.0	349.8	201.0	252.2	99.8	149.2
6	146.5	357.8	97.8	313.5	13.8	233.0	293.0	147.5	358.8	49.8	257.2	306.8
7	304.2	155.5	255.5	111.5	171.8	31.0	90.8	305.5	156.5	207.5	55.0	104.5
8	102.0	313.5	53.5	269.5	330.0	189.0	248.8	103.2	314.2	5.2	212.5	262.2
9	259.8	111.2	211.2	67.5	128.0	347.0	46.8	261.0	112.0	162.8	10.2	59.8
10	57.5	269.0	9.2	225.5	286.0	145.0	204.8	58.8	269.8	320.5	168.0	217.5
11	215.2	67.0	167.2	23.5	84.0	303.2	2.5	216.8	67.5	118.2	325.5	15.2
12	13.0	224.8	325.0	181.5	242.0	101.2	160.5	14.5	225.2	275.8	123.2	172.8
13	170.8	22.5	123.0	339.5	40.0	259.2	318.5	172.2	22.8	73.5	280.8	330.5
14	328.5	180.5	281.0	137.5	198.0	57.2	116.2	330.0	180.5	231.2	78.5	128.2
15	126.5	338.2	78.8	295.5	356.2	215.2	274.2	128.0	338.2	28.8	236.2	285.8
16	284.2	136.0	236.8	93.5	154.2	13.2	72.2	285.8	136.0	186.5	33.8	83.5
17	82.0	294.0	34.8	251.5	312.2	171.2	230.0	83.5	293.8	344.2	191.5	241.2
18	239.8	91.8	192.5	49.5	110.2	329.2	28.0	241.2	91.5	141.8	349.0	38.8
19	37.5	249.8	350.5	207.5	268.2	127.2	186.0	39.0	249.2	299.5	146.8	196.5
20	195.2	47.5	148.5	5.5	66.2	285.2	343.8	197.0	46.8	97.2	304.5	354.2
21	353.0	205.2	306.2	163.5	224.5	83.2	141.8	354.8	204.5	254.8	102.0	151.8
22	150.8	3.2	104.2	321.5	22.5	241.2	299.5	152.5	2.2	52.5	259.8	309.5
23	308.5	161.0	262.2	119.5	180.5	39.2	97.5	310.2	160.0	210.2	57.2	107.2
24	106.5	319.0	60.2	277.5	338.5	197.2	255.5	108.0	317.8	7.8	215.0	264.8
25	264.2	116.8	218.0	75.5	136.5	355.2	53.2	265.8	115.2	165.5	12.8	62.5
26	62.0	274.8	16.0	233.5	294.5	153.2	211.2	63.5	273.0	323.0	170.2	220.2
27	219.8	72.5	174.0	31.5	92.8	311.2	9.0	221.2	70.8	120.8	328.0	17.8
28	17.5	230.5	332.0	189.5	250.8	109.2	167.0	19.0	228.5	278.5	125.5	175.5
29	175.2		130.0	347.5	48.8	267.2	324.8	176.8	26.0	76.0	283.2	333.2
30	333.2		287.8	145.8	206.8	65.0	122.8	334.5	183.8	233.8	81.0	131.0
31	131.0		85.8		4.8		280.5	132.2		31.5		288.5

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	36.6	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

Meridiano Centrale di Giove, Sistema II, nel 2007

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	348.2	322.5	208.5	187.5	18.2	1.0	192.2	171.0	146.2	328.8	300.0	120.5
2	138.2	112.8	358.8	337.8	168.8	151.5	342.8	321.2	296.5	118.8	90.0	270.5
3	288.5	263.0	149.0	128.0	319.2	301.8	133.0	111.5	86.5	269.0	240.0	60.5
4	78.5	53.0	299.2	278.5	109.5	92.2	283.2	261.8	236.8	59.0	30.0	210.5
5	228.8	203.2	89.5	68.8	260.0	242.5	73.8	52.0	26.8	209.0	180.0	0.8
6	18.8	353.5	239.8	219.0	50.2	33.0	224.0	202.2	177.0	359.0	330.0	150.8
7	169.0	143.8	30.0	9.5	200.8	183.5	14.2	352.2	327.0	149.0	120.0	300.8
8	319.0	293.8	180.2	159.8	351.2	333.8	164.8	142.5	117.0	299.2	270.0	90.8
9	109.2	84.0	330.5	310.0	141.5	124.2	315.0	292.8	267.2	89.2	60.0	240.8
10	259.2	234.2	120.8	100.5	292.0	274.5	105.2	83.0	57.2	239.2	210.0	30.8
11	49.5	24.5	271.0	250.8	82.5	65.0	255.5	233.2	207.5	29.2	0.0	180.8
12	199.5	174.8	61.2	41.2	232.8	215.5	45.8	23.2	357.5	179.2	150.0	330.8
13	349.8	324.8	211.5	191.5	23.2	5.8	196.2	173.5	147.5	329.2	300.2	121.0
14	139.8	115.0	1.8	342.0	173.5	156.2	346.5	323.8	297.8	119.2	90.2	271.0
15	290.0	265.2	152.2	132.2	324.0	306.5	136.8	113.8	87.8	269.5	240.2	61.0
16	80.0	55.5	302.5	282.5	114.5	97.0	287.0	264.0	237.8	59.5	30.2	211.0
17	230.2	205.8	92.8	73.0	264.8	247.2	77.2	54.2	28.0	209.5	180.2	1.0
18	20.2	356.0	243.0	223.2	55.2	37.8	227.5	204.2	178.0	359.5	330.2	151.0
19	170.5	146.0	33.2	13.8	205.8	188.0	17.8	354.5	328.0	149.5	120.2	301.0
20	320.8	296.2	183.5	164.0	356.0	338.5	168.2	144.8	118.0	299.5	270.2	91.2
21	110.8	86.5	334.0	314.5	146.5	128.8	318.5	294.8	268.2	89.5	60.2	241.2
22	261.0	236.8	124.2	104.8	297.0	279.2	108.8	85.0	58.2	239.8	210.2	31.2
23	51.0	27.0	274.5	255.2	87.2	69.5	259.0	235.2	208.2	29.8	0.2	181.2
24	201.2	177.2	64.8	45.8	237.8	220.0	49.2	25.2	358.5	179.8	150.2	331.2
25	351.5	327.5	215.2	196.0	28.2	10.2	199.5	175.5	148.5	329.8	300.5	121.2
26	141.5	117.8	5.5	346.5	178.5	160.5	349.8	325.5	298.5	119.8	90.5	271.5
27	291.8	268.0	155.8	136.8	329.0	311.0	140.0	115.8	88.5	269.8	240.5	61.5
28	82.0	58.2	306.0	287.2	119.2	101.2	290.2	265.8	238.8	59.8	30.5	211.5
29	232.0		96.5	77.5	269.8	251.8	80.5	56.0	28.8	209.8	180.5	1.5
30	22.2		246.8	228.0	60.2	42.0	230.8	206.0	178.8	359.8	330.5	151.5
31	172.5		37.0		210.5		20.8	356.2		149.8		301.5

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

# EFFEMERIDI DI SATURNO

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	D.EQ. ''	D.POL. ''	MAG	I °	MAX ''	MIN ''	B °	SORGE h,m	TRAMONTA h,m
1/ 1/2007/ 0/ 0	9 48 42	+ 14 30 16	9.1779	8.4484	70.3	135.7	19.6	17.5	0.2	4	44.4	9.7	-12.6	20 22	10 24
2/ 1/2007/ 0/ 0	9 48 31	+ 14 31 23	9.1781	8.4369	70.2	136.8	19.6	17.5	0.2	4	44.5	9.7	-12.7	20 18	10 20
3/ 1/2007/ 0/ 0	9 48 20	+ 14 32 32	9.1783	8.4257	70.1	137.8	19.6	17.5	0.2	4	44.5	9.8	-12.7	20 14	10 16
4/ 1/2007/ 0/ 0	9 48 9	+ 14 33 42	9.1786	8.4148	70.0	138.9	19.7	17.5	0.2	4	44.6	9.8	-12.7	20 10	10 12
5/ 1/2007/ 0/ 0	9 47 57	+ 14 34 54	9.1788	8.4040	69.9	140.0	19.7	17.6	0.2	4	44.7	9.8	-12.7	20 5	10 8
6/ 1/2007/ 0/ 0	9 47 45	+ 14 36 8	9.1790	8.3935	69.8	141.1	19.7	17.6	0.2	4	44.7	9.9	-12.8	20 1	10 4
7/ 1/2007/ 0/ 0	9 47 33	+ 14 37 23	9.1792	8.3832	69.7	142.1	19.7	17.6	0.2	4	44.8	9.9	-12.8	19 57	9 60
8/ 1/2007/ 0/ 0	9 47 20	+ 14 38 40	9.1795	8.3732	69.6	143.2	19.8	17.6	0.2	4	44.8	9.9	-12.8	19 53	9 56
9/ 1/2007/ 0/ 0	9 47 7	+ 14 39 59	9.1797	8.3634	69.6	144.3	19.8	17.7	0.2	4	44.9	9.9	-12.8	19 49	9 52
10/ 1/2007/ 0/ 0	9 46 53	+ 14 41 19	9.1799	8.3539	69.5	145.3	19.8	17.7	0.2	3	44.9	10.0	-12.9	19 44	9 48
11/ 1/2007/ 0/ 0	9 46 40	+ 14 42 40	9.1801	8.3447	69.4	146.4	19.8	17.7	0.2	3	45.0	10.0	-12.9	19 40	9 44
12/ 1/2007/ 0/ 0	9 46 26	+ 14 44 3	9.1803	8.3356	69.3	147.5	19.8	17.7	0.2	3	45.0	10.1	-12.9	19 36	9 40
13/ 1/2007/ 0/ 0	9 46 11	+ 14 45 27	9.1806	8.3269	69.3	148.6	19.9	17.7	0.2	3	45.1	10.1	-12.9	19 31	9 36
14/ 1/2007/ 0/ 0	9 45 57	+ 14 46 52	9.1808	8.3184	69.2	149.7	19.9	17.7	0.1	3	45.1	10.1	-13.0	19 27	9 32
15/ 1/2007/ 0/ 0	9 45 42	+ 14 48 19	9.1810	8.3102	69.1	150.7	19.9	17.8	0.1	3	45.2	10.2	-13.0	19 23	9 28
16/ 1/2007/ 0/ 0	9 45 27	+ 14 49 47	9.1812	8.3023	69.0	151.8	19.9	17.8	0.1	3	45.2	10.2	-13.0	19 19	9 23
17/ 1/2007/ 0/ 0	9 45 11	+ 14 51 16	9.1814	8.2946	69.0	152.9	19.9	17.8	0.1	3	45.3	10.2	-13.1	19 14	9 19
18/ 1/2007/ 0/ 0	9 44 55	+ 14 52 46	9.1817	8.2873	68.9	154.0	20.0	17.8	0.1	3	45.3	10.3	-13.1	19 10	9 15
19/ 1/2007/ 0/ 0	9 44 39	+ 14 54 17	9.1819	8.2802	68.9	155.1	20.0	17.8	0.1	3	45.3	10.3	-13.1	19 6	9 11
20/ 1/2007/ 0/ 0	9 44 23	+ 14 55 49	9.1821	8.2734	68.8	156.2	20.0	17.8	0.1	2	45.4	10.3	-13.2	19 1	9 7
21/ 1/2007/ 0/ 0	9 44 7	+ 14 57 23	9.1823	8.2669	68.8	157.3	20.0	17.9	0.1	2	45.4	10.4	-13.2	18 57	9 3
22/ 1/2007/ 0/ 0	9 43 50	+ 14 58 57	9.1826	8.2607	68.7	158.4	20.0	17.9	0.1	2	45.4	10.4	-13.2	18 53	8 59
23/ 1/2007/ 0/ 0	9 43 33	+ 15 0 32	9.1828	8.2547	68.7	159.4	20.0	17.9	0.1	2	45.5	10.4	-13.3	18 48	8 55
24/ 1/2007/ 0/ 0	9 43 16	+ 15 2 8	9.1830	8.2491	68.6	160.5	20.1	17.9	0.1	2	45.5	10.5	-13.3	18 44	8 51
25/ 1/2007/ 0/ 0	9 42 59	+ 15 3 44	9.1832	8.2438	68.6	161.6	20.1	17.9	0.1	2	45.5	10.5	-13.3	18 40	8 47
26/ 1/2007/ 0/ 0	9 42 41	+ 15 5 21	9.1834	8.2388	68.5	162.7	20.1	17.9	0.1	2	45.6	10.5	-13.4	18 35	8 43
27/ 1/2007/ 0/ 0	9 42 24	+ 15 6 59	9.1837	8.2340	68.5	163.8	20.1	17.9	0.1	2	45.6	10.6	-13.4	18 31	8 38
28/ 1/2007/ 0/ 0	9 42 6	+ 15 8 37	9.1839	8.2296	68.4	164.9	20.1	17.9	0.0	2	45.6	10.6	-13.4	18 27	8 34
29/ 1/2007/ 0/ 0	9 41 48	+ 15 10 16	9.1841	8.2255	68.4	166.0	20.1	17.9	0.0	1	45.6	10.6	-13.5	18 22	8 30
30/ 1/2007/ 0/ 0	9 41 30	+ 15 11 55	9.1843	8.2217	68.4	167.1	20.1	18.0	0.0	1	45.7	10.7	-13.5	18 18	8 26
31/ 1/2007/ 0/ 0	9 41 11	+ 15 13 35	9.1846	8.2182	68.3	168.1	20.1	18.0	0.0	1	45.7	10.7	-13.5	18 14	8 22
1/ 2/2007/ 0/ 0	9 40 53	+ 15 15 15	9.1848	8.2150	68.3	169.2	20.1	18.0	0.0	1	45.7	10.7	-13.6	18 9	8 18
2/ 2/2007/ 0/ 0	9 40 35	+ 15 16 55	9.1850	8.2122	68.3	170.3	20.1	18.0	0.0	1	45.7	10.8	-13.6	18 5	8 14
3/ 2/2007/ 0/ 0	9 40 16	+ 15 18 35	9.1852	8.2096	68.3	171.4	20.2	18.0	0.0	1	45.7	10.8	-13.7	18 0	8 10
4/ 2/2007/ 0/ 0	9 39 57	+ 15 20 16	9.1855	8.2073	68.3	172.5	20.2	18.0	-0.0	1	45.7	10.8	-13.7	17 56	8 6
5/ 2/2007/ 0/ 0	9 39 39	+ 15 21 57	9.1857	8.2054	68.2	173.6	20.2	18.0	-0.0	1	45.7	10.8	-13.7	17 52	8 1
6/ 2/2007/ 0/ 0	9 39 20	+ 15 23 38	9.1859	8.2038	68.2	174.6	20.2	18.0	-0.0	1	45.8	10.9	-13.8	17 47	7 57
7/ 2/2007/ 0/ 0	9 39 1	+ 15 25 18	9.1861	8.2025	68.2	175.7	20.2	18.0	-0.0	0	45.8	10.9	-13.8	17 43	7 53
8/ 2/2007/ 0/ 0	9 38 42	+ 15 26 59	9.1864	8.2015	68.2	176.7	20.2	18.0	-0.0	0	45.8	10.9	-13.8	17 39	7 49
9/ 2/2007/ 0/ 0	9 38 23	+ 15 28 40	9.1866	8.2008	68.2	177.7	20.2	18.0	-0.0	0	45.8	11.0	-13.9	17 34	7 45
10/ 2/2007/ 0/ 0	9 38 4	+ 15 30 20	9.1868	8.2004	68.2	178.4	20.2	18.0	-0.0	0	45.8	11.0	-13.9	17 30	7 41
11/ 2/2007/ 0/ 0	9 37 45	+ 15 32 1	9.1870	8.2004	68.2	178.7	20.2	18.0	-0.0	0	45.8	11.0	-13.9	17 25	7 37
12/ 2/2007/ 0/ 0	9 37 26	+ 15 33 41	9.1873	8.2007	68.2	178.1	20.2	18.0	-0.0	0	45.8	11.1	-14.0	17 21	7 33
13/ 2/2007/ 0/ 0	9 37 7	+ 15 35 20	9.1875	8.2013	68.2	177.2	20.2	18.0	-0.0	0	45.8	11.1	-14.0	17 17	7 29
14/ 2/2007/ 0/ 0	9 36 48	+ 15 36 60	9.1877	8.2022	68.2	176.2	20.2	18.0	-0.0	0	45.8	11.1	-14.1	17 12	7 24
15/ 2/2007/ 0/ 0	9 36 29	+ 15 38 39	9.1879	8.2034	68.2	175.2	20.2	18.0	-0.0	1	45.8	11.1	-14.1	17 8	7 20
16/ 2/2007/ 0/ 0	9 36 10	+ 15 40 17	9.1882	8.2049	68.2	174.1	20.2	18.0	-0.0	1	45.7	11.2	-14.1	17 4	7 16
17/ 2/2007/ 0/ 0	9 35 51	+ 15 41 55	9.1884	8.2068	68.3	173.1	20.2	18.0	-0.0	1	45.7	11.2	-14.2	16 59	7 12
18/ 2/2007/ 0/ 0	9 35 32	+ 15 43 32	9.1886	8.2089	68.3	172.0	20.2	18.0	-0.0	1	45.7	11.2	-14.2	16 55	7 8
19/ 2/2007/ 0/ 0	9 35 13	+ 15 45 9	9.1888	8.2114	68.3	170.9	20.1	18.0	-0.0	1	45.7	11.2	-14.2	16 50	7 4
20/ 2/2007/ 0/ 0	9 34 54	+ 15 46 45	9.1891	8.2142	68.3	169.8	20.1	18.0	-0.0	1	45.7	11.3	-14.3	16 46	6 60
21/ 2/2007/ 0/ 0	9 34 36	+ 15 48 20	9.1893	8.2173	68.3	168.8	20.1	18.0	-0.0	1	45.7	11.3	-14.3	16 42	6 56
22/ 2/2007/ 0/ 0	9 34 17	+ 15 49 55	9.1895	8.2208	68.4	167.7	20.1	18.0	-0.0	1	45.7	11.3	-14.3	16 37	6 51
23/ 2/2007/ 0/ 0	9 33 59	+ 15 51 28	9.1897	8.2245	68.4	166.6	20.1	18.0	-0.0	1	45.6	11.3	-14.4	16 33	6 47
24/ 2/2007/ 0/ 0	9 33 40	+ 15 53 1	9.1900	8.2285	68.4	165.5	20.1	17.9	0.0	2	45.6	11.3	-14.4	16 29	6 43
25/ 2/2007/ 0/ 0	9 33 22	+ 15 54 32	9.1902	8.2329	68.5	164.4	20.1	17.9	0.0	2	45.6	11.4	-14.4	16 24	6 39
26/ 2/2007/ 0/ 0	9 33 4	+ 15 56 3	9.1904	8.2375	68.5	163.4	20.1	17.9	0.0	2	45.6	11.4	-14.5	16 20	6 35
27/ 2/2007/ 0/ 0	9 32 46	+ 15 57 32	9.1907	8.2424	68.6	162.3	20.1	17.9	0.0	2	45.5	11.4	-14.5	16 16	6 31
28/ 2/2007/ 0/ 0	9 32 29	+ 15 59 1	9.1909	8.2477	68.6	161.2	20.1	17.9	0.0	2	45.5	11.4	-14.5	16 11	6 27
1/ 3/2007/ 0/ 0	9 32 11	+ 16 0 28	9.1911	8.2532	68.6	160.1	20.0	17.9	0.0	2	45.5	11.4	-14.6	16 7	6 23
2/ 3/2007/ 0/ 0	9 31 54	+ 16 1 54	9.1913	8.2590	68.7	159.1	20.0	17.9	0.0	2	45.4	11.4	-14.6	16 3	6 19
3/ 3/2007/ 0/ 0	9 31 37	+ 16 3 19	9.1916	8.2651	68.7	158.0	20.0	17.9	0.0	2	45.4	11.5	-14.6	15 58	6 14
4/ 3/2007/ 0/ 0	9 31 20	+ 16 4 43	9.1918	8.2715	68.8	156.9	20.0	17.8	0.0	2	45.4	11.5	-14.7	15 54	6 10
5/ 3/2007/ 0/ 0	9 31 3	+ 16 6 5	9.1920	8.2782	68.8	155.8	20.0	17.8	0.0	3	45.3	11.5	-14.7	15 50	6 6
6/ 3/2007/ 0/ 0	9 30 47	+ 16 7 26	9.1922	8.2852	68.9	154.8	20.0	17.8	0.1	3	45.3	11.5	-14.7	15 45	6 2
7/ 3/2007/ 0/ 0	9 30 30	+ 16 8 46	9.1925	8.2924	69.0	153.7	20.0	17.8	0.1	3	45.3	11.5	-14.8	15 41	5 58
8/ 3/2007/ 0/ 0	9 30 14	+ 16 10 4	9.1927	8.3000	69.0	152.6	19.9	17.8	0.1	3	45.2	11.5	-14.8	15 37	5 54
9/ 3/2007/ 0/ 0	9 29 58	+ 16 11 21	9.1929	8.3078	69.1	151.6	19.9	17.8	0.1	3	45.2	11.5	-14.8	15 32	5 50
10/ 3/2007/ 0/ 0	9 29 43	+ 16 12 36	9.1932	8.3158	69.2	150.5	19.9	17.8	0.1	3	45.1	11.6	-14.8	15 28	5 46
11/ 3/2007/ 0/ 0	9 29 28	+ 16 13 50	9.1934	8.3242	69.2	149.4	19.9	17.7	0.1	3	45.1	11.6	-14.9	15 24	5 42
12/ 3/2007/ 0/ 0	9 29 13	+ 16 15 3	9.1936	8.3328	69.3	148.4	19.9	17.7	0.1	3	45.0	11.6	-14.9	15 20	5 38
13/ 3/2007/ 0/ 0	9 28 58	+ 16 16 13	9.1938	8.3416	69.4</										

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	D.EQ. ''	D.POL. ''	MAG	I °	MAX ''	MIN ''	B °	SORGE h,m	TRAMONTA h,m
11/ 4/2007/ 0/ 0	9 24 21	+ 16 37 18	9.2005	8.6951	72.3	117.5	19.0	17.0	0.3	6	43.2	11.5	-15.4	13 15	3 37
12/ 4/2007/ 0/ 0	9 24 17	+ 16 37 32	9.2008	8.7100	72.4	116.5	19.0	17.0	0.3	6	43.1	11.4	-15.4	13 11	3 33
13/ 4/2007/ 0/ 0	9 24 14	+ 16 37 44	9.2010	8.7249	72.6	115.5	19.0	16.9	0.3	6	43.0	11.4	-15.4	13 7	3 29
14/ 4/2007/ 0/ 0	9 24 11	+ 16 37 54	9.2012	8.7400	72.7	114.5	18.9	16.9	0.3	6	42.9	11.4	-15.4	13 3	3 25
15/ 4/2007/ 0/ 0	9 24 9	+ 16 38 2	9.2015	8.7552	72.8	113.5	18.9	16.9	0.3	6	42.9	11.4	-15.4	12 59	3 21
16/ 4/2007/ 0/ 0	9 24 7	+ 16 38 8	9.2017	8.7705	72.9	112.5	18.9	16.8	0.3	6	42.8	11.4	-15.4	12 55	3 17
17/ 4/2007/ 0/ 0	9 24 5	+ 16 38 12	9.2019	8.7860	73.1	111.5	18.8	16.8	0.3	6	42.7	11.4	-15.4	12 51	3 13
18/ 4/2007/ 0/ 0	9 24 4	+ 16 38 14	9.2022	8.8015	73.2	110.6	18.8	16.8	0.3	6	42.6	11.3	-15.4	12 47	3 9
19/ 4/2007/ 0/ 0	9 24 4	+ 16 38 14	9.2024	8.8172	73.3	109.6	18.8	16.7	0.3	6	42.6	11.3	-15.4	12 43	3 5
20/ 4/2007/ 0/ 0	9 24 3	+ 16 38 12	9.2026	8.8329	73.5	108.6	18.7	16.7	0.3	6	42.5	11.3	-15.4	12 39	3 1
21/ 4/2007/ 0/ 0	9 24 4	+ 16 38 7	9.2029	8.8487	73.6	107.6	18.7	16.7	0.3	6	42.4	11.3	-15.4	12 35	2 57
22/ 4/2007/ 0/ 0	9 24 4	+ 16 38 1	9.2031	8.8646	73.7	106.6	18.7	16.7	0.3	6	42.3	11.2	-15.4	12 31	2 53
23/ 4/2007/ 0/ 0	9 24 5	+ 16 37 52	9.2033	8.8806	73.9	105.7	18.6	16.6	0.3	6	42.3	11.2	-15.4	12 27	2 49
24/ 4/2007/ 0/ 0	9 24 7	+ 16 37 42	9.2036	8.8967	74.0	104.7	18.6	16.6	0.3	6	42.2	11.2	-15.4	12 24	2 45
25/ 4/2007/ 0/ 0	9 24 9	+ 16 37 29	9.2038	8.9128	74.1	103.7	18.6	16.6	0.3	6	42.1	11.2	-15.4	12 20	2 41
26/ 4/2007/ 0/ 0	9 24 11	+ 16 37 15	9.2040	8.9290	74.3	102.8	18.5	16.5	0.3	6	42.0	11.2	-15.4	12 16	2 37
27/ 4/2007/ 0/ 0	9 24 14	+ 16 36 58	9.2043	8.9453	74.4	101.8	18.5	16.5	0.3	6	42.0	11.1	-15.4	12 12	2 33
28/ 4/2007/ 0/ 0	9 24 17	+ 16 36 40	9.2045	8.9616	74.5	100.9	18.5	16.5	0.4	6	41.9	11.1	-15.4	12 8	2 30
29/ 4/2007/ 0/ 0	9 24 20	+ 16 36 20	9.2047	8.9779	74.7	99.9	18.4	16.4	0.4	6	41.8	11.1	-15.4	12 4	2 26
30/ 4/2007/ 0/ 0	9 24 24	+ 16 35 57	9.2050	8.9943	74.8	99.0	18.4	16.4	0.4	6	41.7	11.1	-15.4	12 0	2 22
1/ 5/2007/ 0/ 0	9 24 29	+ 16 35 33	9.2052	9.0108	74.9	98.0	18.4	16.4	0.4	6	41.7	11.0	-15.4	11 57	2 18
2/ 5/2007/ 0/ 0	9 24 34	+ 16 35 6	9.2054	9.0273	75.1	97.0	18.3	16.4	0.4	6	41.6	11.0	-15.4	11 53	2 14
3/ 5/2007/ 0/ 0	9 24 39	+ 16 34 38	9.2057	9.0438	75.2	96.1	18.3	16.3	0.4	6	41.5	11.0	-15.3	11 49	2 10
4/ 5/2007/ 0/ 0	9 24 45	+ 16 34 7	9.2059	9.0604	75.4	95.2	18.3	16.3	0.4	6	41.4	10.9	-15.3	11 45	2 6
5/ 5/2007/ 0/ 0	9 24 51	+ 16 33 35	9.2062	9.0769	75.5	94.2	18.2	16.3	0.4	6	41.4	10.9	-15.3	11 41	2 2
6/ 5/2007/ 0/ 0	9 24 57	+ 16 33 1	9.2064	9.0935	75.6	93.3	18.2	16.2	0.4	6	41.3	10.9	-15.3	11 38	1 59
7/ 5/2007/ 0/ 0	9 25 4	+ 16 32 25	9.2066	9.1101	75.8	92.3	18.2	16.2	0.4	6	41.2	10.9	-15.3	11 34	1 55
8/ 5/2007/ 0/ 0	9 25 12	+ 16 31 46	9.2069	9.1268	75.9	91.4	18.1	16.2	0.4	6	41.1	10.8	-15.3	11 30	1 51
9/ 5/2007/ 0/ 0	9 25 19	+ 16 31 6	9.2071	9.1434	76.0	90.5	18.1	16.1	0.4	6	41.1	10.8	-15.3	11 26	1 47
10/ 5/2007/ 0/ 0	9 25 27	+ 16 30 25	9.2073	9.1600	76.2	89.5	18.1	16.1	0.4	6	41.0	10.8	-15.3	11 23	1 43
11/ 5/2007/ 0/ 0	9 25 36	+ 16 29 41	9.2076	9.1767	76.3	88.6	18.0	16.1	0.4	6	40.9	10.7	-15.2	11 19	1 39
12/ 5/2007/ 0/ 0	9 25 45	+ 16 28 55	9.2078	9.1933	76.5	87.7	18.0	16.1	0.4	6	40.8	10.7	-15.2	11 15	1 35
13/ 5/2007/ 0/ 0	9 25 54	+ 16 28 8	9.2080	9.2099	76.6	86.7	18.0	16.0	0.4	6	40.8	10.7	-15.2	11 11	1 32
14/ 5/2007/ 0/ 0	9 26 4	+ 16 27 18	9.2083	9.2265	76.7	85.8	17.9	16.0	0.4	6	40.7	10.6	-15.2	11 8	1 28
15/ 5/2007/ 0/ 0	9 26 14	+ 16 26 27	9.2085	9.2431	76.9	84.9	17.9	16.0	0.4	6	40.6	10.6	-15.2	11 4	1 24
16/ 5/2007/ 0/ 0	9 26 24	+ 16 25 34	9.2088	9.2597	77.0	84.0	17.9	15.9	0.4	6	40.5	10.6	-15.1	11 0	1 20
17/ 5/2007/ 0/ 0	9 26 35	+ 16 24 39	9.2090	9.2762	77.1	83.1	17.8	15.9	0.4	6	40.5	10.6	-15.1	10 57	1 16
18/ 5/2007/ 0/ 0	9 26 47	+ 16 23 42	9.2092	9.2927	77.3	82.1	17.8	15.9	0.4	6	40.4	10.5	-15.1	10 53	1 12
19/ 5/2007/ 0/ 0	9 26 58	+ 16 22 44	9.2095	9.3092	77.4	81.2	17.8	15.9	0.4	6	40.3	10.5	-15.1	10 49	1 9
20/ 5/2007/ 0/ 0	9 27 10	+ 16 21 43	9.2097	9.3256	77.6	80.3	17.7	15.8	0.5	6	40.2	10.4	-15.1	10 46	1 5
21/ 5/2007/ 0/ 0	9 27 23	+ 16 20 41	9.2099	9.3420	77.7	79.4	17.7	15.8	0.5	6	40.2	10.4	-15.0	10 42	1 1
22/ 5/2007/ 0/ 0	9 27 35	+ 16 19 37	9.2102	9.3583	77.8	78.5	17.7	15.8	0.5	6	40.1	10.4	-15.0	10 38	0 57
23/ 5/2007/ 0/ 0	9 27 49	+ 16 18 31	9.2104	9.3746	78.0	77.6	17.6	15.7	0.5	6	40.0	10.3	-15.0	10 35	0 53
24/ 5/2007/ 0/ 0	9 28 2	+ 16 17 24	9.2106	9.3908	78.1	76.7	17.6	15.7	0.5	6	40.0	10.3	-15.0	10 31	0 50
25/ 5/2007/ 0/ 0	9 28 16	+ 16 16 15	9.2109	9.4070	78.2	75.8	17.6	15.7	0.5	6	39.9	10.3	-14.9	10 28	0 46
26/ 5/2007/ 0/ 0	9 28 30	+ 16 15 4	9.2111	9.4231	78.4	74.9	17.6	15.7	0.5	6	39.8	10.2	-14.9	10 24	0 42
27/ 5/2007/ 0/ 0	9 28 45	+ 16 13 52	9.2114	9.4391	78.5	74.0	17.5	15.6	0.5	6	39.8	10.2	-14.9	10 20	0 38
28/ 5/2007/ 0/ 0	9 28 59	+ 16 12 37	9.2116	9.4550	78.6	73.1	17.5	15.6	0.5	6	39.7	10.2	-14.9	10 17	0 34
29/ 5/2007/ 0/ 0	9 29 15	+ 16 11 22	9.2118	9.4709	78.8	72.2	17.5	15.6	0.5	6	39.6	10.1	-14.8	10 13	0 31
30/ 5/2007/ 0/ 0	9 29 30	+ 16 10 4	9.2121	9.4867	78.9	71.3	17.4	15.6	0.5	6	39.6	10.1	-14.8	10 10	0 27
31/ 5/2007/ 0/ 0	9 29 46	+ 16 8 45	9.2123	9.5024	79.0	70.4	17.4	15.5	0.5	6	39.5	10.1	-14.8	10 6	0 23
1/ 6/2007/ 0/ 0	9 30 2	+ 16 7 24	9.2126	9.5180	79.2	69.5	17.4	15.5	0.5	6	39.4	10.0	-14.7	10 2	0 19
2/ 6/2007/ 0/ 0	9 30 19	+ 16 6 2	9.2128	9.5336	79.3	68.6	17.4	15.5	0.5	6	39.4	10.0	-14.7	9 59	0 16
3/ 6/2007/ 0/ 0	9 30 36	+ 16 4 38	9.2130	9.5490	79.4	67.8	17.3	15.5	0.5	6	39.3	9.9	-14.7	9 55	0 12
4/ 6/2007/ 0/ 0	9 30 53	+ 16 3 12	9.2133	9.5644	79.5	66.9	17.3	15.4	0.5	6	39.2	9.9	-14.7	9 52	0 8
5/ 6/2007/ 0/ 0	9 31 10	+ 16 1 45	9.2135	9.5796	79.7	66.0	17.3	15.4	0.5	6	39.2	9.9	-14.6	9 48	0 4
6/ 6/2007/ 0/ 0	9 31 28	+ 16 0 17	9.2137	9.5947	79.8	65.1	17.2	15.4	0.5	6	39.1	9.8	-14.6	9 45	0 1
7/ 6/2007/ 0/ 0	9 31 46	+ 15 58 47	9.2140	9.6098	79.9	64.2	17.2	15.4	0.5	6	39.1	9.8	-14.6	9 41	23 57
8/ 6/2007/ 0/ 0	9 32 5	+ 15 57 15	9.2142	9.6247	80.0	63.3	17.2	15.3	0.5	6	39.0	9.8	-14.5	9 38	23 53
9/ 6/2007/ 0/ 0	9 32 24	+ 15 55 42	9.2145	9.6395	80.2	62.5	17.2	15.3	0.5	6	38.9	9.7	-14.5	9 34	23 49
10/ 6/2007/ 0/ 0	9 32 43	+ 15 54 7	9.2147	9.6542	80.3	61.6	17.1	15.3	0.5	6	38.9	9.7	-14.5	9 31	23 46
11/ 6/2007/ 0/ 0	9 33 2	+ 15 52 31	9.2149	9.6688	80.4	60.7	17.1	15.3	0.5	6	38.8	9.7	-14.4	9 27	23 42
12/ 6/2007/ 0/ 0	9 33 22	+ 15 50 54	9.2152	9.6833	80.5	59.8	17.1	15.2	0.5	5	38.8	9.6	-14.4	9 24	23 38
13/ 6/2007/ 0/ 0	9 33 41	+ 15 49 15	9.2154	9.6976	80.7	59.0	17.1	15.2	0.5	5	38.7	9.6	-14.3	9 20	23 34
14/ 6/2007/ 0/ 0	9 34 2	+ 15 47 34	9.2157	9.7118	80.8	58.1	17.0	15.2	0.5	5	38.6	9.5	-14.3	9 17	23 31
15/ 6/2007/ 0/ 0	9 34 22	+ 15 45 52	9.2159	9.7259	80.9	57.2	17.0	15.2	0.5	5	38.6	9.5	-14.3	9 13	23 27
16/ 6/2007/ 0/ 0	9 34 43	+ 15 44 9	9.2161	9.7398	81.0	56.4	17.0	15.2	0.5	5	38.5	9.5	-14.2	9 10	23 23
17/ 6/2007/ 0/ 0	9 35 4	+ 15 42 24	9.2164	9.7536	81.1	55.5	17.0	15.1	0.5	5	38.5	9.4	-14.2	9 7	23 20
18/ 6/2007/ 0/ 0	9 35 25	+ 15 40 38	9.2166	9.7672	81.2	54.6	16.9	15.1	0.5	5	38.4	9.4	-14.2	9 3	23 16
19/ 6/2007/ 0/ 0	9 35 47	+ 15 38 50	9.2169	9.7807	81.3	53.8	16.9	15.1	0.5	5	38.4	9.4	-14.1	8 60	23 12
20/ 6/2007/ 0/ 0	9 36 9	+ 15 37 2	9.2171	9.7941	81.5	52.9	16.9	15.1	0.5	5	38.3	9.3	-14.1	8 56	23 8
21/ 6/2007/ 0/ 0	9 36 31	+ 15 35 12	9.2173	9.8073	81.6	52.1	16.9	15.1	0.5	5	38.3	9.3	-14.0	8 53	23 5
22/ 6/2007/ 0/ 0	9 36 53														

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	D.EQ. ''	D.POL. ''	MAG	I °	MAX ''	MIN ''	B °	SORGE h,m	TRAMONTA h,m
27/ 7/2007/ 0/ 0	9 51 56	+ 14 17 2	9.2261	10.1622	84.5	21.7	16.3	14.5	0.6	2	36.9	7.9	-12.3	6 53	20 52
28/ 7/2007/ 0/ 0	9 52 24	+ 14 14 36	9.2263	10.1682	84.6	20.9	16.3	14.5	0.6	2	36.9	7.8	-12.3	6 49	20 49
29/ 7/2007/ 0/ 0	9 52 53	+ 14 12 9	9.2266	10.1740	84.6	20.0	16.3	14.5	0.6	2	36.9	7.8	-12.2	6 46	20 45
30/ 7/2007/ 0/ 0	9 53 21	+ 14 9 41	9.2268	10.1796	84.7	19.2	16.3	14.5	0.6	2	36.9	7.8	-12.2	6 43	20 42
31/ 7/2007/ 0/ 0	9 53 50	+ 14 7 13	9.2271	10.1850	84.7	18.4	16.2	14.5	0.6	2	36.9	7.7	-12.1	6 40	20 38
1/ 8/2007/ 0/ 0	9 54 19	+ 14 4 45	9.2273	10.1901	84.7	17.5	16.2	14.5	0.6	2	36.8	7.7	-12.1	6 36	20 34
2/ 8/2007/ 0/ 0	9 54 47	+ 14 2 16	9.2276	10.1951	84.8	16.7	16.2	14.5	0.6	2	36.8	7.7	-12.0	6 33	20 31
3/ 8/2007/ 0/ 0	9 55 16	+ 13 59 46	9.2278	10.1997	84.8	15.9	16.2	14.5	0.6	2	36.8	7.6	-12.0	6 30	20 27
4/ 8/2007/ 0/ 0	9 55 45	+ 13 57 16	9.2281	10.2042	84.9	15.0	16.2	14.5	0.6	2	36.8	7.6	-11.9	6 26	20 23
5/ 8/2007/ 0/ 0	9 56 14	+ 13 54 45	9.2283	10.2084	84.9	14.2	16.2	14.5	0.6	2	36.8	7.5	-11.8	6 23	20 20
6/ 8/2007/ 0/ 0	9 56 43	+ 13 52 14	9.2286	10.2124	84.9	13.4	16.2	14.5	0.6	1	36.8	7.5	-11.8	6 20	20 16
7/ 8/2007/ 0/ 0	9 57 12	+ 13 49 42	9.2288	10.2162	85.0	12.6	16.2	14.5	0.6	1	36.7	7.5	-11.7	6 17	20 12
8/ 8/2007/ 0/ 0	9 57 42	+ 13 47 10	9.2290	10.2197	85.0	11.7	16.2	14.4	0.6	1	36.7	7.4	-11.7	6 13	20 9
9/ 8/2007/ 0/ 0	9 58 11	+ 13 44 38	9.2293	10.2230	85.0	10.9	16.2	14.4	0.6	1	36.7	7.4	-11.6	6 10	20 5
10/ 8/2007/ 0/ 0	9 58 40	+ 13 42 5	9.2295	10.2260	85.0	10.1	16.2	14.4	0.6	1	36.7	7.4	-11.6	6 7	20 2
11/ 8/2007/ 0/ 0	9 59 9	+ 13 39 32	9.2298	10.2288	85.1	9.2	16.2	14.4	0.6	1	36.7	7.3	-11.5	6 4	19 58
12/ 8/2007/ 0/ 0	9 59 39	+ 13 36 58	9.2300	10.2314	85.1	8.4	16.2	14.4	0.6	1	36.7	7.3	-11.5	6 0	19 54
13/ 8/2007/ 0/ 0	10 0 8	+ 13 34 24	9.2303	10.2337	85.1	7.6	16.2	14.4	0.6	1	36.7	7.2	-11.4	5 57	19 51
14/ 8/2007/ 0/ 0	10 0 38	+ 13 31 50	9.2305	10.2358	85.1	6.8	16.2	14.4	0.6	1	36.7	7.2	-11.3	5 54	19 47
15/ 8/2007/ 0/ 0	10 1 7	+ 13 29 16	9.2308	10.2377	85.1	6.0	16.2	14.4	0.6	1	36.7	7.2	-11.3	5 51	19 43
16/ 8/2007/ 0/ 0	10 1 37	+ 13 26 41	9.2310	10.2393	85.2	5.2	16.2	14.4	0.6	1	36.7	7.1	-11.2	5 47	19 40
17/ 8/2007/ 0/ 0	10 2 6	+ 13 24 6	9.2313	10.2406	85.2	4.3	16.2	14.4	0.6	0	36.7	7.1	-11.2	5 44	19 36
18/ 8/2007/ 0/ 0	10 2 36	+ 13 21 31	9.2315	10.2417	85.2	3.6	16.2	14.4	0.6	0	36.6	7.1	-11.1	5 41	19 32
19/ 8/2007/ 0/ 0	10 3 5	+ 13 18 56	9.2318	10.2426	85.2	2.8	16.2	14.4	0.6	0	36.6	7.0	-11.1	5 38	19 29
20/ 8/2007/ 0/ 0	10 3 35	+ 13 16 21	9.2320	10.2433	85.2	2.1	16.2	14.4	0.6	0	36.6	7.0	-11.0	5 34	19 25
21/ 8/2007/ 0/ 0	10 4 4	+ 13 13 45	9.2323	10.2437	85.2	1.5	16.2	14.4	0.6	0	36.6	7.0	-11.0	5 31	19 22
22/ 8/2007/ 0/ 0	10 4 34	+ 13 11 9	9.2325	10.2438	85.2	1.3	16.2	14.4	0.6	0	36.6	6.9	-10.9	5 28	19 18
23/ 8/2007/ 0/ 0	10 5 3	+ 13 8 34	9.2327	10.2437	85.2	1.5	16.2	14.4	0.6	0	36.6	6.9	-10.8	5 25	19 14
24/ 8/2007/ 0/ 0	10 5 33	+ 13 5 58	9.2330	10.2434	85.2	2.1	16.2	14.4	0.6	0	36.6	6.9	-10.8	5 21	19 11
25/ 8/2007/ 0/ 0	10 6 2	+ 13 3 22	9.2332	10.2428	85.2	2.8	16.2	14.4	0.6	0	36.6	6.8	-10.7	5 18	19 7
26/ 8/2007/ 0/ 0	10 6 32	+ 13 0 46	9.2335	10.2420	85.2	3.6	16.2	14.4	0.6	0	36.6	6.8	-10.7	5 15	19 3
27/ 8/2007/ 0/ 0	10 7 1	+ 12 58 10	9.2337	10.2410	85.2	4.4	16.2	14.4	0.6	0	36.7	6.8	-10.6	5 12	18 60
28/ 8/2007/ 0/ 0	10 7 30	+ 12 55 35	9.2340	10.2397	85.2	5.2	16.2	14.4	0.6	1	36.7	6.7	-10.6	5 8	18 56
29/ 8/2007/ 0/ 0	10 7 60	+ 12 52 59	9.2342	10.2381	85.1	6.0	16.2	14.4	0.6	1	36.7	6.7	-10.5	5 5	18 52
30/ 8/2007/ 0/ 0	10 8 29	+ 12 50 23	9.2345	10.2363	85.1	6.8	16.2	14.4	0.6	1	36.7	6.6	-10.5	5 2	18 49
31/ 8/2007/ 0/ 0	10 8 58	+ 12 47 48	9.2347	10.2343	85.1	7.7	16.2	14.4	0.6	1	36.7	6.6	-10.4	4 59	18 45
1/ 9/2007/ 0/ 0	10 9 28	+ 12 45 12	9.2350	10.2321	85.1	8.5	16.2	14.4	0.6	1	36.7	6.6	-10.3	4 55	18 42
2/ 9/2007/ 0/ 0	10 9 57	+ 12 42 37	9.2352	10.2296	85.1	9.3	16.2	14.4	0.6	1	36.7	6.5	-10.3	4 52	18 38
3/ 9/2007/ 0/ 0	10 10 26	+ 12 40 2	9.2355	10.2269	85.1	10.2	16.2	14.4	0.6	1	36.7	6.5	-10.2	4 49	18 34
4/ 9/2007/ 0/ 0	10 10 55	+ 12 37 27	9.2357	10.2239	85.0	11.0	16.2	14.4	0.6	1	36.7	6.5	-10.2	4 46	18 31
5/ 9/2007/ 0/ 0	10 11 24	+ 12 34 52	9.2360	10.2207	85.0	11.8	16.2	14.4	0.6	1	36.7	6.4	-10.1	4 42	18 27
6/ 9/2007/ 0/ 0	10 11 53	+ 12 32 18	9.2362	10.2172	85.0	12.7	16.2	14.5	0.6	1	36.7	6.4	-10.1	4 39	18 23
7/ 9/2007/ 0/ 0	10 12 22	+ 12 29 43	9.2365	10.2135	84.9	13.5	16.2	14.5	0.6	1	36.8	6.4	-10.0	4 36	18 20
8/ 9/2007/ 0/ 0	10 12 51	+ 12 27 9	9.2367	10.2096	84.9	14.4	16.2	14.5	0.6	2	36.8	6.4	-9.9	4 33	18 16
9/ 9/2007/ 0/ 0	10 13 20	+ 12 24 36	9.2370	10.2054	84.9	15.2	16.2	14.5	0.6	2	36.8	6.3	-9.9	4 29	18 12
10/ 9/2007/ 0/ 0	10 13 48	+ 12 22 2	9.2372	10.2010	84.8	16.0	16.2	14.5	0.6	2	36.8	6.3	-9.8	4 26	18 9
11/ 9/2007/ 0/ 0	10 14 17	+ 12 19 30	9.2375	10.1963	84.8	16.9	16.2	14.5	0.7	2	36.8	6.3	-9.8	4 23	18 5
12/ 9/2007/ 0/ 0	10 14 45	+ 12 16 57	9.2377	10.1915	84.8	17.7	16.2	14.5	0.7	2	36.8	6.2	-9.7	4 20	18 1
13/ 9/2007/ 0/ 0	10 15 14	+ 12 14 25	9.2380	10.1863	84.7	18.6	16.2	14.5	0.7	2	36.8	6.2	-9.7	4 16	17 58
14/ 9/2007/ 0/ 0	10 15 42	+ 12 11 53	9.2382	10.1810	84.7	19.4	16.3	14.5	0.7	2	36.9	6.2	-9.6	4 13	17 54
15/ 9/2007/ 0/ 0	10 16 10	+ 12 9 22	9.2385	10.1754	84.6	20.3	16.3	14.5	0.7	2	36.9	6.1	-9.6	4 10	17 51
16/ 9/2007/ 0/ 0	10 16 38	+ 12 6 52	9.2387	10.1696	84.6	21.1	16.3	14.5	0.7	2	36.9	6.1	-9.5	4 6	17 47
17/ 9/2007/ 0/ 0	10 17 6	+ 12 4 22	9.2390	10.1635	84.5	22.0	16.3	14.5	0.7	2	36.9	6.1	-9.5	4 3	17 43
18/ 9/2007/ 0/ 0	10 17 34	+ 12 1 52	9.2392	10.1572	84.5	22.8	16.3	14.5	0.7	2	37.0	6.0	-9.4	3 60	17 40
19/ 9/2007/ 0/ 0	10 18 2	+ 11 59 23	9.2395	10.1507	84.4	23.7	16.3	14.5	0.7	3	37.0	6.0	-9.4	3 57	17 36
20/ 9/2007/ 0/ 0	10 18 30	+ 11 56 55	9.2397	10.1440	84.4	24.5	16.3	14.6	0.7	3	37.0	6.0	-9.3	3 53	17 32
21/ 9/2007/ 0/ 0	10 18 57	+ 11 54 27	9.2400	10.1370	84.3	25.4	16.3	14.6	0.7	3	37.0	6.0	-9.3	3 50	17 29
22/ 9/2007/ 0/ 0	10 19 25	+ 11 52 0	9.2402	10.1298	84.2	26.3	16.3	14.6	0.7	3	37.1	5.9	-9.2	3 43	17 21
23/ 9/2007/ 0/ 0	10 19 52	+ 11 49 34	9.2405	10.1224	84.2	27.1	16.3	14.6	0.7	3	37.1	5.9	-9.2	3 40	17 17
24/ 9/2007/ 0/ 0	10 20 19	+ 11 47 8	9.2407	10.1148	84.1	28.0	16.4	14.6	0.7	3	37.1	5.9	-9.1	3 36	17 14
25/ 9/2007/ 0/ 0	10 20 46	+ 11 44 44	9.2410	10.1070	84.1	28.8	16.4	14.6	0.7	3	37.1	5.8	-9.1	3 33	17 10
26/ 9/2007/ 0/ 0	10 21 13	+ 11 42 20	9.2412	10.0989	84.0	29.7	16.4	14.6	0.7	3	37.2	5.8	-9.0	3 30	17 6
27/ 9/2007/ 0/ 0	10 21 40	+ 11 39 56	9.2415	10.0906	83.9	30.6	16.4	14.6	0.7	3	37.2	5.8	-8.9	3 26	17 3
28/ 9/2007/ 0/ 0	10 22 6	+ 11 37 34	9.2417	10.0821	83.9	31.4	16.4	14.6	0.7	3	37.2	5.8	-8.9	3 23	16 59
29/ 9/2007/ 0/ 0	10 22 32	+ 11 35 12	9.2420	10.0734	83.8	32.3	16.4	14.7	0.7	3	37.3	5.7	-8.8	3 20	16 55
30/ 9/2007/ 0/ 0	10 22 59	+ 11 32 52	9.2422	10.0645	83.7	33.2	16.4	14.7	0.7	3	37.3	5.7	-8.8	3 16	16 52
1/10/2007/ 0/ 0	10 23 25	+ 11 30 32	9.2425	10.0554	83.6	34.0	16.5	14.7	0.7	3	37.3	5.7	-8.8	3 13	16 48
2/10/2007/ 0/ 0	10 23 51	+ 11 28 13	9.2428	10.0460	83.5	34.9	16.5	14.7	0.7	4	37.4	5.6	-8.7	3 10	16 44
3/10/2007/ 0/ 0	10 24 16	+ 11 25 55	9.2430	10.0365	83.5	35.8	16.5	14.7	0.7	4	37.4	5.6	-8.7	3 6	16 41
4/10/2007/ 0/ 0	10 24 42	+ 11 23 38	9.2433	10.0267	83.4	36.6	16.5	14.7	0.7	4	37.4	5.6	-8.6	3 3	16 37
5/10/2007/ 0/ 0	10 25 7	+ 11 21 22	9.2435	10.0168	83.3	37.5	16.5	14.7	0.7	4	37.5	5.6	-8.6	2 60	16 33
6/10/2007/ 0/ 0	10 25 32	+ 11 19 7	9.2438	10.0066	83.2	38.4	16.5	14.8	0.7	4	37.5	5.5	-8.5	2 56	16 30
7/10/2007/ 0/ 0	10 25 57	+ 11													

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	D.EQ. ' ''	D.POL. ' ''	MAG	I °	MAX ' ''	MIN ' ''	B °	SORGE h,m	TRAMONTA h,m
11/11/2007/ 0/ 0	10 37 58	+ 10 13 45	9.2529	9.5280	79.2	71.0	17.4	15.5	0.8	6	39.4	4.9	-7.1	0 52	14 16
12/11/2007/ 0/ 0	10 38 13	+ 10 12 28	9.2532	9.5123	79.1	71.9	17.4	15.5	0.8	6	39.5	4.9	-7.1	0 48	14 12
13/11/2007/ 0/ 0	10 38 28	+ 10 11 13	9.2534	9.4965	79.0	72.9	17.4	15.5	0.8	6	39.5	4.9	-7.1	0 45	14 8
14/11/2007/ 0/ 0	10 38 43	+ 10 10 1	9.2537	9.4806	78.8	73.8	17.5	15.6	0.8	6	39.6	4.8	-7.0	0 41	14 4
15/11/2007/ 0/ 0	10 38 57	+ 10 8 50	9.2539	9.4647	78.7	74.8	17.5	15.6	0.8	6	39.7	4.8	-7.0	0 38	14 1
16/11/2007/ 0/ 0	10 39 11	+ 10 7 42	9.2542	9.4487	78.6	75.7	17.5	15.6	0.8	6	39.7	4.8	-7.0	0 34	13 57
17/11/2007/ 0/ 0	10 39 25	+ 10 6 36	9.2545	9.4326	78.4	76.7	17.5	15.7	0.8	6	39.8	4.8	-7.0	0 30	13 53
18/11/2007/ 0/ 0	10 39 38	+ 10 5 33	9.2547	9.4164	78.3	77.6	17.6	15.7	0.8	6	39.9	4.8	-6.9	0 27	13 49
19/11/2007/ 0/ 0	10 39 51	+ 10 4 31	9.2550	9.4002	78.2	78.6	17.6	15.7	0.8	6	39.9	4.8	-6.9	0 23	13 46
20/11/2007/ 0/ 0	10 40 3	+ 10 3 32	9.2552	9.3840	78.0	79.5	17.6	15.7	0.8	6	40.0	4.8	-6.9	0 19	13 42
21/11/2007/ 0/ 0	10 40 15	+ 10 2 35	9.2555	9.3677	77.9	80.5	17.7	15.8	0.8	6	40.1	4.8	-6.9	0 16	13 38
22/11/2007/ 0/ 0	10 40 27	+ 10 1 40	9.2557	9.3513	77.8	81.4	17.7	15.8	0.8	6	40.1	4.8	-6.9	0 12	13 34
23/11/2007/ 0/ 0	10 40 39	+ 10 0 47	9.2560	9.3349	77.6	82.4	17.7	15.8	0.8	6	40.2	4.8	-6.8	0 8	13 30
24/11/2007/ 0/ 0	10 40 50	+ 9 59 57	9.2563	9.3185	77.5	83.4	17.8	15.8	0.7	6	40.3	4.8	-6.8	0 5	13 26
25/11/2007/ 0/ 0	10 41 0	+ 9 59 9	9.2565	9.3020	77.4	84.3	17.8	15.9	0.7	6	40.4	4.8	-6.8	0 1	13 23
26/11/2007/ 0/ 0	10 41 10	+ 9 58 23	9.2568	9.2855	77.2	85.3	17.8	15.9	0.7	6	40.4	4.8	-6.8	23 57	13 19
27/11/2007/ 0/ 0	10 41 20	+ 9 57 40	9.2570	9.2690	77.1	86.3	17.9	15.9	0.7	6	40.5	4.8	-6.8	23 54	13 15
28/11/2007/ 0/ 0	10 41 30	+ 9 56 59	9.2573	9.2525	77.0	87.2	17.9	16.0	0.7	6	40.6	4.8	-6.8	23 50	13 11
29/11/2007/ 0/ 0	10 41 39	+ 9 56 20	9.2575	9.2359	76.8	88.2	17.9	16.0	0.7	6	40.6	4.8	-6.7	23 46	13 7
30/11/2007/ 0/ 0	10 41 48	+ 9 55 44	9.2578	9.2194	76.7	89.2	17.9	16.0	0.7	6	40.7	4.8	-6.7	23 42	13 4
1/12/2007/ 0/ 0	10 41 56	+ 9 55 10	9.2581	9.2028	76.5	90.2	18.0	16.0	0.7	6	40.8	4.8	-6.7	23 39	12 60
2/12/2007/ 0/ 0	10 42 4	+ 9 54 39	9.2583	9.1862	76.4	91.1	18.0	16.1	0.7	6	40.9	4.8	-6.7	23 35	12 56
3/12/2007/ 0/ 0	10 42 11	+ 9 54 10	9.2586	9.1697	76.3	92.1	18.0	16.1	0.7	6	40.9	4.8	-6.7	23 31	12 52
4/12/2007/ 0/ 0	10 42 18	+ 9 53 43	9.2588	9.1531	76.1	93.1	18.1	16.1	0.7	6	41.0	4.8	-6.7	23 27	12 48
5/12/2007/ 0/ 0	10 42 25	+ 9 53 19	9.2591	9.1366	76.0	94.1	18.1	16.2	0.7	6	41.1	4.8	-6.7	23 23	12 44
6/12/2007/ 0/ 0	10 42 31	+ 9 52 58	9.2594	9.1201	75.8	95.1	18.1	16.2	0.7	6	41.2	4.8	-6.7	23 20	12 41
7/12/2007/ 0/ 0	10 42 37	+ 9 52 39	9.2596	9.1036	75.7	96.1	18.2	16.2	0.7	6	41.2	4.8	-6.7	23 16	12 37
8/12/2007/ 0/ 0	10 42 42	+ 9 52 22	9.2599	9.0871	75.6	97.1	18.2	16.2	0.7	6	41.3	4.8	-6.6	23 12	12 33
9/12/2007/ 0/ 0	10 42 48	+ 9 52 8	9.2601	9.0707	75.4	98.1	18.2	16.3	0.7	6	41.4	4.8	-6.6	23 8	12 29
10/12/2007/ 0/ 0	10 42 52	+ 9 51 56	9.2604	9.0543	75.3	99.1	18.3	16.3	0.7	6	41.5	4.8	-6.6	23 4	12 25
11/12/2007/ 0/ 0	10 42 56	+ 9 51 47	9.2607	9.0379	75.2	100.1	18.3	16.3	0.7	6	41.5	4.8	-6.6	23 1	12 21
12/12/2007/ 0/ 0	10 43 0	+ 9 51 41	9.2609	9.0216	75.0	101.1	18.3	16.4	0.7	6	41.6	4.8	-6.6	22 57	12 17
13/12/2007/ 0/ 0	10 43 3	+ 9 51 37	9.2612	9.0054	74.9	102.1	18.4	16.4	0.7	6	41.7	4.8	-6.6	22 53	12 13
14/12/2007/ 0/ 0	10 43 6	+ 9 51 35	9.2614	8.9892	74.8	103.1	18.4	16.4	0.7	6	41.8	4.8	-6.6	22 49	12 10
15/12/2007/ 0/ 0	10 43 9	+ 9 51 36	9.2617	8.9731	74.6	104.1	18.4	16.5	0.7	6	41.8	4.8	-6.6	22 45	12 6
16/12/2007/ 0/ 0	10 43 11	+ 9 51 40	9.2619	8.9571	74.5	105.1	18.5	16.5	0.7	6	41.9	4.8	-6.6	22 41	12 2
17/12/2007/ 0/ 0	10 43 13	+ 9 51 46	9.2622	8.9411	74.4	106.1	18.5	16.5	0.7	6	42.0	4.8	-6.6	22 37	11 58
18/12/2007/ 0/ 0	10 43 14	+ 9 51 55	9.2625	8.9252	74.2	107.1	18.5	16.5	0.7	6	42.1	4.8	-6.6	22 33	11 54
19/12/2007/ 0/ 0	10 43 15	+ 9 52 6	9.2627	8.9095	74.1	108.1	18.6	16.6	0.6	6	42.1	4.9	-6.6	22 29	11 50
20/12/2007/ 0/ 0	10 43 15	+ 9 52 20	9.2630	8.8938	74.0	109.1	18.6	16.6	0.6	6	42.2	4.9	-6.6	22 25	11 46
21/12/2007/ 0/ 0	10 43 15	+ 9 52 36	9.2632	8.8782	73.8	110.2	18.6	16.6	0.6	6	42.3	4.9	-6.6	22 21	11 42
22/12/2007/ 0/ 0	10 43 15	+ 9 52 55	9.2635	8.8627	73.7	111.2	18.7	16.7	0.6	6	42.4	4.9	-6.6	22 17	11 38
23/12/2007/ 0/ 0	10 43 14	+ 9 53 16	9.2638	8.8473	73.6	112.2	18.7	16.7	0.6	6	42.4	4.9	-6.6	22 14	11 34
24/12/2007/ 0/ 0	10 43 13	+ 9 53 39	9.2640	8.8320	73.5	113.2	18.7	16.7	0.6	6	42.5	4.9	-6.7	22 10	11 30
25/12/2007/ 0/ 0	10 43 11	+ 9 54 5	9.2643	8.8169	73.3	114.3	18.8	16.7	0.6	6	42.6	4.9	-6.7	22 6	11 27
26/12/2007/ 0/ 0	10 43 9	+ 9 54 34	9.2645	8.8018	73.2	115.3	18.8	16.8	0.6	6	42.6	4.9	-6.7	22 2	11 23
27/12/2007/ 0/ 0	10 43 7	+ 9 55 4	9.2648	8.7869	73.1	116.3	18.8	16.8	0.6	5	42.7	5.0	-6.7	21 58	11 19
28/12/2007/ 0/ 0	10 43 4	+ 9 55 38	9.2651	8.7721	73.0	117.3	18.9	16.8	0.6	5	42.8	5.0	-6.7	21 54	11 15
29/12/2007/ 0/ 0	10 43 0	+ 9 56 14	9.2653	8.7575	72.8	118.4	18.9	16.9	0.6	5	42.9	5.0	-6.7	21 49	11 11
30/12/2007/ 0/ 0	10 42 57	+ 9 56 52	9.2656	8.7430	72.7	119.4	18.9	16.9	0.6	5	42.9	5.0	-6.7	21 45	11 7
31/12/2007/ 0/ 0	10 42 52	+ 9 57 32	9.2659	8.7287	72.6	120.5	19.0	16.9	0.6	5	43.0	5.0	-6.7	21 41	11 3
1/ 1/2008/ 0/ 0	10 42 48	+ 9 58 15	9.2661	8.7144	72.5	121.5	19.0	16.9	0.6	5	43.1	5.0	-6.7	21 37	10 59

Legenda :

D.EQ. = diametro equatoriale

D.POL.= diametro polare

I = angolo di fase

MAX = diametro dell'asse maggiore degli anelli

MIN = diametro dell'asse minore degli anelli

B = latitudine saturnocentrica della Terra

Tempi di levata e tramonto in ore locali, non in T.U.

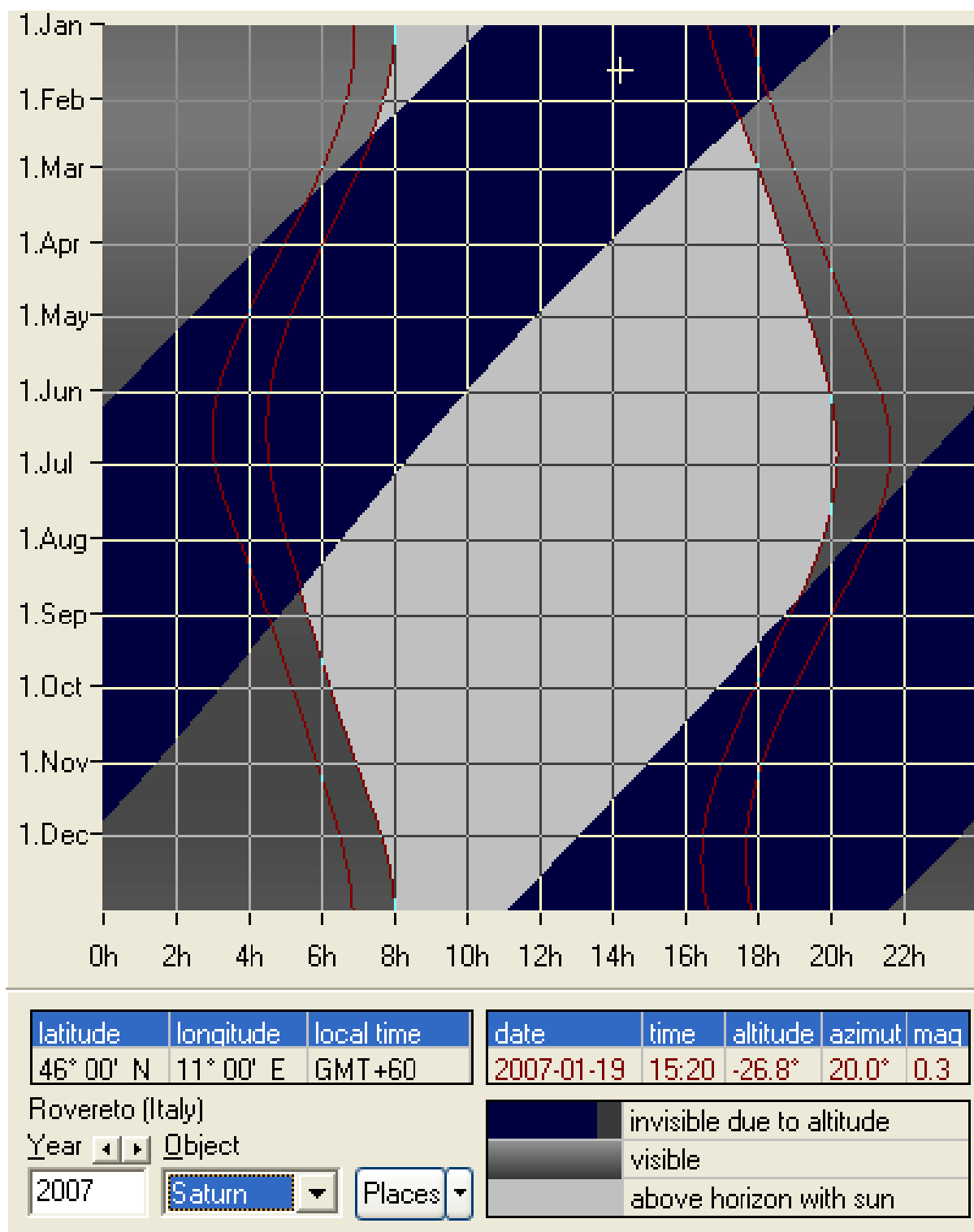
## FENOMENI DI SATURNO

Perigeo	10.02.2007	16.36.41	8,20033 U.A.
Apogeo	22.08.2007	04.33.25	10,24378 U.A.
Magnitudine massima	11.02.2007	09.58.34	0,0 mag
Magnitudine massima	22.08.2007	17.13.51	0,6 mag
Magnitudine minima	23.07.2007	00.28.42	0,6 mag
Magnitudine minima	31.10.2007	16.41.11	0,8 mag
Opposizione	10.02.2007	18.43.38	
Congiunzione	21.08.2007	23.30.07	

© (5)



## 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. I valori sono riportati nelle due tabelle seguenti.

heliacal / acronychal dates for Saturn in 2007  
location : Rovereto (Italy)  
latitude : 46° 00' 00'' N  
longitude: 11° 00' 00'' E  
variable arcus visionis:  
heliacal:  $\text{arcvis}[\circ] = 10.5 + 1.4 * \text{magnitude}$   
acr/cos :  $\text{arcvis}[\circ] = 8.9 + 1.1 * \text{magnitude}$   
critical altitude: 0.00°

	date	obj r/s	sun r/s	d r/s	age	mag
last visibility	2007-07-18	21:24	20:01	1:23h	-34d 03h	0.8
first visibility	2007-09-05	04:35	05:41	-1:05h	14d 04h	0.8

Legenda:

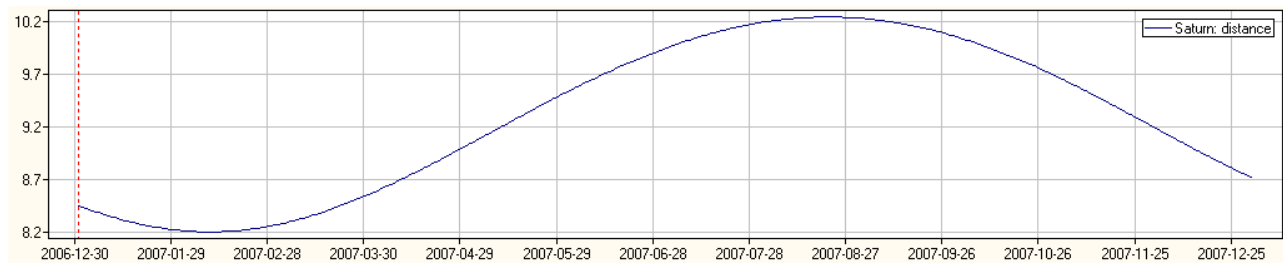
First visibility : primo giorno di visibilità mattutina dopo la congiunzione con il Sole  
Last visibility : ultimo giorno di visibilità serale prima della congiunzione con il Sole  
Obj r/s : ora del tramonto o della levata del pianeta  
Sun r/s : ora del tramonto o della levata del Sole  
D r/s : differenza in ore e minuti tra gli istanti del sorgere o del tramonto dei due corpi  
Age : giorni trascorsi dalla congiunzione col sole  
Mag : magnitudine

	date	obj r/s	sun r/s	sun alt	sun lon	obj lon	obj lat	mag	d az	d lon
L	07-18	21:24	20:01	-11° 55'	115° 50'	144° 18'	1° 15'	0.8	-26° 19'	28° 28'
F	09-05	04:35	05:41	-11° 41'	162° 13'	150° 19'	1° 18'	0.8	4° 18'	-11° 53'

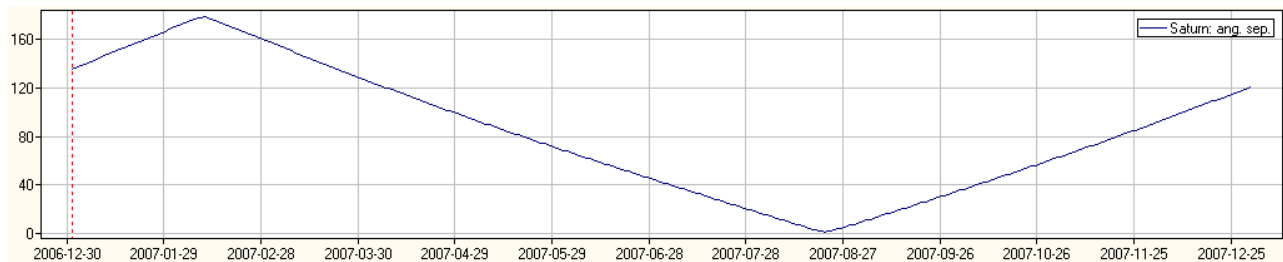
Legenda:

Obj r/s : ora del tramonto o della levata del pianeta  
Sun r/s : ora del tramonto o della levata del Sole  
Sun alt : altezza del Sole nell'istante di visibilità del pianeta  
Obj lon : longitudine celeste del pianeta  
Obj 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

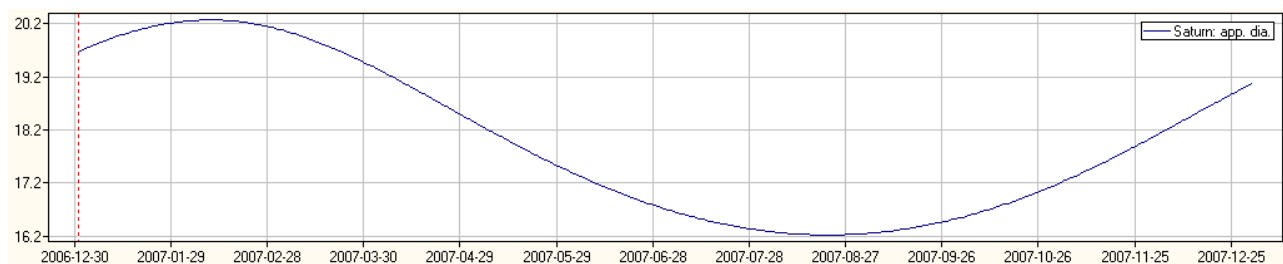
© (3)



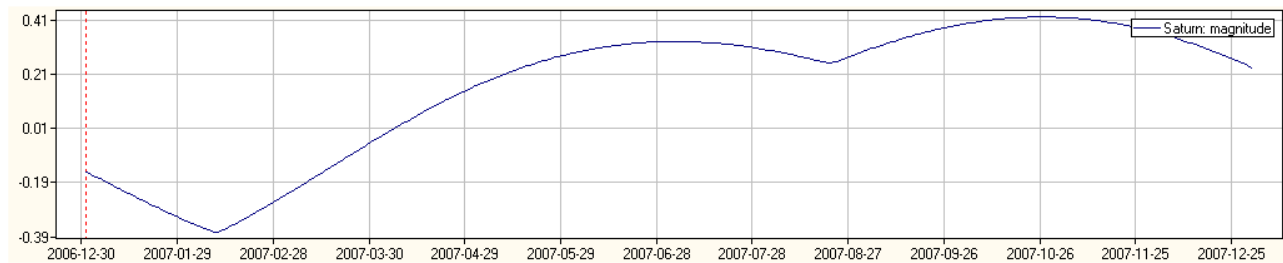
Distanza di Saturno in U.A. nel corso dell'anno



Elongazione di Saturno in ° nel corso dell'anno

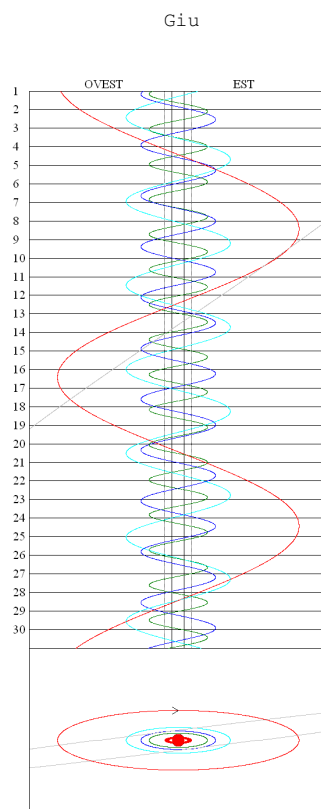
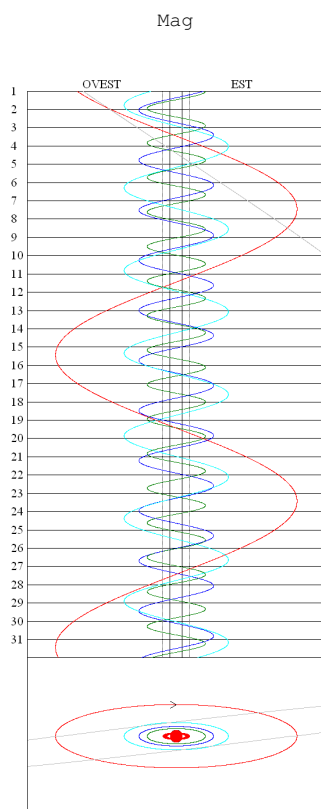
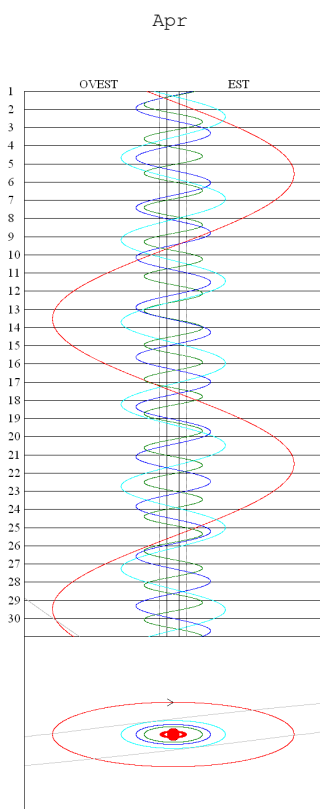
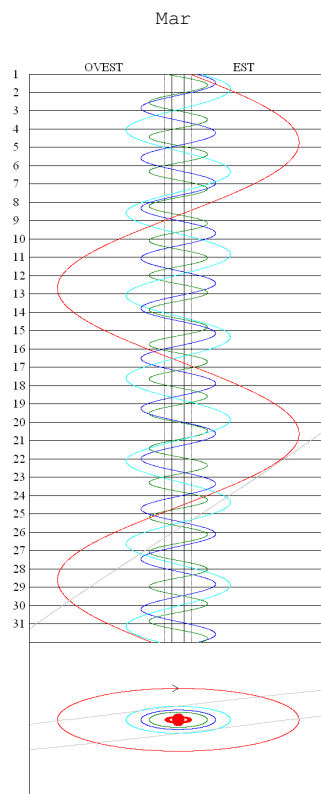
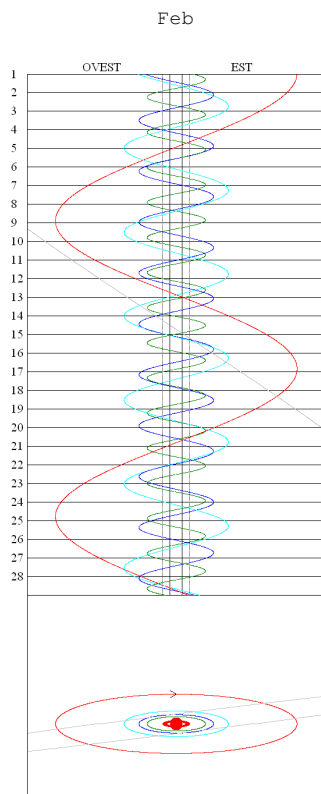
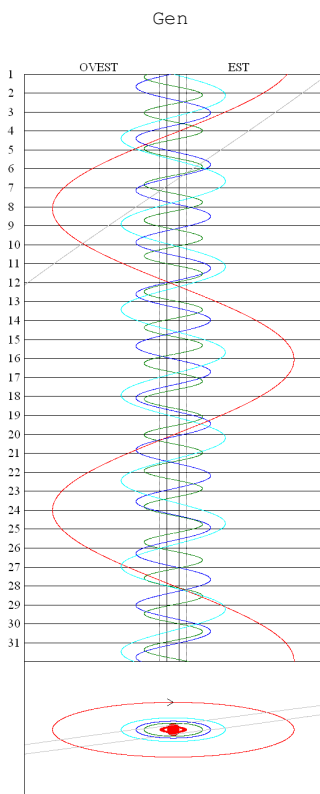


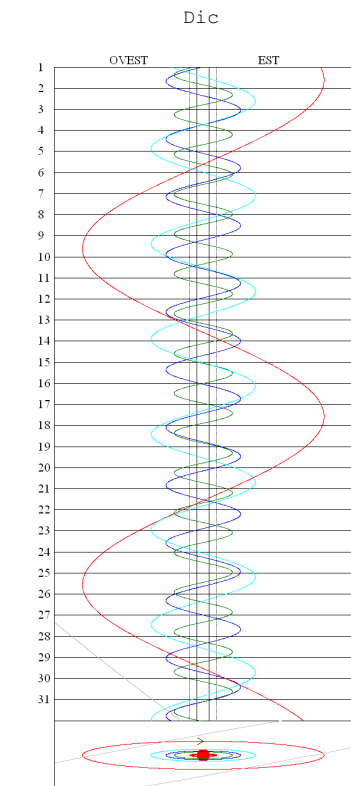
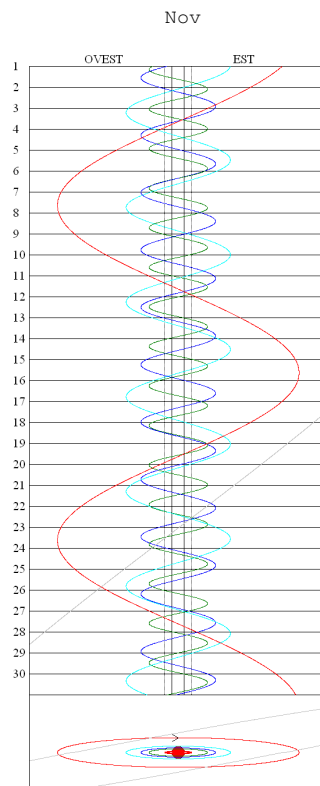
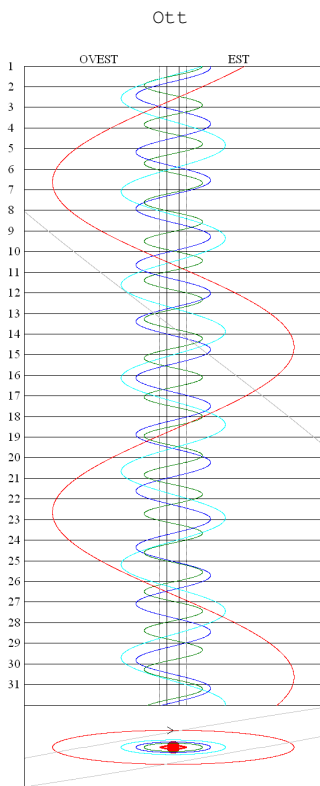
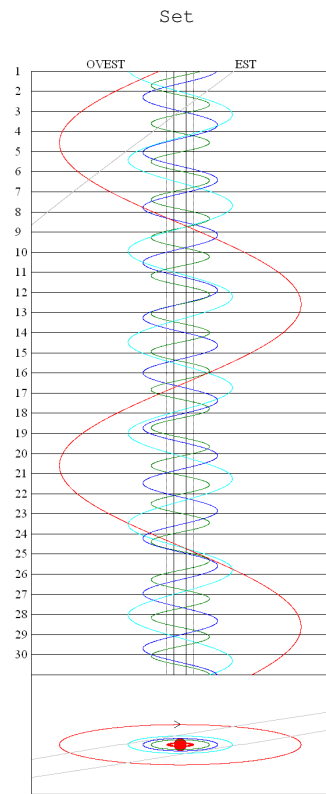
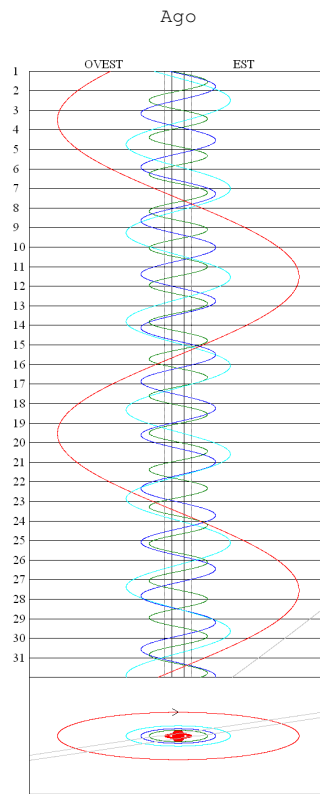
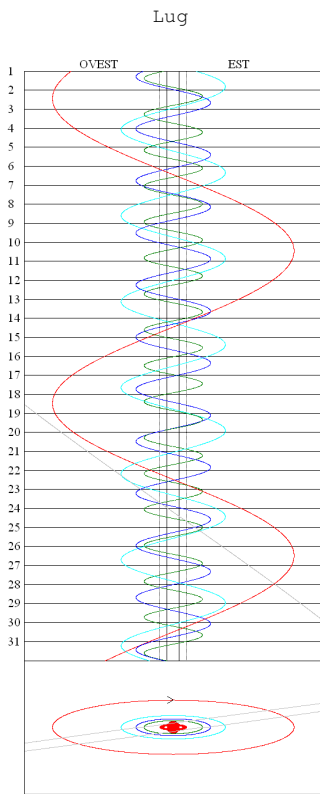
Diametro di Saturno in " nel corso dell'anno



Magnitudine di Saturno nel corso dell'anno

# POSIZIONE DEI SATELLITI DI SATURNO





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

# MERIDIANO CENTRALE DI SATURNO

Meridiano Centrale di Saturno, Sistema I, nel 2007

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	241.8	138.2	20.5	273.8	40.8	290.2	55.0	303.8	193.2	319.8	212.0	341.8
2	6.2	262.5	144.8	38.2	165.0	54.5	179.0	67.8	317.2	84.0	336.2	106.2
3	130.8	27.0	269.0	162.5	289.2	178.8	303.2	192.0	81.5	208.2	100.8	230.5
4	255.0	151.2	33.5	286.8	53.5	302.8	67.2	316.2	205.8	332.5	225.0	354.8
5	19.5	275.8	157.8	51.0	177.8	67.0	191.5	80.2	330.0	96.8	349.2	119.2
6	143.8	40.0	282.0	175.2	301.8	191.2	315.8	204.5	94.2	221.0	113.5	243.5
7	268.2	164.5	46.5	299.5	66.0	315.2	79.8	328.8	218.2	345.2	238.0	8.0
8	32.8	288.8	170.8	63.8	190.2	79.5	204.0	92.8	342.5	109.5	2.2	132.2
9	157.0	53.2	295.0	188.0	314.5	203.5	328.0	217.0	106.8	233.8	126.5	256.5
10	281.5	177.5	59.5	312.2	78.5	327.8	92.2	341.2	231.0	358.0	250.8	21.0
11	45.8	302.0	183.8	76.5	202.8	92.0	216.5	105.2	355.2	122.2	15.2	145.2
12	170.2	66.2	308.0	200.8	327.0	216.0	340.5	229.5	119.5	246.5	139.5	269.8
13	294.8	190.8	72.2	325.0	91.2	340.2	104.8	353.8	243.5	10.8	263.8	34.0
14	59.0	315.0	196.8	89.2	215.2	104.5	228.8	117.8	7.8	135.0	28.0	158.5
15	183.5	79.5	321.0	213.5	339.5	228.5	353.0	242.0	132.0	259.2	152.5	282.8
16	307.8	203.8	85.2	337.5	103.8	352.8	117.2	6.2	256.2	23.5	276.8	47.2
17	72.2	328.2	209.5	101.8	227.8	116.8	241.2	130.2	20.5	147.8	41.0	171.5
18	196.5	92.5	334.0	226.0	352.0	241.0	5.5	254.5	144.8	272.0	165.5	296.0
19	321.0	217.0	98.2	350.2	116.2	5.2	129.5	18.8	269.0	36.2	289.8	60.2
20	85.5	341.2	222.5	114.5	240.5	129.2	253.8	143.0	33.2	160.8	54.0	184.8
21	209.8	105.5	346.8	238.8	4.5	253.5	18.0	267.0	157.5	285.0	178.2	309.0
22	334.2	230.0	111.0	3.0	128.8	17.5	142.0	31.2	281.5	49.2	302.8	73.5
23	98.5	354.2	235.2	127.2	253.0	141.8	266.2	155.5	45.8	173.5	67.0	197.8
24	223.0	118.8	359.8	251.5	17.0	265.8	30.5	279.8	170.0	297.8	191.5	322.2
25	347.5	243.0	124.0	15.5	141.2	30.0	154.5	43.8	294.2	62.0	315.8	86.5
26	111.8	7.2	248.2	139.8	265.5	154.2	278.8	168.0	58.5	186.2	80.0	211.0
27	236.2	131.8	12.5	264.0	29.5	278.2	42.8	292.2	182.8	310.5	204.5	335.2
28	0.5	256.0	136.8	28.2	153.8	42.5	167.0	56.5	307.0	75.0	328.8	99.8
29	125.0		261.0	152.5	278.0	166.5	291.2	180.5	71.2	199.2	93.0	224.0
30	249.2		25.2	276.8	42.0	290.8	55.2	304.8	195.5	323.5	217.5	348.5
31	13.8		149.5		166.2		179.5	69.0		87.8		112.8

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	35.2	70.4	105.5	140.7	175.9	211.1	246.3	281.4	316.6	351.8	27.0
10	5.9	41.0	76.2	111.4	146.6	181.8	216.9	252.1	287.3	322.5	357.7	32.8
20	11.7	46.9	82.1	117.3	152.4	187.6	222.8	258.0	293.2	328.3	3.5	38.7
30	17.6	52.8	87.9	123.1	158.3	193.5	228.7	263.8	299.0	334.2	9.4	44.6
40	23.5	58.6	93.8	129.0	164.2	199.3	234.5	269.7	304.9	340.1	15.2	50.4
50	29.3	64.5	99.7	134.9	170.0	205.2	240.4	275.6	310.7	345.9	21.1	56.3
60	35.2	70.4	105.5	140.7	175.9	211.1	246.3	281.4	316.6	351.8	27.0	62.1

# EFFEMERIDI DI URANO

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	SORGE h,m	TRAMONTA h,m
1/ 1/2007/ 0/ 0	22 53 2	- 7 56 6	20.08713	20.53979	170.82	61.4	3.40	5.89	10 60	21 51
2/ 1/2007/ 0/ 0	22 53 10	- 7 55 17	20.08716	20.55492	170.95	60.4	3.40	5.89	10 56	21 48
3/ 1/2007/ 0/ 0	22 53 18	- 7 54 28	20.08719	20.56991	171.07	59.4	3.40	5.89	10 52	21 44
4/ 1/2007/ 0/ 0	22 53 26	- 7 53 37	20.08722	20.58475	171.20	58.4	3.40	5.89	10 48	21 40
5/ 1/2007/ 0/ 0	22 53 34	- 7 52 46	20.08725	20.59944	171.32	57.4	3.40	5.89	10 44	21 36
6/ 1/2007/ 0/ 0	22 53 42	- 7 51 53	20.08728	20.61397	171.44	56.4	3.39	5.90	10 40	21 33
7/ 1/2007/ 0/ 0	22 53 50	- 7 50 60	20.08731	20.62835	171.56	55.5	3.39	5.90	10 36	21 29
8/ 1/2007/ 0/ 0	22 53 59	- 7 50 6	20.08733	20.64255	171.68	54.5	3.39	5.90	10 33	21 25
9/ 1/2007/ 0/ 0	22 54 8	- 7 49 11	20.08736	20.65660	171.80	53.5	3.39	5.90	10 29	21 21
10/ 1/2007/ 0/ 0	22 54 16	- 7 48 15	20.08739	20.67047	171.91	52.5	3.38	5.90	10 25	21 18
11/ 1/2007/ 0/ 0	22 54 25	- 7 47 18	20.08742	20.68416	172.03	51.5	3.38	5.90	10 21	21 14
12/ 1/2007/ 0/ 0	22 54 34	- 7 46 21	20.08745	20.69768	172.14	50.6	3.38	5.90	10 17	21 10
13/ 1/2007/ 0/ 0	22 54 44	- 7 45 23	20.08747	20.71101	172.25	49.6	3.38	5.91	10 13	21 7
14/ 1/2007/ 0/ 0	22 54 53	- 7 44 23	20.08750	20.72415	172.36	48.6	3.37	5.91	10 9	21 3
15/ 1/2007/ 0/ 0	22 55 2	- 7 43 23	20.08753	20.73711	172.47	47.6	3.37	5.91	10 6	20 59
16/ 1/2007/ 0/ 0	22 55 12	- 7 42 23	20.08756	20.74987	172.57	46.7	3.37	5.91	10 2	20 55
17/ 1/2007/ 0/ 0	22 55 22	- 7 41 21	20.08759	20.76243	172.68	45.7	3.37	5.91	9 58	20 52
18/ 1/2007/ 0/ 0	22 55 31	- 7 40 19	20.08762	20.77478	172.78	44.7	3.37	5.91	9 54	20 48
19/ 1/2007/ 0/ 0	22 55 41	- 7 39 16	20.08764	20.78694	172.88	43.7	3.36	5.91	9 50	20 44
20/ 1/2007/ 0/ 0	22 55 52	- 7 38 12	20.08767	20.79888	172.98	42.8	3.36	5.91	9 46	20 41
21/ 1/2007/ 0/ 0	22 56 2	- 7 37 8	20.08770	20.81060	173.08	41.8	3.36	5.92	9 43	20 37
22/ 1/2007/ 0/ 0	22 56 12	- 7 36 3	20.08773	20.82212	173.17	40.8	3.36	5.92	9 39	20 33
23/ 1/2007/ 0/ 0	22 56 23	- 7 34 57	20.08776	20.83341	173.27	39.9	3.36	5.92	9 35	20 30
24/ 1/2007/ 0/ 0	22 56 33	- 7 33 50	20.08778	20.84447	173.36	38.9	3.36	5.92	9 31	20 26
25/ 1/2007/ 0/ 0	22 56 44	- 7 32 43	20.08781	20.85532	173.45	37.9	3.35	5.92	9 27	20 22
26/ 1/2007/ 0/ 0	22 56 54	- 7 31 36	20.08784	20.86593	173.54	36.9	3.35	5.92	9 23	20 19
27/ 1/2007/ 0/ 0	22 57 5	- 7 30 27	20.08787	20.87631	173.62	36.0	3.35	5.92	9 20	20 15
28/ 1/2007/ 0/ 0	22 57 16	- 7 29 18	20.08789	20.88646	173.71	35.0	3.35	5.92	9 16	20 11
29/ 1/2007/ 0/ 0	22 57 27	- 7 28 9	20.08792	20.89638	173.79	34.0	3.35	5.93	9 12	20 8
30/ 1/2007/ 0/ 0	22 57 38	- 7 26 59	20.08795	20.90605	173.87	33.1	3.35	5.93	9 8	20 4
31/ 1/2007/ 0/ 0	22 57 50	- 7 25 48	20.08798	20.91549	173.95	32.1	3.34	5.93	9 4	20 0
1/ 2/2007/ 0/ 0	22 58 1	- 7 24 37	20.08800	20.92469	174.03	31.2	3.34	5.93	9 0	19 57
2/ 2/2007/ 0/ 0	22 58 12	- 7 23 25	20.08803	20.93364	174.10	30.2	3.34	5.93	8 57	19 53
3/ 2/2007/ 0/ 0	22 58 24	- 7 22 13	20.08806	20.94234	174.17	29.2	3.34	5.93	8 53	19 49
4/ 2/2007/ 0/ 0	22 58 35	- 7 21 1	20.08809	20.95080	174.24	28.3	3.34	5.93	8 49	19 46
5/ 2/2007/ 0/ 0	22 58 47	- 7 19 47	20.08811	20.95901	174.31	27.3	3.34	5.93	8 45	19 42
6/ 2/2007/ 0/ 0	22 58 59	- 7 18 34	20.08814	20.96696	174.38	26.3	3.34	5.93	8 41	19 38
7/ 2/2007/ 0/ 0	22 59 11	- 7 17 20	20.08817	20.97466	174.44	25.4	3.33	5.93	8 37	19 35
8/ 2/2007/ 0/ 0	22 59 22	- 7 16 6	20.08820	20.98211	174.50	24.4	3.33	5.93	8 34	19 31
9/ 2/2007/ 0/ 0	22 59 34	- 7 14 51	20.08822	20.98929	174.56	23.5	3.33	5.93	8 30	19 27
10/ 2/2007/ 0/ 0	22 59 46	- 7 13 35	20.08825	20.99622	174.62	22.5	3.33	5.94	8 26	19 24
11/ 2/2007/ 0/ 0	22 59 58	- 7 12 20	20.08828	21.00288	174.68	21.6	3.33	5.94	8 22	19 20
12/ 2/2007/ 0/ 0	23 0 11	- 7 11 4	20.08831	21.00928	174.73	20.6	3.33	5.94	8 18	19 16
13/ 2/2007/ 0/ 0	23 0 23	- 7 9 47	20.08833	21.01542	174.78	19.6	3.33	5.94	8 15	19 13
14/ 2/2007/ 0/ 0	23 0 35	- 7 8 31	20.08836	21.02128	174.83	18.7	3.33	5.94	8 11	19 9
15/ 2/2007/ 0/ 0	23 0 47	- 7 7 14	20.08839	21.02688	174.88	17.7	3.33	5.94	8 7	19 6
16/ 2/2007/ 0/ 0	23 0 60	- 7 5 56	20.08841	21.03220	174.92	16.8	3.33	5.94	8 3	19 2
17/ 2/2007/ 0/ 0	23 1 12	- 7 4 39	20.08844	21.03726	174.96	15.8	3.32	5.94	7 59	18 58
18/ 2/2007/ 0/ 0	23 1 25	- 7 3 21	20.08847	21.04203	175.00	14.9	3.32	5.94	7 55	18 55
19/ 2/2007/ 0/ 0	23 1 37	- 7 2 3	20.08850	21.04654	175.04	13.9	3.32	5.94	7 52	18 51
20/ 2/2007/ 0/ 0	23 1 49	- 7 0 44	20.08852	21.05076	175.07	13.0	3.32	5.94	7 48	18 47
21/ 2/2007/ 0/ 0	23 2 2	- 6 59 26	20.08855	21.05471	175.11	12.0	3.32	5.94	7 44	18 44
22/ 2/2007/ 0/ 0	23 2 15	- 6 58 7	20.08858	21.05839	175.14	11.1	3.32	5.94	7 40	18 40
23/ 2/2007/ 0/ 0	23 2 27	- 6 56 48	20.08860	21.06178	175.17	10.1	3.32	5.94	7 36	18 36
24/ 2/2007/ 0/ 0	23 2 40	- 6 55 29	20.08863	21.06489	175.19	9.2	3.32	5.94	7 33	18 33
25/ 2/2007/ 0/ 0	23 2 53	- 6 54 10	20.08866	21.06773	175.21	8.2	3.32	5.94	7 29	18 29
26/ 2/2007/ 0/ 0	23 3 5	- 6 52 50	20.08868	21.07029	175.24	7.3	3.32	5.94	7 25	18 26
27/ 2/2007/ 0/ 0	23 3 18	- 6 51 31	20.08871	21.07256	175.26	6.3	3.32	5.94	7 21	18 22
28/ 2/2007/ 0/ 0	23 3 31	- 6 50 11	20.08874	21.07456	175.27	5.4	3.32	5.94	7 17	18 18
1/ 3/2007/ 0/ 0	23 3 43	- 6 48 52	20.08876	21.07628	175.29	4.5	3.32	5.94	7 14	18 15
2/ 3/2007/ 0/ 0	23 3 56	- 6 47 32	20.08879	21.07772	175.30	3.5	3.32	5.94	7 10	18 11
3/ 3/2007/ 0/ 0	23 4 9	- 6 46 12	20.08882	21.07888	175.31	2.6	3.32	5.94	7 6	18 7
4/ 3/2007/ 0/ 0	23 4 22	- 6 44 53	20.08884	21.07977	175.32	1.7	3.32	5.94	7 2	18 4
5/ 3/2007/ 0/ 0	23 4 35	- 6 43 33	20.08887	21.08037	175.32	1.0	3.32	5.94	6 58	18 0
6/ 3/2007/ 0/ 0	23 4 47	- 6 42 13	20.08890	21.08069	175.32	0.8	3.32	5.94	6 54	17 57
7/ 3/2007/ 0/ 0	23 5 0	- 6 40 53	20.08892	21.08074	175.32	1.5	3.32	5.94	6 51	17 53
8/ 3/2007/ 0/ 0	23 5 13	- 6 39 34	20.08895	21.08051	175.32	2.3	3.32	5.94	6 47	17 49
9/ 3/2007/ 0/ 0	23 5 26	- 6 38 14	20.08898	21.07999	175.32	3.2	3.32	5.94	6 43	17 46
10/ 3/2007/ 0/ 0	23 5 38	- 6 36 54	20.08900	21.07920	175.31	4.2	3.32	5.94	6 39	17 42
11/ 3/2007/ 0/ 0	23 5 51	- 6 35 35	20.08903	21.07813	175.30	5.1	3.32	5.94	6 35	17 38
12/ 3/2007/ 0/ 0	23 6 4	- 6 34 15	20.08905	21.07678	175.29	6.0	3.32	5.94	6 32	17 35
13/ 3/2007/ 0/ 0	23 6 17	- 6 32 56	20.08908	21.07516	175.28	7.0	3.32	5.94	6 28	17 31
14/ 3/2007/ 0/ 0	23 6 29	- 6 31 37	20.08911	21.07325	175.26	7.9	3.32	5.94	6 24	17 28
15/ 3/2007/ 0/ 0	23 6 42	- 6 30 18	20.08913	21.07107	175.24	8.8	3.32	5.94	6 20	17 24
16/ 3/2007/ 0/ 0	23 6 55	- 6 28 59	20.08916	21.06862	175.22	9.8	3.32	5.94	6 16	17 20
17/ 3/2007/ 0/ 0	23 7 7	- 6 27 40	20.08919	21.06588	175.20	10.7	3.32	5.94	6 12	17 17
18/ 3/2007/ 0/ 0	23 7 20	- 6 26 22	20.08921	21.06287	175.17	11.6	3.32	5.94	6 9	17 13
19/ 3/2007/ 0/ 0	23 7 32	- 6 25 4	20.08924	21.05958	175.15	12.6	3.32	5.94	6 5	17 9
20/ 3/2007/ 0/ 0	23 7 45	- 6 23 46	20.08926	21.05603	175.12	13.5	3.32	5.94	6 1	17 6
21/ 3/2007/ 0/ 0	23 7 57	- 6 22 28	20.08929	21.05219	175.09	14.5	3.32	5.94	5 57	17 2
22/ 3/2007/ 0/ 0	23 8 10	- 6 21 10	20.08932	21.04809	175.05	15.4	3.32	5.94	5 53	16 59
23/ 3/2007/ 0/ 0	23 8 22	- 6 19 53	20.08934	21.04372	175.02	16.3	3.32	5.94	5 50	16 55
24/ 3/2007/ 0/ 0	23 8 35	- 6 18 36	20.08937	21.03908	174.98	17.3	3.32	5.94	5 46	16 51
25/ 3/2007/ 0/ 0	23 8 47	- 6 17 19	20.08939	21.03418	174.94	18.2	3.32	5.94	5 42	16 48
26/ 3/2007/ 0/ 0	23 8 59	- 6 16 3	20.08942	21.02901	174.89	19.1	3.33	5.94	5 38	16 44
27/ 3/2007/ 0/ 0	23 9 11	- 6 14 47	20.08945	21.02358	174.85	20.1	3.33	5.94	5 34	16 40
28/ 3/2007/ 0/ 0	23 9 24	- 6 13 32	20.08947	21.01789	174.80	21.0	3.33	5.94	5 31	16 37
29/ 3/2007/ 0/ 0	23 9 36	- 6 12 16	20.08950	21.01194	174.75	21.9	3.33	5.94	5 27	16 33
30/ 3/2007/ 0/ 0	23 9 48	- 6 11 2	20.08952	21.00573	174.70	22.9	3.33	5.94	5 23	16 29
31/ 3/2007/ 0/ 0	23 9 60	- 6 9 47	20.08955	20.99928	174.65	23.8	3.33	5.94	5 19	16 26
1/ 4/2007/ 0/ 0	23 10 12	- 6 8 33	20.08957	20.99256	174.59	24.7	3.33	5.94	5 15	16 22
2/ 4/2007/ 0/ 0	23 10 23	- 6								

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ' ''	MAG	SORGE h,m	TRAMONTA h,m
11/ 4/2007/ 0/ 0	23 12 7	- 5 56 40	20.08983	20.91200	173.92	34.1	3.34	5.93	4 37	15 46
12/ 4/2007/ 0/ 0	23 12 18	- 5 55 32	20.08985	20.90265	173.84	35.0	3.35	5.93	4 33	15 42
13/ 4/2007/ 0/ 0	23 12 29	- 5 54 24	20.08988	20.89306	173.76	35.9	3.35	5.92	4 29	15 38
14/ 4/2007/ 0/ 0	23 12 39	- 5 53 17	20.08990	20.88325	173.68	36.9	3.35	5.92	4 26	15 35
15/ 4/2007/ 0/ 0	23 12 50	- 5 52 11	20.08993	20.87322	173.60	37.8	3.35	5.92	4 22	15 31
16/ 4/2007/ 0/ 0	23 13 1	- 5 51 5	20.08995	20.86296	173.51	38.7	3.35	5.92	4 18	15 27
17/ 4/2007/ 0/ 0	23 13 11	- 5 49 60	20.08998	20.85249	173.42	39.7	3.35	5.92	4 14	15 23
18/ 4/2007/ 0/ 0	23 13 22	- 5 48 55	20.09000	20.84181	173.34	40.6	3.36	5.92	4 10	15 20
19/ 4/2007/ 0/ 0	23 13 32	- 5 47 51	20.09003	20.83091	173.25	41.5	3.36	5.92	4 6	15 16
20/ 4/2007/ 0/ 0	23 13 43	- 5 46 48	20.09005	20.81981	173.15	42.5	3.36	5.92	4 3	15 12
21/ 4/2007/ 0/ 0	23 13 53	- 5 45 46	20.09008	20.80850	173.06	43.4	3.36	5.92	3 59	15 9
22/ 4/2007/ 0/ 0	23 14 3	- 5 44 44	20.09010	20.79699	172.96	44.3	3.36	5.91	3 55	15 5
23/ 4/2007/ 0/ 0	23 14 13	- 5 43 43	20.09013	20.78528	172.87	45.2	3.36	5.91	3 51	15 1
24/ 4/2007/ 0/ 0	23 14 22	- 5 42 43	20.09015	20.77338	172.77	46.2	3.37	5.91	3 47	14 58
25/ 4/2007/ 0/ 0	23 14 32	- 5 41 43	20.09018	20.76129	172.67	47.1	3.37	5.91	3 43	14 54
26/ 4/2007/ 0/ 0	23 14 42	- 5 40 44	20.09020	20.74901	172.56	48.0	3.37	5.91	3 39	14 50
27/ 4/2007/ 0/ 0	23 14 51	- 5 39 47	20.09023	20.73655	172.46	49.0	3.37	5.91	3 36	14 47
28/ 4/2007/ 0/ 0	23 15 0	- 5 38 50	20.09025	20.72391	172.36	49.9	3.37	5.91	3 32	14 43
29/ 4/2007/ 0/ 0	23 15 9	- 5 37 53	20.09028	20.71109	172.25	50.8	3.38	5.91	3 28	14 39
30/ 4/2007/ 0/ 0	23 15 19	- 5 36 58	20.09030	20.69810	172.14	51.8	3.38	5.90	3 24	14 35
1/ 5/2007/ 0/ 0	23 15 27	- 5 36 3	20.09033	20.68494	172.03	52.7	3.38	5.90	3 20	14 32
2/ 5/2007/ 0/ 0	23 15 36	- 5 35 10	20.09035	20.67161	171.92	53.6	3.38	5.90	3 16	14 28
3/ 5/2007/ 0/ 0	23 15 45	- 5 34 17	20.09038	20.65812	171.81	54.6	3.39	5.90	3 13	14 24
4/ 5/2007/ 0/ 0	23 15 53	- 5 33 25	20.09040	20.64447	171.69	55.5	3.39	5.90	3 9	14 20
5/ 5/2007/ 0/ 0	23 16 2	- 5 32 33	20.09043	20.63066	171.58	56.4	3.39	5.90	3 5	14 17
6/ 5/2007/ 0/ 0	23 16 10	- 5 31 43	20.09045	20.61670	171.46	57.3	3.39	5.90	3 1	14 13
7/ 5/2007/ 0/ 0	23 16 18	- 5 30 54	20.09048	20.60260	171.35	58.3	3.39	5.89	2 57	14 9
8/ 5/2007/ 0/ 0	23 16 26	- 5 30 5	20.09050	20.58834	171.23	59.2	3.40	5.89	2 53	14 6
9/ 5/2007/ 0/ 0	23 16 34	- 5 29 17	20.09052	20.57394	171.11	60.1	3.40	5.89	2 49	14 2
10/ 5/2007/ 0/ 0	23 16 42	- 5 28 31	20.09055	20.55941	170.99	61.1	3.40	5.89	2 46	13 58
11/ 5/2007/ 0/ 0	23 16 49	- 5 27 45	20.09057	20.54474	170.87	62.0	3.40	5.89	2 42	13 54
12/ 5/2007/ 0/ 0	23 16 57	- 5 27 0	20.09060	20.52993	170.74	62.9	3.41	5.89	2 38	13 51
13/ 5/2007/ 0/ 0	23 17 4	- 5 26 16	20.09062	20.51500	170.62	63.9	3.41	5.89	2 34	13 47
14/ 5/2007/ 0/ 0	23 17 11	- 5 25 34	20.09065	20.49995	170.49	64.8	3.41	5.88	2 30	13 43
15/ 5/2007/ 0/ 0	23 17 18	- 5 24 52	20.09067	20.48477	170.37	65.7	3.41	5.88	2 26	13 39
16/ 5/2007/ 0/ 0	23 17 25	- 5 24 11	20.09069	20.46948	170.24	66.7	3.42	5.88	2 22	13 35
17/ 5/2007/ 0/ 0	23 17 31	- 5 23 31	20.09072	20.45408	170.11	67.6	3.42	5.88	2 19	13 32
18/ 5/2007/ 0/ 0	23 17 38	- 5 22 52	20.09074	20.43858	169.98	68.5	3.42	5.88	2 15	13 28
19/ 5/2007/ 0/ 0	23 17 44	- 5 22 14	20.09077	20.42297	169.85	69.5	3.42	5.88	2 11	13 24
20/ 5/2007/ 0/ 0	23 17 50	- 5 21 37	20.09079	20.40726	169.72	70.4	3.43	5.87	2 7	13 20
21/ 5/2007/ 0/ 0	23 17 56	- 5 21 1	20.09081	20.39146	169.59	71.4	3.43	5.87	2 3	13 17
22/ 5/2007/ 0/ 0	23 18 2	- 5 20 27	20.09084	20.37558	169.46	72.3	3.43	5.87	1 59	13 13
23/ 5/2007/ 0/ 0	23 18 8	- 5 19 53	20.09086	20.35961	169.33	73.2	3.44	5.87	1 55	13 9
24/ 5/2007/ 0/ 0	23 18 13	- 5 19 20	20.09089	20.34356	169.19	74.2	3.44	5.87	1 51	13 5
25/ 5/2007/ 0/ 0	23 18 19	- 5 18 49	20.09091	20.32744	169.06	75.1	3.44	5.87	1 48	13 1
26/ 5/2007/ 0/ 0	23 18 24	- 5 18 18	20.09093	20.31125	168.92	76.0	3.44	5.86	1 44	12 58
27/ 5/2007/ 0/ 0	23 18 29	- 5 17 49	20.09096	20.29499	168.79	77.0	3.45	5.86	1 40	12 54
28/ 5/2007/ 0/ 0	23 18 34	- 5 17 20	20.09098	20.27867	168.65	77.9	3.45	5.86	1 36	12 50
29/ 5/2007/ 0/ 0	23 18 38	- 5 16 53	20.09100	20.26229	168.52	78.9	3.45	5.86	1 32	12 46
30/ 5/2007/ 0/ 0	23 18 43	- 5 16 27	20.09103	20.24586	168.38	79.8	3.45	5.86	1 28	12 42
31/ 5/2007/ 0/ 0	23 18 47	- 5 16 2	20.09105	20.22939	168.24	80.7	3.46	5.85	1 24	12 38
1/ 6/2007/ 0/ 0	23 18 51	- 5 15 38	20.09108	20.21286	168.11	81.7	3.46	5.85	1 20	12 35
2/ 6/2007/ 0/ 0	23 18 55	- 5 15 15	20.09110	20.19630	167.97	82.6	3.46	5.85	1 16	12 31
3/ 6/2007/ 0/ 0	23 18 59	- 5 14 53	20.09112	20.17970	167.83	83.6	3.47	5.85	1 13	12 27
4/ 6/2007/ 0/ 0	23 19 3	- 5 14 32	20.09115	20.16307	167.69	84.5	3.47	5.85	1 9	12 23
5/ 6/2007/ 0/ 0	23 19 6	- 5 14 12	20.09117	20.14642	167.55	85.4	3.47	5.85	1 5	12 19
6/ 6/2007/ 0/ 0	23 19 10	- 5 13 54	20.09119	20.12974	167.41	86.4	3.47	5.84	1 1	12 15
7/ 6/2007/ 0/ 0	23 19 13	- 5 13 36	20.09122	20.11304	167.27	87.3	3.48	5.84	0 57	12 12
8/ 6/2007/ 0/ 0	23 19 16	- 5 13 20	20.09124	20.09632	167.14	88.3	3.48	5.84	0 53	12 8
9/ 6/2007/ 0/ 0	23 19 19	- 5 13 5	20.09126	20.07960	167.00	89.2	3.48	5.84	0 49	12 4
10/ 6/2007/ 0/ 0	23 19 21	- 5 12 51	20.09129	20.06287	166.86	90.2	3.49	5.84	0 45	11 60
11/ 6/2007/ 0/ 0	23 19 24	- 5 12 38	20.09131	20.04613	166.72	91.1	3.49	5.84	0 41	11 56
12/ 6/2007/ 0/ 0	23 19 26	- 5 12 26	20.09133	20.02941	166.58	92.0	3.49	5.83	0 37	11 52
13/ 6/2007/ 0/ 0	23 19 28	- 5 12 16	20.09136	20.01269	166.44	93.0	3.49	5.83	0 34	11 48
14/ 6/2007/ 0/ 0	23 19 30	- 5 12 6	20.09138	19.99598	166.30	93.9	3.50	5.83	0 30	11 44
15/ 6/2007/ 0/ 0	23 19 32	- 5 11 58	20.09140	19.97930	166.16	94.9	3.50	5.83	0 26	11 40
16/ 6/2007/ 0/ 0	23 19 33	- 5 11 51	20.09143	19.96264	166.02	95.8	3.50	5.83	0 22	11 37
17/ 6/2007/ 0/ 0	23 19 34	- 5 11 44	20.09145	19.94600	165.89	96.8	3.51	5.82	0 18	11 33
18/ 6/2007/ 0/ 0	23 19 36	- 5 11 40	20.09147	19.92941	165.75	97.7	3.51	5.82	0 14	11 29
19/ 6/2007/ 0/ 0	23 19 37	- 5 11 36	20.09149	19.91285	165.61	98.7	3.51	5.82	0 10	11 25
20/ 6/2007/ 0/ 0	23 19 37	- 5 11 33	20.09152	19.89633	165.47	99.6	3.52	5.82	0 6	11 21
21/ 6/2007/ 0/ 0	23 19 38	- 5 11 32	20.09154	19.87987	165.34	100.6	3.52	5.82	0 2	11 17
22/ 6/2007/ 0/ 0	23 19 38	- 5 11 32	20.09156	19.86345	165.20	101.5	3.52	5.82	23 58	11 13
23/ 6/2007/ 0/ 0	23 19 39	- 5 11 32	20.09159	19.84710	165.06	102.5	3.52	5.81	23 54	11 9
24/ 6/2007/ 0/ 0	23 19 39	- 5 11 34	20.09161	19.83081	164.93	103.5	3.53	5.81	23 50	11 5
25/ 6/2007/ 0/ 0	23 19 39	- 5 11 37	20.09163	19.81458	164.79	104.4	3.53	5.81	23 46	11 1
26/ 6/2007/ 0/ 0	23 19 38	- 5 11 42	20.09165	19.79843	164.66	105.4	3.53	5.81	23 43	10 57
27/ 6/2007/ 0/ 0	23 19 38	- 5 11 47	20.09168	19.78235	164.52	106.3	3.54	5.81	23 39	10 53
28/ 6/2007/ 0/ 0	23 19 37	- 5 11 53	20.09170	19.76636	164.39	107.3	3.54	5.80	23 35	10 49
29/ 6/2007/ 0/ 0	23 19 37	- 5 12 1	20.09172	19.75044	164.26	108.2	3.54	5.80	23 31	10 46
30/ 6/2007/ 0/ 0	23 19 36	- 5 12 10	20.09175	19.73462	164.13	109.2	3.54	5.80	23 27	10 42
1/ 7/2007/ 0/ 0	23 19 34	- 5 12 19	20.09177	19.71889	164.00	110.2	3.55	5.80	23 23	10 38
2/ 7/2007/ 0/ 0	23 19 33	- 5 12 30	20.09179	19.70326	163.87	111.1	3.55	5.80	23 19	10 34
3/ 7/2007/ 0/ 0	23 19 32	- 5 12 42	20.09181	19.68773	163.74	112.1	3.55	5.80	23 15	10 30
4/ 7/2007/ 0/ 0	23 19 30	- 5 12 55	20.09184	19.67230	163.61	113.0	3.56	5.79	23 11	10 26
5/ 7/2007/ 0/ 0	23 19 28	- 5 13 9	20.09186	19.65699	163.48	114.0	3.56	5.79	23 7	10 22
6/ 7/2007/ 0/ 0	23 19 26	- 5 13 24	20.09188	19.64179	163.36	115.0	3.56	5.79	23 3	10 18
7/ 7/2007/ 0/ 0	23 19 24	- 5 13 41	20.09190	19.62671	163.23	115.9	3.56	5.79	22 59	10 14
8/ 7/2007/ 0/ 0	23 19 21	- 5 13 58	20.09192	19.61175	163.11	116.9	3.57	5.79	22 55	10 10
9/ 7/2007/ 0/ 0	23 19 19	- 5 14 17	20.09195	19.59692	162.98	117.8	3.57	5.79	22 51	10 6
10/ 7/2007/ 0/ 0	23 19 16	- 5 14 36	20.09197	19.58222	162.86	118.8	3.57	5.78	2	



DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' "	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ' "	MAG	SORGE h,m	TRAMONTA h,m
27/ 7/2007/ 0/ 0	23 18 6	- 5 22 40	20.09234	19.35705	160.99	135.4	3.61	5.76	21 40	8 53
28/ 7/2007/ 0/ 0	23 18 0	- 5 23 17	20.09236	19.34549	160.89	136.3	3.62	5.76	21 36	8 49
29/ 7/2007/ 0/ 0	23 17 55	- 5 23 54	20.09239	19.33414	160.80	137.3	3.62	5.76	21 32	8 45
30/ 7/2007/ 0/ 0	23 17 49	- 5 24 33	20.09241	19.32301	160.70	138.3	3.62	5.76	21 28	8 41
31/ 7/2007/ 0/ 0	23 17 43	- 5 25 12	20.09243	19.31209	160.61	139.3	3.62	5.75	21 24	8 37
1/ 8/2007/ 0/ 0	23 17 37	- 5 25 52	20.09245	19.30138	160.52	140.3	3.62	5.75	21 20	8 33
2/ 8/2007/ 0/ 0	23 17 31	- 5 26 33	20.09247	19.29091	160.44	141.3	3.63	5.75	21 16	8 29
3/ 8/2007/ 0/ 0	23 17 24	- 5 27 14	20.09249	19.28065	160.35	142.2	3.63	5.75	21 12	8 25
4/ 8/2007/ 0/ 0	23 17 18	- 5 27 57	20.09252	19.27063	160.27	143.2	3.63	5.75	21 8	8 21
5/ 8/2007/ 0/ 0	23 17 11	- 5 28 40	20.09254	19.26084	160.19	144.2	3.63	5.75	21 4	8 16
6/ 8/2007/ 0/ 0	23 17 5	- 5 29 24	20.09256	19.25129	160.11	145.2	3.63	5.75	21 0	8 12
7/ 8/2007/ 0/ 0	23 16 58	- 5 30 8	20.09258	19.24198	160.03	146.2	3.63	5.75	20 56	8 8
8/ 8/2007/ 0/ 0	23 16 51	- 5 30 53	20.09260	19.23291	159.96	147.2	3.64	5.75	20 52	8 4
9/ 8/2007/ 0/ 0	23 16 44	- 5 31 39	20.09262	19.22409	159.88	148.2	3.64	5.74	20 48	8 0
10/ 8/2007/ 0/ 0	23 16 37	- 5 32 25	20.09264	19.21551	159.81	149.2	3.64	5.74	20 44	7 56
11/ 8/2007/ 0/ 0	23 16 30	- 5 33 12	20.09266	19.20719	159.74	150.1	3.64	5.74	20 40	7 52
12/ 8/2007/ 0/ 0	23 16 23	- 5 34 0	20.09269	19.19913	159.67	151.1	3.64	5.74	20 36	7 48
13/ 8/2007/ 0/ 0	23 16 15	- 5 34 48	20.09271	19.19133	159.61	152.1	3.64	5.74	20 32	7 44
14/ 8/2007/ 0/ 0	23 16 8	- 5 35 37	20.09273	19.18378	159.55	153.1	3.65	5.74	20 28	7 40
15/ 8/2007/ 0/ 0	23 15 60	- 5 36 27	20.09275	19.17651	159.49	154.1	3.65	5.74	20 24	7 35
16/ 8/2007/ 0/ 0	23 15 52	- 5 37 17	20.09277	19.16950	159.43	155.1	3.65	5.74	20 20	7 31
17/ 8/2007/ 0/ 0	23 15 44	- 5 38 7	20.09279	19.16276	159.37	156.1	3.65	5.74	20 16	7 27
18/ 8/2007/ 0/ 0	23 15 37	- 5 38 58	20.09281	19.15629	159.32	157.1	3.65	5.74	20 12	7 23
19/ 8/2007/ 0/ 0	23 15 29	- 5 39 50	20.09283	19.15010	159.27	158.1	3.65	5.74	20 8	7 19
20/ 8/2007/ 0/ 0	23 15 21	- 5 40 41	20.09285	19.14418	159.22	159.1	3.65	5.74	20 4	7 15
21/ 8/2007/ 0/ 0	23 15 12	- 5 41 34	20.09287	19.13854	159.17	160.1	3.65	5.73	20 0	7 11
22/ 8/2007/ 0/ 0	23 15 4	- 5 42 26	20.09290	19.13318	159.13	161.1	3.66	5.73	19 56	7 7
23/ 8/2007/ 0/ 0	23 14 56	- 5 43 19	20.09292	19.12810	159.08	162.1	3.66	5.73	19 52	7 2
24/ 8/2007/ 0/ 0	23 14 48	- 5 44 12	20.09294	19.12330	159.04	163.1	3.66	5.73	19 48	6 58
25/ 8/2007/ 0/ 0	23 14 39	- 5 45 6	20.09296	19.11879	159.01	164.1	3.66	5.73	19 44	6 54
26/ 8/2007/ 0/ 0	23 14 31	- 5 46 0	20.09298	19.11456	158.97	165.1	3.66	5.73	19 40	6 50
27/ 8/2007/ 0/ 0	23 14 22	- 5 46 54	20.09300	19.11062	158.94	166.1	3.66	5.73	19 36	6 46
28/ 8/2007/ 0/ 0	23 14 14	- 5 47 49	20.09302	19.10697	158.91	167.1	3.66	5.73	19 32	6 42
29/ 8/2007/ 0/ 0	23 14 5	- 5 48 44	20.09304	19.10360	158.88	168.1	3.66	5.73	19 28	6 38
30/ 8/2007/ 0/ 0	23 13 57	- 5 49 39	20.09306	19.10053	158.85	169.1	3.66	5.73	19 24	6 33
31/ 8/2007/ 0/ 0	23 13 48	- 5 50 34	20.09308	19.09774	158.83	170.1	3.66	5.73	19 20	6 29
1/ 9/2007/ 0/ 0	23 13 39	- 5 51 29	20.09310	19.09525	158.81	171.1	3.66	5.73	19 16	6 25
2/ 9/2007/ 0/ 0	23 13 31	- 5 52 25	20.09312	19.09306	158.79	172.1	3.66	5.73	19 12	6 21
3/ 9/2007/ 0/ 0	23 13 22	- 5 53 21	20.09314	19.09116	158.78	173.1	3.66	5.73	19 8	6 17
4/ 9/2007/ 0/ 0	23 13 13	- 5 54 16	20.09316	19.08955	158.76	174.1	3.66	5.73	19 4	6 13
5/ 9/2007/ 0/ 0	23 13 4	- 5 55 12	20.09318	19.08824	158.75	175.1	3.66	5.73	18 60	6 9
6/ 9/2007/ 0/ 0	23 12 55	- 5 56 8	20.09320	19.08723	158.74	176.1	3.66	5.73	18 56	6 4
7/ 9/2007/ 0/ 0	23 12 46	- 5 57 4	20.09322	19.08652	158.74	177.1	3.66	5.73	18 52	6 0
8/ 9/2007/ 0/ 0	23 12 38	- 5 58 0	20.09324	19.08611	158.73	178.0	3.66	5.73	18 48	5 56
9/ 9/2007/ 0/ 0	23 12 29	- 5 58 56	20.09326	19.08601	158.73	178.9	3.66	5.73	18 44	5 52
10/ 9/2007/ 0/ 0	23 12 20	- 5 59 52	20.09328	19.08620	158.74	179.2	3.66	5.73	18 40	5 48
11/ 9/2007/ 0/ 0	23 12 11	- 6 0 48	20.09330	19.08669	158.74	178.5	3.66	5.73	18 36	5 44
12/ 9/2007/ 0/ 0	23 12 2	- 6 1 44	20.09332	19.08749	158.75	177.6	3.66	5.73	18 32	5 40
13/ 9/2007/ 0/ 0	23 11 53	- 6 2 40	20.09334	19.08859	158.75	176.6	3.66	5.73	18 28	5 35
14/ 9/2007/ 0/ 0	23 11 44	- 6 3 36	20.09336	19.08999	158.77	175.6	3.66	5.73	18 24	5 31
15/ 9/2007/ 0/ 0	23 11 35	- 6 4 31	20.09338	19.09169	158.78	174.6	3.66	5.73	18 20	5 27
16/ 9/2007/ 0/ 0	23 11 27	- 6 5 27	20.09340	19.09369	158.80	173.6	3.66	5.73	18 16	5 23
17/ 9/2007/ 0/ 0	23 11 18	- 6 6 22	20.09342	19.09600	158.82	172.6	3.66	5.73	18 12	5 19
18/ 9/2007/ 0/ 0	23 11 9	- 6 7 17	20.09344	19.09860	158.84	171.6	3.66	5.73	18 8	5 15
19/ 9/2007/ 0/ 0	23 11 0	- 6 8 11	20.09346	19.10150	158.86	170.6	3.66	5.73	18 4	5 11
20/ 9/2007/ 0/ 0	23 10 51	- 6 9 6	20.09348	19.10470	158.89	169.6	3.66	5.73	17 60	5 6
21/ 9/2007/ 0/ 0	23 10 43	- 6 9 60	20.09350	19.10819	158.92	168.6	3.66	5.73	17 56	5 2
22/ 9/2007/ 0/ 0	23 10 34	- 6 10 53	20.09352	19.11198	158.95	167.6	3.66	5.73	17 48	4 54
23/ 9/2007/ 0/ 0	23 10 25	- 6 11 47	20.09354	19.11606	158.98	166.6	3.66	5.73	17 44	4 50
24/ 9/2007/ 0/ 0	23 10 17	- 6 12 40	20.09356	19.12044	159.02	165.5	3.66	5.73	17 40	4 46
25/ 9/2007/ 0/ 0	23 10 8	- 6 13 33	20.09358	19.12510	159.06	164.5	3.66	5.73	17 36	4 42
26/ 9/2007/ 0/ 0	23 9 60	- 6 14 25	20.09360	19.13006	159.10	163.5	3.66	5.73	17 32	4 38
27/ 9/2007/ 0/ 0	23 9 52	- 6 15 17	20.09362	19.13530	159.14	162.5	3.66	5.73	17 28	4 34
28/ 9/2007/ 0/ 0	23 9 43	- 6 16 8	20.09364	19.14083	159.19	161.5	3.65	5.74	17 24	4 29
29/ 9/2007/ 0/ 0	23 9 35	- 6 16 59	20.09366	19.14664	159.24	160.5	3.65	5.74	17 20	4 25
30/ 9/2007/ 0/ 0	23 9 27	- 6 17 50	20.09368	19.15274	159.29	159.4	3.65	5.74	17 16	4 21
1/10/2007/ 0/ 0	23 9 19	- 6 18 40	20.09370	19.15912	159.34	158.4	3.65	5.74	17 12	4 17
2/10/2007/ 0/ 0	23 9 11	- 6 19 29	20.09372	19.16579	159.40	157.4	3.65	5.74	17 8	4 13
3/10/2007/ 0/ 0	23 9 3	- 6 20 18	20.09374	19.17273	159.45	156.4	3.65	5.74	17 4	4 9
4/10/2007/ 0/ 0	23 8 55	- 6 21 6	20.09376	19.17995	159.51	155.4	3.65	5.74	16 60	4 5
5/10/2007/ 0/ 0	23 8 47	- 6 21 54	20.09378	19.18744	159.58	154.3	3.65	5.74	16 56	4 1
6/10/2007/ 0/ 0	23 8 39	- 6 22 41	20.09380	19.19521	159.64	153.3	3.64	5.74	16 52	3 56
7/10/2007/ 0/ 0	23 8 32	- 6 23 28	20.09381	19.20325	159.71	152.3	3.64	5.74	16 48	3 52
8/10/2007/ 0/ 0	23 8 24	- 6 24 14	20.09383	19.21156	159.78	151.3	3.64	5.74	16 44	3 48
9/10/2007/ 0/ 0	23 8 17	- 6 24 59	20.09385	19.22014	159.85	150.3	3.64	5.74	16 40	3 44
10/10/2007/ 0/ 0	23 8 9	- 6 25 43	20.09387	19.22898	159.92	149.2	3.64	5.75	16 36	3 40
11/10/2007/ 0/ 0	23 8 2	- 6 26 27	20.09389	19.23809	160.00	148.2	3.64	5.75	16 32	3 36
12/10/2007/ 0/ 0	23 7 55	- 6 27 10	20.09391	19.24745	160.08	147.2	3.63	5.75	16 28	3 32
13/10/2007/ 0/ 0	23 7 48	- 6 27 53	20.09393	19.25707	160.16	146.2	3.63	5.75	16 24	3 28
14/10/2007/ 0/ 0	23 7 41	- 6 28 34	20.09395	19.26695	160.24	145.2	3.63	5.75	16 20	3 24
15/10/2007/ 0/ 0	23 7 34	- 6 29 15	20.09397	19.27707	160.32	144.1	3.63	5.75	16 16	3 20
16/10/2007/ 0/ 0	23 7 28	- 6 29 55	20.09399	19.28743	160.41	143.1	3.63	5.75	16 12	3 15
17/10/2007/ 0/ 0	23 7 21	- 6 30 34	20.09400	19.29804	160.50	142.1	3.62	5.75	16 8	3 11
18/10/2007/ 0/ 0	23 7 15	- 6 31 12	20.09402	19.30889	160.59	141.1	3.62	5.75	16 4	3 7
19/10/2007/ 0/ 0	23 7 8	- 6 31 49	20.09404	19.31998	160.68	140.1	3.62	5.76	15 60	3 3
20/10/2007/ 0/ 0	23 7 2	- 6 32 26	20.09406	19.33129	160.77	139.0	3.62	5.76	15 56	2 59
21/10/2007/ 0/ 0	23 6 56	- 6 33 2	20.09408	19.34284	160.87	138.0	3.62	5.76	15 52	2 55
22/10/2007/ 0/ 0	23 6 50	- 6 33 36	20.09410	19.35460	160.97	137.0	3.61	5.76	15 48	2 51
23/10/2007/ 0/ 0	23 6 45	- 6 34 10	20.09412	19.36659	161.07	136.0	3.61	5.76	15 44	2 47
24/10/2007/ 0/ 0	23 6 39	- 6 34 43	20.09414	19.37879	161.17	135.0	3.61	5.76	15 40	2 43
25/10/2007/ 0/ 0	23 6 34	- 6 35 15	20.09415	19.39121	161.27	133.9	3.61	5.76		

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' "	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ' "	MAG	SORGE h,m	TRAMONTA h,m
11/11/2007/ 0/ 0	23 5 26	- 6 41 42	20.09446	19.63105	163.27	116.6	3.56	5.79	14 28	1 30
12/11/2007/ 0/ 0	23 5 23	- 6 41 55	20.09448	19.64660	163.40	115.6	3.56	5.79	14 24	1 26
13/11/2007/ 0/ 0	23 5 21	- 6 42 7	20.09450	19.66229	163.53	114.6	3.56	5.79	14 20	1 22
14/11/2007/ 0/ 0	23 5 19	- 6 42 18	20.09452	19.67811	163.66	113.6	3.55	5.80	14 16	1 18
15/11/2007/ 0/ 0	23 5 17	- 6 42 27	20.09454	19.69404	163.79	112.6	3.55	5.80	14 12	1 14
16/11/2007/ 0/ 0	23 5 15	- 6 42 35	20.09455	19.71009	163.92	111.6	3.55	5.80	14 8	1 10
17/11/2007/ 0/ 0	23 5 13	- 6 42 43	20.09457	19.72625	164.06	110.5	3.55	5.80	14 4	1 7
18/11/2007/ 0/ 0	23 5 12	- 6 42 49	20.09459	19.74251	164.19	109.5	3.54	5.80	14 0	1 3
19/11/2007/ 0/ 0	23 5 11	- 6 42 53	20.09461	19.75887	164.33	108.5	3.54	5.80	13 57	0 59
20/11/2007/ 0/ 0	23 5 10	- 6 42 57	20.09462	19.77532	164.47	107.5	3.54	5.81	13 53	0 55
21/11/2007/ 0/ 0	23 5 9	- 6 42 60	20.09464	19.79187	164.60	106.5	3.53	5.81	13 49	0 51
22/11/2007/ 0/ 0	23 5 8	- 6 43 1	20.09466	19.80849	164.74	105.5	3.53	5.81	13 45	0 47
23/11/2007/ 0/ 0	23 5 8	- 6 43 1	20.09468	19.82520	164.88	104.5	3.53	5.81	13 41	0 43
24/11/2007/ 0/ 0	23 5 8	- 6 42 60	20.09469	19.84198	165.02	103.5	3.52	5.81	13 37	0 39
25/11/2007/ 0/ 0	23 5 8	- 6 42 58	20.09471	19.85883	165.16	102.4	3.52	5.82	13 33	0 35
26/11/2007/ 0/ 0	23 5 8	- 6 42 54	20.09473	19.87574	165.30	101.4	3.52	5.82	13 29	0 31
27/11/2007/ 0/ 0	23 5 8	- 6 42 49	20.09475	19.89272	165.44	100.4	3.52	5.82	13 25	0 27
28/11/2007/ 0/ 0	23 5 9	- 6 42 43	20.09476	19.90975	165.58	99.4	3.51	5.82	13 21	0 23
29/11/2007/ 0/ 0	23 5 9	- 6 42 36	20.09478	19.92682	165.73	98.4	3.51	5.82	13 17	0 19
30/11/2007/ 0/ 0	23 5 10	- 6 42 28	20.09480	19.94395	165.87	97.4	3.51	5.82	13 13	0 15
1/12/2007/ 0/ 0	23 5 11	- 6 42 19	20.09482	19.96111	166.01	96.4	3.50	5.83	13 9	0 11
2/12/2007/ 0/ 0	23 5 13	- 6 42 8	20.09483	19.97831	166.15	95.4	3.50	5.83	13 5	0 8
3/12/2007/ 0/ 0	23 5 14	- 6 41 57	20.09485	19.99554	166.30	94.4	3.50	5.83	13 1	0 4
4/12/2007/ 0/ 0	23 5 16	- 6 41 44	20.09487	20.01279	166.44	93.4	3.49	5.83	12 58	23 60
5/12/2007/ 0/ 0	23 5 18	- 6 41 29	20.09489	20.03006	166.59	92.4	3.49	5.83	12 54	23 56
6/12/2007/ 0/ 0	23 5 20	- 6 41 14	20.09490	20.04735	166.73	91.4	3.49	5.84	12 50	23 52
7/12/2007/ 0/ 0	23 5 22	- 6 40 58	20.09492	20.06464	166.87	90.4	3.49	5.84	12 46	23 48
8/12/2007/ 0/ 0	23 5 24	- 6 40 40	20.09494	20.08194	167.02	89.3	3.48	5.84	12 42	23 44
9/12/2007/ 0/ 0	23 5 27	- 6 40 21	20.09495	20.09923	167.16	88.3	3.48	5.84	12 38	23 40
10/12/2007/ 0/ 0	23 5 30	- 6 40 1	20.09497	20.11652	167.30	87.3	3.48	5.84	12 34	23 37
11/12/2007/ 0/ 0	23 5 33	- 6 39 39	20.09499	20.13379	167.45	86.3	3.47	5.85	12 30	23 33
12/12/2007/ 0/ 0	23 5 36	- 6 39 17	20.09500	20.15104	167.59	85.3	3.47	5.85	12 26	23 29
13/12/2007/ 0/ 0	23 5 39	- 6 38 53	20.09502	20.16827	167.73	84.3	3.47	5.85	12 22	23 25
14/12/2007/ 0/ 0	23 5 43	- 6 38 28	20.09504	20.18546	167.88	83.3	3.46	5.85	12 18	23 21
15/12/2007/ 0/ 0	23 5 47	- 6 38 2	20.09505	20.20262	168.02	82.3	3.46	5.85	12 15	23 17
16/12/2007/ 0/ 0	23 5 51	- 6 37 35	20.09507	20.21974	168.16	81.3	3.46	5.85	12 11	23 13
17/12/2007/ 0/ 0	23 5 55	- 6 37 7	20.09509	20.23681	168.30	80.3	3.46	5.86	12 7	23 10
18/12/2007/ 0/ 0	23 5 59	- 6 36 38	20.09510	20.25384	168.45	79.3	3.45	5.86	12 3	23 6
19/12/2007/ 0/ 0	23 6 3	- 6 36 7	20.09512	20.27080	168.59	78.3	3.45	5.86	11 59	23 2
20/12/2007/ 0/ 0	23 6 8	- 6 35 36	20.09514	20.28770	168.73	77.3	3.45	5.86	11 55	22 58
21/12/2007/ 0/ 0	23 6 13	- 6 35 3	20.09515	20.30454	168.87	76.3	3.44	5.86	11 51	22 54
22/12/2007/ 0/ 0	23 6 18	- 6 34 29	20.09517	20.32131	169.01	75.4	3.44	5.87	11 47	22 51
23/12/2007/ 0/ 0	23 6 23	- 6 33 54	20.09519	20.33800	169.15	74.4	3.44	5.87	11 43	22 47
24/12/2007/ 0/ 0	23 6 28	- 6 33 18	20.09520	20.35461	169.28	73.4	3.44	5.87	11 40	22 43
25/12/2007/ 0/ 0	23 6 34	- 6 32 41	20.09522	20.37114	169.42	72.4	3.43	5.87	11 36	22 39
26/12/2007/ 0/ 0	23 6 40	- 6 32 3	20.09524	20.38758	169.56	71.4	3.43	5.87	11 32	22 35
27/12/2007/ 0/ 0	23 6 46	- 6 31 23	20.09525	20.40393	169.69	70.4	3.43	5.87	11 28	22 32
28/12/2007/ 0/ 0	23 6 52	- 6 30 43	20.09527	20.42018	169.83	69.4	3.42	5.88	11 24	22 28
29/12/2007/ 0/ 0	23 6 58	- 6 30 2	20.09529	20.43633	169.96	68.4	3.42	5.88	11 20	22 24
30/12/2007/ 0/ 0	23 7 4	- 6 29 20	20.09530	20.45237	170.10	67.4	3.42	5.88	11 16	22 20
31/12/2007/ 0/ 0	23 7 11	- 6 28 36	20.09532	20.46830	170.23	66.4	3.42	5.88	11 12	22 16
1/ 1/2008/ 0/ 0	23 7 18	- 6 27 52	20.09533	20.48411	170.36	65.4	3.41	5.88	11 9	22 13

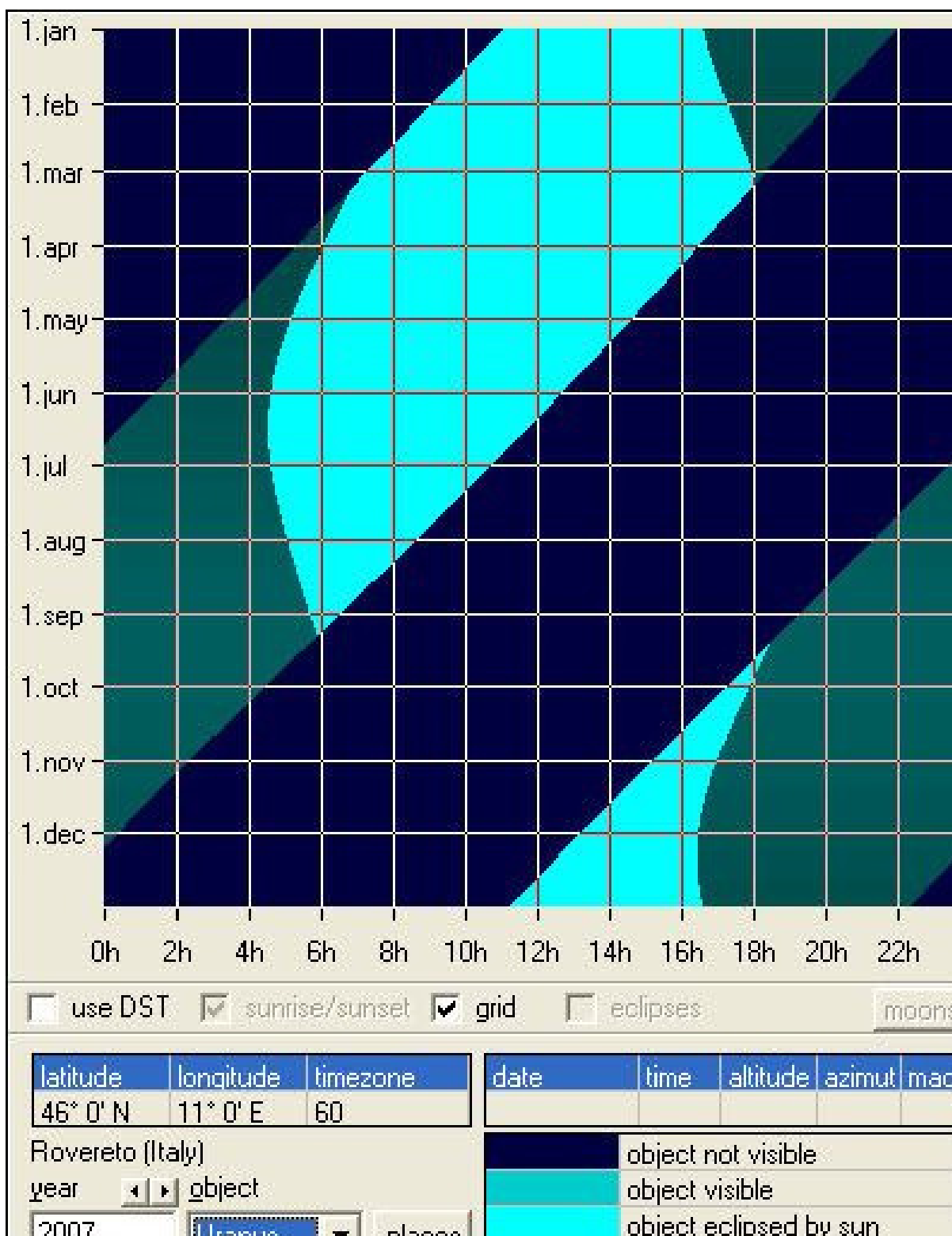
Tempi di levata e tramonto in ore locali, non in T.U.

## FENOMENI DI URANO

Perigeo	08.09.2007	23.06.17	19,08609 U.A.
Apogeo	06.03.2007	18.53.14	21,08085 U.A.
Magnitudine massima	08.09.2007	19.02.39	5,7 mag
Magnitudine minima	06.03.2007	18.13.29	5,9 mag
Opposizione	09.09.2007	18.43.32	
Congiunzione	05.03.2007	17.37.35	

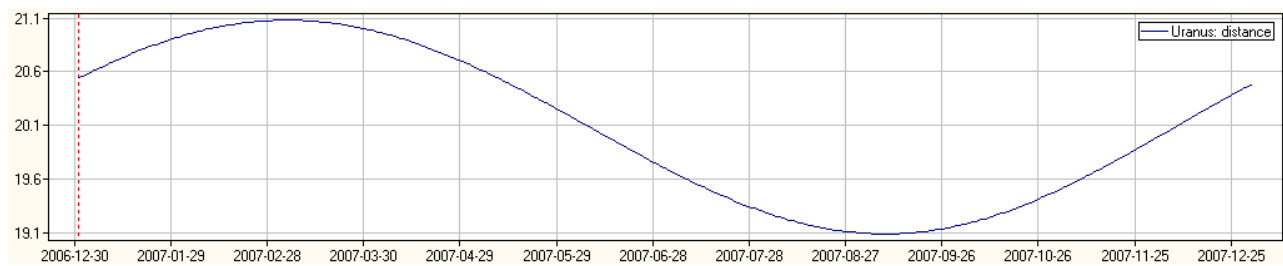
© (5)

## VISIBILITA' DI URANO

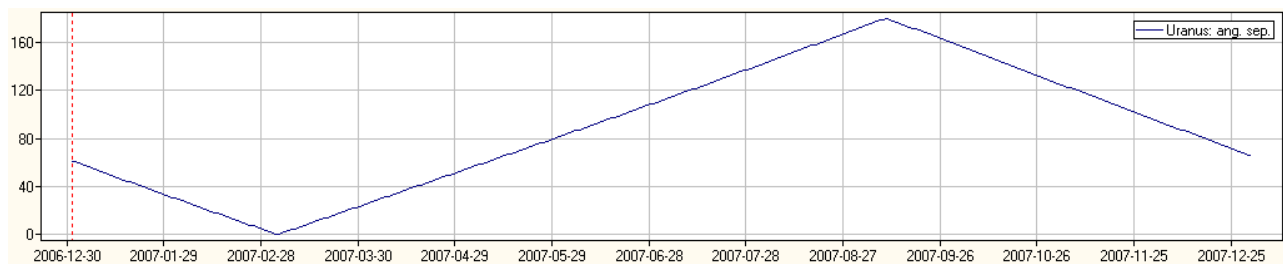


visibilità nel corso dell'anno

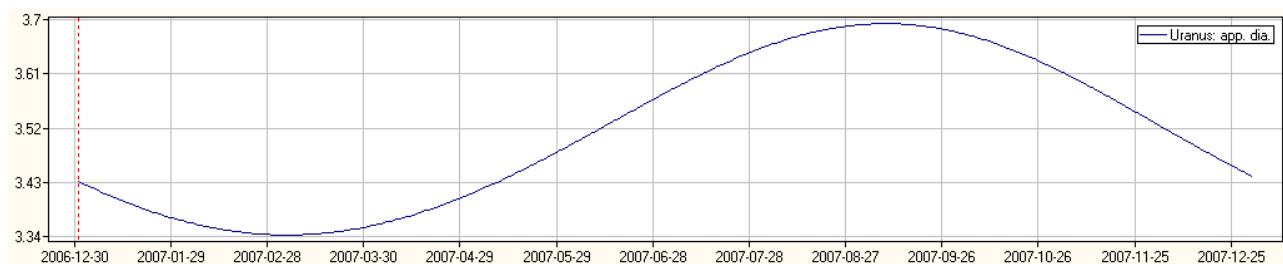
© (3)



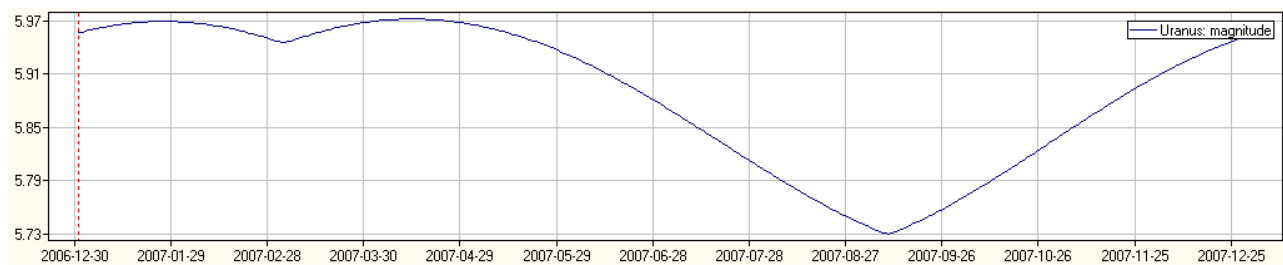
Distanza di Urano in U.A. nel corso dell'anno



Elongazione di Urano in ° nel corso dell'anno



Diametro di Urano in " nel corso dell'anno



Magnitudine di Urano nel corso dell'anno

# EFFEMERIDI DI NETTUNO

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	SORGE h,m	TRAMONTA h,m
1/ 1/2007/ 0/ 0	21 22 30	- 15 36 50	30.05036	30.81973	256.3	37.9	2.17	7.96	10 3	19 47
2/ 1/2007/ 0/ 0	21 22 37	- 15 36 15	30.05033	30.83027	256.4	37.0	2.17	7.96	9 59	19 43
3/ 1/2007/ 0/ 0	21 22 45	- 15 35 40	30.05031	30.84057	256.5	36.0	2.17	7.96	9 56	19 39
4/ 1/2007/ 0/ 0	21 22 53	- 15 35 5	30.05029	30.85063	256.6	35.0	2.17	7.97	9 52	19 36
5/ 1/2007/ 0/ 0	21 23 0	- 15 34 29	30.05027	30.86046	256.7	34.0	2.17	7.97	9 48	19 32
6/ 1/2007/ 0/ 0	21 23 8	- 15 33 53	30.05025	30.87004	256.7	33.0	2.17	7.97	9 44	19 28
7/ 1/2007/ 0/ 0	21 23 16	- 15 33 17	30.05023	30.87937	256.8	32.0	2.16	7.97	9 40	19 24
8/ 1/2007/ 0/ 0	21 23 24	- 15 32 40	30.05021	30.88846	256.9	31.0	2.16	7.97	9 36	19 21
9/ 1/2007/ 0/ 0	21 23 32	- 15 32 3	30.05019	30.89730	257.0	30.1	2.16	7.97	9 32	19 17
10/ 1/2007/ 0/ 0	21 23 40	- 15 31 25	30.05016	30.90589	257.0	29.1	2.16	7.97	9 29	19 13
11/ 1/2007/ 0/ 0	21 23 48	- 15 30 48	30.05014	30.91422	257.1	28.1	2.16	7.97	9 25	19 9
12/ 1/2007/ 0/ 0	21 23 56	- 15 30 10	30.05012	30.92229	257.2	27.1	2.16	7.97	9 21	19 6
13/ 1/2007/ 0/ 0	21 24 4	- 15 29 32	30.05010	30.93010	257.2	26.1	2.16	7.97	9 17	19 2
14/ 1/2007/ 0/ 0	21 24 13	- 15 28 53	30.05008	30.93764	257.3	25.1	2.16	7.97	9 13	18 58
15/ 1/2007/ 0/ 0	21 24 21	- 15 28 14	30.05006	30.94493	257.4	24.1	2.16	7.97	9 9	18 54
16/ 1/2007/ 0/ 0	21 24 30	- 15 27 35	30.05004	30.95194	257.4	23.2	2.16	7.97	9 6	18 51
17/ 1/2007/ 0/ 0	21 24 38	- 15 26 56	30.05002	30.95868	257.5	22.2	2.16	7.97	9 2	18 47
18/ 1/2007/ 0/ 0	21 24 47	- 15 26 16	30.05000	30.96515	257.5	21.2	2.16	7.97	8 58	18 43
19/ 1/2007/ 0/ 0	21 24 55	- 15 25 36	30.04997	30.97135	257.6	20.2	2.16	7.97	8 54	18 39
20/ 1/2007/ 0/ 0	21 25 4	- 15 24 56	30.04995	30.97727	257.6	19.2	2.16	7.97	8 50	18 36
21/ 1/2007/ 0/ 0	21 25 12	- 15 24 16	30.04993	30.98291	257.7	18.3	2.16	7.97	8 46	18 32
22/ 1/2007/ 0/ 0	21 25 21	- 15 23 36	30.04991	30.98827	257.7	17.3	2.16	7.98	8 43	18 28
23/ 1/2007/ 0/ 0	21 25 30	- 15 22 55	30.04989	30.99335	257.8	16.3	2.16	7.98	8 39	18 25
24/ 1/2007/ 0/ 0	21 25 38	- 15 22 15	30.04987	30.99815	257.8	15.3	2.16	7.98	8 35	18 21
25/ 1/2007/ 0/ 0	21 25 47	- 15 21 34	30.04985	31.00267	257.8	14.3	2.16	7.98	8 31	18 17
26/ 1/2007/ 0/ 0	21 25 56	- 15 20 53	30.04983	31.00690	257.9	13.3	2.16	7.98	8 27	18 13
27/ 1/2007/ 0/ 0	21 26 5	- 15 20 11	30.04980	31.01084	257.9	12.4	2.16	7.98	8 23	18 10
28/ 1/2007/ 0/ 0	21 26 14	- 15 19 30	30.04978	31.01450	257.9	11.4	2.16	7.98	8 19	18 6
29/ 1/2007/ 0/ 0	21 26 22	- 15 18 48	30.04976	31.01788	258.0	10.4	2.16	7.98	8 16	18 2
30/ 1/2007/ 0/ 0	21 26 31	- 15 18 7	30.04974	31.02097	258.0	9.4	2.15	7.98	8 12	17 58
31/ 1/2007/ 0/ 0	21 26 40	- 15 17 25	30.04972	31.02377	258.0	8.5	2.15	7.98	8 8	17 55
1/ 2/2007/ 0/ 0	21 26 49	- 15 16 43	30.04970	31.02628	258.0	7.5	2.15	7.98	8 4	17 51
2/ 2/2007/ 0/ 0	21 26 58	- 15 16 1	30.04968	31.02851	258.1	6.5	2.15	7.98	8 0	17 47
3/ 2/2007/ 0/ 0	21 27 7	- 15 15 19	30.04966	31.03045	258.1	5.5	2.15	7.98	7 56	17 44
4/ 2/2007/ 0/ 0	21 27 16	- 15 14 37	30.04964	31.03210	258.1	4.6	2.15	7.98	7 53	17 40
5/ 2/2007/ 0/ 0	21 27 25	- 15 13 55	30.04961	31.03346	258.1	3.6	2.15	7.98	7 49	17 36
6/ 2/2007/ 0/ 0	21 27 34	- 15 13 13	30.04959	31.03454	258.1	2.6	2.15	7.98	7 45	17 32
7/ 2/2007/ 0/ 0	21 27 43	- 15 12 31	30.04957	31.03532	258.1	1.6	2.15	7.98	7 41	17 29
8/ 2/2007/ 0/ 0	21 27 52	- 15 11 49	30.04955	31.03581	258.1	0.7	2.15	7.98	7 37	17 25
9/ 2/2007/ 0/ 0	21 28 1	- 15 11 6	30.04953	31.03602	258.1	0.4	2.15	7.98	7 33	17 21
10/ 2/2007/ 0/ 0	21 28 10	- 15 10 24	30.04951	31.03593	258.1	1.3	2.15	7.98	7 30	17 17
11/ 2/2007/ 0/ 0	21 28 19	- 15 9 42	30.04949	31.03555	258.1	2.3	2.15	7.98	7 26	17 14
12/ 2/2007/ 0/ 0	21 28 28	- 15 8 59	30.04947	31.03488	258.1	3.3	2.15	7.98	7 22	17 10
13/ 2/2007/ 0/ 0	21 28 37	- 15 8 17	30.04944	31.03392	258.1	4.2	2.15	7.98	7 18	17 6
14/ 2/2007/ 0/ 0	21 28 46	- 15 7 35	30.04942	31.03267	258.1	5.2	2.15	7.98	7 14	17 2
15/ 2/2007/ 0/ 0	21 28 55	- 15 6 52	30.04940	31.03113	258.1	6.2	2.15	7.98	7 10	16 59
16/ 2/2007/ 0/ 0	21 29 4	- 15 6 10	30.04938	31.02930	258.1	7.1	2.15	7.98	7 7	16 55
17/ 2/2007/ 0/ 0	21 29 13	- 15 5 28	30.04936	31.02719	258.0	8.1	2.15	7.98	7 3	16 51
18/ 2/2007/ 0/ 0	21 29 22	- 15 4 46	30.04934	31.02478	258.0	9.1	2.15	7.98	6 59	16 48
19/ 2/2007/ 0/ 0	21 29 31	- 15 4 4	30.04932	31.02208	258.0	10.1	2.15	7.98	6 55	16 44
20/ 2/2007/ 0/ 0	21 29 39	- 15 3 22	30.04930	31.01910	258.0	11.0	2.15	7.98	6 51	16 40
21/ 2/2007/ 0/ 0	21 29 48	- 15 2 41	30.04928	31.01583	258.0	12.0	2.16	7.98	6 47	16 36
22/ 2/2007/ 0/ 0	21 29 57	- 15 1 59	30.04925	31.01228	257.9	13.0	2.16	7.98	6 44	16 33
23/ 2/2007/ 0/ 0	21 30 6	- 15 1 17	30.04923	31.00844	257.9	13.9	2.16	7.98	6 40	16 29
24/ 2/2007/ 0/ 0	21 30 15	- 15 0 36	30.04921	31.00433	257.9	14.9	2.16	7.98	6 36	16 25
25/ 2/2007/ 0/ 0	21 30 23	- 14 59 54	30.04919	30.99993	257.8	15.9	2.16	7.98	6 32	16 21
26/ 2/2007/ 0/ 0	21 30 32	- 14 59 13	30.04917	30.99526	257.8	16.9	2.16	7.98	6 28	16 18
27/ 2/2007/ 0/ 0	21 30 41	- 14 58 32	30.04915	30.99031	257.7	17.8	2.16	7.98	6 24	16 14
28/ 2/2007/ 0/ 0	21 30 49	- 14 57 51	30.04913	30.98509	257.7	18.8	2.16	7.97	6 21	16 10
1/ 3/2007/ 0/ 0	21 30 58	- 14 57 11	30.04911	30.97960	257.6	19.8	2.16	7.97	6 17	16 7
2/ 3/2007/ 0/ 0	21 31 6	- 14 56 30	30.04908	30.97383	257.6	20.7	2.16	7.97	6 13	16 3
3/ 3/2007/ 0/ 0	21 31 15	- 14 55 50	30.04906	30.96780	257.6	21.7	2.16	7.97	6 9	15 59
4/ 3/2007/ 0/ 0	21 31 23	- 14 55 10	30.04904	30.96150	257.5	22.7	2.16	7.97	6 5	15 55
5/ 3/2007/ 0/ 0	21 31 32	- 14 54 30	30.04902	30.95494	257.4	23.6	2.16	7.97	6 1	15 52
6/ 3/2007/ 0/ 0	21 31 40	- 14 53 51	30.04900	30.94811	257.4	24.6	2.16	7.97	5 57	15 48
7/ 3/2007/ 0/ 0	21 31 48	- 14 53 11	30.04898	30.94103	257.3	25.6	2.16	7.97	5 54	15 44
8/ 3/2007/ 0/ 0	21 31 57	- 14 52 32	30.04896	30.93368	257.3	26.5	2.16	7.97	5 50	15 40
9/ 3/2007/ 0/ 0	21 32 5	- 14 51 53	30.04894	30.92607	257.2	27.5	2.16	7.97	5 46	15 37
10/ 3/2007/ 0/ 0	21 32 13	- 14 51 15	30.04891	30.91821	257.1	28.5	2.16	7.97	5 42	15 33
11/ 3/2007/ 0/ 0	21 32 21	- 14 50 36	30.04889	30.91010	257.1	29.4	2.16	7.97	5 38	15 29
12/ 3/2007/ 0/ 0	21 32 29	- 14 49 58	30.04887	30.90174	257.0	30.4	2.16	7.97	5 34	15 25
13/ 3/2007/ 0/ 0	21 32 37	- 14 49 20	30.04885	30.89312	256.9	31.3	2.16	7.97	5 31	15 22
14/ 3/2007/ 0/ 0	21 32 45	- 14 48 43	30.04883	30.88426	256.9	32.3	2.16	7.97	5 27	15 18
15/ 3/2007/ 0/ 0	21 32 53	- 14 48 6	30.04881	30.87516	256.8	33.3	2.17	7.97	5 23	15 14
16/ 3/2007/ 0/ 0	21 33 0	- 14 47 29	30.04879	30.86581	256.7	34.2	2.17	7.97	5 19	15 10
17/ 3/2007/ 0/ 0	21 33 8	- 14 46 52	30.04877	30.85623	256.6	35.2	2.17	7.97	5 15	15 7
18/ 3/2007/ 0/ 0	21 33 16	- 14 46 16	30.04874	30.84641	256.5	36.2	2.17	7.97	5 11	15 3
19/ 3/2007/ 0/ 0	21 33 23	- 14 45 40	30.04872	30.83635	256.5	37.1	2.17	7.96	5 7	14 59
20/ 3/2007/ 0/ 0	21 33 31	- 14 45 5	30.04870	30.82607	256.4	38.1	2.17	7.96	5 4	14 55
21/ 3/2007/ 0/ 0	21 33 38	- 14 44 30	30.04868	30.81555	256.3	39.1	2.17	7.96	4 60	14 52
22/ 3/2007/ 0/ 0	21 33 45	- 14 43 55	30.04866	30.80482	256.2	40.0	2.17	7.96	4 56	14 48
23/ 3/2007/ 0/ 0	21 33 53	- 14 43 20	30.04864	30.79386	256.1	41.0	2.17	7.96	4 52	14 44
24/ 3/2007/ 0/ 0	21 33 60	- 14 42 46	30.04862	30.78268	256.0	41.9	2.17	7.96	4 48	14 40
25/ 3/2007/ 0/ 0	21 34 7	- 14 42 12	30.04860	30.77130	255.9	42.9	2.17	7.96	4 44	14 36
26/ 3/2007/ 0/ 0	21 34 14	- 14 41 39	30.04857	30.75970	255.8	43.9	2.17	7.96	4 40	14 33
27/ 3/2007/ 0/ 0	21 34 21	- 14 41 6	30.04855	30.74790	255.7	44.8	2.17	7.96	4 37	14 29
28/ 3/2007/ 0/ 0	21 34 28	- 14 40 34	30.04853	30.73590	255.6	45.8	2.17	7.96	4 33	14 25
29/ 3/2007/ 0/ 0	21 34 34	- 14 40 2	30.04851	30.72370	255.5	46.7	2.18	7.96	4 29	14 21
30/ 3/2007/ 0/ 0	21 34 41	- 14 39 30	30.04849	30.71130	255.4	47.7	2.18	7.96	4 25	14 18
31/ 3/2007/ 0/ 0	21 34 48	- 14 38 59	30.04847	30.69871	255.3	48.7	2.18	7.95	4 21	14 14
1/ 4/2007/ 0/ 0	21 34 54	- 14 38 29	30.04845	30.68594	255.2	49.6	2.18	7.95	4 17	14 10

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	SORGE h,m	TRAMONTA h,m
11/ 4/2007/ 0/ 0	21 35 53	- 14 33 48	30.04823	30.54864	254.1	59.2	2.19	7.94	3 39	13 32
12/ 4/2007/ 0/ 0	21 35 59	- 14 33 23	30.04821	30.53404	253.9	60.2	2.19	7.94	3 35	13 28
13/ 4/2007/ 0/ 0	21 36 4	- 14 32 58	30.04819	30.51929	253.8	61.1	2.19	7.94	3 31	13 24
14/ 4/2007/ 0/ 0	21 36 9	- 14 32 34	30.04817	30.50440	253.7	62.1	2.19	7.94	3 27	13 21
15/ 4/2007/ 0/ 0	21 36 14	- 14 32 10	30.04815	30.48938	253.6	63.1	2.19	7.94	3 23	13 17
16/ 4/2007/ 0/ 0	21 36 19	- 14 31 47	30.04813	30.47423	253.4	64.0	2.19	7.94	3 19	13 13
17/ 4/2007/ 0/ 0	21 36 24	- 14 31 24	30.04811	30.45895	253.3	65.0	2.19	7.94	3 15	13 9
18/ 4/2007/ 0/ 0	21 36 28	- 14 31 2	30.04808	30.44354	253.2	65.9	2.20	7.94	3 11	13 5
19/ 4/2007/ 0/ 0	21 36 33	- 14 30 41	30.04806	30.42802	253.1	66.9	2.20	7.94	3 8	13 1
20/ 4/2007/ 0/ 0	21 36 38	- 14 30 20	30.04804	30.41239	252.9	67.8	2.20	7.93	3 4	12 58
21/ 4/2007/ 0/ 0	21 36 42	- 14 29 59	30.04802	30.39665	252.8	68.8	2.20	7.93	2 60	12 54
22/ 4/2007/ 0/ 0	21 36 46	- 14 29 39	30.04800	30.38081	252.7	69.8	2.20	7.93	2 56	12 50
23/ 4/2007/ 0/ 0	21 36 50	- 14 29 20	30.04798	30.36487	252.5	70.7	2.20	7.93	2 52	12 46
24/ 4/2007/ 0/ 0	21 36 54	- 14 29 2	30.04796	30.34884	252.4	71.7	2.20	7.93	2 48	12 42
25/ 4/2007/ 0/ 0	21 36 58	- 14 28 44	30.04794	30.33272	252.3	72.6	2.20	7.93	2 44	12 38
26/ 4/2007/ 0/ 0	21 37 2	- 14 28 26	30.04791	30.31651	252.1	73.6	2.21	7.93	2 40	12 35
27/ 4/2007/ 0/ 0	21 37 6	- 14 28 9	30.04789	30.30023	252.0	74.6	2.21	7.93	2 36	12 31
28/ 4/2007/ 0/ 0	21 37 9	- 14 27 53	30.04787	30.28387	251.9	75.5	2.21	7.93	2 33	12 27
29/ 4/2007/ 0/ 0	21 37 12	- 14 27 38	30.04785	30.26744	251.7	76.5	2.21	7.92	2 29	12 23
30/ 4/2007/ 0/ 0	21 37 16	- 14 27 23	30.04783	30.25095	251.6	77.4	2.21	7.92	2 25	12 19
1/ 5/2007/ 0/ 0	21 37 19	- 14 27 8	30.04781	30.23439	251.5	78.4	2.21	7.92	2 21	12 15
2/ 5/2007/ 0/ 0	21 37 22	- 14 26 54	30.04779	30.21778	251.3	79.3	2.21	7.92	2 17	12 11
3/ 5/2007/ 0/ 0	21 37 25	- 14 26 41	30.04776	30.20112	251.2	80.3	2.21	7.92	2 13	12 8
4/ 5/2007/ 0/ 0	21 37 28	- 14 26 28	30.04774	30.18440	251.0	81.3	2.21	7.92	2 9	12 4
5/ 5/2007/ 0/ 0	21 37 30	- 14 26 16	30.04772	30.16765	250.9	82.2	2.22	7.92	2 5	11 60
6/ 5/2007/ 0/ 0	21 37 33	- 14 26 5	30.04770	30.15085	250.8	83.2	2.22	7.92	2 1	11 56
7/ 5/2007/ 0/ 0	21 37 35	- 14 25 54	30.04768	30.13402	250.6	84.1	2.22	7.91	1 57	11 52
8/ 5/2007/ 0/ 0	21 37 37	- 14 25 44	30.04766	30.11716	250.5	85.1	2.22	7.91	1 54	11 48
9/ 5/2007/ 0/ 0	21 37 40	- 14 25 35	30.04764	30.10028	250.3	86.1	2.22	7.91	1 50	11 44
10/ 5/2007/ 0/ 0	21 37 42	- 14 25 26	30.04761	30.08337	250.2	87.0	2.22	7.91	1 46	11 40
11/ 5/2007/ 0/ 0	21 37 44	- 14 25 18	30.04759	30.06644	250.1	88.0	2.22	7.91	1 42	11 37
12/ 5/2007/ 0/ 0	21 37 45	- 14 25 10	30.04757	30.04951	249.9	88.9	2.22	7.91	1 38	11 33
13/ 5/2007/ 0/ 0	21 37 47	- 14 25 3	30.04755	30.03257	249.8	89.9	2.23	7.91	1 34	11 29
14/ 5/2007/ 0/ 0	21 37 48	- 14 24 57	30.04753	30.01562	249.6	90.8	2.23	7.91	1 30	11 25
15/ 5/2007/ 0/ 0	21 37 50	- 14 24 51	30.04751	29.99868	249.5	91.8	2.23	7.90	1 26	11 21
16/ 5/2007/ 0/ 0	21 37 51	- 14 24 46	30.04749	29.98175	249.4	92.8	2.23	7.90	1 22	11 17
17/ 5/2007/ 0/ 0	21 37 52	- 14 24 42	30.04747	29.96483	249.2	93.7	2.23	7.90	1 18	11 13
18/ 5/2007/ 0/ 0	21 37 53	- 14 24 38	30.04744	29.94793	249.1	94.7	2.23	7.90	1 14	11 9
19/ 5/2007/ 0/ 0	21 37 54	- 14 24 35	30.04742	29.93105	248.9	95.6	2.23	7.90	1 10	11 5
20/ 5/2007/ 0/ 0	21 37 55	- 14 24 32	30.04740	29.91420	248.8	96.6	2.23	7.90	1 7	11 1
21/ 5/2007/ 0/ 0	21 37 55	- 14 24 30	30.04738	29.89739	248.6	97.6	2.24	7.90	1 3	10 57
22/ 5/2007/ 0/ 0	21 37 56	- 14 24 29	30.04736	29.88062	248.5	98.5	2.24	7.90	0 59	10 54
23/ 5/2007/ 0/ 0	21 37 56	- 14 24 29	30.04734	29.86389	248.4	99.5	2.24	7.89	0 55	10 50
24/ 5/2007/ 0/ 0	21 37 57	- 14 24 29	30.04732	29.84720	248.2	100.4	2.24	7.89	0 51	10 46
25/ 5/2007/ 0/ 0	21 37 57	- 14 24 30	30.04729	29.83058	248.1	101.4	2.24	7.89	0 47	10 42
26/ 5/2007/ 0/ 0	21 37 57	- 14 24 31	30.04727	29.81401	248.0	102.4	2.24	7.89	0 43	10 38
27/ 5/2007/ 0/ 0	21 37 56	- 14 24 33	30.04725	29.79750	247.8	103.3	2.24	7.89	0 39	10 34
28/ 5/2007/ 0/ 0	21 37 56	- 14 24 36	30.04723	29.78106	247.7	104.3	2.24	7.89	0 35	10 30
29/ 5/2007/ 0/ 0	21 37 56	- 14 24 39	30.04721	29.76469	247.5	105.3	2.25	7.89	0 31	10 26
30/ 5/2007/ 0/ 0	21 37 55	- 14 24 43	30.04719	29.74840	247.4	106.2	2.25	7.89	0 27	10 22
31/ 5/2007/ 0/ 0	21 37 55	- 14 24 47	30.04717	29.73219	247.3	107.2	2.25	7.89	0 23	10 18
1/ 6/2007/ 0/ 0	21 37 54	- 14 24 52	30.04714	29.71606	247.1	108.1	2.25	7.88	0 19	10 14
2/ 6/2007/ 0/ 0	21 37 53	- 14 24 58	30.04712	29.70002	247.0	109.1	2.25	7.88	0 15	10 10
3/ 6/2007/ 0/ 0	21 37 52	- 14 25 4	30.04710	29.68408	246.9	110.1	2.25	7.88	0 12	10 6
4/ 6/2007/ 0/ 0	21 37 51	- 14 25 11	30.04708	29.66823	246.7	111.0	2.25	7.88	0 8	10 2
5/ 6/2007/ 0/ 0	21 37 49	- 14 25 19	30.04706	29.65249	246.6	112.0	2.25	7.88	0 4	9 58
6/ 6/2007/ 0/ 0	21 37 48	- 14 25 27	30.04704	29.63685	246.5	113.0	2.26	7.88	23 60	9 54
7/ 6/2007/ 0/ 0	21 37 47	- 14 25 36	30.04702	29.62132	246.4	113.9	2.26	7.88	23 56	9 50
8/ 6/2007/ 0/ 0	21 37 45	- 14 25 45	30.04699	29.60590	246.2	114.9	2.26	7.88	23 52	9 46
9/ 6/2007/ 0/ 0	21 37 43	- 14 25 55	30.04697	29.59061	246.1	115.8	2.26	7.87	23 48	9 42
10/ 6/2007/ 0/ 0	21 37 41	- 14 26 6	30.04695	29.57544	246.0	116.8	2.26	7.87	23 44	9 38
11/ 6/2007/ 0/ 0	21 37 39	- 14 26 17	30.04693	29.56040	245.8	117.8	2.26	7.87	23 40	9 35
12/ 6/2007/ 0/ 0	21 37 37	- 14 26 28	30.04691	29.54549	245.7	118.7	2.26	7.87	23 36	9 31
13/ 6/2007/ 0/ 0	21 37 35	- 14 26 41	30.04689	29.53072	245.6	119.7	2.26	7.87	23 32	9 27
14/ 6/2007/ 0/ 0	21 37 33	- 14 26 53	30.04687	29.51609	245.5	120.7	2.26	7.87	23 28	9 23
15/ 6/2007/ 0/ 0	21 37 30	- 14 27 7	30.04684	29.50161	245.4	121.6	2.27	7.87	23 24	9 19
16/ 6/2007/ 0/ 0	21 37 28	- 14 27 21	30.04682	29.48728	245.2	122.6	2.27	7.87	23 20	9 15
17/ 6/2007/ 0/ 0	21 37 25	- 14 27 35	30.04680	29.47311	245.1	123.6	2.27	7.87	23 16	9 11
18/ 6/2007/ 0/ 0	21 37 22	- 14 27 50	30.04678	29.45910	245.0	124.5	2.27	7.87	23 12	9 7
19/ 6/2007/ 0/ 0	21 37 19	- 14 28 6	30.04676	29.44525	244.9	125.5	2.27	7.86	23 8	9 3
20/ 6/2007/ 0/ 0	21 37 16	- 14 28 22	30.04674	29.43157	244.8	126.5	2.27	7.86	23 4	8 59
21/ 6/2007/ 0/ 0	21 37 13	- 14 28 39	30.04672	29.41807	244.7	127.4	2.27	7.86	23 0	8 55
22/ 6/2007/ 0/ 0	21 37 10	- 14 28 56	30.04669	29.40474	244.6	128.4	2.27	7.86	22 56	8 51
23/ 6/2007/ 0/ 0	21 37 6	- 14 29 14	30.04667	29.39160	244.4	129.4	2.27	7.86	22 52	8 47
24/ 6/2007/ 0/ 0	21 37 3	- 14 29 32	30.04665	29.37864	244.3	130.3	2.28	7.86	22 48	8 43
25/ 6/2007/ 0/ 0	21 36 59	- 14 29 51	30.04663	29.36586	244.2	131.3	2.28	7.86	22 45	8 39
26/ 6/2007/ 0/ 0	21 36 56	- 14 30 10	30.04661	29.35328	244.1	132.3	2.28	7.86	22 41	8 35
27/ 6/2007/ 0/ 0	21 36 52	- 14 30 30	30.04659	29.34090	244.0	133.3	2.28	7.86	22 37	8 30
28/ 6/2007/ 0/ 0	21 36 48	- 14 30 50	30.04657	29.32871	243.9	134.2	2.28	7.86	22 33	8 26
29/ 6/2007/ 0/ 0	21 36 44	- 14 31 11	30.04654	29.31672	243.8	135.2	2.28	7.85	22 29	8 22
30/ 6/2007/ 0/ 0	21 36 40	- 14 31 32	30.04652	29.30494	243.7	136.2	2.28	7.85	22 25	8 18
1/ 7/2007/ 0/ 0	21 36 36	- 14 31 54	30.04650	29.29336	243.6	137.1	2.28	7.85	22 21	8 14
2/ 7/2007/ 0/ 0	21 36 32	- 14 32 16	30.04648	29.28200	243.5	138.1	2.28	7.85	22 17	8 10
3/ 7/2007/ 0/ 0	21 36 27	- 14 32 38	30.04646	29.27085	243.4	139.1	2.28	7.85	22 13	8 6
4/ 7/2007/ 0/ 0	21 36 23	- 14 33 1	30.04644	29.25992	243.3	140.1	2.28	7.85	22 9	8 2
5/ 7/2007/ 0/ 0	21 36 19	- 14 33 25	30.04641	29.24921	243.3	141.0	2.29	7.85	22 5	7 58
6/ 7/2007/ 0/ 0	21 36 14	- 14 33 48	30.04639	29.23873	243.2	142.0	2.29	7.85	22 1	7 54
7/ 7/2007/ 0/ 0	21 36 9	- 14 34 13	30.04637	29.22847	243.1	143.0	2.29	7.85	21 57	7 50
8/ 7/2007/ 0/ 0	21 36 4	- 14 34 37	30.04635	29.21844	243.0	143.9	2.29	7.85	21 53	7 46
9/ 7/2007/ 0/ 0	21 35 60	- 14 35 2	30.04633	29.20864	242.9	144.9	2.29	7.85	21 49	7 42
10/ 7/2007/ 0/ 0	21 35 55	- 14 35 28	30.04631	29.19909	242.8	145.9	2.29	7.		

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	SORGE h,m	TRAMONTA h,m
27/ 7/2007/ 0/ 0	21 34 21	- 14 43 27	30.04594	29.07569	241.8	162.5	2.30	7.84	20 37	6 29
28/ 7/2007/ 0/ 0	21 34 15	- 14 43 57	30.04592	29.07085	241.8	163.5	2.30	7.84	20 33	6 25
29/ 7/2007/ 0/ 0	21 34 9	- 14 44 28	30.04590	29.06630	241.7	164.5	2.30	7.84	20 29	6 21
30/ 7/2007/ 0/ 0	21 34 2	- 14 44 59	30.04588	29.06202	241.7	165.5	2.30	7.84	20 25	6 17
31/ 7/2007/ 0/ 0	21 33 56	- 14 45 30	30.04585	29.05803	241.7	166.4	2.30	7.84	20 21	6 13
1/ 8/2007/ 0/ 0	21 33 50	- 14 46 1	30.04583	29.05432	241.6	167.4	2.30	7.83	20 17	6 9
2/ 8/2007/ 0/ 0	21 33 44	- 14 46 32	30.04581	29.05089	241.6	168.4	2.30	7.83	20 13	6 5
3/ 8/2007/ 0/ 0	21 33 38	- 14 47 3	30.04579	29.04775	241.6	169.4	2.30	7.83	20 9	6 1
4/ 8/2007/ 0/ 0	21 33 31	- 14 47 35	30.04577	29.04490	241.6	170.4	2.30	7.83	20 5	5 56
5/ 8/2007/ 0/ 0	21 33 25	- 14 48 6	30.04575	29.04234	241.5	171.4	2.30	7.83	20 1	5 52
6/ 8/2007/ 0/ 0	21 33 19	- 14 48 38	30.04572	29.04006	241.5	172.3	2.30	7.83	19 57	5 48
7/ 8/2007/ 0/ 0	21 33 12	- 14 49 10	30.04570	29.03808	241.5	173.3	2.30	7.83	19 53	5 44
8/ 8/2007/ 0/ 0	21 33 6	- 14 49 41	30.04568	29.03639	241.5	174.3	2.30	7.83	19 49	5 40
9/ 8/2007/ 0/ 0	21 32 60	- 14 50 13	30.04566	29.03499	241.5	175.3	2.30	7.83	19 45	5 36
10/ 8/2007/ 0/ 0	21 32 53	- 14 50 45	30.04564	29.03388	241.5	176.3	2.30	7.83	19 41	5 32
11/ 8/2007/ 0/ 0	21 32 47	- 14 51 17	30.04562	29.03307	241.5	177.3	2.30	7.83	19 37	5 28
12/ 8/2007/ 0/ 0	21 32 41	- 14 51 49	30.04559	29.03256	241.5	178.2	2.30	7.83	19 33	5 24
13/ 8/2007/ 0/ 0	21 32 34	- 14 52 21	30.04557	29.03234	241.5	179.2	2.30	7.83	19 29	5 20
14/ 8/2007/ 0/ 0	21 32 28	- 14 52 53	30.04555	29.03242	241.5	179.6	2.30	7.83	19 25	5 16
15/ 8/2007/ 0/ 0	21 32 21	- 14 53 25	30.04553	29.03279	241.5	178.7	2.30	7.83	19 21	5 12
16/ 8/2007/ 0/ 0	21 32 15	- 14 53 56	30.04551	29.03346	241.5	177.8	2.30	7.83	19 17	5 7
17/ 8/2007/ 0/ 0	21 32 9	- 14 54 28	30.04549	29.03443	241.5	176.8	2.30	7.83	19 13	5 3
18/ 8/2007/ 0/ 0	21 32 2	- 14 55 0	30.04547	29.03569	241.5	175.8	2.30	7.83	19 9	4 59
19/ 8/2007/ 0/ 0	21 31 56	- 14 55 32	30.04544	29.03724	241.5	174.8	2.30	7.83	19 5	4 55
20/ 8/2007/ 0/ 0	21 31 49	- 14 56 3	30.04542	29.03909	241.5	173.8	2.30	7.83	19 1	4 51
21/ 8/2007/ 0/ 0	21 31 43	- 14 56 35	30.04540	29.04124	241.5	172.8	2.30	7.83	18 57	4 47
22/ 8/2007/ 0/ 0	21 31 37	- 14 57 6	30.04538	29.04367	241.5	171.8	2.30	7.83	18 53	4 43
23/ 8/2007/ 0/ 0	21 31 30	- 14 57 37	30.04536	29.04640	241.6	170.9	2.30	7.83	18 49	4 39
24/ 8/2007/ 0/ 0	21 31 24	- 14 58 8	30.04534	29.04942	241.6	169.9	2.30	7.83	18 45	4 35
25/ 8/2007/ 0/ 0	21 31 18	- 14 58 39	30.04531	29.05273	241.6	168.9	2.30	7.83	18 41	4 31
26/ 8/2007/ 0/ 0	21 31 12	- 14 59 10	30.04529	29.05633	241.7	167.9	2.30	7.84	18 37	4 27
27/ 8/2007/ 0/ 0	21 31 5	- 14 59 41	30.04527	29.06021	241.7	166.9	2.30	7.84	18 33	4 23
28/ 8/2007/ 0/ 0	21 30 59	- 15 0 11	30.04525	29.06438	241.7	165.9	2.30	7.84	18 29	4 19
29/ 8/2007/ 0/ 0	21 30 53	- 15 0 42	30.04523	29.06884	241.8	164.9	2.30	7.84	18 25	4 15
30/ 8/2007/ 0/ 0	21 30 47	- 15 1 12	30.04521	29.07358	241.8	163.9	2.30	7.84	18 21	4 10
31/ 8/2007/ 0/ 0	21 30 41	- 15 1 42	30.04518	29.07860	241.8	162.9	2.30	7.84	18 17	4 6
1/ 9/2007/ 0/ 0	21 30 35	- 15 2 11	30.04516	29.08391	241.9	161.9	2.30	7.84	18 13	4 2
2/ 9/2007/ 0/ 0	21 30 29	- 15 2 41	30.04514	29.08949	241.9	160.9	2.30	7.84	18 9	3 58
3/ 9/2007/ 0/ 0	21 30 23	- 15 3 10	30.04512	29.09536	242.0	160.0	2.30	7.84	18 5	3 54
4/ 9/2007/ 0/ 0	21 30 17	- 15 3 39	30.04510	29.10151	242.0	159.0	2.30	7.84	18 1	3 50
5/ 9/2007/ 0/ 0	21 30 11	- 15 4 8	30.04507	29.10793	242.1	158.0	2.30	7.84	17 57	3 46
6/ 9/2007/ 0/ 0	21 30 5	- 15 4 36	30.04505	29.11462	242.1	157.0	2.30	7.84	17 53	3 42
7/ 9/2007/ 0/ 0	21 29 60	- 15 5 4	30.04503	29.12160	242.2	156.0	2.30	7.84	17 49	3 38
8/ 9/2007/ 0/ 0	21 29 54	- 15 5 32	30.04501	29.12884	242.3	155.0	2.30	7.84	17 45	3 34
9/ 9/2007/ 0/ 0	21 29 48	- 15 5 60	30.04499	29.13636	242.3	154.0	2.29	7.84	17 41	3 30
10/ 9/2007/ 0/ 0	21 29 43	- 15 6 27	30.04497	29.14414	242.4	153.0	2.29	7.84	17 37	3 26
11/ 9/2007/ 0/ 0	21 29 37	- 15 6 54	30.04494	29.15219	242.5	152.0	2.29	7.84	17 33	3 22
12/ 9/2007/ 0/ 0	21 29 32	- 15 7 21	30.04492	29.16050	242.5	151.0	2.29	7.84	17 29	3 18
13/ 9/2007/ 0/ 0	21 29 26	- 15 7 47	30.04490	29.16907	242.6	150.0	2.29	7.84	17 25	3 14
14/ 9/2007/ 0/ 0	21 29 21	- 15 8 13	30.04488	29.17791	242.7	149.0	2.29	7.84	17 21	3 9
15/ 9/2007/ 0/ 0	21 29 16	- 15 8 38	30.04486	29.18699	242.7	148.0	2.29	7.84	17 17	3 5
16/ 9/2007/ 0/ 0	21 29 11	- 15 9 4	30.04484	29.19633	242.8	147.0	2.29	7.85	17 13	3 1
17/ 9/2007/ 0/ 0	21 29 6	- 15 9 28	30.04481	29.20592	242.9	146.0	2.29	7.85	17 9	2 57
18/ 9/2007/ 0/ 0	21 29 1	- 15 9 53	30.04479	29.21576	243.0	145.0	2.29	7.85	17 5	2 53
19/ 9/2007/ 0/ 0	21 28 56	- 15 10 16	30.04477	29.22584	243.1	144.0	2.29	7.85	17 1	2 49
20/ 9/2007/ 0/ 0	21 28 51	- 15 10 40	30.04475	29.23616	243.1	143.0	2.29	7.85	16 57	2 45
21/ 9/2007/ 0/ 0	21 28 46	- 15 11 3	30.04473	29.24671	243.2	142.0	2.29	7.85	16 53	2 41
22/ 9/2007/ 0/ 0	21 28 41	- 15 11 26	30.04471	29.25750	243.3	141.0	2.29	7.85	16 46	2 33
23/ 9/2007/ 0/ 0	21 28 37	- 15 11 48	30.04468	29.26852	243.4	140.0	2.28	7.85	16 42	2 29
24/ 9/2007/ 0/ 0	21 28 32	- 15 12 10	30.04466	29.27976	243.5	139.0	2.28	7.85	16 38	2 25
25/ 9/2007/ 0/ 0	21 28 28	- 15 12 31	30.04464	29.29123	243.6	138.0	2.28	7.85	16 34	2 21
26/ 9/2007/ 0/ 0	21 28 24	- 15 12 52	30.04462	29.30292	243.7	137.0	2.28	7.85	16 30	2 17
27/ 9/2007/ 0/ 0	21 28 19	- 15 13 13	30.04460	29.31483	243.8	136.0	2.28	7.85	16 26	2 13
28/ 9/2007/ 0/ 0	21 28 15	- 15 13 33	30.04457	29.32694	243.9	135.0	2.28	7.86	16 22	2 9
29/ 9/2007/ 0/ 0	21 28 11	- 15 13 52	30.04455	29.33927	244.0	134.1	2.28	7.86	16 18	2 5
30/ 9/2007/ 0/ 0	21 28 7	- 15 14 11	30.04453	29.35180	244.1	133.1	2.28	7.86	16 14	2 1
1/10/2007/ 0/ 0	21 28 4	- 15 14 29	30.04451	29.36454	244.2	132.1	2.28	7.86	16 10	1 57
2/10/2007/ 0/ 0	21 27 60	- 15 14 47	30.04449	29.37748	244.3	131.1	2.28	7.86	16 6	1 53
3/10/2007/ 0/ 0	21 27 56	- 15 15 5	30.04447	29.39061	244.4	130.1	2.27	7.86	16 2	1 49
4/10/2007/ 0/ 0	21 27 53	- 15 15 21	30.04444	29.40394	244.5	129.1	2.27	7.86	15 58	1 45
5/10/2007/ 0/ 0	21 27 49	- 15 15 38	30.04442	29.41746	244.7	128.1	2.27	7.86	15 54	1 41
6/10/2007/ 0/ 0	21 27 46	- 15 15 54	30.04440	29.43116	244.8	127.1	2.27	7.86	15 50	1 37
7/10/2007/ 0/ 0	21 27 43	- 15 16 9	30.04438	29.44504	244.9	126.1	2.27	7.86	15 46	1 33
8/10/2007/ 0/ 0	21 27 40	- 15 16 24	30.04436	29.45910	245.0	125.1	2.27	7.86	15 42	1 29
9/10/2007/ 0/ 0	21 27 37	- 15 16 38	30.04433	29.47334	245.1	124.1	2.27	7.87	15 38	1 25
10/10/2007/ 0/ 0	21 27 34	- 15 16 52	30.04431	29.48774	245.2	123.1	2.27	7.87	15 34	1 21
11/10/2007/ 0/ 0	21 27 31	- 15 17 5	30.04429	29.50230	245.4	122.1	2.27	7.87	15 30	1 17
12/10/2007/ 0/ 0	21 27 29	- 15 17 18	30.04427	29.51703	245.5	121.1	2.26	7.87	15 26	1 13
13/10/2007/ 0/ 0	21 27 26	- 15 17 30	30.04425	29.53191	245.6	120.1	2.26	7.87	15 22	1 9
14/10/2007/ 0/ 0	21 27 24	- 15 17 41	30.04423	29.54694	245.7	119.1	2.26	7.87	15 18	1 5
15/10/2007/ 0/ 0	21 27 22	- 15 17 52	30.04420	29.56211	245.9	118.1	2.26	7.87	15 14	1 1
16/10/2007/ 0/ 0	21 27 20	- 15 18 2	30.04418	29.57742	246.0	117.1	2.26	7.87	15 10	0 57
17/10/2007/ 0/ 0	21 27 18	- 15 18 11	30.04416	29.59287	246.1	116.1	2.26	7.87	15 6	0 53
18/10/2007/ 0/ 0	21 27 16	- 15 18 20	30.04414	29.60845	246.2	115.1	2.26	7.88	15 2	0 49
19/10/2007/ 0/ 0	21 27 14	- 15 18 29	30.04412	29.62416	246.4	114.1	2.26	7.88	14 58	0 45
20/10/2007/ 0/ 0	21 27 12	- 15 18 36	30.04409	29.63998	246.5	113.1	2.26	7.88	14 55	0 41
21/10/2007/ 0/ 0	21 27 11	- 15 18 44	30.04407	29.65592	246.6	112.1	2.25	7.88	14 51	0 37
22/10/2007/ 0/ 0	21 27 10	- 15 18 50	30.04405	29.67197	246.8	111.1	2.25	7.88	14 47	0 33
23/10/2007/ 0/ 0	21 27 8	- 15 18 56	30.04403	29.68813	246.9	110.1	2.25	7.88	14 43	0 29
24/10/2007/ 0/ 0	21 27 7	- 15 19 2	30.04401	29.70438	247.0	109.1	2.25	7.88	14 39	0 25
25/10/2007/ 0/ 0	21 27 6	- 15 19 6	30.04398	29.72074	247.2	108.1	2.			

DATA GG/MM/AAAA/HH/MM	A.R. h,m,s	DEC. ° ' ''	RV U.A.	DELTA U.A.	LUCE min	EL. °	DIAM. ''	MAG	SORGE h,m	TRAMONTA h,m
11/11/2007/ 0/ 0	21 27 10	- 15 18 49	30.04361	30.00886	249.6	91.1	2.23	7.91	13 28	23 15
12/11/2007/ 0/ 0	21 27 11	- 15 18 42	30.04359	30.02612	249.7	90.1	2.23	7.91	13 24	23 11
13/11/2007/ 0/ 0	21 27 13	- 15 18 35	30.04357	30.04337	249.9	89.1	2.23	7.91	13 20	23 7
14/11/2007/ 0/ 0	21 27 15	- 15 18 27	30.04355	30.06062	250.0	88.1	2.22	7.91	13 16	23 3
15/11/2007/ 0/ 0	21 27 17	- 15 18 18	30.04352	30.07786	250.2	87.1	2.22	7.91	13 12	22 59
16/11/2007/ 0/ 0	21 27 19	- 15 18 9	30.04350	30.09508	250.3	86.1	2.22	7.91	13 8	22 55
17/11/2007/ 0/ 0	21 27 21	- 15 17 59	30.04348	30.11228	250.4	85.1	2.22	7.91	13 5	22 51
18/11/2007/ 0/ 0	21 27 23	- 15 17 48	30.04346	30.12945	250.6	84.1	2.22	7.91	13 1	22 47
19/11/2007/ 0/ 0	21 27 25	- 15 17 37	30.04344	30.14659	250.7	83.1	2.22	7.91	12 57	22 43
20/11/2007/ 0/ 0	21 27 28	- 15 17 25	30.04341	30.16369	250.9	82.1	2.22	7.92	12 53	22 40
21/11/2007/ 0/ 0	21 27 30	- 15 17 13	30.04339	30.18075	251.0	81.1	2.21	7.92	12 49	22 36
22/11/2007/ 0/ 0	21 27 33	- 15 16 60	30.04337	30.19776	251.1	80.1	2.21	7.92	12 45	22 32
23/11/2007/ 0/ 0	21 27 36	- 15 16 46	30.04335	30.21472	251.3	79.1	2.21	7.92	12 41	22 28
24/11/2007/ 0/ 0	21 27 39	- 15 16 31	30.04333	30.23163	251.4	78.1	2.21	7.92	12 37	22 24
25/11/2007/ 0/ 0	21 27 42	- 15 16 16	30.04330	30.24847	251.6	77.1	2.21	7.92	12 33	22 20
26/11/2007/ 0/ 0	21 27 46	- 15 16 1	30.04328	30.26524	251.7	76.1	2.21	7.92	12 29	22 16
27/11/2007/ 0/ 0	21 27 49	- 15 15 45	30.04326	30.28195	251.8	75.1	2.21	7.92	12 26	22 12
28/11/2007/ 0/ 0	21 27 52	- 15 15 28	30.04324	30.29858	252.0	74.1	2.21	7.93	12 22	22 9
29/11/2007/ 0/ 0	21 27 56	- 15 15 10	30.04322	30.31513	252.1	73.1	2.21	7.93	12 18	22 5
30/11/2007/ 0/ 0	21 27 60	- 15 14 52	30.04319	30.33160	252.3	72.1	2.20	7.93	12 14	22 1
1/12/2007/ 0/ 0	21 28 4	- 15 14 34	30.04317	30.34797	252.4	71.1	2.20	7.93	12 10	21 57
2/12/2007/ 0/ 0	21 28 8	- 15 14 15	30.04315	30.36426	252.5	70.1	2.20	7.93	12 6	21 53
3/12/2007/ 0/ 0	21 28 12	- 15 13 55	30.04313	30.38044	252.7	69.1	2.20	7.93	12 2	21 49
4/12/2007/ 0/ 0	21 28 16	- 15 13 34	30.04310	30.39652	252.8	68.1	2.20	7.93	11 58	21 46
5/12/2007/ 0/ 0	21 28 21	- 15 13 13	30.04308	30.41248	252.9	67.1	2.20	7.93	11 54	21 42
6/12/2007/ 0/ 0	21 28 25	- 15 12 52	30.04306	30.42834	253.1	66.1	2.20	7.94	11 51	21 38
7/12/2007/ 0/ 0	21 28 30	- 15 12 30	30.04304	30.44407	253.2	65.1	2.20	7.94	11 47	21 34
8/12/2007/ 0/ 0	21 28 35	- 15 12 7	30.04302	30.45968	253.3	64.1	2.19	7.94	11 43	21 30
9/12/2007/ 0/ 0	21 28 40	- 15 11 44	30.04299	30.47516	253.5	63.1	2.19	7.94	11 39	21 26
10/12/2007/ 0/ 0	21 28 45	- 15 11 20	30.04297	30.49050	253.6	62.1	2.19	7.94	11 35	21 23
11/12/2007/ 0/ 0	21 28 50	- 15 10 55	30.04295	30.50571	253.7	61.2	2.19	7.94	11 31	21 19
12/12/2007/ 0/ 0	21 28 55	- 15 10 30	30.04293	30.52077	253.8	60.2	2.19	7.94	11 27	21 15
13/12/2007/ 0/ 0	21 29 0	- 15 10 5	30.04291	30.53568	254.0	59.2	2.19	7.94	11 23	21 11
14/12/2007/ 0/ 0	21 29 6	- 15 9 39	30.04288	30.55044	254.1	58.2	2.19	7.94	11 19	21 7
15/12/2007/ 0/ 0	21 29 11	- 15 9 12	30.04286	30.56504	254.2	57.2	2.19	7.94	11 16	21 4
16/12/2007/ 0/ 0	21 29 17	- 15 8 45	30.04284	30.57948	254.3	56.2	2.19	7.95	11 12	20 60
17/12/2007/ 0/ 0	21 29 23	- 15 8 18	30.04282	30.59375	254.4	55.2	2.18	7.95	11 8	20 56
18/12/2007/ 0/ 0	21 29 29	- 15 7 50	30.04280	30.60785	254.6	54.2	2.18	7.95	11 4	20 52
19/12/2007/ 0/ 0	21 29 35	- 15 7 21	30.04277	30.62178	254.7	53.2	2.18	7.95	11 0	20 48
20/12/2007/ 0/ 0	21 29 41	- 15 6 52	30.04275	30.63553	254.8	52.2	2.18	7.95	10 56	20 45
21/12/2007/ 0/ 0	21 29 47	- 15 6 22	30.04273	30.64909	254.9	51.2	2.18	7.95	10 52	20 41
22/12/2007/ 0/ 0	21 29 53	- 15 5 52	30.04271	30.66248	255.0	50.2	2.18	7.95	10 49	20 37
23/12/2007/ 0/ 0	21 29 60	- 15 5 22	30.04268	30.67567	255.1	49.2	2.18	7.95	10 45	20 33
24/12/2007/ 0/ 0	21 30 6	- 15 4 51	30.04266	30.68867	255.2	48.2	2.18	7.95	10 41	20 29
25/12/2007/ 0/ 0	21 30 13	- 15 4 19	30.04264	30.70147	255.3	47.3	2.18	7.95	10 37	20 26
26/12/2007/ 0/ 0	21 30 19	- 15 3 47	30.04262	30.71408	255.4	46.3	2.18	7.96	10 33	20 22
27/12/2007/ 0/ 0	21 30 26	- 15 3 15	30.04260	30.72648	255.5	45.3	2.18	7.96	10 29	20 18
28/12/2007/ 0/ 0	21 30 33	- 15 2 42	30.04257	30.73868	255.6	44.3	2.17	7.96	10 25	20 14
29/12/2007/ 0/ 0	21 30 40	- 15 2 9	30.04255	30.75067	255.7	43.3	2.17	7.96	10 21	20 11
30/12/2007/ 0/ 0	21 30 47	- 15 1 35	30.04253	30.76244	255.8	42.3	2.17	7.96	10 18	20 7
31/12/2007/ 0/ 0	21 30 54	- 15 1 1	30.04251	30.77400	255.9	41.3	2.17	7.96	10 14	20 3
1/ 1/2008/ 0/ 0	21 31 1	- 15 0 27	30.04249	30.78533	256.0	40.3	2.17	7.96	10 10	19 59

Tempi di levata e tramonto in ore locali, non in T.U.

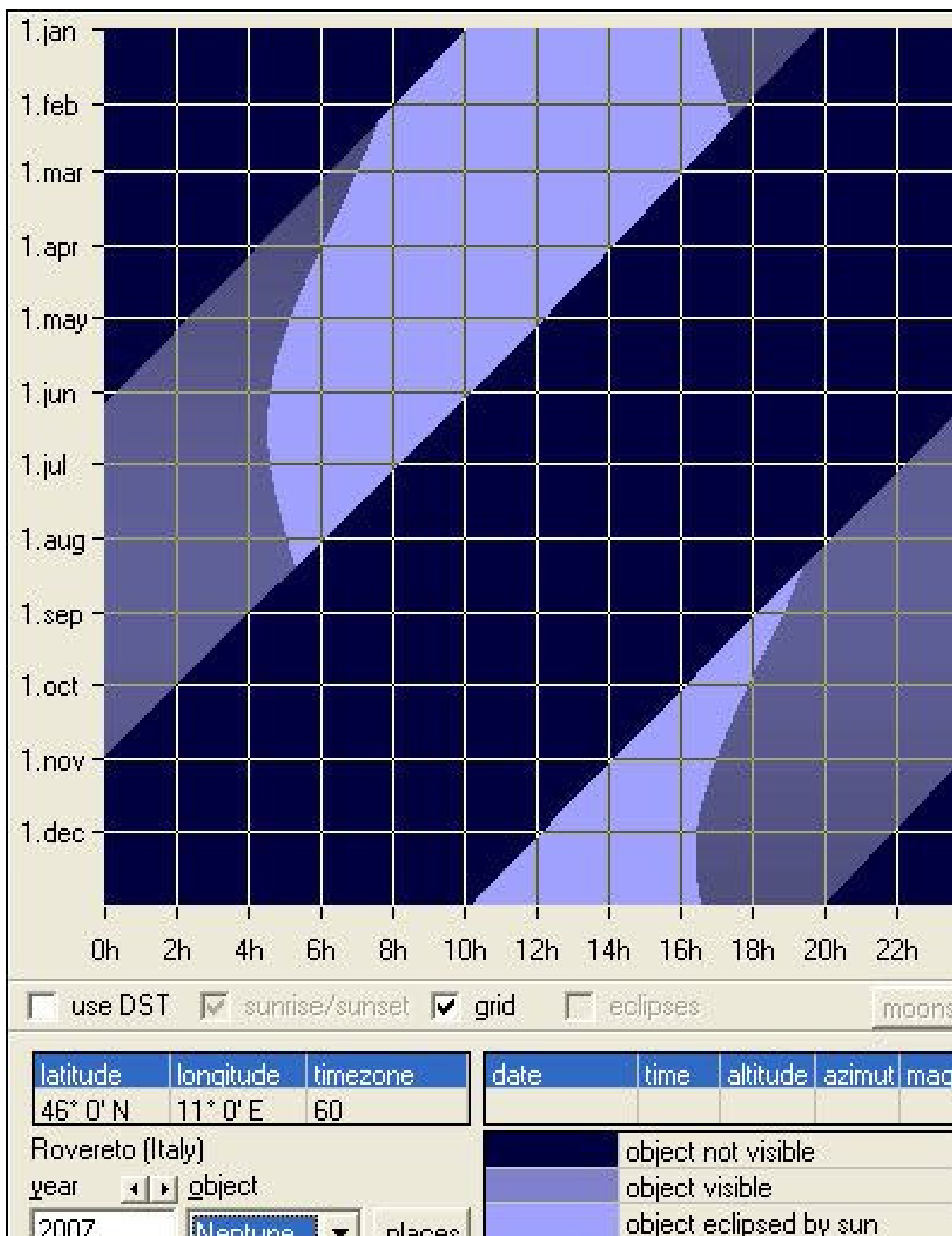
## FENOMENI DI NETTUNO

Perigeo	13.08.2007	10.43.41	29,03193 U.A.
Apogeo	09.02.2007	10.13.05	31,03565 U.A.
Magnitudine massima	13.08.2007	8.29.50	7,8 mag
Magnitudine minima	09.02.2007	4.00.47	8,0 mag
Opposizione	13.08.2007	19.32.05	
Congiunzione	08.02.2007	16.58.42	

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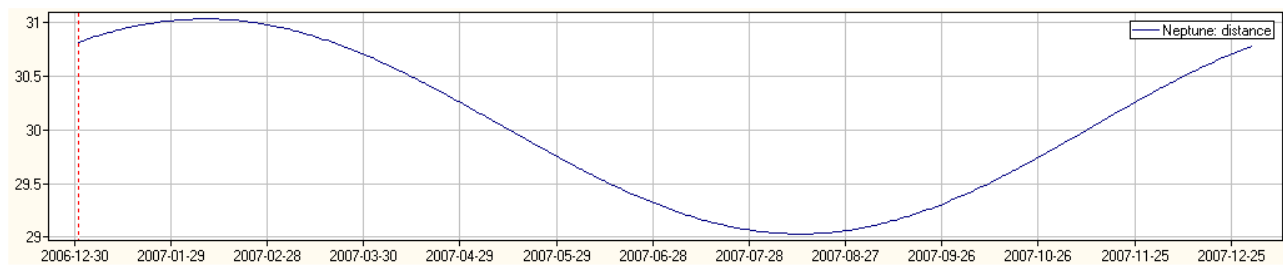


## VISIBILITA' DI NETTUNO

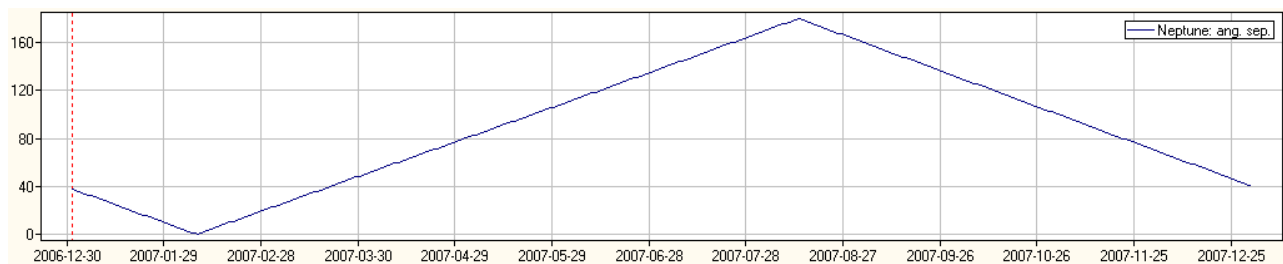


visibilità nel corso dell'anno

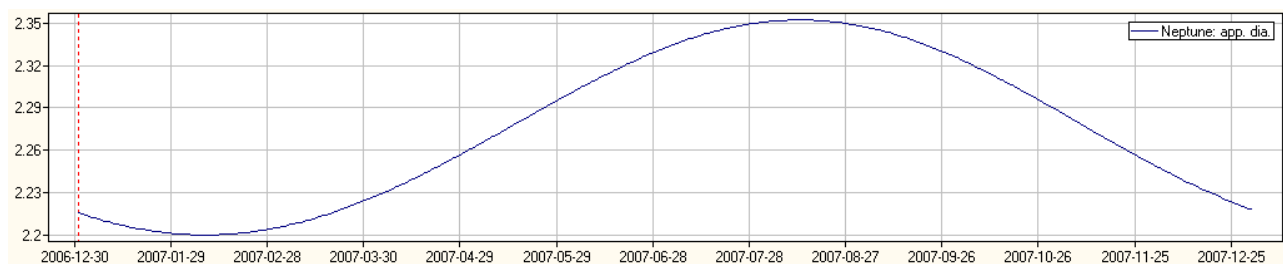
© (3)



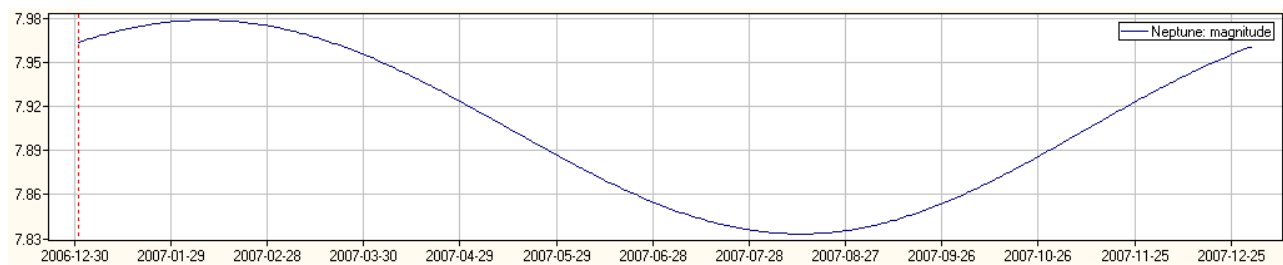
Distanza di Nettuno in U.A. nel corso dell'anno



Elongazione di Nettuno in ° nel corso dell'anno



Diametro di Nettuno in " nel corso dell'anno



Magnitudine di Nettuno nel corso dell'anno

© (4)

# CONGIUNZIONI GEOCENTRICHE <1° TRA PIANETI

Data	TDT	Dm (°)	Dl	r1	r2	e	m1	m2	tm(s)	tw(h)		
2007/02/07 19:12:01		0.67295	0.00350	1.49	20.98	25	-3.9	5.9		15.0	Venere	Urano
2007/02/08 15:53:21		0.22785	0.27289	0.99	31.04	-0		8.0	26391	24.0	Sole	Nettuno
2007/03/05 15:40:32		0.73571	0.27152	0.99	21.08	-0		5.9		17.2	Sole	Urano
2007/03/25 17:17:59		0.94604	0.00211	1.96	30.77	-44	1.0	8.0		10.6	Marte	Nettuno
2007/04/29 04:28:54		0.68480	0.00241	1.78	20.71	-51	0.9	5.9		24.2	Marte	Urano
2007/05/03 04:37:37		0.17573	0.26574	1.01	1.33	-0		-1.9	28719	19.7	Sole	Mercurio
2007/07/01 09:35:39		0.66307	0.01097	0.53	9.93	43	-4.5	0.5		29.1	Venere	Saturno
2007/08/18 13:49:37		0.46478	0.00442	1.36	10.24	3	-1.5	0.6		11.5	Mercurio	Saturno
2007/08/30 17:00:58		0.37268	0.00610	5.13	1.85	94	-2.1	6.9		91.8	Giove	Vesta *
2007/12/23 05:57:31		0.18230	0.27737	0.98	6.23	-0		-1.7	45442	29.9	Sole	Giove

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = Parallasse terrestre

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

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

e = elongazione

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 1° tra loro

\* Vista la particolarità dell'evento è inclusa questa congiunzione pianeta-asteroide luminoso

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## CONGIUNZIONI TOPOCENTRICHE <1° TRA PIANETI

Data	UT	Dm (°)	Alt.	r1	r2	e	m1	m2	tm(s)	tw(h)		
2007/02/07 19:13:09		0.67351	-6.85	1.49	20.98	25	-3.9	5.9		14.9	Venere	Urano
2007/02/08 15:53:58		0.22659	5.02	0.99	31.04	-0		8.0	26815	24.1	Sole	Nettuno
2007/03/05 15:39:19		0.73466	13.80	0.99	21.08	-0		5.9		17.3	Sole	Urano
2007/04/29 04:28:43		0.68595	19.04	1.78	20.71	-51	0.9	5.9		24.2	Marte	Urano
2007/05/03 04:36:39		0.17518	5.01	1.01	1.33	-0		-1.9	28804	19.8	Sole	Mercurio
2007/07/01 09:28:20		0.66404	22.49	0.53	9.93	43	-4.5	0.5		29.4	Venere	Saturno
2007/08/18 13:49:15		0.46375	46.95	1.36	10.24	3	-1.5	0.6		11.6	Mercurio	Saturno
2007/08/30 17:09:57		0.37197	22.34	5.13	1.85	94	-2.1	6.9		93.1	Giove	Vesta *
2007/12/23 05:52:15		0.18379	-10.51	0.98	6.23	-0		-1.7	45246	30.0	Sole	Giove

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 corpo 1 dalla Terra

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

e = elongazione

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 1° tra loro

\* Vista la particolarità dell'evento è inclusa questa congiunzione pianeta-asteroide luminoso

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## ECLISSI TOPOCENTRICHE TRA PIANETI

Data	UT	Dm (°)	Alt.	r1	r2	e	m1	m2	tm(s)	tw(h)		
2007/02/08 15:53:58		0.22659	5.02	0.99	31.04	-0		8.0	26815	24.1	Sole	Nettuno
2007/05/03 04:36:39		0.17518	5.01	1.01	1.33	-0		-1.9	28804	19.8	Sole	Mercurio
2007/12/23 05:52:15		0.18379	-10.51	0.98	6.23	-0		-1.7	45246	30.0	Sole	Giove

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 corpo 1 dalla Terra

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

e = elongazione

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 1° tra loro

NB: POICHE' QUEST'ANNO LE UNICHE ECLISSI TOPOCENTRICHE RIGUARDANO FENOMENI CON R2>R1 SIGNIFICA CHE QUESTI EVENTI NON SARANNO VISIBILI DALLA TERRA, BENSÌ LA TERRA SARA' ECLISSATA DAL SOLE SE VISTA DAL PIANETA PIU' DISTANTE!

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## CONGIUNZIONI GEOCENTRICHE <1° PIANETI- STELLE m<2

Data	TDT	Dm (ø)	Dl	r1	e	m1	m*	tm(s)	tw(h)			
2007/08/23 10:27:13		0.46521	0.26599	1.01	0		1.3		22.1	Sole	32 Alpha	LEO Regulus
2007/09/01 23:02:21		0.82989	0.00242	10.23	-9	0.6	1.3		106.1	Saturno	32 Alpha	LEO Regulus
2007/09/22 10:13:27		0.08087	0.00308	1.10	25	0.1	1.1		19.5	Mercurio	67 Alpha	VIR Spica

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = Parallasse terrestre

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

e = elongazione

m1 = magnitudine del primo corpo

m\* = magnitudine della stella

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

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

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## CONGIUNZIONI TOPOCENTRICHE <1° PIANETI- STELLE m<2

Data	UT	Dm (ø)	Alt.	r1	e	m1	m*	tm(s)	tw(h)			
2007/08/23 10:22:30		0.46635	53.48	1.01	0		1.3		22.3	Sole	32 Alpha	LEO Regolo
2007/09/22 10:10:44		0.07970	23.98	1.10	25	0.1	1.1		19.6	Mercurio	67 Alpha	VIR Spica

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 primo corpo dalla Terra

e = elongazione

m1 = magnitudine del primo corpo

m\* = magnitudine della stella

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

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

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## OCCULTAZIONI TOPOCENTRICHE PIANETI-STELLE m<9

Event Summary for Longitude 11 Latitude 46

Date	U.T.	Diameter	Durn	Star	Mag	Elon	%	Star	Planet	Alt	Dist	Sun	Proba-	R.A. (J2000)	Dec.	Rec
y m d	h m	km "	m/sec	mag	drop	o	Ill	No.	No Name	o "	"	Alt	bility	h m s	o ' "	#
2007 Jun 01	20 39.3	12244	21.98	525s	8.8	0.00	45	54 HIP 38603	Venus	15	20.6	100%		7 54 14.295	23 30 13.94	42
2007 Nov 22	15 48.5142793	32.03	58.8m	9.0	0.00	24	100 TYC 6826-00035-1u		Jupiter	9	7.6	-3	100%	17 33 56.754	-23 4 20.54	416

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# CONGIUNZIONI MULTIPLE PLANETARIE (eventi con 3 o più pianeti entro 3°)

Data	TDI	Dmed (°)	Dmax	emin	mmax			
2006/12/10 16:42:12		0.797	1.022	-15	1.4	Mercurio	Marte	Giove
2008/03/28 01:48:53		1.542	1.699	-19	5.9	Mercurio	Venere	Urano

Data nel formato anno/mese/giorno

Dmed = distanza media in gradi tra i centri dei corpi

Dmax = diametro del cerchio comprendente i corpi

emin = elongazione minima

mmax = magnitudine del corpo più debole

NOTA : Poiché quest'anno non avviene nessuno di questi rari eventi viene riportato l'ultimo visibile ed il prossimo.

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## CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI GEOCENTRICI (eventi con 1 o più pianeti, 1 stella di m<2 e la Luna entro 5°)

Data				Corpi coinvolti			Distanze reciproche			Media	Elong.
20/ 1/2007	8	30	0	VENERE	NETTUNO	LUNA	1.7	4.9	4.4	4.9°	20
20/ 1/2007	9	0	0	VENERE	NETTUNO	LUNA	1.7	4.6	4.2	4.7°	20
20/ 1/2007	9	30	0	VENERE	NETTUNO	LUNA	1.7	4.3	3.9	4.4°	20
20/ 1/2007	10	0	0	VENERE	NETTUNO	LUNA	1.7	4.1	3.7	4.1°	20
20/ 1/2007	10	30	0	VENERE	NETTUNO	LUNA	1.7	3.8	3.4	3.8°	20
20/ 1/2007	11	0	0	VENERE	NETTUNO	LUNA	1.7	3.5	3.2	3.6°	20
20/ 1/2007	11	30	0	VENERE	NETTUNO	LUNA	1.7	3.3	3.0	3.3°	20
20/ 1/2007	12	0	0	VENERE	NETTUNO	LUNA	1.8	3.0	2.8	3.1°	20
20/ 1/2007	12	30	0	VENERE	NETTUNO	LUNA	1.8	2.7	2.6	2.9°	20
20/ 1/2007	13	0	0	VENERE	NETTUNO	LUNA	1.8	2.5	2.4	2.7°	20
20/ 1/2007	13	30	0	VENERE	NETTUNO	LUNA	1.8	2.2	2.3	2.5°	20
20/ 1/2007	14	0	0	VENERE	NETTUNO	LUNA	1.8	2.0	2.2	2.4°	20
20/ 1/2007	14	30	0	VENERE	NETTUNO	LUNA	1.9	1.7	2.1	2.3°	20
20/ 1/2007	15	0	0	VENERE	NETTUNO	LUNA	1.9	1.5	2.1	2.2°	20
20/ 1/2007	15	30	0	VENERE	NETTUNO	LUNA	1.9	1.2	2.1	2.2°	20
20/ 1/2007	16	0	0	VENERE	NETTUNO	LUNA	1.9	1.0	2.2	2.2°	20
20/ 1/2007	16	30	0	VENERE	NETTUNO	LUNA	1.9	0.8	2.3	2.3°	20
20/ 1/2007	17	0	0	VENERE	NETTUNO	LUNA	1.9	0.7	2.4	2.4°	20
20/ 1/2007	17	30	0	VENERE	NETTUNO	LUNA	2.0	0.6	2.5	2.6°	20
20/ 1/2007	18	0	0	VENERE	NETTUNO	LUNA	2.0	0.7	2.7	2.8°	20
20/ 1/2007	18	30	0	VENERE	NETTUNO	LUNA	2.0	0.9	2.9	3.0°	20
20/ 1/2007	19	0	0	VENERE	NETTUNO	LUNA	2.0	1.1	3.1	3.2°	20
20/ 1/2007	19	30	0	VENERE	NETTUNO	LUNA	2.0	1.3	3.3	3.4°	20
20/ 1/2007	20	0	0	VENERE	NETTUNO	LUNA	2.1	1.5	3.6	3.6°	20
20/ 1/2007	20	30	0	VENERE	NETTUNO	LUNA	2.1	1.8	3.8	3.9°	20
20/ 1/2007	21	0	0	VENERE	NETTUNO	LUNA	2.1	2.0	4.1	4.1°	20
20/ 1/2007	21	30	0	VENERE	NETTUNO	LUNA	2.1	2.3	4.3	4.4°	20
20/ 1/2007	22	0	0	VENERE	NETTUNO	LUNA	2.1	2.5	4.6	4.6°	20
20/ 1/2007	22	30	0	VENERE	NETTUNO	LUNA	2.2	2.8	4.9	4.9°	20
20/ 4/2007	3	30	0	VENERE	LUNA	α Tau	3.9	4.5	4.3	5.0°	39
20/ 4/2007	4	0	0	VENERE	LUNA	α Tau	3.7	4.5	4.0	4.8°	39
20/ 4/2007	4	30	0	VENERE	LUNA	α Tau	3.6	4.5	3.7	4.7°	39
20/ 4/2007	5	0	0	VENERE	LUNA	α Tau	3.5	4.5	3.4	4.6°	39
20/ 4/2007	5	30	0	VENERE	LUNA	α Tau	3.4	4.5	3.1	4.5°	39
20/ 4/2007	6	0	0	VENERE	LUNA	α Tau	3.3	4.5	2.8	4.5°	39
20/ 4/2007	6	30	0	VENERE	LUNA	α Tau	3.3	4.5	2.5	4.5°	39
20/ 4/2007	7	0	0	VENERE	LUNA	α Tau	3.2	4.4	2.2	4.5°	39
20/ 4/2007	7	30	0	VENERE	LUNA	α Tau	3.2	4.4	2.0	4.5°	39
20/ 4/2007	8	0	0	VENERE	LUNA	α Tau	3.2	4.4	1.7	4.5°	39
20/ 4/2007	8	30	0	VENERE	LUNA	α Tau	3.3	4.4	1.4	4.5°	39
20/ 4/2007	9	0	0	VENERE	LUNA	α Tau	3.3	4.4	1.2	4.4°	39
20/ 4/2007	9	30	0	VENERE	LUNA	α Tau	3.4	4.4	1.0	4.4°	39
20/ 4/2007	10	0	0	VENERE	LUNA	α Tau	3.5	4.4	0.8	4.4°	39
20/ 4/2007	10	30	0	VENERE	LUNA	α Tau	3.6	4.4	0.7	4.4°	39

20/	4/2007	11	0	0	VENERE	LUNA	$\alpha$ Tau	3.8	4.4	0.8	4.4°	39
20/	4/2007	11	30	0	VENERE	LUNA	$\alpha$ Tau	3.9	4.3	0.9	4.4°	39
20/	4/2007	12	0	0	VENERE	LUNA	$\alpha$ Tau	4.1	4.3	1.1	4.4°	39
20/	4/2007	12	30	0	VENERE	LUNA	$\alpha$ Tau	4.3	4.3	1.4	4.4°	39
20/	4/2007	13	0	0	VENERE	LUNA	$\alpha$ Tau	4.4	4.3	1.6	4.5°	39
20/	4/2007	13	30	0	VENERE	LUNA	$\alpha$ Tau	4.6	4.3	1.9	4.7°	39
20/	4/2007	14	0	0	VENERE	LUNA	$\alpha$ Tau	4.8	4.3	2.2	4.9°	39
17/	5/2007	16	30	0	MERCURIO	LUNA	$\alpha$ Tau	4.8	4.0	2.9	4.8°	16
17/	5/2007	17	0	0	MERCURIO	LUNA	$\alpha$ Tau	4.6	4.0	2.6	4.6°	16
17/	5/2007	17	30	0	MERCURIO	LUNA	$\alpha$ Tau	4.4	4.0	2.3	4.5°	16
17/	5/2007	18	0	0	MERCURIO	LUNA	$\alpha$ Tau	4.2	4.0	2.0	4.3°	16
17/	5/2007	18	30	0	MERCURIO	LUNA	$\alpha$ Tau	4.0	4.0	1.7	4.2°	16
17/	5/2007	19	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.8	4.0	1.5	4.1°	16
17/	5/2007	19	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.7	4.1	1.3	4.1°	16
17/	5/2007	20	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.5	4.1	1.1	4.1°	16
17/	5/2007	20	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.4	4.1	0.9	4.1°	16
17/	5/2007	21	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.3	4.1	0.9	4.1°	16
17/	5/2007	21	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.1	4.1	0.9	4.1°	16
17/	5/2007	22	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.1	4.1	1.0	4.2°	16
17/	5/2007	22	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.0	4.1	1.2	4.2°	16
17/	5/2007	23	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.0	4.1	1.5	4.2°	16
17/	5/2007	23	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.0	4.1	1.7	4.2°	16
18/	5/2007	0	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.0	4.2	2.0	4.2°	16
18/	5/2007	0	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.0	4.2	2.3	4.2°	16
18/	5/2007	1	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.0	4.2	2.5	4.2°	16
18/	5/2007	1	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.1	4.2	2.8	4.2°	16
18/	5/2007	2	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.2	4.2	3.1	4.3°	16
18/	5/2007	2	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.3	4.2	3.4	4.4°	16
18/	5/2007	3	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.5	4.2	3.7	4.5°	16
18/	5/2007	3	30	0	MERCURIO	LUNA	$\alpha$ Tau	3.6	4.3	4.0	4.7°	16
18/	5/2007	4	0	0	MERCURIO	LUNA	$\alpha$ Tau	3.8	4.3	4.3	4.8°	16
17/	7/2007	4	0	0	VENERE	LUNA	$\alpha$ Leo	4.8	2.5	2.8	4.8°	36
17/	7/2007	4	30	0	VENERE	LUNA	$\alpha$ Leo	4.6	2.5	2.6	4.6°	36
17/	7/2007	5	0	0	VENERE	LUNA	$\alpha$ Leo	4.3	2.5	2.3	4.4°	36
17/	7/2007	5	30	0	VENERE	LUNA	$\alpha$ Leo	4.1	2.5	2.0	4.2°	36
17/	7/2007	6	0	0	VENERE	LUNA	$\alpha$ Leo	3.9	2.5	1.8	4.0°	36
17/	7/2007	6	30	0	VENERE	LUNA	$\alpha$ Leo	3.7	2.5	1.5	3.8°	36
17/	7/2007	7	0	0	VENERE	LUNA	$\alpha$ Leo	3.5	2.5	1.2	3.6°	36
17/	7/2007	7	30	0	VENERE	LUNA	$\alpha$ Leo	3.3	2.5	1.0	3.4°	36
17/	7/2007	8	0	0	VENERE	LUNA	$\alpha$ Leo	3.2	2.5	0.7	3.2°	36
17/	7/2007	8	30	0	VENERE	LUNA	$\alpha$ Leo	3.0	2.5	0.5	3.0°	36
17/	7/2007	9	0	0	VENERE	LUNA	$\alpha$ Leo	2.9	2.5	0.3	2.9°	36
17/	7/2007	9	30	0	VENERE	LUNA	$\alpha$ Leo	2.7	2.5	0.2	2.8°	36
17/	7/2007	10	0	0	VENERE	LUNA	$\alpha$ Leo	2.6	2.5	0.4	2.7°	36
17/	7/2007	10	30	0	VENERE	LUNA	$\alpha$ Leo	2.5	2.6	0.6	2.6°	36
17/	7/2007	11	0	0	VENERE	LUNA	$\alpha$ Leo	2.4	2.6	0.8	2.6°	36
17/	7/2007	11	30	0	VENERE	LUNA	$\alpha$ Leo	2.4	2.6	1.1	2.6°	36
17/	7/2007	12	0	0	VENERE	LUNA	$\alpha$ Leo	2.4	2.6	1.4	2.7°	36
17/	7/2007	12	30	0	VENERE	LUNA	$\alpha$ Leo	2.4	2.6	1.6	2.7°	36
17/	7/2007	13	0	0	VENERE	LUNA	$\alpha$ Leo	2.4	2.6	1.9	2.8°	36
17/	7/2007	13	30	0	VENERE	LUNA	$\alpha$ Leo	2.5	2.6	2.1	2.9°	36
17/	7/2007	14	0	0	VENERE	LUNA	$\alpha$ Leo	2.6	2.6	2.4	3.0°	36
17/	7/2007	14	30	0	VENERE	LUNA	$\alpha$ Leo	2.7	2.6	2.7	3.1°	36
17/	7/2007	15	0	0	VENERE	LUNA	$\alpha$ Leo	2.8	2.6	2.9	3.3°	36
17/	7/2007	15	30	0	VENERE	LUNA	$\alpha$ Leo	3.0	2.6	3.2	3.5°	36
17/	7/2007	16	0	0	VENERE	LUNA	$\alpha$ Leo	3.1	2.6	3.5	3.7°	36
17/	7/2007	16	30	0	VENERE	LUNA	$\alpha$ Leo	3.3	2.6	3.7	3.9°	36
17/	7/2007	17	0	0	VENERE	LUNA	$\alpha$ Leo	3.5	2.6	4.0	4.1°	36
17/	7/2007	17	30	0	VENERE	LUNA	$\alpha$ Leo	3.7	2.7	4.3	4.3°	36
17/	7/2007	18	0	0	VENERE	LUNA	$\alpha$ Leo	3.9	2.7	4.5	4.6°	36
17/	7/2007	18	30	0	VENERE	LUNA	$\alpha$ Leo	4.1	2.7	4.8	4.8°	36
13/	8/2007	8	30	0	SATURNO	LUNA	$\alpha$ Leo	2.5	2.5	4.9	5.0°	7
13/	8/2007	9	0	0	SATURNO	LUNA	$\alpha$ Leo	2.2	2.5	4.6	4.7°	7
13/	8/2007	9	30	0	SATURNO	LUNA	$\alpha$ Leo	1.9	2.5	4.4	4.4°	7
13/	8/2007	10	0	0	SATURNO	LUNA	$\alpha$ Leo	1.7	2.5	4.1	4.2°	7
13/	8/2007	10	30	0	SATURNO	LUNA	$\alpha$ Leo	1.4	2.5	3.8	3.9°	7
13/	8/2007	11	0	0	SATURNO	LUNA	$\alpha$ Leo	1.2	2.5	3.6	3.6°	7
13/	8/2007	11	30	0	SATURNO	LUNA	$\alpha$ Leo	0.9	2.5	3.3	3.4°	7
13/	8/2007	12	0	0	SATURNO	LUNA	$\alpha$ Leo	0.7	2.5	3.0	3.1°	7
13/	8/2007	12	30	0	SATURNO	LUNA	$\alpha$ Leo	0.5	2.5	2.8	2.8°	7
13/	8/2007	13	0	0	SATURNO	LUNA	$\alpha$ Leo	0.4	2.5	2.5	2.6°	7
13/	8/2007	13	30	0	SATURNO	LUNA	$\alpha$ Leo	0.4	2.5	2.2	2.5°	7
13/	8/2007	14	0	0	SATURNO	LUNA	$\alpha$ Leo	0.5	2.5	2.0	2.5°	7
13/	8/2007	14	30	0	SATURNO	LUNA	$\alpha$ Leo	0.7	2.5	1.7	2.5°	7
13/	8/2007	15	0	0	SATURNO	LUNA	$\alpha$ Leo	1.0	2.4	1.4	2.5°	7
13/	8/2007	15	30	0	SATURNO	LUNA	$\alpha$ Leo	1.2	2.4	1.2	2.5°	7
13/	8/2007	16	0	0	SATURNO	LUNA	$\alpha$ Leo	1.5	2.4	0.9	2.5°	7
13/	8/2007	16	30	0	SATURNO	LUNA	$\alpha$ Leo	1.7	2.4	0.7	2.5°	7
13/	8/2007	17	0	0	SATURNO	LUNA	$\alpha$ Leo	2.0	2.4	0.4	2.5°	7

13/	8/2007	17	30	0	SATURNO	LUNA	α Leo	2.3	2.4	0.2	2.5°	7
13/	8/2007	18	0	0	SATURNO	LUNA	α Leo	2.5	2.4	0.2	2.6°	7
13/	8/2007	18	30	0	SATURNO	LUNA	α Leo	2.8	2.4	0.4	2.8°	7
13/	8/2007	19	0	0	SATURNO	LUNA	α Leo	3.0	2.4	0.6	3.1°	7
13/	8/2007	19	30	0	SATURNO	LUNA	α Leo	3.3	2.4	0.9	3.3°	6
13/	8/2007	20	0	0	SATURNO	LUNA	α Leo	3.6	2.4	1.1	3.6°	6
13/	8/2007	20	30	0	SATURNO	LUNA	α Leo	3.8	2.4	1.4	3.9°	6
13/	8/2007	21	0	0	SATURNO	LUNA	α Leo	4.1	2.4	1.7	4.1°	6
13/	8/2007	21	30	0	SATURNO	LUNA	α Leo	4.3	2.4	1.9	4.4°	6
13/	8/2007	22	0	0	SATURNO	LUNA	α Leo	4.6	2.4	2.2	4.7°	6
13/	8/2007	22	30	0	SATURNO	LUNA	α Leo	4.9	2.4	2.5	4.9°	6
17/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	2.9	4.9	2.0	5.0°	2
17/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	2.8	4.9	2.0	5.0°	2
17/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	2.8	4.9	2.0	4.9°	2
17/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	2.8	4.8	2.0	4.9°	2
17/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	2.7	4.8	2.0	4.8°	2
17/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	2.7	4.7	2.0	4.8°	2
17/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	2.6	4.7	2.0	4.8°	2
17/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	2.6	4.7	2.0	4.7°	2
17/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	2.6	4.6	2.0	4.7°	2
17/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	2.5	4.6	2.0	4.6°	2
17/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	2.5	4.5	2.0	4.6°	2
17/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	2.5	4.5	2.0	4.6°	2
17/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	2.4	4.5	2.0	4.5°	2
17/	8/2007	7	0	0	MERCURIO	SATURNO	α Leo	2.4	4.4	2.0	4.5°	2
17/	8/2007	7	30	0	MERCURIO	SATURNO	α Leo	2.3	4.4	2.0	4.4°	2
17/	8/2007	8	0	0	MERCURIO	SATURNO	α Leo	2.3	4.3	2.0	4.4°	2
17/	8/2007	8	30	0	MERCURIO	SATURNO	α Leo	2.3	4.3	2.0	4.4°	2
17/	8/2007	9	0	0	MERCURIO	SATURNO	α Leo	2.2	4.3	2.0	4.3°	2
17/	8/2007	9	30	0	MERCURIO	SATURNO	α Leo	2.2	4.2	2.0	4.3°	2
17/	8/2007	10	0	0	MERCURIO	SATURNO	α Leo	2.2	4.2	2.0	4.2°	2
17/	8/2007	10	30	0	MERCURIO	SATURNO	α Leo	2.1	4.1	2.0	4.2°	2
17/	8/2007	11	0	0	MERCURIO	SATURNO	α Leo	2.1	4.1	2.0	4.2°	2
17/	8/2007	11	30	0	MERCURIO	SATURNO	α Leo	2.0	4.1	2.0	4.1°	2
17/	8/2007	12	0	0	MERCURIO	SATURNO	α Leo	2.0	4.0	2.0	4.1°	2
17/	8/2007	12	30	0	MERCURIO	SATURNO	α Leo	2.0	4.0	2.0	4.0°	2
17/	8/2007	13	0	0	MERCURIO	SATURNO	α Leo	1.9	3.9	2.0	4.0°	2
17/	8/2007	13	30	0	MERCURIO	SATURNO	α Leo	1.9	3.9	2.0	4.0°	2
17/	8/2007	14	0	0	MERCURIO	SATURNO	α Leo	1.8	3.9	2.0	3.9°	2
17/	8/2007	14	30	0	MERCURIO	SATURNO	α Leo	1.8	3.8	2.0	3.9°	2
17/	8/2007	15	0	0	MERCURIO	SATURNO	α Leo	1.8	3.8	2.0	3.8°	2
17/	8/2007	15	30	0	MERCURIO	SATURNO	α Leo	1.7	3.8	2.0	3.8°	2
17/	8/2007	16	0	0	MERCURIO	SATURNO	α Leo	1.7	3.7	2.0	3.8°	2
17/	8/2007	16	30	0	MERCURIO	SATURNO	α Leo	1.7	3.7	2.0	3.7°	2
17/	8/2007	17	0	0	MERCURIO	SATURNO	α Leo	1.6	3.6	2.0	3.7°	2
17/	8/2007	17	30	0	MERCURIO	SATURNO	α Leo	1.6	3.6	2.0	3.6°	2
17/	8/2007	18	0	0	MERCURIO	SATURNO	α Leo	1.6	3.6	2.0	3.6°	2
17/	8/2007	18	30	0	MERCURIO	SATURNO	α Leo	1.5	3.5	2.0	3.6°	2
17/	8/2007	19	0	0	MERCURIO	SATURNO	α Leo	1.5	3.5	2.0	3.5°	2
17/	8/2007	19	30	0	MERCURIO	SATURNO	α Leo	1.4	3.4	2.0	3.5°	2
17/	8/2007	20	0	0	MERCURIO	SATURNO	α Leo	1.4	3.4	2.0	3.5°	2
17/	8/2007	20	30	0	MERCURIO	SATURNO	α Leo	1.4	3.4	2.0	3.4°	2
17/	8/2007	21	0	0	MERCURIO	SATURNO	α Leo	1.3	3.3	1.9	3.4°	2
17/	8/2007	21	30	0	MERCURIO	SATURNO	α Leo	1.3	3.3	1.9	3.3°	2
17/	8/2007	22	0	0	MERCURIO	SATURNO	α Leo	1.3	3.2	1.9	3.3°	2
17/	8/2007	22	30	0	MERCURIO	SATURNO	α Leo	1.2	3.2	1.9	3.3°	2
17/	8/2007	23	0	0	MERCURIO	SATURNO	α Leo	1.2	3.2	1.9	3.2°	2
17/	8/2007	23	30	0	MERCURIO	SATURNO	α Leo	1.1	3.1	1.9	3.2°	2
18/	8/2007	0	0	0	MERCURIO	SATURNO	α Leo	1.1	3.1	1.9	3.1°	2
18/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	1.1	3.1	1.9	3.1°	2
18/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	1.0	3.0	1.9	3.1°	2
18/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	1.0	3.0	1.9	3.0°	2
18/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	1.0	2.9	1.9	3.0°	2
18/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	0.9	2.9	1.9	3.0°	3
18/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	0.9	2.9	1.9	2.9°	3
18/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	0.9	2.8	1.9	2.9°	3
18/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	0.8	2.8	1.9	2.8°	3
18/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	0.8	2.8	1.9	2.8°	3
18/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	0.8	2.7	1.9	2.8°	3
18/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	0.7	2.7	1.9	2.7°	3
18/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	0.7	2.6	1.9	2.7°	3
18/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	0.7	2.6	1.9	2.7°	3
18/	8/2007	7	0	0	MERCURIO	SATURNO	α Leo	0.7	2.6	1.9	2.6°	3
18/	8/2007	7	30	0	MERCURIO	SATURNO	α Leo	0.6	2.5	1.9	2.6°	3
18/	8/2007	8	0	0	MERCURIO	SATURNO	α Leo	0.6	2.5	1.9	2.6°	3
18/	8/2007	8	30	0	MERCURIO	SATURNO	α Leo	0.6	2.5	1.9	2.5°	3
18/	8/2007	9	0	0	MERCURIO	SATURNO	α Leo	0.5	2.4	1.9	2.5°	3
18/	8/2007	9	30	0	MERCURIO	SATURNO	α Leo	0.5	2.4	1.9	2.4°	3
18/	8/2007	10	0	0	MERCURIO	SATURNO	α Leo	0.5	2.4	1.9	2.4°	3
18/	8/2007	10	30	0	MERCURIO	SATURNO	α Leo	0.5	2.3	1.9	2.4°	3
18/	8/2007	11	0	0	MERCURIO	SATURNO	α Leo	0.5	2.3	1.9	2.3°	3



18/	8/2007	11	30	0	MERCURIO	SATURNO	α Leo	0.4	2.3	1.9	2.3°	3
18/	8/2007	12	0	0	MERCURIO	SATURNO	α Leo	0.4	2.2	1.9	2.3°	3
18/	8/2007	12	30	0	MERCURIO	SATURNO	α Leo	0.4	2.2	1.9	2.2°	3
18/	8/2007	13	0	0	MERCURIO	SATURNO	α Leo	0.4	2.2	1.9	2.2°	3
18/	8/2007	13	30	0	MERCURIO	SATURNO	α Leo	0.4	2.1	1.9	2.2°	3
18/	8/2007	14	0	0	MERCURIO	SATURNO	α Leo	0.4	2.1	1.9	2.1°	3
18/	8/2007	14	30	0	MERCURIO	SATURNO	α Leo	0.4	2.1	1.9	2.1°	3
18/	8/2007	15	0	0	MERCURIO	SATURNO	α Leo	0.4	2.0	1.9	2.1°	3
18/	8/2007	15	30	0	MERCURIO	SATURNO	α Leo	0.4	2.0	1.9	2.0°	3
18/	8/2007	16	0	0	MERCURIO	SATURNO	α Leo	0.4	2.0	1.9	2.0°	3
18/	8/2007	16	30	0	MERCURIO	SATURNO	α Leo	0.5	1.9	1.9	2.0°	3
18/	8/2007	17	0	0	MERCURIO	SATURNO	α Leo	0.5	1.9	1.9	1.9°	3
18/	8/2007	17	30	0	MERCURIO	SATURNO	α Leo	0.5	1.9	1.8	1.9°	3
18/	8/2007	18	0	0	MERCURIO	SATURNO	α Leo	0.5	1.8	1.8	1.9°	3
18/	8/2007	18	30	0	MERCURIO	SATURNO	α Leo	0.5	1.8	1.8	1.9°	3
18/	8/2007	19	0	0	MERCURIO	SATURNO	α Leo	0.6	1.8	1.8	1.9°	3
18/	8/2007	19	30	0	MERCURIO	SATURNO	α Leo	0.6	1.7	1.8	1.9°	3
18/	8/2007	20	0	0	MERCURIO	SATURNO	α Leo	0.6	1.7	1.8	1.9°	3
18/	8/2007	20	30	0	MERCURIO	SATURNO	α Leo	0.6	1.7	1.8	1.9°	3
18/	8/2007	21	0	0	MERCURIO	SATURNO	α Leo	0.7	1.7	1.8	1.9°	3
18/	8/2007	21	30	0	MERCURIO	SATURNO	α Leo	0.7	1.6	1.8	1.9°	3
18/	8/2007	22	0	0	MERCURIO	SATURNO	α Leo	0.7	1.6	1.8	1.9°	3
18/	8/2007	22	30	0	MERCURIO	SATURNO	α Leo	0.8	1.6	1.8	1.9°	3
18/	8/2007	23	0	0	MERCURIO	SATURNO	α Leo	0.8	1.6	1.8	1.9°	3
18/	8/2007	23	30	0	MERCURIO	SATURNO	α Leo	0.8	1.5	1.8	1.9°	3
19/	8/2007	0	0	0	MERCURIO	SATURNO	α Leo	0.9	1.5	1.8	1.9°	3
19/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	0.9	1.5	1.8	1.9°	3
19/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	0.9	1.5	1.8	1.9°	3
19/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	1.0	1.4	1.8	1.9°	3
19/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	1.0	1.4	1.8	1.9°	3
19/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	1.0	1.4	1.8	1.9°	3
19/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	1.1	1.4	1.8	1.9°	3
19/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	1.1	1.4	1.8	1.9°	3
19/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	1.1	1.3	1.8	1.8°	3
19/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	1.2	1.3	1.8	1.8°	3
19/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	1.2	1.3	1.8	1.8°	3
19/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	1.2	1.3	1.8	1.8°	3
19/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	1.3	1.3	1.8	1.8°	3
19/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	1.3	1.3	1.8	1.8°	4
19/	8/2007	7	0									

20/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	2.9	1.8	1.7	3.0°	4
20/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	3.0	1.9	1.7	3.0°	4
20/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	3.0	1.9	1.7	3.1°	4
20/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	3.0	1.9	1.7	3.1°	4
20/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	3.1	2.0	1.7	3.1°	4
20/	8/2007	7	0	0	MERCURIO	SATURNO	α Leo	3.1	2.0	1.7	3.2°	4
20/	8/2007	7	30	0	MERCURIO	SATURNO	α Leo	3.2	2.0	1.7	3.2°	4
20/	8/2007	8	0	0	MERCURIO	SATURNO	α Leo	3.2	2.1	1.7	3.2°	4
20/	8/2007	8	30	0	MERCURIO	SATURNO	α Leo	3.2	2.1	1.7	3.3°	4
20/	8/2007	9	0	0	MERCURIO	SATURNO	α Leo	3.3	2.1	1.7	3.3°	4
20/	8/2007	9	30	0	MERCURIO	SATURNO	α Leo	3.3	2.1	1.7	3.4°	5
20/	8/2007	10	0	0	MERCURIO	SATURNO	α Leo	3.3	2.2	1.7	3.4°	5
20/	8/2007	10	30	0	MERCURIO	SATURNO	α Leo	3.4	2.2	1.7	3.4°	5
20/	8/2007	11	0	0	MERCURIO	SATURNO	α Leo	3.4	2.2	1.7	3.5°	5
20/	8/2007	11	30	0	MERCURIO	SATURNO	α Leo	3.5	2.3	1.7	3.5°	5
20/	8/2007	12	0	0	MERCURIO	SATURNO	α Leo	3.5	2.3	1.6	3.5°	5
20/	8/2007	12	30	0	MERCURIO	SATURNO	α Leo	3.5	2.4	1.6	3.6°	5
20/	8/2007	13	0	0	MERCURIO	SATURNO	α Leo	3.6	2.4	1.6	3.6°	5
20/	8/2007	13	30	0	MERCURIO	SATURNO	α Leo	3.6	2.4	1.6	3.7°	5
20/	8/2007	14	0	0	MERCURIO	SATURNO	α Leo	3.6	2.5	1.6	3.7°	5
20/	8/2007	14	30	0	MERCURIO	SATURNO	α Leo	3.7	2.5	1.6	3.7°	5
20/	8/2007	15	0	0	MERCURIO	SATURNO	α Leo	3.7	2.5	1.6	3.8°	5
20/	8/2007	15	30	0	MERCURIO	SATURNO	α Leo	3.8	2.6	1.6	3.8°	5
20/	8/2007	16	0	0	MERCURIO	SATURNO	α Leo	3.8	2.6	1.6	3.8°	5
20/	8/2007	16	30	0	MERCURIO	SATURNO	α Leo	3.8	2.6	1.6	3.9°	5
20/	8/2007	17	0	0	MERCURIO	SATURNO	α Leo	3.9	2.7	1.6	3.9°	5
20/	8/2007	17	30	0	MERCURIO	SATURNO	α Leo	3.9	2.7	1.6	4.0°	5
20/	8/2007	18	0	0	MERCURIO	SATURNO	α Leo	3.9	2.7	1.6	4.0°	5
20/	8/2007	18	30	0	MERCURIO	SATURNO	α Leo	4.0	2.8	1.6	4.0°	5
20/	8/2007	19	0	0	MERCURIO	SATURNO	α Leo	4.0	2.8	1.6	4.1°	5
20/	8/2007	19	30	0	MERCURIO	SATURNO	α Leo	4.1	2.8	1.6	4.1°	5
20/	8/2007	20	0	0	MERCURIO	SATURNO	α Leo	4.1	2.9	1.6	4.1°	5
20/	8/2007	20	30	0	MERCURIO	SATURNO	α Leo	4.1	2.9	1.6	4.2°	5
20/	8/2007	21	0	0	MERCURIO	SATURNO	α Leo	4.2	3.0	1.6	4.2°	5
20/	8/2007	21	30	0	MERCURIO	SATURNO	α Leo	4.2	3.0	1.6	4.2°	5
20/	8/2007	22	0	0	MERCURIO	SATURNO	α Leo	4.2	3.0	1.6	4.3°	5
20/	8/2007	22	30	0	MERCURIO	SATURNO	α Leo	4.3	3.1	1.6	4.3°	5
20/	8/2007	23	0	0	MERCURIO	SATURNO	α Leo	4.3	3.1	1.6	4.4°	5
20/	8/2007	23	30	0	MERCURIO	SATURNO	α Leo	4.3	3.1	1.6	4.4°	5
21/	8/2007	0	0	0	MERCURIO	SATURNO	α Leo	4.4	3.2	1.6	4.4°	5
21/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	4.4	3.2	1.6	4.5°	5
21/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	4.5	3.2	1.6	4.5°	5
21/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	4.5	3.3	1.6	4.5°	5
21/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	4.5	3.3	1.6	4.6°	5
21/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	4.6	3.4	1.6	4.6°	5
21/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	4.6	3.4	1.6	4.7°	5
21/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	4.6	3.4	1.6	4.7°	5
21/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	4.7	3.5	1.6	4.7°	5
21/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	4.7	3.5	1.6	4.8°	5
21/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	4.8	3.5	1.6	4.8°	5
21/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	4.8	3.6	1.6	4.8°	5
21/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	4.8	3.6	1.6	4.9°	5
21/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	4.9	3.7	1.6	4.9°	5
21/	8/2007	7	0	0	MERCURIO	SATURNO	α Leo	4.9	3.7	1.6	5.0°	5
21/	8/2007	7	30	0	MERCURIO	SATURNO	α Leo	4.9	3.7	1.6	5.0°	5
9/	9/2007	17	30	0	SATURNO	LUNA	α Leo	4.9	1.3	3.9	4.9°	15
9/	9/2007	18	0	0	SATURNO	LUNA	α Leo	4.6	1.3	3.6	4.7°	15
9/	9/2007	18	30	0	SATURNO	LUNA	α Leo	4.4	1.3	3.3	4.4°	15
9/	9/2007	19	0	0	SATURNO	LUNA	α Leo	4.1	1.3	3.1	4.2°	15
9/	9/2007	19	30	0	SATURNO	LUNA	α Leo	3.9	1.3	2.8	3.9°	15
9/	9/2007	20	0	0	SATURNO	LUNA	α Leo	3.6	1.3	2.5	3.6°	15
9/	9/2007	20	30	0	SATURNO	LUNA	α Leo	3.3	1.3	2.3	3.4°	15
9/	9/2007	21	0	0	SATURNO	LUNA	α Leo	3.1	1.3	2.0	3.1°	15
9/	9/2007	21	30	0	SATURNO	LUNA	α Leo	2.8	1.3	1.7	2.9°	16
9/	9/2007	22	0	0	SATURNO	LUNA	α Leo	2.6	1.3	1.5	2.6°	16
9/	9/2007	22	30	0	SATURNO	LUNA	α Leo	2.3	1.3	1.2	2.4°	16
9/	9/2007	23	0	0	SATURNO	LUNA	α Leo	2.1	1.3	1.0	2.1°	16
9/	9/2007	23	30	0	SATURNO	LUNA	α Leo	1.8	1.3	0.7	1.9°	16
10/	9/2007	0	0	0	SATURNO	LUNA	α Leo	1.6	1.3	0.5	1.7°	16
10/	9/2007	0	30	0	SATURNO	LUNA	α Leo	1.4	1.3	0.2	1.4°	16
10/	9/2007	1	0	0	SATURNO	LUNA	α Leo	1.2	1.3	0.2	1.4°	16
10/	9/2007	1	30	0	SATURNO	LUNA	α Leo	1.0	1.3	0.3	1.4°	16
10/	9/2007	2	0	0	SATURNO	LUNA	α Leo	0.8	1.3	0.6	1.4°	16
10/	9/2007	2	30	0	SATURNO	LUNA	α Leo	0.7	1.3	0.8	1.4°	16
10/	9/2007	3	0	0	SATURNO	LUNA	α Leo	0.7	1.3	1.1	1.4°	16
10/	9/2007	3	30	0	SATURNO	LUNA	α Leo	0.8	1.3	1.3	1.5°	16
10/	9/2007	4	0	0	SATURNO	LUNA	α Leo	0.9	1.4	1.6	1.6°	16
10/	9/2007	4	30	0	SATURNO	LUNA	α Leo	1.1	1.4	1.9	1.9°	16
10/	9/2007	5	0	0	SATURNO	LUNA	α Leo	1.3	1.4	2.1	2.2°	16
10/	9/2007	5	30	0	SATURNO	LUNA	α Leo	1.5	1.4	2.4	2.4°	16
10/	9/2007	6	0	0	SATURNO	LUNA	α Leo	1.7	1.4	2.6	2.7°	16

10/ 9/2007	6 30 0	SATURNO	LUNA	α Leo	2.0	1.4	2.9	3.0°	16
10/ 9/2007	7 0 0	SATURNO	LUNA	α Leo	2.2	1.4	3.2	3.2°	16
10/ 9/2007	7 30 0	SATURNO	LUNA	α Leo	2.5	1.4	3.4	3.5°	16
10/ 9/2007	8 0 0	SATURNO	LUNA	α Leo	2.7	1.4	3.7	3.7°	16
10/ 9/2007	8 30 0	SATURNO	LUNA	α Leo	3.0	1.4	3.9	4.0°	16
10/ 9/2007	9 0 0	SATURNO	LUNA	α Leo	3.2	1.4	4.2	4.3°	16
10/ 9/2007	9 30 0	SATURNO	LUNA	α Leo	3.5	1.4	4.5	4.5°	16
10/ 9/2007	10 0 0	SATURNO	LUNA	α Leo	3.7	1.4	4.7	4.8°	16
7/10/2007	5 30 0	SATURNO	LUNA	α Leo	4.9	4.3	0.6	5.0°	39
7/10/2007	6 0 0	SATURNO	LUNA	α Leo	4.7	4.3	0.4	4.7°	39
7/10/2007	6 30 0	SATURNO	LUNA	α Leo	4.4	4.3	0.2	4.5°	39
7/10/2007	7 0 0	SATURNO	LUNA	α Leo	4.2	4.3	0.2	4.4°	39
7/10/2007	7 30 0	SATURNO	LUNA	α Leo	3.9	4.3	0.4	4.4°	39
7/10/2007	8 0 0	SATURNO	LUNA	α Leo	3.7	4.3	0.6	4.4°	39
7/10/2007	8 30 0	SATURNO	LUNA	α Leo	3.4	4.3	0.9	4.4°	39
7/10/2007	9 0 0	SATURNO	LUNA	α Leo	3.2	4.3	1.1	4.4°	39
7/10/2007	9 30 0	SATURNO	LUNA	α Leo	3.0	4.3	1.4	4.4°	39
7/10/2007	10 0 0	SATURNO	LUNA	α Leo	2.7	4.4	1.6	4.4°	39
7/10/2007	10 30 0	SATURNO	LUNA	α Leo	2.5	4.4	1.9	4.4°	39
7/10/2007	11 0 0	SATURNO	LUNA	α Leo	2.3	4.4	2.2	4.4°	39
7/10/2007	11 30 0	SATURNO	LUNA	α Leo	2.0	4.4	2.4	4.4°	39
7/10/2007	12 0 0	SATURNO	LUNA	α Leo	1.8	4.4	2.7	4.4°	39
7/10/2007	12 30 0	SATURNO	LUNA	α Leo	1.6	4.4	2.9	4.4°	39
7/10/2007	13 0 0	SATURNO	LUNA	α Leo	1.5	4.4	3.2	4.4°	39
7/10/2007	13 30 0	SATURNO	LUNA	α Leo	1.3	4.4	3.4	4.4°	39
7/10/2007	14 0 0	SATURNO	LUNA	α Leo	1.2	4.4	3.7	4.4°	39
7/10/2007	14 30 0	SATURNO	LUNA	α Leo	1.1	4.4	4.0	4.4°	39
7/10/2007	15 0 0	SATURNO	LUNA	α Leo	1.1	4.4	4.2	4.4°	39
7/10/2007	15 30 0	SATURNO	LUNA	α Leo	1.1	4.4	4.5	4.5°	39
7/10/2007	16 0 0	SATURNO	LUNA	α Leo	1.2	4.4	4.7	4.8°	39
6/10/2007	22 30 0	VENERE	LUNA	α Leo	4.8	3.0	4.3	5.0°	44
6/10/2007	23 0 0	VENERE	LUNA	α Leo	4.7	3.0	4.0	4.8°	44
6/10/2007	23 30 0	VENERE	LUNA	α Leo	4.5	3.0	3.7	4.6°	44
7/10/2007	0 0 0	VENERE	LUNA	α Leo	4.3	3.0	3.5	4.4°	44
7/10/2007	0 30 0	VENERE	LUNA	α Leo	4.1	3.0	3.2	4.2°	44
7/10/2007	1 0 0	VENERE	LUNA	α Leo	4.0	3.0	3.0	4.1°	44
7/10/2007	1 30 0	VENERE	LUNA	α Leo	3.8	3.0	2.7	3.9°	44
7/10/2007	2 0 0	VENERE	LUNA	α Leo	3.7	3.0	2.4	3.8°	44
7/10/2007	2 30 0	VENERE	LUNA	α Leo	3.6	3.0	2.2	3.6°	44
7/10/2007	3 0 0	VENERE	LUNA	α Leo	3.4	3.0	1.9	3.5°	44
7/10/2007	3 30 0	VENERE	LUNA	α Leo	3.3	3.0	1.7	3.4°	44
7/10/2007	4 0 0	VENERE	LUNA	α Leo	3.3	3.0	1.4	3.3°	44
7/10/2007	4 30 0	VENERE	LUNA	α Leo	3.2	3.0	1.1	3.2°	44
7/10/2007	5 0 0	VENERE	LUNA	α Leo	3.1	3.0	0.9	3.2°	44
7/10/2007	5 30 0	VENERE	LUNA	α Leo	3.1	2.9	0.6	3.1°	44
7/10/2007	6 0 0	VENERE	LUNA	α Leo	3.1	2.9	0.4	3.1°	44
7/10/2007	6 30 0	VENERE	LUNA	α Leo	3.1	2.9	0.2	3.1°	44
7/10/2007	7 0 0	VENERE	LUNA	α Leo	3.1	2.9	0.2	3.1°	44
7/10/2007	7 30 0	VENERE	LUNA	α Leo	3.1	2.9	0.4	3.2°	44
7/10/2007	8 0 0	VENERE	LUNA	α Leo	3.2	2.9	0.6	3.2°	44
7/10/2007	8 30 0	VENERE	LUNA	α Leo	3.3	2.9	0.9	3.3°	44
7/10/2007	9 0 0	VENERE	LUNA	α Leo	3.4	2.9	1.1	3.4°	44
7/10/2007	9 30 0	VENERE	LUNA	α Leo	3.5	2.9	1.4	3.5°	44
7/10/2007	10 0 0	VENERE	LUNA	α Leo	3.6	2.9	1.6	3.6°	44
7/10/2007	10 30 0	VENERE	LUNA	α Leo	3.7	2.9	1.9	3.8°	44
7/10/2007	11 0 0	VENERE	LUNA	α Leo	3.9	2.9	2.2	3.9°	44
7/10/2007	11 30 0	VENERE	LUNA	α Leo	4.0	2.9	2.4	4.1°	44
7/10/2007	12 0 0	VENERE	LUNA	α Leo	4.2	2.9	2.7	4.2°	44
7/10/2007	12 30 0	VENERE	LUNA	α Leo	4.3	2.9	2.9	4.4°	44
7/10/2007	13 0 0	VENERE	LUNA	α Leo	4.5	2.9	3.2	4.6°	44
7/10/2007	13 30 0	VENERE	LUNA	α Leo	4.7	2.9	3.4	4.7°	44
7/10/2007	14 0 0	VENERE	LUNA	α Leo	4.9	2.8	3.7	4.9°	44

NB: e' evidente che specialmente tra le ore 6 e le 11 del 7/10 saranno complessivamente visibili vicini tra loro Saturno, la Luna, Regolo e Venere

9/10/2007	12 30 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	13 0 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	13 30 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	14 0 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	14 30 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	15 0 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	15 30 0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	16 0 0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	5.0°	44
9/10/2007	16 30 0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	5.0°	44
9/10/2007	17 0 0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	17 30 0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	18 0 0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	18 30 0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44

[illegible]

11/10/2007	12	0	0	VENERE	SATURNO	$\alpha$ Leo	3.8	3.6	4.8	4.9°	45
11/10/2007	12	30	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	13	0	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	13	30	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	14	0	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	14	30	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	15	0	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	15	30	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	16	0	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.6	4.8	4.9°	45
11/10/2007	16	30	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.7	4.8	4.9°	45
11/10/2007	17	0	0	VENERE	SATURNO	$\alpha$ Leo	3.7	3.7	4.8	4.9°	45
11/10/2007	17	30	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.7	4.8	4.9°	45
11/10/2007	18	0	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.7	4.8	4.9°	45
11/10/2007	18	30	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.7	4.8	4.9°	45
11/10/2007	19	0	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.7	4.8	4.9°	45
11/10/2007	19	30	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.7	4.8	4.9°	45
11/10/2007	20	0	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.7	4.8	4.9°	45
11/10/2007	20	30	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.8	4.8	4.9°	45
11/10/2007	21	0	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.8	4.8	4.9°	45
11/10/2007	21	30	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.8	4.8	4.9°	45
11/10/2007	22	0	0	VENERE	SATURNO	$\alpha$ Leo	3.6	3.8	4.8	4.9°	45
11/10/2007	22	30	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.8	4.8	4.9°	45
11/10/2007	23	0	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.8	4.8	4.9°	45
11/10/2007	23	30	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.8	4.8	4.9°	45
12/10/2007	0	0	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.8	4.8	4.9°	45
12/10/2007	0	30	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	1	0	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	1	30	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	2	0	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	2	30	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	3	0	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	3	30	0	VENERE	SATURNO	$\alpha$ Leo	3.5	3.9	4.8	4.9°	45
12/10/2007	4	0	0	VENERE	SATURNO	$\alpha$ Leo	3.4	3.9	4.8	5.0°	45
12/10/2007	4	30	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.8	5.0°	45
12/10/2007	5	0	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	5	30	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	6	0	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	6	30	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	7	0	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	7	30	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	8	0	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.0	4.9	5.0°	45
12/10/2007	8	30	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.1	4.9	5.0°	45
12/10/2007	9	0	0	VENERE	SATURNO	$\alpha$ Leo	3.4	4.1	4.9	5.0°	45
12/10/2007	9	30	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	10	0	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	10	30	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	11	0	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	11	30	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	12	0	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.2	4.9	5.0°	45

## CONGIUNZIONI MULTIPLE MISTE CERCHI MINIMI TOPOCENTRICI

(eventi con 1 o più pianeti, 1 stella di  $m < 2$  e la Luna entro 5°)

Data	Corpi coinvolti			Distanze reciproche			Media	Elong.
20/ 1/2007	8	30	0	VENERE	NETTUNO	LUNA	1.7 4.8 4.7	4.9° 20
20/ 1/2007	9	0	0	VENERE	NETTUNO	LUNA	1.7 4.6 4.6	4.7° 20
20/ 1/2007	9	30	0	VENERE	NETTUNO	LUNA	1.7 4.4 4.4	4.6° 20
20/ 1/2007	10	0	0	VENERE	NETTUNO	LUNA	1.7 4.3 4.2	4.4° 20
20/ 1/2007	10	30	0	VENERE	NETTUNO	LUNA	1.7 4.1 4.1	4.2° 20
20/ 1/2007	11	0	0	VENERE	NETTUNO	LUNA	1.7 3.9 3.9	4.0° 20
20/ 1/2007	11	30	0	VENERE	NETTUNO	LUNA	1.7 3.7 3.8	3.9° 20
20/ 1/2007	12	0	0	VENERE	NETTUNO	LUNA	1.8 3.5 3.6	3.7° 20
20/ 1/2007	12	30	0	VENERE	NETTUNO	LUNA	1.8 3.3 3.5	3.6° 20
20/ 1/2007	13	0	0	VENERE	NETTUNO	LUNA	1.8 3.1 3.3	3.4° 20
20/ 1/2007	13	30	0	VENERE	NETTUNO	LUNA	1.8 2.9 3.2	3.3° 20
20/ 1/2007	14	0	0	VENERE	NETTUNO	LUNA	1.8 2.8 3.1	3.2° 20
20/ 1/2007	14	30	0	VENERE	NETTUNO	LUNA	1.9 2.6 2.9	3.0° 20
20/ 1/2007	15	0	0	VENERE	NETTUNO	LUNA	1.9 2.4 2.8	2.9° 20
20/ 1/2007	15	30	0	VENERE	NETTUNO	LUNA	1.9 2.2 2.7	2.8° 20
20/ 1/2007	16	0	0	VENERE	NETTUNO	LUNA	1.9 2.0 2.7	2.7° 20
20/ 1/2007	16	30	0	VENERE	NETTUNO	LUNA	1.9 1.8 2.6	2.7° 20
20/ 1/2007	17	0	0	VENERE	NETTUNO	LUNA	1.9 1.6 2.6	2.6° 20

20/	1/2007	17	30	0	VENERE	NETTUNO	LUNA	2.0	1.4	2.6	2.6°	20
20/	1/2007	18	0	0	VENERE	NETTUNO	LUNA	2.0	1.2	2.6	2.7°	20
20/	1/2007	18	30	0	VENERE	NETTUNO	LUNA	2.0	1.1	2.7	2.8°	20
20/	1/2007	19	0	0	VENERE	NETTUNO	LUNA	2.0	1.0	2.8	2.9°	20
20/	1/2007	19	30	0	VENERE	NETTUNO	LUNA	2.0	1.0	3.0	3.0°	20
20/	1/2007	20	0	0	VENERE	NETTUNO	LUNA	2.1	1.1	3.2	3.2°	20
20/	1/2007	20	30	0	VENERE	NETTUNO	LUNA	2.1	1.3	3.4	3.4°	20
20/	1/2007	21	0	0	VENERE	NETTUNO	LUNA	2.1	1.5	3.6	3.7°	20
20/	1/2007	21	30	0	VENERE	NETTUNO	LUNA	2.1	1.7	3.9	3.9°	20
20/	1/2007	22	0	0	VENERE	NETTUNO	LUNA	2.1	2.0	4.2	4.2°	20
20/	1/2007	22	30	0	VENERE	NETTUNO	LUNA	2.2	2.3	4.5	4.5°	20
20/	1/2007	23	0	0	VENERE	NETTUNO	LUNA	2.2	2.7	4.8	4.9°	20
20/	4/2007	3	30	0	VENERE	LUNA	α Tau	3.0	4.5	4.4	4.8°	39
20/	4/2007	4	0	0	VENERE	LUNA	α Tau	2.8	4.5	4.1	4.6°	39
20/	4/2007	4	30	0	VENERE	LUNA	α Tau	2.6	4.5	3.7	4.6°	39
20/	4/2007	5	0	0	VENERE	LUNA	α Tau	2.5	4.5	3.4	4.5°	39
20/	4/2007	5	30	0	VENERE	LUNA	α Tau	2.4	4.5	3.1	4.5°	39
20/	4/2007	6	0	0	VENERE	LUNA	α Tau	2.4	4.5	2.8	4.5°	39
20/	4/2007	6	30	0	VENERE	LUNA	α Tau	2.4	4.5	2.5	4.5°	39
20/	4/2007	7	0	0	VENERE	LUNA	α Tau	2.4	4.4	2.2	4.5°	39
20/	4/2007	7	30	0	VENERE	LUNA	α Tau	2.5	4.4	2.0	4.5°	39
20/	4/2007	8	0	0	VENERE	LUNA	α Tau	2.6	4.4	1.8	4.5°	39
20/	4/2007	8	30	0	VENERE	LUNA	α Tau	2.8	4.4	1.6	4.5°	39
20/	4/2007	9	0	0	VENERE	LUNA	α Tau	2.9	4.4	1.4	4.4°	39
20/	4/2007	9	30	0	VENERE	LUNA	α Tau	3.1	4.4	1.4	4.4°	39
20/	4/2007	10	0	0	VENERE	LUNA	α Tau	3.3	4.4	1.3	4.4°	39
20/	4/2007	10	30	0	VENERE	LUNA	α Tau	3.5	4.4	1.3	4.4°	39
20/	4/2007	11	0	0	VENERE	LUNA	α Tau	3.6	4.4	1.4	4.4°	39
20/	4/2007	11	30	0	VENERE	LUNA	α Tau	3.8	4.3	1.5	4.4°	39
20/	4/2007	12	0	0	VENERE	LUNA	α Tau	4.0	4.3	1.6	4.4°	39
20/	4/2007	12	30	0	VENERE	LUNA	α Tau	4.1	4.3	1.8	4.4°	39
20/	4/2007	13	0	0	VENERE	LUNA	α Tau	4.3	4.3	1.9	4.5°	39
20/	4/2007	13	30	0	VENERE	LUNA	α Tau	4.5	4.3	2.1	4.6°	39
20/	4/2007	14	0	0	VENERE	LUNA	α Tau	4.6	4.3	2.3	4.7°	39
20/	4/2007	14	30	0	VENERE	LUNA	α Tau	4.8	4.3	2.5	4.8°	39
20/	4/2007	15	0	0	VENERE	LUNA	α Tau	4.9	4.3	2.7	5.0°	39
17/	5/2007	17	30	0	MERCURIO	LUNA	α Tau	4.7	4.0	3.2	4.8°	16
17/	5/2007	18	0	0	MERCURIO	LUNA	α Tau	4.5	4.0	3.0	4.6°	16
17/	5/2007	18	30	0	MERCURIO	LUNA	α Tau	4.2	4.0	2.7	4.4°	16
17/	5/2007	19	0	0	MERCURIO	LUNA	α Tau	4.0	4.0	2.5	4.3°	16
17/	5/2007	19	30	0	MERCURIO	LUNA	α Tau	3.7	4.1	2.2	4.2°	16
17/	5/2007	20	0	0	MERCURIO	LUNA	α Tau	3.5	4.1	2.0	4.1°	16
17/	5/2007	20	30	0	MERCURIO	LUNA	α Tau	3.2	4.1	1.9	4.1°	16
17/	5/2007	21	0	0	MERCURIO	LUNA	α Tau	2.9	4.1	1.7	4.1°	16
17/	5/2007	21	30	0	MERCURIO	LUNA	α Tau	2.7	4.1	1.7	4.1°	16
17/	5/2007	22	0	0	MERCURIO	LUNA	α Tau	2.5	4.1	1.7	4.2°	16
17/	5/2007	22	30	0	MERCURIO	LUNA	α Tau	2.3	4.1	1.8	4.2°	16
17/	5/2007	23	0	0	MERCURIO	LUNA	α Tau	2.2	4.1	1.9	4.2°	16
17/	5/2007	23	30	0	MERCURIO	LUNA	α Tau	2.1	4.1	2.2	4.2°	16
18/	5/2007	0	0	0	MERCURIO	LUNA	α Tau	2.0	4.2	2.4	4.2°	16
18/	5/2007	0	30	0	MERCURIO	LUNA	α Tau	2.0	4.2	2.7	4.2°	16
18/	5/2007	1	0	0	MERCURIO	LUNA	α Tau	2.1	4.2	3.0	4.2°	16
18/	5/2007	1	30	0	MERCURIO	LUNA	α Tau	2.3	4.2	3.3	4.2°	16
18/	5/2007	2	0	0	MERCURIO	LUNA	α Tau	2.5	4.2	3.7	4.3°	16
18/	5/2007	2	30	0	MERCURIO	LUNA	α Tau	2.7	4.2	4.0	4.4°	16
18/	5/2007	3	0	0	MERCURIO	LUNA	α Tau	3.0	4.2	4.3	4.6°	16
18/	5/2007	3	30	0	MERCURIO	LUNA	α Tau	3.2	4.3	4.7	4.9°	16
17/	7/2007	2	30	0	VENERE	LUNA	α Leo	4.8	2.4	3.2	4.8°	36
17/	7/2007	3	0	0	VENERE	LUNA	α Leo	4.5	2.5	2.8	4.5°	36
17/	7/2007	3	30	0	VENERE	LUNA	α Leo	4.2	2.5	2.5	4.2°	36
17/	7/2007	4	0	0	VENERE	LUNA	α Leo	3.9	2.5	2.2	4.0°	36
17/	7/2007	4	30	0	VENERE	LUNA	α Leo	3.7	2.5	1.9	3.7°	36
17/	7/2007	5	0	0	VENERE	LUNA	α Leo	3.4	2.5	1.5	3.5°	36
17/	7/2007	5	30	0	VENERE	LUNA	α Leo	3.2	2.5	1.2	3.3°	36
17/	7/2007	6	0	0	VENERE	LUNA	α Leo	3.0	2.5	0.9	3.1°	36
17/	7/2007	6	30	0	VENERE	LUNA	α Leo	2.8	2.5	0.6	2.9°	36
17/	7/2007	7	0	0	VENERE	LUNA	α Leo	2.7	2.5	0.4	2.7°	36
17/	7/2007	7	30	0	VENERE	LUNA	α Leo	2.5	2.5	0.1	2.6°	36
17/	7/2007	8	0	0	VENERE	LUNA	α Leo	2.4	2.5	0.1	2.6°	36
17/	7/2007	8	30	0	VENERE	LUNA	α Leo	2.3	2.5	0.3	2.6°	36
17/	7/2007	9	0	0	VENERE	LUNA	α Leo	2.2	2.5	0.6	2.6°	36
17/	7/2007	9	30	0	VENERE	LUNA	α Leo	2.2	2.5	0.8	2.6°	36
17/	7/2007	10	0	0	VENERE	LUNA	α Leo	2.1	2.5	1.0	2.6°	36
17/	7/2007	10	30	0	VENERE	LUNA	α Leo	2.1	2.6	1.2	2.6°	36
17/	7/2007	11	0	0	VENERE	LUNA	α Leo	2.1	2.6	1.4	2.6°	36
17/	7/2007	11	30	0	VENERE	LUNA	α Leo	2.1	2.6	1.7	2.6°	36
17/	7/2007	12	0	0	VENERE	LUNA	α Leo	2.1	2.6	1.9	2.7°	36
17/	7/2007	12	30	0	VENERE	LUNA	α Leo	2.1	2.6	2.0	2.7°	36
17/	7/2007	13	0	0	VENERE	LUNA	α Leo	2.1	2.6	2.2	2.8°	36

17/	7/2007	13	30	0	VENERE	LUNA	α Leo	2.2	2.6	2.4	2.9°	36
17/	7/2007	14	0	0	VENERE	LUNA	α Leo	2.2	2.6	2.6	3.0°	36
17/	7/2007	14	30	0	VENERE	LUNA	α Leo	2.3	2.6	2.8	3.1°	36
17/	7/2007	15	0	0	VENERE	LUNA	α Leo	2.4	2.6	3.0	3.2°	36
17/	7/2007	15	30	0	VENERE	LUNA	α Leo	2.5	2.6	3.2	3.4°	36
17/	7/2007	16	0	0	VENERE	LUNA	α Leo	2.6	2.6	3.4	3.5°	36
17/	7/2007	16	30	0	VENERE	LUNA	α Leo	2.7	2.6	3.6	3.7°	36
17/	7/2007	17	0	0	VENERE	LUNA	α Leo	2.9	2.6	3.9	3.9°	36
17/	7/2007	17	30	0	VENERE	LUNA	α Leo	3.0	2.7	4.1	4.1°	36
17/	7/2007	18	0	0	VENERE	LUNA	α Leo	3.2	2.7	4.3	4.4°	36
17/	7/2007	18	30	0	VENERE	LUNA	α Leo	3.4	2.7	4.5	4.6°	36
17/	7/2007	19	0	0	VENERE	LUNA	α Leo	3.6	2.7	4.8	4.8°	36
13/	8/2007	7	0	0	SATURNO	LUNA	α Leo	2.5	2.5	4.9	4.9°	7
13/	8/2007	7	30	0	SATURNO	LUNA	α Leo	2.3	2.5	4.7	4.7°	7
13/	8/2007	8	0	0	SATURNO	LUNA	α Leo	2.1	2.5	4.4	4.5°	7
13/	8/2007	8	30	0	SATURNO	LUNA	α Leo	1.9	2.5	4.2	4.3°	7
13/	8/2007	9	0	0	SATURNO	LUNA	α Leo	1.7	2.5	4.0	4.1°	7
13/	8/2007	9	30	0	SATURNO	LUNA	α Leo	1.5	2.5	3.8	3.9°	7
13/	8/2007	10	0	0	SATURNO	LUNA	α Leo	1.4	2.5	3.6	3.7°	7
13/	8/2007	10	30	0	SATURNO	LUNA	α Leo	1.2	2.5	3.4	3.5°	7
13/	8/2007	11	0	0	SATURNO	LUNA	α Leo	1.1	2.5	3.2	3.3°	7
13/	8/2007	11	30	0	SATURNO	LUNA	α Leo	1.0	2.5	3.0	3.1°	7
13/	8/2007	12	0	0	SATURNO	LUNA	α Leo	0.9	2.5	2.9	2.9°	7
13/	8/2007	12	30	0	SATURNO	LUNA	α Leo	0.9	2.5	2.7	2.7°	7
13/	8/2007	13	0	0	SATURNO	LUNA	α Leo	0.9	2.5	2.5	2.6°	7
13/	8/2007	13	30	0	SATURNO	LUNA	α Leo	0.9	2.5	2.3	2.5°	7
13/	8/2007	14	0	0	SATURNO	LUNA	α Leo	1.0	2.5	2.1	2.5°	7
13/	8/2007	14	30	0	SATURNO	LUNA	α Leo	1.1	2.5	1.9	2.5°	7
13/	8/2007	15	0	0	SATURNO	LUNA	α Leo	1.3	2.4	1.7	2.5°	7
13/	8/2007	15	30	0	SATURNO	LUNA	α Leo	1.5	2.4	1.5	2.5°	7
13/	8/2007	16	0	0	SATURNO	LUNA	α Leo	1.6	2.4	1.3	2.5°	7
13/	8/2007	16	30	0	SATURNO	LUNA	α Leo	1.8	2.4	1.1	2.5°	7
13/	8/2007	17	0	0	SATURNO	LUNA	α Leo	2.1	2.4	0.9	2.5°	7
13/	8/2007	17	30	0	SATURNO	LUNA	α Leo	2.3	2.4	0.7	2.5°	7
13/	8/2007	18	0	0	SATURNO	LUNA	α Leo	2.5	2.4	0.7	2.6°	7
13/	8/2007	18	30	0	SATURNO	LUNA	α Leo	2.8	2.4	0.6	2.8°	7
13/	8/2007	19	0	0	SATURNO	LUNA	α Leo	3.0	2.4	0.7	3.1°	7
13/	8/2007	19	30	0	SATURNO	LUNA	α Leo	3.3	2.4	0.9	3.3°	6
13/	8/2007	20	0	0	SATURNO	LUNA	α Leo	3.6	2.4	1.2	3.6°	6
13/	8/2007	20	30	0	SATURNO	LUNA	α Leo	3.9	2.4	1.4	3.9°	6
13/	8/2007	21	0	0	SATURNO	LUNA	α Leo	4.2	2.4	1.7	4.2°	6
13/	8/2007	21	30	0	SATURNO	LUNA	α Leo	4.5	2.4	2.0	4.5°	6
13/	8/2007	22	0	0	SATURNO	LUNA	α Leo	4.8	2.4	2.3	4.8°	6
17/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	2.9	4.9	2.0	5.0°	2
17/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	2.8	4.9	2.0	5.0°	2
17/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	2.8	4.9	2.0	4.9°	2
17/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	2.8	4.8	2.0	4.9°	2
17/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	2.7	4.8	2.0	4.8°	2
17/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	2.7	4.7	2.0	4.8°	2
17/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	2.6	4.7	2.0	4.8°	2
17/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	2.6	4.7	2.0	4.7°	2
17/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	2.6	4.6	2.0	4.7°	2
17/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	2.5	4.6	2.0	4.6°	2
17/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	2.5	4.5	2.0	4.6°	2
17/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	2.5	4.5	2.0	4.6°	2
17/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	2.4	4.5	2.0	4.5°	2
17/	8/2007	7	0	0	MERCURIO	SATURNO	α Leo	2.4	4.4	2.0	4.5°	2
17/	8/2007	7	30	0	MERCURIO	SATURNO	α Leo	2.3	4.4	2.0	4.4°	2
17/	8/2007	8	0	0	MERCURIO	SATURNO	α Leo	2.3	4.3	2.0	4.4°	2
17/	8/2007	8	30	0	MERCURIO	SATURNO	α Leo	2.3	4.3	2.0	4.4°	2
17/	8/2007	9	0	0	MERCURIO	SATURNO	α Leo	2.2	4.3	2.0	4.3°	2
17/	8/2007	9	30	0	MERCURIO	SATURNO	α Leo	2.2	4.2	2.0	4.3°	2
17/	8/2007	10	0	0	MERCURIO	SATURNO	α Leo	2.2	4.2	2.0	4.2°	2
17/	8/2007	10	30	0	MERCURIO	SATURNO	α Leo	2.1	4.1	2.0	4.2°	2
17/	8/2007	11	0	0	MERCURIO	SATURNO	α Leo	2.1	4.1	2.0	4.2°	2
17/	8/2007	11	30	0	MERCURIO	SATURNO	α Leo	2.0	4.1	2.0	4.1°	2
17/	8/2007	12	0	0	MERCURIO	SATURNO	α Leo	2.0	4.0	2.0	4.1°	2
17/	8/2007	12	30	0	MERCURIO	SATURNO	α Leo	2.0	4.0	2.0	4.0°	2
17/	8/2007	13	0	0	MERCURIO	SATURNO	α Leo	1.9	3.9	2.0	4.0°	2
17/	8/2007	13	30	0	MERCURIO	SATURNO	α Leo	1.9	3.9	2.0	4.0°	2
17/	8/2007	14	0	0	MERCURIO	SATURNO	α Leo	1.8	3.9	2.0	3.9°	2
17/	8/2007	14	30	0	MERCURIO	SATURNO	α Leo	1.8	3.8	2.0	3.9°	2
17/	8/2007	15	0	0	MERCURIO	SATURNO	α Leo	1.8	3.8	2.0	3.8°	2
17/	8/2007	15	30	0	MERCURIO	SATURNO	α Leo	1.7	3.8	2.0	3.8°	2
17/	8/2007	16	0	0	MERCURIO	SATURNO	α Leo	1.7	3.7	2.0	3.8°	2
17/	8/2007	16	30	0	MERCURIO	SATURNO	α Leo	1.7	3.7	2.0	3.7°	2
17/	8/2007	17	0	0	MERCURIO	SATURNO	α Leo	1.6	3.6	2.0	3.7°	2
17/	8/2007	17	30	0	MERCURIO	SATURNO	α Leo	1.6	3.6	2.0	3.6°	2
17/	8/2007	18	0	0	MERCURIO	SATURNO	α Leo	1.6	3.6	2.0	3.6°	2
17/	8/2007	18	30	0	MERCURIO	SATURNO	α Leo	1.5	3.5	2.0	3.6°	2





19/	8/2007	12	0	0	MERCURIO	SATURNO	α Leo	1.7	1.2	1.8	1.9°	4
19/	8/2007	12	30	0	MERCURIO	SATURNO	α Leo	1.7	1.2	1.8	1.9°	4
19/	8/2007	13	0	0	MERCURIO	SATURNO	α Leo	1.8	1.2	1.8	1.9°	4
19/	8/2007	13	30	0	MERCURIO	SATURNO	α Leo	1.8	1.2	1.8	2.0°	4
19/	8/2007	14	0	0	MERCURIO	SATURNO	α Leo	1.9	1.2	1.8	2.0°	4
19/	8/2007	14	30	0	MERCURIO	SATURNO	α Leo	1.9	1.2	1.7	2.0°	4
19/	8/2007	15	0	0	MERCURIO	SATURNO	α Leo	1.9	1.2	1.7	2.0°	4
19/	8/2007	15	30	0	MERCURIO	SATURNO	α Leo	2.0	1.3	1.7	2.1°	4
19/	8/2007	16	0	0	MERCURIO	SATURNO	α Leo	2.0	1.3	1.7	2.1°	4
19/	8/2007	16	30	0	MERCURIO	SATURNO	α Leo	2.0	1.3	1.7	2.1°	4
19/	8/2007	17	0	0	MERCURIO	SATURNO	α Leo	2.1	1.3	1.7	2.1°	4
19/	8/2007	17	30	0	MERCURIO	SATURNO	α Leo	2.1	1.3	1.7	2.2°	4
19/	8/2007	18	0	0	MERCURIO	SATURNO	α Leo	2.2	1.3	1.7	2.2°	4
19/	8/2007	18	30	0	MERCURIO	SATURNO	α Leo	2.2	1.3	1.7	2.2°	4
19/	8/2007	19	0	0	MERCURIO	SATURNO	α Leo	2.2	1.4	1.7	2.3°	4
19/	8/2007	19	30	0	MERCURIO	SATURNO	α Leo	2.3	1.4	1.7	2.3°	4
19/	8/2007	20	0	0	MERCURIO	SATURNO	α Leo	2.3	1.4	1.7	2.3°	4
19/	8/2007	20	30	0	MERCURIO	SATURNO	α Leo	2.3	1.4	1.7	2.4°	4
19/	8/2007	21	0	0	MERCURIO	SATURNO	α Leo	2.4	1.4	1.7	2.4°	4
19/	8/2007	21	30	0	MERCURIO	SATURNO	α Leo	2.4	1.5	1.7	2.5°	4
19/	8/2007	22	0	0	MERCURIO	SATURNO	α Leo	2.4	1.5	1.7	2.5°	4
19/	8/2007	22	30	0	MERCURIO	SATURNO	α Leo	2.5	1.5	1.7	2.5°	4
19/	8/2007	23	0	0	MERCURIO	SATURNO	α Leo	2.5	1.5	1.7	2.6°	4
19/	8/2007	23	30	0	MERCURIO	SATURNO	α Leo	2.6	1.6	1.7	2.6°	4
20/	8/2007	0	0	0	MERCURIO	SATURNO	α Leo	2.6	1.6	1.7	2.6°	4
20/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	2.6	1.6	1.7	2.7°	4
20/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	2.7	1.6	1.7	2.7°	4
20/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	2.7	1.7	1.7	2.8°	4
20/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	2.7	1.7	1.7	2.8°	4
20/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	2.8	1.7	1.7	2.8°	4
20/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	2.8	1.7	1.7	2.9°	4
20/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	2.9	1.8	1.7	2.9°	4
20/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	2.9	1.8	1.7	2.9°	4
20/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	2.9	1.8	1.7	3.0°	4
20/	8/2007	5	0	0	MERCURIO	SATURNO	α Leo	3.0	1.9	1.7	3.0°	4
20/	8/2007	5	30	0	MERCURIO	SATURNO	α Leo	3.0	1.9	1.7	3.1°	4
20/	8/2007	6	0	0	MERCURIO	SATURNO	α Leo	3.0	1.9	1.7	3.1°	4
20/	8/2007	6	30	0	MERCURIO	SATURNO	α Leo	3.1	2.0	1.7	3.1°	4
20/	8/2007	7	0	0	MERCURIO	SATURNO	α Leo	3.1	2.0	1.7	3.2°	4
20/	8/2007	7	30	0	MERCURIO	SATURNO	α Leo	3.2	2.0	1.7	3.2°	4
20/	8/2007	8	0	0	MERCURIO	SATURNO	α Leo	3.2	2.1	1.7	3.2°	4
20/	8/2007	8	30	0	MERCURIO	SATURNO	α Leo	3.2	2.1	1.7	3.3°	4
20/	8/2007	9	0	0	MERCURIO	SATURNO	α Leo	3.3	2.1	1.7	3.3°	4
20/	8/2007	9	30	0	MERCURIO	SATURNO	α Leo	3.3	2.1	1.7	3.4°	5
20/	8/2007	10	0	0	MERCURIO	SATURNO	α Leo	3.3	2.2	1.7	3.4°	5
20/	8/2007	10	30	0	MERCURIO	SATURNO	α Leo	3.4	2.2	1.7	3.4°	5
20/	8/2007	11	0	0	MERCURIO	SATURNO	α Leo	3.4	2.2	1.7	3.5°	5
20/	8/2007	11	30	0	MERCURIO	SATURNO	α Leo	3.5	2.3	1.7	3.5°	5
20/	8/2007	12	0	0	MERCURIO	SATURNO	α Leo	3.5	2.3	1.6	3.5°	5
20/	8/2007	12	30	0	MERCURIO	SATURNO	α Leo	3.5	2.4	1.6	3.6°	5
20/	8/2007	13	0	0	MERCURIO	SATURNO	α Leo	3.6	2.4	1.6	3.6°	5
20/	8/2007	13	30	0	MERCURIO	SATURNO	α Leo	3.6	2.4	1.6	3.7°	5
20/	8/2007	14	0	0	MERCURIO	SATURNO	α Leo	3.6	2.5	1.6	3.7°	5
20/	8/2007	14	30	0	MERCURIO	SATURNO	α Leo	3.7	2.5	1.6	3.7°	5
20/	8/2007	15	0	0	MERCURIO	SATURNO	α Leo	3.7	2.5	1.6	3.8°	5
20/	8/2007	15	30	0	MERCURIO	SATURNO	α Leo	3.8	2.6	1.6	3.8°	5
20/	8/2007	16	0	0	MERCURIO	SATURNO	α Leo	3.8	2.6	1.6	3.8°	5
20/	8/2007	16	30	0	MERCURIO	SATURNO	α Leo	3.8	2.6	1.6	3.9°	5
20/	8/2007	17	0	0	MERCURIO	SATURNO	α Leo	3.9	2.7	1.6	3.9°	5
20/	8/2007	17	30	0	MERCURIO	SATURNO	α Leo	3.9	2.7	1.6	4.0°	5
20/	8/2007	18	0	0	MERCURIO	SATURNO	α Leo	3.9	2.7	1.6	4.0°	5
20/	8/2007	18	30	0	MERCURIO	SATURNO	α Leo	4.0	2.8	1.6	4.0°	5
20/	8/2007	19	0	0	MERCURIO	SATURNO	α Leo	4.0	2.8	1.6	4.1°	5
20/	8/2007	19	30	0	MERCURIO	SATURNO	α Leo	4.1	2.8	1.6	4.1°	5
20/	8/2007	20	0	0	MERCURIO	SATURNO	α Leo	4.1	2.9	1.6	4.1°	5
20/	8/2007	20	30	0	MERCURIO	SATURNO	α Leo	4.1	2.9	1.6	4.2°	5
20/	8/2007	21	0	0	MERCURIO	SATURNO	α Leo	4.2	3.0	1.6	4.2°	5
20/	8/2007	21	30	0	MERCURIO	SATURNO	α Leo	4.2	3.0	1.6	4.2°	5
20/	8/2007	22	0	0	MERCURIO	SATURNO	α Leo	4.2	3.0	1.6	4.3°	5
20/	8/2007	22	30	0	MERCURIO	SATURNO	α Leo	4.3	3.1	1.6	4.3°	5
20/	8/2007	23	0	0	MERCURIO	SATURNO	α Leo	4.3	3.1	1.6	4.4°	5
20/	8/2007	23	30	0	MERCURIO	SATURNO	α Leo	4.3	3.1	1.6	4.4°	5
21/	8/2007	0	0	0	MERCURIO	SATURNO	α Leo	4.4	3.2	1.6	4.4°	5
21/	8/2007	0	30	0	MERCURIO	SATURNO	α Leo	4.4	3.2	1.6	4.5°	5
21/	8/2007	1	0	0	MERCURIO	SATURNO	α Leo	4.5	3.2	1.6	4.5°	5
21/	8/2007	1	30	0	MERCURIO	SATURNO	α Leo	4.5	3.3	1.6	4.5°	5
21/	8/2007	2	0	0	MERCURIO	SATURNO	α Leo	4.5	3.3	1.6	4.6°	5
21/	8/2007	2	30	0	MERCURIO	SATURNO	α Leo	4.6	3.4	1.6	4.6°	5
21/	8/2007	3	0	0	MERCURIO	SATURNO	α Leo	4.6	3.4	1.6	4.7°	5
21/	8/2007	3	30	0	MERCURIO	SATURNO	α Leo	4.6	3.4	1.6	4.7°	5
21/	8/2007	4	0	0	MERCURIO	SATURNO	α Leo	4.7	3.5	1.6	4.7°	5
21/	8/2007	4	30	0	MERCURIO	SATURNO	α Leo	4.7	3.5	1.6	4.8°	5

21/ 8/2007	5	0	0	MERCURIO	SATURNO	α Leo	4.8	3.5	1.6	4.8°	5
21/ 8/2007	5	30	0	MERCURIO	SATURNO	α Leo	4.8	3.6	1.6	4.8°	5
21/ 8/2007	6	0	0	MERCURIO	SATURNO	α Leo	4.8	3.6	1.6	4.9°	5
21/ 8/2007	6	30	0	MERCURIO	SATURNO	α Leo	4.9	3.7	1.6	4.9°	5
21/ 8/2007	7	0	0	MERCURIO	SATURNO	α Leo	4.9	3.7	1.6	5.0°	5
21/ 8/2007	7	30	0	MERCURIO	SATURNO	α Leo	4.9	3.7	1.6	5.0°	5
9/ 9/2007	18	30	0	SATURNO	LUNA	α Leo	4.7	1.3	3.5	4.8°	15
9/ 9/2007	19	0	0	SATURNO	LUNA	α Leo	4.4	1.3	3.2	4.5°	15
9/ 9/2007	19	30	0	SATURNO	LUNA	α Leo	4.1	1.3	2.9	4.2°	15
9/ 9/2007	20	0	0	SATURNO	LUNA	α Leo	3.8	1.3	2.6	3.9°	15
9/ 9/2007	20	30	0	SATURNO	LUNA	α Leo	3.5	1.3	2.2	3.6°	15
9/ 9/2007	21	0	0	SATURNO	LUNA	α Leo	3.2	1.3	1.9	3.2°	15
9/ 9/2007	21	30	0	SATURNO	LUNA	α Leo	2.9	1.3	1.6	2.9°	16
9/ 9/2007	22	0	0	SATURNO	LUNA	α Leo	2.6	1.3	1.2	2.6°	16
9/ 9/2007	22	30	0	SATURNO	LUNA	α Leo	2.3	1.3	0.9	2.3°	16
9/ 9/2007	23	0	0	SATURNO	LUNA	α Leo	2.0	1.3	0.6	2.1°	16
9/ 9/2007	23	30	0	SATURNO	LUNA	α Leo	1.7	1.3	0.4	1.8°	16
10/ 9/2007	0	0	0	SATURNO	LUNA	α Leo	1.5	1.3	0.3	1.6°	16
10/ 9/2007	0	30	0	SATURNO	LUNA	α Leo	1.3	1.3	0.5	1.4°	16
10/ 9/2007	1	0	0	SATURNO	LUNA	α Leo	1.2	1.3	0.8	1.4°	16
10/ 9/2007	1	30	0	SATURNO	LUNA	α Leo	1.1	1.3	1.1	1.4°	16
10/ 9/2007	2	0	0	SATURNO	LUNA	α Leo	1.2	1.3	1.3	1.5°	16
10/ 9/2007	2	30	0	SATURNO	LUNA	α Leo	1.2	1.3	1.6	1.7°	16
10/ 9/2007	3	0	0	SATURNO	LUNA	α Leo	1.4	1.3	1.9	2.0°	16
10/ 9/2007	3	30	0	SATURNO	LUNA	α Leo	1.6	1.3	2.2	2.2°	16
10/ 9/2007	4	0	0	SATURNO	LUNA	α Leo	1.8	1.4	2.5	2.5°	16
10/ 9/2007	4	30	0	SATURNO	LUNA	α Leo	2.0	1.4	2.7	2.8°	16
10/ 9/2007	5	0	0	SATURNO	LUNA	α Leo	2.2	1.4	3.0	3.0°	16
10/ 9/2007	5	30	0	SATURNO	LUNA	α Leo	2.4	1.4	3.2	3.2°	16
10/ 9/2007	6	0	0	SATURNO	LUNA	α Leo	2.6	1.4	3.4	3.5°	16
10/ 9/2007	6	30	0	SATURNO	LUNA	α Leo	2.8	1.4	3.6	3.7°	16
10/ 9/2007	7	0	0	SATURNO	LUNA	α Leo	3.0	1.4	3.9	3.9°	16
10/ 9/2007	7	30	0	SATURNO	LUNA	α Leo	3.2	1.4	4.1	4.1°	16
10/ 9/2007	8	0	0	SATURNO	LUNA	α Leo	3.4	1.4	4.3	4.3°	16
10/ 9/2007	8	30	0	SATURNO	LUNA	α Leo	3.6	1.4	4.5	4.5°	16
10/ 9/2007	9	0	0	SATURNO	LUNA	α Leo	3.8	1.4	4.7	4.7°	16
10/ 9/2007	9	30	0	SATURNO	LUNA	α Leo	4.0	1.4	4.9	4.9°	16
7/10/2007	4	30	0	SATURNO	LUNA	α Leo	4.8	4.3	0.4	4.8°	39
7/10/2007	5	0	0	SATURNO	LUNA	α Leo	4.6	4.3	0.2	4.6°	39
7/10/2007	5	30	0	SATURNO	LUNA	α Leo	4.4	4.3	0.1	4.4°	39
7/10/2007	6	0	0	SATURNO	LUNA	α Leo	4.2	4.3	0.2	4.4°	39
7/10/2007	6	30	0	SATURNO	LUNA	α Leo	4.0	4.3	0.4	4.4°	39
7/10/2007	7	0	0	SATURNO	LUNA	α Leo	3.9	4.3	0.6	4.4°	39
7/10/2007	7	30	0	SATURNO	LUNA	α Leo	3.7	4.3	0.7	4.4°	39
7/10/2007	8	0	0	SATURNO	LUNA	α Leo	3.6	4.3	0.9	4.4°	39
7/10/2007	8	30	0	SATURNO	LUNA	α Leo	3.4	4.3	1.1	4.4°	39
7/10/2007	9	0	0	SATURNO	LUNA	α Leo	3.3	4.3	1.3	4.4°	39
7/10/2007	9	30	0	SATURNO	LUNA	α Leo	3.1	4.3	1.5	4.4°	39
7/10/2007	10	0	0	SATURNO	LUNA	α Leo	3.0	4.4	1.7	4.4°	39
7/10/2007	10	30	0	SATURNO	LUNA	α Leo	2.9	4.4	1.9	4.4°	39
7/10/2007	11	0	0	SATURNO	LUNA	α Leo	2.7	4.4	2.1	4.4°	39
7/10/2007	11	30	0	SATURNO	LUNA	α Leo	2.6	4.4	2.3	4.4°	39
7/10/2007	12	0	0	SATURNO	LUNA	α Leo	2.5	4.4	2.5	4.4°	39
7/10/2007	12	30	0	SATURNO	LUNA	α Leo	2.4	4.4	2.8	4.4°	39
7/10/2007	13	0	0	SATURNO	LUNA	α Leo	2.3	4.4	3.0	4.4°	39
7/10/2007	13	30	0	SATURNO	LUNA	α Leo	2.2	4.4	3.2	4.4°	39
7/10/2007	14	0	0	SATURNO	LUNA	α Leo	2.1	4.4	3.5	4.4°	39
7/10/2007	14	30	0	SATURNO	LUNA	α Leo	2.0	4.4	3.7	4.4°	39
7/10/2007	15	0	0	SATURNO	LUNA	α Leo	2.0	4.4	4.0	4.4°	39
7/10/2007	15	30	0	SATURNO	LUNA	α Leo	2.0	4.4	4.3	4.5°	39
7/10/2007	16	0	0	SATURNO	LUNA	α Leo	2.0	4.4	4.6	4.7°	39
7/10/2007	16	30	0	SATURNO	LUNA	α Leo	2.1	4.4	4.9	4.9°	39
6/10/2007	21	0	0	VENERE	LUNA	α Leo	4.7	3.1	4.6	5.0°	44
6/10/2007	21	30	0	VENERE	LUNA	α Leo	4.4	3.1	4.3	4.7°	44
6/10/2007	22	0	0	VENERE	LUNA	α Leo	4.2	3.0	3.9	4.5°	44
6/10/2007	22	30	0	VENERE	LUNA	α Leo	4.0	3.0	3.6	4.2°	44
6/10/2007	23	0	0	VENERE	LUNA	α Leo	3.8	3.0	3.3	4.0°	44
6/10/2007	23	30	0	VENERE	LUNA	α Leo	3.6	3.0	3.0	3.8°	44
7/10/2007	0	0	0	VENERE	LUNA	α Leo	3.5	3.0	2.7	3.6°	44
7/10/2007	0	30	0	VENERE	LUNA	α Leo	3.3	3.0	2.4	3.5°	44
7/10/2007	1	0	0	VENERE	LUNA	α Leo	3.2	3.0	2.1	3.4°	44
7/10/2007	1	30	0	VENERE	LUNA	α Leo	3.1	3.0	1.8	3.3°	44
7/10/2007	2	0	0	VENERE	LUNA	α Leo	3.0	3.0	1.6	3.2°	44
7/10/2007	2	30	0	VENERE	LUNA	α Leo	2.9	3.0	1.3	3.1°	44
7/10/2007	3	0	0	VENERE	LUNA	α Leo	2.9	3.0	1.1	3.0°	44
7/10/2007	3	30	0	VENERE	LUNA	α Leo	2.8	3.0	0.8	3.0°	44
7/10/2007	4	0	0	VENERE	LUNA	α Leo	2.8	3.0	0.6	3.0°	44
7/10/2007	4	30	0	VENERE	LUNA	α Leo	2.8	3.0	0.4	3.0°	44
7/10/2007	5	0	0	VENERE	LUNA	α Leo	2.8	3.0	0.2	3.0°	44

7/10/2007	5	30	0	VENERE	LUNA	α Leo	2.8	2.9	0.1	3.0°	44
7/10/2007	6	0	0	VENERE	LUNA	α Leo	2.8	2.9	0.2	3.0°	44
7/10/2007	6	30	0	VENERE	LUNA	α Leo	2.8	2.9	0.4	3.0°	44
7/10/2007	7	0	0	VENERE	LUNA	α Leo	2.8	2.9	0.6	3.0°	44
7/10/2007	7	30	0	VENERE	LUNA	α Leo	2.9	2.9	0.7	3.0°	44
7/10/2007	8	0	0	VENERE	LUNA	α Leo	2.9	2.9	0.9	3.0°	44
7/10/2007	8	30	0	VENERE	LUNA	α Leo	2.9	2.9	1.1	3.0°	44
7/10/2007	9	0	0	VENERE	LUNA	α Leo	3.0	2.9	1.3	3.1°	44
7/10/2007	9	30	0	VENERE	LUNA	α Leo	3.0	2.9	1.5	3.1°	44
7/10/2007	10	0	0	VENERE	LUNA	α Leo	3.1	2.9	1.7	3.2°	44
7/10/2007	10	30	0	VENERE	LUNA	α Leo	3.2	2.9	1.9	3.3°	44
7/10/2007	11	0	0	VENERE	LUNA	α Leo	3.3	2.9	2.1	3.4°	44
7/10/2007	11	30	0	VENERE	LUNA	α Leo	3.4	2.9	2.3	3.5°	44
7/10/2007	12	0	0	VENERE	LUNA	α Leo	3.5	2.9	2.5	3.6°	44
7/10/2007	12	30	0	VENERE	LUNA	α Leo	3.6	2.9	2.8	3.7°	44
7/10/2007	13	0	0	VENERE	LUNA	α Leo	3.8	2.9	3.0	3.9°	44
7/10/2007	13	30	0	VENERE	LUNA	α Leo	4.0	2.9	3.2	4.1°	44
7/10/2007	14	0	0	VENERE	LUNA	α Leo	4.2	2.8	3.5	4.3°	44
7/10/2007	14	30	0	VENERE	LUNA	α Leo	4.4	2.8	3.7	4.5°	44
7/10/2007	15	0	0	VENERE	LUNA	α Leo	4.6	2.8	4.0	4.7°	44
7/10/2007	15	30	0	VENERE	LUNA	α Leo	4.8	2.8	4.3	4.9°	44

NB: e' evidente che specialmente tra le ore 6 e le 11 del 7/10 saranno complessivamente visibili vicini tra loro Saturno, la Luna, Regolo e Venere

9/10/2007	12	30	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	13	0	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	13	30	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	14	0	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	14	30	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	15	0	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	15	30	0	VENERE	SATURNO	α Leo	4.8	2.8	4.6	5.0°	44
9/10/2007	16	0	0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	5.0°	44
9/10/2007	16	30	0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	5.0°	44
9/10/2007	17	0	0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	17	30	0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	18	0	0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	18	30	0	VENERE	SATURNO	α Leo	4.7	2.8	4.6	4.9°	44
9/10/2007	19	0	0	VENERE	SATURNO	α Leo	4.7	2.9	4.6	4.9°	45
9/10/2007	19	30	0	VENERE	SATURNO	α Leo	4.7	2.9	4.6	4.9°	45
9/10/2007	20	0	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	20	30	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	21	0	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	21	30	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	22	0	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	22	30	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	23	0	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
9/10/2007	23	30	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
10/10/2007	0	0	0	VENERE	SATURNO	α Leo	4.6	2.9	4.6	4.9°	45
10/10/2007	0	30	0	VENERE	SATURNO	α Leo	4.5	2.9	4.6	4.9°	45
10/10/2007	1	0	0	VENERE	SATURNO	α Leo	4.5	2.9	4.6	4.9°	45
10/10/2007	1	30	0	VENERE	SATURNO	α Leo	4.5	2.9	4.6	4.9°	45
10/10/2007	2	0	0	VENERE	SATURNO	α Leo	4.5	2.9	4.6	4.9°	45
10/10/2007	2	30	0	VENERE	SATURNO	α Leo	4.5	2.9	4.6	4.9°	45
10/10/2007	3	0	0	VENERE	SATURNO	α Leo	4.5	2.9	4.6	4.9°	45
10/10/2007	3	30	0	VENERE	SATURNO	α Leo	4.5	3.0	4.6	4.9°	45
10/10/2007	4	0	0	VENERE	SATURNO	α Leo	4.5	3.0	4.6	4.9°	45
10/10/2007	4	30	0	VENERE	SATURNO	α Leo	4.4	3.0	4.6	4.9°	45
10/10/2007	5	0	0	VENERE	SATURNO	α Leo	4.4	3.0	4.6	4.9°	45
10/10/2007	5	30	0	VENERE	SATURNO	α Leo	4.4	3.0	4.6	4.9°	45
10/10/2007	6	0	0	VENERE	SATURNO	α Leo	4.4	3.0	4.6	4.9°	45
10/10/2007	6	30	0	VENERE	SATURNO	α Leo	4.4	3.0	4.7	4.9°	45
10/10/2007	7	0	0	VENERE	SATURNO	α Leo	4.4	3.0	4.7	4.9°	45
10/10/2007	7	30	0	VENERE	SATURNO	α Leo	4.4	3.0	4.7	4.9°	45
10/10/2007	8	0	0	VENERE	SATURNO	α Leo	4.4	3.0	4.7	4.9°	45
10/10/2007	8	30	0	VENERE	SATURNO	α Leo	4.4	3.0	4.7	4.9°	45
10/10/2007	9	0	0	VENERE	SATURNO	α Leo	4.3	3.0	4.7	4.9°	45
10/10/2007	9	30	0	VENERE	SATURNO	α Leo	4.3	3.0	4.7	4.9°	45
10/10/2007	10	0	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	10	30	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	11	0	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	11	30	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	12	0	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	12	30	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	13	0	0	VENERE	SATURNO	α Leo	4.3	3.1	4.7	4.9°	45
10/10/2007	13	30	0	VENERE	SATURNO	α Leo	4.2	3.1	4.7	4.9°	45
10/10/2007	14	0	0	VENERE	SATURNO	α Leo	4.2	3.1	4.7	4.9°	45
10/10/2007	14	30	0	VENERE	SATURNO	α Leo	4.2	3.1	4.7	4.9°	45
10/10/2007	15	0	0	VENERE	SATURNO	α Leo	4.2	3.1	4.7	4.9°	45
10/10/2007	15	30	0	VENERE	SATURNO	α Leo	4.2	3.1	4.7	4.8°	45
10/10/2007	16	0	0	VENERE	SATURNO	α Leo	4.2	3.2	4.7	4.8°	45
10/10/2007	16	30	0	VENERE	SATURNO	α Leo	4.2	3.2	4.7	4.8°	45

[illegible]

12/10/2007	10	0	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	10	30	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	11	0	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	11	30	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.1	4.9	5.0°	45
12/10/2007	12	0	0	VENERE	SATURNO	$\alpha$ Leo	3.3	4.2	4.9	5.0°	45

## CONGIUNZIONI CON OGGETTI MESSIER ENTRO 1°

Date	TDI	Dm ( $\emptyset$ )	Dl	Err	r1	p ( $\emptyset$ )	e	m1	m*	tm(s)	tw(h)		
2007/01/02	04:05:13	0.82671	0.00234	0.01479	1.44	181	-3	-0.9	5.1		8.5	Mercurio	M22
2007/01/18	03:43:34	0.45181	0.00162	0.00092	2.30	360	-27	1.3	6.0		29.1	Marte	M8
2007/01/24	13:48:47	0.99021	0.00164	0.00003	2.27	2	-29	1.3	6.8		4.5	Marte	M28
2007/01/28	06:26:58	0.12685	0.00166	0.01479	2.25	3	-30	1.2	5.1		32.1	Marte	M22
2007/06/13	10:35:16	0.58769	0.00706	0.00000	0.67	342	45	-4.3	3.7		21.0	Venere	M44
2007/08/08	08:54:47	0.23177	0.00264	0.00000	1.28	168	-8	-1.6	3.7		11.4	Mercurio	M44
2007/10/03	23:06:13	0.89825	0.00395	0.00000	0.95	183	-98	-0.2	5.3		24.6	Marte	M35
2007/10/21	09:54:54	0.26492	0.00103	0.00092	2.45	177	63	7.5	6.0		51.6	Vesta	M8
2007/10/31	20:13:43	0.05545	0.00099	0.00003	2.57	359	58	7.6	6.8		51.8	Vesta	M28
2007/11/06	14:57:22	0.91778	0.00096	0.01479	2.63	181	55	7.6	5.1		20.3	Vesta	M22
2007/12/21	04:37:41	0.69389	0.00234	0.00092	1.44	178	3	-0.9	6.0		10.9	Mercurio	M8
2007/12/23	22:14:58	0.75262	0.00468	0.00000	6.23	180	-1	-1.7	6.5		68.9	Giove	M21
2007/12/24	04:12:39	0.28155	0.00236	0.00003	1.43	180	4	-0.9	6.8		14.4	Mercurio	M28

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = Parallasse terrestre

Err = incertezza pari al diametro medio oggetto Messier

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

p = angolo di posizione tra i corpi

e = elongazione

m1 = magnitudine del primo corpo

m\* = 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 1° tra loro

© (6)

# EFFEMERIDI DELLA LUNA

		LATITUDINE 46 N			LONGITUDINE -11 E			ALTEZZA S.L.M. 220							
DATA	(A,MS,G,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PAR.(' '' )	D.	LIB.LG	LIB.LT	ALT.	AZ.	K	EL.SOL.	
1/	1/2007/ 0/ 0	4 18 49	+ 26 25 3	4 16 35	+ 25 59 35	374437	58 34	31 55	3.6	-6.4	48.1	297	0.919	147	
2/	1/2007/ 0/ 0	5 20 34	+ 28 10 30	5 18 55	+ 27 49 39	377063	58 9	31 41	4.3	-6.5	58.9	294	0.968	159	
3/	1/2007/ 0/ 0	6 22 26	+ 28 10 41	6 21 30	+ 27 52 3	380347	57 39	31 25	4.9	-6.3	67.1	294	0.994	171	
4/	1/2007/ 0/ 0	7 22 14	+ 26 30 30	7 22 3	+ 26 11 20	384172	57 5	31 6	5.1	-5.7	70.0	315	0.997	173	
5/	1/2007/ 0/ 0	8 18 26	+ 23 25 7	8 18 54	+ 23 3 7	388335	56 28	30 46	5.1	-4.8	65.8	80	0.977	162	
6/	1/2007/ 0/ 0	9 10 26	+ 19 14 41	9 11 26	+ 18 48 30	392566	55 51	30 26	4.7	-3.7	57.6	86	0.937	151	
7/	1/2007/ 0/ 0	9 58 31	+ 14 19 21	9 59 57	+ 13 48 39	396552	55 18	30 8	4.0	-2.4	47.8	85	0.880	140	
8/	1/2007/ 0/ 0	10 43 29	+ 8 56 22	10 45 15	+ 8 21 36	399976	54 49	29 52	3.0	-1.0	37.6	83	0.810	128	
9/	1/2007/ 0/ 0	11 26 22	+ 3 19 32	11 28 23	+ 2 41 40	402547	54 28	29 41	1.8	0.4	27.2	80	0.730	117	
10/	1/2007/ 0/ 0	12 8 15	- 2 20 11	12 10 29	- 2 59 54	404030	54 16	29 34	0.4	1.7	16.7	76	0.642	107	
11/	1/2007/ 0/ 0	12 50 14	- 7 53 27	12 52 39	- 8 33 36	404268	54 14	29 33	-1.0	3.0	6.4	73	0.550	96	
12/	1/2007/ 0/ 0	13 33 24	- 13 11 10	13 35 58	- 13 50 18	403195	54 23	29 38	-2.3	4.2	-4.0	68	0.456	85	
13/	1/2007/ 0/ 0	14 18 48	- 18 3 7	14 21 28	- 18 39 48	400850	54 42	29 49	-3.6	5.2	-14.4	63	0.362	74	
14/	1/2007/ 0/ 0	15 7 22	- 22 16 49	15 10 4	- 22 49 50	397378	55 11	30 4	-4.6	5.9	-24.9	56	0.273	63	
15/	1/2007/ 0/ 0	15 59 45	- 25 36 51	16 2 20	- 26 5 27	393018	55 48	30 24	-5.3	6.5	-35.4	49	0.189	52	
16/	1/2007/ 0/ 0	16 55 60	- 27 45 44	16 58 19	- 28 9 54	388097	56 30	30 47	-5.6	6.7	-45.7	39	0.116	40	
17/	1/2007/ 0/ 0	17 55 22	- 28 26 33	17 57 13	- 28 47 20	382995	57 15	31 12	-5.6	6.6	-55.6	29	0.058	28	
18/	1/2007/ 0/ 0	18 56 15	- 27 27 39	18 57 28	- 27 47 9	378116	57 59	31 36	-5.2	6.1	-63.8	18	0.019	16	
19/	1/2007/ 0/ 0	19 56 41	- 24 47 7	19 57 11	- 25 8 2	373839	58 39	31 58	-4.6	5.2	-67.7	7	0.002	5	
20/	1/2007/ 0/ 0	20 55 5	- 20 34 13	20 54 54	- 20 59 4	370468	59 11	32 15	-3.6	4.1	-64.8	357	0.010	11	
21/	1/2007/ 0/ 0	21 50 45	- 15 7 5	21 49 56	- 15 37 26	368193	59 33	32 27	-2.5	2.6	-56.6	349	0.044	24	
22/	1/2007/ 0/ 0	22 43 50	- 8 48 29	22 42 29	- 9 24 43	367074	59 44	32 33	-1.4	1.0	-45.8	342	0.103	38	
23/	1/2007/ 0/ 0	23 35 9	- 2 2 22	23 33 21	- 2 43 35	367043	59 44	32 33	-0.2	-0.7	-34.0	336	0.185	51	
24/	1/2007/ 0/ 0	0 25 48	+ 4 48 9	0 23 37	+ 4 3 49	367944	59 36	32 29	0.9	-2.3	-21.8	330	0.283	64	
25/	1/2007/ 0/ 0	1 17 1	+ 11 21 20	1 14 30	+ 10 36 16	369571	59 20	32 20	2.0	-3.8	-9.4	325	0.391	77	
26/	1/2007/ 0/ 0	2 9 56	+ 17 16 22	2 7 9	+ 16 33 6	371721	58 59	32 9	2.9	-5.0	2.9	320	0.504	91	
27/	1/2007/ 0/ 0	3 5 19	+ 22 13 8	3 2 23	+ 21 33 53	374226	58 36	31 56	3.7	-5.9	15.0	315	0.616	103	
28/	1/2007/ 0/ 0	4 3 25	+ 25 52 51	4 0 29	+ 25 18 60	376969	58 10	31 42	4.3	-6.5	26.7	310	0.720	116	
29/	1/2007/ 0/ 0	5 3 34	+ 28 0 18	5 0 51	+ 27 32 0	379888	57 43	31 27	4.8	-6.7	37.8	305	0.812	129	
30/	1/2007/ 0/ 0	6 4 18	+ 28 27 15	6 2 1	+ 28 3 22	382956	57 16	31 12	5.1	-6.5	47.9	300	0.888	141	
31/	1/2007/ 0/ 0	7 3 45	+ 27 15 12	7 2 2	+ 26 53 34	386161	56 47	30 57	5.2	-5.9	56.5	294	0.946	153	
1/	2/2007/ 0/ 0	8 0 18	+ 24 35 3	7 59 13	+ 24 13 13	389476	56 18	30 41	5.0	-5.1	62.1	286	0.983	165	
2/	2/2007/ 0/ 0	8 53 8	+ 20 43 52	8 52 41	+ 20 19 43	392834	55 49	30 25	4.6	-4.0	63.2	267	0.999	176	
3/	2/2007/ 0/ 0	9 42 15	+ 16 0 38	9 42 20	+ 15 32 46	396121	55 21	30 10	4.0	-2.7	59.5	160	0.994	171	
4/	2/2007/ 0/ 0	10 28 11	+ 10 43 8	10 28 44	+ 10 11 2	399174	54 56	29 56	3.1	-1.4	52.7	122	0.970	160	
5/	2/2007/ 0/ 0	11 11 47	+ 5 6 41	11 12 46	+ 4 30 30	401791	54 34	29 44	2.0	0.1	44.3	112	0.928	149	
6/	2/2007/ 0/ 0	11 54 4	- 0 36 3	11 55 24	- 1 15 38	403750	54 19	29 36	0.7	1.5	35.1	106	0.871	138	
7/	2/2007/ 0/ 0	12 36 0	- 6 14 23	12 37 41	- 6 56 16	404836	54 10	29 31	-0.7	2.8	25.6	100	0.801	127	
8/	2/2007/ 0/ 0	13 18 37	- 11 38 33	13 20 38	- 12 21 29	404861	54 10	29 31	-2.0	4.0	15.9	95	0.721	116	
9/	2/2007/ 0/ 0	14 2 54	- 16 38 44	14 5 13	- 17 21 16	403696	54 19	29 36	-3.4	5.1	6.1	89	0.633	105	
10/	2/2007/ 0/ 0	14 49 46	- 21 3 54	14 52 22	- 21 44 34	401289	54 39	29 47	-4.6	5.9	-3.7	82	0.540	95	
11/	2/2007/ 0/ 0	15 39 57	- 24 40 58	15 42 45	- 25 18 28	397682	55 8	30 3	-5.6	6.5	-13.6	75	0.443	83	
12/	2/2007/ 0/ 0	16 33 50	- 27 14 47	16 36 43	- 27 48 10	393024	55 47	30 24	-6.4	6.8	-23.4	65	0.346	72	
13/	2/2007/ 0/ 0	17 31 5	- 28 29 20	17 33 54	- 28 58 24	387575	56 35	30 50	-6.7	6.8	-33.2	55	0.253	60	
14/	2/2007/ 0/ 0	18 30 42	- 28 10 52	18 33 13	- 28 36 26	381698	57 27	31 18	-6.7	6.4	-42.6	43	0.167	48	
15/	2/2007/ 0/ 0	19 31 1	- 26 11 58	19 33 3	- 26 35 56	375837	58 21	31 48	-6.3	5.7	-51.0	32	0.094	36	
16/	2/2007/ 0/ 0	20 30 34	- 22 34 48	20 31 49	- 22 59 42	370477	59 11	32 15	-5.5	4.6	-57.2	20	0.039	23	
17/	2/2007/ 0/ 0	21 27 46	- 17 31 25	21 28 33	- 17 59 48	366084	59 54	32 38	-4.3	3.2	-59.1	10	0.007	10	
18/	2/2007/ 0/ 0	22 22 53	- 11 21 44	22 23 1	- 11 55 22	363038	60 24	32 55	-2.9	1.6	-55.8	2	0.002	5	
19/	2/2007/ 0/ 0	23 16 12	- 4 30 16	23 15 44	- 5 9 46	361568	60 39	33 3	-1.3	-0.2	-48.3	354	0.025	18	
20/	2/2007/ 0/ 0	0 8 38	+ 2 36 35	0 7 37	+ 1 51 56	361720	60 37	33 2	0.4	-1.9	-38.5	348	0.076	32	
21/	2/2007/ 0/ 0	1 1 18	+ 9 32 34	0 59 45	+ 8 44 33	363557	60 21	32 53	1.9	-3.5	-27.5	341	0.152	46	
22/	2/2007/ 0/ 0	1 55 16	+ 15 52 43	1 53 12	+ 15 3 49	366205	59 53	32 38	3.3	-4.9	-16.1	336	0.246	59	
23/	2/2007/ 0/ 0	2 51 20	+ 21 14 11	2 48 48	+ 20 27 0	369911	59 17	32 18	4.5	-5.9	-4.6	330	0.352	73	
24/	2/2007/ 0/ 0	3 49 42	+ 25 17 12	3 46 50	+ 24 33 58	374116	58 37	31 56	5.4	-6.5	6.5	324	0.463	86	
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26/	2/2007/ 0/ 0	5 50 27	+ 28 35 55	5 47 28	+ 28 3 15	382827	57 17	31 13	6.3	-6.7	27.2	312	0.678	111	
27/	2/2007/ 0/ 0	6 49 47	+ 27 45 47	6 47 5	+ 27 17 17	386931	56 40	30 53	6.3	-6.2	36.2	306	0.772	123	
28/	2/2007/ 0/ 0	7 46 22	+ 25 26 39	7 44 5	+ 25 0 23	390725	56 7	30 35	6.0	-5.4	43.9	298	0.852	135	
1/	3/2007/ 0/ 0	8 39 24	+ 21 54 7	8 37 37	+ 21 27 57	394171	55 38	30 19	5.4	-4.3	49.6	289	0.916	146	
2/	3/2007/ 0/ 0	9 28 49	+ 17 25 44	9 27 32	+ 16 57 48	397256	55 12	30 5	4.7	-3.1	52.7	276	0.963	158	
3/	3/2007/ 0/ 0	10 15 5	+ 12 18 22	10 14 18	+ 11 47 23	399964	54 49	29 53	3.7	-1.7	52.7	254	0.991	169	
4/	3/2007/ 0/ 0	10 59 1	+ 6 47 4	10 58 40	+ 6 12 20	402259	54 31	29 42	2.6	-0.3	49.7	214	1.000	180	
5/	3/2007/ 0/ 0	11 41 29	+ 1 4 53	11 41 34	+ 0 26 20	404076	54 16	29 34	1.4	1.1	44.4	173	0.990	169	
6/	3/2007/ 0/ 0	12 23 26	- 4 36 39	12 23 56	- 5 18 37	405312	54 6	29 29	0.1	2.5	37.7	148	0.963	158	
7/	3/2007/ 0/ 0	13 5 47	- 10 6 56	13 6 43	- 10 51 31	405842	54 2	29 27	-1.3	3.8	30.1	134	0.919	147	
8/	3/2007/ 0/ 0	13 49 28	- 15 15 31	13 50 49	- 16 1 36	405527	54 4	29 28	-2.7	4.9	21.9	123	0.860	136	
9/	3/2007/ 0/ 0	14 35 17	- 19 51 26	14 37 5	- 20 37 41	404240	54 15	29 34	-4.0	5.7	13.5	114	0.788	125	
10/	3/2007/ 0/ 0	15 23 56	- 23 42 30	15 26 9	- 24 27 31	401890	54 34	29 44	-5.2	6.4	4.9	104	0.706	114	
11/	3/2007/ 0/ 0	16 15 49	- 26 35 18	16 18 25	- 27 17 44	398443	55 2	29 59	-6.2	6.8	-3.8	94	0.614	103	
12/	3/2007/ 0/ 0	17 10 49	- 28 15 51	17 13 42	- 28 54 41	393950	55 40	30 20	-7.0	6.9	-12.4	83	0.516	92	
13/	3/2007/ 0/ 0	18 8 16	- 28 31 26	18 11 14	- 29 6 20	388561	56 26	30 45	-7.5	6.6	-21.0	71	0.415	80	
14/	3/2007/ 0/ 0	19 6 53	- 27 13 29	19 9 46	- 27 45 2	382541	57 19	31 14	-7.6	6.0	-29.3	58	0.315	68	
15/	3/2007/ 0/ 0	20 5 19	- 24 20 4	20 7 55	- 24 49 49	376266	58 17	31 45	-7.2	5.1	-36.8	45	0.219	56	
16/	3/2007/ 0/														

DATA	(A,MS,G,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PAR.(' ''')	D.	LIB.LG	LIB.LT	ALT.	AZ.	K	EL.SOL.
10/	4/2007/	0/ 0	18 48 30	- 27 42 3	18 51 20	- 28 22 46	389415	56 19	30 41	-7.4	6.1	-9.6	87	0.578 99
11/	4/2007/	0/ 0	19 45 28	- 25 23 35	19 48 23	- 26 1 16	383898	57 7	31 8	-7.6	5.3	-16.1	72	0.474 87
12/	4/2007/	0/ 0	20 41 19	- 21 39 5	20 44 10	- 22 14 54	377982	58 1	31 37	-7.5	4.2	-22.2	59	0.368 75
13/	4/2007/	0/ 0	21 35 40	- 16 38 10	21 38 17	- 17 13 50	372029	58 56	32 7	-6.9	2.8	-27.6	46	0.265 62
14/	4/2007/	0/ 0	22 28 41	- 10 35 3	22 30 60	- 11 12 28	366492	59 50	32 36	-6.0	1.3	-31.6	36	0.170 49
15/	4/2007/	0/ 0	23 21 6	- 3 48 3	23 23 1	- 4 28 54	361875	60 36	33 1	-4.6	-0.5	-34.0	26	0.091 35
16/	4/2007/	0/ 0	0 13 55	+ 3 20 22	0 15 22	+ 2 35 0	358656	61 8	33 19	-2.9	-2.2	-34.1	18	0.034 21
17/	4/2007/	0/ 0	1 8 16	+ 10 23 41	1 9 11	+ 9 33 37	357203	61 23	33 27	-0.9	-3.8	-32.0	10	0.004 8
18/	4/2007/	0/ 0	2 5 13	+ 16 52 13	2 5 29	+ 15 58 21	357699	61 18	33 24	1.2	-5.1	-27.8	3	0.005 8
19/	4/2007/	0/ 0	3 5 18	+ 22 15 35	3 4 51	+ 21 19 45	360102	60 54	33 11	3.2	-6.0	-22.2	356	0.036 22
20/	4/2007/	0/ 0	4 8 13	+ 26 6 56	4 6 60	+ 25 11 32	364151	60 13	32 49	5.0	-6.5	-15.7	349	0.094 36
21/	4/2007/	0/ 0	5 12 33	+ 28 8 36	5 10 37	+ 27 15 57	369423	59 21	32 21	6.3	-6.6	-8.9	342	0.173 49
22/	4/2007/	0/ 0	6 16 4	+ 28 16 36	6 13 37	+ 27 28 14	375412	58 25	31 50	7.2	-6.3	-2.1	334	0.266 62
23/	4/2007/	0/ 0	7 16 37	+ 26 40 45	7 13 52	+ 25 56 59	381608	57 28	31 19	7.6	-5.6	4.3	327	0.368 75
24/	4/2007/	0/ 0	8 12 53	+ 23 39 47	8 10 4	+ 22 59 53	387566	56 35	30 50	7.5	-4.7	10.2	320	0.472 87
25/	4/2007/	0/ 0	9 4 39	+ 19 34 56	9 1 54	+ 18 57 38	392940	55 48	30 25	7.0	-3.5	15.2	312	0.573 98
26/	4/2007/	0/ 0	9 52 26	+ 14 45 35	9 49 51	+ 14 9 26	397493	55 10	30 4	6.2	-2.2	19.5	304	0.669 110
27/	4/2007/	0/ 0	10 37 10	+ 9 27 40	10 34 48	+ 8 51 20	401096	54 40	29 47	5.1	-0.8	22.7	295	0.757 121
28/	4/2007/	0/ 0	11 19 56	+ 3 54 1	11 17 49	+ 3 16 23	403709	54 19	29 36	3.8	0.6	25.0	284	0.834 132
29/	4/2007/	0/ 0	12 1 47	- 1 44 36	11 59 56	- 2 24 21	405362	54 6	29 29	2.4	1.9	26.2	271	0.898 143
30/	4/2007/	0/ 0	12 43 43	- 7 18 15	12 42 9	- 8 0 40	406127	53 59	29 25	1.0	3.2	26.4	254	0.947 154
1/	5/2007/	0/ 0	13 26 40	- 12 36 53	13 25 27	- 13 22 9	406098	53 60	29 25	-0.3	4.3	25.5	235	0.981 164
2/	5/2007/	0/ 0	14 11 30	- 17 29 24	14 10 42	- 18 17 25	405365	54 6	29 29	-1.6	5.3	23.8	213	0.997 174
3/	5/2007/	0/ 0	14 58 54	- 21 43 24	14 58 35	- 22 33 40	404002	54 17	29 35	-2.8	6.0	21.2	192	0.995 172
4/	5/2007/	0/ 0	15 49 15	- 25 5 16	15 49 30	- 25 56 55	402056	54 32	29 43	-3.9	6.5	17.9	172	0.975 162
5/	5/2007/	0/ 0	16 42 30	- 27 21 11	16 43 21	- 28 13 3	399547	54 53	29 54	-4.9	6.7	14.2	154	0.937 151
6/	5/2007/	0/ 0	17 37 58	- 28 19 5	17 39 27	- 29 9 52	396479	55 18	30 8	-5.7	6.5	10.1	137	0.881 140
7/	5/2007/	0/ 0	18 34 33	- 27 51 6	18 36 35	- 28 39 41	392854	55 49	30 25	-6.3	6.1	5.7	120	0.810 128
8/	5/2007/	0/ 0	19 30 55	- 25 55 20	19 33 22	- 26 41 7	388694	56 25	30 45	-6.7	5.3	1.2	103	0.724 117
9/	5/2007/	0/ 0	20 26 1	- 22 36 13	20 28 42	- 23 19 17	384068	57 6	31 7	-6.9	4.3	-3.3	86	0.626 105
10/	5/2007/	0/ 0	21 19 21	- 18 3 17	21 22 9	- 18 44 21	379110	57 50	31 31	-6.8	3.0	-7.6	71	0.520 92
11/	5/2007/	0/ 0	22 11 4	- 12 29 23	22 13 51	- 13 9 38	374043	58 37	31 57	-6.4	1.6	-11.7	58	0.411 80
12/	5/2007/	0/ 0	23 2 152	- 6 9 44	23 4 32	- 6 50 38	369177	59 24	32 22	-5.7	-0.0	-15.4	47	0.302 67
13/	5/2007/	0/ 0	23 52 45	+ 0 37 59	23 55 13	- 0 5 0	364899	60 6	32 45	-4.5	-1.7	-18.3	37	0.201 53
14/	5/2007/	0/ 0	0 44 56	+ 7 32 46	0 47 8	+ 6 46 31	361624	60 38	33 3	-3.0	-3.2	-20.4	29	0.115 40
15/	5/2007/	0/ 0	1 39 40	+ 14 9 31	1 41 28	+ 13 19 23	359737	60 57	33 13	-1.3	-4.6	-21.2	20	0.050 26
16/	5/2007/	0/ 0	2 37 53	+ 19 59 23	2 39 8	+ 19 5 31	359514	60 60	33 14	0.6	-5.7	-21.1	13	0.011 12
17/	5/2007/	0/ 0	3 39 51	+ 24 32 22	3 40 24	+ 23 35 53	361059	60 44	33 6	2.6	-6.3	-19.8	5	0.002 6
18/	5/2007/	0/ 0	4 44 39	+ 27 22 54	4 44 23	+ 26 25 44	364279	60 12	32 48	4.3	-6.5	-17.4	358	0.023 17
19/	5/2007/	0/ 0	5 50 9	+ 28 17 5	5 49 5	+ 27 21 27	368889	59 27	32 24	5.7	-6.3	-14.4	350	0.069 31
20/	5/2007/	0/ 0	6 53 42	+ 27 17 12	6 51 57	+ 26 24 48	374465	58 33	31 55	6.7	-5.7	-10.9	343	0.137 43
21/	5/2007/	0/ 0	7 53 13	+ 24 39 38	7 51 1	+ 23 51 13	380518	57 38	31 24	7.2	-4.8	-7.2	336	0.221 56
22/	5/2007/	0/ 0	8 47 52	+ 20 47 39	8 45 24	+ 20 3 2	386559	56 43	30 55	7.2	-3.6	-3.6	329	0.314 68
23/	5/2007/	0/ 0	9 37 53	+ 16 4 17	9 35 18	+ 15 22 40	392160	55 55	30 28	6.7	-2.3	-0.1	321	0.413 80
24/	5/2007/	0/ 0	10 24 10	+ 10 48 43	10 21 35	+ 10 9 2	396984	55 14	30 6	5.9	-0.9	3.1	314	0.512 91
25/	5/2007/	0/ 0	11 7 51	+ 5 15 48	11 5 19	+ 4 36 57	400802	54 43	29 49	4.8	0.5	5.9	305	0.608 103
26/	5/2007/	0/ 0	11 50 6	- 0 22 58	11 47 39	- 1 2 1	403489	54 21	29 37	3.5	1.8	8.5	296	0.699 113
27/	5/2007/	0/ 0	12 32 2	- 5 57 52	12 29 42	- 6 38 1	405021	54 8	29 30	2.1	3.1	10.6	285	0.782 124
28/	5/2007/	0/ 0	13 14 41	- 11 19 37	13 12 31	- 12 1 39	405455	54 5	29 28	0.7	4.2	12.4	272	0.854 135
29/	5/2007/	0/ 0	13 59 1	- 16 18 9	13 57 4	- 17 2 39	404905	54 9	29 31	-0.6	5.2	13.8	257	0.914 146
30/	5/2007/	0/ 0	14 45 49	- 20 41 51	14 44 12	- 21 29 7	403523	54 20	29 37	-1.8	5.9	14.8	239	0.959 157
31/	5/2007/	0/ 0	15 35 39	- 24 17 15	15 34 27	- 25 7 14	401474	54 37	29 46	-2.9	6.4	15.3	220	0.988 167
1/	6/2007/	0/ 0	16 28 35	- 26 49 55	16 27 56	- 27 42 5	398915	54 58	29 57	-3.8	6.6	15.4	200	0.998 175
2/	6/2007/	0/ 0	17 24 6	- 28 6 22	17 24 5	- 28 59 43	395978	55 23	30 11	-4.5	6.5	15.0	180	0.989 168
3/	6/2007/	0/ 0	18 21 1	- 27 56 59	18 21 42	- 28 50 14	392768	55 50	30 25	-5.1	6.1	14.2	160	0.960 157
4/	6/2007/	0/ 0	19 17 53	- 26 18 42	19 19 12	- 27 10 34	389354	56 19	30 41	-5.5	5.3	13.0	140	0.912 145
5/	6/2007/	0/ 0	20 13 26	- 23 15 44	20 15 16	- 24 5 19	385783	56 50	30 58	-5.7	4.3	11.4	120	0.844 134
6/	6/2007/	0/ 0	21 6 55	- 18 58 22	21 9 9	- 19 45 21	382097	57 23	31 16	-5.7	3.1	9.3	101	0.760 121
7/	6/2007/	0/ 0	21 58 21	- 13 40 33	22 0 51	- 14 25 9	378351	57 57	31 35	-5.5	1.6	6.9	84	0.662 109
8/	6/2007/	0/ 0	22 48 19	- 7 37 53	22 50 58	- 8 20 49	374644	58 32	31 54	-5.1	0.1	4.2	70	0.555 96
9/	6/2007/	0/ 0	23 37 46	- 1 6 57	23 40 30	- 1 49 18	371128	59 5	32 12	-4.4	-1.5	1.1	58	0.442 83
10/	6/2007/	0/ 0	0 27 55	+ 5 34 14	0 30 40	+ 4 51 14	368021	59 35	32 28	-3.5	-3.0	-2.0	47	0.330 70
11/	6/2007/	0/ 0	1 20 3	+ 12 5 13	1 22 43	+ 11 20 16	365587	59 59	32 41	-2.2	-4.4	-5.3	38	0.226 57
12/	6/2007/	0/ 0	2 15 21	+ 18 2 6	2 17 48	+ 17 14 7	364108	60 13	32 49	-0.8	-5.5	-8.5	30	0.136 43
13/	6/2007/	0/ 0	3 14 32	+ 22 57 58	3 16 36	+ 22 6 28	363831	60 16	32 51	0.8	-6.2	-11.4	22	0.065 30
14/	6/2007/	0/ 0	4 17 26	+ 26 25 57	4 18 55	+ 25 31 17	364916	60 5	32 45	2.4	-6.5	-13.9	14	0.020 16
15/	6/2007/	0/ 0	5 22 34	+ 28 5 22	5 23 17	+ 27 8 54	367390	59 41	32 31	3.9	-6.4	-15.9	6	0.002 5
16/	6/2007/	0/ 0	6 27 26	+ 27 48 44	6 27 20	+ 26 52 50	371124	59 5	32 12	5.1	-5.9	-17.1	359	0.012 12
17/	6/2007/	0/ 0	7 29 26	+ 25 44 40	7 28 36	+ 24 50 25	375847	58 20	31 48	5.9	-5.0	-17.6	352	0.046 25
18/	6/2007/	0/ 0	8 26 58	+ 22 13 38	8 25 33	+ 21 22 37	381182	57 31	31 21	6.3	-3.9	-17.4	345	0.103 37
19/	6/2007/	0/ 0	9 19 39	+ 17 40 13	9 17 49	+ 16 52 50	386699	56 42	30 54	6.3	-2.5	-16.5	338	0.175 49
20/	6/2007/	0/ 0	10 8 5	+ 12 27 4	10 5 58	+ 11 43 6	391973	55 56	30 29	5.9	-1.1	-15.2	331	0.260 61
21/	6/2007/	0/ 0	10 53 18	+ 6 52 22	10 50 60	+ 6 11 10	396626	55 17	30 8	5.1	0.3	-13.3	324	0.351 73
22/	6/2007/	0/ 0	11 36 28	+ 1 9 57	11 34 2	+ 0 30 39	400356	54 46	29 51	4.0	1.7	-11.1	317	0.447 84
23/	6/2007/	0/ 0	12 18 46	- 4 29 25	12 16 15	- 5 7 46	402956	54 25	29 39	2.7	3.0	-8.6	308	0.543 95
24/	6/2007/	0/ 0	13 1 18	- 9 56 27	12 58 44	- 10 34 52	404321	54 14	29 33	1.4	4.1	-5		

DATA	(A,MS,G,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PAR.(' '' )	D.	LIB.LG	LIB.LT	ALT.	AZ.	K	EL.SOL.	
27/	7/2007/	0/	0	17 44 41	- 28 17 53	17 42 26	- 29 5 10	392176	55 55	30 28	-4.6	6.4	2.7	247	0.898 143
28/	7/2007/	0/	0	18 42 36	- 27 29 40	18 40 52	- 28 20 27	387645	56 34	30 49	-4.9	5.8	8.9	231	0.951 155
29/	7/2007/	0/	0	19 40 20	- 25 9 15	19 39 13	- 26 2 14	383110	57 14	31 11	-4.9	4.8	15.2	215	0.986 167
30/	7/2007/	0/	0	20 36 36	- 21 22 35	20 36 9	- 22 15 59	378890	57 52	31 32	-4.7	3.6	21.2	196	0.999 177
31/	7/2007/	0/	0	21 30 45	- 16 22 47	21 30 55	- 17 14 45	375257	58 26	31 51	-4.2	2.1	26.7	173	0.988 168
1/	8/2007/	0/	0	22 22 49	- 10 27 42	22 23 34	- 11 16 45	372395	58 53	32 5	-3.5	0.5	31.1	145	0.952 155
2/	8/2007/	0/	0	23 13 27	- 3 57 30	23 14 43	- 4 42 45	370393	59 12	32 16	-2.6	-1.2	33.8	117	0.892 142
3/	8/2007/	0/	0	0 3 37	+ 2 46 51	0 5 22	+ 2 5 32	369250	59 23	32 22	-1.6	-2.8	34.6	93	0.810 128
4/	8/2007/	0/	0	0 54 29	+ 9 24 8	0 56 39	+ 8 46 5	368893	59 26	32 24	-0.6	-4.2	33.2	76	0.712 115
5/	8/2007/	0/	0	1 47 10	+ 15 32 51	1 49 44	+ 14 56 38	369217	59 23	32 22	0.5	-5.4	29.6	63	0.602 102
6/	8/2007/	0/	0	2 42 38	+ 20 50 58	2 45 30	+ 20 14 40	370113	59 15	32 17	1.6	-6.2	24.3	53	0.487 89
7/	8/2007/	0/	0	3 41 17	+ 24 56 41	3 44 18	+ 24 18 18	371499	59 1	32 10	2.6	-6.7	17.8	44	0.374 75
8/	8/2007/	0/	0	4 42 40	+ 27 30 41	4 45 39	+ 26 48 44	373326	58 44	32 0	3.5	-6.7	10.3	37	0.268 62
9/	8/2007/	0/	0	5 45 21	+ 28 20 19	5 48 3	+ 27 34 17	375578	58 23	31 49	4.3	-6.4	2.4	30	0.175 49
10/	8/2007/	0/	0	6 47 16	+ 27 23 36	6 49 28	+ 26 34 11	378253	57 58	31 35	4.8	-5.6	-5.7	23	0.099 37
11/	8/2007/	0/	0	7 46 27	+ 24 50 6	7 48 3	+ 23 58 54	381337	57 30	31 20	5.2	-4.6	-13.7	16	0.044 24
12/	8/2007/	0/	0	8 41 46	+ 20 57 49	8 42 46	+ 20 6 45	384784	56 59	31 3	5.3	-3.3	-21.1	10	0.011 12
13/	8/2007/	0/	0	9 33 4	+ 16 8 6	9 33 28	+ 15 18 53	388491	56 27	30 45	5.1	-1.9	-28.2	5	0.000 2
14/	8/2007/	0/	0	10 20 49	+ 10 41 30	10 20 43	+ 9 55 23	392294	55 54	30 28	4.7	-0.4	-34.0	359	0.011 12
15/	8/2007/	0/	0	11 5 56	+ 4 55 49	11 5 23	+ 4 13 31	395982	55 22	30 11	4.0	1.1	-38.6	353	0.043 24
16/	8/2007/	0/	0	11 49 25	- 0 54 16	11 48 27	- 1 32 37	399304	54 55	29 55	3.1	2.5	-41.4	347	0.091 35
17/	8/2007/	0/	0	12 32 17	- 6 36 39	12 30 57	- 7 11 21	402004	54 33	29 43	2.0	3.8	-42.4	340	0.155 46
18/	8/2007/	0/	0	13 15 33	- 12 0 48	13 13 50	- 12 32 37	403838	54 18	29 35	0.7	4.9	-41.4	333	0.230 57
19/	8/2007/	0/	0	14 0 7	- 16 56 48	13 58 3	- 17 26 48	404604	54 12	29 32	-0.6	5.8	-38.5	325	0.315 68
20/	8/2007/	0/	0	14 46 48	- 21 14 16	14 44 25	- 21 43 52	404163	54 15	29 34	-1.9	6.4	-34.2	315	0.406 79
21/	8/2007/	0/	0	15 36 14	- 24 41 50	15 33 34	- 25 12 36	402456	54 29	29 41	-3.1	6.8	-28.6	305	0.500 90
22/	8/2007/	0/	0	16 28 38	- 27 7 4	16 25 47	- 27 40 34	399523	54 53	29 55	-4.2	6.9	-22.0	293	0.596 101
23/	8/2007/	0/	0	17 23 44	- 28 17 28	17 20 50	- 28 55 1	395505	55 26	30 13	-5.0	6.6	-14.6	280	0.690 112
24/	8/2007/	0/	0	18 20 39	- 28 2 42	18 17 55	- 28 44 57	390648	56 8	30 35	-5.6	6.1	-6.6	267	0.779 124
25/	8/2007/	0/	0	19 18 9	- 26 17 13	19 15 44	- 27 3 56	385282	56 55	31 1	-5.8	5.3	1.9	255	0.859 136
26/	8/2007/	0/	0	20 14 56	- 23 2 21	20 13 0	- 23 52 21	379808	57 44	31 28	-5.7	4.1	10.8	243	0.925 148
27/	8/2007/	0/	0	21 10 10	- 18 26 42	21 8 48	- 19 18 4	374657	58 32	31 54	-5.2	2.7	19.8	230	0.973 161
28/	8/2007/	0/	0	22 3 37	- 12 45 1	22 2 50	- 13 35 32	370240	59 14	32 16	-4.4	1.1	28.7	214	0.997 174
29/	8/2007/	0/	0	22 55 42	- 6 16 33	22 55 30	- 7 4 6	366899	59 46	32 34	-3.3	-0.6	36.8	191	0.996 173
30/	8/2007/	0/	0	23 47 12	+ 0 36 34	23 47 35	- 0 6 32	364852	60 6	32 45	-2.0	-2.3	43.4	153	0.966 159
31/	8/2007/	0/	0	0 39 10	+ 7 30 24	0 40 8	+ 6 52 19	364172	60 13	32 49	-0.6	-3.9	47.2	112	0.910 145
1/	9/2007/	0/	0	1 32 40	+ 14 0 11	1 34 13	+ 13 26 32	364781	60 7	32 45	0.9	-5.2	47.5	86	0.831 131
2/	9/2007/	0/	0	2 28 36	+ 19 41 13	2 30 43	+ 19 10 19	366489	59 50	32 36	2.3	-6.1	44.2	70	0.734 118
3/	9/2007/	0/	0	3 27 24	+ 24 10 9	3 30 0	+ 23 39 39	369037	59 25	32 23	3.5	-6.6	38.0	59	0.626 105
4/	9/2007/	0/	0	4 28 40	+ 27 7 28	4 31 38	+ 26 34 52	372156	58 55	32 6	4.6	-6.8	29.9	51	0.512 91
5/	9/2007/	0/	0	5 31 7	+ 28 20 49	5 34 12	+ 27 44 21	375608	58 23	31 49	5.4	-6.5	20.8	44	0.400 78
6/	9/2007/	0/	0	6 32 50	+ 27 48 11	6 35 47	+ 27 7 15	379211	57 49	31 31	5.9	-5.8	11.2	37	0.295 66
7/	9/2007/	0/	0	7 31 58	+ 25 38 15	7 34 36	+ 24 53 32	382842	57 17	31 13	6.1	-4.9	1.4	31	0.202 53
8/	9/2007/	0/	0	8 27 25	+ 22 7 26	8 29 37	+ 21 20 28	386431	56 45	30 55	6.0	-3.7	-8.5	26	0.124 41
9/	9/2007/	0/	0	9 18 57	+ 17 35 22	9 20 40	+ 16 48 1	389935	56 14	30 39	5.7	-2.3	-18.0	20	0.064 29
10/	9/2007/	0/	0	10 7 1	+ 12 21 22	10 8 14	+ 11 35 23	393315	55 45	30 23	5.2	-0.8	-27.2	15	0.023 18
11/	9/2007/	0/	0	10 52 24	+ 6 42 41	10 53 10	+ 5 59 29	396515	55 18	30 8	4.5	0.6	-35.7	10	0.003 6
12/	9/2007/	0/	0	11 36 4	+ 0 54 9	11 36 24	+ 0 14 42	399448	54 54	29 55	3.6	2.1	-43.3	4	0.002 5
13/	9/2007/	0/	0	12 18 58	- 4 51 24	12 18 53	- 5 26 40	401989	54 33	29 43	2.5	3.4	-49.4	359	0.021 17
14/	9/2007/	0/	0	13 2 4	- 10 22 34	13 1 33	- 10 53 43	403983	54 17	29 35	1.3	4.6	-53.5	352	0.057 28
15/	9/2007/	0/	0	13 46 12	- 15 28 33	13 45 14	- 15 56 12	405255	54 6	29 29	0.0	5.5	-54.8	346	0.109 39
16/	9/2007/	0/	0	14 32 9	- 19 58 41	14 30 44	- 20 23 52	405632	54 3	29 27	-1.3	6.2	-53.1	338	0.175 49
17/	9/2007/	0/	0	15 20 28	- 23 41 50	15 18 36	- 24 6 1	404962	54 9	29 30	-2.6	6.7	-48.9	329	0.252 60
18/	9/2007/	0/	0	16 11 27	- 26 26 27	16 9 9	- 26 51 23	403138	54 23	29 38	-3.8	6.8	-42.7	319	0.338 71
19/	9/2007/	0/	0	17 4 56	- 28 1 11	17 2 17	- 28 28 41	400126	54 48	29 52	-4.9	6.7	-35.1	308	0.432 82
20/	9/2007/	0/	0	18 0 17	- 28 16 23	17 57 25	- 28 47 57	395981	55 22	30 11	-5.8	6.3	-26.5	297	0.529 93
21/	9/2007/	0/	0	18 56 30	- 27 5 50	18 53 34	- 27 42 25	390863	56 6	30 34	-6.5	5.6	-17.2	286	0.628 105
22/	9/2007/	0/	0	19 52 28	- 24 28 28	19 49 40	- 25 10 5	385042	56 57	31 2	-6.8	4.5	-7.2	276	0.725 117
23/	9/2007/	0/	0	20 47 22	- 20 28 54	20 44 51	- 21 14 36	378893	57 52	31 32	-6.7	3.2	3.3	267	0.815 129
24/	9/2007/	0/	0	21 40 55	- 15 17 10	21 38 47	- 16 5 8	372876	58 48	32 3	-6.2	1.7	14.2	259	0.893 142
25/	9/2007/	0/	0	22 33 21	- 9 8 2	22 31 41	- 9 55 52	367494	59 40	32 31	-5.3	0.1	25.4	250	0.953 155
26/	9/2007/	0/	0	23 25 21	- 2 20 32	23 24 12	- 3 5 45	363226	60 22	32 54	-3.9	-1.6	36.5	240	0.990 169
27/	9/2007/	0/	0	0 17 54	+ 4 42 20	0 17 19	+ 4 1 49	360461	60 50	33 9	-2.3	-3.3	46.8	225	0.999 176
28/	9/2007/	0/	0	1 12 6	+ 11 34 12	1 12 8	+ 10 59 26	359426	61 0	33 15	-0.4	-4.7	55.0	176	0.978 163
29/	9/2007/	0/	0	2 8 51	+ 17 46 32	2 9 34	+ 17 17 8	360148	60 53	33 11	1.5	-5.8	59.1	98	0.929 149
30/	9/2007/	0/	0	3 8 41	+ 22 50 59	3 10 7	+ 22 25 8	362460	60 30	32 58	3.3	-6.5	57.4	75	0.855 135
1/	10/2007/	0/	0	4 11 15	+ 26 23 11	4 13 21	+ 25 58 2	366044	59 54	32 39	4.8	-6.7	50.9	65	0.762 122
2/	10/2007/	0/	0	5 15 9	+ 28 7 21	5 17 47	+ 27 40 2	370497	59 11	32 15	6.1	-6.5	41.7	57	0.657 108
3/	10/2007/	0/	0	6 18 18	+ 28 0 10	6 21 14	+ 27 28 41	375409	58 25	31 50	6.9	-5.9	31.3	51	0.547 95
4/	10/2007/	0/	0	7 18 41	+ 26 10 51	7 21 40	+ 25 34 38	380420	57 38	31 25	7.3	-5.0	20.5	45	0.437 83
5/	10/2007/	0/	0	8 15 4	+ 22 57 4	8 17 53	+ 22 16 48	385252	56 55	31 1	7.3	-3.9	9.6	40	0.334 71
6/	10/2007/	0/	0	9 7 12	+ 18 39 24	9 9 45	+ 17 56 36	389720	56 16	30 40	7.0	-2.5	-1.2	35	0.240 59
7/	10/2007/	0/	0	9 55 35	+ 13 37 23	9 57 48	+ 12 53 49	393717	55 42	30 21	6.4	-1.1	-11.8	31	0.159 47
8/	10/2007/	0/	0	10 41 4	+ 8 7 52	10 42 57	+ 7 25 17	397198	55 12	30 5	5.6	0.3	-22.2		



DATA	(A,MS,G,H,M)	A.R.Geoc.	DEC.	A.R.Topoc.	DEC.	DELTA	PAR.(' '' )	D.	LIB.LG	LIB.LT	ALT.	AZ.	K	EL.SOL.
12/11/2007/	0/ 0	16 36 33	- 27 3 47	16 36 12	- 27 21 3	404675	54 11	29 32	-2.9	6.5	-70.5	355	0.039	23
13/11/2007/	0/ 0	17 30 23	- 27 58 45	17 29 26	- 28 16 11	402702	54 27	29 40	-4.0	6.2	-66.4	345	0.083	34
14/11/2007/	0/ 0	18 24 60	- 27 33 49	18 23 28	- 27 53 25	400001	54 49	29 52	-5.1	5.6	-58.7	336	0.143	44
15/11/2007/	0/ 0	19 19 16	- 25 48 10	19 17 16	- 26 11 38	396539	55 18	30 8	-6.0	4.7	-49.2	327	0.218	56
16/11/2007/	0/ 0	20 12 19	- 22 45 59	20 9 58	- 23 14 25	392318	55 54	30 27	-6.7	3.6	-38.9	319	0.305	67
17/11/2007/	0/ 0	21 3 47	- 18 35 19	21 1 12	- 19 8 57	387399	56 36	30 51	-7.2	2.3	-27.9	312	0.402	79
18/11/2007/	0/ 0	21 53 49	- 13 26 34	21 51 7	- 14 4 49	381929	57 25	31 17	-7.4	0.9	-16.4	306	0.506	91
19/11/2007/	0/ 0	22 43 3	- 7 31 47	22 40 19	- 8 13 16	376156	58 18	31 46	-7.2	-0.7	-4.4	300	0.614	103
20/11/2007/	0/ 0	23 32 27	- 1 4 55	23 29 46	- 1 47 33	370436	59 12	32 15	-6.5	-2.2	8.0	296	0.719	116
21/11/2007/	0/ 0	0 23 13	+ 5 37 4	0 20 41	+ 4 55 46	365214	60 2	32 43	-5.4	-3.7	20.9	291	0.816	129
22/11/2007/	0/ 0	1 16 39	+ 12 12 34	1 14 20	+ 11 35 7	360979	60 45	33 6	-3.9	-4.9	34.0	288	0.898	143
23/11/2007/	0/ 0	2 13 53	+ 18 14 31	2 11 59	+ 17 42 48	358191	61 13	33 22	-2.0	-5.9	47.1	285	0.959	157
24/11/2007/	0/ 0	3 15 34	+ 23 11 31	3 14 15	+ 22 46 0	357199	61 23	33 27	0.2	-6.4	59.4	284	0.992	170
25/11/2007/	0/ 0	4 21 11	+ 26 32 35	4 20 40	+ 26 11 49	358164	61 13	33 22	2.4	-6.5	68.9	295	0.996	172
26/11/2007/	0/ 0	5 28 47	+ 27 55 37	5 29 10	+ 27 36 33	361022	60 44	33 6	4.3	-6.1	70.9	52	0.969	160
27/11/2007/	0/ 0	6 35 23	+ 27 15 45	6 36 35	+ 26 54 56	365487	59 60	32 42	6.0	-5.3	64.0	69	0.916	146
28/11/2007/	0/ 0	7 38 15	+ 24 46 36	7 40 6	+ 24 21 34	371113	59 5	32 12	7.1	-4.1	53.3	69	0.841	133
29/11/2007/	0/ 0	8 35 59	+ 20 53 14	8 38 14	+ 20 23 9	377371	58 6	31 40	7.8	-2.8	41.7	66	0.752	120
30/11/2007/	0/ 0	9 28 34	+ 16 2 45	9 31 2	+ 15 28 9	383736	57 9	31 8	7.9	-1.4	30.0	63	0.655	108
1/12/2007/	0/ 0	10 16 52	+ 10 38 20	10 19 25	+ 10 0 33	389748	56 16	30 40	7.6	0.1	18.5	60	0.554	96
2/12/2007/	0/ 0	11 2 5	+ 4 57 44	11 4 39	+ 4 18 24	395052	55 30	30 15	6.9	1.5	7.2	56	0.454	85
3/12/2007/	0/ 0	11 45 27	- 0 45 44	11 47 59	- 1 24 57	399409	54 54	29 55	5.9	2.9	-3.7	52	0.358	73
4/12/2007/	0/ 0	12 28 9	- 6 21 29	12 30 37	- 6 59 4	402694	54 27	29 40	4.7	4.0	-14.5	48	0.269	63
5/12/2007/	0/ 0	13 11 15	- 11 40 4	13 13 36	- 12 14 44	404878	54 9	29 31	3.4	5.0	-25.0	44	0.190	52
6/12/2007/	0/ 0	13 55 42	- 16 31 53	13 57 52	- 17 2 43	406011	54 0	29 26	2.1	5.8	-35.3	38	0.122	41
7/12/2007/	0/ 0	14 42 14	- 20 46 22	14 44 9	- 21 12 53	406195	53 59	29 25	0.7	6.3	-45.4	32	0.068	30
8/12/2007/	0/ 0	15 31 21	- 24 11 47	15 32 54	- 24 34 4	405561	54 4	29 28	-0.5	6.6	-55.0	25	0.029	20
9/12/2007/	0/ 0	16 23 4	- 26 35 54	16 24 8	- 26 54 43	404243	54 15	29 34	-1.7	6.5	-63.8	17	0.007	10
10/12/2007/	0/ 0	17 16 53	- 27 47 39	17 17 23	- 28 4 30	402359	54 30	29 42	-2.8	6.2	-70.4	8	0.002	6
11/12/2007/	0/ 0	18 11 48	- 27 39 34	18 11 40	- 27 56 23	399997	54 49	29 52	-3.8	5.6	-71.8	358	0.016	15
12/12/2007/	0/ 0	19 6 33	- 26 9 40	19 5 48	- 26 28 30	397211	55 12	30 5	-4.6	4.8	-67.0	349	0.049	26
13/12/2007/	0/ 0	20 0 3	- 23 21 53	19 58 45	- 23 44 32	394025	55 39	30 20	-5.4	3.6	-58.5	340	0.100	37
14/12/2007/	0/ 0	20 51 42	- 19 25 4	20 49 57	- 19 52 36	390449	56 10	30 36	-6.0	2.4	-48.4	333	0.168	48
15/12/2007/	0/ 0	21 41 28	- 14 30 52	21 39 23	- 15 3 36	386497	56 44	30 55	-6.3	0.9	-37.5	326	0.251	60
16/12/2007/	0/ 0	22 29 54	- 8 52 16	22 27 31	- 9 29 40	382219	57 22	31 16	-6.5	-0.6	-26.0	320	0.348	72
17/12/2007/	0/ 0	23 17 50	- 2 42 52	23 15 15	- 3 23 39	377720	58 3	31 38	-6.3	-2.1	-14.1	315	0.453	85
18/12/2007/	0/ 0	0 6 25	+ 3 42 31	0 3 42	+ 3 0 18	373187	58 45	32 1	-5.8	-3.5	-1.7	311	0.563	97
19/12/2007/	0/ 0	0 56 56	+ 10 6 46	0 54 8	+ 9 25 28	368890	59 27	32 24	-4.9	-4.8	10.9	306	0.673	110
20/12/2007/	0/ 0	1 50 40	+ 16 8 48	1 47 54	+ 15 30 52	365173	60 3	32 43	-3.7	-5.7	23.9	302	0.777	124
21/12/2007/	0/ 0	2 48 40	+ 21 22 49	2 46 6	+ 20 50 12	362415	60 30	32 58	-2.1	-6.4	36.8	298	0.867	137
22/12/2007/	0/ 0	3 51 14	+ 25 19 45	3 49 5	+ 24 53 11	360968	60 45	33 6	-0.3	-6.6	49.5	295	0.937	151
23/12/2007/	0/ 0	4 57 23	+ 27 32 37	4 55 53	+ 27 10 59	361093	60 44	33 5	1.6	-6.3	61.1	292	0.982	165
24/12/2007/	0/ 0	6 4 41	+ 27 45 15	6 4 1	+ 27 25 48	362890	60 25	32 56	3.4	-5.6	69.2	296	0.999	176
25/12/2007/	0/ 0	7 10 6	+ 25 59 20	7 10 17	+ 25 38 42	366273	59 52	32 37	4.9	-4.5	69.5	47	0.986	167
26/12/2007/	0/ 0	8 11 17	+ 22 33 24	8 12 12	+ 22 8 59	370971	59 7	32 13	6.0	-3.2	62.1	81	0.948	154
27/12/2007/	0/ 0	9 7 20	+ 17 54 49	9 8 48	+ 17 25 27	376570	58 14	31 44	6.7	-1.7	51.7	81	0.888	141
28/12/2007/	0/ 0	9 58 35	+ 12 30 54	10 0 26	+ 11 56 50	382586	57 19	31 14	6.9	-0.2	40.5	79	0.811	128
29/12/2007/	0/ 0	10 46 2	+ 6 44 19	10 48 10	+ 6 6 38	388528	56 26	30 45	6.7	1.3	29.2	76	0.723	116
30/12/2007/	0/ 0	11 30 56	+ 0 52 9	11 33 16	+ 0 12 22	393960	55 40	30 20	6.1	2.7	18.1	73	0.629	105
31/12/2007/	0/ 0	12 14 31	- 4 52 52	12 16 59	- 5 33 6	398534	55 1	29 59	5.2	4.0	7.2	69	0.532	94
1/ 1/2008/	0/ 0	12 57 55	- 10 20 36	13 0 29	- 10 59 43	402011	54 33	29 43	4.1	5.0	-3.4	65	0.436	83

Legenda :

DELTA = distanza dalla Terra

PAR. = parallasse

D. = diametro

LIB.LG = librazione in longitudine

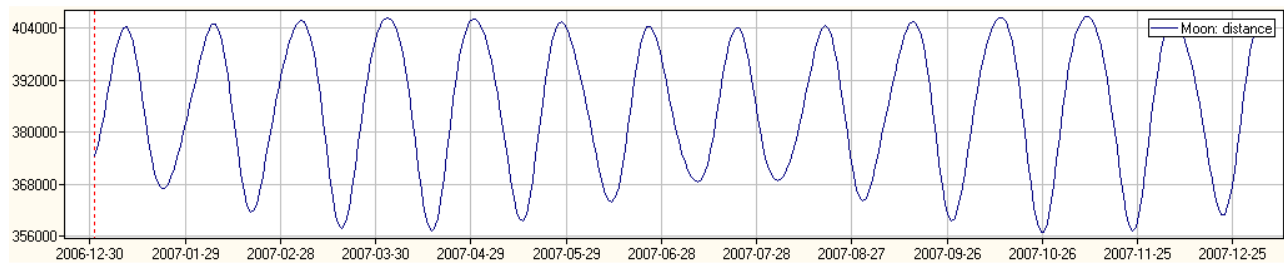
LIB.LT = librazione in latitudine

ALT. = altezza sull'orizzonte

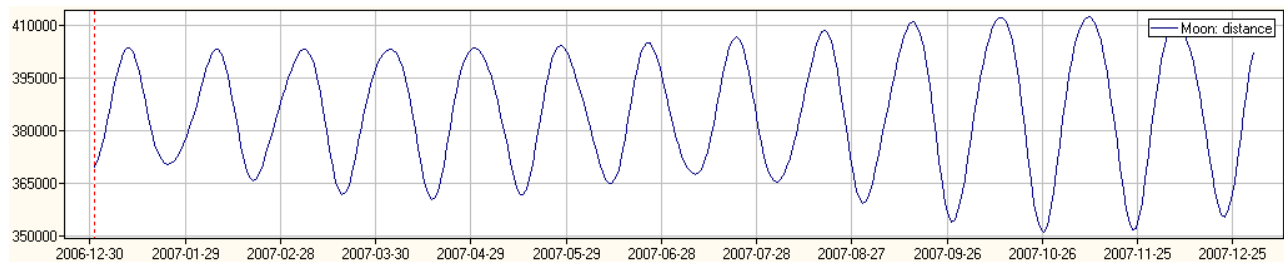
AZ. = azimut

K = fase

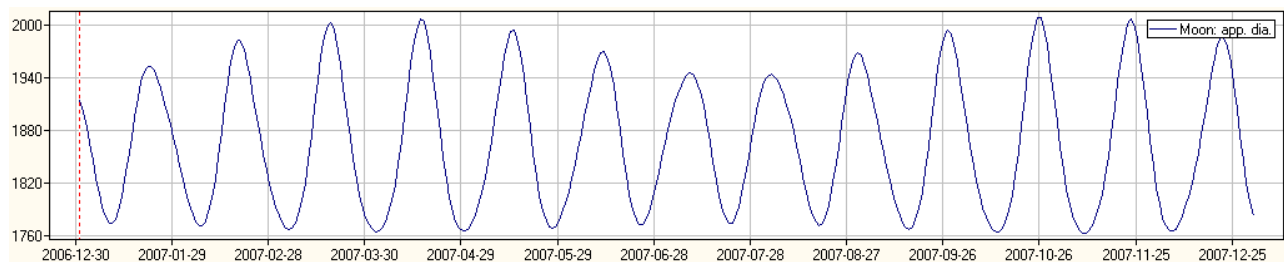
EL.SOL. = elongazione



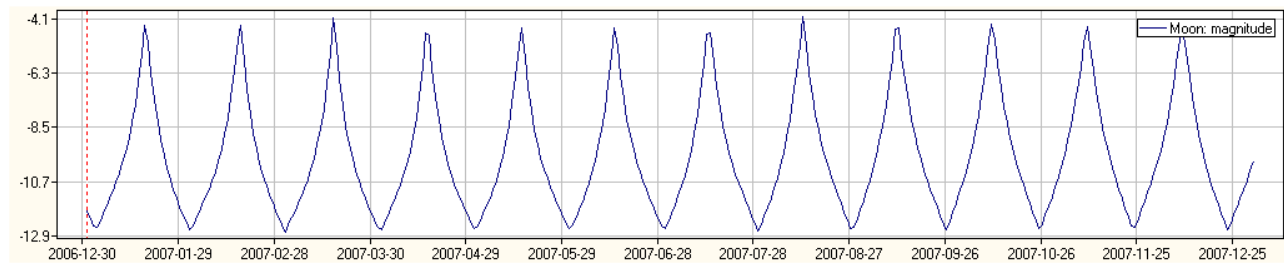
Distanza geocentrica della Luna in km nel corso dell'anno



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

# LIBRAZIONI DELLA LUNA

DATA	(A,MS,G,H)	DELTA Km	D. ' ''	ALT. °	AZ. °	K	EL.SOL. °	LIBRAZ. OTT. LONG. LATIT.	LIBRAZ. FIS. LONG. LATIT.	LIBRAZ.TOP. LONG.LATIT.
1	1 2007 0	374437	31 55	48	297	0.919	147	3.60 -6.45	3.61 -6.42	2.89 -5.99
2	1 2007 0	377063	31 41	59	294	0.968	159	4.34 -6.57	4.35 -6.54	3.75 -6.05
3	1 2007 0	380347	31 25	67	294	0.994	171	4.87 -6.32	4.88 -6.29	4.49 -5.66
4	1 2007 0	384172	31 6	70	315	0.997	173	5.13 -5.72	5.14 -5.69	5.14 -4.94
5	1 2007 0	388335	30 46	66	80	0.977	162	5.08 -4.83	5.08 -4.79	5.46 -4.10
6	1 2007 0	392566	30 26	58	86	0.937	151	4.69 -3.71	4.69 -3.67	5.28 -3.08
7	1 2007 0	396552	30 8	48	85	0.880	140	3.98 -2.43	3.98 -2.40	4.68 -1.87
8	1 2007 0	399976	29 52	38	83	0.810	128	2.99 -1.07	2.99 -1.03	3.74 -0.55
9	1 2007 0	402547	29 41	27	80	0.730	117	1.77 0.32	1.77 0.36	2.56 0.81
10	1 2007 0	404030	29 34	17	76	0.642	107	0.42 1.69	0.42 1.72	1.22 2.13
11	1 2007 0	404268	29 33	6	73	0.550	96	-0.98 2.97	-0.98 3.00	-0.17 3.38
12	1 2007 0	403195	29 38	-4	68	0.456	85	-2.34 4.13	-2.34 4.17	-1.53 4.53
13	1 2007 0	400850	29 49	-14	63	0.362	74	-3.56 5.13	-3.56 5.16	-2.76 5.56
14	1 2007 0	397378	30 4	-25	56	0.273	63	-4.55 5.91	-4.56 5.94	-3.79 6.42
15	1 2007 0	393018	30 24	-35	49	0.189	52	-5.25 6.43	-5.26 6.46	-4.55 7.05
16	1 2007 0	388097	30 47	-46	39	0.116	40	-5.61 6.65	-5.61 6.68	-5.02 7.40
17	1 2007 0	382995	31 12	-56	29	0.058	28	-5.59 6.52	-5.60 6.56	-5.18 7.41
18	1 2007 0	378116	31 36	-64	18	0.019	16	-5.22 6.04	-5.23 6.08	-5.03 7.02
19	1 2007 0	373839	31 58	-68	7	0.002	5	-4.54 5.19	-4.55 5.23	-4.60 6.21
20	1 2007 0	370468	32 15	-65	357	0.010	11	-3.61 4.02	-3.62 4.05	-3.92 4.99
21	1 2007 0	368193	32 27	-57	349	0.044	24	-2.53 2.57	-2.53 2.61	-3.05 3.46
22	1 2007 0	367074	32 33	-46	342	0.103	38	-1.36 0.95	-1.36 0.99	-2.05 1.71
23	1 2007 0	367043	32 33	-34	336	0.185	51	-0.19 -0.73	-0.19 -0.69	-0.99 -0.10
24	1 2007 0	367944	32 29	-22	330	0.283	64	0.94 -2.36	0.93 -2.33	0.09 -1.80
25	1 2007 0	369571	32 20	-9	325	0.391	77	1.97 -3.84	1.97 -3.80	1.11 -3.31
26	1 2007 0	371721	32 9	3	320	0.504	91	2.89 -5.07	2.89 -5.03	2.03 -4.56
27	1 2007 0	374226	31 56	15	315	0.616	103	3.68 -5.98	3.68 -5.95	2.85 -5.49
28	1 2007 0	376969	31 42	27	310	0.720	116	4.33 -6.54	4.32 -6.50	3.54 -6.06
29	1 2007 0	379888	31 27	38	305	0.812	129	4.80 -6.72	4.80 -6.68	4.09 -6.22
30	1 2007 0	382956	31 12	48	300	0.888	141	5.09 -6.52	5.09 -6.49	4.47 -5.99
31	1 2007 0	386161	30 57	56	294	0.946	153	5.17 -5.98	5.17 -5.94	4.66 -5.36
1	2 2007 0	389476	30 41	62	286	0.983	165	5.01 -5.13	5.01 -5.10	4.70 -4.38
2	2 2007 0	392834	30 25	63	267	0.999	176	4.61 -4.04	4.60 -4.01	4.60 -3.19
3	2 2007 0	396121	30 10	60	160	0.994	171	3.96 -2.77	3.95 -2.74	4.25 -1.93
4	2 2007 0	399174	29 56	53	122	0.970	160	3.07 -1.39	3.06 -1.36	3.56 -0.62
5	2 2007 0	401791	29 44	44	112	0.928	149	1.97 0.03	1.96 0.07	2.58 0.73
6	2 2007 0	403750	29 36	35	106	0.871	138	0.72 1.44	0.71 1.47	1.39 2.07
7	2 2007 0	404836	29 31	26	100	0.801	127	-0.64 2.77	-0.65 2.81	0.10 3.30
8	2 2007 0	404861	29 31	16	95	0.721	116	-2.03 3.98	-2.04 4.02	-1.27 4.43
9	2 2007 0	403696	29 36	6	89	0.633	105	-3.38 5.03	-3.39 5.06	-2.61 5.43
10	2 2007 0	401289	29 47	-4	82	0.540	95	-4.60 5.86	-4.62 5.90	-3.84 6.27
11	2 2007 0	397682	30 3	-14	75	0.443	83	-5.61 6.45	-5.63 6.49	-4.87 6.91
12	2 2007 0	393024	30 24	-23	65	0.346	72	-6.34 6.76	-6.36 6.79	-5.63 7.32
13	2 2007 0	387575	30 50	-33	55	0.253	60	-6.72 6.74	-6.74 6.78	-6.09 7.43
14	2 2007 0	381698	31 18	-43	43	0.167	48	-6.70 6.37	-6.72 6.41	-6.20 7.21
15	2 2007 0	375837	31 48	-51	32	0.094	36	-6.27 5.65	-6.29 5.68	-5.95 6.59
16	2 2007 0	370477	32 15	-57	20	0.039	23	-5.45 4.56	-5.47 4.60	-5.34 5.58
17	2 2007 0	366084	32 38	-59	10	0.007	10	-4.28 3.16	-4.29 3.20	-4.38 4.20
18	2 2007 0	363038	32 55	-56	2	0.002	5	-2.84 1.53	-2.86 1.57	-3.16 2.53
19	2 2007 0	361568	33 3	-48	354	0.025	18	-1.25 -0.22	-1.27 -0.18	-1.77 0.70
20	2 2007 0	361720	33 2	-38	348	0.076	32	0.38 -1.96	0.37 -1.92	-0.30 -1.16
21	2 2007 0	363357	32 53	-27	341	0.152	46	1.94 -3.56	1.93 -3.53	1.19 -2.84
22	2 2007 0	366205	32 38	-16	336	0.246	59	3.34 -4.92	3.33 -4.88	2.56 -4.25
23	2 2007 0	369911	32 18	-5	330	0.352	73	4.51 -5.94	4.50 -5.90	3.71 -5.31
24	2 2007 0	374116	31 56	7	324	0.463	86	5.40 -6.58	5.39 -6.54	4.61 -5.98
25	2 2007 0	378503	31 34	17	318	0.573	98	5.99 -6.82	5.98 -6.79	5.23 -6.24
26	2 2007 0	382827	31 13	27	312	0.678	111	6.27 -6.69	6.26 -6.65	5.57 -6.10
27	2 2007 0	386931	30 53	36	306	0.772	123	6.26 -6.20	6.25 -6.16	5.63 -5.59
28	2 2007 0	390725	30 35	44	298	0.852	135	5.98 -5.41	5.97 -5.37	5.44 -4.75
1	3 2007 0	394171	30 19	50	289	0.916	146	5.45 -4.37	5.44 -4.33	5.03 -3.61
2	3 2007 0	397256	30 5	53	276	0.963	158	4.70 -3.13	4.68 -3.09	4.45 -2.28
3	3 2007 0	399964	29 53	53	254	0.991	169	3.75 -1.77	3.74 -1.73	3.72 -0.85
4	3 2007 0	402259	29 42	50	214	1.000	180	2.64 -0.34	2.63 -0.30	2.83 0.58
5	3 2007 0	404076	29 34	44	173	0.990	169	1.41 1.09	1.39 1.13	1.76 1.95
6	3 2007 0	405312	29 29	38	148	0.963	158	0.08 2.46	0.06 2.50	0.56 3.24
7	3 2007 0	405842	29 27	30	134	0.919	147	-1.29 3.72	-1.31 3.75	-0.70 4.39
8	3 2007 0	405527	29 28	22	123	0.860	136	-2.66 4.81	-2.68 4.85	-2.00 5.36
9	3 2007 0	404240	29 34	13	114	0.788	125	-3.97 5.71	-4.00 5.75	-3.28 6.16
10	3 2007 0	401890	29 44	5	104	0.706	114	-5.17 6.36	-5.20 6.40	-4.47 6.78
11	3 2007 0	398443	29 59	-4	94	0.614	103	-6.19 6.75	-6.22 6.78	-5.50 7.19
12	3 2007 0	393950	30 20	-12	83	0.516	92	-6.97 6.83	-7.00 6.86	-6.29 7.35
13	3 2007 0	388561	30 45	-21	71	0.415	80	-7.44 6.58	-7.46 6.62	-6.81 7.22
14	3 2007 0	382541	31 14	-29	58	0.315	68	-7.53 5.99	-7.56 6.03	-6.99 6.77
15	3 2007 0	376266	31 45	-37	45	0.219	56	-7.22 5.06	-7.25 5.10	-6.81 5.96

DATA	(A,MS,G,H)	DELTA Km	D. ' ''	ALT. ø	AZ. ø	K	EL.SOL. ø	LIBRAZ. LONG.	OTT. LATIT.	LIBRAZ. LONG.	FIS. LATIT.	LIBRAZ.TOP. LONG.	LATIT.
16	3 2007 0	370208	32 17	-43	34	0.133	43	-6.48	3.80	-6.50	3.84	-6.22	4.79
17	3 2007 0	364890	32 45	-47	23	0.065	29	-5.32	2.27	-5.34	2.31	-5.21	3.31
18	3 2007 0	360820	33 7	-47	14	0.019	16	-3.79	0.56	-3.81	0.60	-3.85	1.61
19	3 2007 0	358402	33 20	-44	6	0.000	2	-1.99	-1.23	-2.01	-1.19	-2.22	-0.19
20	3 2007 0	357866	33 23	-38	359	0.012	13	-0.04	-2.95	-0.06	-2.91	-0.46	-1.97
21	3 2007 0	359222	33 16	-30	352	0.054	27	1.90	-4.45	1.88	-4.41	1.35	-3.55
22	3 2007 0	362263	32 59	-21	346	0.122	41	3.69	-5.63	3.68	-5.59	3.06	-4.79
23	3 2007 0	366618	32 36	-11	339	0.210	54	5.20	-6.42	5.19	-6.38	4.53	-5.63
24	3 2007 0	371828	32 8	-2	333	0.310	68	6.34	-6.78	6.33	-6.74	5.65	-6.04
25	3 2007 0	377423	31 40	8	326	0.418	81	7.06	-6.74	7.04	-6.70	6.38	-6.02
26	3 2007 0	382994	31 12	16	320	0.525	93	7.35	-6.32	7.33	-6.27	6.70	-5.61
27	3 2007 0	388220	30 47	24	312	0.629	105	7.23	-5.58	7.22	-5.54	6.64	-4.86
28	3 2007 0	392886	30 25	30	305	0.724	117	6.76	-4.58	6.75	-4.54	6.23	-3.84
29	3 2007 0	396873	30 6	35	296	0.808	128	6.00	-3.39	5.98	-3.34	5.55	-2.59
30	3 2007 0	400135	29 52	39	285	0.879	139	5.00	-2.06	4.99	-2.02	4.65	-1.20
31	3 2007 0	402677	29 40	40	271	0.935	150	3.84	-0.66	3.82	-0.62	3.62	0.26
1	4 2007 0	404530	29 32	40	252	0.974	161	2.55	0.76	2.53	0.80	2.48	1.70
2	4 2007 0	405728	29 27	38	228	0.995	172	1.20	2.13	1.18	2.17	1.25	3.07
3	4 2007 0	406284	29 25	34	201	0.999	176	-0.17	3.40	-0.20	3.45	-0.01	4.31
4	4 2007 0	406191	29 25	29	177	0.985	166	-1.53	4.53	-1.56	4.57	-1.24	5.36
5	4 2007 0	405408	29 28	24	158	0.953	155	-2.85	5.46	-2.87	5.51	-2.41	6.17
6	4 2007 0	403878	29 35	17	142	0.905	144	-4.08	6.17	-4.11	6.21	-3.53	6.73
7	4 2007 0	401537	29 46	11	129	0.841	133	-5.20	6.60	-5.22	6.64	-4.59	7.07
8	4 2007 0	398338	29 60	4	115	0.764	122	-6.16	6.75	-6.19	6.79	-5.54	7.20
9	4 2007 0	394277	30 18	-3	101	0.676	111	-6.91	6.58	-6.94	6.62	-6.29	7.10
10	4 2007 0	389415	30 41	-10	87	0.578	99	-7.42	6.09	-7.45	6.14	-6.82	6.72
11	4 2007 0	383898	31 8	-16	72	0.474	87	-7.62	5.29	-7.65	5.33	-7.08	6.04
12	4 2007 0	377982	31 37	-22	59	0.368	75	-7.46	4.18	-7.49	4.22	-7.01	5.04
13	4 2007 0	372029	32 7	-28	46	0.265	62	-6.91	2.80	-6.94	2.84	-6.56	3.74
14	4 2007 0	366492	32 36	-32	36	0.170	49	-5.94	1.21	-5.97	1.25	-5.69	2.21
15	4 2007 0	361875	33 1	-34	26	0.091	35	-4.56	-0.50	-4.59	-0.46	-4.40	0.53
16	4 2007 0	358656	33 19	-34	18	0.034	21	-2.83	-2.22	-2.85	-2.18	-2.79	-1.16
17	4 2007 0	357203	33 27	-32	10	0.004	8	-0.85	-3.80	-0.87	-3.76	-0.98	-2.75
18	4 2007 0	357699	33 24	-28	3	0.005	8	1.23	-5.12	1.21	-5.08	0.95	-4.09
19	4 2007 0	360102	33 11	-22	356	0.036	22	3.23	-6.07	3.21	-6.03	2.83	-5.09
20	4 2007 0	364151	32 49	-16	349	0.094	36	4.98	-6.59	4.97	-6.55	4.51	-5.66
21	4 2007 0	369423	32 21	-9	342	0.173	49	6.35	-6.67	6.33	-6.63	5.83	-5.78
22	4 2007 0	375412	31 50	-2	334	0.266	62	7.25	-6.34	7.23	-6.29	6.70	-5.48
23	4 2007 0	381608	31 19	4	327	0.368	75	7.64	-5.66	7.63	-5.61	7.10	-4.83
24	4 2007 0	387566	30 50	10	320	0.472	87	7.56	-4.70	7.55	-4.65	7.04	-3.88
25	4 2007 0	392940	30 25	15	312	0.573	98	7.06	-3.53	7.04	-3.49	6.58	-2.71
26	4 2007 0	397493	30 4	19	304	0.669	110	6.21	-2.23	6.20	-2.19	5.78	-1.39
27	4 2007 0	401096	29 47	23	295	0.757	121	5.11	-0.86	5.10	-0.81	4.74	0.01
28	4 2007 0	403709	29 36	25	284	0.834	132	3.84	0.53	3.82	0.58	3.53	1.44
29	4 2007 0	405362	29 29	26	271	0.898	143	2.47	1.89	2.45	1.94	2.23	2.81
30	4 2007 0	406127	29 25	26	254	0.947	154	1.07	3.16	1.05	3.20	0.87	4.08
1	5 2007 0	406098	29 25	26	235	0.981	164	-0.30	4.29	-0.33	4.34	-0.46	5.19
2	5 2007 0	405365	29 29	24	213	0.997	174	-1.61	5.24	-1.63	5.28	-1.70	6.11
3	5 2007 0	404002	29 35	21	192	0.995	172	-2.82	5.96	-2.84	6.01	-2.78	6.78
4	5 2007 0	402056	29 43	18	172	0.975	162	-3.90	6.43	-3.93	6.47	-3.66	7.16
5	5 2007 0	399547	29 54	14	154	0.937	151	-4.86	6.60	-4.88	6.65	-4.43	7.21
6	5 2007 0	396479	30 8	10	137	0.881	140	-5.66	6.48	-5.68	6.52	-5.15	7.02
7	5 2007 0	392854	30 25	6	120	0.810	128	-6.28	6.04	-6.31	6.09	-5.74	6.61
8	5 2007 0	388694	30 45	1	103	0.724	117	-6.71	5.30	-6.74	5.35	-6.18	5.96
9	5 2007 0	384068	31 7	-3	86	0.626	105	-6.90	4.27	-6.93	4.32	-6.40	5.04
10	5 2007 0	379110	31 31	-8	71	0.520	92	-6.82	3.00	-6.84	3.04	-6.37	3.85
11	5 2007 0	374043	31 57	-12	58	0.411	80	-6.41	1.52	-6.43	1.56	-6.02	2.44
12	5 2007 0	369177	32 22	-15	47	0.302	67	-5.65	-0.08	-5.67	-0.04	-5.31	0.88
13	5 2007 0	364899	32 45	-18	37	0.201	53	-4.51	-1.72	-4.53	-1.68	-4.21	-0.73
14	5 2007 0	361624	33 3	-20	29	0.115	40	-3.03	-3.29	-3.05	-3.25	-2.81	-2.26
15	5 2007 0	359737	33 13	-21	20	0.050	26	-1.26	-4.65	-1.28	-4.61	-1.15	-3.60
16	5 2007 0	359514	33 14	-21	13	0.011	12	0.66	-5.70	0.65	-5.66	0.66	-4.65
17	5 2007 0	361059	33 6	-20	5	0.002	6	2.59	-6.36	2.57	-6.32	2.48	-5.31
18	5 2007 0	364279	32 48	-17	358	0.023	17	4.33	-6.57	4.32	-6.53	4.13	-5.54
19	5 2007 0	368889	32 24	-14	350	0.069	31	5.75	-6.35	5.73	-6.31	5.46	-5.35
20	5 2007 0	374465	31 55	-11	343	0.137	43	6.72	-5.74	6.70	-5.70	6.38	-4.78
21	5 2007 0	380518	31 24	-7	336	0.221	56	7.19	-4.82	7.18	-4.77	6.82	-3.89
22	5 2007 0	386559	30 55	-4	329	0.314	68	7.17	-3.67	7.16	-3.62	6.78	-2.76
23	5 2007 0	392160	30 28	-0	321	0.413	80	6.71	-2.37	6.70	-2.32	6.32	-1.48
24	5 2007 0	396984	30 6	3	314	0.512	91	5.88	-0.99	5.87	-0.94	5.50	-0.11
25	5 2007 0	400802	29 49	6	305	0.608	103	4.78	0.40	4.76	0.45	4.41	1.29
26	5 2007 0	403489	29 37	8	296	0.699	113	3.49	1.76	3.48	1.80	3.15	2.65
27	5 2007 0	405021	29 30	11	285	0.782	124	2.11	3.02	2.10	3.07	1.78	3.91
28	5 2007 0	405455	29 28	12	272	0.854	135	0.73	4.15	0.72	4.20	0.39	5.02
29	5 2007 0	404905	29 31	14	257	0.914	146	-0.59	5.11	-0.61	5.16	-0.95	5.94
30	5 2007 0	403523	29 37	15	239	0.959	157	-1.81	5.85	-1.82	5.90	-2.16	6.64
31	5 2007 0	401474	29 46	15	220	0.988	167	-2.87	6.33	-2.89	6.38	-3.20	7.08
1	6 2007 0	398915	29 57	15	200	0.998	175	-3.77	6.53	-3.79	6.58	-3.99	7.27
2	6 2007 0	395978	30 11	15	180	0.989	168	-4.50	6.43	-4.52	6.48	-4.47	7.17

DATA	(A,MS,G,H)	DELTA Km	D. ' ''	ALT. ø	AZ. ø	K	EL.SOL. ø	LIBRAZ. LONG.	OTT. LATIT.	LIBRAZ. LONG.	FIS. LATIT.	LIBRAZ.TOP. LONG.	LATIT.		
3	6	2007	0	392768	30 25	14	160	0.960	157	-5.05	6.01	-5.07	6.06	-4.77	6.71
4	6	2007	0	389354	30 41	13	140	0.912	145	-5.44	5.29	-5.45	5.34	-5.03	5.98
5	6	2007	0	385783	30 58	11	120	0.844	134	-5.64	4.29	-5.66	4.33	-5.21	5.03
6	6	2007	0	382097	31 16	9	101	0.760	121	-5.67	3.04	-5.68	3.08	-5.24	3.86
7	6	2007	0	378351	31 35	7	84	0.662	109	-5.49	1.60	-5.50	1.65	-5.08	2.49
8	6	2007	0	374644	31 54	4	70	0.555	96	-5.07	0.05	-5.09	0.10	-4.70	0.99
9	6	2007	0	371128	32 12	1	58	0.442	83	-4.40	-1.54	-4.42	-1.49	-4.04	-0.58
10	6	2007	0	368021	32 28	-2	47	0.330	70	-3.45	-3.06	-3.47	-3.01	-3.10	-2.09
11	6	2007	0	365587	32 41	-5	38	0.226	57	-2.24	-4.41	-2.25	-4.37	-1.90	-3.43
12	6	2007	0	364108	32 49	-8	30	0.136	43	-0.79	-5.50	-0.80	-5.45	-0.50	-4.50
13	6	2007	0	363831	32 51	-11	22	0.065	30	0.79	-6.23	0.79	-6.18	1.03	-5.21
14	6	2007	0	364916	32 45	-14	14	0.020	16	2.39	-6.55	2.39	-6.50	2.57	-5.52
15	6	2007	0	367390	32 31	-16	6	0.002	5	3.87	-6.43	3.87	-6.39	3.96	-5.40
16	6	2007	0	371124	32 12	-17	359	0.012	12	5.08	-5.91	5.08	-5.87	5.09	-4.88
17	6	2007	0	375847	31 48	-18	352	0.046	25	5.93	-5.04	5.93	-5.00	5.86	-4.03
18	6	2007	0	381182	31 21	-17	345	0.103	37	6.34	-3.91	6.34	-3.86	6.19	-2.91
19	6	2007	0	386699	30 54	-17	338	0.175	49	6.31	-2.60	6.30	-2.55	6.10	-1.63
20	6	2007	0	391973	30 29	-15	331	0.260	61	5.86	-1.19	5.86	-1.14	5.60	-0.25
21	6	2007	0	396626	30 8	-13	324	0.351	73	5.06	0.24	5.05	0.29	4.76	1.16
22	6	2007	0	400356	29 51	-11	317	0.447	84	3.98	1.63	3.98	1.68	3.66	2.53
23	6	2007	0	402956	29 39	-9	308	0.543	95	2.73	2.92	2.73	2.97	2.39	3.81
24	6	2007	0	404321	29 33	-6	299	0.636	106	1.39	4.08	1.39	4.13	1.03	4.96
25	6	2007	0	404447	29 33	-3	287	0.724	117	0.05	5.06	0.05	5.11	-0.34	5.91
26	6	2007	0	403420	29 37	0	274	0.804	127	-1.21	5.83	-1.22	5.88	-1.64	6.62
27	6	2007	0	401397	29 46	4	259	0.874	138	-2.33	6.35	-2.34	6.40	-2.80	7.08
28	6	2007	0	398592	29 59	7	243	0.931	150	-3.26	6.58	-3.27	6.63	-3.75	7.24
29	6	2007	0	395246	30 14	10	225	0.972	161	-3.98	6.52	-3.98	6.56	-4.45	7.13
30	6	2007	0	391605	30 31	13	206	0.995	172	-4.46	6.13	-4.47	6.18	-4.86	6.78
1	7	2007	0	387894	30 48	16	186	0.997	173	-4.73	5.43	-4.73	5.48	-4.91	6.19
2	7	2007	0	384300	31 6	19	165	0.977	162	-4.79	4.43	-4.79	4.48	-4.71	5.26
3	7	2007	0	380957	31 22	20	142	0.934	150	-4.66	3.17	-4.67	3.22	-4.45	4.05
4	7	2007	0	377944	31 37	21	119	0.871	138	-4.37	1.72	-4.37	1.77	-4.10	2.64
5	7	2007	0	375297	31 50	21	98	0.788	125	-3.92	0.15	-3.92	0.20	-3.63	1.11
6	7	2007	0	373030	32 2	20	81	0.690	112	-3.31	-1.45	-3.31	-1.40	-3.01	-0.47
7	7	2007	0	371160	32 12	17	67	0.580	99	-2.55	-2.98	-2.55	-2.93	-2.20	-2.01
8	7	2007	0	369729	32 19	14	56	0.466	86	-1.63	-4.34	-1.63	-4.30	-1.23	-3.40
9	7	2007	0	368815	32 24	10	46	0.353	73	-0.57	-5.45	-0.57	-5.41	-0.15	-4.53
10	7	2007	0	368529	32 25	5	38	0.247	60	0.59	-6.23	0.59	-6.18	1.02	-5.31
11	7	2007	0	368997	32 23	-1	30	0.154	46	1.79	-6.62	1.80	-6.57	2.23	-5.69
12	7	2007	0	370326	32 16	-6	22	0.081	33	2.97	-6.59	2.98	-6.55	3.37	-5.65
13	7	2007	0	372574	32 4	-12	15	0.030	20	4.01	-6.16	4.02	-6.11	4.37	-5.20
14	7	2007	0	375711	31 48	-17	8	0.004	8	4.83	-5.36	4.84	-5.32	5.13	-4.39
15	7	2007	0	379608	31 29	-21	1	0.004	7	5.36	-4.27	5.37	-4.22	5.58	-3.28
16	7	2007	0	384038	31 7	-25	355	0.027	19	5.54	-2.97	5.55	-2.92	5.67	-1.97
17	7	2007	0	388697	30 44	-27	348	0.070	31	5.36	-1.53	5.37	-1.49	5.39	-0.55
18	7	2007	0	393245	30 23	-29	342	0.131	43	4.83	-0.06	4.84	-0.01	4.76	0.92
19	7	2007	0	397337	30 4	-29	335	0.206	54	4.00	1.39	4.02	1.43	3.84	2.34
20	7	2007	0	400660	29 49	-28	328	0.290	65	2.94	2.74	2.95	2.79	2.72	3.67
21	7	2007	0	402962	29 39	-26	321	0.380	76	1.71	3.96	1.72	4.01	1.45	4.87
22	7	2007	0	404066	29 34	-22	312	0.474	87	0.40	4.99	0.41	5.04	0.09	5.88
23	7	2007	0	403893	29 35	-19	302	0.569	98	-0.90	5.81	-0.89	5.86	-1.28	6.67
24	7	2007	0	402459	29 41	-14	290	0.662	109	-2.12	6.39	-2.11	6.44	-2.57	7.19
25	7	2007	0	399881	29 53	-9	277	0.749	120	-3.19	6.69	-3.18	6.74	-3.70	7.41
26	7	2007	0	396362	30 9	-3	262	0.829	131	-4.04	6.69	-4.03	6.74	-4.60	7.32
27	7	2007	0	392176	30 28	3	247	0.898	143	-4.63	6.37	-4.62	6.42	-5.22	6.93
28	7	2007	0	387645	30 49	9	231	0.951	155	-4.93	5.73	-4.92	5.78	-5.52	6.27
29	7	2007	0	383110	31 11	15	215	0.986	167	-4.95	4.77	-4.94	4.82	-5.48	5.39
30	7	2007	0	378890	31 32	21	196	0.999	177	-4.69	3.53	-4.68	3.58	-5.07	4.32
31	7	2007	0	375257	31 51	27	173	0.988	168	-4.19	2.06	-4.18	2.11	-4.37	2.99
1	8	2007	0	372395	32 5	31	145	0.952	155	-3.49	0.45	-3.47	0.50	-3.51	1.45
2	8	2007	0	370393	32 16	34	117	0.892	142	-2.62	-1.21	-2.61	-1.16	-2.55	-0.18
3	8	2007	0	369250	32 22	35	93	0.810	128	-1.65	-2.81	-1.63	-2.76	-1.46	-1.78
4	8	2007	0	368893	32 24	33	76	0.712	115	-0.61	-4.24	-0.59	-4.19	-0.28	-3.27
5	8	2007	0	369217	32 22	30	63	0.602	102	0.47	-5.41	0.49	-5.37	0.90	-4.50
6	8	2007	0	370113	32 17	24	53	0.487	89	1.53	-6.25	1.55	-6.20	2.03	-5.39
7	8	2007	0	371499	32 10	18	44	0.374	75	2.54	-6.70	2.57	-6.66	3.09	-5.88
8	8	2007	0	373326	32 0	10	37	0.268	62	3.46	-6.75	3.48	-6.70	4.04	-5.93
9	8	2007	0	375578	31 49	2	30	0.175	49	4.23	-6.40	4.26	-6.35	4.82	-5.57
10	8	2007	0	378253	31 35	-6	23	0.099	37	4.82	-5.68	4.84	-5.63	5.39	-4.84
11	8	2007	0	381337	31 20	-14	16	0.044	24	5.18	-4.66	5.20	-4.61	5.72	-3.80
12	8	2007	0	384784	31 3	-21	10	0.011	12	5.29	-3.39	5.31	-3.34	5.77	-2.51
13	8	2007	0	388491	30 45	-28	5	0.000	2	5.12	-1.98	5.14	-1.92	5.53	-1.07
14	8	2007	0	392294	30 28	-34	359	0.011	12	4.68	-0.48	4.70	-0.43	4.99	0.45
15	8	2007	0	395982	30 11	-39	353	0.043	24	3.98	1.00	4.01	1.05	4.17	1.96
16	8	2007	0	399304	29 55	-41	347	0.091	35	3.06	2.42	3.08	2.47	3.11	3.38
17	8	2007	0	402004	29 43	-42	340	0.155	46	1.95	3.70	1.97	3.75	1.92	4.66
18	8	2007	0	403838	29 35	-41	333	0.230	57	0.71	4.81	0.73	4.86	0.60	5.75
19	8	2007	0	404604	29 32	-39	325	0.315	68	-0.59	5.70	-0.57	5.75	-0.80	6.62
20	8	2007	0	404163	29 34	-34	315	0.406	79	-1.89	6.35	-1.87	6.40	-2.19	7.23

DATA	(A,MS,G,H)	DELTA Km	D. ' ''	ALT. ø	AZ. ø	K	EL.SOL. ø	LIBRAZ. LONG.	OTT. LATIT.	LIBRAZ. LONG.	FIS. LATIT.	LIBRAZ.TOP. LONG.	LATIT.	
21	8 2007	0	402456	29 41	-29	305	0.500	90	-3.11	6.73	-3.09	6.78	-3.52	7.55
22	8 2007	0	399523	29 55	-22	293	0.596	101	-4.17	6.81	-4.16	6.87	-4.69	7.56
23	8 2007	0	395505	30 13	-15	280	0.690	112	-5.02	6.59	-5.00	6.65	-5.62	7.24
24	8 2007	0	390648	30 35	-7	267	0.779	124	-5.59	6.06	-5.57	6.11	-6.24	6.61
25	8 2007	0	385282	31 1	2	255	0.859	136	-5.83	5.20	-5.81	5.25	-6.51	5.70
26	8 2007	0	379808	31 28	11	243	0.925	148	-5.72	4.04	-5.70	4.10	-6.41	4.56
27	8 2007	0	374657	31 54	20	230	0.973	161	-5.25	2.63	-5.23	2.68	-5.91	3.26
28	8 2007	0	370240	32 16	29	214	0.997	174	-4.44	1.02	-4.42	1.07	-5.00	1.82
29	8 2007	0	366899	32 34	37	191	0.996	173	-3.35	-0.68	-3.32	-0.63	-3.74	0.26
30	8 2007	0	364852	32 45	43	153	0.966	159	-2.04	-2.37	-2.01	-2.32	-2.26	-1.35
31	8 2007	0	364172	32 49	47	112	0.910	145	-0.60	-3.91	-0.57	-3.86	-0.59	-2.87
1	9 2007	0	364781	32 45	48	86	0.831	131	0.87	-5.20	0.89	-5.15	1.11	-4.22
2	9 2007	0	366489	32 36	44	70	0.734	118	2.26	-6.14	2.29	-6.10	2.70	-5.27
3	9 2007	0	369037	32 23	38	59	0.626	105	3.51	-6.69	3.54	-6.64	4.06	-5.91
4	9 2007	0	372156	32 6	30	51	0.512	91	4.55	-6.82	4.58	-6.77	5.17	-6.09
5	9 2007	0	375608	31 49	21	44	0.400	78	5.33	-6.54	5.36	-6.49	6.01	-5.84
6	9 2007	0	379211	31 31	11	37	0.295	66	5.83	-5.89	5.86	-5.84	6.54	-5.20
7	9 2007	0	382842	31 13	1	31	0.202	53	6.05	-4.94	6.08	-4.89	6.77	-4.24
8	9 2007	0	386431	30 55	-8	26	0.124	41	6.00	-3.74	6.04	-3.68	6.71	-3.02
9	9 2007	0	389935	30 39	-18	20	0.064	29	5.70	-2.36	5.74	-2.31	6.38	-1.63
10	9 2007	0	393315	30 23	-27	15	0.023	18	5.17	-0.90	5.21	-0.85	5.81	-0.14
11	9 2007	0	396515	30 8	-36	10	0.003	6	4.44	0.59	4.47	0.64	5.01	1.39
12	9 2007	0	399448	29 55	-43	4	0.002	5	3.52	2.02	3.55	2.08	4.00	2.88
13	9 2007	0	401989	29 43	-49	359	0.021	17	2.45	3.35	2.48	3.40	2.80	4.25
14	9 2007	0	403983	29 35	-53	352	0.057	28	1.27	4.51	1.29	4.56	1.48	5.45
15	9 2007	0	405255	29 29	-55	346	0.109	39	-0.01	5.46	0.02	5.51	0.07	6.42
16	9 2007	0	405632	29 27	-53	338	0.175	49	-1.32	6.18	-1.29	6.23	-1.37	7.13
17	9 2007	0	404962	29 30	-49	329	0.252	60	-2.62	6.63	-2.59	6.68	-2.82	7.55
18	9 2007	0	403138	29 38	-43	319	0.338	71	-3.85	6.80	-3.83	6.85	-4.20	7.67
19	9 2007	0	400126	29 52	-35	308	0.432	82	-4.96	6.67	-4.94	6.72	-5.45	7.46
20	9 2007	0	395981	30 11	-27	297	0.529	93	-5.87	6.24	-5.85	6.29	-6.47	6.93
21	9 2007	0	390863	30 34	-17	286	0.628	105	-6.51	5.51	-6.49	5.56	-7.19	6.09
22	9 2007	0	385042	31 2	-7	276	0.725	117	-6.81	4.48	-6.79	4.53	-7.55	4.99
23	9 2007	0	378893	31 32	3	267	0.815	129	-6.73	3.19	-6.71	3.24	-7.51	3.67
24	9 2007	0	372876	32 3	14	259	0.893	142	-6.23	1.67	-6.21	1.72	-7.02	2.19
25	9 2007	0	367494	32 31	25	250	0.953	155	-5.30	0.01	-5.27	0.06	-6.06	0.64
26	9 2007	0	363226	32 54	36	240	0.990	169	-3.97	-1.70	-3.94	-1.65	-4.64	-0.92
27	9 2007	0	360461	33 9	47	225	0.999	176	-2.32	-3.32	-2.29	-3.27	-2.86	-2.44
28	9 2007	0	359426	33 15	55	176	0.978	163	-0.47	-4.74	-0.44	-4.69	-0.78	-3.77
29	9 2007	0	360148	33 11	59	98	0.929	149	1.44	-5.83	1.47	-5.78	1.47	-4.85
30	9 2007	0	362460	32 58	57	75	0.855	135	3.24	-6.51	3.27	-6.46	3.60	-5.65
1	10 2007	0	366044	32 39	51	65	0.762	122	4.80	-6.75	4.83	-6.70	5.35	-6.03
2	10 2007	0	370497	32 15	42	57	0.657	108	6.02	-6.56	6.05	-6.51	6.68	-5.92
3	10 2007	0	375409	31 50	31	51	0.547	95	6.84	-5.98	6.87	-5.92	7.57	-5.38
4	10 2007	0	380420	31 25	21	45	0.437	83	7.25	-5.07	7.28	-5.02	8.03	-4.49
5	10 2007	0	385252	31 1	10	40	0.334	71	7.27	-3.92	7.31	-3.86	8.08	-3.34
6	10 2007	0	389720	30 40	-1	35	0.240	59	6.96	-2.59	7.00	-2.54	7.77	-2.01
7	10 2007	0	393717	30 21	-12	31	0.159	47	6.37	-1.17	6.40	-1.11	7.16	-0.58
8	10 2007	0	397198	30 5	-22	26	0.094	36	5.55	0.29	5.58	0.34	6.32	0.89
9	10 2007	0	400152	29 52	-32	21	0.045	24	4.56	1.71	4.59	1.76	5.30	2.33
10	10 2007	0	402576	29 41	-42	16	0.014	13	3.44	3.03	3.47	3.09	4.11	3.73
11	10 2007	0	404460	29 33	-50	11	0.001	4	2.23	4.21	2.26	4.26	2.79	4.99
12	10 2007	0	405765	29 27	-58	5	0.007	9	0.96	5.19	0.99	5.24	1.40	6.05
13	10 2007	0	406426	29 24	-63	358	0.030	20	-0.34	5.94	-0.31	6.00	-0.06	6.86
14	10 2007	0	406352	29 24	-65	350	0.070	31	-1.64	6.44	-1.62	6.49	-1.53	7.39
15	10 2007	0	405437	29 28	-62	342	0.125	41	-2.93	6.66	-2.90	6.71	-3.00	7.61
16	10 2007	0	403582	29 36	-56	332	0.194	52	-4.15	6.59	-4.13	6.64	-4.41	7.50
17	10 2007	0	400715	29 49	-48	322	0.275	63	-5.27	6.23	-5.25	6.29	-5.70	7.07
18	10 2007	0	396821	30 7	-38	312	0.366	74	-6.23	5.59	-6.21	5.64	-6.81	6.32
19	10 2007	0	391963	30 29	-28	303	0.464	86	-6.96	4.67	-6.94	4.72	-7.65	5.30
20	10 2007	0	386304	30 56	-18	295	0.566	98	-7.39	3.50	-7.37	3.55	-8.16	4.03
21	10 2007	0	380119	31 26	-6	288	0.669	110	-7.45	2.11	-7.43	2.16	-8.27	2.59
22	10 2007	0	373795	31 58	6	282	0.767	122	-7.08	0.56	-7.06	0.62	-7.93	1.04
23	10 2007	0	367814	32 29	18	276	0.856	135	-6.24	-1.07	-6.22	-1.02	-7.09	-0.55
24	10 2007	0	362704	32 57	30	271	0.928	149	-4.92	-2.69	-4.90	-2.63	-5.74	-2.08
25	10 2007	0	358969	33 17	43	267	0.977	163	-3.18	-4.16	-3.16	-4.11	-3.95	-3.50
26	10 2007	0	357002	33 28	55	262	0.998	175	-1.14	-5.37	-1.11	-5.32	-1.78	-4.62
27	10 2007	0	357010	33 28	64	258	0.988	168	1.04	-6.20	1.07	-6.15	0.68	-5.34
28	10 2007	0	358968	33 17	67	72	0.949	154	3.16	-6.59	3.19	-6.54	3.26	-5.71
29	10 2007	0	362632	32 57	63	68	0.883	140	5.04	-6.51	5.06	-6.46	5.50	-5.79
30	10 2007	0	367586	32 30	53	64	0.798	127	6.51	-6.01	6.54	-5.95	7.15	-5.42
31	10 2007	0	373330	32 0	42	59	0.699	113	7.50	-5.15	7.53	-5.09	8.24	-4.61
1	11 2007	0	379363	31 30	31	55	0.594	101	7.99	-4.01	8.02	-3.96	8.80	-3.51
2	11 2007	0	385250	31 1	19	51	0.488	89	8.00	-2.70	8.03	-2.65	8.84	-2.21
3	11 2007	0	390658	30 35	8	46	0.386	77	7.60	-1.29	7.63	-1.23	8.46	-0.80
4	11 2007	0	395366	30 13	-3	42	0.292	65	6.88	0.15	6.90	0.20	7.73	0.63
5	11 2007	0	399254	29 56	-14	38	0.207	54	5.90	1.55	5.93	1.61	6.74	2.03
6	11 2007	0	402285	29 42	-25	34	0.135	43	4.75	2.86	4.78	2.92	5.57	3.36
7	11 2007	0	404479	29 33	-35	29	0.077	32	3.50	4.03	3.53	4.08	4.27	4.60

DATA	(A,MS,G,H)	DELTA Km	D. ' ''	ALT. °	AZ. °	K	EL.SOL. °	LIBRAZ. OTT. LONG. LATIT.	LIBRAZ. FIS. LONG. LATIT.	LIBRAZ.TOP. LONG.LATIT.
8	11 2007 0	405890	29 26	-45	24	0.035	22	2.20 5.01	2.23 5.07	2.89 5.67
9	11 2007 0	406579	29 23	-54	18	0.010	11	0.89 5.77	0.91 5.83	1.48 6.53
10	11 2007 0	406595	29 23	-63	11	0.002	5	-0.41 6.29	-0.39 6.34	0.04 7.14
11	11 2007 0	405962	29 26	-69	3	0.012	12	-1.67 6.53	-1.65 6.59	-1.40 7.45
12	11 2007 0	404675	29 32	-70	355	0.039	23	-2.88 6.48	-2.86 6.54	-2.82 7.44
13	11 2007 0	402702	29 40	-66	345	0.083	34	-4.02 6.15	-4.01 6.21	-4.18 7.10
14	11 2007 0	400001	29 52	-59	336	0.143	44	-5.07 5.54	-5.06 5.60	-5.43 6.43
15	11 2007 0	396539	30 8	-49	327	0.218	56	-5.99 4.67	-5.97 4.73	-6.52 5.46
16	11 2007 0	392318	30 27	-39	319	0.305	67	-6.72 3.56	-6.71 3.62	-7.39 4.25
17	11 2007 0	387399	30 51	-28	312	0.402	79	-7.21 2.26	-7.20 2.31	-7.98 2.84
18	11 2007 0	381929	31 17	-16	306	0.506	91	-7.39 0.80	-7.38 0.86	-8.22 1.31
19	11 2007 0	376156	31 46	-4	300	0.614	103	-7.19 -0.74	-7.18 -0.68	-8.07 -0.27
20	11 2007 0	370436	32 15	8	296	0.719	116	-6.55 -2.28	-6.54 -2.23	-7.44 -1.82
21	11 2007 0	365214	32 43	21	291	0.816	129	-5.45 -3.74	-5.43 -3.68	-6.34 -3.26
22	11 2007 0	360979	33 6	34	288	0.898	143	-3.89 -4.99	-3.88 -4.93	-4.76 -4.49
23	11 2007 0	358191	33 22	47	285	0.959	157	-1.97 -5.92	-1.96 -5.87	-2.77 -5.38
24	11 2007 0	357199	33 27	59	284	0.992	170	0.17 -6.44	0.19 -6.39	-0.48 -5.83
25	11 2007 0	358164	33 22	69	295	0.996	172	2.34 -6.51	2.35 -6.46	1.98 -5.75
26	11 2007 0	361022	33 6	71	52	0.969	160	4.33 -6.12	4.35 -6.06	4.49 -5.31
27	11 2007 0	365487	32 42	64	69	0.916	146	5.96 -5.32	5.98 -5.26	6.49 -4.66
28	11 2007 0	371113	32 12	53	69	0.841	133	7.13 -4.20	7.14 -4.15	7.82 -3.64
29	11 2007 0	377371	31 40	42	66	0.752	120	7.76 -2.87	7.78 -2.81	8.55 -2.36
30	11 2007 0	383736	31 8	30	63	0.655	108	7.89 -1.43	7.90 -1.37	8.72 -0.95
1	12 2007 0	389748	30 40	18	60	0.554	96	7.55 0.05	7.57 0.10	8.41 0.50
2	12 2007 0	395052	30 15	7	56	0.454	85	6.85 1.47	6.86 1.53	7.71 1.92
3	12 2007 0	399409	29 55	-4	52	0.358	73	5.86 2.80	5.87 2.86	6.71 3.23
4	12 2007 0	402694	29 40	-14	48	0.269	63	4.68 3.98	4.69 4.04	5.51 4.42
5	12 2007 0	404878	29 31	-25	44	0.190	52	3.39 4.97	3.40 5.03	4.19 5.46
6	12 2007 0	406011	29 26	-35	38	0.122	41	2.05 5.74	2.07 5.80	2.81 6.31
7	12 2007 0	406195	29 25	-45	32	0.068	30	0.74 6.27	0.75 6.33	1.41 6.93
8	12 2007 0	405561	29 28	-55	25	0.029	20	-0.52 6.52	-0.51 6.58	0.04 7.29
9	12 2007 0	404243	29 34	-64	17	0.007	10	-1.70 6.49	-1.70 6.55	-1.30 7.36
10	12 2007 0	402359	29 42	-70	8	0.002	6	-2.79 6.17	-2.78 6.23	-2.59 7.12
11	12 2007 0	399997	29 52	-72	358	0.016	15	-3.77 5.57	-3.77 5.62	-3.80 6.54
12	12 2007 0	397211	30 5	-67	349	0.049	26	-4.64 4.70	-4.64 4.75	-4.90 5.64
13	12 2007 0	394025	30 20	-58	340	0.100	37	-5.37 3.59	-5.37 3.65	-5.84 4.45
14	12 2007 0	390449	30 36	-48	333	0.168	48	-5.95 2.30	-5.95 2.35	-6.58 3.05
15	12 2007 0	386497	30 55	-37	326	0.251	60	-6.33 0.86	-6.33 0.92	-7.08 1.51
16	12 2007 0	382219	31 16	-26	320	0.348	72	-6.47 -0.65	-6.47 -0.59	-7.30 -0.10
17	12 2007 0	377720	31 38	-14	315	0.453	85	-6.32 -2.16	-6.32 -2.10	-7.19 -1.68
18	12 2007 0	373187	32 1	-2	311	0.563	97	-5.82 -3.58	-5.82 -3.52	-6.72 -3.12
19	12 2007 0	368890	32 24	11	306	0.673	110	-4.94 -4.82	-4.94 -4.77	-5.84 -4.38
20	12 2007 0	365173	32 43	24	302	0.777	124	-3.69 -5.80	-3.69 -5.75	-4.57 -5.36
21	12 2007 0	362415	32 58	37	298	0.867	137	-2.11 -6.41	-2.11 -6.36	-2.95 -5.96
22	12 2007 0	360968	33 6	50	295	0.937	151	-0.30 -6.60	-0.30 -6.55	-1.06 -6.12
23	12 2007 0	361093	33 5	61	292	0.982	165	1.57 -6.34	1.58 -6.29	0.97 -5.76
24	12 2007 0	362890	32 56	69	296	0.999	176	3.36 -5.65	3.36 -5.60	3.04 -4.89
25	12 2007 0	366273	32 37	69	47	0.986	167	4.88 -4.59	4.89 -4.54	5.06 -3.76
26	12 2007 0	370971	32 13	62	81	0.948	154	6.03 -3.26	6.03 -3.21	6.56 -2.55
27	12 2007 0	376570	31 44	52	81	0.888	141	6.72 -1.77	6.73 -1.72	7.42 -1.15
28	12 2007 0	382586	31 14	41	79	0.811	128	6.94 -0.23	6.95 -0.18	7.73 0.33
29	12 2007 0	388528	30 45	29	76	0.723	116	6.72 1.28	6.73 1.33	7.55 1.79
30	12 2007 0	393960	30 20	18	73	0.629	105	6.12 2.68	6.12 2.73	6.95 3.15
31	12 2007 0	398534	29 59	7	69	0.532	94	5.21 3.92	5.21 3.97	6.05 4.35
1	1 2008 0	402011	29 43	-3	65	0.436	83	4.08 4.96	4.08 5.02	4.91 5.38

Legenda :

ALT. = altezza sull'orizzonte

AZ. = azimut

K = fase

EL.SOL. = elongazione dal sole

LIBRAZ. OTT. = librazione ottica

LIBRAZ. FIS. = librazione fisica

LIBRAZ. TOP. = librazione topocentrica

# FENOMENI LUNARI

## PERIGEI

Gen	22	12h32m	(366925.7 km)
Feb	19	09h38m	(361435.7 km)
Mar	19	18h40m	(357814.3 km)
Apr	17	05h59m	(357136.5 km)
Mag	15	15h08m	(359390.2 km)
Giu	12	17h09m	(363779.3 km)
Lug	09	21h43m	(368527.8 km)
Ago	03	23h52m	(368890.9 km)
Ago	31	00h13m	(364170.5 km)
Set	28	01h56m	(359418.7 km)
Ott	26	11h51m	(356752.8 km)
Nov	24	00h14m	(357193.9 km)
Dic	22	10h15m	(360814.8 km)

## APOGEI

Gen	10	16h26m	(404334.5 km)
Feb	07	12h40m	(404992.4 km)
Mar	07	03h38m	(405853.5 km)
Apr	03	08h39m	(406329.1 km)
Apr	30	10h57m	(406209.2 km)
Mag	27	22h03m	(405460.3 km)
Giu	24	14h26m	(404540.2 km)
Lug	22	08h44m	(404149.6 km)
Ago	19	03h29m	(404618.3 km)
Set	15	21h07m	(405642.1 km)
Ott	13	09h53m	(406492.1 km)
Nov	09	12h33m	(406671.0 km)
Dic	06	16h55m	(406234.8 km)

Passaggio al nodo	08.01.2007	17.54.33
Passaggio al nodo	22.01.2007	12.59.13
Passaggio al nodo	04.02.2007	22.45.10
Passaggio al nodo	18.02.2007	20.42.31
Passaggio al nodo	04.03.2007	05.32.59
Passaggio al nodo	18.03.2007	07.26.57
Passaggio al nodo	31.03.2007	11.41.50
Passaggio al nodo	14.04.2007	17.13.30
Passaggio al nodo	27.04.2007	15.38.02
Passaggio al nodo	11.05.2007	22.49.01
Passaggio al nodo	24.05.2007	17.30.48
Passaggio al nodo	08.06.2007	00.19.48
Passaggio al nodo	20.06.2007	19.48.44
Passaggio al nodo	05.07.2007	01.26.31
Passaggio al nodo	18.07.2007	01.35.18
Passaggio al nodo	01.08.2007	05.50.26
Passaggio al nodo	14.08.2007	07.38.15
Passaggio al nodo	28.08.2007	14.12.33
Passaggio al nodo	10.09.2007	15.00.52
Passaggio al nodo	25.09.2007	00.25.58
Passaggio al nodo	07.10.2007	20.19.02
Passaggio al nodo	22.10.2007	09.00.27
Passaggio al nodo	03.11.2007	22.18.44
Passaggio al nodo	18.11.2007	12.45.46
Passaggio al nodo	30.11.2007	23.10.27
Passaggio al nodo	15.12.2007	13.15.39
Passaggio al nodo	28.12.2007	03.12.07

Librazione massima	04.01.2007	07.49.38	5,2	°
Librazione massima	16.01.2007	11.10.46	-5,6	°
Librazione massima	30.01.2007	19.54.35	5,2	°
Librazione massima	13.02.2007	11.04.49	-6,8	°
Librazione massima	26.02.2007	11.26.45	6,3	°
Librazione massima	13.03.2007	17.35.18	-7,6	°
Librazione massima	26.03.2007	04.55.34	7,4	°
Librazione massima	11.04.2007	01.29.19	-7,6	°
Librazione massima	23.04.2007	07.57.37	7,7	°
Librazione massima	09.05.2007	04.25.23	-6,9	°
Librazione massima	21.05.2007	11.15.21	7,2	°
Librazione massima	01.07.2007	19.21.06	-4,8	°
Librazione massima	15.07.2007	23.55.56	5,6	°
Librazione massima	28.07.2007	13.16.13	-5,0	°
Librazione massima	25.08.2007	04.29.28	-5,8	°
Librazione massima	07.09.2007	07.51.37	6,1	°
Librazione massima	22.09.2007	06.54.14	-6,8	°

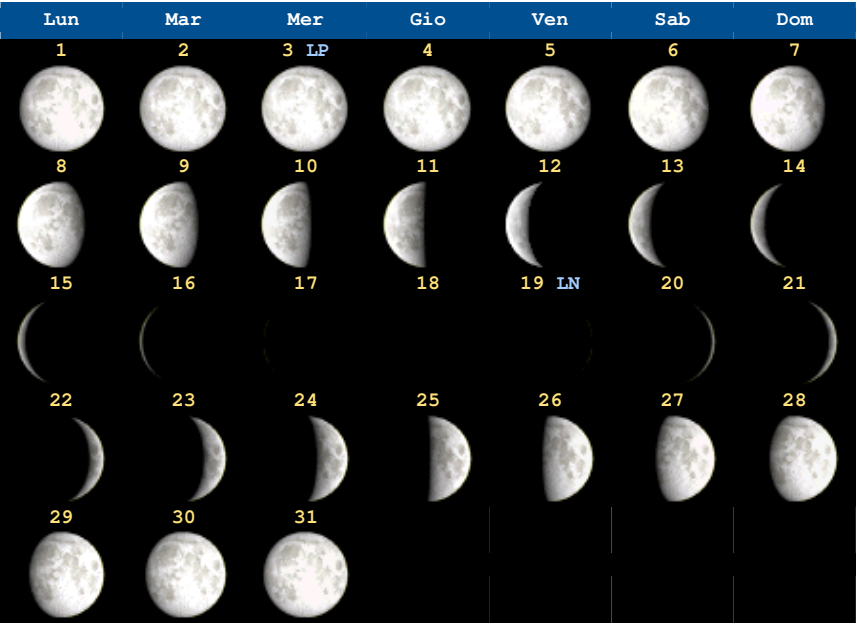


Librazione massima	04.10.2007	13.57.31	7,4	°
Librazione massima	20.10.2007	15.06.28	-7,4	°
Librazione massima	01.11.2007	13.08.11	8,1	°
Librazione massima	17.11.2007	23.45.26	-7,4	°
Librazione massima	29.11.2007	18.31.25	7,9	°
Librazione massima	27.12.2007	23.30.42	7,0	°

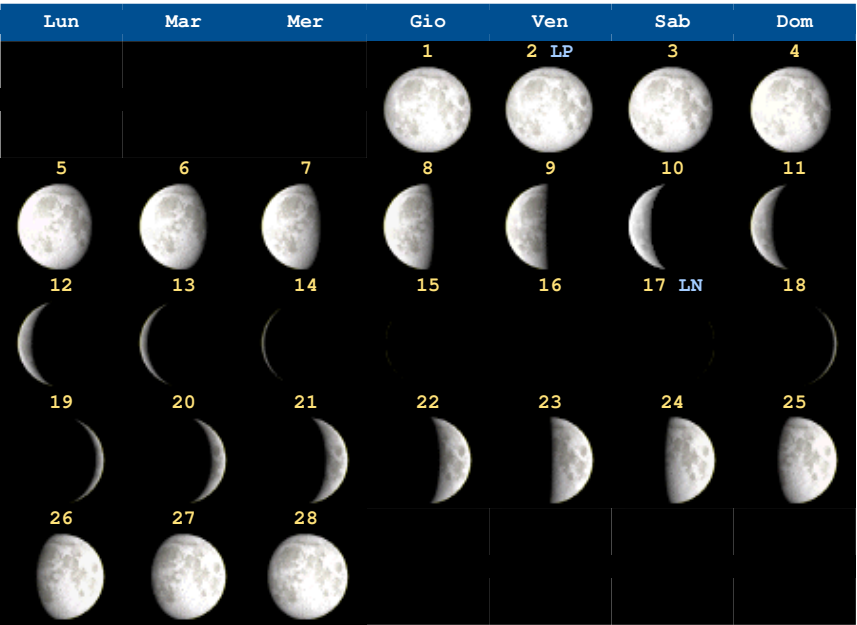
© (5)

## FASI LUNARI

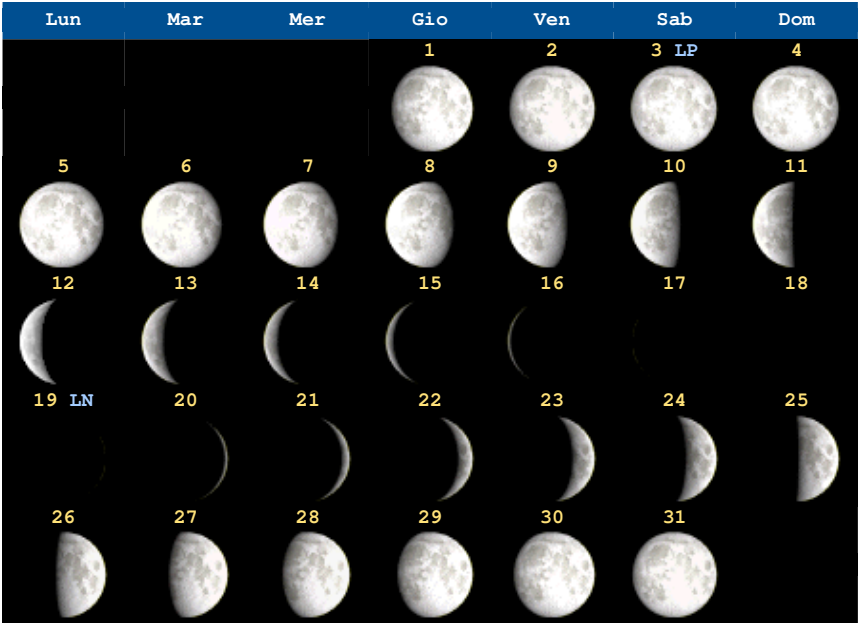
Lunazione	Luna Nuova		Primo Quarto		Luna Piena		Ultimo Quarto	
1039					Gen 03	13h58m	Gen 11	12h46m
1040	Gen 19	04h02m	Gen 25	23h03m	Feb 02	05h46m	Feb 10	09h52m
1041	Feb 17	16h15m	Feb 24	07h57m	Mar 03	23h18m	Mar 12	03h55m
1042	Mar 19	02h44m	Mar 25	18h17m	Apr 02	17h16m	Apr 10	18h05m
1043	Apr 17	11h37m	Apr 24	06h37m	Mag 02	10h10m	Mag 10	04h28m
1044	Mag 16	19h28m	Mag 23	21h04m	Giu 01	01h05m	Giu 08	11h44m
1045	Giu 15	03h14m	Giu 22	13h16m	Giu 30	13h50m	Lug 07	16h55m
1046	Lug 14	12h05m	Lug 22	06h30m	Lug 30	00h49m	Ago 05	21h21m
1047	Ago 12	23h04m	Ago 20	23h55m	Ago 28	10h36m	Set 04	02h33m
1048	Set 11	12h45m	Set 19	16h49m	Set 26	19h46m	Ott 03	10h07m
1049	Ott 11	05h02m	Ott 19	08h34m	Ott 26	04h53m	Nov 01	21h19m
1050	Nov 09	23h04m	Nov 17	22h34m	Nov 24	14h31m	Dic 01	12h45m
1051	Dic 09	17h42m	Dic 17	10h19m	Dic 24	01h17m	Dic 31	07h52m



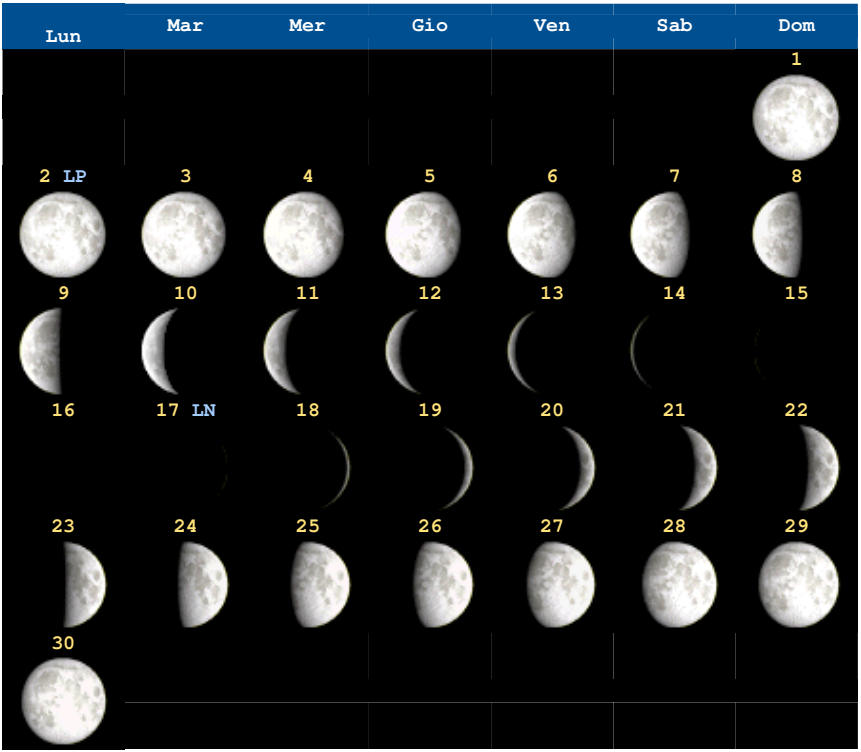
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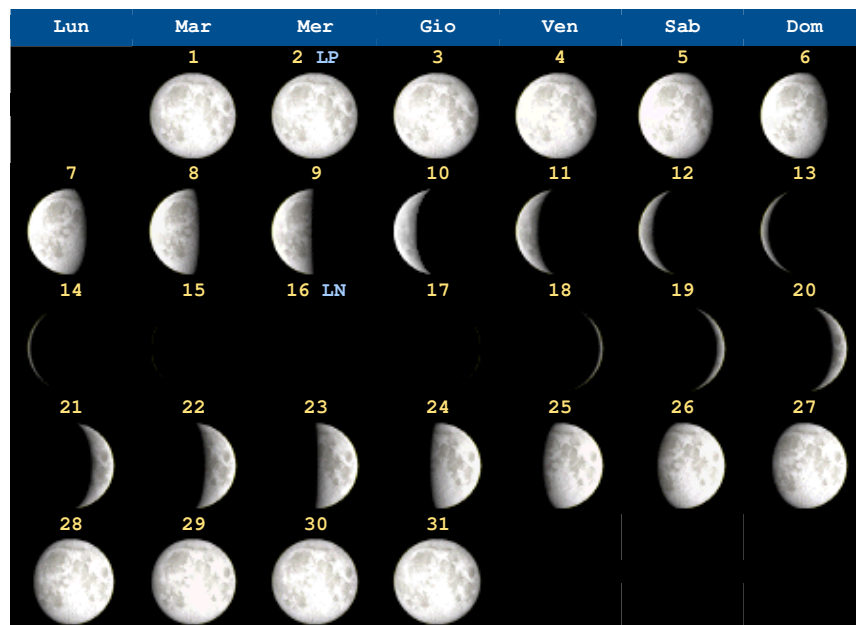
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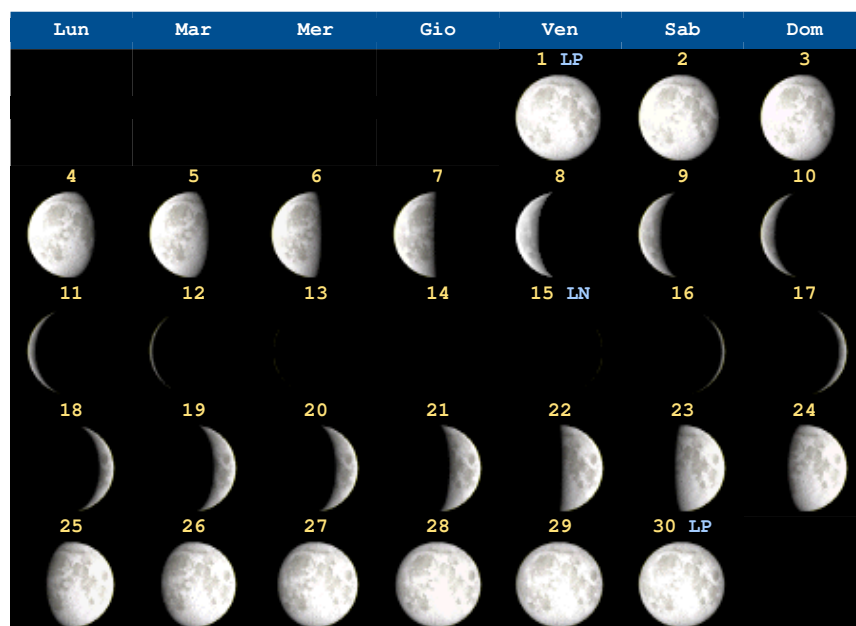
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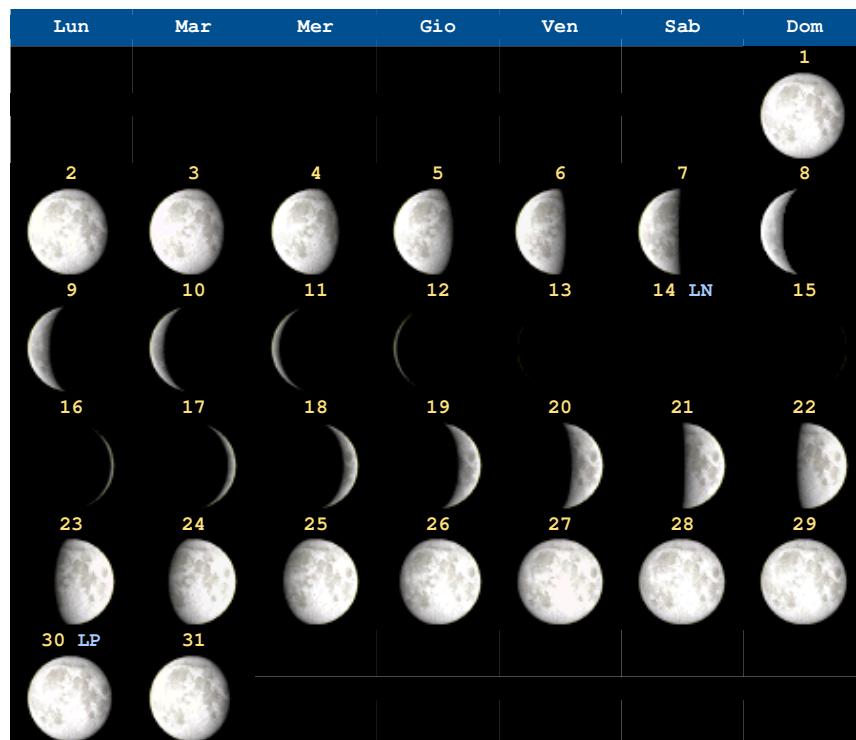
Aprile



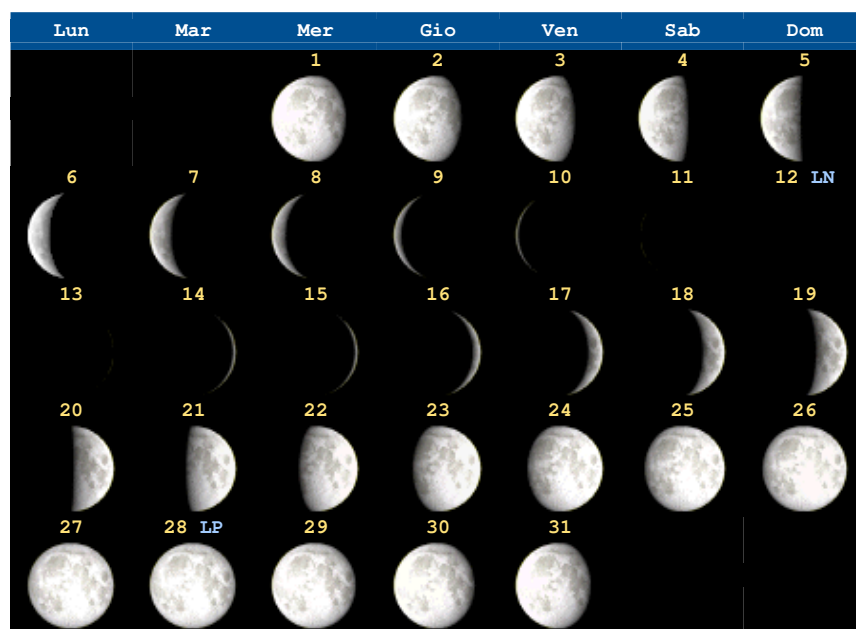
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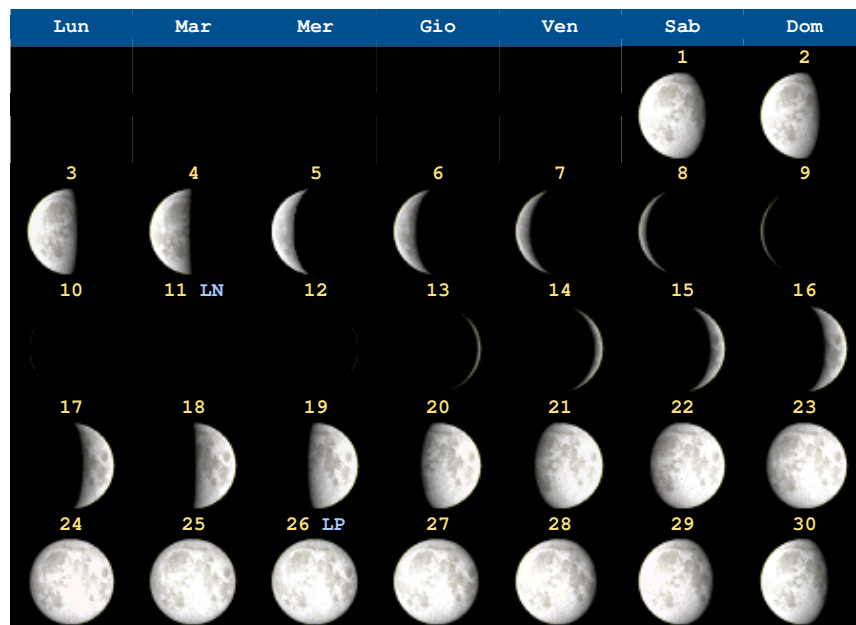
Giugno



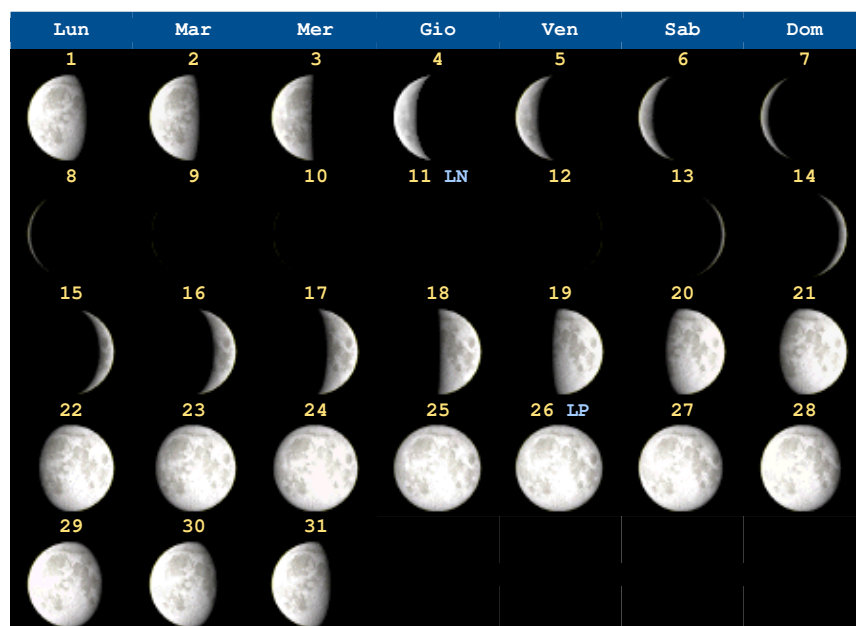
Luglio



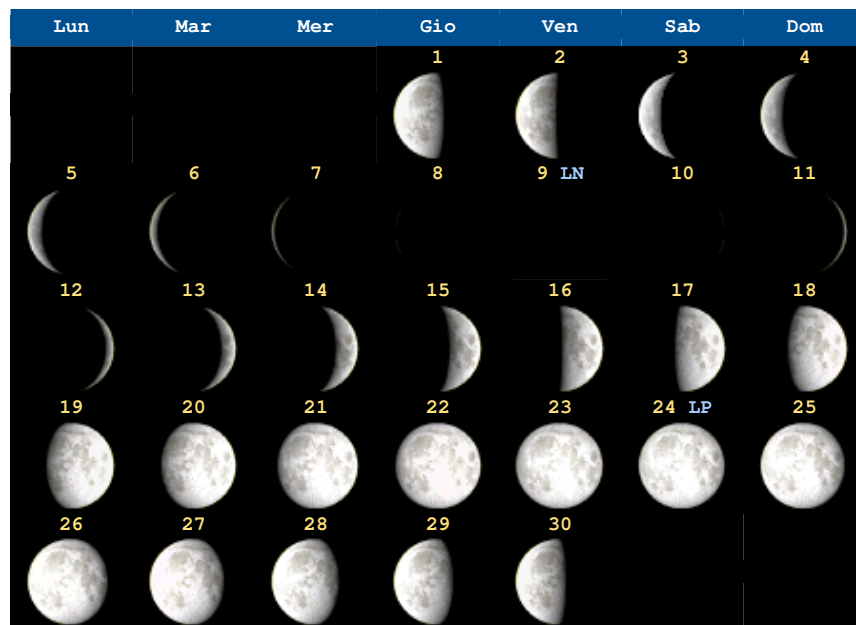
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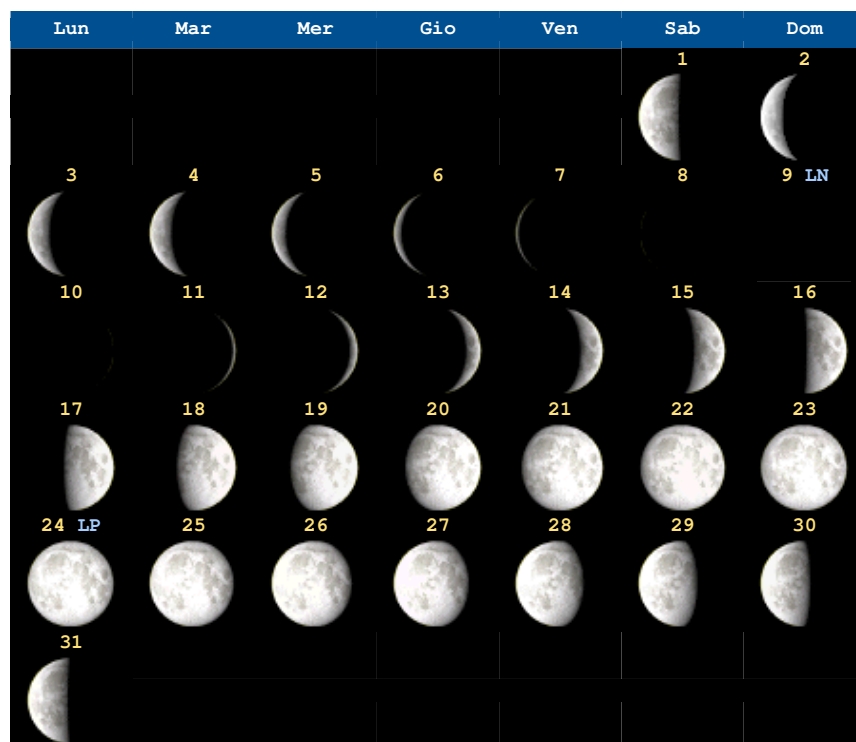
Settembre



Ottobre



Novembre



Dicembre

# LEVATA E TRAMONTO DELLA LUNA

for Greenwich Meridian

for location: Longitude E 11 00.0  
 Latitudine N 46 00.0  
 Time Zone UT +1

		Ephemeris Transit													
Data		TDT JD	TDT Time			Sorge (Azim)	Trans (Alt)			Tramonta (Azim)					
			h	m	s	h m °	h m °	h m °		h m °					
2007 Gen 1	2454102.438885	22 31 59.6	14 16	( 48)	22 46 (s72)	f 7 22 (313)									
2007 Gen 2	2454103.480816	23 32 22.5	15 11	( 47)	23 47 (s72)	f 8 18 (312)									
2007 Gen 4	2454104.521171	0 30 29.2	p16 17	( 49)	0 45 (s71)	9 01 (308)									
2007 Gen 5	2454105.558696	1 24 31.3	p17 30	( 53)	1 39 (s67)	9 33 (303)									
2007 Gen 6	2454106.592983	2 13 53.8	p18 44	( 60)	2 28 (s63)	9 58 (295)									
2007 Gen 7	2454107.624325	2 59 01.7	p19 55	( 68)	3 14 (s58)	10 17 (288)									
2007 Gen 8	2454108.653396	3 40 53.4	p21 03	( 76)	3 56 (s52)	10 34 (280)									
2007 Gen 9	2454109.681014	4 20 39.6	p22 09	( 84)	4 35 (s46)	10 49 (271)									
2007 Gen 10	2454110.708031	4 59 33.9	p23 13	( 93)	5 14 (s41)	11 03 (263)									
2007 Gen 11	2454111.735292	5 38 49.3	0 18 (101)	5 54 (s35)	11 19 (255)										
2007 Gen 12	2454112.763635	6 19 38.1	1 23 (109)	6 34 (s30)	11 36 (247)										
2007 Gen 13	2454113.793866	7 03 10.0	2 30 (117)	7 18 (s25)	11 57 (240)										
2007 Gen 14	2454114.826683	7 50 25.5	3 40 (124)	8 05 (s21)	12 23 (234)										
2007 Gen 15	2454115.862503	8 42 00.2	4 50 (129)	8 56 (s18)	12 58 (229)										
2007 Gen 16	2454116.901192	9 37 43.0	5 58 (133)	9 52 (s16)	13 44 (227)										
2007 Gen 17	2454117.941872	10 36 17.7	6 58 (133)	10 51 (s16)	14 45 (227)										
2007 Gen 18	2454118.983060	11 35 36.4	7 48 (131)	11 50 (s18)	15 57 (231)										
2007 Gen 19	2454120.023235	12 33 27.5	8 27 (125)	12 48 (s21)	17 17 (237)										
2007 Gen 20	2454121.061446	13 28 29.0	8 57 (118)	13 43 (s26)	18 40 (245)										
2007 Gen 21	2454122.097535	14 20 27.0	9 21 (109)	14 35 (s32)	20 02 (255)										
2007 Gen 22	2454123.131969	15 10 02.1	9 41 ( 99)	15 25 (s39)	21 22 (265)										
2007 Gen 23	2454124.165570	15 58 25.2	10 00 ( 89)	16 13 (s46)	22 42 (276)										
2007 Gen 24	2454125.199291	16 46 58.8	10 18 ( 80)	17 01 (s53)	f 0 01 (286)										
2007 Gen 25	2454126.234062	17 37 03.0	10 39 ( 70)	17 52 (s60)	f 1 21 (295)										
2007 Gen 26	2454127.270619	18 29 41.5	11 03 ( 62)	18 44 (s65)	f 2 42 (303)										
2007 Gen 27	2454128.309282	19 25 22.0	11 33 ( 54)	19 40 (s69)	f 4 01 (309)										
2007 Gen 28	2454129.349700	20 23 34.1	12 11 ( 49)	20 38 (s72)	f 5 12 (313)										
2007 Gen 29	2454130.390778	21 22 43.2	13 01 ( 47)	21 37 (s72)	f 6 12 (313)										
2007 Gen 30	2454131.431003	22 20 38.6	14 03 ( 48)	22 35 (s71)	f 6 58 (310)										
2007 Gen 31	2454132.469049	23 15 25.8	15 12 ( 51)	23 30 (s69)	f 7 34 (305)										
2007 Feb 2	2454133.504233	0 06 05.8	p16 26 ( 57)	0 21 (s65)	8 00 (298)										
2007 Feb 3	2454134.536559	0 52 38.7	p17 38 ( 64)	1 07 (s60)	8 21 (291)										
2007 Feb 4	2454135.566491	1 35 44.8	p18 48 ( 73)	1 50 (s55)	8 39 (283)										
2007 Feb 5	2454136.594716	2 16 23.5	p19 55 ( 81)	2 31 (s49)	8 54 (275)										
2007 Feb 6	2454137.622003	2 55 41.0	p21 00 ( 90)	3 10 (s43)	9 09 (266)										
2007 Feb 7	2454138.649133	3 34 45.1	p22 04 ( 98)	3 50 (s37)	9 24 (258)										
2007 Feb 8	2454139.676884	4 14 42.8	p23 09 (106)	4 29 (s32)	9 40 (250)										
2007 Feb 9	2454140.706021	4 56 40.2	0 15 (114)	5 11 (s27)	9 59 (243)										
2007 Feb 10	2454141.737250	5 41 38.4	1 23 (121)	5 56 (s22)	10 22 (236)										
2007 Feb 11	2454142.771115	6 30 24.4	2 32 (127)	6 45 (s19)	10 52 (231)										
2007 Feb 12	2454143.807808	7 23 14.6	3 40 (132)	7 38 (s16)	11 32 (227)										
2007 Feb 13	2454144.846945	8 19 36.0	4 43 (134)	8 34 (s15)	12 25 (226)										
2007 Feb 14	2454145.887498	9 17 59.8	5 37 (133)	9 32 (s16)	13 31 (228)										
2007 Feb 15	2454146.928086	10 16 26.6	6 21 (129)	10 31 (s19)	14 48 (233)										
2007 Feb 16	2454147.967517	11 13 13.4	6 55 (122)	11 27 (s24)	16 11 (241)										
2007 Feb 17	2454149.005216	12 07 30.6	7 21 (114)	12 22 (s29)	17 35 (250)										
2007 Feb 18	2454150.041290	12 59 27.4	7 44 (104)	13 14 (s36)	18 58 (261)										
2007 Feb 19	2454151.076334	13 49 55.2	8 03 ( 94)	14 04 (s43)	20 21 (272)										
2007 Feb 20	2454152.111190	14 40 06.8	8 23 ( 83)	14 55 (s51)	21 43 (282)										
2007 Feb 21	2454153.146740	15 31 18.4	8 43 ( 73)	15 46 (s58)	23 06 (292)										
2007 Feb 22	2454154.183723	16 24 33.7	9 06 ( 64)	16 39 (s64)	f 0 29 (301)										
2007 Feb 23	2454155.222504	17 20 24.4	9 34 ( 56)	17 35 (s68)	f 1 50 (308)										
2007 Feb 24	2454156.262849	18 18 30.1	10 10 ( 50)	18 33 (s71)	f 3 05 (312)										
2007 Feb 25	2454157.303831	19 17 31.0	10 57 ( 47)	19 32 (s73)	f 4 08 (313)										
2007 Feb 26	2454158.344090	20 15 29.4	11 55 ( 47)	20 30 (s72)	f 4 58 (311)										
2007 Feb 27	2454159.382363	21 10 36.1	13 02 ( 50)	21 25 (s70)	f 5 36 (307)										
2007 Feb 28	2454160.417930	22 01 49.1	14 13 ( 55)	22 16 (s66)	f 6 05 (301)										
2007 Mar 1	2454161.450705	22 49 00.9	15 25 ( 62)	23 04 (s62)	f 6 27 (294)										
2007 Mar 2	2454162.481066	23 32 44.1	16 35 ( 70)	23 47 (s57)	f 6 45 (286)										
2007 Mar 4	2454163.509629	0 13 51.9	p17 43 ( 78)	0 29 (s51)	7 01 (278)										
2007 Mar 5	2454164.537103	0 53 25.7	p18 48 ( 86)	1 08 (s45)	7 16 (269)										
2007 Mar 6	2454165.564215	1 32 28.2	p19 53 ( 95)	1 47 (s39)	7 30 (261)										
2007 Mar 7	2454166.591680	2 12 01.2	p20 57 (103)	2 27 (s34)	7 46 (253)										
2007 Mar 8	2454167.620195	2 53 04.9	p22 03 (111)	3 08 (s28)	8 03 (245)										
2007 Mar 9	2454168.650405	3 36 35.0	p23 10 (119)	3 51 (s24)	8 25 (239)										
2007 Mar 10	2454169.682834	4 23 16.9	0 18 (125)	4 38 (s20)	8 51 (233)										
2007 Mar 11	2454170.717753	5 13 33.8	1 26 (130)	5 28 (s17)	9 26 (228)										
2007 Mar 12	2454171.755010	6 07 12.9	2 30 (133)	6 22 (s16)	10 12 (226)										
2007 Mar 13	2454172.793936	7 03 16.1	3 26 (133)	7 18 (s16)	11 11 (227)										
2007 Mar 14	2454173.833471	8 00 11.9	4 13 (131)	8 14 (s18)	12 21 (231)										
2007 Mar 15	2454174.872531	8 56 26.7	4 50 (126)	9 11 (s21)	13 40 (237)										



Data	TDT JD	TDT Time			Sorge (Azm)			Trans (Alt)			Tramonta (Azm)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Mar 16	2454175.910422	9	51	00.5	5	20	(118)	10	05	(s26)	15	02	(245)
2007 Mar 17	2454176.947022	10	43	42.7	5	44	(109)	10	58	(s32)	16	26	(255)
2007 Mar 18	2454177.982724	11	35	07.3	6	05	( 99)	11	50	(s39)	17	49	(266)
2007 Mar 19	2454179.018250	12	26	16.8	6	25	( 89)	12	41	(s47)	19	14	(277)
2007 Mar 20	2454180.054459	13	18	25.2	6	45	( 78)	13	33	(s54)	20	39	(288)
2007 Mar 21	2454181.092132	14	12	40.2	7	07	( 68)	14	27	(s61)	22	05	(297)
2007 Mar 22	2454182.131727	15	09	41.2	7	34	( 59)	15	24	(s66)	23	31	(305)
2007 Mar 23	2454183.173082	16	09	14.3	8	08	( 52)	16	23	(s70)	f 0	51	(311)
2007 Mar 24	2454184.215262	17	09	58.6	8	52	( 48)	17	24	(s72)	f 2	01	(313)
2007 Mar 25	2454185.256786	18	09	46.3	9	47	( 47)	18	24	(s72)	f 2	56	(312)
2007 Mar 26	2454186.296223	19	06	33.6	10	53	( 49)	19	21	(s71)	f 3	38	(309)
2007 Mar 27	2454187.332733	19	59	08.1	12	04	( 53)	20	14	(s68)	f 4	09	(303)
2007 Mar 28	2454188.366193	20	47	19.1	13	16	( 60)	21	02	(s63)	f 4	33	(296)
2007 Mar 29	2454189.397001	21	31	40.9	14	26	( 67)	21	46	(s58)	f 4	52	(288)
2007 Mar 30	2454190.425812	22	13	10.2	15	34	( 75)	22	28	(s53)	f 5	08	(280)
2007 Mar 31	2454191.453368	22	52	51.0	16	39	( 84)	23	08	(s47)	f 5	23	(272)
2007 Apr 1	2454192.480411	23	31	47.5	17	43	( 92)	23	47	(s41)	f 5	38	(264)
2007 Apr 3	2454193.507660	0	11	01.8	p18	48	(101)	0	26	(s35)	5	53	(256)
2007 Apr 4	2454194.535793	0	51	32.5	p19	53	(109)	1	06	(s30)	6	10	(248)
2007 Apr 5	2454195.565430	1	34	13.2	p20	59	(116)	1	49	(s25)	6	30	(241)
2007 Apr 6	2454196.597070	2	19	46.8	p22	07	(123)	2	34	(s21)	6	54	(235)
2007 Apr 7	2454197.630978	3	08	36.5	p23	15	(129)	3	23	(s18)	7	26	(230)
2007 Apr 8	2454198.667051	4	00	33.2	0	20	(132)	4	15	(s16)	8	08	(227)
2007 Apr 9	2454199.704728	4	54	48.5	1	18	(134)	5	09	(s16)	9	01	(227)
2007 Apr 10	2454200.743088	5	50	02.8	2	08	(132)	6	04	(s17)	10	05	(229)
2007 Apr 11	2454201.781148	6	44	51.2	2	47	(128)	6	59	(s19)	11	18	(234)
2007 Apr 12	2454202.818222	7	38	14.4	3	19	(122)	7	53	(s24)	12	36	(241)
2007 Apr 13	2454203.854129	8	29	56.7	3	44	(114)	8	44	(s29)	13	56	(250)
2007 Apr 14	2454204.889175	9	20	24.8	4	06	(104)	9	35	(s36)	15	18	(260)
2007 Apr 15	2454205.924031	10	10	36.2	4	26	( 94)	10	25	(s43)	16	40	(271)
2007 Apr 16	2454206.959567	11	01	46.6	4	45	( 84)	11	16	(s50)	18	04	(282)
2007 Apr 17	2454207.996690	11	55	14.0	5	07	( 73)	12	10	(s58)	19	31	(292)
2007 Apr 18	2454209.036097	12	51	58.8	5	31	( 64)	13	06	(s64)	21	00	(302)
2007 Apr 19	2454210.077934	13	52	13.5	6	02	( 56)	14	06	(s69)	22	26	(309)
2007 Apr 20	2454211.121453	14	54	53.6	6	43	( 50)	15	09	(s72)	23	44	(312)
2007 Apr 21	2454212.165031	15	57	38.6	7	35	( 47)	16	12	(s72)	f 0	47	(313)
2007 Apr 22	2454213.206791	16	57	46.8	8	40	( 48)	17	12	(s71)	f 1	35	(310)
2007 Apr 23	2454214.245427	17	53	24.9	9	51	( 52)	18	08	(s69)	f 2	11	(305)
2007 Apr 24	2454215.280548	18	43	59.4	11	04	( 57)	18	58	(s65)	f 2	37	(298)
2007 Apr 25	2454216.312498	19	29	59.8	12	16	( 65)	19	45	(s60)	f 2	58	(291)
2007 Apr 26	2454217.341991	20	12	28.0	13	25	( 73)	20	27	(s54)	f 3	15	(283)
2007 Apr 27	2454218.369860	20	52	35.9	14	31	( 81)	21	07	(s49)	f 3	31	(275)
2007 Apr 28	2454219.396933	21	31	35.0	15	35	( 89)	21	46	(s43)	f 3	45	(266)
2007 Apr 29	2454220.423995	22	10	33.2	16	39	( 98)	22	25	(s37)	f 4	00	(258)
2007 Apr 30	2454221.451780	22	50	33.8	17	44	(106)	23	05	(s32)	f 4	17	(251)
2007 Mag 1	2454222.480955	23	32	34.5	18	50	(114)	23	47	(s27)	f 4	36	(243)
2007 Mag 3	2454223.512065	0	17	22.4	p19	57	(121)	0	32	(s22)	4	59	(237)
2007 Mag 4	2454224.545430	1	05	25.1	p21	05	(127)	1	20	(s19)	5	29	(231)
2007 Mag 5	2454225.580997	1	56	38.1	p22	12	(131)	2	11	(s17)	6	07	(228)
2007 Mag 6	2454226.618237	2	50	15.7	p23	13	(133)	3	05	(s16)	6	56	(227)
2007 Mag 7	2454227.656212	3	44	56.7	0	05	(132)	3	59	(s16)	7	57	(228)
2007 Mag 8	2454228.693871	4	39	10.5	0	47	(129)	4	54	(s19)	9	06	(232)
2007 Mag 9	2454229.730434	5	31	49.5	1	20	(124)	5	46	(s22)	10	21	(239)
2007 Mag 10	2454230.765627	6	22	30.2	1	46	(116)	6	37	(s27)	11	38	(247)
2007 Mag 11	2454231.799689	7	11	33.2	2	08	(108)	7	26	(s33)	12	56	(256)
2007 Mag 12	2454232.833251	7	59	52.9	2	28	( 99)	8	14	(s40)	14	15	(266)
2007 Mag 13	2454233.867184	8	48	44.7	2	47	( 89)	9	03	(s47)	15	35	(277)
2007 Mag 14	2454234.902478	9	39	34.1	3	07	( 78)	9	54	(s54)	16	59	(287)
2007 Mag 15	2454235.940068	10	33	41.9	3	29	( 69)	10	48	(s61)	18	25	(297)
2007 Mag 16	2454236.980551	11	31	59.6	3	57	( 60)	11	46	(s66)	19	53	(305)
2007 Mag 17	2454238.023756	12	34	12.5	4	33	( 53)	12	48	(s70)	21	16	(311)
2007 Mag 18	2454239.068413	13	38	30.8	5	20	( 48)	13	53	(s72)	22	29	(313)
2007 Mag 19	2454240.112423	14	41	53.3	6	21	( 47)	14	56	(s72)	23	25	(311)
2007 Mag 20	2454241.153801	15	41	28.4	7	32	( 50)	15	56	(s70)	f 0	07	(307)
2007 Mag 21	2454242.191499	16	35	45.5	8	47	( 55)	16	50	(s66)	f 0	38	(301)
2007 Mag 22	2454243.225503	17	24	43.4	10	01	( 62)	17	39	(s62)	f 1	01	(293)
2007 Mag 23	2454244.256438	18	09	16.3	11	13	( 70)	18	24	(s56)	f 1	20	(285)
2007 Mag 24	2454245.285187	18	50	40.1	12	21	( 78)	19	05	(s51)	f 1	37	(277)
2007 Mag 25	2454246.312664	19	30	14.1	13	26	( 87)	19	45	(s45)	f 1	52	(269)
2007 Mag 26	2454247.339745	20	09	13.9	14	30	( 95)	20	24	(s39)	f 2	07	(261)
2007 Mag 27	2454248.367246	20	48	50.1	15	34	(104)	21	04	(s34)	f 2	23	(253)
2007 Mag 28	2454249.395921	21	30	07.6	16	40	(111)	21	45	(s28)	f 2	41	(246)
2007 Mag 29	2454250.426421	22	14	02.8	17	47	(119)	22	29	(s24)	f 3	03	(239)
2007 Mag 30	2454251.459202	23	01	15.0	18	55	(125)	23	16	(s20)	f 3	30	(233)
2007 Mag 31	2454252.494369	23	51	53.5	20	02	(130)	f 0	06	(s17)	f 4	06	(229)
2007 Giu 2	2454253.531523	0	45	23.6	p21	06	(133)	1	00	(s16)	4	53	(227)
2007 Giu 3	2454254.569742	1	40	25.7	p22	01	(133)	1	55	(s16)	5	51	(228)
2007 Giu 4	2454255.607848	2	35	18.0	p22	46	(130)	2	50	(s18)	6	58	(231)
2007 Giu 5	2454256.644834	3	28	33.7	p23	22	(125)	3	43	(s21)	8	12	(237)
2007 Giu 6	2454257.680209	4	19	30.0	p23	50	(118)	4	34	(s26)	9	28	(245)

Data	TDT JD	TDT Time			Sorge (Azim)			Trans (Alt)			Tramonta (Azim)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Giu 7	2454258.714055	5	08	14.3	0	13	(110)	5	23	(s31)	10	44	(253)
2007 Giu 8	2454259.746908	5	55	32.9	0	33	(101)	6	10	(s38)	12	01	(263)
2007 Giu 9	2454260.779591	6	42	36.7	0	51	( 92)	6	57	(s45)	13	18	(273)
2007 Giu 10	2454261.813084	7	30	50.5	1	10	( 82)	7	45	(s51)	14	37	(283)
2007 Giu 11	2454262.848403	8	21	42.1	1	31	( 72)	8	36	(s58)	15	59	(293)
2007 Giu 12	2454263.886419	9	16	26.6	1	55	( 63)	9	31	(s64)	17	24	(302)
2007 Giu 13	2454264.927517	10	15	37.5	2	26	( 56)	10	30	(s69)	18	49	(308)
2007 Giu 14	2454265.971157	11	18	28.0	3	07	( 50)	11	33	(s71)	20	06	(312)
2007 Giu 15	2454267.015691	12	22	35.7	4	01	( 47)	12	37	(s72)	21	11	(312)
2007 Giu 16	2454268.058905	13	24	49.4	5	08	( 48)	13	39	(s71)	22	00	(309)
2007 Giu 17	2454269.099050	14	22	38.0	6	24	( 53)	14	37	(s68)	22	36	(303)
2007 Giu 18	2454270.135446	15	15	02.5	7	41	( 59)	15	29	(s64)	23	02	(296)
2007 Giu 19	2454271.168348	16	02	25.3	8	55	( 67)	16	17	(s58)	23	23	(288)
2007 Giu 20	2454272.198513	16	45	51.5	10	06	( 75)	17	01	(s53)	23	41	(280)
2007 Giu 21	2454273.226860	17	26	40.7	11	13	( 84)	17	41	(s47)	23	57	(272)
2007 Giu 22	2454274.254311	18	06	12.4	12	18	( 92)	18	21	(s41)	f 0	12	(264)
2007 Giu 23	2454275.281739	18	45	42.3	13	23	(101)	19	00	(s35)	f 0	27	(256)
2007 Giu 24	2454276.309965	19	26	20.9	14	28	(109)	19	41	(s30)	f 0	45	(248)
2007 Giu 25	2454277.339732	20	09	12.8	15	34	(116)	20	24	(s25)	f 1	05	(241)
2007 Giu 26	2454278.371645	20	55	10.1	16	42	(123)	21	10	(s21)	f 1	31	(235)
2007 Giu 27	2454279.406034	21	44	41.3	17	50	(128)	21	59	(s18)	f 2	03	(230)
2007 Giu 28	2454280.442764	22	37	34.8	18	55	(132)	22	52	(s16)	f 2	46	(227)
2007 Giu 29	2454281.481119	23	32	48.7	19	54	(133)	23	47	(s16)	f 3	41	(227)
2007 Lug 1	2454282.519926	0	28	41.6	p20	43	(131)	0	43	(s17)	4	47	(230)
2007 Lug 2	2454283.557965	1	23	28.2	p21	23	(127)	1	38	(s20)	6	00	(235)
2007 Lug 3	2454284.594426	2	15	58.4	p21	53	(121)	2	30	(s24)	7	17	(242)
2007 Lug 4	2454285.629112	3	05	55.3	p22	18	(113)	3	20	(s30)	8	34	(251)
2007 Lug 5	2454286.662374	3	53	49.1	p22	39	(104)	4	08	(s36)	9	51	(260)
2007 Lug 6	2454287.694923	4	40	41.4	p22	57	( 94)	4	55	(s43)	11	08	(270)
2007 Lug 7	2454288.727670	5	27	50.7	p23	16	( 85)	5	42	(s50)	12	25	(280)
2007 Lug 8	2454289.761603	6	16	42.5	p23	35	( 75)	6	31	(s56)	13	44	(290)
2007 Lug 9	2454290.797651	7	08	37.1	p23	57	( 66)	7	23	(s62)	15	06	(299)
2007 Lug 10	2454291.836459	8	04	30.0	0	25	( 58)	8	19	(s67)	16	29	(306)
2007 Lug 11	2454292.878020	9	04	20.9	1	01	( 52)	9	19	(s71)	17	48	(311)
2007 Lug 12	2454293.921359	10	06	45.4	1	48	( 48)	10	21	(s72)	18	56	(313)
2007 Lug 13	2454294.964647	11	09	05.5	2	49	( 47)	11	23	(s72)	19	51	(311)
2007 Lug 14	2454296.005948	12	08	33.9	4	01	( 50)	12	23	(s69)	20	32	(306)
2007 Lug 15	2454297.044042	13	03	25.3	5	17	( 56)	13	18	(s66)	21	02	(300)
2007 Lug 16	2454298.078683	13	53	18.2	6	34	( 63)	14	08	(s61)	21	26	(292)
2007 Lug 17	2454299.110322	14	38	51.8	7	47	( 72)	14	53	(s55)	21	45	(284)
2007 Lug 18	2454300.139745	15	21	14.0	8	57	( 80)	15	36	(s49)	22	01	(275)
2007 Lug 19	2454301.167828	16	01	40.4	10	04	( 89)	16	16	(s43)	22	17	(267)
2007 Lug 20	2454302.195439	16	41	25.9	11	09	( 98)	16	56	(s37)	22	32	(259)
2007 Lug 21	2454303.223403	17	21	42.0	12	14	(106)	17	36	(s32)	22	49	(251)
2007 Lug 22	2454304.252495	18	03	35.6	13	20	(114)	18	18	(s27)	23	07	(243)
2007 Lug 23	2454305.283397	18	48	05.5	14	27	(121)	19	03	(s23)	23	31	(237)
2007 Lug 24	2454306.316604	19	35	54.6	15	35	(127)	19	50	(s19)	24	00	(232)
2007 Lug 25	2454307.352265	20	27	15.7	16	42	(131)	20	42	(s17)	f 0	38	(228)
2007 Lug 26	2454308.390005	21	21	36.5	17	43	(133)	21	36	(s16)	f 1	28	(227)
2007 Lug 27	2454309.428903	22	17	37.2	18	37	(132)	22	32	(s16)	f 2	30	(228)
2007 Lug 28	2454310.467739	23	13	32.7	19	20	(129)	23	28	(s19)	f 3	42	(233)
2007 Lug 30	2454311.505462	0	07	51.9	p19	54	(123)	0	22	(s23)	4	59	(239)
2007 Lug 31	2454312.541540	0	59	49.0	p20	21	(116)	1	14	(s28)	6	18	(248)
2007 Ago 1	2454313.576039	1	49	29.8	p20	43	(107)	2	04	(s34)	7	37	(257)
2007 Ago 2	2454314.609484	2	37	39.4	p21	03	( 97)	2	52	(s41)	8	56	(267)
2007 Ago 3	2454315.642671	3	25	26.8	p21	22	( 88)	3	40	(s48)	10	14	(278)
2007 Ago 4	2454316.676516	4	14	11.0	p21	41	( 78)	4	29	(s54)	11	34	(287)
2007 Ago 5	2454317.711915	5	05	09.5	p22	02	( 69)	5	20	(s61)	12	55	(297)
2007 Ago 6	2454318.749563	5	59	22.2	p22	27	( 60)	6	14	(s66)	14	17	(304)
2007 Ago 7	2454319.789670	6	57	07.5	p23	00	( 53)	7	11	(s70)	15	36	(310)
2007 Ago 8	2454320.831667	7	57	36.0	p23	42	( 49)	8	12	(s72)	16	47	(313)
2007 Ago 9	2454321.874168	8	58	48.1	0	37	( 47)	9	13	(s72)	17	45	(312)
2007 Ago 10	2454322.915442	9	58	14.1	1	44	( 49)	10	12	(s71)	18	30	(308)
2007 Ago 11	2454323.954135	10	53	57.2	2	58	( 53)	11	08	(s67)	19	03	(302)
2007 Ago 12	2454324.989696	11	45	09.7	4	15	( 60)	12	00	(s63)	19	29	(295)
2007 Ago 13	2454326.022299	12	32	06.7	5	29	( 68)	12	47	(s58)	19	49	(287)
2007 Ago 14	2454327.052546	13	15	40.0	6	40	( 77)	13	30	(s52)	20	06	(279)
2007 Ago 15	2454328.081207	13	56	56.3	7	48	( 85)	14	12	(s46)	20	22	(270)
2007 Ago 16	2454329.109088	14	37	05.2	8	55	( 94)	14	52	(s40)	20	37	(262)
2007 Ago 17	2454330.136969	15	17	14.1	10	00	(103)	15	32	(s34)	20	53	(254)
2007 Ago 18	2454331.165592	15	58	27.1	11	06	(111)	16	13	(s29)	21	11	(246)
2007 Ago 19	2454332.195630	16	41	42.4	12	12	(118)	16	56	(s24)	21	32	(239)
2007 Ago 20	2454333.227629	17	27	47.1	13	20	(125)	17	42	(s20)	21	58	(234)
2007 Ago 21	2454334.261891	18	17	07.4	14	27	(130)	18	32	(s17)	22	32	(229)
2007 Ago 22	2454335.298322	19	09	35.0	15	30	(133)	19	24	(s16)	23	16	(227)
2007 Ago 23	2454336.336337	20	04	19.6	16	27	(133)	20	19	(s16)	f 0	12	(227)
2007 Ago 24	2454337.374959	20	59	56.5	17	14	(131)	21	14	(s17)	f 1	20	(230)
2007 Ago 25	2454338.413143	21	54	55.6	17	52	(126)	22	09	(s21)	f 2	35	(236)
2007 Ago 26	2454339.450162	22	48	14.0	18	21	(119)	23	03	(s25)	f 3	54	(244)
2007 Ago 27	2454340.485814	23	39	34.3	18	46	(111)	23	54	(s31)	f 5	14	(253)

Data	TDT JD	TDT Time			Sorge (Azim)			Trans (Alt)			Tramonta (Azim)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Ago 29	2454341.520394	0	29	22.0	p19	07	(102)	0	44	(s38)	6	35	(263)
2007 Ago 30	2454342.554548	1	18	32.9	p19	26	( 92)	1	33	(s45)	7	55	(274)
2007 Ago 31	2454343.589104	2	08	18.6	p19	45	( 82)	2	23	(s52)	9	17	(284)
2007 Set 1	2454344.624918	2	59	52.9	p20	06	( 72)	3	14	(s59)	10	40	(294)
2007 Set 2	2454345.662682	3	54	15.7	p20	31	( 63)	4	09	(s64)	12	04	(302)
2007 Set 3	2454346.702664	4	51	50.2	p21	01	( 55)	5	06	(s69)	13	25	(309)
2007 Set 4	2454347.744431	5	51	58.8	p21	41	( 50)	6	06	(s72)	14	40	(312)
2007 Set 5	2454348.786774	6	52	57.2	p22	32	( 47)	7	07	(s72)	15	42	(313)
2007 Set 6	2454349.828092	7	52	27.1	p23	35	( 48)	8	07	(s71)	16	30	(310)
2007 Set 7	2454350.867047	8	48	32.8	0	46	( 52)	9	03	(s69)	17	06	(305)
2007 Set 8	2454351.903007	9	40	19.8	2	01	( 58)	9	55	(s65)	17	33	(298)
2007 Set 9	2454352.936045	10	27	54.3	3	15	( 65)	10	42	(s60)	17	54	(290)
2007 Set 10	2454353.966676	11	12	00.8	4	26	( 73)	11	27	(s54)	18	12	(282)
2007 Set 11	2454354.995613	11	53	41.0	5	35	( 82)	12	08	(s48)	18	28	(273)
2007 Set 12	2454356.023615	12	34	00.3	6	41	( 91)	12	49	(s42)	18	44	(265)
2007 Set 13	2454357.051421	13	14	02.8	7	47	( 99)	13	29	(s36)	18	59	(257)
2007 Set 14	2454358.079729	13	54	48.6	8	53	(108)	14	10	(s31)	19	16	(249)
2007 Set 15	2454359.109172	14	37	12.5	9	59	(115)	14	52	(s26)	19	36	(242)
2007 Set 16	2454360.140272	15	21	59.5	11	06	(122)	15	37	(s22)	20	00	(236)
2007 Set 17	2454361.173356	16	09	38.0	12	13	(128)	16	24	(s18)	20	30	(231)
2007 Set 18	2454362.208443	17	00	09.5	13	17	(132)	17	15	(s16)	21	09	(228)
2007 Set 19	2454363.245151	17	53	01.0	14	16	(133)	18	07	(s16)	21	59	(227)
2007 Set 20	2454364.282736	18	47	08.4	15	06	(132)	19	01	(s17)	23	00	(229)
2007 Set 21	2454365.320309	19	41	14.7	15	47	(129)	19	56	(s19)	f 0	11	(233)
2007 Set 22	2454366.357153	20	34	18.0	16	20	(123)	20	49	(s23)	f 1	27	(240)
2007 Set 23	2454367.392955	21	25	51.3	16	46	(115)	21	40	(s28)	f 2	46	(248)
2007 Set 24	2454368.427860	22	16	07.1	17	08	(107)	22	31	(s34)	f 4	06	(258)
2007 Set 25	2454369.462394	23	05	50.8	17	28	( 97)	23	20	(s41)	f 5	27	(268)
2007 Set 26	2454370.497321	23	56	08.6	17	48	( 87)	f 0	11	(s48)	f 6	50	(279)
2007 Set 28	2454371.533502	0	48	14.5	p18	09	( 76)	1	03	(s56)	8	15	(289)
2007 Set 29	2454372.571696	1	43	14.6	p18	32	( 67)	1	58	(s62)	9	41	(299)
2007 Set 30	2454373.612284	2	41	41.4	p19	01	( 58)	2	56	(s67)	11	07	(306)
2007 Ott 1	2454374.654922	3	43	05.2	p19	38	( 52)	3	57	(s71)	12	27	(311)
2007 Ott 2	2454375.698386	4	45	40.5	p20	26	( 48)	5	00	(s72)	13	35	(313)
2007 Ott 3	2454376.740921	5	46	55.6	p21	27	( 47)	6	01	(s72)	14	28	(311)
2007 Ott 4	2454377.780986	6	44	37.2	p22	37	( 50)	6	59	(s69)	15	08	(306)
2007 Ott 5	2454378.817816	7	37	39.3	p23	51	( 56)	7	52	(s66)	15	38	(300)
2007 Ott 6	2454379.851449	8	26	05.2	1	05	( 63)	8	41	(s61)	16	00	(293)
2007 Ott 7	2454380.882426	9	10	41.6	2	17	( 71)	9	25	(s56)	16	19	(285)
2007 Ott 8	2454381.911503	9	52	33.8	3	25	( 79)	10	07	(s50)	16	36	(276)
2007 Ott 9	2454382.939476	10	32	50.7	4	32	( 88)	10	48	(s44)	16	51	(268)
2007 Ott 10	2454383.967108	11	12	38.2	5	37	( 96)	11	27	(s38)	17	06	(260)
2007 Ott 11	2454384.995106	11	52	57.2	6	42	(105)	12	08	(s33)	17	23	(252)
2007 Ott 12	2454386.024099	12	34	42.2	7	48	(113)	12	49	(s28)	17	42	(244)
2007 Ott 13	2454387.054603	13	18	37.7	8	55	(120)	13	33	(s23)	18	04	(238)
2007 Ott 14	2454388.086944	14	05	11.9	10	02	(126)	14	20	(s20)	18	32	(232)
2007 Ott 15	2454389.121161	14	54	28.3	11	07	(130)	15	09	(s17)	19	08	(229)
2007 Ott 16	2454390.156924	15	45	58.2	12	07	(133)	16	00	(s16)	19	53	(227)
2007 Ott 17	2454391.193561	16	38	43.7	12	59	(133)	16	53	(s16)	20	49	(228)
2007 Ott 18	2454392.230249	17	31	33.5	13	43	(130)	17	46	(s18)	21	54	(231)
2007 Ott 19	2454393.266292	18	23	27.6	14	17	(125)	18	38	(s21)	23	06	(237)
2007 Ott 20	2454394.301352	19	13	56.8	14	46	(119)	19	28	(s26)	f 0	21	(244)
2007 Ott 21	2454395.335523	20	03	09.2	15	09	(111)	20	18	(s31)	f 1	38	(253)
2007 Ott 22	2454396.369275	20	51	45.4	15	30	(102)	21	06	(s38)	f 2	57	(263)
2007 Ott 23	2454397.403353	21	40	49.7	15	49	( 92)	21	55	(s45)	f 4	17	(273)
2007 Ott 24	2454398.438663	22	31	40.5	16	09	( 82)	22	46	(s52)	f 5	41	(284)
2007 Ott 25	2454399.476128	23	25	37.5	16	31	( 72)	23	40	(s59)	f 7	07	(294)
2007 Ott 27	2454400.516424	0	23	39.0	p16	58	( 62)	0	38	(s65)	8	36	(303)
2007 Ott 28	2454401.559573	1	25	47.1	p17	31	( 55)	1	40	(s69)	10	03	(309)
2007 Ott 29	2454402.604543	2	30	32.6	p18	16	( 49)	2	45	(s72)	11	19	(312)
2007 Ott 30	2454403.649355	3	35	04.3	p19	14	( 47)	3	49	(s72)	12	21	(312)
2007 Ott 31	2454404.691911	4	36	21.1	p20	23	( 49)	4	50	(s70)	13	06	(308)
2007 Nov 1	2454405.730927	5	32	32.1	p21	39	( 54)	5	47	(s67)	13	40	(302)
2007 Nov 2	2454406.766190	6	23	18.8	p22	55	( 61)	6	38	(s63)	14	05	(295)
2007 Nov 3	2454407.798225	7	09	26.6	0	08	( 68)	7	24	(s57)	14	25	(287)
2007 Nov 4	2454408.827873	7	52	08.2	1	17	( 77)	8	07	(s52)	14	43	(279)
2007 Nov 5	2454409.856038	8	32	41.7	2	24	( 85)	8	47	(s46)	14	58	(270)
2007 Nov 6	2454410.883577	9	12	21.1	3	29	( 94)	9	27	(s40)	15	14	(262)
2007 Nov 7	2454411.911275	9	52	14.2	4	34	(102)	10	07	(s34)	15	30	(254)
2007 Nov 8	2454412.939828	10	33	21.1	5	39	(110)	10	48	(s29)	15	48	(247)
2007 Nov 9	2454413.969814	11	16	31.9	6	45	(118)	11	31	(s25)	16	09	(240)
2007 Nov 10	2454415.001627	12	02	20.6	7	52	(124)	12	17	(s21)	16	35	(234)
2007 Nov 11	2454416.035367	12	50	55.7	8	58	(129)	13	05	(s18)	17	09	(230)
2007 Nov 12	2454417.070742	13	41	52.1	10	00	(132)	13	56	(s16)	17	51	(228)
2007 Nov 13	2454418.107075	14	34	11.3	10	55	(133)	14	49	(s16)	18	44	(228)
2007 Nov 14	2454419.143473	15	26	36.1	11	40	(131)	15	41	(s17)	19	46	(230)
2007 Nov 15	2454420.179138	16	17	57.5	12	17	(127)	16	32	(s20)	20	54	(235)
2007 Nov 16	2454421.213626	17	07	37.3	12	47	(121)	17	22	(s24)	22	06	(242)
2007 Nov 17	2454422.246945	17	55	36.1	13	11	(114)	18	10	(s29)	23	20	(250)
2007 Nov 18	2454423.279506	18	42	29.3	13	32	(105)	18	57	(s35)	f 0	35	(259)

Data	TDT JD	TDT Time			Sorge (Azm)			Trans (Alt)			Tramonta (Azm)		
		h	m	s	h	m	ø	h	m	ø	h	m	ø
2007 Nov 19	2454424.312017	19	29	18.3	13	51	( 96)	19	44	(s41)	f	1	51 (269)
2007 Nov 20	2454425.345391	20	17	21.8	14	10	( 86)	20	32	(s48)	f	3	10 (279)
2007 Nov 21	2454426.380651	21	08	08.3	14	30	( 77)	21	23	(s55)	f	4	33 (289)
2007 Nov 22	2454427.418769	22	03	01.6	14	54	( 67)	22	17	(s62)	f	5	59 (298)
2007 Nov 23	2454428.460336	23	02	53.1	15	23	( 59)	23	17	(s67)	f	7	28 (306)
2007 Nov 25	2454429.505046	0	07	15.9	p16	03	( 52)	0	21	(s70)		8	51 (311)
2007 Nov 26	2454430.551301	1	13	52.4	p16	55	( 48)	1	28	(s72)		10	02 (312)
2007 Nov 27	2454431.596630	2	19	08.8	p18	01	( 48)	2	33	(s71)		10	57 (310)
2007 Nov 28	2454432.638866	3	19	58.0	p19	17	( 52)	3	34	(s68)		11	37 (304)
2007 Nov 29	2454433.677039	4	14	56.2	p20	36	( 58)	4	29	(s64)		12	06 (297)
2007 Nov 30	2454434.711321	5	04	18.1	p21	53	( 66)	5	19	(s59)		12	29 (289)
2007 Dic 1	2454435.742504	5	49	12.4	p23	06	( 74)	6	04	(s53)		12	48 (281)
2007 Dic 2	2454436.771575	6	31	04.1	0	14	( 83)	6	46	(s48)		13	04 (273)
2007 Dic 3	2454437.799503	7	11	17.1	1	20	( 91)	7	26	(s42)		13	20 (265)
2007 Dic 4	2454438.827179	7	51	08.3	2	25	(100)	8	06	(s36)		13	36 (257)
2007 Dic 5	2454439.855401	8	31	46.7	3	30	(108)	8	47	(s31)		13	53 (249)
2007 Dic 6	2454440.884858	9	14	11.7	4	36	(115)	9	29	(s26)		14	13 (242)
2007 Dic 7	2454441.916074	9	59	08.8	5	42	(122)	10	14	(s22)		14	38 (236)
2007 Dic 8	2454442.949307	10	47	00.2	6	49	(127)	11	02	(s19)		15	09 (231)
2007 Dic 9	2454443.984420	11	37	33.9	7	52	(131)	11	52	(s17)		15	49 (228)
2007 Dic 10	2454445.020817	12	29	58.6	8	50	(132)	12	44	(s16)		16	39 (228)
2007 Dic 11	2454446.057559	13	22	53.1	9	39	(131)	13	37	(s17)		17	39 (229)
2007 Dic 12	2454447.093676	14	14	53.6	10	18	(128)	14	29	(s19)		18	46 (234)
2007 Dic 13	2454448.128501	15	05	02.5	10	50	(123)	15	20	(s23)		19	58 (240)
2007 Dic 14	2454449.161846	15	53	03.5	11	15	(116)	16	08	(s28)		21	10 (247)
2007 Dic 15	2454450.193982	16	39	20.0	11	36	(108)	16	54	(s33)		22	23 (256)
2007 Dic 16	2454451.225520	17	24	44.9	11	55	( 99)	17	39	(s39)		23	37 (265)
2007 Dic 17	2454452.257304	18	10	31.0	12	13	( 90)	18	25	(s46)	f	0	51 (275)
2007 Dic 18	2454453.290319	18	58	03.6	12	32	( 80)	19	13	(s53)	f	2	09 (285)
2007 Dic 19	2454454.325610	19	48	52.7	12	53	( 71)	20	03	(s59)	f	3	31 (294)
2007 Dic 20	2454455.364087	20	44	17.1	13	19	( 62)	20	59	(s65)	f	4	56 (303)
2007 Dic 21	2454456.406148	21	44	51.1	13	52	( 55)	21	59	(s69)	f	6	20 (309)
2007 Dic 22	2454457.451146	22	49	39.1	14	37	( 50)	23	04	(s71)	f	7	37 (312)
2007 Dic 23	2454458.497170	23	55	55.5	15	36	( 48)	f	0	10 (s72)	f	8	41 (311)
2007 Dic 25	2454459.541707	1	00	03.5	p16	48	( 50)	1	14	(s70)		9	28 (307)
2007 Dic 26	2454460.582868	1	59	19.8	p18	08	( 55)	2	14	(s66)		10	03 (301)
2007 Dic 27	2454461.620024	2	52	50.1	p19	28	( 62)	3	07	(s61)		10	29 (293)
2007 Dic 28	2454462.653556	3	41	07.3	p20	45	( 71)	3	56	(s56)		10	50 (285)
2007 Dic 29	2454463.684334	4	25	26.5	p21	58	( 79)	4	40	(s50)		11	08 (276)
2007 Dic 30	2454464.713349	5	07	13.4	p23	07	( 88)	5	22	(s44)		11	24 (267)
2007 Dic 31	2454465.741555	5	47	50.4	0	13	( 97)	6	03	(s38)		11	40 (259)
2008 Gen 1	2454466.769824	6	28	32.8	1	19	(105)	6	43	(s32)		11	57 (251)

p = l'evento accade il giorno precedente  
f = l'evento accade il giorno seguente

© (1)

# VISIBILITA' DELLA LUNA

first and last visibility of the Moon in 2007

location : Rovereto (Italy)

latitude : 46° 00' 00'' N

longitude: 11° 00' 00'' E

visibility arc: 8°

factor : 0.33

	date	sun r/s	moon r/s	d r/s	moon phs	moon age	period
last visibility	2007-01-17	07:53	06:58	-0:54h	4.5%	-45:08h	
first visibility	2007-01-20	17:03	18:40	1:37h	3.0%	36:01h	29
last visibility	2007-02-16	07:17	06:54	-0:23h	2.8%	-33:57h	
first visibility	2007-02-18	17:45	18:58	1:13h	1.5%	24:30h	29
last visibility	2007-03-17	06:25	05:43	-0:42h	5.2%	-45:17h	
first visibility	2007-03-19	18:26	19:14	0:47h	0.6%	14:42h	29
last visibility	2007-04-16	05:29	04:44	-0:44h	2.6%	-31:08h	
first visibility	2007-04-18	19:06	21:00	1:53h	2.6%	30:29h	30
last visibility	2007-05-16	04:43	03:56	-0:46h	0.8%	-15:45h	
first visibility	2007-05-17	19:43	21:16	1:33h	1.6%	23:15h	29
last visibility	2007-06-14	04:24	03:07	-1:17h	1.6%	-23:49h	
first visibility	2007-06-15	20:08	21:10	1:02h	0.8%	15:54h	29
last visibility	2007-07-13	04:37	02:48	-1:48h	2.5%	-32:27h	
first visibility	2007-07-15	20:03	21:02	0:58h	2.0%	30:59h	30
last visibility	2007-08-12	05:11	04:14	-0:56h	0.7%	-18:52h	
first visibility	2007-08-14	19:27	20:06	0:39h	3.4%	43:23h	30
last visibility	2007-09-10	05:47	04:26	-1:20h	1.8%	-31:58h	
first visibility	2007-09-13	18:32	18:58	0:26h	4.6%	52:46h	30
last visibility	2007-10-10	06:25	05:37	-0:48h	0.9%	-23:36h	
first visibility	2007-10-13	17:34	18:03	0:28h	5.6%	59:32h	30
last visibility	2007-11-08	07:05	05:39	-1:26h	2.7%	-40:58h	
first visibility	2007-11-12	16:48	17:50	1:02h	6.6%	64:43h	30
last visibility	2007-12-08	07:44	06:49	-0:55h	2.1%	-34:56h	
first visibility	2007-12-11	16:30	17:39	1:08h	3.5%	45:49h	29

Legenda:

First visibility : primo giorno di visibilità serale dopo la congiunzione con il Sole

Last visibility: ultimo giorno di visibilità mattutina prima della congiunzione con il Sole

Sun r/s : ora del tramonto o della levata del Sole

Moon r/s : ora del tramonto o della levata della Luna

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

Moon phs : fase lunare

Moon age : età della Luna

	date	sun r/s	moon r/s	sun lon	moon lon	moon lat	moon alt	moon phs	d az	d lon
L vis	2007-01-17	07:53	06:58	296° 46'	272° 50'	-4° 56'	5° 26'	4.5%	23° 25'	-23° 56'
F vis	2007-01-20	17:03	18:40	300° 13'	319° 59'	-2° 20'	12° 27'	3.0%	-14° 06'	19° 47'
L vis	2007-02-16	07:17	06:54	327° 11'	308° 07'	-3° 15'	2° 44'	2.8%	18° 52'	-19° 05'
F vis	2007-02-18	17:45	18:58	329° 39'	343° 42'	-0° 13'	10° 43'	1.5%	-6° 33'	14° 04'
L vis	2007-03-17	06:25	05:43	356° 14'	329° 57'	-1° 29'	5° 58'	5.2%	25° 14'	-26° 17'
F vis	2007-03-19	18:26	19:14	358° 44'	7° 25'	1° 55'	7° 04'	0.6%	-1° 34'	8° 41'
L vis	2007-04-16	05:29	04:44	25° 49'	7° 21'	1° 55'	6° 48'	2.6%	16° 32'	-18° 28'
F vis	2007-04-18	19:06	21:00	28° 20'	46° 25'	4° 31'	16° 27'	2.6%	-4° 03'	18° 06'
L vis	2007-05-16	04:43	03:56	54° 55'	45° 40'	4° 28'	6° 22'	0.8%	6° 21'	-9° 15'
F vis	2007-05-17	19:43	21:16	56° 29'	70° 02'	5° 01'	12° 05'	1.6%	-4° 04'	13° 33'
L vis	2007-06-14	04:24	03:07	82° 44'	69° 13'	5° 01'	10° 05'	1.6%	8° 17'	-13° 31'
F vis	2007-06-15	20:08	21:10	84° 19'	93° 13'	4° 37'	7° 34'	0.8%	-3° 47'	8° 54'
L vis	2007-07-13	04:37	02:48	110° 24'	92° 55'	4° 39'	14° 15'	2.5%	8° 34'	-17° 29'
F vis	2007-07-15	20:03	21:02	112° 55'	129° 07'	2° 28'	8° 22'	2.0%	-12° 59'	16° 11'
L vis	2007-08-12	05:11	04:14	139° 06'	129° 38'	2° 26'	7° 44'	0.7%	2° 42'	-9° 28'
F vis	2007-08-14	19:27	20:06	141° 36'	162° 47'	-0° 32'	6° 04'	3.4%	-19° 48'	21° 11'
L vis	2007-09-10	05:47	04:26	167° 07'	151° 54'	0° 29'	12° 29'	1.8%	5° 42'	-15° 13'
F vis	2007-09-13	18:32	18:58	170° 33'	195° 04'	-3° 15'	3° 53'	4.6%	-24° 08'	24° 31'
L vis	2007-10-10	06:25	05:37	196° 32'	185° 45'	-2° 31'	7° 14'	0.9%	6° 41'	-10° 47'
F vis	2007-10-13	17:34	18:03	199° 58'	226° 58'	-4° 51'	3° 33'	5.6%	-26° 57'	27° 00'
L vis	2007-11-08	07:05	05:39	225° 27'	206° 56'	-3° 59'	11° 57'	2.7%	13° 17'	-18° 31'
F vis	2007-11-12	16:48	17:50	229° 52'	259° 21'	-4° 49'	6° 24'	6.6%	-28° 48'	29° 28'
L vis	2007-12-08	07:44	06:49	255° 47'	239° 47'	-5° 00'	6° 10'	2.1%	14° 53'	-16° 00'
F vis	2007-12-11	16:30	17:39	259° 12'	280° 34'	-3° 50'	7° 06'	3.5%	-19° 55'	21° 21'

Legenda:

Sun lon : longitudine celeste del Sole

Moon lon : longitudine celeste della Luna

Moon lat : latitudine celeste della Luna

Moon alt : altitudine della Luna sull'orizzonte quando il Sole è sull'orizzonte

Moon phs : fase lunare

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

first and last visibility of the Moon in 2007

location : Rovereto (Italy)  
 latitude : 46° 00' 00'' N  
 longitude: 11° 00' 00'' E  
 visibility arc: 4°  
 factor : 0.33

	date	sun r/s	moon r/s	d r/s	moon phs	moon age	period
last visibility	2007-01-17	07:53	06:58	-0:54h	4.5%	-45:08h	
first visibility	2007-01-20	17:03	18:40	1:37h	3.0%	36:01h	30
last visibility	2007-02-16	07:17	06:54	-0:23h	2.8%	-33:57h	
first visibility	2007-02-18	17:45	18:58	1:13h	1.5%	24:30h	29
last visibility	2007-03-18	06:24	06:04	-0:19h	1.2%	-21:19h	
first visibility	2007-03-19	18:26	19:14	0:47h	0.6%	14:42h	29
last visibility	2007-04-17	05:27	05:05	-0:21h	0.2%	-7:09h	
first visibility	2007-04-17	19:04	19:31	0:26h	0.2%	6:27h	29
last visibility	2007-05-16	04:43	03:56	-0:46h	0.8%	-15:45h	
first visibility	2007-05-17	19:43	21:16	1:33h	1.6%	23:15h	30
last visibility	2007-06-14	04:24	03:07	-1:17h	1.6%	-23:49h	
first visibility	2007-06-15	20:08	21:10	1:02h	0.8%	15:54h	29
last visibility	2007-07-14	04:38	04:00	-0:38h	0.3%	-8:26h	
first visibility	2007-07-14	20:04	20:31	0:27h	0.2%	6:59h	29
last visibility	2007-08-12	05:11	04:14	-0:56h	0.7%	-18:52h	
first visibility	2007-08-13	19:28	19:48	0:19h	0.7%	19:25h	30
last visibility	2007-09-10	05:47	04:26	-1:20h	1.8%	-31:58h	
first visibility	2007-09-12	18:34	18:43	0:09h	1.4%	28:48h	30
last visibility	2007-10-10	06:25	05:37	-0:48h	0.9%	-23:36h	
first visibility	2007-10-12	17:36	17:41	0:04h	2.1%	35:34h	30
last visibility	2007-11-09	07:07	06:45	-0:22h	0.6%	-16:57h	
first visibility	2007-11-11	16:49	17:08	0:18h	2.8%	40:45h	30
last visibility	2007-12-08	07:44	06:49	-0:55h	2.1%	-34:56h	
first visibility	2007-12-10	16:30	16:38	0:08h	0.9%	21:49h	29

Legenda:

First visibility : primo giorno di visibilità serale dopo la congiunzione con il Sole

Last visibility: ultimo giorno di visibilità mattutina prima della congiunzione con il Sole

Sun r/s : ora del tramonto o della levata del Sole

Moon r/s : ora del tramonto o della levata della Luna

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

Moon phs : fase lunare

Moon age : età della Luna

	date	sun r/s	moon r/s	sun lon	moon lon	moon lat	moon alt	moon phs	d az	d lon
L vis	2007-01-17	07:53	06:58	296° 46'	272° 50'	-4° 56'	5° 26'	4.5%	23° 25'	-23° 56'
F vis	2007-01-20	17:03	18:40	300° 13'	319° 59'	-2° 20'	12° 27'	3.0%	-14° 06'	19° 47'
L vis	2007-02-16	07:17	06:54	327° 11'	308° 07'	-3° 15'	2° 44'	2.8%	18° 52'	-19° 05'
F vis	2007-02-18	17:45	18:58	329° 39'	343° 42'	-0° 13'	10° 43'	1.5%	-6° 33'	14° 04'
L vis	2007-03-18	06:24	06:04	357° 14'	344° 45'	-0° 08'	2° 40'	1.2%	11° 44'	-12° 29'
F vis	2007-03-19	18:26	19:14	358° 44'	7° 25'	1° 55'	7° 04'	0.6%	-1° 34'	8° 41'
L vis	2007-04-17	05:27	05:05	26° 48'	22° 32'	3° 07'	2° 52'	0.2%	2° 48'	-4° 15'
F vis	2007-04-17	19:04	19:31	27° 21'	31° 12'	3° 42'	3° 30'	0.2%	1° 38'	3° 51'
L vis	2007-05-16	04:43	03:56	54° 55'	45° 40'	4° 28'	6° 22'	0.8%	6° 21'	-9° 15'
F vis	2007-05-17	19:43	21:16	56° 29'	70° 02'	5° 01'	12° 05'	1.6%	-4° 04'	13° 33'
L vis	2007-06-14	04:24	03:07	82° 44'	69° 13'	5° 01'	10° 05'	1.6%	8° 17'	-13° 31'
F vis	2007-06-15	20:08	21:10	84° 19'	93° 13'	4° 37'	7° 34'	0.8%	-3° 47'	8° 54'
L vis	2007-07-14	04:38	04:00	111° 21'	106° 52'	3° 59'	4° 23'	0.3%	0° 03'	-4° 29'
F vis	2007-07-14	20:04	20:31	111° 58'	115° 41'	3° 27'	3° 16'	0.2%	-1° 31'	3° 43'
L vis	2007-08-12	05:11	04:14	139° 06'	129° 38'	2° 26'	7° 44'	0.7%	2° 42'	-9° 28'
F vis	2007-08-13	19:28	19:48	140° 38'	150° 14'	0° 38'	2° 47'	0.7%	-8° 35'	9° 36'
L vis	2007-09-10	05:47	04:26	167° 07'	151° 54'	0° 29'	12° 29'	1.8%	5° 42'	-15° 13'
F vis	2007-09-12	18:34	18:43	169° 35'	183° 03'	-2° 19'	1° 13'	1.4%	-13° 25'	13° 28'
L vis	2007-10-10	06:25	05:37	196° 32'	185° 45'	-2° 31'	7° 14'	0.9%	6° 41'	-10° 47'
F vis	2007-10-12	17:36	17:41	198° 58'	215° 08'	-4° 24'	0° 29'	2.1%	-16° 39'	16° 10'
L vis	2007-11-09	07:07	06:45	226° 27'	218° 48'	-4° 31'	2° 38'	0.6%	7° 53'	-7° 39'
F vis	2007-11-11	16:49	17:08	228° 52'	247° 22'	-5° 00'	1° 56'	2.8%	-18° 51'	18° 30'
L vis	2007-12-08	07:44	06:49	255° 47'	239° 47'	-5° 00'	6° 10'	2.1%	14° 53'	-16° 00'
F vis	2007-12-10	16:30	16:38	258° 11'	268° 18'	-4° 26'	0° 40'	0.9%	-10° 52'	10° 07'

Legenda:

Sun lon : longitudine celeste del Sole

Moon lon : longitudine celeste della Luna

Moon lat : latitudine celeste della Luna

Moon alt : altitudine della Luna sull'orizzonte quando il Sole è sull'orizzonte

Moon phs : fase lunare

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

first and last visibility of the Moon in 2007

location : Rovereto (Italy)  
 latitude : 46° 00' 00'' N  
 longitude: 11° 00' 00'' E  
 visibility arc: 0°  
 factor : 0.33

	date	sun r/s	moon r/s	d r/s	moon phs	moon age	period
last visibility	2007-01-18	07:52	07:47	-0:04h	1.1%	-21:09h	
first visibility	2007-01-19	17:02	17:17	0:15h	0.4%	12:00h	29
last visibility	2007-02-16	07:17	06:54	-0:23h	2.8%	-33:57h	
first visibility	2007-02-18	17:45	18:58	1:13h	1.5%	24:30h	30
last visibility	2007-03-18	06:24	06:04	-0:19h	1.2%	-21:19h	
first visibility	2007-03-19	18:26	19:14	0:47h	0.6%	14:42h	29
last visibility	2007-04-17	05:27	05:05	-0:21h	0.2%	-7:09h	
first visibility	2007-04-17	19:04	19:31	0:26h	0.2%	6:27h	29
last visibility	2007-05-17	04:41	04:32	-0:09h	0.4%	8:13h	
first visibility	2007-05-17	19:43	21:16	1:33h	1.6%	23:15h	30
last visibility	2007-06-15	04:24	04:00	-0:23h	0.2%	0:10h	
first visibility	2007-06-15	20:08	21:10	1:02h	0.8%	15:54h	29
last visibility	2007-07-14	04:38	04:00	-0:38h	0.3%	-8:26h	
first visibility	2007-07-14	20:04	20:31	0:27h	0.2%	6:59h	29
last visibility	2007-08-12	05:11	04:14	-0:56h	0.7%	-18:52h	
first visibility	2007-08-13	19:28	19:48	0:19h	0.7%	19:25h	30
last visibility	2007-09-11	05:48	05:34	-0:13h	0.1%	-7:56h	
first visibility	2007-09-12	18:34	18:43	0:09h	1.4%	28:48h	30
last visibility	2007-10-10	06:25	05:37	-0:48h	0.9%	-23:36h	
first visibility	2007-10-12	17:36	17:41	0:04h	2.1%	35:34h	30
last visibility	2007-11-09	07:07	06:45	-0:22h	0.6%	-16:57h	
first visibility	2007-11-11	16:49	17:08	0:18h	2.8%	40:45h	30
last visibility	2007-12-08	07:44	06:49	-0:55h	2.1%	-34:56h	
first visibility	2007-12-10	16:30	16:38	0:08h	0.9%	21:49h	29

Legenda:

First visibility : primo giorno di visibilità serale dopo la congiunzione con il Sole

Last visibility: ultimo giorno di visibilità mattutina prima della congiunzione con il Sole

Sun r/s : ora del tramonto o della levata del Sole

Moon r/s : ora del tramonto o della levata della Luna

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

Moon phs : fase lunare

Moon age : età della Luna

	date	sun r/s	moon r/s	sun lon	moon lon	moon lat	moon alt	moon phs	d az	d lon
L vis	2007-01-18	07:52	07:47	297° 47'	286° 26'	-4° 28'	0° 11'	1.1%	12° 06'	-11° 21'
F vis	2007-01-19	17:02	17:17	299° 12'	305° 44'	-3° 23'	1° 37'	0.4%	-6° 41'	6° 33'
L vis	2007-02-16	07:17	06:54	327° 11'	308° 07'	-3° 15'	2° 44'	2.8%	18° 52'	-19° 05'
F vis	2007-02-18	17:45	18:58	329° 39'	343° 42'	-0° 13'	10° 43'	1.5%	-6° 33'	14° 04'
L vis	2007-03-18	06:24	06:04	357° 14'	344° 45'	-0° 08'	2° 40'	1.2%	11° 44'	-12° 29'
F vis	2007-03-19	18:26	19:14	358° 44'	7° 25'	1° 55'	7° 04'	0.6%	-1° 34'	8° 41'
L vis	2007-04-17	05:27	05:05	26° 48'	22° 32'	3° 07'	2° 52'	0.2%	2° 48'	-4° 15'
F vis	2007-04-17	19:04	19:31	27° 21'	31° 12'	3° 42'	3° 30'	0.2%	1° 38'	3° 51'
L vis	2007-05-17	04:41	04:32	55° 53'	60° 43'	4° 55'	0° 50'	0.4%	-6° 30'	4° 49'
F vis	2007-05-17	19:43	21:16	56° 29'	70° 02'	5° 01'	12° 05'	1.6%	-4° 04'	13° 33'
L vis	2007-06-15	04:24	04:00	83° 41'	83° 47'	4° 53'	2° 21'	0.2%	-2° 54'	0° 06'
F vis	2007-06-15	20:08	21:10	84° 19'	93° 13'	4° 37'	7° 34'	0.8%	-3° 47'	8° 54'
L vis	2007-07-14	04:38	04:00	111° 21'	106° 52'	3° 59'	4° 23'	0.3%	0° 03'	-4° 29'
F vis	2007-07-14	20:04	20:31	111° 58'	115° 41'	3° 27'	3° 16'	0.2%	-1° 31'	3° 43'
L vis	2007-08-12	05:11	04:14	139° 06'	129° 38'	2° 26'	7° 44'	0.7%	2° 42'	-9° 28'
F vis	2007-08-13	19:28	19:48	140° 38'	150° 14'	0° 38'	2° 47'	0.7%	-8° 35'	9° 36'
L vis	2007-09-11	05:48	05:34	168° 05'	164° 20'	-0° 40'	1° 45'	0.1%	2° 06'	-3° 45'
F vis	2007-09-12	18:34	18:43	169° 35'	183° 03'	-2° 19'	1° 13'	1.4%	-13° 25'	13° 28'
L vis	2007-10-10	06:25	05:37	196° 32'	185° 45'	-2° 31'	7° 14'	0.9%	6° 41'	-10° 47'
F vis	2007-10-12	17:36	17:41	198° 58'	215° 08'	-4° 24'	0° 29'	2.1%	-16° 39'	16° 10'
L vis	2007-11-09	07:07	06:45	226° 27'	218° 48'	-4° 31'	2° 38'	0.6%	7° 53'	-7° 39'
F vis	2007-11-11	16:49	17:08	228° 52'	247° 22'	-5° 00'	1° 56'	2.8%	-18° 51'	18° 30'
L vis	2007-12-08	07:44	06:49	255° 47'	239° 47'	-5° 00'	6° 10'	2.1%	14° 53'	-16° 00'
F vis	2007-12-10	16:30	16:38	258° 11'	268° 18'	-4° 26'	0° 40'	0.9%	-10° 52'	10° 07'

Legenda:

Sun lon : longitudine celeste del Sole

Moon lon : longitudine celeste della Luna

Moon lat : latitudine celeste della Luna

Moon alt : altitudine della Luna sull'orizzonte quando il Sole è sull'orizzonte

Moon phs : fase lunare

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

# CONGIUNZIONI GEOCENTRICHE <2° LUNA-PIANETI

Data	TDT	Dm (ø)	Dl	r1	r2	e	m1	m2	tm(s)	tw(h)		
2007/01/06	19:06:18	0.82611	1.17733	8.39	0.00	-142	0.1		2508	3.7	Saturno	Luna
2007/01/19	19:08:05	1.22939	1.25208	1.34	0.00	9	-1.1	-6.2	706.1	3.3	Mercurio	Luna
2007/01/20	17:26:11	0.69400	1.26117	1.56	0.00	21	-3.9	-8.0	2989	3.6	Venere	Luna
2007/01/22	05:27:08	0.33814	1.26750	20.82	0.00	41	5.9	-9.4	3142	3.5	Urano	Luna
2007/02/02	23:42:37	0.83309	1.17646	8.21	0.00	-171	0.1		2472	3.7	Saturno	Luna
2007/02/18	16:54:11	0.52175	1.28550	21.04	0.00	14	5.9	-7.2	2934	3.3	Urano	Luna
2007/03/02	02:22:17	0.99479	1.17215	8.26	0.00	159	0.1		1862	3.6	Saturno	Luna
2007/03/16	02:41:36	1.74200	1.25773	2.01	0.00	-41	1.0	-9.4		2.1	Marte	Luna
2007/03/16	14:36:25	2.02734	1.26782	30.86	0.00	-35	8.0	-9.1		0.9	Nettuno	Luna
2007/03/17	04:10:15	1.23361	1.27545	0.84	0.00	-27	0.3	-8.6	863.4	2.9	Mercurio	Luna
2007/03/18	06:21:35	0.66269	1.29202	21.06	0.00	-12	5.9	-6.8	2744	3.2	Urano	Luna
2007/03/29	05:06:34	1.10592	1.17182	8.52	0.00	130	0.2		1173	3.5	Saturno	Luna
2007/04/13	01:34:49	1.87339	1.25147	30.52	0.00	-61	7.9			1.6	Nettuno	Luna
2007/04/14	01:28:25	0.45926	1.26933	1.86	0.00	-48	0.9	-9.7	3203	3.6	Marte	Luna
2007/04/14	19:27:38	0.85131	1.28259	20.88	0.00	-37	5.9	-9.2	2413	3.1	Urano	Luna
2007/04/25	10:24:31	1.02019	1.17941	8.92	0.00	103	0.3		1782	3.6	Saturno	Luna
2007/05/10	09:42:05	1.62882	1.23351	30.08	0.00	-87	7.9			2.3	Nettuno	Luna
2007/05/12	06:09:00	1.12802	1.26394	20.53	0.00	-63	5.9		1479	3.0	Urano	Luna
2007/05/20	01:40:25	1.64211	1.24031	0.87	0.00	44	-4.1	-9.5		2.5	Venere	Luna
2007/05/22	19:34:27	0.73685	1.19087	9.37	0.00	78	0.4		2771	3.8	Saturno	Luna
2007/06/06	15:22:07	1.37183	1.22493	29.63	0.00	-114	7.9			2.8	Nettuno	Luna
2007/06/08	13:43:08	1.44236	1.24838	20.09	0.00	-89	5.8			2.6	Urano	Luna
2007/06/18	15:12:06	0.53605	1.20863	0.63	0.00	45	-4.4	-9.5	3318	4.0	Venere	Luna
2007/06/19	08:07:50	0.35153	1.19887	9.78	0.00	53	0.5	-9.8	3347	3.9	Saturno	Luna
2007/07/03	20:18:35	1.20589	1.22918	29.26	0.00	-140	7.8		647.7	3.0	Nettuno	Luna
2007/07/05	19:07:13	1.68984	1.24552	19.65	0.00	-115	5.8			2.2	Urano	Luna
2007/07/16	22:33:13	0.03779	1.19919	10.09	0.00	30	0.5	-8.6	3489	3.9	Saturno	Luna
2007/07/31	02:20:02	1.18004	1.24045	29.06	0.00	-167	7.8		1018	3.0	Nettuno	Luna
2007/08/02	00:19:43	1.78616	1.25590	19.29	0.00	-141	5.7			1.9	Urano	Luna
2007/08/12	16:16:46	0.20748	1.19962	1.33	0.00	-4	-1.7	-4.3	3994	4.6	Mercurio	Luna
2007/08/13	13:12:15	0.39144	1.19254	10.23	0.00	7	0.6	-5.4	3309	3.9	Saturno	Luna
2007/08/27	10:12:39	1.24530	1.24804	29.06	0.00	166	7.8		217.6	2.9	Nettuno	Luna
2007/08/29	07:01:00	1.73273	1.27034	19.10	0.00	-168	5.7			2.0	Urano	Luna
2007/09/10	02:51:26	0.73650	1.18309	10.20	0.00	-16	0.6	-7.3	2765	3.8	Saturno	Luna
2007/09/23	19:21:33	1.27777	1.24358	29.28	0.00	139	7.8			2.9	Nettuno	Luna
2007/09/25	15:31:15	1.63404	1.27586	19.13	0.00	164	5.7			2.2	Urano	Luna
2007/10/07	14:55:36	1.13262	1.17644	9.99	0.00	-40	0.5	-9.2	963.0	3.5	Saturno	Luna
2007/10/13	00:24:58	1.20629	1.14216	0.76	0.00	20	0.4	-7.7		3.5	Mercurio	Luna
2007/10/21	04:20:15	1.16738	1.22728	29.66	0.00	112	7.9		1040	3.1	Nettuno	Luna
2007/10/23	00:45:54	1.63428	1.26526	19.37	0.00	136	5.8			2.2	Urano	Luna
2007/11/04	01:30:18	1.61115	1.17743	9.64	0.00	-65	0.5			2.6	Saturno	Luna
2007/11/14	13:10:19	2.06906	1.16694	2.71	0.00	50	7.6	-9.7		0.8	Vesta	Luna *
2007/11/17	11:57:23	0.90982	1.20890	30.12	0.00	85	7.9		2258	3.5	Nettuno	Luna
2007/11/19	09:09:27	1.80190	1.24390	19.76	0.00	108	5.8			1.9	Urano	Luna
2007/11/27	06:03:20	1.67295	1.26590	0.63	0.00	-143	-1.4			2.1	Marte	Luna
2007/12/12	21:30:12	0.38211	1.17833	2.96	0.00	36	7.8	-9.0	3431	4.1	Vesta	Luna *
2007/12/14	18:28:49	0.61096	1.20044	30.56	0.00	57	7.9		2965	3.7	Nettuno	Luna
2007/12/16	16:05:45	2.07291	1.22659	20.23	0.00	81	5.9			0.6	Urano	Luna
2007/12/16	00:13:03	0.93286	1.21603	3.23	0.00	72	9.6		2211	3.5	Pallas	Luna *
2007/12/24	03:04:03	0.89304	1.27827	0.59	0.00	-177	-1.7		2251	3.0	Marte	Luna

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = Parallasse terrestre

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

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

e = elongazione

m1 = magnitudine del primo corpo

m2 = magnitudine del secondo corpo

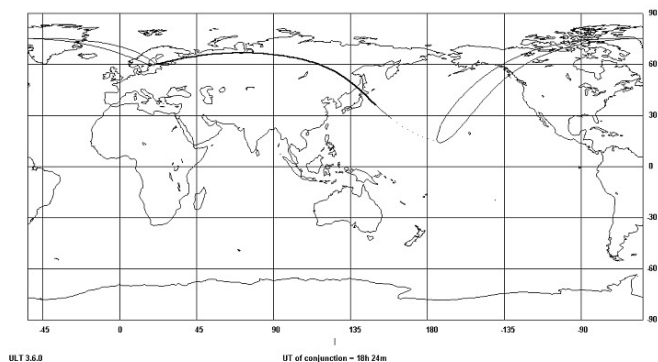
tm = se presente, uno dei due corpi viene occultato massimo per x secondi

tw = semiperiodo in ore in cui i due corpi distano 2° tra loro

- Vista la particolarità dell'evento sono incluse queste congiunzioni pianeta-asteroidi luminosi

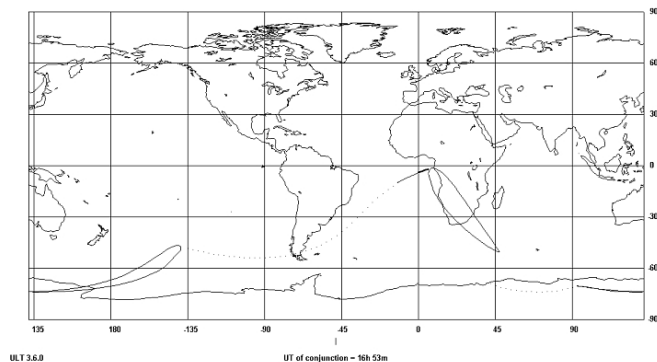


Occultation of Saturn, Magnitude 0.2, on Saturday 2007 January 6



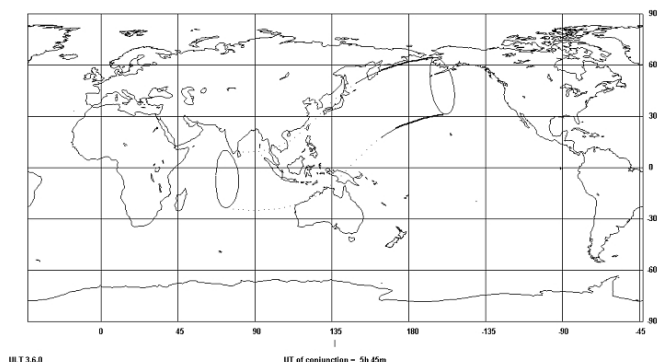
ULT 3.6.0

Occultation of Venus, Magnitude 3.5, on Saturday 2007 January 20



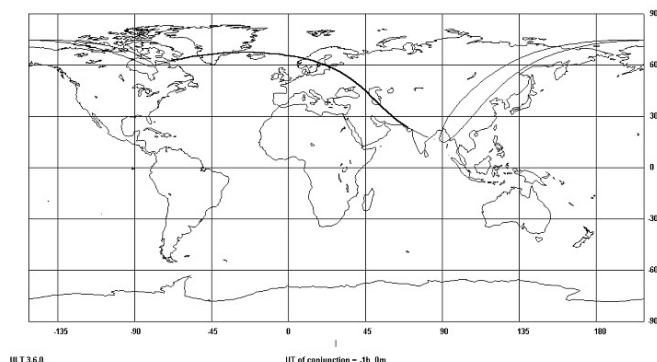
ULT 3.6.0

Occultation of Uranus, Magnitude 5.5, on Monday 2007 January 22



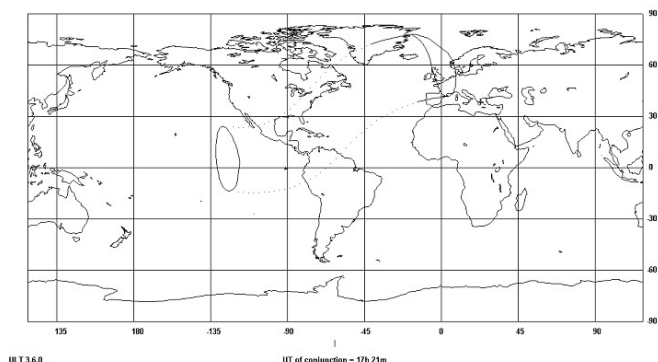
ULT 3.6.0

Occultation of Saturn, Magnitude 0.0, on Saturday 2007 February 3



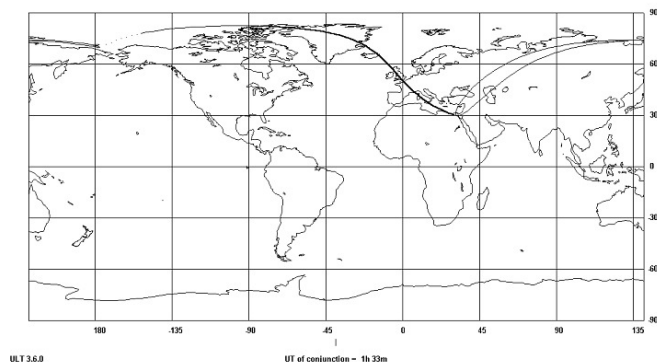
ULT 3.6.0

Occultation of Uranus, Magnitude 5.5, on Sunday 2007 February 10



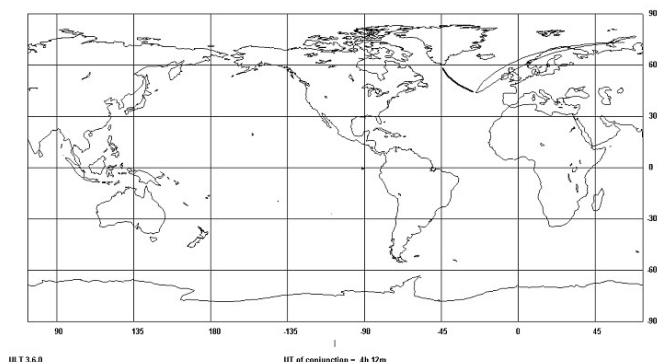
ULT 3.6.0

Occultation of Saturn, Magnitude 0.0, on Friday 2007 March 2



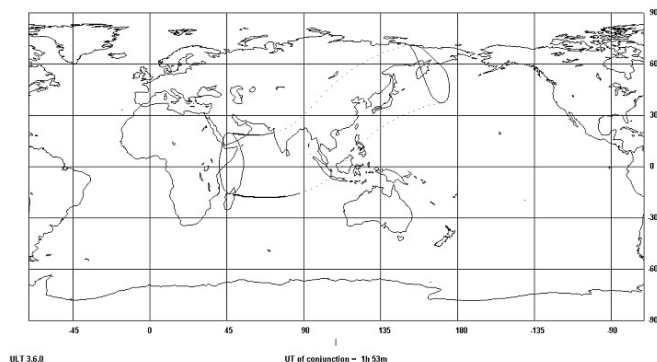
ULT 3.6.0

Occultation of Saturn, Magnitude 0.2, on Thursday 2007 March 29



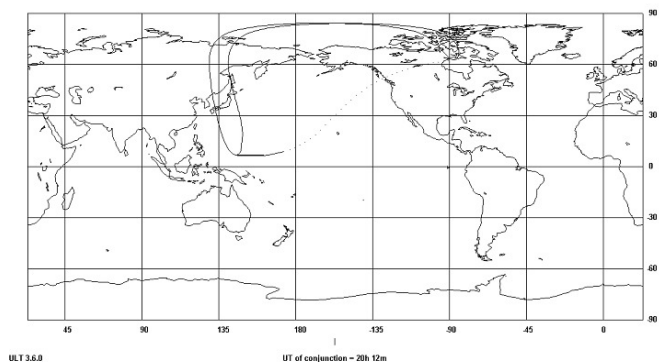
ULT 3.6.0

Occultation of Mars, Magnitude 1.1, on Saturday 2007 April 14

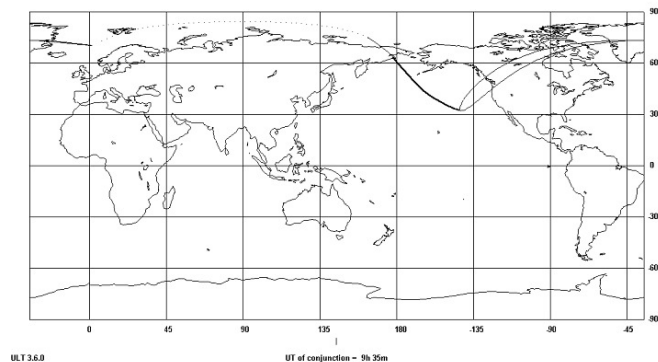


ULT 3.6.0

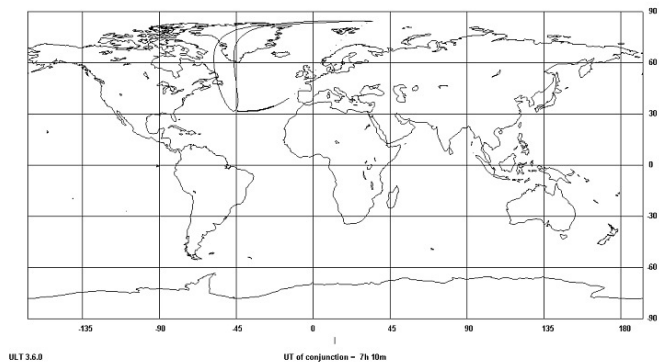
Occultation of Uranus, Magnitude 5.9, on Saturday 2007 April 14



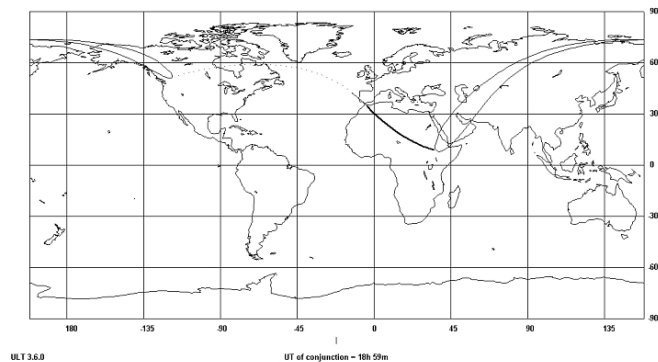
Occultation of Saturn, Magnitude 0.4, on Wednesday 2007 April 25



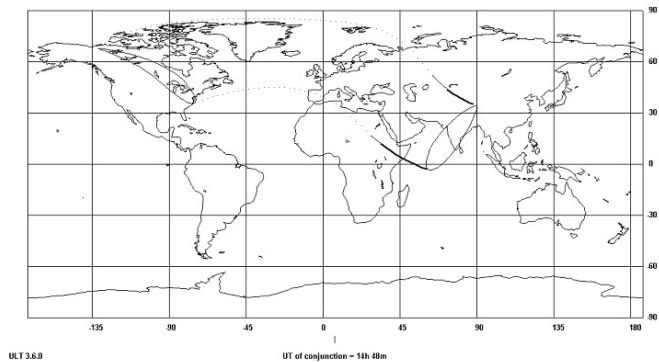
Occultation of Uranus, Magnitude 5.9, on Saturday 2007 May 12



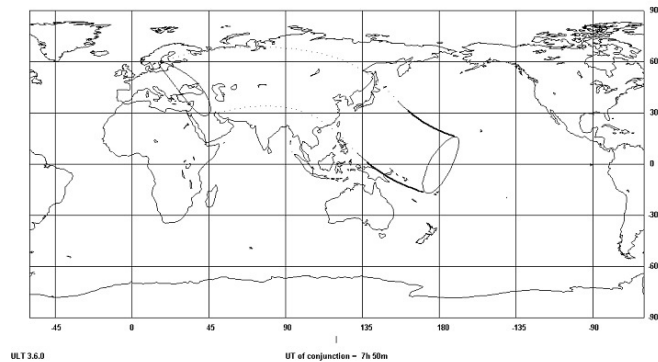
Occultation of Saturn, Magnitude 0.5, on Tuesday 2007 May 22



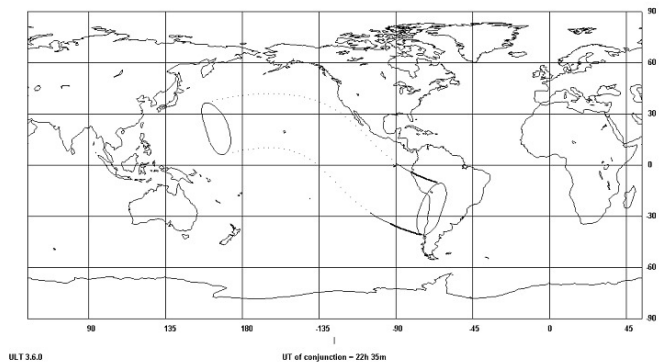
Occultation of Venus, Magnitude 4.4, on Monday 2007 June 18



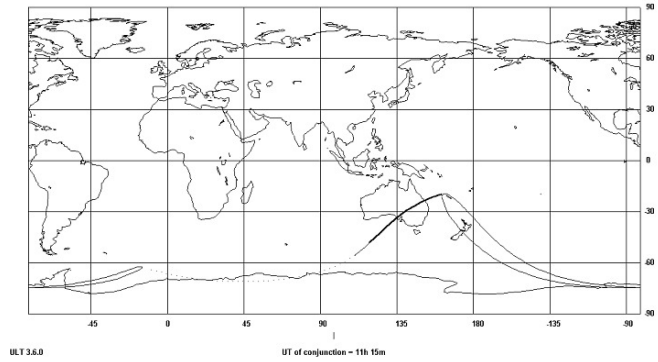
Occultation of Saturn, Magnitude 0.5, on Tuesday 2007 June 19

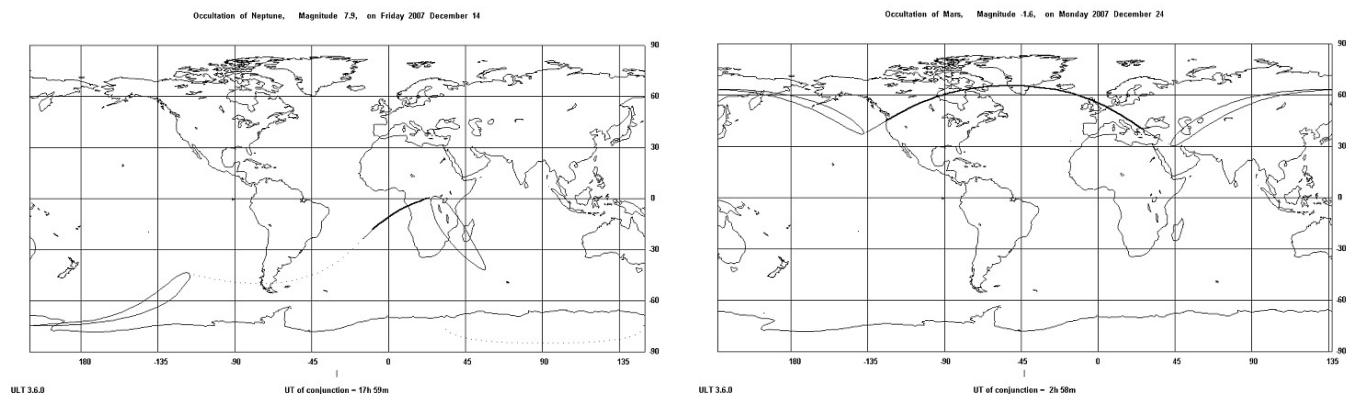


Occultation of Saturn, Magnitude 0.5, on Monday 2007 July 16



Occultation of Neptune, Magnitude 7.5, on Saturday 2007 November 17





## CONGIUNZIONI TOPOCENTR. <2° LUNA-PIANETI

Data	UT	Dm (°)	Alt.	r1	r2	e	m1	m2	tm(s)	tw(h)		
2007/01/06	17:31:26	0.36358	-12.95	8.39	0.00	-142	0.1		2884	3.4	Saturno	Luna
2007/01/20	19:11:42	1.02357	-14.87	1.56	0.00	21	-3.9	-8.0	1949	3.2	Venere	Luna
2007/02/02	23:12:23	0.47215	57.37	8.21	0.00	-171	0.1		4509	5.4	Saturno	Luna
2007/02/18	18:25:20	0.21706	-5.25	21.05	0.00	14	5.9	-7.2	3106	3.3	Urano	Luna
2007/02/19	16:22:32	1.79837	26.60	1.44	0.00	28	-3.8	-8.6		2.3	Venere	Luna
2007/03/02	03:02:56	0.22196	22.99	8.26	0.00	159	0.1		3619	4.2	Saturno	Luna
2007/03/18	05:58:20	0.31210	8.39	21.06	0.00	-12	5.9	-6.8	3449	3.7	Urano	Luna
2007/03/29	05:18:44	0.23062	-15.69	8.52	0.00	130	0.2		2804	3.3	Saturno	Luna
2007/04/14	00:54:10	0.41514	-22.70	1.86	0.00	-48	0.9	-9.7	2990	3.3	Marte	Luna
2007/04/25	08:59:33	0.45318	-18.65	8.92	0.00	103	0.3		2672	3.3	Saturno	Luna
2007/05/10	11:32:49	1.98316	-8.73	30.08	0.00	-87	7.9			1.2	Nettuno	Luna
2007/05/12	06:24:16	0.38697	37.36	20.53	0.00	-63	5.9		4185	4.6	Urano	Luna
2007/05/18	00:01:03	2.06699	-19.50	1.14	0.00	17	-0.7	-7.5		0.5	Mercurio	Luna
2007/05/20	01:38:00	0.71518	-17.73	0.87	0.00	44	-4.1	-9.5	2231	2.8	Venere	Luna
2007/05/22	20:03:43	0.06157	39.06	9.37	0.00	78	0.4		4157	4.7	Saturno	Luna
2007/06/18	15:06:50	0.10038	61.89	0.63	0.00	45	-4.4	-9.5	5213	5.7	Venere	Luna
2007/06/19	06:39:45	0.12610	-11.45	9.78	0.00	54	0.5	-9.8	3016	3.4	Saturno	Luna
2007/07/03	19:18:11	2.04925	-18.78	29.26	0.00	-140	7.8			0.8	Nettuno	Luna
2007/07/16	22:44:02	0.91721	-19.22	10.09	0.00	30	0.5	-8.6	1790	2.9	Saturno	Luna
2007/07/31	04:11:11	1.67110	9.52	29.06	0.00	-167	7.8			2.5	Nettuno	Luna
2007/08/02	00:13:11	1.00054	34.00	19.29	0.00	-141	5.7		2645	4.1	Urano	Luna
2007/08/12	16:52:14	0.63552	15.53	1.33	0.00	-4	-1.7	-4.2	3357	4.3	Mercurio	Luna
2007/08/13	12:39:52	0.93674	55.89	10.23	0.00	7	0.6	-5.4	3003	4.8	Saturno	Luna
2007/08/29	08:27:42	1.39660	-29.00	19.10	0.00	-169	5.7			2.2	Urano	Luna
2007/09/10	01:36:59	1.18083	-16.11	10.20	0.00	-16	0.6	-7.2		2.9	Saturno	Luna
2007/09/25	15:07:56	0.70475	-15.21	19.13	0.00	164	5.7		2530	3.1	Urano	Luna
2007/10/07	15:21:27	2.01542	0.80	9.99	0.00	-40	0.5	-9.2		1.1	Saturno	Luna
2007/10/23	02:15:44	1.32949	-4.29	19.37	0.00	136	5.8			2.7	Urano	Luna
2007/11/04	00:04:48	1.93739	-2.00	9.64	0.00	-64	0.5			1.5	Saturno	Luna
2007/11/17	11:00:01	1.77419	-10.74	30.12	0.00	85	7.9			2.2	Nettuno	Luna
2007/11/27	07:13:25	0.99129	22.78	0.63	0.00	-143	-1.4		2055	3.1	Marte	Luna
2007/12/14	20:16:18	1.00196	-1.42	30.56	0.00	57	7.9		1966	3.6	Nettuno	Luna
2007/12/16	16:04:10	1.38607	36.70	20.23	0.00	81	5.9			3.8	Urano	Luna
2007/12/24	04:05:58	0.31171	31.30	0.59	0.00	-177	-1.7		3295	3.5	Marte	Luna

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 corpo 1 dalla Terra

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

e = elongazione

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 2° tra loro

# OCCULTAZIONI DI PIANETI

day			Time			P	Star	Sp	Mag	%	Elon	Sole			
y	m	d	h	m	s	No	D			ill	Alt	Alt	Az		
07	03	02	2	48	26	d	Saturno		0.0	97+	159	25	267		Durata del passaggio del disco= 80 sec
07	03	02	3	17	3	R	Saturno		0.0	97+	159	20	272		Durata del passaggio del disco= 77 sec
07	05	22	19	29	43	d	Saturno		0.5	39+	78	-7	45		Durata del passaggio del disco= 40 sec
07	05	22	20	36	18	R	Saturno		0.5	40+	78	34	258		Durata del passaggio del disco= 37 sec
07	06	18	14	26	34	D	Venere		-4.4	15+	45	46	63		Durata del passaggio del disco= 77 sec
07	06	18	15	46	0	R	Venere		-4.4	15+	45	32	59		Durata del passaggio del disco= 73 sec

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

Evento: d/D scomparsa, R ricomparsa

mag = magnitudine dell'astro occultato

e = elongazione

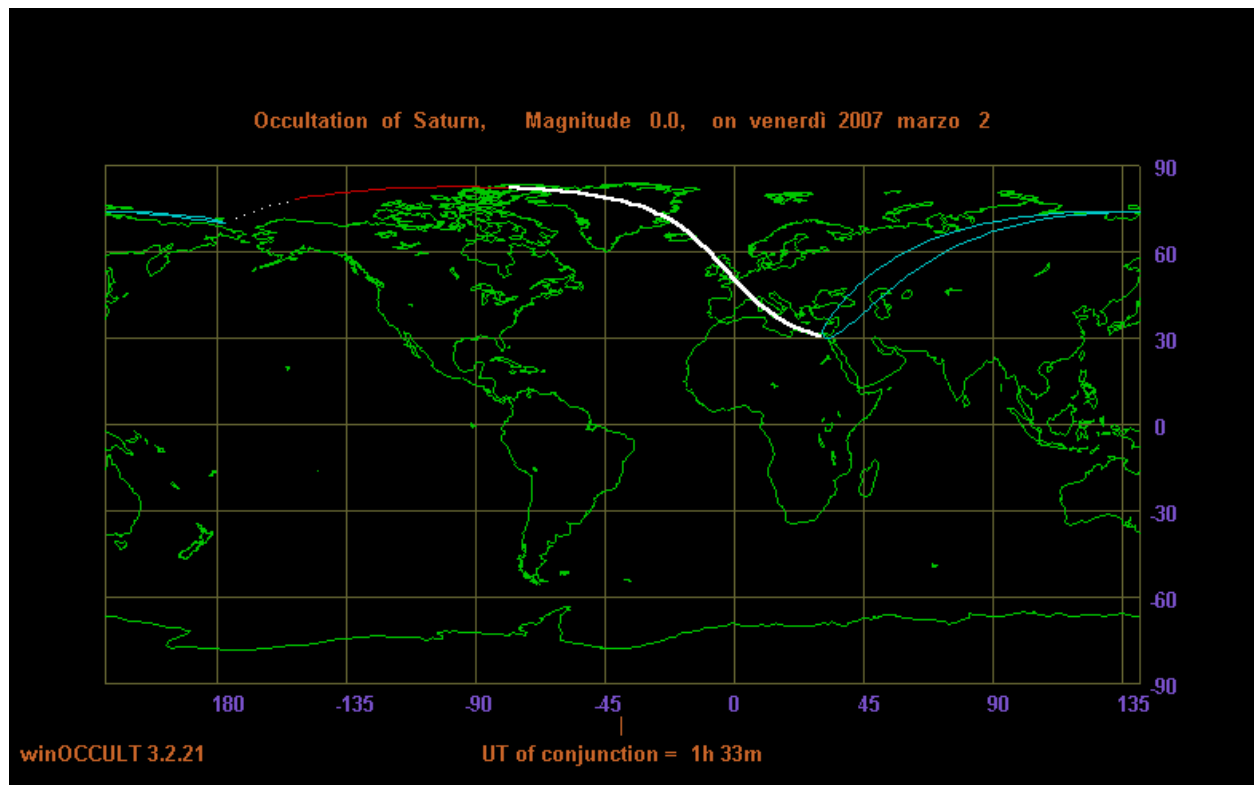
% ill = frazione di Luna illuminata

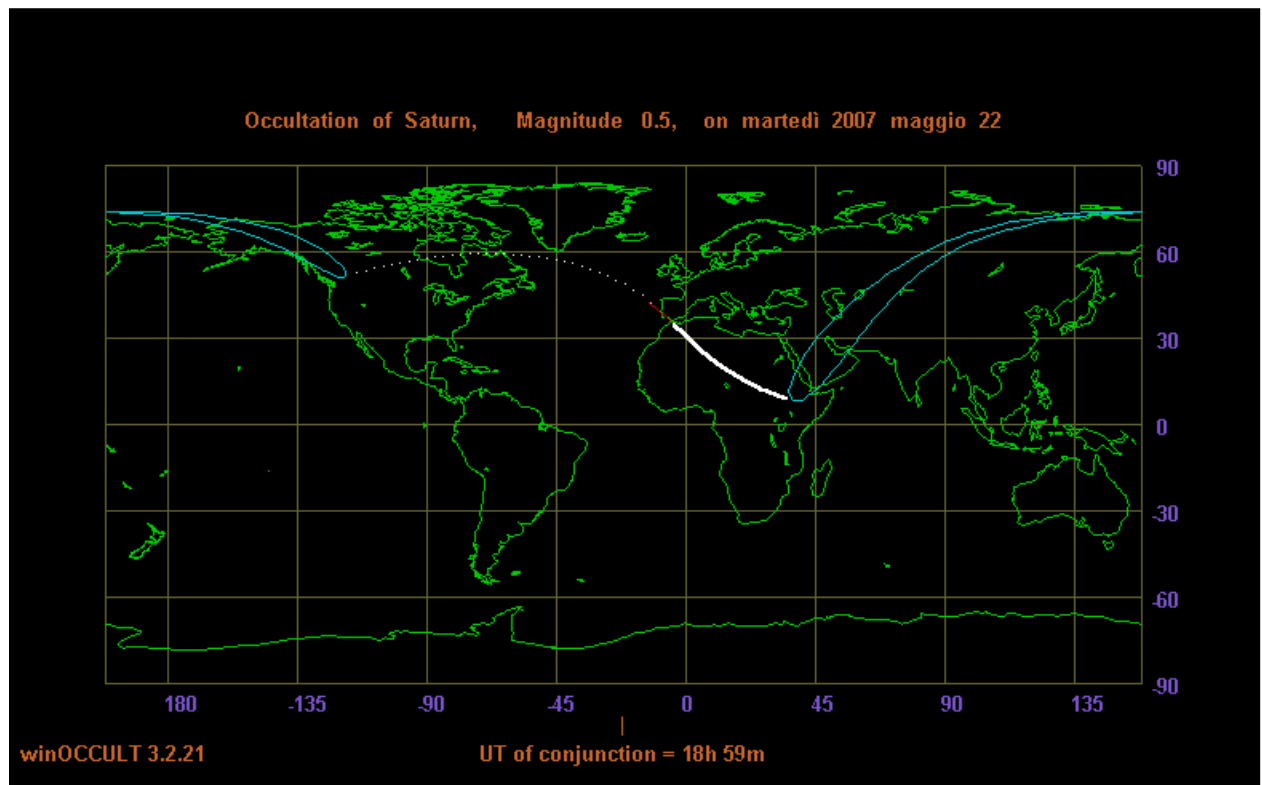
Elon = elongazione della Luna dal Sole

Alt = altezza della Luna sull'orizzonte

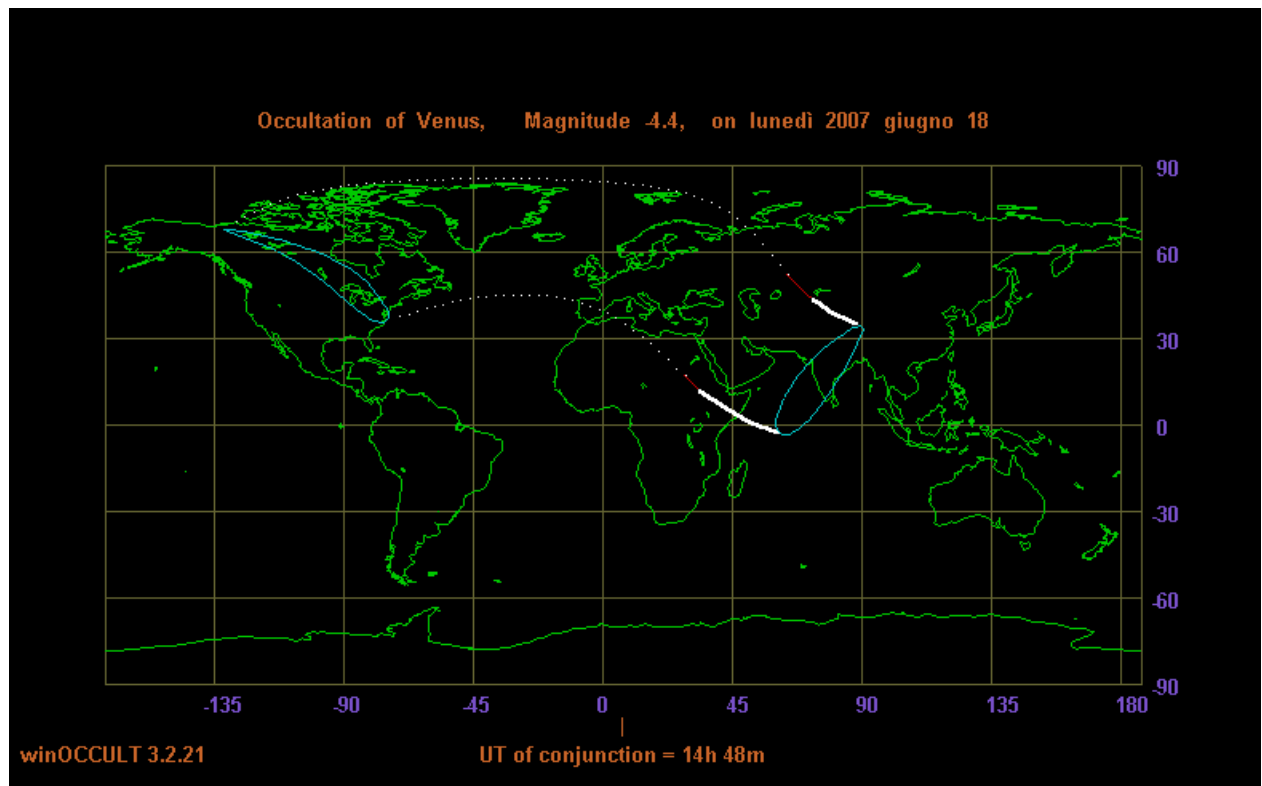
Sole alt = altezza del Sole sull'orizzonte

Az = azimut





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© (8)

# OCCULTAZIONI LUNARI GEOCENTRICHE m<4

Data	TDT	Dm (°)	Dl	rl	e	m1	m*	tm(s)	tw(h)			
2007/01/02	02:25:21	0.36122	1.23223	0.00	161		1.7	3179	3.6	Luna	112 Beta	TAU Elnath
2007/01/07	06:22:17	1.10367	1.16986	0.00	-136		1.3	1166	3.5	Luna	32 Alpha	LEO Regulus
2007/01/11	18:46:18	0.96099	1.15246	0.00	-87		1.1	1983	3.8	Luna	67 Alpha	VIR Spica
2007/01/15	12:52:26	0.49144	1.19114	0.00	-45	-9.5	1.0	3149	3.8	Luna	21 Alpha	SCO Antares
2007/01/27	17:07:15	0.86379	1.23610	0.00	113		1.6	2387	3.4	Luna		M45
2007/01/29	09:10:25	0.23980	1.22029	0.00	133		1.7	3304	3.7	Luna	112 Beta	TAU Elnath
2007/02/03	14:37:31	1.00488	1.16835	0.00	-164		1.3	1788	3.6	Luna	32 Alpha	LEO Regulus
2007/02/08	02:42:52	1.14700	1.14889	0.00	-115		1.1	206.3	3.6	Luna	67 Alpha	VIR Spica
2007/02/11	22:04:24	0.64540	1.18207	0.00	-73		1.0	2931	3.8	Luna	21 Alpha	SCO Antares
2007/02/23	22:39:03	0.98682	1.24365	0.00	85		1.6	2022	3.2	Luna		M45
2007/02/25	14:36:26	0.13574	1.21990	0.00	106		1.7	3364	3.8	Luna	112 Beta	TAU Elnath
2007/03/02	21:35:57	1.01014	1.16337	0.00	168		1.3	1746	3.6	Luna	32 Alpha	LEO Regulus
2007/03/11	06:01:42	0.69082	1.17025	0.00	-100		1.0	2854	3.9	Luna	21 Alpha	SCO Antares
2007/03/23	06:03:32	0.97744	1.26397	0.00	58		1.6	2070	3.1	Luna		M45
2007/03/24	20:53:04	0.15153	1.23437	0.00	79		1.7	3324	3.7	Luna	112 Beta	TAU Elnath
2007/03/30	03:30:42	0.99905	1.16088	0.00	141		1.3	1803	3.7	Luna	32 Alpha	LEO Regulus
2007/04/07	12:29:33	0.60585	1.16270	0.00	-127		1.0	3026	4.0	Luna	21 Alpha	SCO Antares
2007/04/19	15:48:20	0.88009	1.28238	0.00	31	-8.9	1.6	2333	3.1	Luna		M45
2007/04/21	05:19:38	0.28207	1.25431	0.00	52	-9.9	1.7	3204	3.5	Luna	112 Beta	TAU Elnath
2007/04/26	09:26:10	0.87486	1.16528	0.00	114		1.3	2341	3.8	Luna	32 Alpha	LEO Regulus
2007/05/04	18:16:10	0.47880	1.16204	0.00	-153		1.0	3216	4.0	Luna	21 Alpha	SCO Antares
2007/05/17	02:31:47	0.80887	1.28699	0.00	6	-5.4	1.6	2481	3.1	Luna		M45
2007/05/18	15:25:14	0.42771	1.26667	0.00	26	-8.4	1.7	3054	3.4	Luna	112 Beta	TAU Elnath
2007/05/23	16:25:53	0.64306	1.17546	0.00	88		1.3	2946	3.9	Luna	32 Alpha	LEO Regulus
2007/06/01	00:26:49	0.42187	1.16586	0.00	175		1.0	3274	4.0	Luna	21 Alpha	SCO Antares
2007/06/13	12:22:10	0.84477	1.27681	0.00	-23	-8.1	1.6	2411	3.1	Luna		M45
2007/06/15	01:33:36	0.48567	1.26502	0.00	-5	-4.8	1.7	2994	3.4	Luna	112 Beta	TAU Elnath
2007/06/20	00:42:49	0.39590	1.18578	0.00	62		1.3	3281	3.9	Luna	32 Alpha	LEO Regulus
2007/06/28	07:40:33	0.48156	1.16960	0.00	153		1.0	3197	4.0	Luna	21 Alpha	SCO Antares
2007/07/10	20:08:32	0.97446	1.26076	0.00	-49	-9.7	1.6	2071	3.1	Luna		M45
2007/07/12	10:14:34	0.43237	1.25289	0.00	-28	-8.5	1.7	3075	3.5	Luna	112 Beta	TAU Elnath
2007/07/17	09:34:58	0.23353	1.19063	0.00	35	-8.9	1.3	3384	3.9	Luna	32 Alpha	LEO Regulus
2007/07/25	15:52:44	0.60929	1.16935	0.00	127		1.0	3008	3.9	Luna	21 Alpha	SCO Antares
2007/08/07	02:00:26	1.10976	1.25139	0.00	-74		1.6	1524	3.1	Luna		M45
2007/08/08	16:54:30	0.33465	1.24058	0.00	-53	-9.9	1.7	3195	3.6	Luna	112 Beta	TAU Elnath
2007/08/13	17:58:04	0.18717	1.18828	0.00	9	-6.0	1.3	3404	3.9	Luna	32 Alpha	LEO Regulus
2007/08/22	00:21:07	0.70087	1.16399	0.00	101		1.0	2837	3.9	Luna	21 Alpha	SCO Antares
2007/09/03	07:29:15	1.15682	1.25706	0.00	-100		1.6	1286	3.0	Luna		M45
2007/09/04	22:20:52	0.29563	1.23895	0.00	-80		1.7	3237	3.6	Luna	112 Beta	TAU Elnath
2007/09/10	01:05:17	0.19547	1.18191	0.00	-17	-7.4	1.3	3419	4.0	Luna	32 Alpha	LEO Regulus
2007/09/18	08:11:17	0.67529	1.15596	0.00	75		1.0	2903	4.0	Luna	21 Alpha	SCO Antares
2007/09/30	14:33:43	1.08593	1.27584	0.00	-127		1.6	1696	3.0	Luna		M45
2007/10/02	04:24:08	0.37803	1.25228	0.00	-106		1.7	3146	3.5	Luna	112 Beta	TAU Elnath
2007/10/07	06:58:10	0.14839	1.17799	0.00	-44	-9.4	1.3	3464	4.0	Luna	32 Alpha	LEO Regulus
2007/10/15	14:54:18	0.54197	1.14981	0.00	48	-9.5	1.0	3159	4.1	Luna	21 Alpha	SCO Antares
2007/10/28	00:11:45	0.96266	1.29539	0.00	-154		1.6	2124	3.0	Luna		M45
2007/10/29	12:42:45	0.55027	1.27367	0.00	-133		1.7	2919	3.3	Luna	112 Beta	TAU Elnath
2007/11/03	12:38:14	0.02733	1.18266	0.00	-71		1.3	3494	4.0	Luna	32 Alpha	LEO Regulus
2007/11/11	20:51:30	0.40236	1.14849	0.00	21	-7.8	1.0	3342	4.2	Luna	21 Alpha	SCO Antares
2007/11/24	11:30:12	0.90487	1.30107	0.00	175		1.6	2268	3.0	Luna		M45
2007/11/25	23:19:47	0.69961	1.28847	0.00	-160		1.7	2678	3.2	Luna	112 Beta	TAU Elnath
2007/11/30	19:35:49	0.29939	1.19651	0.00	-98		1.3	3349	3.9	Luna	32 Alpha	LEO Regulus
2007/12/09	02:58:50	0.36887	1.15094	0.00	-8	-5.8	1.0	3368	4.1	Luna	21 Alpha	SCO Antares
2007/12/21	22:15:50	0.97573	1.28802	0.00	150		1.6	2083	3.0	Luna		M45
2007/12/23	10:30:51	0.72797	1.28573	0.00	170		1.7	2630	3.2	Luna	112 Beta	TAU Elnath
2007/12/28	04:33:44	0.54502	1.21192	0.00	-126		1.3	3040	3.7	Luna	32 Alpha	LEO Regulus

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = Parallasse terrestre

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

Rl = distanza in U.A. della Luna dalla Terra

e = elongazione

m1 = magnitudine della Luna

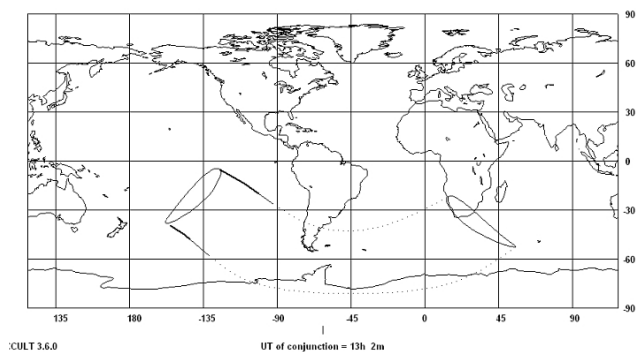
m\* = magnitudine della stella

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

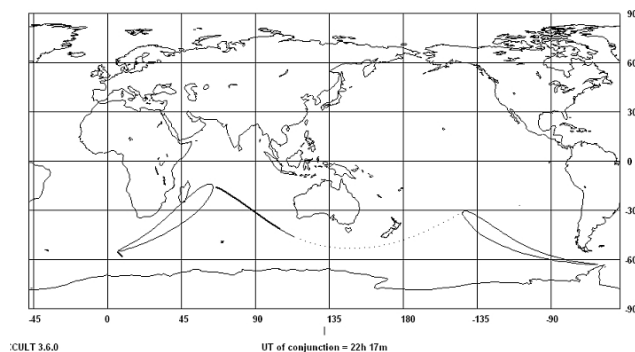
tw = semiperiodo in ore in cui i due corpi distano 1° tra loro

© (7)

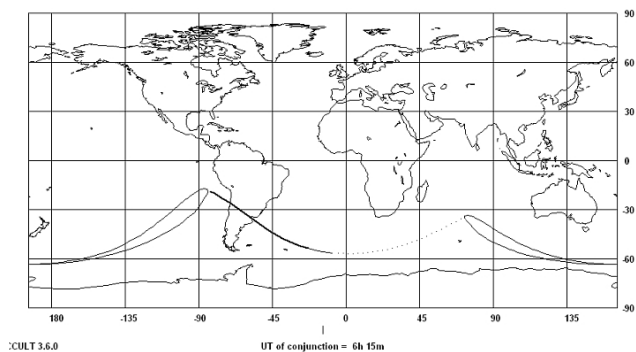
Occultation of 2366 dM1, Magnitude 1.1, on Monday 2007 January 15



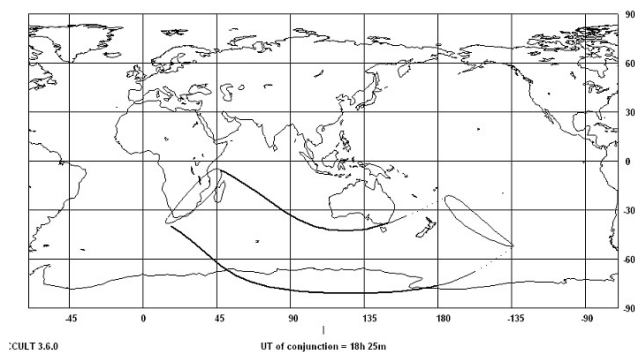
Occultation of 2366 dM1, Magnitude 1.1, on Sunday 2007 February 11



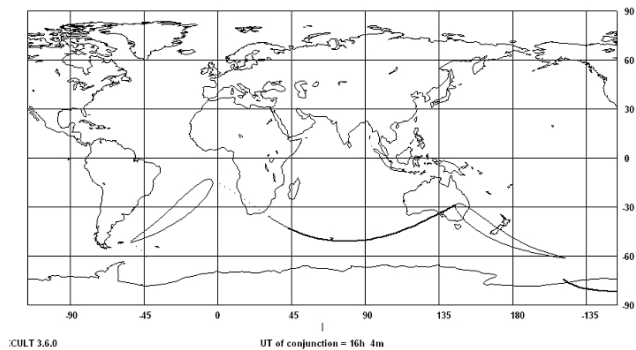
Occultation of 2366 dM1, Magnitude 1.1, on Sunday 2007 March 11



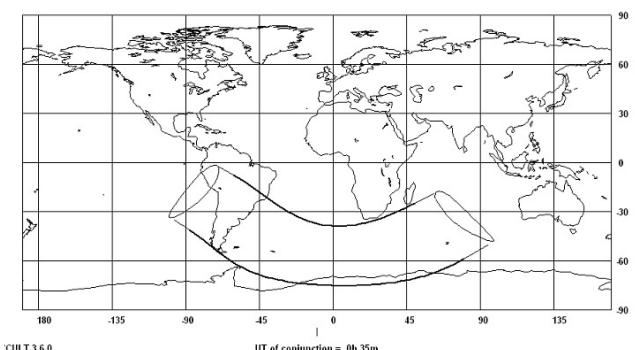
Occultation of 2366 dM1, Magnitude 1.1, on Friday 2007 May 4



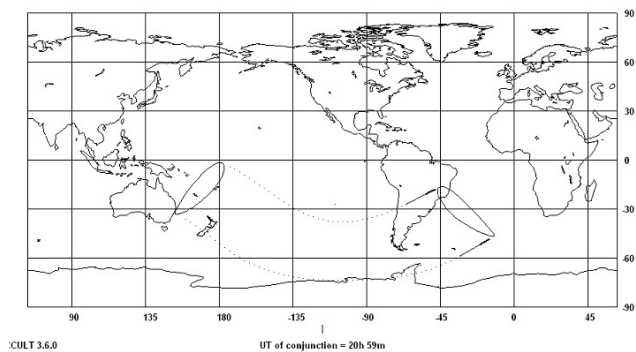
Occultation of 2366 dM1, Magnitude 1.1, on Wednesday 2007 July 25



Occultation of 2366 dM1, Magnitude 1.1, on Friday 2007 June 1

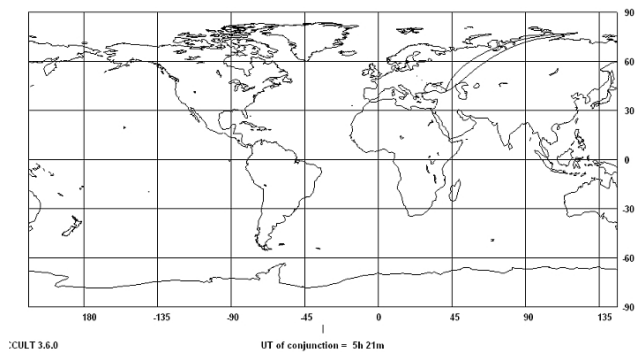


Occultation of 2366 dM1, Magnitude 1.1, on Sunday 2007 November 11

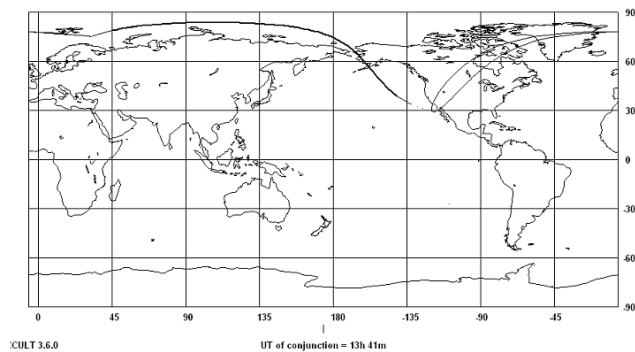


Occultazioni di Antares

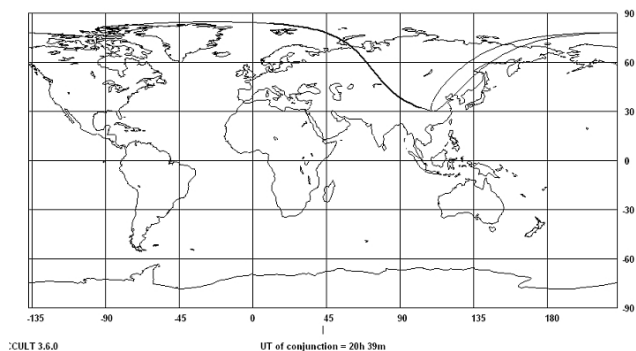
Occultation of 1487 SB7, Magnitude 1.4, on Sunday 2007 January 7



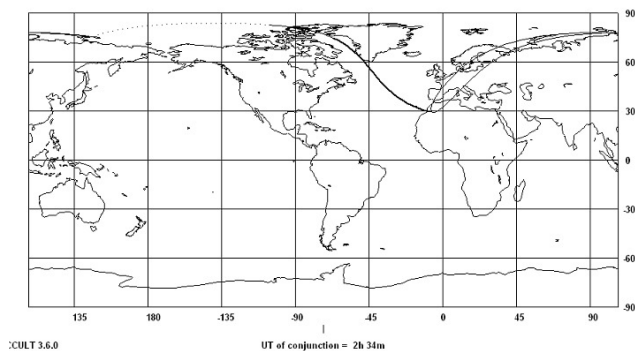
Occultation of 1487 SB7, Magnitude 1.4, on Saturday 2007 February 3



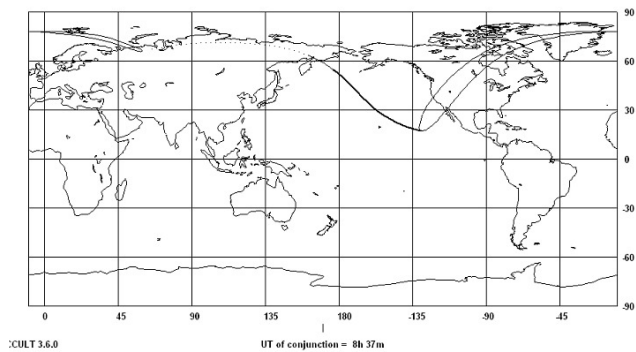
Occultation of 1487 SB7, Magnitude 1.4, on Friday 2007 March 2



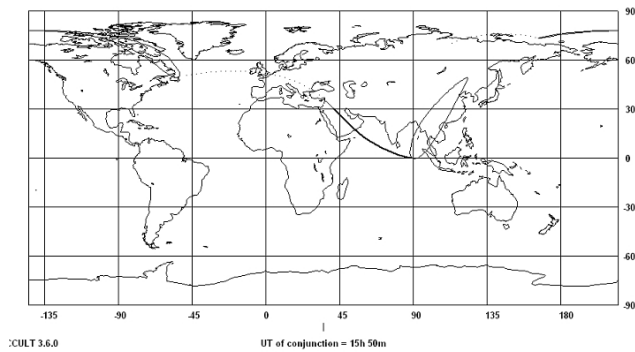
Occultation of 1487 SB7, Magnitude 1.4, on Friday 2007 March 30



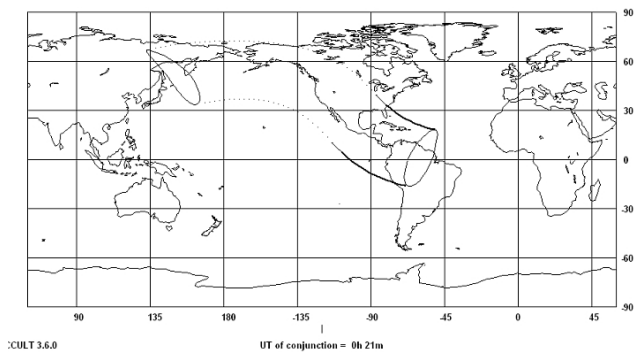
Occultation of 1487 SB7, Magnitude 1.4, on Thursday 2007 April 26



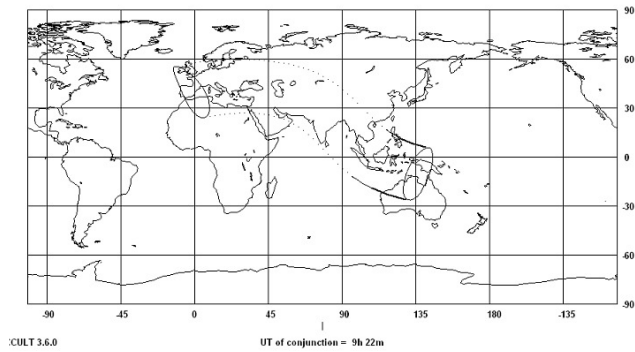
Occultation of 1487 SB7, Magnitude 1.4, on Wednesday 2007 May 23



Occultation of 1487 SB7, Magnitude 1.4, on Wednesday 2007 June 20

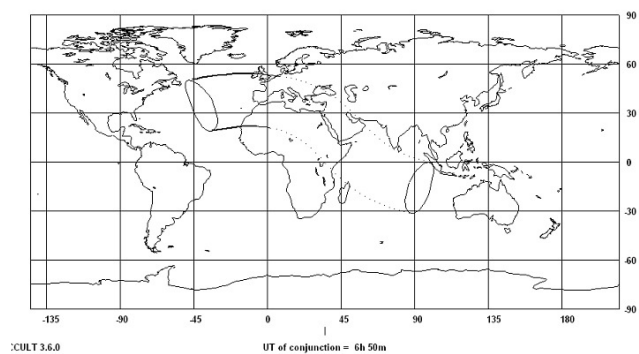


Occultation of 1487 SB7, Magnitude 1.4, on Tuesday 2007 July 17

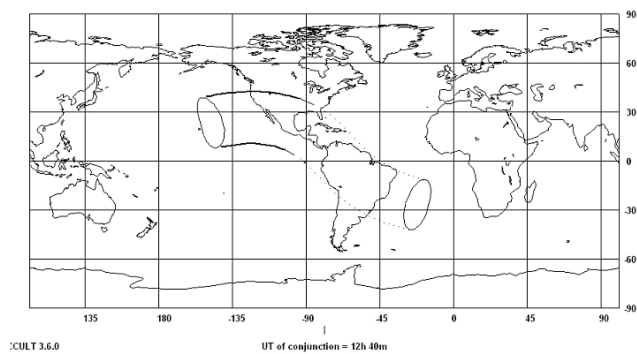




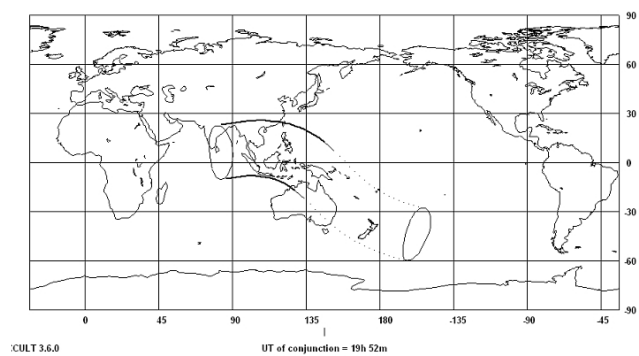
Occultation of 1487 SB7, Magnitude 1.4, on Sunday 2007 October 7



Occultation of 1487 SB7, Magnitude 1.4, on Saturday 2007 November 3

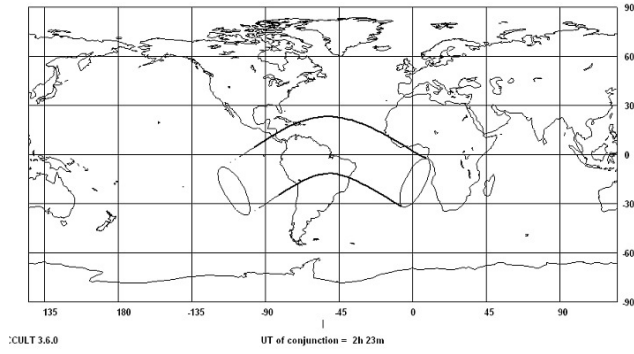


Occultation of 1487 SB7, Magnitude 1.4, on Friday 2007 November 30

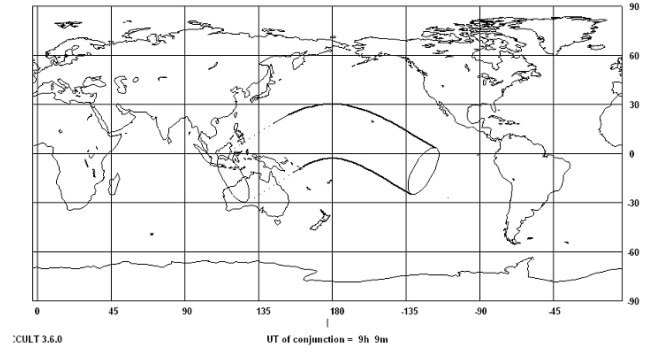


Occultazioni di Regolo

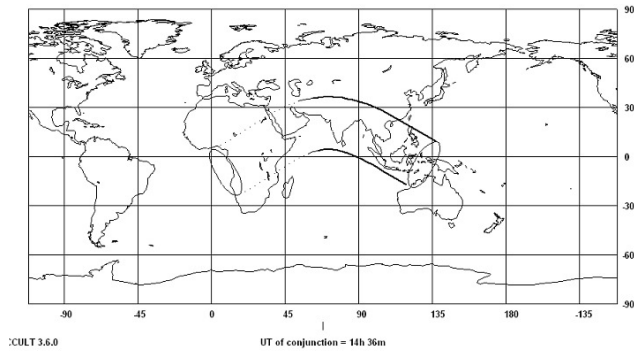
Occultation of 810 SB7, Magnitude 1.6, on Tuesday 2007 January 2



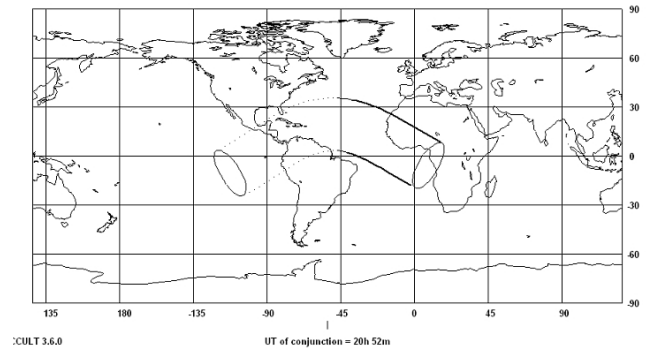
Occultation of 810 SB7, Magnitude 1.6, on Monday 2007 January 29



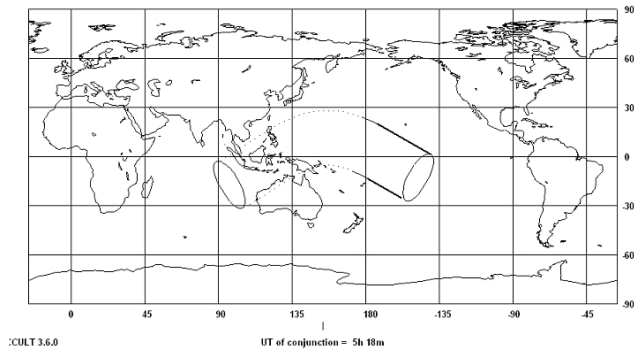
Occultation of 810 SB7, Magnitude 1.6, on Sunday 2007 February 25



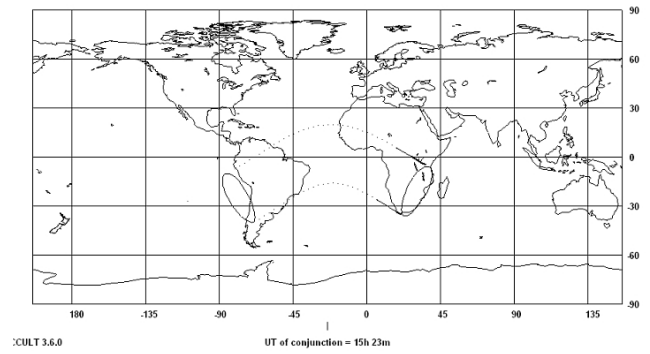
Occultation of 810 SB7, Magnitude 1.6, on Saturday 2007 March 24



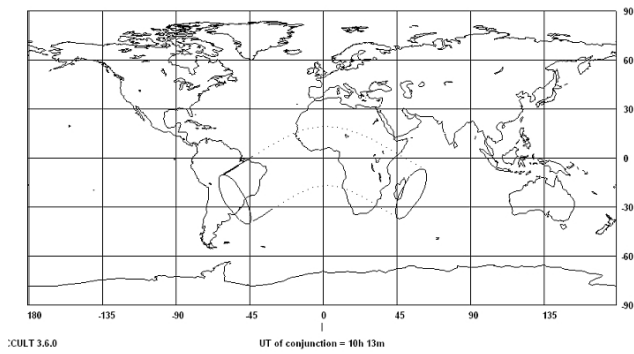
Occultation of 810 SB7, Magnitude 1.6, on Saturday 2007 April 21



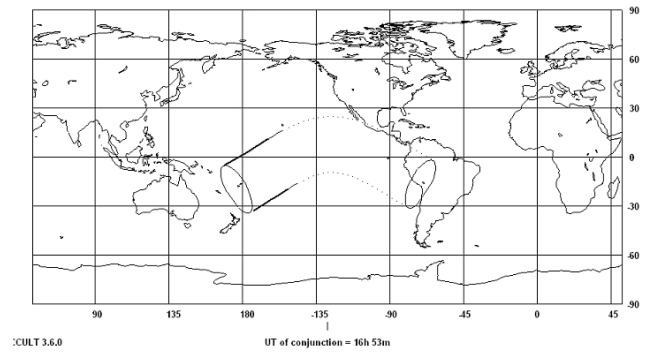
Occultation of 810 SB7, Magnitude 1.6, on Friday 2007 May 18



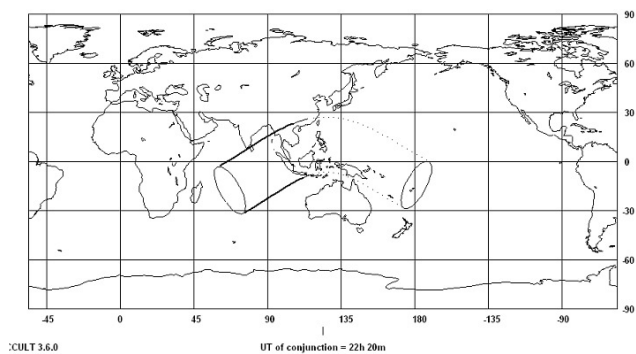
Occultation of 810 SB7, Magnitude 1.6, on Thursday 2007 July 12



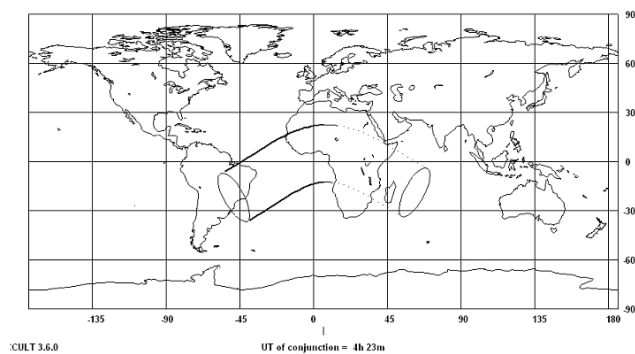
Occultation of 810 SB7, Magnitude 1.6, on Wednesday 2007 August 8



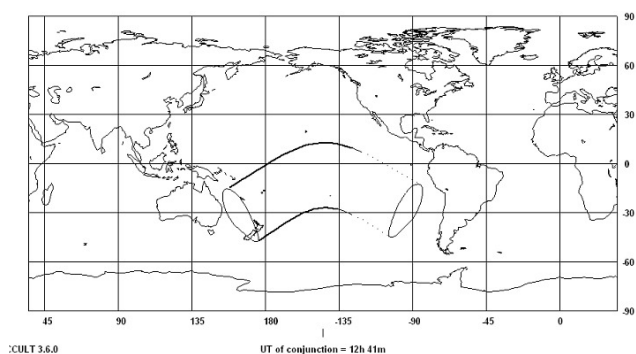
Occultation of 810 SB7, Magnitude 1.6, on Tuesday 2007 September 4



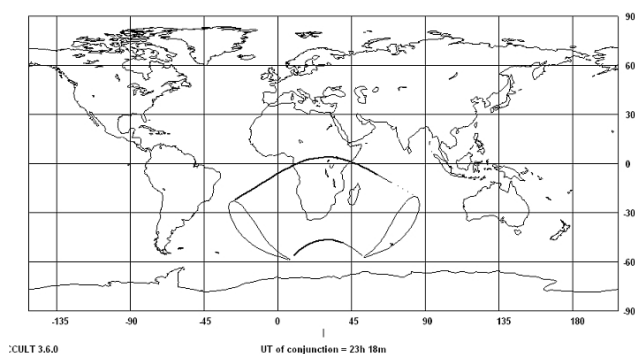
Occultation of 810 SB7, Magnitude 1.6, on Tuesday 2007 October 2



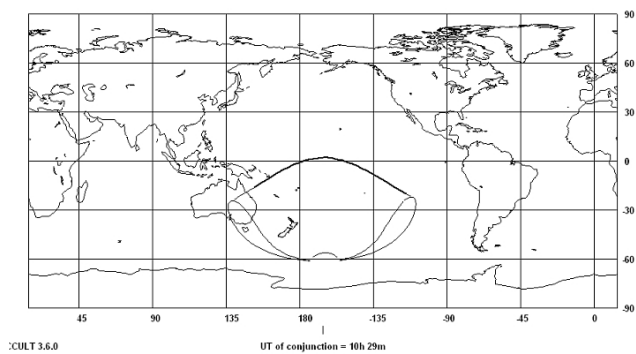
Occultation of 810 SB7, Magnitude 1.6, on Monday 2007 October 29



Occultation of 810 SB7, Magnitude 1.6, on Sunday 2007 November 25

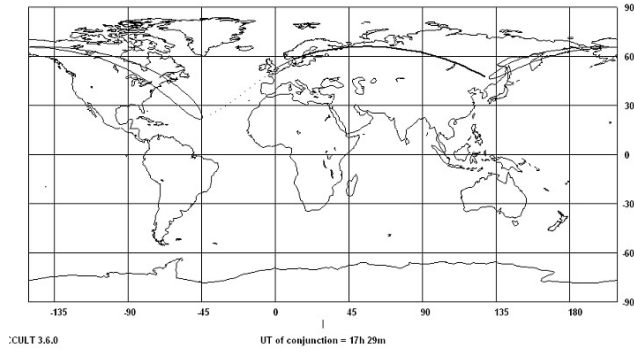


Occultation of 810 SB7, Magnitude 1.6, on Sunday 2007 December 23

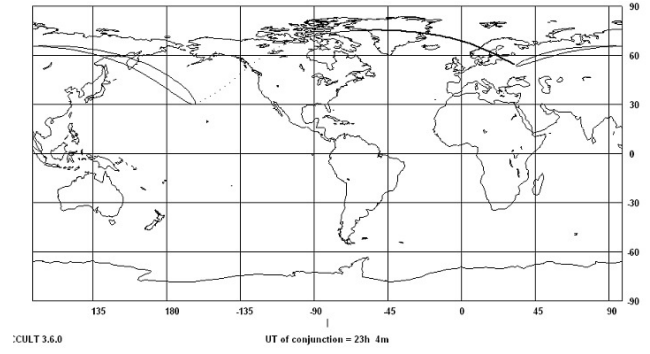


Occultazioni di El Nath (beta Tau)

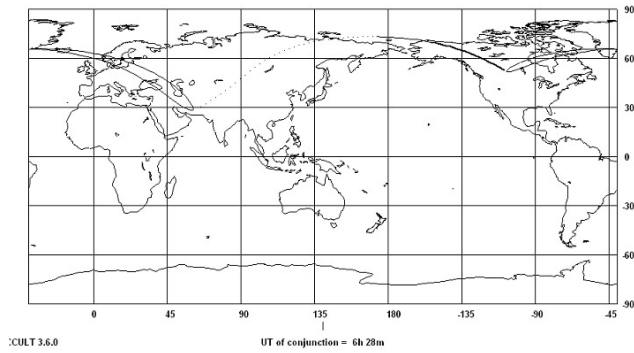
Occultation of Pleiade C, Magnitude 3.0, on Saturday 2007 January 27



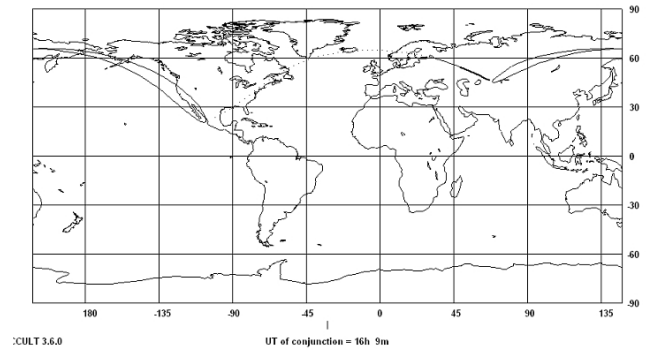
Occultation of Pleiade C, Magnitude 3.0, on Friday 2007 February 23



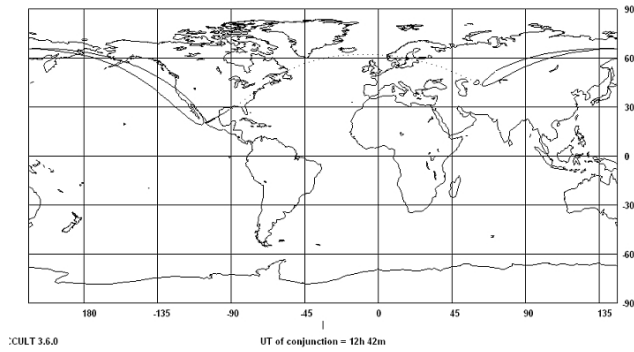
Occultation of Pleiade C, Magnitude 3.0, on Friday 2007 March 23



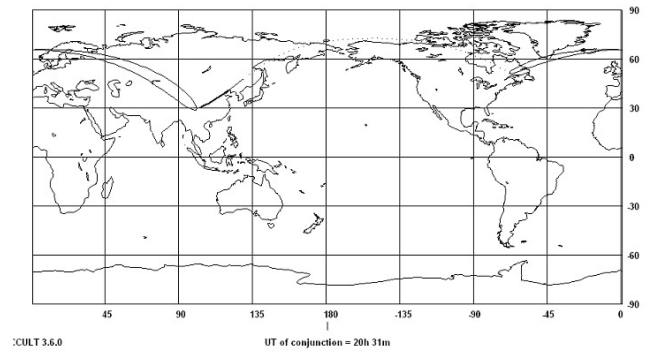
Occultation of Pleiade C, Magnitude 3.0, on Thursday 2007 April 19



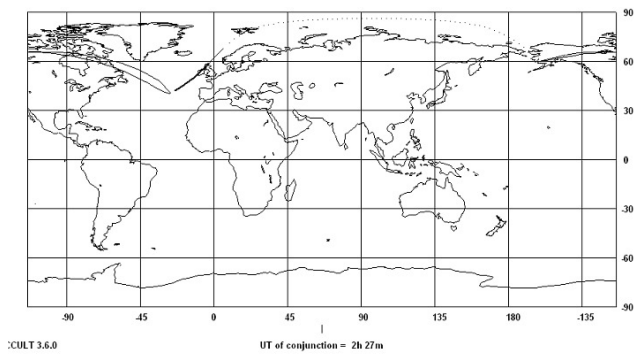
Occultation of Pleiade C, Magnitude 3.0, on Wednesday 2007 June 13



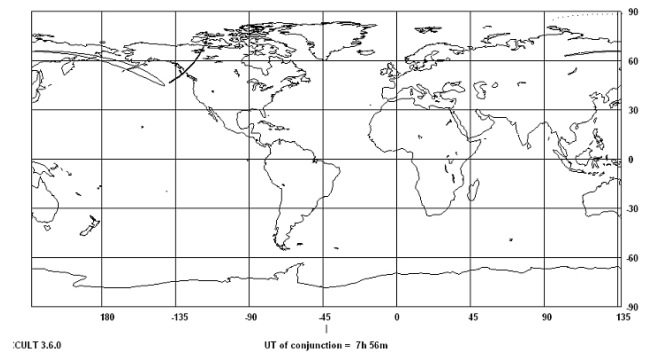
Occultation of Pleiade C, Magnitude 3.0, on Tuesday 2007 July 10



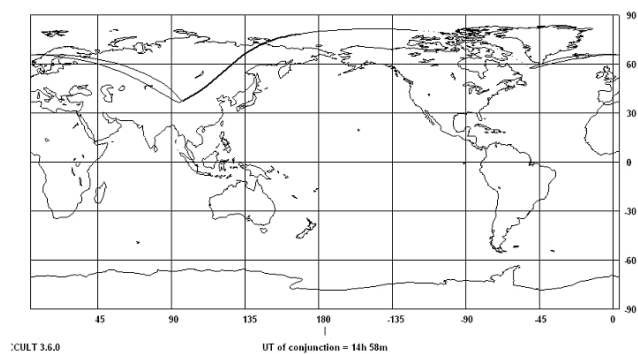
Occultation of Pleiade C, Magnitude 3.0, on Tuesday 2007 August 7



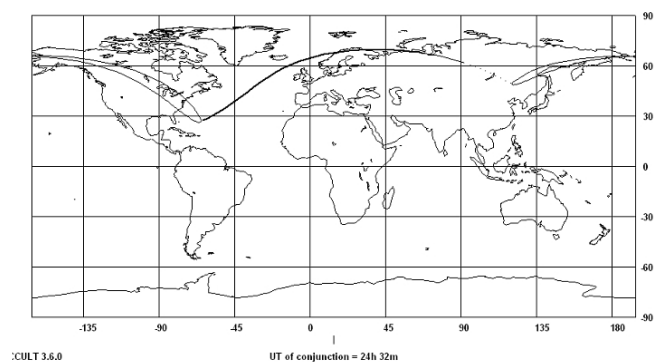
Occultation of Pleiade C, Magnitude 3.0, on Monday 2007 September 3



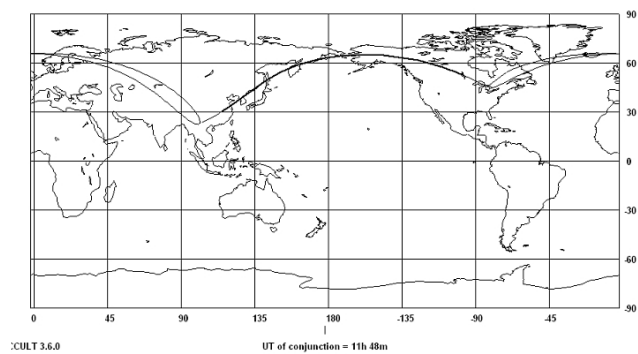
Occultation of Pleiade C, Magnitude 3.0, on Sunday 2007 September 30



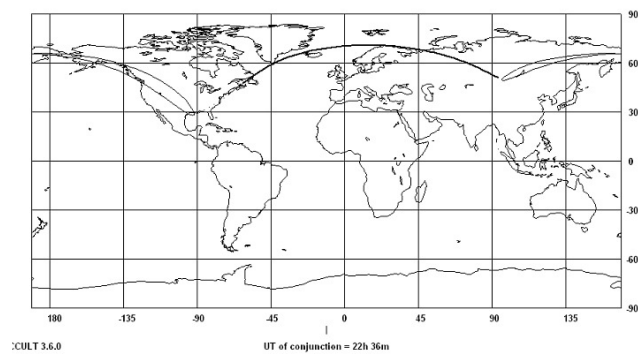
Occultation of Pleiade C, Magnitude 3.0, on Saturday 2007 October 27



Occultation of Pleiade C, Magnitude 3.0, on Saturday 2007 November 24



Occultation of Pleiade C, Magnitude 3.0, on Friday 2007 December 21



Occultazioni delle Pleiadi

# OCCULTAZIONI LUNARI TOPOCENTRICHE m<2

Data	UT	Dm	(°)	Alt.	r1	e	m1	m*	tm(s)	tw(h)			
2007/03/23	05:40:34	0.02943	-11.16	0.00	58			1.6	2618	2.8	Luna		M45
2007/03/30	04:00:27	0.12629	-2.15	0.00	141			1.3	3168	3.7	Luna	32 Alpha	LEO Regulus
2007/05/17	02:08:13	0.15365	-10.93	0.00	6	-5.2		1.6	2558	2.7	Luna		M45
2007/07/10	20:20:14	0.05150	-19.47	0.00	-48	-9.7		1.6	2512	2.7	Luna		M45
2007/07/17	07:56:24	0.06957	10.37	0.00	36	-8.9		1.3	3592	4.1	Luna	32 Alpha	LEO Regulus
2007/09/30	14:48:21	0.15651	-19.54	0.00	-127			1.6	2475	2.7	Luna		M45
2007/10/07	05:45:27	0.16802	42.34	0.00	-44	-9.4		1.3	4560	5.3	Luna	32 Alpha	LEO Regulus
2007/11/24	11:36:07	0.05512	-19.18	0.00	176			1.6	2450	2.6	Luna		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

R1 = distanza in U.A. della Luna dalla Terra

e = elongazione

m1 = magnitudine della Luna

m\* = magnitudine della stella

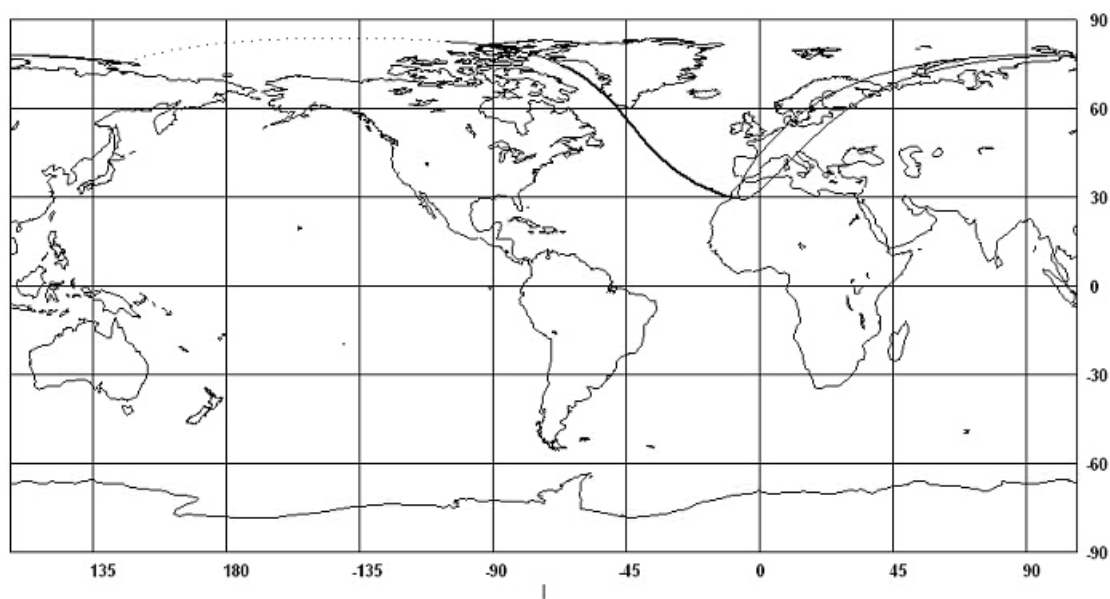
tm = se presente, uno dei due corpi viene occultato massimo per x secondi

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

In dettaglio

Data	Time	P	PPM	Mag	RA	Dec	Al	Az	Con	Sn	CA	K	Elg	Name
d m y	h m s				h m s	° ' "	°	°		°	°	%	°	
30-03-2007	03:37:16	D	127140	1.4	10h08m46	+11°55'50	2	286	Leo	-15	54°S	89%+	141°E	Regulus
07-10-2007	05:17:23	D	127140	1.4	10h08m46	+11°55'51	38	116	Leo	-2	-57°N	14%-	44°W	Regulus
07-10-2007	06:14:21	R	127140	1.4	10h08m46	+11°55'51	46	131	Leo	+8	38°N	14%-	44°W	Regulus

Occultation of 1487 SB7, Magnitude 1.4, on Friday 2007 March 30

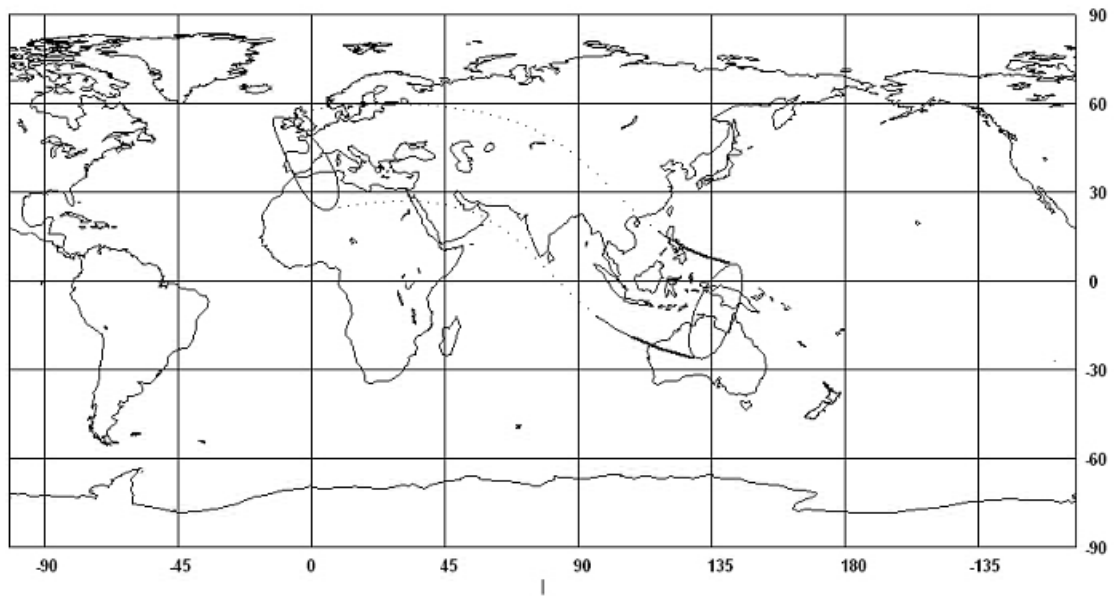


winOCCULT 3.6.0

UT of conjunction = 2h 34m

© (7) (8)

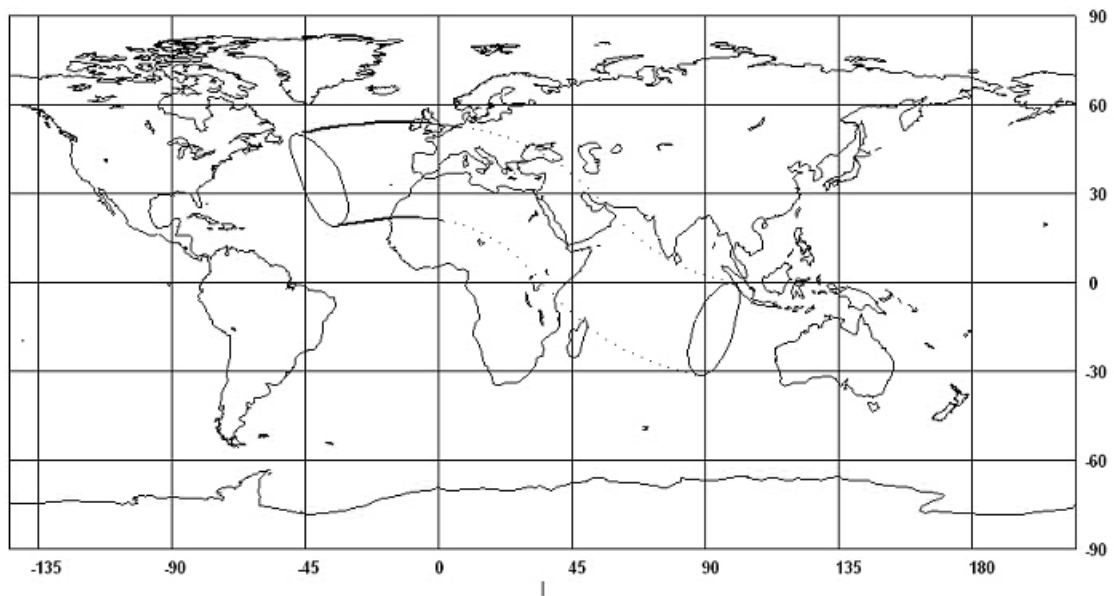
Occultation of 1487 SB7, Magnitude 1.4, on Tuesday 2007 July 17



winOCCULT 3.6.0

UT of conjunction = 9h 22m

Occultation of 1487 SB7, Magnitude 1.4, on Sunday 2007 October 7



winOCCULT 3.6.0

UT of conjunction = 6h 50m

# ASTEROIDI CON m<9

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø
1 Ceres							
2007	3 14	0 4.66	- 8 2.9	3.938	2.961	3.1	9.0
2007	3 15	0 6.09	- 7 53.1	3.939	2.961	3.0	9.0
2007	3 16	0 7.52	- 7 43.4	3.940	2.960	2.9	9.0
2007	3 17	0 8.96	- 7 33.6	3.940	2.960	2.8	9.0
2007	3 18	0 10.39	- 7 23.8	3.941	2.960	2.8	9.0
2007	3 19	0 11.82	- 7 14.1	3.941	2.959	2.7	9.0
2007	3 20	0 13.26	- 7 4.3	3.942	2.959	2.7	9.0
2007	3 21	0 14.69	- 6 54.6	3.942	2.958	2.6	9.0
2007	3 22	0 16.13	- 6 44.9	3.942	2.958	2.6	9.0
2007	3 23	0 17.56	- 6 35.2	3.942	2.958	2.6	9.0
2007	3 24	0 18.99	- 6 25.5	3.942	2.957	2.6	9.0
2007	3 25	0 20.43	- 6 15.9	3.941	2.957	2.7	9.0
2007	3 26	0 21.86	- 6 6.2	3.941	2.956	2.7	9.0
2007	3 27	0 23.30	- 5 56.6	3.940	2.956	2.8	9.0
2007	3 28	0 24.73	- 5 47.0	3.939	2.956	2.9	9.0
2007	3 29	0 26.16	- 5 37.4	3.938	2.955	2.9	9.0
2007	3 30	0 27.60	- 5 27.8	3.937	2.955	3.0	9.0
2007	3 31	0 29.03	- 5 18.3	3.936	2.954	3.1	9.0
2007	7 30	3 6.45	+ 8 30.8	2.890	2.890	20.2	9.0
2007	7 31	3 7.41	+ 8 33.7	2.876	2.889	20.3	9.0
2007	8 1	3 8.35	+ 8 36.6	2.862	2.889	20.3	9.0
2007	8 2	3 9.29	+ 8 39.3	2.848	2.888	20.4	9.0
2007	8 3	3 10.21	+ 8 42.0	2.834	2.887	20.4	9.0
2007	8 4	3 11.13	+ 8 44.6	2.820	2.887	20.4	8.9
2007	8 5	3 12.03	+ 8 47.2	2.807	2.886	20.5	8.9
2007	8 6	3 12.91	+ 8 49.6	2.793	2.885	20.5	8.9
2007	8 7	3 13.79	+ 8 52.0	2.779	2.885	20.5	8.9
2007	8 8	3 14.65	+ 8 54.3	2.765	2.884	20.5	8.9
2007	8 9	3 15.50	+ 8 56.5	2.751	2.883	20.6	8.9
2007	8 10	3 16.33	+ 8 58.7	2.737	2.883	20.6	8.9
2007	8 11	3 17.15	+ 9 0.8	2.723	2.882	20.6	8.9
2007	8 12	3 17.96	+ 9 2.8	2.709	2.881	20.6	8.9
2007	8 13	3 18.75	+ 9 4.7	2.695	2.881	20.6	8.8
2007	8 14	3 19.52	+ 9 6.5	2.681	2.880	20.6	8.8
2007	8 15	3 20.29	+ 9 8.3	2.667	2.879	20.6	8.8
2007	8 16	3 21.03	+ 9 9.9	2.653	2.879	20.6	8.8
2007	8 17	3 21.76	+ 9 11.5	2.639	2.878	20.6	8.8
2007	8 18	3 22.48	+ 9 13.0	2.625	2.877	20.6	8.8
2007	8 19	3 23.18	+ 9 14.5	2.611	2.877	20.5	8.8
2007	8 20	3 23.86	+ 9 15.9	2.597	2.876	20.5	8.8
2007	8 21	3 24.53	+ 9 17.1	2.583	2.875	20.5	8.7
2007	8 22	3 25.18	+ 9 18.4	2.570	2.874	20.4	8.7
2007	8 23	3 25.81	+ 9 19.5	2.556	2.874	20.4	8.7
2007	8 24	3 26.43	+ 9 20.5	2.542	2.873	20.4	8.7
2007	8 25	3 27.03	+ 9 21.5	2.528	2.872	20.3	8.7
2007	8 26	3 27.61	+ 9 22.4	2.514	2.872	20.3	8.7
2007	8 27	3 28.17	+ 9 23.2	2.501	2.871	20.2	8.7
2007	8 28	3 28.71	+ 9 24.0	2.487	2.870	20.1	8.7
2007	8 29	3 29.23	+ 9 24.7	2.473	2.870	20.1	8.6
2007	8 30	3 29.74	+ 9 25.3	2.459	2.869	20.0	8.6
2007	8 31	3 30.22	+ 9 25.8	2.446	2.868	19.9	8.6
2007	9 1	3 30.69	+ 9 26.3	2.432	2.867	19.9	8.6
2007	9 2	3 31.14	+ 9 26.6	2.419	2.867	19.8	8.6
2007	9 3	3 31.56	+ 9 26.9	2.405	2.866	19.7	8.6
2007	9 4	3 31.97	+ 9 27.2	2.392	2.865	19.6	8.5
2007	9 5	3 32.35	+ 9 27.3	2.379	2.865	19.5	8.5
2007	9 6	3 32.71	+ 9 27.4	2.365	2.864	19.4	8.5
2007	9 7	3 33.05	+ 9 27.4	2.352	2.863	19.3	8.5
2007	9 8	3 33.37	+ 9 27.4	2.339	2.863	19.2	8.5
2007	9 9	3 33.67	+ 9 27.3	2.326	2.862	19.0	8.5
2007	9 10	3 33.95	+ 9 27.1	2.313	2.861	18.9	8.4
2007	9 11	3 34.20	+ 9 26.8	2.300	2.860	18.8	8.4
2007	9 12	3 34.43	+ 9 26.5	2.288	2.860	18.6	8.4
2007	9 13	3 34.64	+ 9 26.1	2.275	2.859	18.5	8.4
2007	9 14	3 34.82	+ 9 25.6	2.262	2.858	18.3	8.4
2007	9 15	3 34.98	+ 9 25.1	2.250	2.857	18.2	8.4
2007	9 16	3 35.12	+ 9 24.5	2.237	2.857	18.0	8.3
2007	9 17	3 35.24	+ 9 23.8	2.225	2.856	17.9	8.3
2007	9 18	3 35.32	+ 9 23.1	2.213	2.855	17.7	8.3
2007	9 19	3 35.39	+ 9 22.4	2.201	2.855	17.5	8.3



2007 9 20	3 35.43	+ 9 21.5	2.189	2.854	17.3	8.3	122.2W
2007 9 21	3 35.45	+ 9 20.6	2.177	2.853	17.1	8.2	123.2W
2007 9 22	3 35.44	+ 9 19.7	2.165	2.852	16.9	8.2	124.1W
2007 9 23	3 35.40	+ 9 18.7	2.154	2.852	16.7	8.2	125.1W
2007 9 24	3 35.34	+ 9 17.6	2.142	2.851	16.5	8.2	126.1W
2007 9 25	3 35.26	+ 9 16.5	2.131	2.850	16.3	8.2	127.1W
2007 9 26	3 35.15	+ 9 15.3	2.120	2.849	16.1	8.2	128.0W
2007 9 27	3 35.01	+ 9 14.1	2.109	2.849	15.9	8.1	129.0W
2007 9 28	3 34.85	+ 9 12.8	2.098	2.848	15.6	8.1	130.0W
2007 9 29	3 34.67	+ 9 11.5	2.087	2.847	15.4	8.1	131.0W
2007 9 30	3 34.46	+ 9 10.1	2.077	2.846	15.1	8.1	132.1W
2007 10 1	3 34.22	+ 9 8.7	2.066	2.846	14.9	8.0	133.1W
2007 10 2	3 33.96	+ 9 7.3	2.056	2.845	14.6	8.0	134.1W
2007 10 3	3 33.67	+ 9 5.8	2.046	2.844	14.4	8.0	135.1W
2007 10 4	3 33.36	+ 9 4.3	2.036	2.843	14.1	8.0	136.2W
2007 10 5	3 33.02	+ 9 2.7	2.026	2.843	13.8	8.0	137.2W
2007 10 6	3 32.65	+ 9 1.1	2.017	2.842	13.6	7.9	138.2W
2007 10 7	3 32.26	+ 8 59.5	2.008	2.841	13.3	7.9	139.3W
2007 10 8	3 31.85	+ 8 57.8	1.999	2.840	13.0	7.9	140.3W
2007 10 9	3 31.41	+ 8 56.1	1.990	2.840	12.7	7.9	141.4W
2007 10 10	3 30.95	+ 8 54.4	1.981	2.839	12.4	7.9	142.5W
2007 10 11	3 30.46	+ 8 52.7	1.972	2.838	12.1	7.8	143.5W
2007 10 12	3 29.95	+ 8 50.9	1.964	2.837	11.8	7.8	144.6W
2007 10 13	3 29.41	+ 8 49.1	1.956	2.837	11.4	7.8	145.7W
2007 10 14	3 28.85	+ 8 47.3	1.948	2.836	11.1	7.8	146.8W
2007 10 15	3 28.27	+ 8 45.5	1.941	2.835	10.8	7.7	147.8W
2007 10 16	3 27.66	+ 8 43.7	1.933	2.834	10.5	7.7	148.9W
2007 10 17	3 27.04	+ 8 41.9	1.926	2.834	10.1	7.7	150.0W
2007 10 18	3 26.39	+ 8 40.1	1.919	2.833	9.8	7.7	151.1W
2007 10 19	3 25.72	+ 8 38.2	1.912	2.832	9.4	7.7	152.2W
2007 10 20	3 25.03	+ 8 36.4	1.906	2.831	9.1	7.6	153.3W
2007 10 21	3 24.32	+ 8 34.6	1.900	2.830	8.8	7.6	154.4W
2007 10 22	3 23.59	+ 8 32.8	1.894	2.830	8.4	7.6	155.5W
2007 10 23	3 22.84	+ 8 31.0	1.888	2.829	8.0	7.6	156.5W
2007 10 24	3 22.07	+ 8 29.2	1.883	2.828	7.7	7.5	157.6W
2007 10 25	3 21.29	+ 8 27.4	1.878	2.827	7.3	7.5	158.7W
2007 10 26	3 20.49	+ 8 25.6	1.873	2.827	7.0	7.5	159.8W
2007 10 27	3 19.67	+ 8 23.9	1.868	2.826	6.6	7.5	160.8W
2007 10 28	3 18.84	+ 8 22.2	1.864	2.825	6.3	7.5	161.9W
2007 10 29	3 17.99	+ 8 20.6	1.860	2.824	5.9	7.4	162.9W
2007 10 30	3 17.13	+ 8 18.9	1.856	2.823	5.6	7.4	163.9W
2007 10 31	3 16.26	+ 8 17.3	1.852	2.823	5.3	7.4	164.9W
2007 11 1	3 15.38	+ 8 15.8	1.849	2.822	4.9	7.4	165.8W
2007 11 2	3 14.48	+ 8 14.3	1.846	2.821	4.6	7.3	166.7W
2007 11 3	3 13.58	+ 8 12.8	1.843	2.820	4.3	7.3	167.6W
2007 11 4	3 12.66	+ 8 11.4	1.841	2.820	4.1	7.3	168.4W
2007 11 5	3 11.74	+ 8 10.0	1.839	2.819	3.8	7.3	169.1W
2007 11 6	3 10.81	+ 8 8.7	1.837	2.818	3.6	7.3	169.7W
2007 11 7	3 9.88	+ 8 7.5	1.835	2.817	3.4	7.3	170.2W
2007 11 8	3 8.94	+ 8 6.3	1.834	2.816	3.3	7.2	170.6W
2007 11 9	3 7.99	+ 8 5.2	1.833	2.816	3.2	7.2	170.8W
2007 11 10	3 7.05	+ 8 4.2	1.833	2.815	3.2	7.2	170.9W
2007 11 11	3 6.10	+ 8 3.2	1.832	2.814	3.2	7.2	170.8W
2007 11 12	3 5.15	+ 8 2.4	1.832	2.813	3.3	7.2	170.5E
2007 11 13	3 4.20	+ 8 1.6	1.832	2.812	3.5	7.2	170.1E
2007 11 14	3 3.26	+ 8 0.8	1.833	2.812	3.6	7.3	169.6E
2007 11 15	3 2.31	+ 8 0.2	1.834	2.811	3.9	7.3	168.9E
2007 11 16	3 1.37	+ 7 59.7	1.835	2.810	4.1	7.3	168.2E
2007 11 17	3 0.43	+ 7 59.2	1.836	2.809	4.4	7.3	167.4E
2007 11 18	2 59.50	+ 7 58.9	1.838	2.808	4.7	7.3	166.5E
2007 11 19	2 58.58	+ 7 58.6	1.840	2.808	5.0	7.3	165.6E
2007 11 20	2 57.66	+ 7 58.5	1.842	2.807	5.4	7.4	164.6E
2007 11 21	2 56.76	+ 7 58.4	1.844	2.806	5.7	7.4	163.6E
2007 11 22	2 55.86	+ 7 58.5	1.847	2.805	6.0	7.4	162.6E
2007 11 23	2 54.97	+ 7 58.6	1.850	2.805	6.4	7.4	161.6E
2007 11 24	2 54.09	+ 7 58.9	1.853	2.804	6.8	7.4	160.5E
2007 11 25	2 53.23	+ 7 59.3	1.857	2.803	7.1	7.5	159.4E
2007 11 26	2 52.38	+ 7 59.8	1.861	2.802	7.5	7.5	158.3E
2007 11 27	2 51.54	+ 8 0.4	1.865	2.801	7.8	7.5	157.2E
2007 11 28	2 50.72	+ 8 1.1	1.870	2.800	8.2	7.5	156.1E
2007 11 29	2 49.91	+ 8 2.0	1.874	2.800	8.6	7.5	155.0E
2007 11 30	2 49.12	+ 8 2.9	1.879	2.799	8.9	7.6	153.9E
2007 12 1	2 48.35	+ 8 4.0	1.884	2.798	9.3	7.6	152.8E
2007 12 2	2 47.60	+ 8 5.2	1.890	2.797	9.6	7.6	151.7E
2007 12 3	2 46.86	+ 8 6.5	1.896	2.796	10	7.6	150.6E
2007 12 4	2 46.14	+ 8 7.9	1.902	2.796	10.3	7.7	149.4E
2007 12 5	2 45.45	+ 8 9.5	1.908	2.795	10.7	7.7	148.3E
2007 12 6	2 44.77	+ 8 11.1	1.914	2.794	11.0	7.7	147.2E
2007 12 7	2 44.12	+ 8 12.9	1.921	2.793	11.3	7.7	146.1E
2007 12 8	2 43.48	+ 8 14.9	1.928	2.792	11.7	7.7	145.0E
2007 12 9	2 42.87	+ 8 16.9	1.935	2.792	12.0	7.8	143.9E
2007 12 10	2 42.29	+ 8 19.1	1.942	2.791	12.3	7.8	142.8E

2007	12	11	2	41.72	+ 8	21.4	1.950	2.790	12.6	7.8	141.7E
2007	12	12	2	41.18	+ 8	23.8	1.958	2.789	13.0	7.8	140.6E
2007	12	13	2	40.66	+ 8	26.3	1.966	2.788	13.3	7.8	139.5E
2007	12	14	2	40.17	+ 8	29.0	1.974	2.788	13.6	7.9	138.4E
2007	12	15	2	39.70	+ 8	31.7	1.982	2.787	13.9	7.9	137.3E
2007	12	16	2	39.25	+ 8	34.6	1.991	2.786	14.2	7.9	136.2E
2007	12	17	2	38.83	+ 8	37.6	2.000	2.785	14.4	7.9	135.1E
2007	12	18	2	38.44	+ 8	40.8	2.009	2.784	14.7	7.9	134.1E
2007	12	19	2	38.07	+ 8	44.0	2.018	2.783	15.0	8.0	133.0E
2007	12	20	2	37.73	+ 8	47.4	2.027	2.783	15.3	8.0	131.9E
2007	12	21	2	37.41	+ 8	50.9	2.037	2.782	15.5	8.0	130.9E
2007	12	22	2	37.12	+ 8	54.5	2.046	2.781	15.8	8.0	129.8E
2007	12	23	2	36.85	+ 8	58.2	2.056	2.780	16.0	8.0	128.8E
2007	12	24	2	36.61	+ 9	2.0	2.066	2.779	16.3	8.0	127.7E
2007	12	25	2	36.40	+ 9	5.9	2.076	2.779	16.5	8.1	126.7E
2007	12	26	2	36.21	+ 9	9.9	2.087	2.778	16.7	8.1	125.7E
2007	12	27	2	36.05	+ 9	14.1	2.097	2.777	16.9	8.1	124.7E
2007	12	28	2	35.92	+ 9	18.3	2.108	2.776	17.2	8.1	123.6E
2007	12	29	2	35.81	+ 9	22.7	2.119	2.775	17.4	8.1	122.6E
2007	12	30	2	35.73	+ 9	27.1	2.129	2.774	17.6	8.2	121.6E
2007	12	31	2	35.67	+ 9	31.7	2.140	2.774	17.8	8.2	120.6E
2008	1	1	2	35.64	+ 9	36.4	2.152	2.773	18.0	8.2	119.6E

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø

	2 Pallas										
2007	8	23	22	34.98	+ 6	20.7	2.290	3.261	5.9	9.0	160.6W
2007	8	24	22	34.24	+ 6	9.9	2.285	3.260	5.7	9.0	161.5W
2007	8	25	22	33.50	+ 5	58.9	2.281	3.259	5.4	8.9	162.3W
2007	8	26	22	32.75	+ 5	47.7	2.277	3.257	5.2	8.9	163.1W
2007	8	27	22	32.00	+ 5	36.4	2.273	3.256	5.0	8.9	163.8W
2007	8	28	22	31.25	+ 5	24.9	2.270	3.255	4.7	8.9	164.5W
2007	8	29	22	30.50	+ 5	13.2	2.267	3.253	4.6	8.9	165.2W
2007	8	30	22	29.74	+ 5	1.5	2.264	3.252	4.4	8.9	165.7E
2007	8	31	22	28.98	+ 4	49.5	2.261	3.251	4.3	8.9	166.2E
2007	9	1	22	28.22	+ 4	37.5	2.259	3.249	4.1	8.9	166.6E
2007	9	2	22	27.46	+ 4	25.3	2.257	3.248	4.1	8.8	166.9E
2007	9	3	22	26.71	+ 4	13.0	2.256	3.247	4.0	8.8	167.0E
2007	9	4	22	25.95	+ 4	0.6	2.254	3.245	4.0	8.8	167.1E
2007	9	5	22	25.20	+ 3	48.1	2.253	3.244	4.0	8.8	167.0E
2007	9	6	22	24.45	+ 3	35.6	2.253	3.242	4.0	8.8	166.9E
2007	9	7	22	23.70	+ 3	22.9	2.252	3.241	4.1	8.8	166.6E
2007	9	8	22	22.96	+ 3	10.1	2.252	3.240	4.2	8.8	166.2E
2007	9	9	22	22.23	+ 2	57.3	2.252	3.238	4.4	8.9	165.8E
2007	9	10	22	21.50	+ 2	44.4	2.253	3.237	4.6	8.9	165.2E
2007	9	11	22	20.78	+ 2	31.5	2.254	3.235	4.7	8.9	164.6E
2007	9	12	22	20.06	+ 2	18.5	2.255	3.234	5.0	8.9	163.9E
2007	9	13	22	19.36	+ 2	5.5	2.256	3.233	5.2	8.9	163.1E
2007	9	14	22	18.66	+ 1	52.5	2.258	3.231	5.4	8.9	162.3E
2007	9	15	22	17.97	+ 1	39.4	2.260	3.230	5.7	8.9	161.5E
2007	9	16	22	17.30	+ 1	26.4	2.263	3.228	5.9	8.9	160.6E
2007	9	17	22	16.63	+ 1	13.3	2.265	3.227	6.2	9.0	159.7E
2007	9	18	22	15.98	+ 1	0.2	2.268	3.226	6.5	9.0	158.7E
2007	9	19	22	15.33	+ 0	47.2	2.272	3.224	6.8	9.0	157.7E

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø

4 Vesta											
2007	1	1	14	49.50	- 9	56.6	2.595	2.224	21.8	7.9	57.3W
2007	1	2	14	51.30	-10	3.6	2.584	2.223	22.0	7.8	57.9W
2007	1	3	14	53.09	-10	10.5	2.573	2.222	22.1	7.8	58.4W
2007	1	4	14	54.89	-10	17.3	2.562	2.222	22.3	7.8	59.0W
2007	1	5	14	56.68	-10	24.0	2.551	2.221	22.4	7.8	59.6W
2007	1	6	14	58.46	-10	30.6	2.540	2.220	22.6	7.8	60.1W
2007	1	7	15	0.24	-10	37.1	2.528	2.219	22.7	7.8	60.7W
2007	1	8	15	2.02	-10	43.5	2.517	2.218	22.9	7.8	61.2W
2007	1	9	15	3.79	-10	49.8	2.506	2.218	23.0	7.8	61.8W
2007	1	10	15	5.56	-10	56.0	2.494	2.217	23.1	7.8	62.4W
2007	1	11	15	7.33	-11	2.2	2.483	2.216	23.3	7.8	62.9W
2007	1	12	15	9.09	-11	8.2	2.471	2.215	23.4	7.8	63.5W
2007	1	13	15	10.84	-11	14.1	2.460	2.215	23.5	7.8	64.1W
2007	1	14	15	12.59	-11	20.0	2.448	2.214	23.7	7.8	64.7W
2007	1	15	15	14.34	-11	25.7	2.437	2.213	23.8	7.8	65.2W
2007	1	16	15	16.08	-11	31.4	2.425	2.212	23.9	7.7	65.8W
2007	1	17	15	17.81	-11	37.0	2.413	2.211	24.1	7.7	66.4W
2007	1	18	15	19.54	-11	42.4	2.402	2.211	24.2	7.7	67.0W

2007	1	19	15	21.26	-11	47.8	2.390	2.210	24.3	7.7	67.6W
2007	1	20	15	22.98	-11	53.0	2.378	2.209	24.4	7.7	68.1W
2007	1	21	15	24.69	-11	58.2	2.366	2.209	24.5	7.7	68.7W
2007	1	22	15	26.40	-12	3.3	2.354	2.208	24.6	7.7	69.3W
2007	1	23	15	28.09	-12	8.3	2.343	2.207	24.8	7.7	69.9W
2007	1	24	15	29.78	-12	13.1	2.331	2.206	24.9	7.7	70.5W
2007	1	25	15	31.47	-12	17.9	2.319	2.206	25.0	7.7	71.1W
2007	1	26	15	33.15	-12	22.6	2.307	2.205	25.1	7.7	71.7W
2007	1	27	15	34.81	-12	27.2	2.295	2.204	25.2	7.7	72.3W
2007	1	28	15	36.48	-12	31.6	2.283	2.203	25.3	7.6	72.9W
2007	1	29	15	38.13	-12	36.0	2.270	2.203	25.4	7.6	73.5W
2007	1	30	15	39.78	-12	40.3	2.258	2.202	25.5	7.6	74.1W
2007	1	31	15	41.41	-12	44.5	2.246	2.201	25.6	7.6	74.7W
2007	2	1	15	43.04	-12	48.6	2.234	2.201	25.7	7.6	75.3W
2007	2	2	15	44.66	-12	52.6	2.222	2.200	25.7	7.6	75.9W
2007	2	3	15	46.28	-12	56.4	2.210	2.199	25.8	7.6	76.5W
2007	2	4	15	47.88	-13	0.2	2.197	2.199	25.9	7.6	77.1W
2007	2	5	15	49.47	-13	3.9	2.185	2.198	26.0	7.6	77.7W
2007	2	6	15	51.06	-13	7.5	2.173	2.197	26.1	7.6	78.3W
2007	2	7	15	52.63	-13	11.0	2.161	2.197	26.1	7.5	79.0W
2007	2	8	15	54.19	-13	14.4	2.148	2.196	26.2	7.5	79.6W
2007	2	9	15	55.75	-13	17.7	2.136	2.195	26.3	7.5	80.2W
2007	2	10	15	57.29	-13	20.9	2.124	2.195	26.4	7.5	80.8W
2007	2	11	15	58.82	-13	24.0	2.111	2.194	26.4	7.5	81.5W
2007	2	12	16	0.34	-13	27.0	2.099	2.193	26.5	7.5	82.1W
2007	2	13	16	1.85	-13	29.9	2.087	2.193	26.5	7.5	82.7W
2007	2	14	16	3.34	-13	32.7	2.074	2.192	26.6	7.5	83.4W
2007	2	15	16	4.83	-13	35.4	2.062	2.191	26.6	7.4	84.0W
2007	2	16	16	6.30	-13	38.1	2.050	2.191	26.7	7.4	84.7W
2007	2	17	16	7.76	-13	40.6	2.037	2.190	26.7	7.4	85.3W
2007	2	18	16	9.21	-13	43.0	2.025	2.189	26.8	7.4	86.0W
2007	2	19	16	10.64	-13	45.4	2.012	2.189	26.8	7.4	86.6W
2007	2	20	16	12.06	-13	47.6	2.000	2.188	26.8	7.4	87.3W
2007	2	21	16	13.46	-13	49.8	1.988	2.188	26.9	7.4	87.9W
2007	2	22	16	14.86	-13	51.9	1.975	2.187	26.9	7.4	88.6W
2007	2	23	16	16.23	-13	53.8	1.963	2.186	26.9	7.3	89.2W
2007	2	24	16	17.59	-13	55.7	1.951	2.186	26.9	7.3	89.9W
2007	2	25	16	18.94	-13	57.5	1.938	2.185	26.9	7.3	90.6W
2007	2	26	16	20.27	-13	59.2	1.926	2.185	26.9	7.3	91.3W
2007	2	27	16	21.59	-14	0.9	1.914	2.184	26.9	7.3	91.9W
2007	2	28	16	22.89	-14	2.4	1.901	2.183	26.9	7.3	92.6W
2007	3	1	16	24.17	-14	3.9	1.889	2.183	26.9	7.3	93.3W
2007	3	2	16	25.44	-14	5.2	1.877	2.182	26.9	7.2	94.0W
2007	3	3	16	26.68	-14	6.5	1.864	2.182	26.9	7.2	94.7W
2007	3	4	16	27.92	-14	7.7	1.852	2.181	26.9	7.2	95.4W
2007	3	5	16	29.13	-14	8.9	1.840	2.181	26.9	7.2	96.1W
2007	3	6	16	30.32	-14	9.9	1.828	2.180	26.9	7.2	96.8W
2007	3	7	16	31.50	-14	10.9	1.816	2.180	26.8	7.2	97.5W
2007	3	8	16	32.66	-14	11.8	1.804	2.179	26.8	7.1	98.2W
2007	3	9	16	33.80	-14	12.6	1.791	2.178	26.8	7.1	98.9W
2007	3	10	16	34.91	-14	13.3	1.779	2.178	26.7	7.1	99.6W
2007	3	11	16	36.01	-14	14.0	1.767	2.177	26.7	7.1	100.4W
2007	3	12	16	37.09	-14	14.6	1.755	2.177	26.6	7.1	101.1W
2007	3	13	16	38.14	-14	15.1	1.743	2.176	26.5	7.1	101.8W
2007	3	14	16	39.18	-14	15.6	1.731	2.176	26.5	7.0	102.6W
2007	3	15	16	40.19	-14	16.0	1.720	2.175	26.4	7.0	103.3W
2007	3	16	16	41.18	-14	16.3	1.708	2.175	26.3	7.0	104.0W
2007	3	17	16	42.15	-14	16.5	1.696	2.174	26.3	7.0	104.8W
2007	3	18	16	43.10	-14	16.7	1.684	2.174	26.2	7.0	105.6W
2007	3	19	16	44.02	-14	16.9	1.672	2.173	26.1	7.0	106.3W
2007	3	20	16	44.92	-14	16.9	1.661	2.173	26.0	6.9	107.1W
2007	3	21	16	45.79	-14	17.0	1.649	2.172	25.9	6.9	107.9W
2007	3	22	16	46.64	-14	16.9	1.638	2.172	25.8	6.9	108.6W
2007	3	23	16	47.47	-14	16.8	1.626	2.171	25.6	6.9	109.4W
2007	3	24	16	48.26	-14	16.7	1.615	2.171	25.5	6.9	110.2W
2007	3	25	16	49.04	-14	16.5	1.603	2.171	25.4	6.8	111.0W
2007	3	26	16	49.78	-14	16.3	1.592	2.170	25.3	6.8	111.8W
2007	3	27	16	50.51	-14	16.0	1.581	2.170	25.1	6.8	112.6W
2007	3	28	16	51.20	-14	15.6	1.570	2.169	25.0	6.8	113.4W
2007	3	29	16	51.86	-14	15.2	1.559	2.169	24.8	6.8	114.2W
2007	3	30	16	52.50	-14	14.8	1.548	2.168	24.7	6.7	115.1W
2007	3	31	16	53.11	-14	14.4	1.537	2.168	24.5	6.7	115.9W
2007	4	1	16	53.69	-14	13.9	1.526	2.167	24.3	6.7	116.7W
2007	4	2	16	54.25	-14	13.3	1.515	2.167	24.1	6.7	117.6W
2007	4	3	16	54.77	-14	12.8	1.505	2.167	23.9	6.7	118.4W
2007	4	4	16	55.26	-14	12.2	1.494	2.166	23.7	6.6	119.3W
2007	4	5	16	55.73	-14	11.6	1.484	2.166	23.5	6.6	120.1W
2007	4	6	16	56.16	-14	10.9	1.473	2.165	23.3	6.6	121.0W
2007	4	7	16	56.56	-14	10.3	1.463	2.165	23.1	6.6	121.9W
2007	4	8	16	56.93	-14	9.6	1.453	2.165	22.9	6.6	122.7W
2007	4	9	16	57.27	-14	8.8	1.443	2.164	22.7	6.5	123.6W
2007	4	10	16	57.58	-14	8.1	1.433	2.164	22.4	6.5	124.5W

2007	4	11	16	57.85	-14	7.4	1.423	2.163	22.2	6.5	125.4W
2007	4	12	16	58.09	-14	6.6	1.413	2.163	21.9	6.5	126.3W
2007	4	13	16	58.30	-14	5.9	1.403	2.163	21.7	6.5	127.2W
2007	4	14	16	58.48	-14	5.1	1.394	2.162	21.4	6.4	128.2W
2007	4	15	16	58.63	-14	4.3	1.385	2.162	21.1	6.4	129.1W
2007	4	16	16	58.74	-14	3.5	1.375	2.162	20.8	6.4	130.0W
2007	4	17	16	58.81	-14	2.8	1.366	2.161	20.5	6.4	131.0W
2007	4	18	16	58.86	-14	2.0	1.357	2.161	20.2	6.3	131.9W
2007	4	19	16	58.87	-14	1.2	1.348	2.161	19.9	6.3	132.9W
2007	4	20	16	58.84	-14	0.4	1.340	2.160	19.6	6.3	133.8W
2007	4	21	16	58.78	-13	59.7	1.331	2.160	19.3	6.3	134.8W
2007	4	22	16	58.69	-13	58.9	1.323	2.160	18.9	6.3	135.8W
2007	4	23	16	58.56	-13	58.2	1.314	2.159	18.6	6.2	136.7W
2007	4	24	16	58.40	-13	57.5	1.306	2.159	18.3	6.2	137.7W
2007	4	25	16	58.21	-13	56.8	1.298	2.159	17.9	6.2	138.7W
2007	4	26	16	57.98	-13	56.1	1.291	2.158	17.5	6.2	139.7W
2007	4	27	16	57.71	-13	55.5	1.283	2.158	17.2	6.1	140.7W
2007	4	28	16	57.42	-13	54.9	1.275	2.158	16.8	6.1	141.7W
2007	4	29	16	57.09	-13	54.3	1.268	2.158	16.4	6.1	142.8W
2007	4	30	16	56.72	-13	53.7	1.261	2.157	16.0	6.1	143.8W
2007	5	1	16	56.33	-13	53.2	1.254	2.157	15.6	6.0	144.8W
2007	5	2	16	55.90	-13	52.7	1.247	2.157	15.2	6.0	145.9W
2007	5	3	16	55.44	-13	52.3	1.241	2.157	14.8	6.0	146.9W
2007	5	4	16	54.94	-13	51.9	1.234	2.156	14.4	6.0	148.0W
2007	5	5	16	54.42	-13	51.5	1.228	2.156	13.9	5.9	149.0W
2007	5	6	16	53.86	-13	51.2	1.222	2.156	13.5	5.9	150.1W
2007	5	7	16	53.27	-13	50.9	1.216	2.156	13.1	5.9	151.1W
2007	5	8	16	52.66	-13	50.7	1.211	2.155	12.6	5.9	152.2W
2007	5	9	16	52.01	-13	50.5	1.205	2.155	12.2	5.9	153.3W
2007	5	10	16	51.34	-13	50.4	1.200	2.155	11.7	5.8	154.3W
2007	5	11	16	50.64	-13	50.4	1.195	2.155	11.2	5.8	155.4W
2007	5	12	16	49.91	-13	50.4	1.190	2.155	10.8	5.8	156.5W
2007	5	13	16	49.16	-13	50.4	1.186	2.154	10.3	5.8	157.6W
2007	5	14	16	48.38	-13	50.6	1.181	2.154	9.8	5.7	158.6W
2007	5	15	16	47.58	-13	50.7	1.177	2.154	9.4	5.7	159.7W
2007	5	16	16	46.75	-13	51.0	1.173	2.154	8.9	5.7	160.7W
2007	5	17	16	45.90	-13	51.3	1.170	2.154	8.4	5.7	161.8W
2007	5	18	16	45.03	-13	51.7	1.166	2.153	8.0	5.6	162.8W
2007	5	19	16	44.15	-13	52.2	1.163	2.153	7.5	5.6	163.9W
2007	5	20	16	43.24	-13	52.7	1.160	2.153	7.0	5.6	164.9W
2007	5	21	16	42.32	-13	53.4	1.157	2.153	6.6	5.6	165.9W
2007	5	22	16	41.38	-13	54.0	1.155	2.153	6.1	5.6	166.9W
2007	5	23	16	40.43	-13	54.8	1.152	2.153	5.7	5.5	167.8W
2007	5	24	16	39.46	-13	55.7	1.150	2.152	5.3	5.5	168.7W
2007	5	25	16	38.48	-13	56.6	1.149	2.152	4.9	5.5	169.5W
2007	5	26	16	37.50	-13	57.6	1.147	2.152	4.6	5.5	170.3W
2007	5	27	16	36.50	-13	58.7	1.146	2.152	4.3	5.5	170.9W
2007	5	28	16	35.49	-13	59.9	1.145	2.152	4.0	5.4	171.5W
2007	5	29	16	34.48	-14	1.2	1.144	2.152	3.8	5.4	171.9W
2007	5	30	16	33.47	-14	2.5	1.143	2.152	3.7	5.4	172.1W
2007	5	31	16	32.45	-14	4.0	1.143	2.152	3.7	5.4	172.2W
2007	6	1	16	31.44	-14	5.5	1.143	2.152	3.7	5.4	172.1E
2007	6	2	16	30.42	-14	7.1	1.143	2.152	3.8	5.4	171.8E
2007	6	3	16	29.40	-14	8.9	1.143	2.151	4.0	5.4	171.4E
2007	6	4	16	28.39	-14	10.7	1.144	2.151	4.3	5.5	170.8E
2007	6	5	16	27.38	-14	12.6	1.145	2.151	4.6	5.5	170.1E
2007	6	6	16	26.38	-14	14.6	1.146	2.151	5.0	5.5	169.4E
2007	6	7	16	25.39	-14	16.6	1.147	2.151	5.4	5.5	168.5E
2007	6	8	16	24.40	-14	18.8	1.149	2.151	5.8	5.5	167.6E
2007	6	9	16	23.43	-14	21.1	1.151	2.151	6.2	5.6	166.7E
2007	6	10	16	22.46	-14	23.5	1.153	2.151	6.7	5.6	165.7E
2007	6	11	16	21.52	-14	25.9	1.155	2.151	7.1	5.6	164.7E
2007	6	12	16	20.58	-14	28.5	1.157	2.151	7.6	5.6	163.7E
2007	6	13	16	19.66	-14	31.1	1.160	2.151	8.1	5.6	162.7E
2007	6	14	16	18.76	-14	33.9	1.163	2.151	8.6	5.7	161.6E
2007	6	15	16	17.88	-14	36.7	1.166	2.151	9.0	5.7	160.6E
2007	6	16	16	17.02	-14	39.7	1.170	2.151	9.5	5.7	159.5E
2007	6	17	16	16.18	-14	42.7	1.173	2.151	10	5.7	158.5E
2007	6	18	16	15.36	-14	45.8	1.177	2.151	10.5	5.7	157.4E
2007	6	19	16	14.56	-14	49.0	1.181	2.151	10.9	5.8	156.3E
2007	6	20	16	13.79	-14	52.3	1.186	2.151	11.4	5.8	155.3E
2007	6	21	16	13.04	-14	55.7	1.190	2.151	11.9	5.8	154.2E
2007	6	22	16	12.32	-14	59.2	1.195	2.151	12.3	5.8	153.1E
2007	6	23	16	11.62	-15	2.8	1.200	2.151	12.8	5.9	152.1E
2007	6	24	16	10.95	-15	6.5	1.205	2.151	13.2	5.9	151.0E
2007	6	25	16	10.31	-15	10.3	1.210	2.151	13.7	5.9	150.0E
2007	6	26	16	9.70	-15	14.1	1.216	2.151	14.1	5.9	148.9E
2007	6	27	16	9.12	-15	18.1	1.221	2.151	14.6	5.9	147.9E
2007	6	28	16	8.57	-15	22.1	1.227	2.151	15.0	6.0	146.8E
2007	6	29	16	8.04	-15	26.2	1.233	2.151	15.4	6.0	145.8E
2007	6	30	16	7.55	-15	30.4	1.240	2.151	15.8	6.0	144.8E
2007	7	1	16	7.09	-15	34.7	1.246	2.151	16.2	6.0	143.7E

2007	7	2	16	6.67	-15	39.0	1.253	2.152	16.6	6.1	142.7E
2007	7	3	16	6.27	-15	43.4	1.259	2.152	17.0	6.1	141.7E
2007	7	4	16	5.91	-15	48.0	1.266	2.152	17.4	6.1	140.7E
2007	7	5	16	5.58	-15	52.6	1.273	2.152	17.8	6.1	139.7E
2007	7	6	16	5.28	-15	57.2	1.281	2.152	18.2	6.2	138.7E
2007	7	7	16	5.02	-16	2.0	1.288	2.152	18.5	6.2	137.7E
2007	7	8	16	4.79	-16	6.8	1.296	2.152	18.9	6.2	136.7E
2007	7	9	16	4.59	-16	11.6	1.304	2.152	19.2	6.2	135.8E
2007	7	10	16	4.43	-16	16.6	1.311	2.152	19.6	6.2	134.8E
2007	7	11	16	4.30	-16	21.6	1.319	2.153	19.9	6.3	133.9E
2007	7	12	16	4.20	-16	26.7	1.328	2.153	20.2	6.3	132.9E
2007	7	13	16	4.14	-16	31.8	1.336	2.153	20.6	6.3	132.0E
2007	7	14	16	4.11	-16	37.0	1.344	2.153	20.9	6.3	131.0E
2007	7	15	16	4.11	-16	42.3	1.353	2.153	21.2	6.4	130.1E
2007	7	16	16	4.15	-16	47.6	1.362	2.153	21.5	6.4	129.2E
2007	7	17	16	4.22	-16	53.0	1.371	2.153	21.7	6.4	128.3E
2007	7	18	16	4.32	-16	58.4	1.380	2.154	22.0	6.4	127.4E
2007	7	19	16	4.46	-17	3.9	1.389	2.154	22.3	6.4	126.5E
2007	7	20	16	4.63	-17	9.4	1.398	2.154	22.6	6.5	125.6E
2007	7	21	16	4.83	-17	15.0	1.407	2.154	22.8	6.5	124.7E
2007	7	22	16	5.06	-17	20.6	1.417	2.154	23.1	6.5	123.8E
2007	7	23	16	5.33	-17	26.3	1.426	2.155	23.3	6.5	123.0E
2007	7	24	16	5.63	-17	32.0	1.436	2.155	23.5	6.5	122.1E
2007	7	25	16	5.96	-17	37.7	1.445	2.155	23.8	6.6	121.2E
2007	7	26	16	6.32	-17	43.5	1.455	2.155	24.0	6.6	120.4E
2007	7	27	16	6.71	-17	49.3	1.465	2.155	24.2	6.6	119.5E
2007	7	28	16	7.13	-17	55.2	1.475	2.156	24.4	6.6	118.7E
2007	7	29	16	7.58	-18	1.0	1.485	2.156	24.6	6.6	117.9E
2007	7	30	16	8.07	-18	6.9	1.496	2.156	24.8	6.7	117.1E
2007	7	31	16	8.58	-18	12.9	1.506	2.156	25.0	6.7	116.2E
2007	8	1	16	9.12	-18	18.8	1.516	2.157	25.2	6.7	115.4E
2007	8	2	16	9.69	-18	24.8	1.527	2.157	25.3	6.7	114.6E
2007	8	3	16	10.29	-18	30.8	1.537	2.157	25.5	6.7	113.8E
2007	8	4	16	10.92	-18	36.8	1.548	2.157	25.6	6.8	113.1E
2007	8	5	16	11.58	-18	42.8	1.558	2.158	25.8	6.8	112.3E
2007	8	6	16	12.26	-18	48.8	1.569	2.158	25.9	6.8	111.5E
2007	8	7	16	12.98	-18	54.9	1.580	2.158	26.1	6.8	110.7E
2007	8	8	16	13.72	-19	0.9	1.591	2.159	26.2	6.8	110.0E
2007	8	9	16	14.48	-19	7.0	1.602	2.159	26.3	6.9	109.2E
2007	8	10	16	15.28	-19	13.1	1.613	2.159	26.4	6.9	108.4E
2007	8	11	16	16.10	-19	19.1	1.624	2.160	26.6	6.9	107.7E
2007	8	12	16	16.94	-19	25.2	1.635	2.160	26.7	6.9	106.9E
2007	8	13	16	17.81	-19	31.2	1.646	2.160	26.8	6.9	106.2E
2007	8	14	16	18.71	-19	37.3	1.657	2.160	26.9	6.9	105.5E
2007	8	15	16	19.63	-19	43.3	1.668	2.161	27.0	7.0	104.7E
2007	8	16	16	20.57	-19	49.4	1.680	2.161	27.0	7.0	104.0E
2007	8	17	16	21.54	-19	55.4	1.691	2.161	27.1	7.0	103.3E
2007	8	18	16	22.54	-20	1.4	1.702	2.162	27.2	7.0	102.6E
2007	8	19	16	23.55	-20	7.4	1.714	2.162	27.3	7.0	101.9E
2007	8	20	16	24.59	-20	13.4	1.725	2.163	27.3	7.0	101.2E
2007	8	21	16	25.66	-20	19.4	1.737	2.163	27.4	7.1	100.5E
2007	8	22	16	26.74	-20	25.3	1.748	2.163	27.4	7.1	99.8E
2007	8	23	16	27.85	-20	31.3	1.760	2.164	27.5	7.1	99.1E
2007	8	24	16	28.98	-20	37.1	1.771	2.164	27.5	7.1	98.4E
2007	8	25	16	30.13	-20	43.0	1.783	2.164	27.6	7.1	97.7E
2007	8	26	16	31.30	-20	48.9	1.794	2.165	27.6	7.1	97.0E
2007	8	27	16	32.50	-20	54.7	1.806	2.165	27.6	7.2	96.4E
2007	8	28	16	33.71	-21	0.4	1.818	2.166	27.7	7.2	95.7E
2007	8	29	16	34.95	-21	6.2	1.830	2.166	27.7	7.2	95.0E
2007	8	30	16	36.20	-21	11.9	1.841	2.166	27.7	7.2	94.4E
2007	8	31	16	37.48	-21	17.6	1.853	2.167	27.7	7.2	93.7E
2007	9	1	16	38.77	-21	23.2	1.865	2.167	27.7	7.2	93.0E
2007	9	2	16	40.08	-21	28.8	1.877	2.168	27.7	7.2	92.4E
2007	9	3	16	41.42	-21	34.3	1.888	2.168	27.7	7.3	91.7E
2007	9	4	16	42.77	-21	39.8	1.900	2.168	27.7	7.3	91.1E
2007	9	5	16	44.14	-21	45.3	1.912	2.169	27.7	7.3	90.5E
2007	9	6	16	45.53	-21	50.7	1.924	2.169	27.7	7.3	89.8E
2007	9	7	16	46.93	-21	56.0	1.936	2.170	27.7	7.3	89.2E
2007	9	8	16	48.35	-22	1.3	1.948	2.170	27.7	7.3	88.6E
2007	9	9	16	49.80	-22	6.6	1.960	2.171	27.6	7.3	87.9E
2007	9	10	16	51.25	-22	11.7	1.971	2.171	27.6	7.4	87.3E
2007	9	11	16	52.73	-22	16.9	1.983	2.172	27.6	7.4	86.7E
2007	9	12	16	54.22	-22	21.9	1.995	2.172	27.5	7.4	86.1E
2007	9	13	16	55.73	-22	27.0	2.007	2.173	27.5	7.4	85.4E
2007	9	14	16	57.25	-22	31.9	2.019	2.173	27.5	7.4	84.8E
2007	9	15	16	58.79	-22	36.8	2.031	2.174	27.4	7.4	84.2E
2007	9	16	17	0.35	-22	41.6	2.043	2.174	27.4	7.4	83.6E
2007	9	17	17	1.92	-22	46.3	2.055	2.175	27.3	7.4	83.0E
2007	9	18	17	3.50	-22	51.0	2.067	2.175	27.3	7.4	82.4E
2007	9	19	17	5.10	-22	55.6	2.078	2.176	27.2	7.5	81.8E
2007	9	20	17	6.72	-23	0.2	2.090	2.176	27.1	7.5	81.2E
2007	9	21	17	8.35	-23	4.6	2.102	2.177	27.1	7.5	80.6E

2007	9	22	17	9.99	-23	9.0	2.114	2.177	27.0	7.5	80.0E
2007	9	23	17	11.65	-23	13.3	2.126	2.178	26.9	7.5	79.4E
2007	9	24	17	13.32	-23	17.6	2.138	2.178	26.9	7.5	78.8E
2007	9	25	17	15.00	-23	21.7	2.149	2.179	26.8	7.5	78.2E
2007	9	26	17	16.70	-23	25.8	2.161	2.179	26.7	7.5	77.6E
2007	9	27	17	18.41	-23	29.8	2.173	2.180	26.6	7.5	77.1E
2007	9	28	17	20.13	-23	33.7	2.185	2.180	26.5	7.6	76.5E
2007	9	29	17	21.87	-23	37.5	2.197	2.181	26.5	7.6	75.9E
2007	9	30	17	23.62	-23	41.3	2.208	2.181	26.4	7.6	75.3E
2007	10	1	17	25.38	-23	44.9	2.220	2.182	26.3	7.6	74.7E
2007	10	2	17	27.15	-23	48.5	2.232	2.183	26.2	7.6	74.2E
2007	10	3	17	28.94	-23	51.9	2.243	2.183	26.1	7.6	73.6E
2007	10	4	17	30.73	-23	55.3	2.255	2.184	26.0	7.6	73.0E
2007	10	5	17	32.54	-23	58.6	2.267	2.184	25.9	7.6	72.5E
2007	10	6	17	34.36	-24	1.8	2.278	2.185	25.8	7.6	71.9E
2007	10	7	17	36.19	-24	4.9	2.290	2.185	25.7	7.6	71.3E
2007	10	8	17	38.03	-24	7.9	2.301	2.186	25.6	7.7	70.8E
2007	10	9	17	39.88	-24	10.8	2.313	2.187	25.5	7.7	70.2E
2007	10	10	17	41.74	-24	13.6	2.324	2.187	25.3	7.7	69.6E
2007	10	11	17	43.61	-24	16.4	2.336	2.188	25.2	7.7	69.1E
2007	10	12	17	45.49	-24	19.0	2.347	2.189	25.1	7.7	68.5E
2007	10	13	17	47.38	-24	21.5	2.359	2.189	25.0	7.7	68.0E
2007	10	14	17	49.28	-24	23.9	2.370	2.190	24.9	7.7	67.4E
2007	10	15	17	51.19	-24	26.2	2.381	2.190	24.7	7.7	66.8E
2007	10	16	17	53.11	-24	28.4	2.393	2.191	24.6	7.7	66.3E
2007	10	17	17	55.04	-24	30.5	2.404	2.192	24.5	7.7	65.7E
2007	10	18	17	56.98	-24	32.5	2.415	2.192	24.4	7.7	65.2E
2007	10	19	17	58.92	-24	34.4	2.426	2.193	24.2	7.7	64.6E
2007	10	20	18	0.88	-24	36.2	2.437	2.194	24.1	7.7	64.1E
2007	10	21	18	2.84	-24	37.9	2.449	2.194	24.0	7.8	63.5E
2007	10	22	18	4.81	-24	39.4	2.460	2.195	23.8	7.8	63.0E
2007	10	23	18	6.78	-24	40.9	2.471	2.196	23.7	7.8	62.5E
2007	10	24	18	8.77	-24	42.2	2.482	2.196	23.6	7.8	61.9E
2007	10	25	18	10.76	-24	43.5	2.493	2.197	23.4	7.8	61.4E
2007	10	26	18	12.76	-24	44.6	2.504	2.198	23.3	7.8	60.8E
2007	10	27	18	14.77	-24	45.6	2.514	2.198	23.1	7.8	60.3E
2007	10	28	18	16.78	-24	46.5	2.525	2.199	23.0	7.8	59.7E
2007	10	29	18	18.80	-24	47.3	2.536	2.200	22.8	7.8	59.2E
2007	10	30	18	20.83	-24	48.0	2.547	2.200	22.7	7.8	58.7E
2007	10	31	18	22.86	-24	48.5	2.557	2.201	22.5	7.8	58.1E
2007	11	1	18	24.90	-24	49.0	2.568	2.202	22.4	7.8	57.6E
2007	11	2	18	26.94	-24	49.3	2.579	2.202	22.2	7.8	57.1E
2007	11	3	18	29.00	-24	49.5	2.589	2.203	22.1	7.8	56.5E
2007	11	4	18	31.05	-24	49.6	2.600	2.204	21.9	7.8	56.0E
2007	11	5	18	33.11	-24	49.6	2.610	2.204	21.7	7.8	55.4E
2007	11	6	18	35.18	-24	49.4	2.620	2.205	21.6	7.9	54.9E
2007	11	7	18	37.25	-24	49.2	2.631	2.206	21.4	7.9	54.4E
2007	11	8	18	39.33	-24	48.8	2.641	2.207	21.3	7.9	53.8E
2007	11	9	18	41.41	-24	48.3	2.651	2.207	21.1	7.9	53.3E
2007	11	10	18	43.50	-24	47.7	2.661	2.208	20.9	7.9	52.8E
2007	11	11	18	45.59	-24	47.0	2.671	2.209	20.8	7.9	52.3E
2007	11	12	18	47.69	-24	46.1	2.682	2.210	20.6	7.9	51.7E
2007	11	13	18	49.79	-24	45.2	2.691	2.210	20.4	7.9	51.2E
2007	11	14	18	51.89	-24	44.1	2.701	2.211	20.3	7.9	50.7E
2007	11	15	18	54.00	-24	42.9	2.711	2.212	20.1	7.9	50.1E
2007	11	16	18	56.11	-24	41.6	2.721	2.213	19.9	7.9	49.6E
2007	11	17	18	58.22	-24	40.1	2.731	2.213	19.7	7.9	49.1E
2007	11	18	19	0.34	-24	38.6	2.740	2.214	19.6	7.9	48.6E
2007	11	19	19	2.46	-24	36.9	2.750	2.215	19.4	7.9	48.0E
2007	11	20	19	4.58	-24	35.1	2.760	2.216	19.2	7.9	47.5E
2007	11	21	19	6.71	-24	33.2	2.769	2.216	19.0	7.9	47.0E
2007	11	22	19	8.84	-24	31.1	2.779	2.217	18.8	7.9	46.5E
2007	11	23	19	10.97	-24	29.0	2.788	2.218	18.7	7.9	46.0E
2007	11	24	19	13.11	-24	26.7	2.797	2.219	18.5	7.9	45.4E
2007	11	25	19	15.24	-24	24.3	2.806	2.219	18.3	7.9	44.9E
2007	11	26	19	17.38	-24	21.8	2.816	2.220	18.1	7.9	44.4E
2007	11	27	19	19.52	-24	19.2	2.825	2.221	17.9	7.9	43.9E
2007	11	28	19	21.66	-24	16.4	2.834	2.222	17.7	7.9	43.3E
2007	11	29	19	23.81	-24	13.5	2.843	2.223	17.6	7.9	42.8E
2007	11	30	19	25.95	-24	10.6	2.851	2.223	17.4	7.9	42.3E
2007	12	1	19	28.10	-24	7.5	2.860	2.224	17.2	7.9	41.8E
2007	12	2	19	30.25	-24	4.2	2.869	2.225	17.0	7.9	41.3E
2007	12	3	19	32.40	-24	0.9	2.878	2.226	16.8	7.9	40.7E
2007	12	4	19	34.55	-23	57.5	2.886	2.227	16.6	7.9	40.2E
2007	12	5	19	36.70	-23	53.9	2.895	2.228	16.4	8.0	39.7E
2007	12	6	19	38.85	-23	50.2	2.903	2.228	16.2	8.0	39.2E
2007	12	7	19	41.00	-23	46.4	2.912	2.229	16.0	8.0	38.7E
2007	12	8	19	43.15	-23	42.5	2.920	2.230	15.8	8.0	38.2E
2007	12	9	19	45.30	-23	38.5	2.928	2.231	15.6	8.0	37.6E
2007	12	10	19	47.46	-23	34.3	2.936	2.232	15.5	8.0	37.1E
2007	12	11	19	49.61	-23	30.1	2.944	2.232	15.3	8.0	36.6E
2007	12	12	19	51.76	-23	25.7	2.952	2.233	15.1	8.0	36.1E

2007	12	13	19	53.92	-23	21.3	2.960	2.234	14.9	8.0	35.6E
2007	12	14	19	56.07	-23	16.7	2.968	2.235	14.7	8.0	35.1E
2007	12	15	19	58.22	-23	12.0	2.976	2.236	14.5	8.0	34.6E
2007	12	16	20	0.37	-23	7.2	2.983	2.237	14.3	8.0	34.0E
2007	12	17	20	2.52	-23	2.3	2.991	2.238	14.1	8.0	33.5E
2007	12	18	20	4.67	-22	57.2	2.998	2.238	13.9	8.0	33.0E
2007	12	19	20	6.82	-22	52.1	3.006	2.239	13.7	8.0	32.5E
2007	12	20	20	8.97	-22	46.9	3.013	2.240	13.5	8.0	32.0E
2007	12	21	20	11.12	-22	41.5	3.020	2.241	13.3	8.0	31.5E
2007	12	22	20	13.27	-22	36.1	3.027	2.242	13.1	8.0	31.0E
2007	12	23	20	15.41	-22	30.5	3.034	2.243	12.8	8.0	30.5E
2007	12	24	20	17.56	-22	24.9	3.041	2.244	12.6	8.0	30.0E
2007	12	25	20	19.70	-22	19.1	3.048	2.244	12.4	8.0	29.4E
2007	12	26	20	21.84	-22	13.2	3.055	2.245	12.2	8.0	28.9E
2007	12	27	20	23.98	-22	7.3	3.062	2.246	12.0	8.0	28.4E
2007	12	28	20	26.12	-22	1.2	3.068	2.247	11.8	8.0	27.9E
2007	12	29	20	28.25	-21	55.0	3.075	2.248	11.6	8.0	27.4E
2007	12	30	20	30.39	-21	48.8	3.081	2.249	11.4	8.0	26.9E
2007	12	31	20	32.52	-21	42.4	3.088	2.250	11.2	8.0	26.4E
2008	1	1	20	34.65	-21	36.0	3.094	2.251	11.0	8.0	25.9E

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø

7 Iris											
2007	1	1	3	1.08	+18	21.1	1.100	1.873	24.4	8.2	128.0E
2007	1	2	3	1.66	+18	18.7	1.109	1.874	24.7	8.2	127.1E
2007	1	3	3	2.28	+18	16.5	1.118	1.875	25.0	8.3	126.2E
2007	1	4	3	2.93	+18	14.5	1.128	1.877	25.3	8.3	125.3E
2007	1	5	3	3.62	+18	12.7	1.137	1.878	25.6	8.3	124.5E
2007	1	6	3	4.33	+18	11.1	1.147	1.879	25.8	8.4	123.6E
2007	1	7	3	5.08	+18	9.7	1.157	1.880	26.1	8.4	122.7E
2007	1	8	3	5.86	+18	8.4	1.167	1.882	26.3	8.4	121.9E
2007	1	9	3	6.67	+18	7.4	1.177	1.883	26.6	8.4	121.1E
2007	1	10	3	7.51	+18	6.5	1.187	1.884	26.8	8.5	120.2E
2007	1	11	3	8.38	+18	5.8	1.197	1.886	27.0	8.5	119.4E
2007	1	12	3	9.28	+18	5.3	1.207	1.887	27.2	8.5	118.6E
2007	1	13	3	10.20	+18	4.9	1.218	1.889	27.4	8.5	117.8E
2007	1	14	3	11.16	+18	4.7	1.228	1.890	27.6	8.6	117.0E
2007	1	15	3	12.14	+18	4.7	1.239	1.892	27.8	8.6	116.2E
2007	1	16	3	13.15	+18	4.8	1.250	1.893	28.0	8.6	115.4E
2007	1	17	3	14.19	+18	5.1	1.260	1.894	28.2	8.6	114.6E
2007	1	18	3	15.25	+18	5.5	1.271	1.896	28.3	8.7	113.8E
2007	1	19	3	16.34	+18	6.0	1.282	1.897	28.5	8.7	113.1E
2007	1	20	3	17.46	+18	6.7	1.293	1.899	28.6	8.7	112.3E
2007	1	21	3	18.60	+18	7.5	1.304	1.901	28.8	8.7	111.6E
2007	1	22	3	19.76	+18	8.4	1.315	1.902	28.9	8.8	110.8E
2007	1	23	3	20.95	+18	9.5	1.326	1.904	29.1	8.8	110.1E
2007	1	24	3	22.16	+18	10.7	1.337	1.905	29.2	8.8	109.3E
2007	1	25	3	23.39	+18	12.0	1.349	1.907	29.3	8.8	108.6E
2007	1	26	3	24.65	+18	13.4	1.360	1.908	29.4	8.9	107.9E
2007	1	27	3	25.93	+18	14.9	1.371	1.910	29.5	8.9	107.2E
2007	1	28	3	27.23	+18	16.5	1.383	1.912	29.6	8.9	106.5E
2007	1	29	3	28.55	+18	18.2	1.394	1.913	29.7	8.9	105.8E
2007	1	30	3	29.89	+18	19.9	1.406	1.915	29.8	9.0	105.1E
2007	1	31	3	31.26	+18	21.8	1.418	1.917	29.9	9.0	104.4E
2007	2	1	3	32.64	+18	23.8	1.429	1.918	29.9	9.0	103.7E

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø

8 Flora											
2007	10	3	4	7.88	+10	57.2	1.078	1.857	25.6	9.0	126.6W
2007	10	4	4	8.24	+10	55.2	1.070	1.857	25.3	9.0	127.5W
2007	10	5	4	8.56	+10	53.1	1.063	1.857	25.0	8.9	128.4W
2007	10	6	4	8.84	+10	51.0	1.055	1.857	24.6	8.9	129.2W
2007	10	7	4	9.09	+10	48.8	1.048	1.857	24.3	8.9	130.1W
2007	10	8	4	9.29	+10	46.6	1.041	1.857	23.9	8.9	131.1W
2007	10	9	4	9.45	+10	44.3	1.034	1.857	23.6	8.8	132.0W
2007	10	10	4	9.58	+10	42.0	1.027	1.857	23.2	8.8	132.9W
2007	10	11	4	9.66	+10	39.6	1.021	1.858	22.8	8.8	133.8W
2007	10	12	4	9.70	+10	37.2	1.014	1.858	22.4	8.8	134.8W
2007	10	13	4	9.71	+10	34.8	1.007	1.858	22.0	8.8	135.8W
2007	10	14	4	9.67	+10	32.3	1.001	1.858	21.6	8.7	136.7W
2007	10	15	4	9.59	+10	29.8	0.995	1.858	21.2	8.7	137.7W
2007	10	16	4	9.47	+10	27.2	0.989	1.858	20.8	8.7	138.7W
2007	10	17	4	9.31	+10	24.7	0.983	1.858	20.3	8.7	139.7W
2007	10	18	4	9.11	+10	22.1	0.977	1.859	19.9	8.6	140.7W

2007 10 19	4	8.86	+10 19.5	0.972	1.859	19.4	8.6	141.7W
2007 10 20	4	8.58	+10 17.0	0.966	1.859	18.9	8.6	142.7W
2007 10 21	4	8.26	+10 14.4	0.961	1.859	18.5	8.6	143.7W
2007 10 22	4	7.90	+10 11.8	0.956	1.860	18.0	8.5	144.7W
2007 10 23	4	7.49	+10 9.2	0.951	1.860	17.5	8.5	145.8W
2007 10 24	4	7.05	+10 6.7	0.946	1.860	17.0	8.5	146.8W
2007 10 25	4	6.57	+10 4.2	0.941	1.860	16.5	8.5	147.9W
2007 10 26	4	6.06	+10 1.7	0.937	1.861	16.0	8.4	148.9W
2007 10 27	4	5.50	+ 9 59.2	0.933	1.861	15.5	8.4	150.0W
2007 10 28	4	4.91	+ 9 56.8	0.928	1.861	15.0	8.4	151.1W
2007 10 29	4	4.29	+ 9 54.4	0.925	1.862	14.5	8.4	152.1W
2007 10 30	4	3.63	+ 9 52.0	0.921	1.862	13.9	8.3	153.2W
2007 10 31	4	2.93	+ 9 49.8	0.917	1.862	13.4	8.3	154.3W
2007 11 1	4	2.20	+ 9 47.5	0.914	1.863	12.9	8.3	155.3W
2007 11 2	4	1.45	+ 9 45.4	0.911	1.863	12.3	8.3	156.4W
2007 11 3	4	0.66	+ 9 43.3	0.908	1.864	11.8	8.2	157.4W
2007 11 4	3	59.84	+ 9 41.3	0.905	1.864	11.2	8.2	158.5W
2007 11 5	3	58.99	+ 9 39.4	0.903	1.864	10.7	8.2	159.5W
2007 11 6	3	58.12	+ 9 37.6	0.900	1.865	10.2	8.2	160.6W
2007 11 7	3	57.23	+ 9 35.8	0.898	1.865	9.7	8.1	161.6W
2007 11 8	3	56.31	+ 9 34.2	0.896	1.866	9.1	8.1	162.6W
2007 11 9	3	55.37	+ 9 32.7	0.895	1.866	8.6	8.1	163.6W
2007 11 10	3	54.40	+ 9 31.3	0.893	1.867	8.1	8.1	164.5W
2007 11 11	3	53.42	+ 9 30.0	0.892	1.867	7.7	8.1	165.4W
2007 11 12	3	52.43	+ 9 28.8	0.891	1.868	7.2	8.0	166.3W
2007 11 13	3	51.42	+ 9 27.8	0.890	1.868	6.8	8.0	167.1W
2007 11 14	3	50.40	+ 9 26.8	0.890	1.869	6.4	8.0	167.8W
2007 11 15	3	49.36	+ 9 26.1	0.890	1.869	6.1	8.0	168.5W
2007 11 16	3	48.32	+ 9 25.5	0.890	1.870	5.8	8.0	169.0W
2007 11 17	3	47.27	+ 9 25.0	0.890	1.871	5.6	8.0	169.4W
2007 11 18	3	46.22	+ 9 24.6	0.890	1.871	5.4	8.0	169.7W
2007 11 19	3	45.16	+ 9 24.5	0.891	1.872	5.3	8.0	169.8W
2007 11 20	3	44.10	+ 9 24.5	0.892	1.872	5.4	8.0	169.8W
2007 11 21	3	43.04	+ 9 24.6	0.893	1.873	5.4	8.0	169.7E
2007 11 22	3	41.99	+ 9 24.9	0.894	1.874	5.6	8.0	169.3E
2007 11 23	3	40.94	+ 9 25.4	0.896	1.874	5.8	8.0	168.9E
2007 11 24	3	39.90	+ 9 26.1	0.897	1.875	6.1	8.0	168.3E
2007 11 25	3	38.87	+ 9 26.9	0.899	1.876	6.4	8.0	167.7E
2007 11 26	3	37.84	+ 9 27.9	0.902	1.876	6.8	8.1	166.9E
2007 11 27	3	36.83	+ 9 29.1	0.904	1.877	7.2	8.1	166.1E
2007 11 28	3	35.84	+ 9 30.5	0.907	1.878	7.7	8.1	165.3E
2007 11 29	3	34.86	+ 9 32.0	0.910	1.879	8.1	8.1	164.3E
2007 11 30	3	33.89	+ 9 33.8	0.913	1.879	8.6	8.2	163.4E
2007 12 1	3	32.95	+ 9 35.7	0.916	1.880	9.1	8.2	162.4E
2007 12 2	3	32.03	+ 9 37.8	0.920	1.881	9.6	8.2	161.4E
2007 12 3	3	31.13	+ 9 40.1	0.924	1.882	10.1	8.2	160.4E
2007 12 4	3	30.26	+ 9 42.5	0.928	1.882	10.7	8.3	159.3E
2007 12 5	3	29.41	+ 9 45.2	0.932	1.883	11.2	8.3	158.3E
2007 12 6	3	28.58	+ 9 48.0	0.936	1.884	11.7	8.3	157.2E
2007 12 7	3	27.79	+ 9 51.1	0.941	1.885	12.2	8.4	156.2E
2007 12 8	3	27.02	+ 9 54.3	0.946	1.886	12.7	8.4	155.1E
2007 12 9	3	26.29	+ 9 57.6	0.951	1.886	13.2	8.4	154.0E
2007 12 10	3	25.59	+10 1.2	0.956	1.887	13.7	8.4	152.9E
2007 12 11	3	24.91	+10 4.9	0.962	1.888	14.2	8.5	151.9E
2007 12 12	3	24.28	+10 8.8	0.968	1.889	14.7	8.5	150.8E
2007 12 13	3	23.67	+10 12.9	0.973	1.890	15.2	8.5	149.7E
2007 12 14	3	23.10	+10 17.2	0.980	1.891	15.7	8.6	148.6E
2007 12 15	3	22.57	+10 21.6	0.986	1.892	16.2	8.6	147.6E
2007 12 16	3	22.07	+10 26.2	0.992	1.893	16.7	8.6	146.5E
2007 12 17	3	21.61	+10 30.9	0.999	1.894	17.1	8.6	145.5E
2007 12 18	3	21.18	+10 35.8	1.006	1.895	17.6	8.7	144.4E
2007 12 19	3	20.79	+10 40.9	1.013	1.896	18.0	8.7	143.4E
2007 12 20	3	20.44	+10 46.1	1.020	1.897	18.5	8.7	142.3E
2007 12 21	3	20.13	+10 51.5	1.027	1.898	18.9	8.8	141.3E
2007 12 22	3	19.86	+10 57.0	1.035	1.899	19.3	8.8	140.3E
2007 12 23	3	19.62	+11 2.6	1.042	1.900	19.7	8.8	139.3E
2007 12 24	3	19.42	+11 8.4	1.050	1.901	20.2	8.8	138.3E
2007 12 25	3	19.26	+11 14.3	1.058	1.902	20.5	8.9	137.3E
2007 12 26	3	19.14	+11 20.4	1.066	1.903	20.9	8.9	136.3E
2007 12 27	3	19.06	+11 26.5	1.075	1.904	21.3	8.9	135.3E
2007 12 28	3	19.02	+11 32.8	1.083	1.905	21.7	9.0	134.3E
2007 12 29	3	19.01	+11 39.2	1.092	1.906	22.0	9.0	133.3E

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø
15 Eunomia							
2007 12 4	7 59.80	+24 49.6	1.592	2.386	17.2	9.0	134.2W
2007 12 5	7 59.41	+24 47.0	1.585	2.388	16.9	9.0	135.3W
2007 12 6	7 58.97	+24 44.4	1.578	2.390	16.5	9.0	136.4W



2007	12	7	7	58.51	+24	41.9	1.571	2.392	16.2	8.9	137.5W
2007	12	8	7	58.01	+24	39.4	1.564	2.394	15.8	8.9	138.6W
2007	12	9	7	57.47	+24	36.9	1.558	2.396	15.4	8.9	139.7W
2007	12	10	7	56.90	+24	34.4	1.552	2.397	15.0	8.9	140.8W
2007	12	11	7	56.30	+24	31.9	1.546	2.399	14.6	8.9	142.0W
2007	12	12	7	55.67	+24	29.5	1.540	2.401	14.2	8.8	143.1W
2007	12	13	7	55.00	+24	27.1	1.534	2.403	13.8	8.8	144.3W
2007	12	14	7	54.30	+24	24.6	1.528	2.405	13.4	8.8	145.5W
2007	12	15	7	53.57	+24	22.2	1.523	2.407	13.0	8.8	146.6W
2007	12	16	7	52.81	+24	19.8	1.518	2.409	12.6	8.8	147.8W
2007	12	17	7	52.02	+24	17.4	1.513	2.411	12.1	8.7	149.0W
2007	12	18	7	51.21	+24	15.0	1.509	2.413	11.7	8.7	150.2W
2007	12	19	7	50.36	+24	12.6	1.504	2.415	11.3	8.7	151.4W
2007	12	20	7	49.49	+24	10.2	1.500	2.417	10.8	8.7	152.6W
2007	12	21	7	48.59	+24	7.7	1.496	2.418	10.3	8.7	153.8W
2007	12	22	7	47.66	+24	5.3	1.493	2.420	9.9	8.6	155.0W
2007	12	23	7	46.72	+24	2.8	1.489	2.422	9.4	8.6	156.3W
2007	12	24	7	45.75	+24	0.4	1.486	2.424	8.9	8.6	157.5W
2007	12	25	7	44.75	+23	57.9	1.483	2.426	8.5	8.6	158.7W
2007	12	26	7	43.74	+23	55.4	1.481	2.428	8.0	8.6	160.0W
2007	12	27	7	42.71	+23	52.9	1.478	2.430	7.5	8.5	161.2W
2007	12	28	7	41.66	+23	50.3	1.476	2.432	7.0	8.5	162.4W
2007	12	29	7	40.59	+23	47.8	1.474	2.434	6.5	8.5	163.7W
2007	12	30	7	39.51	+23	45.2	1.473	2.436	6.0	8.5	165.0W
2007	12	31	7	38.41	+23	42.5	1.472	2.438	5.5	8.5	166.2W
2008	1	1	7	37.30	+23	39.9	1.471	2.440	5.0	8.4	167.5W

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø

20 Massalia

2007	1	11	9	2.55	+15	31.7	1.142	2.082	10.8	9.0	156.7W
2007	1	12	9	1.80	+15	34.6	1.138	2.082	10.2	8.9	157.9W
2007	1	13	9	1.02	+15	37.7	1.134	2.083	9.7	8.9	159.1W
2007	1	14	9	0.21	+15	41.0	1.131	2.084	9.1	8.9	160.3W
2007	1	15	8	59.38	+15	44.3	1.128	2.084	8.6	8.9	161.5W
2007	1	16	8	58.53	+15	47.7	1.125	2.085	8.0	8.8	162.8W
2007	1	17	8	57.66	+15	51.2	1.122	2.085	7.5	8.8	164.0W
2007	1	18	8	56.77	+15	54.8	1.120	2.086	6.9	8.8	165.2W
2007	1	19	8	55.86	+15	58.4	1.117	2.087	6.3	8.8	166.5W
2007	1	20	8	54.93	+16	2.2	1.115	2.087	5.8	8.7	167.7W
2007	1	21	8	53.99	+16	6.0	1.114	2.088	5.2	8.7	169.0W
2007	1	22	8	53.04	+16	9.8	1.112	2.089	4.6	8.7	170.2W
2007	1	23	8	52.07	+16	13.7	1.111	2.089	4.0	8.7	171.5W
2007	1	24	8	51.09	+16	17.7	1.110	2.090	3.4	8.6	172.7W
2007	1	25	8	50.11	+16	21.7	1.109	2.091	2.9	8.6	173.9W
2007	1	26	8	49.11	+16	25.7	1.109	2.091	2.3	8.6	175.2W
2007	1	27	8	48.11	+16	29.8	1.108	2.092	1.7	8.5	176.4W
2007	1	28	8	47.11	+16	33.8	1.109	2.093	1.2	8.5	177.5W
2007	1	29	8	46.10	+16	37.9	1.109	2.094	0.7	8.4	178.4W
2007	1	30	8	45.10	+16	41.9	1.109	2.094	0.6	8.4	178.6E
2007	1	31	8	44.09	+16	46.0	1.110	2.095	1	8.5	177.9E
2007	2	1	8	43.09	+16	50.0	1.111	2.096	1.5	8.5	176.8E
2007	2	2	8	42.10	+16	54.1	1.113	2.097	2.1	8.6	175.6E
2007	2	3	8	41.11	+16	58.1	1.114	2.097	2.6	8.6	174.4E
2007	2	4	8	40.12	+17	2.0	1.116	2.098	3.2	8.6	173.2E
2007	2	5	8	39.15	+17	6.0	1.118	2.099	3.8	8.7	171.9E
2007	2	6	8	38.19	+17	9.8	1.121	2.100	4.4	8.7	170.7E
2007	2	7	8	37.24	+17	13.7	1.123	2.100	4.9	8.7	169.4E
2007	2	8	8	36.31	+17	17.4	1.126	2.101	5.5	8.8	168.2E
2007	2	9	8	35.39	+17	21.2	1.129	2.102	6.1	8.8	167.0E
2007	2	10	8	34.49	+17	24.8	1.132	2.103	6.6	8.8	165.7E
2007	2	11	8	33.61	+17	28.4	1.136	2.104	7.2	8.9	164.5E
2007	2	12	8	32.75	+17	31.9	1.140	2.105	7.7	8.9	163.3E
2007	2	13	8	31.91	+17	35.3	1.144	2.105	8.3	8.9	162.1E
2007	2	14	8	31.09	+17	38.7	1.148	2.106	8.8	8.9	160.9E
2007	2	15	8	30.30	+17	41.9	1.153	2.107	9.4	9.0	159.7E

Date	R.A.2000	Decl.2000	Delta	r	Phase	Mag	Elong.
year mo day	hh mm.mm	dd pp.p	A.U.	A.U.	ø	V	ø

29 Amphitrite

2007	11	4	3	33.93	+27	49.4	1.410	2.371	7.7	9.0	161.3W
2007	11	5	3	32.94	+27	49.1	1.406	2.370	7.3	9.0	162.4W
2007	11	6	3	31.94	+27	48.7	1.403	2.370	6.9	8.9	163.4W
2007	11	7	3	30.92	+27	48.1	1.401	2.370	6.5	8.9	164.4W
2007	11	8	3	29.88	+27	47.4	1.398	2.370	6.1	8.9	165.4W
2007	11	9	3	28.84	+27	46.5	1.396	2.370	5.7	8.9	166.3W

2007	11	10	3	27.79	+27	45.4	1.394	2.370	5.3	8.9	167.2W
2007	11	11	3	26.72	+27	44.2	1.392	2.370	4.9	8.8	168.1W
2007	11	12	3	25.65	+27	42.8	1.391	2.370	4.6	8.8	168.9W
2007	11	13	3	24.58	+27	41.3	1.389	2.370	4.3	8.8	169.6W
2007	11	14	3	23.49	+27	39.6	1.389	2.370	4.1	8.8	170.2W
2007	11	15	3	22.41	+27	37.7	1.388	2.369	3.9	8.8	170.6W
2007	11	16	3	21.33	+27	35.7	1.388	2.369	3.8	8.8	171.0E
2007	11	17	3	20.24	+27	33.6	1.387	2.369	3.7	8.8	171.1E
2007	11	18	3	19.16	+27	31.3	1.388	2.369	3.7	8.8	171.1E
2007	11	19	3	18.09	+27	28.9	1.388	2.369	3.8	8.8	170.9E
2007	11	20	3	17.01	+27	26.4	1.389	2.369	3.9	8.8	170.6E
2007	11	21	3	15.95	+27	23.8	1.390	2.369	4.1	8.8	170.1E
2007	11	22	3	14.89	+27	21.0	1.391	2.369	4.4	8.8	169.4E
2007	11	23	3	13.85	+27	18.1	1.392	2.369	4.7	8.8	168.7E
2007	11	24	3	12.81	+27	15.2	1.394	2.369	5.0	8.8	167.9E
2007	11	25	3	11.79	+27	12.1	1.396	2.369	5.4	8.9	167.1E
2007	11	26	3	10.78	+27	8.9	1.399	2.369	5.7	8.9	166.1E
2007	11	27	3	9.79	+27	5.7	1.401	2.369	6.1	8.9	165.2E
2007	11	28	3	8.82	+27	2.3	1.404	2.369	6.5	8.9	164.2E
2007	11	29	3	7.86	+26	58.9	1.407	2.369	6.9	8.9	163.2E
2007	11	30	3	6.93	+26	55.5	1.411	2.369	7.4	9.0	162.1E
2007	12	1	3	6.01	+26	52.0	1.414	2.369	7.8	9.0	161.0E

Date	R.A.2000		Decl.2000		Delta	r	Phase	Mag	Elong.
year mo day	hh	mm.mm	dd	pp.p	A.U.	A.U.	ø	V	ø
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44 Nysa									
2007	1	1	6	28.97	+19 24.6	1.092	2.074	2.4	9.0 175.0E
2007	1	2	6	27.93	+19 27.6	1.093	2.073	2.8	9.0 174.1E

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# CONGIUNZIONI <1° ASTEROIDI-STELLE m<4

Nessuna coinvolge asteroidi luminosi.

# OCCULTAZIONI ASTEROIDALI DI STELLE m<9

Event Summary for Longitude 11 Latitude 46

Date y m d	U.T. h m	Diameter km	Durn m/sec	Star mag	Mag drop	% o Ill	Star No.	Planet No Name	Alt o	Dist "	Sun Proba- bilty	R.A. (J2000) h m s	Dec. o ' "	Rec #
2007 Jan 02	5 29.8	60	0.02	2.0s	8.9	7.2	59	TYC 5578-00477-1	314 Rosalia	29	0.4	14 50 51.603	- 8 55 8.49	4516
2007 Jan 14	16 24.0	30	0.02	2.2s	5.9	8.5	158	HIP 29196	840 Zenobia	21	0.0	6 9 32.434	22 11 24.91	10264
2007 Feb 13	18 12.4	252	0.01	9.9s	8.0	13.7	177	HIP 47211	2001 CZ31	19	0.2	9 37 17.210	15 15 9.27	23019
2007 Mar 01	23 33.8	24	0.01	1.6s	8.0	8.1	101	TYC 3358-01200-1	265 Anna	35	0.1	5 23 21.816	46 47 35.61	3942
2007 Mar 28	22 48.0	110	0.07	44.3s	7.7	5.9	127	TYC 5611-00667-1	751 Faina	12	0.3	16 2 42.482	- 8 29 39.58	9435
2007 Apr 13	3 35.0	30	0.01	0.9s	8.6	8.1	56	HIP 108334	1939 Loretta	7	0.1	21 56 54.732	-13 20 57.17	16755
2007 Apr 24	19 4.3	32	0.02	2.6s	8.0	8.3	147	HIP 59167	13244 1998 MJ14	7	0.1	12 8 1.427	-31 8 26.33	22490
2007 Apr 26	19 22.2	48	0.02	1.6s	8.8	6.3	61	TYC 2426-00023-1	519 Sylvania	43	0.3	6 29 51.067	32 26 25.54	6979
2007 May 10	14 55.9	120	0.04	2.7s	3.6	10.9	9	HIP 15900	381 Myrrha	32	0.4	3 24 48.757	9 1 43.34	5236
2007 May 18	22 26.5	92	0.05	6.4s	8.0	6.0	174	HIP 76293	1177 Gonnessia	18	0.3	15 35 6.198	-25 6 20.41	13124
2007 May 27	0 5.1	29	0.01	3.2s	8.8	9.5	98	TYC 5222-01428-1	5436 Eumelos	9	0.2	21 46 42.045	- 6 5 25.67	21636
2007 Jun 05	2 12.0	31	0.02	2.6s	5.4	10.8	104	HIP 109472	3647 Dermott	24	0.4	22 10 37.497	-11 33 53.72	20272
2007 Jun 14	0 17.4	80	0.06	10.8s	8.1	5.5	148	HIP 95228	676 Melitta	35	0.0	19 22 28.931	- 7 13 7.95	8756
2007 Jun 21	2 37.1	180	0.07	4.8s	8.8	3.4	43	HIP 14298	14 Irene	10	0.3	3 4 20.226	11 8 9.73	245
2007 Jun 29	23 41.1	32	0.03	3.0s	8.3	5.1	160	TYC 5663-00310-1	484 Pittsburghia	30	0.4	17 31 53.783	-10 27 16.53	6565
2007 Jul 05	0 21.2	46	0.04	4.6s	8.9	3.9	156	TYC 5131-00253-1	482 Petrina	43	0.1	19 22 40.147	- 0 17 10.45	6532
2007 Jul 07	20 29.0	33	0.02	5.0s	8.0	7.2	109	HIP 69325	534 Nassovia	27	0.3	14 11 19.214	-10 28 44.50	7095
2007 Jul 14	20 29.5	25	0.01	0.7s	8.4	9.2	53	TYC 0861-01215-1	2337 Boubin	14	0.2	11 14 41.956	12 37 20.54	17796
2007 Jul 22	2 53.8	35	0.02	0.7s	8.5	7.5	15	TYC 1904-01261-1	249 Ilse	5	0.3	7 9 16.290	28 3 9.91	3759
2007 Jul 31	2 27.1	73	0.04	25.2s	9.0	6.5	124	HIP 1917	718 Erida	38	0.2	30 24 14.357	- 4 30 9.94	9212
2007 Aug 24	18 20.1	65	0.02	1.6s	7.6	8.2	31	HIP 59102	604 Tekmessa	8	0.0	12 7 11.418	- 0 37 47.81	7927
2007 Sep 08	3 13.4	32	0.01	0.8s	7.8	9.5	26	HIP 48124	5567 Durisen	10	0.1	9 48 42.604	24 32 49.37	21681
2007 Sep 08	17 49.4	34	0.01	0.8s	7.8	8.8	39	HIP 65283	1233 Kobresia	7	0.3	13 22 45.641	-13 11 11.45	13434
2007 Sep 16	1 4.7	55	0.03	3.6s	9.0	5.9	175	HIP 116124	1330 Spiridonia	30	0.0	23 31 46.401	- 8 19 43.24	14188
2007 Dec 16	12 54.3	58	0.02	1.2s	3.5	13.5	19	HIP 93085	3578 Carestia	22	0.5	18 57 43.821	-21 6 24.05	20171
2007 Dec 24	20 13.3	29	0.02	1.3s	8.9	7.6	85	HIP 115889	3971 Voronikhin	32	0.0	23 28 46.021	11 30 44.21	20576
2008 Jan 04	5 11.7	32	0.03	3.8s	7.8	5.5	163	HIP 26839	180 Garumna	6	0.2	5 41 57.174	24 19 6.72	2740
2008 Jan 05	23 39.2	52	0.02	3.9s	7.5	9.9	105	HIP 56019	3025 Higson	6	0.1	11 28 52.224	-16 35 41.51	19082

# ASTEROIDI MOLTO VICINI Δ<0.01 U.A. (database di 146000 oggetti)

Object	Close-Approach Date (TDB)	Miss Distance Nominale	Miss Distance Minima	V relativa	V infinita	H (mag)
	YYYY-mm-dd HH:MM ± D_HH:MM	(LD/AU)	(LD/AU)	(km/s)	(km/s)	
2002 CB19	2007-Aug-08 16:49 ± 18:46	17.1/0.0439	0.9/0.0022	16.82	16.82	24.8
2005 GL	2007-Nov-08 08:39 ± 12:02	8.0/0.0204	2.4/0.0062	13.17	13.16	21.0

# SCONTRI ASTEROIDALI (o avvicinamenti entro 10000 km)

Date	TDT	Dm (Gm)	V(km/s)	pImp	pDefl	pDa	pDn	Err(Gm)	r1 (AU)	r2	
2007/01/11	23:34:52	0.006764	3.4351	3.37	99.99	99.99	99.99	0.000339	2.5160	2.5160	2002VW86
2007/01/21	10:58:18	0.009781	5.1732	3.39	99.99	99.99	99.99	0.000231	2.1707	2.1707	2000QA45
2007/07/21	07:50:08	0.006738	3.2603	3.45	99.99	99.99	99.99	0.000194	2.4834	2.4834	1993FK74
2007/08/10	03:14:05	0.008685	5.8274	3.23	99.99	99.99	99.99	0.000133	2.5750	2.5751	2001FE99

NB: QUEST'ANNO NON AVVENGONO SCONTI, VENGONO QUINDI RIPORTATI GLI AVVICINAMENTI MINIMI

Data nel formato anno/mese/giorno

Dm = distanza minima in milioni di km tra i centri dei corpi

V = velocità relativa tra i corpi

pImp = logaritmo del rapporto tra Dm e la distanza di impatto

pDefl = logaritmo negativo in secondi dell'angolo di deflessione subito dal corpo più piccolo

pDa = logaritmo negativo della variazione del semiasse maggiore dell'orbita subito dal corpo più piccolo

pDn = logaritmo negativo in secondi della variazione del moto medio subito dal corpo più piccolo

Err = incertezza del calcolo in milioni di 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

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# TRANSITI DI ASTEROIDI SUL SOLE

Date	UT	Dm (°)	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2007/09/24	12:27:39	0.22868	1.00	0.53	155	-0		29.1	9216	4.1	Sun	Adonis
2007/11/13	11:56:44	0.11056	0.99	0.44	179	-0		29.9	17183	4.7	Sun	2000HD24

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 corpo 1 dalla Terra

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

e = elongazione

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 0.5° tra loro

NB: CONTROLLARE NELLE TABELLE SUCCESSIVE SE L'ASTEROIDE SUPERA ALMENO UN " DI DIAMETRO D'ARCO DI VISIBILITA'

# TRANSITI DI ASTEROIDI SUI PIANETI

Date	TDT	Dm(°)	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2007/01/02	01:32:22	0.00106	6.17	3.56	161	-33	-1.7	19.2	3878	63.8	Jupiter	2001AB26
2007/01/08	01:11:54	0.00040	20.64	3.06	204	54	5.9	21.5	217.0	37.1	Uranus	1996TO34
2007/01/10	04:45:58	0.00070	20.67	2.45	24	52	5.9	20.3	125.3	23.7	Uranus	1999VX160
2007/01/14	16:55:47	0.00320	6.04	2.94	356	-43	-1.7	20.6	2078	43.3	Jupiter	2000OJ28
2007/01/26	08:33:09	0.00204	8.24	1.64	148	-163	0.1	19.8	2576	77.6	Saturn	2000GH89
2007/01/28	08:28:32	0.00076	31.02	3.64	22	11	8.0	19.5	58.6	29.6	Neptune	2001OB92
2007/02/05	12:27:51	0.00008	31.03	3.46	196	3	8.0	19.5	110.0	27.3	Neptune	1997MS3
2007/02/06	13:01:55	0.00329	5.74	2.71	346	-62	-1.8	21.1	2693	52.4	Jupiter	2001UP161
2007/02/11	11:09:26	0.00102	5.67	2.56	180	-67	-1.9	19.6	3283	49.3	Jupiter	2000QX173
2007/02/21	05:24:31	0.00092	5.52	2.69	170	-75	-1.9	20.9	4476	65.2	Jupiter	2000WY43
2007/02/28	07:22:32	0.00081	21.07	3.72	23	5	5.9	20.7	106.4	31.7	Uranus	2001QT234
2007/03/05	19:57:55	0.00073	30.95	3.34	197	-24	8.0	19.5	72.4	28.5	Neptune	Vaccariel
2007/03/22	01:24:58	0.00012	21.05	3.61	202	-15	5.9	22.1	198.5	32.5	Uranus	2001DE65
2007/03/22	12:32:54	0.00579	5.05	2.11	10	-102	-2.1	19.8	1359	72.5	Jupiter	1999RS208
2007/04/05	01:55:43	0.00105	20.96	2.80	22	-29	5.9	21.2	66.2	23.0	Uranus	2003SN282
2007/04/17	02:38:17	0.00011	8.79	2.06	161	111	0.2	19.4	7084	193.9	Saturn	Seneferu
2007/04/21	01:22:23	0.00069	30.40	3.11	20	-69	7.9	20.7	130.4	43.8	Neptune	2003UV14
2007/04/23	06:16:31	0.00076	20.78	3.04	23	-45	5.9	20.5	141.0	31.0	Uranus	2002MD4
2007/05/05	20:13:30	0.00218	9.09	2.34	168	93	0.3	20.0	2168	83.0	Saturn	2000EX136
2007/06/10	02:44:55	0.00250	9.66	2.95	340	61	0.5	20.9	733.6	43.9	Saturn	2001XJ227
2007/06/12	11:40:51	0.00266	9.69	3.11	162	59	0.5	21.2	571.8	50.0	Saturn	2001OS65
2007/07/05	07:09:19	0.00166	9.98	2.80	156	40	0.5	19.7	786.1	30.0	Saturn	2003FK15
2007/07/31	01:48:48	0.00208	29.06	1.13	160	-167	7.8	18.3	106.5	51.5	Neptune	1999RV204
2007/08/02	22:28:42	0.00200	10.20	3.50	161	16	0.6	19.5	811.4	39.4	Saturn	1996TT14
2007/08/27	22:40:37	0.00245	10.24	3.83	161	-5	0.6	19.5	432.0	45.3	Saturn	1993FQ11
2007/08/28	10:09:37	0.00143	10.24	3.83	336	-6	0.6	20.8	1134	43.5	Saturn	2001TN109
2007/08/31	01:46:05	0.00221	10.23	3.72	159	-8	0.6	20.6	701.3	42.4	Saturn	1997HR9
2007/09/01	19:52:41	0.00229	10.23	3.64	339	-9	0.6	21.9	593.9	39.1	Saturn	2001SA261
2007/09/07	01:29:45	0.00180	10.21	3.33	343	-14	0.6	20.1	800.5	34.3	Saturn	2000AE95
2007/09/16	08:55:04	0.00009	5.38	2.46	170	79	-2.0	16.8	3945	55.2	Jupiter	Gorchakov
2007/09/18	03:05:36	0.00207	10.16	3.77	340	-23	0.6	18.8	852.1	44.6	Saturn	1999JO57
2007/09/26	04:48:02	0.00112	5.53	3.04	2	71	-1.9	19.7	4772	70.2	Jupiter	2001BE67
2007/10/01	15:07:21	0.00110	10.05	3.52	160	-35	0.5	20.6	1201	41.3	Saturn	2002AX127
2007/10/07	16:11:32	0.00160	5.69	2.99	172	61	-1.9	20.0	3716	57.8	Jupiter	3418T-3
2007/10/11	02:08:03	0.00021	9.95	2.74	160	-43	0.5	19.7	941.9	29.3	Saturn	1997CZ22
2007/10/12	15:37:57	0.00136	5.75	2.38	357	57	-1.9	19.6	2301	35.6	Jupiter	2001VR30
2007/10/12	22:42:53	0.00097	9.93	2.76	336	-45	0.5	22.0	939.4	30.8	Saturn	2002QJ68
2007/11/19	13:40:31	0.00020	30.15	2.14	16	83	7.9	20.3	140.0	34.0	Neptune	2002CJ283
2007/12/02	16:23:35	0.00074	19.99	1.91	196	95	5.8	19.5	274.0	47.7	Uranus	1999RZ37
2007/12/12	13:47:06	0.00250	6.23	3.84	354	8	-1.7	20.8	3515	68.1	Jupiter	2000WK177
2007/12/13	23:26:04	0.00173	6.23	3.72	1	7	-1.7	20.5	3332	58.3	Jupiter	1999VJ107
2007/12/14	10:59:40	0.00051	6.23	3.74	2	7	-1.7	20.9	3886	63.3	Jupiter	2000SS169
2007/12/18	16:47:16	0.00217	8.92	2.28	346	-108	0.3	19.3	2615	96.3	Saturn	2002AV1
2007/12/23	19:45:10	0.00312	6.23	3.12	358	-0	-1.7	19.9	1733	37.7	Jupiter	2001UB16

NB: CONTROLLARE NELLE TABELLE SUCCESSIVE SE L'ASTEROIDE SUPERA ALMENO UN " DI DIAMETRO D'ARCO DI VISIBILITA'

# ELENCO ASTEROIDI CON m MIN. TEORICA <9

(1)Ceres	6.4	(53319)1999 JM8	8.9
(2)Pallas	6.3	(54509)2000 PH5	4.8
(3)Juno	6.9	(65489)Ceto	3
(4)Vesta	5.1	(66391)1999 KW4	7.2
(5)Astraea	8.6	(68216)2001 CV26	8.4
(6)Hebe	7.1	(68372)2001 PM9	6.9
(7)Iris	6.5	(68950)2002 QF15	5.4
(8)Flora	7.6	(69230)Hermes	5.4
(9)Metis	8.1	(85182)1991 AQ	8.4
(10)Hygiea	8.9	(85236)1993 KH	4.2
(11)Parthenope	8.6	(85640)1998 OX4	6.5
(12)Victoria	8.1	(85713)1998 SS49	2.5
(14)Irene	8.3	(86039)1999 NC43	8
(15)Eunomia	7.4	(86819)2000 GK137	8.5
(16)Psyche	8.8	(88254)2001 FM129	7.3
(18)Melpomene	7.3	(89830)2002 CE	7
(19)Fortuna	8.8	(89958)2002 LY45	3.2
(20)Massalia	8.3	(89959)2002 NT7	2.6
(21)Lutetia	8.9	(90075)2002 VU94	8.1
(23)Thalia	8.6	(90416)2003 YK118	3
(27)Euterpe	8.4	(91554)1999 RZ215	5.2
(29)Amphitrite	8.5	(99942)Apophis	1.3
(39)Laetitia	8.9	(100085)1992 UY4	8.7
(41)Daphne	8.8	(101869)1999 MM	5.7
(42)Isis	8.7	(101955)1999 RQ36	8.3
(43)Ariadne	8.8	(111253)2001 XU10	7.7
(44)Nysa	8.8	(136617)1994 CC	8.9
(80)Sappho	8.9	(136618)1994 CN2	7.4
(89)Julia	8.4	(137108)1999 AN10	1
(115)Thyra	8.9	(137427)1999 TF211	7.3
(192)Nausikaa	8	(138127)2000 EE14	9
(344)Desiderata	9	(139622)2001 QQ142	8.7
(433)Eros	7.3	(140288)2001 SN289	7.5
(471)Papagena	9	(141495)2002 EZ11	3.6
(532)Herculina	8.3	(143404)2003 BD44	8
(887)Alinda	9	(143487)2003 CR20	2.8
(1036)Ganymed	7.8	(143649)2003 QQ47	4.5
(1620)Geographos	8.1	(143651)2003 QO104	3.8
(1627)Ivar	8.7	(143992)2004 AF	8.8
(1685)Toro	7.9	(144332)2004 DV24	5.6
(1862)Apollo	8.3	(144898)2004 VD17	4.8
(1866)Sisyphus	8.3	1978 CA	8.1
(1917)Cuyo	8.4	1990 HA	6.9
(1981)Midas	3	1990 SM	8.4
(2135)Aristaeus	8.1	1994 WR12	8.2
(2201)Oljato	1.3	1995 SA	8.9
(2340)Hathor	8.4	1996 AJ1	8.5
(3122)Florence	7.5	1996 JA1	8.8
(3200)Phaethon	6.2	1996 RG3	5.7
(3362)Khufu	9	1996 SK	4.7
(3671)Dionysus	7.8	1997 GL3	5.7
(4179)Toutatis	4.2	1997 US2	8.6
(4183)Cuno	7	1997 XR2	0
(4581)Asclepius	8	1998 FW4	-2.4
(4660)Nereus	5.7	1998 HH49	8.8
(4769)Castalia	8.5	1998 KM3	7.1
(4953)1990 MU	6.4	1998 KJ9	7.9
(5143)Heracles	8.1	1998 MZ	5.2
(5693)1993 EA	5.7	1998 QA1	7.3
(7335)1989 JA	8.7	1998 QK28	7.9
(7482)1994 PC1	-0.3	1998 SC15	0
(7753)1988 XB	7.7	1999 DB7	6.8
(8566)1996 EN	8.3	1999 JU3	2.2
(12538)1998 OH	8.4	1999 RM45	6.2
(12923)Zephyr	7.8	1999 VP11	4.9
(13651)1997 BR	8.4	1999 XS35	7.2
(16960)1998 QS52	4.9	1999 XL136	7.1
(20425)1998 VD35	7.6	1999 YR14	8.1
(20826)2000 UV13	7.6	2000 DN1	8.9
(23187)2000 PN9	7	2000 EH26	6.6
(27002)1998 DV9	5.9	2000 EJ26	8.6
(31669)1999 JT6	3.9	2000 EK26	3.6
(33342)1998 WT24	7.9	2000 GV147	6.6
(35396)1997 XF11	1.1	2000 KA	7.1
(37638)1993 VB	-0.8	2000 LB16	6.6
(39572)1993 DQ1	9	2000 QK130	2.5
(52768)1998 OR2	8.9	2000 TU28	6.2

2000 WO107	7	2004 XM29	8.5
2000 YN29	8.5	2004 XL35	8.7
2001 BF10	7.2	2004 XB45	8.2
2001 BW15	8.9	2004 XN50	8.2
2001 BA16	8.9	2005 AD13	8.8
2001 BO61	8.5	2005 BS1	7.3
2001 EC	-0.1	2005 CZ36	8.3
2001 FO32	6.5	2005 CC37	8.4
2001 HA4	5.3	2005 EU2	7.9
2001 TX44	8.9	2005 EM169	5.2
2001 VK5	-4.7	2005 GY8	6.8
2001 WS1	6.5	2005 GC120	8.8
2001 WV1	8.9	2005 LW3	7.2
2001 WN5	4.6	2005 NB7	7.4
2001 XU	2.1	2005 QZ151	8.2
2001 XP1	7.9	2005 RR6	8.7
2001 YN2	8.6	2005 SQ	8.8
2001 YB5	9	2005 SE71	5.3
2002 AJ129	7.6	2005 TS15	8.9
2002 CY9	8.3	2005 VC	8.6
2002 CU11	2.8	2005 VL1	1.7
2002 EY2	-3.6	2005 VN5	8.7
2002 EM7	-0.8	2005 WK4	7.9
2002 FB3	4.3	2005 XJ8	8.1
2002 GM2	8.4	2005 YU55	7
2002 GZ8	6.3	2006 BC10	8.5
2002 JZ8	6.8	2006 BM55	7.9
2002 JB9	8.4	2006 CT	8.3
2002 LV	6.8	2006 DU62	5.9
2002 MN	7.7	2006 FX	6.4
2002 NY40	5.4	2006 GY2	7.9
2002 PZ39	6.5	2006 JF42	6.3
2002 SZ	6.4	2006 KV86	4.3
2002 SQ41	6.5	2006 OF2	8.9
2002 SY50	4.6	2006 QV89	1.1
2002 TD66	8.9	2006 RJ1	8.1
2002 TR190	7.5	2006 SC	6.7
2002 XR14	8.3	2006 SU49	-0.5
2002 XV90	7.7	2006 SQ372	3.9
2003 DZ15	3.9	2006 VV2	7.9
2003 EP4	8.7	2006 WT1	7.1
2003 EE16	0.2	2007 AG	7.9
2003 GG21	5.9	2005 NC83	1.2
2003 HF2	7.1	2005 QY10	3.6
2003 KO2	6.1	2005 QB11	2.8
2003 LN6	8.3	2005 QZ30	0.6
2003 MH4	6.8	2005 SU222	3
2003 MK4	7.1	2005 TK30	2.8
2003 QC10	3.1	2005 TL30	0.4
2003 RN10	5.7	2005 TM45	0.5
2003 SD220	8.2	2005 WV54	2.6
2003 UV11	8.5	2005 WV56	2.2
2003 WP7	6.4	2005 WZ56	3.2
2003 WY25	7.1	2005 XA65	2.2
2003 YT1	3.8	2005 XB65	2.5
2003 YG118	7.6	2005 XE65	2.1
2003 YH136	8.9	2006 EJ22	3.2
2003 YM137	6.8	2006 GG46	1.4
2004 BE68	8.8	2006 QJ5	2.4
2004 BL86	8.4	2006 RZ24	0.2
2004 DC	7.9	2006 SQ3	1
2004 FH	2.3	2006 SC19	1
2004 FY1	8	2006 SB43	0.5
2004 FU4	5.6	2006 SD48	0.7
2004 GA1	8.4	2006 ST76	-0.2
2004 GU9	6.9	2006 SV76	1.2
2004 HE	4.9	2006 SY109	2.2
2004 HW	6.9	2006 SY152	1.8
2004 HZ	0	2006 SZ152	1.6
2004 HE12	7.6	2006 TP1	1.7
2004 HK33	7.5	2006 UH57	4.1
2004 LJ1	7.1	2006 UJ58	1.9
2004 LV3	8.9	2006 UK58	2.5
2004 MX2	6.7	2006 UH153	3.2
2004 OT11	8.1	2006 UT241	3.1
2004 QY2	8.1	2006 VC5	3.2
2004 QT24	7.5	2006 VJ21	2.4
2004 RQ252	5.1	2006 VK21	2
2004 ST26	8.2	2006 VM31	2.1
2004 VC17	5.9	2006 VW43	0
2004 XN14	7.6	2006 WB191	-1.3
2004 XP14	5.7	2006 YO14	2.3

# ELENCO ASTEROIDI CHE ALL'OPPOSIZIONE POTREBBERO SUPERARE 1" DI DIAMETRO

(1)Ceres		1.1	2005 NC83	4	8.9
(4)Vesta		1.6	2005 QY10	2	4.4
(1981)Midas		2	2005 QB11	2.5	5.5
(2201)Oljato	2	4.5	2005 QZ30	4.8	10.8
(4179)Toutatis		1.2	2005 SU222	2.3	5.2
(7482)1994 PC1	4.2	9.3	2005 TK30	2.5	5.6
(31669)1999 JT6		1.4	2005 TL30	5.1	11.5
(35396)1997 XF11	2.2	4.9	2005 TM45	5.1	11.3
(37638)1993 VB	5.3	11.9	2005 WV54	2.6	5.9
(85236)1993 KH		1.2	2005 WV56	2.9	6.6
(85713)1998 SS49	1.2	2.7	2005 WZ56	2.2	5
(89958)2002 LY45		1.9	2005 XA65	2.9	6.6
(89959)2002 NT7	1.1	2.5	2005 XB65	2.7	6.1
(90416)2003 YK118		2	2005 XE65	3.1	6.9
(99942)Apophis	2	4.6	2006 EJ22	2.2	5
(137108)1999 AN10	2.3	5.2	2006 GG46	3.8	8.6
(141495)2002 EZ11		1.6	2006 QJ5	2.8	6.3
(143487)2003 CR20		2.2	2006 RZ24	5.6	12.5
(143649)2003 QQ47		1	2006 SQ3	4.3	9.7
(143651)2003 QO104		1.5	2006 SC19	4.4	9.7
1997 XR2	3.6	8.1	2006 SB43	5	11.1
1998 FW4	11.1	24.7	2006 SD48	4.7	10.6
1998 SC15	3.7	8.4	2006 ST76	6.3	14.1
1999 JU3	1.3	3	2006 SV76	4	8.9
2000 EK26		1.6	2006 SY109	3	6.7
2000 QK130	1.2	2.7	2006 SY152	3.3	7.4
2001 EC	3.8	8.5	2006 SZ152	3.6	8
2001 VK5	31.3	70.1	2006 TP1	3.5	7.8
2001 XU	1.4	3.1	2006 UH57	1.7	3.9
2002 CU11	1	2.3	2006 UJ58	3.2	7.2
2002 EY2	19.1	42.8	2006 UK58	2.8	6.2
2002 EM7	5.4	12.1	2006 UH153	2.3	5
2002 FB3		1.1	2006 UT241	2.3	5.1
2003 DZ15		1.3	2006 VC5	2.2	5
2003 EE16	3.4	7.5	2006 VJ21	2.8	6.3
2003 QC10		1.9	2006 VM31	3.1	6.9
2003 YT1		1.4	2006 VW43	6	13.3
2004 FH	1.3	2.9	2006 WB191	9.2	20.7
2004 HZ	3.7	8.2	2006 YO14	2.9	6.4
2005 VL1	1.7	3.7	2007 AJ22	2.1	4.8
2006 KV86		1.1			
2006 QV89	2.2	5			
2006 SU49	4.6	10.4			

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

# ECLISSI DI SOLE E DI LUNA

## Total Lunar Eclipse of 2007 Mar 03

Geocentric Conjunction = 23:00:47.6 UT J.D. = 2454163.45888

Greatest Eclipse = 23:20:55.8 UT J.D. = 2454163.47287

Penumbral Magnitude = 2.3452 P. Radius = 1.2020° Gamma = 0.3174  
Umbral Magnitude = 1.2375 U. Radius = 0.6535° Axis = 0.2883°

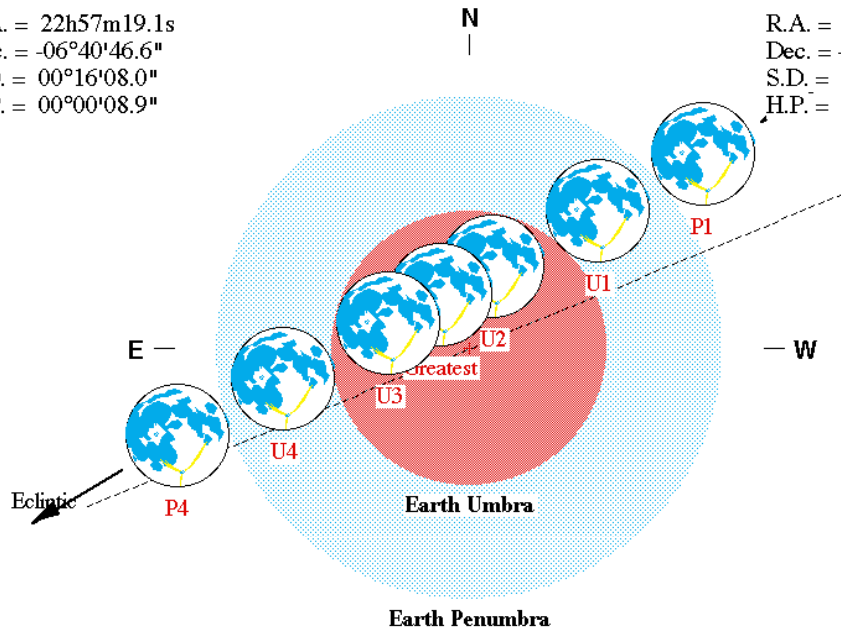
Saros Series = 123 Member = 52 of 73

### Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 22h57m19.1s  
Dec. = -06°40'46.6"  
S.D. = 00°16'08.0"  
H.P. = 00°00'08.9"

### Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 10h57m52.2s  
Dec. = +06°56'00.6"  
S.D. = 00°14'51.3"  
H.P. = 00°54'31.1"



### Eclipse Semi-Durations

Penumbral = 03h04m29s  
Umbral = 01h50m51s  
Total = 00h37m06s

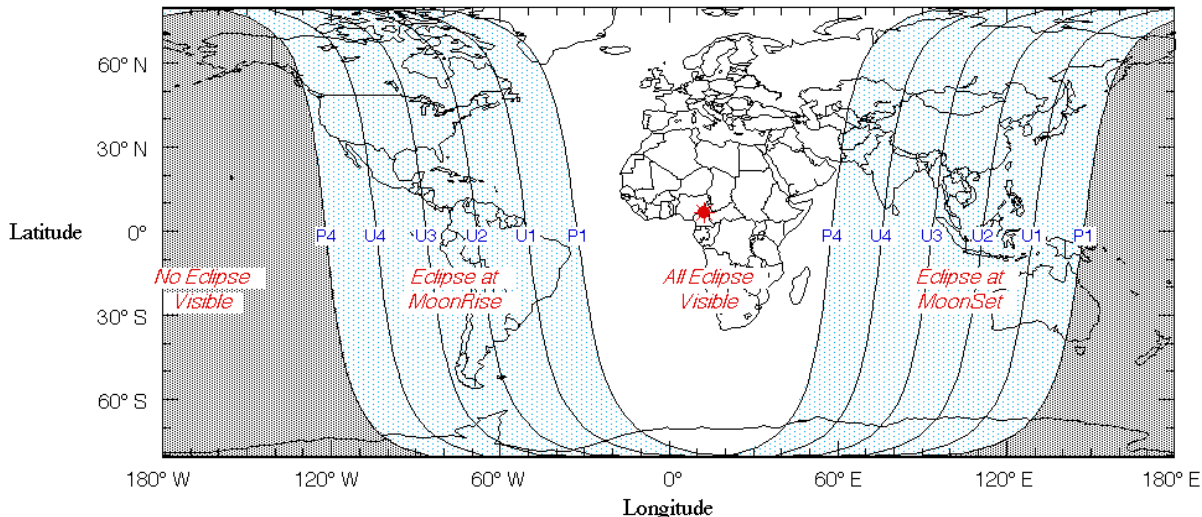
Eph. = Newcomb/ILE  
 $\Delta T = 65.0$  s

### Eclipse Contacts

P1 = 20:16:29 UT  
U1 = 21:30:04 UT  
U2 = 22:43:49 UT  
U3 = 23:58:01 UT  
U4 = 01:11:46 UT  
P4 = 02:25:27 UT

F. Espenak, NASA's GSFC - 2004 Jul 07

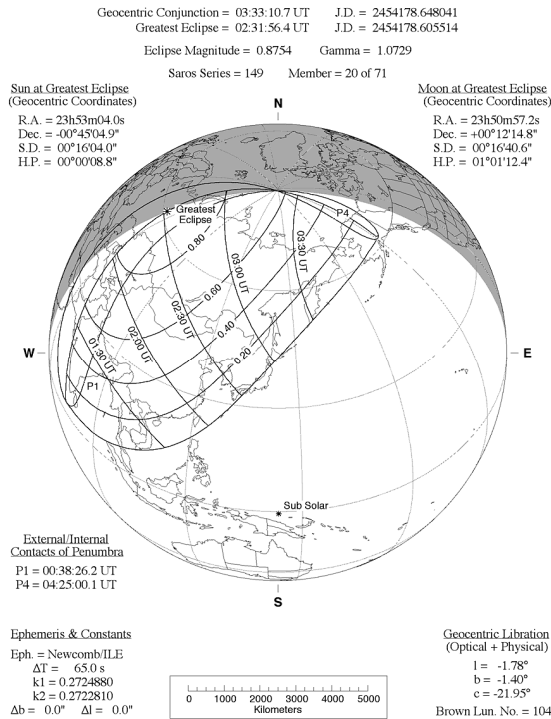
<http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html>



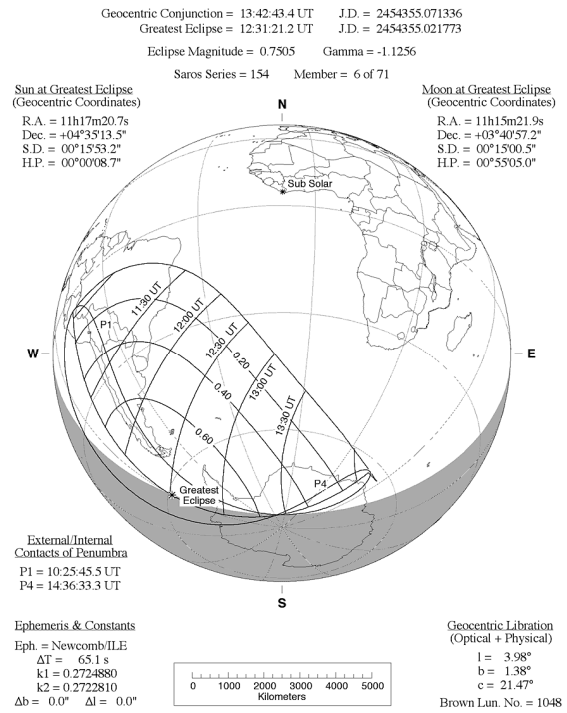


# ECLISSI NON VISIBILI IN ITALIA

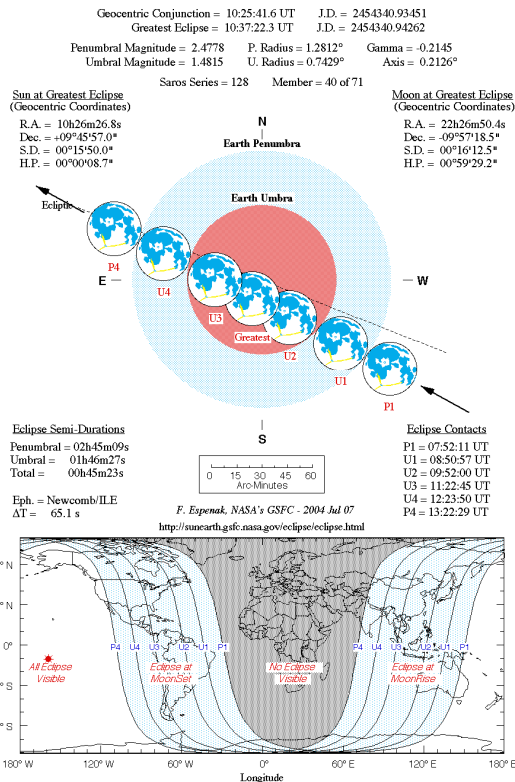
## Partial Solar Eclipse of 2007 Mar 19



## Partial Solar Eclipse of 2007 Sep 11



## Total Lunar Eclipse of 2007 Aug 28



# SCIAMI METEORICI

Shower	Activity	Max Data	$\lambda$	$\alpha$	$\delta$	$v_{\infty}$	$r$	ZHR
Antihelion Source (ANT)	Gen 01 - Dic 31					30	3.0	3
Quadrantids (QUA)	Gen 01 - Gen 05	Gen 04	283°16	230°	+49°	41	2.1	120
$\alpha$ -Centaurids (ACE)	Gen 28 - Feb 21	Feb 08	319°2	211°	-59°	56	2.0	5
$\delta$ -Leonids (DLE)	Feb 15 - Mar 10	Feb 25	336°	168°	+16°	23	3.0	2
$\gamma$ -Normids (GNO)	Feb 25 - Mar 22	Mar 14	353°	239°	-50°	56	2.4	4
Lyrids (LYR)	Apr 16 - Apr 25	Apr 22	32°32	271°	+34°	49	2.1	18
$\pi$ -Puppids (PPU)	Apr 15 - Apr 28	Apr 24	33°5	110°	-45°	18	2.0	var
$\eta$ -Aquarids (ETA)	Apr 19 - Mag 28	Mag 06	45°5	338°	-01°	66	2.4	60
$\eta$ -Lyrids (ELY)	Mag 03 - Mag 12	Mag 09	48°4	287°	+44	44	3.0	3
Giuè Bootids (JBO)	Giu 22 - Lug 02	Giu 27	95°7	224°	+48°	18	2.2	var
Piscis Austrinids (PAU)	Lug 15 - Ago 10	Lug 28	125°	341°	-30°	35	3.2	5
South. $\delta$ -Aquarids (SDA)	Lug 12 - Ago 19	Lug 28	125°	339°	-16°	41	3.2	20
$\alpha$ -Capricornids (CAP)	Lug 03 - Ago 15	Lug 30	127°	307°	-10°	23	2.5	4
Perseids (PER)	Lug 17 - Ago 24	Ago 13	140°0	46°	+58°	59	2.6	100
$\kappa$ -Cygnids (KCG)	Ago 03 - Ago 25	Ago 18	145°	286°	+59°	25	3.0	3
$\alpha$ -Aurigids (AUR)	Ago 25 - Set 08	Set 01	158°6	84°	+42°	66	2.6	7
Settember Perseids (SPE)	Set 05 - Set 17	Set 09	166°7	60°	+47°	64	2.9	5
$\delta$ -Aurigids (DAU)	Set 18 - Ott 10	Ott 04	191°	88°	+49°	64	2.9	2
Draconids (GIA)	Ott 06 - Ott 10	Ott 09	195°4	262°	+54°	20	2.6	var
$\varepsilon$ -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	23
Leo Minorids (LMI)	Ott 19 - Ott 27	Ott 24	211°	162°	+37°	62	3.0	2
Southern Taurids (STA)	Ott 01 - Nov 25	Nov 05	223°	52°	+15°	27	2.3	5
Northern Taurids (NTA)	Ott 01 - Nov 25	Nov 12	230°	58°	+22°	29	2.3	5
Leonids (LEO)	Nov 10 - Nov 23	Nov 18	235°27	153°	+22°	71	2.5	15+
$\alpha$ -Monocerotids (AMO)	Nov 15 - Nov 25	Nov 22	239°32	117°	+01°	65	2.4	var
Dic Phoenicids (PHO)	Nov 28 - Dic 09	Dic 06	254°25	18°	-53°	18	2.8	var
Puppilid/Velids (PUP)	Dic 01 - Dic 15	(Dic 07)	(255°)	123°	-45°	40	2.9	10
Monocerotids (MON)	Nov 27 - Dic 17	Dic 09	257°	100°	+08°	42	3.0	2
$\sigma$ -Hydrids (HYD)	Dic 03 - Dic 15	Dic 12	260°	127°	+02°	58	3.0	3
Geminids (GEM)	Dic 07 - Dic 17	Dic 14	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 23	270°7	217°	+76°	33	3.0	10

# COMETE AL PERIELIO

Comets reaching perihelion in 2007	T	q	P	N	H <sub>i</sub>	K <sub>i</sub>	Peak mag
P/Siding Spring (2006 HR30)	Jan 2.3	1.23	21.8	1 ?	10.0	10.0	10
McNaught (2006 P1)	Jan 12.9	0.17			5.0	10.0	-4 ?
99P/Kowal	Jan 15.7	4.72	15.1	2	4.5	15.0	17
P/Christensen (2006 U5)	Jan 20.3	2.32	6.61	1	12.0	10.0	16
182P/LONEOS (2006 W2)	Feb 6.1	0.98	5.02	2	18.0	10.0	15
LINEAR (2006 M1)	Feb 13.9	3.56			8.5	10.0	17
P/Petrew (2001 Q2)	Feb 24.6	0.94	5.47	1	11.0	10.0	12
LONEOS (2005 EL173)	Mar 6.1	3.90			11.5	5.0	17
McNaught (2006 K3)	Mar 13.4	2.50			8.0	10.0	14
P/Gibbs (2006 U7)	Mar 27.7	4.43	41.4	1	10.0	10.0	19
106P/Schwester	Apr 2.2	1.56	7.31	3	10.0	15.0	15
96P/Machholz	Apr 4.6	0.12	5.24	4	13.0	12.0	2
2P/Encke	Apr 19.3	0.34	3.30	59	10.5	15.0	3
17P/Holmes	May 4.5	2.05	6.88	9	10.0	15.0	17
LINEAR (2006 S2)	May 7.3	3.16			10.0	10.0	17
P/LONEOS-Tucker (1998 QP54)	May 12.2	1.88	8.60	1	9.7	15.0	16
135P/Shoemaker-Levy	May 31.0	2.71	7.48	2	6.5	20.0	16
128P/Shoemaker-Holt (A)	Jun 13.6	3.07	9.59	2	4.6	15.0	14
128P/Shoemaker-Holt (B)	Jun 13.7	3.07	9.59	1	4.6	15.0	?
156P/Russell-LINEAR	Jun 17.4	1.59	6.83	3	13.0	15.0	18
133P/(7968) Elst-Pizarro	Jun 29.4	2.64	5.61	4	12.0	10.0	17
87P/Bus	Jul 7.2	2.17	6.51	4	10.0	15.0	16
P/Mueller (1998 U2)	Jul 7.9	2.03	8.73	1	11.0	15.0	17
108P/Cifreco	Jul 18.0	1.72	7.26	3	9.2	15.0	15
McNaught (2006 K1)	Jul 20.6	4.43			7.5	10.0	17
P/NEAT (2002 O5)	Jul 26.3	1.17	4.98	1	19.0	10.0	16
125P/Spacewatch	Aug 10.7	1.52	5.53	3	15.5	10.0	18
LINEAR (2006 VZ13)	Aug 10.9	1.02			10.5	10.0	10
P/Hoenig (2003 R5)	Sep 11.3	0.05	3.99	2	12.5	5.0	6?
D/Schorr (1918 W1)	Sep 26.4	2.85	8.51	1	10.0	15.0	18
70P/Kojima	Oct 5.9	2.01	7.06	5	11.0	15.0	17
136P/Mueller	Oct 22.2	2.96	8.57	2	11.0	10.0	17
50P/Arend	Nov 1.2	1.92	8.26	7	9.5	15.0	14
75D/Kohoutek	Nov 3.3	1.80	6.70	3	10.5	10.0	13?
D/Blanpain (1819 W1)	Nov 3.4	0.94	5.16	1	10.5	10.0	?
Catalina (2006 V1)	Nov 26.1	2.82			8.0	10.0	15
NEAT (2006 K4)	Nov 29.4	3.19			6.0	10.0	13
179P/Jedicke (2006 U2)	Dec 3.0	4.09	14.3	2	9.5	10.0	18
D/Denning (1894 F1)	Dec 4.3	1.63	9.69	1	10.5	15.0	14?
Hill (2006 S5)	Dec 9.7	2.63			8.0	10.0	13
P/Shoemaker-Levy (1990 V1)	Dec 12.9	1.46	16.4	1	10.5	10.0	13
P/LINEAR-Mueller (1998 S1)	Dec 16.1	2.55	9.13	1	5.6	15.0	13
93P/Lovas	Dec 17.3	1.70	9.20	3	10.1	10.7	12

The date of perihelion (T), perihelion distance (q), period (P), the number of previously observed returns (N), the magnitude parameters H<sub>i</sub> and K<sub>i</sub> and the brightest magnitude are given for each comet. The date of return of D/Schorr and D/Denning must be regarded as highly uncertain, whilst 75D/Kohoutek was missed at the last two returns. If there is an identity between D/Blanpain and 2003 WY25 (P/Catalina) it will not return in 2007.

Note:  $m_1 = H_i + 5.0 * \log(d) + K_i * \log(r)$

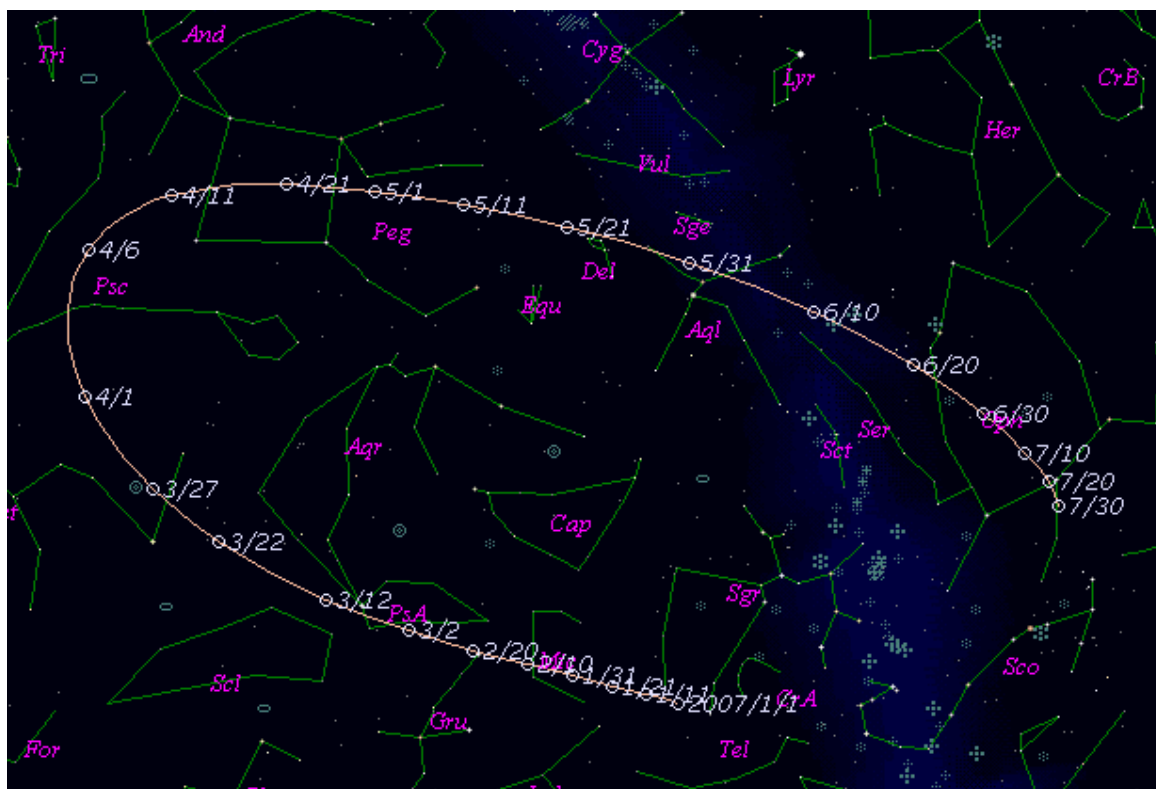
T = epoca del perielio  
q = perielio  
P = periodo  
N = numero di passaggi dall'anno della scoperta  
H,K = parametri per il calcolo della luminosità  
Peak = massima magnitudine prevista

# COMETE CON $m < 9$

96P/Machholz

Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2007 03 26	00	32.06	-13 54.5	1.244	0.400	16.2	44.2	8.7	18.2
2007 03 27	00	38.05	-12 17.5	1.223	0.369	15.2	45.1	8.2	18.0
2007 03 28	00	44.09	-10 32.5	1.202	0.337	14.1	46.0	7.7	17.8
2007 03 29	00	50.15	-08 38.3	1.181	0.305	12.9	47.0	7.2	17.6
2007 03 30	00	56.17	-06 33.6	1.160	0.272	11.7	48.0	6.5	17.3
2007 03 31	01	02.06	-04 16.3	1.138	0.239	10.4	49.3	5.8	17.0
2007 04 01	01	07.63	-01 43.9	1.115	0.205	9.2	51.1	5.0	16.7
2007 04 02	01	12.54	+01 06.1	1.091	0.174	8.1	54.3	4.1	16.4
2007 04 03	01	16.13	+04 15.0	1.064	0.146	7.3	60.5	3.1	16.1
2007 04 04	01	17.29	+07 37.6	1.033	0.128	7.0	71.5	2.4	16.1
2007 04 05	01	14.90	+10 54.5	1.001	0.126	7.2	86.2	2.2	16.5
2007 04 06	01	09.19	+13 40.2	0.970	0.140	8.0	98.7	2.7	17.2
2007 04 07	01	01.61	+15 46.1	0.943	0.166	9.2	105.7	3.5	17.9
2007 04 08	00	53.43	+17 19.1	0.921	0.197	10.8	108.5	4.4	18.4
2007 04 09	00	45.24	+18 28.3	0.903	0.230	12.6	109.0	5.1	18.7
2007 04 10	00	37.30	+19 20.8	0.887	0.264	14.5	108.4	5.8	18.9
2007 04 11	00	29.70	+20 01.2	0.874	0.297	16.4	107.2	6.4	19.1
2007 04 12	00	22.44	+20 32.7	0.862	0.329	18.4	105.7	6.9	19.2
2007 04 13	00	15.51	+20 57.4	0.851	0.361	20.4	104.2	7.3	19.3
2007 04 14	00	08.89	+21 16.8	0.842	0.392	22.4	102.6	7.7	19.3
2007 04 15	00	02.56	+21 32.0	0.833	0.422	24.4	101.0	8.1	19.4
2007 04 16	23	56.48	+21 44.0	0.824	0.452	26.4	99.5	8.4	19.5
2007 04 17	23	50.63	+21 53.2	0.817	0.481	28.3	98.0	8.7	19.5
2007 04 18	23	44.98	+22 00.2	0.809	0.509	30.3	96.5	9.0	19.5

YYYY	MM	DD	Sorge	Culm.	Tram.	IC ->	Alt	Azi	FC ->	Alt	Azi	LuSo	LuTr	F.L.
2007	3	26	7:27	12:37	17:49	4:23			20:21			10:49	2:53	0.53
2007	3	27	7:22	12:39	17:59	4:21			20:22			12: 0	3:35	0.63
2007	3	28	7:16	12:41	18: 9	4:19			20:24			13:12	4: 7	0.73
2007	3	29	7:10	12:43	18:20	4:17			20:26			14:23	4:31	0.81
2007	3	30	7: 3	12:45	18:31	4:14			20:27			15:31	4:50	0.88
2007	3	31	6:55	12:47	18:43	4:12			20:29			16:37	5: 7	0.94
2007	4	1	6:46	12:48	18:56	4:10			20:31			17:42	5:22	0.97
2007	4	2	6:35	12:49	19: 9	4: 8			20:32			18:47	5:37	1.00
2007	4	3	6:21	12:47	19:21	4: 5			20:34			19:53	5:52	1.00
2007	4	4	6: 3	12:43	19:30	4: 3			20:36			21: 0	6: 9	0.98
2007	4	5	5:42	12:35	19:34	4: 1			20:37			22: 9	6:29	0.95
2007	4	6	5:20	12:24	19:33	3:58			20:39			23:17	6:54	0.91
2007	4	7	5: 0	12:12	19:29	3:56			20:41		s	0:23	7:26	0.84
2007	4	8	4:41	12: 0	19:23	3:54			20:43		s	1:21	8: 8	0.77
2007	4	9	4:23	11:48	19:16	3:51			20:44			9: 2	0.68	
2007	4	10	4: 7	11:37	19: 8	3:49			20:46			2:11	10: 7	0.58
2007	4	11	3:53	11:25	19: 0	3:47			20:48			2:50	11:21	0.48
2007	4	12	3:39	11:14	18:51	3:44	+0.3	59	20:50			3:21	12:39	0.37
2007	4	13	3:26	11: 4	18:42	3:42	+1.7	60	20:52			3:46	13:59	0.27
2007	4	14	3:14	10:53	18:33	3:40	+3.1	62	20:54			4: 7	15:20	0.17
2007	4	15	3: 2	10:43	18:25	3:37	+4.4	63	20:56			4:27	16:41	0.09
2007	4	16	2:51	10:33	18:16	3:35	+5.7	64	20:57			4:47	18: 5	0.03
2007	4	17	2:41	10:24	18: 7	3:33	+7.0	65	20:59			5: 8	19:30	0.00
2007	4	18	2:31	10:14	17:58	3:30	+8.1	66	21: 1			5:32	20:57	0.01

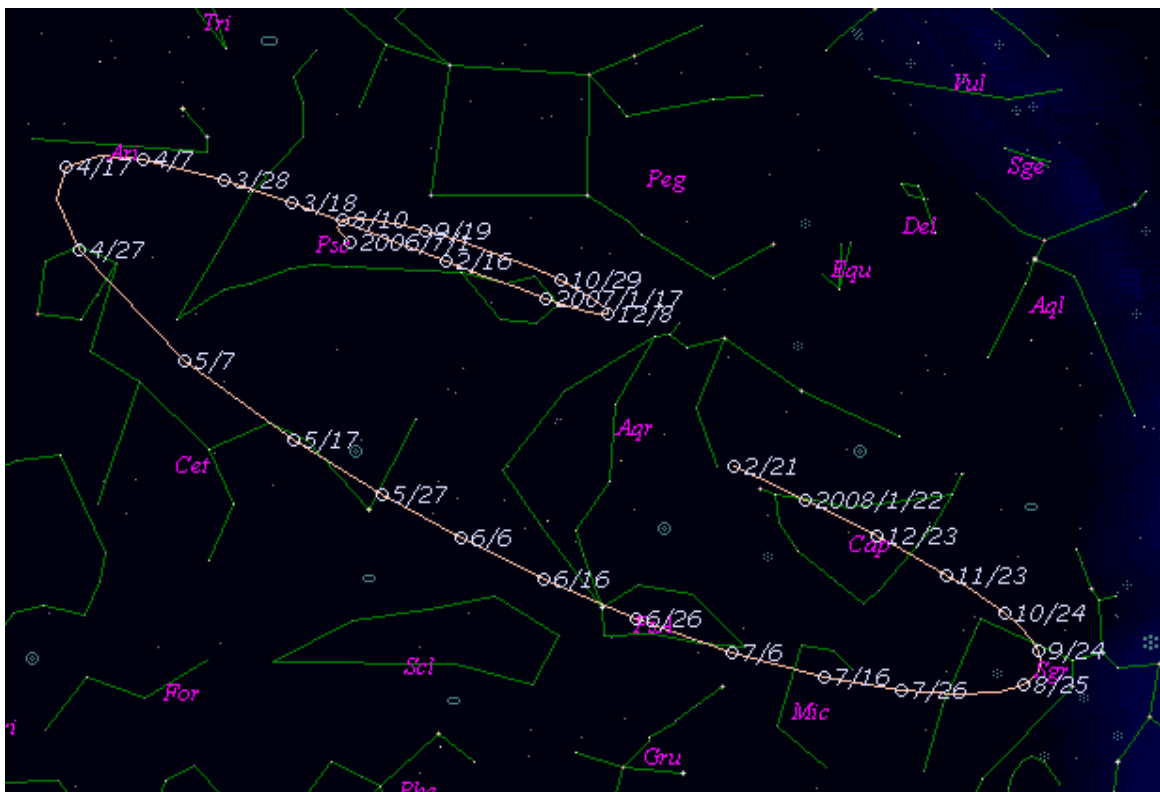


Percorso in cielo della 96P/Machholz

2P/Encke Data	TT	R. A. (2000) Decl.		Delta	r	Elong.	Phase	m1	m2
2007 03 30		01 51.81	+16 58.7	1.375	0.611	23.7	41.0	9.0	17.7
2007 03 31		01 55.38	+17 11.1	1.354	0.593	23.6	42.3	8.8	17.7
2007 04 01		01 59.01	+17 23.1	1.331	0.574	23.4	43.8	8.5	17.6
2007 04 02		02 02.69	+17 34.5	1.309	0.556	23.3	45.3	8.3	17.5
2007 04 03		02 06.42	+17 45.3	1.285	0.538	23.2	47.1	8.0	17.5
2007 04 04		02 10.20	+17 55.3	1.261	0.520	23.1	49.0	7.7	17.4
2007 04 05		02 14.01	+18 04.4	1.236	0.502	23.0	51.1	7.5	17.4
2007 04 06		02 17.85	+18 12.5	1.211	0.485	22.9	53.4	7.2	17.3
2007 04 07		02 21.70	+18 19.4	1.185	0.468	22.8	55.9	6.9	17.2
2007 04 08		02 25.55	+18 24.9	1.158	0.451	22.7	58.7	6.6	17.2
2007 04 09		02 29.37	+18 28.8	1.130	0.435	22.5	61.8	6.3	17.2
2007 04 10		02 33.15	+18 30.7	1.102	0.420	22.4	65.3	6.1	17.1
2007 04 11		02 36.84	+18 30.5	1.073	0.405	22.2	69.0	5.8	17.1
2007 04 12		02 40.41	+18 27.8	1.043	0.392	22.0	73.1	5.5	17.1
2007 04 13		02 43.81	+18 22.2	1.013	0.379	21.7	77.6	5.2	17.1
2007 04 14		02 46.99	+18 13.5	0.982	0.368	21.4	82.5	5.0	17.2
2007 04 15		02 49.90	+18 01.1	0.951	0.359	20.9	87.8	4.7	17.3
2007 04 16		02 52.45	+17 44.7	0.919	0.351	20.4	93.4	4.5	17.4
2007 04 17		02 54.60	+17 24.1	0.888	0.345	19.8	99.4	4.3	17.5
2007 04 18		02 56.27	+16 58.8	0.857	0.341	19.1	105.7	4.2	17.7
2007 04 19		02 57.41	+16 28.7	0.826	0.339	18.2	112.1	4.0	18.0
2007 04 20		02 57.98	+15 53.7	0.796	0.340	17.3	118.7	4.0	18.4
2007 04 21		02 57.93	+15 13.8	0.767	0.342	16.1	125.4	3.9	18.9
2007 04 22		02 57.26	+14 29.1	0.739	0.347	14.9	132.0	3.9	19.5
2007 04 23		02 55.96	+13 39.7	0.713	0.354	13.5	138.4	4.0	20.2
2007 04 24		02 54.07	+12 46.2	0.689	0.362	12.1	144.4	4.1	21.0
2007 04 25		02 51.63	+11 48.9	0.666	0.372	10.6	150.0	4.2	21.9
2007 04 26		02 48.67	+10 48.3	0.645	0.384	9.3	155.0	4.3	23.0
2007 04 27		02 45.25	+09 44.9	0.626	0.397	8.2	158.8	4.5	24.1
2007 04 28		02 41.45	+08 39.4	0.609	0.411	7.5	161.3	4.6	24.9
2007 04 29		02 37.31	+07 32.3	0.594	0.425	7.5	161.9	4.8	25.2
2007 04 30		02 32.91	+06 24.2	0.580	0.441	8.3	160.8	5.0	24.8
2007 05 01		02 28.29	+05 15.5	0.568	0.457	9.6	158.4	5.2	24.0
2007 05 02		02 23.52	+04 06.8	0.558	0.474	11.4	155.2	5.4	23.2
2007 05 03		02 18.64	+02 58.6	0.548	0.491	13.4	151.6	5.6	22.4
2007 05 04		02 13.69	+01 51.2	0.540	0.509	15.6	147.8	5.8	21.7
2007 05 05		02 08.72	+00 45.0	0.534	0.527	17.9	144.0	6.0	21.2
2007 05 06		02 03.75	-00 19.9	0.528	0.545	20.2	140.2	6.2	20.7

2007 05 07	01 58.81	-01 23.1	0.523	0.563	22.6	136.5	6.3	20.3
2007 05 08	01 53.92	-02 24.4	0.519	0.581	24.9	132.9	6.5	19.9
2007 05 09	01 49.10	-03 23.9	0.516	0.600	27.3	129.5	6.7	19.6
2007 05 10	01 44.37	-04 21.4	0.513	0.618	29.6	126.1	6.9	19.4
2007 05 11	01 39.72	-05 16.9	0.511	0.636	31.9	122.9	7.1	19.1
2007 05 12	01 35.18	-06 10.5	0.510	0.655	34.2	119.8	7.3	18.9
2007 05 13	01 30.73	-07 02.1	0.508	0.673	36.5	116.8	7.5	18.8
2007 05 14	01 26.38	-07 51.8	0.508	0.691	38.7	114.0	7.6	18.6
2007 05 15	01 22.13	-08 39.6	0.507	0.710	40.9	111.2	7.8	18.5
2007 05 16	01 17.98	-09 25.8	0.507	0.728	43.0	108.6	8.0	18.4
2007 05 17	01 13.93	-10 10.3	0.507	0.746	45.2	106.1	8.1	18.3
2007 05 18	01 09.96	-10 53.3	0.507	0.764	47.2	103.6	8.3	18.3
2007 05 19	01 06.08	-11 34.9	0.507	0.782	49.3	101.2	8.4	18.2
2007 05 20	01 02.27	-12 15.1	0.508	0.800	51.3	99.0	8.6	18.1
2007 05 21	00 58.54	-12 54.2	0.508	0.818	53.3	96.7	8.7	18.1
2007 05 22	00 54.86	-13 32.1	0.509	0.835	55.3	94.6	8.9	18.0
2007 05 23	00 51.25	-14 08.9	0.509	0.853	57.3	92.5	9.0	18.0

YYYY MM DD	Sorge	Culm.	Tram.	IC ->	Alt Azi	FC ->	Alt Azi	LuSo	LuTr	F.L.
2007 3 30	6:19	13:39	21: 1	4:14		20:27	+4.5 290	15:31	4:50	0.88
2007 3 31	6:17	13:39	21: 1	4:12		20:29	+4.3 291	16:37	5: 7	0.94
2007 4 1	6:16	13:39	21: 2	4:10		20:31	+4.1 291	17:42	5:22	0.97
2007 4 2	6:15	13:39	21: 3	4: 8		20:32	+4.0 292	18:47	5:37	1.00
2007 4 3	6:14	13:38	21: 3	4: 5		20:34	+3.8 292	19:53	5:52	1.00
2007 4 4	6:13	13:38	21: 4	4: 3		20:36	+3.6 293	21: 0	6: 9	0.98
2007 4 5	6:12	13:38	21: 5	4: 1		20:37	+3.4 293	22: 9	6:29	0.95
2007 4 6	6:11	13:38	21: 5	3:58		20:39	+3.3 294	23:17	6:54	0.91
2007 4 7	6:11	13:38	21: 6	3:56		20:41	+3.0 294s	0:23	7:26	0.84
2007 4 8	6:10	13:38	21: 6	3:54		20:43	+2.8 294s	1:21	8: 8	0.77
2007 4 9	6:10	13:38	21: 6	3:51		20:44	+2.5 295		9: 2	0.68
2007 4 10	6: 9	13:38	21: 6	3:49		20:46	+2.2 295	2:11	10: 7	0.58
2007 4 11	6: 9	13:37	21: 5	3:47		20:48	+1.9 295	2:50	11:21	0.48
2007 4 12	6: 9	13:37	21: 4	3:44		20:50	+1.5 296	3:21	12:39	0.37
2007 4 13	6: 9	13:36	21: 3	3:42		20:52	+1.0 296	3:46	13:59	0.27
2007 4 14	6: 9	13:35	21: 1	3:40		20:54	+0.5 296	4: 7	15:20	0.17
2007 4 15	6: 9	13:34	20:58	3:37		20:56	-0.0 297	4:27	16:41	0.09
2007 4 16	6: 9	13:32	20:55	3:35		20:57		4:47	18: 5	0.03
2007 4 17	6: 9	13:30	20:51	3:33		20:59		5: 8	19:30	0.00
2007 4 18	6: 9	13:28	20:45	3:30		21: 1		5:32	20:57	0.01
2007 4 19	6: 8	13:25	20:40	3:28		21: 3		6: 3	22:22	0.04
2007 4 20	6: 8	13:21	20:33	3:25		21: 5		6:43	23:39	0.09
2007 4 21	6: 7	13:17	20:25	3:23		21: 7		7:35s	0:42	0.17
2007 4 22	6: 5	13:12	20:16	3:21		21: 9		8:38s	1:31	0.27
2007 4 23	6: 4	13: 6	20: 6	3:18		21:11		9:48		0.37
2007 4 24	6: 2	13: 0	19:56	3:16		21:13		11: 1	2: 7	0.47
2007 4 25	6: 0	12:54	19:45	3:13		21:15		12:13	2:34	0.57
2007 4 26	5:58	12:46	19:33	3:11		21:17		13:22	2:55	0.67
2007 4 27	5:55	12:39	19:20	3: 9		21:20		14:28	3:13	0.76
2007 4 28	5:52	12:31	19: 8	3: 6		21:22		15:33	3:28	0.83
2007 4 29	5:48	12:23	18:55	3: 4		21:24		16:37	3:43	0.90
2007 4 30	5:45	12:15	18:42	3: 1		21:26		17:42	3:58	0.95
2007 5 1	5:41	12: 6	18:28	2:59		21:28		18:49	4:15	0.98
2007 5 2	5:37	11:57	18:15	2:57		21:30		19:57	4:34	1.00
2007 5 3	5:33	11:48	18: 1	2:54		21:32		21: 6	4:57	1.00
2007 5 4	5:29	11:40	17:48	2:52		21:35		22:14	5:27	0.98
2007 5 5	5:25	11:31	17:35	2:49		21:37		23:15	6: 6	0.94
2007 5 6	5:20	11:22	17:21	2:47		21:39		s 0: 8	6:56	0.88
2007 5 7	5:16	11:13	17: 8	2:45		21:41		s 0:50	7:57	0.81
2007 5 8	5:11	11: 4	16:56	2:42		21:43		s 1:23	9: 8	0.72
2007 5 9	5: 6	10:56	16:43	2:40		21:46			10:23	0.63
2007 5 10	5: 2	10:47	16:31	2:38		21:48		1:49	11:41	0.52
2007 5 11	4:57	10:39	16:18	2:35		21:50		2:11	12:59	0.41
2007 5 12	4:52	10:30	16: 6	2:33		21:52		2:30	14:17	0.30
2007 5 13	4:47	10:22	15:55	2:31		21:55		2:49	15:37	0.20
2007 5 14	4:43	10:14	15:43	2:28		21:57		3: 9	17: 0	0.12
2007 5 15	4:38	10: 6	15:32	2:26		21:59		3:32	18:25	0.05
2007 5 16	4:33	9:57	15:20	2:24		22: 2		3:59	19:51	0.01
2007 5 17	4:28	9:50	15: 9	2:22		22: 4		4:35	21:13	0.00
2007 5 18	4:23	9:42	14:59	2:19		22: 6		5:22	22:25	0.02
2007 5 19	4:19	9:34	14:48	2:17		22: 9		6:21	23:21	0.07
2007 5 20	4:14	9:26	14:37	2:15		22:11		7:31s	0: 4	0.14
2007 5 21	4: 9	9:19	14:27	2:13		22:13		8:45s	0:35	0.22
2007 5 22	4: 4	9:11	14:17	2:11		22:15		9:59s	0:58	0.32
2007 5 23	4: 0	9: 4	14: 7	2: 9		22:18		11:10s	1:17	0.41



Percorso in cielo della 2P/Encke

C/2006 P1 (McNaught)

Data	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2007 01 30		21 06.05	-51 04.2	1.095	0.607	33.4	63.3	8.0	
2007 01 31		21 08.77	-51 47.6	1.116	0.634	34.4	61.4	8.3	
2007 02 01		21 11.46	-52 27.7	1.137	0.660	35.3	59.7	8.5	
2007 02 02		21 14.11	-53 04.9	1.158	0.685	36.2	58.1	8.7	
2007 02 03		21 16.73	-53 39.7	1.178	0.710	37.0	56.6	8.9	

Mai visibilile alla nostra latitudine

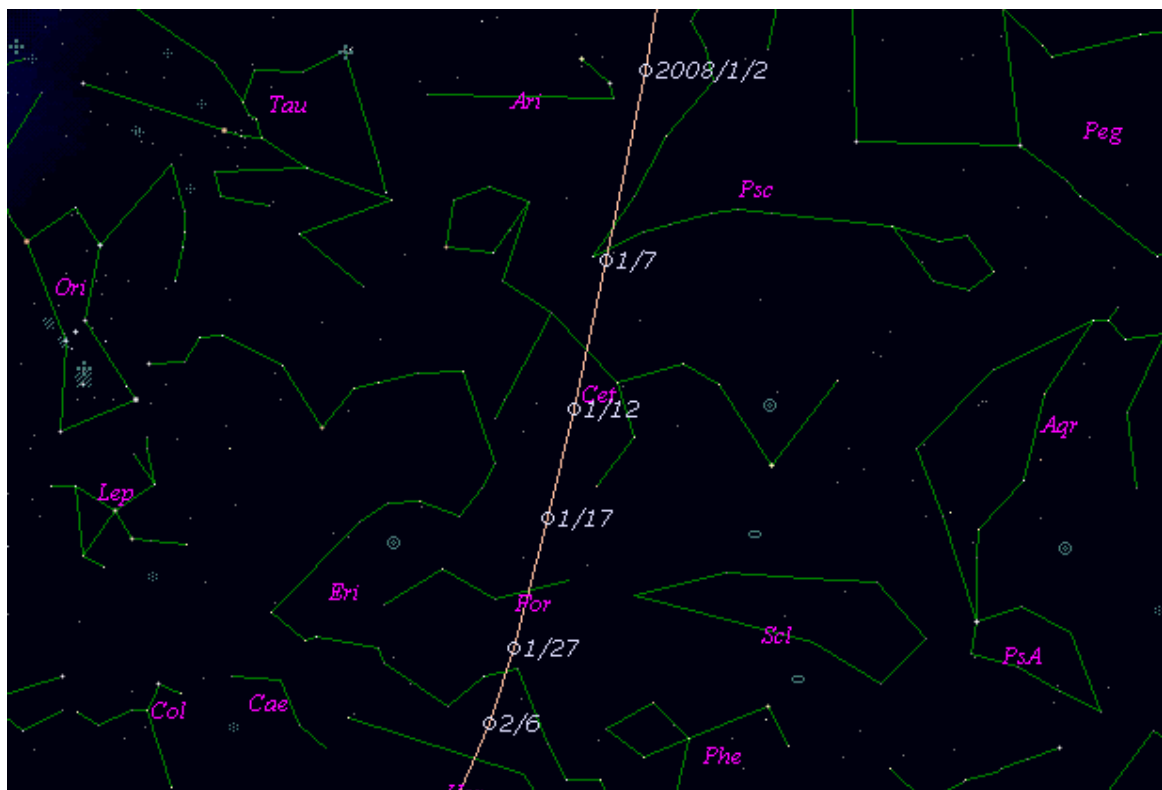
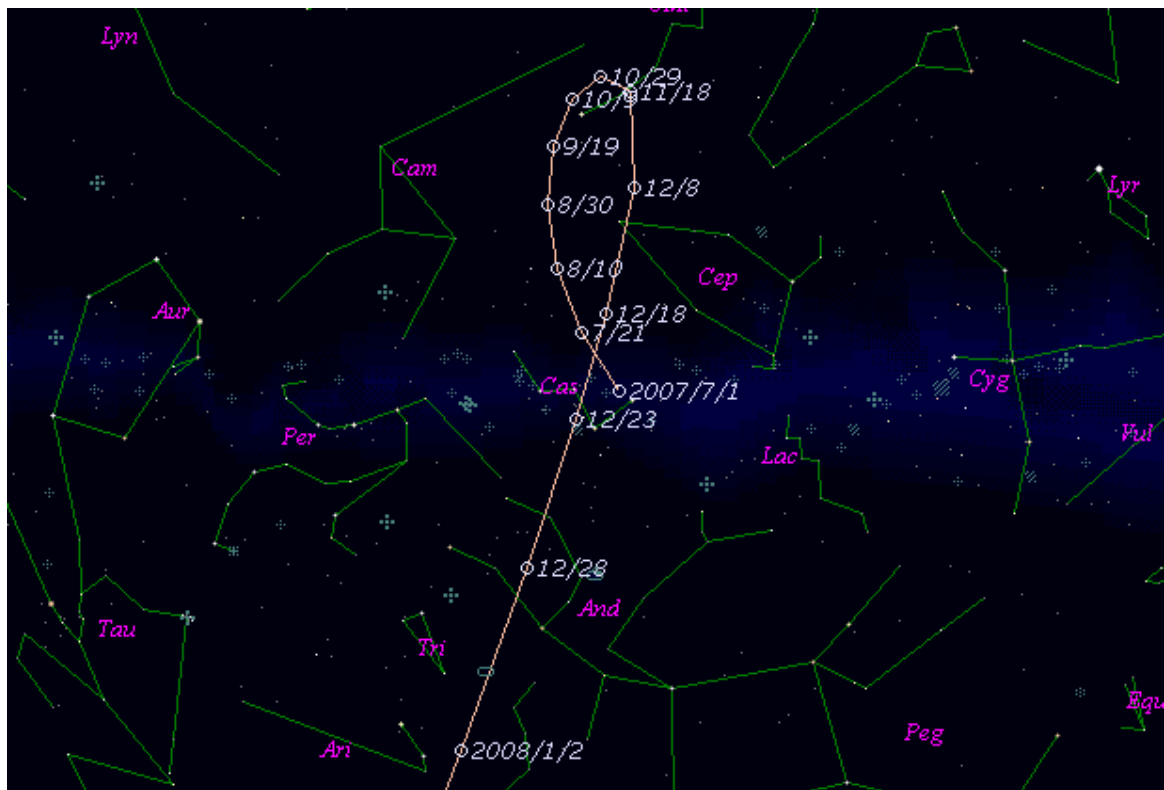
8P/Tuttle

Date	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2007 12 05		21 56.88	+82 18.5	0.565	1.296	110.5	45.4	9.0	14.1
2007 12 05		21 56.88	+82 18.5	0.565	1.296	110.5	45.4	9.0	14.1
2007 12 06		22 12.62	+81 46.0	0.549	1.288	110.9	45.6	8.9	14.0
2007 12 07		22 27.59	+81 09.5	0.533	1.279	111.3	45.9	8.8	13.9
2007 12 08		22 41.75	+80 28.8	0.517	1.271	111.7	46.1	8.6	13.8
2007 12 09		22 55.11	+79 43.6	0.501	1.262	112.1	46.3	8.5	13.8
2007 12 10		23 07.67	+78 53.5	0.486	1.254	112.5	46.5	8.4	13.7
2007 12 11		23 19.48	+77 58.4	0.471	1.246	112.9	46.7	8.3	13.6
2007 12 12		23 30.55	+76 57.8	0.455	1.238	113.3	46.9	8.1	13.5
2007 12 13		23 40.95	+75 51.3	0.440	1.230	113.7	47.1	8.0	13.4
2007 12 14		23 50.70	+74 38.6	0.425	1.222	114.1	47.3	7.9	13.4
2007 12 15		23 59.86	+73 19.2	0.411	1.214	114.5	47.5	7.8	13.3
2007 12 16		00 08.46	+71 52.5	0.397	1.206	114.9	47.7	7.6	13.2
2007 12 17		00 16.55	+70 18.0	0.383	1.199	115.3	47.9	7.5	13.1
2007 12 18		00 24.17	+68 35.2	0.369	1.191	115.6	48.2	7.4	13.0
2007 12 19		00 31.35	+66 43.3	0.356	1.184	115.9	48.4	7.2	12.9
2007 12 20		00 38.13	+64 41.8	0.343	1.176	116.2	48.6	7.1	12.9
2007 12 21		00 44.55	+62 29.9	0.331	1.169	116.5	48.9	7.0	12.8
2007 12 22		00 50.62	+60 07.2	0.319	1.162	116.6	49.2	6.8	12.7
2007 12 23		00 56.37	+57 32.9	0.308	1.156	116.7	49.5	6.7	12.6
2007 12 24		01 01.84	+54 46.7	0.298	1.149	116.7	49.9	6.6	12.5
2007 12 25		01 07.03	+51 48.3	0.289	1.142	116.6	50.3	6.5	12.5
2007 12 26		01 11.98	+48 37.5	0.280	1.136	116.4	50.9	6.3	12.4

2007	12	27	01	16.69	+45	14.7	0.272	1.130	116.0	51.5	6.2	12.3
2007	12	28	01	21.20	+41	40.4	0.266	1.123	115.4	52.2	6.1	12.3
2007	12	29	01	25.50	+37	55.6	0.260	1.117	114.7	53.1	6.0	12.3
2007	12	30	01	29.62	+34	01.9	0.256	1.112	113.8	54.0	6.0	12.2
2007	12	31	01	33.57	+30	01.2	0.253	1.106	112.8	55.1	5.9	12.2
2008	01	01	01	37.36	+25	55.7	0.251	1.100	111.5	56.2	5.8	12.2
2008	01	02	01	41.00	+21	48.2	0.251	1.095	110.1	57.5	5.8	12.3
2008	01	03	01	44.51	+17	41.2	0.252	1.090	108.6	58.7	5.8	12.3
2008	01	04	01	47.88	+13	37.4	0.254	1.085	107.0	60.1	5.7	12.4
2008	01	05	01	51.13	+09	39.2	0.257	1.080	105.3	61.4	5.7	12.4
2008	01	06	01	54.27	+05	48.7	0.262	1.076	103.6	62.7	5.7	12.5
2008	01	07	01	57.29	+02	07.7	0.268	1.071	101.9	63.9	5.7	12.6
2008	01	08	02	00.22	-01	22.8	0.275	1.067	100.2	65.1	5.8	12.6
2008	01	09	02	03.05	-04	42.0	0.283	1.063	98.6	66.2	5.8	12.7
2008	01	10	02	05.80	-07	49.5	0.291	1.059	97.0	67.1	5.8	12.8
2008	01	11	02	08.45	-10	45.2	0.301	1.056	95.5	68.0	5.9	12.9
2008	01	12	02	11.03	-13	29.5	0.311	1.052	94.0	68.8	5.9	13.0
2008	01	13	02	13.53	-16	02.6	0.322	1.049	92.7	69.5	6.0	13.1
2008	01	14	02	15.96	-18	25.2	0.333	1.046	91.4	70.1	6.0	13.2
2008	01	15	02	18.32	-20	37.9	0.345	1.043	90.1	70.5	6.1	13.3

YYYY	MM	DD	Sorge	Culm.	Tram.	IC	->	Alt	Azi	FC	->	Alt	Azi	LuSo	LuTr	F.L.
2007	12	5	Sempre	visibile		5:50		+38.3	1	18:21		+53.8	357	3:32	13:55	0.19
2007	12	6	Sempre	visibile		5:51		+37.7	1	18:21		+54.5	357	4:37	14:16	0.12
2007	12	7	Sempre	visibile		5:52		+37.1	0	18:21		+55.2	358	5:43	14:41	0.07
2007	12	8	Sempre	visibile		5:53		+36.4	360	18:21		+56.0	358	6:48	15:12	0.03
2007	12	9	Sempre	visibile		5:54		+35.6	359	18:21		+56.8	359	7:51	15:51	0.01
2007	12	10	Sempre	visibile		5:55		+34.8	359	18:21		+57.7	359	8:48	16:41	0.00
2007	12	11	Sempre	visibile		5:55		+33.9	358	18:22		+58.7	0	9:36	17:40	0.02
2007	12	12	Sempre	visibile		5:56		+32.9	358	18:22		+59.8	1	10:15	18:46	0.05
2007	12	13	Sempre	visibile		5:57		+31.8	357	18:22		+61.0	2	10:47	19:57	0.10
2007	12	14	Sempre	visibile		5:58		+30.6	357	18:22		+62.2	3	11:12	21: 8	0.17
2007	12	15	Sempre	visibile		5:58		+29.3	356	18:22		+63.6	4	11:33	22:21	0.25
2007	12	16	Sempre	visibile		5:59		+27.9	356	18:23		+65.0	5	11:52	23:34	0.35
2007	12	17	Sempre	visibile		6: 0		+26.4	355	18:23		+66.6	7	12:10s	0:48	0.45
2007	12	18	Sempre	visibile		6: 0		+24.7	354	18:23		+68.3	9	12:29s	2: 6	0.56
2007	12	19	Sempre	visibile		6: 1		+22.9	354	18:24		+70.1	11	12:50		0.67
2007	12	20	Sempre	visibile		6: 2		+20.9	353	18:24		+72.0	14	13:16	3:28	0.78
2007	12	21	Sempre	visibile		6: 2		+18.8	352	18:25		+74.1	18	13:49	4:53	0.87
2007	12	22	Sempre	visibile		6: 3		+16.5	352	18:25		+76.2	24	14:33	6:19	0.94
2007	12	23	Sempre	visibile		6: 3		+13.9	351	18:26		+78.3	31	15:32	7:37	0.98
2007	12	24	Sempre	visibile		6: 4		+11.2	350	18:26		+80.3	43	16:46	8:41	1.00
2007	12	25	Sempre	visibile		6: 4		+8.3	350	18:27		+81.8	61	18: 7	9:30	0.99
2007	12	26	Sempre	visibile		6: 4		+5.2	349	18:27		+82.3	85	19:29	10: 5	0.95
2007	12	27	Sempre	visibile		6: 5		+2.0	348	18:28		+81.4	109	20:47	10:32	0.89
2007	12	28	8:46	19:13	5:48	6: 5				18:29		+79.2	127	22: 0	10:53	0.81
2007	12	29	9:41	19:13	4:54	6: 5				18:29		+76.3	139	23: 9	11:10	0.72
2007	12	30	10:19	19:13	4:16	6: 6				18:30		+72.9	147s	0:15	11:27	0.63
2007	12	31	10:49	19:13	3:46	6: 6				18:31		+69.3	153s	1:21	11:43	0.53
2008	1	1	11:15	19:13	3:19	6: 6				18:32		+65.5	157		12: 0	0.44
2008	1	2	11:37	19:13	2:56	6: 6				18:33		+61.6	160	2:27	12:19	0.34
2008	1	3	11:57	19:12	2:35	6: 6				18:33		+57.7	162	3:33	12:42	0.26
2008	1	4	12:15	19:11	2:16	6: 6				18:34		+53.9	164	4:39	13:11	0.18
2008	1	5	12:32	19:11	1:57	6: 6				18:35		+50.1	166	5:43	13:48	0.11
2008	1	6	12:47	19:10	1:40	6: 6				18:36		+46.5	168	6:42	14:35	0.06
2008	1	7	13: 1	19: 9	1:24	6: 6				18:37		+43.1	169	7:34	15:32	0.02
2008	1	8	13:15	19: 8	1: 9	6: 6				18:38		+39.8	170	8:16	16:37	0.00
2008	1	9	13:27	19: 6s	0:40	6: 6				18:39		+36.7	171	8:50	17:48	0.00
2008	1	10	13:39	19: 5s	0:26	6: 6				18:40		+33.8	173	9:17	19: 0	0.02
2008	1	11	13:50	19: 4s	0:13	6: 6				18:41		+31.0	173	9:40	20:13	0.07
2008	1	12	14: 0	19: 2s	0: 0	6: 6				18:42		+28.5	174	9:59	21:26	0.13
2008	1	13	14:10	19: 1	23:47	6: 5				18:43		+26.1	175	10:17	22:39	0.21
2008	1	14	14:20	18:59	23:35	6: 5				18:44		+23.9	176	10:35	23:54	0.30
2008	1	15	14:29	18:58	23:23	6: 5				18:45		+21.8	177	10:55s	1:12	0.41





Percorso in cielo della 8P/Tuttle

© (10)

# CONGIUNZIONI <1° COMETE - PIANETI

96P/Machholz

Date	TDT	Dm (°)	Dl	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
2007/12/23	10:17:21	0.80560	0.00440	1.43	4.65	180	4	-0.9	22.0		10.4	Mercury	96P

# CONGIUNZIONI <1° COMETE - STELLE m<4

2P/Encke

Date	TDT	Dm (°)	Dl	r1	p (°)	e	m1	m*	tm(s)	tw(h)			
2007/05/14	11:51:43	0.09768	0.02841	0.51	217	-40	6.2	3.7		18.1	2P	45 Theta	CET
2007/05/17	21:03:29	0.76840	0.02843	0.51	216	-47	6.5	3.6		12.8	2P	31 Eta	CET

Data nel formato anno/mese/giorno

Dm = distanza minima in gradi tra i centri dei corpi

Dl = Parallasse terrestre

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

e = elongazione

m1 = magnitudine del primo corpo

m\* = magnitudine della stella

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

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

© (6)

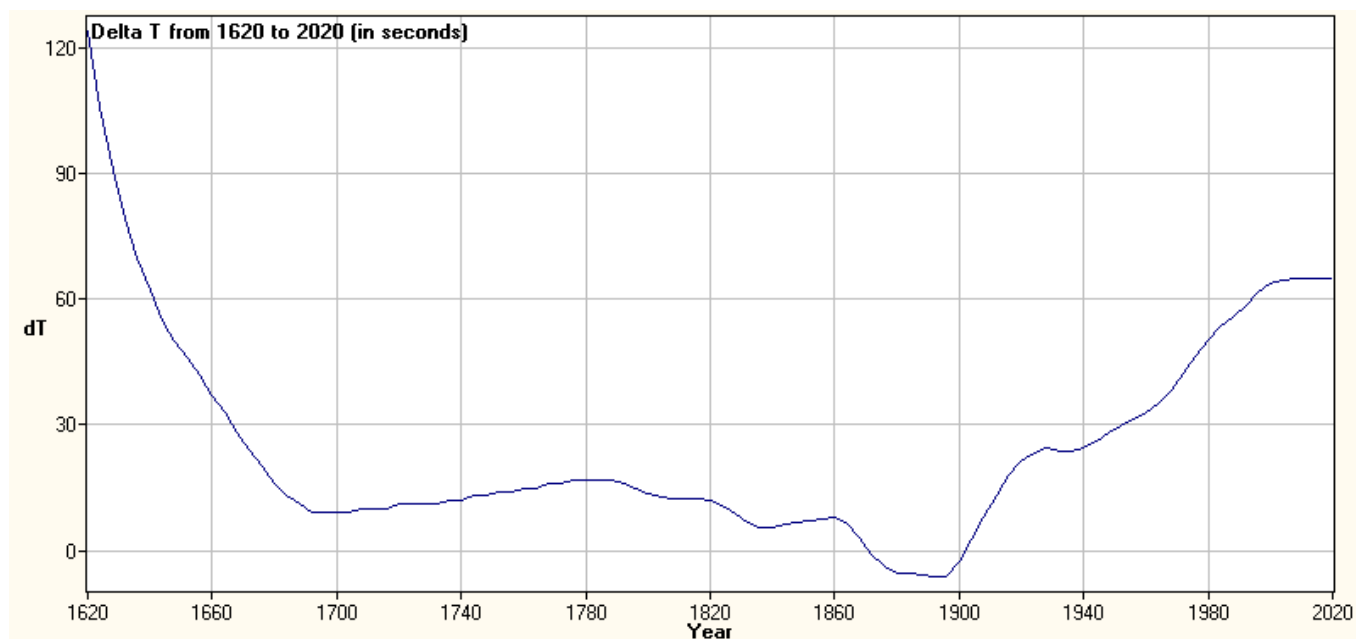
## TABELLA DI CONVERSIONE MAGNITUDINE ASSOLUTA

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.

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.

## $\Delta T$ - 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 46°

	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	
30		51	47	42	37	32	27	22	17	12	6	0	-6	-12	-19	-26	-33	-40	-48	-56	-65	-74
29		48	44	40	35	31	26	21	16	11	6	0	-6	-12	-18	-24	-31	-38	-45	-53	-61	-70
28		45	41	37	33	29	24	20	15	10	5	0	-5	-11	-17	-23	-29	-36	-43	-50	-58	-66
27		43	39	35	31	27	23	19	14	10	5	0	-5	-10	-16	-21	-27	-34	-40	-47	-54	-62
26		40	37	33	29	25	22	18	13	9	5	0	-5	-10	-15	-20	-26	-32	-38	-44	-51	-58
25		38	35	31	28	24	20	17	13	9	4	0	-4	-9	-14	-19	-24	-30	-36	-42	-48	-55
24		36	33	29	26	23	19	16	12	8	4	0	-4	-9	-13	-18	-23	-28	-34	-39	-45	-52
23		34	31	28	25	21	18	15	11	8	4	0	-4	-8	-12	-17	-22	-27	-32	-37	-43	-49
22		32	29	26	23	20	17	14	11	7	4	0	-4	-8	-12	-16	-20	-25	-30	-35	-40	-46
21		30	27	24	22	19	16	13	10	7	3	0	-4	-7	-11	-15	-19	-23	-28	-33	-38	-43
20		28	25	23	20	18	15	12	9	6	3	0	-3	-7	-10	-14	-18	-22	-26	-31	-36	-40
19		26	24	22	19	17	14	11	9	6	3	0	-3	-6	-10	-13	-17	-21	-25	-29	-33	-38
18		25	22	20	18	16	13	11	8	6	3	0	-3	-6	-9	-12	-16	-19	-23	-27	-31	-36
17		23	21	19	17	15	12	10	8	5	3	0	-3	-6	-8	-12	-15	-18	-22	-25	-29	-33
16		21	19	18	16	14	11	9	7	5	2	0	-3	-5	-8	-11	-14	-17	-20	-24	-27	-31
15		20	18	16	14	13	11	9	7	4	2	0	-2	-5	-7	-10	-13	-16	-19	-22	-25	-29
14		18	17	15	13	12	10	8	6	4	2	0	-2	-4	-7	-9	-12	-14	-17	-20	-23	-27
13		17	15	14	12	11	9	7	6	4	2	0	-2	-4	-6	-9	-11	-13	-16	-19	-21	-24
12		16	14	13	11	10	8	7	5	3	2	0	-2	-4	-6	-8	-10	-12	-15	-17	-20	-22
11		14	13	12	10	9	8	6	5	3	2	0	-2	-3	-5	-7	-9	-11	-13	-16	-18	-20
10		13	12	10	9	8	7	6	4	3	1	0	-2	-3	-5	-6	-8	-10	-12	-14	-16	-18
9		11	10	9	8	7	6	5	4	3	1	0	-1	-3	-4	-6	-7	-9	-11	-13	-15	-17
8		10	9	8	7	6	5	4	3	2	1	0	-1	-2	-4	-5	-6	-8	-10	-11	-13	-15
7		9	8	7	6	6	5	4	3	2	1	0	-1	-2	-3	-4	-6	-7	-8	-10	-11	-13
6		8	7	6	5	5	4	3	2	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-10	-11
5		6	6	5	5	4	3	3	2	1	1	0	-1	-2	-2	-3	-4	-5	-6	-7	-8	-9
4		5	5	4	4	3	3	2	2	1	1	0	-1	-1	-2	-3	-3	-4	-5	-5	-6	-7
3		4	3	3	3	2	2	2	1	1	0	0	0	-1	-1	-2	-2	-3	-4	-4	-5	-5
2		2	2	2	2	2	1	1	1	1	0	0	0	-1	-1	-2	-2	-2	-3	-3	-4	-4
1		1	1	1	1	1	1	1	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-2	-2
0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1		-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	1	1	1	1	1	2	2
-2		-2	-2	-2	-2	-2	-1	-1	-1	-1	0	0	0	1	1	2	2	2	3	3	4	4
-3		-4	-3	-3	-3	-2	-2	-2	-1	-1	0	0	0	1	1	2	2	3	4	4	5	5
-4		-5	-5	-4	-4	-3	-3	-2	-2	-1	-1	0	1	1	2	3	3	4	5	5	6	7
-5		-6	-6	-5	-5	-4	-3	-3	-2	-1	-1	0	1	2	2	3	4	5	6	7	8	9
-6		-8	-7	-6	-5	-5	-4	-3	-2	-2	-1	0	1	2	3	4	5	6	7	8	10	11
-7		-9	-8	-7	-6	-6	-5	-4	-3	-2	-1	0	1	2	3	4	6	7	8	10	11	13
-8		-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	4	5	6	8	10	11	13	15
-9		-11	-10	-9	-8	-7	-6	-5	-4	-3	-1	0	1	3	4	6	7	9	11	13	15	17
-10		-13	-12	-10	-9	-8	-7	-6	-4	-3	-1	0	2	3	5	6	8	10	12	14	16	18
-11		-14	-13	-12	-10	-9	-8	-6	-5	-3	-2	0	2	3	5	7	9	11	13	16	18	20
-12		-16	-14	-13	-11	-10	-8	-7	-5	-3	-2	0	2	4	6	8	10	12	15	17	20	22
-13		-17	-15	-14	-12	-11	-9	-7	-6	-4	-2	0	2	4	6	9	11	13	16	19	21	24
-14		-18	-17	-15	-13	-12	-10	-8	-6	-4	-2	0	2	4	7	9	12	14	17	20	23	27
-15		-20	-18	-16	-14	-13	-11	-9	-7	-4	-2	0	2	5	7	10	13	16	19	22	25	29
-16		-21	-19	-18	-16	-14	-11	-9	-7	-5	-2	0	3	5	8	11	14	17	20	24	27	31
-17		-23	-21	-19	-17	-15	-12	-10	-8	-5	-3	0	3	6	8	12	15	18	22	25	29	33
-18		-25	-22	-20	-18	-16	-13	-11	-8	-6	-3	0	3	6	9	12	16	19	23	27	31	36
-19		-26	-24	-22	-19	-17	-14	-11	-9	-6	-3	0	3	6	10	13	17	21	25	29	33	38
-20		-28	-25	-23	-20	-18	-15	-12	-9	-6	-3	0	3	7	10	14	18	22	26	31	36	40
-21		-30	-27	-24	-22	-19	-16	-13	-10	-7	-3	0	4	7	11	15	19	23	28	33	38	43
-22		-32	-29	-26	-23	-20	-17	-14	-11	-7	-4	0	4	8	12	16	20	25	30	35	40	46
-23		-34	-31	-28	-25	-21	-18	-15	-11	-8	-4	0	4	8	12	17	22	27	32	37	43	49
-24		-36	-33	-29	-26	-23	-19	-16	-12	-8	-4	0	4	9	13	18	23	28	34	39	45	52
-25		-38	-35	-31	-28	-24	-20	-17	-13	-9	-4	0	4	9	14	19	24	30	36	42	48	55
-26		-40	-37	-33	-29	-25	-22	-18	-13	-9	-5	0	5	10	15	20	26	32	38	44	51	58
-27		-43	-39	-35	-31	-27	-23	-19	-14	-10	-5	0	5	10	16	21	27	34	40	47	54	62
-28		-45	-41	-37	-33	-29	-24	-20	-15	-10	-5	0	5	11	17	23	29	36	43	50	58	66
-29		-48	-44	-40	-35	-31	-26	-21	-16	-11	-6	0	6	12	18	24	31	38	45	53	61	70
-30		-51	-47	-42	-37	-32	-27	-22	-17	-12	-6	0	6	12	19	26	33	40	48	56	65	74

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.

# 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	Latitudine	Longitudine
-----	-----	-----
Ancona	43°38'N	013°30'E
Bari	41°07'N	016°52'E
Bergamo	45°41'N	009°43'E
Bologna	44°29'N	011°20'E
Bolzano	46°31'N	011°22'E
Brescia	45°33'N	013°15'E
Cagliari	39°13'N	009°07'E
Catania	37°30'N	015°06'E
Catanzaro	38°54'N	016°26'E
Como	45°47'N	009°05'E
Cosenza	39°17'N	016°15'E
Ferrara	44°50'N	011°35'E
Firenze	43°46'N	011°15'E
Foggia	41°27'N	015°34'E
Forlì	44°13'N	012°03'E
Genova	44°25'N	008°57'E
La Spezia	44°07'N	009°50'E
Latina	41°28'N	012°52'E
Lecce	40°23'N	018°11'E
Livorno	43°33'N	010°19'E
Massa	44°01'N	010°09'E
Messina	38°11'N	015°34'E
Mestre	45°29'N	012°15'E
Milano	45°28'N	009°12'E
Modena	44°40'N	010°55'E
Monza	45°35'N	009°16'E
Napoli	40°51'N	014°17'E
Novara	45°28'N	008°38'E
Padova	45°25'N	011°53'E
Palermo	38°07'N	013°22'E
Parma	44°48'N	010°20'E
Perugia	43°08'N	012°22'E
Pescara	42°28'N	014°13'E
Piacenza	45°01'N	009°40'E
Pisa	43°43'N	010°23'E
Prato	43°53'N	011°06'E
Ravenna	44°25'N	012°12'E
Reggio Calabria	38°06'N	015°39'E
Reggio Emilia	44°43'N	010°36'E
Rimini	44°04'N	012°34'E
Roma	41°54'N	012°29'E
Salerno	40°41'N	014°47'E
Sassari	40°43'N	008°34'E
Savona	44°17'N	008°30'E
Siracusa	37°04'N	015°18'E
Taranto	40°28'N	017°15'E
Terni	42°34'N	012°37'E
Torino	45°03'N	007°40'E
Trento	46°04'N	011°08'E
Trieste	45°40'N	013°46'E
Udine	46°03'N	013°14'E
Venezia	45°27'N	012°21'E
Verona	45°27'N	011°00'E
Vicenza	45°33'N	011°33'E

# ELENCO DELLE STELLE CON MAGNITUDINE < 6

-1.5	Alpha	CMA	Sirius	2.6	Alpha	PEG	Markab	3.1	Psi	UMA	3.5	Alpha1	HER	Rasalgethi
-0.8	Alpha	CAR	Canopus	2.6	Beta	PEG	Scheat	3.1	Eta	PEG	3.5	Iota	DRA	Edasich
0.0	Alpha1	CEN	RigelKentauro	2.6	Alpha	CEP	Alderamin	3.1	Gamma	GRU	3.5	Delta	BOO	
0.1	Alpha	LYR	Vega	2.6	Epsilon	CYG	Gienah	3.1	Zeta	ARA	3.5	Nu	CEN	
0.2	Beta	ORI	Rigel	2.6	Eta	OPH	Sabik	3.1	Mul	SCO	3.6	Eta	CAS	Achird
0.2	Alpha	AUR	Capella	2.6	Zeta	OPH	Han	3.1	Gamma	UMI	3.6	Tau	CET	
0.2	Alpha	BOO	Arcturus	2.6	Beta	LIB		3.1	Epsilon	CRV	3.6	Alpha	TRI	Rasalthothal.
0.5	Alpha	CMI	Procyon	2.6	Alpha	LUP	Men	3.2	Gamma	HYI	3.6	Gamma	CET	Alkaffaljid.
0.6	Alpha	ERI	Achernar	2.6	Beta	ARI	Sheratan	3.2	Epsilon	LEP	3.6	Delta	ERI	Rana
0.6	Alpha	ORI	Betelgeuse	2.7	Beta	COL	Phact	3.2	Beta	COL	3.6	Upsilon4	ERI	
0.8	Beta	CEN	Hadar (Agena)	2.7	Alpha	COL	Phact	3.2	Mu	GEM	3.6	Epsilon	TAU	Ain
0.9	Alpha	AQL	Altair	2.7	Theta	AUR		3.2	Nu	PUP	3.6	Theta2	TAU	
1.0	Alpha	SCO	Antares	2.7	Pi	PUP		3.2	Epsilon	GEM	3.6	Tau	ORI	
1.1	Alpha	TAU	Aldebaran	2.7	Zeta	SGR	Ascella	3.2	Mu	UMA	3.6	Beta	DOR	
1.1	Alpha	VIR	Spica	2.7	Betal	SCO	Graffias	3.2	Nu	HYA	3.6	Zeta	LEP	
1.2	Beta	GEM	Pollux	2.7	Beta	CRV	Kraz	3.2	Lambda	CEN	3.6	Theta	GEM	
1.2	Alpha	PSA	Fomalhaut	2.7	Gamma	CRV	Minkar	3.2	Alpha	AQR	3.6	Sigma	CMA	
1.3	Alpha	LEO	Regulus	2.8	Beta	HYI		3.2	Alpha	IND	3.6	Lambda	GEM	
1.3	Alpha	CYG	Deneb	2.8	Gamma	CAS	Cih	3.2	Beta	CAP	3.6	Chi	CAR	
1.4	Alpha2	CEN		2.8	Delta	CAS	Ruchbah	3.2	Betal	CYG	3.6	Omicron	VEL	
1.4	Beta	CRU	Mimosa	2.8	Alpha	CET	Menkar	3.2	Delta	DRA	3.6	Psi	VEL	
1.4	Alpha1	CRU	Acrux	2.8	Beta	ERI	Kursa	3.2	Phi	SGR	3.6	Phi	VEL	
1.6	Epsilon	CMA	Adhara	2.8	Iota	ORI	Hatysa	3.2	Eta	SGR	3.6	Eta	LEO	
1.6	Alpha	GEM	Castor	2.8	Tau	PUP		3.2	SCO	G Sco	3.6	Zeta	LEO	Adhafera
1.6	Lambda	SCO	Shaula	2.8	Rho	PUP	Turais	3.2	Delta	HER	3.6	Gamma2	LEO	
1.6	Gamma	CRU	Gacrux	2.8	Mu	VEL		3.2	Zeta	DRA	3.6	Xi	HYA	
1.7	Gamma	ORI	Bellatrix	2.8	Gamma	AQL	Tarazed	3.2	Epsilon	OPH	3.6	Omicron	AND	
1.7	Epsilon	UMA	Alioth	2.8	Lambda	SGR	Kaus Boreal.	3.2	Eta	LUP	3.6	Epsilon	GRU	
1.8	Beta	TAU	Elnath	2.8	Delta	SGR	Kaus Media	3.2	Epsilon	LUP	3.6	Zeta	PEG	Homam
1.8	Epsilon	ORI	Alnilam	2.8	Upsilon	SCO	Lesath	3.2	Kappa	CEN	3.6	Zeta	CEP	
1.8	Gamma2	VEL	Regor	2.8	Beta	ARA		3.2	Mu	CEN	3.6	Beta	IND	
1.8	Epsilon	CAR	Avior	2.8	Tau	SCO		3.2	Gamma	HYA	3.6	Eta	CEP	
1.8	Beta	CAR	Miaplacidus	2.8	Beta	HER	Kornephoros	3.3	Pi3	ORI	3.6	Delta	PAV	
1.9	Alpha	PER	Mirfak	2.8	Delta	OPH	Yed Prior	3.3	Eta	AUR	3.6	Xi2	SGR	
1.9	Gamma	GEM	Ahena	2.8	Alpha	SER	Unuk-al-hai	3.3	Mu	LEP	3.6	Alpha	TEL	
1.9	Epsilon	SGR	Kaus Austral	2.8	Beta	LUP	Kekouan	3.3	Alpha	PIC	3.6	Eta	PAV	
1.9	Alpha	TRA	Atria	2.8	Alpha2	LIB	Zubenelgenubi	3.3	Sigma	PUP	3.6	Xi	SER	
1.9	Eta	UMA	Alkaid	2.8	Zeta	CEN		3.3	Zeta	HYA	3.6	Mu2	SCO	
2.0	Omicron	CET	Mira	2.8	Eta	BOO	Muphrid	3.3	Alpha	LYN	3.6	Eta	HER	
2.0	Zeta	ORI	Alnitak	2.8	Iota	CEN		3.3	Theta	UMA	3.6	Mu	SER	
2.0	Beta	CMA	Mirzam	2.8	Alpha	CEN		3.3	Beta	CEP	3.6	Phi1	LUP	
2.0	Delta	CMA	Wezea	2.8	Delta	CEN		3.3	Gamma	LYR	3.6	Beta	BOO	Nekkar
2.0	Delta	VEL	Koo She	2.9	Gamma	PEG	Algenib	3.3	Delta	LUP	3.6	Delta	OCT	
2.0	Alpha	UMA	Dubhe	2.9	Beta	PER	Algol	3.3	Alpha	CIR	3.6	Alpha	DRA	Thuban
2.0	Alpha	GRU	Al Na'ir	2.9	Zeta	PER	Atik	3.3	Beta	MUS	3.6	Delta	MUS	
2.0	Alpha	PAV	Peacock	2.9	Iota	AUR	Hassaleh	3.4	Beta	PHE	3.6	Epsilon	CRU	
2.0	Sigma	SGR	Nunki	2.9	Beta	LEP	Nihal	3.4	Gamma	PHE	3.7	Iota	CET	Shemali
2.0	Theta	SCO	Sargas	2.9	Upsilon	CAR		3.4	Epsilon	CAS	3.7	Zeta	CAS	
2.1	Alpha	AND	Alpheratz	2.9	Theta	CAR		3.4	Thetal	ERI	3.7	Theta	CET	
2.1	Beta	CET	Diphda	2.9	Alpha	TUC		3.4	Alpha	RET	3.7	Eta	PSC	Alperg
2.1	Alpha	UMI	Polaris	2.9	Beta	OPH	Cebalrai	3.4	Alpha	DOR	3.7	Chi	ERI	
2.1	Beta	AUR	Menkalinan	2.9	Eta	DRA	Aldibahin	3.4	Eta	ORI	3.7	Phi	ERI	
2.1	Alpha	HYA	Alphard	2.9	Beta	TRA		3.4	Xi	GEM	3.7		ARI	
2.1	Alpha	OPH	Rasalhague	2.9	Alpha2	CVN	Cor Caroli	3.4	Xi	PUP	3.7	Rho	PER	
2.2	Alpha	ARI	Hamal	2.9	Gamma	VIR	Arich	3.4		CAR	3.7	Lambda	ORI	Meissa
2.2	Kappa	ORI	Saiph	3.0	Alpha	HYI		3.4	Omega	CAR	3.7	Gamma	LEP	
2.2	Lambda	VEL	Al Suhail	3.0	Eta	TAU	Alcyone	3.4		CAR q Car	3.7	Eta	GEM	Propus
2.2	Beta	LEO	Denebola	3.0	Epsilon	PER		3.4		CAR p Car	3.7	Kappa	GEM	
2.2	Beta	GRU	Al Dhanab	3.0	Gamma	ERI	Zaurak	3.4	Theta	LEO	3.7	PUP		
2.2	Beta	UMI	Kochab	3.0	Zeta	TAU	Alheka	3.4	Gamma	CEP	3.7	Beta	VOL	
2.2	Theta	CEN	Menkent	3.0	Zeta	CMA	Furud	3.4	Delta	AQR	3.7	Alpha	PYX	
2.3	Gamma1	AND	Almaak	3.0	Omicron2	CMA		3.4	Zeta	CYG	3.7	Kappa	UMA	
2.3	Zeta	PUP	Suhail Hadar	3.0		VEL	N Vel	3.4	Theta	AQL	3.7	Lambda	HYA	
2.3	Iota	CAR	Aspidiske	3.0	Delta	CAP	Deneb Algedi	3.4	Delta	AQL	3.7	Nu	UMA	Alula Bor.
2.3	Gamma	CYG	Sadr	3.0	Beta	AQR	Sadalsuud	3.4	Tau	SGR	3.7	Delta	CRT	
2.3	Alpha	CRB	Alphecca	3.0	Delta	CYG		3.4	Lambda	AQL	3.7	Lambda	MUS	
2.4	Beta	CAS	Caph	3.0	Pi	SGR	Albaldah	3.4	Eta	SER	3.7	Mu	PEG	Sadalbari
2.4	Alpha	PHE	Ankaa	3.0	Zeta	AQL	Dheneb	3.4	Nu	OPH	3.7	Iota	CEP	
2.4	Beta	AND	Mirach	3.0	Gamma2	SGR	Alnasl	3.4	Theta	OPH	3.7	Theta	PEG	Biham
2.4	Eta	CMA	Aludra	3.0	Total	SCO		3.4	Pi	HER	3.7	Beta	DEL	Rotanev
2.4	Beta	UMA	Merak	3.0	Alpha	ARA	Choo	3.4	Eta	SCO	3.7	Alpha2	CAP	Secunda Gaedi
2.4	Gamma	DRA	Eltanin	3.0	Beta	DRA	Rastaban	3.4	Kappa	OPH	3.7	Gamma	SGE	
2.4	Kappa	SCO	Girtab	3.0	Zeta	HER	Ruticulus	3.4	Zeta	LUP	3.7	Chi	DRA	
2.4	Epsilon	SCO	Wei	3.0	Sigma	SCO	Alniyat	3.4	Sigma	LIB	3.7		OPH	
2.4	Delta	SCO	Dschubba	3.0	Pi	SCO		3.4	Pi	HYA	3.7	Gamma	OPH	
2.4	Eta	CEN		3.0	Gamma	LUP		3.4	Zeta	VIR	3.7	Delta	ARA	
2.4	Epsilon	CEN		3.0	Gamma	TRA		3.4	Delta	UMA	3.7	Beta	SER	
2.4	Zeta	UMA	Mizar	3.0	Gamma	BOO	Seginus	3.5	Delta	AND	3.7	Upsilon	LIB	
2.4	Gamma	CEN		3.0	Epsilon	VIR	Vindematrix	3.5	Eta	CET	3.7	Beta	CRB	Nusakan
2.5	Alpha	CAS	Schedar	3.0	Delta	CRV	Algoral	3.5	Epsilon	AUR	3.7	Pi	LUP	
2.5	Delta	ORI	Mintaka	3.0	Delta	CRU		3.5	Delta	GEM	3.7	Delta	VIR	Minelauva
2.5	Gamma	UMA	Phecda	3.1	Beta	TRI		3.5	Omicron	UMA	3.8		AND	
2.5	Epsilon	PEG	Enif	3.1	Gamma	PER		3.5	Epsilon	HYA	3.8	Zeta	CET	Baten Kaitos
2.5	Epsilon	BOO	Izar	3.1	Delta	PER		3.5	Lambda	UMA	3.8	Omicron	TAU	
2.6	Alpha	LEP	Arneb	3.1		PUP	L2 (v)	3.5	Beta	PAV	3.8	Xi	TAU	
2.6	Kappa	VEL	Markeb	3.1	Beta	CMI	Gomeisa	3.5	Beta	LYR	3.8	Epsilon	ERI	
2.6	Gamma1	LEO	Algieba	3.1	Iota	UMA	Talitha	3.5	Mu	HER	3.8	Beta	RET	
2.6	Delta	LEO	Zosma	3.1	Epsilon	LEO	Asad Austr.	3.5	Gamma	ARA	3.8	TAU	Electra	

3.8	TAU	Atlas	4.0	Xi	PER	Menkib	4.1	AQR	4.3	Xi2	CET
3.8	Alpha	HOR	4.0	Lambda	TAU		4.1	Tau2	4.3	PER	
3.8	Upsilon2	ERI	4.0	Upsilon	PER	Nembus	4.1	Lambda	4.3	TAU	
3.8	Pi4	ORI	4.0	Omicron1	ERI	Beid	4.1	Eta	4.3	Tau5	ERI
3.8	Sigma	ORI	4.0		ERI		4.1	Alpha	4.3	Psi	PER
3.8	Delta	LEP	4.0	Thetal	TAU		4.1	CYG	4.3	TAU	Merope
3.8	Eta	LEP	4.0	Nu	ERI		4.1	Alpha	4.3	Lambda	PER
3.8	Gamma2	VOL	4.0		ERI	Sceptrum	4.1	Thetal	4.3	Mu	PER
3.8	Omega	CMA	4.0	Eta	COL		4.1	OPH	4.3	Mu	TAU
3.8	Beta	CNC	4.0	Delta	COL		4.1	Epsilon1	4.3	Upsilon1	ERI
3.8	Theta	HYA	4.0	Delta	VOL		4.1	Omega1	4.3	TAU	
3.8		LYN	4.0	Alpha	MON		4.1	Theta	4.3	Tau	TAU
3.8		UMA	4.0	Beta	PYX		4.1	Epsilon	4.3	Omicron2	ORI
3.8	Omicron	LEO	4.0		HYA		4.1	Delta	4.3	Lambda	ERI
3.8		CAR	4.0		CAR		4.1	CEN	4.3	Lambda	LEP
3.8	Beta	VIR	4.0		CAR		4.1	Theta	4.3		ORI
3.8		AQR	4.0	Mu	HYA		4.1	Psi	4.3	GEM	
3.8	Lambda	AQR	4.0	Iota	LEO		4.1	Iota	4.3	Sigma	GEM
3.8	Nu	OCT	4.0	Beta	HYA		4.2	Zeta	4.3	PUP	
3.8	Gamma	CAP	4.0	Omega	PSC		4.2	Beta2	4.3	PUP	
3.8	Zeta	CAP	4.0	Lambda	AND		4.2	Kappa	4.3	PUP	
3.8	Tau	CYG	4.0	Gamma	TUC		4.2	Upsilon	4.3	Theta	CHA
3.8	Epsilon	AQR	4.0	Iota	GRU		4.2	Phi	4.3	Eta	HYA
3.8	Delta	SGE	4.0	Theta	GRU		4.2	Delta	4.3	Alpha	CNC
3.8	Zeta	TEL	4.0	Delta1	GRU		4.2	Epsilon	4.3		VEL
3.8	Omicron	HER	4.0	Delta	CEP		4.2	Theta	4.3	Upsilon1	HYA
3.8	Theta	ARA	4.0	Gamma	AQR	Sadachbia	4.2	Tau3	4.3	Kappa	AND
3.8	Xi	HER	4.0	Iota	PEG		4.2	Iota	4.3	Iota	PSC
3.8	Iota	HER	4.0	Mu	CEP	Granate Star	4.2	Tau6	4.3	Iota	AND
3.8	Zeta2	SCO	4.0	Nu	CYG		4.2	Epsilon	4.3	Phi	AQR
3.8	Eta	ARA	4.0	Epsilon	DEL		4.2	Delta3	4.3	Delta	PSA
3.8	Gamma	HER	4.0		CYG		4.2	Beta	4.3	Gamma	PSA
3.8	Xi	SCO	4.0	Epsilon	PAV		4.2	Gamma1	4.3	Xi	PEG
3.8	Rho	SCO	4.0	Eta	CYG		4.2	Iota	4.3	Delta2	GRU
3.8	Epsilon	SER	4.0	Eta	AQL		4.2	Kappa	4.3	Pi2	CYG
3.8	Tau	LIB	4.0	Epsilon	DRA	Tyl	4.2		4.3	Kappa	PEG
3.8	Kappa1	LUP	4.0	Alpha	SGR	Rukbat	4.2	Nu	4.3		CAP
3.8	Alpha	APS	4.0	Rho1	SGR		4.2	Mu	4.3	Iota	CAP
3.8		VIR	4.0	Kappa	CYG		4.2	Theta	4.3		PEG
3.8	Rho	BOO	4.0	Beta	CRA		4.2	Rho	4.3	Sigma	CYG
3.8	Phi	CEN	4.0	Gamma	CRA		4.2	Upsilon	4.3		CYG
3.9	Epsilon	PHE	4.0		AQL		4.2	PUP	4.3	Theta	CEP
3.9	Kappa	PHE	4.0	Kappa	PAV		4.2	PUP	4.3		CYG
3.9	Mu	AND	4.0	Zeta	PAV		4.2	PUP	4.3	Iota	AQL
3.9	Omicron	PER	4.0	Alpha	SCT		4.2	Zeta	4.3	Beta2	SGR
3.9	Nu	PER	4.0	Mu	SGR	Polis	4.2	Delta	4.3		LYR
3.9	Nu	TAU	4.0		OPH		4.2	Delta	4.3		HER
3.9	Gamma	TAU	4.0	Theta	HER		4.2	Iotal	4.3	Zetal	LYR
3.9	Delta1	TAU	4.0	Gamma2	NOR		4.2	CAR	4.3	Kappa	LYR
3.9	Pi5	ORI	4.0	Nu	SCO	Jabbah	4.2	Alpha	4.3		HER
3.9	Zeta	AUR	4.0	Chi	LUP		4.2	Nu	4.3	Iota	OPH
3.9	Epsilon	COL	4.0	Omega	LUP		4.2	Zeta	4.3		SCO
3.9	Beta	PIC	4.0	Gamma	LIB		4.2	Beta	4.3	Sigma	HER
3.9	Delta	AUR				Zubenelhakrabi	4.2	Epsilon	4.3	Phi	HER
3.9	Kappa	CMA	4.0		LUP		4.2	Theta	4.3	Iotal	NOR
3.9	Zeta	GEM	4.0	Mu	VIR		4.2	LAC	4.3	Theta	LIB
3.9	Iota	GEM	4.0	Rho	LUP		4.2	Epsilon	4.3	Kappa	SER
3.9	Zeta	VOL	4.0	Upsilon1	CEN		4.2	Rho	4.3	Zeta	UMI
3.9	Alpha	CHA	4.0		CEN		4.2	Gamma	4.3	Gamma	CIR
3.9		CAR	4.0		UMA	Alcor	4.2	Theta	4.3	Mu	LUP
3.9	Upsilon	UMA	4.0	Zeta	UMA		4.2	Theta	4.3		CEN
3.9	Rho	LEO	4.0		CEN		4.2	Omega	4.3	Lambda	BOO
3.9		VEL	4.0	Tau	CEN		4.2	Psi	4.3	Tau	VIR
3.9		LMI	4.0	Gamma	MUS		4.2	CYG	4.3	Upsilon	BOO
3.9		CAR	4.0	Sigma	CEN		4.2	Iota	4.3		CEN
3.9	Xi	UMA	4.0	Eta	VIR	Zaniah	4.2	Chi	4.3	Beta	COM
3.9	Chi	UMA	4.0	Rho	CEN		4.2	Betal	4.3	Mu1	CRU
3.9	Gamma	PSC	4.0	Eta	CRU		4.2	Epsilon	4.3	Beta	CVN
3.9	Alpha	LAC	4.1	Zeta	PHE		4.2	Phi	4.4	Theta	AND
3.9	Xi	CYG	4.1	Upsilon	CET		4.2		4.4	Eta	PHE
3.9	Alpha	DEL	4.1		CAS		4.2		4.4	Nu	AND
3.9	Beta	AQL	4.1	Gamma	TRI		4.2	Xi	4.4	Alpha	SCL
3.9	Iota2	CYG	4.1	Iota	ERI		4.2	Nu	4.4	Psi	PHE
3.9	Omicron	SGR	4.1	Tau	PER	Kerb	4.2	Beta	4.4	Kappa	ERI
3.9	Lambda	PAV	4.1		ERI		4.2	Phi	4.4	Pi	CET
3.9		HER	4.1	Mu	ERI		4.2	Theta	4.4	Mu	CET
3.9	Xi	DRA	4.1	Gamma	MON		4.2	Epsilon	4.4	Theta2	ERI
3.9	Epsilon	HER	4.1	Nu	GEM		4.2	Theta	4.4		TAU
3.9	Gamma	APS	4.1	Nu2	CMA		4.2	Beta	4.4		TAU
3.9	Lambda	OPH	4.1	Omicron1	CMA		4.2	Lambda	4.4	Tau8	ERI
3.9	Tau	HER	4.1	Gamma	CMA	Mulifen	4.2	Tau2	4.4	Gamma	RET
3.9	Delta	TRA	4.1	Delta	MON		4.2	Iota	4.4	Gamma	DOR
3.9	Gamma	SER	4.1		PUP		4.2	Kappa	4.4	Kappa1	TAU
3.9	Gamma	CRB	4.1		VEL		4.2	Upsilon2	4.4	Upsilon	TAU
3.9	Zeta	BOO	4.1		VEL		4.2	Eta	4.4		TAU
3.9	Kappa	DRA	4.1	Gamma	PYX		4.2	Zeta	4.4	Alpha	CAE
4.0	Delta	PHE	4.1	Alpha	VOL		4.2	Epsilon	4.4	Pi2	ORI
4.0	Delta	CET	4.1	Iota	HYA		4.2	Alpha	4.4	Alpha	CAM
4.0	Eta	PER	4.1	Mu	LEO	Rassalas	4.2	Omicron	4.4		CAM
4.0	Eta	ERI	4.1	Gamma	CHA		4.3		4.4		ORI
4.0	Kappa	PER	4.1	Pi	CEN		4.3	Betal	4.4	Phi2	ORI
4.0	Alpha	FOR	4.1	Sigma	LEO		4.3	Zeta	4.4	Delta	DOR
4.0	Tau4	ERI	4.1	Gamma	CRT		4.3	Phi	4.4	Gamma	PIC
4.0		TAU	4.1	Lambda	DRA	Giansar	4.3	Alpha	4.4	Gamma	COL



4.4	Nu	ORI	4.5	LYN	4.6	Kappa	LEO	4.7	Pi1	ORI
4.4	Xi	ORI	4.5	CMI	4.6	Epsilon	ANT	4.7	Pi6	ORI
4.4	Kappa	COL	4.5	Sigma	4.6		LMI	4.7	Iota	TAU
4.4		LYN	4.5	CAR	4.6		UMA	4.7	Psi1	ORI
4.4	Epsilon	MON	4.5	CAR	4.6		UMA	4.7	Psi2	ORI
4.4	Lambda	CMA	4.5	UMA	4.6	Upsilon2	HYA	4.7		TAU
4.4	Xi1	CMA	4.5	HYA	4.6		LEO	4.7	Chi2	ORI
4.4	CAR		4.5	Lambda	4.6		VEL	4.7	Theta	LEP
4.4	CAR		4.5	Tau2	4.6	Iota	ANT	4.7	Beta	MON
4.4	Iota	CMA	4.5	Phi	4.6	Phi	LEO	4.7		MON
4.4	Tau	CMA	4.5	LMI	4.6	Mu	MUS	4.7		MON
4.4		PUP	4.5	Alpha	4.6	Epsilon	TUC	4.7		GEM
4.4	Epsilon	VOL	4.5	Delta2	4.6	Delta	SCL	4.7		CMA
4.4		PUP	4.5		4.6	Omega2	AQR	4.7	Gamma	CNC Asellus Bor.
4.4		PUP	4.5	Beta	4.6	Lambda	PSC	4.7	Tau	UMA
4.4		LYN	4.5	Upsilon	4.6	Upsilon	PEG	4.7	Chi	LEO
4.4		CAR	4.5		4.6	Tau	PEG	4.7		AQR
4.4	Rho	HYA	4.5	Theta	4.6	Psi2	AQR	4.7		PEG
4.4	Kappa	PYX	4.5	AQR	4.6	Chi	AQR	4.7		PEG
4.4	Alpha	ANT	4.5	AQR	4.6		AND	4.7		LAC
4.4	Beta	LMI	4.5	LAC	4.6	Pi	CEP	4.7	Epsilon	IND
4.4		LEO	4.5	Delta	4.6	Beta	PSC	4.7	Mu1	CYG
4.4		CEN	4.5	Delta	4.6		LAC	4.7	Gamma	MIC
4.4	Beta	SCL	4.5	Nu	4.6		LAC	4.7		CYG
4.4	Gamma	SCL	4.5		4.6	Zeta2	AQR	4.7	Zeta	DEL
4.4	Psi1	AQR	4.5	Kappa	4.6	Pi	AQR	4.7		VUL
4.4		AQR	4.5	Nu	4.6		LAC	4.7	Rho	DRA
4.4	Beta	PSA	4.5	AQR	4.6	Beta	LAC	4.7		VUL
4.4	Zeta1	AQR	4.5	Lambda	4.6	Mu	PSA	4.7	Epsilon1	LYR
4.4	Pi2	PEG	4.5	Gamma2	4.6	Lambda	GRU	4.7	Delta	SCT
4.4	Iota	AQR	4.5	Delta	4.6	Omicron	AQR	4.7	Gamma	SCT
4.4	Xi	CEP Kurhah	4.5	AQL	4.6	Epsilon	CAP	4.7		OPH
4.4	Iota	PSA	4.5		4.6	Delta	EQU	4.7		HER
4.4	Upsilon	CYG	4.5	Beta	4.6		CAP	4.7		SCO
4.4	Alphal	CAP Prima Gaedi	4.5	Theta	4.6	Eta	IND	4.7	Xi	CRB
4.4	Kappa	CEP	4.5	Eta	4.6	Phi1	PAV	4.7		SCO
4.4	Theta1	SGR	4.5	Delta2	4.6	Rho	CAP	4.7	Delta	CRB
4.4	Omega	SGR	4.5	Zeta	4.6		CYG	4.7	Psi2	LUP
4.4	Alpha	SGE	4.5	Gammal	4.6		SGR	4.7		LUP
4.4	Beta	SCT	4.5	Zeta	4.6		SGR	4.7		LIB
4.4		HER	4.5	Nu	4.6		SGR	4.7	Psi	BOO
4.4	Xi	PAV	4.5	Lambda	4.6	Theta	CYG	4.7	Omicron	BOO
4.4	Pi	PAV	4.5	Omega	4.6	Mu	AQL	4.7		HYA R Hya (v)
4.4		OPH	4.5	Chi	4.6	Alpha	VUL	4.7		VIR
4.4		HER	4.5	Omega	4.6	Upsilon	SGR	4.7		CVN
4.4		SGR	4.5	Eta	4.6	Pi	DRA	4.7		CEN
4.4	Omicron	SER	4.5	Iota	4.6		VUL	4.8	Theta	OCT
4.4	Mu	OPH	4.5	Mu1	4.6	Tau	DRA	4.8		CET
4.4	Delta	UMI Yildun	4.5		4.6	Psi	SGR	4.8		CET
4.4		OPH	4.5		4.6	Delta	CRA	4.8	Lambda1	PHE
4.4	Sigma	OPH	4.5	Sigma	4.6	Nu2	SGR	4.8	Upsilon2	CAS
4.4	Rho	HER	4.5	Chi	4.6		HER	4.8	Kappa	TUC
4.4		OPH	4.5	Tau	4.6	Theta	CRA	4.8		CET
4.4	Epsilon	UMI	4.5	Alpha	4.6	Nu	PAV	4.8	Chi	CET
4.4	Upsilon	OPH	4.6		4.6		SGR	4.8	Gamma2	ARI Mesartim
4.4	Psi	OPH	4.6		4.6	Epsilon	TEL	4.8	Gamma1	ARI
4.4	Omicron	SCO	4.6		4.6	Tau	OPH	4.8	Xi	PSC
4.4		SCO	4.6	Mu	4.6	Sigma	ARA	4.8		CET
4.4	Lambda	SER	4.6	Phi1	4.6		HER	4.8	Lambda	ARI
4.4	Omicron	LUP	4.6	Eta	4.6	Zeta1	SCO	4.8		AND
4.4	Sigma	LUP	4.6	Phi	4.6		OPH	4.8	Sigma	CET
4.4		UMI	4.6		4.6	Omega2	SCO	4.8	Zeta	HYI
4.4		CEN	4.6	Iota	4.6	Upsilon	HER	4.8	Tau2	ERI
4.4		CEN	4.6	Epsilon	4.6	Chi	HER	4.8	Omega	PER
4.4		VIR	4.6		4.6		SCO	4.8	Zeta	ERI Zibal
4.4	Theta	VIR	4.6	Tau1	4.6	Psi1	LUP	4.8	Kappa	RET
4.4	Xi2	CEN	4.6		4.6	Phi2	LUP	4.8		ERI
4.4	Beta	CHA	4.6	Pi	4.6	Iota1	LIB	4.8	Iota	RET
4.4	Theta1	CRU	4.6	Epsilon	4.6		VIR	4.8	Delta	HOR
4.5	Sigma	AND	4.6		4.6	Xi	BOO	4.8	Omega2	TAU
4.5	Pi	AND	4.6		4.6		HYA	4.8	Delta2	TAU
4.5	Epsilon	AND	4.6	Pi	4.6	Tau1	LUP	4.8	Rho	TAU
4.5	Delta	PSC	4.6	Tau9	4.6		HYA	4.8		ERI
4.5	Epsilon	PSC	4.6		4.6	Lambda	VIR Khambalia	4.8	Zeta	DOR
4.5	Theta	CAS Marfak	4.6		4.6	Kappa	BOO	4.8	Mu	AUR
4.5	Omicron	PSC	4.6		4.6		CEN	4.8	Theta	DOR
4.5	Xi1	CET	4.6		4.6		CVN	4.8	Omicron	COL
4.5	Beta	FOR	4.6	Rho	4.6	Iota	CRU	4.8		AUR
4.5	Delta	ARI Botein	4.6		4.6	Gamma	COM	4.8		TAU
4.5	Sigma	PER	4.6	Upsilon	4.6	Kappa	CHA	4.8		ORI
4.5		ERI	4.6	Tau	4.6	Pi	VIR	4.8		MON
4.5	Delta	RET	4.6	Lambda	4.7	Omicron	CAS	4.8	Delta	PIC
4.5		TAU	4.6	Chi1	4.7	Tau	PSC	4.8	Eta2	DOR
4.5	Omicron2	ERI Klid	4.6	Pi	4.7	Upsilon	PSC	4.8		CMA
4.5		PER	4.6	Beta	4.7	Nu	PSC	4.8		LYN
4.5	Omega	ERI	4.6	Nu3	4.7	Eta2	HYI	4.8	Pi2	UMA Ta Tsun
4.5	Phi1	ORI	4.6		4.7	Nu	FOR	4.8		HYA
4.5	Omega	ORI	4.6	Pi	4.7	Omega	FOR	4.8	Theta	PYX
4.5		TAU	4.6	Gamma	4.7	Nu	HYI	4.8	Lambda	PYX
4.5	Kappa	AUR	4.6		4.7		PER	4.8	Tau1	HYA
4.5		MON	4.6	Omicron	4.7	Lambda	CET	4.8		LMI
4.5	Xi2	CMA	4.6		4.7		PER	4.8		CAR
4.5		LYN	4.6	Delta	4.7		CAM	4.8		UMA
4.5	Tau	GEM	4.6		4.7	Gamma	CAM	4.8		LMI

4.8	Omega	UMA	4.9		LYN	5.0		TAU	5.0	Delta1	TEL
4.8	UMA		4.9	Zeta1	CNC Tegmine	5.0		TAU	5.0		DRA
4.8	Theta	CRT	4.9	Sigma2	UMA	5.0		ERI	5.0	Mu	LYR
4.8	Omicron	HYA	4.9		UMA	5.0	Beta	CAE	5.0		HER
4.8	Zeta	CRT	4.9	Theta	ANT	5.0		AUR	5.0		HER
4.8	Psi	PEG	4.9	Pi	LEO	5.0	Omega	AUR	5.0		DRA
4.8	Rho	CAS	4.9		LEO	5.0	Eta2	PIC	5.0		HER
4.8		AQR	4.9	Sigma	CAS	5.0		AUR	5.0		DRA
4.8	Iota	PHE	4.9	Kappa	PSC	5.0		TAU	5.0	Nu2	DRA Kuma
4.8		AQR	4.9	Omicron	CEP	5.0		ERI	5.0	Nu1	DRA Kuma
4.8	Rho	GRU	4.9		CAS	5.0		ORI	5.0		DRA
4.8		LAC	4.9		AND	5.0		ORI	5.0	Mu	NOR
4.8	Sigma	AQR	4.9	Eta	GRU	5.0	Nu2	COL	5.0		HER
4.8	Mu1	GRU	4.9	Omicron	PEG	5.0		TAU	5.0		DRA
4.8	Upsilon	PSA	4.9		LAC	5.0		TAU	5.0	Eta	UMI Alasco
4.8	Pi1	CYG Azelfalage	4.9	Nu	TUC	5.0	Upsilon	AUR	5.0	Kappa	NOR
4.8	Xi	AQR	4.9		PEG	5.0		ORI	5.0	Lambda	LIB
4.8		PEG	4.9		PEG	5.0		MON	5.0		LIB
4.8	Theta1	MIC	4.9		PEG	5.0	Theta	COL	5.0	Nu2	BOO
4.8	Epsilon	MIC	4.9	Nu	PEG	5.0		MON	5.0	Epsilon	LIB
4.8	Gamma	EQU	4.9		CEP	5.0		AUR	5.0	Eta	CRB
4.8	Eta	CAP	4.9		CEP Alphirk	5.0		AUR	5.0	Nu1	LUP
4.8	Mu	AQR	4.9		CYG	5.0		MON	5.0		LUP
4.8		VUL	4.9		CYG	5.0	Psi7	AUR	5.0		BOO
4.8	Alpha	MIC	4.9	Zeta	IND	5.0		CAM	5.0		LIB
4.8		VUL	4.9		CYG	5.0		MON	5.0		LIB
4.8	Nu	CAP Alshat	4.9		CYG	5.0		MON	5.0		BOO
4.8		CYG	4.9	Omega1	CYG	5.0		CMA	5.0	Phi	VIR
4.8		SGR	4.9		CYG	5.0		GEM	5.0		HYA
4.8	Psi	CYG	4.9	Xi	TEL	5.0		LYN	5.0		BOO
4.8	Phi	CYG	4.9		CYG	5.0		PUP	5.0		HYA
4.8	Sigma	DRA	4.9	Xi	AQL	5.0		GEM	5.0		LEO
4.8	Epsilon	CRA	4.9		VUL	5.0	Phi	GEM	5.0		UMI
4.8	Omicron	DRA	4.9		VUL	5.0		PUP	5.0		VIR
4.8		SGR	4.9		CYG	5.0		MON	5.0	Iotal	MUS
4.8		OPH	4.9	Nu	AQL	5.0	Chi	GEM	5.0	Sigma	VIR
4.8		SGR	4.9		CYG	5.0		PUP	5.0		VIR
4.8	Lambda	ARA	4.9		VUL	5.0	Zeta	PYX	5.0	Psi	HYA
4.8		OPH	4.9	Eta	SCT	5.0		HYA	5.0		COM
4.8	Zeta	APS	4.9	Upsilon	DRA	5.0	Rho	UMA	5.0	Rho	VIR
4.8		HER	4.9		DRA	5.0	Kappa	HYA	5.0		COM
4.8		OPH	4.9		OPH	5.0	Gamma	SEX	5.0		CVN
4.8		DRA	4.9		OPH	5.0		LEO	5.0	Theta2	CRU
4.8	Epsilon	NOR	4.9	Psi1	DRA	5.0	Beta	SEX	5.1		AND
4.8	Rho	OPH	4.9	Omega	DRA	5.0	Phi3	HYA	5.1		CET
4.8	Sigma	SER	4.9		HER	5.0		LMI	5.1		CET
4.8	Delta1	APS	4.9		OPH	5.0		LEO	5.1	Mu	PSC
4.8	Delta	NOR	4.9		HER	5.0		LEO	5.1	Gamma2	AND
4.8	Pi	SER	4.9		HER	5.0	Chi1	HYA	5.1	Kappa	ARI
4.8		LIB	4.9	Zeta	TRA	5.0		Lambda CRT	5.1		ARI
4.8	Kappa	CRB	4.9	Gamma1	NOR	5.0		Omicron1 CEN	5.1		AND
4.8	Kappa	LIB	4.9	Psi	SCO	5.0	Epsilon	CHA	5.1	Delta	TRI
4.8	Epsilon	CIR	4.9	Tau	CRB	5.0		PSC	5.1		AND
4.8		BOO	4.9	Beta2	SCO	5.0		PEG	5.1		CET
4.8		DRA	4.9	Iota	CRB	5.0		AND	5.1		PER
4.8		UMA	4.9	Rho	SER	5.0		PEG	5.1		TAU
4.8		VIR	4.9		LIB	5.0	Rho	PEG	5.1		ERI
4.8	Lambda	CRU	4.9		BOO	5.0		AQR	5.1		PER
4.8	Psi	VIR	4.9	Omega	BOO	5.0	Tau	PSA	5.1	Phi	TAU
4.8	Chi	VIR	4.9		BOO	5.0		CEP	5.1		PER
4.8		COM	4.9	Pi1	BOO	5.0		PEG	5.1		TAU
4.8		COM	4.9	Eta	APS	5.0		PEG	5.1		TAU
4.9	Chi	PEG	4.9	Iota	BOO	5.0	Theta	PSA	5.1	Sigma1	TAU
4.9	Eta	SCL	4.9		CVN	5.0		CAP	5.1		TAU
4.9	Lambda	CAS	4.9		VIR	5.0		CYG	5.1		ORI
4.9	Xi	CAS	4.9	Eta	MUS	5.0	Omicron	PAV	5.1		ERI
4.9		CET	4.9		COM	5.0		Iota IND	5.1		AUR
4.9	Chi	PSC	4.9	Xi1	CEN	5.0		VUL	5.1		TAU
4.9	Zeta1	PSC	4.9		UMA	5.0	Rho	PAV	5.1	Rho	AUR
4.9	Nu	PHE	4.9		COM	5.0		AQL	5.1		TAU
4.9	Chi	CAS	4.9		COM	5.0		AQL	5.1		ORI
4.9	Tau	AND	5.0	Zeta	SCL	5.0		CYG	5.1	Lambda	DOR
4.9		AND	5.0	Pi	CAS	5.0	Rho	AQL	5.1	Alpha	MEN
4.9	Rho	CET	5.0	Lambda	HYI	5.0		CYG	5.1		ORI
4.9		PER	5.0	Nu	CAS	5.0		SGR	5.1	Psi1	AUR
4.9		PER	5.0	Upsilon1	CAS	5.0		CYG	5.1	Psi2	AUR
4.9	Pi	TAU	5.0		PSC	5.0	Zeta	SGE	5.1		GEM
4.9	Sigma2	TAU	5.0		CET	5.0		CYG	5.1		CAM
4.9	Psi	ERI	5.0	Xi	AND Adhil	5.0		SGR	5.1		AUR
4.9		ORI	5.0	Psi	CAS	5.0		CYG	5.1		GEM
4.9	Lambda	AUR	5.0	Omega	AND	5.0	Kappa	AQL	5.1	Epsilon	CM1
4.9	Chi	AUR	5.0	Phi	PHE	5.0		Iota TEL	5.1		GEM
4.9		TAU	5.0	Omega	CAS	5.0		AQL	5.1	Zeta	CM1
4.9		TAU	5.0	Chi	PHE	5.0	Chi1	SGR	5.1		CNC
4.9	Xi	AUR	5.0		PER	5.0		AQL	5.1		CNC
4.9	Xi	COL	5.0	Nu	CET	5.0		SGR	5.1	Eta	PYX
4.9		TAU	5.0		PER	5.0		LYR	5.1	Kappa	CNC
4.9		LEP	5.0	Beta	HOR	5.0	Zeta	CRA	5.1	Xi	LEO
4.9		ORI	5.0		PER	5.0	Lambda	TEL	5.1		LEO
4.9		LYN	5.0	Zeta	ARI	5.0	Nu1	SGR	5.1		UMA
4.9	Mu	CMA	5.0	Kappa1	CET	5.0		SGR	5.1		UMA
4.9		CM1	5.0		PER	5.0		AQL	5.1		LEO
4.9	Omicron	GEM	5.0	Delta	FOR	5.0	Epsilon	SCT	5.1		UMA
4.9		MON	5.0		PER	5.0		DRA	5.1		UMA

5.1	Epsilon	CRT	5.2		ERI	5.2	Eta	TEL	5.3		GEM
5.1		LEO	5.2	Omicron1	ORI	5.2		DRA	5.3	Eta	CMI
5.1	Xi	VIR	5.2		AUR	5.2	Rho	TEL	5.3	Delta1	CMI
5.1	Pi	PHE	5.2	Sigma	AUR	5.2	Chi	OCT	5.3		CMI
5.1	Gamma1	OCT	5.2	Gamma	MEN	5.2	Nu2	LYR	5.3	Pi	GEM
5.1	Tau	CAS	5.2	Theta2	ORI	5.2	Lambda	CRA	5.3	Rho2	CNC
5.1	Psi	AND	5.2		ORI	5.2	Delta2	TEL	5.3	Sigma1	UMA
5.1	Psi3	AQR	5.2		ORI	5.2		HER	5.3		LYN
5.1		PEG	5.2	Mu	COL	5.2		HER	5.3		HYA
5.1	Pi	PSA	5.2		TAU	5.2		DRA	5.3		LEO
5.1		AND	5.2	Epsilon	DOR	5.2	Mu	ARA	5.3		LEO
5.1	Epsilon	OCT	5.2		ORI	5.2	Pi	ARA	5.3		UMA
5.1		CEP	5.2		LEP	5.2		DRA	5.3	Epsilon	SEX
5.1		CAP	5.2	Nu	DOR	5.2		OPH	5.3		LEO
5.1		CYG	5.2		ORI	5.2	Epsilon2	ARA	5.3		UMA
5.1	Beta	EQU	5.2		MON	5.2		HER	5.3	Sigma	PHE
5.1		CYG	5.2	Psi4	AUR	5.2	Kappa	TRA	5.3		PSC
5.1	Phi	CAP	5.2		CMA	5.2		SER	5.3	Mu	SCL
5.1		CYG	5.2		GEM	5.2		SER	5.3		AND
5.1	Iota	MIC	5.2	Omega	GEM	5.2	Delta	CIR	5.3		AND
5.1		VUL	5.2		GEM	5.2	Nu	LIB	5.3		PEG
5.1		VUL	5.2		AUR	5.2	Eta	CIR	5.3		AQR
5.1	Mu2	PAV	5.2		MON	5.2	Delta	LIB	5.3		PEG
5.1		CYG	5.2		GEM	5.2	Alpha1	LIB	5.3		AQR
5.1		SGR	5.2		PUP	5.2	Upsilon	VIR	5.3	Sigma	PEG
5.1		AQL	5.2	Chi	CNC	5.2		HYA	5.3	Nu	IND
5.1		CYG	5.2	Theta	VOL	5.2		BOO	5.3		AQR
5.1	Omega1	AQL	5.2		HYA	5.2		VIR	5.3		PEG
5.1		AQL	5.2		LYN	5.2		VIR	5.3		AQR
5.1		DRA	5.2	Omicron1	CNC	5.2		VIR	5.3		PEG
5.1	Iota	LYR	5.2	Xi	CNC	5.2		VIR	5.3	Xi	GRU
5.1		AQL	5.2		UMA	5.2		COM	5.3		CYG
5.1		LYR	5.2	Zeta	CHA	5.2		DRA	5.3		CAP
5.1	Lambda	LYR	5.2		LYN	5.2		CVN	5.3	Chi	CAP
5.1	Omega	PAV	5.2		LMI	5.2	Zeta2	MUS	5.3		CYG
5.1	Xi1	SGR	5.2	Nu	LEO	5.2	Zeta	CRV	5.3	Epsilon	EQU
5.1	Theta2	SER	5.2	Eta	ANT	5.2	Gamma3	OCT	5.3	Eta	SGE
5.1	Kappa	TEL	5.2	Delta	SEX	5.3		PSC	5.3		VUL
5.1	Epsilon2	LYR	5.2		HYA	5.3		AND	5.3		CYG
5.1		DRA	5.2		LEO	5.3	Phi3	CET	5.3	Phi	AQL
5.1		HER	5.2		UMA	5.3	Mu	CAS	5.3	Chi	AQL
5.1		HER	5.2		UMA	5.3		CAS	5.3		VUL
5.1	Iota2	SCO	5.2	Tau	LEO	5.3		PSC	5.3		AQL
5.1	Kappa	ARA	5.2	Omicron2	CEN	5.3	Phi	CAS	5.3		DRA
5.1		HER	5.2		VIR	5.3	Rho	PSC	5.3		HER
5.1	Mu	DRA Alrakis	5.2	Eta	CRT	5.3		AND	5.3	Mu	CRA
5.1		HER	5.2		VIR	5.3	Pi	SCL	5.3		HER
5.1	Kappa	HER	5.2	Eta	TUC	5.3		PSC	5.3		SGR
5.1	Zeta1	CRB	5.2	Phi	PEG	5.3		CAS	5.3		HER
5.1	Nu1	BOO	5.2		AQR	5.3	Pi	FOR	5.3		DRA
5.1		SER	5.2		AQR	5.3		CAS	5.3	Omicron	OPH
5.1		UMI	5.2	Omega1	AQR	5.3		TRI	5.3		HER
5.1	Epsilon	APS	5.2		PEG	5.3		TRI	5.3		HER
5.1		BOO	5.2		CAS	5.3	Kappa	FOR	5.3	Iota	TRA
5.1		VIR	5.2		PSC	5.3	Mu	HYI	5.3	Nu2	CRB
5.1		CVN	5.2		LAC	5.3	Pi	ARI	5.3		HER
5.1		VIR	5.2		LAC	5.3	Eta3	FOR	5.3	Omega	SER
5.1		CVN	5.2		LAC	5.3		PER	5.3	Chi	SER
5.1		COM	5.2		CEP	5.3		PER	5.3	Theta	UMI
5.1		COM	5.2	Kappa	AQR	5.3	Tau2	ARI	5.3	Chi	BOO
5.1		COM	5.2		CEP	5.3		ERI	5.3		HYA
5.1		COM	5.2	Upsilon	AQR	5.3		TAU	5.3		BOO
5.1		VIR	5.2		AQR	5.3		TAU	5.3		VIR
5.1		COM	5.2	Rho	AQR	5.3		TAU	5.3		UMA
5.1		COM	5.2	Mu2	GRU	5.3		TAU	5.3		VIR
5.1		UMA	5.2	Lambda	CEP	5.3		TAU	5.3		DRA
5.2		PSC	5.2		CEP	5.3		TAU	5.3		COM
5.2	Theta	SCL	5.2		AQR	5.3		CAM	5.3		DRA
5.2	Rho	AND	5.2	Mu	CAP	5.3	Lambda	PIC	5.4	Pi	TUC
5.2	Iota	SCL	5.2	Lambda	OCT	5.3		PER	5.4		CAS
5.2	Beta3	TUC	5.2		CAP	5.3	Beta	MEN	5.4		AND
5.2		PSC	5.2		CYG	5.3		CAM	5.4	Rho	TUC
5.2	Phi2	CET	5.2		CEP	5.3		TAU	5.4		CAS
5.2	Rho	PHE	5.2	Mu	IND	5.3		CAM	5.4	Lambda2	TUC
5.2	Upsilon	PHE	5.2	Alpha	OCT	5.3		TAU	5.4	Psi1	PSC
5.2		AND	5.2		CYG	5.3	Phi	AUR	5.4	Iota	TUC
5.2	Chi	AND	5.2		VUL	5.3		ORI	5.4		CET
5.2	Iota	ARI	5.2	Gamma1	DEL	5.3		TAU	5.4	Epsilon	SCL
5.2	Mu	FOR	5.2	Upsilon	PAV	5.3		ORI	5.4		CET
5.2		PER	5.2	Upsilon	CAP	5.3		ORI	5.4	Epsilon	TRI
5.2	Phi	FOR	5.2	Phi2	PAV	5.3		CAM	5.4		CAS
5.2	Eta	HOR	5.2	Tau	CAP	5.3		ORI	5.4		TRI
5.2	Zeta	HOR	5.2	Kappa	DEL	5.3		AUR	5.4	Eta	ARI
5.2		ARI	5.2	Eta	DEL	5.3		ORI	5.4	Pi1	HYI
5.2		PER	5.2	Nu	MIC	5.3		ORI	5.4	Lambda	HOR
5.2	Mu	HOR	5.2		DRA	5.3		LYN	5.4		TRI
5.2	Zeta2	RET	5.2	Pi	CAP	5.3	Psi3	AUR	5.4		TRI
5.2	Tau1	ARI	5.2		CYG	5.3		CMA	5.4	Nu	ARI
5.2		ERI	5.2		VUL	5.3	Psi5	AUR	5.4		ARI
5.2	Tau7	ERI	5.2	Omicron	AQL	5.3	Psi6	AUR	5.4	Iota	HOR
5.2		TAU Pleion	5.2		CYG	5.3		GEM	5.4	Nu	HOR
5.2	Eta	RET	5.2	Sigma	AQL	5.3		LYN	5.4	Gamma2	FOR
5.2	Xi	ERI	5.2	Chi3	SGR	5.3		AUR	5.4		ERI
5.2	Delta	CAE	5.2		AQL	5.3		CMI	5.4	Rho2	ERI

5.4	PER	5.4	AQL	5.5	Omicron	AUR	5.6	Lambda2	PHE
5.4	PER	5.4	CYG	5.5	TAU	TAU	5.6	PSC	PSC
5.4	TAU	5.4	TEL	5.5	LYN	LYN	5.6	CAS	CAS
5.4	TAU	5.4	SGR	5.5	Nu1	CMA	5.6	PSC	PSC
5.4	Rho	5.4	CYG	5.5	AUR	AUR	5.6	AND	AND
5.4	TAU	5.4	CYG	5.5	GEM	GEM	5.6	PSC	PSC
5.4	TAU	5.4	AQL	5.5	LYN	LYN	5.6	PSC	PSC
5.4	Chi	5.4	VUL	5.5	PUP	PUP	5.6	Psi2	PSC
5.4	Kappa2	5.4	AQL	5.5	LYN	LYN	5.6	Psi3	PSC
5.4	TAU	5.4	AQL	5.5	Eta	CNC	5.6	PSC	PSC
5.4	CAM	5.4	AQL	5.5	LYN	LYN	5.6	PSC	PSC
5.4	ERI	5.4	AQL	5.5	Sigma2	CNC	5.6	CET	CET
5.4	CAM	5.4	DRA	5.5	Nu	CNC	5.6	Pi	PSC
5.4	TAU	5.4	AQL	5.5	UMA	UMA	5.6	PER	PER
5.4	Kappa	5.4	DRA	5.5	Omega	LEO	5.6	AND	AND
5.4	CAM	5.4	SGR	5.5	LMI	LMI	5.6	CAS	CAS
5.4	Eta	5.4	SER	5.5	LMI	LMI	5.6	CET	CET
5.4	ERI	5.4	SER	5.5	LYN	LYN	5.6	Pi2	HYI
5.4	Etal	5.4	ARA	5.5	Delta	ANT	5.6	ARI	ARI
5.4	ORI	5.4	HER	5.5	LMI	LMI	5.6	CET	CET
5.4	Zeta	5.4	Alpha2	5.5	LEO	LEO	5.6	AND	AND
5.4	LEP	5.4	SCO	5.5	LEO	LEO	5.6	CET	CET
5.4	LEP	5.4	OPH	5.5	UMA	UMA	5.6	CET	CET
5.4	Theta1	5.4	HER	5.5	Omega	VIR	5.6	TRI	TRI
5.4	TAU	5.4	HER	5.5	UMA	UMA	5.6	CET	CET
5.4	CAM	5.4	Theta	5.5	DRA	DRA	5.6	PER	PER
5.4	CAM	5.4	Nu1	5.5	LEO	LEO	5.6	Rho3	ARI
5.4	ORI	5.4	Theta	5.5	AND	AND	5.6	ERI	ERI
5.4	AUR	5.4	Sigma	5.5	PEG	PEG	5.6	CET	CET
5.4	Pi1	5.4	Chi	5.5	Omicron	GRU	5.6	Rho3	ERI
5.4	Pi2	5.4	Rho	5.5	PEG	PEG	5.6	ARI	ARI
5.4	Iota	5.4	Xil	5.5	LAC	LAC	5.6	ARI	ARI
5.4	LYN	5.4	SER	5.5	PEG	PEG	5.6	CET	CET
5.4	Theta	5.4	Eta	5.5	PEG	PEG	5.6	ARI	ARI
5.4	MON	5.4	LIB	5.5	Rho2	CEP	5.6	TAU	TAU
5.4	Epsilon	5.4	Phi	5.5	Nu	GRU	5.6	TAU	TAU
5.4	LYN	5.4	SER	5.5	AQR	AQR	5.6	TAU	TAU
5.4	GEM	5.4	Mu	5.5	Kappa2	IND	5.6	ERI	ERI
5.4	PUP	5.4	Upsilon	5.5	CEP	CEP	5.6	PER	PER
5.4	GEM	5.4	BOO	5.5	CEP	CEP	5.6	ERI	ERI
5.4	CMI	5.4	SER	5.5	Omicron	IND	5.6	Delta	MEN
5.4	Mu2	5.4	Theta	5.5	PEG	PEG	5.6	TAU	TAU
5.4	Kappa1	5.4	CIR	5.5	Lambda	CAP	5.6	TAU	TAU
5.4	Eta	5.4	BOO	5.5	PEG	PEG	5.6	PER	PER
5.4	UMA	5.4	VIR	5.5	CYG	CYG	5.6	Mu	MEN
5.4	OCT	5.4	BOO	5.5	AQR	AQR	5.6	ERI	ERI
5.4	Omega	5.4	BOO	5.5	Sigma	OCT	5.6	Iota	PIC
5.4	Tau	5.4	VIR	5.5	Eta	MIC	5.6	CAM	CAM
5.4	HYA	5.4	BOO	5.5	DEL	DEL	5.6	ERI	ERI
5.4	Iota	5.4	VIR	5.5	VUL	VUL	5.6	TAU	TAU
5.4	CHA	5.4	VIR	5.5	CYG	CYG	5.6	LEP	LEP
5.4	UMA	5.4	VIR	5.5	CYG	CYG	5.6	ORI	ORI
5.4	Nu	5.4	VIR	5.5	VUL	VUL	5.6	Pi	MEN
5.4	LMI	5.4	Iota	5.5	VUL	VUL	5.6	Kappa	MEN
5.4	Delta1	5.4	OCT	5.5	CYG	CYG	5.6	TAU	TAU
5.4	CHA	5.4	COM	5.5	SGE	SGE	5.6	Sigma	COL
5.4	LMI	5.4	UMA	5.5	VUL	VUL	5.6	Pi2	COL
5.4	UMA	5.4	COM	5.5	AQL	AQL	5.6	CAM	CAM
5.4	LEO	5.4	CRV	5.5	AQL	AQL	5.6	MEN	MEN
5.4	LEO	5.5	CAS	5.5	DRA	DRA	5.6	GEM	GEM
5.4	DRA	5.5	Kappa1	5.5	LYR	LYR	5.6	GEM	GEM
5.4	LEO	5.5	PSC	5.5	SGR	SGR	5.6	LYN	LYN
5.4	PEG	5.5	Kappa2	5.5	HER	HER	5.6	GEM	GEM
5.4	AQR	5.5	PSC	5.5	HER	HER	5.6	PUP	PUP
5.4	PEG	5.5	Xi	5.5	SGR	SGR	5.6	CNC	CNC
5.4	AQR	5.5	Sigma	5.5	HER	HER	5.6	HYA	HYA
5.4	PEG	5.5	Sigma	5.5	Psi2	DRA	5.6	Theta	CNC
5.4	AND	5.5	CET	5.5	HER	HER	5.6	Eta	CHA
5.4	PEG	5.5	CAS	5.5	Iota	APS	5.6	CNC	CNC
5.4	Kappa	5.5	CET	5.5	OPH	OPH	5.6	CNC	CNC
5.4	GRU	5.5	AND	5.5	HER	HER	5.6	UMA	UMA
5.4	AQR	5.5	CAS	5.5	HER	HER	5.6	Omicron2	CNC
5.4	PEG	5.5	CAS	5.5	UMI	UMI	5.6	Sigma3	CNC
5.4	Lambda	5.5	PER	5.5	LIB	LIB	5.6	HYA	HYA
5.4	PSA	5.5	AND	5.5	LIB	LIB	5.6	Epsilon	PYX
5.4	AQR	5.5	ARI	5.5	CRB	CRB	5.6	Pi2	CNC
5.4	CEP	5.5	CET	5.5	HER	HER	5.6	HYA	HYA
5.4	PSA	5.5	Sigma	5.5	Tau1	SER	5.6	HYA	HYA
5.4	CYG	5.5	Theta	5.5	SER	SER	5.6	Psi	LEO
5.4	CEP	5.5	Iota	5.5	OCT	OCT	5.6	Mu1	CHA
5.4	VUL	5.5	Zeta1	5.5	VIR	VIR	5.6	LMI	LMI
5.4	CAP	5.5	ERI	5.5	BOO	BOO	5.6	LMI	LMI
5.4	CAP	5.5	TAU	5.5	VIR	VIR	5.6	LEO	LEO
5.4	Zeta	5.5	PER	5.5	UMA	UMA	5.6	LEO	LEO
5.4	AQR	5.5	TAU	5.5	UMA	UMA	5.6	LEO	LEO
5.4	DEL	5.5	TAU	5.5	Theta	MUS	5.6	LEO	LEO
5.4	PAV	5.5	ORI	5.5	DRA	DRA	5.6	Pi	CHA
5.4	CYG	5.5	TAU	5.5	CRU	CRU	5.6	Iota	CRT
5.4	AQR	5.5	ORI	5.5	VIR	VIR	5.6	VIR	VIR
5.4	DEL	5.5	ORI	5.5	COM	COM	5.6	CAS	CAS
5.4	Iota	5.5	TAU	5.5	VIR	VIR	5.6	PSC	PSC
5.4	VUL	5.5	ORI	5.5	COM	COM	5.6	PSC	PSC
5.4	CAP	5.5	TAU	5.5	CRV	CRV	5.6	Tau	OCT
5.4	Sigma	5.5	AUR	5.6	PSC	PSC	5.6	AND	AND
5.4	VUL								
5.4	DRA								
5.4	SGR								
5.4	Theta2								
5.4	SGE								

5.6		AQR	5.7	Theta	ARI	5.8		AND	5.8		CNC
5.6	Phi	GRU	5.7		ARI	5.8		CET	5.8		CNC
5.6		CAS	5.7		CET	5.8		CET	5.8	Zeta1	LMI
5.6		PSC	5.7		CET	5.8		CET	5.8		ANT
5.6		AND	5.7	Mu	ARI	5.8		PSC	5.8		CAR
5.6		PSC	5.7		PER	5.8		CAS	5.8		UMA
5.6		PEG	5.7	Gamma	HOR	5.8		CET	5.8		LMI
5.6		AQR	5.7		ARI	5.8		CAS	5.8		LEO
5.6	Xi	OCT	5.7	Chi2	FOR	5.8		ARI	5.8		SEX
5.6	Psi	OCT	5.7		TAU	5.8		AND	5.8		SEX
5.6	Pi1	PEG	5.7	Omega1	TAU	5.8		PER	5.8		SEX
5.6		PEG	5.7		TAU	5.8		PSC	5.8		LMI
5.6		AQR	5.7		TAU	5.8		CET	5.8		SEX
5.6		PEG	5.7		TAU	5.8		ARI	5.8		LMI
5.6		PEG	5.7		ORI	5.8		AND	5.8		LMI
5.6		CEP	5.7		TAU	5.8		CET	5.8	Phi2	HYA
5.6		CYG	5.7		TAU	5.8		CET	5.8		LMI
5.6		PEG	5.7		AUR	5.8		ARI	5.8		UMA
5.6		AQR	5.7		ORI	5.8		ARI	5.8		SEX
5.6	Delta	MIC	5.7		ORI	5.8	Kappa	HYI	5.8		UMA
5.6		AQR	5.7		AUR	5.8		TRI	5.8		LEO
5.6		DEL	5.7		GEM	5.8		CET	5.8		LEO
5.6		VUL	5.7		GEM	5.8	Iota1	FOR	5.8	Chi2	HYA
5.6		CAP	5.7	Delta2	CMI	5.8	Lambda2	FOR	5.8		LEO
5.6		AQR	5.7		LYN	5.8	Iota2	FOR	5.8	Kappa	CRT
5.6		DEL	5.7	Upsilon1	CNC	5.8	Omicron	ARI	5.8		LEO
5.6		CEP	5.7	Pi1	UMA	5.8		ARI	5.8		LEO
5.6	Omega2	CYG	5.7		CNC	5.8	Eta2	FOR	5.8		LEO
5.6		DRA	5.7		CNC	5.8		ERI	5.8	Gamma2	OCT
5.6	Kappa1	SGR	5.7		UMA	5.8	Zeta	FOR	5.8		PSC
5.6		DRA	5.7		CNC	5.8	Rho1	ERI	5.8		PSC
5.6		AQL	5.7		HYA	5.8	Kappa2	CET	5.8		AND
5.6		DRA	5.7		LEO	5.8	Tau	FOR	5.8		PEG
5.6	Tau	AQL	5.7		LEO	5.8		TAU	5.8		AND
5.6		SGE	5.7		UMA	5.8		ERI	5.8		AND
5.6		AQL	5.7		LEO	5.8		TAU	5.8		PEG
5.6		AQL	5.7		LEO	5.8		TAU	5.8	Tau3	GRU
5.6		SGR	5.7		UMA	5.8		TAU	5.8		PSC
5.6		VUL	5.7		LEO	5.8	Nu	MEN	5.8	Rho	IND
5.6		SGE	5.7		LEO	5.8		TAU	5.8		AQR
5.6		AQL	5.7		UMA	5.8		PER	5.8		PSA
5.6		SER	5.7		PEG	5.8		TAU	5.8		LAC
5.6	Eta1	CRA	5.7	Upsilon	GRU	5.8		TAU	5.8	Tau1	AQR
5.6	Phi	OCT	5.7		CEP	5.8		TAU	5.8		PEG
5.6		SGR	5.7	Pi2	GRU	5.8		ERI	5.8	Sigma2	GRU
5.6	Iota	PAV	5.7		PEG	5.8		TAU	5.8		LAC
5.6		HER	5.7		PEG	5.8	Xi	MEN	5.8	Upsilon	OCT
5.6		HER	5.7		DRA	5.8		AUR	5.8		PEG
5.6		OPH	5.7		CYG	5.8		LEP	5.8	Rho1	CEP
5.6		OPH	5.7		DRA	5.8		TAU	5.8		AQR
5.6		HER	5.7	Mu1	PAV	5.8		TAU	5.8		AQR
5.6		DRA	5.7		VUL	5.8		CAM	5.8		AQR
5.6		DRA	5.7		AQL	5.8		CAM	5.8		CEP
5.6		HER	5.7	Pi	AQL	5.8	Nu1	COL	5.8		AQR
5.6	Lambda	NOR	5.7	Upsilon	AQL	5.8		LEP	5.8		AQR
5.6		SCO	5.7	Epsilon	SGE	5.8		ORI	5.8		PEG
5.6		HER	5.7	Iota1	CYG	5.8	Eta1	DOR	5.8		AQR
5.6		SCO	5.7		DRA	5.8		GEM	5.8		PEG
5.6		SER	5.7		SGR	5.8		AUR	5.8		CEP
5.6		HER	5.7		AQL	5.8		LYN	5.8		AQR
5.6		SCO	5.7		SGR	5.8	Nu	PIC	5.8		CYG
5.6	Pi	CRB	5.7		OPH	5.8		AUR	5.8		PEG
5.6	Rho	OCT	5.7		OPH	5.8		LYN	5.8		PSA
5.6	Zeta4	LIB	5.7		HER	5.8	Mu	PIC	5.8		CAP
5.6	Kappa1	APS	5.7		HER	5.8		MON	5.8		PSA
5.6	Omicron	CRB	5.7		HER	5.8		LYN	5.8		CAP
5.6		SER	5.7		HER	5.8		LYN	5.8	Theta2	CYG
5.6		BOO	5.7		HER	5.8		AUR	5.8		MIC
5.6	Pi1	OCT	5.7	Upsilon	CRB	5.8		MON	5.8		EQU
5.6		BOO	5.7	Iota2	NOR	5.8		CMA	5.8		AQR
5.6	Xi2	LIB	5.7	Phi	SER	5.8		GEM	5.8		AQR
5.6	Mu	LIB	5.7	Xi2	LUP	5.8	Psi9	AUR	5.8		EQU
5.6		BOO	5.7	Upsilon	SER	5.8	Gamma1	VOL	5.8		EQU
5.6		BOO	5.7		BOO	5.8		GEM	5.8		AQR
5.6		UMA	5.7		HYA	5.8		GEM	5.8		DEL
5.6		VIR	5.7		BOO	5.8		AUR	5.8	Mu1	OCT
5.6		VIR	5.7		CVN	5.8		GEM	5.8	Kappa2	SGR
5.6	Kappa	OCT	5.7		CVN	5.8	Delta3	CMI	5.8		CAP
5.6		BOO	5.7		DRA	5.8		CAM	5.8		VUL
5.6		VIR	5.7		COM	5.8		PUP	5.8		AQL
5.6		COM	5.7		UMA	5.8		CNC	5.8		AQL
5.6		CVN	5.7		COM	5.8		CNC	5.8		SGR
5.7		PEG	5.7		VIR	5.8		CAM	5.8		AQL
5.7		PEG	5.8	Tau	PHE	5.8	Psi	CNC	5.8		SGR
5.7		AND	5.8		PSC	5.8	Kappa2	VOL	5.8		AQL
5.7		PSC	5.8		CAS	5.8		HYA	5.8		VUL
5.7		PSC	5.8		AND	5.8	Phi1	CNC	5.8		SGE
5.7	Psi1	PSC	5.8		PSC	5.8		CNC	5.8	Omega2	AQL
5.7		PSC	5.8		CET	5.8		LYN	5.8		LYR
5.7		AND	5.8	Lambda2	SCL	5.8		CNC	5.8		AQL
5.7	Tau	SCL	5.8		PSC	5.8		HYA	5.8	Nu1	LYR
5.7		ARI	5.8	Phi4	CET	5.8		HYA	5.8	Eta2	CRA
5.7		ARI	5.8	Omega	PHE	5.8	Sigma1	CNC	5.8	Theta	PAV
5.7		CET	5.8		CET	5.8		CNC	5.8	Kappa2	CRA



# 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 m,etri, 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	moon standstill cycle (lunar major), years, JY2M
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, days
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



# 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	12,104	12,756	3475	6794	142,984	120,536	51,118	49,528
Densità (kg/m <sup>3</sup> )	5427	5243	5515	3340	3933	1326	687	1270	1638
Gravità (m/s <sup>2</sup> )	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	56	27	13
Anelli	No	No	No	No	No	Yes	Yes	Yes	Yes
Campo magnetico	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes

# SATELLITI

	Pianeti						Pianeti nani	
	Terra	Marte	Giove	Saturno	Urano	Nettuno	Plutone	Eris
I	Luna	Fobos	Io	Mimante	Ariel	Tritone	Caronte	Disnomia
II		Deimos	Europa	Encelado	Umbriel	Nereide	Notte	
III			Ganimede	Teti	Titania	Naiade	Idra	
IV			Callisto	Dione	Oberon	Talassa		
V			Amaltea	Rea	Miranda	Despina		
VI			Imalia	Titano	Cordelia	Galatea		
VII			Elara	Iperione	Ofelia	Larissa		
VIII			Pasife	Giapeto	Bianca	Proteo		
IX			Sinope	Febe	Cressida			
X			Lisitea	Giano	Desdemona	Psamate		
XI			Carme	Epimeteo	Giulietta			
XII			Ananke	Elena	Porzia			
XIII			Leda	Telesto	Rosalind			
XIV			Tebe	Calipso	Belinda			
XV			Adrastea	Atlante	Puck			
XVI			Metide	Prometeo	Calibano			
XVII			Calliroe	Pandora	Sicorace			
XVIII			Temisto	Pan	Prospero			
XIX			Megaclite	Ymir	Setebos			
XX			Taigete	Paaliaq	Stefano			
XXI			Caldene	Tarvos	Trinculo			
XXII			Arpalice	Ijiraq	Francisco			
XXIII			Calice	Suttungr	Margherita			
XXIV			Giocasta	Kiviuq	Ferdinando			
XXV			Erinome	Mundilfari	Perdita			
XXVI			Isonoe	Albiorix	Mab			
XXVII			Praxidike	Skadi	Cupido			
XXVIII			Autonoe	Erriapo				
XXIX			Tione	Siarnaq				
XXX			Ermippe	Thrymr				
XXXI			Aitne	Narvi				
XXXII			Euridome	Metone				
XXXIII			Euante	Pallene				
XXXIV			Euporia	Polluce Dafni				
XXXV			Ortosia					
XXXVI			Sponde					
XXXVII			Cale					
XXXVIII			Pasitee					
XXXIX			Egemone					
XL			Mneme					
XLI			Aede					
XLII			Telsinoe					
XLIII			Arche					
XLIV			Callicore					
XLV			Elice					
XLVI			Carpo					
XLVII			Eukelade					
XLVIII			Cillene					

# DIAMETRO SATELLITI

Diametro medio (km)	Pianeti						Pianeti nani		Altri oggetti, per confronto
	Terra	Marte	Giove	Saturno	Urano	Nettuno	Plutone	Eris	
5000-6000			Ganimede	Titano					
4000-5000			Callisto						Mercurio
3000-4000	Luna		Io Europa						
2000-3000						Tritone			Eris Plutone
1000-2000				Rea Giapeto Dione Teti	Titania Oberon Umbriel Ariel		Caronte		2005 FY9 2003 EL61 Sedna Orco Quaoar
500-1000				Encelado					Cerere Varuna Issione Pallade, Vesta ...e altri
250-500				Mimante Iperione		Proteo Nereide			Igea Davida Interamnia ...e altri
100-250			Amaltea Imalia Tebe	Febe Giano Epimeteo	Sicorace Puck Porzia	Larissa Galatea Despina			[...]
50-100			Elara Pasifaë	Prometeo Pandora	Calibano Giulietta Belinda Cressida Rosalind Desdemona Bianca	Talassa Alimede Neso Naiade	Notte Idra		[...]
10-50		Phobos Deimos	Carme Metide Sinope Lisitea Ananke Leda Adrastea	Siarnaq Elena Albiorix Atlante Pan Telesto Paaliaq Calipso Ymir Kiviuq Tavros Ijiraq Erriapo	Ofelia Cordelia Setebos Prospero Perdita Mab Stefano Cupido Francisco Ferdinand Margherita Trinculo	Sao Laomedea Psamate			[...]
< 10			almeno 47	almeno 21					[...]

## SATELLITI DI MARTE

Nome		Dimensioni	<a href="#">Massa</a>	Raggio orbitale medio	<a href="#">Periodo orbitale</a>	Scoperta
Marte I	<a href="#">Fobos</a>	27,0×21,6×18,8 km	10,8×10 <sup>15</sup> kg	9 377 km	7,66 ore	<a href="#">1877</a>
Marte II	<a href="#">Deimos</a>	10×12×16 km	2×10 <sup>15</sup> kg	23 460 km	30,35 ore	<a href="#">1877</a>

Visto da Marte, Fobos presenta un [diametro apparente](#) compreso fra 8' (al sorgere e al tramontare) e 12' (a perpendicolo), mentre Deimos si estende per circa 2'. Per confronto, il diametro angolare del [Sole](#) è mediamente pari a 21'.

## SATELLITI DI GIOVE

Sono evidenziati in violetto i satelliti abbastanza massicci da possedere una forma sferoidale (ovvero i satelliti galileiani), e in grigio scuro i satelliti irregolari, probabilmente catturati in un secondo momento dalla forza di gravità del pianeta.

Nome		<a href="#">Diametro medio</a>	<a href="#">Massa</a>	Raggio orbitale medio	<a href="#">Periodo orbitale</a>	Scoperta	Gruppo
Giove XVI	<a href="#">Metide</a>	43 km	120×10 <sup>15</sup> kg	127 690 km	0,294780 giorni	<a href="#">1979</a>	<a href="#">Gruppo di Amaltea</a>
Giove XV	<a href="#">Adrastea</a>	26×20×16 km	7,5×10 <sup>15</sup> kg	128 694 km	0,29826 giorni	<a href="#">1979</a>	<a href="#">Gruppo di Amaltea</a>
Giove V	<a href="#">Amaltea</a>	262×146×134 km	2,1×10 <sup>18</sup> kg	181 170 km	0,498179 giorni	<a href="#">1892</a>	<a href="#">Gruppo di Amaltea</a>
Giove XIV	<a href="#">Tebe</a>	110×90 km	1,5×10 <sup>18</sup> kg	221 700 km	0,6745 giorni	<a href="#">1979</a>	<a href="#">Gruppo di Amaltea</a>
Giove I	<a href="#">Io</a>	3 643 km	89×10 <sup>21</sup> kg	421 700 km	1,769138 giorni	<a href="#">1610</a>	<a href="#">Satelliti galileiani</a>
Giove II	<a href="#">Europa</a>	3 122 km	48×10 <sup>21</sup> kg	671 034 km	3,551181 giorni	<a href="#">1610</a>	<a href="#">Satelliti galileiani</a>
Giove III	<a href="#">Ganimede</a>	5 262 km	150×10 <sup>21</sup> kg	1 070 412 km	7,154553 giorni	<a href="#">1610</a>	<a href="#">Satelliti galileiani</a>
Giove IV	<a href="#">Callisto</a>	4 821 km	110×10 <sup>21</sup> kg	1 882 709 km	16,689018 giorni	<a href="#">1610</a>	<a href="#">Satelliti galileiani</a>
Giove XVIII	<a href="#">Temisto</a>	8 km	0,69×10 <sup>15</sup> kg	7 391 645 km	129,8276 giorni	<a href="#">1975</a>	
Giove XIII	<a href="#">Leda</a>	20 km	11×10 <sup>15</sup> kg	11 097 245 km	238,8242 giorni	<a href="#">1974</a>	<a href="#">Gruppo di Imalia</a>
Giove VI	<a href="#">Imalia</a>	170 km	6,7×10 <sup>18</sup> kg	11 432 435 km	249,7263 giorni	<a href="#">1904</a>	<a href="#">Gruppo di Imalia</a>
Giove X	<a href="#">Lisitea</a>	36 km	63×10 <sup>15</sup> kg	11 653 225 km	256,9954 giorni	<a href="#">1938</a>	<a href="#">Gruppo di Imalia</a>

Giove VII	<a href="#">Elara</a>	86 km	$870 \times 10^{15}$ kg	11 683 115 km	257,9849 giorni	<a href="#">1905</a>	<a href="#">Gruppo di Imalia</a>
<a href="#">S/2000 J 11</a>		4 km	$90 \times 10^{12}$ kg	12 570 575 km	287,9310 giorni	<a href="#">2000</a>	<a href="#">Gruppo di Imalia</a>
Giove XLVI	<a href="#">Carpo</a>	3 km	$45 \times 10^{12}$ kg	17 144 875 km	1,2556 anni	<a href="#">2003</a>	
<a href="#">S/2003 J 12</a>		1 km	$1,5 \times 10^{12}$ kg	17 739 540 km	1,3215 anni	<a href="#">2000</a>	
Giove XXXIV	<a href="#">Euporia</a>	2 km	$15 \times 10^{12}$ kg	19 088 435 km	1,4751 anni	<a href="#">2001</a>	<a href="#">Gruppo di Ananke?</a>
<a href="#">S/2003 J 3</a>		2 km	$15 \times 10^{12}$ kg	19 621 780 km	1,5374 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke</a>
<a href="#">S/2003 J 18</a>		2 km	$15 \times 10^{12}$ kg	19 812 575 km	1,5598 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke</a>
Giove XLII	<a href="#">Telsinoe</a>	2 km	$15 \times 10^{12}$ kg	20 453 755 km	1,6362 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke</a>
Giove XXXIII	<a href="#">Euante</a>	3 km	$45 \times 10^{12}$ kg	20 464 855 km	1,6375 anni	<a href="#">2001</a>	<a href="#">Gruppo di Ananke</a>
Giove XLV	<a href="#">Elice</a>	4 km	$90 \times 10^{12}$ kg	20 540 265 km	1,6465 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke?</a>
Giove XXXV	<a href="#">Ortosia</a>	2 km	$15 \times 10^{12}$ kg	20 567 970 km	1,6499 anni	<a href="#">2001</a>	<a href="#">Gruppo di Ananke?</a>
Giove XXIV	<a href="#">Iocaste</a>	5 km	$190 \times 10^{12}$ kg	20 722 565 km	1,6685 anni	<a href="#">2000</a>	<a href="#">Gruppo di Ananke</a>
<a href="#">S/2003 J 16</a>		2 km	$15 \times 10^{12}$ kg	20 743 780 km	1,6711 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke</a>
Giove XII	<a href="#">Ananke</a>	28 km	$30 \times 10^{15}$ kg	20 815 225 km	1,6797 anni	<a href="#">1951</a>	<a href="#">Gruppo di Ananke</a>
Giove XXVII	<a href="#">Praxidike</a>	7 km	$430 \times 10^{12}$ kg	20 823 950 km	1,6808 anni	<a href="#">2000</a>	<a href="#">Gruppo di Ananke</a>
Giove XXII	<a href="#">Arpalice</a>	4 km	$120 \times 10^{12}$ kg	21 063 815 km	1,7099 anni	<a href="#">2000</a>	<a href="#">Gruppo di Ananke</a>
Giove XXX	<a href="#">Ermippe</a>	4 km	$90 \times 10^{12}$ kg	21 182 085 km	1,7243 anni	<a href="#">2001</a>	<a href="#">Gruppo di Ananke?</a>
Giove XXIX	<a href="#">Tione</a>	4 km	$90 \times 10^{12}$ kg	21 405 570 km	1,7517 anni	<a href="#">2001</a>	<a href="#">Gruppo di Ananke</a>
Giove XL	<a href="#">Mneme</a>	2 km	$15 \times 10^{12}$ kg	21 427 110 km	1,7543 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke</a>
<a href="#">S/2003 J 17</a>		2 km	$15 \times 10^{12}$ kg	22 134 305 km	1,8419 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme</a>
Giove XXXI	<a href="#">Aitne</a>	3 km	$45 \times 10^{12}$ kg	22 285 160 km	1,8608 anni	<a href="#">2001</a>	<a href="#">Gruppo di Carme</a>

Giove XXXVII	<a href="#">Cale</a>	2 km	15×10 <sup>12</sup> kg	22 409 210 km	1,8763 anni	<a href="#">2001</a>	<a href="#">Gruppo di Carme</a>
Giove XX	<a href="#">Taigete</a>	5 km	160×10 <sup>12</sup> kg	22 438 650 km	1,8800 anni	<a href="#">2000</a>	<a href="#">Gruppo di Carme</a>
<a href="#">S/2003 J 19</a>		2 km	15×10 <sup>12</sup> kg	22 709 060 km	1,9141 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme</a>
Giove XXI	<a href="#">Caldene</a>	4 km	75×10 <sup>12</sup> kg	22 713 445 km	1,9147 anni	<a href="#">2000</a>	<a href="#">Gruppo di Carme</a>
<a href="#">S/2003 J 15</a>		2 km	15×10 <sup>12</sup> kg	22 721 000 km	1,9156 anni	<a href="#">2003</a>	<a href="#">Gruppo di Ananke?</a>
<a href="#">S/2003 J 10</a>		2 km	15×10 <sup>12</sup> kg	22 730 815 km	1,9168 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme?</a>
<a href="#">S/2003 J 23</a>		2 km	15×10 <sup>12</sup> kg	22 739 655 km	1,9180 anni	<a href="#">2003</a>	<a href="#">Gruppo di Pasife</a>
Giove XXV	<a href="#">Erinome</a>	3 km	45×10 <sup>12</sup> kg	22 986 265 km	1,9493 anni	<a href="#">2000</a>	<a href="#">Gruppo di Carme</a>
Giove XLI	<a href="#">Aede</a>	4 km	90×10 <sup>12</sup> kg	23 044 175 km	1,9566 anni	<a href="#">2003</a>	<a href="#">Gruppo di Pasife</a>
Giove XLIV	<a href="#">Callicore</a>	2 km	15×10 <sup>12</sup> kg	23 111 825 km	1,9652 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme?</a>
Giove XXIII	<a href="#">Calice</a>	5 km	190×10 <sup>12</sup> kg	23 180 775 km	1,9740 anni	<a href="#">2000</a>	<a href="#">Gruppo di Carme</a>
Giove XXXII	<a href="#">Euridome</a>	3 km	45×10 <sup>12</sup> kg	23 230 860 km	1,9804 anni	<a href="#">2001</a>	<a href="#">Gruppo di Pasife?</a>
<a href="#">S/2003 J 14</a>		2 km	15×10 <sup>12</sup> kg	23 238 595 km	1,9814 anni	<a href="#">2003</a>	<a href="#">Gruppo di Pasife</a>
Giove XXXVIII	<a href="#">Pasithee</a>	2 km	15×10 <sup>12</sup> kg	23 307 320 km	1,9902 anni	<a href="#">2001</a>	<a href="#">Gruppo di Carme</a>
Giove XLVIII	<a href="#">Cillene</a>	2 km	15×10 <sup>12</sup> kg	23 396 270 km	2,0016 anni	<a href="#">2003</a>	<a href="#">Gruppo di Pasife</a>
Giove XLVII	<a href="#">Eukelade</a>	4 km	90×10 <sup>12</sup> kg	23 483 695 km	2,0129 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme</a>
<a href="#">S/2003 J 4</a>		2 km	15×10 <sup>12</sup> kg	23 570 790 km	2,0241 anni	<a href="#">2003</a>	<a href="#">Gruppo di Pasife</a>
Giove XXXIX	<a href="#">Egemone</a>	3 km	45×10 <sup>12</sup> kg	23 702 510 km	2,0411 anni	<a href="#">2003</a>	<a href="#">Gruppo di Pasife</a>
Giove XLIII	<a href="#">Arche</a>	3 km	45×10 <sup>12</sup> kg	23 717 050 km	2,0429 anni	<a href="#">2002</a>	<a href="#">Gruppo di Carme</a>
Giove XI	<a href="#">Carme</a>	46 km	0,13×10 <sup>18</sup> kg	23 734 465 km	2,0452 anni	<a href="#">1938</a>	<a href="#">Gruppo di Carme</a>
Giove XXVI	<a href="#">Isonoe</a>	4 km	75×10 <sup>12</sup> kg	23 832 630 km	2,0579 anni	<a href="#">2000</a>	<a href="#">Gruppo di Carme</a>

<a href="#">S/2003 J 9</a>		1 km	$1,5 \times 10^{12}$ kg	23 857 810 km	2,0612 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme</a>
<a href="#">S/2003 J 5</a>		4 km	$90 \times 10^{12}$ kg	23 973 925 km	2,0762 anni	<a href="#">2003</a>	<a href="#">Gruppo di Carme</a>
Giove VIII	<a href="#">Pasife</a>	60 km	$300 \times 10^{15}$ kg	24 094 770 km	2,0919 anni	<a href="#">1908</a>	<a href="#">Gruppo di Pasife</a>
Giove IX	<a href="#">Sinope</a>	38 km	$75 \times 10^{15}$ kg	24 214 390 km	2,1075 anni	<a href="#">1908</a>	<a href="#">Gruppo di Pasife</a>
Giove XXXVI	<a href="#">Sponde</a>	2 km	$15 \times 10^{12}$ kg	24 252 625 km	2,1125 anni	<a href="#">2001</a>	<a href="#">Gruppo di Pasife</a>
Giove XXVIII	<a href="#">Autonoe</a>	4 km	$90 \times 10^{12}$ kg	24 264 445 km	2,1141 anni	<a href="#">2001</a>	<a href="#">Gruppo di Pasife</a>
Giove XVII	<a href="#">Calliroe</a>	9 km	$870 \times 10^{12}$ kg	24 356 030 km	2,1261 anni	<a href="#">1999</a>	<a href="#">Gruppo di Pasife</a>
Giove XIX	<a href="#">Megaclite</a>	5 km	$210 \times 10^{12}$ kg	24 687 240 km	2,1696 anni	<a href="#">2000</a>	<a href="#">Gruppo di Pasife</a>
<a href="#">S/2003 J 2</a>		2 km	$15 \times 10^{12}$ kg	30 290 845 km	2,9487 anni	<a href="#">2003</a>	

## SATELLITI DI SATURNO

Sono evidenziati in violetto i satelliti abbastanza massicci da possedere una forma sferoidale e in grigio scuro i satelliti irregolari, probabilmente catturati in un secondo momento dalla forza di gravità del pianeta.

Nome		<a href="#">Diametro medio</a>	<a href="#">Massa</a>	Raggio orbitale medio	<a href="#">Periodo orbitale</a>	Scoperta	Gruppo
Saturno XVIII	<a href="#">Pan</a>	35×35×23 km	$2,7 \times 10^{15}$ kg	133 583 km	0,575 giorni	<a href="#">1990</a>	
Saturno XXXV	<a href="#">Dafni</a>	7 km	?	136 505 km	0,59537 giorni	<a href="#">2005</a>	
Saturno XV	<a href="#">Atlante</a>	40×20 km	?	137 670 km	0,6019 giorni	<a href="#">1980</a>	
Saturno XVI	<a href="#">Prometeo</a>	145×85×62 km	$0,270 \times 10^{18}$ kg	139 350 km	0,6130 giorni	<a href="#">1980</a>	
Saturno XVII	<a href="#">Pandora</a>	114×84×62 km	$0,220 \times 10^{18}$ kg	141 700 km	0,6285 giorni	<a href="#">1980</a>	
Saturno XI	<a href="#">Epimeteo</a>	144×108×98 km	$0,560 \times 10^{18}$ kg	151 422 km	0,6942 giorni	<a href="#">1980</a>	
Saturno X	<a href="#">Giano</a>	196×192×150 km	$2,01 \times 10^{18}$ kg	151 472 km	0,6945 giorni	<a href="#">1966</a>	
Saturno I	<a href="#">Mimante</a>	397 km	$38,0 \times 10^{18}$ kg	185 520 km	0,942422 giorni	<a href="#">1789</a>	
Saturno XXXII	<a href="#">Metone</a>	3 km	?	194 000 km	1,01 giorni	<a href="#">2004</a>	
Saturno XXXIII	<a href="#">Pallene</a>	4 km	?	211 000 km	1,14 giorni	<a href="#">2004</a>	

Saturno II	<a href="#">Encelado</a>	499 km	$73,0 \times 10^{18}$ kg	238 020 km	1,370218 giorni	<a href="#">1789</a>	
Saturno XIII	<a href="#">Telesto</a>	34×28×36 km	?	294 660 km	1,887802 giorni	<a href="#">1980</a>	
Saturno III	<a href="#">Teti</a>	1 060 km	$0,622 \times 10^{21}$ kg	294 660 km	1,887802 giorni	<a href="#">1684</a>	
Saturno XIV	<a href="#">Calipso</a>	34×22×22 km	?	294 660 km	1,887802 giorni	<a href="#">1980</a>	
Saturno XII	<a href="#">Elena</a>	36×32×30 kg	?	377 400 km	2,736915 giorni	<a href="#">1980</a>	
Saturno IV	<a href="#">Dione</a>	1 118 km	$1,05 \times 10^{21}$ kg	377 400 km	2,736915 giorni	<a href="#">1684</a>	
Saturno XXXIV	<a href="#">Polluce</a>	13 km	?	377 400 km	2,736915 giorni	<a href="#">2004</a>	
Saturno V	<a href="#">Rea</a>	1 528 km	$2,49 \times 10^{21}$ kg	527 040 km	4,5175 giorni	<a href="#">1672</a>	
Saturno VI	<a href="#">Titano</a>	5 151 km	$135 \times 10^{21}$ kg	1 221 850 km	15,94542 giorni	<a href="#">1655</a>	
Saturno VII	<a href="#">Iperione</a>	410×260×220 km	$17,7 \times 10^{18}$ kg	1 481 100 km	21,27661 giorni	<a href="#">1848</a>	
Saturno VIII	<a href="#">Giapeto</a>	1 460 km	$1,88 \times 10^{21}$ kg	3 561 300 km	79,33018 giorni	<a href="#">1671</a>	
Saturno XXIV	<a href="#">Kiviuq</a>	16 km	$3,3 \times 10^{15}$ kg	11 365 000 km	1,2298 anni	<a href="#">2000</a>	<a href="#">Gruppo Inuit</a>
Saturno XXII	<a href="#">Ijirag</a>	12 km	?	11 442 000 km	1,2361 anni	<a href="#">2000</a>	<a href="#">Gruppo Inuit</a>
Saturno IX	<a href="#">Febe</a>	220 km	$4,00 \times 10^{18}$ kg	12 944 300 km	-1,5009 anni	<a href="#">1899</a>	<a href="#">Gruppo Nordico</a>
Saturno XX	<a href="#">Paaliaq</a>	22 km	?	15 199 000 km	1,8806 anni	<a href="#">2000</a>	<a href="#">Gruppo Inuit</a>
Saturno XXVII	<a href="#">Skadi</a>	8 km	?	15 647 000 km	-1,9956 anni	<a href="#">2000</a>	<a href="#">Gruppo Nordico</a>
Saturno XXVI	<a href="#">Albiorix</a>	32 km	?	16 404 000 km	2,1451 anni	<a href="#">2000</a>	<a href="#">Gruppo Gallico</a>
<a href="#">S/2004 S 11</a>		6 km	?	16 950 000 km	2,25 anni	<a href="#">2004</a>	<a href="#">Gruppo Inuit</a>
<a href="#">S/2006 S 8</a>		6 km		17 610 000 km	-2,3792 anni	<a href="#">2006</a>	
Saturno XXVIII	<a href="#">Erriapo</a>	10 km	?	17 616 000 km	2,3871 anni	<a href="#">2000</a>	<a href="#">Gruppo Gallico</a>
<a href="#">S/2006 S 4</a>		6 km		18 105 000 km	-2,4778 anni	<a href="#">2006</a>	
Saturno XXIX	<a href="#">Siarnaq</a>	40 km	?	18 160 000 km	2,4452 anni	<a href="#">2000</a>	<a href="#">Gruppo Inuit</a>
<a href="#">S/2004 S 19</a>		8 km		18 217 125 km	-2,4970 anni	<a href="#">2004</a>	
Saturno XXI	<a href="#">Tarvos</a>	15 km	?	18 247 000 km	2,5342 anni	<a href="#">2000</a>	<a href="#">Gruppo Gallico</a>
<a href="#">S/2004 S 13</a>		6 km	?	18 450 000 km	-2,48 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2006 S 6</a>		6 km		18 600 000 km	-2,5791 anni	<a href="#">2006</a>	
<a href="#">S/2004 S 17</a>		4 km	?	18 600 000 km	-2,70 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
Saturno XXV	<a href="#">Mundilfari</a>	7 km	?	18 722 000 km	-2,6048 anni	<a href="#">2000</a>	<a href="#">Gruppo Nordico</a>



<a href="#">S/2004 S 15</a>		6 km	?	18 750 000 km	-2,76 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2006 S 1</a>		6 km		18 981 135 km	-2,6558 anni	<a href="#">2006</a>	
<a href="#">S/2004 S 10</a>		6 km	?	19 350 000 km	-2,81 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
Saturno XXXI	<a href="#">Narvi</a>	7 km	?	19 370 700 km	-2,7558 anni	<a href="#">2003</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2004 S 12</a>		5 km	?	19 650 000 km	-2,87 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2004 S 18</a>		7 km	?	19 650 000 km	-2,88 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
Saturno XXIII	<a href="#">Suttungr</a>	7 km	?	19 666 700 km	-2,8192 anni	<a href="#">2000</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2004 S 9</a>		5 km	?	19 800 800 km	-2,95 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2004 S 7</a>		6 km	?	19 800 000 km	-3,02 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2004 S 14</a>		6 km	?	19 950 000 km	-2,96 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
Saturno XXX	<a href="#">Thrymr</a>	7 km	?	20 810 300 km	-3,07 anni	<a href="#">2000</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2006 S 3</a>		6 km		21 132 000 km	-3,13 anni	<a href="#">2006</a>	
<a href="#">S/2004 S 16</a>		4 km	?	22 200 000 km	-3,48 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2004 S 8</a>		6 km	?	22 200 000 km	-3,71 anni	<a href="#">2004</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2006 S 7</a>		6 km		22 290 000 km	-3,39 anni	<a href="#">2006</a>	
<a href="#">S/2006 S 2</a>		7 km		22 350 000 km	-3,41 anni	<a href="#">2006</a>	
Saturno XIX	<a href="#">Ymir</a>	18 km	?	23 174 600 km	-3,61 anni	<a href="#">2000</a>	<a href="#">Gruppo Nordico</a>
<a href="#">S/2006 S 5</a>		6 km		23 190 000 km	-3,60 anni	<a href="#">2006</a>	

# SATELLITI DI URANO

Sono evidenziati in violetto i satelliti abbastanza massicci da possedere una forma sferoidale e in grigio scuro i satelliti irregolari, probabilmente catturati in un secondo momento dalla forza di gravità del pianeta.

Nome		<u>Diametro medio</u>	<u>Massa</u>	Raggio orbitale medio	<u>Periodo orbitale</u>	Scoperta
Urano VI	<a href="#">Cordelia</a>	13 ± 2 km	$0,8 \times 10^{18}$ kg	49 752 km	0,3350338 giorni	<a href="#">1986</a>
Urano VII	<a href="#">Ofelia</a>	15 ± 8 km	$0,8 \times 10^{18}$ kg	53 764	0,376400 giorni	<a href="#">1986</a>
Urano VIII	<a href="#">Bianca</a>	21 ± 4 km	$0,8 \times 10^{18}$ kg	59 166	0,43457899 giorni	<a href="#">1986</a>
Urano IX	<a href="#">Cressida</a>	80 ± 4 km	$0,343 \times 10^{18}$ kg	61 780 km	0,463570 giorni	<a href="#">1986</a>
Urano X	<a href="#">Desdemona</a>	64 ± 8 km	$0,178 \times 10^{18}$ kg	62 680 km	0,473650 giorni	<a href="#">1986</a>
Urano XI	<a href="#">Juliet</a>	94 ± 8 km	$0,557 \times 10^{18}$ kg	64 350 km	0,493065 giorni	<a href="#">1986</a>
Urano XII	<a href="#">Porzia</a>	135 ± 8 km	$1,68 \times 10^{18}$ kg	66 090 km	0,513196 giorni	<a href="#">1986</a>
Urano XIII	<a href="#">Rosalind</a>	72 ± 12 km	$0,254 \times 10^{18}$ kg	69 940 km	0,558460 giorni	<a href="#">1986</a>
Urano XXVII	<a href="#">Cupido</a>	~17,8 km	$3,8 \times 10^{15}$ kg	74 800 km	0,618 giorni	<a href="#">2003</a>
Urano XIV	<a href="#">Belinda</a>	81 ± 16 km	$0,357 \times 10^{18}$ kg	75 260 km	0,623527 giorni	<a href="#">1986</a>
Urano XXV	<a href="#">Perdita</a>	~26,6 km	$13 \times 10^{15}$ kg	76 420 km	0,638 giorni	<a href="#">1986</a>
Urano XV	<a href="#">Puck</a>	162 ± 4 km	$2,89 \times 10^{18}$ kg	86 010 km	0,761833 giorni	<a href="#">1986</a>
Urano XXVI	<a href="#">Mab</a>	~24,8 km	$1,0 \times 10^{16}$ kg	97 734 km	0,923 giorni	<a href="#">2003</a>
Urano V	<a href="#">Miranda</a>	471,6 ± 1,4 km	$(66 \pm 7) \times 10^{18}$ kg	129 390 km	1,413479 giorni	<a href="#">1948</a>
Urano I	<a href="#">Ariel</a>	1157,8 ± 1,2 km	$(1,35 \pm 0,12) \times 10^{21}$ kg	191 020 km	2,520379 giorni	<a href="#">1851</a>
Urano II	<a href="#">Umbriel</a>	1169,4 ± 5,6 km	$(1,17 \pm 0,13) \times 10^{21}$ kg	266 300 km	4,144177 giorni	<a href="#">1851</a>
Urano III	<a href="#">Titania</a>	1577,8 ± 3,6 km	$(3,53 \pm 0,09) \times 10^{21}$ kg	435 910 km	8,705872 giorni	<a href="#">1787</a>
Urano IV	<a href="#">Oberon</a>	1522,8 ± 5,2 km	$(3,01 \pm 0,07) \times 10^{21}$ kg	583 520 km	13,463239 giorni	<a href="#">1787</a>
Urano XXII	<a href="#">Francisco</a>	~12 km	$1,3 \times 10^{15}$ kg	4 276 000 km	-0,7299 anni	<a href="#">2001</a>
Urano XVI	<a href="#">Calibano</a>	~98 km	$0,73 \times 10^{18}$ kg	7 231 000 km	-1,5871 anni	<a href="#">1997</a>
Urano XX	<a href="#">Stefano</a>	~20 km	$6 \times 10^{15}$ kg	8 004 000 km	-1,8546 anni	<a href="#">1999</a>
Urano XXI	<a href="#">Trinculo</a>	~10 km	$0,75 \times 10^{15}$ kg	8 504 000 km	-2,0780 anni	<a href="#">2001</a>
Urano XVII	<a href="#">Sicorace</a>	~190 km	$5,4 \times 10^{18}$ kg	12 179 000 km	-3,5272 anni	<a href="#">1997</a>
Urano XXIII	<a href="#">Margherita</a>	~11 km	$1,3 \times 10^{15}$ kg	14 345 000 km	4,6401 anni	<a href="#">2003</a>

Urano XVIII	<a href="#">Prospero</a>	~30 km	$21 \times 10^{15}$ kg	16 256 000 km	-5,4136 anni	<a href="#">1999</a>
Urano XIX	<a href="#">Setebos</a>	~30 km	$21 \times 10^{15}$ kg	17 418 000 km	-6,1185 anni	<a href="#">1999</a>
Urano XXIV	<a href="#">Ferdinando</a>	~12 km	$1,3 \times 10^{15}$ kg	20 901 000 km	-7,7300 anni	<a href="#">2001</a>

## SATELLITI DI NETTUNO

Sono evidenziati in violetto i satelliti abbastanza massicci da possedere una forma sferoidale e in grigio scuro i satelliti irregolari, probabilmente catturati in un secondo momento dalla forza di gravità del pianeta.

Nome		<a href="#">Diametro medio</a>	<a href="#">Massa</a>	Raggio orbitale medio	<a href="#">Periodo orbitale</a>	Scoperta
Nettuno III	<a href="#">Naiade</a>	58 km	$\sim 0,19 \times 10^{18}$ kg	48 227 km	0,294 giorni	<a href="#">1989</a>
Nettuno IV	<a href="#">Talassa</a>	80 km	$\sim 0,37 \times 10^{18}$ kg	50 075 km	0,311 giorni	<a href="#">1989</a>
Nettuno V	<a href="#">Despina</a>	148 km	$\sim 2,10 \times 10^{18}$ kg	52 526 km	0,335 giorni	<a href="#">1989</a>
Nettuno VI	<a href="#">Galatea</a>	158 km	$\sim 3,70 \times 10^{18}$ kg	61 593 km	0,429 giorni	<a href="#">1989</a>
Nettuno VII	<a href="#">Larissa</a>	208×178 km	$\sim 4,90 \times 10^{18}$ kg	73 548 km	0,555 giorni	<a href="#">1981</a>
Nettuno VIII	<a href="#">Proteo</a>	436×416×402 km	$\sim 50 \times 10^{18}$ kg	117 647 km	1,122 giorni	<a href="#">1989</a>
Nettuno I	<a href="#">Tritone</a>	2700 km	$21,4 \times 10^{21}$ kg	354 800 km	-5,877 giorni	<a href="#">1846</a>
Nettuno II	<a href="#">Nereide</a>	340 km	$\sim 31 \times 10^{18}$ kg	5 513 400 km	0,99 anni	<a href="#">1949</a>
Nettuno IX	<a href="#">Alimede</a>	60 km	$\sim 0,09 \times 10^{18}$ kg	15 728 000 km	-5,15 anni	<a href="#">2002</a>
Nettuno XI	<a href="#">Sao</a>	38 km	$\sim 0,09 \times 10^{18}$ kg	22 422 000 km	7,98 anni	<a href="#">2002</a>
Nettuno XII	<a href="#">Laomedea</a>	38 km	$\sim 0,09 \times 10^{18}$ kg	23 571 000 km	8,67 anni	<a href="#">2002</a>
Nettuno X	<a href="#">Psamate</a>	28 km	$\sim 0,015 \times 10^{18}$ kg	46 695 000 km	-24,96 anni	<a href="#">2003</a>
Nettuno XIII	<a href="#">Neso</a>	60 km	$\sim 0,09 \times 10^{18}$ kg	48 387 000 km	-25,67 anni	<a href="#">2002</a>

Giove		a	i	e	Peri	Node	M	Period	mag	H	Size	Year
Name		(km)	(deg)		(deg)	(deg)	(deg)	(days)		(mag)	(km)	
<b>Small Inner Regulars and Rings*</b>												
XVI	Metis	128100	0.021	0.001	40.7	138.1	181.6	0.30	17.5	x	44	1979
XV	Adrastea	128900	0.027	0.002	21.2	167.4	143.5	0.30	18.7	x	16	1979
V	Amalthea	181400	0.389	0.003	147.8	112.3	189.8	0.50	14.1	x	168	1892
XIV	Thebe	221900	1.070	0.018	233.5	235.9	136.4	0.68	16.0	x	98	1979
<b>Galileans*</b>												
I	Io	421800	0.036	0.000	268.7	44.3	157.2	1.77	5.0	x	3643	1610
II	Europa	671100	0.467	0.000	225.8	219.6	33.8	3.55	5.3	x	3122	1610
III	Ganymede	1070400	0.172	0.001	192.3	65.7	315.5	7.16	4.6	x	5262	1610
IV	Callisto	1882700	0.307	0.007	46.2	305.3	181.2	16.69	5.7	x	4821	1610
<b>Themisto Prograde Irregular Group#</b>												
XVIII	Themisto	S/2000 J1 7507000	43.08	0.242	240.7	201.5	134.2	130.0	21.0	14.4	9	2000
<b>Himalia Prograde Irregular Group#</b>												
XIII	Leda	11165000	27.46	0.164	272.3	217.1	228.1	240.9	20.2	13.5	18	1974
VI	Himalia	11461000	27.50	0.162	332.0	57.2	68.7	250.6	14.8	8.1	160	1904
X	Lysithea	11717000	28.30	0.112	49.5	5.5	329.1	259.2	18.2	11.7	38	1938
VII	Elara	11741000	26.63	0.217	143.6	109.4	333.0	259.6	16.6	10.0	78	1905
		S/2000 J11 12555000	28.30	0.248	178.0	290.9	169.9	287.0	22.4	16.1	4	2000
<b>Carpo Prograde Irregular Group#</b>												
XLVI	Carpo	S/2003 J20 16989000	51.4	0.430	90.0.0	60.9	242.8	456.1	23.0	15.6	3	2003
<b>Retrograde Irregular Groups#</b>												
<b>Ananke Retrograde Irregular Group#</b>												
XXXIV	Euporie	S/2001 J10 19302000	145.8	0.144	74.6	64.9	293.0	550.7	23.1	16.5	2	2001
XXXV	Orthosie	S/2001 J9 20721000	145.9	0.281	230.5	223.6	326.8	622.6	23.1	16.5	2	2001
XXXIII	Euanthe	S/2001 J7 20799000	148.9	0.232	316.0	271.0	130.5	620.6	22.8	16.2	3	2001
XXIX	Thyone	S/2001 J2 20940000	148.5	0.229	89.1	243.0	26.6	627.3	22.3	15.7	4	2001
XL	Mneme	S/2003 J21 21069000	148.6	0.227	041.7	018.1	338.9	620.0	23.3	16.3	2	2003
XXII	Harpalyke	S/2000 J5 21105000	148.6	0.226	129.9	40.0	120.4	623.3	22.2	15.2	4	2000
XXX	Hermippe	S/2001 J3 21131000	150.7	0.210	298.7	347.2	276.4	633.9	22.1	15.5	4	2001
XXVII	Praxidike	S/2000 J7 21147000	149.0	0.230	209.7	285.2	21.8	625.3	21.2	15.0	7	2000
XLII	Thelxinoe	S/2003 J22 21162000	151.4	0.221	179.8	206.2	194.0	628.1	23.5	16.4	2	2003
XXIV	Iocaste	S/2000 J3 21269000	149.4	0.216	80.0	271.3	129.8	631.5	21.8	14.5	5	2000
XII	Ananke	21276000	148.9	0.244	100.6	7.6	248.8	610.5	18.9	12.2	28	1951
<b>Carme Retrograde Irregular Group#</b>												
XLIII	Arche	S/2002 J1 22931000	165.0	0.259	161.1	350.7	126.7	723.9	22.8	16.4	3	2002
XXXVIII	Pasithee	S/2001 J6 23096000	165.1	0.267	253.3	338.7	272.7	719.5	23.2	16.6	2	2001
XXI	Chaldene	S/2000 J10 23179000	165.2	0.251	282.5	148.7	131.6	723.8	22.5	15.7	4	2000
XXXVII	Kale	S/2001 J8 23217000	165.0	0.260	44.4	56.4	286.4	729.5	23.0	16.4	2	2001
XXVI	Isonoe	S/2000 J6 23217000	165.2	0.246	145.6	149.8	345.4	725.5	22.5	15.9	4	2000
XXXI	Aitne	S/2001 J11 23231000	165.1	0.264	122.2	24.5	153.9	730.2	22.7	16.1	3	2001
XXV	Erinome	S/2000 J4 23279000	164.9	0.266	356.0	321.7	131.1	728.3	22.8	16.0	3	2000
XX	Taygete	S/2000 J9 23360000	165.2	0.252	241.1	313.3	317.9	732.2	21.9	15.4	5	2000
XI	Carme	23404000	164.9	0.253	28.2	113.7	234.0	702.3	17.9	11.3	46	1938
XXIII	Kalyke	S/2000 J2 23583000	165.2	0.245	216.6	38.7	116.3	743.0	21.8	15.3	5	2000
XLVII	Eukelade	S/2003 J1 23661000	165.5	0.272	325.6	206.3	098.4	746.4	22.6	15.0	4	2003
XLIV	Kallichore	S/2003 J11 24043000	165.5	0.264	018.5	041.5	319.4	764.7	23.7	16.8	2	2003
<b>Pasiphae Retrograde Irregular Group#</b>												
XLV	Helike	S/2003 J6 21263000	154.8	0.156	314.7	100.3	036.2	634.8	22.6	16.0	4	2003
XXXII	Eurydome	S/2001 J4 22865000	150.3	0.276	241.6	307.4	340.7	717.3	22.7	16.1	3	2001
XXVIII	Autonoe	S/2001 J1 23039000	152.9	0.334	60.2	275.6	182.7	762.7	22.0	15.4	4	2001
XXXVI	Sponde	S/2001 J5 23487000	151.0	0.312	79.1	129.1	216.8	748.3	23.0	16.4	2	2001
VIII	Pasiphae	23624000	151.4	0.409	170.5	313.0	280.2	708.0	16.9	10.3	58	1908
XIX	Megaclite	S/2000 J8 23806000	152.8	0.421	302.3	304.6	352.5	752.8	21.7	15.0	6	2000
IX	Sinope	23939000	158.1	0.250	346.4	303.1	168.4	724.5	18.3	11.6	38	1914
XXXIX	Hegemone	S/2003 J8 23947000	155.2	0.328	235.4	327.6	98.73	739.6	22.8	15.9	3	2003
XLI	Aoede	S/2003 J7 23981000	158.3	0.432	074.5	187.1	074.0	761.5	22.5	15.8	4	2003
XVII	Callirrhoe	S/1999 J1 24102000	147.1	0.283	49.3	281.1	321.7	758.8	20.8	14.2	7	1999
XLVIII	Cyllene	S/2003 J13 24349000	149.3	0.319	214.0	266.4	000.4	737.8	23.2	16.2	2	2003

The new Jupiter satellites discovered in 2003 yet to be named. Named 2003 satellites are in the Table above.

	S/2003 J2	28570410	151.8	0.380	00.0	000.0	000.0	982.5	23.2	16.6	2	2003
	S/2003 J3	18339885	143.7	0.241	00.0	000.0	000.0	504.0	23.4	16.9	2	2003
	S/2003 J4	23257920	144.9	0.204	00.0	000.0	000.0	723.2	23.0	16.4	2	2003
	S/2003 J5	24084180	165.0	0.210	00.0	000.0	000.0	759.7	22.4	15.6	4	2003
	S/2003 J9	22441680	164.5	0.269	000.0	000.0	00.00	683.0	23.7	17.2	1	2003
	S/2003 J10	24249600	164.1	0.214	000.0	000.0	00.00	767.0	23.6	16.7	2	2003
	S/2003 J12	19002480	145.8	0.376	000.0	000.0	00.00	533.3	23.9	17.2	1	2003
	S/2003 J14	25000000	140.9	0.222	000.0	000.0	00.00	807.8	23.6	16.7	2	2003
	S/2003 J15	22000000	140.8	0.110	000.0	000.0	00.00	668.4	23.5	16.8	2	2003
	S/2003 J16	21000000	148.6	0.270	000.0	000.0	00.00	595.4	23.3	16.3	2	2003
	S/2003 J17	22000000	163.7	0.190	000.0	000.0	00.00	690.3	23.4	16.5	2	2003
	S/2003 J18	20700000	146.5	0.119	000.0	000.0	00.00	606.3	23.4	16.5	2	2003
	S/2003 J19	22800000	162.9	0.334	000.0	000.0	00.00	701.3	23.7	16.7	2	2003
	S/2003 J23	24055500	149.2	0.309	000.0	000.0	00.00	759.7	23.6	16.7	2	2003

# Saturno

Name			a (km)	i (deg)	e	Peri (deg)	Node (deg)	M (deg)	Period (days)	mag	H (mag)	Size (km)	Year
<b>Regular Satellites</b>													
Start of Inner most Ring (D)			66000										
XVIII	Pan	S/1981 S13	133600	0.000	0.000	0.0	0.0	122.0	0.575	19		20	1981
XXV	Daphnis	S/2005 S1	136500	0.000	0.000	0.0	0.0	000.0	0.594	24		7	2005
XV	Atlas	S/1980 S28	137700	0.000	0.000	0.0	0.0	186.5	0.602	18.5		32	1980
XVI	Prometheus	S/1980 S27	139400	0.000	0.002	212.8	0.0	335.7	0.613	15.5		100	1980
XVII	Pandora	S/1980 S26	141700	0.000	0.004	68.2	0.0	13.9	0.629	16		84	1980
XI	Epimetheus	S/1980 S3	151400	0.335	0.021	100.9	335.0	56.0	0.69	15		119	1980
X	Janus	S/1980 S1	151500	0.165	0.007	27.9	303.8	236.5	0.70	14		178	1980
I	Mimas		185600	1.566	0.021	322.9	177.5	100.2	0.94	12.5		397	1789
XXXII	Methone	S/2004 S1	194000	0.000	0.000	00.0	000.0	000.0	1.01	25		3	2004
XXXIII	Pallene	S/2004 S2	211000	0.000	0.000	00.0	000.0	000.0	1.14	25		4	2004
II	Enceladus		238100	0.010	0.000	334.7	137.1	162.0	1.37	11.5		499	1789
XIII	Telesto	S/1980 S13	294700	1.158	0.001	80.7	126.1	7.9	1.89	18		24	1980
III	Tethys		294700	0.168	0.000	149.2	149.2	28.8	1.89	10		1060	1684
XIV	Calypso	S/1980 S25	294700	1.473	0.001	43.6	209.2	201.8	1.89	18.5		19	1980
IV	Dione		377400	0.002	0.000	174.0	57.7	109.2	2.74	10		1118	1684
XII	Helene	S/1980 S6	377400	0.212	0.000	80.4	10.2	10.0	2.74	18		32	1980
XXXIV	Polydeuces	S/2004 S5	377400	0.000	0.000	00.0	000.0	000.0	2.74	25		4	2004
End of Outer most Ring (E)			480000										
V	Rhea		527100	0.327	0.001	205.9	1.095	238.7	4.518	9		1528	1672
VI	Titan		1221900	1.634	0.029	172.7	44.05	192.1	15.95	8		5150	1655
VII	Hyperion		1464100	0.568	0.018	262.1	273.9	52.96	21.28	14		266	1848
VIII	Iapetus		3560800	7.570	0.028	275.9	75.58	350.3	79.33	10.5		1436	1671
<b>Irregular Groups</b>													
XXIV	Kiviuq	S/2000 S5	11110000	46.16	0.334	82.87	359.5	221.2	449.2	22.0		16	2000
XXII	Ijiraq	S/2000 S6	11125000	46.74	0.322	85.46	136.4	64.55	451.5	22.6		12	2000
IX	Phoebe		12944300	174.8	0.164	337.5	237.1	174.6	548.2	16		240	1898
XX	Paaliaq	S/2000 S2	15200000	45.13	0.364	238.3	327.2	352.0	686.9	21.3		22	2000
XXVII	Skathi	S/2000 S8	15539000	152.7	0.270	201.8	284.0	144.6	728.2	23.6		8	2000
XXVI	Albiorix	S/2000 S11	16182000	33.98	0.478	55.48	102.3	58.72	783.5	20.5		32	2000
XXVIII	Erriapo	S/2000 S10	17342000	34.45	0.474	282.1	150.8	323.2	871.2	23.0		10	2000
XXIX	Siarnaq	S/2000 S3	17531000	45.56	0.295	65.44	47.09	224.6	895.6	20.1		40	2000
XXI	Tarvos	S/2000 S4	17982000	33.51	0.536	273.5	102.9	283.6	926.1	22.1		15	2000
XXV	Mundilfari	S/2000 S9	18418000	167.5	0.208	310.1	83.51	108.3	951.6	23.8		7	2000
XXXI	Narvi	S/2003 S1	19007000	145.8	0.431	178.5	182.3	203.7	1003.9	23.8		7	2003
XXIII	Suttungr	S/2000 S12	19459000	175.8	0.114	35.73	228.4	340.1	1016.7	23.9		7	2000
XXX	Thrymr	S/2000 S7	19941000	176.0	0.471	63.45	223.9	18.03	1094.3	23.9		7	2000
XIX	Ymir	S/2000 S1	23041000	173.1	0.335	22.58	194.0	244.1	1315.4	21.7		18	2000
<b>New Satellites announced in 2005 and yet to be named</b>													
		S/2004 S07	19800000	165.1	0.580	00.00	000.0	000.0	1103	24.5		6	2004
		S/2004 S08	22200000	168.0	0.213	00.00	000.0	000.0	1355	24.6		6	2004
		S/2004 S09	19800000	157.6	0.235	00.00	000.0	000.0	1077	24.7		5	2004
		S/2004 S10	19350000	167.0	0.241	00.00	000.0	000.0	1026	24.4		6	2004
		S/2004 S11	16950000	41.0	0.336	00.00	000.0	000.0	822	24.1		6	2004
		S/2004 S12	19650000	164.0	0.401	00.00	000.0	000.0	1048	24.8		5	2004
		S/2004 S13	18450000	167.4	0.273	00.00	000.0	000.0	906	24.5		6	2004
		S/2004 S14	19950000	162.7	0.292	00.00	000.0	000.0	1081	24.4		6	2004
		S/2004 S15	18750000	156.9	0.180	00.00	000.0	000.0	1008	24.2		6	2004
		S/2004 S16	22200000	163.0	0.135	00.00	000.0	000.0	1271	25.0		4	2004
		S/2004 S17	18600000	166.6	0.259	00.00	000.0	000.0	986	25.2		4	2004
		S/2004 S18	19650000	147.4	0.795	00.00	000.0	000.0	1052	23.8		7	2004
<b>New Satellites announced in 2006 and yet to be named</b>													
		S/2004 S19	18217125	153.3	0.360	00.00	000.0	000.0	912	23.5		8	2004
		S/2006 S1	18981135	154.2	0.130	00.00	000.0	000.0	970	24.6		6	2006
		S/2006 S2	22350000	148.4	0.341	00.00	000.0	000.0	1245	23.9		7	2006
		S/2006 S3	21132000	150.8	0.471	00.00	000.0	000.0	1142	24.6		6	2006
		S/2006 S4	18105000	172.7	0.374	00.00	000.0	000.0	905	24.4		6	2006
		S/2006 S5	23190000	166.5	0.139	00.00	000.0	000.0	1314	24.6		6	2006
		S/2006 S6	18600000	162.9	0.192	00.00	000.0	000.0	942	24.7		6	2006
		S/2006 S7	22290000	166.9	0.368	00.00	000.0	000.0	1237	24.8		6	2006
		S/2006 S8	17610000	155.6	0.418	00.00	000.0	000.0	869	24.5		6	2006

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 Peri - The argument of Periaphis.  
 Node - The longitude of the ascending node.  
 M - The mean anomaly.  
 Period - The time of one revolution around Saturn  
 mag - The optical magnitude of the object (R-band).  
 H - The absolute magnitude of the object.  
 Size - The diameter of the object.  
 Year - The year of discovery.

**Urano**

Name			a (km)	i (deg)	e	Peri (deg)	Node (deg)	M (deg)	Period (days)	mag	H (mag)	Size (km)	Year
<b>Regular Satellites</b>													
VI	Cordelia	S/1986 U7	49800	0.085	0.000	136.8	38.4	254.8	0.335	23.1		40	1986
VII	Ophelia	S/1986 U8	53800	0.104	0.010	17.8	164.0	116.3	0.376	22.8		42	1986
VIII	Bianca	S/1986 U9	59200	0.193	0.001	8.3	93.2	138.5	0.435	22.0		51	1986
IX	Cressida	S/1986 U3	61800	0.006	0.000	44.2	99.4	233.8	0.464	21.1		80	1986
X	Desdemona	S/1986 U6	62700	0.113	0.000	183.2	306.1	184.6	0.474	21.5		64	1986
XI	Juliet	S/1986 U2	64400	0.065	0.001	223.8	200.2	244.7	0.493	20.6		93	1986
XII	Portia	S/1986 U1	66100	0.059	0.000	222.4	260.1	218.3	0.513	19.9		135	1986
XIII	Rosalind	S/1980 S6	69900	0.279	0.000	140.5	12.8	136.1	0.558	21.3		72	1986
XXVII	Cupid	S/2003 U2	74800	0.000	0.000	000.0	000.0	000.0	0.000	26		10	2003
XIV	Belinda	S/1986 U5	75300	0.031	0.000	42.4	279.3	357.2	0.624	21.0		80	1986
XXV	Perdita	S/1986 U10	76420	0.000	0.000	00.0	000.0	000.0	0.638	24.0		20	1986
XV	Puck	S/1985 U1	86000	0.319	0.000	177.1	268.7	245.8	0.762	19.2		162	1985
XXVI	Mab	S/2003 U1	97734	0.000	0.000	000.0	000.0	000.0	0.000	26		10	2003
V	Miranda		129900	4.338	0.001	68.3	326.4	311.3	1.41	15.3		471	1948
I	Ariel		190900	0.041	0.001	151.3	22.4	39.5	2.52	13.2		1158	1851
II	Umbriel		266000	0.128	0.004	84.7	33.5	12.5	4.14	14.0		1169	1851
III	Titania		436300	0.079	0.001	284.4	99.8	24.6	8.71	13.0		1578	1787
IV	Oberon		583500	0.068	0.001	104.4	279.8	283.1	13.46	13.2		1522	1787
<b>Irregular Groups</b>													
XXII	Francisco	S/2001 U3	4276000	145.2	0.146	124.7	93.1	90.9	266.6	25.0		22	2001
XVI	Caliban	S/1997 U1	7231000	140.9	0.159	342.6	163.5	163.1	579.7	22.4		72	1997
XX	Stephano	S/1999 U2	8004000	144.1	0.229	19.0	188.1	82.2	677.4	24.1		32	1999
XXI	Trinculo	S/2001 U1	8504000	167.1	0.220	159.8	194.9	22.3	759.0	25.4		18	2001
XVII	Sycorax	S/1997 U2	12179000	159.4	0.522	19.9	260.9	170.2	1288.3	20.8		150	1997
XXIII	Margaret	S/2003 U3	14345000	56.6	0.661	89.4	3.5	322.4	1694.8	25.2		20	2003
XVIII	Prospero	S/1999 U3	16256000	152.0	0.445	175.6	316.8	180.9	1977.3	23.2		50	1999
XIX	Setebos	S/1999 U1	17418000	158.2	0.591	1.5	247.6	126.4	2234.8	23.3		47	1999
XXIV	Ferdinand	S/2001 U2	20901000	169.8	0.368	159.6	216.4	234.5	2823.4	25.1		21	2003

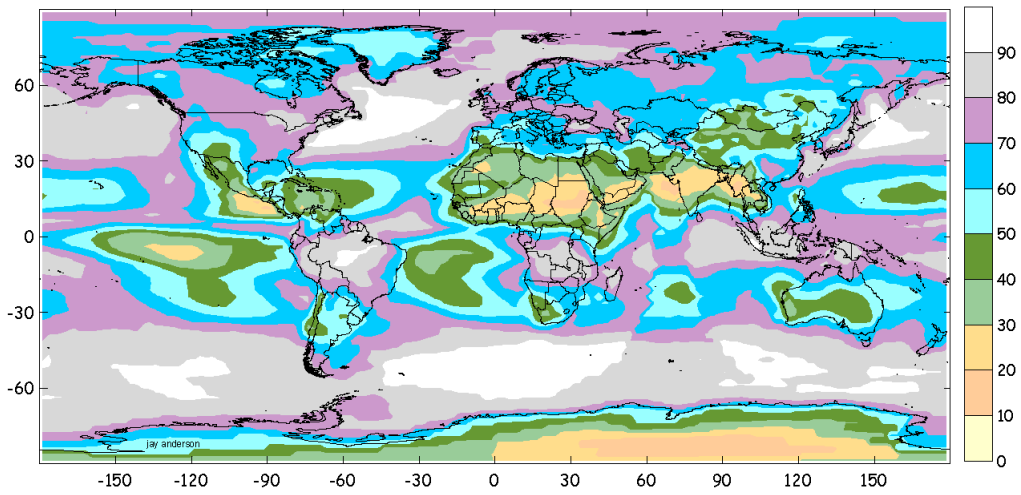
a - The mean semi-major axis.  
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Peri - The argument of Pariaphis.  
Node - The longitude of the ascending node.  
M - The mean anomaly.  
Period - The time of one revolution around Uranus.  
mag - The optical magnitude of the object (R-band).  
H - The absolute magnitude of the object.  
Size - The diameter of the object.  
Year - The year of discovery.

**Nettuno**

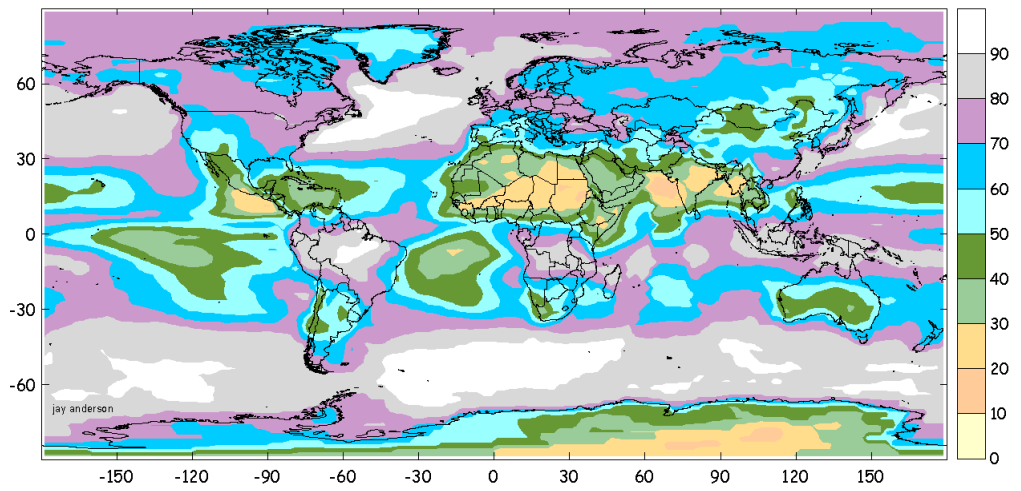
Name			a (km)	i (deg)	e	Peri (deg)	Node (deg)	M (deg)	Period (days)	mag	H (mag)	Size (km)	Year
<b>Regular Satellites</b>													
III	Naiad	S/1989 N6	48200	4.74	0.000	36.7	49.0	334.9	0.294	24.1		58	1989
IV	Thalassa	S/1989 N5	50100	0.205	0.000	316.3	90.2	193.6	0.311	23.4		80	1989
V	Despina	S/1989 N3	52500	0.065	0.000	331.1	154.9	319.6	0.335	22.0		148	1989
VI	Galatea	S/1989 N4	62000	0.054	0.000	107.4	112.5	187.1	0.429	22.0		158	1989
VII	Larissa	S/1989 N2	73500	0.201	0.001	139.9	10.3	34.9	0.555	21.5		192	1989
VIII	Proteus	S/1989 N1	117600	0.039	0.000	309.5	150.3	114.2	1.122	20.0		416	1989
<b>Irregular Groups</b>													
I	Triton		354800	156.8	0.000	344.0	172.4	264.8	5.88	13.0		2706	1846
II	Nereid		5513400	7.23	0.751	280.8	334.8	359.3	360.1	19.2		340	1949
		S/2002 N1	15728000	134.1	0.571	159.5	202.7	96.8	1879.7	24.5		61	2002
		S/2002 N2	22422000	48.51	0.293	19.5	58.9	129.4	2914.1	25.4		40	2002
		S/2002 N3	23571000	34.74	0.424	138.0	53.5	321.1	3167.9	25.4		40	2002
X	Psamathe	S/2003 N1	46695000	137.4	0.450	145.9	301.0	206.2	9115.9	25.6		38	2003
		S/2002 N4	48387000	132.6	0.495	89.3	49.9	269.8	9374.0	24.6		60	2002

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Peri - The argument of Pariaphis.  
Node - The longitude of the ascending node.  
M - The mean anomaly.  
Period - The time of one revolution around Neptune.  
mag - The optical magnitude of the object (R-band).  
H - The absolute magnitude of the object.  
Size - The diameter of the object.  
Year - The year of discovery.

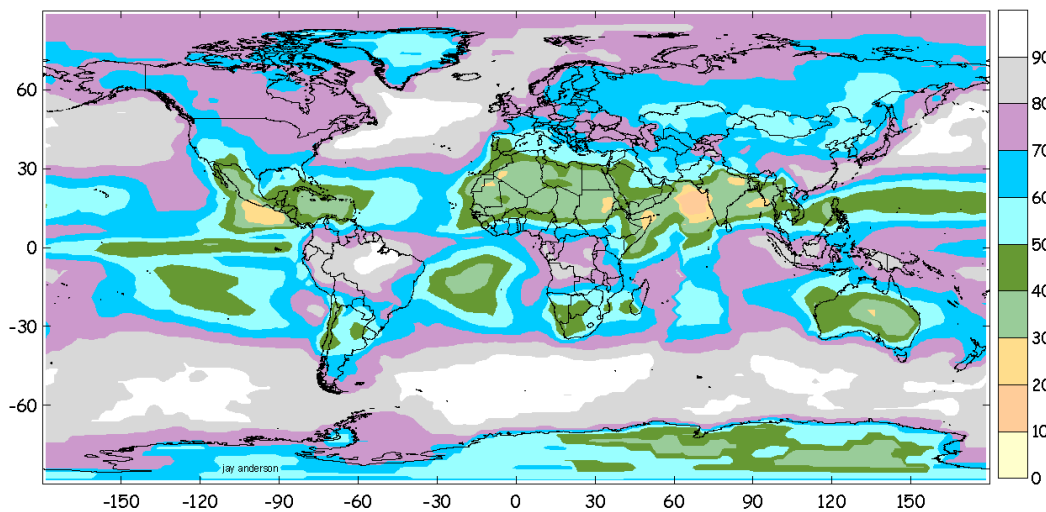
# COPERTURA NUVOLOSA MEDIA



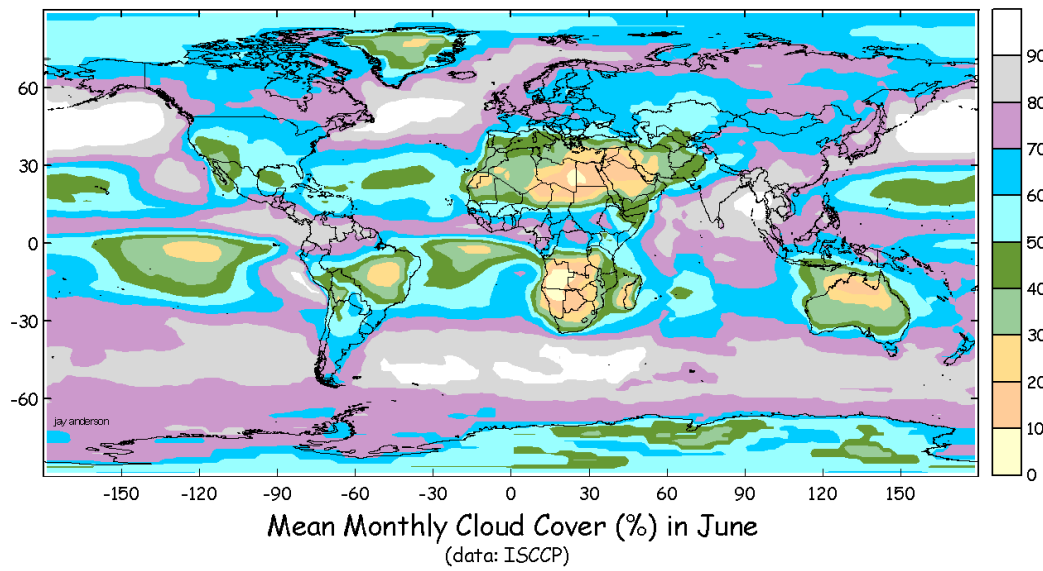
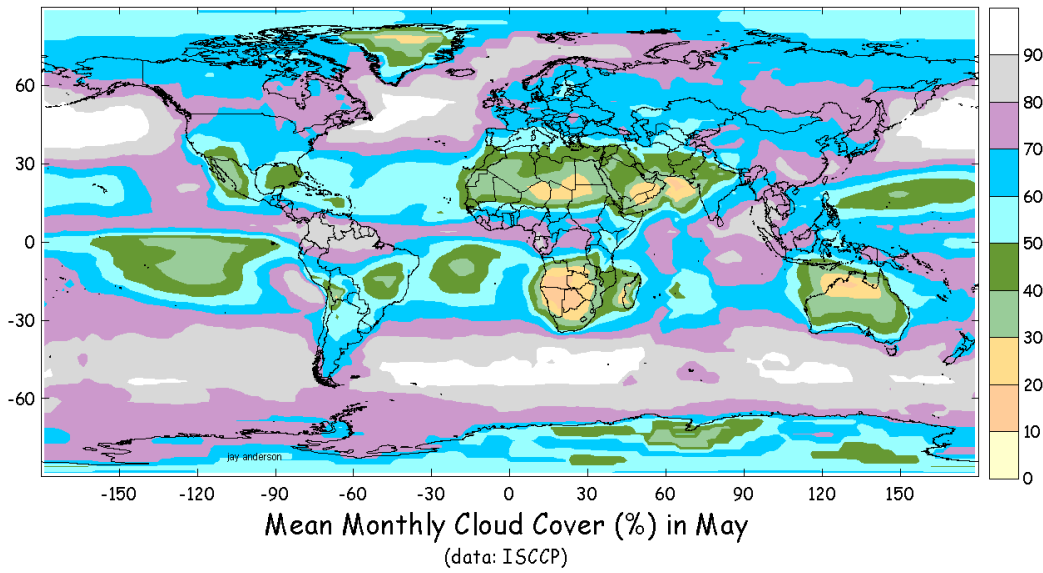
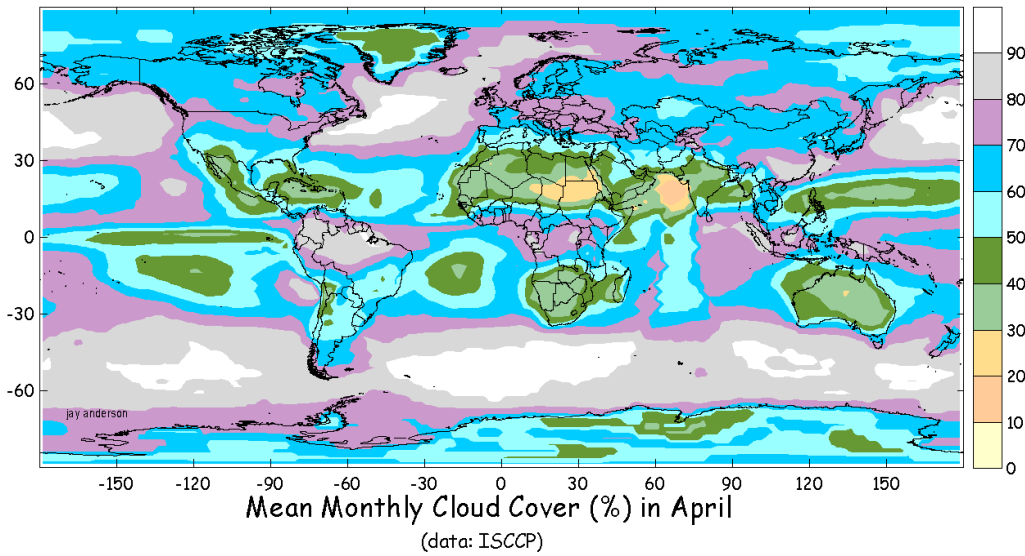
Mean Monthly Cloud Cover (%) in January  
(data: ISCCP)



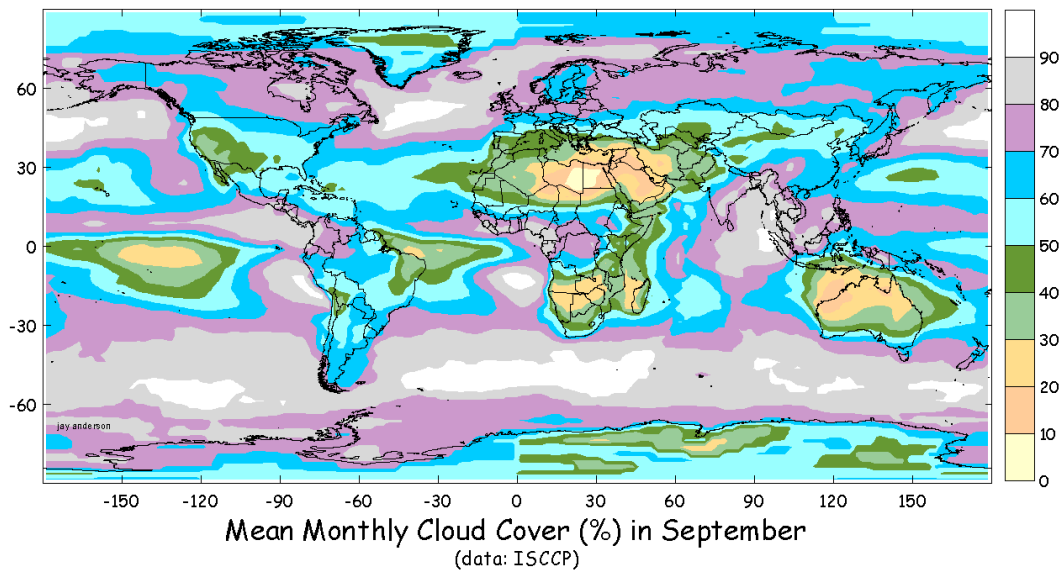
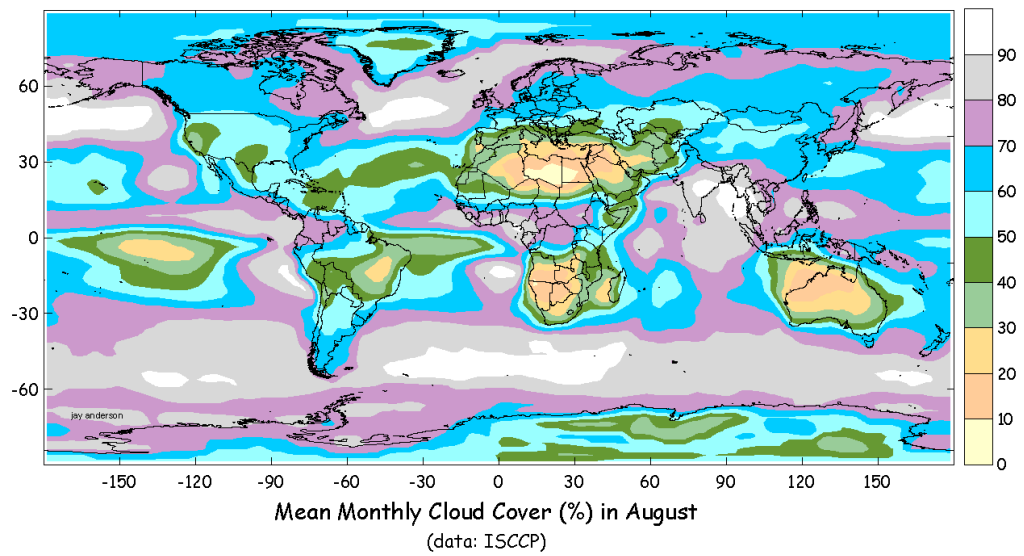
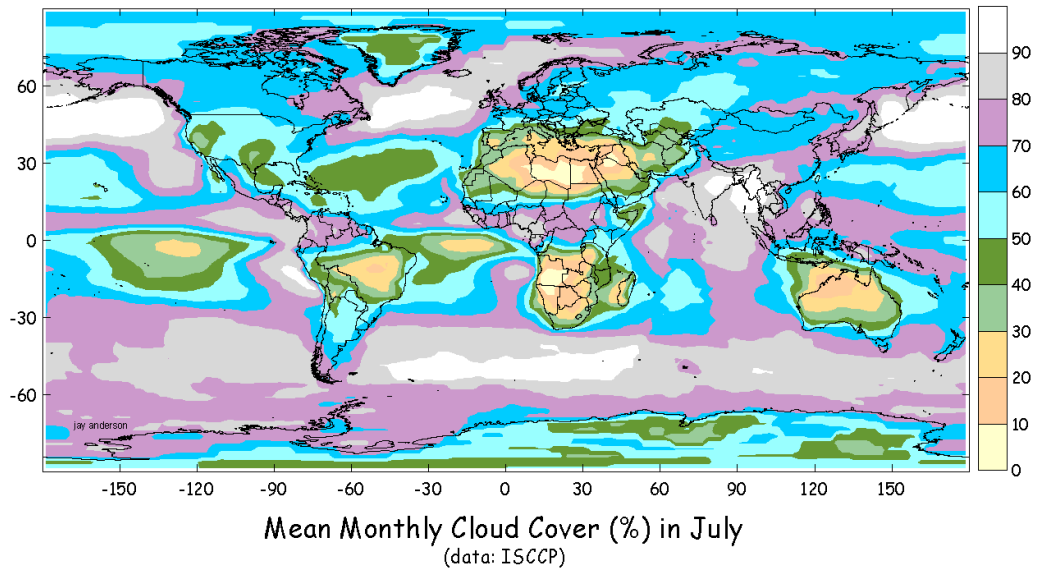
Mean Monthly Cloud Cover (%) in February  
(data: ISCCP)

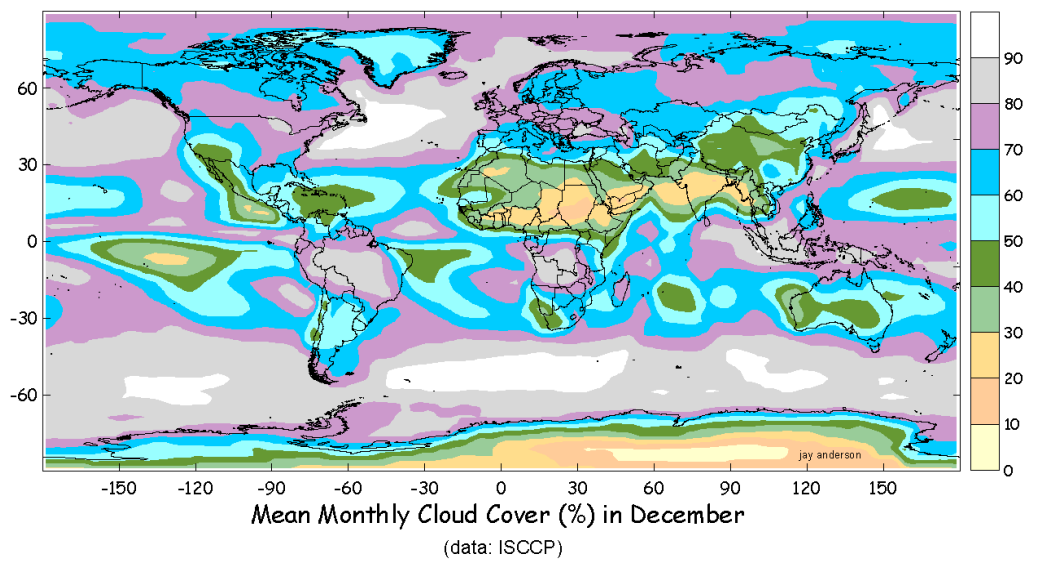
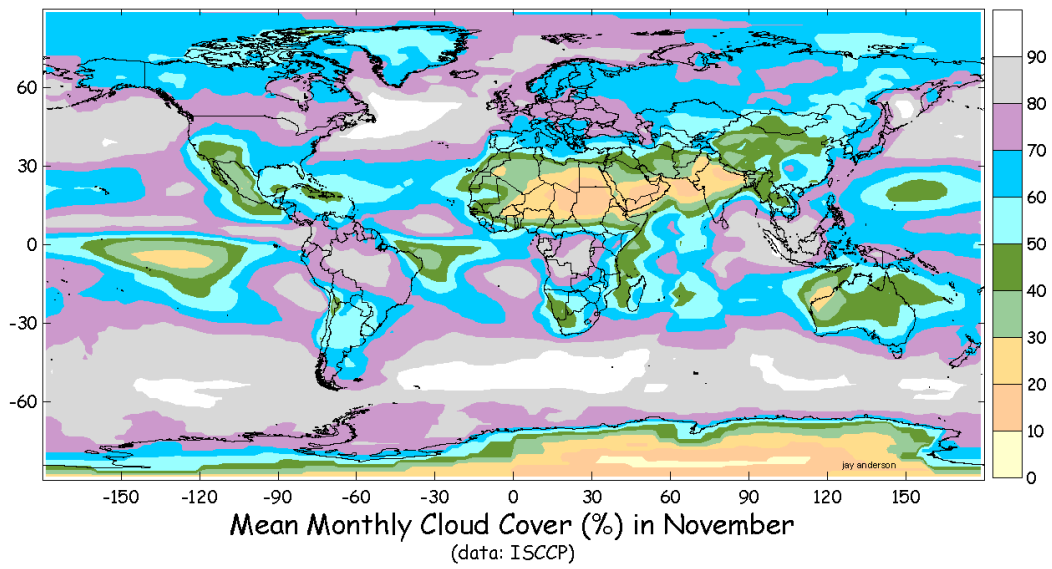
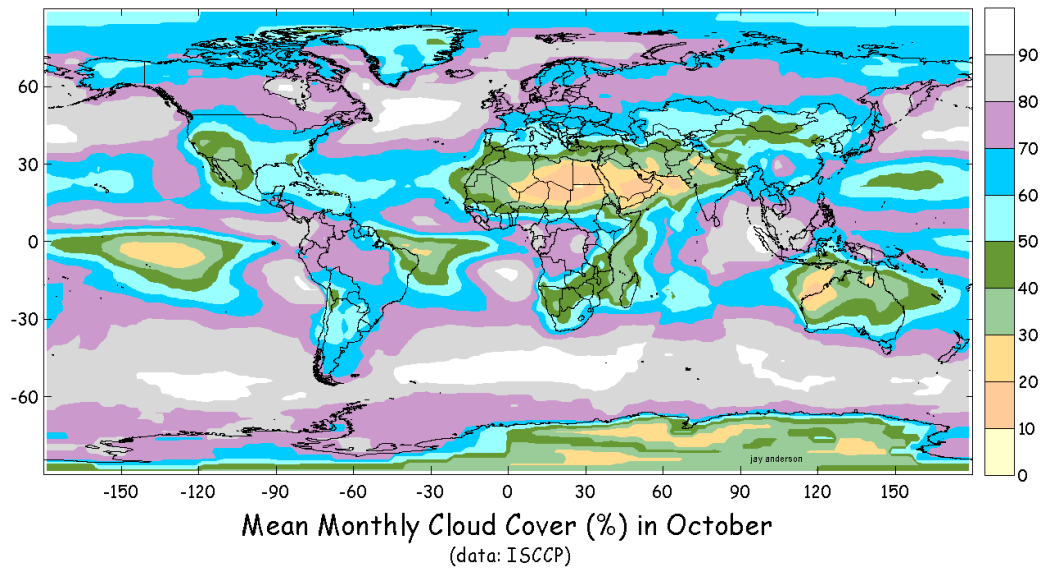


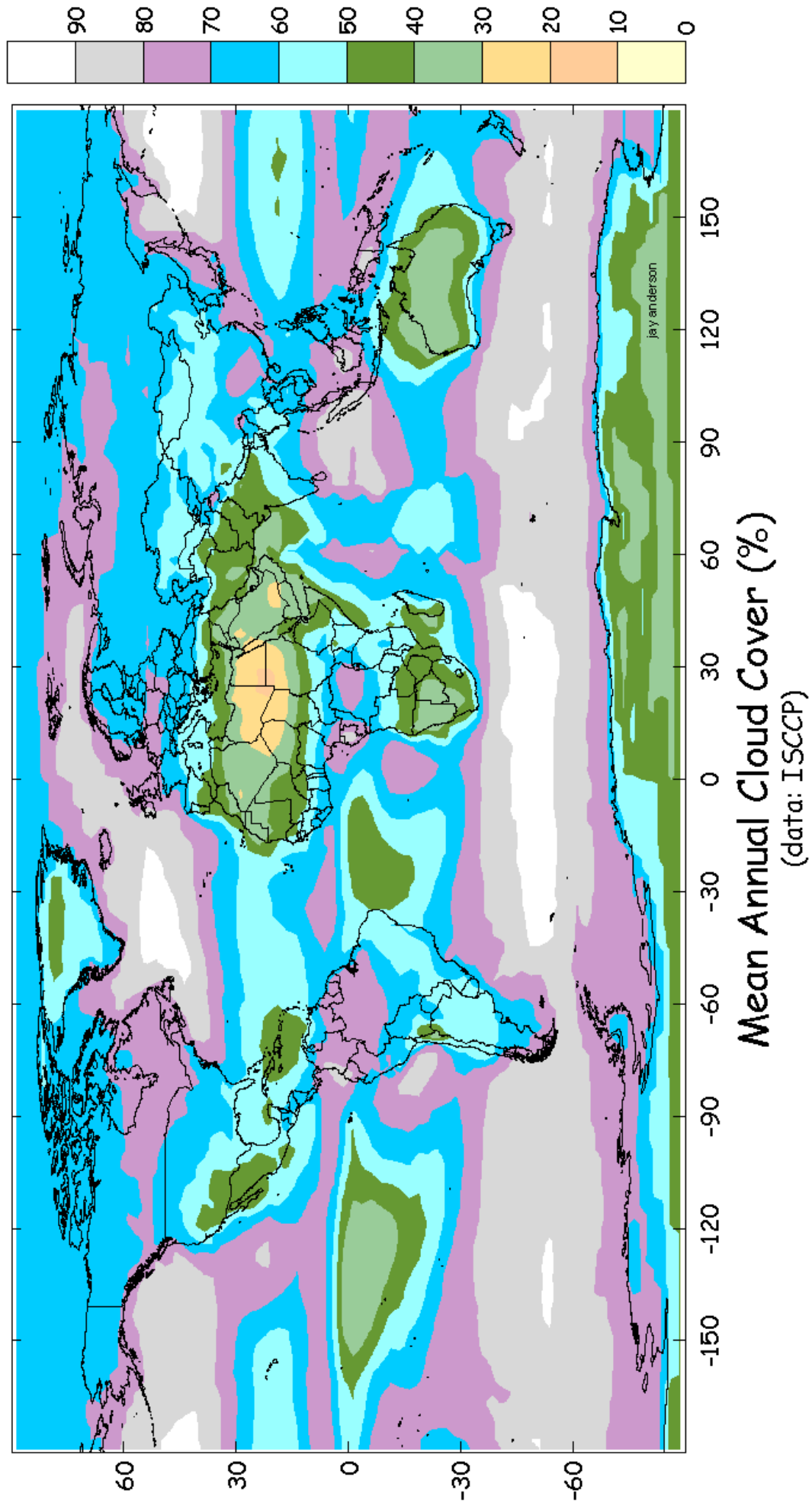
Mean Monthly Cloud Cover (%) in March  
(data: ISCCP)











# 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.

**Alumcàntarat** - 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 apsi). 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** - Branchia 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.

**Draconico** - 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.

**Galileani, 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' piu' 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, eclittico, 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 piu' 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** - Unità 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, anziché mantenere una direzione fissa nello spazio.

**Occultazione** - Fenomeno astronomico che si verifica allorché 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.

**Paralelo** - 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 ravvicinata.

**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 basata 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](http://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>

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