

Auréas / Francis Santoni

**THE NEW  
INTERNATIONAL  
EPHEMERIDES  
1900-2050  
0h TDT**

*INTERNATIONAL EDITION*

**English - Français - Deutsch - Español - Italiano**



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## GENERAL CONCEPT

The planetary data in this ephemeris were obtained from the state-of-the-art DE200/LE200 ephemerides of the US Naval Observatory.

### Longitudes

The initial data were computed for the barycenter of the solar system and then converted to apparent geocentric positions, with corrections for speed of light, aberration, precession, and nutation taken into account. The Moon's true Node and the true Lunar Apogee (Black Moon) were computed from the osculating elements of the Moon's positions. The extremely accurate figures thus obtained for all the positions were then rounded to the nearest minute (second for Sun and Moon).

### Aspectarian

The Direct and Retrograde station times of the planets were very carefully calculated. The method of computing the stations when planetary motion is at a minimum was rejected as theoretical and not in accordance with actual practice. We prefer direct observation: planets become Direct or Retrograde when their apparent longitude changes direction.

## THE DELTA T ( $\Delta T$ ) TIME CORRECTION

Without Delta T factored into calculation, the ephemeris gives accuracy to within one minute. Should greater precision be desired, the Delta T time correction is needed.

$\Delta T$  time values cannot be known with full accuracy in advance. In this ephemeris, the values from January 2010 to January 2013 (+77 seconds) are somewhat reliable estimates, and beyond that date  $\Delta T$  is not indicated.

### Some definitions

*Universal Time* (UT, often still called Greenwich Mean Time or GMT) is standard clock time at Greenwich. *Terrestrial Dynamic Time* (TDT, formerly Ephemeris Time or ET) is the time standard used in this ephemeris. The  $\Delta T$  correction is the difference between UT and TDT:

$$\Delta T = TDT - UT$$

### How to set up a chart using the $\Delta T$ correction

If it is deemed necessary to use the  $\Delta T$  correction, first calculate UT from local time and then:

- 1) Look up the Sidereal Time for 0 hours UT. No correction is yet needed. Use it to calculate the Ascendant.
- 2) Compute Dynamic Time with the formula:

$$TDT = UT + \Delta T$$

3) Calculate the planetary positions with TDT.

### **How to set up a chart using for an astronomical phenomenon** (Solar Return, New Moon, Equinox, for example)

1) Calculate planetary positions directly.

2) Calculate UT with the formula:

$$UT = TDT - \Delta T$$

3) Use this UT to compute Sidereal Time and the Ascendant.

## **DEFINITION OF THE DATA**

All positions in this ephemeris are computed in Terrestrial Dynamic Time (TDT, formerly Ephemeris Time or ET) and are referenced to the tropical vernal point and tropical zodiac.

### **1 — Eclipses section**

Eclipses are clearly shown at the top of the page with their dates, hours and minutes, their longitudes and intensities (i.e. magnitudes).

The magnitude of a lunar eclipse is based on the fraction of the lunar diameter obscured by the shadow of the Earth at greatest obscuration. The time given for an eclipse is the Terrestrial Dynamic Time (TDT) of greatest obscuration. The position given for an eclipse is the longitude for the corresponding New Moon or Full Moon.

**Solar Eclipses** are of three types:

– *Total* when the Moon completely covers the Sun. The Moon appears larger than the Sun from the Earth.

– *Annular* when the Moon covers the Sun, but the Moon appears smaller than the Sun from the Earth, so that a ring of light surrounds the Moon.

– *Partial* when the Moon only partially covers the Sun.

**Lunar Eclipses** are also of three types:

– *Total* when the Moon is completely immersed in the Earth's umbral shadow.

– *Partial* when the Moon is only partially immersed in the Earth's umbral shadow.

– *Penumbral* when the Moon enters the Earth's penumbral shadow but does not enter the umbral shadow.

### **2 — Sidereal Time and longitudes section**

**Sidereal Time (S.T.)** is indicated for each day at 0h UT, being the mean Sidereal Time at Greenwich. It quantifies the angular separation between the Meridian of Greenwich and 0° Aries in the Tropical Zodiac at the indicated time. It is presented in hours, minutes, and seconds.

**Longitudes** are given daily for 0 hours Terrestrial Dynamic Time. Positions of the Sun and Moon are given in *minutes and seconds*; positions from Mercury to Pluto in *minutes* of arc.

**Lunar Nodes** and **Black Moon**: in addition to the North-South Lunar Node axis, there are other significant axes in the Moon's orbit:

- 1) The Lunar Apogee,
- 2) The second focus of the Moon's instantaneous ellipse, or the "*Black Moon*",
- 3) The Earth,
- 4) The Lunar Perigee (opposite the Lunar Apogee).

The longitudes of the Lunar Apogee given in this ephemeris equate with those of the "Black Moon" used in French and Mediterranean astrology. It should be emphasized that this is *not* the "Black Moon Lilith", an historically posited second satellite of the Earth moving 28 times faster, once popularized in Britain.

In giving the position of the Lunar Apogee, this ephemeris thus gives the Black Moon position. The True Black Moon has been computed with the latest equations of astronomers specializing in the lunar orbit.

The True positions are those computed for the Moon's instantaneous orbit from the osculating elements. The Mean positions are those of the theoretical mean orbit.

**Direct and Retrograde**: whenever a planet, the True Lunar Node or the True Black Moon in the zodiac changes direction from the Direct to the Retrograde, an "**R**" appears in the corresponding column on the day of the change. When it becomes Direct again, a "**D**" appears.

### **3 — Data for the first of the month section (DATA for...)**

For the first of each month, in the box on the lower right we find:

**Day**: gives the day number where 1 = 1<sup>st</sup> January 1900):

This information is useful for quickly finding the number of days elapsed between two given dates. For example, the number of days between 1<sup>st</sup> January 2000 and 1<sup>st</sup> January 1950:  $36525 - 18263 = 18262$  days.

**SVP and Ayanamsa** (Tropical and Sidereal Zodiacs):

Affected by the precession of the equinoxes, the tropical zodiac, beginning at tropical 0° Aries or Vernal Point, moves about one degree every 72 years in relation to the apparently fixed stars that make up the sidereal zodiac.

The *Sidereal Vernal Point* (SVP) is the longitude in the sidereal zodiac of tropical 0° Aries as determined partly by empirical research and partly by the archaeological research of the Fagan-Bradley School of Western Sidereal Astrology. This system defines a sidereal zodiac which equates an historical longitude of the star Aldebaran with 15° 0' 0" Taurus. In this system, the two zodiacs coincided in 221 A.D.

Its definition is:  $SVP = 5^\circ 57' 29'' \text{ Pisces} - \text{Precession in longitude} - \text{Nutation since January 1}^{\text{st}} 1950.$

To obtain the sidereal longitude using the SVP, add 360° to the longitude in the ephemeris and subtract the SVP.

The *True Ayanamsa* is the longitude of sidereal 0° Aries (Vernal Point) in the tropical zodiac. It equates an historical longitude of the star Spica with 0° 0' 0" Libra in the tropical zodiac. In this system, the two zodiacs coincided in 285 A.D.

Its definition is:  $True\ Ayanamsa = 22^\circ\ 27'\ 38'' + Precession\ in\ longitude + Nutation\ since\ January\ 1^{st}\ 1900.$

To obtain the sidereal longitude using the Ayanamsa, subtract the Ayanamsa from the longitude in the ephemeris.

**Chiron** has been classified both as an asteroid (#2060) and as a comet (95P/Chiron). Orbiting between Saturn and Uranus, its full orbital period is of about 51 years. In addition, it is classified as a “Centaur”, i.e. one of the many often icy-surfaced asteroids orbiting between Jupiter and Neptune.

**Delta T:** The time we subtract from Universal Time before calculating the planetary position (if greater accuracy is required).

#### 4 — Ingress and Stations section (Aspectarian)

The days, hours and minutes of astronomical phenomena are given in Terrestrial Dynamic Time (TDT).

A planetary **ingress** is the hour and minute when a planet enters a new zodiacal sign. Ingresses are represented by the planet symbol followed by the sign it is entering. For example, the time the Sun enters Aries (which is the Spring Equinox) figures as: ☉ ♈.

An “**R**” appears in the aspectarian whenever a planet’s longitude is changing from Direct (increasing) to Retrograde (decreasing). The planet is then said to be stationary Retrograde.

A “**D**” appears in the aspectarian whenever a planet’s longitude is changing from Retrograde (decreasing) to Direct (increasing). The planet is then said to be stationary Direct.

Times of Direct and Retrograde stationary positions were calculated with special attention to the actual time when their apparent movement changes, rather than by other methods used in other ephemerides.

#### 5 — Lunar phases section

For each month, you will find a box on the lower left with the hours, minutes, and longitudes of the 4 major lunar phases. These are defined as follows:

<i>Symbol</i>	<i>Name</i>	<i>Moon – Sun (longitude)</i>
●	New Moon	0°
☾	First Quarter	90°
○	Full Moon	180°
☽	Last Quarter	270°

EPHEMERIS

*ÉPHÉMÉRIDES*

EPHEMERIDEN

*EFEMÉRIDES*

EFFEMERIDI



	<b>English</b>	<b>Français</b>	<b>Deutsch</b>	<b>Español</b>	<b>Italiano</b>
♈	<i>Aries</i>	Bélier	<i>Widder</i>	Aries	<i>Ariete</i>
♉	<i>Taurus</i>	Taureau	<i>Stier</i>	Tauro	<i>Toro</i>
♊	<i>Gemini</i>	Gémeaux	<i>Zwillinge</i>	Géminis	<i>Gemelli</i>
♋	<i>Cancer</i>	Cancer	<i>Krebs</i>	Cáncer	<i>Cancro</i>
♌	<i>Leo</i>	Lion	<i>Löwe</i>	Leo	<i>Leone</i>
♍	<i>Virgo</i>	Vierge	<i>Jungfrau</i>	Virgo	<i>Vergine</i>
♎	<i>Libra</i>	Balance	<i>Waage</i>	Libra	<i>Bilancia</i>
♏	<i>Scorpio</i>	Scorpion	<i>Skorpion</i>	Escorpio	<i>Scorpione</i>
♐	<i>Sagittarius</i>	Sagittaire	<i>Schütze</i>	Sagitario	<i>Sagittario</i>
♑	<i>Capricorn</i>	Capricorne	<i>Steinbock</i>	Capricornio	<i>Capricorno</i>
♒	<i>Aquarius</i>	Verseau	<i>Wasserman</i>	Acuario	<i>Acquario</i>
♓	<i>Pisces</i>	Poissons	<i>Fische</i>	Piscis	<i>Pesci</i>
S.T.	<i>Sidereal Time</i>	Temps Sidéral	<i>Sternzeit</i>	Tiempo Sideral	<i>Tempo Siderale</i>
☉	<i>Sun</i>	Soleil	<i>Sonne</i>	Sol	<i>Sole</i>
☾	<i>Moon</i>	Lune	<i>Mond</i>	Luna	<i>Luna</i>
☿	<i>Mercury</i>	Mercure	<i>Merkur</i>	Mercurio	<i>Mercurio</i>
♀	<i>Venus</i>	Vénus	<i>Venus</i>	Venus	<i>Venere</i>
♂	<i>Mars</i>	Mars	<i>Mars</i>	Marte	<i>Marte</i>
♃	<i>Jupiter</i>	Jupiter	<i>Jupiter</i>	Júpiter	<i>Giove</i>
♄	<i>Saturn</i>	Saturne	<i>Saturn</i>	Saturno	<i>Saturno</i>
♅	<i>Uranus</i>	Uranus	<i>Uranus</i>	Urano	<i>Urano</i>
♆	<i>Neptune</i>	Neptune	<i>Neptun</i>	Neptuno	<i>Nettuno</i>
♇	<i>Pluto</i>	Pluton	<i>Pluto</i>	Plutón	<i>Plutone</i>
♁	<i>Lunar Node :</i>	Noeud lunaire :	<i>Mondknoten :</i>	Nodo Lunar :	<i>Nodo Lunare :</i>
- True	- True	- Vrai	- Wahr	- Verdadero	- Vero
- Mean	- Mean	- Moyen	- Mittlerer	- Medio	- Medio
☾	<i>Black Moon :</i>	Lune Noire :	<i>Schwarzer Mond :</i>	Luna Negra :	<i>Luna Nera :</i>
- True	- True	- Vraie	- Wahr	- Verdadera	- Vera
- Mean	- Mean	- Moyenne	- Mittlerer	- Media	- Media
♁	<i>Chiron</i>	Chiron	<i>Chiron</i>	Quirón	<i>Chirone</i>
Phases	<i>Lunar phases</i>	Phases lunaires	<i>Mondphasen</i>	Fases lunares	<i>Fasi lunari</i>
●	<i>New Moon</i>	Nouvelle Lune	<i>Neumond</i>	Luna Nueva	<i>Luna Nuova</i>
◐	<i>First Quarter</i>	Premier Quartier	<i>Zunehmender Mond</i>	Cuarto Creciente	<i>Primo Quarto</i>
◑	<i>Full Moon</i>	Pleine Lune	<i>Vollmond</i>	Luna Llena	<i>Luna Piena</i>
◓	<i>Last Quarter</i>	Dernier Quartier	<i>Abnehmender Mond</i>	Cuarto Menguante	<i>Ultimo Quarto</i>
°	<i>Degrees</i>	Degrés	<i>Graden</i>	Grados	<i>Gradi</i>
'	<i>Minutes of arc</i>	Minutes d'arc	<i>Bogenminuten</i>	Minutos de arco	<i>Minuti d'arco</i>
"	<i>Seconds of arc</i>	Secondes d'arc	<i>Bogensekunden</i>	Segundos de arco	<i>Secondi d'arco</i>
h	<i>Hours</i>	Heures	<i>Stunden</i>	Horas	<i>Ore</i>
m	<i>Minutes</i>	Minutes	<i>Minuten</i>	Minutos	<i>Minuti</i>
s	<i>Seconds</i>	Secondes	<i>Sekunden</i>	Segundos	<i>Secondi</i>
D	<i>Direct station</i>	Station Directe	<i>Direkte Stellung</i>	Estación Directa	<i>Stazione Diretta</i>
R	<i>Retrograde station</i>	Station Rétrograde	<i>Rückläufige Stellung</i>	Estación Retrógrada	<i>Stazione Retrograda</i>
SVP	<i>Sidereal Vernal Point</i>	Point Vernal Sidéral	<i>Siderischer Frühlingspunkt</i>	Punto Vernal Sidereal	<i>Punto Vernale Siderale</i>
Day	<i>Day</i>	Jour	<i>Tag</i>	Día	<i>Giorno</i>
Su	<i>Sunday</i>	Dimanche	<i>Sonntag</i>	Domingo	<i>Domenica</i>
M	<i>Monday</i>	Lundi	<i>Montag</i>	Lunes	<i>Lunedì</i>
T	<i>Tuesday</i>	Mardi	<i>Dienstag</i>	Martes	<i>Martedì</i>
W	<i>Wednesday</i>	Mercredi	<i>Mittwoch</i>	Miércoles	<i>Miercoledì</i>
Th	<i>Thursday</i>	Jeudi	<i>Donnerstag</i>	Jueves	<i>Giovedì</i>
F	<i>Friday</i>	Vendredi	<i>Freitag</i>	Viernes	<i>Venerdì</i>
Sa	<i>Saturday</i>	Samedi	<i>Samstag</i>	Sábado	<i>Sabato</i>



# MARCH 2012

Day	S.T.	☉	☽	☿	♀	♂	♃	♅	♁	♂	♁	☾ True	☾ Mean	☾ True	☾ Mean	
	h m s	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	
Th 1	10 36 49	10 X 48 26	10 II 10 42	27 X 57	25 T 04	14 T R 47	07 0 02	29 Q R 05	03 T 11	00 X 59	09 V 08	09 / D 30	09 / R 48	10 0 R 08	08 0 16	
F 2	10 40 45	11 48 39	22 14 42	29 21 26	11 14 23	07 13 29	02 03 14	01 02 09	09 09 09	09 09 09	09 09 09	09 09 09	09 09 09	09 45 08	08 53 08	23 23
Sa 3	10 44 42	12 48 49	04 22 34	58 00 T 39	27 18 13	59 07 24	29 00 03	17 01 04	09 11 09	28 09 28	09 28 09	09 28 09	09 28 09	06 52 08	08 29 29	
Su 4	10 48 38	13 48 57	17 16 27	01 51 28	25 13 36	07 35 28	57 03 21	01 06 09	12 09 25	09 39 04	05 08 39	06 / D 30	06 / R 48	04 05 08	08 36 36	
M 5	10 52 35	14 49 04	00 Q 22 59	02 57 29	31 13 12	07 46 28	55 03 24	01 08 09	13 09 19	09 13 09	09 13 09	09 13 09	09 13 09	09 35 08	08 48 43	
T 6	10 56 32	15 49 08	13 56 34	03 54 00	0 0 37	12 48 07	57 28 52	03 27 01	11 09 14	09 10 09	09 10 09	09 10 09	09 10 09	09 32 07	08 50 50	
W 7	11 00 28	16 49 10	27 56 42	04 45 01	43 12 25	08 09 28	49 03 30	01 13 09	15 08 57	09 29 24	08 59 29	08 59 29	08 59 29	09 24 22	08 56 56	
Th 8	11 04 25	17 49 10	12 II 20 02	05 27 02	49 12 01	08 20 28	46 03 34	01 15 09	16 08 47	09 26 21	08 49 26	08 49 26	08 49 26	09 29 21	08 59 59	
F 9	11 08 21	18 49 08	27 00 26	06 01 03	55 11 38	08 32 28	44 03 37	01 17 09	17 08 36	09 23 20	08 36 23	08 36 23	08 36 23	09 23 20	09 10 10	
Sa 10	11 12 18	19 49 05	11 Q 49 54	06 25 05	00 11 08	43 28 41	03 40 01	01 19 09	18 08 25	09 20 18	08 25 20	08 25 20	08 25 20	09 18 31	09 16 16	
Su 11	11 16 14	20 48 59	26 39 51	06 42 06	05 10 52	08 55 28	37 03 44	01 22 09	19 08 18	09 18 09	08 18 09	08 18 09	08 18 09	09 16 16	09 23 23	
M 12	11 20 11	21 48 52	11 III 22 38	06 49 07	09 10 29	09 07 28	34 03 47	01 24 09	20 08 13	09 13 09	08 13 09	08 13 09	08 13 09	09 13 09	09 30 30	
T 13	11 24 07	22 48 44	25 52 44	06 R 47	08 14 10	07 09 19	28 31 03	01 26 09	21 08 11	09 21 08	08 11 09	08 11 09	08 11 09	09 13 09	09 36 36	
W 14	11 28 04	23 48 31	10 Q 06 09	06 37 09	18 09 45	09 31 28	28 03 54	01 28 09	22 08 10	09 07 11	08 11 09	08 11 09	08 11 09	09 11 09	09 43 43	
Th 15	11 32 01	24 48 23	24 02 24	06 19 10	22 09 23	09 43 28	24 03 57	01 30 09	23 08 10	09 04 11	08 10 09	08 10 09	08 10 09	09 11 09	09 50 50	
F 16	11 35 57	25 48 08	07 V 41 42	05 53 11	25 09 02	09 55 28	21 04 01	01 32 09	23 08 10	09 09 10	08 10 09	08 10 09	08 10 09	09 12 10	09 56 56	
Sa 17	11 39 54	26 47 53	21 01 19	05 21 12	29 08 41	10 07 28	17 04 04	01 34 09	24 08 08	08 08 08	08 08 08	08 08 08	08 08 08	09 12 10	09 56 56	
Su 18	11 43 50	27 47 36	04 X 14 50	04 42 13	31 08 21	10 20 28	14 04 08	01 36 09	25 08 03	08 08 08	08 08 08	08 08 08	08 08 08	09 15 15	10 10 10	
M 19	11 47 47	28 47 17	17 11 37	03 57 14	34 08 02	10 32 28	10 04 11	01 39 09	26 07 55	08 51 24	08 24 21	08 24 21	08 24 21	09 15 15	10 16 16	
T 20	11 51 43	29 46 56	29 56 42	03 09 15	36 07 42	10 44 28	06 04 14	01 41 09	26 07 45	08 48 29	08 29 34	08 29 34	08 29 34	09 16 16	10 23 23	
W 21	11 55 40	00 T 46 33	12 X 30 43	02 18 16	38 07 24	10 57 28	03 04 18	01 43 09	27 07 33	08 45 04	08 10 30	08 10 30	08 10 30	09 16 16	10 30 30	
Th 22	11 59 36	01 46 09	24 54 07	01 24 17	40 07 06	11 09 27	59 04 21	01 45 09	28 07 33	08 45 08	08 11 08	08 11 08	08 11 08	09 16 16	10 36 36	
F 23	12 03 33	02 45 42	07 T 07 22	00 T 30	18 41 06	49 11 22	55 04 25	01 47 09	28 07 33	08 45 08	08 11 08	08 11 08	08 11 08	09 16 16	10 43 43	
Sa 24	12 07 30	03 45 14	19 11 15	29 X 36	19 41 06	33 11 35	27 51 04	01 49 09	29 06 58	08 35 13	08 10 10	08 10 10	08 10 10	09 16 16	10 50 50	
Su 25	12 11 26	04 44 43	01 0 07 05	28 44 20	42 06 17	11 48 27	47 04 32	01 51 09	29 06 50	08 32 14	08 27 10	08 27 10	08 27 10	09 16 16	10 56 56	
M 26	12 15 23	05 44 10	12 56 59	27 54 21	42 06 02	12 00 27	43 04 35	01 53 09	30 06 44	08 29 15	08 34 11	08 34 11	08 34 11	09 16 16	11 03 03	
T 27	12 19 19	06 43 35	24 43 48	27 08 22	41 05 47	12 13 27	39 04 38	01 55 09	30 06 41	08 26 16	08 35 11	08 35 11	08 35 11	09 16 16	11 10 10	
W 28	12 23 16	07 42 58	06 II 31 14	26 25 23	40 05 34	12 26 27	35 04 42	01 57 09	31 06 40	08 22 17	08 31 11	08 31 11	08 31 11	09 16 16	11 17 17	
Th 29	12 27 12	08 42 19	18 23 42	25 47 24	39 05 21	12 39 27	30 04 45	01 59 09	31 06 41	08 19 16	08 16 11	08 16 11	08 16 11	09 16 16	11 23 23	
F 30	12 31 09	09 41 37	02 26 10	25 14 25	37 05 19	12 52 27	26 04 49	02 01 02	32 06 42	08 16 18	08 15 11	08 15 11	08 15 11	09 16 16	11 30 30	
Sa 31	12 35 05	10 T 40 53	10 22 36	24 X R 46	26 0 35	04 T R 47	13 0 02	02 X 48	04 T 52	08 X R 37	08 X R 13	08 X R 13	08 X R 13	09 16 16	11 37 37	

# APRIL 2012

Day	S.T.	☉	☽	☿	♀	♂	♃	♅	♁	♂	♁	☾ True	☾ Mean	☾ True	☾ Mean
	h m s	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
Su 1	12 39 02	11 T 40 07	25 22 08	24 X R 24	27 0 32	04 T R 47	13 0 19	27 Q R 18	04 T 55	02 X 04	09 V 32	06 / R 41	08 / R 10	16 0 R 52	11 0 43
M 2	12 42 59	12 39 18	08 Q 25 19	24 0 X R 24	28 28 04	37 13 32	27 13 04	05 59 02	02 06 09	09 V 33	06 38 08	06 38 08	06 38 08	08 06 14	11 50 50
T 3	12 46 55	13 38 27	21 56 40	23 57 29	25 04 28	13 45 27	09 05 02	02 08 09	09 33 06	33 06 33	08 03 12	08 03 12	08 03 12	09 11 57	11 57 57
W 4	12 50 52	14 37 34	05 II 57 14	23 51 00	II 20 40	13 59 27	04 05 06	02 10 09	33 06 33	06 36 08	00 09 11	00 09 11	00 09 11	12 03 03	12 03 03
Th 5	12 54 48	15 36 39	20 25 09	23 D 52	01 15 04	13 14 12	12 00 05	09 02 12	09 33 06	18 07 57	06 33 12	06 33 12	06 33 12	12 10 10	12 10 10
F 6	12 58 45	16 35 41	05 Q 15 21	23 58 02	09 04 06	14 25 26	55 05 12	02 13 09	33 06 10	07 54 04	06 33 12	06 33 12	06 33 12	12 10 10	12 17 17
Sa 7	13 02 41	17 34 41	20 19 54	24 09 03	03 04 00	14 39 26	51 05 16	02 15 09	33 06 03	07 51 02	05 25 12	05 25 12	05 25 12	12 23 23	12 23 23
Su 8	13 06 38	18 33 39	05 III 29 07	24 25 03	56 03 55	14 52 26	46 05 19	02 17 09	34 05 58	07 47 00	04 32 10	04 32 10	04 32 10	12 30 30	12 30 30
M 9	13 10 34	19 32 35	20 33 11	24 46 04	48 03 51	15 06 26	42 05 23	02 18 09	34 05 55	07 44 28	04 32 10	04 32 10	04 32 10	12 37 37	12 37 37
T 10	13 14 31	20 31 30	05 Q 23 43	25 11 05	40 03 47	15 20 26	37 05 26	02 20 09	34 05 54	07 41 26	04 32 10	04 32 10	04 32 10	12 43 43	12 43 43
W 11	13 18 27	21 30 23	19 54 52	25 41 06	31 03 45	15 33 26	33 05 29	02 22 09	R 34 05	D 55 07	38 24 00	38 24 00	38 24 00	12 50 50	12 50 50
Th 12	13 22 24	22 29 14	04 V 03 31	26 16 07	21 03 43	15 47 26	28 05 33	02 23 09	34 05 56	07 35 22	00 12 57	00 12 57	00 12 57	12 57 57	12 57 57
F 13	13 26 21	23 28 03	17 48 58	26 54 08	11 03 41	16 01 26	24 05 36	02 25 09	34 05 57	07 31 20	00 49 13	00 49 13	00 49 13	13 03 03	13 03 03
Sa 14	13 30 17	24 26 51	11 X 12 21	27 36 09	00 03 41	16 14 26	19 05 39	02 27 09	33 05 57	07 28 20	D 45 13	D 45 13	D 45 13	13 10 10	13 10 10
Su 15	13 34 14	25 25 37	14 15 47	28 21 09	48 03 18	05 25 42	06 05 42	02 38 09	32 05 55	07 25 21	05 13 17	05 13 17	05 13 17	13 17 17	13 17 17
M 16	13 38 10	26 24 21	21 07 56	29 11 10	35 03 42	16 42 26	10 05 46	02 30 09	33 05 52	07 22 24	07 13 24	07 13 24	07 13 24	13 24 24	13 24 24
T 17	13 42 07	27 23 03	09 X 23 38	00 T 03	11 21 03	44 16 56	26 05 05	04 09 02	31 09 33	05 47 07	19 27 26	19 27 26	19 27 26	13 30 30	13 30 30
W 18	13 46 03	28 21 44	21 52 50	00 58 12	06 03 46	17 10 26	01 05 52	02 33 09	33 05 41	07 16 01	04 13 37	04 13 37	04 13 37	13 37 37	13 37 37
Th 19	13 50 00	29 20 23	04 T 02 11	01 57 12	51 03 49	17 24 25	56 05 52	02 34 09	33 05 34	07 12 04	04 49 13	04 49 13	04 49 13	13 44 44	13 44 44
F 20	13 53 56	00 19 00	16 03 25	02 58 13	34 03 53	17 38 25	51 05 59	02 36 09	32 05 27	07 09 08	27 13 50	27 13 50	27 13 50	13 50 50	13 50 50
Sa 21	13 57 53	01 17 35	27 58 17	04 02 14	16 03 58	17 51 25	47 06 02	02 37 09	32 05 22	07 06 11	50 13 57	50 13 57	50 13 57	13 57 57	13 57 57
Su 22	14 01 50	02 16 09	09 0 48 31	05 09 14	58 04 03	18 05 25	42 06 05	02 38 09	32 05 18	07 03 14	54 14 04	54 14 04	54 14 04	14 04 04	14 04 04
M 23	14 05 46	03 14 40	21 36 06	08 15 15	38 04 09	18 19 25	38 06 08	02 40 09	31 05 15	07 00 17	43 14 10	43 14 10	43 14 10	14 10 10	14 10 10
T 24	14 09 43	04 13 09	03 II 23 18	07 29 16	17 04 15	18 34 25	33 06 11	02 41 09	31 05 14	06 57 20	14 17 17	14 17 17	14 17 17	14 17 17	14 17 17
W 25	14 13 39	05 11 37	15 12 56	08 43 16	55 04 22	18 48 25	29 06 14	02 42 09							



# JULY 2012

Day	S.T.	☉			☽			☿	♀	♂	♃	♅	♁	♂	♁	♁ True	♁ Mean	☾ True	☾ Mean																			
		h	m	s	°	'	"													°	'	"																
Su 1	18 37 48	09	59	34 18	01	✓	10 44	05	♁	19 07 II 42	28	♁	41 04 II 16	22	♁	47 08	♁	29 02	✕R58	08	♁	R14 04	✓	44 03	♁	✓	R20 13	II	R41 21	♁	♁	52 21						
M 2	18 41 45	10	31	29 15	56 14	06	15	07	15	07	51	29	12	04	28	22	48	08	29	02	57	08	12	04	R 44	03	17	12	07	21	58							
T 3	18 45 42	11	28	40	00	✓	41 41	07	07	08	01	29	44	04	41	22	49	08	30	02	57	08	11	04	42	03	14	10	35	22	05							
W 4	18 49 38	12	25	51	15	19	57	07	56	08	14	00	15	04	54	22	50	08	30	02	56	08	09	04	38	03	11	08	50	22	12							
Th 5	18 53 35	13	23	02	29	44	05	08	42	08	29	00	47	05	06	22	50	08	31	02	55	08	08	04	33	03	03	08	37	22	18							
F 6	18 57 31	14	20	13	22	48	19	09	24	08	46	01	19	05	19	22	51	08	31	02	54	08	06	04	27	03	05	03	51	22	25							
Sa 7	19 01 28	15	17	24	27	28	52	10	02	09	04	01	51	05	31	22	53	08	31	02	53	08	04	04	21	03	01	00	II	44	22	32						
Su 8	19 05 24	16	14	35	10	✓	44 14	10	36	09	25	02	23	05	44	22	54	08	32	02	52	08	03	04	15	02	58	27	♁	40	22	38						
M 9	19 09 21	17	11	47	23	35	12	11	06	09	47	02	55	05	56	22	55	08	32	02	51	08	01	04	11	02	55	25	00	22	45							
T 10	19 13 18	18	08	59	06	♁	04 24	11	31	10	11	03	28	06	08	22	56	08	32	02	50	08	00	04	09	02	52	23	00	22	52							
W 11	19 17 14	19	06	12	18	15	46	11	53	10	37	04	00	06	20	22	58	08	32	02	49	07	59	04	08	02	49	21	40	22	58							
Th 12	19 21 11	20	03	25	00	♁	14 06	12	10	11	04	04	33	06	32	23	00	08	32	02	48	07	57	04	D	08	02	46	20	54	23	05						
F 13	19 25 07	21	00	38	12	30	04	12	22	11	33	05	06	06	44	23	01	08	32	02	47	07	56	04	10	02	42	20	26	23	12							
Sa 14	19 29 04	21	57	52	23	52	08	12	30	12	03	05	39	06	56	23	03	08	R 32	02	46	07	54	04	11	02	39	20	03	23	18							
Su 15	19 33 00	22	55	07	05	II	41 47	12	33	12	34	06	13	07	08	23	05	08	32	02	45	07	53	04	R 11	02	36	19	33	23	25							
M 16	19 36 57	23	52	22	17	37	46	12	R 31	13	07	06	46	07	20	23	07	08	32	02	43	07	51	04	10	02	33	18	54	23	32							
T 17	19 40 53	24	49	38	29	43	37	12	24	13	41	07	20	07	32	23	09	08	32	02	42	07	50	04	07	02	30	18	13	23	39							
W 18	19 44 50	25	46	54	12	♁	01 59	12	12	14	17	07	54	07	43	23	11	08	32	02	41	07	48	04	02	02	26	17	49	23	45							
Th 19	19 48 47	26	44	40	24	30	42	11	56	14	54	08	28	07	55	23	13	08	32	02	40	07	47	03	55	02	23	18	D	12	52							
F 20	19 52 43	27	41	27	07	♁	21 55	11	35	15	31	09	02	08	06	23	16	08	31	02	38	07	45	03	46	02	20	19	49	23	59							
Sa 21	19 56 40	28	38	45	20	23	52	11	10	16	10	09	36	08	17	23	18	08	31	02	37	07	44	03	36	02	17	22	56	24	05							
Su 22	20 00 36	29	36	03	03	♁	39 26	10	40	16	50	10	10	08	29	23	21	08	31	02	36	07	43	03	27	02	14	27	28	24	12							
M 23	20 04 33	00	33	21	17	07	19	10	07	17	32	10	45	08	40	23	23	08	30	02	35	07	41	03	19	02	11	02	II	49	24	19						
T 24	20 08 29	01	30	40	00	♁	46 08	09	31	18	14	11	19	08	51	23	26	08	30	02	33	07	40	03	14	02	07	08	07	24	25							
W 25	20 12 26	02	27	58	14	34	42	08	52	18	57	11	54	09	02	23	29	08	29	02	32	07	39	03	10	02	04	12	30	24	32							
Th 26	20 16 22	03	25	18	28	32	07	08	11	19	41	12	29	09	13	23	32	08	29	02	31	07	37	03	09	02	01	15	22	24	39							
F 27	20 20 19	04	22	37	12	♁	37 38	07	28	20	25	13	04	09	24	23	35	08	28	02	29	07	36	03	D	09	01	58	16	41	24	45						
Sa 28	20 24 16	05	19	58	26	50	20	06	44	21	11	13	39	09	34	23	38	08	27	02	28	07	35	03	09	01	55	16	R 51	24	52							
Su 29	20 28 12	06	17	18	11	✓	08 43	06	00	21	58	14	14	09	45	23	41	08	27	02	26	07	33	03	R 09	01	52	16	28	24	59							
M 30	20 32 09	07	14	40	29	30	20	05	17	22	45	14	50	09	55	23	44	08	26	02	25	07	32	03	07	01	48	16	03	25	02							
T 31	20 36 05	08	12	01	09	✓	31 33	04	♁	R36 23	II 33	15	02	25	10	II	06	23	04	08	♁	R25 23	44	08	♁	R25 02	03	✓	R03 03	✓	R45 01	✓	R46 15	II	R45 15	♁	♁	12

# AUGUST 2012

Day	S.T.	☉			☽			☿	♀	♂	♃	♅	♁	♂	♁	♁ True	♁ Mean	☾ True	☾ Mean																	
		h	m	s	°	'	"													°	'	"														
W 1	20 40 02	09	09	24	24	✓	07 45	03	♁	R57 24	II 22	16	♁	01 10	II 16	23	♁	51 08	♁	R24 02	♁	R22 02	♁	R30 20	02	♁	R56 02	01	♁	R42 01	15	II	R18 15	♁	♁	19 25
Th 2	20 43 58	10	06	47	08	♁	13 43	03	21	25	12	16	37	10	26	23	54	08	23	02	20	07	28	02	47	01	39	14	22	25	25					
F 3	20 47 55	11	04	11	22	04	30	02	49	26	02	17	13	10	36	23	58	08	22	02	19	07	27	02	37	01	36	12	38	25	32					
Sa 4	20 51 51	12	01	36	05	♁	36 12	02	21	26	53	17	49	10	46	24	02	08	21	05	17	07	26	02	26	01	32	10	04	25	39					
Su 5	20 55 48	12	59	02	18	46	32	01	59	27	44	18	25	10	56	24	05	08	20	02	16	07	25	02	16	01	29	06	58	25	46					
M 6	20 59 45	13	56	29	01	♁	35 08	01	42	28	37	19	01	11	06	24	09	08	19	02	14	07	24	02	07	01	26	03	47	25	52					
T 7	21 03 41	14	53	57	11	04	32	01	31	29	29	19	37	11	16	24	13	08	18	02	13	07	22	02	01	01	23	00	II	57	25	59				
W 8	21 07 38	15	51	26	26	14	49	01	26	00	♁	23 20	14	11	25	24	17	08	17	02	11	07	21	01	57	01	20	28	♁	44	26	06				
Th 9	21 11 34	16	48	57	08	♁	13 17	01	D 28	01	17	20	51	11	35	24	21	08	16	02	10	07	20	01	56	01	17	27	07	26	12					
F 10	21 15 31	17	46	29	20	03	56	01	36	02	12	21	27	11	44	24	25	08	15	02	08	07	19	01	D 55	01	13	25	54	26	19					
Sa 11	21 19 27	18	44	03	01	II	52 13	01	52	03	07	22	04	11	53	24	30	08	13	02	07	07	18	01	55	01	10	24	46	26	26					
Su 12	21 23 24	19	41	38	13	43	33	02	14	04	02	22	41	12	02	24	34	08	12	02	05	07	17	01	R 55	01	07	23	24	26	32					
M 13	21 27 20	20	39	15	25	43	03	02	43	04	58	23	18	12	11	24	38	08	11	02	03	07	16	01	53	01	04	21	36	26	39					
T 14	21 31 17	21	36	53	07	♁	55 14	03	20	05	55	23	55	12	20	24	43	08	09	02	02	07	15	01	48	01	01	19	19	26	46					
W 15	21 35 14	22	34	32	20	23	37	04	03	06	52	24	33	12	29	24	47	08	08	02	00	07	14	01	41	01	00	58	16	45	26	52				
Th 16	21 39 10	23	32	13	03	10	28	04	05	07	49	25	10	12	37	24	52	08	06	01	59	07	13	01	32	00	54	14	16	26	59					
F 17	21 43 07	24	29	55	16	16	28	05	50	08	47	25	48	12	46	24	57	08	05	01	57	07	12	01	20	00	51	12	20	27	06					
Sa 18	21 47 03	25	27	38	29	40																														



# NOVEMBER 2012

☉ TOTAL ECLIPSE, 21° 57' ♍, 13 NOVEMBER 22 h 12 m  
 ☽ PENUMBRAL ECLIPSE, 06° 47' ♀, 28 NOVEMBER 14 h 33 m, INTENSITY 0.91

Day	S.T.	☉	☽	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	True	Mean	True	Mean	
	h m s	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	
Th 1	02 42 45	08♍	58 12	02 II 36 43	02 ✓ 07	04 ♀ 11	17 ✓ 58	15 IIR08	03 ♀ 08	05 ♀ R20	00 ✕ R23	07 ✕ 26	26♍,D02	26♍,R50	09 II 09	05 II 34				
F 2	02 46 41	09	58 14	14 23 48	02 45	05 24	18 43	15 03	03 16	05 18	00 23	07 28	26 03	26 46	10 59	05 40				
Sa 3	02 50 38	10	58 17	26 11 16	03 17	06 37	19 27	14 57	03 23	05 16	00 23	07 29	26 04	26 43	12 37	05 47				
Su 4	02 54 34	11	58 23	08 ☽ 02 36	03 43	07 50	20 11	14 52	03 30	05 14	00 22	07 30	26 06	26 40	14 07	05 54				
M 5	02 58 31	12	58 31	20 01 46	04 02	09 03	20 56	14 46	03 37	05 13	00 22	07 32	26 07	26 37	15 20	06 00				
T 6	03 02 27	13	58 40	02 ♀ 13 05	04 14	10 16	21 41	14 40	03 44	05 11	00 22	07 33	26 08	26 34	16 04	06 07				
W 7	03 06 24	14	58 52	14 41 03	04 R 11	11 30	22 25	14 34	03 52	05 09	00 22	07 35	26 08	26 31	16 R 00	06 14				
Th 8	03 10 21	15	59 06	27 29 58	04 13	12 43	23 10	14 28	03 59	05 08	00 22	07 36	26 R 08	26 27	14 57	06 20				
F 9	03 14 17	16	59 22	10 ♀ 43 28	03 59	13 56	23 55	14 21	04 06	05 06	00 22	07 38	26 07	26 24	12 58	06 27				
Sa 10	03 18 14	17	59 40	24 23 59	03 35	15 10	24 39	14 15	04 13	05 04	00 22	07 39	26 06	26 21	10 20	06 34				
Su 11	03 22 10	18	59 59	08 ♀ 31 59	03 02	16 23	25 24	14 08	04 20	05 03	00 22	07 41	26 05	26 18	07 27	06 40				
M 12	03 26 07	20	00 21	23 05 24	02 18	17 37	26 09	14 01	04 27	05 01	00 22	07 42	26 04	26 15	04 43	06 47				
T 13	03 30 03	21	00 45	07 ♀ 59 26	01 24	18 51	26 54	13 54	04 34	05 00	00 22	07 44	26 04	26 12	02 23	06 54				
W 14	03 34 00	22	01 10	23 06 39	00 ✓ 22	20 04	27 39	13 47	04 41	04 58	00 22	07 45	26 04	26 08	00 II 24	07 01				
Th 15	03 37 56	23	01 37	08 ✓ 17 54	29 ♀ 12	21 18	28 25	13 40	04 49	04 57	00 22	07 47	26 D 04	26 05	28 ✕ 31	07 07				
F 16	03 41 53	24	02 06	23 23 40	27 56	22 32	29 10	13 33	04 56	04 56	00 22	07 49	26 04	26 02	26 29	07 14				
Sa 17	03 45 50	25	02 36	08 ✕ 15 25	26 36	23 46	29 55	13 25	05 03	04 54	00 22	07 50	26 04	26 59	24 10	07 21				
Su 18	03 49 46	26	03 08	22 46 42	25 15	25 00	00 ✕ 40	13 18	05 09	04 53	00 22	07 52	26 R 04	25 56	21 44	07 27				
M 19	03 53 43	27	03 40	06 ✕ 53 43	23 55	26 14	01 26	13 10	05 16	04 52	00 22	07 54	26 R 04	25 52	19 32	07 34				
T 20	03 57 39	28	04 14	20 35 15	22 39	27 28	02 11	13 03	05 23	04 51	00 23	07 55	26 04	25 49	18 02	07 41				
W 21	04 01 36	29	04 49	03 ✕ 52 10	21 30	28 42	02 57	12 55	05 30	04 50	00 23	07 57	26 D 04	25 46	17 D 35	07 47				
Th 22	04 05 32	30	05 25	16 46 48	20 30	29 56	03 42	12 47	05 37	04 49	00 24	07 59	26 04	25 43	18 22	07 54				
F 23	04 09 29	01	06 02	29 22 19	19 39	01 ♀ 10	10 04	28 12	39 05	04 44	00 24	08 01	26 05	25 40	20 16	08 01				
Sa 24	04 13 25	02	06 41	11 ♀ 42 14	18 59	02 24	05 13	12 31	05 51	04 46	00 24	08 02	26 05	25 37	23 01	08 07				
Su 25	04 17 22	03	07 21	23 50 00	18 32	03 38	05 59	12 23	05 57	04 46	00 25	08 04	26 06	25 33	26 15	08 14				
M 26	04 21 19	04	08 01	05 ✕ 48 50	18 15	04 53	06 45	12 15	06 04	04 45	00 25	08 06	26 07	25 30	29 42	08 21				
T 27	04 25 15	05	08 44	17 41 35	18 D 10	06 07	07 31	12 07	06 11	04 44	00 26	08 08	26 07	25 27	03 II 09	08 27				
W 28	04 29 12	06	09 27	29 30 47	18 16	07 21	08 17	11 59	06 17	04 43	00 26	08 10	26 R 07	25 24	06 31	08 34				
Th 29	04 33 08	07	10 12	11 II 18 41	18 32	08 36	09 03	11 51	06 24	04 42	00 27	08 12	26 07	25 21	09 50	08 41				
F 30	04 37 05	08	✓ 10 58	23 II 07 23	18 ♀ 57	09 ♀ 50	09 ✕ 48	11 IIR43	06 ♀ 31	04 ♀ R42	00 ✕ 28	08 ✕ 13	26♍,R06	25♍,R18	13 II 08	08 II 48				

  

●● PHASES ○○				INGRESS & STATION				Day h:m				Day h:m				Day h:m				DATA for 0h			
Day	h:m	Phase	Long.	3 07:44	☽ ☽	10 09:36	☽ ♀	10:53	☽ ✓	20 16:56	☽ ✕	25 12:19	☽ ✕	28 00:59	☽ II	30 13:56	☽ ☽	1 NOVEMBER 2012					
7	00:37	●	15 ♀ 00	5 19:40	☽ ♀	11 07:54	☽ D	16 10:37	☽ ✕	21 21:51	☽ ✕	26 22:49	☽ D	Day = 41213									
13	22:09	●	21 ♀ 57	6 23:05	☽ R	12 11:11	☽ ♀	17 02:37	☽ ✕	22 01:21	☽ ♀	28 00:59 <td>☽ II</td> <td colspan="4">AYANAMSA = 24° 02' 23"</td>	☽ II	AYANAMSA = 24° 02' 23"									
20	14:33	●	28 ✕ 41	8 04:36	☽ ♀	14 07:44	☽ ♀	18 12:11	☽ ✕	23 01:13	☽ ♀	30 13:56	☽ ☽	SVP = 05° 04' 37" ✕									
28	14:47	○	06 II 47													Δ T = 77 s							

# DECEMBER 2012

Day	S.T.	☉	☽	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	True	Mean	True	Mean	
	h m s	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	
Sa 1	04 41 01	09	✓ 11 45	04 ☽ 59 00	19 ♀ 30	11 ♀ 05	10 ✕ 34	11 IIR35	06 ♀ 37	04 ♀ R41	00 ✕ 28	08 ✕ 15	26♍,R04	25♍,R14	16 II 27	08 II 54				
Su 2	04 44 58	10	12 33	16 55 46	20 11	12 19	11 21	11 27	06 44	04 40	00 29	08 17	26 02	25 11	19 44	09 01				
M 3	04 48 54	11	13 23	29 10 10	20 58	13 34	12 07	11 18	06 50	04 40	00 30	08 19	26 00	25 08	22 52	09 08				
T 4	04 52 51	12	14 14	11 ♀ 15 03	21 52	14 48	12 53	11 10	06 56	04 39	00 30	08 21	25 58	25 05	25 35	09 14				
W 5	04 56 48	13	15 07	23 43 34	22 50	16 03	13 39	11 02	07 03	04 39	00 31	08 23	25 56	25 02	27 36	09 21				
Th 6	05 00 44	14	16 00	06 ♀ 29 04	23 52	17 18	14 25	10 54	07 09	04 38	00 32	08 25	25 54	25 58	28 35	09 28				
F 7	05 04 41	15	16 55	19 34 53	24 59	18 32	15 11	10 46	07 15	04 38	00 33	08 27	25 D 55	24 55	28 R 23	09 34				
Sa 8	05 08 37	16	17 52	03 ♀ 05 55	26 09	19 47	15 58	10 38	07 21	04 38	00 34	08 29	25 55	24 52	27 04	09 41				
Su 9	05 12 34	17	18 49	16 58 04	27 22	21 02	16 44	10 30	07 28	04 37	00 35	08 31	25 57	24 49	24 56	09 48				
M 10	05 16 30	18	19 48	01 ♀ 17 32	28 37	22 16	17 31	10 22	07 34	04 37	00 36	08 33	25 58	24 46	22 24	09 54				
T 11	05 20 27	19	20 48	16 00 15	29 54	23 31	18 17	10 14	07 40	04 37	00 37	08 35	25 59	24 43	19 55	10 01				
W 12	05 24 23	20	21 49	01 ✓ 19 10	01 14	24 46	19 04	10 06	07 46	04 37	00 38	08 37	25 R 59	24 39	17 42	10 08				
Th 13	05 28 20	21	22 51	16 13 10	02 35	26 01	19 50	09 58	07 52	04 37	00 39	08 39	25 58	24 36	15 44	10 14				
F 14	05 32 17	22	23 54	01 ✕ 26 15	03 57	27 16	20 37	09 50	07 58	04 D 37	00 40	08 41	25 56	24 33	13 49	10 21				
Sa 15	05 36 13	23	24 57	16 30 29	05 21	28 31	21 23	09 42	08 03	04 37	00 41	08 43	25 56	24 30	11 38	10 28				
Su 16	05 40 10	24	26 02	01 ✕ 16 46	06 45	29 45	22 10	09 34	08 09	04 37	00 42	08 45	25 48	24 27	09 05	10 34				
M 17	05 44 06	25	27 06	15 38 25	08 11	01 00	22 57	09 27	08 15	04 37	00 43	08 48	25 44	24 24	06 10	10 41				
T 18	05 48 03	26	28 11	29 31 52	09 37	02 15	23 43	09 19	08 21	04 37	00 44	08 50	25 40	24 20	03 32	10 48				