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Nautical Almanac

2024

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The Nautical Almanac 2024

Compiled with *Nautical Almanac* revision V2.7 - Oct 2022, using NOVAS version C3.1 - Mar 2011
The Almanac data have been produced with the JPL Ephemerides DE405

Warning and Terms of Usage:

The following pages have been generated by a computer program. Complex computer programs often have bugs and may produce wrong data. The data in this Nautical Almanac is believed to be accurate but no warranty is given for its correctness.

Use this Nautical Almanac only for training and exercising!

Compiled by Erik De Man (mail2erik@siranah.de) on Wed Nov 8 14:01:56 2023

Introduction

This Nautical Almanac contains the Ephemerides of the Sun, the Moon, Venus, Mars, Jupiter and Saturn. It is designed for determination of Position (geographical Latitude and Longitude) from astronomical observations (Altitude of Celestial Objects).

The data compiled in this Nautical Almanac is based on calculations done with the software package "NOVAS" from the U.S. Naval Observatory (<http://aa.usno.navy.mil/AA/software>). The basic ephemerides are taken from the "DE405" files published by the Jet Propulsion Laboratory (<http://ssd.jpl.nasa.gov>).

Values for "deltaT"

For the astrodynamical calculations, the following values for "delta T" (the difference between terrestrial time realized by atomic clocks and UT defined by the irregular rotation of the Earth) have been used:

Jan : 69.2 s	Apr : 69.2 s	Jul : 69.2 s	Oct : 69.1 s
Feb : 69.2 s	May : 69.2 s	Aug : 69.2 s	Nov : 69.1 s
Mar : 69.2 s	Jun : 69.2 s	Sep : 69.1 s	Dec : 69.1 s

Interpolation of the integral-hour GHA and Dec values

This Nautical Almanac uses a slightly different approach for the interpolation of the integral-hour values of Greenwich Hour Angle and Declination, compared to the techniques used in most commercially available Almanacs.

The almanac pages in this Nautical Almanac are compiled according to the following scheme:

UT	GHA		ddGHA	Dec		dDec
	°	'	"/h	°	'	"/h
...						
13:00	176	41.8	-31.3	S 23	09.6	+01.8
14:00	191	10.5	-31.3	S 23	11.4	+01.8
15:00	205	39.2	-31.3	S 23	13.2	+01.6
16:00	220	07.9	-31.3	S 23	14.8	+01.5
...						

The values for the Greenwich Hour Angle (GHA) and Declination (Dec) are given for the integral hours of Universal Time (UT). In the columns "ddGHA" and "dDec", the increase or decrease of these values for the next full hour of time are recorded. However, for the Greenwich Hour Angle (GHA), this differential value is not the total change. An hour angle basically increases with 15° per hour and the value "ddGHA" is only the variation additional to this fixed increment of 15° per hour.

It is important to note that when interpolating the GHA values, this fixed increase of 15° per hour must also be taken into account.

For more information please refer to the following internet site: "<http://www.siranah.de/>"

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Positions of the Celestial Objects

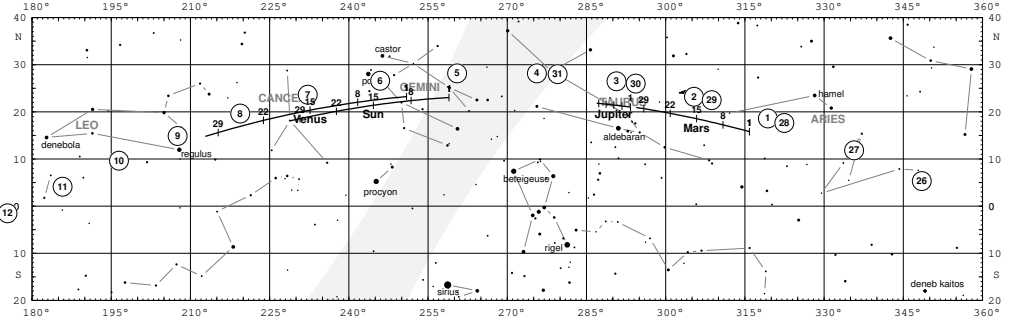
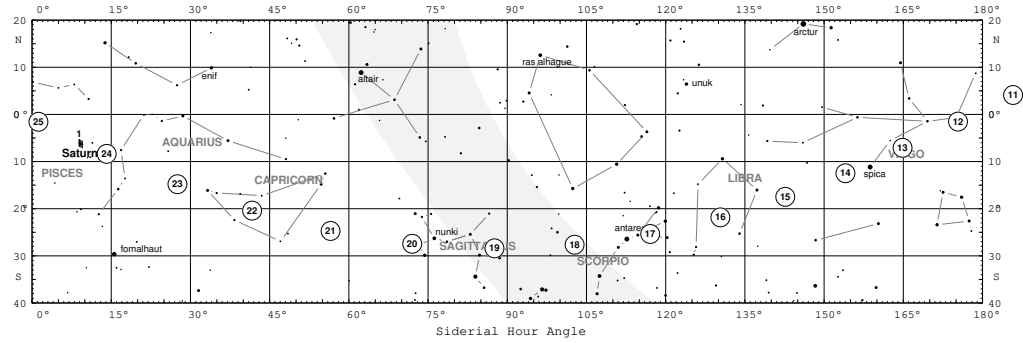
The charts on the following pages show the position of the Celestial Objects used in this Nautical Almanac relative to the stars (celestial background). The charts can be used to find the location of the planets and also for the planning of astronomical observations.

The charts are provided for each month of the year. Each chart has two parts showing a part of the celestial sphere around the ecliptic. Note that the position of the Celestial Equator (Declination = 0°) is not on the same position in the two different parts of each of the charts.

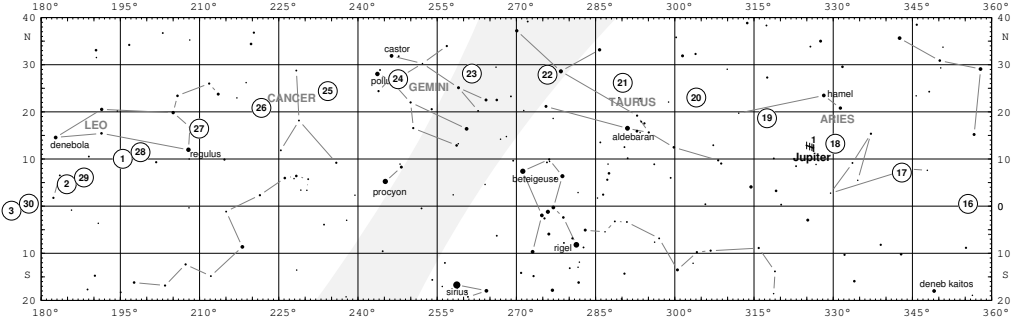
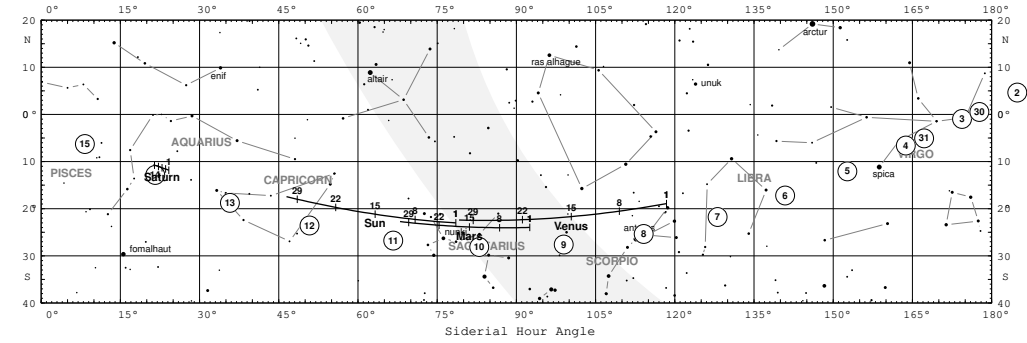
The changing position of a Celestial Object through the month is drawn as a solid line (not for the Moon). Marker tics along this line are shown to indicate the position of the Object on the 1st, 8th, 15th, 22nd and 29th day of the month (at 12:00 UT). For Jupiter and Saturn only the first day is marked since their apparent position does not change significantly over the period of one month. The position of the Moon is shown by a small circle for each individual day of the month. Notice that the circles are much larger than the apparent size of the Moon.

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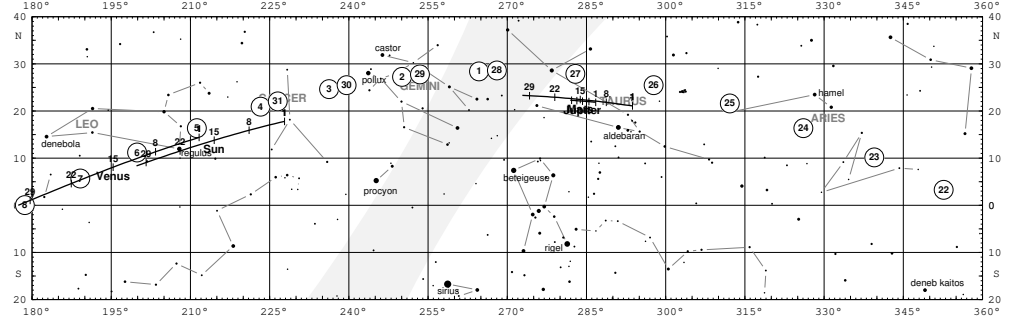
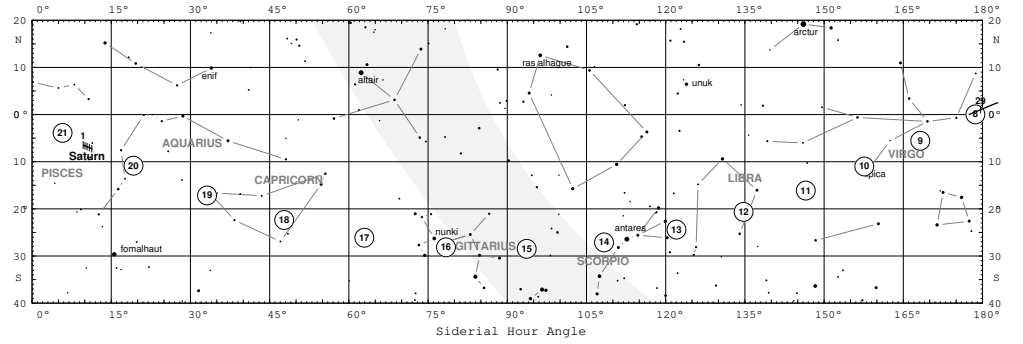
July 2024



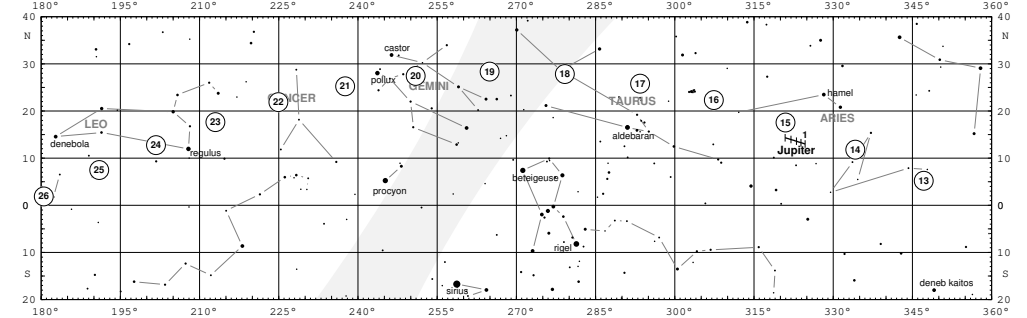
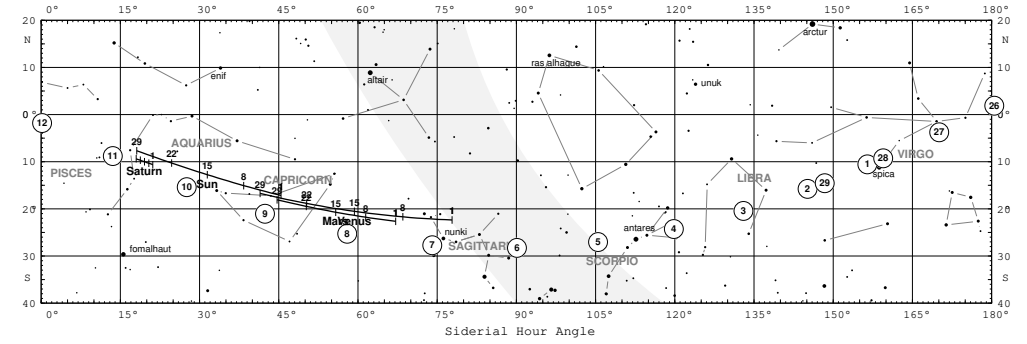
January 2024



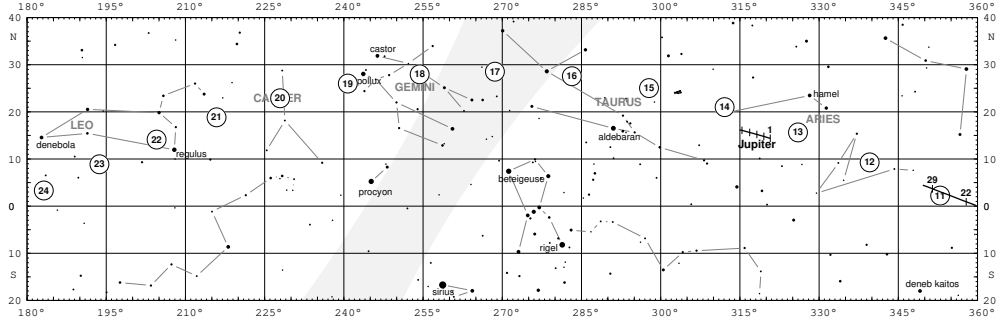
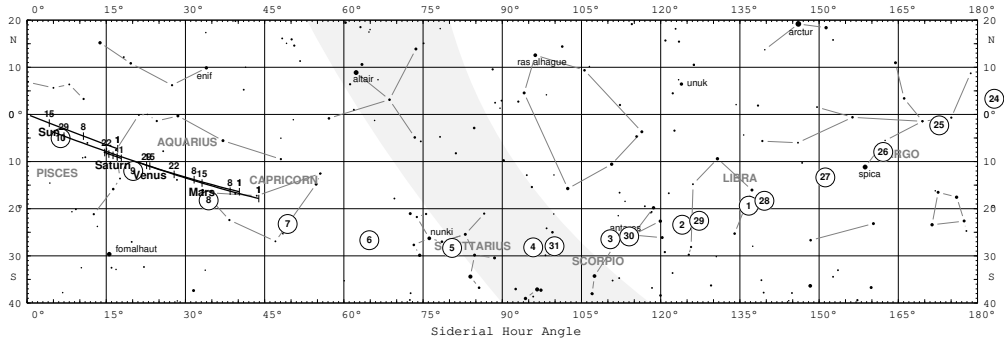
August 2024



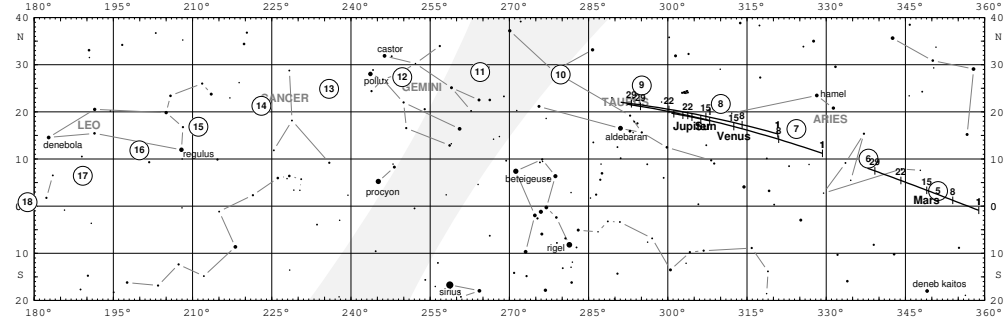
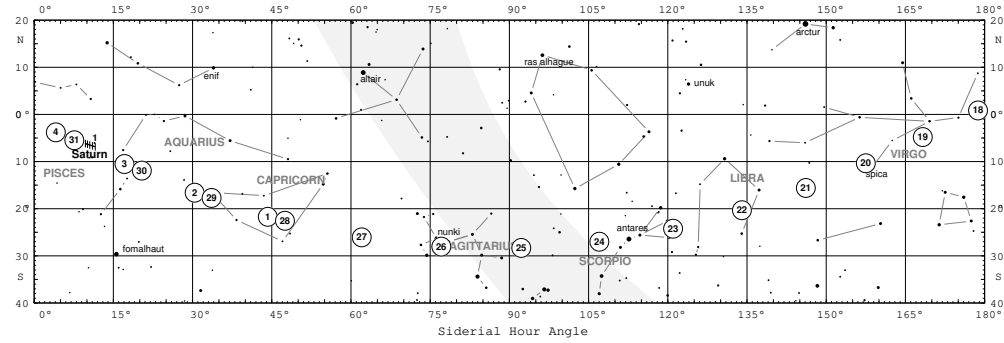
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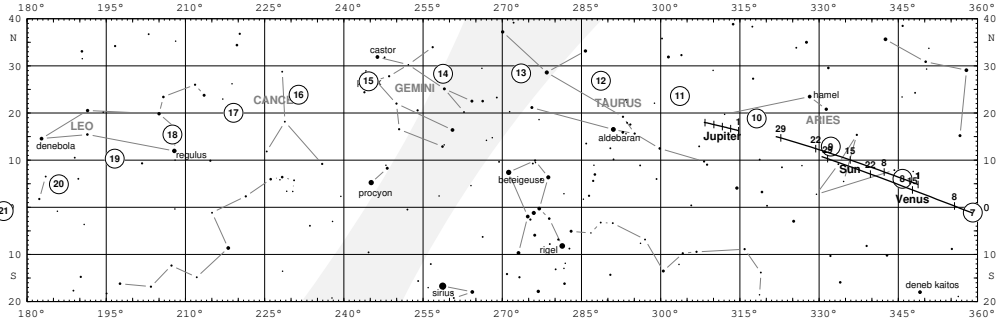
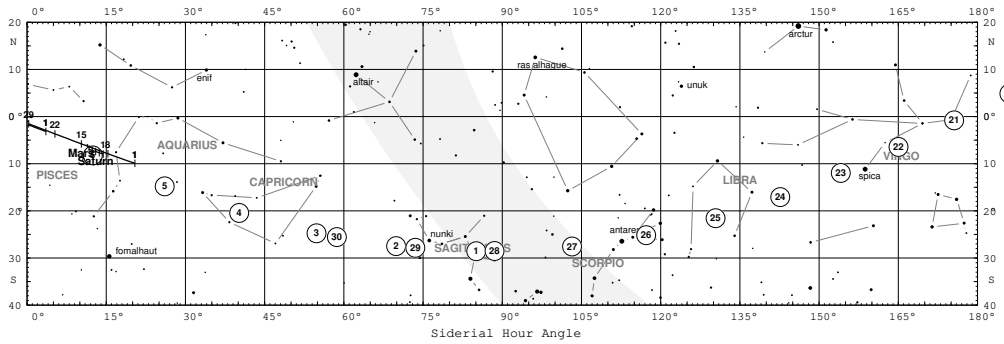
March 2024



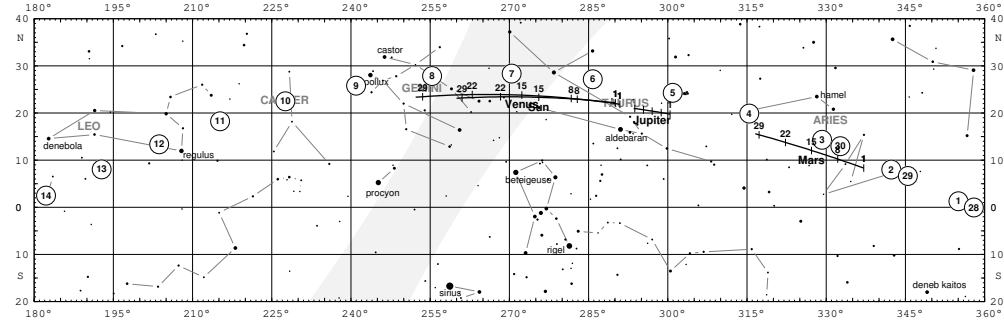
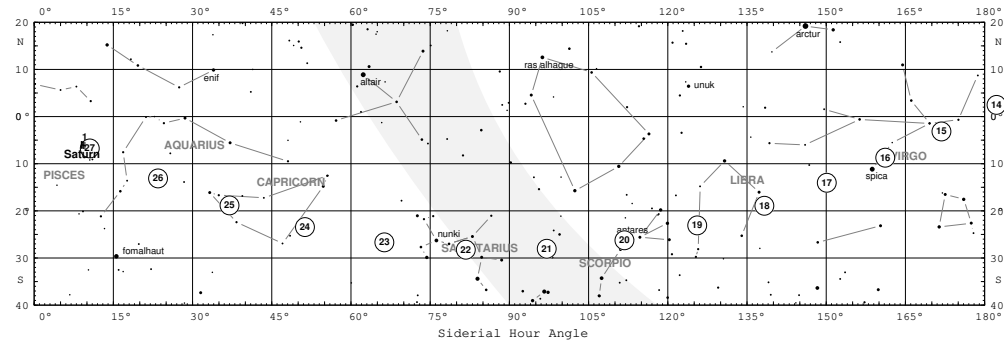
May 2024



April 2024






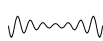
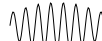
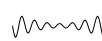


June 2024



Phases of the Moon

The following table lists the phases of the Moon through the year 2024. The table shows the day and the approximate time (in UTC) when the particular lunar phases occur. The calculations are based on the difference between the GHA of the Sun and the GHA of the Moon ($\Delta GHA = GHA_{sun} - GHA_{moon}$). The constellations "new moon", "first quarter", "full moon" and "last quarter" are obtained when ΔGHA is equal to 0° , 90° , 180° and 270° respectively.

	 New Moon	 First Quarter	 Full Moon	 Last Quarter
January	Thu 11 10:37	Thu 18 12:45	Thu 25 15:18	Thu 4 08:21
February	Fri 9 20:32	Sat 17 00:51	Sat 24 09:29	Sat 3 11:12
March	Sun 10 07:19	Sun 17 05:17	Mon 25 06:03	Sun 3 21:15
April	Mon 8 18:36	Mon 15 09:44	Wed 24 01:09	Mon 1 22:40
May	Wed 8 04:51	Tue 14 22:23	Thu 23 15:26	Wed 1 00:08 Thu 30 08:32
June	Thu 6 13:30	Fri 14 00:52	Sat 22 01:03	Sat 29 00:21
July	Fri 5 21:54	Sun 14 08:08	Sun 21 08:28	Sun 28 13:25
August	Sun 4 08:36	Tue 13 03:21	Mon 19 16:17	Mon 26 17:51
September	Mon 2 23:49	Wed 11 10:15	Wed 18 01:48	Tue 24 18:01
October	Wed 2 19:08	Thu 10 12:30	Thu 17 12:34	Wed 23 21:34
November	Fri 1 14:56	Fri 8 18:09	Fri 15 23:12	Fri 22 13:33
December	Sun 1 07:49 Mon 30 21:44	Sun 8 09:42	Sun 15 09:27	Sun 22 22:57
Tidal Phase	spring 	neap 	spring 	neap 

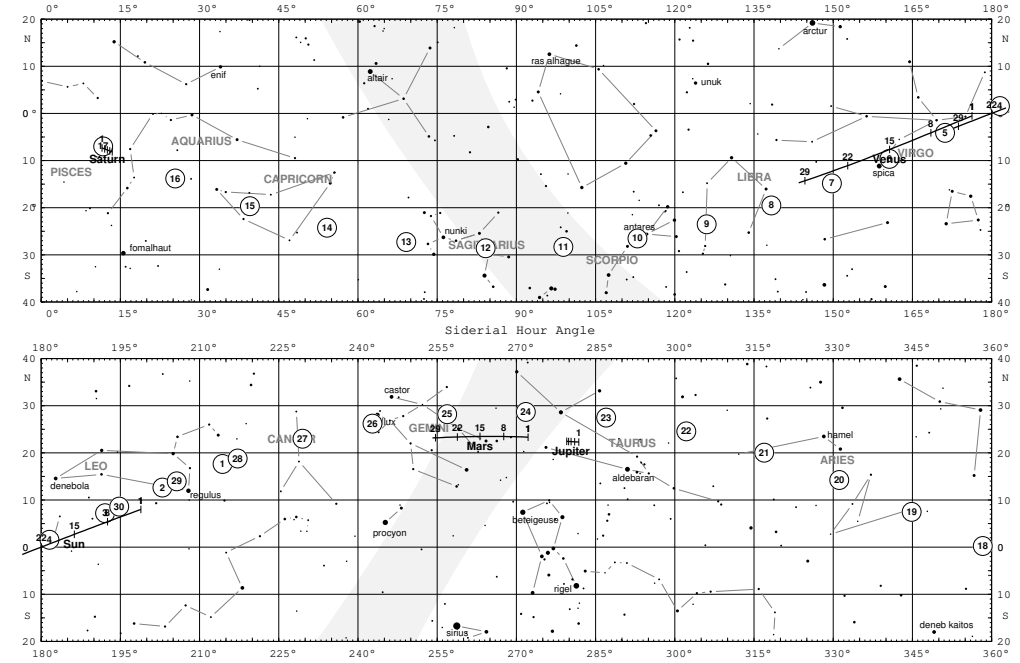
Lunar Phases and Tides

The lunar phases may be used to roughly estimate the occurrence of spring and neap tides. Spring tide occurs around new and full moon. Neap tide occurs around the first and last quarter.

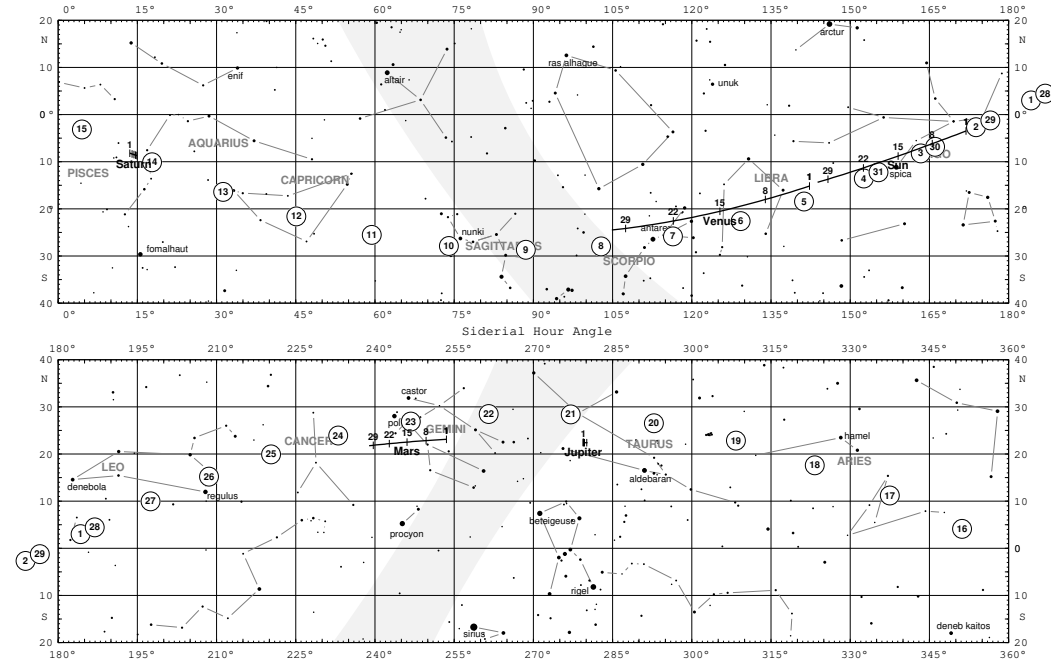
Each tidal region on Earth, has a characteristic "tidal delay" which, specifies the time difference between the occurrence of a particular lunar phase and the occurrence of the resulting tidal phase. The tidal delay can be a couple of hours for the open seas, or up to several days for branched tidal waters such as parts of the North Sea.

Reliable tidal predictions are obtained from a Tidal Almanac.

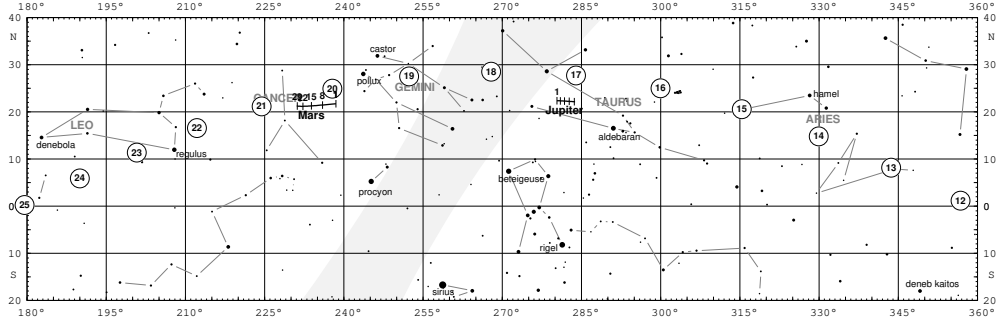
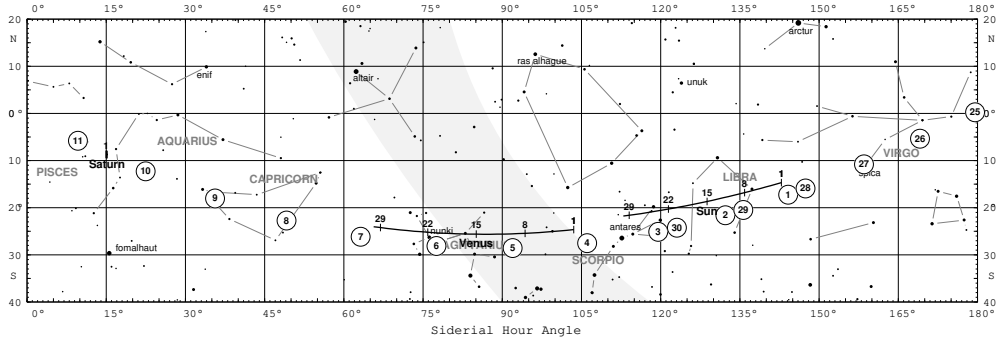
September 2024



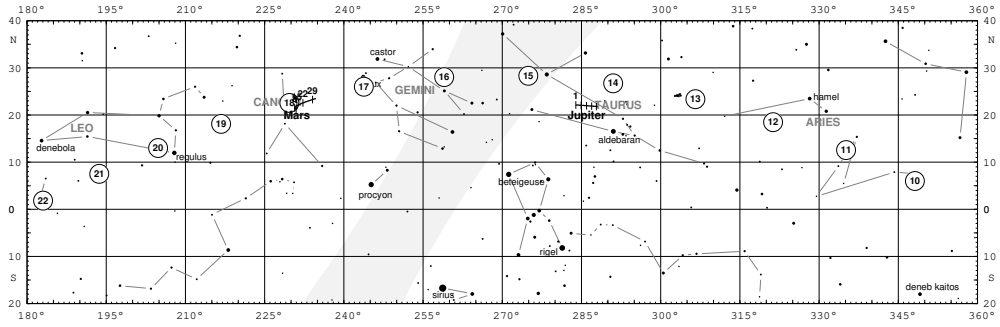
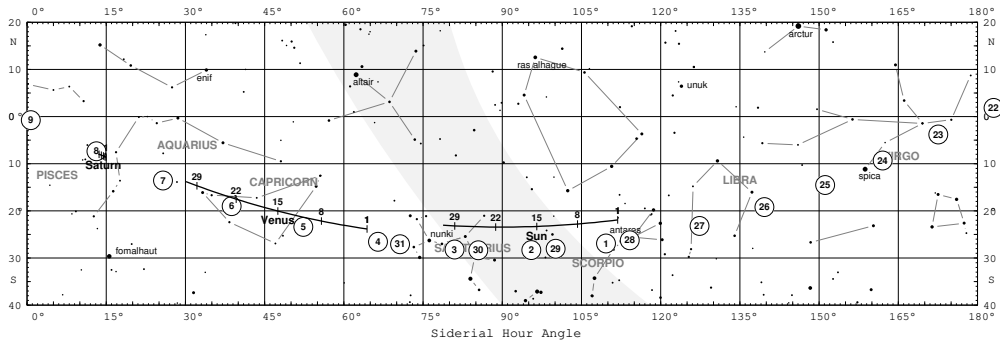
October 2024



November 2024

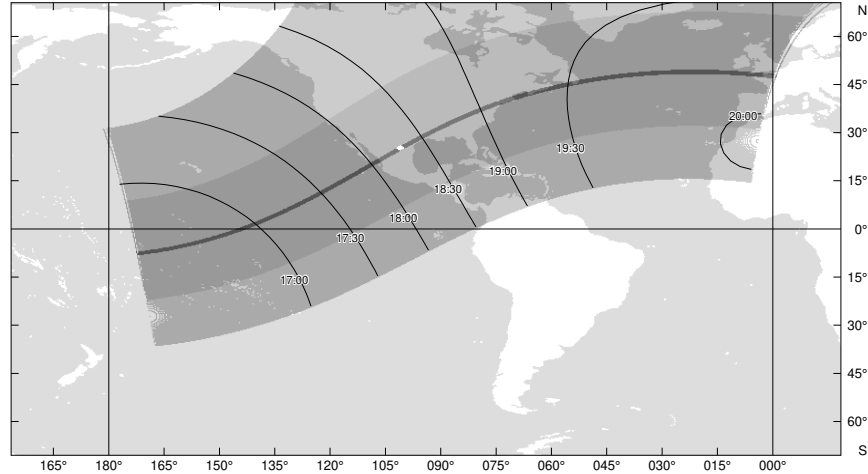


December 2024



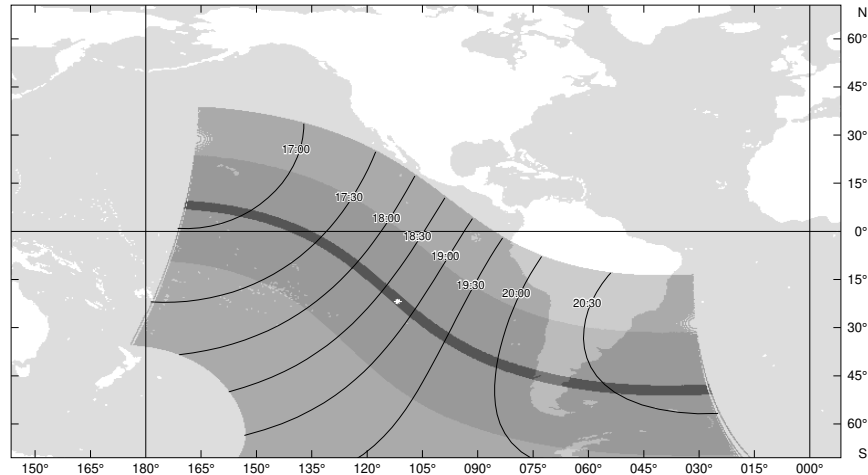
The following solar eclipses may be observed during the year 2024:

April 8 : total solar eclipse begin [Apr 8, 15:42 UT] / end [Apr 8, 20:52 UT]



Circumstances at Moment of Greatest Eclipse		First Contacts (P1/U1)		Last Contacts (U4/P4)	
Time:	18:18 UT	Duration (full):	3.0 min	Penumbra	Umbr
Location:	N 25.2 W 100.9	Path Width:	198 km	15:42 UT	16:39 UT
				19:56 UT	20:52 UT

October 2 : annular solar eclipse begin [Oct 2, 15:43 UT] / end [Oct 2, 21:47 UT]



Circumstances at Moment of Greatest Eclipse		First Contacts (P1/U1)		Last Contacts (U4/P4)	
Time:	18:45 UT	Duration (full):	6.8 min	Penumbra	Umbr
Location:	S 21.8 W 111.7	Path Width:	386 km	15:43 UT	16:51 UT
				20:39 UT	21:47 UT

Lunar Eclipses

An eclipse of the Moon - or lunar eclipse - can only occur at Full Moon, and only if the Moon passes through some portion of the Earth's shadow. The Earth's shadow is composed of two concentric cone-shaped components. The outer or penumbral shadow is a region where the Earth blocks part (but not all) of the Sun's light from reaching the Moon. The inner or umbral shadow is a region where the Earth blocks all direct sunlight from reaching the Moon. Based on this, three types of lunar eclipses are distinguished:

1. Penumbral Lunar Eclipse: the Moon passes through the Earth's penumbral shadow. These kind of eclipses are subtle and very difficult to observe.
2. Partial Lunar Eclipse: a part of the Moon passes through the Earth's umbral shadow.
3. Total Lunar Eclipse: the Moon passes entirely through the Earth's umbral shadow. During this phase of the eclipse the Moon will take a vibrant range of dark red and brown colors.

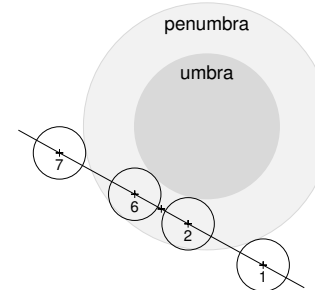
NOTICE: Eclipse contact times depend on the angular diameters of the Sun and Moon. The calculations in this Almanac are based on a perfect circular form for the limb of the Moon, and do not take into account effects of refraction of the sunlight in the Earth atmosphere. Since this is only an approximation of reality, contact times are accurate only within a couple of minutes.

The following lunar eclipses may be observed during the year 2024:

March 25 : a penumbral lunar eclipse begin [Mar 25, 04:52 UTC] / end [Mar 25, 09:34 UTC]

September 18 : a partial lunar eclipse begin [Sep 18, 00:40 UTC] / end [Sep 18, 04:48 UTC]

Rp = 1.310°
Ru = 0.774°
SD = 0.278°



September 18	
1 -	00:40 UTC begin of penumbral eclipse (P1)
2 -	02:12 UTC begin of partial eclipse (U1)
	02:44 UTC moment of greatest eclipse
6 -	03:17 UTC end of partial eclipse (U4)
7 -	04:48 UTC end of penumbral eclipse (P4)

September 18

Solar Eclipses

An eclipse of the Sun - or solar eclipse - can only occur at New Moon, and only if the Earth passes through some portion of the Moon's shadow. Seen from the Earth, the Moon passes in front of the Sun and thus a part - or all - of the light of the Sun is eclipsed. The shadow cast by the Moon is composed of two concentric cone-shaped components. The outer or *penumbral* shadow zone is the region where the Moon blocks a part of the sunlight. The inner or *umbral* shadow zone is a region where the Moon blocks all sunlight. Based on this, three types of solar eclipses may be distinguished:

1. Total solar eclipse: occurs when the umbra of the Moon's shadow touches a region on the surface of the Earth.
2. Partial solar eclipse: occurs when the penumbra of the Moon's shadow passes over a region on the Earth's surface.
3. Annular solar eclipse: occurs when a region on the Earth's surface is in line with the umbra, but the distances are such that the tip of the umbra does not reach the Earth's surface

Because of the relative sizes of the Moon and Sun and their specific distances from the Earth, only a small part of the Earth surface is covered by the Moon shadow during a solar eclipse. Especially the path of totality is usually very narrow (a few hundreds of kilometers across). A much broader region is covered by the penumbral shadow of the Moon. However, an observer in this region will see only a partial solar eclipse.

The appearance of a specific solar eclipse can be summarized conveniently by mapping the path of totality and the region covered by the penumbral shadow of the Moon for the complete duration the eclipse. The lines of constant time, included in the charts, indicate the instances of greatest eclipse.

Warning: never look directly at the Sun without proper eye protection, even during an eclipse. Even when the Sun is partially covered, your eyes can be seriously damaged by looking directly at it. Sunglasses are not an adequate eye protection for viewing the Sun.

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Equation of Time

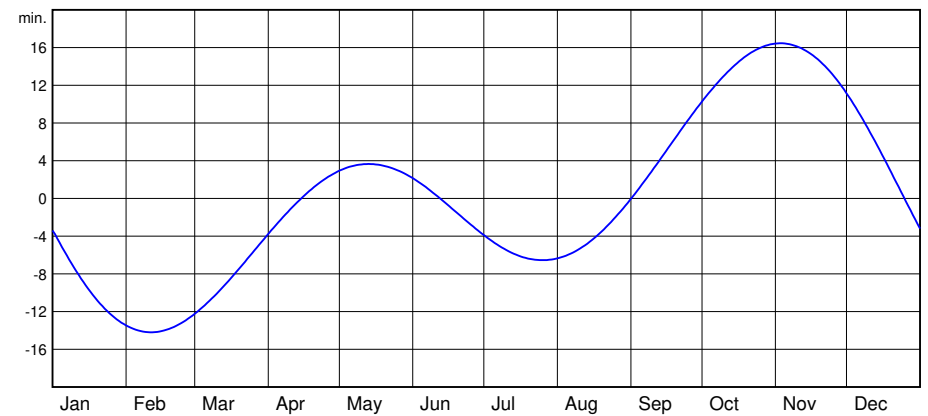
The "Equation of Time" is the difference between the Apparent Solar Time and the Mean Solar Time at the Prime Meridian of Greenwich. The value for the Equation of Time (EoT) for a specific day can be obtained from the Nautical Almanac. The section of the Sun records the "Greenwich Culmination Time" (GCT), which is the UT time at which the Geographical Position of the Sun transits the Prime Meridian of Greenwich. This is also the UT time of Local Apparent Noon for the Prime Meridian. Thus, the value for the Equation of Time is obtained from: $EoT = 12:00:00 - GCT$.

Examples:

$$\begin{array}{l} GCT = 11:57:23 \\ EoT = 12:00:00 - 11:57:23 = +00:02:37 \end{array} \qquad \begin{array}{l} GCT = 12:01:57 \\ EoT = 12:00:00 - 12:01:57 = -00:01:57 \end{array}$$

Notice that EoT has a sign: positive if the Sun "culminates" before 12 UT (then Apparent Time is "leading" Mean Time) and negative if the Sun "culminates" after 12 UT (then Apparent Time is "lagging" Mean Time).

The graph below shows the values for the "Equation of Time" (in Minutes) for the year 2024.



Nautical Almanac

The following pages contain the coordinates of the Geographical Position (in Greenwich Hour Angle and Declination) for each integral hour of the year for the recorded celestial objects. Each page compiles the complete Almanac data for one day of the year. The time used in this Almanac is Universal Time (UT).

NOTICE:

This Nautical Almanac uses a slightly different approach for the interpolation of the integral-hour values of Greenwich Hour Angle and Declination, compared to the techniques used in most commercially available Almanacs.

For more information please refer to the following web site: "<http://www.siranah.de/>"

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Abbreviations used in the Almanac tables:

UT	Universal Time
GHA	Greenwich Hour Angle
Dec	Declination
ddGHA	the increment of the GHA value for the next hour of time, additional to the "linear" increment of 15°/h
dDec	the increment of the Dec value for the next hour of time
SD	Semi-Diameter of the celestial object
HP	Horizontal Parallax
SHA	the Siderial Hour Angle of the celestial object
A	the "Age" of the moon cycle, according to the following scheme:

Units:

°	[degrees]
°	[degrees]
'	[minutes of arc]
'	[minutes of arc]
'	[minutes of arc]
'	[minutes of arc]
°	[degrees]
A = 00%	: new moon
A = 25%	: first quarter
A = 50%	: full moon
A = 75%	: last quarter

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 75%.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 076° 075° 075° 075° 075° 075°
Greenwich Culmination Time: 12:04

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 67%.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 079° 079° 079° 078° 078° 078°
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 090° 090° 090° 090° 090° 090°
Greenwich Culmination Time: 11:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 093° 093° 093° 092° 092° 092°
Greenwich Culmination Time: 11:07

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 078° 078° 078° 077° 077° 077°
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 092° 092° 092° 092° 092° 091°
Greenwich Culmination Time: 11:06

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 077° 077° 076° 076° 076° 076°
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 091° 091° 091° 091° 091° 091°
Greenwich Culmination Time: 11:05

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	178	26.1	-00.3	S 22 20.1	-00.3	217	12.6	-00.7	S 20 24.8	+00.5	228	18.4	-32.5	S 23 41.5	+08.9					
01	193	25.8	-00.2	S 22 19.8	-00.3	232	11.9	-00.8	S 20 25.3	+00.5	242	45.9	-32.7	S 23 50.4	+08.9					
02	208	25.6	-00.3	S 22 19.5	-00.3	247	11.1	-00.7	S 20 25.8	+00.5	257	13.2	-32.8	S 23 59.3	+08.7					
03	223	25.3	-00.3	S 22 19.2	-00.4	262	10.4	-00.8	S 20 26.3	+00.5	271	40.4	-32.9	S 24 08.0	+08.6					
04	238	25.0	-00.2	S 22 18.8	-00.3	277	09.6	-00.7	S 20 26.8	+00.5	286	07.5	-33.1	S 24 16.6	+08.4					
05	253	24.8	-00.3	S 22 18.5	-00.3	292	08.9	-00.8	S 20 27.3	+00.5	300	34.4	-33.2	S 24 25.0	+08.4					
06	268	24.5	-00.3	S 22 18.2	-00.4	307	08.1	-00.7	S 20 27.8	+00.5	315	01.2	-33.3	S 24 33.4	+08.2					
07	283	24.2	-00.3	S 22 17.8	-00.3	322	07.4	-00.8	S 20 28.3	+00.5	329	27.9	-33.4	S 24 41.6	+08.0					
08	298	23.9	-00.2	S 22 17.5	-00.3	337	06.6	-00.7	S 20 28.8	+00.5	343	54.5	-33.6	S 24 49.6	+08.0					
09	313	23.7	-00.3	S 22 17.2	-00.3	352	05.9	-00.8	S 20 29.3	+00.5	358	20.9	-33.7	S 24 57.6	+07.8					
10	328	23.4	-00.3	S 22 16.9	-00.4	7	05.1	-00.8	S 20 29.8	+00.5	12	47.2	-33.8	S 25 05.4	+07.7					
11	343	23.1	-00.2	S 22 16.5	-00.3	22	04.3	-00.7	S 20 30.3	+00.5	27	13.4	-34.0	S 25 13.1	+07.5					
12	358	22.9	-00.3	S 22 16.2	-00.3	37	03.6	-00.8	S 20 30.8	+00.5	41	39.4	-34.0	S 25 20.6	+07.4					
13	13	22.6	-00.3	S 22 15.9	-00.4	52	02.8	-00.7	S 20 31.3	+00.5	56	05.4	-34.2	S 25 28.0	+07.2					
14	28	22.3	-00.2	S 22 15.5	-00.3	67	02.1	-00.8	S 20 31.8	+00.5	70	31.2	-34.4	S 25 35.2	+07.1					
15	43	22.1	-00.3	S 22 15.2	-00.3	82	01.3	-00.7	S 20 32.3	+00.5	84	56.8	-34.4	S 25 42.3	+07.0					
16	58	21.8	-00.2	S 22 14.9	-00.4	97	00.6	-00.8	S 20 32.8	+00.5	99	22.4	-34.6	S 25 49.3	+06.8					
17	73	21.6	-00.3	S 22 14.5	-00.3	111	59.8	-00.8	S 20 33.3	+00.5	113	47.8	-34.6	S 25 56.1	+06.7					
18	88	21.3	-00.3	S 22 14.2	-00.4	126	59.0	-00.7	S 20 33.8	+00.5	128	13.2	-34.8	S 26 02.8	+06.5					
19	103	21.0	-00.2	S 22 13.8	-00.3	141	58.3	-00.8	S 20 34.3	+00.5	142	38.4	-35.0	S 26 09.3	+06.4					
20	118	20.8	-00.3	S 22 13.5	-00.3	156	57.5	-00.7	S 20 34.8	+00.5	157	03.4	-35.0	S 26 15.7	+06.2					
21	133	20.5	-00.3	S 22 13.2	-00.4	171	56.8	-00.8	S 20 35.3	+00.5	171	28.4	-35.1	S 26 21.9	+06.0					
22	148	20.2	-00.2	S 22 12.8	-00.3	186	56.0	-00.7	S 20 35.8	+00.5	185	53.3	-35.3	S 26 27.9	+05.9					
23	163	20.0	-00.3	S 22 12.5	-00.4	201	55.3	-00.8	S 20 36.3	+00.5	200	18.0	-35.4	S 26 33.8	+05.8					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°6	15°7	15°7	15°8	15°8	15°8
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	57°4	57°6	57°7	57°9	58°0	58°2
SHA	07°1	07°1	07°1	07°1	07°1	07°1	SHA	110°	110°	110°	109°	109°	109°	SHA	120°	118°	115°	113°	110°	108°
Greenwich Culmination Time: 12:06																				
Greenwich Culmination Time: 09:31																				
Greenwich Culmination Time: 09:06																				

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	178	46.0	-00.3	S 22 41.4	-00.2	218	05.5	-00.7	S 19 45.6	+00.6	262	23.2	-25.2	S 09 21.3	+13.8					
01	193	45.7	-00.3	S 22 41.2	-00.3	233	04.8	-00.8	S 19 46.2	+00.5	276	58.0	-25.2	S 09 35.1	+13.7					
02	208	45.4	-00.3	S 22 40.9	-00.3	248	04.0	-00.7	S 19 46.7	+00.6	291	32.8	-25.4	S 09 48.8	+13.6					
03	223	45.1	-00.3	S 22 40.6	-00.3	263	03.3	-00.7	S 19 47.3	+00.6	306	07.4	-25.3	S 10 02.4	+13.7					
04	238	44.8	-00.2	S 22 40.3	-00.2	278	02.6	-00.7	S 19 47.9	+00.6	320	42.1	-25.5	S 10 16.1	+13.6					
05	253	44.6	-00.3	S 22 40.1	-00.3	293	01.9	-00.7	S 19 48.5	+00.5	335	16.6	-25.5	S 10 29.7	+13.6					
06	268	44.3	-00.3	S 22 39.8	-00.3	308	01.2	-00.8	S 19 49.0	+00.6	349	51.1	-25.6	S 10 43.3	+13.5					
07	283	44.0	-00.3	S 22 39.5	-00.2	323	00.4	-00.7	S 19 49.6	+00.6	4	25.5	-25.7	S 10 56.8	+13.6					
08	298	43.7	-00.3	S 22 39.3	-00.3	337	59.7	-00.7	S 19 50.2	+00.6	18	59.8	-25.7	S 11 10.4	+13.5					
09	313	43.4	-00.2	S 22 39.0	-00.3	352	59.0	-00.7	S 19 50.8	+00.5	33	34.1	-25.8	S 11 23.9	+13.4					
10	328	43.2	-00.3	S 22 38.7	-00.3	7	58.3	-00.7	S 19 51.3	+00.6	48	08.3	-25.9	S 11 37.3	+13.5					
11	343	42.9	-00.3	S 22 38.4	-00.2	22	57.6	-00.8	S 19 51.9	+00.6	62	42.4	-26.0	S 11 50.8	+13.4					
12	358	42.6	-00.3	S 22 38.2	-00.3	37	56.8	-00.7	S 19 52.5	+00.5	77	16.4	-26.0	S 12 04.2	+13.3					
13	13	42.3	-00.3	S 22 37.9	-00.3	52	56.1	-00.7	S 19 53.0	+00.6	91	50.4	-26.1	S 12 17.5	+13.4					
14	28	42.0	-00.3	S 22 37.6	-00.3	67	55.4	-00.7	S 19 53.6	+00.6	106	24.3	-26.2	S 12 30.9	+13.3					
15	43	41.7	-00.2	S 22 37.3	-00.3	82	54.7	-00.8	S 19 54.2	+00.5	120	58.1	-26.2	S 12 44.2	+13.2					
16	58	41.5	-00.3	S 22 37.0	-00.2	97	53.9	-00.7	S 19 54.7	+00.6	135	31.9	-26.4	S 12 57.4	+13.2					
17	73	41.2	-00.3	S 22 36.8	-00.3	112	53.2	-00.7	S 19 55.3	+00.5	150	05.5	-26.4	S 13 10.6	+13.2					
18	88	40.9	-00.3	S 22 36.5	-00.3	127	52.5	-00.7	S 19 55.8	+00.6	164	39.1	-26.5	S 13 23.8	+13.1					
19	103	40.6	-00.2	S 22 36.2	-00.3	142	51.8	-00.8	S 19 56.4	+00.6	179	12.6	-26.6	S 13 36.9	+13.1					
20	118	40.4	-00.3	S 22 35.9	-00.3	157	51.0	-00.7	S 19 57.0	+00.5	193	46.0	-26.7	S 13 50.0	+13.1					
21	133	40.1	-00.3	S 22 35.6	-00.3	172	50.3	-00.7	S 19 57.5	+00.6	208	19.3	-26.8	S 14 03.1	+13.0					
22	148	39.8	-00.3	S 22 35.3	-00.2	187	49.6	-00.7	S 19 58.1	+00.5	222	52.5	-26.9	S 14 16.1	+13.0					
23	163	39.5	-00.3	S 22 35.1	-00.2	202	48.9	-00.8	S 19 58.6	+00.6	237	25.6	-26.9	S 14 29.1	+12.9					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°0	15°0	15°1	15°1	15°1	15°2
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	55°1	55°2	55°3	55°4	55°5	55°7
SHA	07°5	07°4	07°4	07°4	07°4	07°4	SHA	114°	114°	113°	113°	113°	113°	SHA	157°	156°	154°	152°	150°	148°
Greenwich Culmination Time: 12:05																				
Greenwich Culmination Time: 09:28																				
Greenwich Culmination Time: 06:41																				

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	194	17.7	+00.4	S 24 01.9	+00.0	73	16.5	+02.4	N 12 20.0	+00.0	130	39.7	+02.2	S 11 35.8	-00.1
01	209	18.1	+00.4	S 24 01.9	+00.0	88	18.9	+02.4	N 12 20.0	+00.0	145	41.9	+02.2	S 11 35.7	-00.1
02	224	18.5	+00.5	S 24 01.9	+00.0	103	21.3	+02.4	N 12 20.0	+00.1	160	44.1	+02.3	S 11 35.6	-00.1
03	239	19.0	+00.4	S 24 01.9	+00.0	118	23.7	+02.4	N 12 20.1	+00.0	175	46.4	+02.2	S 11 35.5	+00.0
04	254	19.4	+00.4	S 24 01.9	+00.0	133	26.1	+02.4	N 12 20.1	+00.0	190	48.6	+02.2	S 11 35.5	-00.1
05	269	19.8	+00.4	S 24 01.9	+00.0	148	28.5	+02.4	N 12 20.1	+00.1	205	50.8	+02.3	S 11 35.4	-00.1
06	284	20.2	+00.4	S 24 01.9	+00.0	163	30.9	+02.4	N 12 20.2	+00.0	220	53.1	+02.2	S 11 35.3	-00.1
07	299	20.6	+00.5	S 24 01.9	-00.1	178	33.3	+02.4	N 12 20.2	+00.1	235	55.3	+02.2	S 11 35.2	-00.1
08	314	21.1	+00.4	S 24 01.8	+00.0	193	35.7	+02.4	N 12 20.3	+00.0	250	57.5	+02.3	S 11 35.1	-00.1
09	329	21.5	+00.4	S 24 01.8	+00.0	208	38.1	+02.4	N 12 20.3	+00.0	265	59.8	+02.2	S 11 35.0	-00.1
10	344	21.9	+00.4	S 24 01.8	+00.0	223	40.5	+02.4	N 12 20.3	+00.1	281	02.0	+02.3	S 11 34.9	-00.1
11	359	22.3	+00.4	S 24 01.8	+00.0	238	42.9	+02.4	N 12 20.4	+00.0	296	04.3	+02.2	S 11 34.8	-00.1
12	14	22.7	+00.5	S 24 01.8	+00.0	253	45.3	+02.4	N 12 20.4	+00.0	311	06.5	+02.2	S 11 34.7	-00.1
13	29	23.2	+00.4	S 24 01.8	-00.1	268	47.7	+02.4	N 12 20.4	+00.1	326	08.7	+02.3	S 11 34.6	+00.0
14	44	23.6	+00.4	S 24 01.7	+00.0	283	50.1	+02.4	N 12 20.5	+00.0	341	11.0	+02.2	S 11 34.6	-00.1
15	59	24.0	+00.4	S 24 01.7	+00.0	298	52.5	+02.4	N 12 20.5	+00.0	356				

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178	39.2	-00.2	S 22 34.8	-00.3	217	48.1	-00.7	S 19 59.2	+00.5	251	58.7	-27.1	S 14 42.0	+12.8
01	193	39.0	-00.3	S 22 34.5	-00.3	232	47.4	-00.7	S 19 59.7	+00.6	266	31.6	-27.1	S 14 54.8	+12.9
02	208	38.7	-00.3	S 22 34.2	-00.3	247	46.7	-00.8	S 20 00.3	+00.5	281	04.5	-27.2	S 15 07.7	+12.7
03	223	38.4	-00.3	S 22 33.9	-00.3	262	45.9	-00.7	S 20 00.8	+00.6	295	37.3	-27.3	S 15 20.4	+12.7
04	238	38.1	-00.3	S 22 33.6	-00.3	277	45.2	-00.7	S 20 01.4	+00.6	310	10.0	-27.5	S 15 33.1	+12.7
05	253	37.8	-00.2	S 22 33.3	-00.3	292	44.5	-00.8	S 20 02.0	+00.5	324	42.5	-27.5	S 15 45.8	+12.6
06	268	37.6	-00.3	S 22 33.0	-00.3	307	43.7	-00.7	S 20 02.5	+00.6	339	15.0	-27.6	S 15 58.4	+12.6
07	283	37.3	-00.3	S 22 32.7	-00.2	322	43.0	-00.7	S 20 03.1	+00.5	353	47.4	-27.7	S 16 11.0	+12.5
08	298	37.0	-00.3	S 22 32.5	-00.3	337	42.3	-00.8	S 20 03.6	+00.5	8	19.7	-27.8	S 16 23.5	+12.4
09	313	36.7	-00.2	S 22 32.2	-00.3	352	41.5	-00.7	S 20 04.1	+00.6	22	51.9	-27.9	S 16 35.9	+12.4
10	328	36.5	-00.3	S 22 31.9	-00.3	7	40.8	-00.7	S 20 04.7	+00.5	37	24.0	-28.1	S 16 48.3	+12.3
11	343	36.2	-00.3	S 22 31.6	-00.3	22	40.1	-00.8	S 20 05.2	+00.6	51	55.9	-28.1	S 17 00.6	+12.3
12	358	35.9	-00.3	S 22 31.3	-00.3	37	39.3	-00.7	S 20 05.8	+00.5	66	27.8	-28.2	S 17 12.9	+12.2
13	13	35.6	-00.2	S 22 31.0	-00.3	52	38.6	-00.7	S 20 06.3	+00.6	80	59.6	-28.4	S 17 25.1	+12.1
14	28	35.4	-00.3	S 22 30.7	-00.3	67	37.9	-00.8	S 20 06.9	+00.5	95	31.2	-28.4	S 17 37.2	+12.1
15	43	35.1	-00.3	S 22 30.4	-00.3	82	37.1	-00.7	S 20 07.4	+00.6	110	02.8	-28.6	S 17 49.3	+12.0
16	58	34.8	-00.3	S 22 30.1	-00.3	97	36.4	-00.7	S 20 08.0	+00.5	124	34.2	-28.6	S 18 01.3	+11.9
17	73	34.5	-00.2	S 22 29.8	-00.3	112	35.7	-00.8	S 20 08.5	+00.5	139	05.6	-28.8	S 18 13.2	+11.9
18	88	34.3	-00.3	S 22 29.5	-00.3	127	34.9	-00.7	S 20 09.0	+00.6	153	36.8	-28.9	S 18 25.1	+11.8
19	103	34.0	-00.3	S 22 29.2	-00.3	142	34.2	-00.7	S 20 09.6	+00.5	168	07.9	-29.0	S 18 36.9	+11.7
20	118	33.7	-00.3	S 22 28.9	-00.3	157	33.5	-00.8	S 20 10.1	+00.5	182	38.9	-29.1	S 18 48.6	+11.7
21	133	33.4	-00.2	S 22 28.6	-00.3	172	32.7	-00.7	S 20 10.6	+00.6	197	09.8	-29.2	S 19 00.3	+11.6
22	148	33.2	-00.3	S 22 28.3	-00.3	187	32.0	-00.8	S 20 11.2	+00.5	211	40.6	-29.3	S 19 11.9	+11.5
23	163	32.9	-00.3	S 22 28.0	-00.3	202	31.2	-00.7	S 20 11.7	+00.6	226	11.3	-29.5	S 19 23.4	+11.4

UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3
HP	00°1	00°1	00°1	00°1	00°1	00°1
SHA	073°	073°	073°	073°	073°	073°
Greenwich Culmination Time: 12:05						

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	193	57.4	+00.5	S 24 02.0	+00.0	71	20.8	+02.4	N 12 18.4	+00.1	128	52.2	+02.2	S 11 40.1	-00.1
01	208	57.9	+00.4	S 24 02.0	+00.0	86	23.2	+02.4	N 12 18.5	+00.0	143	54.4	+02.2	S 11 40.0	-00.1
02	223	58.3	+00.4	S 24 02.0	+00.0	101	25.6	+02.4	N 12 18.5	+00.0	158	56.6	+02.3	S 11 39.9	-00.1
03	238	58.7	+00.4	S 24 02.0	+00.0	116	28.0	+02.4	N 12 18.5	+00.1	173	58.9	+02.2	S 11 39.8	-00.1
04	253	59.1	+00.5	S 24 02.0	+00.0	131	30.4	+02.5	N 12 18.6	+00.0	189	01.1	+02.3	S 11 39.7	-00.1
05	268	59.6	+00.4	S 24 02.0	+00.1	146	32.9	+02.4	N 12 18.6	+00.0	204	03.4	+02.2	S 11 39.6	+00.0
06	283	60.0	+00.4	S 24 02.1	+00.0	161	35.3	+02.4	N 12 18.6	+00.1	219	05.6	+02.3	S 11 39.6	-00.1
07	299	00.4	+00.4	S 24 02.1	+00.0	176	37.7	+02.4	N 12 18.7	+00.0	234	07.9	+02.2	S 11 39.5	-00.1
08	314	00.8	+00.5	S 24 02.1	+00.0	191	40.1	+02.4	N 12 18.7	+00.0	249	10.1	+02.2	S 11 39.4	-00.1
09	329	01.3	+00.4	S 24 02.1	+00.0	206	42.5	+02.4	N 12 18.7	+00.0	264	12.3	+02.3	S 11 39.3	-00.1
10	344	01.7	+00.4	S 24 02.1	+00.0	221	44.9	+02.5	N 12 18.7	+00.1	279	14.6	+02.2	S 11 39.2	-00.1
11	359	02.1	+00.4	S 24 02.1	+00.0	236	47.4	+02.4	N 12 18.8	+00.0	294	16.8	+02.3	S 11 39.1	-00.1
12	14	02.5	+00.4	S 24 02.1	+00.0	251	49.8	+02.4	N 12 18.8	+00.0	309	19.1	+02.2	S 11 39.0	-00.1
13	29	02.9	+00.5	S 24 02.1	+00.0	266	52.2	+02.4	N 12 18.8	+00.1	324	21.3	+02.2	S 11 38.9	-00.1
14	44	03.4	+00.4	S 24 02.1	+00.0	281	54.6	+02.4	N 12 18.9	+00.0	339	23.5	+02.3	S 11 38.8	+00.0
15	59	03.8	+00.4	S 24 02.1	+00.0	296	57.0	+02.4	N 12 18.9	+00.0	354	25.8	+02.2	S 11 38.8	-00.1
16	74	04.2	+00.4	S 24 02.1	+00.0	311	59.4	+02.4	N 12 18.9	+00.1	9	28.0	+02.3	S 11 38.7	-00.1
17	89	04.6	+00.5	S 24 02.1	+00.0	327	01.8	+02.5	N 12 19.0	+00.0	24	30.3	+02.2	S 11 38.6	-00.1
18	104	05.1	+00.4	S 24 02.1	+00.0	342	04.3	+02.4	N 12 19.0	+00.0	39	32.5	+02.2	S 11 38.5	-00.1
19	119	05.5	+00.4	S 24 02.1	+00.0	357	06.7	+02.4	N 12 19.0	+00.1	54	34.7	+02.3	S 11 38.4	-00.1
20	134	05.9	+00.4	S 24 02.1	+00.0	12	09.1	+02.4	N 12 19.1	+00.0	69	37.0	+02.2	S 11 38.3	-00.1
21	149	06.3	+00.4	S 24 02.1	+00.0	27	11.5	+02.4	N 12 19.1	+00.0	84	39.2	+02.3	S 11 38.2	-00.1
22	164	06.7	+00.5	S 24 02.1	+00.0	42	13.9	+02.4	N 12 19.1	+00.0	99	41.5	+02.2	S 11 38.1	-00.1
23	179	07.2	+00.4	S 24 02.1	+00.0	57	16.3	+02.4	N 12 19.1	+00.1	114	43.7	+02.2	S 11 38.0	+00.0

UT	02	06	10	14	18	22
SD	00°0	00°0	00°0	00°0	00°0	00°0
HP	00°1	00°1	00°1	00°1	00°1	00°1
SHA	089°	089°	088°	088°	088°	088°
Greenwich Culmination Time: 11:03						

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178	32.6	-00.3	S 22 27.7	-00.3	217	30.5	-00.7	S 20 12.3	+00.5	240	41.8	-29.5	S 19 34.8	+11.3
01	193	32.3	-00.2	S 22 27.4	-00.3	232	29.8	-00.8	S 20 12.8	+00.5	255	12.3	-29.7	S 19 46.1	+11.3
02	208	32.1	-00.3	S 22 27.1	-00.3	247	29.0	-00.7	S 20 13.3	+00.5	269	42.6	-29.8	S 19 57.4	+11.2
03	223	31.8	-00.3	S 22 26.8	-00.4	262	28.3	-00.8	S 20 13.8	+00.6	284	12.8	-29.9	S 20 08.6	+11.1
04	238	31.5	-00.3	S 22 26.4	-00.3	277	27.5	-00.7	S 20 14.4	+00.5	298	42.9	-30.1	S 20 19.7	+11.0
05	253	31.2	-00.2	S 22 26.1	-00.3	292	26.8	-00.7	S 20 14.9	+00.5	313	12.8	-30.2	S 20 30.7	+10.9
06	268	31.0	-00.3	S 22 25.8	-00.3	307	26.1	-00.8	S 20 15.4	+00.6	327	42.6	-30.2	S 20 41.6	+10.8
07	283	30.7	-00.3	S 22 25.5	-00.3	322	25.3	-00.7	S 20 16.0	+00.5	342	12.4	-30.4	S 20 52.4	+10.8
08	298	30.4	-00.2	S 22 25.2	-00.3	337	24.6	-00.8	S 20 16.5	+00.5	356	42.0	-30.6	S 21 03.2	+10.6
09	313	30.2	-00.3	S 22 24.9	-00.3	352	23.8	-00.7	S 20 17.0	+00.5	11	11.4	-30.6	S 21 13.8	+10.6
10	328	29.9	-00.3	S 22 24.6	-00.3	7	23.1	-00.8	S 20 17.5	+00.6	25	40.8	-30.8	S 21 24.4	+10.4
11	343	29.6	-00.3	S 22 24.3	-00.3	22	22.3	-00.7	S 20 18.1	+00.5	40	10.0	-30.9	S 21 34.8	+10.4
12	358	29.3	-00.2	S 22 24.0	-00.4	37	21.6	-00.7	S 20 18.6	+00.5	54	39.1	-31.0	S 21 45.2	+10.3
13	13	29.1	-00.3	S 22 23.6	-00.3	52	20.9	-00.8	S 20 19.1	+00.5	69	08.1	-31.2	S 21 55.5	+10.2
14	28	28.8	-00.3	S 22 23.3	-00.3	67	20.1	-00.7	S 20 19.6	+00.5	83	36.9	-31.3	S 22 05.7	+10.0
15	43	28.5	-00.2	S 22 23.0	-00.3	82	19.4	-00.8	S 20 20.1	+00.6	98	05.6	-31.4	S 22 15.7	+10.0
16	58	28.3	-00.3	S 22 22.7	-00.3	97	18.6	-00.7	S 20 20.7	+00.5	112	34.2	-31.5	S 22 25.7	+09.8
17	73	28.0	-00.3	S 22 22.4	-00.3	112	17.9	-00.8	S 20 21.2	+00.5	127	02.7	-31.6	S 22 35.5	+09.8
18	88	27.7	-00.3	S 22 22.1	-00.4	127	17.1	-00.7	S 20 21.7	+00.5	141	31.1	-31.8	S 22 45.3	+09.6
19	103	27.4	-00.2	S 22 21.7	-00.3	142	16.4	-00.8	S 20 22.2	+00.5	155	59.3	-31.9	S 22 54.9	+09.6
20	118	27.2	-00.3	S 22 21.4	-00.3	157	15.6	-00.7	S 20 22.7	+00.5	170	27.4	-32.1	S 23 04.5	+09.4
21	133	26.9	-00.3	S 22 21.1	-00.3	172	14.9	-00.8	S 20 23.2	+00.6	184	55.3	-32.1	S 23 13.9	+09.3
22	148	26.6	-00.2	S 22 20.8	-00.3	187	14.1								

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178 01.3	-00.2	S 21 45.6	-00.4	215 58.7	-00.8	S 21 09.3	+00.4	169 39.6	-37.2	S 25 22.8	-08.1	00		
01	193 01.1	-00.3	S 21 45.2	-00.4	230 57.9	-00.8	S 21 09.7	+00.4	184 02.4	-37.2	S 25 14.7	-08.4	01		
02	208 00.8	-00.2	S 21 44.8	-00.4	245 57.1	-00.8	S 21 10.1	+00.4	198 25.2	-37.2	S 25 06.3	-08.5	02		
03	223 00.6	-00.3	S 21 44.4	-00.4	260 56.3	-00.8	S 21 10.5	+00.4	212 48.0	-37.0	S 24 57.8	-08.7	03		
04	238 00.3	-00.2	S 21 44.0	-00.4	275 55.5	-00.8	S 21 10.9	+00.4	227 11.0	-37.0	S 24 49.1	-08.9	04		
05	253 00.1	-00.3	S 21 43.6	-00.4	290 54.7	-00.8	S 21 11.3	+00.5	241 34.0	-36.9	S 24 40.2	-09.1	05		
06	267 59.8	-00.2	S 21 43.2	-00.4	305 53.9	-00.8	S 21 11.8	+00.4	255 57.1	-36.8	S 24 31.1	-09.3	06		
07	282 59.6	-00.2	S 21 42.8	-00.4	320 53.1	-00.8	S 21 12.2	+00.4	270 20.3	-36.8	S 24 21.8	-09.4	07		
08	297 59.4	-00.3	S 21 42.4	-00.4	335 52.3	-00.8	S 21 12.6	+00.4	284 43.5	-36.6	S 24 12.4	-09.6	08		
09	312 59.1	-00.2	S 21 42.0	-00.4	350 51.5	-00.8	S 21 13.0	+00.4	299 06.9	-36.6	S 24 02.8	-09.7	09		
10	327 58.9	-00.3	S 21 41.6	-00.4	5 50.7	-00.8	S 21 13.4	+00.4	313 30.3	-36.5	S 23 53.1	-09.9	10		
11	342 58.6	-00.2	S 21 41.2	-00.4	20 49.9	-00.7	S 21 13.8	+00.4	327 53.8	-36.4	S 23 43.2	-10.1	11		
12	357 58.4	-00.3	S 21 40.8	-00.4	35 49.2	-00.8	S 21 14.2	+00.4	342 17.4	-36.3	S 23 33.1	-10.3	12		
13	12 58.1	-00.2	S 21 40.4	-00.4	50 48.4	-00.8	S 21 14.6	+00.4	356 41.1	-36.2	S 23 22.8	-10.4	13		
14	27 57.9	-00.3	S 21 40.0	-00.4	65 47.6	-00.8	S 21 15.0	+00.4	1 04.9	-36.2	S 23 12.4	-10.6	14		
15	42 57.6	-00.2	S 21 39.6	-00.4	80 46.8	-00.8	S 21 15.4	+00.4	25 28.7	-36.0	S 23 01.8	-10.7	15		
16	57 57.4	-00.2	S 21 39.2	-00.4	95 46.0	-00.8	S 21 15.8	+00.4	39 52.7	-36.0	S 22 51.1	-10.9	16		
17	72 57.2	-00.3	S 21 38.8	-00.5	110 45.2	-00.8	S 21 16.2	+00.4	54 16.7	-35.8	S 22 40.2	-11.0	17		
18	87 56.9	-00.2	S 21 38.3	-00.4	125 44.4	-00.8	S 21 16.6	+00.4	68 40.9	-35.8	S 22 29.2	-11.2	18		
19	102 56.7	-00.3	S 21 37.9	-00.4	140 43.6	-00.8	S 21 17.0	+00.4	83 05.1	-35.6	S 22 18.0	-11.4	19		
20	117 56.4	-00.2	S 21 37.5	-00.4	155 42.8	-00.8	S 21 17.4	+00.4	97 29.5	-35.6	S 22 06.6	-11.5	20		
21	132 56.2	-00.2	S 21 37.1	-00.4	170 42.0	-00.8	S 21 17.8	+00.4	111 53.9	-35.5	S 21 55.1	-11.6	21		
22	147 56.0	-00.3	S 21 36.7	-00.4	185 41.2	-00.8	S 21 18.2	+00.4	126 18.4	-35.3	S 21 43.5	-11.8	22		
23	162 55.7	-00.2	S 21 36.3	-00.4	200 40.4	-00.8	S 21 18.6	+00.4	140 43.1	-35.3	S 21 31.7	-12.0	23		
UT	02 06 10 14 18 22				UT	02 06 10 14 18 22				UT	02 06 10 14 18 22				
SD	16°3 16°3 16°3 16°3 16°3 16°3				SD	00°1 00°1 00°1 00°1 00°1 00°1				SD	16°4 16°4 16°4 16°5 16°5 16°5				
HP	00°1 00°1 00°1 00°1 00°1 00°1				HP	00°1 00°1 00°1 00°1 00°1 00°1				HP	60°3 60°3 60°4 60°4 60°4 60°5				
SHA	067° 067° 067° 066° 066° 066°				SHA	105° 105° 104° 104° 104° 104°				SHA	057° 057° 052° 050° 047° 044°				
Greenwich Culmination Time: 12:08				Greenwich Culmination Time: 09:36				Greenwich Culmination Time: 13:13							

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	194 57.7	+00.4	S 23 58.8	-00.1	77 05.6	+02.3	N 12 23.8	+00.1	134 14.0	+02.2	S 11 27.0	-00.1	00		
01	209 58.1	+00.5	S 23 58.7	+00.0	92 07.9	+02.4	N 12 23.9	+00.0	149 16.2	+02.2	S 11 26.9	-00.1	01		
02	224 58.6	+00.4	S 23 58.7	-00.1	107 10.3	+02.4	N 12 23.9	+00.1	164 18.4	+02.2	S 11 26.8	-00.1	02		
03	239 59.0	+00.4	S 23 58.6	-00.1	122 12.7	+02.3	N 12 24.0	+00.0	179 20.6	+02.3	S 11 26.7	-00.1	03		
04	254 59.4	+00.4	S 23 58.5	+00.0	137 15.0	+02.4	N 12 24.0	+00.1	194 22.9	+02.2	S 11 26.6	+00.0	04		
05	269 59.8	+00.4	S 23 58.5	-00.1	152 17.4	+02.4	N 12 24.1	+00.0	209 25.1	+02.2	S 11 26.6	-00.1	05		
06	285 00.2	+00.4	S 23 58.4	+00.0	167 19.8	+02.3	N 12 24.1	+00.0	224 27.3	+02.2	S 11 26.5	-00.1	06		
07	300 00.6	+00.4	S 23 58.4	-00.1	182 22.1	+02.4	N 12 24.1	+00.1	239 29.5	+02.3	S 11 26.4	-00.1	07		
08	315 01.0	+00.5	S 23 58.3	+00.0	197 24.5	+02.4	N 12 24.2	+00.0	254 31.8	+02.2	S 11 26.3	-00.1	08		
09	330 01.5	+00.4	S 23 58.3	-00.1	212 26.9	+02.3	N 12 24.2	+00.0	269 34.0	+02.2	S 11 26.2	-00.1	09		
10	345 01.9	+00.4	S 23 58.2	-00.1	227 29.2	+02.4	N 12 24.3	+00.0	284 36.2	+02.3	S 11 26.1	-00.1	10		
11	0 02.3	+00.4	S 23 58.1	+00.0	242 31.6	+02.4	N 12 24.3	+00.1	299 38.5	+02.2	S 11 26.0	-00.1	11		
12	15 02.7	+00.4	S 23 58.1	-00.1	257 34.0	+02.3	N 12 24.4	+00.0	314 40.7	+02.2	S 11 25.9	-00.1	12		
13	30 03.1	+00.4	S 23 58.0	+00.0	272 36.3	+02.4	N 12 24.4	+00.1	329 42.9	+02.2	S 11 25.8	-00.1	13		
14	45 03.5	+00.4	S 23 58.0	-00.1	287 38.7	+02.4	N 12 24.5	+00.0	344 45.1	+02.3	S 11 25.7	-00.1	14		
15	60 03.9	+00.5	S 23 57.9	-00.1	302 41.1	+02.3	N 12 24.5	+00.1	359 47.4	+02.2	S 11 25.6	-00.1	15		
16	75 04.4	+00.4	S 23 57.8	+00.0	317 43.4	+02.4	N 12 24.6	+00.0	14 49.6	+02.2	S 11 25.5	-00.1	16		
17	90 04.8	+00.4	S 23 57.8	-00.1	332 45.8	+02.4	N 12 24.6	+00.1	29 51.8	+02.2	S 11 25.4	-00.1	17		
18	105 05.2	+00.4	S 23 57.7	-00.1	347 48.2	+02.3	N 12 24.7	+00.0	44 54.0	+02.3	S 11 25.3	-00.1	18		
19	120 05.6	+00.4	S 23 57.6	+00.0	2 50.5	+02.4	N 12 24.7	+00.1	59 56.3	+02.2	S 11 25.2	-00.1	19		
20	135 06.0	+00.4	S 23 57.6	-00.1	17 52.9	+02.3	N 12 24.8	+00.0	74 58.5	+02.2	S 11 25.1	-00.1	20		
21	150 06.4	+00.4	S 23 57.5	+00.0	32 55.2	+02.4	N 12 24.8	+00.1	90 00.7	+02.2	S 11 25.0	+00.0	21		
22	165 06.8	+00.4	S 23 57.5	-00.1	47 57.6	+02.4	N 12 24.9	+00.0	105 02.9	+02.3	S 11 25.0	-00.1	22		
23	180 07.2	+00.5	S 23 57.4	-00.1	62 60.0	+02.3	N 12 24.9	+00.1	120 05.2	+02.2	S 11 24.9	-00.1	23		
UT	02 06 10 14 18 22				UT	02 06 10 14 18 22				UT	02 06 10 14 18 22				
SD	00°0 00°0 00°0 00°0 00°0 00°0				SD	00°4 00°4 00°4 00°4 00°4 00°4				SD	00°1 00°1 00°1 00°1 00°1 00°1				
HP	00°1 00°1 00°1 00°1 00°1 00°1				HP	00°0 00°0 00°0 00°0 00°0 00°0				HP	00°0 00°0 00°0 00°0 00°0 00°1				
SHA	084° 084° 084° 083° 083° 083°				SHA	326° 326° 326° 326° 326° 326°				SHA	023° 023° 023° 023° 023° 023°				
Greenwich Culmination Time: 10:59				Greenwich Culmination Time: 18:48				Greenwich Culmination Time: 15:00							

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	178 19.7	-00.3	S 22 12.1	-00.3	216 54.5	-00.8	S 20 36.8	+00.4	214 42.6	-35.5	S 26 39.6	+05.6	00
01	193 19.4	-00.2	S 22 11.8	-00.3	231 53.7	-00.7	S 20 37.2	+00.5	229 07.1	-35.6	S 26 45.2	+05.4	01
02	208 19.2	-00.3	S 22 11.5	-00.4	246 53.0	-00.8	S 20 37.7	+00.5	243 31.5	-35.7	S 26 50.6	+05.2	02
03	223 18.9	-00.3	S 22 11.1	-00.3	261 52.2	-00.8	S 20 38.2	+00.5	257 55.8	-35.8	S 26 55.8	+05.1	03
04	238 18.6	-00.2	S 22 10.8	-00.4	276 51.4	-00.7	S 20 38.7	+00.5	272 20.0	-36.0	S 27 00.9	+04.9	04
05	253 18.4	-00.3	S 22 10.4	-00.3	291 50.7	-00.8	S 20 39.2	+00.5	286 44.0	-36.0	S 27 05.8	+04.8	05
06	268 18.1	-00.2	S 22 10.1	-00.4	306 49.9	-00.7	S 20 39.7	+00.4	301 08.0	-36.1	S 27 10.6	+04.6	06
07	283 17.9	-00.3	S 22 09.7	-00.3	321 49.2	-00.8	S 20 40.1	+00.5	315 31.9	-36.3	S 27 15.2	+04.4	07
08	298 17.6	-00.3	S 22 09.4	-00.4	336 48.4	-00.8	S 20 40.6	+00.5	329 55.6	-36.3	S 27 19.6	+04.2	08
09	313 17.3	-00.2	S 22 09.0	-00.3	351 47.6	-00.7	S 20 41.1	+00.5	344 19.3	-36.4	S 27 23.8	+04.1	09
10	328 17.1	-00.3	S 22 08.7	-00.4	6 46.9	-00.8	S 20 41.6	+00.5	358 42.9	-36.6	S 27 27.9	+03.9	10
11	343 16.8	-00.2	S 22 08.3	-00.3	21 46.1	-00.8	S 20 42.1	+00.4	13 06.3	-36.6	S 27 31.8	+03.7	11
12	358 16.6	-00.3	S 22 08.0	-00.4	36 45.3	-00.7	S 20 42.5	+00.5	27 29.7	-36.7	S 27 35.5	+03.5	12
13	13 16.3	-00.3	S 22 07.6	-00.3	51 44.6	-00.8	S 20 43.0	+00.5	41 53.0	-36.8	S 27 39.0	+03.3	13
14	28 16.0	-00.2	S 22 07.3	-00.4	66 43.8	-00.8	S 20 43.5	+00.5	56 16.2	-36.9	S 27 42.3	+03.2	14
15	43 15.8	-00.3	S 22 06.9	-00.3	81 43.0	-00.7	S 20 44.0	+00.4	70 39.3	-37.0	S 27 45.5	+03.0	15
16	58 15.5	-00.3	S 22 06.6	-00.4	96 42.3	-00.8	S 20 44.4	+00.5	85 02.3	-37.0	S 27 48.5	+02.8	16
17	73 15.2	-00.2	S 22 06.2	-00.3	111 41.5	-00.8	S 20 44.9	+00.5	99 25.3	-37.2	S 27 51.3	+02.6	17
18	88 15.0	-00.3	S 22 05.9	-00.4	126 40.7	-00.7	S 20 45.4	+00.4	113 48.1	-37.2	S 27 53.9	+02.4	18
19	103 14.7	-00											

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	178	13.4	-00.2	S 22 03.7	-00.3	216	36.1	-00.8	S 20 48.2	+00.4	200	03.7	-37.6	S 28 05.6	+01.3	00				
01	193	13.2	-00.3	S 22 03.4	-00.4	231	35.3	-00.7	S 20 48.6	+00.5	214	26.1	-37.7	S 28 06.9	+01.1	01				
02	208	12.9	-00.2	S 22 03.0	-00.4	246	34.6	-00.8	S 20 49.1	+00.5	228	48.4	-37.7	S 28 08.0	+00.9	02				
03	223	12.7	-00.3	S 22 02.6	-00.3	261	33.8	-00.8	S 20 49.6	+00.4	243	10.7	-37.8	S 28 08.9	+00.7	03				
04	238	12.4	-00.3	S 22 02.3	-00.4	276	33.0	-00.7	S 20 50.0	+00.5	257	32.9	-37.9	S 28 09.6	+00.5	04				
05	253	12.1	-00.2	S 22 01.9	-00.4	291	32.3	-00.8	S 20 50.5	+00.4	271	55.0	-37.9	S 28 10.1	+00.3	05				
06	268	11.9	-00.3	S 22 01.5	-00.3	306	31.5	-00.8	S 20 50.9	+00.5	286	17.1	-38.0	S 28 10.4	+00.2	06				
07	283	11.6	-00.2	S 22 01.2	-00.4	321	30.7	-00.8	S 20 51.4	+00.4	300	39.1	-38.0	S 28 10.6	-00.1	07				
08	298	11.4	-00.3	S 22 00.8	-00.3	336	29.9	-00.7	S 20 51.8	+00.5	315	01.1	-38.0	S 28 10.5	-00.3	08				
09	313	11.1	-00.2	S 22 00.5	-00.4	351	29.2	-00.8	S 20 52.3	+00.5	329	23.1	-38.1	S 28 10.2	-00.5	09				
10	328	10.9	-00.3	S 22 00.1	-00.4	6 28.4	-00.8	S 20 52.8	+00.4	343	45.0	-38.1	S 28 09.7	-00.7	10					
11	343	10.6	-00.2	S 21 59.7	-00.4	21 27.6	-00.8	S 20 53.2	+00.5	358	06.9	-38.1	S 28 09.0	-00.9	11					
12	358	10.4	-00.3	S 21 59.3	-00.3	36 26.8	-00.7	S 20 53.7	+00.4	12 28.8	-38.2	S 28 08.1	-01.1	12						
13	13	10.1	-00.3	S 21 59.0	-00.4	51 26.1	-00.8	S 20 54.1	+00.5	26 50.6	-38.2	S 28 07.0	-01.2	13						
14	28	09.8	-00.2	S 21 58.6	-00.4	66 25.3	-00.8	S 20 54.6	+00.4	41 12.4	-38.2	S 28 05.8	-01.5	14						
15	43	09.6	-00.3	S 21 58.2	-00.3	81 24.5	-00.8	S 20 55.0	+00.5	55 34.2	-38.2	S 28 04.3	-01.7	15						
16	58	09.3	-00.2	S 21 57.9	-00.4	96 23.7	-00.8	S 20 55.5	+00.4	69 56.0	-38.3	S 28 02.6	-01.9	16						
17	73	09.1	-00.3	S 21 57.5	-00.4	111 22.9	-00.7	S 20 55.9	+00.5	84 17.7	-38.3	S 28 00.7	-02.1	17						
18	88	08.8	-00.2	S 21 57.1	-00.4	126 22.2	-00.8	S 20 56.4	+00.4	98 39.4	-38.2	S 27 58.6	-02.3	18						
19	103	08.6	-00.3	S 21 56.7	-00.3	141 21.4	-00.8	S 20 56.8	+00.4	113 01.2	-38.3	S 27 56.3	-02.5	19						
20	118	08.3	-00.2	S 21 56.4	-00.4	156 20.6	-00.8	S 20 57.2	+00.5	127 22.9	-38.3	S 27 53.8	-02.7	20						
21	133	08.1	-00.3	S 21 56.0	-00.4	171 19.8	-00.7	S 20 57.7	+00.4	141 44.6	-38.3	S 27 51.1	-02.9	21						
22	148	07.8	-00.2	S 21 55.6	-00.4	186 19.1	-00.8	S 20 58.1	+00.5	156 06.3	-38.3	S 27 48.2	-03.1	22						
23	163	07.6	-00.3	S 21 55.2	-00.3	201 18.3	-00.8	S 20 58.6	+00.4	170 28.0	-38.3	S 27 45.1	-03.3	23						
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	16°1	16°1	16°2	16°2	16°2	16°3
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	59°1	59°2	59°4	59°5	59°6	59°7
SHA	069°	069°	069°	069°	068°	068°	SHA	107°	107°	107°	107°	107°	106°	SHA	090°	087°	084°	082°	079°	076°
Greenwich Culmination Time: 12:07						Greenwich Culmination Time: 09:34						Greenwich Culmination Time: 11:07								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	178	07.3	-00.2	S 21 54.9	-00.4	216	17.5	-00.8	S 20 59.0	+00.5	184	49.7	-38.2	S 27 41.8	-03.6	00				
01	193	07.1	-00.3	S 21 54.5	-00.4	231	16.7	-00.8	S 20 59.5	+00.4	199	11.5	-38.3	S 27 38.2	-03.7	01				
02	208	06.8	-00.3	S 21 54.1	-00.4	246	15.9	-00.7	S 20 59.9	+00.4	213	33.2	-38.3	S 27 34.5	-03.9	02				
03	223	06.5	-00.2	S 21 53.7	-00.4	261	15.2	-00.8	S 21 00.3	+00.5	227	54.9	-38.2	S 27 30.6	-04.1	03				
04	238	06.3	-00.3	S 21 53.3	-00.3	276	14.4	-00.8	S 21 00.8	+00.4	242	16.7	-38.2	S 27 26.5	-04.3	04				
05	253	06.0	-00.2	S 21 53.0	-00.4	291	13.6	-00.8	S 21 01.2	+00.4	256	38.5	-38.2	S 27 22.2	-04.6	05				
06	268	05.8	-00.3	S 21 52.6	-00.4	306	12.8	-00.8	S 21 01.6	+00.5	271	00.3	-38.2	S 27 17.6	-04.7	06				
07	283	05.5	-00.2	S 21 52.2	-00.4	321	12.0	-00.8	S 21 02.1	+00.4	285	22.1	-38.1	S 27 12.9	-04.9	07				
08	298	05.3	-00.3	S 21 51.8	-00.4	336	11.2	-00.7	S 21 02.5	+00.4	299	44.0	-38.1	S 27 08.0	-05.1	08				
09	313	05.0	-00.2	S 21 51.4	-00.3	351	10.5	-00.8	S 21 02.9	+00.5	314	05.9	-38.1	S 27 02.9	-05.3	09				
10	328	04.8	-00.3	S 21 51.1	-00.4	6 09.7	-00.8	S 21 03.4	+00.4	328	27.8	-38.1	S 26 57.6	-05.5	10					
11	343	04.5	-00.2	S 21 50.7	-00.4	21 08.9	-00.8	S 21 03.8	+00.4	342	49.7	-38.0	S 26 52.1	-05.7	11					
12	358	04.3	-00.3	S 21 50.3	-00.4	36 08.1	-00.8	S 21 04.2	+00.4	357	11.7	-37.9	S 26 46.4	-06.0	12					
13	13	04.0	-00.2	S 21 49.9	-00.4	51 07.3	-00.8	S 21 04.6	+00.5	11 33.8	-37.9	S 26 40.4	-06.1	13						
14	28	03.8	-00.3	S 21 49.5	-00.4	66 06.5	-00.8	S 21 05.1	+00.4	25 55.9	-37.9	S 26 34.3	-06.2	14						
15	43	03.5	-00.2	S 21 49.1	-00.4	81 05.7	-00.7	S 21 05.5	+00.4	40 18.0	-37.8	S 26 28.1	-06.5	15						
16	58	03.3	-00.3	S 21 48.7	-00.4	96 05.0	-00.8	S 21 05.9	+00.4	54 40.2	-37.8	S 26 21.6	-06.7	16						
17	73	03.0	-00.2	S 21 48.3	-00.4	111 04.2	-00.8	S 21 06.3	+00.5	69 02.4	-37.7	S 26 14.9	-06.9	17						
18	88	02.8	-00.3	S 21 47.9	-00.3	126 03.4	-00.8	S 21 06.8	+00.4	83 24.7	-37.7	S 26 08.0	-07.0	18						
19	103	02.5	-00.2	S 21 47.6	-00.4	141 02.6	-00.8	S 21 07.2	+00.4	97 47.0	-37.6	S 26 01.0	-07.3	19						
20	118	02.3	-00.2	S 21 47.2	-00.4	156 01.8	-00.8	S 21 07.6	+00.4	112 09.4	-37.5	S 25 53.7	-07.4	20						
21	133	02.1	-00.3	S 21 46.8	-00.4	171 01.0	-00.8	S 21 08.0	+00.4	126 31.9	-37.5	S 25 46.3	-07.7	21						
22	148	01.8	-00.2	S 21 46.4	-00.4	186 00.2	-00.8	S 21 08.4	+00.5	140 54.4	-37.4	S 25 38.6	-07.8	22						
23	163	01.6	-00.3	S 21 46.0	-00.4	200 59.4	-00.7	S 21 08.9	+00.4	155 17.0	-37.4	S 25 30.8	-08.0	23						
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	16°3	16°3	16°3	16°4	16°4	16°4
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	59°8	59°9	60°0	60°1	60°1	60°2
SHA	068°	068°	068°	067°	067°	067°	SHA	106°	106°	106°	106°	105°	105°	SHA	073°	071°	068°	065°	063°	060°
Greenwich Culmination Time: 12:07						Greenwich Culmination Time: 09:35						Greenwich Culmination Time: 12:11								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	194	37.8	+00.4	S 24 00.9	-00.1	75	11.4	+02.4	N 12 21.8	+00.0	132	26.9	+02.2	S 11 31.5	-00.1	00
01	209	38.2	+00.4	S 24 00.8	+00.0	90	13.8	+02.4	N 12 21.8	+00.0	147	29.1	+02.3	S 11 31.4	-00.1	01
02	224	38.6	+00.4	S 24 00.8	+00.0	105	16.2	+02.4	N 12 21.8	+00.1	162	31.4	+02.2	S 11 31.3	-00.1	02
03	239	39.0	+00.5	S 24 00.8	-00.1	120	18.6	+02.4	N 12 21.9	+00.0	177	33.6	+02.2	S 11 31.2	-00.1	03
04	254	39.5	+00.4	S 24 00.7	+00.0	135	21.0	+02.3	N 12 21.9	+00.1	192	35.8	+02.3	S 11 31.1	-00.1	04
05	269	39.9	+00.4	S 24 00.7	+00.0	150	23.3	+02.4	N 12 22.0	+00.0	207	38.1	+02.2	S 11 31.0	-00.1	05
06	284	40.3	+00.4	S 24 00.7	-00.1	165	25.7	+02.4	N 12 22.0	+00.0	222	40.3	+02.2	S 11 30.9	-00.1	06
07	299	40.7	+00.4	S 24 00.6	+00.0	180	28.1	+02.4	N 12 22.0	+00.1	237	42.5	+02.3	S 11 30.8	-00.1	07
08	314	41.1	+00.4	S 24 00.6	+00.0	195	30.5	+02.4	N 12 22.1	+00.0	252	44.8	+02.2	S 11 30.7	-00.1	08
09	329	41.5	+00.5	S 24 00.6	-00.1	210	32.9	+02.4	N 12 22.1	+00.1	267	47.0	+02.2	S 11 30.6	-00.1	09
10	344	42.0	+00.4	S 24 00.5	+00.0	225	35.3	+02.3	N 12 22.2	+00.0	282	49.2	+02.3	S 11 30.5	-00.1	10
11	359	42.4	+00.4	S 24 00.5	-00.1	240	37.6	+02.4	N 12 22.2	+00.1	297	51.5	+02.2	S 11 30.4	+00.0	11
12	14	42.8	+00.4	S 24 00.4	+00.0	255	40.0	+02.4	N 12 22.3	+00.0	312	53.7	+02.2	S 11 30.4	-00.1	12
13	29	43.2	+00.4	S 24 00.4	+00.0	270	42.4	+02.4	N 12 22.3	+00.0	327	55.9	+02.3	S 11 30.3	-00.1	13
14	44	43.6	+00.4	S 24 00.4	-00.1	285										

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 063° 062° 062° 062° 062° 062°
Greenwich Culmination Time: 12:09

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 081° 080° 080° 080° 080° 080°
Greenwich Culmination Time: 10:57

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 066° 066° 065° 065° 065° 065°
Greenwich Culmination Time: 12:08

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 083° 083° 083° 083° 083° 082°
Greenwich Culmination Time: 10:59

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 065° 065° 064° 064° 064° 064°
Greenwich Culmination Time: 12:08

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 082° 082° 082° 082° 082° 082°
Greenwich Culmination Time: 10:58

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 064° 064° 063° 063° 063° 063°
Greenwich Culmination Time: 12:09

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 081° 081° 081° 081° 081° 081°
Greenwich Culmination Time: 10:57

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	177 19.3	-00.2	S 20 16.5	-00.5	213 21.0	-00.8	S 22 09.6	+00.2	69 42.6	-31.1	N 20 59.4	+10.9	00
01	192 19.1	-00.2	S 20 16.0	-00.5	228 20.2	-00.9	S 22 09.8	+00.2	84 11.5	-31.2	N 21 10.3	+10.8	01
02	207 18.9	-00.2	S 20 15.5	-00.6	243 19.3	-00.8	S 22 10.0	+00.2	98 40.3	-31.2	N 21 21.1	+10.7	02
03	222 18.7	-00.2	S 20 14.9	-00.5	258 18.5	-00.8	S 22 10.2	+00.2	113 09.1	-31.2	N 21 31.8	+10.5	03
04	237 18.5	-00.1	S 20 14.4	-00.5	273 17.7	-00.9	S 22 10.4	+00.2	127 37.9	-31.4	N 21 42.3	+10.5	04
05	252 18.4	-00.2	S 20 13.9	-00.6	288 16.8	-00.8	S 22 10.6	+00.2	142 06.5	-31.3	N 21 52.8	+10.3	05
06	267 18.2	-00.2	S 20 13.3	-00.5	303 16.0	-00.9	S 22 10.8	+00.2	156 35.2	-31.5	N 22 03.1	+10.2	06
07	282 18.0	-00.2	S 20 12.8	-00.5	318 15.1	-00.8	S 22 11.0	+00.2	171 03.7	-31.5	N 22 13.3	+10.0	07
08	297 17.8	-00.2	S 20 12.3	-00.6	333 14.3	-00.9	S 22 11.2	+00.2	185 32.2	-31.5	N 22 23.3	+10.0	08
09	312 17.6	-00.2	S 20 11.7	-00.5	348 13.4	-00.8	S 22 11.4	+00.2	200 00.7	-31.6	N 22 33.3	+9.8	09
10	327 17.4	-00.2	S 20 11.2	-00.5	3 12.6	-00.9	S 22 11.6	+00.2	214 29.1	-31.6	N 22 43.1	+9.7	10
11	342 17.2	-00.1	S 20 10.7	-00.6	18 11.7	-00.8	S 22 11.8	+00.2	228 57.5	-31.7	N 22 52.8	+9.5	11
12	357 17.1	-00.2	S 20 10.1	-00.5	33 10.9	-00.9	S 22 12.0	+00.2	243 25.8	-31.8	N 23 02.3	+9.4	12
13	12 16.9	-00.2	S 20 09.6	-00.6	48 10.0	-00.8	S 22 12.2	+00.2	257 54.0	-31.8	N 23 11.7	+9.3	13
14	27 16.7	-00.2	S 20 09.0	-00.5	63 09.2	-00.9	S 22 12.4	+00.2	272 22.2	-31.9	N 23 21.0	+9.2	14
15	42 16.5	-00.2	S 20 08.5	-00.5	78 08.3	-00.8	S 22 12.6	+00.2	286 50.3	-31.9	N 23 30.2	+9.0	15
16	57 16.3	-00.2	S 20 08.0	-00.6	93 07.5	-00.9	S 22 12.8	+00.2	301 18.4	-32.0	N 23 39.2	+8.9	16
17	72 16.1	-00.2	S 20 07.4	-00.5	108 06.6	-00.8	S 22 13.0	+00.2	315 46.4	-32.0	N 23 48.1	+8.7	17
18	87 15.9	-00.1	S 20 06.9	-00.6	123 05.8	-00.9	S 22 13.2	+00.2	330 14.4	-32.1	N 23 56.8	+8.7	18
19	102 15.8	-00.2	S 20 06.3	-00.5	138 04.9	-00.8	S 22 13.4	+00.2	344 42.3	-32.1	N 24 05.5	+8.5	19
20	117 15.6	-00.2	S 20 05.8	-00.6	153 04.1	-00.9	S 22 13.6	+00.2	359 10.2	-32.2	N 24 14.0	+8.3	20
21	132 15.4	-00.2	S 20 05.2	-00.5	168 03.2	-00.8	S 22 13.8	+00.2	1 38.0	-32.2	N 24 22.3	+8.2	21
22	147 15.2	-00.2	S 20 04.7	-00.5	183 02.4	-00.9	S 22 13.9	+00.2	28 05.8	-32.3	N 24 30.5	+8.1	22
23	162 15.0	-00.1	S 20 04.2	-00.6	198 01.5	-00.8	S 22 14.1	+00.2	42 33.5	-32.3	N 24 38.6	+7.9	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 15°6 15°6 15°6 15°5 15°5 15°5	SD 00°1 00°1 00°1 00°1 00°1 00°1								
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 57°3 57°2 57°1 57°0 56°9 56°8	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 50°1 00°1 00°1 00°1 00°1 00°1								
SHA 058° 058° 058° 058° 058° 057°	SHA 094° 094° 094° 094° 093° 093°	SHA 094° 094° 094° 094° 093° 093°	SHA 310° 307° 305° 303° 301° 298°	SHA 062° 061° 061° 061° 061° 061°	SHA 098° 098° 098° 098° 097° 097°								
Greenwich Culmination Time: 12:10		Greenwich Culmination Time: 09:47		Greenwich Culmination Time: 20:03									

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	177 33.7	-00.2	S 20 52.9	-00.5	214 21.4	-00.8	S 21 51.6	+00.3	105 11.4	-28.8	N 03 49.9	+16.6	00
01	192 33.5	-00.2	S 20 52.4	-00.4	229 20.6	-00.8	S 21 51.9	+00.3	119 42.6	-28.9	N 04 06.5	+16.6	01
02	207 33.3	-00.2	S 20 52.0	-00.5	244 19.8	-00.9	S 21 52.2	+00.3	134 13.7	-28.8	N 04 23.1	+16.5	02
03	222 33.1	-00.2	S 20 51.5	-00.5	259 18.9	-00.8	S 21 52.5	+00.3	148 44.9	-28.8	N 04 39.6	+16.5	03
04	237 32.9	-00.2	S 20 51.0	-00.5	274 18.1	-00.8	S 21 52.8	+00.3	163 16.1	-28.8	N 04 56.1	+16.4	04
05	252 32.7	-00.2	S 20 50.5	-00.5	289 17.3	-00.9	S 21 53.1	+00.3	177 47.3	-28.8	N 05 12.5	+16.4	05
06	267 32.5	-00.2	S 20 50.0	-00.5	304 16.4	-00.8	S 21 53.4	+00.2	192 18.5	-28.8	N 05 28.9	+16.3	06
07	282 32.3	-00.2	S 20 49.5	-00.4	319 15.6	-00.8	S 21 53.6	+00.3	206 49.7	-28.8	N 05 45.2	+16.3	07
08	297 32.1	-00.3	S 20 49.1	-00.5	334 14.8	-00.9	S 21 53.9	+00.3	221 20.9	-28.9	N 06 01.5	+16.3	08
09	312 31.8	-00.2	S 20 48.6	-00.5	349 13.9	-00.8	S 21 54.2	+00.3	235 52.0	-28.8	N 06 17.8	+16.2	09
10	327 31.6	-00.2	S 20 48.1	-00.5	4 13.1	-00.8	S 21 54.5	+00.3	250 23.2	-28.8	N 06 34.0	+16.2	10
11	342 31.4	-00.2	S 20 47.6	-00.5	19 12.3	-00.9	S 21 54.8	+00.2	264 54.4	-28.8	N 06 50.2	+16.1	11
12	357 31.2	-00.2	S 20 47.1	-00.5	34 11.4	-00.8	S 21 55.0	+00.3	279 25.6	-28.9	N 07 06.3	+16.1	12
13	12 31.0	-00.2	S 20 46.6	-00.5	49 10.6	-00.8	S 21 55.3	+00.3	293 56.7	-28.8	N 07 22.4	+16.0	13
14	27 30.8	-00.2	S 20 46.1	-00.5	64 09.8	-00.9	S 21 55.6	+00.3	308 27.9	-28.9	N 07 38.4	+16.0	14
15	42 30.6	-00.2	S 20 45.6	-00.5	79 08.9	-00.8	S 21 55.9	+00.2	322 59.0	-28.9	N 07 54.4	+15.9	15
16	57 30.4	-00.2	S 20 45.1	-00.5	94 08.1	-00.8	S 21 56.1	+00.3	337 30.1	-28.8	N 08 10.3	+15.9	16
17	72 30.2	-00.2	S 20 44.6	-00.4	109 07.3	-00.9	S 21 56.4	+00.3	352 01.3	-28.9	N 08 26.2	+15.8	17
18	87 30.0	-00.2	S 20 44.2	-00.5	124 06.4	-00.8	S 21 56.7	+00.2	6 32.4	-29.0	N 08 42.0	+15.7	18
19	102 29.8	-00.2	S 20 43.7	-00.5	139 05.6	-00.8	S 21 56.9	+00.3	21 03.4	-28.9	N 08 57.7	+15.7	19
20	117 29.6	-00.2	S 20 43.2	-00.5	154 04.8	-00.9	S 21 57.2	+00.2	35 34.5	-28.9	N 09 13.4	+15.6	20
21	132 29.4	-00.2	S 20 42.7	-00.5	169 03.9	-00.8	S 21 57.5	+00.2	50 05.6	-29.0	N 09 29.0	+15.6	21
22	147 29.2	-00.3	S 20 42.2	-00.5	184 03.1	-00.8	S 21 57.7	+00.3	64 36.6	-29.0	N 09 44.6	+15.5	22
23	162 28.9	-00.2	S 20 41.7	-00.5	199 02.3	-00.9	S 21 58.0	+00.3	79 07.6	-29.0	N 10 00.1	+15.5	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°0 16°0 16°0	SD 00°1 00°1 00°1 00°1 00°1 00°1								
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 50°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0								
SHA 062° 061° 061° 061° 061° 061°	SHA 098° 098° 098° 098° 097° 097°	SHA 098° 098° 098° 098° 097° 097°	SHA 310° 307° 305° 303° 301° 298°	SHA 023° 023° 023° 023° 023° 023°	SHA 023° 023° 023° 023° 023° 023°								
Greenwich Culmination Time: 12:09		Greenwich Culmination Time: 09:43		Greenwich Culmination Time: 17:32									

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	196 16.7	+00.4	S 23 40.0	-00.1	84 34.4	+02.3	N 12 34.6	+00.1	141 20.1	+02.2	S 11 08.5	-00.1	00
01	211 17.1	+00.5	S 23 39.9	-00.2	99 36.7	+02.3	N 12 34.7	+00.1	156 22.3	+02.2	S 11 08.4	-00.1	01
02	226 17.6	+00.4	S 23 39.7	-00.1	114 39.0	+02.3	N 12 34.8	+00.0	171 24.5	+02.2	S 11 08.3	-00.1	02
03	241 18.0	+00.4	S 23 39.6	-00.2	129 41.3	+02.3	N 12 34.8	+00.0	186 26.7	+02.3	S 11 08.2	-00.1	03
04	256 18.4	+00.4	S 23 39.4	-00.1	144 43.6	+02.3	N 12 34.9	+00.1	201 29.0	+02.2	S 11 08.1	-00.1	04
05	271 18.8	+00.4	S 23 39.3	-00.2	159 45.9	+02.3	N 12 35.0	+00.0	216 31.2	+02.2	S 11 08.0	-00.1	05
06	286 19.2	+00.4	S 23 39.1	-00.1	174 48.2	+02.3	N 12 35.0	+00.1	231 33.4	+02.2	S 11 07.9	-00.1	06
07	301 19.6	+00.4	S 23 39.0	-00.1	189 50.5	+02.3	N 12 35.1	+00.1	246 35.6	+02.2	S 11 07.8	-00.1	07
08	316 20.0	+00.4	S 23 38.9	-00.2	204 52.8	+02.3	N 12 35.2	+00.0	261 37.8	+02.2	S 11 07.7	-00.1	08
09	331 20.4	+00.4	S 23 38.7	-00.1	219 55.1	+02.3	N 12 35.2	+00.1	276 40.0	+02.2	S 11 07.6	-00.1	09
10	346 20.8	+00.5	S 23 38.6	-00.2	234 57.4	+02.3	N 12 35.3	+00.1	291 42.2	+02.2	S 11 07.5	-00.1	10
11	1 21.3	+00.4	S 23 38.4	-00.1	249 59.7	+02.3	N 12 35.4	+00.0	306 44.4	+02.3	S 11 07.4	-00.1	11
12	16 21.7	+00.4	S 23 38.3	-00.2	265 02.0	+02.3	N 12 35.4	+00.1	321 46.7	+02.2	S 11 07.3	-00.1	12
13	31 22.1	+00.4	S 23 38.1	-00.1	280 04.3	+02.3	N 12 35.5	+00.1	336 48.9	+02.2	S 11 07.2	-00.1	13
14	46 22.5	+00.4	S 23 38.0	-00.2	295 06.6	+02.3	N 12 35.6	+00.0	351 51.1	+02.2	S 11 07.1	-00.1	14
15	61 22.9	+00.4	S 23 37.8	-00.1	310 08.9	+02.3	N 12 35.6	+00.0	6 53.3	+02.2	S 11 07.0	-00.1	15
16	76 23.3	+00.4	S 23 37.7	-00.2	325 11.2	+02.3	N 12 35.7	+00.1	21 55.5	+02.2	S 11 06.9	-00.1	16
17	91 23.7	+00.4	S 23 37.5	-00.1	340 13.5	+02.3	N 12 35.8	+00.0	36 57.7	+02.2	S 11 06.8	-00.1	17
18	106 24.1	+00.4	S 23 37.4	-00.2	355 15.8	+02.3	N 12 35.8	+00.0	51 59.9	+02.2	S 11 06.7	-00.1	18
19	121 24.5	+00.4	S 23 37.2	-00.1	10 18.1	+02.3	N 12 35.						

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	28.7	-00.2	S 20 41.2	-00.5	214	01.4	-00.8	S 21 58.3	+00.2	93	38.6	-29.1	N 10 15.6	+15.3	00
01	192	28.5	-00.2	S 20 40.7	-00.5	229	00.6	-00.8	S 21 58.5	+00.3	108	09.5	-29.0	N 10 30.9	+15.4	01
02	207	28.3	-00.2	S 20 40.2	-00.5	243	59.8	-00.9	S 21 58.8	+00.2	122	40.5	-29.1	N 10 46.3	+15.2	02
03	222	28.1	-00.2	S 20 39.7	-00.5	258	58.9	-00.8	S 21 59.0	+00.3	137	11.4	-29.1	N 11 01.5	+15.2	03
04	237	27.9	-00.2	S 20 39.2	-00.5	273	58.1	-00.8	S 21 59.3	+00.3	151	42.3	-29.1	N 11 16.7	+15.1	04
05	252	27.7	-00.2	S 20 38.7	-00.5	288	57.3	-00.9	S 21 59.6	+00.2	166	13.2	-29.2	N 11 31.8	+15.0	05
06	267	27.5	-00.2	S 20 38.2	-00.5	303	56.4	-00.8	S 21 59.8	+00.3	180	44.0	-29.2	N 11 46.8	+15.0	06
07	282	27.3	-00.2	S 20 37.7	-00.5	318	55.6	-00.9	S 22 00.1	+00.2	195	14.8	-29.2	N 12 01.8	+14.9	07
08	297	27.1	-00.2	S 20 37.2	-00.5	333	54.7	-00.8	S 22 00.3	+00.3	209	45.6	-29.3	N 12 16.7	+14.8	08
09	312	26.9	-00.2	S 20 36.7	-00.5	348	53.9	-00.8	S 22 00.6	+00.2	224	16.3	-29.2	N 12 31.5	+14.8	09
10	327	26.7	-00.2	S 20 36.2	-00.5	3	53.1	-00.9	S 22 00.8	+00.3	238	47.1	-29.4	N 12 46.3	+14.6	10
11	342	26.5	-00.2	S 20 35.7	-00.5	18	52.2	-00.8	S 22 01.1	+00.2	253	17.7	-29.3	N 13 00.9	+14.6	11
12	357	26.3	-00.2	S 20 35.2	-00.5	33	51.4	-00.8	S 22 01.3	+00.3	267	48.4	-29.4	N 13 15.5	+14.5	12
13	12	26.1	-00.2	S 20 34.7	-00.6	48	50.6	-00.9	S 22 01.6	+00.2	282	19.0	-29.4	N 13 30.0	+14.5	13
14	27	25.9	-00.2	S 20 34.1	-00.5	63	49.7	-00.8	S 22 01.8	+00.3	296	49.6	-29.5	N 13 44.5	+14.3	14
15	42	25.7	-00.2	S 20 33.6	-00.5	78	48.9	-00.9	S 22 02.1	+00.2	311	20.1	-29.5	N 13 58.8	+14.3	15
16	57	25.5	-00.2	S 20 33.1	-00.5	93	48.0	-00.8	S 22 02.3	+00.3	325	50.6	-29.5	N 14 13.1	+14.2	16
17	72	25.3	-00.2	S 20 32.6	-00.5	108	47.2	-00.8	S 22 02.6	+00.2	340	21.1	-29.6	N 14 27.3	+14.1	17
18	87	25.1	-00.2	S 20 32.1	-00.5	123	46.4	-00.9	S 22 02.8	+00.3	354	51.5	-29.6	N 14 41.4	+14.0	18
19	102	24.9	-00.2	S 20 31.6	-00.5	138	45.5	-00.8	S 22 03.1	+00.2	9	21.9	-29.6	N 14 55.4	+13.9	19
20	117	24.7	-00.2	S 20 31.1	-00.5	153	44.7	-00.9	S 22 03.3	+00.2	23	52.3	-29.7	N 15 09.3	+13.9	20
21	132	24.5	-00.2	S 20 30.6	-00.5	168	43.8	-00.8	S 22 03.5	+00.3	38	22.6	-29.8	N 15 23.2	+13.7	21
22	147	24.3	-00.2	S 20 30.1	-00.5	183	43.0	-00.8	S 22 03.8	+00.2	52	52.8	-29.8	N 15 36.9	+13.7	22
23	162	24.1	-00.2	S 20 29.6	-00.6	198	42.2	-00.9	S 22 04.0	+00.2	67	23.0	-29.8	N 15 50.6	+13.5	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 060° 060° 060° 060° 060° 060°	Greenwich Culmination Time: 12:10	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 097° 097° 097° 097° 096° 096°	Greenwich Culmination Time: 09:44	UT 02 06 10 14 18 22	SD 16°0 15°9 15°9 15°9 15°8 15°8	HP 58°5 58°4 58°3 58°2 58°1 58°0	SHA 337° 334° 331° 329° 325° 325°	Greenwich Culmination Time: 18:21		

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	23.9	-00.2	S 20 29.0	-00.5	213	41.3	-00.8	S 22 04.2	+00.3	81	53.2	-29.9	N 16 04.1	+13.5	00
01	192	23.7	-00.2	S 20 28.5	-00.5	228	40.5	-00.9	S 22 04.5	+00.2	96	23.3	-29.9	N 16 17.6	+13.4	01
02	207	23.5	-00.2	S 20 28.0	-00.5	243	39.6	-00.8	S 22 04.7	+00.3	110	53.4	-29.9	N 16 31.0	+13.3	02
03	222	23.3	-00.2	S 20 27.5	-00.5	258	38.8	-00.9	S 22 05.0	+00.2	125	23.5	-30.1	N 16 44.3	+13.2	03
04	237	23.1	-00.2	S 20 27.0	-00.5	273	37.9	-00.8	S 22 05.2	+00.2	139	53.4	-30.0	N 16 57.5	+13.1	04
05	252	22.9	-00.1	S 20 26.5	-00.6	288	37.1	-00.8	S 22 05.4	+00.2	154	23.4	-30.1	N 17 10.6	+12.9	05
06	267	22.8	-00.2	S 20 25.9	-00.5	303	36.3	-00.9	S 22 05.6	+00.3	168	53.3	-30.2	N 17 23.5	+12.9	06
07	282	22.6	-00.2	S 20 25.4	-00.5	318	35.4	-00.8	S 22 05.9	+00.2	183	23.1	-30.2	N 17 36.4	+12.8	07
08	297	22.4	-00.2	S 20 24.9	-00.5	333	34.6	-00.9	S 22 06.1	+00.2	197	52.9	-30.2	N 17 49.2	+12.7	08
09	312	22.2	-00.2	S 20 24.4	-00.5	348	33.7	-00.8	S 22 06.3	+00.3	212	22.7	-30.3	N 18 01.9	+12.6	09
10	327	22.0	-00.2	S 20 23.9	-00.5	3	32.9	-00.9	S 22 06.6	+00.2	226	52.4	-30.4	N 18 14.5	+12.5	10
11	342	21.8	-00.2	S 20 23.4	-00.6	18	32.0	-00.8	S 22 06.8	+00.2	241	22.0	-30.4	N 18 27.0	+12.4	11
12	357	21.6	-00.2	S 20 22.8	-00.5	33	31.2	-00.9	S 22 07.0	+00.2	255	51.6	-30.4	N 18 39.4	+12.3	12
13	12	21.4	-00.2	S 20 22.3	-00.5	48	30.3	-00.8	S 22 07.2	+00.2	270	21.2	-30.6	N 18 51.7	+12.1	13
14	27	21.2	-00.2	S 20 21.8	-00.5	63	29.5	-00.8	S 22 07.4	+00.3	284	50.6	-30.5	N 19 03.8	+12.1	14
15	42	21.0	-00.2	S 20 21.3	-00.6	78	28.7	-00.9	S 22 07.7	+00.2	299	20.1	-30.6	N 19 15.9	+11.9	15
16	57	20.8	-00.2	S 20 20.7	-00.5	93	27.8	-00.8	S 22 07.9	+00.2	313	49.5	-30.7	N 19 27.8	+11.9	16
17	72	20.6	-00.2	S 20 20.2	-00.5	108	27.0	-00.9	S 22 08.1	+00.2	328	18.8	-30.7	N 19 39.7	+11.7	17
18	87	20.4	-00.2	S 20 19.7	-00.5	123	26.1	-00.8	S 22 08.3	+00.2	342	48.1	-30.8	N 19 51.4	+11.6	18
19	102	20.2	-00.1	S 20 19.2	-00.6	138	25.3	-00.9	S 22 08.5	+00.3	357	17.3	-30.8	N 20 03.0	+11.5	19
20	117	20.1	-00.2	S 20 18.6	-00.5	153	24.4	-00.8	S 22 08.8	+00.2	11	46.5	-30.9	N 20 14.5	+11.4	20
21	132	19.9	-00.2	S 20 18.1	-00.5	168	23.6	-00.9	S 22 09.0	+00.2	26	15.6	-31.0	N 20 25.9	+11.3	21
22	147	19.7	-00.2	S 20 17.6	-00.6	183	22.7	-00.8	S 22 09.2	+00.2	40	44.6	-30.9	N 20 37.2	+11.1	22
23	162	19.5	-00.2	S 20 17.0	-00.5	198	21.9	-00.9	S 22 09.4	+00.2	55	13.7	-31.1	N 20 48.3	+11.1	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 059° 059° 059° 059° 059° 059°	Greenwich Culmination Time: 12:10	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 096° 095° 095° 095° 095° 095°	Greenwich Culmination Time: 09:45	UT 02 06 10 14 18 22	SD 15°8 15°7 15°7 15°7 15°7 15°6	HP 57°9 57°8 57°7 57°6 57°5 57°4	SHA 323° 321° 319° 316° 314° 312°	Greenwich Culmination Time: 19:11		

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	195	57.0	+00.5	S 23 46.2	-00.1	82	43.3	+02.3	N 12 31.6	+00.0	139	33.9	+02.2	S 11 13.2	-00.1	00
01	210	57.5	+00.4	S 23 46.1	-00.1	97	45.6	+02.4	N 12 31.6	+00.1	154	36.1	+02.2	S 11 13.1	-00.1	01
02	225	57.9	+00.4	S 23 46.0	-00.1	112	48.0	+02.3	N 12 31.7	+00.0	169	38.3	+02.2	S 11 13.0	-00.1	02
03	240	58.3	+00.4	S 23 45.9	-00.1	127	50.3	+02.3	N 12 31.7	+00.1	184	40.5	+02.2	S 11 12.9	-00.1	03
04	255	58.7	+00.4	S 23 45.8	-00.2	142	52.6	+02.3	N 12 31.8	+00.1	199	42.7	+02.2	S 11 12.8	-00.1	04
05	270	59.1	+00.4	S 23 45.6	-00.1	157	54.9	+02.3	N 12 31.9	+00.0	214	44.9	+02.2	S 11 12.7	-00.1	05
06	285	59.5	+00.4	S 23 45.5	-00.1	172	57.2	+02.4	N 12 31.9	+00.1	229	47.1	+02.3	S 11 12.6	-00.1	06
07	300	59.9	+00.4	S 23 45.4	-00.1	187	59.6	+02.3	N 12 32.0	+00.1	244	49.4	+02.2	S 11 12.5	-00.1	07
08	316	00.3	+00.4	S 23 45.3	-00.2	203	01.9	+02.3	N 12 32.1	+00.0	259	51.6	+02.2	S 11 12.4	-00.1	08
09	331	00.7	+00.4	S 23 45.1	-00.1	218	04.2	+02.3	N 12 32.1	+00.1	274	53.8	+02.2	S 11 12.3	-00.1	09
10	346	01.1	+00.5	S 23 45.0	-00.1	233	06.5	+02.3	N 12 32.2	+00.0	289	56.0	+02.2	S 11 12.2	-00.1	10
11	1	01.6	+00.4	S 23 44.9	-00.1	248	08.8	+02.4	N 12 32.2	+00.1	304	58.2	+02.2	S 11 12.1	-00.1	11
12	16	02.0	+00.4	S 23 44.8	-00.1	263	11.2	+02.3	N 12 32.3	+00.1	320	00.4	+02.3	S 11 12.0	+00.0	12
13	31	02.4	+00.4	S 23 44.7	-00.1	278	13.5	+02.3	N 12 32.4	+00.0	335	02.7	+02.2	S 11 12.0	-00.1	13
14	46	02.8	+00.4	S 23 44.5	-00.1	293	15.8	+02.3	N 12 32.4	+00.1	350	04.9	+02.2	S 11 11.9	-00.1	14
15	61	03.2	+00.4	S 23 44.4	-00.1	308	18.1	+02.3	N 12 32.5	+00.1	5	07.1	+02.2	S 11 11.8	-00.1	15
16	76	03.6	+00.4	S 23 44.3	-00.2	323	20.4	+02.3	N 12 32.6	+00.0	20	09.3	+02.2	S 11 11.7	-00.1	16
17	91	04.0	+00.4	S 23 44.1	-00.1	338	22.7	+02.4	N 12 32.6	+00.1	35	1				

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and a footer with astronomical details like GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and a footer with astronomical details like GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and a footer with astronomical details like GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and a footer with astronomical details like GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 056° 056° 056° 056° 056° 055°
Greenwich Culmination Time: 12:11

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 076° 076° 075° 075° 075° 075°
Greenwich Culmination Time: 10:53

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 055° 055° 055° 055° 055° 054°
Greenwich Culmination Time: 12:11

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 075° 075° 075° 074° 074° 074°
Greenwich Culmination Time: 10:52

UT	Sun				Venus				Moon				UT	
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	176 49.2	-00.1	S 18 23.1	-00.6	210 35.4	-00.9	S 22 28.9	+00.0	331 04.0	-25.3	N 13 59.4	-12.5	00	
01	191 49.1	-00.1	S 18 22.5	-00.7	225 34.5	-00.8	S 22 28.9	+00.0	345 38.7	-25.3	N 13 46.9	-12.6	01	
02	206 49.0	-00.2	S 18 21.8	-00.6	240 33.7	-00.9	S 22 28.9	+00.0	0 13.4	-25.2	N 13 34.3	-12.6	02	
03	221 48.8	-00.1	S 18 21.2	-00.7	255 32.8	-00.9	S 22 28.9	+00.0	14 48.2	-25.2	N 13 21.7	-12.6	03	
04	236 48.7	-00.1	S 18 20.5	-00.6	270 31.9	-00.9	S 22 28.9	+00.0	29 23.0	-25.1	N 13 09.1	-12.7	04	
05	251 48.6	-00.1	S 18 19.9	-00.7	285 31.0	-00.8	S 22 28.9	+00.1	43 57.9	-25.0	N 12 56.4	-12.8	05	
06	266 48.5	-00.1	S 18 19.2	-00.6	300 30.2	-00.9	S 22 28.8	+00.0	58 32.9	-25.0	N 12 43.6	-12.7	06	
07	281 48.4	-00.2	S 18 18.6	-00.7	315 29.3	-00.9	S 22 28.8	+00.0	73 07.9	-25.0	N 12 30.9	-12.9	07	
08	296 48.2	-00.1	S 18 17.9	-00.6	330 28.4	-00.8	S 22 28.8	+00.0	87 42.9	-24.9	N 12 18.0	-12.8	08	
09	311 48.1	-00.1	S 18 17.3	-00.7	345 27.6	-00.9	S 22 28.8	+00.0	102 18.0	-24.8	N 12 05.2	-12.9	09	
10	326 48.0	-00.1	S 18 16.6	-00.6	0 26.7	-00.9	S 22 28.8	+00.1	116 53.2	-24.8	N 11 52.3	-13.0	10	
11	341 47.9	-00.1	S 18 16.0	-00.7	15 25.8	-00.9	S 22 28.7	+00.0	131 28.4	-24.8	N 11 39.3	-13.0	11	
12	356 47.8	-00.2	S 18 15.3	-00.6	30 24.9	-00.8	S 22 28.7	+00.0	146 03.6	-24.6	N 11 26.3	-13.0	12	
13	11 47.6	-00.1	S 18 14.7	-00.7	45 24.1	-00.9	S 22 28.7	+00.0	160 39.0	-24.7	N 11 13.3	-13.1	13	
14	26 47.5	-00.1	S 18 14.0	-00.6	60 23.2	-00.9	S 22 28.7	+00.1	175 14.3	-24.6	N 11 00.2	-13.1	14	
15	41 47.4	-00.1	S 18 13.4	-00.7	75 22.3	-00.9	S 22 28.6	+00.0	189 49.7	-24.6	N 10 47.1	-13.2	15	
16	56 47.3	-00.1	S 18 12.7	-00.7	90 21.4	-00.8	S 22 28.6	+00.0	204 25.1	-24.5	N 10 33.9	-13.1	16	
17	71 47.2	-00.2	S 18 12.0	-00.6	105 20.6	-00.9	S 22 28.6	+00.1	219 00.6	-24.4	N 10 20.8	-13.3	17	
18	86 47.0	-00.1	S 18 11.4	-00.7	120 19.7	-00.9	S 22 28.5	+00.0	233 36.2	-24.5	N 10 07.5	-13.2	18	
19	101 46.9	-00.1	S 18 10.7	-00.6	135 18.8	-00.8	S 22 28.5	+00.0	248 11.7	-24.4	N 09 54.3	-13.3	19	
20	116 46.8	-00.1	S 18 10.1	-00.7	150 18.0	-00.9	S 22 28.5	+00.0	262 47.3	-24.3	N 09 41.0	-13.3	20	
21	131 46.7	-00.1	S 18 09.4	-00.7	165 17.1	-00.9	S 22 28.5	+00.1	277 23.0	-24.3	N 09 27.7	-13.4	21	
22	146 46.6	-00.1	S 18 08.7	-00.6	180 16.2	-00.9	S 22 28.4	+00.0	291 58.7	-24.3	N 09 14.3	-13.3	22	
23	161 46.5	-00.2	S 18 08.1	-00.7	195 15.3	-00.8	S 22 28.4	+00.1	306 34.4	-24.2	N 09 01.0	-13.4	23	
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 14°7 14°7 14°7 14°7 14°7 14°7
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°1 54°1 54°1 54°1 54°1 54°1	HP 54°1 54°1 54°1 54°1 54°1 54°1	HP 54°1 54°1 54°1 54°1 54°1 54°1	HP 54°1 54°1 54°1 54°1 54°1 54°1	HP 54°1 54°1 54°1 54°1 54°1 54°1	HP 54°1 54°1 54°1 54°1 54°1 54°1
SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 050° 050° 050° 049° 049° 049°	SHA 203° 202° 200° 198° 196° 194°	SHA 203° 202° 200° 198° 196° 194°	SHA 203° 202° 200° 198° 196° 194°	SHA 203° 202° 200° 198° 196° 194°	SHA 203° 202° 200° 198° 196° 194°	SHA 203° 202° 200° 198° 196° 194°
Greenwich Culmination Time: 12:12				Greenwich Culmination Time: 09:58				Greenwich Culmination Time: 01:59						

UT	Sun				Venus				Moon				UT	
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	176 59.0	-00.1	S 19 08.3	-00.6	211 38.1	-00.9	S 22 26.6	+00.1	4 40.3	-30.8	N 25 48.3	-06.4	00	
01	191 58.9	-00.2	S 19 07.7	-00.6	226 37.2	-00.9	S 22 26.7	+00.1	19 09.5	-30.8	N 25 41.9	-06.5	01	
02	206 58.7	-00.1	S 19 07.1	-00.6	241 36.3	-00.8	S 22 26.8	+00.0	33 38.7	-30.7	N 25 35.4	-06.6	02	
03	221 58.6	-00.2	S 19 06.5	-00.6	256 35.5	-00.9	S 22 26.8	+00.1	48 08.0	-30.6	N 25 28.8	-06.7	03	
04	236 58.4	-00.1	S 19 05.9	-00.6	271 34.6	-00.9	S 22 26.9	+00.1	62 37.4	-30.5	N 25 22.1	-06.9	04	
05	251 58.3	-00.2	S 19 05.3	-00.6	286 33.7	-00.8	S 22 27.0	+00.0	77 06.9	-30.5	N 25 15.2	-06.9	05	
06	266 58.1	-00.1	S 19 04.7	-00.6	301 32.9	-00.9	S 22 27.0	+00.1	91 36.4	-30.4	N 25 08.3	-07.1	06	
07	281 58.0	-00.2	S 19 04.1	-00.6	316 32.0	-00.9	S 22 27.1	+00.1	106 06.0	-30.3	N 25 01.2	-07.2	07	
08	296 57.8	-00.1	S 19 03.5	-00.7	331 31.1	-00.8	S 22 27.2	+00.0	120 35.7	-30.2	N 24 54.0	-07.3	08	
09	311 57.7	-00.1	S 19 02.8	-00.6	346 30.3	-00.9	S 22 27.2	+00.1	135 05.5	-30.1	N 24 46.7	-07.5	09	
10	326 57.6	-00.2	S 19 02.2	-00.6	1 29.4	-00.9	S 22 27.3	+00.1	149 35.4	-30.1	N 24 39.2	-07.5	10	
11	341 57.4	-00.1	S 19 01.6	-00.6	16 28.5	-00.9	S 22 27.4	+00.0	164 05.3	-30.0	N 24 31.7	-07.7	11	
12	356 57.3	-00.2	S 19 01.0	-00.6	31 27.6	-00.8	S 22 27.4	+00.1	178 35.3	-29.8	N 24 24.0	-07.7	12	
13	11 57.1	-00.1	S 19 00.4	-00.6	46 26.8	-00.9	S 22 27.5	+00.0	193 05.5	-29.9	N 24 16.3	-07.9	13	
14	26 57.0	-00.2	S 18 59.8	-00.6	61 25.9	-00.9	S 22 27.5	+00.1	207 35.6	-29.7	N 24 08.4	-08.0	14	
15	41 56.8	-00.1	S 18 59.2	-00.7	76 25.0	-00.8	S 22 27.6	+00.0	222 05.9	-29.6	N 24 00.4	-08.1	15	
16	56 56.7	-00.2	S 18 58.5	-00.6	91 24.2	-00.9	S 22 27.6	+00.1	236 36.3	-29.6	N 23 52.3	-08.2	16	
17	71 56.5	-00.1	S 18 57.9	-00.6	106 23.3	-00.9	S 22 27.7	+00.1	251 06.7	-29.5	N 23 44.1	-08.3	17	
18	86 56.4	-00.1	S 18 57.3	-00.6	121 22.4	-00.8	S 22 27.8	+00.0	265 37.2	-29.4	N 23 35.8	-08.4	18	
19	101 56.3	-00.2	S 18 56.7	-00.6	136 21.6	-00.9	S 22 27.8	+00.1	280 07.8	-29.3	N 23 27.4	-08.6	19	
20	116 56.1	-00.1	S 18 56.1	-00.6	151 20.7	-00.9	S 22 27.9	+00.0	294 38.5	-29.2	N 23 18.8	-08.6	20	
21	131 56.0	-00.2	S 18 55.5	-00.7	166 19.8	-00.8	S 22 27.9	+00.1	309 09.3	-29.1	N 23 10.2	-08.7	21	
22	146 55.8	-00.1	S 18 54.8	-00.6	181 19.0	-00.9	S 22 28.0	+00.0	323 40.2	-29.1	N 23 01.5	-08.8	22	
23	161 55.7	-00.1	S 18 54.2	-00.6	196 18.1	-00.9	S 22 28.0	+00.1	338 11.1	-29.0	N 22 52.7	-09.0	23	
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	SD 15°0 14°9 14°9 14°9 14°9 14°9	SD 15°0 14°9 14°9 14°9 14°9 14°9	SD 15°0 14°9 14°9 14°9 14°9 14°9	SD 15°0 14°9 14°9 14°9 14°9 14°9	SD 15°0 14°9 14°9 14°9 14°9 14°9	SD 15°0 14°9 14°9 14°9 14°9 14°9
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°9 54°8 54°8 54°7 54°7 54°6	HP 54°9 54°8 54°8 54°7 54°7 54°6	HP 54°9 54°8 54°8 54°7 54°7 54°6	HP 54°9 54°8 54°8 54°7 54°7 54°6	HP 54°9 54°8 54°8 54°7 54°7 54°6	HP 54°9 54°8 54°8 54°7 54°7 54°6
SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 053° 053° 053° 053° 052° 052°	SHA 088° 087° 087° 087° 087° 087°	SHA 088° 087° 087° 087° 087° 087°	SHA 088° 087° 087° 087° 087° 087°	SHA 088° 087° 087° 087° 087° 087°	SHA 088° 087° 087° 087° 087° 087°	SHA 088° 087° 087° 087° 087° 087°
Greenwich Culmination Time: 12:12				Greenwich Culmination Time: 09:54				Greenwich Culmination Time: -1:00						

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	197 35.9	+00.4	S 23 04.8	-00.3	91 51.4	+02.2	N 12 49.3	+00.1	148 23.5	+02.2	S 10 48.9	-00.1	00
01	212 36.3	+00.4	S 23 04.5	-00.2	106 53.6	+02.3	N 12 49.4	+00.0	163 25.7	+02.2	S 10 48.8	-00.1	01
02	227 36.7	+00.4	S 23 04.3	-00.2	121 55.9	+02.2	N 12 49.4	+00.1	178 27.9	+02.2	S 10 48.7	-00.1	02
03	242 37.1	+00.4	S 23 04.1	-00.2	136 58.1	+02.3	N 12 49.5	+00.1	193 30.1	+02.2	S 10 48.6	-00.1	03
04	257 37.5	+00.4	S 23 03.9	-00.3	152 00.4	+02.2	N 12 49.6	+00.1	208 32.3	+02.2	S 10 48.5	-00.2	04
05	272 37.9	+00.4	S 23 03.6	-00.2	167 02.6	+02.3	N 12 49.7	+00.1	223 34.5	+02.2	S 10 48.3	-00.1</	

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 052° 052° 052° 052° 051° 051°
Greenwich Culmination Time: 12:12

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 051° 051° 051° 050° 050° 050°
Greenwich Culmination Time: 12:12

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 072° 072° 072° 072° 072° 072°
Greenwich Culmination Time: 10:50

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 072° 071° 071° 071° 071° 071°
Greenwich Culmination Time: 10:49

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 046° 046° 046° 045° 045° 045°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 067° 067° 067° 067° 067° 067°
Greenwich Culmination Time: 10:46

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 049° 049° 049° 048° 048° 048°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 070° 070° 070° 070° 069° 069°
Greenwich Culmination Time: 10:48

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UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	176 43.7	-00.1	S 17 51.4	-00.7	209 53.5	-00.9	S 22 27.1	-00.1	311 37.2	-23.6	N 03 18.6	-14.0	00										
01	191 43.6	-00.1	S 17 50.7	-00.7	224 52.6	-00.8	S 22 27.0	+00.0	326 13.6	-23.6	N 03 04.6	-13.9	01										
02	206 43.5	-00.1	S 17 50.0	-00.7	239 51.8	-00.9	S 22 27.0	-00.1	340 50.0	-23.6	N 02 50.7	-14.0	02										
03	221 43.4	-00.1	S 17 49.3	-00.6	254 50.9	-00.9	S 22 26.9	-00.1	355 26.4	-23.6	N 02 36.7	-13.9	03										
04	236 43.3	-00.2	S 17 48.7	-00.7	269 50.0	-00.9	S 22 26.8	+00.0	10 02.8	-23.6	N 02 22.8	-14.0	04										
05	251 43.1	-00.1	S 17 48.0	-00.7	284 49.1	-00.8	S 22 26.8	-00.1	24 39.2	-23.6	N 02 08.8	-14.0	05										
06	266 43.0	-00.1	S 17 47.3	-00.7	299 48.3	-00.9	S 22 26.7	-00.1	39 15.6	-23.6	N 01 54.8	-14.0	06										
07	281 42.9	-00.1	S 17 46.6	-00.7	314 47.4	-00.9	S 22 26.6	-00.1	53 52.0	-23.6	N 01 40.8	-14.0	07										
08	296 42.8	-00.1	S 17 45.9	-00.6	329 46.5	-00.8	S 22 26.5	+00.0	68 28.4	-23.6	N 01 26.8	-14.0	08										
09	311 42.7	-00.1	S 17 45.3	-00.7	344 45.7	-00.9	S 22 26.5	-00.1	83 04.8	-23.5	N 01 12.8	-14.0	09										
10	326 42.6	-00.1	S 17 44.6	-00.7	359 44.8	-00.9	S 22 26.4	-00.1	97 41.3	-23.6	N 00 58.8	-14.0	10										
11	341 42.5	-00.1	S 17 43.9	-00.7	14 43.9	-00.9	S 22 26.3	-00.1	112 17.7	-23.6	N 00 44.8	-14.0	11										
12	356 42.4	-00.1	S 17 43.2	-00.7	29 43.0	-00.8	S 22 26.2	-00.1	126 54.1	-23.6	N 00 30.8	-14.0	12										
13	11 42.3	-00.1	S 17 42.5	-00.7	44 42.2	-00.9	S 22 26.1	+00.0	141 30.5	-23.5	N 00 16.8	-14.1	13										
14	26 42.2	-00.1	S 17 41.8	-00.6	59 41.3	-00.9	S 22 26.1	-00.1	156 07.0	-23.6	N 00 02.7	-14.0	14										
15	41 42.1	-00.1	S 17 41.2	-00.7	74 40.4	-00.9	S 22 26.0	-00.1	170 43.4	-23.6	S 00 11.3	+14.0	15										
16	56 42.0	-00.1	S 17 40.5	-00.7	89 39.5	-00.8	S 22 25.9	-00.1	185 19.8	-23.6	S 00 25.3	+14.0	16										
17	71 41.9	-00.1	S 17 39.8	-00.7	104 38.7	-00.9	S 22 25.8	-00.1	199 56.2	-23.6	S 00 39.3	+14.1	17										
18	86 41.8	-00.1	S 17 39.1	-00.7	119 37.8	-00.9	S 22 25.7	-00.1	214 32.6	-23.6	S 00 53.4	+14.0	18										
19	101 41.7	-00.1	S 17 38.4	-00.7	134 36.9	-00.8	S 22 25.6	+00.0	229 09.0	-23.6	S 01 07.4	+14.0	19										
20	116 41.6	-00.1	S 17 37.7	-00.7	149 36.1	-00.9	S 22 25.6	-00.1	243 45.4	-23.7	S 01 21.4	+14.1	20										
21	131 41.5	-00.1	S 17 37.0	-00.6	164 35.2	-00.9	S 22 25.5	-00.1	258 21.7	-23.6	S 01 35.5	+14.0	21										
22	146 41.4	-00.1	S 17 36.4	-00.7	179 34.3	-00.9	S 22 25.4	-00.1	272 58.1	-23.7	S 01 49.5	+14.0	22										
23	161 41.3	-00.1	S 17 35.7	-00.7	194 33.4	-00.8	S 22 25.3	-00.1	287 34.4	-23.7	S 02 03.5	+14.0	23										
UT	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	UT	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	UT	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	UT									
SD	16°2 16°2 16°2 16°2 16°2 16°2	SD	00°1 00°1 00°1 00°1 00°1 00°1	SD	14°7 14°7 14°7 14°7 14°8 14°8	SD	16°2 16°2 16°2 16°2 16°2 16°2	SD	00°1 00°1 00°1 00°1 00°1 00°1	SD	14°8 14°8 14°8 14°8 14°8 14°8	SD	00°1 00°1 00°1 00°1 00°1 00°1	SD	14°8 14°8 14°8 14°8 14°8 14°8								
HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	54°0 54°1 54°1 54°1 54°1 54°1	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	54°2 54°3 54°3 54°4 54°4 54°5	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	54°2 54°3 54°3 54°4 54°4 54°5								
SHA	048° 048° 048° 047° 047° 047°	SHA	081° 081° 081° 081° 080° 080°	SHA	182° 180° 179° 177° 175° 173°	SHA	047° 047° 047° 046° 046° 046°	SHA	080° 079° 079° 079° 079° 079°	SHA	172° 170° 168° 166° 165° 163°	SHA	069° 069° 069° 069° 068° 068°	SHA	172° 170° 168° 166° 165° 163°								
Greenwich Culmination Time: 12:13				Greenwich Culmination Time: 10:01				Greenwich Culmination Time: 03:18				Greenwich Culmination Time: 12:13				Greenwich Culmination Time: 10:02				Greenwich Culmination Time: 03:57			

UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	176 41.2	-00.1	S 17 35.0	-00.7	209 32.6	-00.9	S 22 25.2	-00.1	302 10.7	-23.6	S 02 17.5	+14.1	00										
01	191 41.1	-00.1	S 17 34.3	-00.7	224 31.7	-00.9	S 22 25.1	-00.1	316 47.1	-23.7	S 02 31.6	+14.0	01										
02	206 41.0	-00.1	S 17 33.6	-00.7	239 30.8	-00.9	S 22 25.0	-00.1	331 23.4	-23.8	S 02 45.6	+14.0	02										
03	221 40.9	-00.1	S 17 32.9	-00.7	254 29.9	-00.8	S 22 24.9	-00.1	345 59.6	-23.7	S 02 59.6	+14.0	03										
04	236 40.8	-00.1	S 17 32.2	-00.7	269 29.1	-00.9	S 22 24.8	-00.1	0 35.9	-23.8	S 03 13.6	+14.0	04										
05	251 40.7	-00.1	S 17 31.5	-00.7	284 28.2	-00.9	S 22 24.7	-00.1	15 12.1	-23.7	S 03 27.6	+14.0	05										
06	266 40.6	-00.1	S 17 30.8	-00.7	299 27.3	-00.8	S 22 24.6	-00.1	29 48.4	-23.8	S 03 41.6	+14.0	06										
07	281 40.5	-00.1	S 17 30.1	-00.6	314 26.5	-00.9	S 22 24.5	-00.1	44 24.6	-23.9	S 03 55.6	+13.9	07										
08	296 40.4	-00.1	S 17 29.5	-00.7	329 25.6	-00.9	S 22 24.4	-00.1	59 00.7	-23.8	S 04 09.5	+14.0	08										
09	311 40.3	-00.1	S 17 28.8	-00.7	344 24.7	-00.9	S 22 24.3	-00.1	73 36.9	-23.9	S 04 23.5	+13.9	09										
10	326 40.2	-00.1	S 17 28.1	-00.7	359 23.8	-00.8	S 22 24.2	-00.1	88 13.0	-23.9	S 04 37.4	+14.0	10										
11	341 40.1	+00.0	S 17 27.4	-00.7	14 23.0	-00.9	S 22 24.1	-00.1	102 49.1	-23.9	S 04 51.4	+13.9	11										
12	356 40.1	-00.1	S 17 26.7	-00.7	29 22.1	-00.9	S 22 24.0	-00.1	117 25.2	-24.0	S 05 05.3	+13.9	12										
13	11 40.0	-00.1	S 17 26.0	-00.7	44 21.2	-00.9	S 22 23.9	-00.1	132 01.2	-24.0	S 05 19.2	+13.9	13										
14	26 39.9	-00.1	S 17 25.3	-00.7	59 20.3	-00.8	S 22 23.8	-00.1	146 37.2	-24.0	S 05 33.1	+13.9	14										
15	41 39.8	-00.1	S 17 24.6	-00.7	74 19.5	-00.9	S 22 23.7	-00.2	161 13.2	-24.1	S 05 47.0	+13.9	15										
16	56 39.7	-00.1	S 17 23.9	-00.7	89 18.6	-00.9	S 22 23.5	-00.1	175 49.1	-24.1	S 06 00.9	+13.9	16										
17	71 39.6	-00.1	S 17 23.2	-00.7	104 17.7	-00.8	S 22 23.4	-00.1	190 25.0	-24.1	S 06 14.8	+13.8	17										
18	86 39.5	-00.1	S 17 22.5	-00.7	119 16.9	-00.9	S 22 23.3	-00.1	205 00.9	-24.1	S 06 28.6	+13.8	18										
19	101 39.4	-00.1	S 17 21.8	-00.7	134 16.0	-00.9	S 22 23.2	-00.1	219 36.8	-24.2	S 06 42.4	+13.8	19										
20	116 39.3	-00.1	S 17 21.1	-00.7	149 15.1	-00.9	S 22 23.1	-00.1	234 12.6	-24.3	S 06 56.2	+13.8	20										
21	131 39.2	-00.1	S 17 20.4	-00.7	164 14.2	-00.8	S 22 23.0	-00.2	248 48.3	-24.3	S 07 10.0	+13.8	21										
22	146 39.1	-00.1	S 17 19.7	-00.7	179 13.4	-00.9	S 22 22.8	-00.1	263 24.0	-24.3	S 07 23.8	+13.8	22										
23	161 39.0	-00.1	S 17 19.0	-00.7	194 12.5	-00.9	S 22 22.7	-00.1	277 59.7	-24.3	S 07 37.6	+13.7	23										
UT	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	UT	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	UT	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	UT									
SD	16°2 16°2 16°2 16°2 16°2 16°2	SD	00°1 00°1 00°1 00°1 00°1 00°1	SD	14°7 14°7 14°7 14°7 14°8 14°8	SD	16°2 16°2 16°2 16°2 16°2 16°2	SD	00°1 00°1 00°1 00°1 00°1 00°1	SD	14°8 14°8 14°8 14°8 14°8 14°8	SD	00°1 00°1 00°1 00°1 00°1 00°1	SD	14°8 14°8 14°8 14°8 14°8 14°8								
HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	54°0 54°1 54°1 54°1 54°1 54°1	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	54°2 54°3 54°3 54°4 54°4 54°5	HP	00°1 00°1 00°1 00°1 00°1 00°1	HP	54°2 54°3 54°3 54°4 54°4 54°5								
SHA	047° 047° 047° 046° 046° 046°	SHA	080° 079° 079° 079° 079° 079°	SHA	172° 170° 168° 166° 165° 163°	SHA	069° 069° 069° 069° 068° 068°	SHA	172° 170° 168° 166° 165° 163°	SHA	069° 069° 069° 069° 068° 068°	SHA	172° 170° 168° 166° 165° 163°	SHA	172° 170° 168° 166° 165° 163°								
Greenwich Culmination Time: 12:13				Greenwich Culmination Time: 10:02				Greenwich Culmination Time: 03:57				Greenwich Culmination Time: 12:13				Greenwich Culmination Time: 10:02				Greenwich Culmination Time: 03:57			

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	197 55.8	+00.5	S 22 53.4	-00.2	93 38.9	+02.2	N 12 53.5	+00.1	150 09.0	+02.2	S 10 43.8	-00.1	00
01	212 56.3	+00.4	S 22 53.2	-00.3	108 41.1	+02.3	N 12 53.6	+00.1	165 11.2	+02.2	S 10 43.7	-00.1	01
02	227 56.7	+00.4	S 22 52.9	-00.2	123 43.4	+02.2	N 12 53.7	+00.1	180 13.4	+02.2	S 10 43.6	-00.1	02
03	242 57.1	+00.4	S 22 52.7	-00.3	138 45.6	+02.2	N 12 53.8	+00.1	195 15.6	+02.2	S 10 43.5	-00.1	03
04	257 57.5	+00.4	S 22 52.4	-00.2	153 47.8	+02.3	N 12 53.8	+00.1	210 17.8	+02.2	S 10 43.4	-00.1	04
05	272 57.9	+00.4	S 22 52.2	-00.3	168 50.1	+02.2	N 12 53.9	+00.1	225 20.0	+02.2	S 10 43.3	-00.1	05
06	287 58.3	+00.5	S 22 51.9	-00.2	183 52.3	+02.2	N 12 54.0	+00.1	240 22.2	+02.2	S 10 43.2	-00.1	06
07	302 58.8	+00.4	S 22 51.7	-00.3	198 54.5	+02.2	N 12 54.1	+00.1	255 24.4	+02.2	S 10 43.1	-00.1	07
08	317 59.2	+00.4	S 22 51.4	-00.2	213 56.7	+02.3	N 12 54.2	+00.1	270 26.6	+02.2	S 10 43.0	-00.1	08
09	332 59.6	+00.4	S 22 51.2	-00.3	228 59.0	+02.2	N 12 54.3	+00.1	285 28.8	+02.2	S 10 42		

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	176	31.9	-00.1	S 16 08.5	-00.7	207	48.4	-00.9	S 22 05.6	-00.3	247	26.9	-33.5	S 25 49.8	+06.8					
01	191	31.8	+00.0	S 16 07.8	-00.8	222	47.5	-00.8	S 22 05.3	-00.2	261	53.4	-33.6	S 25 56.6	+06.7					
02	206	31.8	-00.1	S 16 07.0	-00.7	237	46.7	-00.9	S 22 05.1	-00.2	276	19.8	-33.7	S 26 03.3	+06.6					
03	221	31.7	-00.1	S 16 06.3	-00.8	252	45.8	-00.9	S 22 04.9	-00.3	290	46.1	-33.8	S 26 09.9	+06.3					
04	236	31.6	+00.0	S 16 05.5	-00.7	267	44.9	-00.8	S 22 04.6	-00.2	305	12.3	-34.0	S 26 16.2	+06.3					
05	251	31.6	-00.1	S 16 04.8	-00.8	282	44.1	-00.9	S 22 04.4	-00.2	319	38.3	-34.0	S 26 22.5	+06.1					
06	266	31.5	+00.0	S 16 04.0	-00.7	297	43.2	-00.8	S 22 04.2	-00.3	334	04.3	-34.2	S 26 28.6	+06.0					
07	281	31.5	-00.1	S 16 03.3	-00.8	312	42.4	-00.9	S 22 03.9	-00.2	348	30.1	-34.3	S 26 34.6	+05.8					
08	296	31.4	+00.0	S 16 02.5	-00.8	327	41.5	-00.9	S 22 03.7	-00.3	2	55.8	-34.4	S 26 40.4	+05.6					
09	311	31.4	-00.1	S 16 01.7	-00.7	342	40.6	-00.8	S 22 03.4	-00.2	17	21.4	-34.6	S 26 46.0	+05.5					
10	326	31.3	+00.0	S 16 01.0	-00.8	357	39.8	-00.9	S 22 03.2	-00.2	31	46.8	-34.6	S 26 51.5	+05.4					
11	341	31.3	-00.1	S 16 00.2	-00.7	12	38.9	-00.8	S 22 03.0	-00.3	46	12.2	-34.8	S 26 56.9	+05.2					
12	356	31.2	-00.1	S 15 59.5	-00.8	27	38.1	-00.9	S 22 02.7	-00.2	60	37.4	-34.8	S 27 02.1	+05.0					
13	11	31.1	+00.0	S 15 58.7	-00.7	42	37.2	-00.9	S 22 02.5	-00.3	75	02.6	-35.0	S 27 07.1	+04.9					
14	26	31.1	-00.1	S 15 58.0	-00.8	57	36.3	-00.8	S 22 02.2	-00.2	89	27.6	-35.1	S 27 12.0	+04.8					
15	41	31.0	+00.0	S 15 57.2	-00.8	72	35.5	-00.9	S 22 02.0	-00.3	103	52.5	-35.2	S 27 16.8	+04.5					
16	56	31.0	-00.1	S 15 56.4	-00.7	87	34.6	-00.8	S 22 01.7	-00.2	118	17.3	-35.3	S 27 21.3	+04.4					
17	71	30.9	+00.0	S 15 55.7	-00.8	102	33.8	-00.9	S 22 01.5	-00.3	132	42.0	-35.4	S 27 25.7	+04.3					
18	86	30.9	-00.1	S 15 54.9	-00.7	117	32.9	-00.9	S 22 01.2	-00.2	147	06.6	-35.5	S 27 30.0	+04.0					
19	101	30.8	+00.0	S 15 54.2	-00.8	132	32.0	-00.8	S 22 01.0	-00.3	161	31.1	-35.6	S 27 34.0	+04.0					
20	116	30.8	-00.1	S 15 53.4	-00.8	147	31.2	-00.9	S 22 00.7	-00.3	175	55.5	-35.7	S 27 38.0	+03.7					
21	131	30.7	+00.0	S 15 52.6	-00.7	162	30.3	-00.8	S 22 00.4	-00.2	190	19.8	-35.8	S 27 41.7	+03.6					
22	146	30.7	-00.1	S 15 51.9	-00.8	177	29.5	-00.9	S 22 00.2	-00.3	204	44.0	-35.9	S 27 45.3	+03.4					
23	161	30.6	+00.0	S 15 51.1	-00.7	192	28.6	-00.8	S 21 59.9	-00.2	219	08.1	-36.0	S 27 48.7	+03.2					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°2	16°2	16°2	16°2	16°2	16°2	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°6	15°7	15°7	15°7	15°8	15°8
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	57°3	57°5	57°6	57°8	58°0	58°1
SHA	042°	042°	041°	041°	041°	041°	SHA	073°	073°	073°	073°	072°	072°	SHA	112°	109°	107°	104°	102°	099°
Greenwich Culmination Time: 12:13						Greenwich Culmination Time: 10:09						Greenwich Culmination Time: 07:47								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	176	36.9	-00.1	S 17 01.3	-00.7	208	50.7	-00.8	S 22 19.4	-00.2	282	34.9	-25.8	S 13 12.7	+13.0					
01	191	36.8	-00.1	S 17 00.6	-00.7	223	49.9	-00.9	S 22 19.2	-00.1	297	09.1	-25.9	S 13 25.7	+12.9					
02	206	36.7	-00.1	S 16 59.9	-00.8	238	49.0	-00.9	S 22 19.1	-00.2	311	43.2	-26.0	S 13 38.6	+12.9					
03	221	36.6	-00.1	S 16 59.1	-00.7	253	48.1	-00.8	S 22 18.9	-00.2	326	17.2	-26.0	S 13 51.5	+12.8					
04	236	36.5	+00.0	S 16 58.4	-00.7	268	47.3	-00.9	S 22 18.7	-00.1	340	51.2	-26.1	S 14 04.3	+12.8					
05	251	36.5	-00.1	S 16 57.7	-00.7	283	46.4	-00.9	S 22 18.6	-00.2	355	25.1	-26.2	S 14 17.1	+12.8					
06	266	36.4	-00.1	S 16 57.0	-00.7	298	45.5	-00.9	S 22 18.4	-00.1	9	58.9	-26.3	S 14 29.9	+12.7					
07	281	36.3	-00.1	S 16 56.3	-00.7	313	44.6	-00.8	S 22 18.3	-00.2	24	32.6	-26.3	S 14 42.6	+12.6					
08	296	36.2	-00.1	S 16 55.6	-00.8	328	43.8	-00.9	S 22 18.1	-00.1	39	06.3	-26.5	S 14 55.2	+12.6					
09	311	36.1	+00.0	S 16 54.8	-00.7	343	42.9	-00.9	S 22 18.0	-00.2	53	39.8	-26.5	S 15 07.8	+12.6					
10	326	36.1	-00.1	S 16 54.1	-00.7	358	42.0	-00.8	S 22 17.8	-00.2	68	13.3	-26.6	S 15 20.4	+12.5					
11	341	36.0	-00.1	S 16 53.4	-00.7	13	41.2	-00.9	S 22 17.6	-00.1	82	46.7	-26.7	S 15 32.9	+12.4					
12	356	35.9	-00.1	S 16 52.7	-00.7	28	40.3	-00.9	S 22 17.5	-00.2	97	20.0	-26.7	S 15 45.3	+12.4					
13	11	35.8	+00.0	S 16 52.0	-00.8	43	39.4	-00.8	S 22 17.3	-00.2	111	53.3	-26.9	S 15 57.7	+12.3					
14	26	35.8	-00.1	S 16 51.2	-00.7	58	38.6	-00.9	S 22 17.1	-00.1	126	26.4	-26.9	S 16 10.0	+12.3					
15	41	35.7	-00.1	S 16 50.5	-00.7	73	37.7	-00.9	S 22 17.0	-00.2	140	59.5	-27.1	S 16 22.3	+12.2					
16	56	35.6	-00.1	S 16 49.8	-00.7	88	36.8	-00.8	S 22 16.8	-00.2	155	32.4	-27.1	S 16 34.5	+12.2					
17	71	35.5	+00.0	S 16 49.1	-00.8	103	36.0	-00.9	S 22 16.6	-00.1	170	05.3	-27.2	S 16 46.7	+12.1					
18	86	35.5	-00.1	S 16 48.3	-00.7	118	35.1	-00.9	S 22 16.5	-00.2	184	38.1	-27.3	S 16 58.8	+12.1					
19	101	35.4	-00.1	S 16 47.6	-00.7	133	34.2	-00.8	S 22 16.3	-00.2	199	10.8	-27.4	S 17 10.9	+12.0					
20	116	35.3	-00.1	S 16 46.9	-00.7	148	33.4	-00.9	S 22 16.1	-00.1	213	43.4	-27.5	S 17 22.9	+11.9					
21	131	35.2	+00.0	S 16 46.2	-00.8	163	32.5	-00.9	S 22 16.0	-00.2	228	15.9	-27.6	S 17 34.8	+11.8					
22	146	35.2	-00.1	S 16 45.4	-00.7	178	31.6	-00.8	S 22 15.8	-00.2	242	48.3	-27.7	S 17 46.6	+11.8					
23	161	35.1	-00.1	S 16 44.7	-00.7	193	30.8	-00.9	S 22 15.6	-00.2	257	20.6	-27.8	S 17 58.4	+11.8					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°2	16°2	16°2	16°2	16°2	16°2	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°0	15°0	15°0	15°1	15°1	15°1
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	55°0	55°1	55°2	55°3	55°4	55°5
SHA	045°	045°	044°	044°	044°	044°	SHA	077°	077°	077°	076°	076°	076°	SHA	150°	148°	146°	144°	142°	140°
Greenwich Culmination Time: 12:13						Greenwich Culmination Time: 10:05						Greenwich Culmination Time: 05:18								

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	198	56.7	+00.4	S 22 13.4	-00.3	98	57.4	+02.2	N 13 07.4	+00.1	155	24.7	+02.2	S 10 28.4	-00.1
01	213	57.1	+00.4	S 22 13.1	-00.3	113	59.6	+02.2	N 13 07.5	+00.1	170	26.9	+02.2	S 10 28.3	-00.1
02	228	57.5	+00.4	S 22 12.8	-00.3	129	01.8	+02.2	N 13 07.6	+00.1	185	29.1	+02.2	S 10 28.2	-00.1
03	243	57.9	+00.5	S 22 12.5	-00.4	144	04.0	+02.1	N 13 07.7	+00.1	200	31.3	+02.2	S 10 28.1	-00.1
04	258	58.4	+00.4	S 22 12.1	-00.3	159	06.1	+02.2	N 13 07.8	+00.1	215	33.5	+02.2	S 10 28.0	-00.1
05	273	58.8	+00.4	S 22 11.8	-00.3	174	08.3	+02.2	N 13 07.9	+00.1	230	35.7	+02.2	S 10 27.9	-00.2
06	288	59.2	+00.5	S 22 11.5	-00.3	189	10.5	+02.2	N 13 08.0	+00.1	245	37.9	+02.2	S 10 27.7	-00.1
07	303	59.7	+00.4	S 22 11.2	-00.3	204	12.7	+02.2	N 13 08.1	+00.1	260	40.1	+02.1	S 10 27.6	-00.1
08	319	00.1	+00.4	S 22 10.9	-00.3	219	14.9	+02.2	N 13 08.2	+00.1	275	42.2	+02.2	S 10 27.5	-00.1
09	334	00.5	+00.4	S 22 10.6	-00.3	234	17.1	+02.2	N 13 08.3	+00.1	290	44.4	+02.2	S 10 27.4	-00.1
10	349	00.9	+00.5	S 22 10.3	-00.3	249	19.3	+02.2	N 13 08.4	+00.1	305	46.6	+02.2	S 10 27.3	-00.1
11	4	01.4	+00.4	S 22 10.0	-00.4	264	21.5	+02.2	N 13 08.5	+00.1	320	48.8	+02.2	S 10 27.2	-00.1
12	19	01.8	+00.4	S 22 09.6	-00.3	279	23.7	+02.1	N 13 08.6	+00.1	335	51.0	+02.2	S 10 27.1	-00.1
13	34	02.2	+00.5	S 22 09.3	-00.3	294	25.8	+02.2	N 13 08.7	+00.1	350	53.2	+02.2	S 10 27.0	-00.1
14	49	02.7	+00.4	S 22 09.0	-00.3	309	28.0	+02.2	N 13 08.8	+00.1	5	55.4	+02.2	S 10 26.9	-00.1
15	64	03.1	+00.4	S 22 08.7	-00.3	324	30.2								

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 038° 038° 037° 037° 037° 037°
Greenwich Culmination Time: 12:14

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 041° 041° 040° 040° 040° 040°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

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Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	176	29.5	+00.0	S 15 31.9	-00.7	207	07.2	-00.8	S 21 53.1	-00.3	218	44.8	-37.7	S 28 14.4	-01.5	00
01	191	29.5	-00.1	S 15 31.2	-00.8	222	06.4	-00.9	S 21 52.8	-00.3	233	07.1	-37.8	S 28 12.9	-01.6	01
02	206	29.4	+00.0	S 15 30.4	-00.8	237	05.5	-00.8	S 21 52.5	-00.3	247	29.3	-37.7	S 28 11.3	-01.9	02
03	221	29.4	+00.0	S 15 29.6	-00.8	252	04.7	-00.9	S 21 52.2	-00.3	261	51.6	-37.8	S 28 09.4	-02.0	03
04	236	29.4	-00.1	S 15 28.8	-00.7	267	03.8	-00.8	S 21 51.9	-00.3	276	13.8	-37.8	S 28 07.4	-02.3	04
05	251	29.3	+00.0	S 15 28.1	-00.8	282	03.0	-00.9	S 21 51.6	-00.3	290	36.0	-37.9	S 28 05.1	-02.4	05
06	266	29.3	-00.1	S 15 27.3	-00.8	297	02.1	-00.8	S 21 51.3	-00.3	304	58.1	-37.8	S 28 02.7	-02.7	06
07	281	29.2	+00.0	S 15 26.5	-00.8	312	01.3	-00.9	S 21 51.0	-00.3	319	20.3	-37.9	S 28 00.0	-02.8	07
08	296	29.2	+00.0	S 15 25.7	-00.8	327	00.4	-00.8	S 21 50.7	-00.3	333	42.4	-37.9	S 27 57.2	-03.1	08
09	311	29.2	-00.1	S 15 24.9	-00.7	341	59.6	-00.9	S 21 50.4	-00.2	348	04.5	-37.9	S 27 54.1	-03.2	09
10	326	29.1	+00.0	S 15 24.2	-00.8	356	58.7	-00.8	S 21 50.2	-00.3	2	26.6	-38.0	S 27 50.9	-03.5	10
11	341	29.1	+00.0	S 15 23.4	-00.8	11	57.9	-00.9	S 21 49.9	-00.3	16	48.6	-37.9	S 27 47.4	-03.6	11
12	356	29.1	-00.1	S 15 22.6	-00.8	26	57.0	-00.8	S 21 49.6	-00.4	31	10.7	-37.9	S 27 43.8	-03.9	12
13	11	29.0	+00.0	S 15 21.8	-00.7	41	56.2	-00.9	S 21 49.2	-00.3	45	32.8	-38.0	S 27 39.9	-04.0	13
14	26	29.0	-00.1	S 15 21.1	-00.8	56	55.3	-00.8	S 21 48.9	-00.3	59	54.8	-37.9	S 27 35.9	-04.3	14
15	41	28.9	+00.0	S 15 20.3	-00.8	71	54.5	-00.9	S 21 48.6	-00.3	74	16.9	-38.0	S 27 31.6	-04.5	15
16	56	28.9	+00.0	S 15 19.5	-00.8	86	53.6	-00.8	S 21 48.3	-00.3	88	38.9	-37.9	S 27 27.1	-04.6	16
17	71	28.9	-00.1	S 15 18.7	-00.8	101	52.8	-00.9	S 21 48.0	-00.3	103	01.0	-37.9	S 27 22.5	-04.9	17
18	86	28.8	+00.0	S 15 17.9	-00.8	116	51.9	-00.8	S 21 47.7	-00.3	117	23.1	-37.9	S 27 17.6	-05.0	18
19	101	28.8	+00.0	S 15 17.1	-00.7	131	51.1	-00.9	S 21 47.4	-00.3	131	45.2	-37.9	S 27 12.6	-05.3	19
20	116	28.8	-00.1	S 15 16.4	-00.8	146	50.2	-00.8	S 21 47.1	-00.3	146	07.3	-37.9	S 27 07.3	-05.4	20
21	131	28.7	+00.0	S 15 15.6	-00.8	161	49.4	-00.9	S 21 46.8	-00.3	160	29.4	-37.9	S 27 01.9	-05.7	21
22	146	28.7	+00.0	S 15 14.8	-00.8	176	48.5	-00.8	S 21 46.5	-00.3	174	51.5	-37.8	S 26 56.2	-05.8	22
23	161	28.7	-00.1	S 15 14.0	-00.8	191	47.7	-00.9	S 21 46.2	-00.3	189	13.7	-37.8	S 26 50.4	-06.1	23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°2	16°2	16°2	16°2	16°2	16°2	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	16°1	16°2	16°2	16°3	16°3	16°3
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	59°2	59°4	59°5	59°7	59°8	60°0
SHA	040°	040°	039°	039°	039°	039°	SHA	070°	070°	070°	070°	070°	069°	SHA	081°	078°	075°	073°	070°	67°0
Greenwich Culmination Time: 12:14							Greenwich Culmination Time: 10:12							Greenwich Culmination Time: 09:49						

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	199	17.3	+00.4	S 21 58.1	-00.3	100	42.3	+02.1	N 13 12.4	+00.1	157	09.8	+02.1	S 10 23.2	-00.1	00
01	214	17.7	+00.5	S 21 57.8	-00.4	115	44.4	+02.2	N 13 12.5	+00.1	172	11.9	+02.2	S 10 23.1	-00.2	01
02	229	18.2	+00.4	S 21 57.4	-00.3	130	46.6	+02.2	N 13 12.6	+00.1	187	14.1	+02.2	S 10 22.9	-00.1	02
03	244	18.6	+00.4	S 21 57.1	-00.3	145	48.8	+02.2	N 13 12.7	+00.1	202	16.3	+02.2	S 10 22.8	-00.1	03
04	259	19.0	+00.5	S 21 56.8	-00.4	160	51.0	+02.1	N 13 12.8	+00.1	217	18.5	+02.2	S 10 22.7	-00.1	04
05	274	19.5	+00.4	S 21 56.4	-00.3	175	53.1	+02.2	N 13 12.9	+00.1	232	20.7	+02.2	S 10 22.6	-00.1	05
06	289	19.9	+00.4	S 21 56.1	-00.3	190	55.3	+02.2	N 13 13.0	+00.1	247	22.9	+02.2	S 10 22.5	-00.1	06
07	304	20.3	+00.5	S 21 55.8	-00.4	205	57.5	+02.2	N 13 13.1	+00.1	262	25.1	+02.1	S 10 22.4	-00.1	07
08	319	20.8	+00.4	S 21 55.4	-00.3	220	59.7	+02.1	N 13 13.2	+00.1	277	27.2	+02.2	S 10 22.3	-00.1	08
09	334	21.2	+00.4	S 21 55.1	-00.3	236	01.8	+02.2	N 13 13.3	+00.1	292	29.4	+02.2	S 10 22.2	-00.1	09
10	349	21.6	+00.5	S 21 54.8	-00.4	251	04.0	+02.2	N 13 13.4	+00.1	307	31.6	+02.2	S 10 22.1	-00.1	10
11	4	22.1	+00.4	S 21 54.4	-00.3	266	06.2	+02.2	N 13 13.5	+00.1	322	33.8	+02.2	S 10 22.0	-00.2	11
12	19	22.5	+00.4	S 21 54.1	-00.3	281	08.4	+02.1	N 13 13.6	+00.2	337	36.0	+02.2	S 10 21.8	-00.1	12
13	34	22.9	+00.5	S 21 53.8	-00.4	296	10.5	+02.2	N 13 13.8	+00.1	352	38.2	+02.2	S 10 21.7	-00.1	13
14	49	23.4	+00.4	S 21 53.4	-00.3	311	12.7	+02.2	N 13 13.9	+00.1	7	40.4	+02.2	S 10 21.6	-00.1	14
15	64	23.8	+00.4	S 21 53.1	-00.3	326	14.9	+02.2	N 13 14.0	+00.1	22	42.6	+02.1	S 10 21.5	-00.1	15
16	79	24.2	+00.5	S 21 52.8	-00.4	341	17.1	+02.1	N 13 14.1	+00.1	37	44.7	+02.2	S 10 21.4	-00.1	16
17	94	24.7	+00.4	S 21 52.4	-00.3	356	19.2	+02.2	N 13 14.2	+00.1	52	46.9	+02.2	S 10 21.3	-00.1	17
18	109	25.1	+00.4	S 21 52.1	-00.3	11	21.4	+02.2	N 13 14.3	+00.1	67	49.1	+02.2	S 10 21.2	-00.1	18
19	124	25.5	+00.5	S 21 51.8	-00.4	26	23.6	+02.2	N 13 14.4	+00.1	82	51.3	+02.2	S 10 21.1	-00.1	19
20	139	26.0	+00.4	S 21 51.4	-00.3	41	25.8	+02.1	N 13 14.5	+00.1	97	53.5	+02.2	S 10 21.0	-00.1	20
21	154	26.4	+00.4	S 21 51.1	-00.4	56	27.9	+02.2	N 13 14.6	+00.1	112	55.7	+02.2	S 10 20.9	-00.2	21
22	169	26.8	+00.5	S 21 50.7	-00.3	71	30.1	+02.2	N 13 14.7	+00.1	127	57.9	+02.1	S 10 20.7	-00.1	22
23	184	27.3	+00.4	S 21 50.4	-00.3	86	32.3	+02.2	N 13 14.8	+00.1	143	00.0	+02.2	S 10 20.6	-00.1	23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	00°0	00°0	00°0	00°0	00°0	00°0	SD	00°3	00°3	00°3	00°3	00°3	00°3	SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	063°	062°	062°	062°	062°	062°	SHA	324°	324°	324°	324°	324°	324°	SHA	021°	021°	020°	020°	020°	020°
Greenwich Culmination Time: 10:42							Greenwich Culmination Time: 17:14							Greenwich Culmination Time: 13:29						

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	176	28.6	+00.0	S 15 13.2	-00.8	206	46.8	-00.8	S 21 45.9	-00.4	203	35.9	-37.8	S 26 44.3	-06.2	00
01	191	28.6	+00.0	S 15 12.4	-00.7	221	46.0	-00.9	S 21 45.5	-00.3	217	58.1	-37.8	S 26 38.1	-06.5	01
02	206	28.6	-00.1	S 15 11.7	-00.8	236	45.1	-00.8	S 21 45.2	-00.3	232	20.3	-37.7	S 26 31.6	-06.6	02
03	221	28.5	+00.0	S 15 10.9	-00.8	251	44.3	-00.9	S 21 44.9	-00.3	246	42.6	-37.7	S 26 25.0	-06.8	03
04	236	28.5	+00.0	S 15 10.1	-00.8	266	43.4	-00.8	S 21 44.6	-00.3	261	04.9	-37.7	S 26 18.2	-07.1	04
05	251	28.5	-00.1	S 15 09.3	-00.8	281	42.6	-00.9	S 21 44.3	-00.4	275	27.2	-37.6	S 26 11.1	-07.2	05
06	266	28.4	+00.0	S 15 08.5	-00.8	296	41.7	-00.8	S 21 43.9	-00.3	289	49.6	-37.6	S 26 03.9	-07.4	06
07	281	28.4	+00.0	S 15 07.7	-00.8	311	40.9	-00.8	S 21 43.6	-00.3	304	12.0	-37.6	S 25 56.5	-07.6	07
08	296	28.4	+00.0	S 15 06.9	-00.7	326	40.1	-00.9	S 21 43.3	-00.3	318	34.4	-37.5	S 25 48.9	-07.8	08
09	311	28.4	-00.1	S 15 06.2	-00.8	341	39.2	-00.8	S 21 43.0	-00.4	332	56.9	-37.4	S 25 41.1	-08.0	09
10	326	28.3	+00.0	S 15 05.4	-00.8	356	38.4	-00.9	S 21 42.6	-00.3	347	19.5	-37.4	S 25 33.1	-08.2	10
11	341	28.3	+00.0	S 15 04.6	-00.8	11	37.5	-00.8	S 21 42.3	-00.3	1	42.1	-37.4	S 25 24.9	-08.3	11
12	356	28.3	-00.1	S 15 03.8	-00.8	26	36.7	-00.9	S 21 42.0	-00.3	16	04.7	-37.3	S 25 16.6	-08.6	12
13	11	28.2														

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 034° 034° 034° 033° 033° 033°
Greenwich Culmination Time: 12:14

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 058° 058° 057° 057° 057° 057°
Greenwich Culmination Time: 10:38

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 037° 037° 036° 036° 036° 036°
Greenwich Culmination Time: 12:14

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 060° 060° 060° 060° 060° 059°
Greenwich Culmination Time: 10:40

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 036° 036° 035° 035° 035° 035°
Greenwich Culmination Time: 12:14

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 059° 059° 059° 059° 059° 059°
Greenwich Culmination Time: 10:39

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 035° 035° 034° 034° 034° 034°
Greenwich Culmination Time: 12:14

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 059° 058° 058° 058° 058° 058°
Greenwich Culmination Time: 10:39

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176 29.5	+00.0	S 12 14.1	-00.8	203 50.3	-00.7	S 20 12.1	-00.5	86 56.9	-32.5	N 24 14.1	+08.6	00		
01	191 29.5	+00.0	S 12 13.3	-00.9	218 49.6	-00.8	S 20 11.6	-00.6	101 24.4	-32.5	N 24 22.7	+08.5	01		
02	206 29.5	+00.1	S 12 12.4	-00.9	233 48.8	-00.8	S 20 11.0	-00.5	115 51.9	-32.6	N 24 31.2	+08.3	02		
03	221 29.6	+00.0	S 12 11.5	-00.8	248 48.0	-00.8	S 20 10.5	-00.6	130 19.3	-32.6	N 24 39.5	+08.2	03		
04	236 29.6	+00.1	S 12 10.7	-00.9	263 47.2	-00.8	S 20 09.9	-00.5	144 46.7	-32.7	N 24 47.7	+08.0	04		
05	251 29.7	+00.0	S 12 09.8	-00.9	278 46.4	-00.7	S 20 09.4	-00.6	159 14.0	-32.6	N 24 55.7	+07.9	05		
06	266 29.7	+00.0	S 12 08.9	-00.9	293 45.7	-00.8	S 20 08.8	-00.6	173 41.4	-32.8	N 25 03.6	+07.8	06		
07	281 29.7	+00.1	S 12 08.0	-00.8	308 44.9	-00.8	S 20 08.2	-00.5	188 08.6	-32.7	N 25 11.4	+07.6	07		
08	296 29.8	+00.0	S 12 07.2	-00.9	323 44.1	-00.8	S 20 07.7	-00.6	202 35.9	-32.8	N 25 19.0	+07.4	08		
09	311 29.8	+00.1	S 12 06.3	-00.9	338 43.3	-00.7	S 20 07.1	-00.5	217 03.1	-32.8	N 25 26.4	+07.3	09		
10	326 29.9	+00.0	S 12 05.4	-00.8	353 42.6	-00.8	S 20 06.6	-00.6	231 30.3	-32.9	N 25 33.7	+07.2	10		
11	341 29.9	+00.1	S 12 04.6	-00.9	8 41.8	-00.8	S 20 06.0	-00.6	245 57.4	-32.9	N 25 40.9	+07.0	11		
12	356 30.0	+00.0	S 12 03.7	-00.9	23 41.0	-00.8	S 20 05.4	-00.6	260 24.5	-32.9	N 25 47.9	+06.9	12		
13	11 30.0	+00.0	S 12 02.8	-00.9	38 40.2	-00.7	S 20 04.9	-00.5	274 51.6	-32.9	N 25 54.8	+06.7	13		
14	26 30.0	+00.1	S 12 01.9	-00.8	53 39.5	-00.8	S 20 04.3	-00.5	289 18.7	-33.0	N 26 01.5	+06.5	14		
15	41 30.1	+00.0	S 12 01.1	-00.9	68 38.7	-00.8	S 20 03.8	-00.6	303 45.7	-33.0	N 26 08.0	+06.4	15		
16	56 30.1	+00.1	S 12 00.2	-00.9	83 37.9	-00.8	S 20 03.2	-00.6	318 12.7	-33.0	N 26 14.4	+06.3	16		
17	71 30.2	+00.0	S 11 59.3	-00.9	98 37.1	-00.7	S 20 02.6	-00.5	332 39.7	-33.1	N 26 20.7	+06.1	17		
18	86 30.2	+00.1	S 11 58.4	-00.8	113 36.4	-00.8	S 20 02.1	-00.6	347 06.6	-33.1	N 26 26.8	+05.9	18		
19	101 30.3	+00.0	S 11 57.6	-00.9	128 35.6	-00.8	S 20 01.5	-00.6	1 33.5	-33.1	N 26 32.7	+05.8	19		
20	116 30.3	+00.1	S 11 56.7	-00.9	143 34.8	-00.8	S 20 00.9	-00.6	16 00.4	-33.1	N 26 38.5	+05.7	20		
21	131 30.4	+00.0	S 11 55.8	-00.9	158 34.0	-00.7	S 20 00.3	-00.5	30 27.3	-33.1	N 26 44.2	+05.4	21		
22	146 30.4	+00.1	S 11 54.9	-00.9	173 33.3	-00.8	S 19 59.8	-00.6	44 54.2	-33.2	N 26 49.6	+05.4	22		
23	161 30.5	+00.0	S 11 54.1	-00.9	188 32.5	-00.8	S 19 59.2	-00.6	59 21.0	-33.2	N 26 55.0	+05.2	23		
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22			
SD 16°2 16°2 16°2 16°2 16°2 16°2				SD 00°1 00°1 00°1 00°1 00°1 00°1				SD 15°6 15°5 15°5 15°5 15°4 15°4				SD 16°2 16°2 16°2 16°2 16°2 16°2			
HP 00°1 00°1 00°1 00°1 00°1 00°1				HP 00°1 00°1 00°1 00°1 00°1 00°1				HP 57°2 57°1 56°9 56°8 56°7 56°6				HP 00°1 00°1 00°1 00°1 00°1 00°1			
SHA 030° 030° 030° 029° 029° 029°				SHA 057° 057° 057° 057° 056° 056°				SHA 299° 297° 295° 292° 290° 288°				SHA 033° 033° 033° 032° 032° 032°			
Greenwich Culmination Time: 12:14				Greenwich Culmination Time: 10:25				Greenwich Culmination Time: 18:53				Greenwich Culmination Time: 12:14			

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176 27.5	+00.0	S 13 15.8	-00.8	204 47.5	-00.8	S 20 49.0	-00.5	124 11.3	-30.0	N 08 34.3	+16.4	00		
01	191 27.5	+00.0	S 13 15.0	-00.8	219 46.7	-00.8	S 20 48.5	-00.5	138 41.3	-30.0	N 08 50.7	+16.4	01		
02	206 27.5	+00.0	S 13 14.2	-00.9	234 45.9	-00.8	S 20 48.0	-00.5	153 11.3	-30.0	N 09 07.1	+16.3	02		
03	221 27.5	+00.0	S 13 13.3	-00.8	249 45.1	-00.8	S 20 47.5	-00.4	167 41.3	-30.0	N 09 23.4	+16.2	03		
04	236 27.5	+00.0	S 13 12.5	-00.9	264 44.3	-00.8	S 20 47.1	-00.5	182 11.3	-30.0	N 09 39.6	+16.2	04		
05	251 27.5	+00.1	S 13 11.6	-00.8	279 43.5	-00.8	S 20 46.6	-00.5	196 41.3	-30.1	N 09 55.8	+16.1	05		
06	266 27.6	+00.0	S 13 10.8	-00.9	294 42.7	-00.8	S 20 46.1	-00.5	211 11.2	-30.0	N 10 11.9	+16.0	06		
07	281 27.6	+00.0	S 13 09.9	-00.8	309 41.9	-00.8	S 20 45.6	-00.5	225 41.2	-30.1	N 10 27.9	+15.9	07		
08	296 27.6	+00.0	S 13 09.1	-00.9	324 41.1	-00.8	S 20 45.1	-00.4	240 11.1	-30.1	N 10 43.8	+15.9	08		
09	311 27.6	+00.0	S 13 08.2	-00.8	339 40.3	-00.8	S 20 44.7	-00.5	254 41.0	-30.1	N 10 59.7	+15.8	09		
10	326 27.6	+00.1	S 13 07.4	-00.9	354 39.5	-00.8	S 20 44.2	-00.5	269 10.9	-30.2	N 11 15.5	+15.7	10		
11	341 27.7	+00.0	S 13 06.5	-00.8	9 38.7	-00.9	S 20 43.7	-00.5	283 40.7	-30.1	N 11 31.2	+15.6	11		
12	356 27.7	+00.0	S 13 05.7	-00.9	24 37.8	-00.8	S 20 43.2	-00.5	298 10.6	-30.2	N 11 46.8	+15.6	12		
13	11 27.7	+00.0	S 13 04.8	-00.8	39 37.0	-00.8	S 20 42.7	-00.5	312 40.4	-30.2	N 12 02.4	+15.4	13		
14	26 27.7	+00.0	S 13 04.0	-00.9	54 36.2	-00.8	S 20 42.2	-00.5	327 10.2	-30.2	N 12 17.8	+15.4	14		
15	41 27.7	+00.1	S 13 03.1	-00.8	69 35.4	-00.8	S 20 41.7	-00.5	341 40.0	-30.3	N 12 33.2	+15.3	15		
16	56 27.8	+00.0	S 13 02.3	-00.9	84 34.6	-00.8	S 20 41.2	-00.4	356 09.7	-30.3	N 12 48.5	+15.2	16		
17	71 27.8	+00.0	S 13 01.4	-00.8	99 33.8	-00.8	S 20 40.8	-00.5	10 39.4	-30.3	N 13 03.7	+15.2	17		
18	86 27.8	+00.0	S 13 00.6	-00.9	114 33.0	-00.8	S 20 40.3	-00.5	25 09.1	-30.3	N 13 18.9	+15.0	18		
19	101 27.8	+00.1	S 12 59.7	-00.8	129 32.2	-00.8	S 20 39.8	-00.5	39 38.8	-30.4	N 13 33.9	+15.0	19		
20	116 27.9	+00.0	S 12 58.9	-00.9	144 31.4	-00.8	S 20 39.3	-00.5	54 08.4	-30.4	N 13 48.9	+14.8	20		
21	131 27.9	+00.0	S 12 58.0	-00.8	159 30.6	-00.8	S 20 38.8	-00.5	68 38.0	-30.4	N 14 03.7	+14.8	21		
22	146 27.9	+00.0	S 12 57.2	-00.9	174 29.8	-00.8	S 20 38.3	-00.5	83 07.6	-30.4	N 14 18.5	+14.6	22		
23	161 27.9	+00.0	S 12 56.3	-00.8	189 29.0	-00.8	S 20 37.8	-00.5	97 37.2	-30.5	N 14 33.1	+14.6	23		
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22			
SD 16°2 16°2 16°2 16°2 16°2 16°2				SD 00°1 00°1 00°1 00°1 00°1 00°1				SD 16°3 16°2 16°2 16°2 16°1 16°1				SD 16°3 16°2 16°2 16°2 16°1 16°1			
HP 00°1 00°1 00°1 00°1 00°1 00°1				HP 00°1 00°1 00°1 00°1 00°1 00°1				HP 59°7 59°6 59°4 59°3 59°2 59°0				HP 59°7 59°7 59°6 59°5 59°4 59°3			
SHA 033° 033° 033° 032° 032° 032°				SHA 061° 061° 061° 061° 060° 060°				SHA 340° 337° 335° 333° 331° 329°				SHA 340° 337° 335° 333° 331° 329°			
Greenwich Culmination Time: 12:14				Greenwich Culmination Time: 10:21				Greenwich Culmination Time: 16:15				Greenwich Culmination Time: 16:15			

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 026° 026° 026° 026° 026° 025°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 051° 051° 051° 051° 051° 051°
Greenwich Culmination Time: 10:32

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 029° 029° 029° 028° 028° 028°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 054° 054° 053° 053° 053° 053°
Greenwich Culmination Time: 10:34

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

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UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	176 42.5	+00.1	S 09 21.6	-00.9	201 28.0	-00.7	S 18 08.4	-00.7	350 41.8	-24.4	N 10 09.9	-13.4	00
01	191 42.6	+00.1	S 09 20.7	-01.0	216 27.3	-00.7	S 18 07.7	-00.8	5 17.4	-24.4	N 09 56.5	-13.3	01
02	206 42.7	+00.1	S 09 19.7	-00.9	231 26.6	-00.7	S 18 06.9	-00.7	19 53.0	-24.3	N 09 43.2	-13.4	02
03	221 42.8	+00.1	S 09 18.8	-00.9	246 25.9	-00.7	S 18 06.2	-00.7	34 28.7	-24.3	N 09 29.8	-13.5	03
04	236 42.9	+00.1	S 09 17.9	-00.9	261 25.2	-00.7	S 18 05.5	-00.8	49 04.4	-24.3	N 09 16.3	-13.4	04
05	251 43.0	+00.1	S 09 17.0	-01.0	276 24.5	-00.7	S 18 04.7	-00.7	63 40.1	-24.2	N 09 02.9	-13.5	05
06	266 43.1	+00.0	S 09 16.0	-00.9	291 23.8	-00.7	S 18 04.0	-00.8	78 15.9	-24.2	N 08 49.4	-13.5	06
07	281 43.1	+00.1	S 09 15.1	-00.9	306 23.1	-00.7	S 18 03.2	-00.7	92 51.7	-24.1	N 08 35.9	-13.6	07
08	296 43.2	+00.1	S 09 14.2	-00.9	321 22.4	-00.7	S 18 02.5	-00.8	107 27.6	-24.1	N 08 22.3	-13.6	08
09	311 43.3	+00.1	S 09 13.3	-01.0	336 21.7	-00.7	S 18 01.7	-00.7	122 03.5	-24.1	N 08 08.7	-13.6	09
10	326 43.4	+00.1	S 09 12.3	-00.9	351 21.0	-00.7	S 18 01.0	-00.7	136 39.4	-24.1	N 07 55.1	-13.6	10
11	341 43.5	+00.1	S 09 11.4	-00.9	6 20.3	-00.6	S 18 00.3	-00.8	151 15.3	-24.0	N 07 41.5	-13.7	11
12	356 43.6	+00.1	S 09 10.5	-01.0	21 19.7	-00.7	S 17 59.5	-00.7	165 51.3	-24.0	N 07 27.8	-13.7	12
13	11 43.7	+00.1	S 09 09.5	-00.9	36 19.0	-00.7	S 17 58.8	-00.8	180 27.3	-24.0	N 07 14.1	-13.7	13
14	26 43.8	+00.1	S 09 08.6	-00.9	51 18.3	-00.7	S 17 58.0	-00.7	195 03.3	-23.9	N 07 00.4	-13.7	14
15	41 43.9	+00.1	S 09 07.7	-00.9	66 17.6	-00.7	S 17 57.3	-00.8	209 39.4	-23.9	N 06 46.7	-13.8	15
16	56 44.0	+00.1	S 09 06.8	-01.0	81 16.9	-00.7	S 17 56.5	-00.7	224 15.5	-23.9	N 06 32.9	-13.8	16
17	71 44.1	+00.1	S 09 05.8	-00.9	96 16.2	-00.7	S 17 55.8	-00.8	238 51.6	-23.9	N 06 19.1	-13.8	17
18	86 44.2	+00.1	S 09 04.9	-00.9	111 15.5	-00.7	S 17 55.0	-00.7	253 27.7	-23.8	N 06 05.3	-13.8	18
19	101 44.3	+00.1	S 09 04.0	-01.0	126 14.8	-00.7	S 17 54.3	-00.8	268 03.9	-23.9	N 05 51.5	-13.9	19
20	116 44.4	+00.1	S 09 03.0	-00.9	141 14.1	-00.7	S 17 53.5	-00.7	282 40.0	-23.8	N 05 37.6	-13.8	20
21	131 44.5	+00.1	S 09 02.1	-00.9	156 13.4	-00.7	S 17 52.8	-00.8	297 16.2	-23.7	N 05 23.8	-13.9	21
22	146 44.6	+00.1	S 09 01.2	-00.9	171 12.7	-00.7	S 17 52.0	-00.8	311 52.5	-23.8	N 05 09.9	-13.9	22
23	161 44.7	+00.1	S 09 00.3	-01.0	186 12.0	-00.7	S 17 51.2	-00.7	326 28.7	-23.8	N 04 56.0	-14.0	23
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 00°1 00°1 00°1 00°1 00°1 00°1								
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 53°9 53°9 53°9 53°9 53°9	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 53°9 53°9 53°9 53°9 53°9								
SHA 022° 022° 022° 022° 022° 021°	SHA 047° 047° 047° 046° 046° 046°	SHA 047° 047° 047° 046° 046° 046°	SHA 195° 195° 192° 192° 190° 188°	SHA 025° 025° 025° 025° 024° 024°	SHA 025° 025° 025° 025° 024° 024°								
Greenwich Culmination Time: 12:13		Greenwich Culmination Time: 10:34		Greenwich Culmination Time: 00:38									

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	176 36.4	+00.0	S 10 27.5	-00.9	202 19.6	-00.8	S 18 59.0	-00.7	22 32.7	-29.1	N 23 40.7	-08.4	00
01	191 36.4	+00.1	S 10 26.6	-00.9	217 18.8	-00.7	S 18 58.3	-00.7	37 03.6	-29.0	N 23 32.3	-08.6	01
02	206 36.5	+00.1	S 10 25.7	-00.9	232 18.1	-00.7	S 18 57.6	-00.7	51 34.6	-29.0	N 23 23.7	-08.6	02
03	221 36.6	+00.1	S 10 24.8	-00.9	247 17.4	-00.8	S 18 56.9	-00.6	66 05.6	-28.9	N 23 15.1	-08.8	03
04	236 36.7	+00.0	S 10 23.9	-00.9	262 16.6	-00.7	S 18 56.3	-00.7	80 36.7	-28.8	N 23 06.3	-08.8	04
05	251 36.7	+00.1	S 10 23.0	-00.9	277 15.9	-00.7	S 18 55.6	-00.7	95 07.9	-28.7	N 22 57.5	-08.9	05
06	266 36.8	+00.1	S 10 22.1	-00.9	292 15.2	-00.8	S 18 54.9	-00.6	109 39.2	-28.6	N 22 48.6	-09.1	06
07	281 36.9	+00.1	S 10 21.2	-00.9	307 14.4	-00.7	S 18 54.3	-00.7	124 10.6	-28.6	N 22 39.5	-09.1	07
08	296 37.0	+00.1	S 10 20.3	-00.9	322 13.7	-00.7	S 18 53.6	-00.7	138 42.0	-28.4	N 22 30.4	-09.3	08
09	311 37.1	+00.0	S 10 19.4	-00.9	337 13.0	-00.7	S 18 52.9	-00.7	153 13.6	-28.4	N 22 21.1	-09.3	09
10	326 37.1	+00.1	S 10 18.5	-01.0	352 12.3	-00.8	S 18 52.2	-00.7	167 45.2	-28.4	N 22 11.8	-09.4	10
11	341 37.2	+00.1	S 10 17.5	-00.9	7 11.5	-00.7	S 18 51.5	-00.6	182 16.8	-28.2	N 22 02.4	-09.5	11
12	356 37.3	+00.1	S 10 16.6	-00.9	22 10.8	-00.7	S 18 50.9	-00.7	196 48.6	-28.2	N 21 52.9	-09.6	12
13	11 37.4	+00.0	S 10 15.7	-00.9	37 10.1	-00.7	S 18 50.2	-00.7	211 20.4	-28.0	N 21 43.3	-09.7	13
14	26 37.4	+00.1	S 10 14.8	-00.9	52 09.4	-00.8	S 18 49.5	-00.7	225 52.4	-28.0	N 21 33.6	-09.8	14
15	41 37.5	+00.1	S 10 13.9	-00.9	67 08.6	-00.7	S 18 48.8	-00.7	240 24.4	-28.0	N 21 23.8	-09.9	15
16	56 37.6	+00.1	S 10 13.0	-00.9	82 07.9	-00.7	S 18 48.1	-00.6	254 56.4	-27.8	N 21 13.9	-10.0	16
17	71 37.7	+00.1	S 10 12.1	-00.9	97 07.2	-00.7	S 18 47.5	-00.7	269 28.6	-27.8	N 21 03.9	-10.0	17
18	86 37.8	+00.0	S 10 11.2	-00.9	112 06.5	-00.8	S 18 46.8	-00.7	284 00.8	-27.7	N 20 53.9	-10.1	18
19	101 37.8	+00.1	S 10 10.3	-01.0	127 05.7	-00.7	S 18 46.1	-00.7	298 33.1	-27.6	N 20 43.8	-10.3	19
20	116 37.9	+00.1	S 10 09.3	-00.9	142 05.0	-00.7	S 18 45.4	-00.7	313 05.5	-27.5	N 20 33.5	-10.3	20
21	131 38.0	+00.1	S 10 08.4	-00.9	157 04.3	-00.7	S 18 44.7	-00.7	327 38.0	-27.5	N 20 23.2	-10.3	21
22	146 38.1	+00.1	S 10 07.5	-00.9	172 03.6	-00.8	S 18 44.0	-00.7	342 10.5	-27.4	N 20 12.9	-10.5	22
23	161 38.2	+00.1	S 10 06.6	-00.9	187 02.8	-00.7	S 18 43.3	-00.7	356 43.1	-27.3	N 20 02.4	-10.6	23
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°8 14°8 14°8 14°8 14°8 14°8	SD 00°1 00°1 00°1 00°1 00°1 00°1								
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°5 54°4 54°4 54°3 54°3 54°2	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°5 54°4 54°4 54°3 54°3 54°2								
SHA 025° 025° 025° 025° 024° 024°	SHA 051° 051° 050° 050° 050° 050°	SHA 051° 051° 050° 050° 050° 050°	SHA 230° 228° 226° 224° 222° 220°	SHA 019° 019° 019° 019° 019° 019°	SHA 019° 019° 019° 019° 019° 019°								
Greenwich Culmination Time: 12:13		Greenwich Culmination Time: 10:31		Greenwich Culmination Time: 23:13									

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	202 35.6	+00.5	S 18 59.1	-00.5	115 59.6	+02.1	N 14 04.8	+00.1	172 51.8	+02.2	S 09 34.8	-00.1	00
01	217 36.1	+00.5	S 18 58.6	-00.5	131 01.7	+02.0	N 14 04.9	+00.2	187 54.0	+02.2	S 09 34.7	-00.1	01
02	232 36.6	+00.5	S 18 58.1	-00.5	146 03.7	+02.1	N 14 05.1	+00.1	202 56.2	+02.2	S 09 34.6	-00.1	02
03	247 37.1	+00.5	S 18 57.6	-00.5	161 05.8	+02.1	N 14 05.2	+00.2	217 58.4	+02.2	S 09 34.5	-00.2	03
04	262 37.6	+00.4	S 18 57.1	-00.4	176 07.9	+02.1	N 14 05.4	+00.1	233 00.6	+02.1	S 09 34.3	-00.1	04
05	277 38.0	+00.5	S 18 56.7	-00.5	191 10.0	+02.0	N 14 05.5	+00.1	248 02.7	+02.2	S 09 34.2	-00.1	05
06	292 38.5	+00.5	S 18 56.2	-00.5	206 12.0	+02.1	N 14 05.6	+00.2	263 04.9	+02.2	S 09 34.1	-00.1	06
07	307 39.0	+00.5	S 18 55.7	-00.5	221 14.1	+02.1	N 14 05.8	+00.1	278 07.1	+02.2	S 09 34.0	-00.1	07
08	322 39.5	+00.5	S 18 55.2	-00.5	236 16.2	+02.0	N 14 05.9	+00.1	293 09.3	+02.1	S 09 33.9	-00.1	08
09	337 40.0	+00.5	S 18 54.7	-00.5	251 18.2	+02.1	N 14 06.0	+00.2	308 11.4	+02.2	S 09 33.8	-00.1	09
10	352 40.5	+00.5	S 18 54.2	-00.5	266 20.3	+02.1	N 14 06.2	+00.1	323 13.6	+02.2	S 09 33.7	-00.1	10
11	7 41.0	+00.5	S 18 53.7	-00.5	281 22.4	+02.1	N 14 06.3	+00.1	338 15.8	+02.2	S 09 33.6	-00.2	11
12	22 41.5	+00.5	S 18 53.2	-00.5	296 24.5	+02.0	N 14 06.4	+00.2	353 18.0	+02.1	S 09 33.4	-00.1	12
13	37 42.0	+00.5	S 18 52.7	-00.5	311 26.5	+02.1	N 14 06.6	+00.1	8 20.1	+02.2	S 09 33.3	-00.1	13
14	52 42.5	+00.5	S 18 52.2	-00.5	326 28.6	+02.1	N 14 06.7	+00.1	23 22.3	+02.2	S 09 33.2	-00.1	14
15	67 43.0	+00.4	S 18 51.7	-00.5	341 30.7	+02.0	N 14 06.8	+00.2	38 24.5	+02.2	S 09 33.1	-00.1	15
16	82 43.4	+00.5	S 18 51.2	-00.5	356 32.7	+02.1	N 14 07.0	+00.1	53 26.7	+02.2	S 09 33.0	-00.1	16
17	97 43.9	+00.5	S 18 50.7	-00.5	11 34.8	+02.1	N 14 07.1	+00.1	68 28.9	+02.1	S 09 32.9	-00.1	17
18	112 44.4	+00.5	S 18 50.2	-00.5	26 36.9	+02.0	N 14 07.2	+00.2	83 31.0	+02.2	S 09 32.8	-00.2	18
19	127 44.9	+00.5	S 18 49.7	-00.5	41 38.9	+02.							

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 024° 024° 024° 024° 024° 023°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 050° 050° 049° 049° 049° 049°
Greenwich Culmination Time: 10:30

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 023° 023° 023° 023° 023° 022°
Greenwich Culmination Time: 12:13

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 049° 049° 049° 049° 048° 048°
Greenwich Culmination Time: 10:30

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

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UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	176 47.3	+00.1	S 08 36.9	-00.9	200 54.9	-00.6	S 17 32.1	-00.8	331 38.1	-23.6	S 00 55.4	+14.1	00
01	191 47.4	+00.1	S 08 36.0	-01.0	215 54.3	-00.7	S 17 31.3	-00.8	346 14.5	-23.6	S 01 09.5	+14.2	01
02	206 47.5	+00.1	S 08 35.0	-00.9	230 53.6	-00.7	S 17 30.5	-00.8	0 50.9	-23.6	S 01 23.7	+14.1	02
03	221 47.6	+00.1	S 08 34.1	-00.9	245 52.9	-00.7	S 17 29.7	-00.7	15 27.3	-23.7	S 01 37.8	+14.1	03
04	236 47.7	+00.1	S 08 33.2	-01.0	260 52.2	-00.6	S 17 29.0	-00.8	30 03.6	-23.6	S 01 51.9	+14.1	04
05	251 47.8	+00.1	S 08 32.2	-00.9	275 51.6	-00.7	S 17 28.2	-00.8	44 40.0	-23.6	S 02 06.0	+14.1	05
06	266 47.9	+00.1	S 08 31.3	-00.9	290 50.9	-00.7	S 17 27.4	-00.8	59 16.4	-23.7	S 02 20.1	+14.1	06
07	281 48.0	+00.2	S 08 30.4	-01.0	305 50.2	-00.7	S 17 26.6	-00.8	73 52.7	-23.7	S 02 34.2	+14.1	07
08	296 48.2	+00.1	S 08 29.4	-00.9	320 49.5	-00.6	S 17 25.8	-00.8	88 29.0	-23.7	S 02 48.3	+14.1	08
09	311 48.3	+00.1	S 08 28.5	-01.0	335 48.9	-00.7	S 17 25.0	-00.7	103 05.3	-23.7	S 03 02.4	+14.0	09
10	326 48.4	+00.1	S 08 27.5	-00.9	350 48.2	-00.7	S 17 24.3	-00.8	117 41.6	-23.7	S 03 16.4	+14.1	10
11	341 48.5	+00.1	S 08 26.6	-00.9	5 47.5	-00.7	S 17 23.5	-00.8	132 17.9	-23.8	S 03 30.5	+14.0	11
12	356 48.6	+00.1	S 08 25.7	-01.0	20 46.8	-00.6	S 17 22.7	-00.8	146 54.1	-23.7	S 03 44.5	+14.1	12
13	11 48.7	+00.1	S 08 24.7	-00.9	35 46.2	-00.7	S 17 21.9	-00.8	161 30.4	-23.8	S 03 58.6	+14.0	13
14	26 48.8	+00.1	S 08 23.8	-00.9	50 45.5	-00.7	S 17 21.1	-00.8	176 06.6	-23.8	S 04 12.6	+14.1	14
15	41 48.9	+00.1	S 08 22.9	-01.0	65 44.8	-00.6	S 17 20.3	-00.8	190 42.8	-23.9	S 04 26.7	+14.0	15
16	56 49.0	+00.1	S 08 21.9	-00.9	80 44.2	-00.7	S 17 19.5	-00.8	205 18.9	-23.8	S 04 40.7	+14.0	16
17	71 49.1	+00.1	S 08 21.0	-01.0	95 43.5	-00.7	S 17 18.7	-00.8	219 55.1	-23.9	S 04 54.7	+13.9	17
18	86 49.2	+00.2	S 08 20.0	-00.9	110 42.8	-00.7	S 17 17.9	-00.8	234 31.2	-23.9	S 05 08.6	+14.0	18
19	101 49.4	+00.1	S 08 19.1	-00.9	125 42.1	-00.6	S 17 17.1	-00.8	249 07.3	-23.9	S 05 22.6	+14.0	19
20	116 49.5	+00.1	S 08 18.2	-01.0	140 41.5	-00.7	S 17 16.3	-00.7	263 43.4	-24.0	S 05 36.6	+13.9	20
21	131 49.6	+00.1	S 08 17.2	-00.9	155 40.8	-00.7	S 17 15.6	-00.8	278 19.4	-24.0	S 05 50.5	+13.9	21
22	146 49.7	+00.1	S 08 16.3	-01.0	170 40.1	-00.6	S 17 14.8	-00.8	292 55.4	-24.0	S 06 04.4	+13.9	22
23	161 49.8	+00.1	S 08 15.3	-00.9	185 39.5	-00.7	S 17 14.0	-00.8	307 31.4	-24.0	S 06 18.3	+13.9	23
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°7 14°7 14°7 14°7 14°8 14°8	SD 00°1 00°1 00°1 00°1 00°1 00°1								
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°1 54°1 54°1 54°2 54°2	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 174° 174° 171° 171° 169° 167°	HP 54°2 54°3 54°3 54°4 54°4 54°5								
SHA 020° 020° 020° 020° 020° 020°	SHA 044° 044° 044° 044° 044° 043°	SHA 044° 044° 044° 044° 044° 043°	SHA 044° 044° 044° 044° 044° 043°	SHA 019° 019° 019° 019° 019° 019°	SHA 043° 043° 043° 043° 042° 042°								
Greenwich Culmination Time: 12:12		Greenwich Culmination Time: 10:36		Greenwich Culmination Time: 01:56									

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	176 49.9	+00.1	S 08 14.4	-01.0	200 38.8	-00.7	S 17 13.2	-00.8	322 07.4	-24.1	S 06 32.2	+13.9	00
01	191 50.0	+00.1	S 08 13.4	-00.9	215 38.1	-00.6	S 17 12.4	-00.8	336 43.3	-24.1	S 06 46.1	+13.8	01
02	206 50.1	+00.1	S 08 12.5	-00.9	230 37.5	-00.7	S 17 11.6	-00.8	351 19.2	-24.1	S 06 59.9	+13.9	02
03	221 50.2	+00.2	S 08 11.6	-01.0	245 36.8	-00.7	S 17 10.8	-00.8	5 55.1	-24.2	S 07 13.8	+13.8	03
04	236 50.4	+00.1	S 08 10.6	-00.9	260 36.1	-00.6	S 17 10.0	-00.8	20 30.9	-24.2	S 07 27.6	+13.8	04
05	251 50.5	+00.1	S 08 09.7	-01.0	275 35.5	-00.7	S 17 09.2	-00.8	35 06.7	-24.3	S 07 41.4	+13.7	05
06	266 50.6	+00.1	S 08 08.7	-00.9	290 34.8	-00.7	S 17 08.4	-00.8	49 42.4	-24.3	S 07 55.1	+13.8	06
07	281 50.7	+00.1	S 08 07.8	-01.0	305 34.1	-00.6	S 17 07.6	-00.9	64 18.1	-24.3	S 08 08.9	+13.7	07
08	296 50.8	+00.1	S 08 06.8	-00.9	320 33.5	-00.7	S 17 06.7	-00.8	78 53.8	-24.4	S 08 22.6	+13.7	08
09	311 50.9	+00.1	S 08 05.9	-00.9	335 32.8	-00.6	S 17 05.9	-00.8	93 29.4	-24.4	S 08 36.3	+13.6	09
10	326 51.0	+00.2	S 08 05.0	-01.0	350 32.2	-00.7	S 17 05.1	-00.8	108 05.0	-24.5	S 08 49.9	+13.7	10
11	341 51.2	+00.1	S 08 04.0	-00.9	5 31.5	-00.7	S 17 04.3	-00.8	122 40.5	-24.5	S 09 03.6	+13.6	11
12	356 51.3	+00.1	S 08 03.1	-01.0	20 30.8	-00.6	S 17 03.5	-00.8	137 16.0	-24.5	S 09 17.2	+13.5	12
13	11 51.4	+00.1	S 08 02.1	-00.9	35 30.2	-00.7	S 17 02.7	-00.8	151 51.5	-24.6	S 09 30.7	+13.6	13
14	26 51.5	+00.1	S 08 01.2	-01.0	50 29.5	-00.7	S 17 01.9	-00.8	166 26.9	-24.6	S 09 44.3	+13.5	14
15	41 51.6	+00.1	S 08 00.2	-00.9	65 28.8	-00.6	S 17 01.1	-00.8	181 02.3	-24.7	S 09 57.8	+13.5	15
16	56 51.7	+00.1	S 07 59.3	-00.9	80 28.2	-00.7	S 17 00.3	-00.8	195 37.6	-24.7	S 10 11.3	+13.4	16
17	71 51.8	+00.2	S 07 58.4	-01.0	95 27.5	-00.6	S 16 59.5	-00.8	210 12.9	-24.8	S 10 24.7	+13.5	17
18	86 52.0	+00.1	S 07 57.4	-00.9	110 26.9	-00.7	S 16 58.7	-00.9	224 48.1	-24.9	S 10 38.2	+13.4	18
19	101 52.1	+00.1	S 07 56.5	-01.0	125 26.2	-00.7	S 16 57.8	-00.8	239 23.2	-24.8	S 10 51.6	+13.3	19
20	116 52.2	+00.1	S 07 55.5	-00.9	140 25.5	-00.6	S 16 57.0	-00.8	253 58.4	-25.0	S 11 04.9	+13.3	20
21	131 52.3	+00.1	S 07 54.6	-01.0	155 24.9	-00.7	S 16 56.2	-00.8	268 33.4	-25.0	S 11 18.2	+13.3	21
22	146 52.4	+00.1	S 07 53.6	-00.9	170 24.2	-00.6	S 16 55.4	-00.8	283 08.4	-25.0	S 11 31.5	+13.3	22
23	161 52.5	+00.2	S 07 52.7	-01.0	185 23.6	-00.7	S 16 54.6	-00.8	297 43.4	-25.1	S 11 44.8	+13.2	23
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°8 14°8 14°8 14°8 14°8 14°8	SD 00°1 00°1 00°1 00°1 00°1 00°1								
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°1 54°1 54°1 54°2 54°2	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 174° 174° 171° 171° 169° 167°	HP 54°2 54°3 54°3 54°4 54°4 54°5								
SHA 019° 019° 019° 019° 019° 019°	SHA 043° 043° 043° 043° 042° 042°	SHA 043° 043° 043° 043° 042° 042°	SHA 043° 043° 043° 043° 042° 042°	SHA 164° 164° 160° 159° 157° 155°	SHA 164° 164° 160° 159° 157° 155°								
Greenwich Culmination Time: 12:12		Greenwich Culmination Time: 10:37		Greenwich Culmination Time: 02:35									

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	202 59.3	+00.5	S 18 35.0	-00.5	117 38.9	+02.0	N 14 11.3	+00.2	174 36.3	+02.2	S 09 29.4	-00.2	00
01	217 59.8	+00.5	S 18 34.5	-00.5	132 40.9	+02.1	N 14 11.5	+00.1	189 38.5	+02.2	S 09 29.2	-00.1	01
02	233 00.3	+00.5	S 18 34.0	-00.5	147 43.0	+02.0	N 14 11.6	+00.1	204 40.7	+02.2	S 09 29.1	-00.1	02
03	248 00.8	+00.5	S 18 33.5	-00.6	162 45.0	+02.1	N 14 11.7	+00.2	219 42.9	+02.1	S 09 29.0	-00.1	03
04	263 01.3	+00.5	S 18 32.9	-00.5	177 47.1	+02.1	N 14 11.9	+00.1	234 45.0	+02.2	S 09 28.9	-00.1	04
05	278 01.8	+00.5	S 18 32.4	-00.5	192 49.2	+02.2	N 14 12.0	+00.1	249 47.2	+02.2	S 09 28.8	-00.1	05
06	293 02.3	+00.5	S 18 31.9	-00.5	207 51.2	+02.1	N 14 12.1	+00.2	264 49.4	+02.2	S 09 28.7	-00.1	06
07	308 02.8	+00.5	S 18 31.4	-00.5	222 53.3	+02.0	N 14 12.3	+00.1	279 51.6	+02.2	S 09 28.6	-00.1	07
08	323 03.3	+00.5	S 18 30.9	-00.5	237 55.3	+02.1	N 14 12.4	+00.2	294 53.8	+02.1	S 09 28.5	-00.2	08
09	338 03.8	+00.5	S 18 30.4	-00.5	252 57.4	+02.1	N 14 12.5	+00.1	309 55.9	+02.2	S 09 28.3	-00.1	09
10	353 04.3	+00.5	S 18 29.9	-00.6	267 59.5	+02.0	N 14 12.7	+00.1	324 58.1	+02.2	S 09 28.2	-00.1	10
11	8 04.8	+00.5	S 18 29.3	-00.5	283 01.5	+02.1	N 14 12.8	+00.2	340 00.3	+02.2	S 09 28.1	-00.1	11
12	23 05.3	+00.5	S 18 28.8	-00.5	298 03.6	+02.1	N 14 13.0	+00.1	355 02.5	+02.1	S 09 28.0	-00.1	12
13	38 05.8	+00.5	S 18 28.3	-00.5	313 05.7	+02.0	N 14 13.1	+00.1	10 04.6	+02.2	S 09 27.9	-00.1	13
14	53 06.3	+00.5	S 18 27.8	-00.5	328 07.7	+02.1	N 14 13.2	+00.2	25 06.8	+02.2	S 09 27.8	-00.1	14
15	68 06.8	+00.5	S 18 27.3	-00.5	343 09.8	+02.0	N 14 13.4	+00.1	40 09.0	+02.2	S 09 27.7	-00.2	15
16	83 07.3	+00.5	S 18 26.8	-00.6	358 11.8	+02.1	N 14 13.5	+00.1	55 11.2	+02.1	S 09 27.5	-00.1	16
17	98 07.8	+00.5	S 18 26.2	-00.5	13 13.9	+02.1	N 14 13.6	+00.2	70 13.3	+02.2	S 09 27.4	-00.1	17
18	113 08.3	+00.5	S 18 25.7	-00.5	28 16.0	+02.0	N 14 13.8	+00.1	85 15.5	+02.2	S 09 27.3	-00.1	18
19	128 08.8	+00.5	S 18 25.2	-00.5	43 18.0	+02.1							

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	177	04.9	+00.1	S 06 20.0	-00.9	199	22.0	-00.6	S 15 31.5	-00.9	265	31.0	-34.1	S 27 31.1	+04.3
01	192	05.0	+00.1	S 06 19.1	-01.0	214	21.4	-00.6	S 15 30.6	-00.9	279	56.9	-34.3	S 27 35.4	+04.1
02	207	05.1	+00.2	S 06 18.1	-01.0	229	20.8	-00.6	S 15 29.7	-00.9	294	22.6	-34.3	S 27 39.5	+04.0
03	222	05.3	+00.1	S 06 17.1	-00.9	244	20.2	-00.6	S 15 28.8	-00.9	308	48.3	-34.4	S 27 43.5	+03.9
04	237	05.4	+00.2	S 06 16.2	-01.0	259	19.6	-00.6	S 15 27.9	-00.9	323	13.9	-34.5	S 27 47.4	+03.6
05	252	05.6	+00.1	S 06 15.2	-01.0	274	19.0	-00.6	S 15 27.0	-00.9	337	39.4	-34.6	S 27 51.0	+03.5
06	267	05.7	+00.1	S 06 14.2	-00.9	289	18.4	-00.6	S 15 26.1	-00.9	352	04.8	-34.7	S 27 54.5	+03.4
07	282	05.8	+00.2	S 06 13.3	-01.0	304	17.8	-00.6	S 15 25.2	-00.9	6	30.1	-34.7	S 27 57.9	+03.2
08	297	06.0	+00.1	S 06 12.3	-01.0	319	17.2	-00.6	S 15 24.3	-00.9	20	55.4	-34.9	S 28 01.1	+03.0
09	312	06.1	+00.1	S 06 11.3	-00.9	334	16.6	-00.7	S 15 23.4	-00.9	35	20.5	-34.9	S 28 04.1	+02.9
10	327	06.2	+00.2	S 06 10.4	-01.0	349	15.9	-00.6	S 15 22.5	-00.9	49	45.6	-35.1	S 28 07.0	+02.7
11	342	06.4	+00.1	S 06 09.4	-00.9	4	15.3	-00.6	S 15 21.6	-00.9	64	10.5	-35.1	S 28 09.7	+02.5
12	357	06.5	+00.2	S 06 08.5	-01.0	19	14.7	-00.6	S 15 20.7	-00.9	78	35.4	-35.1	S 28 12.2	+02.4
13	12	06.7	+00.1	S 06 07.5	-01.0	34	14.1	-00.6	S 15 19.8	-00.9	93	00.3	-35.3	S 28 14.6	+02.2
14	27	06.8	+00.1	S 06 06.5	-00.9	49	13.5	-00.6	S 15 18.9	-01.0	107	25.0	-35.3	S 28 16.8	+02.0
15	42	06.9	+00.2	S 06 05.6	-01.0	64	12.9	-00.6	S 15 17.9	-00.9	121	49.7	-35.4	S 28 18.8	+01.8
16	57	07.1	+00.1	S 06 04.6	-01.0	79	12.3	-00.6	S 15 17.0	-00.9	136	14.3	-35.5	S 28 20.6	+01.7
17	72	07.2	+00.2	S 06 03.6	-00.9	94	11.7	-00.6	S 15 16.1	-00.9	150	38.8	-35.6	S 28 22.3	+01.5
18	87	07.4	+00.1	S 06 02.7	-01.0	109	11.1	-00.6	S 15 15.2	-00.9	165	03.2	-35.6	S 28 23.8	+01.3
19	102	07.5	+00.1	S 06 01.7	-01.0	124	10.5	-00.6	S 15 14.3	-00.9	179	27.6	-35.7	S 28 25.1	+01.2
20	117	07.6	+00.2	S 06 00.7	-00.9	139	09.9	-00.6	S 15 13.4	-00.9	193	51.9	-35.7	S 28 26.3	+01.0
21	132	07.8	+00.1	S 05 59.8	-01.0	154	09.3	-00.6	S 15 12.5	-00.9	208	16.2	-35.8	S 28 27.3	+00.8
22	147	07.9	+00.2	S 05 58.8	-01.0	169	08.7	-00.6	S 15 11.6	-00.9	222	40.4	-35.9	S 28 28.1	+00.6
23	162	08.1	+00.1	S 05 57.8	-00.9	184	08.1	-00.6	S 15 10.7	-00.9	237	04.5	-36.0	S 28 28.7	+00.4

UT 02 06 10 14 18 22 SD 16°1 16°1 16°1 16°1 16°1 16°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 015° 015° 014° 014° 014° 014° Greenwich Culmination Time: 12:11	UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 037° 037° 037° 036° 036° 036° Greenwich Culmination Time: 10:42	UT 02 06 10 14 18 22 SD 15°6 15°6 15°6 15°7 15°7 15°8 HP 57°1 57°2 57°4 57°5 57°7 57°8 SHA 102° 100° 097° 095° 092° 89° Greenwich Culmination Time: 06:32
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UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	204	12.5	+00.5	S 17 18.0	-00.6	122	33.8	+02.0	N 14 31.5	+00.1	179	49.8	+02.2	S 09 13.0	-00.1
01	219	13.0	+00.6	S 17 17.4	-00.6	137	35.8	+02.1	N 14 31.6	+00.2	194	52.0	+02.2	S 09 12.9	-00.1
02	234	13.6	+00.5	S 17 16.8	-00.5	152	37.9	+02.0	N 14 31.8	+00.1	209	54.2	+02.2	S 09 12.8	-00.1
03	249	14.1	+00.5	S 17 16.3	-00.6	167	39.9	+02.0	N 14 31.9	+00.1	224	56.4	+02.1	S 09 12.7	-00.1
04	264	14.6	+00.5	S 17 15.7	-00.5	182	41.9	+02.1	N 14 32.0	+00.2	239	58.5	+02.2	S 09 12.6	-00.2
05	279	15.1	+00.5	S 17 15.2	-00.6	197	44.0	+02.0	N 14 32.2	+00.1	255	00.7	+02.2	S 09 12.4	-00.1
06	294	15.6	+00.6	S 17 14.6	-00.6	212	46.0	+02.0	N 14 32.3	+00.2	270	02.9	+02.2	S 09 12.3	-00.1
07	309	16.2	+00.5	S 17 14.0	-00.5	227	48.0	+02.1	N 14 32.5	+00.1	285	05.1	+02.1	S 09 12.2	-00.1
08	324	16.7	+00.5	S 17 13.5	-00.6	242	50.1	+02.0	N 14 32.6	+00.2	300	07.2	+02.2	S 09 12.1	-00.1
09	339	17.2	+00.5	S 17 12.9	-00.5	257	52.1	+02.0	N 14 32.8	+00.1	315	09.4	+02.2	S 09 12.0	-00.1
10	354	17.7	+00.6	S 17 12.4	-00.6	272	54.1	+02.1	N 14 32.9	+00.1	330	11.6	+02.2	S 09 11.9	-00.1
11	9	18.3	+00.5	S 17 11.8	-00.6	287	56.2	+02.0	N 14 33.0	+00.2	345	13.8	+02.2	S 09 11.8	-00.1
12	24	18.8	+00.5	S 17 11.2	-00.5	302	58.2	+02.0	N 14 33.2	+00.1	0	16.0	+02.1	S 09 11.7	-00.2
13	39	19.3	+00.5	S 17 10.7	-00.6	318	60.2	+02.1	N 14 33.3	+00.2	15	18.1	+02.2	S 09 11.5	-00.1
14	54	19.8	+00.5	S 17 10.1	-00.5	333	02.3	+02.0	N 14 33.5	+00.1	30	20.3	+02.2	S 09 11.4	-00.1
15	69	20.3	+00.6	S 17 09.6	-00.6	348	04.3	+02.0	N 14 33.6	+00.2	45	22.5	+02.2	S 09 11.3	-00.1
16	84	20.9	+00.5	S 17 09.0	-00.6	3	06.3	+02.0	N 14 33.8	+00.1	60	24.7	+02.1	S 09 11.2	-00.1
17	99	21.4	+00.5	S 17 08.4	-00.5	18	08.3	+02.1	N 14 33.9	+00.1	75	26.8	+02.2	S 09 11.1	-00.1
18	114	21.9	+00.5	S 17 07.9	-00.6	33	10.4	+02.0	N 14 34.0	+00.2	90	29.0	+02.2	S 09 11.0	-00.1
19	129	22.4	+00.6	S 17 07.3	-00.6	48	12.4	+02.0	N 14 34.2	+00.1	105	31.2	+02.2	S 09 10.9	-00.2
20	144	23.0	+00.5	S 17 06.7	-00.5	63	14.4	+02.1	N 14 34.3	+00.2	120	33.4	+02.1	S 09 10.7	-00.1
21	159	23.5	+00.5	S 17 06.2	-00.6	78	16.5	+02.0	N 14 34.5	+00.1	135	35.5	+02.2	S 09 10.6	-00.1
22	174	24.0	+00.5	S 17 05.6	-00.6	93	18.5	+02.0	N 14 34.6	+00.2	150	37.7	+02.2	S 09 10.5	-00.1
23	189	24.5	+00.6	S 17 05.0	-00.5	108	20.5	+02.1	N 14 34.8	+00.1	165	39.9	+02.2	S 09 10.4	-00.1

UT 02 06 10 14 18 22 SD 00°0 00°0 00°0 00°0 00°0 00°0 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 042° 042° 042° 041° 041° Greenwich Culmination Time: 10:22	UT 02 06 10 14 18 22 SD 00°3 00°3 00°3 00°3 00°3 00°3 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 320° 320° 320° 320° 320° 320° Greenwich Culmination Time: 15:47	UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 018° 018° 018° 018° 017° 017° Greenwich Culmination Time: 11:58
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UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	55.5	+00.2	S 07 29.0	-01.0	200	07.3	-00.6	S 16 33.9	-00.9	301	56.1	-26.9	S 17 01.3	+11.9
01	191	55.7	+00.1	S 07 28.0	-00.9	215	06.7	-00.7	S 16 33.0	-00.8	316	29.2	-26.9	S 17 13.2	+11.9
02	206	55.8	+00.1	S 07 27.1	-01.0	230	06.0	-00.6	S 16 32.2	-00.8	331	02.3	-27.0	S 17 25.1	+11.9
03	221	55.9	+00.1	S 07 26.1	-00.9	245	05.4	-00.7	S 16 31.4	-00.9	345	35.3	-27.2	S 17 37.0	+11.7
04	236	56.0	+00.1	S 07 25.2	-01.0	260	04.7	-00.6	S 16 30.5	-00.8	0	08.1	-27.1	S 17 48.7	+11.8
05	251	56.1	+00.2	S 07 24.2	-00.9	275	04.1	-00.7	S 16 29.7	-00.9	14	41.0	-27.3	S 18 00.5	+11.6
06	266	56.3	+00.1	S 07 23.3	-01.0	290	03.4	-00.6	S 16 28.8	-00.8	29	13.7	-27.4	S 18 12.1	+11.6
07	281	56.4	+00.1	S 07 22.3	-01.0	305	02.8	-00.6	S 16 28.0	-00.9	43	46.3	-27.4	S 18 23.7	+11.5
08	296	56.5	+00.1	S 07 21.3	-00.9	320	02.2	-00.7	S 16 27.1	-00.8	58	18.9	-27.6	S 18 35.2	+11.4
09	311	56.6	+00.2	S 07 20.4	-01.0	335	01.5	-00.6	S 16 26.3	-00.9	72	51.3	-27.6	S 18 46.6	+11.4
10	326	56.8	+00.1	S 07 19.4	-00.9	350	00.9	-00.7	S 16 25.4	-00.8	87	23.7	-27.8	S 18 58.0	+11.2
11	341	56.9	+00.1	S 07 18.5	-01.0	5	00.2	-00.6	S 16 24.6	-00.8	101	55.9	-27.8	S 19 09.2	+11.3
12	356	57.0	+00.1	S 07 17.5	-00.9	19	59.6	-00.6	S 16 23.8	-00.9	116	28.1	-27.9	S 19 20.5	+11.1
13	11	57.1	+00.2	S 07 16.6	-01.0	34	59.0	-00.7	S 16 22.9	-00.9	131	00.2	-28.0	S 19 31.6	+11.1
14	26	57.3	+00.1	S 07 15.6	-00.9	49	58.3	-00.6	S 16 22.1	-00.9	145	32.2	-28.1	S 19 42.7	+10.9
15	41	57.4	+00.1	S 07 14.7	-01.0	64	57.7	-00.7	S 16 21.2	-00.8	160	04.1	-28.2	S 19 53.6	+11.0
16	56	57.5	+00.1	S 07 13.7	-00.9	79	57.0	-00.6	S 16 20.4	-00.9	174	35.9	-28.3	S 20 04.6	+10.8
17	71	57.6	+00.2	S 07 12.8	-01.0	94	56.4	-00.6	S 16 19.5	-00.8	189	07.6	-28.4	S 20 15.4	+10.7
18	86	57.8	+00.1	S 07 11.8	-00.9	109	55.8	-00.7	S 16 18.7	-00.9	203	39.2	-28.5	S 20 26.1	+10.7
19	101	57.9	+00.1	S 07 10.9	-01.0	124	55.1	-00.6	S 16 17.8	-00.9	218	10.7	-28.5	S 20 36.8	+10.6
20	116	58.0	+00.1	S 07 09.9	-00.9	139	54.5	-00.6	S 16 16.9	-00.8	232	42.2	-28.7		

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 017° 016° 016° 016° 016° 016°
Greenwich Culmination Time: 12:11

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 043° 043° 043° 043° 043° 043°
Greenwich Culmination Time: 10:24

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 016° 016° 015° 015° 015° 015°
Greenwich Culmination Time: 12:11

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 043° 043° 042° 042° 042° 042°
Greenwich Culmination Time: 10:23

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	18.8	+00.1	S 04 46.9	-01.0	198	25.4	-00.6	S 14 02.2	-01.0	207	59.5	-34.8	S 20 55.9	-12.6	00
01	192	18.9	+00.2	S 04 45.9	-01.0	213	24.8	-00.6	S 14 01.2	-00.9	222	24.7	-34.9	S 20 43.3	-12.8	01
02	207	19.1	+00.2	S 04 44.9	-01.0	228	24.2	-00.5	S 14 00.3	-01.0	236	49.8	-34.7	S 20 30.5	-12.9	02
03	222	19.3	+00.1	S 04 43.9	-00.9	243	23.7	-00.6	S 13 59.3	-01.0	251	15.1	-34.7	S 20 17.6	-13.1	03
04	237	19.4	+00.2	S 04 43.0	-01.0	258	23.1	-00.6	S 13 58.3	-00.9	265	40.4	-34.6	S 20 04.5	-13.2	04
05	252	19.6	+00.1	S 04 42.0	-01.0	273	22.5	-00.5	S 13 57.4	-01.0	280	05.8	-34.6	S 19 51.3	-13.4	05
06	267	19.7	+00.2	S 04 41.0	-01.0	288	22.0	-00.6	S 13 56.4	-01.0	294	31.2	-34.5	S 19 37.9	-13.5	06
07	282	19.9	+00.1	S 04 40.0	-00.9	303	21.4	-00.6	S 13 55.4	-00.9	308	56.7	-34.4	S 19 24.4	-13.6	07
08	297	20.0	+00.2	S 04 39.1	-01.0	318	20.8	-00.5	S 13 54.5	-01.0	323	22.3	-34.3	S 19 10.8	-13.8	08
09	312	20.2	+00.1	S 04 38.1	-01.0	333	20.3	-00.6	S 13 53.5	-01.0	337	48.0	-34.3	S 18 57.0	-13.9	09
10	327	20.3	+00.2	S 04 37.1	-01.0	348	19.7	-00.6	S 13 52.5	-00.9	352	13.7	-34.2	S 18 43.1	-14.0	10
11	342	20.5	+00.1	S 04 36.1	-00.9	3	19.1	-00.5	S 13 51.6	-01.0	6	39.5	-34.2	S 18 29.1	-14.2	11
12	357	20.6	+00.2	S 04 35.2	-01.0	18	18.6	-00.6	S 13 50.6	-01.0	21	05.3	-34.0	S 18 14.9	-14.3	12
13	12	20.8	+00.2	S 04 34.2	-01.0	33	18.0	-00.5	S 13 49.6	-00.9	35	31.3	-34.0	S 18 00.6	-14.4	13
14	27	21.0	+00.1	S 04 33.2	-01.0	48	17.5	-00.6	S 13 48.7	-01.0	49	57.3	-34.0	S 17 46.2	-14.6	14
15	42	21.1	+00.2	S 04 32.2	-01.0	63	16.9	-00.6	S 13 47.7	-01.0	64	23.3	-33.8	S 17 31.6	-14.6	15
16	57	21.3	+00.1	S 04 31.2	-00.9	78	16.3	-00.5	S 13 46.7	-01.0	78	49.5	-33.8	S 17 17.0	-14.8	16
17	72	21.4	+00.2	S 04 30.3	-01.0	93	15.8	-00.6	S 13 45.7	-00.9	93	15.7	-33.8	S 17 02.2	-14.9	17
18	87	21.6	+00.1	S 04 29.3	-01.0	108	15.2	-00.6	S 13 44.8	-01.0	107	41.9	-33.6	S 16 47.3	-15.0	18
19	102	21.7	+00.2	S 04 28.3	-01.0	123	14.6	-00.5	S 13 43.8	-01.0	122	08.3	-33.6	S 16 32.3	-15.2	19
20	117	21.9	+00.1	S 04 27.3	-01.0	138	14.1	-00.6	S 13 42.8	-01.0	136	34.7	-33.5	S 16 17.1	-15.2	20
21	132	22.0	+00.2	S 04 26.3	-00.9	153	13.5	-00.5	S 13 41.8	-00.9	151	01.2	-33.5	S 16 01.9	-15.4	21
22	147	22.2	+00.2	S 04 25.4	-01.0	168	13.0	-00.6	S 13 40.9	-01.0	165	27.7	-33.4	S 15 46.5	-15.4	22
23	162	22.4	+00.1	S 04 24.4	-01.0	183	12.4	-00.5	S 13 39.9	-01.0	179	54.3	-33.3	S 15 31.1	-15.6	23
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 16°5 16°5 16°6 16°6 16°6 16°6	SD 00°1 00°1 00°1 00°1 00°1 00°1											
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 60°6 60°7 60°8 60°9 61°0 61°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°6 00°7 00°8 00°9 00°10 00°11	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 58°0 58°1 58°3 58°5 58°6 58°8											
SHA 011° 011° 011° 011° 010° 010°	SHA 041° 038° 036° 035° 033° 032°	SHA 032° 032° 032° 032° 031° 031°	SHA 041° 041° 041° 041° 041° 041°	SHA 036° 036° 035° 035° 035° 035°	SHA 087° 084° 082° 079° 077° 074°											
Greenwich Culmination Time: 12:10		Greenwich Culmination Time: 10:46		Greenwich Culmination Time: 10:32		Greenwich Culmination Time: 12:11		Greenwich Culmination Time: 10:43		Greenwich Culmination Time: 07:32						

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	08.2	+00.1	S 05 56.9	-01.0	199	07.5	-00.6	S 15 09.8	-01.0	251	28.5	-35.9	S 28 29.1	+00.3	00
01	192	08.3	+00.2	S 05 55.9	-01.0	214	06.9	-00.6	S 15 08.8	-00.9	265	52.6	-36.1	S 28 29.4	+00.1	01
02	207	08.5	+00.1	S 05 54.9	-00.9	229	06.3	-00.6	S 15 07.9	-00.9	280	16.5	-36.1	S 28 29.5	-00.1	02
03	222	08.6	+00.2	S 05 54.0	-01.0	244	05.7	-00.6	S 15 07.0	-00.9	294	40.4	-36.2	S 28 29.4	-00.3	03
04	237	08.8	+00.1	S 05 53.0	-01.0	259	05.1	-00.6	S 15 06.1	-00.9	309	04.2	-36.2	S 28 29.1	-00.4	04
05	252	08.9	+00.1	S 05 52.0	-00.9	274	04.5	-00.6	S 15 05.2	-00.9	323	28.0	-36.2	S 28 28.7	-00.7	05
06	267	09.0	+00.2	S 05 51.1	-01.0	289	03.9	-00.6	S 15 04.3	-00.9	337	51.8	-36.3	S 28 28.0	-00.8	06
07	282	09.2	+00.1	S 05 50.1	-01.0	304	03.3	-00.6	S 15 03.4	-01.0	352	15.5	-36.4	S 28 27.2	-01.0	07
08	297	09.3	+00.2	S 05 49.1	-01.0	319	02.7	-00.6	S 15 02.4	-00.9	6	39.1	-36.4	S 28 26.2	-01.2	08
09	312	09.5	+00.1	S 05 48.1	-00.9	334	02.1	-00.6	S 15 01.5	-00.9	21	02.7	-36.4	S 28 25.0	-01.4	09
10	327	09.6	+00.2	S 05 47.2	-01.0	349	01.5	-00.6	S 15 00.6	-00.9	35	26.3	-36.4	S 28 23.6	-01.6	10
11	342	09.8	+00.1	S 05 46.2	-01.0	4	00.9	-00.6	S 14 59.7	-00.9	49	49.9	-36.5	S 28 22.0	-01.7	11
12	357	09.9	+00.1	S 05 45.2	-00.9	19	00.3	-00.6	S 14 58.8	-01.0	64	13.4	-36.6	S 28 20.3	-02.0	12
13	12	10.0	+00.2	S 05 44.3	-01.0	33	59.7	-00.6	S 14 57.8	-00.9	78	36.8	-36.5	S 28 18.3	-02.1	13
14	27	10.2	+00.1	S 05 43.3	-01.0	48	59.1	-00.6	S 14 56.9	-00.9	93	00.3	-36.6	S 28 16.2	-02.3	14
15	42	10.3	+00.2	S 05 42.3	-00.9	63	58.5	-00.6	S 14 56.0	-00.9	107	23.7	-36.6	S 28 13.9	-02.5	15
16	57	10.5	+00.1	S 05 41.4	-01.0	78	57.9	-00.6	S 14 55.1	-01.0	121	47.1	-36.6	S 28 11.4	-02.7	16
17	72	10.6	+00.2	S 05 40.4	-01.0	93	57.3	-00.6	S 14 54.1	-00.9	136	10.5	-36.7	S 28 08.7	-02.9	17
18	87	10.8	+00.1	S 05 39.4	-00.9	108	56.7	-00.6	S 14 53.2	-00.9	150	33.8	-36.7	S 28 05.8	-03.1	18
19	102	10.9	+00.2	S 05 38.5	-01.0	123	56.1	-00.5	S 14 52.3	-00.9	164	57.1	-36.7	S 28 02.7	-03.3	19
20	117	11.1	+00.1	S 05 37.5	-01.0	138	55.6	-00.6	S 14 51.4	-01.0	179	20.4	-36.7	S 27 59.4	-03.4	20
21	132	11.2	+00.1	S 05 36.5	-01.0	153	55.0	-00.6	S 14 50.4	-00.9	193	43.7	-36.7	S 27 56.0	-03.7	21
22	147	11.3	+00.2	S 05 35.5	-00.9	168	54.4	-00.6	S 14 49.5	-00.9	208	07.0	-36.7	S 27 52.3	-03.8	22
23	162	11.5	+00.1	S 05 34.6	-01.0	183	53.8	-00.6	S 14 48.6	-01.0	222	30.3	-36.7	S 27 48.5	-04.0	23
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 15°8 15°8 15°9 15°9 16°0 16°0	SD 00°1 00°1 00°1 00°1 00°1 00°1											
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 58°0 58°1 58°3 58°5 58°6 58°8	HP 00°1 00°1 00°1 00°1 00°1 00°1											
SHA 014° 014° 014° 013° 013° 013°	SHA 014° 014° 014° 013° 013° 013°	SHA 036° 036° 035° 035° 035° 035°	SHA 036° 036° 035° 035° 035° 035°	SHA 087° 084° 082° 079° 077° 074°	SHA 017° 017° 017° 017° 017° 017°											
Greenwich Culmination Time: 12:11		Greenwich Culmination Time: 10:43		Greenwich Culmination Time: 07:32												

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	205	03.2	+00.6	S 16 23.0	-00.6	125	48.2	+02.0	N 14 45.4	+00.1	183	18.9	+02.2	S 09 02.1	-00.1	00
01	220	03.8	+00.5	S 16 22.4	-00.6	140	50.2	+02.0	N 14 45.5	+00.2	198	21.1	+02.1	S 09 02.0	-00.1	01
02	235	04.3	+00.5	S 16 21.8	-00.6	155	52.2	+02.0	N 14 45.7	+00.1	213	23.2	+02.2	S 09 01.9	-00.1	02
03	250	04.8	+00.6	S 16 21.2	-00.6	170	54.2	+02.0	N 14 45.8	+00.2	228	25.4	+02.2	S 09 01.8	-00.1	03
04	265	05.4	+00.5	S 16 20.6	-00.5	185	56.2	+02.1	N 14 46.0	+00.1	243	27.6	+02.2	S 09 01.7	-00.1	04
05	280	05.9	+00.5	S 16 20.1	-00.6	200	58.3	+02.0	N 14 46.1	+00.2	258	29.8	+02.2	S 09 01.6	-00.1	05
06	295	06.4	+00.6	S 16 19.5	-00.6	216	60.3	+02.0	N 14 46.3	+00.1	273	32.0	+02.1	S 09 01.5	-00.1	06
07	310	07.0	+00.5	S 16 18.9	-00.6	231	02.3	+02.0	N 14 46.4	+00.1	288	34.1	+02.2	S 09 01.4	-00.2	07
08	325	07.5	+00.5	S 16 18.3	-00.6	246	04.3	+02.0	N 14 46.5	+00.2	303	36.3	+02.2	S 09 01.2	-00.1	08
09	340	08.0	+00.6	S 16 17.7	-00.6	261	06.3	+02.0	N 14 46.7	+00.1	318	38.5	+02.2	S 09 01.1	-00.1	09
10	355	08.6	+00.5	S 16 17.1	-00.6	276	08.3	+02.0	N 14 46.8	+00.2	333	40.7	+02.2	S 09 01.0	-00.1	10
11	10	09.1	+00.6	S 16 16.5	-00.6	291	10.3	+02.1	N 14 47.0	+00.1	348	42.9	+02.1	S 09 00.9	-00.1	11
12	25	09.7	+00.5	S 16 15.9	-00.6	306	12.4	+02.0	N 14 47.1	+00.2	3	45.0	+02.2	S 09 00.8	-00.1	12
13	40	10.2	+00.5	S 16 15.3	-00.6	321	14.4	+02.0	N 14 47.3	+00.1	18	47.2	+02.2	S 09 00.7	-00.1	13
14																

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	11.6	+00.2	S 05 33.6	-01.0	198	53.2	-00.6	S 14 47.6	-00.9	236	53.6	-36.8	S 27 44.5	-04.2	00
01	192	11.8	+00.1	S 05 32.6	-00.9	213	52.6	-00.6	S 14 46.7	-00.9	251	16.8	-36.7	S 27 40.3	-04.5	01
02	207	11.9	+00.2	S 05 31.7	-01.0	228	52.0	-00.6	S 14 45.8	-00.9	265	40.1	-36.8	S 27 35.8	-04.6	02
03	222	12.1	+00.1	S 05 30.7	-01.0	243	51.4	+00.6	S 14 44.9	-01.0	280	03.3	-36.7	S 27 31.2	-04.7	03
04	237	12.2	+00.2	S 05 29.7	-01.0	258	50.8	-00.6	S 14 43.9	-00.9	294	26.6	-36.8	S 27 26.5	-05.0	04
05	252	12.4	+00.1	S 05 28.7	-00.9	273	50.2	-00.5	S 14 43.0	-00.9	308	49.8	-36.7	S 27 21.5	-05.2	05
06	267	12.5	+00.2	S 05 27.8	-01.0	288	49.7	-00.6	S 14 42.1	-01.0	323	13.1	-36.7	S 27 16.3	-05.3	06
07	282	12.7	+00.1	S 05 26.8	-01.0	303	49.1	-00.6	S 14 41.1	-00.9	337	36.4	-36.7	S 27 11.0	-05.6	07
08	297	12.8	+00.2	S 05 25.8	-00.9	318	48.5	-00.6	S 14 40.2	-00.9	351	59.7	-36.7	S 27 05.4	-05.7	08
09	312	12.9	+00.1	S 05 24.9	-01.0	333	47.9	-00.6	S 14 39.3	-01.0	6	23.0	-36.7	S 26 59.7	-05.9	09
10	327	13.1	+00.1	S 05 23.9	-01.0	348	47.3	-00.6	S 14 38.3	-00.9	20	46.3	-36.7	S 26 53.8	-06.1	10
11	342	13.2	+00.2	S 05 22.9	-01.0	3	46.7	-00.6	S 14 37.4	-01.0	35	09.6	-36.7	S 26 47.7	-06.3	11
12	357	13.4	+00.1	S 05 21.9	-00.9	18	46.1	-00.5	S 14 36.4	-00.9	49	32.9	-36.6	S 26 41.4	-06.5	12
13	12	13.5	+00.2	S 05 21.0	-01.0	33	45.6	-00.6	S 14 35.5	-00.9	63	56.3	-36.6	S 26 34.9	-06.7	13
14	27	13.7	+00.1	S 05 20.0	-01.0	48	45.0	-00.6	S 14 34.6	-01.0	78	19.7	-36.6	S 26 28.2	-06.8	14
15	42	13.8	+00.2	S 05 19.0	-00.9	63	44.4	+00.6	S 14 33.6	-00.9	92	43.1	-36.6	S 26 21.4	-07.1	15
16	57	14.0	+00.1	S 05 18.1	-01.0	78	43.8	-00.6	S 14 32.7	-01.0	107	06.5	-36.5	S 26 14.3	-07.2	16
17	72	14.1	+00.2	S 05 17.1	-01.0	93	43.2	-00.6	S 14 31.7	-00.9	121	30.0	-36.5	S 26 07.1	-07.4	17
18	87	14.3	+00.1	S 05 16.1	-01.0	108	42.6	-00.5	S 14 30.8	-00.9	135	53.5	-36.5	S 25 59.7	-07.6	18
19	102	14.4	+00.2	S 05 15.1	-00.9	123	42.1	-00.6	S 14 29.9	-01.0	150	17.0	-36.4	S 25 52.1	-07.8	19
20	117	14.6	+00.1	S 05 14.2	-01.0	138	41.5	-00.6	S 14 28.9	-00.9	164	40.6	-36.5	S 25 44.3	-08.0	20
21	132	14.7	+00.2	S 05 13.2	-01.0	153	40.9	-00.6	S 14 28.0	-01.0	179	04.1	-36.3	S 25 36.3	-08.1	21
22	147	14.9	+00.1	S 05 12.2	-01.0	168	40.3	-00.6	S 14 27.0	-00.9	193	27.8	-36.4	S 25 28.2	-08.3	22
23	162	15.0	+00.2	S 05 11.2	-00.9	183	39.7	-00.5	S 14 26.1	-01.0	207	51.4	-36.3	S 25 19.9	-08.6	23

UT 02 06 10 14 18 22 SD 16°1 16°1 16°1 16°1 16°1 16°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 013° 013° 013° 012° 012° 012° Greenwich Culmination Time: 12:11	UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 035° 034° 034° 034° 034° 034° Greenwich Culmination Time: 10:44	UT 02 06 10 14 18 22 SD 16°1 16°1 16°1 16°2 16°2 16°3 HP 58°9 59°1 59°2 59°4 59°6 59°7 SHA 071° 069° 066° 064° 061° 057° Greenwich Culmination Time: 08:33
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UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	204	37.7	+00.5	S 16 50.8	-00.6	124	11.2	+02.0	N 14 38.4	+00.1	181	34.3	+02.2	S 09 07.6	-00.1	00
01	219	38.2	+00.5	S 16 50.2	-00.5	139	13.2	+02.1	N 14 38.5	+00.2	196	36.5	+02.2	S 09 07.5	-00.2	01
02	234	38.7	+00.6	S 16 49.7	-00.6	154	15.3	+02.0	N 14 38.7	+00.1	211	38.7	+02.2	S 09 07.3	-00.1	02
03	249	39.3	+00.5	S 16 49.1	-00.6	169	17.3	+02.0	N 14 38.8	+00.2	226	40.9	+02.2	S 09 07.2	-00.1	03
04	264	39.8	+00.5	S 16 48.5	-00.5	184	19.3	+02.0	N 14 39.0	+00.1	241	43.1	+02.1	S 09 07.1	-00.1	04
05	279	40.3	+00.6	S 16 48.0	-00.6	199	21.3	+02.1	N 14 39.1	+00.1	256	45.2	+02.2	S 09 07.0	-00.1	05
06	294	40.9	+00.5	S 16 47.4	-00.6	214	23.4	+02.0	N 14 39.2	+00.2	271	47.4	+02.2	S 09 06.9	-00.1	06
07	309	41.4	+00.5	S 16 46.8	-00.6	229	25.4	+02.0	N 14 39.4	+00.1	286	49.6	+02.2	S 09 06.8	-00.1	07
08	324	41.9	+00.5	S 16 46.2	-00.5	244	27.4	+02.0	N 14 39.5	+00.2	301	51.8	+02.1	S 09 06.7	-00.1	08
09	339	42.4	+00.6	S 16 45.7	-00.6	259	29.4	+02.0	N 14 39.7	+00.1	316	53.9	+02.2	S 09 06.6	-00.2	09
10	354	43.0	+00.5	S 16 45.1	-00.6	274	31.4	+02.1	N 14 39.8	+00.2	331	56.1	+02.2	S 09 06.4	-00.1	10
11	9	43.5	+00.5	S 16 44.5	-00.6	289	33.5	+02.0	N 14 40.0	+00.1	346	58.3	+02.2	S 09 06.3	-00.1	11
12	24	44.0	+00.6	S 16 43.9	-00.6	304	35.5	+02.0	N 14 40.1	+00.2	2	00.5	+02.2	S 09 06.2	-00.1	12
13	39	44.6	+00.5	S 16 43.3	-00.5	319	37.5	+02.0	N 14 40.3	+00.1	17	02.7	+02.1	S 09 06.1	-00.1	13
14	54	45.1	+00.5	S 16 42.8	-00.6	334	39.5	+02.1	N 14 40.4	+00.2	32	04.8	+02.2	S 09 06.0	-00.1	14
15	69	45.6	+00.6	S 16 42.2	-00.6	349	41.6	+02.0	N 14 40.6	+00.1	47	07.0	+02.2	S 09 05.9	-00.1	15
16	84	46.2	+00.5	S 16 41.6	-00.6	4	43.6	+02.0	N 14 40.7	+00.1	62	09.2	+02.2	S 09 05.8	-00.2	16
17	99	46.7	+00.5	S 16 41.0	-00.5	19	45.6	+02.0	N 14 40.8	+00.2	77	11.4	+02.1	S 09 05.6	-00.1	17
18	114	47.2	+00.5	S 16 40.5	-00.6	34	47.6	+02.0	N 14 41.0	+00.1	92	13.5	+02.2	S 09 05.5	-00.1	18
19	129	47.7	+00.6	S 16 39.9	-00.6	49	49.6	+02.1	N 14 41.1	+00.2	107	15.7	+02.2	S 09 05.4	-00.1	19
20	144	48.3	+00.5	S 16 39.3	-00.6	64	51.7	+02.0	N 14 41.3	+00.1	122	17.9	+02.2	S 09 05.3	-00.1	20
21	159	48.8	+00.5	S 16 38.7	-00.6	79	53.7	+02.0	N 14 41.4	+00.2	137	20.1	+02.2	S 09 05.2	-00.1	21
22	174	49.3	+00.6	S 16 38.1	-00.5	94	55.7	+02.0	N 14 41.6	+00.1	152	22.3	+02.1	S 09 05.1	-00.1	22
23	189	49.9	+00.5	S 16 37.6	-00.6	109	57.7	+02.0	N 14 41.7	+00.2	167	24.4	+02.2	S 09 05.0	-00.1	23

UT 02 06 10 14 18 22 SD 00°0 00°0 00°0 00°0 00°0 00°0 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 040° 040° 040° 040° 040° 040° Greenwich Culmination Time: 10:21	UT 02 06 10 14 18 22 SD 00°3 00°3 00°3 00°3 00°3 00°3 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 320° 320° 320° 320° 320° 320° Greenwich Culmination Time: 15:41	UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 017° 017° 017° 017° 017° 017° Greenwich Culmination Time: 11:51
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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	15.2	+00.1	S 05 10.3	-01.0	198	39.2	-00.6	S 14 25.1	-00.9	222	15.1	-36.2	S 25 11.3	-08.6	00
01	192	15.3	+00.2	S 05 09.3	-01.0	213	38.6	-00.6	S 14 24.2	-01.0	236	38.9	-36.2	S 25 02.7	-08.9	01
02	207	15.5	+00.1	S 05 08.3	-00.9	228	38.0	-00.6	S 14 23.2	-00.9	251	02.7	-36.2	S 24 53.8	-09.0	02
03	222	15.6	+00.2	S 05 07.4	-01.0	243	37.4	+00.6	S 14 22.3	-01.0	265	26.5	-36.1	S 24 44.8	-09.3	03
04	237	15.8	+00.1	S 05 06.4	-01.0	258	36.8	-00.5	S 14 21.3	-00.9	279	50.4	-36.1	S 24 35.5	-09.4	04
05	252	15.9	+00.2	S 05 05.4	-01.0	273	36.3	-00.6	S 14 20.4	-01.0	294	14.3	-36.0	S 24 26.1	-09.5	05
06	267	16.1	+00.1	S 05 04.4	-00.9	288	35.7	-00.6	S 14 19.4	-00.9	308	38.3	-36.0	S 24 16.6	-09.8	06
07	282	16.2	+00.2	S 05 03.5	-01.0	303	35.1	-00.6	S 14 18.5	-01.0	323	02.3	-35.9	S 24 06.8	-09.9	07
08	297	16.4	+00.1	S 05 02.5	-01.0	318	34.5	-00.5	S 14 17.5	-00.9	337	26.4	-35.9	S 23 56.9	-10.1	08
09	312	16.5	+00.2	S 05 01.5	-01.0	333	34.0	-00.6	S 14 16.6	-01.0	351	50.5	-35.8	S 23 46.8	-10.2	09
10	327	16.7	+00.1	S 05 00.5	-00.9	348	33.4	-00.6	S 14 15.6	-00.9	6	14.7	-35.7	S 23 36.6	-10.4	10
11	342	16.8	+00.2	S 04 59.6	-01.0	3	32.8	-00.6	S 14 14.7	-01.0	20	39.0	-35.7	S 23 26.2	-10.6	11
12	357	17.0	+00.1	S 04 58.6	-01.0	18	32.2	-00.5	S 14 13.7	-00.9	35	03.3	-35.7	S 23 15.6	-10.8	12
13	12	17.1	+00.2	S 04 57.6	-01.0	33	31.7	-00.6	S 14 12.8	-01.0	49	27.6	-35.6	S 23 04.8	-10.9	13
14	27	17.3	+00.1	S 04 56.6	-00.9	48	31.1	-00.6	S 14 11.8	-01.0	63	52.0	-35.5	S 22 53.9	-11.1	14
15	42	17.4	+00.2	S 04 55.7	-01.0	63	30.5	-00.6	S 14 10.8	-00.9	78	16.5	-35.5	S 22 42.8	-11.2	15
16	57	17.6	+00.1	S 04 54.7	-01.0	78	29.9	-00.5	S 14 09.9	-01.0	92	41.0	-35.4	S 22 31.6	-11.4	16
17	72	17.7	+00.2	S 04 53.7	-01.0	93	29.4	-00.6	S 14 08.9	-00.9	107	05.6	-35.3	S 22		

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 027° 027° 027° 027° 027° 027°
Greenwich Culmination Time: 12:09

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 031° 031° 031° 030° 030° 030°
Greenwich Culmination Time: 11:27

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 036° 036° 035° 035° 035° 035°
Greenwich Culmination Time: 10:15

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 038° 038° 038° 038° 038° 037°
Greenwich Culmination Time: 10:18

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	26.3	+00.2	S 03 59.9	-01.0	197	58.6	-00.6	S 13 15.2	-01.0	181	19.8	-31.9	S 08 35.2	-17.5	00
01	192	26.5	+00.1	S 03 58.9	-01.0	212	58.0	-00.5	S 13 14.2	-01.0	195	47.9	-31.8	S 08 17.7	-17.6	01
02	207	26.6	+00.2	S 03 57.9	-01.0	227	57.5	-00.6	S 13 13.2	-01.0	210	16.1	-31.8	S 08 00.1	-17.7	02
03	222	26.8	+00.2	S 03 56.9	-00.9	242	56.9	-00.5	S 13 12.2	-01.0	224	44.3	-31.7	S 07 42.4	-17.7	03
04	237	27.0	+00.1	S 03 56.0	-01.0	257	56.4	-00.5	S 13 11.2	-01.0	239	12.6	-31.7	S 07 24.7	-17.7	04
05	252	27.1	+00.2	S 03 55.0	-01.0	272	55.9	-00.6	S 13 10.2	-01.0	253	40.9	-31.7	S 07 07.0	-17.8	05
06	267	27.3	+00.1	S 03 54.0	-01.0	287	55.3	-00.5	S 13 09.2	-01.0	268	09.2	-31.6	S 06 49.2	-17.8	06
07	282	27.4	+00.2	S 03 53.0	-01.0	302	54.8	-00.6	S 13 08.2	-01.0	282	37.6	-31.5	S 06 31.4	-17.9	07
08	297	27.6	+00.2	S 03 52.0	-00.9	317	54.2	-00.5	S 13 07.2	-01.0	297	06.1	-31.6	S 06 13.5	-17.9	08
09	312	27.8	+00.1	S 03 51.1	-01.0	332	53.7	-00.6	S 13 06.2	-01.0	311	34.5	-31.5	S 05 55.6	-17.9	09
10	327	27.9	+00.2	S 03 50.1	-01.0	347	53.1	-00.5	S 13 05.2	-01.0	326	03.0	-31.4	S 05 37.7	-18.0	10
11	342	28.1	+00.1	S 03 49.1	-01.0	2	52.6	-00.6	S 13 04.2	-01.0	340	31.6	-31.4	S 05 19.7	-18.0	11
12	357	28.2	+00.2	S 03 48.1	-01.0	17	52.0	-00.5	S 13 03.2	-01.0	355	00.2	-31.4	S 05 01.7	-18.0	12
13	12	28.4	+00.2	S 03 47.1	-01.0	32	51.5	-00.5	S 13 02.2	-01.0	9	28.8	-31.3	S 04 43.7	-18.1	13
14	27	28.6	+00.1	S 03 46.1	-00.9	47	51.0	-00.6	S 13 01.2	-01.0	23	57.5	-31.4	S 04 25.6	-18.1	14
15	42	28.7	+00.2	S 03 45.2	-01.0	62	50.4	-00.5	S 13 00.2	-01.0	38	26.1	-31.2	S 04 07.5	-18.0	15
16	57	28.9	+00.2	S 03 44.2	-01.0	77	49.9	-00.6	S 12 59.2	-01.0	52	54.9	-31.3	S 03 49.5	-18.2	16
17	72	29.1	+00.1	S 03 43.2	-01.0	92	49.3	-00.5	S 12 58.2	-01.0	67	23.6	-31.2	S 03 31.3	-18.1	17
18	87	29.2	+00.2	S 03 42.2	-01.0	107	48.8	-00.5	S 12 57.2	-01.0	81	52.4	-31.2	S 03 13.2	-18.1	18
19	102	29.4	+00.1	S 03 41.2	-00.9	122	48.3	-00.6	S 12 56.2	-01.0	96	21.2	-31.2	S 02 55.1	-18.2	19
20	117	29.5	+00.2	S 03 40.3	-01.0	137	47.7	-00.5	S 12 55.2	-01.0	110	50.0	-31.1	S 02 36.9	-18.2	20
21	132	29.7	+00.2	S 03 39.3	-01.0	152	47.2	-00.6	S 12 54.2	-01.0	125	18.9	-31.1	S 02 18.7	-18.1	21
22	147	29.9	+00.1	S 03 38.3	-01.0	167	46.6	-00.5	S 12 53.2	-01.0	139	47.8	-31.1	S 02 00.6	-18.2	22
23	162	30.0	+00.2	S 03 37.3	-01.0	182	46.1	-00.5	S 12 52.2	-01.0	154	16.7	-31.1	S 01 42.4	-18.2	23

UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 16°7 16°7 16°7 16°7 16°7 16°7
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 61°4 61°4 61°4 61°4 61°4 61°4	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 61°3 61°3 61°3 61°3 61°3 61°3
SHA 009° 009° 009° 009° 009° 008°	SHA 030° 030° 029° 029° 029° 029°	SHA 012° 012° 007° 007° 005° 003°	SHA 008° 008° 008° 008° 008° 008°	SHA 008° 008° 008° 008° 008° 008°	SHA 008° 008° 008° 008° 008° 008°
Greenwich Culmination Time: 12:10		Greenwich Culmination Time: 10:48		Greenwich Culmination Time: 12:20	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	205	29.1	+00.6	S 15 54.5	-00.6	127	24.7	+02.0	N 14 52.4	+00.2	185	03.5	+02.1	S 08 56.7	-00.1	00
01	220	29.7	+00.5	S 15 53.9	-00.6	142	26.7	+02.1	N 14 52.6	+00.1	200	05.6	+02.2	S 08 56.6	-00.1	01
02	235	30.2	+00.6	S 15 53.3	-00.6	157	28.8	+02.0	N 14 52.7	+00.2	215	07.8	+02.2	S 08 56.5	-00.1	02
03	250	30.8	+00.5	S 15 52.7	-00.6	172	30.8	+02.0	N 14 52.9	+00.2	230	10.0	+02.2	S 08 56.4	-00.1	03
04	265	31.3	+00.6	S 15 52.1	-00.6	187	32.8	+02.0	N 14 53.0	+00.2	245	12.2	+02.2	S 08 56.3	-00.1	04
05	280	31.9	+00.5	S 15 51.5	-00.6	202	34.8	+02.0	N 14 53.2	+00.1	260	14.4	+02.1	S 08 56.2	-00.1	05
06	295	32.4	+00.6	S 15 50.9	-00.6	217	36.8	+02.0	N 14 53.3	+00.2	275	16.5	+02.2	S 08 56.1	-00.2	06
07	310	33.0	+00.5	S 15 50.3	-00.6	232	38.8	+02.0	N 14 53.5	+00.1	290	18.7	+02.2	S 08 55.9	-00.1	07
08	325	33.5	+00.5	S 15 49.7	-00.6	247	40.8	+02.0	N 14 53.6	+00.2	305	20.9	+02.2	S 08 55.8	-00.1	08
09	340	34.0	+00.6	S 15 49.1	-00.6	262	42.8	+02.0	N 14 53.8	+00.1	320	23.1	+02.2	S 08 55.7	-00.1	09
10	355	34.6	+00.5	S 15 48.5	-00.6	277	44.8	+02.0	N 14 53.9	+00.2	335	25.3	+02.1	S 08 55.6	-00.1	10
11	10	35.1	+00.6	S 15 47.9	-00.6	292	46.8	+02.0	N 14 54.1	+00.1	350	27.4	+02.2	S 08 55.5	-00.1	11
12	25	35.7	+00.5	S 15 47.3	-00.6	307	48.8	+02.0	N 14 54.2	+00.2	5	29.6	+02.2	S 08 55.4	-00.1	12
13	40	36.2	+00.6	S 15 46.7	-00.6	322	50.8	+02.0	N 14 54.4	+00.1	20	31.8	+02.2	S 08 55.3	-00.1	13
14	55	36.8	+00.5	S 15 46.1	-00.6	337	52.8	+02.0	N 14 54.5	+00.2	35	34.0	+02.2	S 08 55.2	-00.2	14
15	70	37.3	+00.6	S 15 45.5	-00.6	352	54.8	+02.0	N 14 54.7	+00.1	50	36.2	+02.1	S 08 55.0	-00.1	15
16	85	37.9	+00.5	S 15 44.9	-00.7	7	56.8	+02.0	N 14 54.8	+00.2	65	38.3	+02.2	S 08 54.9	-00.1	16
17	100	38.4	+00.6	S 15 44.2	-00.6	22	58.8	+02.0	N 14 55.0	+00.1	80	40.5	+02.2	S 08 54.8	-00.1	17
18	115	39.0	+00.5	S 15 43.6	-00.6	38	00.8	+02.0	N 14 55.1	+00.2	95	42.7	+02.2	S 08 54.7	-00.1	18
19	130	39.5	+00.6	S 15 43.0	-00.6	53	02.8	+02.0	N 14 55.3	+00.1	110	44.9	+02.2	S 08 54.6	-00.1	19
20	145	40.1	+00.5	S 15 42.4	-00.6	68	04.8	+02.1	N 14 55.4	+00.2	125	47.1	+02.1	S 08 54.5	-00.1	20
21	160	40.6	+00.6	S 15 41.8	-00.6	83	06.9	+02.0	N 14 55.6	+00.1	140	49.2	+02.2	S 08 54.4	-00.1	21
22	175	41.2	+00.5	S 15 41.2	-00.6	98	08.9	+02.0	N 14 55.7	+00.2	155	51.4	+02.2	S 08 54.3	-00.2	22
23	190	41.7	+00.5	S 15 40.6	-00.6	113	10.9	+02.0	N 14 55.9	+00.1	170	53.6	+02.2	S 08 54.1	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00°0 00°0 00°0 00°0 00°0	UT 02 06 10 14 18 22	SD 00°3 00°3 00°3 00°3 00°3 00°3	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 037° 037° 037° 037° 037° 037°	SHA 319° 319° 319° 319° 319° 319°	SHA 017° 017° 017° 017° 017° 017°	SHA 036° 036° 036° 036° 036° 036°	SHA 036° 036° 036° 036° 036° 036°	SHA 036° 036° 036° 036° 036° 036°
Greenwich Culmination Time: 10:17		Greenwich Culmination Time: 15:28		Greenwich Culmination Time: 11:38	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	30.2	+00.2	S 03 36.3	-01.0	197	45.6	-00.6	S 12 51.2	-01.0	168	45.6	-31.1	S 01 24.2	-18.2	00
01	192	30.4	+00.1	S 03 35.3	-00.9	212	45.0	-00.5	S 12 50.2	-01.1	183	14.5	-31.0	S 01 06.0	-18.2	01
02	207	30.5	+00.2	S 03 34.4	-01.0	227	44.5	-00.5	S 12 49.1	-01.0	197	43.5	-31.0	S 00 47.8	-18.2	02
03	222	30.7	+00.1	S 03 33.4	-01.0	242	44.0	-00.6	S 12 48.1	-01.0	212	12.5	-31.0	S 00 29.6	-18.2	03
04	237	30.8	+00.2	S 03 32.4	-01.0	257	43.4	-00.5	S 12 47.1	-01.0	226	41.5	-31.0	S 00 11.4	-18.1	04
05	252	31.0	+00.2	S 03 31.4	-01.0	272	42.9	-00.6	S 12 46.1	-01.0	241	10.5	-31.0	N 00 06.7	+18.2	05
06	267	31.2	+00.1	S 03 30.4	-01.0	287	42.3	-00.5	S 12 45.1	-01.0	255	39.5	-30.9	N 00 24.9	+18.2	06
07	282	31.3	+00.2	S 03 29.4	-00.9	302	41.8	-00.5	S 12 44.1	-01.0	270	08.6	-31.0	N 00 43.1	+18.1	07
08	297	31.5	+00.2	S 03 28.5	-01.0	317	41.3	-00.6	S 12 43.1	-01.0	284	37.6	-30.9	N 01 01.2	+18.1	08
09	312	31.7	+00.1	S 03 27.5	-01.0	332	40.7	-00.5	S 12 42.1	-01.1	299	06.7	-30.9	N 01 19.3	+18.1	09
10	327	31.8	+00.2	S 03 26.5	-01.0	347	40.2	-00.5	S 12 41.0	-01.0	313	35.8	-30.9	N 01 37.4	+18.1	10
11	342	32.0	+00.2	S 03 25.5	-01.0	2	39.7	-00.6	S 12 40.0	-01.0	328	04.9	-30.9	N 01 55.5	+18.1	11
12	357	32.2	+00.1	S 03 24.5	-01.0	17	39.1	-00.5	S 12 39.0	-01.0	342	34.0	-30.9	N 02 13.6	+18.0	12
13	12	32.3	+00.2	S 03 23.5	-00.9	32	38.6	-00.5	S 12 38.0	-01.0	357	03.1	-30.9	N 02 31.6	+18.1	13
14	27	32.5	+00.2	S 03 22.6	-01.0	47	38.1	-00.								

UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	177	50.7	+00.2	S 01 38.0	-01.0	196	44.1	-00.5	S 10 45.9	-01.1	104	34.4	-34.0	N 26 30.5	+06.2	00							
01	192	50.9	+00.2	S 01 37.0	-01.0	211	43.6	-00.5	S 10 44.8	-01.1	119	00.4	-34.1	N 26 36.7	+06.1	01							
02	207	51.1	+00.1	S 01 36.0	-01.0	226	43.1	-00.5	S 10 43.7	-01.0	133	26.3	-34.1	N 26 42.8	+06.0	02							
03	222	51.2	+00.2	S 01 35.0	-01.0	241	42.6	-00.5	S 10 42.7	-01.1	147	52.2	-34.1	N 26 48.8	+05.7	03							
04	237	51.4	+00.2	S 01 34.0	-01.0	256	42.1	-00.5	S 10 41.6	-01.1	162	18.1	-34.1	N 26 54.5	+05.6	04							
05	252	51.6	+00.2	S 01 33.0	-01.0	271	41.6	-00.4	S 10 40.5	-01.1	176	44.0	-34.1	N 27 00.1	+05.4	05							
06	267	51.8	+00.1	S 01 32.0	-01.0	286	41.2	-00.5	S 10 39.4	-01.0	191	09.9	-34.1	N 27 05.5	+05.3	06							
07	282	51.9	+00.2	S 01 31.0	-00.9	301	40.7	-00.5	S 10 38.4	-01.1	205	35.8	-34.1	N 27 10.8	+05.1	07							
08	297	52.1	+00.2	S 01 30.1	-01.0	316	40.2	-00.5	S 10 37.3	-01.1	220	01.7	-34.2	N 27 15.9	+05.0	08							
09	312	52.3	+00.2	S 01 29.1	-01.0	331	39.7	-00.5	S 10 36.2	-01.1	234	27.5	-34.1	N 27 20.9	+04.7	09							
10	327	52.5	+00.2	S 01 28.1	-01.0	346	39.2	-00.5	S 10 35.1	-01.1	248	53.4	-34.2	N 27 25.6	+04.6	10							
11	342	52.7	+00.1	S 01 27.1	-01.0	1	38.7	-00.5	S 10 34.0	-01.1	263	19.2	-34.1	N 27 30.2	+04.5	11							
12	357	52.8	+00.2	S 01 26.1	-01.0	16	38.2	-00.4	S 10 32.9	-01.0	277	45.1	-34.2	N 27 34.7	+04.3	12							
13	12	53.0	+00.2	S 01 25.1	-01.0	31	37.8	-00.5	S 10 31.9	-01.0	292	10.9	-34.1	N 27 39.0	+04.1	13							
14	27	53.2	+00.2	S 01 24.1	-01.0	46	37.3	-00.5	S 10 30.8	-01.1	306	36.8	-34.2	N 27 43.1	+03.9	14							
15	42	53.4	+00.2	S 01 23.1	-01.0	61	36.8	-00.5	S 10 29.7	-01.1	321	02.6	-34.1	N 27 47.0	+03.8	15							
16	57	53.6	+00.1	S 01 22.1	-00.9	76	36.3	-00.5	S 10 28.6	-01.1	335	28.5	-34.1	N 27 50.8	+03.6	16							
17	72	53.7	+00.2	S 01 21.2	-01.0	91	35.8	-00.5	S 10 27.5	-01.1	349	54.4	-34.2	N 27 54.4	+03.4	17							
18	87	53.9	+00.2	S 01 20.2	-01.0	106	35.3	-00.4	S 10 26.4	-01.0	4	20.2	-34.1	N 27 57.8	+03.3	18							
19	102	54.1	+00.2	S 01 19.2	-01.0	121	34.9	-00.5	S 10 25.4	-01.1	18	46.1	-34.1	N 28 01.1	+03.1	19							
20	117	54.3	+00.2	S 01 18.2	-01.0	136	34.4	-00.5	S 10 24.3	-01.1	33	12.0	-34.1	N 28 04.2	+03.0	20							
21	132	54.5	+00.1	S 01 17.2	-01.0	151	33.9	-00.5	S 10 23.2	-01.1	47	37.9	-34.1	N 28 07.2	+02.8	21							
22	147	54.6	+00.2	S 01 16.2	-01.0	166	33.4	-00.5	S 10 22.1	-01.1	62	03.8	-34.0	N 28 10.0	+02.6	22							
23	162	54.8	+00.2	S 01 15.2	-01.0	181	32.9	-00.4	S 10 21.0	-01.1	76	29.8	-34.1	N 28 12.6	+02.5	23							
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22			
SD	16°1	16°1	16°1	16°1	16°1	16°1	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°6	15°6	15°6	15°5	15°5	15°4			
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	57°4	57°3	57°1	57°0	56°8	56°7			
SHA	004°	004°	003°	003°	003°	003°	SHA	023°	022°	022°	022°	022°	022°	SHA	289°	287°	284°	282°	280°	277°			
Greenwich Culmination Time: 12:08				Greenwich Culmination Time: 10:53				Greenwich Culmination Time: 17:41				Greenwich Culmination Time: 12:09				Greenwich Culmination Time: 10:51				Greenwich Culmination Time: 14:55			

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	177	38.2	+00.2	S 02 49.1	-01.0	197	20.3	-00.6	S 12 02.0	-01.0	143	56.5	-31.4	N 12 33.8	+16.0	00				
01	192	38.4	+00.1	S 02 48.1	-01.0	212	19.7	-00.5	S 12 01.0	-01.1	158	25.1	-31.5	N 12 49.8	+15.8	01				
02	207	38.5	+00.2	S 02 47.1	-01.0	227	19.2	-00.5	S 11 59.9	-01.0	172	53.6	-31.4	N 13 05.6	+15.8	02				
03	222	38.7	+00.2	S 02 46.1	-01.0	242	18.7	-00.5	S 11 58.9	-01.0	187	22.2	-31.5	N 13 21.4	+15.7	03				
04	237	38.9	+00.1	S 02 45.1	-01.0	257	18.2	-00.5	S 11 57.9	-01.1	201	50.7	-31.6	N 13 37.1	+15.5	04				
05	252	39.0	+00.2	S 02 44.1	-01.0	272	17.7	-00.5	S 11 56.8	-01.0	216	19.1	-31.6	N 13 52.6	+15.5	05				
06	267	39.2	+00.2	S 02 43.1	-00.9	287	17.2	-00.5	S 11 55.8	-01.1	230	47.5	-31.6	N 14 08.1	+15.4	06				
07	282	39.4	+00.2	S 02 42.2	-01.0	302	16.7	-00.6	S 11 54.7	-01.0	245	15.9	-31.7	N 14 23.5	+15.3	07				
08	297	39.6	+00.1	S 02 41.2	-01.0	317	16.1	-00.5	S 11 53.7	-01.0	259	44.2	-31.6	N 14 38.8	+15.2	08				
09	312	39.7	+00.2	S 02 40.2	-01.0	332	15.6	-00.5	S 11 52.7	-01.1	274	12.6	-31.8	N 14 54.0	+15.1	09				
10	327	39.9	+00.2	S 02 39.2	-01.0	347	15.1	-00.5	S 11 51.6	-01.0	288	40.8	-31.7	N 15 09.1	+14.9	10				
11	342	40.1	+00.1	S 02 38.2	-01.0	2	14.6	-00.5	S 11 50.6	-01.1	303	09.1	-31.8	N 15 24.0	+14.9	11				
12	357	40.2	+00.2	S 02 37.2	-01.0	17	14.1	-00.5	S 11 49.5	-01.0	317	37.3	-31.9	N 15 38.9	+14.8	12				
13	12	40.4	+00.2	S 02 36.2	-00.9	32	13.6	-00.5	S 11 48.5	-01.0	332	05.4	-31.9	N 15 53.7	+14.6	13				
14	27	40.6	+00.2	S 02 35.3	-01.0	47	13.1	-00.5	S 11 47.4	-01.0	346	33.5	-31.9	N 16 08.3	+14.6	14				
15	42	40.8	+00.1	S 02 34.3	-01.0	62	12.6	-00.6	S 11 46.4	-01.1	1	01.6	-32.0	N 16 22.9	+14.4	15				
16	57	40.9	+00.2	S 02 33.3	-01.0	77	12.0	-00.5	S 11 45.3	-01.0	15	29.6	-32.0	N 16 37.3	+14.3	16				
17	72	41.1	+00.2	S 02 32.3	-01.0	92	11.5	-00.5	S 11 44.3	-01.0	29	57.6	-32.0	N 16 51.6	+14.2	17				
18	87	41.3	+00.1	S 02 31.3	-01.0	107	11.0	-00.5	S 11 43.3	-01.1	44	25.6	-32.1	N 17 05.8	+14.1	18				
19	102	41.4	+00.2	S 02 30.3	-01.0	122	10.5	-00.5	S 11 42.2	-01.0	58	53.5	-32.1	N 17 19.9	+14.0	19				
20	117	41.6	+00.2	S 02 29.3	-01.0	137	10.0	-00.5	S 11 41.2	-01.1	73	21.4	-32.2	N 17 33.9	+13.8	20				
21	132	41.8	+00.2	S 02 28.3	-00.9	152	09.5	-00.5	S 11 40.1	-01.0	87	49.2	-32.2	N 17 47.7	+13.7	21				
22	147	42.0	+00.1	S 02 27.4	-01.0	167	09.0	-00.5	S 11 39.1	-01.1	102	17.0	-32.3	N 18 01.4	+13.7	22				
23	162	42.1	+00.2	S 02 26.4	-01.0	182	08.5	-00.5	S 11 38.0	-01.0	116	44.7	-32.3	N 18 15.1	+13.4	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°1	16°1	16°1	16°1	16°1	16°1	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	16°4	16°4	16°3	16°3	16°2	16°2
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	60°2	60°0	59°9	59°8	59°6	59°5
SHA	006°	006°	006°	006°	006°	006°	SHA	026°	026°	026°	026°	025°	025°	SHA	332°	329°	327°	325°	323°	320°
Greenwich Culmination Time: 12:09				Greenwich Culmination Time: 10:51				Greenwich Culmination Time: 14:55				Greenwich Culmination Time: 14:55								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	206	49.2	+00.6	S 14 25.3	-00.7	132	12.0	+02.0	N 15 14.1	+00.1	190	17.5	+02.2	S 08 40.6	-00.1	00
01	221	49.8	+00.6	S 14 24.6	-00.6	147	14.0	+02.0	N 15 14.2	+00.2	205	19.7	+02.2	S 08 40.5	-00.1	01
02	236	50.4	+00.6	S 14 24.0	-00.7	162	16.0	+02.0	N 15 14.4	+00.1	220	21.9	+02.2	S 08 40.4	-00.1	02
03	251	51.0	+00.5	S 14 23.3	-00.6	177	18.0	+01.9	N 15 14.5	+00.2	235	24.1	+02.1	S 08 40.3	-00.1	03
04	266	51.5	+00.6	S 14 22.7	-00.6	192	19.9	+02.0	N 15 14.7	+00.1	250	26.2	+02.2	S 08 40.2	-00.1	04
05	281	52.1	+00.6	S 14 22.1	-00.7	207	21.9	+02.0	N 15 14.8	+00.2	265	28.4	+02.2	S 08 40.1	-00.1	05
06	296	52.7	+00.5	S 14 21.4	-00.6	222	23.9	+02.0	N 15 15.0	+00.1	280	30.6	+02.2	S 08 40.0	-00.2	06
07	311	53.2	+00.6	S 14 20.8	-00.6	237	25.9	+02.0	N 15 15.1	+00.2	295	32.8	+02.2	S 08 39.8	-00.1	07
08	326	53.8	+00.6	S 14 20.2	-00.7	252	27.9	+02.0	N 15 15.3	+00.1	310	35.0	+02.2	S 08 39.7	-00.1	08
09	341	54.4	+00.5	S 14 19.5	-00.6	267	29.9	+01.9	N 15 15.4	+00.2	325	37.2	+02.1	S 08 39.6	-00.1	09
10	356	54.9	+00.6	S 14 18.9	-00.7	282	31.8	+02.0	N 15 15.6	+00.1	340	39.3	+02.2	S 08 39.5	-00.1	10
11	11	55.5	+00.6	S 14 18.2	-00.6	297	33.8	+02.0	N 15 15.7	+00.2	355	41.5	+02.2	S 08 39.4	-00.1	11
12	26	56.1	+00.6	S 14 17.6	-00.7	312	35.8	+02.0	N 15 15.9	+00.1</						

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	42.3	+00.2	S 02 25.4	-01.0	197	08.0	-00.5	S 11 37.0	-01.1	131	12.4	-32.3	N 18 28.5	+13.4	00
01	192	42.5	+00.1	S 02 24.4	-01.0	212	07.5	-00.5	S 11 35.9	-01.0	145	40.1	-32.4	N 18 41.9	+13.2	01
02	207	42.6	+00.2	S 02 23.4	-01.0	227	07.0	-00.5	S 11 34.9	-01.1	160	07.7	-32.4	N 18 55.1	+13.1	02
03	222	42.8	+00.2	S 02 22.4	-01.0	242	06.5	-00.6	S 11 33.8	-01.0	174	35.3	-32.5	N 19 08.2	+13.0	03
04	237	43.0	+00.2	S 02 21.4	-01.0	257	05.9	-00.5	S 11 32.8	-01.1	189	02.8	-32.5	N 19 21.2	+12.9	04
05	252	43.2	+00.1	S 02 20.4	-00.9	272	05.4	-00.5	S 11 31.7	-01.1	203	30.3	-32.6	N 19 34.1	+12.7	05
06	267	43.3	+00.2	S 02 19.5	-01.0	287	04.9	-00.5	S 11 30.6	-01.0	217	57.7	-32.6	N 19 46.8	+12.6	06
07	282	43.5	+00.2	S 02 18.5	-01.0	302	04.4	-00.5	S 11 29.6	-01.1	232	25.1	-32.6	N 19 59.4	+12.5	07
08	297	43.7	+00.2	S 02 17.5	-01.0	317	03.9	-00.5	S 11 28.5	-01.0	246	52.5	-32.7	N 20 11.9	+12.3	08
09	312	43.9	+00.1	S 02 16.5	-01.0	332	03.4	-00.5	S 11 27.5	-01.1	261	19.8	-32.8	N 20 24.2	+12.2	09
10	327	44.0	+00.2	S 02 15.5	-01.0	347	02.9	-00.5	S 11 26.4	-01.0	275	47.0	-32.8	N 20 36.4	+12.0	10
11	342	44.2	+00.2	S 02 14.5	-01.0	2	02.4	-00.5	S 11 25.4	-01.1	290	14.2	-32.8	N 20 48.4	+11.9	11
12	357	44.4	+00.1	S 02 13.5	-01.0	17	01.9	-00.5	S 11 24.3	-01.0	304	41.4	-32.9	N 21 00.3	+11.8	12
13	12	44.5	+00.2	S 02 12.5	-00.9	32	01.4	-00.5	S 11 23.3	-01.1	319	08.5	-32.9	N 21 12.1	+11.7	13
14	27	44.7	+00.2	S 02 11.6	-01.0	47	00.9	-00.5	S 11 22.2	-01.1	333	35.6	-32.9	N 21 23.8	+11.5	14
15	42	44.9	+00.2	S 02 10.6	-01.0	62	00.4	-00.5	S 11 21.1	-01.0	348	02.7	-33.0	N 21 35.3	+11.3	15
16	57	45.1	+00.1	S 02 09.6	-01.0	76	59.9	-00.5	S 11 20.1	-01.1	2	29.7	-33.1	N 21 46.6	+11.2	16
17	72	45.2	+00.2	S 02 08.6	-01.0	91	59.4	-00.5	S 11 19.0	-01.0	16	56.6	-33.0	N 21 57.8	+11.1	17
18	87	45.4	+00.2	S 02 07.6	-01.0	106	58.9	-00.5	S 11 18.0	-01.1	31	23.6	-33.2	N 22 08.9	+10.9	18
19	102	45.6	+00.2	S 02 06.6	-01.0	121	58.4	-00.5	S 11 16.9	-01.1	45	50.4	-33.1	N 22 19.8	+10.8	19
20	117	45.8	+00.1	S 02 05.6	-01.0	136	57.9	-00.5	S 11 15.8	-01.0	60	17.3	-33.2	N 22 30.6	+10.7	20
21	132	45.9	+00.2	S 02 04.6	-00.9	151	57.4	-00.5	S 11 14.8	-01.1	74	44.1	-33.3	N 22 41.3	+10.5	21
22	147	46.1	+00.2	S 02 03.7	-01.0	166	56.9	-00.5	S 11 13.7	-01.1	89	10.8	-33.3	N 22 51.8	+10.3	22
23	162	46.3	+00.2	S 02 02.7	-01.0	181	56.4	-00.5	S 11 12.6	-01.0	103	37.5	-33.3	N 23 02.1	+10.2	23

UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 16°2 16°1 16°1 16°0 16°0 15°9
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 59°3 59°2 59°0 58°8 58°7 58°5	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 58°4 58°2 58°0 57°9 57°7 57°6
SHA 006° 005° 005° 005° 005° 005°	SHA 025° 025° 025° 025° 024° 024°	SHA 318° 316° 313° 311° 309° 306°	SHA 006° 005° 005° 005° 005° 005°	SHA 025° 025° 025° 025° 024° 024°	SHA 304° 301° 299° 297° 294° 292°
Greenwich Culmination Time: 12:09		Greenwich Culmination Time: 10:51		Greenwich Culmination Time: 15:49	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	206	22.2	+00.5	S 14 55.6	-00.6	130	36.6	+02.0	N 15 06.8	+00.1	188	32.8	+02.2	S 08 46.0	-00.1	00
01	221	22.7	+00.6	S 14 55.0	-00.6	145	38.6	+02.0	N 15 06.9	+00.2	203	35.0	+02.1	S 08 45.9	-00.2	01
02	236	23.3	+00.5	S 14 54.4	-00.7	160	40.6	+02.0	N 15 07.1	+00.1	218	37.1	+02.2	S 08 45.7	-00.1	02
03	251	23.8	+00.6	S 14 53.7	-00.6	175	42.6	+02.0	N 15 07.2	+00.2	233	39.3	+02.2	S 08 45.6	-00.1	03
04	266	24.4	+00.6	S 14 53.1	-00.6	190	44.6	+02.0	N 15 07.4	+00.2	248	41.5	+02.2	S 08 45.5	-00.1	04
05	281	25.0	+00.5	S 14 52.5	-00.7	205	46.6	+02.0	N 15 07.6	+00.1	263	43.7	+02.2	S 08 45.4	-00.1	05
06	296	25.5	+00.6	S 14 51.8	-00.6	220	48.6	+02.0	N 15 07.7	+00.2	278	45.9	+02.1	S 08 45.3	-00.1	06
07	311	26.1	+00.5	S 14 51.2	-00.6	235	50.6	+02.0	N 15 07.9	+00.1	293	48.0	+02.2	S 08 45.2	-00.1	07
08	326	26.6	+00.6	S 14 50.6	-00.6	250	52.6	+02.0	N 15 08.0	+00.2	308	50.2	+02.2	S 08 45.1	-00.1	08
09	341	27.2	+00.6	S 14 50.0	-00.7	265	54.6	+01.9	N 15 08.2	+00.1	323	52.4	+02.2	S 08 45.0	-00.1	09
10	356	27.8	+00.5	S 14 49.3	-00.6	280	56.5	+02.0	N 15 08.3	+00.2	338	54.6	+02.2	S 08 44.9	-00.2	10
11	11	28.3	+00.6	S 14 48.7	-00.6	295	58.5	+02.0	N 15 08.5	+00.1	353	56.8	+02.2	S 08 44.7	-00.1	11
12	26	28.9	+00.6	S 14 48.1	-00.7	311	00.5	+02.0	N 15 08.6	+00.2	8	59.0	+02.1	S 08 44.6	-00.1	12
13	41	29.5	+00.5	S 14 47.4	-00.6	326	02.5	+02.0	N 15 08.8	+00.1	24	01.1	+02.2	S 08 44.5	-00.1	13
14	56	30.0	+00.6	S 14 46.8	-00.6	341	04.5	+02.0	N 15 08.9	+00.2	39	03.3	+02.2	S 08 44.4	-00.1	14
15	71	30.6	+00.5	S 14 46.2	-00.6	356	06.5	+02.0	N 15 09.1	+00.1	54	05.5	+02.2	S 08 44.3	-00.1	15
16	86	31.1	+00.6	S 14 45.6	-00.7	11	08.5	+02.0	N 15 09.2	+00.2	69	07.7	+02.2	S 08 44.2	-00.1	16
17	101	31.7	+00.6	S 14 44.9	-00.6	26	10.5	+01.9	N 15 09.4	+00.1	84	09.9	+02.1	S 08 44.1	-00.1	17
18	116	32.3	+00.5	S 14 44.3	-00.6	41	12.4	+02.0	N 15 09.5	+00.2	99	12.0	+02.2	S 08 44.0	-00.1	18
19	131	32.8	+00.6	S 14 43.7	-00.7	56	14.4	+02.0	N 15 09.7	+00.1	114	14.2	+02.2	S 08 43.9	-00.2	19
20	146	33.4	+00.6	S 14 43.0	-00.6	71	16.4	+02.0	N 15 09.8	+00.2	129	16.4	+02.2	S 08 43.7	-00.1	20
21	161	34.0	+00.5	S 14 42.4	-00.6	86	18.4	+02.0	N 15 10.0	+00.1	144	18.6	+02.2	S 08 43.6	-00.1	21
22	176	34.5	+00.6	S 14 41.8	-00.7	101	20.4	+02.0	N 15 10.1	+00.2	159	20.8	+02.2	S 08 43.5	-00.1	22
23	191	35.1	+00.6	S 14 41.1	-00.6	116	22.4	+02.0	N 15 10.3	+00.1	174	23.0	+02.1	S 08 43.4	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00°0 00°0 00°0 00°0 00°0	UT 02 06 10 14 18 22	SD 00°3 00°3 00°3 00°3 00°3 00°3	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 034° 034° 034° 034° 034° 034°	SHA 038° 038° 038° 038° 038° 038°	SHA 016° 016° 016° 016° 016° 016°	SHA 034° 034° 034° 034° 034° 034°	SHA 016° 016° 016° 016° 016° 016°	SHA 033° 033° 033° 033° 033° 033°
Greenwich Culmination Time: 10:14		Greenwich Culmination Time: 15:15		Greenwich Culmination Time: 11:24	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	46.5	+00.1	S 02 01.7	-01.0	196	55.9	-00.5	S 11 11.6	-01.1	118	04.2	-33.3	N 23 12.3	+10.0	00
01	192	46.6	+00.2	S 02 00.7	-01.0	211	55.4	-00.5	S 11 10.5	-01.0	132	30.9	-33.5	N 23 22.3	+09.9	01
02	207	46.8	+00.2	S 01 59.7	-01.0	226	54.9	-00.5	S 11 09.5	-01.1	146	57.4	-33.4	N 23 32.2	+09.8	02
03	222	47.0	+00.2	S 01 58.7	-01.0	241	54.4	-00.5	S 11 08.4	-01.1	161	24.0	-33.5	N 23 42.0	+09.6	03
04	237	47.2	+00.1	S 01 57.7	-01.0	256	53.9	-00.5	S 11 07.3	-01.0	175	50.5	-33.5	N 23 51.6	+09.4	04
05	252	47.3	+00.2	S 01 56.7	-00.9	271	53.4	-00.5	S 11 06.3	-01.1	190	17.0	-33.5	N 24 01.0	+09.3	05
06	267	47.5	+00.2	S 01 55.8	-01.0	286	52.9	-00.5	S 11 05.2	-01.1	204	43.5	-33.6	N 24 10.3	+09.1	06
07	282	47.7	+00.2	S 01 54.8	-01.0	301	52.4	-00.5	S 11 04.1	-01.0	219	09.9	-33.6	N 24 19.4	+09.0	07
08	297	47.9	+00.2	S 01 53.8	-01.0	316	51.9	-00.5	S 11 03.1	-01.1	233	36.3	-33.7	N 24 28.4	+08.8	08
09	312	48.1	+00.1	S 01 52.8	-01.0	331	51.4	-00.4	S 11 02.0	-01.1	248	02.6	-33.7	N 24 37.2	+08.7	09
10	327	48.2	+00.2	S 01 51.8	-01.0	346	51.0	-00.5	S 11 00.9	-01.1	262	28.9	-33.7	N 24 45.9	+08.5	10
11	342	48.4	+00.2	S 01 50.8	-01.0	1	50.5	-00.5	S 10 59.8	-01.0	276	55.2	-33.7	N 24 54.4	+08.4	11
12	357	48.6	+00.2	S 01 49.8	-01.0	16	50.0	-00.5	S 10 58.8	-01.1	291	21.5	-33.8	N 25 02.8	+08.1	12
13	12	48.8	+00.1	S 01 48.8	-01.0	31	49.5	-00.5	S 10 57.7	-01.1	305	47.7	-33.8	N 25 10.9	+08.1	13
14	27	49.0	+00.2	S 01 47.8	-00.9	46	49.0	-0								

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	08.1	+00.2	S 00 03.1	-01.0	195	58.9	-00.5	S 09 00.4	-01.1	52	15.0	-29.6	N 24 34.3	-07.8	00
01	193	08.3	+00.2	S 00 02.1	-01.0	210	58.4	-00.4	S 08 59.3	-01.2	66	45.4	-29.4	N 24 26.5	-08.0	01
02	208	08.5	+00.2	S 00 01.1	-01.0	225	58.0	-00.5	S 08 58.1	-01.1	81	16.0	-29.4	N 24 18.5	-08.1	02
03	223	08.7	+00.2	S 00 00.1	-01.0	240	57.5	-00.4	S 08 57.0	-01.1	95	46.6	-29.3	N 24 10.4	-08.2	03
04	238	08.9	+00.2	N 00 00.9	+01.0	255	57.1	-00.5	S 08 55.9	-01.1	110	17.3	-29.2	N 24 02.2	-08.3	04
05	253	09.1	+00.2	N 00 01.9	+01.0	270	56.6	-00.4	S 08 54.8	-01.1	124	48.1	-29.1	N 23 53.9	-08.3	05
06	268	09.3	+00.1	N 00 02.9	+01.0	285	56.2	-00.5	S 08 53.7	-01.2	139	19.0	-29.1	N 23 45.6	-08.5	06
07	283	09.4	+00.2	N 00 03.9	+00.9	300	55.7	-00.4	S 08 52.5	-01.1	153	49.9	-28.9	N 23 37.1	-08.6	07
08	298	09.6	+00.2	N 00 04.8	+01.0	315	55.3	-00.5	S 08 51.4	-01.1	168	21.0	-28.9	N 23 28.5	-08.7	08
09	313	09.8	+00.2	N 00 05.8	+01.0	330	54.8	-00.4	S 08 50.3	-01.1	182	52.1	-28.8	N 23 19.8	-08.8	09
10	328	10.0	+00.2	N 00 06.8	+01.0	345	54.4	-00.5	S 08 49.2	-01.2	197	23.3	-28.7	N 23 11.0	-08.9	10
11	343	10.2	+00.2	N 00 07.8	+01.0	0	53.9	-00.4	S 08 48.0	-01.1	211	54.6	-28.6	N 23 02.1	-09.0	11
12	358	10.4	+00.2	N 00 08.8	+01.0	15	53.5	-00.5	S 08 46.9	-01.1	226	26.0	-28.6	N 22 53.1	-09.1	12
13	13	10.6	+00.1	N 00 09.8	+01.0	30	53.0	-00.4	S 08 45.8	-01.1	240	57.4	-28.4	N 22 44.0	-09.2	13
14	28	10.7	+00.2	N 00 10.8	+01.0	45	52.6	-00.5	S 08 44.7	-01.2	255	29.0	-28.4	N 22 34.8	-09.2	14
15	43	10.9	+00.2	N 00 11.8	+00.9	60	52.1	-00.4	S 08 43.5	-01.1	270	00.6	-28.3	N 22 25.6	-09.4	15
16	58	11.1	+00.2	N 00 12.7	+01.0	75	51.7	-00.5	S 08 42.4	-01.1	284	32.3	-28.2	N 22 16.2	-09.5	16
17	73	11.3	+00.2	N 00 13.7	+01.0	90	51.2	-00.4	S 08 41.3	-01.2	299	04.1	-28.1	N 22 06.7	-09.5	17
18	88	11.5	+00.2	N 00 14.7	+01.0	105	50.8	-00.5	S 08 40.1	-01.1	313	36.0	-28.0	N 21 57.2	-09.7	18
19	103	11.7	+00.2	N 00 15.7	+01.0	120	50.3	-00.4	S 08 39.0	-01.1	328	08.0	-28.0	N 21 47.5	-09.7	19
20	118	11.9	+00.1	N 00 16.7	+01.0	135	49.9	-00.5	S 08 37.9	-01.1	342	40.0	-27.9	N 21 37.8	-09.8	20
21	133	12.0	+00.2	N 00 17.7	+01.0	150	49.4	-00.4	S 08 36.8	-01.2	357	12.1	-27.8	N 21 28.0	-09.9	21
22	148	12.2	+00.2	N 00 18.7	+01.0	165	49.0	-00.5	S 08 35.6	-01.1	11	44.3	-27.7	N 21 18.1	-10.0	22
23	163	12.4	+00.2	N 00 19.7	+00.9	180	48.5	-00.4	S 08 34.5	-01.1	26	16.6	-27.6	N 21 08.1	-10.1	23

UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°9 14°9 14°9 14°8 14°8 14°8
HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 000° 360° 360° 360° 359° 359°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 018° 018° 017° 017° 017° 017°	HP 54°6 54°6 54°5 54°5 54°4 54°3	SHA 233° 231° 229° 227° 225° 223°
Greenwich Culmination Time: 12:07		Greenwich Culmination Time: 10:56		Greenwich Culmination Time: 21:11	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	207	44.6	+00.6	S 13 22.9	-00.6	135	21.7	+02.0	N 15 28.7	+00.2	193	47.2	+02.2	S 08 30.0	-00.1	00
01	222	45.2	+00.6	S 13 22.3	-00.7	150	23.7	+01.9	N 15 28.9	+00.1	208	49.4	+02.2	S 08 29.9	-00.1	01
02	237	45.8	+00.5	S 13 21.6	-00.7	165	25.6	+02.0	N 15 29.0	+00.2	223	51.6	+02.2	S 08 29.8	-00.1	02
03	252	46.3	+00.6	S 13 20.9	-00.6	180	27.6	+02.0	N 15 29.2	+00.2	238	53.8	+02.2	S 08 29.7	-00.1	03
04	267	46.9	+00.6	S 13 20.3	-00.7	195	29.6	+01.9	N 15 29.4	+00.1	253	56.0	+02.2	S 08 29.6	-00.1	04
05	282	47.5	+00.6	S 13 19.6	-00.6	210	31.5	+02.0	N 15 29.5	+00.2	268	58.2	+02.1	S 08 29.5	-00.1	05
06	297	48.1	+00.6	S 13 19.0	-00.7	225	33.5	+02.0	N 15 29.7	+00.1	284	00.3	+02.2	S 08 29.4	-00.1	06
07	312	48.7	+00.6	S 13 18.3	-00.7	240	35.5	+01.9	N 15 29.8	+00.2	299	02.5	+02.2	S 08 29.3	-00.1	07
08	327	49.3	+00.6	S 13 17.6	-00.6	255	37.4	+02.0	N 15 30.0	+00.1	314	04.7	+02.2	S 08 29.2	-00.2	08
09	342	49.9	+00.5	S 13 17.0	-00.7	270	39.4	+02.0	N 15 30.1	+00.2	329	06.9	+02.2	S 08 29.0	-00.1	09
10	357	50.4	+00.6	S 13 16.3	-00.7	285	41.4	+01.9	N 15 30.3	+00.1	344	09.1	+02.2	S 08 28.9	-00.1	10
11	12	51.0	+00.6	S 13 15.6	-00.6	300	43.3	+02.0	N 15 30.4	+00.2	359	11.3	+02.2	S 08 28.8	-00.1	11
12	27	51.6	+00.6	S 13 15.0	-00.7	315	45.3	+02.0	N 15 30.6	+00.1	14	13.5	+02.1	S 08 28.7	-00.1	12
13	42	52.2	+00.6	S 13 14.3	-00.7	330	47.3	+01.9	N 15 30.7	+00.2	29	15.6	+02.2	S 08 28.6	-00.1	13
14	57	52.8	+00.6	S 13 13.6	-00.6	345	49.2	+02.0	N 15 30.9	+00.1	44	17.8	+02.2	S 08 28.5	-00.1	14
15	72	53.4	+00.6	S 13 13.0	-00.7	0	51.2	+02.0	N 15 31.0	+00.2	59	20.0	+02.2	S 08 28.4	-00.1	15
16	87	54.0	+00.5	S 13 12.3	-00.6	15	53.2	+01.9	N 15 31.2	+00.2	74	22.2	+02.2	S 08 28.3	-00.1	16
17	102	54.5	+00.6	S 13 11.7	-00.7	30	55.1	+02.0	N 15 31.4	+00.1	89	24.4	+02.2	S 08 28.2	-00.1	17
18	117	55.1	+00.6	S 13 11.0	-00.7	45	57.1	+02.0	N 15 31.5	+00.2	104	26.6	+02.2	S 08 28.1	-00.1	18
19	132	55.7	+00.6	S 13 10.3	-00.6	60	59.1	+01.9	N 15 31.7	+00.1	119	28.8	+02.2	S 08 28.0	-00.2	19
20	147	56.3	+00.6	S 13 09.7	-00.7	76	01.0	+02.0	N 15 31.8	+00.2	134	31.0	+02.1	S 08 27.8	-00.1	20
21	162	56.9	+00.6	S 13 09.0	-00.7	91	03.0	+02.0	N 15 32.0	+00.1	149	33.1	+02.2	S 08 27.7	-00.1	21
22	177	57.5	+00.6	S 13 08.3	-00.6	106	05.0	+01.9	N 15 32.1	+00.2	164	35.3	+02.2	S 08 27.6	-00.1	22
23	192	58.1	+00.6	S 13 07.7	-00.7	121	06.9	+02.0	N 15 32.3	+00.1	179	37.5	+02.2	S 08 27.5	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00°0 00°0 00°0 00°0 00°0	UT 02 06 10 14 18 22	SD 00°3 00°3 00°3 00°3 00°3 00°3	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 030° 030° 029° 029° 029° 029°	HP 00°0 00°0 00°0 00°0 00°0 00°0	SHA 317° 317° 317° 317° 317° 317°	HP 00°0 00°0 00°0 00°0 00°0 00°0	SHA 016° 016° 016° 016° 016° 016°
Greenwich Culmination Time: 10:08		Greenwich Culmination Time: 14:56		Greenwich Culmination Time: 11:03	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	55.0	+00.2	S 01 14.2	-00.9	196	32.5	-00.5	S 10 19.9	-01.1	90	55.7	-34.0	N 28 15.1	+02.2	00
01	192	55.2	+00.2	S 01 13.3	-01.0	211	32.0	-00.5	S 10 18.8	-01.1	105	21.7	-34.0	N 28 17.3	+02.2	01
02	207	55.4	+00.1	S 01 12.3	-01.0	226	31.5	-00.5	S 10 17.7	-01.0	119	47.7	-34.0	N 28 19.5	+01.9	02
03	222	55.5	+00.2	S 01 11.3	-01.0	241	31.0	-00.4	S 10 16.7	-01.0	134	13.7	-34.0	N 28 21.4	+01.8	03
04	237	55.7	+00.2	S 01 10.3	-01.0	256	30.6	-00.5	S 10 15.6	-01.1	148	39.7	-33.9	N 28 23.2	+01.7	04
05	252	55.9	+00.2	S 01 09.3	-01.0	271	30.1	-00.5	S 10 14.5	-01.1	163	05.8	-34.0	N 28 24.9	+01.4	05
06	267	56.1	+00.2	S 01 08.3	-01.0	286	29.6	-00.5	S 10 13.4	-01.1	177	31.8	-33.8	N 28 26.3	+01.4	06
07	282	56.3	+00.1	S 01 07.3	-01.0	301	29.1	-00.5	S 10 12.3	-01.1	191	58.0	-33.9	N 28 27.7	+01.1	07
08	297	56.4	+00.2	S 01 06.3	-01.0	316	28.6	-00.4	S 10 11.2	-01.1	206	24.1	-33.8	N 28 28.8	+01.0	08
09	312	56.6	+00.2	S 01 05.3	-00.9	331	28.2	-00.5	S 10 10.1	-01.1	220	50.3	-33.8	N 28 29.8	+00.8	09
10	327	56.8	+00.2	S 01 04.4	-01.0	346	27.7	-00.5	S 10 09.0	-01.1	235	16.5	-33.8	N 28 30.6	+00.7	10
11	342	57.0	+00.2	S 01 03.4	-01.0	1	27.2	-00.5	S 10 07.9	-01.1	249	42.7	-33.7	N 28 31.3	+00.5	11
12	357	57.2	+00.1	S 01 02.4	-01.0	16	26.7	-00.4	S 10 06.8	-01.1	264	09.0	-33.7	N 28 31.8	+00.3	12
13	12	57.3	+00.2	S 01 01.4	-01.0	31	26.3	-00.5	S 10 05.7	-01.1	278	35.3	-33.7	N 28 32.1	+00.2	13
14	27	57.5	+00.2	S 01 00.4	-01.0	46	25.8	-00.5	S 10 04.6	-01.0	293	01.6	-33.6	N 28 32.3	+00.0	14
15	42	57.7	+00.2	S 00 59.4	-01.0	61	25.3	-00.5	S 10 03.6	-01.0	307	28.0	-33.6	N 28 32.3	+00.1	15
16	57	57.9	+00.2	S 00 58.4	-01.0	76	24.8	-00.4	S 10 02.5	-01.1	321	54.4	-33.5	N 28 32.2	-00.3	16
17	72	58.1	+00.1	S 00 57.4	-											

UT	Sun				Venus				Moon				UT						
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec							
00	177	59.3	+00.2	S 00	50.5	-01.0	196	21.1	-00.5	S 09	53.7	-01.1	77	27.5	-33.2	N 28	25.5	-01.6	00
01	192	59.5	+00.2	S 00	49.5	-01.0	211	20.6	-00.5	S 09	52.6	-01.1	91	54.3	-33.1	N 28	23.9	-01.7	01
02	207	59.7	+00.2	S 00	48.5	-01.0	226	20.1	-00.4	S 09	51.5	-01.1	106	21.2	-33.0	N 28	22.2	-01.8	02
03	222	59.9	+00.2	S 00	47.5	-00.9	241	19.7	-00.5	S 09	50.4	-01.1	120	48.2	-33.0	N 28	20.4	-02.0	03
04	238	00.1	+00.1	S 00	46.6	-01.0	256	19.2	-00.5	S 09	49.3	-01.1	135	15.2	-32.9	N 28	18.4	-02.2	04
05	253	00.2	+00.2	S 00	45.6	-01.0	271	18.7	-00.5	S 09	48.2	-01.1	149	42.3	-32.9	N 28	16.2	-02.2	05
06	268	00.4	+00.2	S 00	44.6	-01.0	286	18.2	-00.4	S 09	47.1	-01.1	164	09.4	-32.8	N 28	14.0	-02.5	06
07	283	00.6	+00.2	S 00	43.6	-01.0	301	17.8	-00.5	S 09	46.0	-01.1	178	36.6	-32.7	N 28	11.5	-02.6	07
08	298	00.8	+00.2	S 00	42.6	-01.0	316	17.3	-00.5	S 09	44.9	-01.1	193	03.9	-32.7	N 28	08.9	-02.7	08
09	313	01.0	+00.2	S 00	41.6	-01.0	331	16.8	-00.4	S 09	43.8	-01.1	207	31.2	-32.6	N 28	06.2	-02.9	09
10	328	01.2	+00.1	S 00	40.6	-01.0	346	16.4	-00.5	S 09	42.7	-01.1	221	58.6	-32.5	N 28	03.3	-03.0	10
11	343	01.3	+00.2	S 00	39.6	-01.0	1	15.9	-00.5	S 09	41.6	-01.2	236	26.1	-32.5	N 28	00.3	-03.2	11
12	358	01.5	+00.2	S 00	38.6	-00.9	16	15.4	-00.4	S 09	40.4	-01.1	250	53.6	-32.4	N 27	57.1	-03.3	12
13	13	01.7	+00.2	S 00	37.7	-01.0	31	15.0	-00.5	S 09	39.3	-01.1	265	21.2	-32.4	N 27	53.8	-03.5	13
14	28	01.9	+00.2	S 00	36.7	-01.0	46	14.5	-00.5	S 09	38.2	-01.1	279	48.8	-32.2	N 27	50.3	-03.6	14
15	43	02.1	+00.1	S 00	35.7	-01.0	61	14.0	-00.4	S 09	37.1	-01.1	294	16.6	-32.2	N 27	46.7	-03.7	15
16	58	02.2	+00.2	S 00	34.7	-01.0	76	13.6	-00.5	S 09	36.0	-01.1	308	44.4	-32.2	N 27	43.0	-03.9	16
17	73	02.4	+00.2	S 00	33.7	-01.0	91	13.1	-00.4	S 09	34.9	-01.1	323	12.2	-32.0	N 27	39.1	-04.0	17
18	88	02.6	+00.2	S 00	32.7	-01.0	106	12.7	-00.5	S 09	33.8	-01.1	337	40.2	-32.0	N 27	35.1	-04.2	18
19	103	02.8	+00.2	S 00	31.7	-01.0	121	12.2	-00.5	S 09	32.7	-01.1	352	08.2	-31.9	N 27	30.9	-04.3	19
20	118	03.0	+00.2	S 00	30.7	-01.0	136	11.7	-00.4	S 09	31.6	-01.1	6	36.3	-31.9	N 27	26.6	-04.4	20
21	133	03.2	+00.1	S 00	29.7	-00.9	151	11.3	-00.5	S 09	30.5	-01.1	21	04.4	-31.7	N 27	22.2	-04.6	21
22	148	03.3	+00.2	S 00	28.8	-01.0	166	10.8	-00.5	S 09	29.4	-01.1	35	32.7	-31.7	N 27	17.6	-04.7	22
23	163	03.5	+00.2	S 00	27.8	-01.0	181	10.3	-00.4	S 09	28.3	-01.1	50	01.0	-31.6	N 27	12.9	-04.8	23

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 002° 002° 002° 001° 001° 001°
Greenwich Culmination Time: 12:07

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 020° 020° 020° 020° 019° 019°
Greenwich Culmination Time: 10:54

UT 02 06 10 14 18 22
SD 15°2 15°2 15°1 15°1 15°1 15°0
HP 55°8 55°7 55°5 55°4 55°3 55°2
SHA 260° 258° 256° 253° 251° 249°
Greenwich Culmination Time: 19:32

UT	Mars				Jupiter				Saturn				UT						
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec							
00	207	16.7	+00.6	S 13	54.4	-00.7	133	47.0	+02.0	N 15	21.4	+00.1	192	02.3	+02.2	S 08	35.3	-00.1	00
01	222	17.3	+00.6	S 13	53.7	-00.6	148	49.0	+02.0	N 15	21.5	+00.2	207	04.5	+02.2	S 08	35.2	-00.1	01
02	237	17.9	+00.6	S 13	53.1	-00.7	163	51.0	+02.0	N 15	21.7	+00.1	222	06.7	+02.2	S 08	35.1	-00.1	02
03	252	18.5	+00.5	S 13	52.4	-00.6	178	53.0	+01.9	N 15	21.8	+00.2	237	08.9	+02.2	S 08	35.0	-00.1	03
04	267	19.0	+00.6	S 13	51.8	-00.7	193	54.9	+02.0	N 15	22.0	+00.1	252	11.1	+02.2	S 08	34.9	-00.1	04
05	282	19.6	+00.6	S 13	51.1	-00.6	208	56.9	+02.0	N 15	22.1	+00.2	267	13.3	+02.1	S 08	34.8	-00.1	05
06	297	20.2	+00.6	S 13	50.5	-00.7	223	58.9	+02.0	N 15	22.3	+00.1	282	15.4	+02.2	S 08	34.7	-00.2	06
07	312	20.8	+00.5	S 13	49.8	-00.6	239	00.9	+01.9	N 15	22.4	+00.2	297	17.6	+02.2	S 08	34.5	-00.1	07
08	327	21.3	+00.6	S 13	49.2	-00.7	254	02.8	+02.0	N 15	22.6	+00.2	312	19.8	+02.2	S 08	34.4	-00.1	08
09	342	21.9	+00.6	S 13	48.5	-00.6	269	04.8	+02.0	N 15	22.8	+00.1	327	22.0	+02.2	S 08	34.3	-00.1	09
10	357	22.5	+00.6	S 13	47.9	-00.7	284	06.8	+01.9	N 15	22.9	+00.2	342	24.2	+02.2	S 08	34.2	-00.1	10
11	12	23.1	+00.6	S 13	47.2	-00.7	299	08.7	+02.0	N 15	23.1	+00.1	357	26.4	+02.1	S 08	34.1	-00.1	11
12	27	23.7	+00.5	S 13	46.5	-00.6	314	10.7	+02.0	N 15	23.2	+00.2	12	28.5	+02.2	S 08	34.0	-00.1	12
13	42	24.2	+00.6	S 13	45.9	-00.7	329	12.7	+02.0	N 15	23.4	+00.1	27	30.7	+02.2	S 08	33.9	-00.1	13
14	57	24.8	+00.6	S 13	45.2	-00.6	344	14.7	+01.9	N 15	23.5	+00.2	42	32.9	+02.2	S 08	33.8	-00.1	14
15	72	25.4	+00.6	S 13	44.6	-00.7	359	16.6	+02.0	N 15	23.7	+00.1	57	35.1	+02.2	S 08	33.7	-00.2	15
16	87	26.0	+00.6	S 13	43.9	-00.6	14	18.6	+02.0	N 15	23.8	+00.2	72	37.3	+02.2	S 08	33.5	-00.1	16
17	102	26.6	+00.5	S 13	43.3	-00.7	29	20.5	+02.0	N 15	24.0	+00.1	87	39.5	+02.2	S 08	33.4	-00.1	17
18	117	27.1	+00.6	S 13	42.6	-00.6	44	22.6	+01.9	N 15	24.1	+00.2	102	41.7	+02.1	S 08	33.3	-00.1	18
19	132	27.7	+00.6	S 13	42.0	-00.7	59	24.5	+02.0	N 15	24.3	+00.1	117	43.8	+02.2	S 08	33.2	-00.1	19
20	147	28.3	+00.6	S 13	41.3	-00.6	74	26.5	+02.0	N 15	24.4	+00.2	132	46.0	+02.2	S 08	33.1	-00.1	20
21	162	28.9	+00.6	S 13	40.7	-00.7	89	28.5	+02.0	N 15	24.6	+00.1	147	48.2	+02.2	S 08	33.0	-00.1	21
22	177	29.5	+00.5	S 13	40.0	-00.6	104	30.5	+01.9	N 15	24.7	+00.2	162	50.4	+02.2	S 08	32.9	-00.1	22
23	192	30.0	+00.6	S 13	39.4	-00.7	119	32.4	+02.0	N 15	24.9	+00.2	177	52.6	+02.2	S 08	32.8	-00.1	23

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 031° 031° 031° 031° 031° 031°
Greenwich Culmination Time: 10:10

UT 02 06 10 14 18 22
SD 00°3 00°3 00°3 00°3 00°3 00°3
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 318° 318° 318° 318° 318° 318°
Greenwich Culmination Time: 15:02

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 016° 016° 016° 016° 016° 016°
Greenwich Culmination Time: 11:10

UT	Sun				Venus				Moon				UT						
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec							
00	178	03.7	+00.2	S 00	26.8	-01.0	196	09.9	-00.5	S 09	27.2	-01.2	64	29.4	-31.6	N 27	08.1	-05.0	00
01	193	03.9	+00.2	S 00	25.8	-01.0	211	09.4	-00.5	S 09	26.0	-01.1	78	57.8	-31.4	N 27	03.1	-05.1	01
02	208	04.1	+00.2	S 00	24.8	-01.0	226	08.9	-00.4	S 09	24.9	-01.1	93	26.4	-31.4	N 26	58.0	-05.3	02
03	223	04.3	+00.2	S 00	23.8	-01.0	241	08.5	-00.5	S 09	23.8	-01.1	107	55.0	-31.3	N 26	52.7	-05.3	03
04	238	04.5	+00.1	S 00	22.8	-01.0	256	08.0	-00.4	S 09	22.7	-01.1	122	23.7	-31.2	N 26	47.4	-05.5	04
05	253	04.6	+00.2	S 00	21.8	-00.9	271	07.6	-00.5	S 09	21.6	-01.1	136	52.5	-31.2	N 26	41.9	-05.6	05
06	268	04.8	+00.2	S 00	20.9	-01.0	286	07.1	-00.5	S 09	20.5	-01.1	151	21.3	-31.0	N 26	36.3	-05.8	06
07	283	05.0	+00.2	S 00	19.9	-01.0	301	06.6	-00.4	S 09	19.4	-01.1	165	50.3	-31.0	N 26	30.5	-05.9	07
08	298	05.2	+00.2	S 00	18.9	-01.0	316	06.2	-00.5	S 09	18.3	-01.2	180	19.3	-30.9	N 26	24.6	-06.0	08
09	313	05.4	+00.2	S 00	17.9	-01.0	331	05.7	-00.4	S 09	17.1	-01.1	194	48.4	-30.8	N 26	18.6	-06.1	09
10	328	05.6	+00.1	S 00	16.9	-01.0	346	05.3	-00.5	S 09	16.0	-01.1	209	17.6	-30.8	N 26	12.5	-06.2	10
11	343	05.7	+00.2	S 00	15.9	-01.0	1	04.8	-00.5	S 09	14.9	-01.1	223	46.8	-30.6	N 26	06.3	-06.4	11
12	358	05.9	+00.2	S 00	14.9	-01.0	16	04.3	-00.4	S 09	13.8	-01.1	238	16.2	-30.6	N 25	59.9	-06.5	12
13	13	06.1	+00.2	S 00	13.9	-01.0	31	03.9	-00.5	S 09	12.7	-01							

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	26.1	+00.2	N 01 31.6	+01.0	195	16.7	-00.4	S 07 11.0	-01.2	10	23.1	-23.8	N 06 08.0	-13.8	00
01	193	26.3	+00.2	N 01 32.6	+01.0	210	16.3	-00.4	S 07 09.8	-01.1	24	59.3	-23.8	N 05 54.2	-14.0	01
02	208	26.5	+00.2	N 01 33.6	+01.0	225	15.9	-00.4	S 07 08.7	-01.2	39	35.5	-23.8	N 05 40.2	-13.9	02
03	223	26.7	+00.2	N 01 34.6	+00.9	240	15.5	-00.5	S 07 07.5	-01.1	54	11.7	-23.8	N 05 26.3	-13.9	03
04	238	26.9	+00.2	N 01 35.5	+01.0	255	15.0	-00.4	S 07 06.4	-01.2	68	47.9	-23.7	N 05 12.4	-14.0	04
05	253	27.1	+00.2	N 01 36.5	+01.0	270	14.6	-00.4	S 07 05.2	-01.2	83	24.2	-23.7	N 04 58.4	-14.0	05
06	268	27.3	+00.2	N 01 37.5	+01.0	285	14.2	-00.4	S 07 04.0	-01.1	98	00.5	-23.8	N 04 44.4	-14.0	06
07	283	27.5	+00.1	N 01 38.5	+01.0	300	13.8	-00.5	S 07 02.9	-01.2	112	36.7	-23.7	N 04 30.4	-14.0	07
08	298	27.6	+00.2	N 01 39.5	+01.0	315	13.3	-00.4	S 07 01.7	-01.1	127	13.0	-23.7	N 04 16.4	-14.0	08
09	313	27.8	+00.2	N 01 40.5	+00.9	330	12.9	-00.4	S 07 00.6	-01.2	141	49.3	-23.7	N 04 02.4	-14.1	09
10	328	28.0	+00.2	N 01 41.4	+01.0	345	12.5	-00.4	S 06 59.4	-01.2	156	25.6	-23.6	N 03 48.3	-14.0	10
11	343	28.2	+00.2	N 01 42.4	+01.0	0	12.1	-00.5	S 06 58.2	-01.1	171	02.0	-23.7	N 03 34.3	-14.1	11
12	358	28.4	+00.2	N 01 43.4	+01.0	15	11.6	-00.4	S 06 57.1	-01.2	185	38.3	-23.6	N 03 20.2	-14.1	12
13	13	28.6	+00.2	N 01 44.4	+01.0	30	11.2	-00.4	S 06 55.9	-01.1	200	14.7	-23.7	N 03 06.1	-14.1	13
14	28	28.8	+00.2	N 01 45.4	+01.0	45	10.8	-00.4	S 06 54.8	-01.2	214	51.0	-23.6	N 02 52.0	-14.1	14
15	43	29.0	+00.2	N 01 46.4	+00.9	60	10.4	-00.4	S 06 53.6	-01.2	229	27.4	-23.7	N 02 37.9	-14.2	15
16	58	29.2	+00.1	N 01 47.3	+01.0	75	10.0	-00.5	S 06 52.4	-01.1	244	03.7	-23.6	N 02 23.7	-14.1	16
17	73	29.3	+00.2	N 01 48.3	+01.0	90	09.5	-00.4	S 06 51.3	-01.2	258	40.1	-23.6	N 02 09.6	-14.1	17
18	88	29.5	+00.2	N 01 49.3	+01.0	105	09.1	-00.4	S 06 50.1	-01.2	273	16.5	-23.6	N 01 55.5	-14.2	18
19	103	29.7	+00.2	N 01 50.3	+01.0	120	08.7	-00.4	S 06 48.9	-01.1	287	52.9	-23.7	N 01 41.3	-14.2	19
20	118	29.9	+00.2	N 01 51.3	+00.9	135	08.3	-00.4	S 06 47.8	-01.2	302	29.2	-23.6	N 01 27.1	-14.1	20
21	133	30.1	+00.2	N 01 52.2	+01.0	150	07.9	-00.5	S 06 46.6	-01.1	317	05.6	-23.6	N 01 13.0	-14.2	21
22	148	30.3	+00.2	N 01 53.2	+01.0	165	07.4	-00.4	S 06 45.5	-01.2	331	42.0	-23.6	N 00 58.8	-14.2	22
23	163	30.5	+00.2	N 01 54.2	+01.0	180	07.0	-00.4	S 06 44.3	-01.2	346	18.4	-23.6	N 00 44.6	-14.2	23

UT 02 06 10 14 18 22	SD 16°0 16°0 16°0 16°0 16°0 16°0	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°7 14°7 14°7 14°7 14°7 14°7
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°0 54°0 54°0 54°0 54°0	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°0 54°0 54°0 54°0 54°0
SHA 356° 356° 356° 356° 356° 356°	SHA 013° 013° 013° 013° 012° 012°	SHA 188° 188° 184° 182° 181° 179°	SHA 013° 013° 013° 013° 012° 012°	SHA 017° 017° 016° 016° 016° 016°	SHA 359° 359° 359° 359° 359° 358°
Greenwich Culmination Time: 12:06		Greenwich Culmination Time: 10:59		Greenwich Culmination Time: 23:56	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	208	41.4	+00.6	S 12 18.5	-00.7	138	30.0	+02.0	N 15 43.6	+00.1	197	17.3	+02.2	S 08 19.6	-00.1	00
01	223	42.0	+00.6	S 12 17.8	-00.6	153	32.0	+01.9	N 15 43.7	+00.2	212	19.5	+02.2	S 08 19.5	-00.1	01
02	238	42.6	+00.6	S 12 17.2	-00.7	168	33.9	+02.0	N 15 43.9	+00.1	227	21.7	+02.1	S 08 19.4	-00.1	02
03	253	43.2	+00.6	S 12 16.5	-00.7	183	35.9	+01.9	N 15 44.0	+00.2	242	23.8	+02.2	S 08 19.3	-00.1	03
04	268	43.8	+00.6	S 12 15.8	-00.7	198	37.8	+02.0	N 15 44.2	+00.1	257	26.0	+02.2	S 08 19.2	-00.1	04
05	283	44.4	+00.6	S 12 15.1	-00.7	213	39.8	+01.9	N 15 44.3	+00.2	272	28.2	+02.2	S 08 19.1	-00.2	05
06	298	45.0	+00.6	S 12 14.4	-00.7	228	41.7	+02.0	N 15 44.5	+00.2	287	30.4	+02.2	S 08 18.9	-00.1	06
07	313	45.6	+00.6	S 12 13.7	-00.6	243	43.7	+01.9	N 15 44.7	+00.1	302	32.6	+02.2	S 08 18.8	-00.1	07
08	328	46.2	+00.6	S 12 13.1	-00.7	258	45.6	+02.0	N 15 44.8	+00.2	317	34.8	+02.2	S 08 18.7	-00.1	08
09	343	46.8	+00.6	S 12 12.4	-00.7	273	47.6	+01.9	N 15 45.0	+00.1	332	37.0	+02.2	S 08 18.6	-00.1	09
10	358	47.4	+00.6	S 12 11.7	-00.7	288	49.5	+02.0	N 15 45.1	+00.2	347	39.2	+02.2	S 08 18.5	-00.1	10
11	13	48.0	+00.6	S 12 11.0	-00.7	303	51.5	+02.0	N 15 45.3	+00.1	2	41.4	+02.2	S 08 18.4	-00.1	11
12	28	48.6	+00.6	S 12 10.3	-00.7	318	53.5	+01.9	N 15 45.4	+00.2	17	43.6	+02.1	S 08 18.3	-00.1	12
13	43	49.2	+00.6	S 12 09.6	-00.6	333	55.4	+02.0	N 15 45.6	+00.1	32	45.7	+02.2	S 08 18.2	-00.1	13
14	58	49.8	+00.6	S 12 09.0	-00.7	348	57.4	+01.9	N 15 45.7	+00.2	47	47.9	+02.2	S 08 18.1	-00.1	14
15	73	50.4	+00.6	S 12 08.3	-00.7	3	59.3	+02.0	N 15 45.9	+00.1	62	50.1	+02.2	S 08 18.0	-00.1	15
16	88	51.0	+00.6	S 12 07.6	-00.7	19	01.3	+01.9	N 15 46.0	+00.2	77	52.3	+02.2	S 08 17.9	-00.1	16
17	103	51.6	+00.6	S 12 06.9	-00.7	34	03.2	+02.0	N 15 46.2	+00.2	92	54.5	+02.2	S 08 17.8	-00.1	17
18	118	52.2	+00.6	S 12 06.2	-00.7	49	05.2	+01.9	N 15 46.4	+00.1	107	56.7	+02.2	S 08 17.7	-00.2	18
19	133	52.8	+00.6	S 12 05.5	-00.6	64	07.1	+02.0	N 15 46.5	+00.2	122	58.9	+02.2	S 08 17.5	-00.1	19
20	148	53.4	+00.6	S 12 04.9	-00.7	79	09.1	+01.9	N 15 46.7	+00.1	138	01.1	+02.2	S 08 17.4	-00.1	20
21	163	54.0	+00.6	S 12 04.2	-00.7	94	11.0	+02.0	N 15 46.8	+00.2	153	03.3	+02.2	S 08 17.3	-00.1	21
22	178	54.6	+00.6	S 12 03.5	-00.7	109	13.0	+01.9	N 15 47.0	+00.1	168	05.5	+02.2	S 08 17.2	-00.1	22
23	193	55.2	+00.6	S 12 02.8	-00.7	124	14.9	+02.0	N 15 47.1	+00.2	183	07.7	+02.1	S 08 17.1	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00°0 00°0 00°0 00°0 00°0	UT 02 06 10 14 18 22	SD 00°3 00°3 00°3 00°3 00°3 00°3	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 027° 027° 026° 026° 026° 026°	SHA 317° 316° 316° 316° 316° 316°	SHA 015° 015° 015° 015° 015° 015°	SHA 317° 317° 317° 317° 317° 317°	SHA 016° 016° 016° 016° 016° 016°	SHA 029° 029° 029° 029° 028° 028°
Greenwich Culmination Time: 10:04		Greenwich Culmination Time: 14:44		Greenwich Culmination Time: 10:49	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	12.6	+00.2	N 00 20.6	+01.0	195	48.1	-00.5	S 08 33.4	-01.2	40	49.0	-27.6	N 20 58.0	-10.1	00
01	193	12.8	+00.2	N 00 21.6	+01.0	210	47.6	-00.4	S 08 32.2	-01.1	55	21.4	-27.5	N 20 47.9	-10.3	01
02	208	13.0	+00.2	N 00 22.6	+01.0	225	47.2	-00.5	S 08 31.1	-01.1	69	53.9	-27.4	N 20 37.6	-10.3	02
03	223	13.2	+00.1	N 00 23.6	+01.0	240	46.7	-00.4	S 08 30.0	-01.2	84	26.5	-27.3	N 20 27.3	-10.4	03
04	238	13.3	+00.2	N 00 24.6	+01.0	255	46.3	-00.5	S 08 28.8	-01.1	98	59.2	-27.3	N 20 16.9	-10.5	04
05	253	13.5	+00.2	N 00 25.6	+01.0	270	45.8	-00.4	S 08 27.7	-01.1	113	31.9	-27.1	N 20 06.4	-10.6	05
06	268	13.7	+00.2	N 00 26.6	+01.0	285	45.4	-00.4	S 08 26.6	-01.1	128	04.8	-27.1	N 19 55.8	-10.6	06
07	283	13.9	+00.2	N 00 27.6	+00.9	300	45.0	-00.5	S 08 25.5	-01.2	142	37.7	-27.1	N 19 45.2	-10.7	07
08	298	14.1	+00.2	N 00 28.5	+01.0	315	44.5	-00.4	S 08 24.3	-01.1	157	10.6	-26.9	N 19 34.5	-10.8	08
09	313	14.3	+00.2	N 00 29.5	+01.0	330	44.1	-00.5	S 08 23.2	-01.2	171	43.7	-26.9	N 19 23.7	-10.9	09
10	328	14.5	+00.2	N 00 30.5	+01.0	345	43.6	-00.4	S 08 22.0	-01.1	186	16.8	-26.8	N 19 12.8	-11.0	10
11	343	14.7	+00.1	N 00 31.5	+01.0	0	43.2	-00.5	S 08 20.9	-01.1	200	50.0	-26.7	N 19 01.8	-11.0	11
12	358	14.8	+00.2	N 00 32.5	+01.0	15	42.7	-00.4	S 08 19.8	-01.2	215	23.3	-26.7	N 18 50.8	-11.1	12
13	13	15.0	+00.2	N 00 33.5	+01.0	30	42.3	-00.4	S 08 18.6	-01.1	229	56.6	-26.6	N 18 39.7	-11.2	13
14	28	15.2	+00.2	N 00 34.5	+00.9	45	41.9	-00.5								

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 358° 358° 358° 358° 358° 357°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 028° 028° 028° 028° 028° 028°
Greenwich Culmination Time: 10:06

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 357° 357° 357° 357° 357° 357°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 027° 027° 027° 027° 027° 027°
Greenwich Culmination Time: 10:05

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 353° 353° 352° 352° 352° 352°
Greenwich Culmination Time: 12:04

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 355° 355° 355° 355° 355° 355°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 024° 024° 023° 023° 023° 023°
Greenwich Culmination Time: 10:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 026° 026° 026° 026° 025° 025°
Greenwich Culmination Time: 10:03

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	35.2	+00.2	N 02 18.7	+01.0	194	56.6	-00.4	S 06 15.1	-01.2	351	24.6	-24.0	S 05 09.9	+14.0	00
01	193	35.4	+00.2	N 02 19.7	+01.0	209	56.2	-00.4	S 06 13.9	-01.2	6	00.6	-24.0	S 05 23.9	+14.1	01
02	208	35.6	+00.2	N 02 20.7	+01.0	224	55.8	-00.4	S 06 12.7	-01.1	20	36.6	-24.1	S 05 38.0	+14.0	02
03	223	35.8	+00.2	N 02 21.7	+01.0	239	55.4	-00.4	S 06 11.6	-01.0	35	12.5	-24.1	S 05 52.0	+14.1	03
04	238	36.0	+00.2	N 02 22.7	+00.9	254	55.0	-00.4	S 06 10.4	-01.2	49	48.4	-24.1	S 06 06.1	+14.0	04
05	253	36.2	+00.2	N 02 23.6	+01.0	269	54.6	-00.4	S 06 09.2	-01.2	64	24.3	-24.1	S 06 20.1	+14.0	05
06	268	36.4	+00.1	N 02 24.6	+01.0	284	54.2	-00.5	S 06 08.0	-01.1	79	00.2	-24.2	S 06 34.1	+13.9	06
07	283	36.5	+00.2	N 02 25.6	+01.0	299	53.7	-00.4	S 06 06.9	-01.2	93	36.0	-24.2	S 06 48.0	+14.0	07
08	298	36.7	+00.2	N 02 26.6	+01.0	314	53.3	-00.4	S 06 05.7	-01.2	108	11.8	-24.3	S 07 02.0	+13.9	08
09	313	36.9	+00.2	N 02 27.6	+00.9	329	52.9	-00.4	S 06 04.5	-01.2	122	47.5	-24.3	S 07 15.9	+13.9	09
10	328	37.1	+00.2	N 02 28.5	+01.0	344	52.5	-00.4	S 06 03.3	-01.1	137	23.2	-24.3	S 07 29.8	+13.9	10
11	343	37.3	+00.2	N 02 29.5	+01.0	359	52.1	-00.4	S 06 02.2	-01.2	151	58.9	-24.4	S 07 43.7	+13.9	11
12	358	37.5	+00.2	N 02 30.5	+01.0	14	51.7	-00.4	S 06 01.0	-01.2	166	34.5	-24.4	S 07 57.6	+13.8	12
13	13	37.7	+00.2	N 02 31.5	+01.0	29	51.3	-00.4	S 05 59.8	-01.2	181	10.1	-24.4	S 08 11.4	+13.9	13
14	28	37.9	+00.2	N 02 32.5	+00.9	44	50.9	-00.4	S 05 58.6	-01.1	195	45.7	-24.5	S 08 25.3	+13.8	14
15	43	38.1	+00.2	N 02 33.4	+01.0	59	50.5	-00.4	S 05 57.5	-01.2	210	21.2	-24.5	S 08 39.1	+13.7	15
16	58	38.3	+00.1	N 02 34.4	+01.0	74	50.1	-00.4	S 05 56.3	-01.2	224	56.7	-24.6	S 08 52.8	+13.8	16
17	73	38.4	+00.2	N 02 35.4	+01.0	89	49.7	-00.5	S 05 55.1	-01.2	239	32.1	-24.6	S 09 06.6	+13.7	17
18	88	38.6	+00.2	N 02 36.4	+00.9	104	49.2	-00.4	S 05 53.9	-01.2	254	07.5	-24.7	S 09 20.3	+13.6	18
19	103	38.8	+00.2	N 02 37.3	+01.0	119	48.8	-00.4	S 05 52.7	-01.1	268	42.8	-24.7	S 09 33.9	+13.7	19
20	118	39.0	+00.2	N 02 38.3	+01.0	134	48.4	-00.4	S 05 51.6	-01.2	283	18.1	-24.7	S 09 47.6	+13.6	20
21	133	39.2	+00.2	N 02 39.3	+01.0	149	48.0	-00.4	S 05 50.4	-01.2	297	53.4	-24.8	S 10 01.2	+13.6	21
22	148	39.4	+00.2	N 02 40.3	+01.0	164	47.6	-00.4	S 05 49.2	-01.2	312	28.6	-24.9	S 10 14.8	+13.5	22
23	163	39.6	+00.2	N 02 41.3	+00.9	179	47.2	-00.4	S 05 48.0	-01.2	327	03.7	-24.9	S 10 28.3	+13.6	23

UT 02 06 10 14 18 22	SD 16°0 16°0 16°0 16°0 16°0 16°0	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°8 14°8 14°8 14°8 14°8 14°8
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°2 54°2 54°3 54°3 54°4 54°4	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°2 54°2 54°3 54°3 54°4 54°4	HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 355° 354° 354° 354° 354° 354°	SHA 011° 011° 011° 010° 010° 010°	SHA 167° 167° 163° 161° 159° 158°	SHA 010° 010° 009° 009° 009° 009°	SHA 167° 167° 163° 161° 159° 158°	SHA 010° 010° 009° 009° 009° 009°
Greenwich Culmination Time: 12:05		Greenwich Culmination Time: 11:00		Greenwich Culmination Time: 00:35	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	209	10.4	+00.6	S 11 45.6	-00.7	140	03.7	+01.9	N 15 51.0	+00.2	199	02.4	+02.2	S 08 14.4	-00.1	00
01	224	11.0	+00.6	S 11 44.9	-00.7	155	05.6	+02.0	N 15 51.2	+00.1	214	04.6	+02.2	S 08 14.3	-00.1	01
02	239	11.6	+00.6	S 11 44.2	-00.7	170	07.6	+01.9	N 15 51.3	+00.2	229	06.8	+02.2	S 08 14.2	-00.1	02
03	254	12.2	+00.6	S 11 43.5	-00.7	185	09.5	+02.0	N 15 51.5	+00.1	244	09.0	+02.2	S 08 14.1	-00.1	03
04	269	12.8	+00.6	S 11 42.8	-00.6	200	11.5	+01.9	N 15 51.6	+00.2	259	11.2	+02.2	S 08 14.0	-00.1	04
05	284	13.4	+00.6	S 11 42.2	-00.7	215	13.4	+02.0	N 15 51.8	+00.2	274	13.4	+02.2	S 08 13.9	-00.1	05
06	299	14.0	+00.6	S 11 41.5	-00.7	230	15.4	+01.9	N 15 52.0	+00.1	289	15.6	+02.2	S 08 13.8	-00.1	06
07	314	14.6	+00.6	S 11 40.8	-00.7	245	17.3	+02.0	N 15 52.1	+00.2	304	17.8	+02.2	S 08 13.7	-00.1	07
08	329	15.2	+00.6	S 11 40.1	-00.7	260	19.3	+01.9	N 15 52.3	+00.1	319	20.0	+02.2	S 08 13.6	-00.1	08
09	344	15.8	+00.6	S 11 39.4	-00.7	275	21.2	+02.0	N 15 52.4	+00.2	334	22.2	+02.2	S 08 13.5	-00.1	09
10	359	16.4	+00.6	S 11 38.7	-00.7	290	23.2	+01.9	N 15 52.6	+00.1	349	24.4	+02.2	S 08 13.4	-00.1	10
11	14	17.0	+00.7	S 11 38.0	-00.7	305	25.1	+02.0	N 15 52.7	+00.2	4	26.6	+02.2	S 08 13.3	-00.1	11
12	29	17.7	+00.6	S 11 37.3	-00.7	320	27.1	+01.9	N 15 52.9	+00.1	19	28.8	+02.2	S 08 13.2	-00.2	12
13	44	18.3	+00.6	S 11 36.6	-00.7	335	29.0	+01.9	N 15 53.0	+00.2	34	31.0	+02.1	S 08 13.0	-00.1	13
14	59	18.9	+00.6	S 11 35.9	-00.7	350	30.9	+02.0	N 15 53.2	+00.2	49	33.1	+02.2	S 08 12.9	-00.1	14
15	74	19.5	+00.6	S 11 35.2	-00.7	5	32.9	+01.9	N 15 53.4	+00.1	64	35.3	+02.2	S 08 12.8	-00.1	15
16	89	20.1	+00.6	S 11 34.5	-00.7	20	34.8	+02.0	N 15 53.5	+00.2	79	37.5	+02.2	S 08 12.7	-00.1	16
17	104	20.7	+00.6	S 11 33.8	-00.7	35	36.8	+01.9	N 15 53.7	+00.1	94	39.7	+02.2	S 08 12.6	-00.1	17
18	119	21.3	+00.6	S 11 33.1	-00.6	50	38.7	+02.0	N 15 53.8	+00.2	109	41.9	+02.2	S 08 12.5	-00.1	18
19	134	21.9	+00.6	S 11 32.5	-00.7	65	40.7	+01.9	N 15 54.0	+00.1	124	44.1	+02.2	S 08 12.4	-00.1	19
20	149	22.5	+00.6	S 11 31.8	-00.7	80	42.6	+02.0	N 15 54.1	+00.2	139	46.3	+02.2	S 08 12.3	-00.1	20
21	164	23.1	+00.6	S 11 31.1	-00.7	95	44.6	+01.9	N 15 54.3	+00.1	154	48.5	+02.2	S 08 12.2	-00.1	21
22	179	23.7	+00.7	S 11 30.4	-00.7	110	46.5	+02.0	N 15 54.4	+00.2	169	50.7	+02.2	S 08 12.1	-00.1	22
23	194	24.4	+00.6	S 11 29.7	-00.7	125	48.5	+01.9	N 15 54.6	+00.2	184	52.9	+02.2	S 08 12.0	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00°0 00°0 00°0 00°0 00°0	UT 02 06 10 14 18 22	SD 00°3 00°3 00°3 00°3 00°3 00°3	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 025° 025° 025° 025° 025° 025°	SHA 316° 316° 316° 316° 316° 316°	SHA 015° 015° 015° 015° 015° 015°	SHA 015° 015° 015° 015° 015° 015°	SHA 024° 024° 024° 024° 024° 024°	SHA 015° 015° 015° 015° 015° 015°
Greenwich Culmination Time: 10:02		Greenwich Culmination Time: 14:37		Greenwich Culmination Time: 10:42	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	39.8	+00.2	N 02 42.2	+01.0	194	46.8	-00.4	S 05 46.8	-01.1	341	38.8	-24.9	S 10 41.9	+13.4	00
01	193	40.0	+00.1	N 02 43.2	+01.0	209	46.4	-00.4	S 05 45.7	-01.2	356	13.9	-25.0	S 10 55.3	+13.5	01
02	208	40.1	+00.2	N 02 44.2	+01.0	224	46.0	-00.4	S 05 44.5	-01.2	10	48.9	-25.1	S 11 08.8	+13.4	02
03	223	40.3	+00.2	N 02 45.2	+00.9	239	45.6	-00.4	S 05 43.3	-01.2	25	23.8	-25.1	S 11 22.2	+13.4	03
04	238	40.5	+00.2	N 02 46.1	+01.0	254	45.2	-00.4	S 05 42.1	-01.2	39	58.7	-25.1	S 11 35.6	+13.3	04
05	253	40.7	+00.2	N 02 47.1	+01.0	269	44.8	-00.4	S 05 40.9	-01.1	54	33.6	-25.2	S 11 48.9	+13.3	05
06	268	40.9	+00.2	N 02 48.1	+01.0	284	44.4	-00.4	S 05 39.8	-01.2	69	08.4	-25.3	S 12 02.2	+13.3	06
07	283	41.1	+00.2	N 02 49.1	+01.0	299	44.0	-00.4	S 05 38.6	-01.2	83	43.1	-25.3	S 12 15.5	+13.2	07
08	298	41.3	+00.2	N 02 50.1	+00.9	314	43.6	-00.5	S 05 37.4	-01.2	98	17.8	-25.4	S 12 28.7	+13.2	08
09	313	41.5	+00.2	N 02 51.0	+01.0	329	43.1	-00.4	S 05 36.2	-01.2	112	52.4	-25.5	S 12 41.9	+13.1	09
10	328	41.7	+00.2	N 02 52.0	+01.0	344	42.7	-00.4	S 05 35.0	-01.1	127	26.9	-25.5	S 12 55.0	+13.1	10
11	343	41.9	+00.1	N 02 53.0	+01.0	359	42.3	-00.4	S 05 33.9	-01.2	142	01.4	-25.6	S 13 08.1	+13.0	11
12	358	42.0	+00.2	N 02 54.0	+00.9	14	41.9	-00.4	S 05 32.7	-01.2	156	35.8	-25.6	S 13 21.1	+13.0	12
13	13	42.2	+00.2	N 02 54.9	+01.0	29	41.5	-00.4	S 05 31.5	-01.2	171	10.2	-25.7	S 13 34.1	+13.0	13
14	28	42.4	+00.2	N 02 55.9	+01.0	44	41.1	-00.4								

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	02.3	+00.2	N 04 38.8	+01.0	193	59.4	-00.4	S 03 23.5	-01.2	282	22.9	-34.7	S 28 27.6	+01.4	00
01	194	02.5	+00.2	N 04 39.8	+00.9	208	59.0	-00.4	S 03 22.3	-01.2	296	48.2	-34.8	S 28 29.0	+01.2	01
02	209	02.7	+00.2	N 04 40.7	+01.0	223	58.6	-00.3	S 03 21.1	-01.2	311	13.4	-34.7	S 28 30.2	+01.1	02
03	224	02.9	+00.2	N 04 41.7	+01.0	238	58.3	-00.4	S 03 19.9	-01.2	325	38.7	-34.9	S 28 31.3	+00.9	03
04	239	03.1	+00.1	N 04 42.7	+00.9	253	57.9	-00.4	S 03 18.7	-01.2	340	03.8	-34.9	S 28 32.2	+00.8	04
05	254	03.2	+00.2	N 04 43.6	+01.0	268	57.5	-00.4	S 03 17.5	-01.2	354	28.9	-34.9	S 28 33.0	+00.6	05
06	269	03.4	+00.2	N 04 44.6	+01.0	283	57.1	-00.4	S 03 16.3	-01.2	8	54.0	-35.0	S 28 33.6	+00.4	06
07	284	03.6	+00.2	N 04 45.6	+00.9	298	56.7	-00.4	S 03 15.1	-01.2	23	19.0	-35.0	S 28 34.0	+00.2	07
08	299	03.8	+00.2	N 04 46.5	+01.0	313	56.3	-00.4	S 03 13.9	-01.2	37	44.0	-35.0	S 28 34.2	+00.1	08
09	314	04.0	+00.2	N 04 47.5	+00.9	328	55.9	-00.3	S 03 12.7	-01.2	52	09.0	-35.1	S 28 34.3	-00.1	09
10	329	04.2	+00.2	N 04 48.4	+01.0	343	55.6	-00.4	S 03 11.5	-01.3	66	33.9	-35.2	S 28 34.2	-00.3	10
11	344	04.4	+00.1	N 04 49.4	+01.0	358	55.2	-00.4	S 03 10.2	-01.2	80	58.7	-35.2	S 28 33.9	-00.5	11
12	359	04.5	+00.2	N 04 50.4	+00.9	13	54.8	-00.4	S 03 09.0	-01.2	95	23.5	-35.2	S 28 33.4	-00.6	12
13	14	04.7	+00.2	N 04 51.3	+01.0	28	54.4	-00.4	S 03 07.8	-01.2	109	48.3	-35.2	S 28 32.8	-00.8	13
14	29	04.9	+00.2	N 04 52.3	+01.0	43	54.0	-00.4	S 03 06.6	-01.2	124	13.1	-35.3	S 28 32.0	-01.0	14
15	44	05.1	+00.2	N 04 53.3	+00.9	58	53.6	-00.3	S 03 05.4	-01.2	138	37.8	-35.3	S 28 31.0	-01.1	15
16	59	05.3	+00.2	N 04 54.2	+01.0	73	53.3	-00.4	S 03 04.2	-01.2	153	02.5	-35.3	S 28 29.9	-01.4	16
17	74	05.5	+00.1	N 04 55.2	+00.9	88	52.9	-00.4	S 03 03.0	-01.2	167	27.2	-35.4	S 28 28.5	-01.5	17
18	89	05.6	+00.2	N 04 56.1	+01.0	103	52.5	-00.4	S 03 01.8	-01.2	181	51.8	-35.3	S 28 27.0	-01.7	18
19	104	05.8	+00.2	N 04 57.1	+01.0	118	52.1	-00.4	S 03 00.6	-01.2	196	16.5	-35.4	S 28 25.3	-01.8	19
20	119	06.0	+00.2	N 04 58.1	+00.9	133	51.7	-00.3	S 02 59.4	-01.3	210	41.1	-35.4	S 28 23.5	-02.1	20
21	134	06.2	+00.2	N 04 59.0	+01.0	148	51.4	-00.4	S 02 58.1	-01.2	225	05.7	-35.5	S 28 21.4	-02.2	21
22	149	06.4	+00.2	N 04 60.0	+00.9	163	51.0	-00.4	S 02 56.9	-01.2	239	30.2	-35.4	S 28 19.2	-02.4	22
23	164	06.6	+00.2	N 05 00.9	+01.0	178	50.6	-00.4	S 02 55.7	-01.2	253	54.8	-35.5	S 28 16.8	-02.5	23
UT 02 06 10 14 18 22	SD 16°0 16°0 16°0 16°0 16°0 16°0	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 349° 349° 349° 349° 349° 348°	Greenwich Culmination Time: 12:03	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 004° 004° 004° 003° 003° 003°	Greenwich Culmination Time: 11:04	UT 02 06 10 14 18 22	SD 15°5 15°6 15°6 15°6 15°7 15°7	HP 57°0 57°1 57°2 57°4 57°5 57°6	SHA 091° 089° 086° 084° 081° 079°	Greenwich Culmination Time: 05:22		

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	48.8	+00.2	N 03 29.1	+00.9	194	27.5	-00.4	S 04 49.9	-01.2	320	26.9	-28.4	S 20 32.2	+10.6	00
01	193	49.0	+00.2	N 03 30.0	+01.0	209	27.1	-00.4	S 04 48.7	-01.2	334	58.5	-28.5	S 20 42.8	+10.6	01
02	208	49.2	+00.2	N 03 31.0	+01.0	224	26.7	-00.4	S 04 47.5	-01.2	349	30.0	-28.6	S 20 53.4	+10.5	02
03	223	49.4	+00.2	N 03 32.0	+01.0	239	26.3	-00.4	S 04 46.3	-01.1	4	01.4	-28.8	S 21 03.9	+10.3	03
04	238	49.6	+00.2	N 03 33.0	+00.9	254	25.9	-00.4	S 04 45.2	-01.2	18	32.6	-28.8	S 21 14.2	+10.3	04
05	253	49.8	+00.2	N 03 33.9	+01.0	269	25.5	-00.4	S 04 44.0	-01.2	33	03.8	-28.9	S 21 24.5	+10.3	05
06	268	50.0	+00.2	N 03 34.9	+01.0	284	25.1	-00.4	S 04 42.8	-01.2	47	34.9	-29.0	S 21 34.8	+10.1	06
07	283	50.2	+00.2	N 03 35.9	+00.9	299	24.7	-00.4	S 04 41.6	-01.2	62	05.9	-29.0	S 21 44.9	+10.0	07
08	298	50.4	+00.1	N 03 36.8	+01.0	314	24.3	-00.3	S 04 40.4	-01.2	76	36.9	-29.2	S 21 54.9	+09.9	08
09	313	50.5	+00.2	N 03 37.8	+01.0	329	24.0	-00.4	S 04 39.2	-01.2	91	07.7	-29.3	S 22 04.8	+09.9	09
10	328	50.7	+00.2	N 03 38.8	+01.0	344	23.6	-00.4	S 04 38.0	-01.2	105	38.4	-29.4	S 22 14.7	+09.7	10
11	343	50.9	+00.2	N 03 39.8	+00.9	359	23.2	-00.4	S 04 36.8	-01.2	120	09.0	-29.4	S 22 24.4	+09.7	11
12	358	51.1	+00.2	N 03 40.7	+01.0	14	22.8	-00.4	S 04 35.6	-01.2	134	39.6	-29.6	S 22 34.1	+09.5	12
13	13	51.3	+00.2	N 03 41.7	+01.0	29	22.4	-00.4	S 04 34.4	-01.2	149	10.0	-29.6	S 22 43.6	+09.5	13
14	28	51.5	+00.2	N 03 42.7	+00.9	44	22.0	-00.4	S 04 33.2	-01.2	163	40.4	-29.8	S 22 53.1	+09.3	14
15	43	51.7	+00.2	N 03 43.6	+01.0	59	21.6	-00.4	S 04 32.0	-01.2	178	10.6	-29.8	S 23 02.4	+09.2	15
16	58	51.9	+00.1	N 03 44.6	+01.0	74	21.2	-00.4	S 04 30.8	-01.2	192	40.8	-30.0	S 23 11.6	+09.2	16
17	73	52.0	+00.2	N 03 45.6	+01.0	89	20.8	-00.4	S 04 29.6	-01.2	207	10.8	-30.0	S 23 20.8	+09.0	17
18	88	52.2	+00.2	N 03 46.6	+00.9	104	20.4	-00.4	S 04 28.4	-01.2	221	40.8	-30.2	S 23 29.8	+08.9	18
19	103	52.4	+00.2	N 03 47.5	+01.0	119	20.0	-00.4	S 04 27.2	-01.2	236	10.6	-30.2	S 23 38.7	+08.8	19
20	118	52.6	+00.2	N 03 48.5	+01.0	134	19.6	-00.4	S 04 26.0	-01.2	250	40.4	-30.3	S 23 47.5	+08.7	20
21	133	52.8	+00.2	N 03 49.5	+00.9	149	19.2	-00.4	S 04 24.8	-01.2	265	10.1	-30.5	S 23 56.2	+08.6	21
22	148	53.0	+00.2	N 03 50.4	+01.0	164	18.8	-00.4	S 04 23.6	-01.2	279	39.6	-30.5	S 24 04.8	+08.5	22
23	163	53.2	+00.2	N 03 51.4	+01.0	179	18.4	-00.4	S 04 22.4	-01.1	294	09.1	-30.6	S 24 13.3	+08.4	23
UT 02 06 10 14 18 22	SD 16°0 16°0 16°0 16°0 16°0 16°0	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 352° 352° 352° 351° 351° 351°	Greenwich Culmination Time: 12:04	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 007° 007° 007° 007° 007° 007°	Greenwich Culmination Time: 11:02	UT 02 06 10 14 18 22	SD 15°0 15°1 15°1 15°1 15°1 15°2	HP 55°2 55°3 55°4 55°4 55°5 55°6	SHA 133° 133° 128° 128° 126° 124° 122°	Greenwich Culmination Time: 02:43		

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	210	39.2	+00.6	S 10 04.3	-00.7	144	42.9	+02.0	N 16 13.5	+00.2	204	18.6	+02.2	S 07 59.3	-00.1	00
01	225	39.8	+00.7	S 10 03.6	-00.7	159	44.9	+01.9	N 16 13.7	+00.1	219	20.8	+02.2	S 07 59.2	-00.2	01
02	240	40.5	+00.6	S 10 02.9	-00.7	174	46.8	+01.9	N 16 13.8	+00.2	234	23.0	+02.2	S 07 59.0	-00.1	02
03	255	41.1	+00.6	S 10 02.2	-00.7	189	48.7	+02.0	N 16 14.0	+00.1	249	25.2	+02.2	S 07 58.9	-00.1	03
04	270	41.7	+00.6	S 10 01.5	-00.8	204	50.7	+01.9	N 16 14.1	+00.2	264	27.4	+02.2	S 07 58.8	-00.1	04
05	285	42.3	+00.7	S 10 00.7	-00.7	219	52.6	+01.9	N 16 14.3	+00.1	279	29.6	+02.2	S 07 58.7	-00.1	05
06	300	43.0	+00.6	S 10 00.0	-00.7	234	54.5	+01.9	N 16 14.4	+00.2	294	31.8	+02.2	S 07 58.6	-00.1	06
07	315	43.6	+00.6	S 09 59.3	-00.7	249	56.4	+02.0	N 16 14.6	+00.1	309	34.0	+02.2	S 07 58.5	-00.1	07
08	330	44.2	+00.7	S 09 58.6	-00.7	264	58.4	+01.9	N 16 14.7	+00.2	324	36.2	+02.2	S 07 58.4	-00.1	08
09	345	44.9	+00.6	S 09 57.9	-00.7	280	00.3	+01.9	N 16 14.9	+00.2	339	38.4	+02.2	S 07 58.3	-00.1	09
10	0	45.5	+00.6	S 09 57.2	-00.8	295	02.2	+02.0	N 16 15.1	+00.1	354	40.6	+02.2	S 07 58.2	-00.1	10
11	15	46.1	+00.6	S 09 56.4	-00.7	310	04.2	+01.9	N 16 15.2	+00.2	9	42.8	+02.2	S 07 58.1	-00.1	11
12	30	46.7	+00.7	S 09 55.7	-00.7	325	06.1	+01.9	N 16 15.4	+00.1	24	45.0	+02.2	S 07 58.0	-00.1	12
13	45	47.4	+00.6	S 09 55.0	-00.7	340	08.0	+01.9	N 16 15.5	+00.2	39	47.2	+02.2	S 07 57.9	-00.1	13
14	60	48.0	+00.6	S 09 54.3	-00.7	355	09.9	+02.0	N 16 15.7	+00.1	54	49.4	+02.2	S 07 57.8	-00.1	14
15	75	48.6	+00.7	S 09 53.6	-00.7	10	11.9	+01.9	N 16 15.8	+00.2	69	51.6	+02.3	S 07 57.7	-00.1	15
16	90	49.3	+00.6	S 09 52.9	-00.8	25	13.8	+01.9	N 16 16.0	+00.2	84	53.9	+02.2	S 07 57.6	-00.1	16
17	105	49.9	+00.6	S 09 52.1	-00.7	40	15.7	+02.0	N 16 16.2	+00.1	99	5				

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	53.4	+00.1	N 03 52.4	+01.0	194	18.0	-00.3	S 04 21.3	-01.2	308	38.5	-30.7	S 24 21.7	+08.3	00
01	193	53.5	+00.2	N 03 53.4	+00.9	209	17.7	-00.4	S 04 20.1	-01.2	323	07.8	-30.8	S 24 30.0	+08.1	01
02	208	53.7	+00.2	N 03 54.3	+01.0	224	17.3	-00.4	S 04 18.9	-01.2	337	37.0	-30.9	S 24 38.1	+08.0	02
03	223	53.9	+00.2	N 03 55.3	+01.0	239	16.9	-00.4	S 04 17.7	-01.2	352	06.1	-31.1	S 24 46.1	+08.0	03
04	238	54.1	+00.2	N 03 56.3	+00.9	254	16.5	-00.4	S 04 16.5	-01.2	6	35.0	-31.1	S 24 54.1	+07.7	04
05	253	54.3	+00.2	N 03 57.2	+01.0	269	16.1	-00.4	S 04 15.3	-01.2	21	03.9	-31.2	S 25 01.8	+07.7	05
06	268	54.5	+00.2	N 03 58.2	+01.0	284	15.7	-00.4	S 04 14.1	-01.2	35	32.7	-31.3	S 25 09.5	+07.6	06
07	283	54.7	+00.2	N 03 59.2	+00.9	299	15.3	-00.4	S 04 12.9	-01.2	50	01.4	-31.4	S 25 17.1	+07.4	07
08	298	54.9	+00.1	N 04 00.1	+01.0	314	14.9	-00.4	S 04 11.7	-01.2	64	30.0	-31.4	S 25 24.5	+07.3	08
09	313	55.0	+00.2	N 04 01.1	+01.0	329	14.5	-00.4	S 04 10.5	-01.2	78	58.6	-31.6	S 25 31.8	+07.2	09
10	328	55.2	+00.2	N 04 02.1	+01.0	344	14.1	-00.4	S 04 09.3	-01.2	93	27.0	-31.7	S 25 39.0	+07.0	10
11	343	55.4	+00.2	N 04 03.1	+00.9	359	13.7	-00.4	S 04 08.1	-01.2	107	55.3	-31.8	S 25 46.0	+07.0	11
12	358	55.6	+00.2	N 04 04.0	+01.0	14	13.3	-00.3	S 04 06.9	-01.2	122	23.5	-31.9	S 25 53.0	+06.8	12
13	13	55.8	+00.2	N 04 05.0	+01.0	29	13.0	-00.4	S 04 05.7	-01.2	136	51.6	-31.9	S 25 59.8	+06.6	13
14	28	56.0	+00.2	N 04 06.0	+00.9	44	12.6	-00.4	S 04 04.5	-01.2	151	19.7	-32.1	S 26 06.4	+06.6	14
15	43	56.2	+00.2	N 04 06.9	+01.0	59	12.2	-00.4	S 04 03.3	-01.2	165	47.6	-32.1	S 26 13.0	+06.4	15
16	58	56.4	+00.1	N 04 07.9	+01.0	74	11.8	-00.4	S 04 02.1	-01.2	180	15.5	-32.3	S 26 19.4	+06.2	16
17	73	56.5	+00.2	N 04 08.9	+00.9	89	11.4	-00.4	S 04 00.9	-01.2	194	43.2	-32.3	S 26 25.6	+06.2	17
18	88	56.7	+00.2	N 04 09.8	+01.0	104	11.0	-00.4	S 03 59.7	-01.2	209	10.9	-32.4	S 26 31.8	+06.0	18
19	103	56.9	+00.2	N 04 10.8	+01.0	119	10.6	-00.4	S 03 58.5	-01.2	223	38.5	-32.5	S 26 37.8	+05.8	19
20	118	57.1	+00.2	N 04 11.8	+00.9	134	10.2	-00.4	S 03 57.3	-01.2	238	06.0	-32.6	S 26 43.6	+05.7	20
21	133	57.3	+00.2	N 04 12.7	+01.0	149	09.8	-00.3	S 03 56.1	-01.2	252	33.4	-32.7	S 26 49.3	+05.6	21
22	148	57.5	+00.2	N 04 13.7	+01.0	164	09.5	-00.4	S 03 54.9	-01.2	267	00.7	-32.8	S 26 54.9	+05.5	22
23	163	57.7	+00.2	N 04 14.7	+00.9	179	09.1	-00.4	S 03 53.7	-01.2	281	27.9	-32.9	S 27 00.4	+05.3	23

UT 02 06 10 14 18 22	SD 16°0 16°0 16°0 16°0 16°0 16°0	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 15°2 15°2 15°2 15°3 15°3 15°3
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 55°7 55°8 55°9 56°0 56°1 56°2	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 351° 351° 351° 350° 350° 350°	SHA 006° 006° 006° 006° 006° 005°	SHA 120° 117° 115° 113° 111° 108°	SHA 005° 005° 005° 005° 004° 004°	SHA 005° 005° 005° 005° 004° 004°	SHA 106° 103° 101° 099° 096° 094°
Greenwich Culmination Time: 12:04		Greenwich Culmination Time: 11:03		Greenwich Culmination Time: 03:32	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	210	09.3	+00.6	S 10 38.5	-00.7	143	10.1	+02.0	N 16 06.0	+00.1	202	33.1	+02.2	S 08 04.3	-00.1	00
01	225	09.9	+00.6	S 10 37.8	-00.7	158	12.1	+01.9	N 16 06.1	+00.2	217	35.3	+02.2	S 08 04.2	-00.1	01
02	240	10.5	+00.6	S 10 37.1	-00.7	173	14.0	+01.9	N 16 06.3	+00.2	232	37.5	+02.2	S 08 04.1	-00.1	02
03	255	11.1	+00.6	S 10 36.4	-00.7	188	15.9	+02.0	N 16 06.5	+00.1	247	39.7	+02.2	S 08 04.0	-00.2	03
04	270	11.7	+00.7	S 10 35.7	-00.8	203	17.9	+01.9	N 16 06.6	+00.2	262	41.9	+02.2	S 08 03.8	-00.1	04
05	285	12.4	+00.6	S 10 34.9	-00.7	218	19.8	+02.0	N 16 06.8	+00.1	277	44.1	+02.2	S 08 03.7	-00.1	05
06	300	13.0	+00.6	S 10 34.2	-00.7	233	21.8	+01.9	N 16 06.9	+00.2	292	46.3	+02.2	S 08 03.6	-00.1	06
07	315	13.6	+00.6	S 10 33.5	-00.7	248	23.7	+01.9	N 16 07.1	+00.1	307	48.5	+02.2	S 08 03.5	-00.1	07
08	330	14.2	+00.7	S 10 32.8	-00.7	263	25.6	+02.0	N 16 07.2	+00.2	322	50.7	+02.2	S 08 03.4	-00.1	08
09	345	14.9	+00.6	S 10 32.1	-00.7	278	27.6	+01.9	N 16 07.4	+00.2	337	52.9	+02.2	S 08 03.3	-00.1	09
10	0	15.5	+00.6	S 10 31.4	-00.7	293	29.5	+01.9	N 16 07.6	+00.1	352	55.1	+02.2	S 08 03.2	-00.1	10
11	15	16.1	+00.6	S 10 30.7	-00.7	308	31.4	+02.0	N 16 07.7	+00.2	7	57.3	+02.2	S 08 03.1	-00.1	11
12	30	16.7	+00.6	S 10 30.0	-00.7	323	33.4	+01.9	N 16 07.9	+00.1	22	59.5	+02.2	S 08 03.0	-00.1	12
13	45	17.3	+00.7	S 10 29.3	-00.7	338	35.3	+01.9	N 16 08.0	+00.2	38	01.7	+02.2	S 08 02.9	-00.1	13
14	60	18.0	+00.6	S 10 28.6	-00.8	353	37.2	+02.0	N 16 08.2	+00.1	53	03.9	+02.2	S 08 02.8	-00.1	14
15	75	18.6	+00.6	S 10 27.8	-00.7	8	39.2	+01.9	N 16 08.3	+00.2	68	06.1	+02.2	S 08 02.7	-00.1	15
16	90	19.2	+00.6	S 10 27.1	-00.7	23	41.1	+01.9	N 16 08.5	+00.1	83	08.3	+02.2	S 08 02.6	-00.1	16
17	105	19.8	+00.7	S 10 26.4	-00.7	38	43.0	+02.0	N 16 08.6	+00.2	98	10.5	+02.2	S 08 02.5	-00.1	17
18	120	20.5	+00.6	S 10 25.7	-00.7	53	45.0	+01.9	N 16 08.8	+00.2	113	12.7	+02.2	S 08 02.4	-00.1	18
19	135	21.1	+00.6	S 10 25.0	-00.7	68	46.9	+01.9	N 16 09.0	+00.1	128	14.9	+02.2	S 08 02.3	-00.1	19
20	150	21.7	+00.6	S 10 24.3	-00.7	83	48.8	+02.0	N 16 09.1	+00.2	143	17.1	+02.2	S 08 02.2	-00.1	20
21	165	22.3	+00.6	S 10 23.6	-00.7	98	50.8	+01.9	N 16 09.3	+00.1	158	19.3	+02.2	S 08 02.1	-00.1	21
22	180	22.9	+00.7	S 10 22.9	-00.7	113	52.7	+01.9	N 16 09.4	+00.2	173	21.5	+02.2	S 08 02.0	-00.1	22
23	195	23.6	+00.6	S 10 22.2	-00.7	128	54.6	+02.0	N 16 09.6	+00.1	188	23.7	+02.2	S 08 01.9	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00°0 00°0 00°0 00°0 00°0	UT 02 06 10 14 18 22	SD 00°3 00°3 00°3 00°3 00°3 00°3	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0	HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 022° 022° 022° 022° 022° 022°	SHA 315° 315° 315° 315° 315° 315°	SHA 015° 015° 015° 015° 015° 015°	SHA 315° 315° 315° 315° 315° 315°	SHA 021° 021° 021° 021° 021° 021°	SHA 015° 015° 015° 015° 014° 014°
Greenwich Culmination Time: 09:58		Greenwich Culmination Time: 14:25		Greenwich Culmination Time: 10:28	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	57.9	+00.1	N 04 15.6	+01.0	194	08.7	-00.4	S 03 52.5	-01.3	295	55.0	-32.9	S 27 05.7	+05.1	00
01	193	58.0	+00.2	N 04 16.6	+01.0	209	08.3	-00.4	S 03 51.2	-01.2	310	22.1	-33.1	S 27 10.8	+05.1	01
02	208	58.2	+00.2	N 04 17.6	+00.9	224	07.9	-00.4	S 03 50.0	-01.2	324	49.0	-33.1	S 27 15.9	+04.8	02
03	223	58.4	+00.2	N 04 18.5	+01.0	239	07.5	-00.4	S 03 48.8	-01.2	339	15.9	-33.2	S 27 20.7	+04.7	03
04	238	58.6	+00.2	N 04 19.5	+01.0	254	07.1	-00.4	S 03 47.6	-01.2	353	42.7	-33.3	S 27 25.4	+04.6	04
05	253	58.8	+00.2	N 04 20.5	+00.9	269	06.7	-00.3	S 03 46.4	-01.2	8	09.4	-33.3	S 27 30.0	+04.4	05
06	268	59.0	+00.2	N 04 21.4	+01.0	284	06.4	-00.4	S 03 45.2	-01.2	22	36.1	-33.5	S 27 34.4	+04.3	06
07	283	59.2	+00.1	N 04 22.4	+01.0	299	06.0	-00.4	S 03 44.0	-01.2	37	02.6	-33.5	S 27 38.7	+04.2	07
08	298	59.3	+00.2	N 04 23.4	+00.9	314	05.6	-00.4	S 03 42.8	-01.2	51	29.1	-33.6	S 27 42.9	+03.9	08
09	313	59.5	+00.2	N 04 24.3	+01.0	329	05.2	-00.4	S 03 41.6	-01.2	65	55.5	-33.7	S 27 46.8	+03.8	09
10	328	59.7	+00.2	N 04 25.3	+01.0	344	04.8	-00.4	S 03 40.4	-01.2	80	21.8	-33.8	S 27 50.6	+03.7	10
11	343	59.9	+00.2	N 04 26.3	+00.9	359	04.4	-00.4	S 03 39.2	-01.2	94	48.0	-33.8	S 27 54.3	+03.5	11
12	359	00.1	+00.2	N 04 27.2	+01.0	14	04.0	-00.4	S 03 38.0	-01.2	109	14.2	-33.9	S 27 57.8	+03.4	12
13	14	00.3	+00.2	N 04 28.2	+01.0	29	03.6	-00.3	S 03 36.8	-01.2	123	40.3	-34.0	S 28 01.2	+03.2	13
14	29	00.5	+00.1	N 04 29.2	+00.9	44	03.3	-00.4	S							

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 347° 347° 347° 347° 347° 347°
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 019° 019° 019° 019° 019° 019°
Greenwich Culmination Time: 09:54

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 346° 346° 346° 346° 346° 346°
Greenwich Culmination Time: 12:02

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 019° 018° 018° 018° 018° 018°
Greenwich Culmination Time: 09:53

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 342° 342° 341° 341° 341° 341°
Greenwich Culmination Time: 12:01

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 015° 015° 015° 015° 014° 014°
Greenwich Culmination Time: 09:48

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 345° 345° 344° 344° 344° 344°
Greenwich Culmination Time: 12:02

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 017° 017° 017° 017° 017° 016°
Greenwich Culmination Time: 09:51

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 344° 343° 343° 343° 343° 343°
Greenwich Culmination Time: 12:01

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 016° 016° 016° 016° 016° 016°
Greenwich Culmination Time: 09:50

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 343° 343° 342° 342° 342° 342°
Greenwich Culmination Time: 12:01

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 016° 016° 015° 015° 015° 015°
Greenwich Culmination Time: 09:49

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	52.1	+00.2	N 09 08.9	+00.9	192	11.9	-00.4	N 02 28.1	+01.2	122	47.3	-35.3	N 27 50.2	+03.8	00
01	194	52.3	+00.1	N 09 09.8	+00.9	207	11.5	-00.4	N 02 29.3	+01.2	137	12.0	-35.2	N 27 54.0	+03.7	01
02	209	52.4	+00.2	N 09 10.7	+00.9	222	11.1	-00.3	N 02 30.5	+01.2	151	36.8	-35.3	N 27 57.7	+03.4	02
03	224	52.6	+00.2	N 09 11.6	+00.9	237	10.8	-00.4	N 02 31.7	+01.3	166	01.5	-35.3	N 28 01.1	+03.3	03
04	239	52.8	+00.1	N 09 12.5	+00.9	252	10.4	-00.4	N 02 33.0	+01.2	180	26.2	-35.2	N 28 04.4	+03.2	04
05	254	52.9	+00.2	N 09 13.4	+00.9	267	10.0	-00.3	N 02 34.2	+01.2	194	51.0	-35.2	N 28 07.6	+02.9	05
06	269	53.1	+00.1	N 09 14.3	+00.9	282	09.7	-00.4	N 02 35.4	+01.2	209	15.8	-35.2	N 28 10.5	+02.8	06
07	284	53.2	+00.2	N 09 15.2	+00.9	297	09.3	-00.4	N 02 36.6	+01.3	223	40.6	-35.2	N 28 13.3	+02.6	07
08	299	53.4	+00.1	N 09 16.1	+00.9	312	08.9	-00.4	N 02 37.9	+01.2	238	05.4	-35.1	N 28 15.9	+02.4	08
09	314	53.5	+00.2	N 09 17.0	+00.9	327	08.5	-00.3	N 02 39.1	+01.2	252	30.3	-35.1	N 28 18.3	+02.2	09
10	329	53.7	+00.2	N 09 17.9	+00.9	342	08.2	-00.4	N 02 40.3	+01.2	266	55.2	-35.1	N 28 20.5	+02.1	10
11	344	53.9	+00.1	N 09 18.8	+00.9	357	07.8	-00.4	N 02 41.5	+01.2	281	20.1	-35.1	N 28 22.6	+01.9	11
12	359	54.0	+00.2	N 09 19.7	+00.9	12	07.4	-00.3	N 02 42.7	+01.3	295	45.0	-35.0	N 28 24.5	+01.7	12
13	14	54.2	+00.1	N 09 20.6	+00.9	27	07.1	-00.4	N 02 44.0	+01.2	310	10.0	-35.0	N 28 26.2	+01.5	13
14	29	54.3	+00.2	N 09 21.5	+00.9	42	06.7	-00.4	N 02 45.2	+01.2	324	35.0	-35.0	N 28 27.7	+01.4	14
15	44	54.5	+00.1	N 09 22.4	+00.9	57	06.3	-00.4	N 02 46.4	+01.2	339	00.0	-34.9	N 28 29.1	+01.2	15
16	59	54.6	+00.2	N 09 23.3	+00.9	72	05.9	-00.3	N 02 47.6	+01.3	353	25.1	-34.9	N 28 30.3	+01.0	16
17	74	54.8	+00.1	N 09 24.2	+00.9	87	05.6	-00.4	N 02 48.9	+01.2	7	50.2	-34.9	N 28 31.3	+00.9	17
18	89	54.9	+00.2	N 09 25.1	+00.9	102	05.2	-00.4	N 02 50.1	+01.2	22	15.3	-34.8	N 28 32.2	+00.6	18
19	104	55.1	+00.1	N 09 26.0	+00.9	117	04.8	-00.4	N 02 51.3	+01.2	36	40.5	-34.7	N 28 32.8	+00.6	19
20	119	55.2	+00.2	N 09 26.9	+00.9	132	04.4	-00.3	N 02 52.5	+01.2	51	05.8	-34.7	N 28 33.4	+00.3	20
21	134	55.4	+00.2	N 09 27.8	+00.9	147	04.1	-00.4	N 02 53.7	+01.3	65	31.1	-34.7	N 28 33.7	+00.2	21
22	149	55.6	+00.1	N 09 28.7	+00.9	162	03.7	-00.4	N 02 55.0	+01.2	79	56.4	-34.6	N 28 33.9	+00.0	22
23	164	55.7	+00.2	N 09 29.6	+00.9	177	03.3	-00.3	N 02 56.2	+01.2	94	21.8	-34.6	N 28 33.9	-00.2	23

UT 02 06 10 14 18 22	SD 16°0 15'9 15°9 15'9 15°9 15'9	UT 02 06 10 14 18 22	SD 00°1 00'1 00'1 00'1 00'1 00'1	UT 02 06 10 14 18 22	SD 15°7 15'7 15°6 15'6 15°6 15'6
HP 00°1 00'1 00'1 00'1 00'1 00'1	HP 00°1 00'1 00'1 00'1 00'1 00'1	HP 00°1 00'1 00'1 00'1 00'1 00'1	HP 00°1 00'1 00'1 00'1 00'1 00'1	HP 00°1 00'1 00'1 00'1 00'1 00'1	HP 57°6 57'5 57°3 57'2 57°0 56'9
SHA 338° 338° 338° 338° 338° 337°	SHA 350° 350° 350° 350° 350° 349°	SHA 350° 350° 350° 350° 350° 349°	SHA 350° 350° 350° 350° 350° 349°	SHA 280° 277° 275° 272° 270° 267°	SHA 341° 341° 341° 340° 340° 340°
Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 11:11	Greenwich Culmination Time: 16:27		Greenwich Culmination Time: 12:01	Greenwich Culmination Time: 11:09

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	213	45.0	+00.7	S 06 32.7	-00.8	153	54.3	+01.9	N 16 58.5	+00.1	214	54.8	+02.2	S 07 30.5	-00.1	00
01	228	45.7	+00.7	S 06 31.9	-00.7	168	56.2	+01.9	N 16 58.6	+00.2	229	57.0	+02.2	S 07 30.4	-00.1	01
02	243	46.4	+00.6	S 06 31.2	-00.8	183	58.1	+01.9	N 16 58.8	+00.2	244	59.2	+02.3	S 07 30.3	-00.1	02
03	258	47.0	+00.7	S 06 30.4	-00.8	199	00.0	+01.9	N 16 59.0	+00.1	260	01.5	+02.2	S 07 30.2	+00.0	03
04	273	47.7	+00.7	S 06 29.6	-00.7	214	01.9	+01.9	N 16 59.1	+00.2	275	03.7	+02.2	S 07 30.2	-00.1	04
05	288	48.4	+00.6	S 06 28.9	-00.8	229	03.8	+01.9	N 16 59.3	+00.1	290	05.9	+02.2	S 07 30.1	-00.1	05
06	303	49.0	+00.7	S 06 28.1	-00.8	244	05.7	+01.9	N 16 59.4	+00.2	305	08.1	+02.2	S 07 30.0	-00.1	06
07	318	49.7	+00.7	S 06 27.4	-00.8	259	07.6	+01.9	N 16 59.6	+00.1	320	10.3	+02.3	S 07 29.9	-00.1	07
08	333	50.4	+00.6	S 06 26.6	-00.7	274	09.5	+01.9	N 16 59.7	+00.2	335	12.6	+02.2	S 07 29.8	-00.1	08
09	348	51.0	+00.7	S 06 25.9	-00.8	289	11.4	+01.9	N 16 59.9	+00.1	350	14.8	+02.2	S 07 29.7	-00.1	09
10	3	51.7	+00.6	S 06 25.1	-00.7	304	13.3	+01.9	N 17 00.0	+00.2	5	17.0	+02.2	S 07 29.6	-00.1	10
11	18	52.3	+00.7	S 06 24.4	-00.8	319	15.2	+01.9	N 17 00.2	+00.1	20	19.2	+02.2	S 07 29.5	-00.1	11
12	33	53.0	+00.7	S 06 23.6	-00.7	334	17.1	+01.9	N 17 00.3	+00.2	35	21.4	+02.3	S 07 29.4	-00.1	12
13	48	53.7	+00.6	S 06 22.9	-00.8	349	19.0	+01.9	N 17 00.5	+00.2	50	23.7	+02.2	S 07 29.3	-00.1	13
14	63	54.3	+00.7	S 06 22.1	-00.7	4	20.9	+01.9	N 17 00.7	+00.1	65	25.9	+02.2	S 07 29.2	-00.1	14
15	78	55.0	+00.7	S 06 21.4	-00.8	19	22.8	+01.9	N 17 00.8	+00.2	80	28.1	+02.2	S 07 29.1	-00.1	15
16	93	55.7	+00.6	S 06 20.6	-00.7	34	24.7	+01.9	N 17 01.0	+00.1	95	30.3	+02.2	S 07 29.0	-00.1	16
17	108	56.3	+00.7	S 06 19.9	-00.8	49	26.6	+01.9	N 17 01.1	+00.2	110	32.5	+02.3	S 07 28.9	-00.1	17
18	123	57.0	+00.7	S 06 19.1	-00.7	64	28.5	+01.9	N 17 01.3	+00.1	125	34.8	+02.2	S 07 28.8	-00.1	18
19	138	57.7	+00.6	S 06 18.4	-00.8	79	30.4	+01.9	N 17 01.4	+00.2	140	37.0	+02.2	S 07 28.7	-00.1	19
20	153	58.3	+00.7	S 06 17.6	-00.7	94	32.3	+01.9	N 17 01.6	+00.1	155	39.2	+02.2	S 07 28.6	-00.1	20
21	168	59.0	+00.7	S 06 16.9	-00.8	109	34.2	+01.9	N 17 01.7	+00.2	170	41.4	+02.2	S 07 28.5	-00.1	21
22	183	59.7	+00.6	S 06 16.1	-00.7	124	36.1	+01.9	N 17 01.9	+00.2	185	43.6	+02.3	S 07 28.4	+00.0	22
23	199	00.3	+00.7	S 06 15.4	-00.8	139	38.0	+01.9	N 17 02.1	+00.1	200	45.9	+02.2	S 07 28.4	-00.1	23

UT 02 06 10 14 18 22	SD 00°0 00'0 00°0 00'0 00°0 00'0	UT 02 06 10 14 18 22	SD 00°3 00'3 00°3 00'3 00°3 00'3	UT 02 06 10 14 18 22	SD 00°1 00'1 00°1 00'1 00°1 00'1
HP 00°1 00'1 00'1 00'1 00'1 00'1	HP 00°0 00'0 00°0 00'0 00°0 00'0	HP 00°0 00'0 00°0 00'0 00°0 00'0	HP 00°0 00'0 00°0 00'0 00°0 00'0	HP 00°0 00'0 00°0 00'0 00°0 00'0	HP 00°0 00'0 00°0 00'0 00°0 00'0
SHA 012° 012° 012° 012° 011°	SHA 312° 312° 312° 312° 312°	SHA 312° 312° 312° 312° 312°	SHA 312° 312° 312° 312° 312°	SHA 013° 013° 013° 013° 013°	SHA 014° 014° 014° 014° 014°
Greenwich Culmination Time: 09:44	Greenwich Culmination Time: 13:42	Greenwich Culmination Time: 09:38		Greenwich Culmination Time: 09:47	Greenwich Culmination Time: 13:51

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	40.5	+00.2	N 08 03.0	+01.0	192	38.5	-00.3	N 00 59.9	+01.2	163	59.0	-32.6	N 15 59.4	+15.0	00
01	194	40.7	+00.1	N 08 04.0	+00.9	207	38.2	-00.4	N 01 01.1	+01.3	178	26.4	-32.7	N 16 14.4	+14.8	01
02	209	40.8	+00.2	N 08 04.9	+00.9	222	37.8	-00.4	N 01 02.4	+01.2	192	53.7	-32.7	N 16 29.2	+14.7	02
03	224	41.0	+00.2	N 08 05.8	+00.9	237	37.4	-00.3	N 01 03.6	+01.2	207	21.0	-32.8	N 16 43.9	+14.6	03
04	239	41.2	+00.1	N 08 06.7	+00.9	252	37.1	-00.4	N 01 04.8	+01.2	221	48.2	-32.8	N 16 58.5	+14.5	04
05	254	41.3	+00.2	N 08 07.6	+01.0	267	36.7	-00.4	N 01 06.0	+01.3	236	15.4	-32.9	N 17 13.0	+14.4	05
06	269	41.5	+00.2	N 08 08.6	+00.9	282	36.3	-00.3	N 01 07.3	+01.2	250	42.5	-32.9	N 17 27.4	+14.2	06
07	284	41.7	+00.1	N 08 09.5	+00.9	297	36.0	-00.4	N 01 08.5	+01.2	265	09.6	-33.0	N 17 41.6	+14.2	07
08	299	41.8	+00.2	N 08 10.4	+00.9	312	35.6	-00.4	N 01 09.7	+01.2	279	36.6	-33.1	N 17 55.8	+14.0	08
09	314	42.0	+00.2	N 08 11.3	+01.0	327	35.2	-00.4	N 01 10.9	+01.3	294	03.5	-33.1	N 18 09.8	+13.9	09
10	329	42.2	+00.1	N 08 12.3	+00.9	342	34.8	-00.3	N 01 12.2	+01.2	308	30.4	-33.2	N 18 23.7	+13.7	10
11	344	42.3	+00.2	N 08 13.2	+00.9	357	34.5	-00.4	N 01 13.4	+01.2	322	57.2	-33.2	N 18 37.4	+13.6	11
12	359	42.5	+00.2	N 08 14.1	+00.9	12	34.1	-00.4	N 01 14.6	+01.2	337	24.0	-33.3	N 18 51.0	+13.5	12
13	14	42.7	+00.1	N 08 15.0	+00.9	27	33.7	-00.3	N 01 15.8	+01.3	351	50.7	-33.3	N 19 04.5	+13.4	13
14	29	42.8	+00.2	N 08												

UT	Sun				Venus				Moon				UT				
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec					
00	179	44.5	+00.1	N 08 25.1	+00.9	192	29.7	-00.4	N 01 29.3	+01.2	150	40.9	-34.0	N 21 24.2	+11.8	00	
01	194	44.6	+00.2	N 08 26.0	+01.0	207	29.3	-00.4	N 01 30.5	+01.3	165	06.9	-34.0	N 21 36.0	+11.7	01	
02	209	44.8	+00.1	N 08 27.0	+00.9	222	28.9	-00.3	N 01 31.8	+01.2	179	32.9	-34.1	N 21 47.7	+11.6	02	
03	224	44.9	+00.2	N 08 27.9	+00.9	237	28.6	-00.4	N 01 33.0	+01.2	193	58.8	-34.1	N 21 59.3	+11.4	03	
04	239	45.1	+00.2	N 08 28.8	+00.9	252	28.2	-00.4	N 01 34.2	+01.2	208	24.7	-34.1	N 22 10.7	+11.2	04	
05	254	45.3	+00.1	N 08 29.7	+00.9	267	27.8	-00.4	N 01 35.4	+01.3	222	50.6	-34.3	N 22 21.9	+11.1	05	
06	269	45.4	+00.2	N 08 30.6	+00.9	282	27.4	-00.3	N 01 36.7	+01.2	237	16.3	-34.2	N 22 33.0	+11.0	06	
07	284	45.6	+00.2	N 08 31.5	+01.0	297	27.1	-00.4	N 01 37.9	+01.2	251	42.1	-34.3	N 22 44.0	+10.8	07	
08	299	45.8	+00.1	N 08 32.5	+00.9	312	26.7	-00.4	N 01 39.1	+01.2	266	07.8	-34.4	N 22 54.8	+10.6	08	
09	314	45.9	+00.2	N 08 33.4	+00.9	327	26.3	-00.3	N 01 40.3	+01.3	280	33.4	-34.4	N 23 05.4	+10.5	09	
10	329	46.1	+00.1	N 08 34.3	+00.9	342	26.0	-00.4	N 01 41.6	+01.2	294	59.0	-34.5	N 23 15.9	+10.3	10	
11	344	46.2	+00.2	N 08 35.2	+00.9	357	25.6	-00.4	N 01 42.8	+01.2	309	24.5	-34.5	N 23 26.2	+10.2	11	
12	359	46.4	+00.2	N 08 36.1	+00.9	12	25.2	-00.3	N 01 44.0	+01.2	323	50.0	-34.5	N 23 36.4	+10.0	12	
13	14	46.6	+00.1	N 08 37.0	+00.9	27	24.9	-00.4	N 01 45.2	+01.3	338	15.5	-34.6	N 23 46.4	+09.8	13	
14	29	46.7	+00.2	N 08 37.9	+01.0	42	24.5	-00.4	N 01 46.5	+01.2	352	40.9	-34.7	N 23 56.2	+09.7	14	
15	44	46.9	+00.1	N 08 38.9	+00.9	57	24.1	-00.3	N 01 47.7	+01.2	7	06.2	-34.6	N 24 05.9	+09.5	15	
16	59	47.0	+00.2	N 08 39.8	+00.9	72	23.8	-00.4	N 01 48.9	+01.2	21	31.6	-34.8	N 24 15.4	+09.4	16	
17	74	47.2	+00.2	N 08 40.7	+00.9	87	23.4	-00.4	N 01 50.1	+01.3	35	56.8	-34.7	N 24 24.8	+09.2	17	
18	89	47.4	+00.1	N 08 41.6	+00.9	102	23.0	-00.4	N 01 51.4	+01.2	50	22.1	-34.8	N 24 34.0	+09.0	18	
19	104	47.5	+00.2	N 08 42.5	+00.9	117	22.6	-00.3	N 01 52.6	+01.2	64	47.3	-34.9	N 24 43.0	+08.9	19	
20	119	47.7	+00.2	N 08 43.4	+00.9	132	22.3	-00.4	N 01 53.8	+01.2	79	12.4	-34.9	N 24 51.9	+08.7	20	
21	134	47.9	+00.1	N 08 44.3	+00.9	147	21.9	-00.4	N 01 55.0	+01.3	93	37.5	-34.9	N 25 00.6	+08.5	21	
22	149	48.0	+00.2	N 08 45.2	+01.0	162	21.5	-00.3	N 01 56.3	+01.2	108	02.6	-34.9	N 25 09.1	+08.4	22	
23	164	48.2	+00.1	N 08 46.2	+00.9	177	21.2	-00.4	N 01 57.5	+01.2	122	27.7	-35.0	N 25 17.5	+08.2	23	
UT	02	06	10	14	18	22											
SD	16°0	16°0	16°0	16°0	16°0	16°0	SD	00°1	00°1	00°1	00°1	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	59°5	59°3	59°2	59°0	58°9	58°7	58°7	58°7	58°7	58°7
SHA	340°	340°	340°	340°	339°	339°	SHA	353°	353°	352°	352°	352°	352°	352°	352°	352°	352°
Greenwich Culmination Time: 12:00																	

UT	Sun				Venus				Moon				UT				
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec					
00	179	48.3	+00.2	N 08 47.1	+00.9	192	20.8	-00.4	N 01 58.7	+01.2	136	52.7	-35.0	N 25 25.7	+08.0	00	
01	194	48.5	+00.2	N 08 48.0	+00.9	207	20.4	-00.4	N 01 59.9	+01.3	151	17.7	-35.0	N 25 33.7	+07.8	01	
02	209	48.7	+00.1	N 08 48.9	+00.9	222	20.0	-00.3	N 02 01.2	+01.2	165	42.7	-35.1	N 25 41.5	+07.7	02	
03	224	48.8	+00.2	N 08 49.8	+00.9	237	19.7	-00.4	N 02 02.4	+01.2	180	07.6	-35.1	N 25 49.2	+07.5	03	
04	239	49.0	+00.1	N 08 50.7	+00.9	252	19.3	-00.4	N 02 03.6	+01.2	194	32.5	-35.1	N 25 56.7	+07.4	04	
05	254	49.1	+00.2	N 08 51.6	+00.9	267	18.9	-00.3	N 02 04.8	+01.3	208	57.4	-35.2	N 26 04.1	+07.1	05	
06	269	49.3	+00.1	N 08 52.5	+00.9	282	18.6	-00.4	N 02 06.1	+01.2	223	22.2	-35.1	N 26 11.2	+07.0	06	
07	284	49.4	+00.2	N 08 53.4	+01.0	297	18.2	-00.4	N 02 07.3	+01.2	237	47.1	-35.2	N 26 18.2	+06.8	07	
08	299	49.6	+00.2	N 08 54.4	+00.9	312	17.8	-00.3	N 02 08.5	+01.2	252	11.9	-35.2	N 26 25.0	+06.7	08	
09	314	49.8	+00.1	N 08 55.3	+00.9	327	17.5	-00.4	N 02 09.7	+01.3	266	36.7	-35.3	N 26 31.7	+06.4	09	
10	329	49.9	+00.2	N 08 56.2	+00.9	342	17.1	-00.4	N 02 11.0	+01.2	281	01.4	-35.2	N 26 38.1	+06.3	10	
11	344	50.1	+00.1	N 08 57.1	+00.9	357	16.7	-00.4	N 02 12.2	+01.2	295	26.2	-35.3	N 26 44.4	+06.1	11	
12	359	50.2	+00.2	N 08 58.0	+00.9	12	16.3	-00.3	N 02 13.4	+01.2	309	50.9	-35.2	N 26 50.5	+06.0	12	
13	14	50.4	+00.2	N 08 58.9	+00.9	27	16.0	-00.4	N 02 14.6	+01.2	324	15.7	-35.3	N 26 56.5	+05.8	13	
14	29	50.6	+00.1	N 08 59.8	+00.9	42	15.6	-00.4	N 02 15.8	+01.3	338	40.4	-35.3	N 27 02.3	+05.5	14	
15	44	50.7	+00.2	N 09 00.7	+00.9	57	15.2	-00.3	N 02 17.1	+01.2	353	05.1	-35.3	N 27 07.8	+05.5	15	
16	59	50.9	+00.1	N 09 01.6	+00.9	72	14.9	-00.4	N 02 18.3	+01.2	7	29.8	-35.3	N 27 13.3	+05.2	16	
17	74	51.0	+00.2	N 09 02.5	+00.9	87	14.5	-00.4	N 02 19.5	+01.2	21	54.5	-35.3	N 27 18.5	+05.1	17	
18	89	51.2	+00.1	N 09 03.4	+00.9	102	14.1	-00.4	N 02 20.7	+01.3	36	19.2	-35.3	N 27 23.6	+04.8	18	
19	104	51.3	+00.2	N 09 04.3	+01.0	117	13.7	-00.3	N 02 22.0	+01.2	50	43.9	-35.4	N 27 28.4	+04.7	19	
20	119	51.5	+00.2	N 09 05.3	+00.9	132	13.4	-00.4	N 02 23.2	+01.2	65	08.5	-35.3	N 27 33.1	+04.6	20	
21	134	51.7	+00.1	N 09 06.2	+00.9	147	13.0	-00.4	N 02 24.4	+01.2	79	33.2	-35.3	N 27 37.7	+04.3	21	
22	149	51.8	+00.2	N 09 07.1	+00.9	162	12.6	-00.3	N 02 25.6	+01.3	93	57.9	-35.3	N 27 42.0	+04.2	22	
23	164	52.0	+00.1	N 09 08.0	+00.9	177	12.3	-00.4	N 02 26.9	+01.2	108	22.6	-35.3	N 27 46.2	+04.0	23	
UT	02	06	10	14	18	22											
SD	16°0	16°0	16°0	16°0	16°0	16°0	SD	00°1	00°1	00°1	00°1	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	58°6	58°4	58°3	58°1	58°0	57°8	57°8	57°8	57°8	57°8
SHA	339°	339°	339°	339°	338°	338°	SHA	352°	351°	351°	351°	351°	351°	351°	351°	351°	351°
Greenwich Culmination Time: 12:00																	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	213	13.4	+00.6	S 07 08.6	-00.8	152	23.0	+01.9	N 16 51.0	+00.2	213	08.4	+02.2	S 07 35.1	-00.1	00
01	228	14.0	+00.7	S 07 07.8	-00.7	167	24.9	+01.9	N 16 51.2	+00.1	228	10.6	+02.2	S 07 35.0	+00.0	01
02	243	14.7	+00.6	S 07 07.1	-00.7	182	26.8	+01.9	N 16 51.3	+00.2	243	12.8	+02.2	S 07 35.0	-00.1	02
03	258	15.3	+00.7	S 07 06.4	-00.8	197	28.7	+01.9	N 16 51.5	+00.1	258	15.0	+02.2	S 07 34.9	-00.1	03
04	273	16.0	+00.7	S 07 05.6	-00.7	212	30.6	+01.9	N 16 51.6	+00.2	273	17.2	+02.3	S 07 34.8	-00.1	04
05	288	16.7	+00.6	S 07 04.9	-00.8	227	32.5	+01.9	N 16 51.8	+00.2	288	19.5	+02.2	S 07 34.7	-00.1	05
06	303	17.3	+00.7	S 07 04.1	-00.8	242	34.4	+01.9	N 16 52.0	+00.1	303	21.7	+02.2	S 07 34.6	-00.1	06
07	318	18.0	+00.6	S 07 03.4	-00.8	257	36.3	+01.9	N 16 52.1	+00.2	318	23.9	+02.2	S 07 34.5	-00.1	07
08	333	18.6	+00.7	S 07 02.6	-00.7	272	38.2	+01.9	N 16 52.3	+00.1	333	26.1	+02.2	S 07 34.4	-00.1	08
09	348	19.3	+00.7	S 07 01.9	-00.8	287	40.1	+01.9	N 16 52.4	+00.2	348	28.3	+02.2	S 07 34.3	-00.1	09
10	3	20.0	+00.6	S 07 01.1	-00.7	302	42.0	+01.9	N 16 52.6	+00.1	3	30.5	+02.2	S 07 34.2	-00.1	10
11	18	20.6	+00.7	S 07 00.4	-00.8	317	43.9	+02.0	N 16 52.7	+00.2	18	32.7	+02.3	S 07 34.1	-00.1	11
12	33	21.3	+00.6	S 06 59.6	-00.7	332	45.9	+01.9	N 16 52.9	+00.1	33	35.0	+02.2	S 07 34.0	-00.1	12
13	48	21.9	+00.7	S 06 58.9	-00.8	347	47.8	+01.9	N 16 53.0	+00.2	48	37.2	+02.2	S 07 33.9	-00.1	13
14	63	22.6	+00.6	S 06 58.1	-00.7	2	49.7	+01.9	N 16 53.2	+00.2	63	39.4	+02.2	S 07 33.8	-00.1	14

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	06.5	+00.2	N 10 34.5	+00.9	191	35.9	-00.4	N 04 25.0	+01.2	70	46.4	-28.3	N 22 03.9	-09.6	00
01	195	06.7	+00.1	N 10 35.4	+00.8	206	35.5	-00.4	N 04 26.2	+01.2	85	18.1	-28.3	N 21 54.3	-09.8	01
02	210	06.8	+00.2	N 10 36.2	+00.9	221	35.1	-00.4	N 04 27.4	+01.2	99	49.8	-28.1	N 21 44.5	-09.8	02
03	225	07.0	+00.1	N 10 37.1	+00.9	236	34.7	-00.3	N 04 28.6	+01.3	114	21.7	-28.1	N 21 34.7	-10.0	03
04	240	07.1	+00.1	N 10 38.0	+00.9	251	34.4	-00.4	N 04 29.9	+01.2	128	53.6	-27.9	N 21 24.7	-10.0	04
05	255	07.2	+00.2	N 10 38.9	+00.9	266	34.0	-00.4	N 04 31.1	+01.2	143	25.7	-27.9	N 21 14.7	-10.1	05
06	270	07.4	+00.1	N 10 39.8	+00.8	281	33.6	-00.4	N 04 32.3	+01.2	157	57.8	-27.8	N 21 04.6	-10.2	06
07	285	07.5	+00.2	N 10 40.6	+00.9	296	33.2	-00.4	N 04 33.5	+01.2	172	30.0	-27.7	N 20 54.4	-10.2	07
08	300	07.7	+00.1	N 10 41.5	+00.9	311	32.8	-00.4	N 04 34.7	+01.2	187	02.3	-27.6	N 20 44.2	-10.4	08
09	315	07.8	+00.2	N 10 42.4	+00.9	326	32.4	-00.3	N 04 35.9	+01.2	201	34.7	-27.6	N 20 33.8	-10.4	09
10	330	08.0	+00.1	N 10 43.3	+00.8	341	32.1	-00.4	N 04 37.1	+01.2	216	07.1	-27.4	N 20 23.4	-10.5	10
11	345	08.1	+00.1	N 10 44.1	+00.9	356	31.7	-00.4	N 04 38.3	+01.2	230	39.7	-27.4	N 20 12.9	-10.6	11
12	0	08.2	+00.2	N 10 45.0	+00.9	11	31.3	-00.4	N 04 39.5	+01.3	245	12.3	-27.3	N 20 02.3	-10.7	12
13	15	08.4	+00.1	N 10 45.9	+00.9	26	30.9	-00.4	N 04 40.8	+01.2	259	45.0	-27.2	N 19 51.6	-10.7	13
14	30	08.5	+00.2	N 10 46.8	+00.8	41	30.5	-00.3	N 04 42.0	+01.2	274	17.8	-27.1	N 19 40.9	-10.9	14
15	45	08.7	+00.1	N 10 47.6	+00.9	56	30.2	-00.2	N 04 43.2	+01.2	288	50.7	-27.1	N 19 30.0	-10.8	15
16	60	08.8	+00.1	N 10 48.5	+00.9	71	29.8	-00.4	N 04 44.4	+01.2	303	23.6	-26.9	N 19 19.2	-11.0	16
17	75	08.9	+00.2	N 10 49.4	+00.8	86	29.4	-00.4	N 04 45.6	+01.2	317	56.7	-26.9	N 19 08.2	-11.0	17
18	90	09.1	+00.1	N 10 50.2	+00.9	101	29.0	-00.4	N 04 46.8	+01.2	332	29.8	-26.8	N 18 57.2	-11.2	18
19	105	09.2	+00.2	N 10 51.1	+00.9	116	28.6	-00.4	N 04 48.0	+01.2	347	03.0	-26.7	N 18 46.0	-11.1	19
20	120	09.4	+00.1	N 10 52.0	+00.9	131	28.2	-00.3	N 04 49.2	+01.2	1	36.3	-26.7	N 18 34.9	-11.3	20
21	135	09.5	+00.1	N 10 52.9	+00.8	146	27.9	-00.4	N 04 50.4	+01.2	16	09.6	-26.5	N 18 23.6	-11.3	21
22	150	09.6	+00.2	N 10 53.7	+00.9	161	27.5	-00.4	N 04 51.6	+01.2	30	43.1	-26.5	N 18 12.3	-11.4	22
23	165	09.8	+00.1	N 10 54.6	+00.9	176	27.1	-00.4	N 04 52.8	+01.3	45	16.6	-26.5	N 18 00.9	-11.4	23

UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°9' 14°9' 14°9' 14°8' 14°8' 14°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°7' 54°6' 54°5' 54°5' 54°4' 54°4'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 334° 334° 334° 334° 334° 334°	SHA 346° 346° 346° 346° 345° 345° 345°	SHA 224° 222° 220° 218° 216° 214°	SHA 009° 009° 009° 009° 009° 009°	SHA 311° 311° 311° 311° 311° 311°	SHA 013° 013° 013° 013° 013° 013°
Greenwich Culmination Time: 11:59	Greenwich Culmination Time: 11:13	Greenwich Culmination Time: 19:53	Greenwich Culmination Time: 09:40	Greenwich Culmination Time: 13:30	Greenwich Culmination Time: 09:24

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	214	49.2	+00.6	S 05 20.2	-00.8	156	56.3	+01.9	N 17 13.3	+00.2	218	28.2	+02.2	S 07 21.6	-00.1	00
01	229	49.8	+00.7	S 05 19.4	-00.7	171	58.2	+01.9	N 17 13.5	+00.2	233	30.4	+02.3	S 07 21.5	-00.1	01
02	244	50.5	+00.7	S 05 18.7	-00.8	187	00.1	+01.9	N 17 13.7	+00.2	248	32.7	+02.2	S 07 21.4	-00.1	02
03	259	51.2	+00.6	S 05 17.9	-00.7	202	02.0	+01.9	N 17 13.8	+00.1	263	34.9	+02.2	S 07 21.3	-00.1	03
04	274	51.8	+00.7	S 05 17.2	-00.8	217	03.9	+01.9	N 17 14.0	+00.1	278	37.1	+02.2	S 07 21.2	-00.1	04
05	289	52.5	+00.7	S 05 16.4	-00.7	232	05.8	+01.9	N 17 14.1	+00.2	293	39.3	+02.3	S 07 21.1	-00.1	05
06	304	53.2	+00.7	S 05 15.7	-00.8	247	07.7	+01.9	N 17 14.3	+00.1	308	41.6	+02.2	S 07 21.0	-00.1	06
07	319	53.9	+00.6	S 05 14.9	-00.8	262	09.6	+01.9	N 17 14.4	+00.2	323	43.8	+02.2	S 07 20.9	-00.1	07
08	334	54.5	+00.7	S 05 14.1	-00.7	277	11.5	+01.9	N 17 14.6	+00.1	338	46.0	+02.2	S 07 20.8	-00.1	08
09	349	55.2	+00.7	S 05 13.4	-00.8	292	13.4	+01.8	N 17 14.7	+00.2	353	48.2	+02.3	S 07 20.7	-00.1	09
10	4	55.9	+00.7	S 05 12.6	-00.7	307	15.2	+01.9	N 17 14.9	+00.1	8	50.5	+02.2	S 07 20.6	-00.1	10
11	19	56.6	+00.6	S 05 11.9	-00.8	322	17.1	+01.9	N 17 15.0	+00.2	23	52.7	+02.2	S 07 20.5	+00.0	11
12	34	57.2	+00.7	S 05 11.1	-00.8	337	19.0	+01.9	N 17 15.2	+00.1	38	54.9	+02.3	S 07 20.5	-00.1	12
13	49	57.9	+00.7	S 05 10.3	-00.7	352	20.9	+01.9	N 17 15.3	+00.2	53	57.2	+02.2	S 07 20.4	-00.1	13
14	64	58.6	+00.7	S 05 09.6	-00.8	7	22.8	+01.9	N 17 15.5	+00.2	68	59.4	+02.2	S 07 20.3	-00.1	14
15	79	59.3	+00.6	S 05 08.8	-00.7	22	24.7	+01.9	N 17 15.7	+00.1	84	01.6	+02.2	S 07 20.2	-00.1	15
16	94	59.9	+00.7	S 05 08.1	-00.8	37	26.6	+01.9	N 17 15.8	+00.2	99	03.8	+02.3	S 07 20.1	-00.1	16
17	110	00.6	+00.7	S 05 07.3	-00.8	52	28.5	+01.9	N 17 16.0	+00.1	114	06.1	+02.2	S 07 20.0	-00.1	17
18	125	01.3	+00.7	S 05 06.5	-00.7	67	30.4	+01.9	N 17 16.1	+00.2	129	08.3	+02.2	S 07 19.9	-00.1	18
19	140	02.0	+00.6	S 05 05.8	-00.8	82	32.3	+01.9	N 17 16.3	+00.1	144	10.5	+02.3	S 07 19.8	-00.1	19
20	155	02.6	+00.7	S 05 05.0	-00.7	97	34.2	+01.8	N 17 16.4	+00.2	159	12.8	+02.2	S 07 19.7	-00.1	20
21	170	03.3	+00.7	S 05 04.3	-00.8	112	36.0	+01.9	N 17 16.6	+00.1	174	15.0	+02.2	S 07 19.6	-00.1	21
22	185	04.0	+00.6	S 05 03.5	-00.8	127	37.9	+01.9	N 17 16.7	+00.2	189	17.2	+02.2	S 07 19.5	-00.1	22
23	200	04.6	+00.7	S 05 02.7	-00.7	142	39.8	+01.9	N 17 16.9	+00.1	204	19.4	+02.3	S 07 19.4	+00.0	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 009° 009° 009° 009° 009° 009°	SHA 311° 311° 311° 311° 311° 311°	SHA 013° 013° 013° 013° 013° 013°	SHA 009° 009° 009° 009° 009° 009°	SHA 011° 011° 011° 011° 011° 011°	SHA 013° 013° 013° 013° 013° 013°
Greenwich Culmination Time: 09:40	Greenwich Culmination Time: 13:30	Greenwich Culmination Time: 09:24	Greenwich Culmination Time: 09:40	Greenwich Culmination Time: 13:39	Greenwich Culmination Time: 09:35

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	55.9	+00.1	N 09 30.5	+00.9	192	03.0	-00.4	N 02 57.4	+01.2	108	47.2	-34.5	N 28 33.7	-00.3	00
01	194	56.0	+00.2	N 09 31.4	+00.9	207	02.6	-00.4	N 02 58.6	+01.2	123	12.7	-34.5	N 28 33.4	-00.5	01
02	209	56.2	+00.1	N 09 32.3	+00.9	222	02.2	-00.4	N 02 59.8	+01.3	137	38.2	-34.4	N 28 32.9	-00.7	02
03	224	56.3	+00.2	N 09 33.2	+00.9	237	01.8	-00.3	N 03 01.1	+01.2	152	03.8	-34.3	N 28 32.2	-00.8	03
04	239	56.5	+00.1	N 09 34.1	+00.9	252	01.5	-00.4	N 03 02.3	+01.2	166	29.5	-34.3	N 28 31.4	-01.0	04
05	254	56.6	+00.2	N 09 35.0	+00.9	267	01.1	-00.4	N 03 03.5	+01.2	180	55.2	-34.2	N 28 30.4	-01.1	05
06	269	56.8	+00.1	N 09 35.9	+00.9	282	00.7	-00.4	N 03 04.7	+01.2	195	21.0	-34.2	N 28 29.3	-01.4	06
07	284	56.9	+00.2	N 09 36.8	+00.9	297	00.3	-00.3	N 03 05.9	+01.3	209	46.8	-34.1	N 28 27.9	-01.4	07
08	299	57.1	+00.1	N 09 37.7	+00.9	311	60.0	-00.4	N 03 07.2	+01.2	224	12.7	-34.0	N 28 26.5	-01.7	08
09	314	57.2	+00.2	N 09 38.6	+00.9	326	59.6	-00.4	N 03 08.4	+01.2	238	38.7	-34.0	N 28 24.8	-01.8	09
10	329	57.4	+00.1	N 09 39.5	+00.9	341	59.2	-00.4	N 03 09.6	+01.2	253	04.7	-33.9	N 28 23.0	-01.9	10
11	344	57.5	+00.2	N 09 40.4	+00.9	356	58.8	-00.3	N 03 10.8	+01.2	267	30.8	-33.8	N 28 21.1	-02.1	11
12	359	57.7	+00.1	N 09 41.3	+00.9	11	58.5	-00.4	N 03 12.0	+01.3	281	57.0	-33.8	N 28 19.0	-02.3	12
13	14	57.8	+00.2	N 09 42.2	+00											

UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	179	59.5	+00.2	N 09 52.0	+00.9	191	54.0	-00.4	N 03 26.7	+01.2	95	16.9	-32.8	N 27 41.6	-04.0	00							
01	194	59.7	+00.1	N 09 52.9	+00.9	206	53.6	-00.4	N 03 27.9	+01.2	109	44.1	-32.8	N 27 37.6	-04.2	01							
02	209	59.8	+00.2	N 09 53.8	+00.9	221	53.2	-00.3	N 03 29.1	+01.2	124	11.3	-32.6	N 27 33.4	-04.4	02							
03	224	60.0	+00.1	N 09 54.7	+00.9	236	52.9	-00.4	N 03 30.3	+01.2	138	38.7	-32.6	N 27 29.0	-04.5	03							
04	240	00.1	+00.2	N 09 55.6	+00.9	251	52.5	-00.4	N 03 31.5	+01.3	153	06.1	-32.4	N 27 24.5	-04.7	04							
05	255	00.3	+00.1	N 09 56.5	+00.9	266	52.1	-00.4	N 03 32.8	+01.2	167	33.7	-32.4	N 27 19.8	-04.7	05							
06	270	00.4	+00.2	N 09 57.4	+00.9	281	51.7	-00.3	N 03 34.0	+01.2	182	01.3	-32.3	N 27 15.1	-05.0	06							
07	285	00.6	+00.1	N 09 58.3	+00.8	296	51.4	-00.4	N 03 35.2	+01.2	196	29.0	-32.2	N 27 10.1	-05.0	07							
08	300	00.7	+00.1	N 09 59.1	+00.9	311	51.0	-00.4	N 03 36.4	+01.2	210	56.8	-32.1	N 27 05.1	-05.2	08							
09	315	00.8	+00.2	N 10 00.0	+00.9	326	50.6	-00.4	N 03 37.6	+01.2	225	24.7	-32.0	N 26 59.9	-05.3	09							
10	330	01.0	+00.1	N 10 00.9	+00.9	341	50.2	-00.3	N 03 38.8	+01.3	239	52.7	-32.0	N 26 54.6	-05.5	10							
11	345	01.1	+00.2	N 10 01.8	+00.9	356	49.9	-00.4	N 03 40.1	+01.2	254	20.7	-31.8	N 26 49.1	-05.6	11							
12	0	01.3	+00.1	N 10 02.7	+00.9	11	49.5	-00.4	N 03 41.3	+01.2	268	48.9	-31.7	N 26 43.5	-05.7	12							
13	15	01.4	+00.2	N 10 03.6	+00.9	26	49.1	-00.4	N 03 42.5	+01.2	283	17.2	-31.7	N 26 37.8	-05.9	13							
14	30	01.6	+00.1	N 10 04.5	+00.9	41	48.7	-00.4	N 03 43.7	+01.2	297	45.5	-31.5	N 26 31.9	-06.0	14							
15	45	01.7	+00.2	N 10 05.4	+00.9	56	48.3	-00.3	N 03 44.9	+01.2	312	14.0	-31.5	N 26 25.9	-06.1	15							
16	60	01.9	+00.1	N 10 06.3	+00.8	71	48.0	-00.4	N 03 46.1	+01.3	326	42.5	-31.4	N 26 19.8	-06.2	16							
17	75	02.0	+00.2	N 10 07.1	+00.9	86	47.6	-00.4	N 03 47.4	+01.2	341	11.1	-31.2	N 26 13.6	-06.4	17							
18	90	02.2	+00.1	N 10 08.0	+00.9	101	47.2	-00.4	N 03 48.6	+01.2	355	39.9	-31.2	N 26 07.2	-06.4	18							
19	105	02.3	+00.2	N 10 08.9	+00.9	116	46.8	-00.3	N 03 49.8	+01.2	10	08.7	-31.1	N 26 00.8	-06.7	19							
20	120	02.5	+00.1	N 10 09.8	+00.9	131	46.5	-00.4	N 03 51.0	+01.2	24	37.6	-31.0	N 25 54.1	-06.7	20							
21	135	02.6	+00.2	N 10 10.7	+00.9	146	46.1	-00.4	N 03 52.2	+01.2	39	06.6	-30.8	N 25 47.4	-06.8	21							
22	150	02.8	+00.1	N 10 11.6	+00.9	161	45.7	-00.4	N 03 53.4	+01.3	53	35.8	-30.8	N 25 40.6	-07.0	22							
23	165	02.9	+00.2	N 10 12.5	+00.8	176	45.3	-00.3	N 03 54.7	+01.2	68	05.0	-30.7	N 25 33.6	-07.1	23							
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22			
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°2'	15°2'	15°2'	15°1'	15°1'	15°1'			
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	55°9'	55°8'	55°7'	55°5'	55°4'	55°3'			
SHA	336°	336°	336°	336°	336°	335°	SHA	348°	348°	348°	348°	347°	347°	SHA	250°	248°	246°	244°	241°	239°			
Greenwich Culmination Time: 11:59				Greenwich Culmination Time: 11:12				Greenwich Culmination Time: 18:17				Greenwich Culmination Time: 11:59				Greenwich Culmination Time: 11:13				Greenwich Culmination Time: 19:07			

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	03.1	+00.1	N 10 13.3	+00.9	191	45.0	-00.4	N 03 55.9	+01.2	82	34.3	-30.6	N 25 26.5	-07.2	00				
01	195	03.2	+00.2	N 10 14.2	+00.9	206	44.6	-00.4	N 03 57.1	+01.2	97	03.7	-30.5	N 25 19.3	-07.3	01				
02	210	03.4	+00.1	N 10 15.1	+00.9	221	44.2	-00.4	N 03 58.3	+01.2	111	33.2	-30.4	N 25 12.0	-07.5	02				
03	225	03.5	+00.1	N 10 16.0	+00.9	236	43.8	-00.4	N 03 59.5	+01.2	126	02.8	-30.3	N 25 04.5	-07.5	03				
04	240	03.6	+00.2	N 10 16.9	+00.9	251	43.4	-00.3	N 04 00.7	+01.3	140	32.5	-30.2	N 24 57.0	-07.7	04				
05	255	03.8	+00.1	N 10 17.8	+00.8	266	43.1	-00.4	N 04 02.0	+01.2	155	02.3	-30.2	N 24 49.3	-07.7	05				
06	270	03.9	+00.2	N 10 18.6	+00.8	281	42.7	-00.4	N 04 03.2	+01.2	169	32.1	-30.0	N 24 41.6	-07.9	06				
07	285	04.1	+00.1	N 10 19.5	+00.9	296	42.3	-00.4	N 04 04.4	+01.2	184	02.1	-29.9	N 24 33.7	-08.0	07				
08	300	04.2	+00.2	N 10 20.4	+00.9	311	41.9	-00.3	N 04 05.6	+01.2	198	32.2	-29.8	N 24 25.7	-08.1	08				
09	315	04.4	+00.1	N 10 21.3	+00.9	326	41.6	-00.4	N 04 06.8	+01.2	213	02.4	-29.7	N 24 17.6	-08.2	09				
10	330	04.5	+00.2	N 10 22.2	+00.9	341	41.2	-00.4	N 04 08.0	+01.2	227	32.7	-29.7	N 24 09.4	-08.3	10				
11	345	04.7	+00.1	N 10 23.1	+00.8	356	40.8	-00.4	N 04 09.2	+01.3	242	03.0	-29.5	N 24 01.1	-08.5	11				
12	0	04.8	+00.2	N 10 23.9	+00.9	11	40.4	-00.4	N 04 10.5	+01.2	256	33.5	-29.5	N 23 52.6	-08.5	12				
13	15	05.0	+00.1	N 10 24.8	+00.9	26	40.0	-00.3	N 04 11.7	+01.2	271	04.0	-29.3	N 23 44.1	-08.6	13				
14	30	05.1	+00.1	N 10 25.7	+00.9	41	39.7	-00.4	N 04 12.9	+01.2	285	34.7	-29.3	N 23 35.5	-08.7	14				
15	45	05.2	+00.2	N 10 26.6	+00.9	56	39.3	-00.4	N 04 14.1	+01.2	300	05.4	-29.1	N 23 26.8	-08.8	15				
16	60	05.4	+00.1	N 10 27.5	+00.8	71	38.9	-00.4	N 04 15.3	+01.2	314	36.3	-29.1	N 23 18.0	-09.0	16				
17	75	05.5	+00.2	N 10 28.3	+00.9	86	38.5	-00.3	N 04 16.5	+01.2	329	07.2	-28.9	N 23 09.0	-09.0	17				
18	90	05.7	+00.1	N 10 29.2	+00.9	101	38.2	-00.4	N 04 17.7	+01.2	343	38.2	-28.9	N 23 00.0	-09.1	18				
19	105	05.8	+00.2	N 10 30.1	+00.9	116	37.8	-00.4	N 04 18.9	+01.3	358	09.4	-28.8	N 22 50.9	-09.2	19				
20	120	06.0	+00.1	N 10 31.0	+00.9	131	37.4	-00.4	N 04 20.2	+01.2	12	40.6	-28.7	N 22 41.7	-09.3	20				
21	135	06.1	+00.1	N 10 31.9	+00.8	146	37.0	-00.4	N 04 21.4	+01.2	27	11.9	-28.6	N 22 32.4	-09.4	21				
22	150	06.2	+00.2	N 10 32.7	+00.9	161	36.6	-00.3	N 04 22.6	+01.2	41	43.3	-28.5	N 22 23.0	-09.5	22				
23	165	06.4	+00.1	N 10 33.6	+00.9	176	36.3	-00.4	N 04 23.8	+01.2	56	14.8	-28.4	N 22 13.5	-09.6	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°0'	15°0'	15°0'	15°0'	14°9'	14°9'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	55°2'	55°1'	55°0'	54°9'	54°8'	54°8'
SHA	335°	335°	335°	335°	335°	335°	SHA	347°	347°	347°	346°	346°	346°	SHA	237°	235°	233°	230°	228°	226°
Greenwich Culmination Time: 11:59				Greenwich Culmination Time: 11:13				Greenwich Culmination Time: 11:13				Greenwich Culmination Time: 19:07								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	214	17.0	+00.6	S 05 56.5	-00.7	155	25.4	+01.9	N 17 05.9	+00.2	216	41.4	+02.2	S 07 26.0	-00.1	00
01	229	17.6	+00.7	S 05 55.8	-00.8	170	27.3	+01.9	N 17 06.1	+00.1	231	43.6	+02.3	S 07 25.9	-00.1	01
02	244	18.3	+00.7	S 05 55.0	-00.7	185	29.2	+01.9	N 17 06.2	+00.2	246	45.9	+02.2	S 07 25.8	-00.1	02
03	259	19.0	+00.7	S 05 54.3	-00.8	200	31.1	+01.9	N 17 06.4	+00.1	261	48.1	+02.2	S 07 25.7	-00.1	03
04	274	19.7	+00.6	S 05 53.5	-00.8	215	33.0	+01.9	N 17 06.5	+00.2	276	50.3	+02.2	S 07 25.6	-00.1	04
05	289	20.3	+00.7	S 05 52.7	-00.7	230	34.9	+01.9	N 17 06.7	+00.2	291	52.5	+02.2	S 07 25.5	-00.1	05
06	304	21.0	+00.7	S 05 52.0	-00.8	245	36.8	+01.9	N 17 06.9	+00.1	306	54.7	+02.3	S 07 25.4	-00.1	06
07	319	21.7	+00.6	S 05 51.2	-00.7	260	38.7	+01.9	N 17 07.0	+00.2	321	57.0	+02.2	S 07 25.3	+00.0	07
08	334	22.3	+00.7	S 05 50.5	-00.8	275	40.6	+01.9	N 17 07.2	+00.1	336	59.2	+02.2	S 07 25.3	-00.1	08
09	349	23.0	+00.7	S 05 49.7	-00.7	290	42.5	+01.9	N 17 07.3	+00.2	352	01.4	+02.2	S 07 25.2	-00.1	09
10	4	23.7	+00.6	S 05 49.0	-00.8	305	44.4	+01.9	N 17 07.5	+00.1	7	03.6	+02.3	S 07 25.1	-00.1	10
11	19	24.3	+00.7	S 05 48.2	-00.7	320	46.3	+01.9	N 17 07.6	+00.2	22	05.9	+02.2	S 07 25.0	-00.1	11
12	34	25.0	+00.7	S 05 47.5	-00.8	335	48.2	+01.9	N 17 07.8	+00.1	37	08.1	+02.2	S 07 24.9	-00.1	12
13	49	25.7	+00.6	S 05 4												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	19.5	+00.1	N 11 57.3	+00.8	190	58.7	-00.4	N 06 20.5	+01.2	30	21.3	-23.6	N 02 03.0	-14.2	00
01	195	19.6	+00.1	N 11 58.1	+00.9	205	58.3	-00.4	N 06 21.7	+01.2	44	57.7	-23.7	N 01 48.8	-14.1	01
02	210	19.7	+00.1	N 11 59.0	+00.8	220	57.9	-00.4	N 06 22.9	+01.2	59	34.0	-23.6	N 01 34.7	-14.2	02
03	225	19.8	+00.2	N 11 59.8	+00.9	235	57.5	-00.4	N 06 24.1	+01.2	74	10.4	-23.6	N 01 20.5	-14.2	03
04	240	20.0	+00.1	N 12 00.7	+00.8	250	57.1	-00.4	N 06 25.3	+01.2	88	46.8	-23.6	N 01 06.3	-14.2	04
05	255	20.1	+00.1	N 12 01.5	+00.9	265	56.7	-00.4	N 06 26.5	+01.2	103	23.2	-23.7	N 00 52.1	-14.2	05
06	270	20.2	+00.1	N 12 02.4	+00.8	280	56.3	-00.3	N 06 27.7	+01.2	117	59.5	-23.6	N 00 37.9	-14.2	06
07	285	20.3	+00.2	N 12 03.2	+00.8	295	56.0	-00.4	N 06 28.9	+01.2	132	35.9	-23.7	N 00 23.7	-14.2	07
08	300	20.5	+00.1	N 12 04.0	+00.9	310	55.6	-00.4	N 06 30.1	+01.2	147	12.2	-23.6	N 00 09.5	-14.2	08
09	315	20.6	+00.1	N 12 04.9	+00.8	325	55.2	-00.4	N 06 31.3	+01.2	161	48.6	-23.7	S 00 04.7	+14.2	09
10	330	20.7	+00.1	N 12 05.7	+00.9	340	54.8	-00.4	N 06 32.5	+01.2	176	24.9	-23.7	S 00 18.9	+14.2	10
11	345	20.8	+00.1	N 12 06.6	+00.8	355	54.4	-00.4	N 06 33.7	+01.1	191	01.2	-23.6	S 00 33.1	+14.2	11
12	0	20.9	+00.2	N 12 07.4	+00.9	10	54.0	-00.4	N 06 34.8	+01.2	205	37.6	-23.7	S 00 47.3	+14.3	12
13	15	21.1	+00.1	N 12 08.3	+00.8	25	53.6	-00.4	N 06 36.0	+01.2	220	13.9	-23.7	S 01 01.6	+14.2	13
14	30	21.2	+00.1	N 12 09.1	+00.8	40	53.2	-00.4	N 06 37.2	+01.2	234	50.2	-23.8	S 01 15.8	+14.2	14
15	45	21.3	+00.1	N 12 09.9	+00.9	55	52.8	-00.4	N 06 38.4	+01.2	249	26.4	-23.7	S 01 30.0	+14.2	15
16	60	21.4	+00.2	N 12 10.8	+00.8	70	52.4	-00.4	N 06 39.6	+01.2	264	02.7	-23.7	S 01 44.2	+14.3	16
17	75	21.6	+00.1	N 12 11.6	+00.9	85	52.0	-00.4	N 06 40.8	+01.2	278	39.0	-23.8	S 01 58.5	+14.2	17
18	90	21.7	+00.1	N 12 12.5	+00.8	100	51.6	-00.4	N 06 42.0	+01.2	293	15.2	-23.8	S 02 12.7	+14.2	18
19	105	21.8	+00.1	N 12 13.3	+00.8	115	51.2	-00.4	N 06 43.2	+01.2	307	51.4	-23.8	S 02 26.9	+14.2	19
20	120	21.9	+00.2	N 12 14.1	+00.9	130	50.8	-00.4	N 06 44.4	+01.2	322	27.6	-23.8	S 02 41.1	+14.2	20
21	135	22.1	+00.1	N 12 15.0	+00.8	145	50.4	-00.4	N 06 45.6	+01.2	337	03.8	-23.9	S 02 55.3	+14.2	21
22	150	22.2	+00.1	N 12 15.8	+00.9	160	50.0	-00.4	N 06 46.7	+01.2	351	39.9	-23.8	S 03 09.5	+14.2	22
23	165	22.3	+00.1	N 12 16.7	+00.8	175	49.6	-00.4	N 06 47.9	+01.2	6	16.1	-23.9	S 03 23.7	+14.2	23
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°7' 14°7' 14°8' 14°8' 14°8' 14°8'											
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°1' 54°1' 54°1' 54°2' 54°2' 54°2'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°1' 54°1' 54°1' 54°2' 54°2' 54°2'											
SHA 331° 331° 330° 330° 330° 330°	SHA 331° 331° 330° 330° 330° 330°	SHA 341° 341° 341° 341° 341° 340°	SHA 180° 178° 176° 175° 173° 171°	SHA 333° 333° 333° 333° 333° 333°	SHA 333° 333° 333° 333° 333° 333°											
Greenwich Culmination Time: 11:58		Greenwich Culmination Time: 11:16		Greenwich Culmination Time: 22:34												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	09.9	+00.2	N 10 55.5	+00.8	191	26.7	-00.4	N 04 54.1	+01.2	59	50.1	-26.3	N 17 49.5	-11.6	00
01	195	10.1	+00.1	N 10 56.3	+00.9	206	26.3	-00.3	N 04 55.3	+01.2	74	23.8	-26.3	N 17 37.9	-11.5	01
02	210	10.2	+00.1	N 10 57.2	+00.9	221	26.0	-00.4	N 04 56.5	+01.2	88	57.5	-26.2	N 17 26.4	-11.7	02
03	225	10.3	+00.2	N 10 58.1	+00.8	236	25.6	-00.4	N 04 57.7	+01.2	103	31.3	-26.1	N 17 14.7	-11.7	03
04	240	10.5	+00.1	N 10 58.9	+00.9	251	25.2	-00.4	N 04 58.9	+01.2	118	05.2	-26.1	N 17 03.0	-11.8	04
05	255	10.6	+00.1	N 10 59.8	+00.9	266	24.8	-00.4	N 05 00.1	+01.2	132	39.1	-26.0	N 16 51.2	-11.8	05
06	270	10.7	+00.2	N 11 00.7	+00.9	281	24.4	-00.4	N 05 01.3	+01.2	147	13.1	-25.9	N 16 39.4	-11.9	06
07	285	10.9	+00.1	N 11 01.6	+00.8	296	24.0	-00.4	N 05 02.5	+01.2	161	47.2	-25.9	N 16 27.5	-12.0	07
08	300	11.0	+00.2	N 11 02.4	+00.9	311	23.6	-00.3	N 05 03.7	+01.2	176	21.3	-25.7	N 16 15.5	-12.0	08
09	315	11.2	+00.1	N 11 03.3	+00.9	326	23.3	-00.4	N 05 04.9	+01.2	190	55.6	-25.8	N 16 03.5	-12.0	09
10	330	11.3	+00.1	N 11 04.2	+00.8	341	22.9	-00.4	N 05 06.1	+01.2	205	29.8	-25.6	N 15 51.5	-12.2	10
11	345	11.4	+00.2	N 11 05.0	+00.9	356	22.5	-00.4	N 05 07.3	+01.2	220	04.2	-25.6	N 15 39.3	-12.2	11
12	0	11.6	+00.1	N 11 05.9	+00.9	11	22.1	-00.4	N 05 08.5	+01.2	234	38.6	-25.6	N 15 27.1	-12.2	12
13	15	11.7	+00.1	N 11 06.8	+00.8	26	21.7	-00.4	N 05 09.7	+01.2	249	13.0	-25.4	N 15 14.9	-12.3	13
14	30	11.8	+00.2	N 11 07.6	+00.9	41	21.3	-00.3	N 05 10.9	+01.3	263	47.6	-25.5	N 15 02.6	-12.3	14
15	45	12.0	+00.1	N 11 08.5	+00.9	56	21.0	-00.4	N 05 12.2	+01.2	278	22.1	-25.3	N 14 50.3	-12.4	15
16	60	12.1	+00.1	N 11 09.4	+00.8	71	20.6	-00.4	N 05 13.4	+01.2	292	56.8	-25.3	N 14 37.9	-12.5	16
17	75	12.2	+00.2	N 11 10.2	+00.9	86	20.2	-00.4	N 05 14.6	+01.2	307	31.5	-25.2	N 14 25.4	-12.5	17
18	90	12.4	+00.1	N 11 11.1	+00.8	101	19.8	-00.4	N 05 15.8	+01.2	322	06.3	-25.2	N 14 12.9	-12.6	18
19	105	12.5	+00.2	N 11 11.9	+00.9	116	19.4	-00.4	N 05 17.0	+01.2	336	41.1	-25.2	N 14 00.3	-12.6	19
20	120	12.7	+00.1	N 11 12.8	+00.9	131	19.0	-00.4	N 05 18.2	+01.2	351	15.9	-25.0	N 13 47.7	-12.6	20
21	135	12.8	+00.1	N 11 13.7	+00.8	146	18.6	-00.3	N 05 19.4	+01.2	5	50.9	-25.0	N 13 35.1	-12.7	21
22	150	12.9	+00.2	N 11 14.5	+00.9	161	18.3	-00.4	N 05 20.6	+01.2	20	25.9	-25.0	N 13 22.4	-12.8	22
23	165	13.1	+00.1	N 11 15.4	+00.9	176	17.9	-00.4	N 05 21.8	+01.2	35	00.9	-24.9	N 13 09.6	-12.8	23
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°8' 14°8' 14°8' 14°8' 14°8' 14°7'											
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°3' 54°3' 54°3' 54°3' 54°3' 54°3'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°3' 54°3' 54°3' 54°3' 54°3' 54°3'											
SHA 333° 333° 333° 333° 333° 333°	SHA 333° 333° 333° 333° 333° 333°	SHA 344° 344° 344° 344° 344° 344°	SHA 212° 210° 208° 207° 205° 203°	SHA 333° 333° 333° 333° 333° 333°	SHA 333° 333° 333° 333° 333° 333°											
Greenwich Culmination Time: 11:59		Greenwich Culmination Time: 11:14		Greenwich Culmination Time: 20:35												

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	215	54.2	+00.6	S 04 07.2	-00.8	159	57.6	+01.9	N 17 28.1	+00.1	222	02.4	+02.2	S 07 12.9	-00.1	00
01	230	54.8	+00.7	S 04 06.4	-00.8	174	59.5	+01.9	N 17 28.2	+00.2	237	04.6	+02.3	S 07 12.8	-00.1	01
02	245	55.5	+00.7	S 04 05.6	-00.7	190	01.4	+01.9	N 17 28.4	+00.1	252	06.9	+02.2	S 07 12.7	-00.1	02
03	260	56.2	+00.7	S 04 04.9	-00.8	205	03.3	+01.8	N 17 28.5	+00.2	267	09.1	+02.2	S 07 12.6	+00.0	03
04	275	56.9	+00.7	S 04 04.1	-00.8	220	05.1	+01.9	N 17 28.7	+00.1	282	11.3	+02.3	S 07 12.6	-00.1	04
05	290	57.6	+00.6	S 04 03.3	-00.7	235	07.0	+01.9	N 17 28.8	+00.2	297	13.6	+02.2	S 07 12.5	-00.1	05
06	305	58.2	+00.7	S 04 02.6	-00.8	250	08.9	+01.9	N 17 29.0	+00.1	312	15.8	+02.2	S 07 12.4	-00.1	06
07	320	58.9	+00.7	S 04 01.8	-00.8	265	10.8	+01.9	N 17 29.1	+00.2	327	18.0	+02.3	S 07 12.3	-00.1	07
08	335	59.6	+00.7	S 04 01.0	-00.7	280	12.7	+01.9	N 17 29.3	+00.1	342	20.3	+02.2	S 07 12.2	-00.1	08
09	351	00.3	+00.7	S 04 00.3	-00.8	295	14.6	+01.9	N 17 29.4	+00.2	357	22.5	+02.2	S 07 12.1	-00.1	09
10	6	01.0	+00.7	S 03 59.5	-00.7	310	16.5	+01.8	N 17 29.6	+00.1	12	24.7	+02.3	S 07 12.0	-00.1	10
11	21	01.7	+00.6	S 03 58.8	-00.8	325	18.3	+01.9	N 17 29.7	+00.2	27	27.0	+02.2	S 07 11.9	+00.0	11
12	36	02.3	+00.7	S 03 58.0	-00.8	340	20.2	+01.9	N 17 29.9	+00.1	42	29.2	+02.2	S 07 11.9	-00.1	12
13	51	03.0	+00.7	S 03 57.2	-00.7	355	22.1	+01.9	N 17 30.0	+00.2	57	31.4	+02.3	S 07 11.8	-00.1	13
1																

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180	13.2	+00.1	N 11 16.3	+00.8	191	17.5	-00.4	N 05 23.0	+01.2	49	36.0	-24.9	N 12 56.8	-12.8
01	195	13.3	+00.2	N 11 17.1	+00.9	206	17.1	-00.4	N 05 24.2	+01.2	64	11.1	-24.8	N 12 44.0	-12.9
02	210	13.5	+00.1	N 11 18.0	+00.8	221	16.7	-00.4	N 05 25.4	+01.2	78	46.3	-24.7	N 12 31.1	-12.9
03	225	13.6	+00.1	N 11 18.8	+00.9	236	16.3	+00.4	N 05 26.6	+01.2	93	21.6	-24.8	N 12 18.2	-13.0
04	240	13.7	+00.2	N 11 19.7	+00.9	251	15.9	-00.4	N 05 27.8	+01.2	107	56.8	-24.6	N 12 05.2	-13.0
05	255	13.9	+00.1	N 11 20.6	+00.8	266	15.5	-00.3	N 05 29.0	+01.2	122	32.2	-24.6	N 11 52.2	-13.0
06	270	14.0	+00.1	N 11 21.4	+00.9	281	15.2	-00.4	N 05 30.2	+01.2	137	07.6	-24.6	N 11 39.2	-13.1
07	285	14.1	+00.2	N 11 22.3	+00.9	296	14.8	-00.4	N 05 31.4	+01.2	151	43.0	-24.5	N 11 26.1	-13.2
08	300	14.3	+00.1	N 11 23.2	+00.8	311	14.4	-00.4	N 05 32.6	+01.2	166	18.5	-24.5	N 11 12.9	-13.2
09	315	14.4	+00.1	N 11 24.0	+00.9	326	14.0	-00.4	N 05 33.8	+01.2	180	54.0	-24.5	N 10 59.7	-13.2
10	330	14.5	+00.2	N 11 24.9	+00.8	341	13.6	-00.4	N 05 35.0	+01.2	195	29.5	-24.4	N 10 46.5	-13.2
11	345	14.7	+00.1	N 11 25.7	+00.9	356	13.2	-00.4	N 05 36.2	+01.2	210	05.1	-24.4	N 10 33.3	-13.3
12	0	14.8	+00.1	N 11 26.6	+00.8	11	12.8	-00.4	N 05 37.4	+01.2	224	40.7	-24.3	N 10 20.0	-13.3
13	15	14.9	+00.2	N 11 27.4	+00.9	26	12.4	-00.3	N 05 38.6	+01.2	239	16.4	-24.3	N 10 06.7	-13.4
14	30	15.1	+00.1	N 11 28.3	+00.9	41	12.1	-00.4	N 05 39.8	+01.2	253	52.1	-24.2	N 09 53.3	-13.4
15	45	15.2	+00.1	N 11 29.2	+00.8	56	11.7	-00.4	N 05 41.0	+01.2	268	27.9	-24.2	N 09 39.9	-13.4
16	60	15.3	+00.2	N 11 30.0	+00.9	71	11.3	-00.4	N 05 42.2	+01.2	283	03.7	-24.2	N 09 26.5	-13.5
17	75	15.5	+00.1	N 11 30.9	+00.8	86	10.9	-00.4	N 05 43.4	+01.2	297	39.5	-24.2	N 09 13.0	-13.5
18	90	15.6	+00.1	N 11 31.7	+00.9	101	10.5	-00.4	N 05 44.6	+01.2	312	15.3	-24.1	N 08 59.5	-13.5
19	105	15.7	+00.2	N 11 32.6	+00.8	116	10.1	-00.4	N 05 45.8	+01.2	326	51.2	-24.1	N 08 46.0	-13.6
20	120	15.9	+00.1	N 11 33.4	+00.9	131	09.7	-00.4	N 05 47.0	+01.2	341	27.1	-24.0	N 08 32.4	-13.6
21	135	16.0	+00.1	N 11 34.3	+00.9	146	09.3	-00.4	N 05 48.2	+01.2	356	03.1	-24.1	N 08 18.8	-13.6
22	150	16.1	+00.1	N 11 35.2	+00.8	161	08.9	-00.4	N 05 49.4	+01.2	10	39.0	-23.9	N 08 05.2	-13.6
23	165	16.2	+00.2	N 11 36.0	+00.9	176	08.5	-00.3	N 05 50.6	+01.2	25	15.1	-24.0	N 07 51.6	-13.7
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°7' 14°7' 14°7' 14°7' 14°7' 14°7'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'										
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°1' 54°1' 54°1' 54°0' 54°0' 54°0'	HP 54°1' 54°1' 54°1' 54°1' 54°1' 54°1'	HP 54°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 54°0' 00°0' 00°0' 00°0' 00°0' 00°0'										
SHA 333° 332° 332° 332° 332° 332°	SHA 344° 343° 343° 343° 343° 343°	SHA 201° 199° 197° 196° 194° 192°	SHA 331° 331° 331° 331° 331° 331°	SHA 332° 331° 331° 331° 331° 331°	SHA 342° 342° 342° 342° 342° 342°										
Greenwich Culmination Time: 11:59	Greenwich Culmination Time: 11:15	Greenwich Culmination Time: 21:16	Greenwich Culmination Time: 11:58	Greenwich Culmination Time: 11:15	Greenwich Culmination Time: 21:55										

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180	16.4	+00.1	N 11 36.9	+00.8	191	08.2	-00.4	N 05 51.8	+01.2	39	51.1	-24.0	N 07 37.9	-13.7
01	195	16.5	+00.1	N 11 37.7	+00.9	206	07.8	-00.4	N 05 53.0	+01.2	54	27.1	-23.9	N 07 24.2	-13.8
02	210	16.6	+00.2	N 11 38.6	+00.8	221	07.4	-00.4	N 05 54.2	+01.2	69	03.2	-23.9	N 07 10.4	-13.7
03	225	16.8	+00.1	N 11 39.4	+00.9	236	07.0	-00.4	N 05 55.4	+01.2	83	39.3	-23.8	N 06 56.7	-13.8
04	240	16.9	+00.1	N 11 40.3	+00.8	251	06.6	-00.4	N 05 56.6	+01.2	98	15.5	-23.9	N 06 42.9	-13.8
05	255	17.0	+00.2	N 11 41.1	+00.9	266	06.2	-00.4	N 05 57.8	+01.2	112	51.6	-23.8	N 06 29.1	-13.8
06	270	17.2	+00.1	N 11 42.0	+00.8	281	05.8	-00.4	N 05 59.0	+01.2	127	27.8	-23.8	N 06 15.3	-13.9
07	285	17.3	+00.1	N 11 42.8	+00.9	296	05.4	-00.4	N 06 00.2	+01.2	142	04.0	-23.8	N 06 01.4	-13.9
08	300	17.4	+00.1	N 11 43.7	+00.8	311	05.0	-00.4	N 06 01.4	+01.2	156	40.2	-23.8	N 05 47.5	-13.9
09	315	17.5	+00.2	N 11 44.5	+00.9	326	04.6	-00.4	N 06 02.6	+01.2	171	16.4	-23.7	N 05 33.6	-13.9
10	330	17.7	+00.1	N 11 45.4	+00.8	341	04.2	-00.4	N 06 03.8	+01.2	185	52.7	-23.8	N 05 19.7	-13.9
11	345	17.8	+00.1	N 11 46.2	+00.9	356	03.8	-00.3	N 06 05.0	+01.2	200	28.9	-23.7	N 05 05.8	-14.0
12	0	17.9	+00.2	N 11 47.1	+00.9	11	03.5	-00.4	N 06 06.2	+01.2	215	05.2	-23.7	N 04 51.8	-14.0
13	15	18.1	+00.1	N 11 48.0	+00.8	26	03.1	-00.4	N 06 07.4	+01.2	229	41.5	-23.7	N 04 37.8	-14.0
14	30	18.2	+00.1	N 11 48.8	+00.9	41	02.7	-00.4	N 06 08.6	+01.2	244	17.8	-23.7	N 04 23.8	-14.0
15	45	18.3	+00.1	N 11 49.7	+00.8	56	02.3	-00.4	N 06 09.8	+01.2	258	54.1	-23.7	N 04 09.8	-14.0
16	60	18.4	+00.2	N 11 50.5	+00.8	71	01.9	-00.4	N 06 11.0	+01.2	273	30.4	-23.6	N 03 55.8	-14.1
17	75	18.6	+00.1	N 11 51.3	+00.9	86	01.5	-00.4	N 06 12.2	+01.2	288	06.8	-23.7	N 03 41.7	-14.0
18	90	18.7	+00.1	N 11 52.2	+00.8	101	01.1	-00.4	N 06 13.4	+01.2	302	43.1	-23.6	N 03 27.7	-14.1
19	105	18.8	+00.1	N 11 53.0	+00.9	116	00.7	-00.4	N 06 14.6	+01.2	317	19.5	-23.7	N 03 13.6	-14.1
20	120	18.9	+00.2	N 11 53.9	+00.8	131	00.3	-00.4	N 06 15.8	+01.2	331	55.8	-23.6	N 02 59.5	-14.1
21	135	19.1	+00.1	N 11 54.7	+00.9	145	59.9	-00.4	N 06 17.0	+01.2	346	32.2	-23.6	N 02 45.4	-14.1
22	150	19.2	+00.1	N 11 55.6	+00.8	160	59.5	-00.4	N 06 18.2	+01.1	1	08.6	-23.7	N 02 31.3	-14.2
23	165	19.3	+00.2	N 11 56.4	+00.9	175	59.1	-00.4	N 06 19.3	+01.2	15	44.9	-23.6	N 02 17.1	-14.1
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°7' 14°7' 14°7' 14°7' 14°7' 14°7'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'										
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 54°1' 54°1' 54°1' 54°0' 54°0' 54°0'	HP 54°1' 54°1' 54°1' 54°1' 54°1' 54°1'	HP 54°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 54°0' 00°0' 00°0' 00°0' 00°0' 00°0'										
SHA 332° 331° 331° 331° 331° 331°	SHA 332° 331° 331° 331° 331° 331°	SHA 201° 199° 197° 196° 194° 192°	SHA 332° 331° 331° 331° 331° 331°	SHA 332° 331° 331° 331° 331° 331°	SHA 342° 342° 342° 342° 342° 342°										
Greenwich Culmination Time: 11:58	Greenwich Culmination Time: 11:15	Greenwich Culmination Time: 21:55	Greenwich Culmination Time: 11:58	Greenwich Culmination Time: 11:15	Greenwich Culmination Time: 21:55										

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	215	21.5	+00.7	S 04 43.7	-00.7	158	27.1	+01.8	N 17 20.7	+00.2	220	15.2	+02.2	S 07 17.2	-00.1
01	230	22.2	+00.7	S 04 43.0	-00.8	173	28.9	+01.9	N 17 20.9	+00.1	235	17.4	+02.3	S 07 17.1	-00.1
02	245	22.9	+00.7	S 04 42.2	-00.7	188	30.8	+01.9	N 17 21.0	+00.2	250	19.7	+02.2	S 07 17.0	-00.1
03	260	23.6	+00.7	S 04 41.5	-00.8	203	32.7	+01.9	N 17 21.2	+00.1	265	21.9	+02.2	S 07 16.9	-00.1
04	275	24.3	+00.6	S 04 40.7	-00.8	218	34.6	+01.9	N 17 21.3	+00.2	280	24.1	+02.2	S 07 16.8	-00.1
05	290	24.9	+00.7	S 04 39.9	-00.7	233	36.5	+01.9	N 17 21.5	+00.1	295	26.3	+02.3	S 07 16.7	-00.1
06	305	25.6	+00.7	S 04 39.2	-00.8	248	38.4	+01.9	N 17 21.6	+00.2	310	28.6	+02.2	S 07 16.6	+00.0
07	320	26.3	+00.7	S 04 38.4	-00.8	263	40.3	+01.9	N 17 21.8	+00.1	325	30.8	+02.2	S 07 16.6	-00.1
08	335	27.0	+00.6	S 04 37.6	-00.7	278	42.2	+01.8	N 17 21.9	+00.2	340	33.0	+02.3	S 07 16.5	-00.1
09	350	27.6	+00.7	S 04 36.9	-00.8	293	44.0	+01.9	N 17 22.1	+00.2	355	35.3	+02.2	S 07 16.4	-00.1
10	5	28.3	+00.7	S 04 36.1	-00.7	308	45.9	+01.9	N 17 22.3	+00.1	10	37.5	+02.2	S 07 16.3	-00.1
11	20	29.0	+00.7	S 04 35.4	-00.8	323	47.8	+01.9	N 17 22.4	+00.2	25	39.7	+02.3	S 07 16.2	-00.1
12	35	29.7	+00.7	S 04 34.6	-00.8	338	49.7	+01.9	N 17 22.6	+00.1	40	42.0	+02.2	S 07 16.1	-00.1
13	50	30.4	+00.6	S 04 33.8	-00.7	353	51.6	+01.9	N 17 22.7	+00.2	55	44.2	+02.2	S 07 16.0	-00.1
14	65	31.0	+00.7	S 04 33.1	-00.8	8	53.5	+01.9	N 17 22.9	+00.1	70	46.4	+02.3	S 07 15.9	-00.1
15	80	31.7	+00.7	S 04 32.3	-00.7	23	55.4	+01.9	N 17 23.0	+00.2	85	48.7	+02.2	S 07 15.8	+00.0
16															

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	30.6	+00.2	N 13 16.9	+00.8	190	19.8	-00.4	N 08 13.9	+01.2	350	06.7	-28.2	S 19 25.3	+11.2	00				
01	195	30.8	+00.1	N 13 17.7	+00.8	205	19.4	-00.4	N 08 15.1	+01.2	4	38.5	-28.3	S 19 36.5	+11.2	01				
02	210	30.9	+00.1	N 13 18.5	+00.8	220	19.0	-00.5	N 08 16.3	+01.1	19	10.2	-28.3	S 19 47.7	+11.1	02				
03	225	31.0	+00.1	N 13 19.3	+00.9	235	18.5	-00.4	N 08 17.4	+01.2	33	41.9	-28.5	S 19 58.8	+11.0	03				
04	240	31.1	+00.1	N 13 20.2	+00.8	250	18.1	-00.4	N 08 18.6	+01.2	48	13.4	-28.6	S 20 09.8	+10.9	04				
05	255	31.2	+00.1	N 13 21.0	+00.8	265	17.7	-00.4	N 08 19.8	+01.1	62	44.8	-28.6	S 20 20.7	+10.8	05				
06	270	31.3	+00.1	N 13 21.8	+00.8	280	17.3	-00.4	N 08 20.9	+01.2	77	16.2	-28.8	S 20 31.5	+10.7	06				
07	285	31.4	+00.1	N 13 22.6	+00.8	295	16.9	-00.4	N 08 22.1	+01.2	91	47.4	-28.8	S 20 42.2	+10.6	07				
08	300	31.5	+00.1	N 13 23.4	+00.8	310	16.5	-00.5	N 08 23.3	+01.1	106	18.6	-28.9	S 20 52.8	+10.6	08				
09	315	31.6	+00.1	N 13 24.2	+00.8	325	16.0	-00.4	N 08 24.4	+01.2	120	49.7	-29.1	S 21 03.4	+10.5	09				
10	330	31.7	+00.1	N 13 25.0	+00.8	340	15.6	-00.4	N 08 25.6	+01.2	135	20.6	-29.1	S 21 13.9	+10.3	10				
11	345	31.8	+00.1	N 13 25.8	+00.8	355	15.2	-00.4	N 08 26.8	+01.1	149	51.5	-29.2	S 21 24.2	+10.3	11				
12	0	31.9	+00.1	N 13 26.6	+00.8	10	14.8	-00.4	N 08 27.9	+01.2	164	22.3	-29.3	S 21 34.5	+10.2	12				
13	15	32.0	+00.1	N 13 27.4	+00.8	25	14.4	-00.5	N 08 29.1	+01.1	178	53.0	-29.4	S 21 44.7	+10.1	13				
14	30	32.1	+00.1	N 13 28.2	+00.8	40	13.9	-00.4	N 08 30.2	+01.2	193	23.6	-29.5	S 21 54.8	+10.0	14				
15	45	32.2	+00.1	N 13 29.0	+00.9	55	13.5	-00.4	N 08 31.4	+01.2	207	54.1	-29.6	S 22 04.8	+09.9	15				
16	60	32.3	+00.1	N 13 29.9	+00.8	70	13.1	-00.4	N 08 32.6	+01.1	222	24.5	-29.7	S 22 14.7	+09.8	16				
17	75	32.4	+00.1	N 13 30.7	+00.8	85	12.7	-00.5	N 08 33.7	+01.2	236	54.8	-29.8	S 22 24.5	+09.7	17				
18	90	32.5	+00.1	N 13 31.5	+00.8	100	12.2	-00.4	N 08 34.9	+01.2	251	25.0	-29.8	S 22 34.2	+09.6	18				
19	105	32.6	+00.1	N 13 32.3	+00.8	115	11.8	-00.4	N 08 36.1	+01.1	265	55.2	-30.0	S 22 43.8	+09.5	19				
20	120	32.7	+00.1	N 13 33.1	+00.8	130	11.4	-00.4	N 08 37.2	+01.2	280	25.2	-30.1	S 22 53.3	+09.4	20				
21	135	32.8	+00.1	N 13 33.9	+00.8	145	11.0	-00.4	N 08 38.4	+01.1	294	55.1	-30.1	S 23 02.7	+09.2	21				
22	150	32.9	+00.1	N 13 34.7	+00.8	160	10.6	-00.5	N 08 39.5	+01.2	309	25.0	-30.3	S 23 11.9	+09.2	22				
23	165	33.0	+00.1	N 13 35.5	+00.8	175	10.1	-00.4	N 08 40.7	+01.2	323	54.7	-30.3	S 23 21.1	+09.1	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°1'	15°1'	15°1'	15°1'	15°1'	15°2'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	55°2'	55°3'	55°4'	55°5'	55°5'	55°6'
SHA	327°	327°	327°	326°	326°	326°	SHA	337°	337°	336°	336°	336°	336°	SHA	137°	137°	137°	129°	127°	125°
Greenwich Culmination Time: 11:57						Greenwich Culmination Time: 11:18						Greenwich Culmination Time: 00:40								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	22.4	+00.1	N 12 17.5	+00.8	190	49.2	-00.4	N 06 49.1	+01.2	20	52.2	-23.9	S 03 37.9	+14.2	00				
01	195	22.5	+00.2	N 12 18.3	+00.9	205	48.8	-00.4	N 06 50.3	+01.2	35	28.3	-24.0	S 03 52.1	+14.2	01				
02	210	22.7	+00.1	N 12 19.2	+00.8	220	48.4	-00.4	N 06 51.5	+01.2	50	04.3	-23.9	S 04 06.3	+14.1	02				
03	225	22.8	+00.1	N 12 20.0	+00.8	235	48.0	-00.4	N 06 52.7	+01.2	64	40.4	-24.0	S 04 20.4	+14.2	03				
04	240	22.9	+00.1	N 12 20.8	+00.9	250	47.6	-00.4	N 06 53.9	+01.2	79	16.4	-24.0	S 04 34.6	+14.2	04				
05	255	23.0	+00.1	N 12 21.7	+00.8	265	47.2	-00.4	N 06 55.1	+01.1	93	52.4	-24.1	S 04 48.8	+14.1	05				
06	270	23.1	+00.2	N 12 22.5	+00.9	280	46.8	-00.4	N 06 56.2	+01.2	108	28.3	-24.1	S 05 02.9	+14.1	06				
07	285	23.3	+00.1	N 12 23.4	+00.8	295	46.4	-00.4	N 06 57.4	+01.2	123	04.2	-24.1	S 05 17.0	+14.1	07				
08	300	23.4	+00.1	N 12 24.2	+00.8	310	46.0	-00.4	N 06 58.6	+01.2	137	40.1	-24.1	S 05 31.1	+14.1	08				
09	315	23.5	+00.1	N 12 25.0	+00.9	325	45.6	-00.4	N 06 59.8	+01.2	152	16.0	-24.2	S 05 45.2	+14.1	09				
10	330	23.6	+00.1	N 12 25.9	+00.8	340	45.2	-00.4	N 07 01.0	+01.2	166	51.8	-24.2	S 05 59.3	+14.1	10				
11	345	23.7	+00.2	N 12 26.7	+00.8	355	44.8	-00.4	N 07 02.2	+01.2	181	27.6	-24.2	S 06 13.4	+14.0	11				
12	0	23.9	+00.1	N 12 27.5	+00.9	10	44.4	-00.4	N 07 03.4	+01.1	196	03.4	-24.3	S 06 27.4	+14.0	12				
13	15	24.0	+00.1	N 12 28.4	+00.8	25	44.0	-00.4	N 07 04.5	+01.2	210	39.1	-24.3	S 06 41.4	+14.1	13				
14	30	24.1	+00.1	N 12 29.2	+00.8	40	43.6	-00.4	N 07 05.7	+01.2	225	14.8	-24.4	S 06 55.5	+14.0	14				
15	45	24.2	+00.1	N 12 30.0	+00.9	55	43.2	-00.4	N 07 06.9	+01.2	239	50.4	-24.4	S 07 09.5	+13.9	15				
16	60	24.3	+00.2	N 12 30.9	+00.8	70	42.8	-00.4	N 07 08.1	+01.2	254	26.0	-24.4	S 07 23.4	+14.0	16				
17	75	24.5	+00.1	N 12 31.7	+00.8	85	42.4	-00.5	N 07 09.3	+01.2	269	01.6	-24.5	S 07 37.4	+13.9	17				
18	90	24.6	+00.1	N 12 32.5	+00.9	100	41.9	-00.4	N 07 10.5	+01.1	283	37.1	-24.5	S 07 51.3	+13.9	18				
19	105	24.7	+00.1	N 12 33.4	+00.8	115	41.5	-00.4	N 07 11.6	+01.2	298	12.6	-24.6	S 08 05.2	+13.9	19				
20	120	24.8	+00.1	N 12 34.2	+00.8	130	41.1	-00.4	N 07 12.8	+01.2	312	48.0	-24.6	S 08 19.1	+13.9	20				
21	135	24.9	+00.1	N 12 35.0	+00.9	145	40.7	-00.4	N 07 14.0	+01.2	327	23.4	-24.7	S 08 33.0	+13.8	21				
22	150	25.0	+00.2	N 12 35.9	+00.8	160	40.3	-00.4	N 07 15.2	+01.2	341	58.7	-24.7	S 08 46.8	+13.8	22				
23	165	25.2	+00.1	N 12 36.7	+00.8	175	39.9	-00.4	N 07 16.4	+01.1	356	34.0	-24.7	S 09 00.6	+13.8	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	14°8'	14°8'	14°8'	14°8'	14°8'	14°8'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	54°3'	54°3'	54°3'	54°4'	54°4'	54°5'
SHA	330°	330°	329°	329°	329°	329°	SHA	340°	340°	340°	339°	339°	SHA	169°	168°	166°	164°	162°	161°	
Greenwich Culmination Time: 11:58						Greenwich Culmination Time: 11:17						Greenwich Culmination Time: 23:14								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	216	59.9	+00.7	S 02 53.7	-00.8	162	58.2	+01.9	N 17 42.6	+00.2	225	37.4	+02.2	S 07 04.6	+00.0	00
01	232	00.6	+00.7	S 02 52.9	-00.7	178	00.1	+01.9	N 17 42.8	+00.1	240	39.6	+02.3	S 07 04.6	-00.1	01
02	247	01.3	+00.7	S 02 52.2	-00.8	193	02.0	+01.9	N 17 42.9	+00.2	255	41.9	+02.2	S 07 04.5	-00.1	02
03	262	02.0	+00.7	S 02 51.4	-00.8	208	03.9	+01.8	N 17 43.1	+00.1	270	44.1	+02.3	S 07 04.4	-00.1	03
04	277	02.7	+00.7	S 02 50.6	-00.7	223	05.7	+01.9	N 17 43.2	+00.2	285	46.4	+02.2	S 07 04.3	-00.1	04
05	292	03.4	+00.7	S 02 49.9	-00.8	238	07.6	+01.9	N 17 43.4	+00.1	300	48.6	+02.3	S 07 04.2	-00.1	05
06	307	04.1	+00.7	S 02 49.1	-00.8	253	09.5	+01.9	N 17 43.5	+00.2	315	50.9	+02.2	S 07 04.1	+00.0	06
07	322	04.8	+00.6	S 02 48.3	-00.7	268	11.4	+01.9	N 17 43.7	+00.1	330	53.1	+02.2	S 07 04.1	-00.1	07
08	337	05.4	+00.7	S 02 47.6	-00.8	283	13.3	+01.8	N 17 43.8	+00.2	345	55.3	+02.3	S 07 04.0	-00.1	08
09	352	06.1	+00.7	S 02 46.8	-00.8	298	15.1	+01.9	N 17 44.0	+00.1	0	57.6	+02.2	S 07 03.9	-00.1	09
10	7	06.8	+00.7	S 02 46.0	-00.7	313	17.0	+01.9	N 17 44.1	+00.2	15	59.8	+02.3	S 07 03.8	-00.1	10
11	22	07.5	+00.7	S 02 45.3	-00.8	328	18.9	+01.9	N 17 44.3	+00.1	31	02.1	+02.2	S 07 03.7	-00.1	11
12	37	08.2	+00.7	S 02 44.5	-00.8	343	20.8	+01.8	N 17 44.4	+00.2	46	04.3	+02.3	S 07 03.6	-00.1	12
13	52	08.9	+00.7	S 0												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	25.3	+00.1	N 12 37.5	+00.8	190	39.5	-00.4	N 07 17.5	+01.2	11	09.3	-24.8	S 09 14.4	+13.8	00
01	195	25.4	+00.1	N 12 38.3	+00.9	205	39.1	-00.4	N 07 18.7	+01.2	25	44.5	-24.9	S 09 28.2	+13.7	01
02	210	25.5	+00.1	N 12 39.2	+00.8	220	38.7	-00.4	N 07 19.9	+01.2	40	19.6	-24.9	S 09 41.9	+13.7	02
03	225	25.6	+00.1	N 12 40.0	+00.8	235	38.3	-00.4	N 07 21.1	+01.2	54	54.7	-24.9	S 09 55.6	+13.7	03
04	240	25.7	+00.2	N 12 40.8	+00.9	250	37.9	-00.4	N 07 22.3	+01.2	69	29.8	-25.0	S 10 09.3	+13.6	04
05	255	25.9	+00.1	N 12 41.7	+00.8	265	37.5	-00.4	N 07 23.5	+01.1	84	04.8	-25.1	S 10 22.9	+13.6	05
06	270	26.0	+00.1	N 12 42.5	+00.8	280	37.1	-00.4	N 07 24.6	+01.2	98	39.7	-25.1	S 10 36.5	+13.6	06
07	285	26.1	+00.1	N 12 43.3	+00.8	295	36.7	-00.4	N 07 25.8	+01.2	113	14.6	-25.2	S 10 50.1	+13.5	07
08	300	26.2	+00.1	N 12 44.1	+00.9	310	36.3	-00.4	N 07 27.0	+01.2	127	49.4	-25.2	S 11 03.6	+13.5	08
09	315	26.3	+00.1	N 12 45.0	+00.8	325	35.9	-00.4	N 07 28.2	+01.2	142	24.2	-25.3	S 11 17.1	+13.5	09
10	330	26.4	+00.2	N 12 45.8	+00.8	340	35.5	-00.5	N 07 29.4	+01.1	156	58.9	-25.3	S 11 30.6	+13.4	10
11	345	26.6	+00.1	N 12 46.6	+00.8	355	35.0	-00.4	N 07 30.5	+01.2	171	33.6	-25.4	S 11 44.0	+13.4	11
12	0	26.7	+00.1	N 12 47.4	+00.9	10	34.6	-00.4	N 07 31.7	+01.2	186	08.2	-25.5	S 11 57.4	+13.4	12
13	15	26.8	+00.1	N 12 48.3	+00.8	25	34.2	-00.4	N 07 32.9	+01.2	200	42.7	-25.5	S 12 10.8	+13.3	13
14	30	26.9	+00.1	N 12 49.1	+00.8	40	33.8	-00.4	N 07 34.1	+01.1	215	17.2	-25.6	S 12 24.1	+13.3	14
15	45	27.0	+00.1	N 12 49.9	+00.8	55	33.4	-00.4	N 07 35.2	+01.2	229	51.6	-25.6	S 12 37.4	+13.2	15
16	60	27.1	+00.1	N 12 50.7	+00.9	70	33.0	-00.4	N 07 36.4	+01.2	244	26.0	-25.7	S 12 50.6	+13.2	16
17	75	27.2	+00.1	N 12 51.6	+00.8	85	32.6	-00.4	N 07 37.6	+01.1	259	00.3	-25.8	S 13 03.8	+13.1	17
18	90	27.3	+00.2	N 12 52.4	+00.8	100	32.2	-00.4	N 07 38.8	+01.2	273	34.5	-25.8	S 13 16.9	+13.1	18
19	105	27.5	+00.1	N 12 53.2	+00.8	115	31.8	-00.4	N 07 39.9	+01.2	288	08.7	-25.9	S 13 30.0	+13.1	19
20	120	27.6	+00.1	N 12 54.0	+00.9	130	31.4	-00.4	N 07 41.1	+01.2	302	42.8	-26.0	S 13 43.1	+13.0	20
21	135	27.7	+00.1	N 12 54.9	+00.8	145	31.0	-00.5	N 07 42.3	+01.2	317	16.8	-26.1	S 13 56.1	+12.9	21
22	150	27.8	+00.1	N 12 55.7	+00.8	160	30.5	-00.4	N 07 43.5	+01.1	331	50.7	-26.1	S 14 09.0	+12.9	22
23	165	27.9	+00.1	N 12 56.5	+00.8	175	30.1	-00.4	N 07 44.6	+01.2	346	24.6	-26.2	S 14 21.9	+12.9	23

UT 02 06 10 14 18 22 SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 328° 328° 328° 328° 328° 328° Greenwich Culmination Time: 11:58	UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 339° 339° 339° 338° 338° 338° Greenwich Culmination Time: 11:17	UT 02 06 10 14 18 22 SD 14°9' 14°9' 14°9' 14°9' 14°9' 14°9' HP 54°5' 54°6' 54°6' 54°7' 54°7' 54°8' SHA 159° 157° 155° 153° 151° 149° Greenwich Culmination Time: 23:55
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UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	216	27.0	+00.6	S 03 30.5	-00.8	161	28.0	+01.9	N 17 35.4	+00.1	223	49.8	+02.2	S 07 08.7	-00.1	00
01	231	27.6	+00.7	S 03 29.7	-00.8	176	29.9	+01.9	N 17 35.5	+00.2	238	52.0	+02.3	S 07 08.6	+00.0	01
02	246	28.3	+00.7	S 03 28.9	-00.7	191	31.8	+01.8	N 17 35.7	+00.1	253	54.3	+02.2	S 07 08.6	-00.1	02
03	261	29.0	+00.7	S 03 28.2	-00.8	206	33.6	+01.9	N 17 35.8	+00.2	268	56.5	+02.2	S 07 08.5	-00.1	03
04	276	29.7	+00.7	S 03 27.4	-00.8	221	35.5	+01.9	N 17 36.0	+00.1	283	58.7	+02.3	S 07 08.4	-00.1	04
05	291	30.4	+00.7	S 03 26.6	-00.7	236	37.4	+01.9	N 17 36.1	+00.2	299	01.0	+02.2	S 07 08.3	-00.1	05
06	306	31.1	+00.7	S 03 25.9	-00.8	251	39.3	+01.9	N 17 36.3	+00.1	314	03.2	+02.3	S 07 08.2	-00.1	06
07	321	31.8	+00.6	S 03 25.1	-00.8	266	41.2	+01.8	N 17 36.4	+00.2	329	05.5	+02.2	S 07 08.1	-00.1	07
08	336	32.4	+00.7	S 03 24.3	-00.7	281	43.0	+01.9	N 17 36.6	+00.1	344	07.7	+02.2	S 07 08.0	+00.0	08
09	351	33.1	+00.7	S 03 23.6	-00.8	296	44.9	+01.9	N 17 36.7	+00.2	359	09.9	+02.3	S 07 08.0	-00.1	09
10	6	33.8	+00.7	S 03 22.8	-00.8	311	46.8	+01.9	N 17 36.9	+00.1	14	12.2	+02.2	S 07 07.9	-00.1	10
11	21	34.5	+00.7	S 03 22.0	-00.7	326	48.7	+01.9	N 17 37.0	+00.2	29	14.4	+02.3	S 07 07.8	-00.1	11
12	36	35.2	+00.7	S 03 21.3	-00.8	341	50.6	+01.9	N 17 37.2	+00.1	44	16.7	+02.2	S 07 07.7	-00.1	12
13	51	35.9	+00.7	S 03 20.5	-00.8	356	52.5	+01.8	N 17 37.3	+00.2	59	18.9	+02.2	S 07 07.6	-00.1	13
14	66	36.6	+00.6	S 03 19.7	-00.7	11	54.3	+01.9	N 17 37.5	+00.1	74	21.1	+02.3	S 07 07.5	-00.1	14
15	81	37.2	+00.7	S 03 19.0	-00.8	26	56.2	+01.9	N 17 37.6	+00.2	89	23.4	+02.2	S 07 07.4	+00.0	15
16	96	37.9	+00.7	S 03 18.2	-00.8	41	58.1	+01.9	N 17 37.8	+00.1	104	25.6	+02.3	S 07 07.4	-00.1	16
17	111	38.6	+00.7	S 03 17.4	-00.7	56	60.0	+01.9	N 17 37.9	+00.2	119	27.9	+02.2	S 07 07.3	-00.1	17
18	126	39.3	+00.7	S 03 16.7	-00.8	72	01.9	+01.8	N 17 38.1	+00.1	134	30.1	+02.2	S 07 07.2	-00.1	18
19	141	40.0	+00.7	S 03 15.9	-00.8	87	03.7	+01.9	N 17 38.2	+00.2	149	32.3	+02.3	S 07 07.1	-00.1	19
20	156	40.7	+00.7	S 03 15.1	-00.7	102	05.6	+01.9	N 17 38.4	+00.1	164	34.6	+02.2	S 07 07.0	-00.1	20
21	171	41.4	+00.6	S 03 14.4	-00.8	117	07.5	+01.9	N 17 38.5	+00.2	179	36.8	+02.3	S 07 06.9	-00.1	21
22	186	42.0	+00.7	S 03 13.6	-00.7	132	09.4	+01.9	N 17 38.7	+00.1	194	39.1	+02.2	S 07 06.8	+00.0	22
23	201	42.7	+00.7	S 03 12.9	-00.8	147	11.3	+01.8	N 17 38.8	+00.2	209	41.3	+02.3	S 07 06.8	-00.1	23

UT 02 06 10 14 18 22 SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 005° 005° 005° 005° 004° 004° Greenwich Culmination Time: 09:33	UT 02 06 10 14 18 22 SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3' HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' SHA 310° 310° 310° 310° 310° 310° Greenwich Culmination Time: 13:12	UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' SHA 012° 012° 012° 012° 012° 012° Greenwich Culmination Time: 09:03
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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	28.0	+00.1	N 12 57.3	+00.8	190	29.7	-00.4	N 07 45.8	+01.2	0	58.4	-26.2	S 14 34.8	+12.8	00
01	195	28.1	+00.1	N 12 58.1	+00.9	205	29.3	-00.4	N 07 47.0	+01.2	15	32.2	-26.3	S 14 47.6	+12.7	01
02	210	28.2	+00.2	N 12 59.0	+00.8	220	28.9	-00.4	N 07 48.2	+01.1	30	05.9	-26.4	S 15 00.3	+12.7	02
03	225	28.4	+00.1	N 12 59.8	+00.8	235	28.5	-00.4	N 07 49.3	+01.1	44	39.5	-26.5	S 15 13.0	+12.7	03
04	240	28.5	+00.1	N 13 00.6	+00.8	250	28.1	-00.4	N 07 50.5	+01.2	59	13.0	-26.6	S 15 25.7	+12.6	04
05	255	28.6	+00.1	N 13 01.4	+00.8	265	27.7	-00.4	N 07 51.7	+01.2	73	46.4	-26.6	S 15 38.3	+12.5	05
06	270	28.7	+00.1	N 13 02.2	+00.9	280	27.3	-00.5	N 07 52.9	+01.1	88	19.8	-26.7	S 15 50.8	+12.5	06
07	285	28.8	+00.1	N 13 03.1	+00.8	295	26.8	-00.4	N 07 54.0	+01.2	102	53.1	-26.8	S 16 03.3	+12.4	07
08	300	28.9	+00.1	N 13 03.9	+00.8	310	26.4	-00.4	N 07 55.2	+01.2	117	26.3	-26.8	S 16 15.7	+12.3	08
09	315	29.0	+00.1	N 13 04.7	+00.8	325	26.0	-00.4	N 07 56.4	+01.2	131	59.5	-27.0	S 16 28.0	+12.3	09
10	330	29.1	+00.1	N 13 05.5	+00.8	340	25.6	-00.4	N 07 57.6	+01.1	146	32.5	-27.0	S 16 40.3	+12.3	10
11	345	29.2	+00.1	N 13 06.3	+00.8	355	25.2	-00.4	N 07 58.7	+01.2	161	05.5	-27.1	S 16 52.6	+12.1	11
12	0	29.3	+00.2	N 13 07.1	+00.9	10	24.8	-00.4	N 07 59.9	+01.2	175	38.4	-27.2	S 17 04.7	+12.1	12
13	15	29.5	+00.1	N 13 08.0	+00.8	25	24.4	-00.4	N 08 01.1	+01.1	190	11.2	-27.2	S 17 16.8	+12.1	13
14	30	29.6	+00.1	N 13 08.8	+00.8	40	24.0	-00.5	N 08 02.2	+01.2	204	44.0	-27.4	S 17 28.9	+11.9	14
15	45	29.7	+00.1	N 13 09.6	+00.8	55	23.5	-00.4	N 08 03.4	+01.2	219	16.6	-27.4	S 17 40.8	+11.9	15
16	60	29.8	+00.1	N 13 10.4	+00.8	70	23.1	-00.4	N 08 04.6	+01.2	233	49.2	-27.5	S 17 52.7	+11.9	16
17	75	29.9	+00.1	N 13 11.2	+00.8											

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180	39.9	+00.1	N 14 33.1	+00.7	189	38.5	-00.5	N 10 04.4	+01.2	298	29.1	-35.1	S 28 23.3	-01.8
01	195	40.0	+00.1	N 14 33.8	+00.8	204	38.0	-00.4	N 10 05.6	+01.1	312	54.0	-35.1	S 28 21.5	-01.9
02	210	40.1	+00.0	N 14 34.6	+00.8	219	37.6	-00.5	N 10 06.7	+01.1	327	18.9	-35.1	S 28 19.6	-02.1
03	225	40.1	+00.1	N 14 35.4	+00.7	234	37.1	-00.4	N 10 07.8	+01.2	341	43.8	-35.0	S 28 17.5	-02.3
04	240	40.2	+00.1	N 14 36.1	+00.8	249	36.7	-00.4	N 10 09.0	+01.1	356	08.8	-35.1	S 28 15.2	-02.4
05	255	40.3	+00.1	N 14 36.9	+00.8	264	36.3	-00.5	N 10 10.1	+01.1	10	33.7	-35.1	S 28 12.8	-02.6
06	270	40.4	+00.1	N 14 37.7	+00.8	279	35.8	-00.4	N 10 11.2	+01.2	24	58.6	-35.1	S 28 10.2	-02.8
07	285	40.5	+00.1	N 14 38.5	+00.7	294	35.4	-00.5	N 10 12.4	+01.1	39	23.5	-35.0	S 28 07.4	-03.0
08	300	40.6	+00.0	N 14 39.2	+00.8	309	34.9	-00.4	N 10 13.5	+01.1	53	48.5	-35.1	S 28 04.4	-03.1
09	315	40.6	+00.1	N 14 40.0	+00.8	314	34.5	-00.5	N 10 14.6	+01.2	68	13.4	-35.1	S 28 01.3	-03.3
10	330	40.7	+00.1	N 14 40.8	+00.7	329	34.0	-00.4	N 10 15.8	+01.1	82	38.3	-35.0	S 27 58.0	-03.5
11	345	40.8	+00.1	N 14 41.5	+00.8	354	33.6	-00.5	N 10 16.9	+01.1	97	03.3	-35.1	S 27 54.5	-03.6
12	0	40.9	+00.1	N 14 42.3	+00.8	9	33.1	-00.4	N 10 18.0	+01.1	111	28.2	-35.0	S 27 50.9	-03.8
13	15	41.0	+00.1	N 14 43.1	+00.7	24	32.7	-00.5	N 10 19.1	+01.2	125	53.2	-35.0	S 27 47.1	-04.0
14	30	41.1	+00.0	N 14 43.8	+00.8	39	32.2	-00.4	N 10 20.3	+01.1	140	18.2	-35.0	S 27 43.1	-04.2
15	45	41.1	+00.1	N 14 44.6	+00.8	54	31.8	-00.5	N 10 21.4	+01.1	154	43.2	-34.9	S 27 38.9	-04.3
16	60	41.2	+00.1	N 14 45.4	+00.7	69	31.3	-00.4	N 10 22.5	+01.1	169	08.3	-35.0	S 27 34.6	-04.5
17	75	41.3	+00.1	N 14 46.1	+00.8	84	30.9	-00.5	N 10 23.6	+01.2	183	33.3	-34.9	S 27 30.1	-04.7
18	90	41.4	+00.1	N 14 46.9	+00.8	99	30.4	-00.4	N 10 24.8	+01.1	197	58.4	-34.9	S 27 25.4	-04.9
19	105	41.5	+00.0	N 14 47.7	+00.7	114	30.0	-00.5	N 10 25.9	+01.1	212	23.5	-34.9	S 27 20.5	-05.0
20	120	41.5	+00.1	N 14 48.4	+00.8	129	29.5	-00.4	N 10 27.0	+01.2	226	48.6	-34.9	S 27 15.5	-05.2
21	135	41.6	+00.1	N 14 49.2	+00.8	144	29.1	-00.5	N 10 28.2	+01.1	241	13.7	-34.8	S 27 10.3	-05.3
22	150	41.7	+00.1	N 14 50.0	+00.7	159	28.6	-00.4	N 10 29.3	+01.1	255	38.9	-34.8	S 27 05.0	-05.5
23	165	41.8	+00.1	N 14 50.7	+00.8	174	28.2	-00.5	N 10 30.4	+01.1	270	04.1	-34.7	S 26 59.5	-05.7
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 15°6' 15°6' 15°6' 15°7' 15°7' 15°7'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'										
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 57°2' 57°3' 57°4' 57°5' 57°6' 57°7'	HP 57°2' 57°3' 57°4' 57°5' 57°6' 57°7'											
SHA 323° 323° 323° 323° 323° 323°	SHA 332° 332° 332° 332° 331° 331°	SHA 332° 332° 332° 332° 331° 331°	SHA 080° 077° 075° 072° 070° 067°	SHA 080° 077° 075° 072° 070° 067°											
Greenwich Culmination Time: 11:57		Greenwich Culmination Time: 11:21		Greenwich Culmination Time: 04:16											

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180	33.1	+00.1	N 13 36.3	+00.8	190	09.7	-00.4	N 08 41.9	+01.1	338	24.4	-30.5	S 23 30.2	+08.9
01	195	33.2	+00.1	N 13 37.1	+00.8	205	09.3	-00.4	N 08 43.0	+01.2	352	53.9	-30.5	S 23 39.1	+08.9
02	210	33.3	+00.2	N 13 37.9	+00.8	220	08.9	-00.5	N 08 44.2	+01.1	7	23.4	-30.7	S 23 48.0	+08.7
03	225	33.5	+00.1	N 13 38.7	+00.8	235	08.4	-00.4	N 08 45.3	+01.2	21	52.7	-30.7	S 23 56.7	+08.6
04	240	33.6	+00.1	N 13 39.5	+00.8	250	08.0	-00.4	N 08 46.5	+01.2	36	22.0	-30.8	S 24 05.3	+08.5
05	255	33.7	+00.1	N 13 40.3	+00.8	265	07.6	-00.4	N 08 47.7	+01.1	50	51.2	-31.0	S 24 13.8	+08.4
06	270	33.8	+00.1	N 13 41.1	+00.8	280	07.2	-00.5	N 08 48.8	+01.2	65	20.2	-31.0	S 24 22.2	+08.3
07	285	33.9	+00.1	N 13 41.9	+00.8	295	06.7	-00.4	N 08 50.0	+01.1	79	49.2	-31.1	S 24 30.5	+08.2
08	300	34.0	+00.1	N 13 42.7	+00.8	310	06.3	-00.4	N 08 51.1	+01.2	94	18.1	-31.2	S 24 38.7	+08.0
09	315	34.1	+00.1	N 13 43.5	+00.8	325	05.9	-00.4	N 08 52.3	+01.1	108	46.9	-31.3	S 24 46.7	+07.9
10	330	34.2	+00.1	N 13 44.3	+00.8	340	05.5	-00.5	N 08 53.4	+01.2	123	15.6	-31.4	S 24 54.6	+07.8
11	345	34.3	+00.1	N 13 45.1	+00.8	355	05.0	-00.4	N 08 54.6	+01.2	137	44.2	-31.5	S 25 02.4	+07.7
12	0	34.4	+00.0	N 13 45.9	+00.8	10	04.6	-00.4	N 08 55.8	+01.1	152	12.7	-31.6	S 25 10.1	+07.5
13	15	34.4	+00.1	N 13 46.7	+00.8	25	04.2	-00.4	N 08 56.9	+01.2	166	41.1	-31.6	S 25 17.6	+07.4
14	30	34.5	+00.1	N 13 47.5	+00.8	40	03.8	-00.5	N 08 58.1	+01.1	181	09.5	-31.8	S 25 25.0	+07.3
15	45	34.6	+00.1	N 13 48.3	+00.8	55	03.3	-00.4	N 08 59.2	+01.2	195	37.7	-31.9	S 25 32.3	+07.2
16	60	34.7	+00.1	N 13 49.1	+00.8	70	02.9	-00.4	N 09 00.4	+01.1	210	05.8	-31.9	S 25 39.5	+07.0
17	75	34.8	+00.1	N 13 49.9	+00.8	85	02.5	-00.5	N 09 01.5	+01.2	224	33.9	-32.0	S 25 46.5	+06.9
18	90	34.9	+00.1	N 13 50.7	+00.8	100	02.0	-00.4	N 09 02.7	+01.1	239	01.9	-32.2	S 25 53.4	+06.8
19	105	35.0	+00.1	N 13 51.5	+00.8	115	01.6	-00.4	N 09 03.8	+01.2	253	29.7	-32.2	S 26 00.2	+06.6
20	120	35.1	+00.1	N 13 52.3	+00.8	130	01.2	-00.4	N 09 05.0	+01.1	267	57.5	-32.3	S 26 06.8	+06.5
21	135	35.2	+00.1	N 13 53.1	+00.7	145	00.8	-00.5	N 09 06.1	+01.2	282	25.2	-32.4	S 26 13.3	+06.4
22	150	35.3	+00.1	N 13 53.8	+00.8	160	00.3	-00.4	N 09 07.3	+01.1	296	52.8	-32.4	S 26 19.7	+06.2
23	165	35.4	+00.1	N 13 54.6	+00.8	174	59.9	-00.4	N 09 08.4	+01.2	311	20.4	-32.6	S 26 25.9	+06.1
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 15°2' 15°2' 15°2' 15°2' 15°3' 15°3'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'										
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 55°1' 55°8' 55°8' 55°9' 56°0' 56°1'	HP 55°1' 55°8' 55°8' 55°9' 56°0' 56°1'											
SHA 326° 326° 326° 326° 325° 325°	SHA 336° 335° 335° 335° 335° 335°	SHA 336° 335° 335° 335° 335° 335°	SHA 123° 121° 118° 116° 114° 111°	SHA 123° 121° 118° 116° 114° 111°											
Greenwich Culmination Time: 11:57		Greenwich Culmination Time: 11:19		Greenwich Culmination Time: 01:29											

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	218	06.3	+00.7	S 01 40.0	-00.8	165	58.3	+01.8	N 17 57.0	+00.1	229	13.3	+02.2	S 06 56.8	-00.1
01	233	07.0	+00.7	S 01 39.2	-00.7	181	00.1	+01.9	N 17 57.1	+00.2	244	15.5	+02.3	S 06 56.7	-00.1
02	248	07.7	+00.7	S 01 38.5	-00.8	196	02.0	+01.9	N 17 57.3	+00.1	259	17.8	+02.2	S 06 56.6	-00.1
03	263	08.4	+00.7	S 01 37.7	-00.8	211	03.9	+01.9	N 17 57.4	+00.2	274	20.0	+02.3	S 06 56.5	-00.1
04	278	09.1	+00.7	S 01 36.9	-00.7	226	05.8	+01.8	N 17 57.6	+00.1	289	22.3	+02.2	S 06 56.4	+00.0
05	293	09.8	+00.7	S 01 36.2	-00.8	241	07.6	+01.9	N 17 57.7	+00.2	304	24.5	+02.3	S 06 56.4	-00.1
06	308	10.5	+00.7	S 01 35.4	-00.8	256	09.5	+01.9	N 17 57.9	+00.1	319	26.8	+02.2	S 06 56.3	-00.1
07	323	11.2	+00.7	S 01 34.6	-00.7	271	11.4	+01.8	N 17 58.0	+00.2	334	29.0	+02.3	S 06 56.2	-00.1
08	338	11.9	+00.7	S 01 33.9	-00.8	286	13.2	+01.9	N 17 58.2	+00.1	349	31.3	+02.3	S 06 56.1	-00.1
09	353	12.6	+00.7	S 01 33.1	-00.8	301	15.1	+01.9	N 17 58.3	+00.1	4	33.6	+02.2	S 06 56.0	+00.0
10	8	13.3	+00.7	S 01 32.3	-00.7	316	17.0	+01.9	N 17 58.4	+00.2	19	35.8	+02.3	S 06 56.0	-00.1
11	23	14.0	+00.7	S 01 31.6	-00.8	331	18.9	+01.8	N 17 58.6	+00.1	34	38.1	+02.2	S 06 55.9	-00.1
12	38	14.7	+00.7	S 01 30.8	-00.8	346	20.7	+01.9	N 17 58.7	+00.2	49	40.3	+02.3	S 06 55.8	-00.1
13	53	15.4	+00.7	S 01 30.0	-00.7	1	22.6	+01.9	N 17 58.9	+00.1	64	42.6	+02.2	S 06 55.7	-00.1
14	68	16.1	+00.7	S 01 29.3	-00.8	16	24.5	+01.8	N 17 59.0	+00.2	79	44.8	+02.3	S 06 55.6	+00.0
15	83	16.8	+00.7	S 01 28.5	-00.8	31	26.3	+01.9	N 17 59.2	+00.1	94	47.1	+02.2	S 06 55.6	-00.1
16	98	17.5	+00.7	S 01 27.7	-00.8	46	28.2	+01.9	N 17 59.3	+00.2	109	49.3	+02.3	S 06 55.5	-00.1
17	113	18.2	+00.7	S 01 26.9	-00.7	61	30.1	+01.9	N 17 59.5	+00.1	124</				

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	35.5	+00.1	N 13 55.4	+00.8	189	59.5	-00.5	N 09 09.6	+01.1	325	47.8	-32.6	S 26 32.0	+06.0					
01	195	35.6	+00.1	N 13 56.2	+00.8	204	59.0	-00.4	N 09 10.7	+01.2	340	15.2	-32.8	S 26 38.0	+05.8					
02	210	35.7	+00.1	N 13 57.0	+00.8	219	58.6	-00.4	N 09 11.9	+01.1	354	42.4	-32.8	S 26 43.8	+05.7					
03	225	35.8	+00.1	N 13 57.8	+00.8	234	58.2	-00.4	N 09 13.0	+01.2	9	09.6	-32.9	S 26 49.5	+05.5					
04	240	35.9	+00.1	N 13 58.6	+00.8	249	57.8	-00.5	N 09 14.2	+01.1	23	36.7	-32.9	S 26 55.0	+05.4					
05	255	36.0	+00.1	N 13 59.4	+00.8	264	57.3	-00.4	N 09 15.3	+01.2	38	03.8	-33.1	S 27 00.4	+05.2					
06	270	36.1	+00.1	N 14 00.2	+00.8	279	56.9	-00.4	N 09 16.5	+01.1	52	30.7	-33.1	S 27 05.6	+05.1					
07	285	36.2	+00.1	N 14 01.0	+00.8	294	56.5	-00.5	N 09 17.6	+01.2	66	57.6	-33.2	S 27 10.7	+05.0					
08	300	36.3	+00.1	N 14 01.8	+00.8	309	56.0	-00.4	N 09 18.8	+01.1	81	24.4	-33.3	S 27 15.7	+04.8					
09	315	36.4	+00.1	N 14 02.6	+00.7	324	55.6	-00.4	N 09 19.9	+01.2	95	51.1	-33.4	S 27 20.5	+04.6					
10	330	36.5	+00.1	N 14 03.3	+00.8	339	55.2	-00.5	N 09 21.1	+01.1	110	17.7	-33.4	S 27 25.1	+04.5					
11	345	36.6	+00.1	N 14 04.1	+00.8	354	54.7	-00.4	N 09 22.2	+01.2	124	44.3	-33.5	S 27 29.6	+04.4					
12	0	36.7	+00.1	N 14 04.9	+00.8	9	54.3	-00.4	N 09 23.4	+01.1	139	10.8	-33.6	S 27 34.0	+04.2					
13	15	36.8	+00.1	N 14 05.7	+00.8	24	53.9	-00.5	N 09 24.5	+01.2	153	37.2	-33.7	S 27 38.2	+04.0					
14	30	36.9	+00.0	N 14 06.5	+00.8	39	53.4	-00.4	N 09 25.7	+01.1	168	03.5	-33.7	S 27 42.2	+03.9					
15	45	36.9	+00.1	N 14 07.3	+00.8	54	53.0	-00.4	N 09 26.8	+01.2	182	29.8	-33.8	S 27 46.1	+03.8					
16	60	37.0	+00.1	N 14 08.1	+00.8	69	52.6	-00.5	N 09 28.0	+01.1	196	56.0	-33.8	S 27 49.9	+03.5					
17	75	37.1	+00.1	N 14 08.9	+00.8	84	52.1	-00.4	N 09 29.1	+01.2	211	22.2	-33.9	S 27 53.4	+03.5					
18	90	37.2	+00.1	N 14 09.7	+00.7	99	51.7	-00.5	N 09 30.3	+01.1	225	48.3	-34.0	S 27 56.9	+03.2					
19	105	37.3	+00.1	N 14 10.4	+00.8	114	51.2	-00.4	N 09 31.4	+01.1	240	14.3	-34.1	S 28 00.1	+03.1					
20	120	37.4	+00.1	N 14 11.2	+00.8	129	50.8	-00.4	N 09 32.5	+01.2	254	40.2	-34.1	S 28 03.2	+03.0					
21	135	37.5	+00.1	N 14 12.0	+00.8	144	50.4	-00.5	N 09 33.7	+01.1	269	06.1	-34.1	S 28 06.2	+02.8					
22	150	37.6	+00.1	N 14 12.8	+00.8	159	49.9	-00.4	N 09 34.8	+01.2	283	32.0	-34.2	S 28 09.0	+02.6					
23	165	37.7	+00.1	N 14 13.6	+00.8	174	49.5	-00.4	N 09 36.0	+01.1	297	57.8	-34.3	S 28 11.6	+02.5					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°3'	15°3'	15°3'	15°4'	15°4'	15°4'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	56°2'	56°2'	56°3'	56°4'	56°5'	56°6'
SHA	325°	325°	325°	325°	325°	324°	SHA	334°	334°	334°	334°	334°	333°	SHA	109°	107°	104°	102°	100°	99°
Greenwich Culmination Time: 11:57																				

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	37.8	+00.1	N 14 14.4	+00.7	189	49.1	-00.5	N 09 37.1	+01.2	312	23.5	-34.3	S 28 14.1	+02.3					
01	195	37.9	+00.1	N 14 15.1	+00.8	204	48.6	-00.4	N 09 38.3	+01.1	326	49.2	-34.4	S 28 16.4	+02.1					
02	210	38.0	+00.0	N 14 15.9	+00.8	219	48.2	-00.4	N 09 39.4	+01.1	341	14.8	-34.4	S 28 18.5	+02.0					
03	225	38.0	+00.1	N 14 16.7	+00.8	234	47.8	-00.5	N 09 40.5	+01.2	355	40.4	-34.5	S 28 20.5	+01.8					
04	240	38.1	+00.1	N 14 17.5	+00.8	249	47.3	-00.4	N 09 41.7	+01.1	10	05.9	-34.5	S 28 22.3	+01.7					
05	255	38.2	+00.1	N 14 18.3	+00.8	264	46.9	-00.5	N 09 42.8	+01.2	24	31.4	-34.6	S 28 24.0	+01.5					
06	270	38.3	+00.1	N 14 19.1	+00.7	279	46.4	-00.4	N 09 44.0	+01.1	38	56.8	-34.6	S 28 25.5	+01.3					
07	285	38.4	+00.1	N 14 19.8	+00.8	294	46.0	-00.4	N 09 45.1	+01.2	53	22.2	-34.7	S 28 26.8	+01.1					
08	300	38.5	+00.1	N 14 20.6	+00.8	309	45.6	-00.5	N 09 46.3	+01.1	67	47.5	-34.6	S 28 27.9	+01.0					
09	315	38.6	+00.1	N 14 21.4	+00.8	324	45.1	-00.4	N 09 47.4	+01.1	82	12.9	-34.8	S 28 28.9	+00.8					
10	330	38.7	+00.1	N 14 22.2	+00.8	339	44.7	-00.5	N 09 48.5	+01.2	96	38.1	-34.7	S 28 29.7	+00.7					
11	345	38.8	+00.0	N 14 23.0	+00.7	354	44.2	-00.4	N 09 49.7	+01.1	111	03.4	-34.8	S 28 30.4	+00.5					
12	0	38.8	+00.1	N 14 23.7	+00.8	9	43.8	-00.4	N 09 50.8	+01.1	125	28.6	-34.9	S 28 30.9	+00.3					
13	15	38.9	+00.1	N 14 24.5	+00.8	24	43.4	-00.5	N 09 51.9	+01.2	139	53.7	-34.8	S 28 31.2	+00.2					
14	30	39.0	+00.1	N 14 25.3	+00.8	39	42.9	-00.4	N 09 53.1	+01.1	154	18.9	-34.9	S 28 31.3	+00.0					
15	45	39.1	+00.1	N 14 26.1	+00.7	54	42.5	-00.5	N 09 54.2	+01.2	168	44.0	-34.9	S 28 31.3	-00.2					
16	60	39.2	+00.1	N 14 26.8	+00.8	69	42.0	-00.4	N 09 55.4	+01.1	183	09.1	-35.0	S 28 31.1	-00.4					
17	75	39.3	+00.1	N 14 27.6	+00.8	84	41.6	-00.5	N 09 56.5	+01.1	197	34.1	-34.9	S 28 30.7	-00.6					
18	90	39.4	+00.1	N 14 28.4	+00.8	99	41.1	-00.4	N 09 57.6	+01.2	211	59.2	-35.0	S 28 30.1	-00.7					
19	105	39.5	+00.0	N 14 29.2	+00.8	114	40.7	-00.4	N 09 58.8	+01.1	226	24.2	-35.0	S 28 29.4	-00.9					
20	120	39.5	+00.1	N 14 30.0	+00.7	129	40.3	-00.5	N 09 59.9	+01.2	240	49.2	-35.0	S 28 28.5	-01.0					
21	135	39.6	+00.1	N 14 30.7	+00.8	144	39.8	-00.4	N 10 01.0	+01.2	255	14.2	-35.0	S 28 27.5	-01.2					
22	150	39.7	+00.1	N 14 31.5	+00.8	159	39.4	-00.5	N 10 02.2	+01.1	269	39.2	-35.1	S 28 26.3	-01.5					
23	165	39.8	+00.1	N 14 32.3	+00.8	174	38.9	-00.4	N 10 03.3	+01.1	284	04.1	-35.0	S 28 24.8	-01.5					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°4'	15°5'	15°5'	15°5'	15°5'	15°6'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	56°7'	56°8'	56°9'	57°0'	57°1'	57°1'
SHA	324°	324°	324°	324°	323°	323°	SHA	333°	333°	333°	333°	332°	332°	SHA	095°	092°	090°	087°	085°	082°
Greenwich Culmination Time: 11:57																				

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	217	33.1	+00.7	S 02 16.9	-00.8	164	28.3	+01.9	N 17 49.8	+00.2	227	25.2	+02.3	S 07 00.6	+00.0
01	232	33.8	+00.6	S 02 16.1	-00.8	179	30.2	+01.9	N 17 50.0	+00.1	242	27.5	+02.2	S 07 00.6	-00.1
02	247	34.4	+00.7	S 02 15.3	-00.7	194	32.1	+01.8	N 17 50.1	+00.2	257	29.7	+02.3	S 07 00.5	-00.1
03	262	35.1	+00.7	S 02 14.6	-00.8	209	33.9	+01.9	N 17 50.3	+00.1	272	32.0	+02.2	S 07 00.4	-00.1
04	277	35.8	+00.7	S 02 13.8	-00.8	224	35.8	+01.9	N 17 50.4	+00.2	287	34.2	+02.3	S 07 00.3	-00.1
05	292	36.5	+00.7	S 02 13.0	-00.7	239	37.7	+01.9	N 17 50.6	+00.1	302	36.5	+02.2	S 07 00.2	+00.0
06	307	37.2	+00.7	S 02 12.3	-00.8	254	39.6	+01.8	N 17 50.7	+00.2	317	38.7	+02.3	S 07 00.2	-00.1
07	322	37.9	+00.7	S 02 11.5	-00.8	269	41.4	+01.9	N 17 50.9	+00.1	332	41.0	+02.2	S 07 00.1	-00.1
08	337	38.6	+00.7	S 02 10.7	-00.7	284	43.3	+01.9	N 17 51.0	+00.2	347	43.2	+02.3	S 06 60.0	-00.1
09	352	39.3	+00.7	S 02 10.0	-00.8	299	45.2	+01.9	N 17 51.2	+00.1	2	45.5	+02.2	S 06 59.9	-00.1
10	7	40.0	+00.7	S 02 09.2	-00.8	314	47.1	+01.8	N 17 51.3	+00.2	17	47.7	+02.3	S 06 59.8	-00.1
11	22	40.7	+00.7	S 02 08.4	-00.7	329	48.9	+01.9	N 17 51.5	+00.1	32	50.0	+02.2	S 06 59.7	+00.0
12	37	41.4	+00.7	S 02 07.7	-00.8	344	50.8	+01.9	N 17 51.6	+00.2	47	52.2	+02.3	S 06 59.7	-00.1
13	52	42.1	+00.7	S 02 06.9	-00.8	359	52.7	+01.9	N 17 51.8	+00.1	62	54.5	+02.2	S 06 59.6	-00.1
14	67	42.8	+00.6	S 02 06.1	-00.8	14	54.6	+01.8	N 17 51.9	+00.2	77	56.7	+02.3	S 06 59.5	-00.1
15	82	43.4	+00.7	S 02 05.3	-00.7	29	56.4	+01.9	N 17 52.1	+00.1	92	59.0	+02.2	S 06 59.4	-00.1
16	97	44.1</													

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 319° 319° 319° 319° 319° 319°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 358° 358° 358° 357° 357° 357°
Greenwich Culmination Time: 09:22

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 322° 322° 322° 322° 322° 321°
Greenwich Culmination Time: 11:57

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 360° 360° 360° 360° 359° 359°
Greenwich Culmination Time: 09:26

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UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180	51.8	+00.0	N 16 53.6	188	06.5	-00.5	N 13 33.7	196	35.3	-31.7	N 13 18.8	00
01	195	51.8	+00.1	N 16 54.2	203	06.0	-00.6	N 13 34.8	211	03.6	-31.8	N 13 34.6	01
02	210	51.9	+00.0	N 16 54.9	218	05.4	-00.5	N 13 35.8	225	31.8	-31.8	N 13 50.2	02
03	225	51.9	+00.0	N 16 55.6	233	04.9	-00.5	N 13 36.8	239	60.0	-31.9	N 14 05.8	03
04	240	51.9	+00.1	N 16 56.3	248	04.4	-00.5	N 13 37.9	254	28.1	-32.0	N 14 21.3	04
05	255	52.0	+00.0	N 16 57.0	263	03.9	-00.5	N 13 38.9	268	56.1	-32.1	N 14 36.7	05
06	270	52.0	+00.1	N 16 57.7	278	03.4	-00.5	N 13 40.0	283	24.0	-32.1	N 14 52.1	06
07	285	52.1	+00.0	N 16 58.4	293	02.9	-00.6	N 13 41.0	297	51.9	-32.1	N 15 07.3	07
08	300	52.1	+00.0	N 16 59.0	308	02.3	-00.5	N 13 42.0	312	19.8	-32.3	N 15 22.4	08
09	315	52.1	+00.1	N 16 59.7	323	01.8	-00.5	N 13 43.1	326	47.5	-32.3	N 15 37.5	09
10	330	52.2	+00.0	N 17 00.4	338	01.3	-00.5	N 13 44.1	341	15.2	-32.4	N 15 52.4	10
11	345	52.2	+00.0	N 17 01.1	353	00.8	-00.6	N 13 45.1	355	42.8	-32.4	N 16 07.3	11
12	0	52.2	+00.1	N 17 01.8	8	00.2	-00.5	N 13 46.2	10	10.4	-32.5	N 16 22.0	12
13	15	52.3	+00.0	N 17 02.4	22	59.7	-00.5	N 13 47.2	24	37.9	-32.6	N 16 36.6	13
14	30	52.3	+00.0	N 17 03.1	37	59.2	-00.5	N 13 48.2	39	05.3	-32.7	N 16 51.2	14
15	45	52.3	+00.1	N 17 03.8	52	58.7	-00.5	N 13 49.3	53	32.6	-32.7	N 17 05.6	15
16	60	52.4	+00.0	N 17 04.5	67	58.2	-00.6	N 13 50.3	67	59.9	-32.8	N 17 19.9	16
17	75	52.4	+00.0	N 17 05.2	82	57.6	-00.5	N 13 51.3	82	27.1	-32.9	N 17 34.1	17
18	90	52.4	+00.1	N 17 05.8	97	57.1	-00.5	N 13 52.4	96	54.2	-33.0	N 17 48.2	18
19	105	52.5	+00.0	N 17 06.5	112	56.6	-00.5	N 13 53.4	111	21.2	-33.0	N 18 02.2	19
20	120	52.5	+00.0	N 17 07.2	127	56.1	-00.6	N 13 54.4	125	48.2	-33.1	N 18 16.0	20
21	135	52.5	+00.1	N 17 07.9	142	55.5	-00.5	N 13 55.5	140	15.1	-33.1	N 18 29.8	21
22	150	52.6	+00.0	N 17 08.6	157	55.0	-00.5	N 13 56.5	154	42.0	-33.3	N 18 43.4	22
23	165	52.6	+00.0	N 17 09.2	172	54.5	-00.5	N 13 57.5	169	08.7	-33.3	N 18 56.9	23

UT 02 06 10 14 18 22 SD 15°9' 15°8' 15°8' 15°8' 15°8' 15°8' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 315° 315° 315° 315° 315° 315°
Greenwich Culmination Time: 11:56

UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 323° 322° 322° 322° 322° 322°
Greenwich Culmination Time: 11:27

UT 02 06 10 14 18 22 SD 16°4' 16°4' 16°4' 16°4' 16°4' 16°3' HP 60°2' 60°1' 60°1' 60°0' 59°9' 59°9' SHA 330° 318° 326° 326° 323° 318°
Greenwich Culmination Time: 11:17

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	220	20.6	+00.7	N 00 47.2	171	56.9	+01.8	N 18 25.0	236	27.9	+02.3	S 06 42.2	00
01	235	21.3	+00.7	N 00 48.0	186	58.7	+01.9	N 18 25.1	251	30.2	+02.3	S 06 42.2	01
02	250	22.0	+00.7	N 00 48.8	202	00.6	+01.8	N 18 25.3	266	32.5	+02.2	S 06 42.1	02
03	265	22.7	+00.7	N 00 49.5	217	02.4	+01.9	N 18 25.4	281	34.7	+02.3	S 06 42.0	03
04	280	23.4	+00.7	N 00 50.3	232	04.3	+01.9	N 18 25.6	296	37.0	+02.3	S 06 42.0	04
05	295	24.1	+00.7	N 00 51.1	247	06.2	+01.8	N 18 25.7	311	39.3	+02.3	S 06 41.9	05
06	310	24.8	+00.7	N 00 51.8	262	08.0	+01.9	N 18 25.8	326	41.6	+02.2	S 06 41.8	06
07	325	25.5	+00.8	N 00 52.6	277	09.9	+01.9	N 18 26.0	341	43.8	+02.3	S 06 41.7	07
08	340	26.3	+00.7	N 00 53.3	292	11.8	+01.8	N 18 26.1	356	46.1	+02.3	S 06 41.7	08
09	355	27.0	+00.7	N 00 54.1	307	13.6	+01.9	N 18 26.3	11	48.4	+02.3	S 06 41.6	09
10	10	27.7	+00.7	N 00 54.9	322	15.5	+01.9	N 18 26.4	26	50.7	+02.2	S 06 41.5	10
11	25	28.4	+00.7	N 00 55.6	337	17.4	+01.8	N 18 26.6	41	52.9	+02.3	S 06 41.5	11
12	40	29.1	+00.7	N 00 56.4	352	19.2	+01.9	N 18 26.7	56	55.2	+02.3	S 06 41.4	12
13	55	29.8	+00.7	N 00 57.2	7	21.1	+01.8	N 18 26.8	71	57.5	+02.3	S 06 41.3	13
14	70	30.5	+00.7	N 00 57.9	22	22.9	+01.9	N 18 27.0	86	59.8	+02.2	S 06 41.3	14
15	85	31.2	+00.7	N 00 58.7	37	24.8	+01.9	N 18 27.1	102	02.0	+02.3	S 06 41.2	15
16	100	31.9	+00.7	N 00 59.5	52	26.7	+01.8	N 18 27.3	117	04.3	+02.3	S 06 41.1	16
17	115	32.6	+00.7	N 01 00.2	67	28.5	+01.9	N 18 27.4	132	06.6	+02.3	S 06 41.0	17
18	130	33.3	+00.7	N 01 01.0	82	30.4	+01.9	N 18 27.6	147	08.9	+02.2	S 06 41.0	18
19	145	34.0	+00.7	N 01 01.7	97	32.3	+01.8	N 18 27.7	162	11.1	+02.3	S 06 40.9	19
20	160	34.7	+00.7	N 01 02.5	112	34.1	+01.9	N 18 27.8	177	13.4	+02.3	S 06 40.8	20
21	175	35.4	+00.7	N 01 03.3	127	36.0	+01.8	N 18 28.0	192	15.7	+02.3	S 06 40.8	21
22	190	36.1	+00.7	N 01 04.0	142	37.8	+01.9	N 18 28.1	207	18.0	+02.2	S 06 40.7	22
23	205	36.8	+00.7	N 01 04.8	157	39.7	+01.9	N 18 28.3	222	20.2	+02.3	S 06 40.6	23

UT 02 06 10 14 18 22 SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 355° 355° 355° 355° 354° 354°
Greenwich Culmination Time: 09:18

UT 02 06 10 14 18 22 SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3' HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' SHA 307° 307° 307° 306° 306° 306°
Greenwich Culmination Time: 12:30

UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' SHA 011° 011° 011° 011° 011° 011°
Greenwich Culmination Time: 08:12

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180	48.4	+00.1	N 16 02.8	188	42.6	-00.5	N 12 17.4	232	57.0	-30.0	S 07 13.3	00
01	195	48.5	+00.0	N 16 03.6	203	42.1	-00.5	N 12 18.4	247	27.0	-29.9	S 06 56.4	01
02	210	48.5	+00.0	N 16 04.3	218	41.6	-00.5	N 12 19.5	261	57.1	-29.9	S 06 39.4	02
03	225	48.6	+00.1	N 16 05.0	233	41.1	-00.4	N 12 20.6	276	27.2	-29.9	S 06 22.5	03
04	240	48.6	+00.1	N 16 05.7	248	40.7	-00.5	N 12 21.7	290	57.3	-29.9	S 06 05.4	04
05	255	48.7	+00.0	N 16 06.4	263	40.2	-00.5	N 12 22.7	305	27.4	-29.9	S 05 48.4	05
06	270	48.7	+00.1	N 16 07.2	278	39.7	-00.5	N 12 23.8	319	57.5	-29.8	S 05 31.3	06
07	285	48.8	+00.0	N 16 07.9	293	39.2	-00.5	N 12 24.9	334	27.7	-29.9	S 05 14.1	07
08	300	48.8	+00.1	N 16 08.6	308	38.7	-00.5	N 12 26.0	348	57.8	-29.8	S 04 56.9	08
09	315	48.9	+00.0	N 16 09.3	323	38.2	-00.5	N 12 27.0	3	28.0	-29.8	S 04 39.7	09
10	330	48.9	+00.1	N 16 10.0	338	37.7	-00.5	N 12 28.1	17	58.2	-29.8	S 04 22.5	10
11	345	49.0	+00.1	N 16 10.7	353	37.2	-00.5	N 12 29.2	32	28.4	-29.8	S 04 05.2	11
12	0	49.1	+00.0	N 16 11.5	8	36.7	-00.5	N 12 30.3	46	58.6	-29.8	S 03 47.9	12
13	15	49.1	+00.1	N 16 12.2	23	36.2	-00.5	N 12 31.3	61	28.8	-29.8	S 03 30.6	13
14	30	49.2	+00.0	N 16 12.9	38	35.7	-00.4	N 12 32.4	75	59.0	-29.8	S 03 13.2	14
15	45	49.2	+00.1	N 16 13.6	53	35.3	-00.5	N 12 33.5	90	29.2	-29.8	S 02 55.8	15
16	60	49.3	+00.0	N 16 14.3	68	34.8	-00.5	N 12 34.6	104	59.4	-29.8	S 02 38.4	16
17	75	49.3	+00.1	N 16 15.0	83	34.3	-00.5	N 12 35.6	119	29.6	-29.8	S 02 21.0	17
18	90	49.4	+00.0	N 16 15.7	98	33.8	-00.5	N 12 36.7	133	59.8	-29.8	S 02 03.5	18
19	105	49.4	+00.1	N 16 16.5	113	33.3	-00.5	N 12 37.8	148	30.0	-29.8	S 01 46.0	19
20	120	49.5	+00.0	N 16 17.2	128	32.8	-00.5	N 12 38.8	163	00.2	-29.8	S 01 28.6	20
21	135	49.5	+00.1	N 16 17.9	143	32.3	-00.5	N 12 39.9	177	30.4	-29.8	S 01 11.0	21
22	150	49.6	+00.0	N 16 18.6	158	31.8	-00.5	N 12 41.0	192	00.6	-29.8	S 00 53.5	22
23	165	49.6	+00.1	N 16 19.3	173	31.3	-00.5	N 12 42.0	206	30.8	-29.8	S 00 36.0	23

UT 02 06 10 14 18 22 SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 318° 318° 318° 318° 318° 318°
Greenwich Culmination Time: 11:56

UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 326° 326° 326° 326° 325° 325°
Greenwich Culmination Time: 11:25

UT 02 06 10 14 18 22 SD 16°3' 16°4' 16°4' 16°4' 16°4' 16°4' HP 60°0' 60°0' 60°1' 60°2' 60°2' 60°2' SHA 009° 007° 005° 003° 001° 359°
Greenwich Culmination Time: 08:45

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	219	30.1	+00.7	S 00 07.9	169	42.6	+01.9	N 18 14.6	233	44.4	+02.3	S 06 47.5	00
01	234	30.8	+00.7	S 00 07.1	184	44.5	+01.8	N 18 14.7	248	46.7	+02.3	S 06 47.4	01
02	249	31.5	+00.7	S 00 06.4	1								

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180	49.7	+00.0	N 16 20.0	188	30.8	-00.5	N 12 43.1	221	01.0	-29.9	S 00 18.5	00
01	195	49.7	+00.1	N 16 20.7	203	30.3	-00.5	N 12 44.2	235	31.1	-29.8	S 00 00.9	01
02	210	49.8	+00.0	N 16 21.4	218	29.8	-00.5	N 12 45.2	250	01.3	-29.9	N 00 16.6	02
03	225	49.8	+00.1	N 16 22.1	233	29.3	-00.5	N 12 46.3	264	31.4	-29.8	N 00 34.2	03
04	240	49.9	+00.0	N 16 22.8	248	28.8	-00.5	N 12 47.4	279	01.6	-29.9	N 00 51.7	04
05	255	49.9	+00.1	N 16 23.6	263	28.3	-00.5	N 12 48.4	293	31.7	-29.9	N 01 09.3	05
06	270	50.0	+00.0	N 16 24.3	278	27.8	-00.5	N 12 49.5	308	01.8	-29.9	N 01 26.8	06
07	285	50.0	+00.1	N 16 25.0	293	27.3	-00.5	N 12 50.6	322	31.9	-30.0	N 01 44.4	07
08	300	50.1	+00.0	N 16 25.7	308	26.8	-00.5	N 12 51.6	337	01.9	-29.9	N 02 01.9	08
09	315	50.1	+00.1	N 16 26.4	323	26.3	-00.5	N 12 52.7	351	32.0	-30.0	N 02 19.5	09
10	330	50.2	+00.0	N 16 27.1	338	25.8	-00.5	N 12 53.8	6	02.0	-30.0	N 02 37.0	10
11	345	50.2	+00.1	N 16 27.8	353	25.3	-00.5	N 12 54.8	20	32.0	-30.0	N 02 54.5	11
12	0	50.3	+00.0	N 16 28.5	8	24.8	-00.5	N 12 55.9	35	02.0	-30.0	N 03 12.0	12
13	15	50.3	+00.1	N 16 29.2	23	24.3	-00.5	N 12 56.9	49	32.0	-30.1	N 03 29.5	13
14	30	50.4	+00.0	N 16 29.9	38	23.8	-00.5	N 12 58.0	64	01.9	-30.1	N 03 47.0	14
15	45	50.4	+00.0	N 16 30.6	53	23.3	-00.5	N 12 59.1	78	31.8	-30.2	N 04 04.5	15
16	60	50.4	+00.1	N 16 31.3	68	22.8	-00.5	N 13 00.1	93	01.6	-30.1	N 04 21.9	16
17	75	50.5	+00.0	N 16 32.0	83	22.3	-00.5	N 13 01.2	107	31.5	-30.2	N 04 39.4	17
18	90	50.5	+00.1	N 16 32.7	98	21.8	-00.5	N 13 02.2	122	01.3	-30.2	N 04 56.8	18
19	105	50.6	+00.0	N 16 33.4	113	21.3	-00.5	N 13 03.3	136	31.1	-30.3	N 05 14.1	19
20	120	50.6	+00.1	N 16 34.1	128	20.8	-00.5	N 13 04.4	151	00.8	-30.3	N 05 31.5	20
21	135	50.7	+00.0	N 16 34.8	143	20.3	-00.5	N 13 05.4	165	30.5	-30.3	N 05 48.8	21
22	150	50.7	+00.1	N 16 35.5	158	19.8	-00.5	N 13 06.5	180	00.2	-30.4	N 06 06.1	22
23	165	50.8	+00.0	N 16 36.2	173	19.3	-00.5	N 13 07.5	194	29.8	-30.4	N 06 23.3	23

UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 16°4' 16°4' 16°4' 16°4' 16°4' 16°4'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 60°3' 60°3' 60°3' 60°3' 60°3' 60°3'	HP 60°3' 60°3' 60°3' 60°3' 60°3' 60°3'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 60°3' 60°3' 60°3' 60°3' 60°3' 60°3'
SHA 317° 317° 317° 317° 317° 317°	SHA 325° 325° 325° 325° 324° 324°	SHA 357° 357° 352° 350° 348° 346°	SHA 357° 357° 352° 350° 348° 346°	SHA 316° 316° 316° 316° 316° 316°	SHA 324° 324° 323° 323° 323° 323°
Greenwich Culmination Time: 11:56		Greenwich Culmination Time: 11:26		Greenwich Culmination Time: 09:35	

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	219	46.9	+00.7	N 00 10.5	170	27.4	+01.8	N 18 18.1	234	38.9	+02.2	S 06 45.7	00
01	234	47.6	+00.7	N 00 11.3	185	29.2	+01.9	N 18 18.2	249	41.1	+02.3	S 06 45.6	01
02	249	48.3	+00.7	N 00 12.0	200	31.1	+01.9	N 18 18.4	264	43.4	+02.3	S 06 45.6	02
03	264	49.0	+00.7	N 00 12.8	215	33.0	+01.8	N 18 18.5	279	45.7	+02.2	S 06 45.5	03
04	279	49.7	+00.7	N 00 13.6	230	34.8	+01.9	N 18 18.7	294	47.9	+02.3	S 06 45.4	04
05	294	50.4	+00.7	N 00 14.3	245	36.7	+01.9	N 18 18.8	309	50.2	+02.3	S 06 45.3	05
06	309	51.1	+00.7	N 00 15.1	260	38.6	+01.8	N 18 18.9	324	52.5	+02.3	S 06 45.3	06
07	324	51.8	+00.7	N 00 15.9	275	40.4	+01.9	N 18 19.1	339	54.8	+02.2	S 06 45.2	07
08	339	52.5	+00.7	N 00 16.6	290	42.3	+01.9	N 18 19.2	354	57.0	+02.3	S 06 45.1	08
09	354	53.2	+00.7	N 00 17.4	305	44.2	+01.8	N 18 19.4	9	59.3	+02.3	S 06 45.0	09
10	9	53.9	+00.7	N 00 18.2	320	46.0	+01.9	N 18 19.5	25	01.6	+02.2	S 06 45.0	10
11	24	54.6	+00.7	N 00 18.9	335	47.9	+01.9	N 18 19.7	40	03.8	+02.3	S 06 44.9	11
12	39	55.3	+00.7	N 00 19.7	350	49.8	+01.8	N 18 19.8	55	06.1	+02.3	S 06 44.8	12
13	54	56.0	+00.7	N 00 20.5	5	51.6	+01.9	N 18 20.0	70	08.4	+02.2	S 06 44.8	13
14	69	56.7	+00.7	N 00 21.2	20	53.5	+01.8	N 18 20.1	85	10.6	+02.3	S 06 44.7	14
15	84	57.4	+00.7	N 00 22.0	35	55.3	+01.9	N 18 20.2	100	12.9	+02.3	S 06 44.6	15
16	99	58.1	+00.7	N 00 22.8	50	57.2	+01.9	N 18 20.4	115	15.2	+02.3	S 06 44.5	16
17	114	58.8	+00.7	N 00 23.5	65	59.1	+01.8	N 18 20.5	130	17.5	+02.2	S 06 44.5	17
18	129	59.5	+00.7	N 00 24.3	81	00.9	+01.9	N 18 20.7	145	19.7	+02.3	S 06 44.4	18
19	145	00.2	+00.7	N 00 25.1	96	02.8	+01.9	N 18 20.8	160	22.0	+02.3	S 06 44.3	19
20	160	00.9	+00.7	N 00 25.8	111	04.7	+01.8	N 18 21.0	175	24.3	+02.2	S 06 44.2	20
21	175	01.6	+00.7	N 00 26.6	126	06.5	+01.9	N 18 21.1	190	26.5	+02.3	S 06 44.2	21
22	190	02.3	+00.7	N 00 27.3	141	08.4	+01.9	N 18 21.3	205	28.8	+02.3	S 06 44.1	22
23	205	03.0	+00.7	N 00 28.1	156	10.3	+01.8	N 18 21.4	220	31.1	+02.3	S 06 44.0	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 356° 356° 356° 356° 356° 356°	SHA 307° 307° 307° 307° 307° 307°	SHA 307° 307° 307° 307° 307° 307°	SHA 307° 307° 307° 307° 307° 307°	SHA 011° 011° 011° 011° 011° 011°	SHA 011° 011° 011° 011° 011° 011°
Greenwich Culmination Time: 09:20		Greenwich Culmination Time: 12:36		Greenwich Culmination Time: 08:20	

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180	50.8	+00.1	N 16 36.9	188	18.8	-00.6	N 13 08.6	208	59.4	-30.4	N 06 40.6	00
01	195	50.9	+00.0	N 16 37.6	203	18.2	-00.5	N 13 09.6	223	29.0	-30.5	N 06 57.8	01
02	210	50.9	+00.0	N 16 38.3	218	17.7	-00.5	N 13 10.7	237	58.5	-30.5	N 07 14.9	02
03	225	50.9	+00.1	N 16 39.0	233	17.2	-00.5	N 13 11.7	252	28.0	-30.6	N 07 32.0	03
04	240	51.0	+00.0	N 16 39.7	248	16.7	-00.5	N 13 12.8	266	57.4	-30.6	N 07 49.1	04
05	255	51.0	+00.1	N 16 40.4	263	16.2	-00.5	N 13 13.8	281	26.8	-30.7	N 08 06.1	05
06	270	51.1	+00.0	N 16 41.1	278	15.7	-00.5	N 13 14.9	295	56.1	-30.7	N 08 23.1	06
07	285	51.1	+00.1	N 16 41.8	293	15.2	-00.5	N 13 15.9	310	25.4	-30.7	N 08 40.0	07
08	300	51.2	+00.0	N 16 42.5	308	14.7	-00.5	N 13 17.0	324	54.7	-30.8	N 08 56.9	08
09	315	51.2	+00.0	N 16 43.2	323	14.2	-00.5	N 13 18.0	339	23.9	-30.9	N 09 13.7	09
10	330	51.2	+00.1	N 16 43.9	338	13.7	-00.5	N 13 19.1	353	53.0	-30.9	N 09 30.5	10
11	345	51.3	+00.0	N 16 44.6	353	13.2	-00.6	N 13 20.1	8	22.1	-31.0	N 09 47.2	11
12	0	51.3	+00.1	N 16 45.3	8	12.6	-00.5	N 13 21.2	22	51.1	-31.0	N 10 03.9	12
13	15	51.4	+00.0	N 16 46.0	23	12.1	-00.5	N 13 22.2	37	20.1	-31.0	N 10 20.5	13
14	30	51.4	+00.0	N 16 46.7	38	11.6	-00.5	N 13 23.3	51	49.1	-31.1	N 10 37.1	14
15	45	51.4	+00.1	N 16 47.4	53	11.1	-00.5	N 13 24.3	66	18.0	-31.2	N 10 53.5	15
16	60	51.5	+00.0	N 16 48.0	68	10.6	-00.5	N 13 25.4	80	46.8	-31.2	N 11 10.0	16
17	75	51.5	+00.1	N 16 48.7	83	10.1	-00.5	N 13 26.4	95	15.6	-31.3	N 11 26.3	17
18	90	51.6	+00.0	N 16 49.4	98	9.6	-00.5	N 13 27.5	109	44.3	-31.4	N 11 42.6	18
19	105	51.6	+00.0	N 16 50.1	113	9.1	-00.6	N 13 28.5	124	12.9	-31.4	N 11 58.8	19
20	120	51.6	+00.1	N 16 50.8	128	8.5	-00.5	N 13 29.6	138	41.5	-31.4	N 12 15.0	20
21	135	51.7	+00.0	N 16 51.5	143	8.0	-00.5	N 13 30.6	153	10.1	-31.6	N 12 31.0	21
22	150	51.7	+00.1	N 16 52.2	158	7.5	-00.5	N 13 31.6	167	38.5	-31.6	N 12 47.0	22
23	165	51.8	+00.0	N 16 52.9	173	7.0	-00.5	N 13 32.7	182	06.9	-31.6	N 13 03.0	23

UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 16°4' 16°4' 16°4' 16°4' 16°4' 16°4'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°				

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	54.3	+00.0	N 17 57.2	+00.7	187	14.9	-00.5	N 15 10.9	+01.0	141	19.1	-35.7	N 28 23.5	+01.2	00
01	195	54.3	+00.1	N 17 57.9	+00.6	202	14.4	-00.6	N 15 11.9	+01.0	155	43.4	-35.8	N 28 24.7	+01.1	01
02	210	54.4	+00.0	N 17 58.5	+00.6	217	13.8	-00.6	N 15 12.9	+01.0	170	07.6	-35.7	N 28 25.8	+01.0	02
03	225	54.4	+00.0	N 17 59.1	+00.7	232	13.2	-00.5	N 15 13.9	+00.9	184	31.9	-35.6	N 28 26.8	+00.7	03
04	240	54.4	+00.0	N 17 59.8	+00.6	247	12.7	-00.6	N 15 14.8	+01.0	198	56.3	-35.6	N 28 27.5	+00.6	04
05	255	54.4	+00.0	N 18 00.4	+00.6	262	12.1	-00.5	N 15 15.8	+01.0	213	20.7	-35.6	N 28 28.1	+00.3	05
06	270	54.4	+00.0	N 18 01.0	+00.7	277	11.6	-00.6	N 15 16.8	+01.0	227	45.1	-35.5	N 28 28.4	+00.3	06
07	285	54.4	+00.0	N 18 01.7	+00.6	292	11.0	-00.6	N 15 17.8	+01.0	242	09.6	-35.5	N 28 28.7	+00.0	07
08	300	54.4	+00.0	N 18 02.3	+00.7	307	10.4	-00.5	N 15 18.8	+00.9	256	34.1	-35.4	N 28 28.7	-00.2	08
09	315	54.4	+00.1	N 18 03.0	+00.6	322	09.9	-00.6	N 15 19.7	+01.0	270	58.7	-35.4	N 28 28.5	-00.3	09
10	330	54.5	+00.0	N 18 03.6	+00.6	337	09.3	-00.6	N 15 20.7	+01.0	285	23.3	-35.3	N 28 28.2	-00.5	10
11	345	54.5	+00.0	N 18 04.2	+00.6	352	08.7	-00.5	N 15 21.7	+01.0	299	48.0	-35.2	N 28 27.7	-00.6	11
12	0	54.5	+00.0	N 18 04.8	+00.7	7	08.2	-00.6	N 15 22.7	+00.9	314	12.8	-35.2	N 28 27.1	-00.9	12
13	15	54.5	+00.0	N 18 05.5	+00.6	22	07.6	-00.6	N 15 23.6	+01.0	328	37.6	-35.2	N 28 26.2	-01.0	13
14	30	54.5	+00.0	N 18 06.1	+00.6	37	07.0	-00.5	N 15 24.6	+01.0	343	02.4	-35.1	N 28 25.2	-01.2	14
15	45	54.5	+00.0	N 18 06.7	+00.7	52	06.5	-00.6	N 15 25.6	+01.0	357	27.3	-35.0	N 28 24.0	-01.3	15
16	60	54.5	+00.0	N 18 07.4	+00.6	67	05.9	-00.5	N 15 26.6	+00.9	11	52.3	-34.9	N 28 22.7	-01.5	16
17	75	54.5	+00.0	N 18 08.0	+00.6	82	05.4	-00.6	N 15 27.5	+01.0	26	17.4	-34.9	N 28 21.2	-01.7	17
18	90	54.5	+00.1	N 18 08.6	+00.7	97	04.8	-00.6	N 15 28.5	+01.0	40	42.5	-34.8	N 28 19.5	-01.9	18
19	105	54.6	+00.0	N 18 09.3	+00.6	112	04.2	-00.5	N 15 29.5	+00.9	55	07.7	-34.8	N 28 17.6	-02.0	19
20	120	54.6	+00.0	N 18 09.9	+00.6	127	03.7	-00.6	N 15 30.4	+01.0	69	32.9	-34.6	N 28 15.6	-02.2	20
21	135	54.6	+00.0	N 18 10.5	+00.6	142	03.1	-00.6	N 15 31.4	+01.0	83	58.3	-34.6	N 28 13.4	-02.3	21
22	150	54.6	+00.0	N 18 11.1	+00.7	157	02.5	-00.5	N 15 32.4	+00.9	98	23.7	-34.5	N 28 11.1	-02.5	22
23	165	54.6	+00.0	N 18 11.8	+00.6	172	02.0	-00.6	N 15 33.3	+01.0	112	49.2	-34.5	N 28 08.6	-02.7	23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°8	15°8	15°8	15°8	15°8	15°8	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°7	15°7	15°6	15°6	15°5	15°5
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	57°6	57°5	57°3	57°2	57°0	56°9
SHA	312°	311°	311°	311°	311°	311°	SHA	318°	318°	317°	317°	317°	317°	SHA	271°	268°	266°	263°	261°	258°

Greenwich Culmination Time: 11:56 Greenwich Culmination Time: 11:31 Greenwich Culmination Time: 15:10

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	221	28.3	+00.7	N 02 00.4	+00.7	174	55.6	+01.8	N 18 38.6	+00.1	240	06.8	+02.3	S 06 35.7	-00.1	00
01	236	29.0	+00.7	N 02 01.1	+00.8	189	57.4	+01.9	N 18 38.7	+00.2	255	09.1	+02.2	S 06 35.6	-00.1	01
02	251	29.7	+00.7	N 02 01.9	+00.7	204	59.3	+01.9	N 18 38.9	+00.1	270	11.3	+02.3	S 06 35.5	+00.0	02
03	266	30.4	+00.8	N 02 02.6	+00.8	220	01.2	+01.8	N 18 39.0	+00.1	285	13.6	+02.3	S 06 35.5	-00.1	03
04	281	31.2	+00.7	N 02 03.4	+00.8	235	03.0	+01.9	N 18 39.1	+00.2	300	15.9	+02.3	S 06 35.4	-00.1	04
05	296	31.9	+00.7	N 02 04.2	+00.7	250	04.9	+01.8	N 18 39.3	+00.1	315	18.2	+02.3	S 06 35.3	+00.0	05
06	311	32.6	+00.7	N 02 04.9	+00.8	265	06.7	+01.9	N 18 39.4	+00.2	330	20.5	+02.3	S 06 35.3	-00.1	06
07	326	33.3	+00.7	N 02 05.7	+00.7	280	08.6	+01.9	N 18 39.6	+00.1	345	22.8	+02.3	S 06 35.2	-00.1	07
08	341	34.0	+00.7	N 02 06.4	+00.8	295	10.5	+01.8	N 18 39.7	+00.1	0	25.1	+02.2	S 06 35.1	+00.0	08
09	356	34.7	+00.7	N 02 07.2	+00.8	310	12.3	+01.9	N 18 39.8	+00.2	15	27.3	+02.3	S 06 35.1	-00.1	09
10	1	35.4	+00.7	N 02 08.0	+00.7	325	14.2	+01.8	N 18 40.0	+00.1	30	29.6	+02.3	S 06 35.0	-00.1	10
11	26	36.1	+00.7	N 02 08.7	+00.8	340	16.0	+01.9	N 18 40.1	+00.2	45	31.9	+02.3	S 06 34.9	+00.0	11
12	41	36.8	+00.7	N 02 09.5	+00.7	355	17.9	+01.9	N 18 40.3	+00.1	60	34.2	+02.3	S 06 34.9	-00.1	12
13	56	37.5	+00.7	N 02 10.2	+00.8	10	19.8	+01.8	N 18 40.4	+00.1	75	36.5	+02.3	S 06 34.8	+00.0	13
14	71	38.2	+00.7	N 02 11.0	+00.8	25	21.6	+01.9	N 18 40.5	+00.2	90	38.8	+02.3	S 06 34.8	-00.1	14
15	86	38.9	+00.7	N 02 11.8	+00.7	40	23.5	+01.8	N 18 40.7	+00.2	105	41.1	+02.3	S 06 34.7	-00.1	15
16	101	39.6	+00.7	N 02 12.5	+00.8	55	25.3	+01.9	N 18 40.8	+00.2	120	43.4	+02.2	S 06 34.6	+00.0	16
17	116	40.3	+00.8	N 02 13.3	+00.7	70	27.2	+01.8	N 18 41.0	+00.1	135	45.6	+02.3	S 06 34.6	-00.1	17
18	131	41.1	+00.7	N 02 14.0	+00.8	85	29.0	+01.9	N 18 41.1	+00.1	150	47.9	+02.3	S 06 34.5	-00.1	18
19	146	41.8	+00.7	N 02 14.8	+00.7	100	30.9	+01.9	N 18 41.2	+00.2	165	50.2	+02.3	S 06 34.4	+00.0	19
20	161	42.5	+00.7	N 02 15.5	+00.8	115	32.8	+01.8	N 18 41.4	+00.1	180	52.5	+02.3	S 06 34.4	-00.1	20
21	176	43.2	+00.7	N 02 16.3	+00.8	130	34.6	+01.9	N 18 41.5	+00.2	195	54.8	+02.3	S 06 34.3	-00.1	21
22	191	43.9	+00.7	N 02 17.1	+00.7	145	36.5	+01.8	N 18 41.7	+00.1	210	57.1	+02.3	S 06 34.2	+00.0	22
23	206	44.6	+00.7	N 02 17.8	+00.8	160	38.3	+01.9	N 18 41.8	+00.1	225	59.4	+02.3	S 06 34.2	-00.1	23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	00°0	00°0	00°0	00°0	00°0	00°0	SD	00°3	00°3	00°3	00°3	00°3	00°3	SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	352°	352°	352°	352°	352°	352°	SHA	306°	306°	306°	306°	305°	305°	SHA	011°	011°	011°	011°	011°	011°

Greenwich Culmination Time: 09:13 Greenwich Culmination Time: 12:18 Greenwich Culmination Time: 07:58

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	52.6	+00.1	N 17 09.9	+00.7	187	54.0	-00.6	N 13 58.5	+01.1	183	35.4	-33.4	N 19 10.3	+13.2	00
01	195	52.7	+00.0	N 17 10.6	+00.7	202	53.4	-00.5	N 13 59.6	+01.0	198	02.0	-33.4	N 19 23.5	+13.1	01
02	210	52.7	+00.0	N 17 11.3	+00.6	217	52.9	-00.5	N 14 00.6	+01.0	212	28.6	-33.6	N 19 36.6	+13.0	02
03	225	52.7	+00.1	N 17 11.9	+00.7	232	52.4	-00.6	N 14 01.6	+01.0	226	55.0	-33.6	N 19 49.6	+12.9	03
04	240	52.8	+00.0	N 17 12.6	+00.7	247	51.8	-00.5	N 14 02.6	+01.1	241	21.4	-33.6	N 20 02.5	+12.7	04
05	255	52.8	+00.0	N 17 13.3	+00.7	262	51.3	-00.5	N 14 03.7	+01.0	255	47.8	-33.8	N 20 15.2	+12.7	05
06	270	52.8	+00.1	N 17 14.0	+00.6	277	50.8	-00.5	N 14 04.7	+01.0	270	14.0	-33.8	N 20 27.9	+12.4	06
07	285	52.9	+00.0	N 17 14.6	+00.7	292	50.3	-00.6	N 14 05.7	+01.0	284	40.2	-33.9	N 20 40.3	+12.3	07
08	300	52.9	+00.0	N 17 15.3	+00.7	307	49.7	-00.5	N 14 06.7	+01.1	299	06.3	-33.9	N 20 52.6	+12.2	08
09	315	52.9	+00.1	N 17 16.0	+00.6	322	49.2	-00.5	N 14 07.8	+01.0	313	32.4	-34.0	N 21 04.8	+12.1	09
10	330	53.0	+00.0	N 17 16.6	+00.7	337	48.7	-00.6	N 14 08.8	+01.0	327	58.4	-34.1	N 21 16.9	+11.9	10
11	345	53.0	+00.0	N 17 17.3	+00.7	352	48.1	-00.5	N 14 09.8	+01.0	342	24.3	-34.2	N 21 28.8	+11.8	11
12	0	53.0	+00.0	N 17 18.0	+00.6	7	47.6	-00.5	N 14 10.8	+01.0	356	50.1	-34.2	N 21 40.6	+11.6	12
13	15	53.0	+00.1	N 17 18.6	+00.7	22	47.1	-00.6	N 14 11.8	+01.0	11	15.9	-34.3	N 21 52.2	+1	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	53.3	+00.1	N 17 26.0	+00.6	187	41.2	-00.5	N 14 23.0	+01.0	169	55.0	-35.0	N 23 50.1	+09.8	00
01	195	53.4	+00.0	N 17 26.6	+00.7	202	40.7	-00.6	N 14 24.0	+01.0	184	20.0	-35.0	N 23 59.9	+09.6	01
02	210	53.4	+00.0	N 17 27.3	+00.7	217	40.1	-00.5	N 14 25.0	+01.1	198	45.0	-35.1	N 24 09.5	+09.5	02
03	225	53.4	+00.0	N 17 28.0	+00.6	232	39.6	-00.6	N 14 26.1	+01.0	213	09.9	-35.2	N 24 19.0	+09.3	03
04	240	53.4	+00.1	N 17 28.6	+00.7	247	39.0	-00.5	N 14 27.1	+01.0	227	34.7	-35.2	N 24 28.3	+09.1	04
05	255	53.5	+00.0	N 17 29.3	+00.6	262	38.5	-00.5	N 14 28.1	+01.0	241	59.5	-35.3	N 24 37.4	+09.0	05
06	270	53.5	+00.0	N 17 29.9	+00.7	277	38.0	-00.6	N 14 29.1	+01.0	256	24.2	-35.3	N 24 46.4	+08.8	06
07	285	53.5	+00.0	N 17 30.6	+00.7	292	37.4	-00.5	N 14 30.1	+01.0	270	48.9	-35.4	N 24 55.2	+08.6	07
08	300	53.5	+00.1	N 17 31.3	+00.6	307	36.9	-00.6	N 14 31.1	+01.0	285	13.5	-35.4	N 25 03.8	+08.5	08
09	315	53.6	+00.0	N 17 31.9	+00.7	322	36.3	-00.5	N 14 32.1	+01.0	299	38.1	-35.4	N 25 12.3	+08.3	09
10	330	53.6	+00.0	N 17 32.6	+00.6	337	35.8	-00.5	N 14 33.1	+01.0	314	02.7	-35.5	N 25 20.6	+08.1	10
11	345	53.6	+00.0	N 17 33.2	+00.7	352	35.3	-00.6	N 14 34.1	+01.0	328	27.2	-35.6	N 25 28.7	+07.9	11
12	0	53.6	+00.1	N 17 33.9	+00.7	7	34.7	-00.5	N 14 35.1	+01.0	342	51.6	-35.6	N 25 36.6	+07.8	12
13	15	53.7	+00.0	N 17 34.6	+00.6	22	34.2	-00.6	N 14 36.1	+01.0	357	16.0	-35.6	N 25 44.4	+07.6	13
14	30	53.7	+00.0	N 17 35.2	+00.7	37	33.6	-00.5	N 14 37.1	+01.0	1	40.4	-35.7	N 25 52.0	+07.4	14
15	45	53.7	+00.0	N 17 35.9	+00.6	52	33.1	-00.6	N 14 38.1	+01.1	26	04.7	-35.7	N 25 59.4	+07.3	15
16	60	53.7	+00.1	N 17 36.5	+00.7	67	32.5	-00.5	N 14 39.2	+01.0	40	29.0	-35.7	N 26 06.7	+07.1	16
17	75	53.8	+00.0	N 17 37.2	+00.6	82	32.0	-00.5	N 14 40.2	+01.0	54	53.3	-35.8	N 26 13.8	+06.8	17
18	90	53.8	+00.0	N 17 37.8	+00.7	97	31.5	-00.6	N 14 41.2	+01.0	69	17.5	-35.8	N 26 20.6	+06.8	18
19	105	53.8	+00.0	N 17 38.5	+00.6	112	30.9	-00.5	N 14 42.2	+01.0	83	41.7	-35.8	N 26 27.4	+06.5	19
20	120	53.8	+00.0	N 17 39.1	+00.7	127	30.4	-00.6	N 14 43.2	+01.0	98	05.9	-35.9	N 26 33.9	+06.4	20
21	135	53.8	+00.1	N 17 39.8	+00.6	142	29.8	-00.5	N 14 44.2	+01.0	112	30.0	-35.9	N 26 40.3	+06.2	21
22	150	53.9	+00.0	N 17 40.4	+00.7	157	29.3	-00.6	N 14 45.2	+01.0	126	54.1	-35.9	N 26 46.5	+06.0	22
23	165	53.9	+00.0	N 17 41.1	+00.6	172	28.7	-00.5	N 14 46.2	+01.0	141	18.2	-35.9	N 26 52.5	+05.8	23

UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 16°1' 16°1' 16°1' 16°0' 16°0' 16°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 59°2' 59°1' 58°9' 58°8' 58°7' 58°6'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 59°2' 59°1' 58°9' 58°8' 58°7' 58°6'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 314° 313° 313° 313° 313° 313°	SHA 320° 320° 320° 320° 319° 319°	SHA 301° 299° 296° 294° 291° 289°	SHA 301° 312° 312° 312° 312° 312°	SHA 301° 312° 312° 312° 312° 312°	SHA 319° 319° 319° 318° 318° 318°
Greenwich Culmination Time: 11:56		Greenwich Culmination Time: 11:29		Greenwich Culmination Time: 13:11	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	220	54.4	+00.7	N 01 23.9	+00.7	173	26.3	+01.8	N 18 31.8	+00.2	238	17.2	+02.3	S 06 38.9	-00.1	00
01	235	55.1	+00.7	N 01 24.6	+00.8	188	28.1	+01.9	N 18 32.0	+00.1	253	19.5	+02.3	S 06 38.8	+00.0	01
02	250	55.8	+00.8	N 01 25.4	+00.7	203	30.0	+01.8	N 18 32.1	+00.1	268	21.8	+02.2	S 06 38.8	-00.1	02
03	265	56.6	+00.7	N 01 26.1	+00.8	218	31.8	+01.9	N 18 32.2	+00.2	283	24.0	+02.3	S 06 38.7	-00.1	03
04	280	57.3	+00.7	N 01 26.9	+00.8	233	33.7	+01.9	N 18 32.4	+00.1	298	26.3	+02.3	S 06 38.6	+00.0	04
05	295	58.0	+00.7	N 01 27.7	+00.7	248	35.6	+01.8	N 18 32.5	+00.2	313	28.6	+02.3	S 06 38.6	-00.1	05
06	310	58.7	+00.7	N 01 28.4	+00.8	263	37.4	+01.9	N 18 32.7	+00.1	328	30.9	+02.3	S 06 38.5	-00.1	06
07	325	59.4	+00.7	N 01 29.2	+00.8	278	39.3	+01.8	N 18 32.8	+00.2	343	33.2	+02.2	S 06 38.4	+00.0	07
08	341	00.1	+00.7	N 01 30.0	+00.7	293	41.1	+01.9	N 18 33.0	+00.1	358	35.4	+02.3	S 06 38.4	-00.1	08
09	356	00.8	+00.7	N 01 30.7	+00.8	308	43.0	+01.9	N 18 33.1	+00.1	1	37.7	+02.3	S 06 38.3	-00.1	09
10	11	01.5	+00.7	N 01 31.5	+00.7	323	44.9	+01.8	N 18 33.2	+00.2	28	40.0	+02.3	S 06 38.2	-00.1	10
11	26	02.2	+00.7	N 01 32.2	+00.8	338	46.7	+01.9	N 18 33.4	+00.1	43	42.3	+02.3	S 06 38.1	+00.0	11
12	41	02.9	+00.7	N 01 33.0	+00.8	353	48.6	+01.9	N 18 33.5	+00.2	58	44.6	+02.3	S 06 38.1	-00.1	12
13	56	03.6	+00.7	N 01 33.8	+00.7	8	50.5	+01.8	N 18 33.7	+00.1	73	46.9	+02.2	S 06 38.0	-00.1	13
14	71	04.3	+00.7	N 01 34.5	+00.8	23	52.3	+01.9	N 18 33.8	+00.1	88	49.1	+02.3	S 06 37.9	+00.0	14
15	86	05.0	+00.7	N 01 35.3	+00.7	38	54.2	+01.8	N 18 33.9	+00.2	103	51.4	+02.3	S 06 37.9	-00.1	15
16	101	05.7	+00.7	N 01 36.0	+00.8	53	56.0	+01.9	N 18 34.1	+00.1	118	53.7	+02.3	S 06 37.8	-00.1	16
17	116	06.4	+00.7	N 01 36.8	+00.8	68	57.9	+01.9	N 18 34.2	+00.2	133	56.0	+02.3	S 06 37.7	+00.0	17
18	131	07.1	+00.7	N 01 37.6	+00.7	83	59.8	+01.8	N 18 34.4	+00.1	148	58.3	+02.2	S 06 37.7	-00.1	18
19	146	07.8	+00.7	N 01 38.3	+00.8	99	01.6	+01.9	N 18 34.5	+00.1	164	00.5	+02.3	S 06 37.6	-00.1	19
20	161	08.5	+00.8	N 01 39.1	+00.8	114	03.5	+01.8	N 18 34.6	+00.2	179	02.8	+02.3	S 06 37.5	+00.0	20
21	176	09.3	+00.7	N 01 39.9	+00.7	129	05.3	+01.9	N 18 34.8	+00.1	194	05.1	+02.3	S 06 37.5	-00.1	21
22	191	10.0	+00.7	N 01 40.6	+00.8	144	07.2	+01.9	N 18 34.9	+00.2	209	07.4	+02.3	S 06 37.4	-00.1	22
23	206	10.7	+00.7	N 01 41.4	+00.7	159	09.1	+01.8	N 18 35.1	+00.1	224	09.7	+02.3	S 06 37.3	+00.0	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 354° 353° 353° 353° 353° 353°	SHA 306° 306° 306° 306° 306° 306°	SHA 306° 306° 306° 306° 306° 306°	SHA 011° 011° 011° 011° 011° 011°	SHA 011° 011° 011° 011° 011° 011°	SHA 011° 011° 011° 011° 011° 011°
Greenwich Culmination Time: 09:15		Greenwich Culmination Time: 12:24		Greenwich Culmination Time: 08:05	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	53.9	+00.0	N 17 41.7	+00.7	187	28.2	-00.6	N 14 47.2	+01.0	155	42.3	-35.9	N 26 58.3	+05.6	00
01	195	53.9	+00.0	N 17 42.4	+00.6	202	27.6	-00.5	N 14 48.2	+00.9	170	06.4	-36.0	N 27 03.9	+05.5	01
02	210	53.9	+00.1	N 17 43.0	+00.7	217	27.1	-00.6	N 14 49.1	+01.0	184	30.4	-36.0	N 27 09.4	+05.3	02
03	225	54.0	+00.0	N 17 43.7	+00.6	232	26.5	-00.5	N 14 50.1	+01.0	198	54.4	-36.0	N 27 14.7	+05.1	03
04	240	54.0	+00.0	N 17 44.3	+00.7	247	26.0	-00.6	N 14 51.1	+01.0	213	18.4	-36.0	N 27 19.8	+04.9	04
05	255	54.0	+00.0	N 17 45.0	+00.6	262	25.4	-00.5	N 14 52.1	+01.0	227	42.4	-36.0	N 27 24.7	+04.7	05
06	270	54.0	+00.0	N 17 45.6	+00.7	277	24.9	-00.6	N 14 53.1	+01.0	242	06.4	-36.0	N 27 29.4	+04.6	06
07	285	54.0	+00.1	N 17 46.3	+00.6	292	24.3	-00.5	N 14 54.1	+01.0	256	30.4	-36.1	N 27 34.0	+04.4	07
08	300	54.1	+00.0	N 17 46.9	+00.7	307	23.8	-00.6	N 14 55.1	+01.0	270	54.3	-36.0	N 27 38.4	+04.1	08
09	315	54.1	+00.0	N 17 47.6	+00.6	322	23.2	-00.5	N 14 56.1	+01.0	285	18.3	-36.0	N 27 42.5	+04.0	09
10	330	54.1	+00.0	N 17 48.2	+00.7	337	22.7	-00.6	N 14 57.1	+01.0	299	42.3	-36.0	N 27 46.5	+03.9	10
11	345	54.1	+00.0	N 17 48.9	+00.6	352	22.1	-00.5	N 14 58.1	+01.0	314	06.3	-36.1	N 27 50.4	+03.6	11
12	0	54.1	+00.1	N 17 49.5	+00.7	7	21.6	-00.6	N 14 59.1	+01.0	328	30.2	-36.0	N 27 54.0	+03.5	12
13	15	54.2	+00.0	N 17 50.2	+00.6	22	21.0	-00.5	N 15 00.1	+01.0	342	54.2	-36.0	N 27 57.5	+03.2</	

UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	180	54.6	+00.0	N 18 56.1	+00.5	186	19.2	-00.6	N 16 42.1	+00.9	90	10.2	-27.3	N 19 08.0	-11.1	00							
01	195	54.6	+00.0	N 18 56.6	+00.6	201	18.6	-00.6	N 16 43.0	+00.9	104	42.9	-27.1	N 18 56.9	-11.2	01							
02	210	54.6	+00.0	N 18 57.2	+00.6	216	18.0	-00.6	N 16 43.9	+00.9	119	15.8	-27.1	N 18 45.7	-11.3	02							
03	225	54.6	+00.0	N 18 57.8	+00.6	231	17.4	-00.6	N 16 44.8	+01.0	133	48.7	-27.1	N 18 34.4	-11.3	03							
04	240	54.6	+00.0	N 18 58.4	+00.6	246	16.8	-00.6	N 16 45.8	+00.9	148	21.6	-26.9	N 18 23.1	-11.4	04							
05	255	54.6	+00.0	N 18 59.0	+00.6	261	16.2	-00.6	N 16 46.7	+00.9	162	54.7	-26.8	N 18 11.7	-11.5	05							
06	270	54.6	-00.1	N 18 59.6	+00.5	276	15.6	-00.6	N 16 47.6	+00.9	177	27.9	-26.8	N 18 00.2	-11.5	06							
07	285	54.5	+00.0	N 19 00.1	+00.6	291	15.0	-00.6	N 16 48.5	+00.9	192	01.1	-26.7	N 17 48.7	-11.6	07							
08	300	54.5	+00.0	N 19 00.7	+00.6	306	14.4	-00.6	N 16 49.4	+00.9	206	34.4	-26.6	N 17 37.1	-11.7	08							
09	315	54.5	+00.0	N 19 01.3	+00.6	321	13.8	-00.6	N 16 50.3	+00.9	221	07.8	-26.5	N 17 25.4	-11.7	09							
10	330	54.5	+00.0	N 19 01.9	+00.6	336	13.2	-00.6	N 16 51.2	+00.9	235	41.3	-26.4	N 17 13.7	-11.8	10							
11	345	54.5	+00.0	N 19 02.5	+00.5	351	12.6	-00.7	N 16 52.1	+00.9	250	14.9	-26.4	N 17 01.9	-11.8	11							
12	0	54.5	+00.0	N 19 03.0	+00.6	6	11.9	-00.6	N 16 53.0	+00.9	264	48.5	-26.3	N 16 50.1	-11.9	12							
13	15	54.5	+00.0	N 19 03.6	+00.6	21	11.3	-00.6	N 16 53.9	+00.9	279	22.2	-26.2	N 16 38.2	-12.0	13							
14	30	54.5	+00.0	N 19 04.2	+00.6	36	10.7	-00.6	N 16 54.8	+01.0	293	56.0	-26.1	N 16 26.2	-12.0	14							
15	45	54.5	-00.1	N 19 04.8	+00.6	51	10.1	-00.6	N 16 55.8	+00.9	308	29.9	-26.1	N 16 14.2	-12.1	15							
16	60	54.4	+00.0	N 19 05.4	+00.5	66	09.5	-00.6	N 16 56.7	+00.9	323	03.8	-26.0	N 16 02.1	-12.1	16							
17	75	54.4	+00.0	N 19 05.9	+00.6	81	08.9	-00.6	N 16 57.6	+00.9	337	37.8	-25.9	N 15 50.0	-12.2	17							
18	90	54.4	+00.0	N 19 06.5	+00.6	96	08.3	-00.6	N 16 58.5	+00.9	352	11.9	-25.8	N 15 37.8	-12.3	18							
19	105	54.4	+00.0	N 19 07.1	+00.6	111	07.7	-00.6	N 16 59.4	+00.9	6	46.1	-25.8	N 15 25.5	-12.3	19							
20	120	54.4	+00.0	N 19 07.7	+00.5	126	07.1	-00.6	N 17 00.3	+00.9	21	20.3	-25.7	N 15 13.2	-12.3	20							
21	135	54.4	+00.0	N 19 08.2	+00.6	141	06.5	-00.7	N 17 01.2	+00.9	35	54.6	-25.6	N 15 00.9	-12.4	21							
22	150	54.4	-00.1	N 19 08.8	+00.6	156	05.8	-00.6	N 17 02.1	+00.9	50	29.0	-25.6	N 14 48.5	-12.5	22							
23	165	54.3	+00.0	N 19 09.4	+00.6	171	05.2	-00.6	N 17 03.0	+00.9	65	03.4	-25.5	N 14 36.0	-12.5	23							
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22			
SD	15°8	15°8	15°8	15°8	15°8	15°8	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	14°9	14°9	14°9	14°9	14°9	14°8			
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	54°8	54°7	54°6	54°6	54°5	54°5			
SHA	308°	307°	307°	307°	307°	307°	SHA	313°	313°	313°	312°	312°	312°	SHA	216°	214°	212°	210°	208°	208°			
Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 11:35				Greenwich Culmination Time: 18:32				Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 11:32				Greenwich Culmination Time: 16:07			

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	54.6	+00.0	N 18 12.4	+00.6	187	01.4	-00.6	N 15 34.3	+01.0	127	14.7	-34.3	N 28 05.9	-02.8	00				
01	195	54.6	+00.0	N 18 13.0	+00.6	202	00.8	-00.6	N 15 35.3	+00.9	141	40.4	-34.3	N 28 03.1	-03.0	01				
02	210	54.6	+00.0	N 18 13.6	+00.7	217	00.2	-00.5	N 15 36.2	+01.0	156	06.1	-34.2	N 28 00.1	-03.2	02				
03	225	54.6	+00.0	N 18 14.3	+00.6	231	59.7	-00.6	N 15 37.2	+01.0	170	31.9	-34.1	N 27 56.9	-03.3	03				
04	240	54.6	+00.0	N 18 14.9	+00.6	246	59.1	-00.6	N 15 38.2	+00.9	184	57.8	-34.1	N 27 53.6	-03.5	04				
05	255	54.6	+00.0	N 18 15.5	+00.6	261	58.5	-00.5	N 15 39.1	+01.0	199	23.7	-33.9	N 27 50.1	-03.6	05				
06	270	54.7	+00.0	N 18 16.1	+00.7	276	58.0	-00.6	N 15 40.1	+01.0	213	49.8	-33.9	N 27 46.5	-03.8	06				
07	285	54.7	+00.0	N 18 16.8	+00.6	291	57.4	-00.6	N 15 41.1	+00.9	228	15.9	-33.7	N 27 42.7	-03.9	07				
08	300	54.7	+00.0	N 18 17.4	+00.6	306	56.8	-00.6	N 15 42.0	+01.0	242	42.2	-33.7	N 27 38.8	-04.1	08				
09	315	54.7	+00.0	N 18 18.0	+00.6	321	56.2	-00.5	N 15 43.0	+00.9	257	08.5	-33.6	N 27 34.7	-04.2	09				
10	330	54.7	+00.0	N 18 18.6	+00.7	336	55.7	-00.6	N 15 43.9	+01.0	271	34.9	-33.5	N 27 30.5	-04.4	10				
11	345	54.7	+00.0	N 18 19.3	+00.6	351	55.1	-00.6	N 15 44.9	+01.0	286	01.4	-33.4	N 27 26.1	-04.5	11				
12	0	54.7	+00.0	N 18 19.9	+00.6	6	54.5	-00.6	N 15 45.9	+00.9	300	28.0	-33.3	N 27 21.6	-04.7	12				
13	15	54.7	+00.0	N 18 20.5	+00.6	21	53.9	-00.5	N 15 46.8	+01.0	314	54.7	-33.2	N 27 16.9	-04.8	13				
14	30	54.7	+00.0	N 18 21.1	+00.6	36	53.4	-00.6	N 15 47.8	+00.9	329	21.5	-33.1	N 27 12.1	-05.0	14				
15	45	54.7	+00.0	N 18 21.7	+00.6	51	52.8	-00.6	N 15 48.7	+01.0	343	48.4	-33.1	N 27 07.1	-05.1	15				
16	60	54.7	+00.0	N 18 22.3	+00.7	66	52.2	-00.6	N 15 49.7	+00.9	358	15.3	-32.9	N 27 02.0	-05.2	16				
17	75	54.7	+00.0	N 18 23.0	+00.6	81	51.6	-00.5	N 15 50.6	+01.0	12	42.4	-32.8	N 26 56.8	-05.4	17				
18	90	54.7	+00.0	N 18 23.6	+00.6	96	51.1	-00.6	N 15 51.6	+01.0	27	09.6	-32.7	N 26 51.4	-05.6	18				
19	105	54.7	+00.0	N 18 24.2	+00.6	111	50.5	-00.6	N 15 52.6	+00.9	41	36.9	-32.7	N 26 45.8	-05.6	19				
20	120	54.7	+00.0	N 18 24.8	+00.6	126	49.9	-00.6	N 15 53.5	+01.0	56	04.2	-32.5	N 26 40.2	-05.8	20				
21	135	54.7	+00.0	N 18 25.4	+00.6	141	49.3	-00.5	N 15 54.5	+00.9	70	31.7	-32.4	N 26 34.4	-06.0	21				
22	150	54.7	+00.0	N 18 26.0	+00.7	156	48.8	-00.6	N 15 55.4	+01.0	84	59.3	-32.3	N 26 28.4	-06.0	22				
23	165	54.7	+00.0	N 18 26.7	+00.6	171	48.2	-00.6	N 15 56.4	+00.9	99	27.0	-32.2	N 26 22.4	-06.2	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°8	15°8	15°8	15°8	15°8	15°8	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°5	15°4	15°4	15°4	15°3	15°3
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	56°8	56°6	56°5	56°4	56°2	56°1
SHA	311°	310°	310°	310°	310°	310°	SHA	317°	316°	316°	316°	316°	316°	SHA	256°	253°	251°	249°	246°	244°
Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 11:32				Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 11:32				Greenwich Culmination Time: 16:07				

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	222	36.3	+00.7	N 03 12.9	+00.8	177	54.0	+01.9	N 18 51.9	+00.1	243	46.8	+02.2	S 06 29.6	-00.1	00
01	237	37.0	+00.7	N 03 13.7	+00.7	192	55.9	+01.8	N 18 52.0	+00.2	258	49.0	+02.3	S 06 29.5	+00.0	01
02	252	37.7	+00.7	N 03 14.4	+00.8	207	57.7	+01.9	N 18 52.2	+00.1	273	51.3	+02.3	S 06 29.5	-00.1	02
03	267	38.4	+00.7	N 03 15.2	+00.7	222	59.6	+01.8	N 18 52.3	+00.1	288	53.6	+02.3	S 06 29.4	-00.1	03
04	282	39.1	+00.7	N 03 15.9	+00.8	238	01.4	+01.9	N 18 52.4	+00.2	303	55.9	+02.3	S 06 29.3	+00.0	04
05	297	39.8	+00.7	N 03 16.7	+00.7	253	03.3	+01.9	N 18 52.6	+00.1	318	58.2	+02.3	S 06 29.3	-00.1	05
06	312	40.5	+00.8	N 03 17.4	+00.8	268	05.2	+01.8	N 18 52.7	+00.1	334	00.5	+02.3	S 06 29.2	+00.0	06
07	327	41.3	+00.7	N 03 18.2	+00.7	283	07.0	+01.9	N 18 52.8	+00.2	349	02.8	+02.3	S 06 29.2	-00.1	07
08	342	42.0	+00.7	N 03 18.9	+00.8	298	08.9	+01.8	N 18 53.0	+00.1	4	05.1	+02.3	S 06 29.1	-00.1	08
09	357	42.7	+00.7	N 03 19.7	+00.7	313	10.7	+01.9	N 18 53.1	+00.2	19	07.4	+02.3	S 06 29.0	+00.0	09
10	12	43.4	+00.7	N 03 20.4	+00.8	328	12.6	+01.9	N 18 53.3	+00.1	34	09.7	+02.3	S 06 29.0	-00.1	10
11	27	44.1	+00.7	N 03 21.2	+00.7	343	14.5	+01.8	N 18 53.4	+00.1	49	12.0	+02.3	S 06 28.9	+00.0	11
12	42	44.8	+00.7	N 03 21.9	+00.8	358	16.3	+01.9	N 18 53.5	+00.2	64	14.3	+02.3	S 06 28.9	-00.1	12
13	57	45.5	+00.7	N 03 22.7	+00.7	13	18.2	+01.8	N 18							

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	54.7	+00.0	N 18 27.3	+00.6	186	47.6	-00.6	N 15 57.3	+01.0	113	54.8	-32.2	N 26 16.2	-06.4	00
01	195	54.7	+00.0	N 18 27.9	+00.6	201	47.0	-00.6	N 15 58.3	+00.9	128	22.6	-32.0	N 26 09.8	-06.4	01
02	210	54.7	+00.1	N 18 28.5	+00.6	216	46.4	-00.6	N 15 59.2	+01.0	142	50.6	-31.9	N 26 03.4	-06.6	02
03	225	54.8	+00.0	N 18 29.1	+00.6	231	45.8	-00.5	N 16 00.2	+00.9	157	18.7	-31.8	N 25 56.8	-06.8	03
04	240	54.8	+00.0	N 18 29.7	+00.6	246	45.3	-00.6	N 16 01.1	+01.0	171	46.9	-31.7	N 25 50.0	-06.8	04
05	255	54.8	+00.0	N 18 30.3	+00.6	261	44.7	-00.6	N 16 02.1	+00.9	186	15.2	-31.6	N 25 43.2	-07.0	05
06	270	54.8	+00.0	N 18 30.9	+00.6	276	44.1	-00.6	N 16 03.0	+00.9	200	43.6	-31.5	N 25 36.2	-07.1	06
07	285	54.8	+00.0	N 18 31.5	+00.6	291	43.5	-00.6	N 16 03.9	+01.0	215	12.1	-31.3	N 25 29.1	-07.2	07
08	300	54.8	+00.0	N 18 32.1	+00.7	306	42.9	-00.5	N 16 04.9	+00.9	229	40.8	-31.3	N 25 21.9	-07.3	08
09	315	54.8	+00.0	N 18 32.8	+00.6	321	42.4	-00.6	N 16 05.8	+01.0	244	09.5	-31.2	N 25 14.6	-07.5	09
10	330	54.8	+00.0	N 18 33.4	+00.6	336	41.8	-00.6	N 16 06.8	+00.9	258	38.3	-31.1	N 25 07.1	-07.6	10
11	345	54.8	+00.0	N 18 34.0	+00.6	351	41.2	-00.6	N 16 07.7	+01.0	273	07.2	-30.9	N 24 59.5	-07.7	11
12	0	54.8	+00.0	N 18 34.6	+00.6	6	40.6	-00.6	N 16 08.7	+00.9	287	36.3	-30.9	N 24 51.8	-07.8	12
13	15	54.8	+00.0	N 18 35.2	+00.6	21	40.0	-00.6	N 16 09.6	+00.9	302	05.4	-30.7	N 24 44.0	-07.9	13
14	30	54.8	+00.0	N 18 35.8	+00.6	36	39.4	-00.6	N 16 10.5	+01.0	316	34.7	-30.7	N 24 36.1	-08.0	14
15	45	54.8	+00.0	N 18 36.4	+00.6	51	38.8	-00.5	N 16 11.5	+00.9	331	04.0	-30.5	N 24 28.1	-08.2	15
16	60	54.8	+00.0	N 18 37.0	+00.6	66	38.3	-00.6	N 16 12.4	+01.0	345	33.5	-30.4	N 24 19.9	-08.2	16
17	75	54.8	+00.0	N 18 37.6	+00.6	81	37.7	-00.6	N 16 13.4	+00.9	0	03.1	-30.4	N 24 11.7	-08.4	17
18	90	54.8	+00.0	N 18 38.2	+00.6	96	37.1	-00.6	N 16 14.3	+00.9	14	32.7	-30.2	N 24 03.3	-08.5	18
19	105	54.8	+00.0	N 18 38.8	+00.6	111	36.5	-00.6	N 16 15.2	+01.0	29	02.5	-30.1	N 23 54.8	-08.5	19
20	120	54.8	+00.0	N 18 39.4	+00.6	126	35.9	-00.6	N 16 16.2	+00.9	43	32.4	-30.0	N 23 46.3	-08.7	20
21	135	54.8	+00.1	N 18 40.0	+00.6	141	35.3	-00.6	N 16 17.1	+00.9	58	02.4	-29.9	N 23 37.6	-08.8	21
22	150	54.7	+00.0	N 18 40.6	+00.6	156	34.7	-00.6	N 16 18.0	+01.0	72	32.5	-29.8	N 23 28.8	-08.9	22
23	165	54.7	+00.0	N 18 41.2	+00.6	171	34.1	-00.6	N 16 19.0	+00.9	87	02.7	-29.7	N 23 19.9	-09.0	23

UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 15°3' 15°2' 15°2' 15°2' 15°1' 15°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 56°0' 55°9' 55°7' 55°6' 55°5' 55°4'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 55°3' 55°2' 55°1' 55°0' 54°9' 54°9'
SHA 310° 309° 309° 309° 309° 309°	SHA 315° 315° 315° 315° 315° 314°	SHA 242° 239° 237° 235° 233° 230°	SHA 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	SHA 314° 314° 314° 314° 313° 313°	SHA 228° 226° 224° 222° 220° 218°
Greenwich Culmination Time: 11:56		Greenwich Culmination Time: 11:33		Greenwich Culmination Time: 16:59	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	222	02.3	+00.7	N 02 36.7	+00.8	176	24.8	+01.9	N 18 45.3	+00.1	241	56.6	+02.3	S 06 32.6	-00.1	00
01	237	03.0	+00.7	N 02 37.5	+00.7	191	26.7	+01.8	N 18 45.4	+00.2	256	58.9	+02.3	S 06 32.5	-00.1	01
02	252	03.7	+00.7	N 02 38.2	+00.8	206	28.5	+01.9	N 18 45.6	+00.1	272	01.2	+02.3	S 06 32.4	+00.0	02
03	267	04.4	+00.7	N 02 39.0	+00.8	221	30.4	+01.9	N 18 45.7	+00.1	287	03.5	+02.3	S 06 32.4	-00.1	03
04	282	05.1	+00.7	N 02 39.8	+00.7	236	32.3	+01.8	N 18 45.8	+00.2	302	05.8	+02.3	S 06 32.3	+00.0	04
05	297	05.8	+00.7	N 02 40.5	+00.8	251	34.1	+01.9	N 18 46.0	+00.1	317	08.1	+02.3	S 06 32.3	-00.1	05
06	312	06.5	+00.7	N 02 41.3	+00.8	266	36.0	+01.8	N 18 46.1	+00.1	332	10.4	+02.3	S 06 32.2	-00.1	06
07	327	07.2	+00.7	N 02 42.0	+00.8	281	37.8	+01.9	N 18 46.2	+00.2	347	12.7	+02.3	S 06 32.1	+00.0	07
08	342	07.9	+00.8	N 02 42.8	+00.7	296	39.7	+01.9	N 18 46.4	+00.1	2	15.0	+02.2	S 06 32.1	-00.1	08
09	357	08.7	+00.7	N 02 43.5	+00.8	311	41.6	+01.8	N 18 46.5	+00.2	17	17.2	+02.3	S 06 32.0	-00.1	09
10	12	09.4	+00.7	N 02 44.3	+00.7	326	43.4	+01.9	N 18 46.7	+00.1	32	19.5	+02.3	S 06 31.9	+00.0	10
11	27	10.1	+00.7	N 02 45.0	+00.8	341	45.3	+01.8	N 18 46.8	+00.1	47	21.8	+02.3	S 06 31.9	-00.1	11
12	42	10.8	+00.7	N 02 45.8	+00.8	356	47.1	+01.9	N 18 46.9	+00.2	62	24.1	+02.3	S 06 31.8	-00.1	12
13	57	11.5	+00.7	N 02 46.6	+00.7	11	49.0	+01.8	N 18 47.1	+00.1	77	26.4	+02.3	S 06 31.7	+00.0	13
14	72	12.2	+00.7	N 02 47.3	+00.8	26	50.8	+01.9	N 18 47.2	+00.2	92	28.7	+02.3	S 06 31.7	-00.1	14
15	87	12.9	+00.7	N 02 48.1	+00.7	41	52.7	+01.9	N 18 47.3	+00.1	107	31.0	+02.3	S 06 31.6	+00.0	15
16	102	13.6	+00.7	N 02 48.8	+00.8	56	54.6	+01.8	N 18 47.5	+00.1	122	33.3	+02.3	S 06 31.6	-00.1	16
17	117	14.3	+00.7	N 02 49.6	+00.7	71	56.4	+01.9	N 18 47.6	+00.2	137	35.6	+02.3	S 06 31.5	-00.1	17
18	132	15.0	+00.7	N 02 50.3	+00.8	86	58.3	+01.8	N 18 47.8	+00.1	152	37.9	+02.3	S 06 31.4	+00.0	18
19	147	15.7	+00.7	N 02 51.1	+00.7	102	00.1	+01.9	N 18 47.9	+00.1	167	40.2	+02.3	S 06 31.4	-00.1	19
20	162	16.4	+00.8	N 02 51.8	+00.8	117	02.0	+01.9	N 18 48.0	+00.2	182	42.5	+02.3	S 06 31.3	-00.1	20
21	177	17.2	+00.7	N 02 52.6	+00.7	132	03.9	+01.8	N 18 48.2	+00.1	197	44.8	+02.3	S 06 31.2	+00.0	21
22	192	17.9	+00.7	N 02 53.3	+00.8	147	05.7	+01.9	N 18 48.3	+00.2	212	47.1	+02.3	S 06 31.2	-00.1	22
23	207	18.6	+00.7	N 02 54.1	+00.7	162	07.6	+01.8	N 18 48.5	+00.1	227	49.4	+02.2	S 06 31.1	+00.0	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 351° 351° 351° 350° 350° 350°	SHA 305° 305° 305° 305° 305° 305°	SHA 011° 011° 011° 011° 011° 011°	SHA 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	SHA 011° 011° 011° 011° 011° 011°	SHA 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
Greenwich Culmination Time: 09:11		Greenwich Culmination Time: 12:12		Greenwich Culmination Time: 07:51	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	54.7	+00.0	N 18 41.8	+00.6	186	33.5	-00.6	N 16 19.9	+00.9	101	33.0	-29.6	N 23 10.9	-09.1	00
01	195	54.7	+00.0	N 18 42.4	+00.6	201	32.9	-00.5	N 16 20.8	+01.0	116	03.4	-29.5	N 23 01.8	-09.2	01
02	210	54.7	+00.0	N 18 43.0	+00.6	216	32.4	-00.6	N 16 21.8	+00.9	130	33.9	-29.4	N 22 52.6	-09.2	02
03	225	54.7	+00.0	N 18 43.6	+00.6	231	31.8	-00.6	N 16 22.7	+00.9	145	04.5	-29.2	N 22 43.4	-09.4	03
04	240	54.7	+00.0	N 18 44.2	+00.6	246	31.2	-00.6	N 16 23.6	+01.0	159	35.3	-29.2	N 22 34.0	-09.5	04
05	255	54.7	+00.0	N 18 44.8	+00.6	261	30.6	-00.6	N 16 24.6	+00.9	174	06.1	-29.1	N 22 24.5	-09.6	05
06	270	54.7	+00.0	N 18 45.4	+00.6	276	30.0	-00.6	N 16 25.5	+00.9	188	37.0	-29.0	N 22 14.9	-09.6	06
07	285	54.7	+00.0	N 18 46.0	+00.6	291	29.4	-00.6	N 16 26.4	+01.0	203	08.0	-28.9	N 22 05.3	-09.8	07
08	300	54.7	+00.0	N 18 46.6	+00.6	306	28.8	-00.6	N 16 27.4	+00.9	217	39.1	-28.7	N 21 55.5	-09.8	08
09	315	54.7	+00.0	N 18 47.2	+00.6	321	28.2	-00.6	N 16 28.3	+00.9	232	10.4	-28.7	N 21 45.7	-10.0	09
10	330	54.7	+00.0	N 18 47.8	+00.6	336	27.6	-00.6	N 16 29.2	+00.9	246	41.7	-28.6	N 21 35.7	-10.0	10
11	345	54.7	+00.0	N 18 48.4	+00.6	351	27.0	-00.6	N 16 30.1	+01.0	261	13.1	-28.5	N 21 25.7	-10.1	11
12	0	54.7	+00.0	N 18 49.0	+00.6	6	26.4	-00.6	N 16 31.1	+00.9	275	44.6	-28.4	N 21 15.6	-10.2	12
13	15	54.7	+00.0	N 18 49.6	+00.6	21	25.8	-00.6	N 16 32.0	+00.9	290	16.2	-28.3	N		

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes astronomical data for Sun, Venus, and Moon, and a small table for Mars, Jupiter, and Saturn at the bottom.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes astronomical data for Sun, Venus, and Moon, and a small table for Mars, Jupiter, and Saturn at the bottom.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes astronomical data for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes astronomical data for Mars, Jupiter, and Saturn.

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Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

Table with 5 columns: UT, Sun, Venus, Moon (A: 32%), UT. Rows 00-23 showing celestial coordinates for Sun, Venus, and Moon on May 17, 2024.

Table with 5 columns: UT, Sun, Venus, Moon (A: 34%), UT. Rows 00-23 showing celestial coordinates for Sun, Venus, and Moon on May 18, 2024.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23 showing celestial coordinates for Mars, Jupiter, and Saturn on May 17, 2024.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23 showing celestial coordinates for Mars, Jupiter, and Saturn on May 18, 2024.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 300° 299° 299° 299° 299° 299°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 344° 344° 343° 343° 343° 343°
Greenwich Culmination Time: 09:00

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 303° 307° 306° 306° 306° 306°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 346° 346° 346° 345° 345° 345°
Greenwich Culmination Time: 09:03

Table for Sun, Venus, and Moon on May 21. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 43%. Rows 00-23 show celestial data for each planet.

Table for Sun, Venus, and Moon on May 22. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 46%. Rows 00-23 show celestial data for each planet.

Table for Mars, Jupiter, and Saturn on May 21. Columns include UT, GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time. Rows 00-23 show celestial data for each planet.

Table for Mars, Jupiter, and Saturn on May 22. Columns include UT, GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time. Rows 00-23 show celestial data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for the Sun, Venus, and Moon on May 27, 2024.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for the Sun, Venus, and Moon on May 24, 2024.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on May 27, 2024.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on May 24, 2024.

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UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180	45.9	-00.1	N 21 00.0	183	40.8	-00.7	N 19 58.7	342	47.1	-34.5	S 27 51.1	00		
01	195	45.8	+00.0	N 21 00.4	198	40.1	-00.7	N 19 59.4	357	12.6	-34.6	S 27 54.4	01		
02	210	45.8	-00.1	N 21 00.9	213	39.4	-00.8	N 20 00.1	11	38.0	-34.6	S 27 57.5	02		
03	225	45.7	-00.1	N 21 01.3	228	38.6	-00.7	N 20 00.8	26	03.4	-34.7	S 28 00.5	03		
04	240	45.6	+00.0	N 21 01.8	243	37.9	-00.7	N 20 01.5	40	28.7	-34.8	S 28 03.3	04		
05	255	45.6	-00.1	N 21 02.2	258	37.2	-00.7	N 20 02.3	54	53.9	-34.8	S 28 05.9	05		
06	270	45.5	-00.1	N 21 02.7	273	36.5	-00.7	N 20 03.0	69	19.1	-34.8	S 28 08.3	06		
07	285	45.4	+00.0	N 21 03.1	288	35.8	-00.8	N 20 03.7	83	44.3	-34.9	S 28 10.6	07		
08	300	45.4	-00.1	N 21 03.5	303	35.0	-00.7	N 20 04.4	98	09.4	-35.0	S 28 12.7	08		
09	315	45.3	-00.1	N 21 04.0	318	34.3	-00.7	N 20 05.1	112	34.4	-35.0	S 28 14.7	09		
10	330	45.2	+00.0	N 21 04.4	333	33.6	-00.7	N 20 05.8	126	59.4	-35.1	S 28 16.5	10		
11	345	45.2	-00.1	N 21 04.8	348	32.9	-00.7	N 20 06.5	141	24.3	-35.1	S 28 18.1	11		
12	0	45.1	-00.1	N 21 05.3	3	32.2	-00.8	N 20 07.2	155	49.2	-35.1	S 28 19.5	12		
13	15	45.0	+00.0	N 21 05.7	18	31.4	-00.7	N 20 07.9	170	14.1	-35.2	S 28 20.8	13		
14	30	45.0	-00.1	N 21 06.2	33	30.7	-00.7	N 20 08.6	184	38.9	-35.2	S 28 21.9	14		
15	45	44.9	-00.1	N 21 06.6	48	30.0	-00.7	N 20 09.3	199	03.7	-35.3	S 28 22.8	15		
16	60	44.8	+00.0	N 21 07.0	63	29.3	-00.8	N 20 10.0	213	28.4	-35.2	S 28 23.6	16		
17	75	44.8	-00.1	N 21 07.5	78	28.5	-00.7	N 20 10.7	227	53.2	-35.4	S 28 24.2	17		
18	90	44.7	-00.1	N 21 07.9	93	27.8	-00.7	N 20 11.4	242	17.8	-35.3	S 28 24.6	18		
19	105	44.6	+00.0	N 21 08.3	108	27.1	-00.7	N 20 12.1	256	42.5	-35.4	S 28 24.8	19		
20	120	44.6	-00.1	N 21 08.8	123	26.4	-00.8	N 20 12.8	271	07.1	-35.4	S 28 24.8	20		
21	135	44.5	-00.1	N 21 09.2	138	25.6	-00.7	N 20 13.5	285	31.7	-35.4	S 28 24.7	21		
22	150	44.4	+00.0	N 21 09.6	153	24.9	-00.7	N 20 14.2	299	56.3	-35.4	S 28 24.4	22		
23	165	44.4	-00.1	N 21 10.0	168	24.2	-00.8	N 20 14.9	314	20.9	-35.5	S 28 24.0	23		
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22			
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'				SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				SD 15°5' 15°5' 15°5' 15°6' 15°6' 15°6'				SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'			
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 56°9' 57°0' 57°1' 57°1' 57°2' 57°3'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'			
SHA 298° 297° 297° 297° 297° 297°				SHA 301° 300° 300° 300° 300° 299°				SHA 098° 096° 094° 091° 088° 086°				SHA 297° 296° 296° 296° 296° 296°			
Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 11:45				Greenwich Culmination Time: 01:11				Greenwich Culmination Time: 11:57			

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180	44.3	-00.1	N 21 10.5	183	23.4	-00.7	N 20 15.6	328	45.4	-35.4	S 28 23.3	00		
01	195	44.2	+00.0	N 21 10.9	198	22.7	-00.7	N 20 16.3	343	10.0	-35.5	S 28 22.5	01		
02	210	44.2	-00.1	N 21 11.3	213	22.0	-00.8	N 20 17.0	357	34.5	-35.5	S 28 21.5	02		
03	225	44.1	-00.1	N 21 11.8	228	21.2	-00.7	N 20 17.6	11	59.0	-35.5	S 28 20.4	03		
04	240	44.0	+00.0	N 21 12.2	243	20.5	-00.7	N 20 18.3	26	23.5	-35.5	S 28 19.0	04		
05	255	44.0	-00.1	N 21 12.6	258	19.8	-00.7	N 20 19.0	40	48.0	-35.6	S 28 17.5	05		
06	270	43.9	-00.1	N 21 13.0	273	19.1	-00.8	N 20 19.7	55	12.4	-35.5	S 28 15.8	06		
07	285	43.8	+00.0	N 21 13.5	288	18.3	-00.7	N 20 20.4	69	36.9	-35.5	S 28 13.9	07		
08	300	43.8	-00.1	N 21 13.9	303	17.6	-00.7	N 20 21.1	84	01.4	-35.5	S 28 11.9	08		
09	315	43.7	-00.1	N 21 14.3	318	16.9	-00.8	N 20 21.8	98	25.9	-35.5	S 28 09.6	09		
10	330	43.6	-00.1	N 21 14.7	333	16.1	-00.7	N 20 22.4	112	50.4	-35.5	S 28 07.2	10		
11	345	43.5	+00.0	N 21 15.1	348	15.4	-00.7	N 20 23.1	127	14.9	-35.5	S 28 04.6	11		
12	0	43.5	-00.1	N 21 15.6	3	14.7	-00.8	N 20 23.8	141	39.4	-35.5	S 28 01.9	12		
13	15	43.4	-00.1	N 21 16.0	18	13.9	-00.7	N 20 24.5	156	03.9	-35.5	S 27 59.0	13		
14	30	43.3	+00.0	N 21 16.4	33	13.2	-00.7	N 20 25.2	170	28.4	-35.4	S 27 55.8	14		
15	45	43.3	-00.1	N 21 16.8	48	12.5	-00.8	N 20 25.8	184	53.0	-35.5	S 27 52.6	15		
16	60	43.2	-00.1	N 21 17.2	63	11.7	-00.7	N 20 26.5	199	17.5	-35.4	S 27 49.1	16		
17	75	43.1	-00.1	N 21 17.7	78	11.0	-00.8	N 20 27.2	213	42.1	-35.4	S 27 45.5	17		
18	90	43.0	+00.0	N 21 18.1	93	10.2	-00.7	N 20 27.9	228	06.7	-35.4	S 27 41.7	18		
19	105	43.0	-00.1	N 21 18.5	108	09.5	-00.7	N 20 28.5	242	31.3	-35.4	S 27 37.7	19		
20	120	42.9	-00.1	N 21 18.9	123	08.8	-00.8	N 20 29.2	256	55.9	-35.3	S 27 33.5	20		
21	135	42.8	+00.0	N 21 19.3	138	08.0	-00.7	N 20 29.9	271	20.6	-35.3	S 27 29.2	21		
22	150	42.8	-00.1	N 21 19.7	153	07.3	-00.8	N 20 30.6	285	45.3	-35.3	S 27 24.7	22		
23	165	42.7	-00.1	N 21 20.2	168	06.5	-00.7	N 20 31.2	300	10.0	-35.2	S 27 20.0	23		
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22			
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'				SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				SD 15°6' 15°6' 15°6' 15°7' 15°7' 15°7'				SD 15°6' 15°7' 15°7' 15°7' 15°7' 15°7'			
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 57°4' 57°5' 57°5' 57°6' 57°6' 57°6'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'			
SHA 299° 299° 299° 299° 299° 298°				SHA 299° 299° 299° 299° 298° 298°				SHA 083° 081° 078° 076° 073° 071°				SHA 297° 296° 296° 296° 296° 296°			
Greenwich Culmination Time: 11:57				Greenwich Culmination Time: 11:47				Greenwich Culmination Time: 02:10				Greenwich Culmination Time: 11:57			

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	225	26.6	+00.8	N 06 10.5	185	19.5	+01.8	N 19 23.6	253	01.8	+02.4	S 06 16.7	00
01	240	27.4	+00.7	N 06 11.2	200	21.3	+01.9	N 19 23.8	268	04.2	+02.3	S 06 16.6	01
02	255	28.1	+00.7	N 06 12.0	215	23.2	+01.9	N 19 23.9	283	06.5	+02.3	S 06 16.6	02
03	270	28.8	+00.7	N 06 12.7	230	25.1	+01.8	N 19 24.0	298	08.8	+02.4	S 06 16.5	03
04	285	29.5	+00.7	N 06 13.4	245	26.9	+01.9	N 19 24.1	313	11.2	+02.3	S 06 16.5	04
05	300	30.2	+00.7	N 06 14.1	260	28.8	+01.8	N 19 24.3	328	13.5	+02.3	S 06 16.4	05
06	315	30.9	+00.7	N 06 14.9	275	30.6	+01.9	N 19 24.4	343	15.8	+02.3	S 06 16.4	06
07	330	31.6	+00.7	N 06 15.6	290	32.5	+01.8	N 19 24.5	358	18.1	+02.4	S 06 16.3	07
08	345	32.3	+00.7	N 06 16.3	305	34.3	+01.9	N 19 24.7	1	20.5	+02.3	S 06 16.3	08
09	0	33.0	+00.7	N 06 17.0	320	36.2	+01.8	N 19 24.8	28	22.8	+02.3	S 06 16.2	09
10	15	33.7	+00.7	N 06 17.8	335	38.0	+01.9	N 19 24.9	43	25.1	+02.4	S 06 16.2	10
11	30	34.4	+00.8	N 06 18.5	350	39.9	+01.9	N 19 25.0	58	27.5	+02.3	S 06 16.2	11
12	45	35.2	+00.7	N 06 19.2	5	41.8	+01.8	N 19 25.2	73	29.8	+02.3	S 06 16.1	12
13	60	35.9	+00.7	N 06 19.9	20	43.6	+01.9	N 19 25.3	88	32.1	+02.4	S 06 16.1	13
14	75	36.6	+00.7	N 06 20.7	35	45.5	+01.8	N 19 25.4	103	34.5	+02.3	S 06 16.0	14
15	90	37.3	+00.7	N 06 21.4	50	47.3	+01.9	N 19 25.5	118	36.8	+02.3	S 06 16.0	15
16	105	38.0	+00.7	N 06 22.1	65	49.2	+01.8	N 19 25.7	133	39.1	+02.4	S 06 15.9	16
17	120	38.7	+00.7	N 06 22.8	80	51.0	+01.9	N 19 25.8	148	41.5	+02.3	S 06 15.9	17
18	135	39.4	+00.7	N 06 23.6	95	52.9	+01.8	N 19 25.9	163	43.8	+02.3	S 06 15.8	18
19	150	40.1	+00.7	N 06 24.3	110	54.7	+01.9	N 19 26.1	178	46.1	+02.3	S 06 15.8	19
20	165	40.8	+00.7	N 06 25.0	125	56.6	+01.9	N 19 26.2	193	48.4	+02.4	S 06 15.7	20
21	180	41.5	+00.7	N 06 25.7	140	58.5	+01.8	N 19 26.3	208	50.8	+02.3	S 06 15.7	21
22	195	42.2	+00.8	N 06 26.5	156	00.3	+01.9	N 19 26.4	223	53.1	+02.3	S 06 15.6	22
23	210	43.0	+00.7	N 06 27.2	171	02.2	+01.8	N 19 26.6	238	55.4	+02.4	S 06 15.6	23
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 0					

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	34.6	-00.1	N 21 57.3	+00.3	181	52.7	-00.8	N 21 31.5	+00.6	262	56.2	-29.3	S 08 46.1	-16.2	00				
01	195	34.5	+00.0	N 21 57.6	+00.4	196	51.9	-00.8	N 21 32.1	+00.6	277	26.9	-29.4	S 08 29.9	-16.2	01				
02	210	34.5	-00.1	N 21 58.0	+00.3	211	51.1	-00.8	N 21 32.7	+00.5	291	57.5	-29.3	S 08 13.7	-16.3	02				
03	225	34.4	-00.1	N 21 58.3	+00.4	226	50.3	-00.8	N 21 33.2	+00.4	306	28.2	-29.3	S 07 57.4	-16.3	03				
04	240	34.3	-00.1	N 21 58.7	+00.3	241	49.5	-00.8	N 21 33.8	+00.6	320	58.9	-29.3	S 07 41.1	-16.3	04				
05	255	34.2	-00.1	N 21 59.0	+00.4	256	48.7	-00.7	N 21 34.4	+00.5	335	29.6	-29.2	S 07 24.8	-16.5	05				
06	270	34.1	-00.1	N 21 59.4	+00.3	271	48.0	-00.8	N 21 34.9	+00.6	350	00.4	-29.2	S 07 08.3	-16.4	06				
07	285	34.0	-00.1	N 21 59.7	+00.4	286	47.2	-00.8	N 21 35.5	+00.6	4	31.2	-29.2	S 06 51.9	-16.5	07				
08	300	33.9	-00.1	N 22 00.1	+00.3	301	46.4	-00.8	N 21 36.1	+00.5	19	02.0	-29.2	S 06 35.4	-16.5	08				
09	315	33.8	-00.1	N 22 00.4	+00.4	316	45.6	-00.8	N 21 36.6	+00.6	33	32.8	-29.1	S 06 18.9	-16.6	09				
10	330	33.7	-00.1	N 22 00.8	+00.3	331	44.8	-00.8	N 21 37.2	+00.6	48	03.7	-29.1	S 06 02.3	-16.6	10				
11	345	33.6	-00.1	N 22 01.1	+00.4	346	44.0	-00.8	N 21 37.8	+00.5	62	34.6	-29.1	S 05 45.7	-16.6	11				
12	0	33.5	-00.1	N 22 01.5	+00.3	1	43.2	-00.7	N 21 38.3	+00.6	77	05.5	-29.1	S 05 29.1	-16.7	12				
13	15	33.4	-00.1	N 22 01.8	+00.3	16	42.5	-00.8	N 21 38.9	+00.5	91	36.4	-29.1	S 05 12.4	-16.7	13				
14	30	33.3	-00.1	N 22 02.1	+00.4	31	41.7	-00.8	N 21 39.4	+00.6	106	07.3	-29.0	S 04 55.7	-16.7	14				
15	45	33.2	-00.1	N 22 02.5	+00.3	46	40.9	-00.8	N 21 40.0	+00.6	120	38.3	-29.0	S 04 39.0	-16.8	15				
16	60	33.1	-00.1	N 22 02.8	+00.4	61	40.1	-00.8	N 21 40.6	+00.5	135	09.3	-29.0	S 04 22.2	-16.8	16				
17	75	33.0	-00.1	N 22 03.2	+00.3	76	39.3	-00.8	N 21 41.1	+00.6	149	40.3	-29.0	S 04 05.4	-16.8	17				
18	90	32.9	-00.1	N 22 03.5	+00.3	91	38.5	-00.8	N 21 41.7	+00.5	164	11.3	-29.0	S 03 48.6	-16.8	18				
19	105	32.8	+00.0	N 22 03.8	+00.4	106	37.7	-00.8	N 21 42.2	+00.6	178	42.3	-29.0	S 03 31.8	-16.9	19				
20	120	32.8	-00.1	N 22 04.2	+00.3	121	36.9	-00.8	N 21 42.8	+00.5	193	13.3	-28.9	S 03 14.9	-16.8	20				
21	135	32.7	-00.1	N 22 04.5	+00.4	136	36.1	-00.8	N 21 43.3	+00.6	207	44.4	-28.9	S 02 58.1	-16.9	21				
22	150	32.6	-00.1	N 22 04.8	+00.4	151	35.3	-00.8	N 21 43.9	+00.5	222	15.4	-28.9	S 02 41.2	-16.9	22				
23	165	32.5	-00.1	N 22 05.2	+00.3	166	34.5	-00.7	N 21 44.4	+00.6	236	46.5	-29.0	S 02 24.3	-17.0	23				
SD	02	06	10	14	18	22	SD	02	06	10	14	18	22	SD	02	06	10	14	18	22
UT	15°8'	15°8'	15°8'	15°8'	15°8'	15°8'	UT	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	UT	16°1'	16°2'	16°2'	16°2'	16°2'	16°2'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	59°3'	59°3'	59°3'	59°4'	59°4'	59°4'	HP	59°3'	59°3'	59°3'	59°4'	59°4'	59°4'
SHA	292°	291°	291°	291°	291°	291°	SHA	013°	011°	009°	007°	004°	002°	SHA	013°	011°	009°	007°	004°	002°
Greenwich Culmination Time: 11:57					Greenwich Culmination Time: 11:53					Greenwich Culmination Time: 06:41										

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	227	08.6	+00.7	N 07 53.7	+00.7	189	46.7	+01.8	N 19 41.6	+00.1	258	38.6	+02.4	S 06 10.5	+00.0	00				
01	242	09.3	+00.7	N 07 54.4	+00.7	204	48.5	+01.9	N 19 41.7	+00.1	273	41.0	+02.3	S 06 10.5	+00.0	01				
02	257	10.0	+00.7	N 07 55.1	+00.7	219	50.4	+01.9	N 19 41.8	+00.2	288	43.3	+02.4	S 06 10.5	-00.1	02				
03	272	10.7	+00.7	N 07 55.8	+00.7	234	52.3	+01.8	N 19 42.0	+00.1	303	45.7	+02.3	S 06 10.4	+00.0	03				
04	287	11.4	+00.7	N 07 56.5	+00.7	249	54.1	+01.9	N 19 42.1	+00.1	318	48.0	+02.4	S 06 10.4	+00.0	04				
05	302	12.1	+00.8	N 07 57.2	+00.7	264	56.0	+01.8	N 19 42.2	+00.1	333	50.4	+02.3	S 06 10.4	-00.1	05				
06	317	12.9	+00.7	N 07 57.9	+00.7	279	57.8	+01.9	N 19 42.3	+00.1	348	52.7	+02.4	S 06 10.3	+00.0	06				
07	332	13.6	+00.7	N 07 58.6	+00.7	294	59.7	+01.8	N 19 42.4	+00.2	3	55.1	+02.3	S 06 10.3	-00.1	07				
08	347	14.3	+00.7	N 07 59.3	+00.7	310	01.5	+01.9	N 19 42.6	+00.1	18	57.4	+02.4	S 06 10.2	+00.0	08				
09	2	15.0	+00.7	N 08 00.0	+00.7	325	03.4	+01.8	N 19 42.7	+00.1	33	59.8	+02.3	S 06 10.2	+00.0	09				
10	17	15.7	+00.7	N 08 00.7	+00.7	340	05.2	+01.9	N 19 42.8	+00.1	49	02.1	+02.4	S 06 10.2	-00.1	10				
11	32	16.4	+00.7	N 08 01.4	+00.7	355	07.1	+01.9	N 19 42.9	+00.2	64	04.5	+02.3	S 06 10.1	+00.0	11				
12	47	17.1	+00.7	N 08 02.1	+00.7	10	09.0	+01.8	N 19 43.1	+00.1	79	06.8	+02.4	S 06 10.1	+00.0	12				
13	62	17.8	+00.7	N 08 02.8	+00.7	25	10.8	+01.9	N 19 43.2	+00.1	94	09.2	+02.3	S 06 10.1	-00.1	13				
14	77	18.5	+00.7	N 08 03.5	+00.7	40	12.7	+01.8	N 19 43.3	+00.1	109	11.5	+02.4	S 06 10.0	+00.0	14				
15	92	19.2	+00.7	N 08 04.2	+00.7	55	14.5	+01.9	N 19 43.4	+00.1	124	13.9	+02.3	S 06 10.0	-00.1	15				
16	107	19.9	+00.7	N 08 04.9	+00.7	70	16.4	+01.8	N 19 43.5	+00.2	139	16.2	+02.4	S 06 09.9	+00.0	16				
17	122	20.6	+00.7	N 08 05.6	+00.7	85	18.2	+01.9	N 19 43.7	+00.1	154	18.6	+02.3	S 06 09.9	+00.0	17				
18	137	21.3	+00.7	N 08 06.3	+00.7	100	20.1	+01.9	N 19 43.8	+00.1	169	20.9	+02.4	S 06 09.9	-00.1	18				
19	152	22.0	+00.7	N 08 07.0	+00.7	115	22.0	+01.8	N 19 43.9	+00.1	184	23.3	+02.3	S 06 09.8	+00.0	19				
20	167	22.7	+00.7	N 08 07.7	+00.7	130	23.8	+01.9	N 19 44.0	+00.1	199	25.6	+02.4	S 06 09.8	+00.0	20				
21	182	23.4	+00.8	N 08 08.4	+00.7	145	25.7	+01.8	N 19 44.1	+00.2	214	28.0	+02.3	S 06 09.8	-00.1	21				
22	197	24.2	+00.7	N 08 09.1	+00.7	160	27.5	+01.9	N 19 44.3	+00.2	229	30.3	+02.4	S 06 09.7	+00.0	22				
23	212	24.9	+00.7	N 08 09.8	+00.8	175	29.4	+01.8	N 19 44.4	+00.1	244	32.7	+02.4	S 06 09.7	+00.0	23				
SD	02	06	10	14	18	22	SD	02	06	10	14	18	22	SD	02	06	10	14	18	22
UT	00°0'	00°0'	00°0'	00°0'	00°0'	00°0'	UT	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	UT	00°0'	00°0'	00°0'	00°0'	00°0'	00°0'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°0'	00°0'	00°0'	00°0'	00°0'	00°0'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'
SHA	338°	338°	338°	338°	338°	338°	SHA	301°	301°	301°	301°	301°	301°	SHA	340°	340°	340°	340°	340°	340°
Greenwich Culmination Time: 08:51					Greenwich Culmination Time: 11:19					Greenwich Culmination Time: 06:44										

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	40.8	-00.1	N 21 30.3	+00.4	182	47.9	-00.7	N 20 47.7	+00.6	300	42.9	-33.9	S 24 29.1	-08.9	00
01	195	40.7	-00.1	N 21 30.7	+00.4	197	47.2	-00.8	N 20 48.3	+00.7	315	09.0	-33.9	S 24 20.2	-09.0	01
02	210	40.6	+00.0	N 21 31.1	+00.4	212	46.4	-00.7	N 20 49.0	+00.6	329	35.1	-33.8	S 24 11.2	-09.2	02
03	225	40.5	-00.1	N 21 31.5	+00.4	227	45.7	-00.8	N 20 49.6	+00.6	344	01.3	-33.7	S 24 02.0	-09.3	03
04	240	40.5	-00.1	N 21 31.9	+00.4	242	44.9	-00.8	N 20 50.2	+00.7	358	27.6	-33.7	S 23 52.7	-09.5	04
05	255	40.4	-00.1	N 21 32.3	+00.4	257	44.1	-00.7	N 20 50.9	+00.6	12	53.9	-33.6	S 23 43.2	-09.6	05
06	270	40.3	-00.1	N 21 32.7	+00.4	272	43.4	-00.8	N 20 51.5	+00.7	27	20.3	-33.5	S 23 33.6	-09.8	06
07	285	40.2	+00.0	N 21 33.1	+00.4	287	42.6	-00.7	N 20 52.2	+00.6	41	46.8	-33.4	S 23 23.8	-09.9	07
08	300	40.2	-00.1	N 21 33.5	+00.4	302	41.9	-00.8	N 20 52.8	+00.6	56	13.4	-33.4	S 23 13.9	-10.1	08
09	315	40.1	-00.1	N 21 33.9	+00.4	317	41.1	-00.7	N 20 53.4	+00.6	70	40.0	-33.3	S 23 03.8	-10.2	09
10	330	40.0	-00.1	N 21 34.3	+00.4	332	40.4	-00.8	N 20 54.1	+00.6	85	06.7	-33.2	S 22 53.6	-10.3	10
11	345	39.9	-00.1	N 21 34.7	+00.3	347	39.6	-00.7	N 20 54.7	+00.6	99	33.5	-33.2	S 22 43.3	-10.5	11
12	0	39.8	+00.0	N 21 35.0	+00.4	2	38.9	-00.8	N 20 55.3	+00.7	11					

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on May 29, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on May 30, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on May 29, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on May 30, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	25.0	-00.2	N 22 27.9	+00.3	180	35.6	-00.8	N 22 21.6	+00.4	215	21.0	-32.0	N 17 13.6	+13.9	00
01	195	24.8	-00.1	N 22 28.2	+00.3	195	34.8	-00.8	N 22 22.0	+00.5	229	49.0	-32.0	N 17 27.5	+13.8	01
02	210	24.7	-00.1	N 22 28.5	+00.2	210	34.0	-00.8	N 22 22.5	+00.5	244	17.0	-32.2	N 17 41.3	+13.6	02
03	225	24.6	-00.1	N 22 28.7	+00.3	225	33.2	-00.9	N 22 23.0	+00.4	258	44.8	-32.2	N 17 54.9	+13.6	03
04	240	24.5	-00.1	N 22 29.0	+00.3	240	32.3	-00.8	N 22 23.4	+00.5	273	12.6	-32.3	N 18 08.5	+13.4	04
05	255	24.4	-00.1	N 22 29.3	+00.3	255	31.5	-00.8	N 22 23.9	+00.5	287	40.3	-32.4	N 18 21.9	+13.3	05
06	270	24.3	-00.1	N 22 29.6	+00.3	270	30.7	-00.8	N 22 24.4	+00.4	302	07.9	-32.5	N 18 35.2	+13.2	06
07	285	24.2	-00.1	N 22 29.9	+00.3	285	29.9	-00.8	N 22 24.8	+00.5	316	35.4	-32.5	N 18 48.4	+13.1	07
08	300	24.1	-00.1	N 22 30.2	+00.2	300	29.1	-00.9	N 22 25.3	+00.4	331	02.9	-32.6	N 19 01.5	+13.0	08
09	315	24.0	-00.1	N 22 30.4	+00.3	315	28.2	-00.8	N 22 25.7	+00.5	345	30.3	-32.7	N 19 14.5	+12.9	09
10	330	23.9	-00.2	N 22 30.7	+00.3	330	27.4	-00.8	N 22 26.2	+00.4	359	57.6	-32.8	N 19 27.4	+12.7	10
11	345	23.7	-00.1	N 22 31.0	+00.3	345	26.6	-00.8	N 22 26.6	+00.5	14	24.8	-32.9	N 19 40.1	+12.7	11
12	0	23.6	-00.1	N 22 31.3	+00.3	0	25.8	-00.9	N 22 27.1	+00.4	28	51.9	-32.9	N 19 52.8	+12.5	12
13	15	23.5	-00.1	N 22 31.6	+00.2	15	24.9	-00.8	N 22 27.5	+00.5	43	19.0	-33.0	N 20 05.3	+12.4	13
14	30	23.4	-00.1	N 22 31.8	+00.3	30	24.1	-00.8	N 22 28.0	+00.4	57	46.0	-33.1	N 20 17.7	+12.2	14
15	45	23.3	-00.1	N 22 32.1	+00.3	45	23.3	-00.9	N 22 28.4	+00.5	72	12.9	-33.2	N 20 29.9	+12.1	15
16	60	23.2	-00.1	N 22 32.4	+00.3	60	22.4	-00.8	N 22 28.9	+00.4	86	39.7	-33.3	N 20 42.0	+12.1	16
17	75	23.1	-00.1	N 22 32.7	+00.2	75	21.6	-00.9	N 22 29.3	+00.5	101	06.4	-33.3	N 20 54.1	+11.8	17
18	90	23.0	-00.1	N 22 32.9	+00.3	90	20.7	-00.8	N 22 29.8	+00.5	115	33.1	-33.4	N 21 05.9	+11.8	18
19	105	22.9	-00.2	N 22 33.2	+00.3	105	19.9	-00.8	N 22 30.3	+00.4	129	59.7	-33.5	N 21 17.7	+11.6	19
20	120	22.7	-00.1	N 22 33.5	+00.3	120	19.1	-00.8	N 22 30.7	+00.5	144	26.2	-33.6	N 21 29.3	+11.5	20
21	135	22.6	-00.1	N 22 33.8	+00.2	135	18.3	-00.9	N 22 31.2	+00.4	158	52.6	-33.6	N 21 40.8	+11.3	21
22	150	22.5	-00.1	N 22 34.0	+00.3	150	17.4	-00.8	N 22 31.6	+00.5	173	19.0	-33.8	N 21 52.1	+11.2	22
23	165	22.4	-00.1	N 22 34.3	+00.3	165	16.6	-00.8	N 22 32.1	+00.4	187	45.2	-33.8	N 22 03.3	+11.1	23

UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 16°2' 16°1' 16°1' 16°1' 16°1' 16°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 59°3' 59°3' 59°2' 59°2' 59°1' 59°0'	HP 59°3' 59°3' 59°2' 59°2' 59°1' 59°0'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 59°4' 59°5' 59°5' 59°5' 59°5' 59°5'
SHA 287° 287° 287° 287° 287° 287°	SHA 288° 287° 287° 287° 287° 286°	SHA 321° 319° 317° 314° 312° 309°	SHA 321° 319° 317° 314° 312° 309°	SHA 290° 290° 290° 290° 290° 290°	SHA 291° 291° 291° 291° 291° 290°
Greenwich Culmination Time: 11:58		Greenwich Culmination Time: 11:58		Greenwich Culmination Time: 10:00	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	228	16.3	+00.7	N 09 00.6	+00.7	192	44.9	+01.9	N 19 53.1	+00.1	262	24.8	+02.4	S 06 07.2	+00.0	00
01	243	17.0	+00.7	N 09 01.3	+00.7	207	46.8	+01.8	N 19 53.2	+00.1	277	27.2	+02.3	S 06 07.2	-00.1	01
02	258	17.7	+00.7	N 09 02.0	+00.7	222	48.6	+01.9	N 19 53.3	+00.1	292	29.5	+02.4	S 06 07.1	+00.0	02
03	273	18.4	+00.7	N 09 02.7	+00.7	237	50.5	+01.9	N 19 53.4	+00.1	307	31.9	+02.4	S 06 07.1	+00.0	03
04	288	19.1	+00.8	N 09 03.4	+00.7	252	52.4	+01.8	N 19 53.5	+00.2	322	34.3	+02.3	S 06 07.1	-00.1	04
05	303	19.9	+00.7	N 09 04.1	+00.7	267	54.2	+01.9	N 19 53.7	+00.1	337	36.6	+02.4	S 06 07.0	+00.0	05
06	318	20.6	+00.7	N 09 04.8	+00.7	282	56.1	+01.8	N 19 53.8	+00.1	352	39.0	+02.4	S 06 07.0	+00.0	06
07	333	21.3	+00.7	N 09 05.5	+00.6	297	57.9	+01.9	N 19 53.9	+00.1	7	41.4	+02.3	S 06 07.0	-00.1	07
08	348	22.0	+00.7	N 09 06.1	+00.7	312	59.8	+01.8	N 19 54.0	+00.1	22	43.7	+02.4	S 06 06.9	+00.0	08
09	3	22.7	+00.7	N 09 06.8	+00.7	328	01.6	+01.9	N 19 54.1	+00.1	37	46.1	+02.4	S 06 06.9	+00.0	09
10	18	23.4	+00.7	N 09 07.5	+00.7	343	03.5	+01.9	N 19 54.2	+00.2	52	48.5	+02.3	S 06 06.9	-00.1	10
11	33	24.1	+00.7	N 09 08.2	+00.7	358	05.4	+01.8	N 19 54.4	+00.1	67	50.8	+02.4	S 06 06.8	+00.0	11
12	48	24.8	+00.7	N 09 08.9	+00.7	13	07.2	+01.9	N 19 54.5	+00.1	82	53.2	+02.3	S 06 06.8	+00.0	12
13	63	25.5	+00.7	N 09 09.6	+00.7	28	09.1	+01.8	N 19 54.6	+00.1	97	55.5	+02.4	S 06 06.8	-00.1	13
14	78	26.2	+00.7	N 09 10.3	+00.7	43	10.9	+01.9	N 19 54.7	+00.1	112	57.9	+02.4	S 06 06.7	+00.0	14
15	93	26.9	+00.7	N 09 11.0	+00.6	58	12.8	+01.9	N 19 54.8	+00.1	128	00.3	+02.3	S 06 06.7	+00.0	15
16	108	27.6	+00.7	N 09 11.6	+00.7	73	14.7	+01.8	N 19 54.9	+00.2	143	02.6	+02.4	S 06 06.7	+00.0	16
17	123	28.3	+00.7	N 09 12.3	+00.7	88	16.5	+01.9	N 19 55.1	+00.1	158	05.0	+02.4	S 06 06.7	-00.1	17
18	138	29.0	+00.7	N 09 13.0	+00.7	103	18.4	+01.8	N 19 55.2	+00.1	173	07.4	+02.3	S 06 06.6	+00.0	18
19	153	29.7	+00.7	N 09 13.7	+00.7	118	20.2	+01.9	N 19 55.3	+00.1	188	09.7	+02.4	S 06 06.6	+00.0	19
20	168	30.4	+00.7	N 09 14.4	+00.7	133	22.1	+01.8	N 19 55.4	+00.1	203	12.1	+02.4	S 06 06.6	-00.1	20
21	183	31.1	+00.7	N 09 15.1	+00.7	148	23.9	+01.9	N 19 55.5	+00.1	218	14.5	+02.3	S 06 06.5	+00.0	21
22	198	31.8	+00.7	N 09 15.8	+00.6	163	25.8	+01.9	N 19 55.6	+00.2	233	16.8	+02.4	S 06 06.5	+00.0	22
23	213	32.5	+00.7	N 09 16.4	+00.7	178	27.7	+01.8	N 19 55.8	+00.1	248	19.2	+02.4	S 06 06.5	-00.1	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 335° 335° 335° 335° 335° 335°	SHA 335° 335° 335° 335° 335° 335°	SHA 300° 300° 300° 300° 300° 300°	SHA 300° 300° 300° 300° 300° 300°	SHA 009° 009° 009° 009° 009° 009°	SHA 009° 009° 009° 009° 009° 009°
Greenwich Culmination Time: 08:46		Greenwich Culmination Time: 11:07		Greenwich Culmination Time: 06:29	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	32.4	-00.1	N 22 05.5	+00.4	181	33.8	-00.8	N 21 45.0	+00.5	251	17.5	-28.9	S 02 07.3	-16.9	00
01	195	32.3	-00.1	N 22 05.9	+00.3	196	33.0	-00.8	N 21 45.5	+00.6	265	48.6	-29.0	S 01 50.4	-17.0	01
02	210	32.2	-00.1	N 22 06.2	+00.3	211	32.2	-00.8	N 21 46.1	+00.5	280	19.6	-28.9	S 01 33.4	-16.9	02
03	225	32.1	-00.1	N 22 06.5	+00.4	226	31.4	-00.8	N 21 46.6	+00.5	294	50.7	-28.9	S 01 16.5	-17.0	03
04	240	32.0	-00.1	N 22 06.9	+00.3	241	30.6	-00.8	N 21 47.1	+00.6	309	21.8	-29.0	S 00 59.5	-17.0	04
05	255	31.9	-00.1	N 22 07.2	+00.3	256	29.8	-00.8	N 21 47.7	+00.5	323	52.8	-28.9	S 00 42.5	-17.0	05
06	270	31.8	-00.1	N 22 07.5	+00.3	271	29.0	-00.8	N 21 48.2	+00.6	338	23.9	-29.0	S 00 25.5	-17.0	06
07	285	31.7	-00.1	N 22 07.8	+00.4	286	28.2	-00.8	N 21 48.8	+00.5	352	54.9	-28.9	S 00 08.5	-17.0	07
08	300	31.6	-00.1	N 22 08.2	+00.3	301	27.4	-00.8	N 21 49.3	+00.5	7	26.0	-29.0	N 00 08.5	+17.0	08
09	315	31.5	-00.1	N 22 08.5	+00.3	316	26.6	-00.8	N 21 49.8	+00.6	21	57.0	-29.0	N 00 25.5	+17.0	09
10	330	31.4	-00.1	N 22 08.8	+00.4	331	25.8	-00.8	N 21 50.4	+00.5	36	28.0	-28.9	N 00 42.5	+17.0	10
11	345	31.3	-00.1	N 22 09.2	+00.3	346	25.0	-00.8	N 21 50.9	+00.6	50	59.1	-29.0	N 00 59.5	+17.0	11
12	0	31.2	-00.1	N 22 09.5	+00.3	1	24.2	-00.8	N 21 51.5	+00.5	65	30.1	-29.0	N 01 16.5	+17.0	12
13	15	31.1	-00.1	N 22 09.8	+00.3	16	23.4	-00.8	N 21 52.0	+00.5	80	01.1	-29.1	N 01 33.5	+17.0	13</

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 290° 289° 289° 289° 289° 289°
Greenwich Culmination Time: 11:58

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 337° 337° 336° 336° 336° 336°
Greenwich Culmination Time: 08:48

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 288° 288° 288° 288° 288° 288°
Greenwich Culmination Time: 11:58

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 336° 336° 336° 336° 336° 335°
Greenwich Culmination Time: 08:47

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	13.9	-00.2	N 22 52.2	+00.2	179	15.2	-00.9	N 23 01.5	+00.3	159	41.4	-35.2	N 28 17.9	-01.4	00				
01	195	13.7	-00.1	N 22 52.4	+00.2	194	14.3	-00.8	N 23 01.8	+00.4	174	06.2	-35.3	N 28 16.5	-01.6	01				
02	210	13.6	-00.1	N 22 52.6	+00.3	209	13.5	-00.9	N 23 02.2	+00.3	188	30.9	-35.2	N 28 14.9	-01.7	02				
03	225	13.5	-00.1	N 22 52.9	+00.2	224	12.6	-00.8	N 23 02.5	+00.2	202	55.7	-35.1	N 28 13.2	-01.9	03				
04	240	13.4	-00.1	N 22 53.1	+00.2	239	11.8	-00.9	N 23 02.9	+00.4	217	20.6	-35.0	N 28 11.3	-02.1	04				
05	255	13.3	-00.2	N 22 53.3	+00.2	254	10.9	-00.8	N 23 03.3	+00.3	231	45.6	-35.0	N 28 09.2	-02.2	05				
06	270	13.1	-00.1	N 22 53.5	+00.2	269	10.1	-00.9	N 23 03.6	+00.4	246	10.6	-35.0	N 28 07.0	-02.4	06				
07	285	13.0	-00.1	N 22 53.7	+00.2	284	09.2	-00.8	N 23 04.0	+00.3	260	35.6	-34.8	N 28 04.6	-02.6	07				
08	300	12.9	-00.1	N 22 53.9	+00.3	299	08.4	-00.9	N 23 04.3	+00.4	275	00.8	-34.8	N 28 02.0	-02.7	08				
09	315	12.8	-00.2	N 22 54.2	+00.2	314	07.5	-00.9	N 23 04.7	+00.3	289	26.0	-34.7	N 27 59.3	-02.9	09				
10	330	12.6	-00.1	N 22 54.4	+00.2	329	06.6	-00.8	N 23 05.0	+00.4	303	51.3	-34.6	N 27 56.4	-03.1	10				
11	345	12.5	-00.1	N 22 54.6	+00.2	344	05.8	-00.9	N 23 05.4	+00.3	318	16.7	-34.6	N 27 53.3	-03.2	11				
12	0	12.4	-00.1	N 22 54.8	+00.2	359	04.9	-00.8	N 23 05.7	+00.4	332	42.1	-34.5	N 27 50.1	-03.4	12				
13	15	12.3	-00.1	N 22 55.0	+00.2	14	04.1	-00.9	N 23 06.1	+00.3	347	07.6	-34.4	N 27 46.7	-03.5	13				
14	30	12.2	-00.2	N 22 55.2	+00.2	29	03.2	-00.8	N 23 06.4	+00.4	1	33.2	-34.3	N 27 43.2	-03.7	14				
15	45	12.0	-00.1	N 22 55.4	+00.2	44	02.4	-00.9	N 23 06.8	+00.3	15	58.9	-34.2	N 27 39.5	-03.9	15				
16	60	11.9	-00.1	N 22 55.6	+00.2	59	01.5	-00.8	N 23 07.1	+00.3	30	24.7	-34.2	N 27 35.6	-04.0	16				
17	75	11.8	-00.1	N 22 55.8	+00.3	74	00.7	-00.9	N 23 07.4	+00.4	44	50.5	-34.1	N 27 31.6	-04.2	17				
18	90	11.7	-00.2	N 22 56.1	+00.2	88	59.8	-00.9	N 23 07.8	+00.3	59	16.4	-33.9	N 27 27.4	-04.3	18				
19	105	11.5	-00.1	N 22 56.3	+00.2	103	58.9	-00.8	N 23 08.1	+00.4	73	42.5	-33.9	N 27 23.1	-04.5	19				
20	120	11.4	-00.1	N 22 56.5	+00.2	118	58.1	-00.9	N 23 08.5	+00.3	88	08.6	-33.8	N 27 18.6	-04.6	20				
21	135	11.3	-00.1	N 22 56.7	+00.2	133	57.2	-00.8	N 23 08.8	+00.3	102	34.8	-33.7	N 27 14.0	-04.8	21				
22	150	11.2	-00.2	N 22 56.9	+00.2	148	56.4	-00.9	N 23 09.1	+00.4	117	01.1	-33.7	N 27 09.2	-04.9	22				
23	165	11.0	-00.1	N 22 57.1	+00.2	163	55.5	-00.9	N 23 09.5	+00.3	131	27.4	-33.5	N 27 04.3	-05.1	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°8	15°8	15°8	15°8	15°8	15°8	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°6	15°6	15°6	15°6	15°6	15°6
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	57°2	57°1	57°0	56°9	56°7	56°6
SHA	283°	283°	283°	283°	283°	282°	SHA	262°	282°	282°	282°	281°	281°	SHA	286°	286°	286°	286°	286°	286°
Greenwich Culmination Time: 11:59						Greenwich Culmination Time: 12:03						Greenwich Culmination Time: 13:53								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	180	22.3	-00.1	N 22 34.6	+00.2	180	15.8	-00.9	N 22 32.5	+00.5	202	11.4	-33.8	N 22 14.4	+10.9	00				
01	195	22.2	-00.1	N 22 34.8	+00.3	195	14.9	-00.8	N 22 33.0	+00.4	216	37.6	-34.0	N 22 25.3	+10.8	01				
02	210	22.1	-00.1	N 22 35.1	+00.3	210	14.1	-00.8	N 22 33.4	+00.4	231	03.6	-34.0	N 22 36.1	+10.6	02				
03	225	22.0	-00.2	N 22 35.4	+00.2	225	13.3	-00.8	N 22 33.8	+00.5	245	29.6	-34.1	N 22 46.7	+10.5	03				
04	240	21.8	-00.1	N 22 35.6	+00.3	240	12.5	-00.9	N 22 34.3	+00.4	259	55.5	-34.2	N 22 57.2	+10.3	04				
05	255	21.7	-00.1	N 22 35.9	+00.3	255	11.6	-00.8	N 22 34.7	+00.5	274	21.3	-34.2	N 23 07.5	+10.2	05				
06	270	21.6	-00.1	N 22 36.2	+00.2	270	10.8	-00.8	N 22 35.2	+00.4	288	47.1	-34.3	N 23 17.7	+10.1	06				
07	285	21.5	-00.1	N 22 36.4	+00.3	285	10.0	-00.9	N 22 35.6	+00.4	303	12.8	-34.4	N 23 27.8	+09.9	07				
08	300	21.4	-00.1	N 22 36.7	+00.3	300	09.1	-00.8	N 22 36.0	+00.5	317	38.4	-34.5	N 23 37.7	+09.7	08				
09	315	21.3	-00.1	N 22 37.0	+00.2	315	08.3	-00.8	N 22 36.5	+00.4	332	03.9	-34.5	N 23 47.4	+09.6	09				
10	330	21.2	-00.1	N 22 37.2	+00.3	330	07.5	-00.9	N 22 36.9	+00.4	346	29.4	-34.6	N 23 57.0	+09.5	10				
11	345	21.1	-00.2	N 22 37.5	+00.3	345	06.6	-00.8	N 22 37.3	+00.5	0	54.8	-34.7	N 24 06.5	+09.3	11				
12	0	20.9	-00.1	N 22 37.8	+00.2	0	05.8	-00.8	N 22 37.8	+00.4	15	20.1	-34.7	N 24 15.8	+09.1	12				
13	15	20.8	-00.1	N 22 38.0	+00.3	15	05.0	-00.9	N 22 38.2	+00.4	29	45.4	-34.8	N 24 24.9	+09.0	13				
14	30	20.7	-00.1	N 22 38.3	+00.2	30	04.1	-00.8	N 22 38.6	+00.4	44	10.6	-34.9	N 24 33.9	+08.8	14				
15	45	20.6	-00.1	N 22 38.5	+00.3	45	03.3	-00.8	N 22 39.0	+00.5	58	35.7	-34.9	N 24 42.7	+08.6	15				
16	60	20.5	-00.1	N 22 38.8	+00.3	60	02.5	-00.9	N 22 39.5	+00.4	73	00.8	-35.0	N 24 51.3	+08.5	16				
17	75	20.4	-00.1	N 22 39.1	+00.2	75	01.6	-00.8	N 22 39.9	+00.4	87	25.8	-35.0	N 24 59.8	+08.4	17				
18	90	20.3	-00.2	N 22 39.3	+00.3	90	00.8	-00.8	N 22 40.3	+00.4	101	50.8	-35.1	N 25 08.2	+08.1	18				
19	105	20.1	-00.1	N 22 39.6	+00.2	104	60.0	-00.9	N 22 40.7	+00.5	116	15.7	-35.2	N 25 16.3	+08.0	19				
20	120	20.0	-00.1	N 22 39.8	+00.3	119	59.1	-00.8	N 22 41.2	+00.4	130	40.5	-35.2	N 25 24.3	+07.9	20				
21	135	19.9	-00.1	N 22 40.1	+00.2	134	58.3	-00.8	N 22 41.6	+00.4	145	05.3	-35.2	N 25 32.2	+07.6	21				
22	150	19.8	-00.1	N 22 40.3	+00.3	149	57.5	-00.9	N 22 42.0	+00.4	159	30.1	-35.4	N 25 39.8	+07.5	22				
23	165	19.7	-00.1	N 22 40.6	+00.2	164	56.6	-00.8	N 22 42.4	+00.4	173	54.7	-35.3	N 25 47.3	+07.3	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°8	15°8	15°8	15°8	15°8	15°8	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	16°1	16°0	16°0	16°0	16°0	16°0
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	59°0	58°9	58°8	58°7	58°6	58°6
SHA	286°	286°	286°	286°	286°	285°	SHA	286°	286°	286°	286°	285°	285°	SHA	307°	305°	302°	300°	297°	295°
Greenwich Culmination Time: 11:58						Greenwich Culmination Time: 11:59						Greenwich Culmination Time: 10:56								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	229	23.8	+00.7	N 10 06.0	+00.7	195	43.4	+01.8	N 20 04.1	+00.2	266	12.4	+02.3	S 06 04.4	+00.0	00
01	244	24.5	+00.7	N 10 06.7	+00.6	210	45.2	+01.9	N 20 04.3	+00.1	281	14.7	+02.4	S 06 04.4	+00.0	01
02	259	25.2	+00.7	N 10 07.3	+00.7	225	47.1	+01.8	N 20 04.4	+00.1	296	17.1	+02.4	S 06 04.4	+00.0	02
03	274	25.9	+00.7	N 10 08.0	+00.7	240	48.9	+01.9	N 20 04.5	+00.1	311	19.5	+02.4	S 06 04.4	-00.1	03
04	289	26.6	+00.7	N 10 08.7	+00.6	255	50.8	+01.9	N 20 04.6	+00.1	326	21.9	+02.4	S 06 04.3	+00.0	04
05	304	27.3	+00.7	N 10 09.3	+00.7	270	52.7	+01.8	N 20 04.7	+00.1	341	24.3	+02.3	S 06 04.3	+00.0	05
06	319	28.0	+00.7	N 10 10.0	+00.7	285	54.5	+01.9	N 20 04.8	+00.1	356	26.6	+02.4	S 06 04.3	-00.1	06
07	334	28.7	+00.7	N 10 10.7	+00.6	300	56.4	+01.8	N 20 04.9	+00.1	11	29.0	+02.4	S 06 04.2	+00.0	07
08	349	29.4	+00.7	N 10 11.3	+00.7	315	58.2	+01.9	N 20 05.0	+00.2	26	31.4	+02.4	S 06 04.2	+00.0	08
09	4	30.1	+00.7	N 10 12.0	+00.7	331	00.1	+01.9	N 20 05.2	+00.1	41	33.8	+02.3	S 06 04.2	+00.0	09
10	19	30.8	+00.7	N 10 12.7	+00.7	346	02.0	+01.8	N 20 05.3	+00.1	56	36.1	+02.4	S 06 04.2	-00.1	10
11	34	31.5	+00.7	N 10 13.4	+00.6	1	03.8	+01.9	N 20 05.4	+00.1	71	38.5	+02.4	S 06 04.1	+00.0	11
12	49	32.2	+00.7	N 10 14.0	+00.7	16	05.7	+01.8	N 20 05.5	+00.1	86	40.9	+02.4	S 06 04.1	+00.0	12
13	64	32.9	+00.7	N 10												

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on June 6, 2024, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on June 7, 2024, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on June 6, 2024, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on June 7, 2024, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes.

UT 02 06 10 14 18 22
SD 15*8 15*8 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 279* 279* 279* 279* 279* 278*
Greenwich Culmination Time: 11:59

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes.

UT 02 06 10 14 18 22
SD 15*8 15*8 15*8 15*8 15*8 15*8
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 282* 282* 282* 282* 281*
Greenwich Culmination Time: 11:59

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates and magnitudes.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 330* 330* 329* 329* 329* 329*
Greenwich Culmination Time: 08:37

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates and magnitudes.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 332* 332* 332* 331* 331* 331*
Greenwich Culmination Time: 08:40

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 31%.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 272* 275* 275* 274* 274* 274*
Greenwich Culmination Time: 12:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Saturn column includes A: 18%.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 327* 327* 327* 326* 326* 326*
Greenwich Culmination Time: 08:33

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 23%.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 278* 278* 278* 278* 277* 277*
Greenwich Culmination Time: 12:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Saturn column includes A: 18%.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 329* 329* 329* 329* 328* 328*
Greenwich Culmination Time: 08:36

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 277* 277* 277* 277* 277* 277*
Greenwich Culmination Time: 12:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 328* 328* 328* 328* 328* 328*
Greenwich Culmination Time: 18:28

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 276* 276* 276* 276* 276* 276*
Greenwich Culmination Time: 12:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 328* 327* 327* 327* 327* 327*
Greenwich Culmination Time: 19:07

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 271° 271° 270° 270° 270° 270°
Greenwich Culmination Time: 12:01

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 324° 324° 324° 324° 324° 323°
Greenwich Culmination Time: 08:28

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 274° 274° 274° 273° 273° 273°
Greenwich Culmination Time: 12:01

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 326° 326° 326° 326° 326° 326°
Greenwich Culmination Time: 08:31

UT	Sun				Venus				Moon				UT	
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	179 42.5	-00.1	N 23 24.6	+00.0	175 44.2	-00.9	N 23 53.9	+00.1	51 01.5	-27.1	S 16 32.7	+12.2	00	
01	194 42.4	-00.1	N 23 24.6	+00.1	190 43.3	-00.9	N 23 54.0	+00.1	65 34.4	-27.1	S 16 44.9	+12.1	01	
02	209 42.3	-00.2	N 23 24.7	+00.0	205 42.4	-00.9	N 23 54.1	+00.0	80 07.3	-27.2	S 16 57.0	+12.1	02	
03	224 42.1	-00.1	N 23 24.7	+00.1	220 41.5	-00.9	N 23 54.1	+00.1	94 40.1	-27.4	S 17 09.1	+12.0	03	
04	239 42.0	-00.1	N 23 24.8	+00.0	235 40.6	-00.9	N 23 54.2	+00.1	109 12.7	-27.4	S 17 21.1	+11.9	04	
05	254 41.9	-00.2	N 23 24.8	+00.1	250 39.7	-00.8	N 23 54.3	+00.1	123 45.3	-27.5	S 17 33.0	+11.9	05	
06	269 41.7	-00.1	N 23 24.9	+00.0	265 38.9	-00.9	N 23 54.4	+00.0	138 17.8	-27.6	S 17 44.9	+11.9	06	
07	284 41.6	-00.1	N 23 24.9	+00.1	280 38.0	-00.9	N 23 54.4	+00.1	152 50.2	-27.7	S 17 56.8	+11.7	07	
08	299 41.5	-00.2	N 23 25.0	+00.0	295 37.1	-00.9	N 23 54.5	+00.0	167 22.5	-27.8	S 18 08.5	+11.7	08	
09	314 41.3	-00.1	N 23 25.0	+00.1	310 36.2	-00.9	N 23 54.5	+00.1	181 54.7	-27.9	S 18 20.2	+11.6	09	
10	329 41.2	-00.1	N 23 25.1	+00.0	325 35.3	-00.9	N 23 54.6	+00.1	196 26.8	-28.0	S 18 31.8	+11.6	10	
11	344 41.1	-00.2	N 23 25.1	+00.0	340 34.4	-00.9	N 23 54.7	+00.0	210 58.8	-28.1	S 18 43.4	+11.4	11	
12	359 40.9	-00.1	N 23 25.1	+00.1	355 33.5	-00.9	N 23 54.7	+00.1	225 30.7	-28.2	S 18 54.8	+11.4	12	
13	14 40.8	-00.1	N 23 25.2	+00.0	10 32.6	-00.9	N 23 54.8	+00.0	240 02.5	-28.3	S 19 06.2	+11.4	13	
14	29 40.7	-00.2	N 23 25.2	+00.1	25 31.7	-00.9	N 23 54.8	+00.1	254 34.2	-28.4	S 19 17.6	+11.2	14	
15	44 40.5	-00.1	N 23 25.3	+00.0	40 30.8	-00.9	N 23 54.9	+00.1	269 05.8	-28.4	S 19 28.8	+11.2	15	
16	59 40.4	-00.2	N 23 25.3	+00.0	55 29.9	-00.9	N 23 55.0	+00.0	283 37.4	-28.6	S 19 40.0	+11.1	16	
17	74 40.2	-00.1	N 23 25.3	+00.1	70 29.0	-00.9	N 23 55.0	+00.1	298 08.8	-28.7	S 19 51.1	+11.0	17	
18	89 40.1	-00.1	N 23 25.4	+00.0	85 28.1	-00.9	N 23 55.1	+00.0	312 40.1	-28.8	S 20 02.1	+10.9	18	
19	104 40.0	-00.2	N 23 25.4	+00.0	100 27.2	-00.9	N 23 55.1	+00.1	327 11.3	-28.9	S 20 13.0	+10.9	19	
20	119 39.8	-00.1	N 23 25.4	+00.1	115 26.3	-00.9	N 23 55.2	+00.0	341 42.4	-29.0	S 20 23.9	+10.8	20	
21	134 39.7	-00.1	N 23 25.5	+00.0	130 25.4	-00.9	N 23 55.2	+00.1	356 13.4	-29.1	S 20 34.7	+10.7	21	
22	149 39.6	-00.2	N 23 25.5	+00.0	145 24.5	-00.9	N 23 55.3	+00.0	10 44.3	-29.2	S 20 45.4	+10.6	22	
23	164 39.4	-00.1	N 23 25.5	+00.1	160 23.6	-00.9	N 23 55.3	+00.0	25 15.1	-29.3	S 20 56.0	+10.5	23	
UT 02 06 10 14 18 22	SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 273° 273° 273° 272° 272° 272°	Greenwich Culmination Time: 12:01	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 269° 269° 268° 268° 268° 268°	Greenwich Culmination Time: 12:17	UT 02 06 10 14 18 22	SD 15°0' 15°1' 15°1' 15°1' 15°1' 15°2'	HP 55°2' 55°3' 55°4' 55°5' 55°6' 55°7'	SHA 143° 143° 139° 137° 135° 133°	Greenwich Culmination Time: 21:15

UT	Sun				Venus				Moon				UT	
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	179 39.3	-00.1	N 23 25.6	+00.0	175 22.7	-00.9	N 23 55.3	+00.1	39 45.8	-29.4	S 21 06.5	+10.4	00	
01	194 39.2	-00.2	N 23 25.6	+00.0	190 21.8	-00.9	N 23 55.4	+00.0	54 16.4	-29.5	S 21 16.9	+10.3	01	
02	209 39.0	-00.1	N 23 25.6	+00.1	205 20.9	-00.9	N 23 55.4	+00.1	68 46.9	-29.7	S 21 27.2	+10.2	02	
03	224 38.9	-00.1	N 23 25.7	+00.0	220 20.0	-00.9	N 23 55.5	+00.0	83 17.2	-29.7	S 21 37.4	+10.2	03	
04	239 38.8	-00.2	N 23 25.7	+00.0	235 19.1	-00.9	N 23 55.5	+00.0	97 47.5	-29.9	S 21 47.6	+10.0	04	
05	254 38.6	-00.1	N 23 25.7	+00.1	250 18.2	-00.9	N 23 55.5	+00.1	112 17.6	-29.9	S 21 57.6	+10.0	05	
06	269 38.5	-00.2	N 23 25.8	+00.0	265 17.3	-00.9	N 23 55.6	+00.0	126 47.7	-30.1	S 22 07.6	+09.9	06	
07	284 38.3	-00.1	N 23 25.8	+00.0	280 16.4	-00.9	N 23 55.6	+00.1	141 17.6	-30.1	S 22 17.5	+09.7	07	
08	299 38.2	-00.1	N 23 25.8	+00.0	295 15.5	-00.9	N 23 55.7	+00.0	155 47.5	-30.3	S 22 27.2	+09.7	08	
09	314 38.1	-00.2	N 23 25.8	+00.1	310 14.6	-00.9	N 23 55.7	+00.0	170 17.2	-30.4	S 22 36.9	+09.5	09	
10	329 37.9	-00.1	N 23 25.9	+00.0	325 13.7	-00.8	N 23 55.7	+00.1	184 46.8	-30.5	S 22 46.4	+09.5	10	
11	344 37.8	-00.1	N 23 25.9	+00.0	340 12.9	-00.9	N 23 55.8	+00.0	199 16.3	-30.6	S 22 55.9	+09.3	11	
12	359 37.7	-00.2	N 23 25.9	+00.0	355 12.0	-00.9	N 23 55.8	+00.0	213 45.7	-30.7	S 23 05.2	+09.3	12	
13	14 37.5	-00.1	N 23 25.9	+00.1	10 11.1	-00.9	N 23 55.8	+00.0	228 15.0	-30.8	S 23 14.5	+09.1	13	
14	29 37.4	-00.1	N 23 26.0	+00.0	25 10.2	-00.9	N 23 55.8	+00.1	242 44.2	-31.0	S 23 23.6	+09.0	14	
15	44 37.3	-00.2	N 23 26.0	+00.0	40 09.3	-00.9	N 23 55.9	+00.0	257 13.2	-31.0	S 23 32.6	+08.9	15	
16	59 37.1	-00.1	N 23 26.0	+00.0	55 08.4	-00.9	N 23 55.9	+00.0	271 42.2	-31.2	S 23 41.5	+08.8	16	
17	74 37.0	-00.1	N 23 26.0	+00.0	70 07.5	-00.9	N 23 55.9	+00.0	286 11.0	-31.2	S 23 50.3	+08.7	17	
18	89 36.9	-00.2	N 23 26.0	+00.1	85 06.6	-00.9	N 23 55.9	+00.1	300 39.8	-31.4	S 23 59.0	+08.6	18	
19	104 36.7	-00.1	N 23 26.1	+00.0	100 05.7	-00.9	N 23 56.0	+00.0	315 08.4	-31.5	S 24 07.6	+08.5	19	
20	119 36.6	-00.2	N 23 26.1	+00.0	115 04.8	-00.9	N 23 56.0	+00.0	329 36.9	-31.6	S 24 16.1	+08.3	20	
21	134 36.4	-00.1	N 23 26.1	+00.0	130 03.9	-00.9	N 23 56.0	+00.0	344 05.3	-31.7	S 24 24.4	+08.2	21	
22	149 36.3	-00.1	N 23 26.1	+00.0	145 03.0	-00.9	N 23 56.0	+00.0	358 33.6	-31.8	S 24 32.6	+08.1	22	
23	164 36.2	-00.2	N 23 26.1	+00.0	160 02.1	-00.9	N 23 56.0	+00.0	13 01.8	-31.9	S 24 40.7	+08.0	23	
UT 02 06 10 14 18 22	SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 272° 272° 272° 271° 271° 271°	Greenwich Culmination Time: 12:01	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 268° 267° 267° 267° 267° 266°	Greenwich Culmination Time: 12:19	UT 02 06 10 14 18 22	SD 15°2' 15°2' 15°3' 15°3' 15°3' 15°3'	HP 55°8' 55°9' 56°0' 56°1' 56°2' 56°3'	SHA 131° 129° 127° 124° 122° 120°	Greenwich Culmination Time: 22:05

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	232 11.2	+00.7	N 12 41.1	+00.6	203 10.9	+01.9	N 20 29.9	+00.1	275 47.4	+02.4	S 06 00.2	+00.0	00
01	247 11.9	+00.7	N 12 41.7	+00.6	218 12.8	+01.8	N 20 30.0	+00.1	290 49.8	+02.5	S 06 00.2	+00.0	01
02	262 12.6	+00.7	N 12 42.3	+00.6	233 14.6	+01.9	N 20 30.1	+00.1	305 52.3	+02.4	S 06 00.2	+00.0	02
03	277 13.3	+00.7	N 12 42.9	+00.7	248 16.5	+01.9	N 20 30.2	+00.2	320 54.7	+02.4	S 06 00.2	+00.0	03
04	292 14.0	+00.7	N 12 43.6	+00.6	263 18.4	+01.8	N 20 30.4	+00.1	335 57.1	+02.4	S 06 00.2	+00.0	04
05	307 14.7	+00.7	N 12 44.2	+00.6	278 20.2	+01.9	N 20 30.5	+00.1	350 59.5	+02.4	S 06 00.2	+00.0	05
06	322 15.4	+00.7	N 12 44.8	+00.6	293 22.1	+01.9	N 20 30.6	+00.1	6 01.9	+02.4	S 06 00.2	+00.0	06
07	337 16.1	+00.7	N 12 45.4	+00.6	308 24.0	+01.8	N 20 30.7	+00.1	21 04.3	+02.4	S 06 00.2	-00.1	07
08	352 16.8	+00.7	N 12 46.0	+00.7	323 25.8	+01.9	N 20 30.8	+00.1	36 06.7	+02.5	S 06 00.1	+00.0	08
09	7 17.5	+00.7	N 12 46.7	+00.6	338 27.7	+01.9	N 20 30.9	+00.1	51 09.2	+02.4	S 06 00.1	+00.0	09
10	22 18.2	+00.7	N 12 47.3	+00.6	353 29.6	+01.9	N 20 31.0	+00.1	66 11.6	+02.4	S 06 00.1	+00.0	10
11	37 18.9	+00.7	N 12 47.9	+00.6	8 31.5	+01.8	N 20 31.1	+00.1	81 14.0	+02.4	S 06 00.1	+00.0	11
12	52 19.6	+00.6	N 12 48.5	+00.6	23 33.3	+01.9	N 20 31.2	+00.1	96 16.4	+02.4	S 06 00.1	+00.0	12
13	67 20.2	+00.7	N 12 49.1	+00.6	38 35.2	+01.9	N 20 31.3	+00.1	111 18.8	+02.4	S 06 00.1	+00.0	13
14	82 20.9	+00.7	N 12 49.7	+00.7	53 37.1	+01.8	N 20 31.4	+00.1	126 21.2	+02.5	S 06 00.1	+00.0	14
15	97 21.6	+00.7	N 12 50.4	+00.6	68 38.9	+01.9	N 20 31.5	+00.1	141 23.7	+02.4	S 06 00.1	+00.0	15
16	112 22.3	+00.7	N 12 51.0	+00.6	83 40.8	+01.9	N 20 31.6	+00.1	156 26.1	+02.4	S 06 00.1	+00.0	16
17	127 23.0	+00.7	N 12 51.6	+00.6	98 42.7	+01.9	N 20 31.7	+00.1	171 28.5	+02.4	S 06 00.1	+00.0	17
18	142 23.7	+00.7	N 12 52.2	+00.6	113 44.6	+01.8	N 20 31.8	+00.1	186 30.9	+02.4	S 06 00.1	-00.1	18
19	157 24.4	+00.7	N 12 52.8	+00.6	128 46.4	+01.9	N 20 31.9	+00.1	201 33.3	+02.4	S 06 00.0	+00.0	19
20	172 25.1	+00.7	N 12 53.4	+00.7	143 48.3	+01.9	N 20 32.0	+00.1	216 35.7	+02.5	S 06 00.0	+00.0	20
21	187 25.8	+00.7	N 12 54.1	+00.6	158 50.2	+01.8	N 20 32.1	+00.1	231 38.2	+02.4	S 06 00.0	+00.0	21
22	202 26.5	+00.7	N 12 54.7	+00.6	173 52.0	+01.9	N 20 32.2	+00.1	246 40.6	+02.4	S 06 00.0	+00.0	2

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	179	23.1	-00.1	N 23 24.3	-00.1	173	35.2	-00.9	N 23 51.7	-00.1	331	22.2	-35.0	S 25 15.3	-08.1
01	194	23.0	-00.1	N 23 24.2	+00.0	188	34.3	-00.9	N 23 51.6	-00.1	345	47.2	-35.1	S 25 07.2	-08.3
02	209	22.9	-00.2	N 23 24.2	-00.1	203	33.4	-00.9	N 23 51.5	-00.1	0	12.1	-34.9	S 24 58.9	-08.5
03	224	22.7	-00.1	N 23 24.1	-00.1	218	32.5	-00.9	N 23 51.4	-00.1	14	37.2	-34.9	S 24 50.4	-08.6
04	239	22.6	-00.1	N 23 24.0	+00.0	233	31.6	-00.9	N 23 51.3	-00.1	29	02.3	-34.8	S 24 41.8	-08.8
05	254	22.5	-00.2	N 23 24.0	-00.1	248	30.7	-00.9	N 23 51.2	-00.1	43	27.5	-34.8	S 24 33.0	-09.0
06	269	22.3	-00.1	N 23 23.9	+00.0	263	29.8	-00.9	N 23 51.1	-00.1	57	52.7	-34.7	S 24 24.0	-09.1
07	284	22.2	-00.1	N 23 23.9	-00.1	278	28.9	-00.9	N 23 51.0	-00.1	72	18.0	-34.6	S 24 14.9	-09.3
08	299	22.1	-00.2	N 23 23.8	+00.0	293	28.0	-00.9	N 23 50.9	-00.1	86	43.4	-34.5	S 24 05.6	-09.4
09	314	21.9	-00.1	N 23 23.8	-00.1	308	27.1	-00.9	N 23 50.8	-00.2	101	08.9	-34.5	S 23 56.2	-09.5
10	329	21.8	-00.1	N 23 23.7	-00.1	323	26.2	-00.9	N 23 50.6	-00.1	115	34.4	-34.4	S 23 46.7	-09.8
11	344	21.7	-00.2	N 23 23.6	+00.0	338	25.3	-00.8	N 23 50.5	-00.1	130	00.0	-34.3	S 23 36.9	-09.8
12	359	21.5	-00.1	N 23 23.6	-00.1	353	24.5	-00.9	N 23 50.4	-00.1	144	25.7	-34.2	S 23 27.1	-10.0
13	14	21.4	-00.1	N 23 23.5	-00.1	8	23.6	-00.9	N 23 50.3	-00.1	158	51.5	-34.2	S 23 17.1	-10.2
14	29	21.3	-00.2	N 23 23.4	+00.0	23	22.7	-00.9	N 23 50.2	-00.1	173	17.3	-34.0	S 23 06.9	-10.3
15	44	21.1	-00.1	N 23 23.4	-00.1	38	21.8	-00.9	N 23 50.1	-00.2	187	43.3	-34.0	S 22 56.6	-10.5
16	59	21.0	-00.1	N 23 23.3	+00.0	53	20.9	-00.9	N 23 49.9	-00.1	202	09.3	-34.0	S 22 46.1	-10.6
17	74	20.9	-00.2	N 23 23.3	-00.1	68	20.0	-00.9	N 23 49.8	-00.1	216	35.3	-33.8	S 22 35.5	-10.7
18	89	20.7	-00.1	N 23 23.2	-00.1	83	19.1	-00.9	N 23 49.7	-00.1	231	01.5	-33.8	S 22 24.8	-10.9
19	104	20.6	-00.1	N 23 23.1	+00.0	98	18.2	-00.9	N 23 49.6	-00.2	245	27.7	-33.6	S 22 13.9	-11.0
20	119	20.5	-00.1	N 23 23.1	-00.1	113	17.3	-00.9	N 23 49.4	-00.1	259	54.1	-33.6	S 22 02.9	-11.1
21	134	20.4	-00.2	N 23 23.0	-00.1	128	16.4	-00.9	N 23 49.3	-00.1	274	20.5	-33.5	S 21 51.8	-11.3
22	149	20.2	-00.1	N 23 22.9	-00.1	143	15.5	-00.9	N 23 49.2	-00.2	288	47.0	-33.5	S 21 40.5	-11.4
23	164	20.1	-00.1	N 23 22.8	+00.0	158	14.6	-00.8	N 23 49.0	-00.1	303	13.5	-33.3	S 21 29.1	-11.6
UT 02 06 10 14 18 22	SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 261° 266° 266° 266° 266° 266°	Greenwich Culmination Time: 12:02	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 261° 261° 260° 260° 260° 260°	Greenwich Culmination Time: 12:26	UT 02 06 10 14 18 22	SD 16°0' 16°0' 16°0' 16°0' 16°1' 16°1'	HP 58°7' 58°8' 58°8' 58°9' 58°9' 59°0'	SHA 057° 055° 053° 050° 048° 045°	Greenwich Culmination Time: 01:59	

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	179	32.8	-00.1	N 23 26.3	+00.0	174	39.7	-00.9	N 23 56.0	+00.0	14	12.7	-34.4	S 27 19.7	+04.5
01	194	32.7	-00.2	N 23 26.3	+00.0	189	38.8	-00.9	N 23 56.0	+00.0	28	38.3	-34.5	S 27 24.2	+04.3
02	209	32.5	-00.1	N 23 26.3	+00.0	204	37.9	-00.9	N 23 56.0	+00.0	43	03.8	-34.5	S 27 28.5	+04.1
03	224	32.4	-00.1	N 23 26.3	+00.0	219	37.0	-00.9	N 23 56.0	+00.0	57	29.3	-34.7	S 27 32.6	+04.0
04	239	32.3	-00.2	N 23 26.3	+00.0	234	36.1	-00.9	N 23 56.0	-00.1	71	54.6	-34.7	S 27 36.6	+03.8
05	254	32.1	-00.1	N 23 26.3	+00.0	249	35.2	-00.9	N 23 55.9	+00.0	86	19.9	-34.8	S 27 40.4	+03.6
06	269	32.0	-00.2	N 23 26.3	+00.0	264	34.3	-00.9	N 23 55.9	+00.0	100	45.1	-34.9	S 27 44.0	+03.5
07	284	31.8	-00.1	N 23 26.3	-00.1	279	33.4	-00.9	N 23 55.9	+00.0	115	10.2	-35.0	S 27 47.5	+03.4
08	299	31.7	-00.1	N 23 26.2	+00.0	294	32.5	-00.9	N 23 55.9	-00.1	129	35.2	-35.0	S 27 50.9	+03.1
09	314	31.6	-00.2	N 23 26.2	+00.0	309	31.6	-00.9	N 23 55.8	+00.0	144	00.2	-35.1	S 27 54.0	+03.0
10	329	31.4	-00.1	N 23 26.2	+00.0	324	30.7	-00.9	N 23 55.8	+00.0	158	25.1	-35.2	S 27 57.0	+02.8
11	344	31.3	-00.1	N 23 26.2	+00.0	339	29.8	-00.9	N 23 55.8	+00.0	172	49.9	-35.3	S 27 59.8	+02.7
12	359	31.2	-00.2	N 23 26.2	+00.0	354	28.9	-00.9	N 23 55.8	-00.1	187	14.6	-35.3	S 28 02.5	+02.5
13	14	31.0	-00.1	N 23 26.2	+00.0	9	28.0	-00.9	N 23 55.7	+00.0	201	39.3	-35.3	S 28 05.0	+02.3
14	29	30.9	-00.1	N 23 26.2	+00.0	24	27.1	-00.9	N 23 55.7	+00.0	216	04.0	-35.5	S 28 07.3	+02.1
15	44	30.8	-00.2	N 23 26.2	+00.0	39	26.2	-00.9	N 23 55.7	-00.1	230	28.5	-35.5	S 28 09.4	+02.0
16	59	30.6	-00.1	N 23 26.2	-00.1	54	25.3	-00.9	N 23 55.6	+00.0	244	53.0	-35.5	S 28 11.4	+01.8
17	74	30.5	-00.1	N 23 26.1	+00.0	69	24.4	-00.9	N 23 55.6	+00.0	259	17.5	-35.6	S 28 13.2	+01.6
18	89	30.4	-00.2	N 23 26.1	+00.0	84	23.5	-00.9	N 23 55.6	-00.1	273	41.9	-35.7	S 28 14.8	+01.5
19	104	30.2	-00.1	N 23 26.1	+00.0	99	22.6	-00.9	N 23 55.5	+00.0	288	06.2	-35.7	S 28 16.3	+01.3
20	119	30.1	-00.1	N 23 26.1	+00.0	114	21.7	-00.9	N 23 55.5	-00.1	302	30.5	-35.8	S 28 17.6	+01.0
21	134	30.0	-00.2	N 23 26.1	+00.0	129	20.8	-00.9	N 23 55.4	+00.0	316	54.7	-35.8	S 28 18.6	+01.0
22	149	29.8	-00.1	N 23 26.1	-00.1	144	19.9	-00.9	N 23 55.4	+00.0	331	18.9	-35.8	S 28 19.6	+00.7
23	164	29.7	-00.1	N 23 26.0	+00.0	159	19.0	-00.9	N 23 55.4	-00.1	345	43.1	-35.9	S 28 20.3	+00.6
UT 02 06 10 14 18 22	SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 270° 270° 269° 269° 269° 269°	Greenwich Culmination Time: 12:01	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 265° 265° 264° 264° 264° 264°	Greenwich Culmination Time: 12:22	UT 02 06 10 14 18 22	SD 15°5' 15°6' 15°6' 15°6' 15°7' 15°7'	HP 57°1' 57°2' 57°3' 57°4' 57°5' 57°6'	SHA 103° 101° 098° 096° 093° 091°	Greenwich Culmination Time: 23:59	

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	233	50.7	+00.7	N 14 07.8	+00.6	207	40.8	+01.9	N 20 44.1	+00.1	281	36.8	+02.4	S 05 59.5	+00.0
01	248	51.4	+00.6	N 14 08.4	+00.6	222	42.7	+01.9	N 20 44.2	+00.1	296	39.2	+02.5	S 05 59.5	+00.0
02	263	52.0	+00.7	N 14 09.0	+00.6	237	44.6	+01.8	N 20 44.3	+00.1	311	41.7	+02.4	S 05 59.5	+00.0
03	278	52.7	+00.7	N 14 09.6	+00.6	252	46.4	+01.9	N 20 44.4	+00.1	326	44.1	+02.4	S 05 59.5	+00.0
04	293	53.4	+00.7	N 14 10.2	+00.5	267	48.3	+01.9	N 20 44.5	+00.1	341	46.5	+02.5	S 05 59.5	+00.0
05	308	54.1	+00.7	N 14 10.7	+00.6	282	50.2	+01.9	N 20 44.6	+00.1	356	49.0	+02.4	S 05 59.5	+00.0
06	323	54.8	+00.7	N 14 11.3	+00.6	297	52.1	+01.9	N 20 44.7	+00.1	11	51.4	+02.5	S 05 59.5	+00.1
07	338	55.5	+00.7	N 14 11.9	+00.6	312	54.0	+01.8	N 20 44.8	+00.1	26	53.9	+02.4	S 05 59.6	+00.0
08	353	56.2	+00.6	N 14 12.5	+00.6	327	55.8	+01.9	N 20 44.9	+00.1	41	56.3	+02.4	S 05 59.6	+00.0
09	8	56.8	+00.7	N 14 13.1	+00.6	342	57.7	+01.9	N 20 45.0	+00.0	56	58.7	+02.5	S 05 59.6	+00.0
10	23	57.5	+00.7	N 14 13.7	+00.5	357	59.6	+01.9	N 20 45.0	+00.1	72	01.2	+02.4	S 05 59.6	+00.0
11	38	58.2	+00.7	N 14 14.2	+00.6	13	01.5	+01.9	N 20 45.1	+00.1	87	03.6	+02.5	S 05 59.6	+00.0
12	53	58.9	+00.7	N 14 14.8	+00.6	28	03.4	+01.8	N 20 45.2	+00.0	102	06.1	+02.4	S 05 59.6	+00.0
13	68	59.6	+00.7	N 14 15.4	+00.6	43	05.2	+01.9	N 20 45.3	+00.1	117	08.5	+02.4	S 05 59.6	+00.0
14	84	00.3	+00.7	N 14 16.0	+00.6	58	07.1	+01.9	N 20 45.4	+00.1	132	10.9	+02.5	S 05 59.6	+00.0
15	99	01.0	+00.7	N 14 16.6	+00.5	73	09.0	+01.9	N 20 45.5	+00.1	147	13.4	+02.4	S 05 59.6	+00.0
16	114	01.7	+00.6	N 14 17.1	+00.6	88	10.9	+01.9	N 20 45.6	+00.1	162	15.8	+02.5	S 05 59.6	+00.0
17	129	02.3	+00.7	N 14 17.7	+00.6	103	12.8	+01.8	N 20 45.7	+00.1	177	18.3	+02.4	S 05 59.6	+00.0
18	144	03.0	+00.7	N 14 18.3	+00.6	118	14.6	+01.9	N 20 45.8	+00.1	192	20.7	+02.4	S 05 59.6	+00.0
19	159	03.7	+00.7	N 14 18.9	+00.6	133	16.5	+01.9	N 20 45.9	+00.1	207	23.1	+02.5	S 05 59.6	+00.0
20	174	04.4	+00.7	N 14 19.5	+00.5	148	18.4	+01.9	N 20 46.0	+00.1	2				

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	29.6	-00.2	N 23 26.0	+00.0	174	18.1	-00.9	N 23 55.3	+00.0	0	07.2	-35.9	S 28 20.9	+00.4	00
01	194	29.4	-00.1	N 23 26.0	+00.0	189	17.2	-00.9	N 23 55.3	-00.1	14	31.3	-36.0	S 28 21.3	+00.2	01
02	209	29.3	-00.1	N 23 26.0	+00.0	204	16.3	-00.9	N 23 55.2	+00.0	28	55.3	-36.0	S 28 21.5	+00.0	02
03	224	29.2	-00.2	N 23 26.0	+00.1	219	15.4	-00.9	N 23 55.2	-00.1	43	19.3	-36.0	S 28 21.5	-00.2	03
04	239	29.0	-00.1	N 23 25.9	+00.0	234	14.5	-00.9	N 23 55.1	+00.0	57	43.3	-36.1	S 28 21.3	-00.3	04
05	254	28.9	-00.1	N 23 25.9	+00.0	249	13.6	-00.9	N 23 55.1	-00.1	72	07.2	-36.1	S 28 21.0	-00.5	05
06	269	28.8	-00.2	N 23 25.9	+00.0	264	12.7	-00.8	N 23 55.0	+00.0	86	31.1	-36.1	S 28 20.5	-00.7	06
07	284	28.6	-00.1	N 23 25.9	-00.1	279	11.9	-00.9	N 23 55.0	-00.1	100	55.0	-36.1	S 28 19.8	-00.9	07
08	299	28.5	-00.2	N 23 25.8	+00.0	294	11.0	-00.9	N 23 54.9	+00.0	115	18.9	-36.2	S 28 18.9	-01.1	08
09	314	28.3	-00.1	N 23 25.8	+00.0	309	10.1	-00.9	N 23 54.9	-00.1	129	42.7	-36.1	S 28 17.8	-01.2	09
10	329	28.2	-00.1	N 23 25.8	+00.0	324	09.2	-00.9	N 23 54.8	-00.1	144	06.6	-36.2	S 28 16.6	-01.5	10
11	344	28.1	-00.2	N 23 25.8	-00.1	339	08.3	-00.9	N 23 54.7	+00.0	158	30.4	-36.2	S 28 15.1	-01.6	11
12	359	27.9	-00.1	N 23 25.7	+00.0	354	07.4	-00.9	N 23 54.7	-00.1	172	54.2	-36.2	S 28 13.5	-01.8	12
13	14	27.8	-00.1	N 23 25.7	+00.0	9	06.5	-00.9	N 23 54.6	+00.0	187	18.0	-36.2	S 28 11.7	-02.0	13
14	29	27.7	-00.2	N 23 25.7	+00.0	24	05.6	-00.9	N 23 54.6	-00.1	201	41.8	-36.3	S 28 09.7	-02.1	14
15	44	27.5	-00.1	N 23 25.7	-00.1	39	04.7	-00.9	N 23 54.5	-00.1	216	05.5	-36.2	S 28 07.6	-02.4	15
16	59	27.4	-00.1	N 23 25.6	+00.0	54	03.8	-00.9	N 23 54.4	+00.0	230	29.3	-36.2	S 28 05.2	-02.5	16
17	74	27.3	-00.2	N 23 25.6	+00.0	69	02.9	-00.9	N 23 54.4	-00.1	244	53.1	-36.2	S 28 02.7	-02.7	17
18	89	27.1	-00.1	N 23 25.6	-00.1	84	02.0	-00.9	N 23 54.3	-00.1	259	16.9	-36.3	S 27 60.0	-02.9	18
19	104	27.0	-00.1	N 23 25.5	+00.0	99	01.1	-00.9	N 23 54.2	+00.0	273	40.6	-36.2	S 27 57.1	-03.1	19
20	119	26.9	-00.2	N 23 25.5	+00.0	114	00.2	-00.9	N 23 54.2	-00.1	288	04.4	-36.2	S 27 54.0	-03.2	20
21	134	26.7	-00.1	N 23 25.5	-00.1	128	59.3	-00.9	N 23 54.1	-00.1	302	28.2	-36.2	S 27 50.8	-03.5	21
22	149	26.6	-00.1	N 23 25.4	+00.0	143	58.4	-00.9	N 23 54.0	+00.0	316	52.0	-36.1	S 27 47.3	-03.6	22
23	164	26.5	-00.2	N 23 25.4	+00.0	158	57.5	-00.9	N 23 54.0	-00.1	331	15.9	-36.2	S 27 43.7	-03.8	23

UT 02 06 10 14 18 22 SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 269° 269° 268° 268° 268° 268° Greenwich Culmination Time: 12:02	UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 264° 263° 263° 263° 263° 262° Greenwich Culmination Time: 12:23	UT 02 06 10 14 18 22 SD 15°7' 15°7' 15°8' 15°8' 15°8' 15°8' HP 57°7' 57°8' 57°9' 58°0' 58°1' 58°2' SHA 088° 086° 083° 080° 078° 075° Greenwich Culmination Time: -1:00
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UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	233	17.6	+00.7	N 13 39.5	+00.6	206	10.7	+01.9	N 20 39.5	+00.1	279	40.0	+02.4	S 05 59.6	+00.0	00
01	248	18.3	+00.7	N 13 40.1	+00.6	221	12.6	+01.8	N 20 39.6	+00.1	294	42.4	+02.4	S 05 59.6	+00.0	01
02	263	19.0	+00.7	N 13 40.7	+00.6	236	14.4	+01.9	N 20 39.7	+00.1	309	44.8	+02.5	S 05 59.6	+00.0	02
03	278	19.7	+00.7	N 13 41.3	+00.6	251	16.3	+01.9	N 20 39.8	+00.1	324	47.3	+02.4	S 05 59.6	+00.0	03
04	293	20.4	+00.7	N 13 41.9	+00.6	266	18.2	+01.9	N 20 39.9	+00.1	339	49.7	+02.4	S 05 59.6	+00.0	04
05	308	21.1	+00.7	N 13 42.5	+00.6	281	20.1	+01.8	N 20 40.0	+00.1	354	52.1	+02.5	S 05 59.6	+00.0	05
06	323	21.8	+00.6	N 13 43.1	+00.5	296	21.9	+01.9	N 20 40.1	+00.1	9	54.6	+02.4	S 05 59.6	+00.0	06
07	338	22.4	+00.7	N 13 43.6	+00.6	311	23.8	+01.9	N 20 40.2	+00.1	24	57.0	+02.4	S 05 59.6	+00.0	07
08	353	23.1	+00.7	N 13 44.2	+00.6	326	25.7	+01.9	N 20 40.3	+00.1	39	59.4	+02.4	S 05 59.6	+00.0	08
09	8	23.8	+00.7	N 13 44.8	+00.6	341	27.6	+01.8	N 20 40.4	+00.1	55	01.8	+02.5	S 05 59.6	+00.0	09
10	23	24.5	+00.7	N 13 45.4	+00.6	356	29.4	+01.9	N 20 40.5	+00.1	70	04.3	+02.4	S 05 59.6	+00.0	10
11	38	25.2	+00.7	N 13 46.0	+00.6	11	31.3	+01.9	N 20 40.6	+00.1	85	06.7	+02.4	S 05 59.6	+00.0	11
12	53	25.9	+00.7	N 13 46.6	+00.6	26	33.2	+01.9	N 20 40.7	+00.1	100	09.1	+02.5	S 05 59.6	+00.0	12
13	68	26.6	+00.7	N 13 47.2	+00.6	41	35.1	+01.9	N 20 40.8	+00.0	115	11.6	+02.4	S 05 59.6	+00.0	13
14	83	27.3	+00.7	N 13 47.8	+00.6	56	37.0	+01.8	N 20 40.8	+00.0	130	14.0	+02.4	S 05 59.6	+00.0	14
15	98	28.0	+00.6	N 13 48.4	+00.6	71	38.8	+01.9	N 20 40.9	+00.1	145	16.4	+02.5	S 05 59.6	+00.0	15
16	113	28.6	+00.7	N 13 49.0	+00.6	86	40.7	+01.9	N 20 41.0	+00.1	160	18.9	+02.4	S 05 59.6	+00.0	16
17	128	29.3	+00.7	N 13 49.6	+00.6	101	42.6	+01.9	N 20 41.1	+00.1	175	21.3	+02.4	S 05 59.6	+00.0	17
18	143	30.0	+00.7	N 13 50.2	+00.6	116	44.5	+01.8	N 20 41.2	+00.1	190	23.7	+02.5	S 05 59.6	+00.0	18
19	158	30.7	+00.7	N 13 50.8	+00.6	131	46.3	+01.9	N 20 41.3	+00.1	205	26.2	+02.4	S 05 59.6	+00.0	19
20	173	31.4	+00.7	N 13 51.4	+00.6	146	48.2	+01.9	N 20 41.4	+00.1	220	28.6	+02.4	S 05 59.6	+00.0	20
21	188	32.1	+00.7	N 13 52.0	+00.5	161	50.1	+01.9	N 20 41.5	+00.1	235	31.0	+02.5	S 05 59.6	+00.0	21
22	203	32.8	+00.7	N 13 52.5	+00.6	176	52.0	+01.8	N 20 41.6	+00.1	250	33.5	+02.4	S 05 59.6	+00.0	22
23	218	33.5	+00.7	N 13 53.1	+00.6	191	53.8	+01.9	N 20 41.7	+00.1	265	35.9	+02.4	S 05 59.6	+00.0	23

UT 02 06 10 14 18 22 SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 323° 322° 322° 322° 322° 322° Greenwich Culmination Time: 08:26	UT 02 06 10 14 18 22 SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3' HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' SHA 295° 295° 295° 295° 295° 295° Greenwich Culmination Time: 10:14	UT 02 06 10 14 18 22 SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' SHA 009° 009° 009° 009° 009° 009° Greenwich Culmination Time: 05:20
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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	26.3	-00.1	N 23 25.4	-00.1	173	56.6	-00.9	N 23 53.9	-00.1	345	39.7	-36.1	S 27 39.9	-04.0	00
01	194	26.2	-00.1	N 23 25.3	+00.0	188	55.7	-00.9	N 23 53.8	-00.1	0	03.6	-36.2	S 27 35.9	-04.2	01
02	209	26.1	-00.2	N 23 25.3	-00.1	203	54.8	-00.9	N 23 53.7	+00.0	14	27.4	-36.1	S 27 31.7	-04.3	02
03	224	25.9	-00.1	N 23 25.2	+00.0	218	53.9	-00.9	N 23 53.7	-00.1	28	51.3	-36.0	S 27 27.4	-04.6	03
04	239	25.8	-00.1	N 23 25.2	+00.0	233	53.0	-00.8	N 23 53.6	-00.1	43	15.3	-36.1	S 27 22.8	-04.7	04
05	254	25.7	-00.2	N 23 25.2	-00.1	248	52.2	-00.9	N 23 53.5	-00.1	57	39.2	-36.0	S 27 18.1	-04.9	05
06	269	25.5	-00.1	N 23 25.1	+00.0	263	51.3	-00.9	N 23 53.4	-00.1	72	03.2	-36.0	S 27 13.2	-05.0	06
07	284	25.4	-00.1	N 23 25.1	-00.1	278	50.4	-00.9	N 23 53.3	+00.0	86	27.2	-35.9	S 27 08.2	-05.3	07
08	299	25.3	-00.2	N 23 25.0	+00.0	293	49.5	-00.9	N 23 53.3	-00.1	100	51.3	-36.0	S 27 02.9	-05.4	08
09	314	25.1	-00.1	N 23 25.0	+00.0	308	48.6	-00.9	N 23 53.2	-00.1	115	15.3	-35.8	S 26 57.5	-05.6	09
10	329	25.0	-00.1	N 23 25.0	-00.1	323	47.7	-00.9	N 23 53.1	-00.1	129	39.5	-35.9	S 26 51.9	-05.8	10
11	344	24.9	-00.2	N 23 24.9	+00.0	338	46.8	-00.9	N 23 53.0	-00.1	144	03.6	-35.8	S 26 46.1	-05.9	11
12	359	24.7	-00.1	N 23 24.9	-00.1	353	45.9	-00.9	N 23 52.9	-00.1	158	27.8	-35.7	S 26 40.2	-06.2	12
13	14	24.6	-00.1	N 23 24.8	+00.0	8	45.0	-00.9	N 23 52.8	-00.1	172	52.1	-35.7	S 26 34.0	-06.3	13
14	29	24.5	-00.2	N 23 24.8	-00.1	23	44.1	-00.9	N 23 52.7	-00.1	187	16.4	-35.7	S 26 27.7	-06.4	14
15	44	24.3	-00.1	N 23 24.7	+00.0	38	43.2	-00.9	N 23 52.6	-00.1	201	40.7	-35.6	S 26 21.3	-06.7	15
16	59	24.2	-00.1	N 23 24.7	-00.1	53	42.3	-00.9	N 23 52.5	-00.1	216	05.1	-35.5	S 26 14.6	-06.8	16
17	74	24.1	-00.2	N 23 24.6	+00.0</											

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 263* 262* 262* 262* 262* 262*
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 318* 318* 318* 318* 318* 318*
Greenwich Culmination Time: 08:19

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 266* 265* 265* 265* 265* 265*
Greenwich Culmination Time: 12:02

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 320* 320* 320* 320* 320* 320*
Greenwich Culmination Time: 08:23

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UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	16.8	-00.1	N 23 20.9	-00.1	172	52.4	-00.9	N 23 45.4	-00.2	304	44.4	-31.4	S 16 05.0	-14.3	00				
01	194	16.7	-00.2	N 23 20.8	-00.1	187	51.5	-00.9	N 23 45.2	-00.2	319	13.0	-31.2	S 15 50.7	-14.4	01				
02	209	16.5	-00.1	N 23 20.7	-00.1	202	50.6	-00.9	N 23 45.0	-00.1	333	41.8	-31.2	S 15 36.3	-14.5	02				
03	224	16.4	-00.1	N 23 20.6	-00.1	217	49.7	-00.8	N 23 44.9	-00.2	348	10.6	-31.1	S 15 21.8	-14.6	03				
04	239	16.3	-00.1	N 23 20.5	-00.1	232	48.9	-00.9	N 23 44.7	-00.2	2	39.5	-31.1	S 15 07.2	-14.6	04				
05	254	16.2	-00.2	N 23 20.4	-00.1	247	48.0	-00.9	N 23 44.5	-00.1	17	08.4	-30.9	S 14 52.6	-14.8	05				
06	269	16.0	-00.1	N 23 20.3	-00.1	262	47.1	-00.9	N 23 44.4	-00.2	31	37.5	-30.9	S 14 37.8	-14.8	06				
07	284	15.9	-00.1	N 23 20.2	-00.1	277	46.2	-00.9	N 23 44.2	-00.2	46	06.6	-30.8	S 14 23.0	-14.9	07				
08	299	15.8	-00.2	N 23 20.1	-00.1	292	45.3	-00.9	N 23 44.0	-00.2	60	35.8	-30.8	S 14 08.1	-15.0	08				
09	314	15.6	-00.1	N 23 20.0	+00.0	307	44.4	-00.9	N 23 43.8	-00.1	75	05.0	-30.7	S 13 53.1	-15.1	09				
10	329	15.5	-00.1	N 23 20.0	-00.1	322	43.5	-00.8	N 23 43.7	-00.2	89	34.3	-30.6	S 13 38.0	-15.1	10				
11	344	15.4	-00.2	N 23 19.9	-00.1	337	42.7	-00.9	N 23 43.5	-00.2	104	03.7	-30.5	S 13 22.9	-15.2	11				
12	359	15.2	-00.1	N 23 19.8	-00.1	352	41.8	-00.9	N 23 43.3	-00.2	118	33.2	-30.5	S 13 07.7	-15.3	12				
13	14	15.1	-00.1	N 23 19.7	-00.1	7	40.9	-00.9	N 23 43.1	-00.1	133	02.7	-30.4	S 12 52.4	-15.3	13				
14	29	15.0	-00.1	N 23 19.6	-00.1	22	40.0	-00.9	N 23 43.0	-00.2	147	32.3	-30.4	S 12 37.1	-15.5	14				
15	44	14.9	-00.2	N 23 19.5	-00.1	37	39.1	-00.9	N 23 42.8	-00.2	162	01.9	-30.3	S 12 21.6	-15.5	15				
16	59	14.7	-00.1	N 23 19.4	-00.1	52	38.2	-00.9	N 23 42.6	-00.2	176	31.6	-30.2	S 12 06.1	-15.5	16				
17	74	14.6	-00.1	N 23 19.3	-00.1	67	37.3	-00.8	N 23 42.4	-00.2	191	01.4	-30.2	S 11 50.6	-15.6	17				
18	89	14.5	-00.2	N 23 19.2	-00.1	82	36.5	-00.9	N 23 42.2	-00.2	205	31.2	-30.1	S 11 35.0	-15.7	18				
19	104	14.3	-00.1	N 23 19.1	-00.1	97	35.6	-00.9	N 23 42.0	-00.1	220	01.1	-30.1	S 11 19.3	-15.7	19				
20	119	14.2	-00.1	N 23 19.0	-00.1	112	34.7	-00.9	N 23 41.9	-00.2	234	31.0	-30.0	S 11 03.6	-15.8	20				
21	134	14.1	-00.2	N 23 18.9	-00.1	127	33.8	-00.9	N 23 41.7	-00.2	249	01.0	-29.9	S 10 47.8	-15.9	21				
22	149	13.9	-00.1	N 23 18.8	-00.1	142	32.9	-00.9	N 23 41.5	-00.2	263	31.1	-29.9	S 10 31.9	-15.9	22				
23	164	13.8	-00.1	N 23 18.7	-00.1	157	32.0	-00.9	N 23 41.3	-00.2	278	01.2	-29.8	S 10 16.0	-16.0	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°7'	15°7'	15°7'	15°7'	15°7'	15°7'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	16°1'	16°1'	16°2'	16°2'	16°2'	16°2'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	59°2'	59°3'	59°3'	59°3'	59°3'	59°3'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'
SHA	265°	264°	264°	264°	264°	264°	SHA	258°	258°	258°	257°	257°	257°	SHA	029°	027°	025°	022°	020°	018°
Greenwich Culmination Time: 12:02						Greenwich Culmination Time: 12:29						Greenwich Culmination Time: 03:48								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	13.7	-00.1	N 23 18.6	-00.2	172	31.1	-00.8	N 23 41.1	-00.2	292	31.4	-29.8	S 10 00.0	-16.0	00				
01	194	13.6	-00.2	N 23 18.4	-00.1	187	30.3	-00.9	N 23 40.9	-00.2	307	01.6	-29.7	S 09 44.0	-16.0	01				
02	209	13.4	-00.1	N 23 18.3	-00.1	202	29.4	-00.9	N 23 40.7	-00.2	321	31.9	-29.7	S 09 28.0	-16.2	02				
03	224	13.3	-00.1	N 23 18.2	-00.1	217	28.5	-00.9	N 23 40.5	-00.2	336	02.2	-29.6	S 09 11.8	-16.1	03				
04	239	13.2	-00.2	N 23 18.1	-00.1	232	27.6	-00.9	N 23 40.3	-00.2	350	32.6	-29.6	S 08 55.7	-16.2	04				
05	254	13.0	-00.2	N 23 18.0	-00.1	247	26.7	-00.9	N 23 40.1	-00.2	5	03.0	-29.5	S 08 39.5	-16.3	05				
06	269	12.9	-00.1	N 23 17.9	-00.1	262	25.8	-00.8	N 23 39.9	-00.2	19	33.5	-29.5	S 08 23.2	-16.3	06				
07	284	12.8	-00.1	N 23 17.8	-00.1	277	25.0	-00.9	N 23 39.7	-00.2	34	04.0	-29.5	S 08 06.9	-16.3	07				
08	299	12.7	-00.2	N 23 17.7	-00.1	292	24.1	-00.9	N 23 39.5	-00.2	48	34.5	-29.4	S 07 50.6	-16.4	08				
09	314	12.5	-00.1	N 23 17.6	-00.1	307	23.2	-00.9	N 23 39.3	-00.2	63	05.1	-29.3	S 07 34.2	-16.4	09				
10	329	12.4	-00.1	N 23 17.5	-00.1	322	22.3	-00.9	N 23 39.1	-00.2	77	35.8	-29.4	S 07 17.8	-16.4	10				
11	344	12.3	-00.2	N 23 17.4	-00.2	337	21.4	-00.9	N 23 38.9	-00.2	92	06.4	-29.2	S 07 01.4	-16.5	11				
12	359	12.1	-00.1	N 23 17.2	-00.1	352	20.5	-00.8	N 23 38.7	-00.2	106	37.2	-29.3	S 06 44.9	-16.5	12				
13	14	12.0	-00.1	N 23 17.1	-00.1	7	19.7	-00.9	N 23 38.5	-00.2	121	07.9	-29.2	S 06 28.4	-16.6	13				
14	29	11.9	-00.1	N 23 17.0	-00.1	22	18.8	-00.9	N 23 38.3	-00.2	135	38.7	-29.2	S 06 11.8	-16.6	14				
15	44	11.8	-00.2	N 23 16.9	-00.1	37	17.9	-00.9	N 23 38.1	-00.2	150	09.5	-29.1	S 05 55.2	-16.6	15				
16	59	11.6	-00.1	N 23 16.8	-00.1	52	17.0	-00.9	N 23 37.9	-00.2	164	40.4	-29.1	S 05 38.6	-16.6	16				
17	74	11.5	-00.1	N 23 16.7	-00.2	67	16.1	-00.8	N 23 37.7	-00.3	179	11.3	-29.1	S 05 22.0	-16.7	17				
18	89	11.4	-00.1	N 23 16.5	-00.1	82	15.3	-00.9	N 23 37.4	-00.2	193	42.2	-29.0	S 05 05.3	-16.7	18				
19	104	11.3	-00.2	N 23 16.4	-00.1	97	14.4	-00.9	N 23 37.2	-00.2	208	13.2	-29.1	S 04 48.6	-16.7	19				
20	119	11.1	-00.1	N 23 16.3	-00.1	112	13.5	-00.9	N 23 37.0	-00.2	222	44.1	-28.9	S 04 31.9	-16.7	20				
21	134	11.0	-00.1	N 23 16.2	-00.1	127	12.6	-00.9	N 23 36.8	-00.2	237	15.2	-29.0	S 04 15.2	-16.8	21				
22	149	10.9	-00.2	N 23 16.1	-00.2	142	11.7	-00.8	N 23 36.6	-00.2	251	46.2	-29.0	S 03 58.4	-16.7	22				
23	164	10.7	-00.1	N 23 15.9	-00.1	157	10.9	-00.9	N 23 36.4	-00.3	266	17.2	-28.9	S 03 41.7	-16.8	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	15°7'	15°7'	15°7'	15°7'	15°7'	15°7'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	16°2'	16°2'	16°2'	16°2'	16°2'	16°2'
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	59°3'	59°3'	59°3'	59°3'	59°3'	59°3'
SHA	264°	263°	263°	263°	263°	263°	SHA	257°	257°	256°	256°	256°	256°	SHA	016°	014°	012°	009°	007°	005°
Greenwich Culmination Time: 12:03						Greenwich Culmination Time: 12:30						Greenwich Culmination Time: 04:39								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	234	23.6	+00.7	N 14 35.6	+00.6	209	11.1	+01.8	N 20 48.6	+00.1	283	34.0	+02.4	S 05 59.6	+00.0	00
01	249	24.3	+00.7	N 14 36.2	+00.5	224	12.9	+01.9	N 20 48.7	+00.1	298	36.4	+02.5	S 05 59.6	+00.0	01
02	264	25.0	+00.7	N 14 36.7	+00.6	239	14.8	+01.9	N 20 48.8	+00.1	313	38.9	+02.4	S 05 59.6	+00.0	02
03	279	25.7	+00.7	N 14 37.3	+00.6	254	16.7	+01.9	N 20 48.9	+00.1	328	41.3	+02.5	S 05 59.6	+00.1	03
04	294	26.4	+00.6	N 14 37.9	+00.5	269	18.6	+01.9	N 20 49.0	+00.1	343	43.8	+02.4	S 05 59.7	+00.0	04
05	309	27.0	+00.7	N 14 38.4	+00.6	284	20.5	+01.9	N 20 49.1	+00.1	358	46.2	+02.5	S 05 59.7	+00.0	05
06	324	27.7	+00.7	N 14 39.0	+00.6	299	22.4	+01.8	N 20 49.2	+00.0	1	348.7	+02.4	S 05 59.7	+00.0	06
07	339	28.4	+00.7	N 14 39.6	+00.6	314	24.2	+01.9	N 20 49.2	+00.1	28	51.1	+02.4	S 05 59.7	+00.0	07
08	354	29.1	+00.7	N 14 40.2	+00.5	329	26.1	+01.9	N 20 49.3	+00.1	43	53.5	+02.5	S 05 59.7	+00.0	08
09	9	29.8	+00.7	N 14 40.7	+00.6	344	28.0	+01.9	N 20 49.4	+00.1	58	56.0	+02.4	S 05 59.7	+00.0	09
10	24	30.5	+00.6	N 14 41.3	+00.6	359	29.9	+01.9	N 20 49.5	+00.1	73	58.4	+02.5	S 05 59.7	+00.0	10
11	39	31.1	+00.7	N 14 41.9	+00.5	14	31.8	+01.9	N 20 49.6	+00.1	89	00.9	+02.4	S 05 59.7	+00.0	11
12	54	31.8	+00.7	N 14 42.4	+00.6	29	33.7	+01.8	N 20 49.7	+00.1	104	03.3	+02.5	S 05 59.7	+00.0	12
13	69	32.5	+00.7													

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 79%).

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 260* 260* 260* 260* 260* 260*
Greenwich Culmination Time: 12:03

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 83%).

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 259* 259* 259* 259* 259* 259*
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A).

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 317* 317* 317* 317* 316* 316*
Greenwich Culmination Time: 08:17

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A).

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 316* 316* 316* 316* 316* 316*
Greenwich Culmination Time: 08:16

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 254° 254° 254° 254° 254° 253°
Greenwich Culmination Time: 12:04

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 257° 257° 257° 257° 257° 256°
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 313° 312° 312° 312° 312° 312°
Greenwich Culmination Time: 08:11

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 315° 315° 314° 314° 314° 314°
Greenwich Culmination Time: 08:14

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 94%.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 256* 256* 256* 256* 256* 255*
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 314* 314* 314* 314* 314* 313*
Greenwich Culmination Time: 08:13

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 98%.

UT 02 06 10 14 18 22
SD 15*7 15*7 15*7 15*7 15*7 15*7
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 255* 255* 255* 255* 255* 254*
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00*0 00*0 00*0 00*0 00*0 00*0
HP 00*1 00*1 00*1 00*1 00*1 00*1
SHA 313* 313* 313* 313* 313* 313*
Greenwich Culmination Time: 08:12

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 250° 250° 250° 250° 249° 249°
Greenwich Culmination Time: 12:05

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 253° 253° 253° 253° 253° 252°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 310° 310° 309° 309° 309° 309°
Greenwich Culmination Time: 08:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 312° 312° 312° 312° 311° 311°
Greenwich Culmination Time: 08:10

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 252° 252° 252° 252° 251° 251°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 311° 311° 311° 311° 311° 311°
Greenwich Culmination Time: 08:08

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 251° 251° 251° 251° 250° 250°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 310° 310° 310° 310° 310° 310°
Greenwich Culmination Time: 08:07

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing planetary data and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing planetary data and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing planetary data and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing planetary data and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet across 24 hours.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet across 24 hours.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet across 24 hours.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet across 24 hours.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, Mars, Jupiter, Saturn, and UT. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table for July 16 showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a small table for Mars, Jupiter, and Saturn at the bottom.

Table for July 17 showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a small table for Mars, Jupiter, and Saturn at the bottom.

Table for July 16 showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a small table for Sun, Venus, and Moon at the bottom.

Table for July 17 showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a small table for Sun, Venus, and Moon at the bottom.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 238° 238° 238° 238° 237° 237°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 301° 301° 301° 301° 301° 301°
Greenwich Culmination Time: 07:53

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 241° 241° 241° 241° 240° 240°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 303° 303° 303° 303° 303° 303°
Greenwich Culmination Time: 07:57

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	24.0	+00.0	N 20 36.2	-00.4	165	12.2	-00.6	N 19 00.3	-00.8	18	03.9	-36.5	S 28 09.3	-02.5	00
01	193	24.0	-00.1	N 20 35.8	-00.5	180	11.6	-00.7	N 18 59.5	-00.8	32	27.4	-36.6	S 28 06.8	-02.7	01
02	208	23.9	+00.0	N 20 35.3	-00.5	195	10.9	-00.7	N 18 58.7	-00.8	46	50.8	-36.6	S 28 04.1	-02.9	02
03	223	23.9	+00.0	N 20 34.8	-00.5	210	10.2	-00.6	N 18 57.9	-00.8	61	14.2	-36.6	S 28 01.2	-03.0	03
04	238	23.9	-00.1	N 20 34.3	-00.4	225	09.6	-00.7	N 18 57.1	-00.8	75	37.6	-36.6	S 27 58.2	-03.3	04
05	253	23.8	+00.0	N 20 33.9	-00.5	240	08.9	-00.7	N 18 56.3	-00.8	90	01.0	-36.6	S 27 54.9	-03.4	05
06	268	23.8	+00.0	N 20 33.4	-00.5	255	08.2	-00.7	N 18 55.5	-00.8	104	24.4	-36.6	S 27 51.5	-03.7	06
07	283	23.8	-00.1	N 20 32.9	-00.5	270	07.5	-00.6	N 18 54.7	-00.8	118	47.8	-36.6	S 27 47.8	-03.8	07
08	298	23.7	+00.0	N 20 32.4	-00.4	285	06.9	-00.7	N 18 53.9	-00.8	133	11.2	-36.5	S 27 44.0	-04.0	08
09	313	23.7	+00.0	N 20 32.0	-00.5	300	06.2	-00.7	N 18 53.1	-00.8	147	34.7	-36.6	S 27 40.0	-04.2	09
10	328	23.7	+00.0	N 20 31.5	-00.5	315	05.5	-00.6	N 18 52.3	-00.8	161	58.1	-36.6	S 27 35.8	-04.4	10
11	343	23.7	-00.1	N 20 31.0	-00.5	330	04.9	-00.7	N 18 51.5	-00.8	176	21.5	-36.5	S 27 31.4	-04.6	11
12	358	23.6	+00.0	N 20 30.5	-00.5	345	04.2	-00.7	N 18 50.7	-00.8	190	45.0	-36.6	S 27 26.8	-04.7	12
13	13	23.6	+00.0	N 20 30.0	-00.4	0	03.5	-00.6	N 18 49.9	-00.8	205	08.4	-36.5	S 27 22.1	-05.0	13
14	28	23.6	-00.1	N 20 29.6	-00.5	15	02.9	-00.7	N 18 49.1	-00.8	219	31.9	-36.5	S 27 17.1	-05.1	14
15	43	23.5	+00.0	N 20 29.1	-00.5	30	02.2	-00.6	N 18 48.3	-00.8	233	55.4	-36.5	S 27 12.0	-05.3	15
16	58	23.5	+00.0	N 20 28.6	-00.5	45	01.6	-00.7	N 18 47.5	-00.8	248	18.9	-36.4	S 27 06.7	-05.5	16
17	73	23.5	-00.1	N 20 28.1	-00.5	60	00.9	-00.7	N 18 46.7	-00.9	262	42.5	-36.5	S 27 01.2	-05.7	17
18	88	23.4	+00.0	N 20 27.6	-00.5	75	00.2	-00.6	N 18 45.8	-00.9	277	06.0	-36.4	S 26 55.5	-05.8	18
19	103	23.4	+00.0	N 20 27.1	-00.4	89	59.6	-00.7	N 18 45.0	-00.8	291	29.6	-36.3	S 26 49.7	-06.1	19
20	118	23.4	+00.0	N 20 26.7	-00.5	104	58.9	-00.7	N 18 44.2	-00.8	305	53.3	-36.4	S 26 43.6	-06.2	20
21	133	23.4	-00.1	N 20 26.2	-00.5	119	58.2	-00.6	N 18 43.4	-00.8	320	16.9	-36.3	S 26 37.4	-06.4	21
22	148	23.3	+00.0	N 20 25.7	-00.5	134	57.6	-00.7	N 18 42.6	-00.8	334	40.6	-36.2	S 26 31.0	-06.6	22
23	163	23.3	+00.0	N 20 25.2	-00.5	149	56.9	-00.6	N 18 41.8	-00.9	349	04.4	-36.3	S 26 24.4	-06.8	23

UT 02 06 10 14 18 22	SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 15°9' 15°9' 16°0' 16°0' 16°0' 16°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 58°4' 58°5' 58°6' 58°7' 58°8' 58°9'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 58°4' 58°5' 58°6' 58°7' 58°8' 58°9'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 240° 240° 240° 240° 239° 239°	SHA 227° 227° 226° 226° 226° 226°	SHA 078° 078° 073° 071° 068° 066°	SHA 227° 227° 226° 226° 226° 226°	SHA 078° 078° 073° 071° 068° 066°	SHA 239° 239° 239° 239° 238° 238°
Greenwich Culmination Time: 12:06		Greenwich Culmination Time: 12:59		Greenwich Culmination Time: 23:45	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	240	54.1	+00.7	N 19 17.7	+00.4	227	30.6	+02.0	N 21 33.8	+00.0	307	28.9	+02.5	S 06 12.7	+00.0	00
01	255	54.8	+00.6	N 19 18.1	+00.4	242	32.6	+01.9	N 21 33.8	+00.1	322	31.4	+02.6	S 06 12.7	+00.1	01
02	270	55.4	+00.7	N 19 18.5	+00.4	257	34.5	+01.9	N 21 33.9	+00.0	337	34.0	+02.5	S 06 12.8	+00.0	02
03	285	56.1	+00.7	N 19 18.9	+00.4	272	36.4	+02.0	N 21 33.9	+00.1	352	36.5	+02.5	S 06 12.8	+00.1	03
04	300	56.8	+00.7	N 19 19.3	+00.5	287	38.4	+01.9	N 21 34.0	+00.1	7	39.0	+02.6	S 06 12.9	+00.0	04
05	315	57.5	+00.6	N 19 19.8	+00.4	302	40.3	+02.0	N 21 34.1	+00.0	22	41.6	+02.5	S 06 12.9	+00.0	05
06	330	58.1	+00.7	N 19 20.2	+00.4	317	42.3	+01.9	N 21 34.1	+00.1	37	44.1	+02.5	S 06 12.9	+00.1	06
07	345	58.8	+00.7	N 19 20.6	+00.3	332	44.2	+02.0	N 21 34.2	+00.1	52	46.6	+02.6	S 06 13.0	+00.0	07
08	0	59.5	+00.7	N 19 20.9	+00.4	347	46.2	+01.9	N 21 34.3	+00.0	67	49.2	+02.5	S 06 13.0	+00.1	08
09	16	00.2	+00.6	N 19 21.3	+00.4	2	48.1	+01.9	N 21 34.3	+00.1	82	51.7	+02.5	S 06 13.1	+00.0	09
10	31	00.8	+00.7	N 19 21.7	+00.4	17	50.0	+02.0	N 21 34.4	+00.1	97	54.2	+02.6	S 06 13.1	+00.1	10
11	46	01.5	+00.7	N 19 22.1	+00.4	32	52.0	+01.9	N 21 34.5	+00.0	112	56.8	+02.5	S 06 13.2	+00.0	11
12	61	02.2	+00.7	N 19 22.5	+00.4	47	53.9	+02.0	N 21 34.5	+00.1	127	59.3	+02.6	S 06 13.2	+00.0	12
13	76	02.9	+00.6	N 19 22.9	+00.4	62	55.9	+01.9	N 21 34.6	+00.1	143	01.9	+02.5	S 06 13.2	+00.1	13
14	91	03.5	+00.7	N 19 23.3	+00.4	77	57.8	+02.0	N 21 34.7	+00.0	158	04.4	+02.5	S 06 13.3	+00.0	14
15	106	04.2	+00.7	N 19 23.7	+00.4	92	59.8	+01.9	N 21 34.7	+00.1	173	06.9	+02.6	S 06 13.3	+00.1	15
16	121	04.9	+00.7	N 19 24.1	+00.4	108	01.7	+01.9	N 21 34.8	+00.0	188	09.5	+02.5	S 06 13.4	+00.0	16
17	136	05.6	+00.6	N 19 24.5	+00.4	123	03.6	+02.0	N 21 34.8	+00.1	203	12.0	+02.6	S 06 13.4	+00.0	17
18	151	06.2	+00.7	N 19 24.9	+00.4	138	05.6	+01.9	N 21 34.9	+00.1	218	14.6	+02.5	S 06 13.4	+00.1	18
19	166	06.9	+00.7	N 19 25.3	+00.4	153	07.5	+02.0	N 21 35.0	+00.0	233	17.1	+02.5	S 06 13.5	+00.0	19
20	181	07.6	+00.7	N 19 25.7	+00.4	168	09.5	+01.9	N 21 35.0	+00.1	248	19.6	+02.6	S 06 13.5	+00.1	20
21	196	08.3	+00.6	N 19 26.1	+00.4	183	11.4	+02.0	N 21 35.1	+00.0	263	22.2	+02.5	S 06 13.6	+00.0	21
22	211	08.9	+00.7	N 19 26.5	+00.4	198	13.4	+01.9	N 21 35.2	+00.0	278	24.7	+02.5	S 06 13.6	+00.1	22
23	226	09.6	+00.7	N 19 26.9	+00.4	213	15.3	+02.0	N 21 35.2	+00.1	293	27.2	+02.6	S 06 13.7	+00.0	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 303° 302° 302° 302° 302° 302°	SHA 289° 289° 289° 289° 289° 289°	SHA 289° 289° 289° 289° 289° 289°	SHA 302° 302° 302° 302° 301° 301°	SHA 302° 302° 302° 302° 301° 301°	SHA 289° 289° 289° 289° 289° 289°
Greenwich Culmination Time: 07:56		Greenwich Culmination Time: 08:48		Greenwich Culmination Time: 03:29	

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	178	23.3	-00.1	N 20 24.7	-00.5	164	56.3	-00.7	N 18 40.9	-00.8	3	28.1	-36.1	S 26 17.6	-06.9	00
01	193	23.2	+00.0	N 20 24.2	-00.5	179	55.6	-00.7	N 18 40.1	-00.8	17	52.0	-36.2	S 26 10.7	-07.2	01
02	208	23.2	+00.0	N 20 23.7	-00.4	194	54.9	-00.6	N 18 39.3	-00.8	32	15.8	-36.1	S 26 03.5	-07.3	02
03	223	23.2	+00.0	N 20 23.3	-00.5	209	54.3	-00.7	N 18 38.5	-00.8	46	39.7	-36.0	S 25 56.2	-07.5	03
04	238	23.2	-00.1	N 20 22.8	-00.5	224	53.6	-00.6	N 18 37.7	-00.9	61	03.7	-36.0	S 25 48.7	-07.6	04
05	253	23.1	+00.0	N 20 22.3	-00.5	239	53.0	-00.7	N 18 36.8	-00.8	75	27.7	-36.0	S 25 41.1	-07.9	05
06	268	23.1	+00.0	N 20 21.8	-00.5	254	52.3	-00.7	N 18 36.0	-00.8	89	51.7	-35.9	S 25 33.2	-08.0	06
07	283	23.1	+00.0	N 20 21.3	-00.5	269	51.6	-00.6	N 18 35.2	-00.8	104	15.8	-35.8	S 25 25.2	-08.2	07
08	298	23.1	-00.1	N 20 20.8	-00.5	284	51.0	-00.7	N 18 34.4	-00.9	118	40.0	-35.8	S 25 17.0	-08.3	08
09	313	23.0	+00.0	N 20 20.3	-00.5	299	50.3	-00.6	N 18 33.5	-00.8	133	04.2	-35.7	S 25 08.7	-08.5	09
10	328	23.0	+00.0	N 20 19.8	-00.5	314	49.7	-00.7	N 18 32.7	-00.8	147	28.5	-35.7	S 25 00.2	-08.7	10
11	343	23.0	+00.0	N 20 19.3	-00.5	329	49.0	-00.6	N 18 31.9	-00.8	161	52.8	-35.6	S 24 51.5	-08.9	11
12	358	23.0	-00.1	N 20 18.8	-00.5	344	48.4	-00.7	N 18 31.1	-00.9	176	17.2	-35.5	S 24 42.6	-09.0	12
13	13	22.9	+00.0	N 20 18.3	-00.5	359	47.7	-00.6	N 18 30.2	-00.8	190	41.7	-35.5	S 24 33.6	-09.2	

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 234° 234° 234° 234° 233° 233°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 298° 298° 298° 298° 298° 298°
Greenwich Culmination Time: 07:49

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 237° 237° 237° 237° 236° 236°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 300° 300° 300° 300° 300° 300°
Greenwich Culmination Time: 07:52

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178	21.9	+00.0	N 19 48.2	-00.6	164	10.1	-00.6	N 17 39.7	-00.8	322	58.4	-31.0	S 11 40.0	-16.1
01	193	21.9	+00.0	N 19 47.6	-00.5	179	09.5	-00.7	N 17 38.9	-00.9	337	27.4	-30.9	S 11 23.9	-16.2
02	208	21.9	+00.0	N 19 47.1	-00.5	194	08.8	-00.6	N 17 38.0	-00.9	351	56.5	-30.9	S 11 07.7	-16.3
03	223	21.9	+00.0	N 19 46.6	-00.6	209	08.2	-00.6	N 17 37.1	-00.9	6	25.6	-30.8	S 10 51.4	-16.3
04	238	21.9	+00.0	N 19 46.0	-00.5	224	07.6	-00.6	N 17 36.2	-00.9	20	54.8	-30.8	S 10 35.1	-16.4
05	253	21.9	+00.0	N 19 45.5	-00.5	239	07.0	-00.6	N 17 35.3	-00.9	35	24.0	-30.7	S 10 18.7	-16.4
06	268	21.9	+00.0	N 19 45.0	-00.6	254	06.4	-00.7	N 17 34.4	-00.8	49	53.3	-30.6	S 10 02.3	-16.5
07	283	21.9	+00.0	N 19 44.4	-00.5	269	05.7	-00.6	N 17 33.6	-00.9	64	22.7	-30.6	S 09 45.8	-16.5
08	298	21.9	+00.0	N 19 43.9	-00.5	284	05.1	-00.6	N 17 32.7	-00.9	78	52.1	-30.5	S 09 29.3	-16.6
09	313	21.9	+00.0	N 19 43.4	-00.6	299	04.5	-00.6	N 17 31.8	-00.9	93	21.6	-30.5	S 09 12.7	-16.6
10	328	21.9	+00.1	N 19 42.8	-00.5	314	03.9	-00.6	N 17 30.9	-00.9	107	51.1	-30.4	S 08 56.1	-16.7
11	343	21.8	+00.0	N 19 42.3	-00.5	329	03.3	-00.6	N 17 30.0	-00.9	122	20.7	-30.4	S 08 39.4	-16.7
12	358	21.8	+00.0	N 19 41.8	-00.6	344	02.7	-00.7	N 17 29.1	-00.9	136	50.3	-30.3	S 08 22.7	-16.8
13	13	21.8	+00.0	N 19 41.2	-00.5	359	02.0	-00.6	N 17 28.2	-00.9	151	20.0	-30.3	S 08 05.9	-16.8
14	28	21.8	+00.0	N 19 40.7	-00.5	14	01.4	-00.6	N 17 27.3	-00.9	165	49.7	-30.2	S 07 49.1	-16.8
15	43	21.8	+00.0	N 19 40.2	-00.6	29	00.8	-00.6	N 17 26.4	-00.9	180	19.5	-30.1	S 07 32.3	-16.9
16	58	21.8	+00.0	N 19 39.6	-00.5	44	00.2	-00.6	N 17 25.5	-00.9	194	49.4	-30.1	S 07 15.4	-16.9
17	73	21.8	+00.0	N 19 39.1	-00.5	58	59.6	-00.6	N 17 24.6	-00.9	209	19.3	-30.1	S 06 58.5	-17.0
18	88	21.8	+00.0	N 19 38.6	-00.6	73	59.0	-00.6	N 17 23.7	-00.8	223	49.2	-30.0	S 06 41.5	-17.0
19	103	21.8	+00.0	N 19 38.0	-00.5	88	58.4	-00.7	N 17 22.9	-00.9	238	19.2	-30.0	S 06 24.5	-17.0
20	118	21.8	+00.0	N 19 37.5	-00.6	103	57.7	-00.6	N 17 22.0	-00.9	252	49.2	-30.0	S 06 07.5	-17.0
21	133	21.8	+00.0	N 19 36.9	-00.5	118	57.1	-00.6	N 17 21.1	-00.9	267	19.2	-29.9	S 05 50.5	-17.1
22	148	21.8	+00.0	N 19 36.4	-00.5	133	56.5	-00.6	N 17 20.2	-00.9	281	49.3	-29.8	S 05 33.4	-17.1
23	163	21.8	+00.0	N 19 35.9	-00.6	148	55.9	-00.6	N 17 19.3	-00.9	296	19.5	-29.8	S 05 16.3	-17.1

UT 02 06 10 14 18 22	SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 16°4' 16°4' 16°4' 16°4' 16°4' 16°4'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 60°1' 60°1' 60°1' 60°1' 60°1' 60°1'	HP 60°1' 60°1' 60°1' 60°1' 60°1' 60°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 236° 236° 236° 236° 235° 235°	SHA 222° 222° 222° 221° 221° 221°	SHA 020° 017° 015° 013° 011° 009°	SHA 235° 235° 235° 235° 234° 234°	SHA 235° 235° 235° 235° 234° 234°	SHA 235° 235° 235° 235° 234° 234°
Greenwich Culmination Time: 12:06		Greenwich Culmination Time: 13:03		Greenwich Culmination Time: 02:33	

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	241	59.0	+00.7	N 19 54.9	+00.3	230	37.7	+01.9	N 21 39.7	+00.1	311	33.0	+02.5	S 06 16.9	+00.0
01	256	59.7	+00.6	N 19 55.2	+00.4	245	39.6	+02.0	N 21 39.8	+00.0	326	35.5	+02.6	S 06 16.9	+00.1
02	272	00.3	+00.7	N 19 55.6	+00.4	260	41.6	+02.0	N 21 39.8	+00.1	341	38.1	+02.5	S 06 17.0	+00.0
03	287	01.0	+00.7	N 19 56.0	+00.3	275	43.6	+01.9	N 21 39.9	+00.1	356	40.6	+02.6	S 06 17.0	+00.1
04	302	01.7	+00.7	N 19 56.3	+00.4	290	45.5	+02.0	N 21 40.0	+00.0	11	43.2	+02.5	S 06 17.1	+00.0
05	317	02.4	+00.7	N 19 56.7	+00.4	305	47.5	+01.9	N 21 40.0	+00.1	26	45.7	+02.6	S 06 17.1	+00.1
06	332	03.1	+00.6	N 19 57.1	+00.4	320	49.4	+02.0	N 21 40.1	+00.0	41	48.3	+02.5	S 06 17.2	+00.0
07	347	03.7	+00.7	N 19 57.4	+00.4	335	51.4	+01.9	N 21 40.1	+00.1	56	50.8	+02.6	S 06 17.2	+00.1
08	2	04.4	+00.7	N 19 57.8	+00.4	350	53.3	+02.0	N 21 40.2	+00.1	71	53.4	+02.5	S 06 17.3	+00.0
09	17	05.1	+00.7	N 19 58.2	+00.3	5	55.3	+02.0	N 21 40.3	+00.0	86	55.9	+02.6	S 06 17.3	+00.1
10	32	05.8	+00.6	N 19 58.5	+00.4	20	57.3	+01.9	N 21 40.3	+00.1	101	58.5	+02.5	S 06 17.4	+00.0
11	47	06.4	+00.7	N 19 58.9	+00.4	35	59.2	+02.0	N 21 40.4	+00.0	117	01.0	+02.6	S 06 17.4	+00.1
12	62	07.1	+00.7	N 19 59.3	+00.3	51	01.2	+01.9	N 21 40.4	+00.1	132	03.6	+02.5	S 06 17.5	+00.0
13	77	07.8	+00.7	N 19 59.6	+00.4	66	03.1	+02.0	N 21 40.5	+00.1	147	06.1	+02.6	S 06 17.5	+00.0
14	92	08.5	+00.6	N 20 00.0	+00.4	81	05.1	+01.9	N 21 40.6	+00.0	162	08.7	+02.5	S 06 17.5	+00.1
15	107	09.1	+00.7	N 20 00.4	+00.3	96	07.0	+02.0	N 21 40.6	+00.1	177	11.2	+02.6	S 06 17.6	+00.0
16	122	09.8	+00.7	N 20 00.7	+00.4	111	09.0	+02.0	N 21 40.7	+00.0	192	13.8	+02.5	S 06 17.6	+00.1
17	137	10.5	+00.7	N 20 01.1	+00.4	126	11.0	+01.9	N 21 40.7	+00.1	207	16.3	+02.6	S 06 17.7	+00.0
18	152	11.2	+00.7	N 20 01.5	+00.4	141	12.9	+02.0	N 21 40.8	+00.1	222	18.9	+02.5	S 06 17.7	+00.1
19	167	11.9	+00.6	N 20 01.8	+00.4	156	14.9	+01.9	N 21 40.9	+00.0	237	21.4	+02.6	S 06 17.8	+00.0
20	182	12.5	+00.7	N 20 02.2	+00.4	171	16.8	+02.0	N 21 40.9	+00.1	252	24.0	+02.5	S 06 17.8	+00.1
21	197	13.2	+00.7	N 20 02.6	+00.3	186	18.8	+02.0	N 21 41.0	+00.0	267	26.5	+02.6	S 06 17.9	+00.0
22	212	13.9	+00.7	N 20 02.9	+00.4	201	20.8	+01.9	N 21 41.0	+00.1	282	29.1	+02.5	S 06 17.9	+00.1
23	227	14.6	+00.6	N 20 03.3	+00.4	216	22.7	+02.0	N 21 41.1	+00.1	297	31.6	+02.6	S 06 18.0	+00.0

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 300° 300° 299° 299° 299° 299°	SHA 288° 288° 288° 288° 288° 288°	SHA 009° 009° 009° 009° 009° 009°	SHA 299° 299° 299° 299° 299° 299°	SHA 288° 288° 288° 288° 288° 288°	SHA 009° 009° 009° 009° 009° 009°
Greenwich Culmination Time: 07:51		Greenwich Culmination Time: 08:36		Greenwich Culmination Time: 03:13	

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178	21.8	+00.0	N 19 35.3	-00.5	163	55.3	-00.6	N 17 18.4	-00.9	310	49.7	-29.8	S 04 59.2	-17.2
01	193	21.8	+00.0	N 19 34.8	-00.6	178	54.7	-00.6	N 17 17.5	-00.9	325	19.9	-29.8	S 04 42.0	-17.1
02	208	21.8	+00.0	N 19 34.2	-00.5	193	54.1	-00.6	N 17 16.6	-01.0	339	50.1	-29.7	S 04 24.9	-17.2
03	223	21.8	+00.0	N 19 33.7	-00.6	208	53.5	-00.6	N 17 15.6	-00.9	354	20.4	-29.7	S 04 07.7	-17.2
04	238	21.8	+00.0	N 19 33.1	-00.5	223	52.9	-00.6	N 17 14.7	-00.9	8	50.7	-29.6	S 03 50.5	-17.2
05	253	21.8	+00.0	N 19 32.6	-00.6	238	52.3	-00.7	N 17 13.8	-00.9	23	21.1	-29.6	S 03 33.3	-17.3
06	268	21.8	+00.0	N 19 32.0	-00.5	253	51.6	-00.6	N 17 12.9	-00.9	37	51.5	-29.6	S 03 16.0	-17.2
07	283	21.8	+00.0	N 19 31.5	-00.5	268	51.0	-00.6	N 17 12.0	-00.9	52	21.9	-29.6	S 02 58.8	-17.3
08	298	21.8	+00.0	N 19 31.0	-00.6	283	50.4	-00.6	N 17 11.1	-00.9	66	52.3	-29.5	S 02 41.5	-17.2
09	313	21.8	+00.0	N 19 30.4	-00.5	298	49.8	-00.6	N 17 10.2	-00.9	81	22.8	-29.6	S 02 24.3	-17.3
10	328	21.8	+00.0	N 19 29.9	-00.6	313	49.2	-00.6	N 17 09.3	-00.9	95	53.2	-29.4	S 02 07.0	-17.2
11	343	21.8	+00.0	N 19 29.3	-00.5	328	48.6	-00.6	N 17 08.4	-00.9	110	23.8	-29.5	S 01 49.8	-17.3
12	358	21.8	+00.0	N 19 28.8	-00.6	343	48.0	-00.6	N 17 07.5	-00.9	124	54.3	-29.5	S 01 32.5	-17.3
13	13	21.8	+00.0	N 19 28.2	-00.5	358	47.4	-00.6	N 17 06.6	-00.9	139	24.8	-29.4	S 01 15.2	-17.3
14	28	21.8	+00.0	N 19 27.7	-00.6	13	46.8	-00.6	N 17 05.7	-01.0	153	55.4	-29.4	S 00 57.9	-17.2
15	43	21.8	+00.0	N 19 27.1	-00.5	28	46.2	-00.6	N 17 04.7	-00.9	168	26.0	-29.4	S 00 40.7	-17.3
16	58	21.8	+00.0	N 19 26.6	-00.6	43	45.6	-00.6	N 17 03.8	-00.9	182				

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 230° 230° 230° 230° 230° 229°
Greenwich Culmination Time: 12:06

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 233° 233° 233° 233° 232° 232°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 295° 295° 295° 295° 295° 295°
Greenwich Culmination Time: 07:45

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 288° 288° 288° 288° 288° 288°
Greenwich Culmination Time: 08:26

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA/Dec coordinates and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 232° 232° 232° 232° 231° 231°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA/Dec coordinates and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 297° 297° 297° 296° 296° 296°
Greenwich Culmination Time: 07:47

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA/Dec coordinates and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 231° 231° 231° 231° 230° 230°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA/Dec coordinates and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 296° 296° 296° 296° 296° 296°
Greenwich Culmination Time: 07:46

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, and SHA data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, and SHA data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, and SHA data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, and SHA data for each planet.

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	178 24.7	+00.1	N 17 56.5	-00.7	162 20.0	-00.5	N 14 36.1	-01.1	222 09.3	-34.8	N 28 25.2	+00.9	00
01	193 24.8	+00.0	N 17 55.8	-00.6	177 19.5	-00.6	N 14 35.0	-01.0	236 34.5	-34.8	N 28 26.1	+00.8	01
02	208 24.8	+00.1	N 17 55.2	-00.6	192 18.9	-00.5	N 14 34.0	-01.0	250 59.7	-34.8	N 28 26.9	+00.6	02
03	223 24.9	+00.0	N 17 54.6	-00.7	207 18.4	+00.5	N 14 33.0	-01.0	265 24.9	+34.7	N 28 27.5	+00.4	03
04	238 24.9	+00.0	N 17 53.9	-00.6	222 17.9	-00.5	N 14 32.0	-01.1	279 50.2	-34.7	N 28 27.9	+00.2	04
05	253 24.9	+00.1	N 17 53.3	-00.6	237 17.4	-00.6	N 14 30.9	-01.0	294 15.5	-34.7	N 28 28.1	+00.0	05
06	268 25.0	+00.0	N 17 52.7	-00.7	252 16.8	-00.5	N 14 29.9	-01.0	308 40.8	-34.7	N 28 28.1	-00.1	06
07	283 25.0	+00.1	N 17 52.0	-00.6	267 16.3	-00.5	N 14 28.9	-01.1	323 06.1	-34.7	N 28 28.0	-00.2	07
08	298 25.1	+00.0	N 17 51.4	-00.6	282 15.8	-00.5	N 14 27.8	-01.0	337 31.4	-34.6	N 28 27.8	-00.5	08
09	313 25.1	+00.0	N 17 50.8	-00.7	297 15.3	-00.5	N 14 26.8	-01.0	351 56.8	-34.6	N 28 27.3	-00.6	09
10	328 25.1	+00.1	N 17 50.1	-00.6	312 14.8	-00.6	N 14 25.8	-01.1	6 22.2	-34.6	N 28 26.7	-00.8	10
11	343 25.2	+00.0	N 17 49.5	-00.7	327 14.2	-00.5	N 14 24.7	-01.0	20 47.6	-34.5	N 28 25.9	-00.9	11
12	358 25.2	+00.1	N 17 48.8	-00.6	342 13.7	-00.5	N 14 23.7	-01.0	35 13.1	-34.5	N 28 25.0	-01.1	12
13	125 23.3	+00.0	N 17 48.2	-00.6	357 13.2	-00.5	N 14 22.7	-01.1	49 38.6	-34.4	N 28 23.9	-01.3	13
14	28 25.3	+00.1	N 17 47.6	-00.7	12 12.7	-00.5	N 14 21.6	-01.0	64 04.2	-34.4	N 28 22.6	-01.4	14
15	43 25.4	+00.0	N 17 46.9	-00.6	27 12.2	-00.6	N 14 20.6	-01.0	78 29.8	-34.4	N 28 21.2	-01.6	15
16	58 25.4	+00.0	N 17 46.3	-00.7	42 11.6	-00.5	N 14 19.6	-01.1	92 55.4	-34.3	N 28 19.6	-01.8	16
17	73 25.4	+00.1	N 17 45.6	-00.6	57 11.1	-00.5	N 14 18.5	-01.0	107 21.1	-34.3	N 28 17.8	-01.9	17
18	88 25.5	+00.0	N 17 45.0	-00.6	72 10.6	-00.5	N 14 17.5	-01.1	121 46.8	-34.2	N 28 15.9	-02.1	18
19	103 25.5	+00.1	N 17 44.4	-00.7	87 10.1	-00.5	N 14 16.4	-01.0	136 12.6	-34.2	N 28 13.8	-02.3	19
20	118 25.6	+00.0	N 17 43.7	-00.6	102 09.6	-00.5	N 14 15.4	-01.0	150 38.4	-34.1	N 28 11.5	-02.4	20
21	133 25.6	+00.1	N 17 43.1	-00.7	117 09.1	-00.6	N 14 14.4	-01.1	165 04.3	-34.1	N 28 09.1	-02.6	21
22	148 25.7	+00.0	N 17 42.4	-00.6	132 08.5	-00.5	N 14 13.3	-01.0	179 30.2	-34.0	N 28 06.5	-02.7	22
23	163 25.7	+00.1	N 17 41.8	-00.7	147 08.0	-00.5	N 14 12.3	-01.1	193 56.2	-34.0	N 28 03.8	-02.9	23

UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 15°5' 15°5' 15°4' 15°4' 15°4' 15°4'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 56°8' 56°8' 56°7' 56°6' 56°5' 56°4'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 228° 228° 228° 228° 228° 227°	SHA 212° 212° 212° 212° 211° 211°	SHA 271° 268° 266° 263° 261° 259°	SHA 212° 212° 212° 212° 211° 211°	SHA 227° 227° 227° 227° 227° 226°	SHA 211° 211° 211° 210° 210° 210°
Greenwich Culmination Time: 12:06		Greenwich Culmination Time: 13:11		Greenwich Culmination Time: 09:33	

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	244 09.6	+00.6	N 21 00.1	+00.3	236 56.0	+02.0	N 21 50.4	+00.0	319 45.0	+02.6	S 06 26.8	+00.0	00
01	259 10.2	+00.7	N 21 00.4	+00.3	251 58.0	+02.0	N 21 50.4	+00.1	334 47.6	+02.6	S 06 26.8	+00.1	01
02	274 10.9	+00.7	N 21 00.7	+00.3	267 00.0	+02.0	N 21 50.5	+00.0	349 50.2	+02.5	S 06 26.9	+00.1	02
03	289 11.6	+00.7	N 21 01.0	+00.3	282 02.0	+02.0	N 21 50.5	+00.1	4 52.7	+02.6	S 06 27.0	+00.0	03
04	304 12.3	+00.7	N 21 01.3	+00.3	297 04.0	+02.0	N 21 50.6	+00.1	19 55.3	+02.6	S 06 27.0	+00.1	04
05	319 13.0	+00.7	N 21 01.6	+00.3	312 06.0	+02.0	N 21 50.7	+00.0	34 57.9	+02.6	S 06 27.1	+00.0	05
06	334 13.7	+00.7	N 21 01.9	+00.3	327 08.0	+01.9	N 21 50.7	+00.1	50 00.5	+02.5	S 06 27.1	+00.1	06
07	349 14.4	+00.6	N 21 02.2	+00.3	342 09.9	+02.0	N 21 50.8	+00.0	65 03.0	+02.6	S 06 27.2	+00.0	07
08	4 15.0	+00.7	N 21 02.5	+00.3	357 11.9	+02.0	N 21 50.8	+00.1	80 05.6	+02.6	S 06 27.2	+00.1	08
09	19 15.7	+00.7	N 21 02.8	+00.3	12 13.9	+02.0	N 21 50.9	+00.0	95 08.2	+02.6	S 06 27.3	+00.1	09
10	34 16.4	+00.7	N 21 03.1	+00.3	27 15.9	+02.0	N 21 50.9	+00.1	110 10.8	+02.5	S 06 27.4	+00.0	10
11	49 17.1	+00.7	N 21 03.4	+00.3	42 17.9	+02.0	N 21 51.0	+00.0	125 13.3	+02.6	S 06 27.4	+00.1	11
12	64 17.8	+00.7	N 21 03.7	+00.3	57 19.9	+02.0	N 21 51.0	+00.1	140 15.9	+02.6	S 06 27.5	+00.0	12
13	79 18.5	+00.7	N 21 04.0	+00.3	72 21.9	+02.0	N 21 51.1	+00.0	155 18.5	+02.6	S 06 27.5	+00.1	13
14	94 19.2	+00.6	N 21 04.3	+00.3	87 23.9	+01.9	N 21 51.1	+00.1	170 21.1	+02.6	S 06 27.6	+00.0	14
15	109 19.8	+00.7	N 21 04.6	+00.3	102 25.8	+02.0	N 21 51.2	+00.0	185 23.7	+02.5	S 06 27.6	+00.1	15
16	124 20.5	+00.7	N 21 04.9	+00.3	117 27.8	+02.0	N 21 51.2	+00.1	200 26.2	+02.6	S 06 27.7	+00.1	16
17	139 21.2	+00.7	N 21 05.2	+00.4	132 29.8	+02.0	N 21 51.3	+00.0	215 28.8	+02.6	S 06 27.8	+00.0	17
18	154 21.9	+00.7	N 21 05.6	+00.3	147 31.8	+02.0	N 21 51.3	+00.1	230 31.4	+02.6	S 06 27.8	+00.1	18
19	169 22.6	+00.7	N 21 05.9	+00.3	162 33.8	+02.0	N 21 51.4	+00.0	245 34.0	+02.5	S 06 27.9	+00.0	19
20	184 23.3	+00.7	N 21 06.2	+00.3	177 35.8	+02.0	N 21 51.4	+00.1	260 36.5	+02.6	S 06 27.9	+00.1	20
21	199 24.0	+00.6	N 21 06.5	+00.3	192 37.8	+02.0	N 21 51.5	+00.0	275 39.1	+02.6	S 06 28.0	+00.0	21
22	214 24.6	+00.7	N 21 06.8	+00.3	207 39.8	+02.0	N 21 51.5	+00.1	290 41.7	+02.6	S 06 28.0	+00.1	22
23	229 25.3	+00.7	N 21 07.1	+00.3	222 41.8	+02.0	N 21 51.6	+00.0	305 44.3	+02.6	S 06 28.1	+00.1	23

UT 02 06 10 14 18 22	SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	UT 02 06 10 14 18 22	SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	UT 02 06 10 14 18 22	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 294° 294° 294° 294° 294° 293°	SHA 287° 287° 287° 287° 287° 287°	SHA 287° 287° 287° 287° 287° 287°	SHA 287° 287° 287° 287° 287° 287°	SHA 293° 293° 293° 293° 293° 293°	SHA 287° 287° 287° 287° 287° 286°
Greenwich Culmination Time: 07:43		Greenwich Culmination Time: 08:11		Greenwich Culmination Time: 02:40	

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	178 25.8	+00.0	N 17 41.1	-00.6	162 07.5	-00.5	N 14 11.2	-01.0	208 22.2	-33.9	N 28 00.9	-03.1	00
01	193 25.8	+00.0	N 17 40.5	-00.7	177 07.0	-00.5	N 14 10.2	-01.1	222 48.3	-33.8	N 27 57.8	-03.2	01
02	208 25.8	+00.1	N 17 39.8	-00.6	192 06.5	-00.5	N 14 09.1	-01.0	237 14.5	-33.8	N 27 54.6	-03.4	02
03	223 25.9	+00.0	N 17 39.2	-00.6	207 06.0	-00.5	N 14 08.1	-01.0	251 40.7	-33.7	N 27 51.2	-03.5	03
04	238 25.9	+00.1	N 17 38.6	-00.7	222 05.5	-00.6	N 14 07.1	-01.1	266 07.0	-33.7	N 27 47.7	-03.7	04
05	253 26.0	+00.0	N 17 37.9	-00.6	237 04.9	-00.5	N 14 06.0	-01.0	280 33.3	-33.6	N 27 44.0	-03.8	05
06	268 26.0	+00.1	N 17 37.3	-00.7	252 04.4	-00.5	N 14 05.0	-01.1	294 59.7	-33.5	N 27 40.2	-04.0	06
07	283 26.1	+00.0	N 17 36.6	-00.6	267 03.9	-00.5	N 14 03.9	-01.0	309 26.2	-33.5	N 27 36.2	-04.1	07
08	298 26.1	+00.1	N 17 36.0	-00.7	282 03.4	-00.5	N 14 02.9	-01.1	323 52.7	-33.4	N 27 32.1	-04.3	08
09	313 26.2	+00.0	N 17 35.3	-00.6	297 02.9	-00.5	N 14 01.8	-01.0	338 19.3	-33.3	N 27 27.8	-04.4	09
10	328 26.2	+00.1	N 17 34.7	-00.7	312 02.4	-00.5	N 14 00.8	-01.1	352 46.0	-33.2	N 27 23.4	-04.6	10
11	343 26.3	+00.0	N 17 34.0	-00.6	327 01.9	-00.5	N 13 59.7	-01.0	7 12.8	-33.2	N 27 18.8	-04.8	11
12	358 26.3	+00.1	N 17 33.4	-00.7	342 01.4	-00.5	N 13 58.7	-01.1	21 39.6	-33.1	N 27 14.0	-04.9	12
13	126 26.4	+00.0	N 17 32.7	-00.6	357 00.9	-00.5	N 13 57.6	-01.0	36 06.5	-33.0	N 27 09.1	-05.0	13
14	28 26.4	+00.1	N 17 32.1	-00.7	12 00.4	-00.5	N 13 56.6	-01.1	50 33.5	-32.9	N 27 04.1	-05.2	14
15	43 26.5	+00.0	N 17 31.4	-00.6	26 59.9	-00.6	N 13 55.5	-01.0	65 00.0	-32.9	N 26 58.9	-05.3	15
16	58 26.5	+00.1	N 17 30.8	-00.7	41 59.3	-00.5	N 13 54.5	-01.1	79 27.7	-32.8	N 26 53.6	-05.4	16
17	73 26.6	+00.0	N 17 30.1	-00.7	56 58.8	-00.5	N 13 53.4	-01.0	93 54.9	-32.7	N 26 48.2	-05.6	17
18	88 26.6	+00.1	N 17 29.4	-00.6	71 58.3	-00.5	N 13 52.4	-01.1	108 22.2	-32.6	N 26 42.6	-05.	

UT	Sun				Venus				Moon				A: 09%	UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	178 33.1	+00.0	N 16 20.2	-00.7	161 09.2	-00.5	N 12 01.6	-01.1	150 28.4	-24.4	N 08 28.1	-13.7	00	
01	193 33.1	+00.1	N 16 19.5	-00.7	176 08.7	-00.5	N 12 00.5	-01.1	165 04.0	-24.4	N 08 14.4	-13.8	01	
02	208 33.2	+00.1	N 16 18.8	-00.7	191 08.2	-00.4	N 11 59.4	-01.1	179 39.6	-24.3	N 08 00.6	-13.9	02	
03	223 33.3	+00.1	N 16 18.1	-00.7	206 07.8	-00.5	N 11 58.3	-01.1	194 15.3	-24.4	N 07 46.7	-13.8	03	
04	238 33.4	+00.1	N 16 17.4	-00.7	221 07.3	-00.4	N 11 57.2	-01.2	208 50.9	-24.2	N 07 32.9	-13.9	04	
05	253 33.5	+00.0	N 16 16.7	-00.7	236 06.9	-00.5	N 11 56.0	-01.1	223 26.7	-24.3	N 07 19.0	-13.9	05	
06	268 33.5	+00.1	N 16 16.0	-00.7	251 06.4	-00.5	N 11 54.9	-01.1	238 02.4	-24.1	N 07 05.1	-13.9	06	
07	283 33.6	+00.1	N 16 15.3	-00.7	266 05.9	-00.4	N 11 53.8	-01.1	252 38.3	-24.2	N 06 51.2	-13.9	07	
08	298 33.7	+00.1	N 16 14.6	-00.7	281 05.5	-00.5	N 11 52.7	-01.1	267 14.1	-24.1	N 06 37.3	-13.9	08	
09	313 33.8	+00.0	N 16 13.9	-00.7	296 05.0	-00.4	N 11 51.6	-01.2	281 50.0	-24.1	N 06 23.4	-14.0	09	
10	328 33.8	+00.1	N 16 13.2	-00.7	311 04.6	-00.5	N 11 50.4	-01.1	296 25.9	-24.1	N 06 09.4	-14.0	10	
11	343 33.9	+00.1	N 16 12.5	-00.7	326 04.1	-00.4	N 11 49.3	-01.1	311 01.8	-24.0	N 05 55.4	-14.0	11	
12	358 34.0	+00.1	N 16 11.8	-00.7	341 03.7	-00.5	N 11 48.2	-01.1	325 37.8	-24.0	N 05 41.4	-14.0	12	
13	13 34.1	+00.1	N 16 11.1	-00.7	356 03.2	-00.4	N 11 47.1	-01.1	340 13.8	-23.9	N 05 27.4	-14.0	13	
14	28 34.2	+00.0	N 16 10.4	-00.7	11 02.8	-00.5	N 11 46.0	-01.2	354 49.9	-23.9	N 05 13.4	-14.1	14	
15	43 34.2	+00.1	N 16 09.7	-00.7	26 02.3	-00.4	N 11 44.8	-01.1	9 26.0	-23.9	N 04 59.3	-14.0	15	
16	58 34.3	+00.1	N 16 09.0	-00.8	41 01.9	-00.5	N 11 43.7	-01.1	24 02.1	-23.9	N 04 45.3	-14.1	16	
17	73 34.4	+00.1	N 16 08.2	-00.7	56 01.4	-00.4	N 11 42.6	-01.1	38 38.2	-23.9	N 04 31.2	-14.0	17	
18	88 34.5	+00.1	N 16 07.5	-00.7	71 01.0	-00.5	N 11 41.5	-01.2	53 14.3	-23.8	N 04 17.2	-14.1	18	
19	103 34.6	+00.1	N 16 06.8	-00.7	86 00.5	-00.4	N 11 40.3	-01.1	67 50.5	-23.8	N 04 03.1	-14.1	19	
20	118 34.7	+00.0	N 16 06.1	-00.7	101 00.1	-00.5	N 11 39.2	-01.1	82 26.7	-23.7	N 03 49.0	-14.1	20	
21	133 34.7	+00.1	N 16 05.4	-00.7	115 59.6	-00.5	N 11 38.1	-01.1	97 03.0	-23.8	N 03 34.9	-14.1	21	
22	148 34.8	+00.1	N 16 04.7	-00.7	130 59.1	-00.4	N 11 37.0	-01.2	111 39.2	-23.7	N 03 20.8	-14.2	22	
23	163 34.9	+00.1	N 16 04.0	-00.7	145 58.7	-00.4	N 11 35.8	-01.1	126 15.5	-23.7	N 03 06.6	-14.1	23	

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 222° 222° 222° 222° 222° 222°
Greenwich Culmination Time: 12:05

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 205° 205° 205° 204° 204° 204°
Greenwich Culmination Time: 13:15

UT 02 06 10 14 18 22
SD 14°8' 14°8' 14°8' 14°8' 14°8' 14°8'
HP 54°3' 54°3' 54°3' 54°2' 54°2' 54°2'
SHA 194° 192° 190° 188° 186° 185°
Greenwich Culmination Time: 14:21

UT	Sun				Venus				Moon				A: 00%	UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	178 28.2	+00.1	N 17 09.6	-00.7	161 43.4	-00.5	N 13 20.4	-01.0	182 42.6	-29.8	N 22 54.4	-09.4	00	
01	193 28.3	+00.0	N 17 08.9	-00.6	176 42.9	-00.5	N 13 19.4	-01.1	197 12.8	-29.8	N 22 45.0	-09.5	01	
02	208 28.3	+00.1	N 17 08.3	-00.7	191 42.4	-00.5	N 13 18.3	-01.1	211 43.0	-29.7	N 22 35.5	-09.6	02	
03	223 28.4	+00.1	N 17 07.6	-00.7	206 41.9	-00.5	N 13 17.2	-01.1	226 13.3	-29.6	N 22 25.9	-09.7	03	
04	238 28.5	+00.0	N 17 06.9	-00.6	221 41.4	-00.5	N 13 16.1	-01.0	240 43.7	-29.4	N 22 16.2	-09.8	04	
05	253 28.5	+00.1	N 17 06.3	-00.7	236 40.9	-00.5	N 13 15.1	-01.1	255 14.3	-29.4	N 22 06.4	-09.9	05	
06	268 28.6	+00.0	N 17 05.6	-00.7	251 40.4	-00.5	N 13 14.0	-01.1	269 44.9	-29.3	N 21 56.5	-10.0	06	
07	283 28.6	+00.1	N 17 04.9	-00.7	266 39.9	-00.4	N 13 12.9	-01.1	284 15.6	-29.2	N 21 46.5	-10.1	07	
08	298 28.7	+00.1	N 17 04.2	-00.6	281 39.5	-00.5	N 13 11.8	-01.1	298 46.4	-29.1	N 21 36.4	-10.1	08	
09	313 28.8	+00.0	N 17 03.6	-00.7	296 39.0	-00.5	N 13 10.7	-01.0	313 17.3	-29.0	N 21 26.3	-10.3	09	
10	328 28.8	+00.1	N 17 02.9	-00.7	311 38.5	-00.5	N 13 09.7	-01.1	327 48.3	-29.0	N 21 16.0	-10.4	10	
11	343 28.9	+00.0	N 17 02.2	-00.6	326 38.0	-00.5	N 13 08.6	-01.1	342 19.3	-28.8	N 21 05.6	-10.4	11	
12	358 28.9	+00.1	N 17 01.6	-00.7	341 37.5	-00.5	N 13 07.5	-01.1	356 50.5	-28.7	N 20 55.2	-10.6	12	
13	13 29.0	+00.1	N 17 00.9	-00.7	356 37.0	-00.5	N 13 06.4	-01.1	11 21.8	-28.6	N 20 44.6	-10.6	13	
14	28 29.1	+00.0	N 17 00.2	-00.7	11 36.5	-00.4	N 13 05.3	-01.0	25 53.2	-28.6	N 20 34.0	-10.7	14	
15	43 29.1	+00.1	N 16 59.5	-00.6	26 36.1	-00.5	N 13 04.3	-01.1	40 24.6	-28.4	N 20 23.3	-10.8	15	
16	58 29.2	+00.0	N 16 58.9	-00.7	41 35.6	-00.5	N 13 03.2	-01.1	54 56.2	-28.4	N 20 12.5	-10.9	16	
17	73 29.2	+00.1	N 16 58.2	-00.7	56 35.1	-00.5	N 13 02.1	-01.1	69 27.8	-28.3	N 20 01.6	-11.0	17	
18	88 29.3	+00.1	N 16 57.5	-00.7	71 34.6	-00.5	N 13 01.0	-01.1	83 59.5	-28.2	N 19 50.6	-11.0	18	
19	103 29.4	+00.0	N 16 56.8	-00.7	86 34.1	-00.5	N 12 59.9	-01.1	98 31.3	-28.1	N 19 39.6	-11.2	19	
20	118 29.4	+00.1	N 16 56.1	-00.6	101 33.6	-00.4	N 12 58.8	-01.0	113 03.2	-28.0	N 19 28.4	-11.2	20	
21	133 29.5	+00.1	N 16 55.5	-00.7	116 33.2	-00.5	N 12 57.8	-01.1	127 35.2	-27.9	N 19 17.2	-11.2	21	
22	148 29.6	+00.0	N 16 54.8	-00.7	131 32.7	-00.5	N 12 56.7	-01.1	142 07.3	-27.8	N 19 06.0	-11.4	22	
23	163 29.6	+00.1	N 16 54.1	-00.7	146 32.2	-00.5	N 12 55.6	-01.1	156 39.5	-27.7	N 18 54.6	-11.4	23	

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 225° 225° 225° 225° 225° 225°
Greenwich Culmination Time: 12:06

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 209° 208° 208° 208° 208° 208°
Greenwich Culmination Time: 13:13

UT 02 06 10 14 18 22
SD 15°1' 15°1' 15°1' 15°0' 15°0' 15°0'
HP 55°4' 55°3' 55°2' 55°2' 55°1' 55°0'
SHA 229° 229° 228° 228° 228° 228°
Greenwich Culmination Time: 12:13

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet. Includes a small table at the bottom with columns for UT, Sun, Venus, Moon, and UT, and a note about Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet. Includes a small table at the bottom with columns for UT, Sun, Venus, Moon, and UT, and a note about Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet. Includes a small table at the bottom with columns for UT, Mars, Jupiter, Saturn, and UT, and a note about Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet. Includes a small table at the bottom with columns for UT, Mars, Jupiter, Saturn, and UT, and a note about Greenwich Culmination Time.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178 37.0	+00.1	N 15 46.0	-00.7	160 47.6	-00.5	N 11 07.5	-01.2	131 25.8	-23.5	S 02 46.7	+14.0	00		
01	193 37.1	+00.1	N 15 45.3	-00.7	175 47.1	-00.4	N 11 06.3	-01.1	146 02.3	-23.6	S 03 00.7	+14.1	01		
02	208 37.2	+00.1	N 15 44.6	-00.8	190 46.7	-00.4	N 11 05.2	-01.2	160 38.7	-23.6	S 03 14.8	+14.0	02		
03	223 37.3	+00.1	N 15 43.8	-00.7	205 46.3	+00.5	N 11 04.0	-01.1	175 15.1	-23.6	S 03 28.8	+14.1	03		
04	238 37.4	+00.1	N 15 43.1	-00.7	220 45.8	-00.4	N 11 02.9	-01.1	189 51.5	-23.6	S 03 42.9	+14.0	04		
05	253 37.5	+00.1	N 15 42.4	-00.7	235 45.4	-00.4	N 11 01.8	-01.2	204 27.9	-23.6	S 03 56.9	+14.0	05		
06	268 37.6	+00.1	N 15 41.7	-00.8	250 45.0	-00.5	N 11 00.6	-01.1	219 04.3	-23.7	S 04 10.9	+14.0	06		
07	283 37.7	+00.1	N 15 40.9	-00.7	265 44.5	-00.4	N 10 59.5	-01.2	233 40.6	-23.6	S 04 24.9	+13.9	07		
08	298 37.8	+00.1	N 15 40.2	-00.7	280 44.1	-00.4	N 10 58.3	-01.1	248 17.0	-23.7	S 04 38.8	+14.0	08		
09	313 37.9	+00.1	N 15 39.5	-00.7	295 43.7	-00.5	N 10 57.2	-01.2	262 53.3	-23.7	S 04 52.8	+13.9	09		
10	328 38.0	+00.0	N 15 38.8	-00.8	310 43.2	-00.4	N 10 56.0	-01.1	277 29.6	-23.7	S 05 06.7	+13.9	10		
11	343 38.0	+00.1	N 15 38.0	-00.7	325 42.8	-00.5	N 10 54.9	-01.2	292 05.9	-23.7	S 05 20.6	+13.9	11		
12	358 38.1	+00.1	N 15 37.3	-00.7	340 42.3	-00.4	N 10 53.7	-01.1	306 42.2	-23.8	S 05 34.5	+13.9	12		
13	13 38.2	+00.1	N 15 36.6	-00.8	355 41.9	-00.4	N 10 52.6	-01.1	321 18.4	-23.7	S 05 48.4	+13.9	13		
14	28 38.3	+00.1	N 15 35.8	-00.7	10 41.5	-00.5	N 10 51.5	-01.2	335 54.7	-23.8	S 06 02.3	+13.8	14		
15	43 38.4	+00.1	N 15 35.1	-00.7	25 41.0	-00.4	N 10 50.3	-01.1	350 30.9	-23.9	S 06 16.1	+13.9	15		
16	58 38.5	+00.1	N 15 34.4	-00.7	40 40.6	-00.4	N 10 49.2	-01.2	5 07.0	-23.8	S 06 30.0	+13.8	16		
17	73 38.6	+00.1	N 15 33.7	-00.8	55 40.2	-00.5	N 10 48.0	-01.1	19 43.2	-23.9	S 06 43.8	+13.7	17		
18	88 38.7	+00.1	N 15 32.9	-00.7	70 39.7	-00.4	N 10 46.9	-01.2	34 19.3	-23.9	S 06 57.5	+13.8	18		
19	103 38.8	+00.1	N 15 32.2	-00.7	85 39.3	-00.4	N 10 45.7	-01.1	48 55.4	-23.9	S 07 11.3	+13.7	19		
20	118 38.9	+00.1	N 15 31.5	-00.8	100 38.9	-00.4	N 10 44.6	-01.2	63 31.5	-24.0	S 07 25.0	+13.7	20		
21	133 39.0	+00.1	N 15 30.7	-00.7	115 38.5	-00.5	N 10 43.4	-01.1	78 07.5	-23.9	S 07 38.7	+13.7	21		
22	148 39.1	+00.1	N 15 30.0	-00.7	130 38.0	-00.4	N 10 42.3	-01.2	92 43.6	-24.1	S 07 52.4	+13.7	22		
23	163 39.2	+00.1	N 15 29.3	-00.8	145 37.6	-00.4	N 10 41.1	-01.1	107 19.5	-24.0	S 08 06.1	+13.6	23		
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22			
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'				SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				SD 14°7' 14°7' 14°7' 14°7' 14°7' 14°7'				SD 15°8' 15°8' 15°8' 15°8' 15°8'			
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 54°1' 54°1' 54°1' 54°1' 54°1' 54°1'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'			
SHA 221° 220° 220° 220° 220° 220°				SHA 203° 203° 202° 202° 202° 202°				SHA 173° 171° 169° 167° 166° 164°				SHA 220° 219° 219° 219° 219° 219°			
Greenwich Culmination Time: 12:05				Greenwich Culmination Time: 13:17				Greenwich Culmination Time: 15:38				Greenwich Culmination Time: 12:05			

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	178 39.3	+00.1	N 15 28.5	-00.7	160 37.2	-00.5	N 10 40.0	-01.2	121 55.5	-24.1	S 08 19.7	+13.6	00		
01	193 39.4	+00.0	N 15 27.8	-00.7	175 36.7	-00.4	N 10 38.8	-01.2	136 31.4	-24.1	S 08 33.3	+13.6	01		
02	208 39.4	+00.1	N 15 27.1	-00.8	190 36.3	-00.4	N 10 37.6	-01.1	151 07.3	-24.2	S 08 46.9	+13.5	02		
03	223 39.5	+00.1	N 15 26.3	-00.7	205 35.9	-00.5	N 10 36.5	-01.2	165 43.1	-24.2	S 09 00.4	+13.5	03		
04	238 39.6	+00.1	N 15 25.6	-00.7	220 35.4	-00.4	N 10 35.3	-01.1	180 18.9	-24.2	S 09 13.9	+13.5	04		
05	253 39.7	+00.1	N 15 24.9	-00.8	235 35.0	-00.4	N 10 34.2	-01.2	194 54.7	-24.3	S 09 27.4	+13.5	05		
06	268 39.8	+00.1	N 15 24.1	-00.7	250 34.6	-00.4	N 10 33.0	-01.1	209 30.4	-24.3	S 09 40.9	+13.4	06		
07	283 39.9	+00.1	N 15 23.4	-00.8	265 34.2	-00.5	N 10 31.9	-01.2	224 06.1	-24.4	S 09 54.3	+13.4	07		
08	298 40.0	+00.1	N 15 22.6	-00.7	280 33.7	-00.4	N 10 30.7	-01.1	238 41.7	-24.4	S 10 07.7	+13.3	08		
09	313 40.1	+00.1	N 15 21.9	-00.7	295 33.3	-00.4	N 10 29.6	-01.2	253 17.3	-24.4	S 10 21.0	+13.4	09		
10	328 40.2	+00.1	N 15 21.2	-00.8	310 32.9	-00.4	N 10 28.4	-01.2	267 52.9	-24.5	S 10 34.4	+13.3	10		
11	343 40.3	+00.1	N 15 20.4	-00.7	325 32.5	-00.5	N 10 27.2	-01.1	282 28.4	-24.6	S 10 47.7	+13.2	11		
12	358 40.4	+00.1	N 15 19.7	-00.8	340 32.0	-00.4	N 10 26.1	-01.2	297 03.8	-24.6	S 11 00.9	+13.2	12		
13	14 40.5	+00.1	N 15 18.9	-00.7	355 31.6	-00.4	N 10 24.9	-01.1	311 39.2	-24.6	S 11 14.1	+13.2	13		
14	28 40.6	+00.1	N 15 18.2	-00.7	10 31.2	-00.4	N 10 23.8	-01.2	326 14.6	-24.7	S 11 27.3	+13.2	14		
15	43 40.7	+00.1	N 15 17.5	-00.8	25 30.8	-00.5	N 10 22.6	-01.1	340 49.9	-24.7	S 11 40.5	+13.1	15		
16	58 40.8	+00.1	N 15 16.7	-00.7	40 30.3	-00.4	N 10 21.5	-01.2	355 25.2	-24.8	S 11 53.6	+13.0	16		
17	73 40.9	+00.1	N 15 16.0	-00.8	55 29.9	-00.4	N 10 20.3	-01.2	10 00.4	-24.9	S 12 06.6	+13.1	17		
18	88 41.0	+00.1	N 15 15.2	-00.7	70 29.5	-00.4	N 10 19.1	-01.1	24 35.5	-24.9	S 12 19.7	+12.9	18		
19	103 41.1	+00.1	N 15 14.5	-00.7	85 29.1	-00.5	N 10 18.0	-01.2	39 10.6	-24.9	S 12 32.6	+13.0	19		
20	118 41.2	+00.1	N 15 13.8	-00.8	100 28.6	-00.4	N 10 16.8	-01.2	53 45.7	-25.0	S 12 45.6	+12.9	20		
21	133 41.3	+00.1	N 15 13.0	-00.7	115 28.2	-00.4	N 10 15.6	-01.1	68 20.7	-25.1	S 12 58.5	+12.8	21		
22	148 41.4	+00.1	N 15 12.3	-00.8	130 27.8	-00.4	N 10 14.5	-01.2	82 55.6	-25.1	S 13 11.3	+12.9	22		
23	163 41.5	+00.1	N 15 11.5	-00.7	145 27.4	-00.4	N 10 13.3	-01.1	97 30.5	-25.2	S 13 24.2	+12.7	23		
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22			
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'				SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				SD 14°8' 14°8' 14°8' 14°8' 14°8' 14°8'				SD 15°8' 15°8' 15°8' 15°8' 15°8'			
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 54°2' 54°2' 54°2' 54°2' 54°2' 54°2'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'			
SHA 220° 201° 201° 201° 201° 201°				SHA 202° 201° 201° 201° 201° 201°				SHA 162° 160° 159° 157° 155° 153°				SHA 220° 219° 219° 219° 219° 219°			
Greenwich Culmination Time: 12:05				Greenwich Culmination Time: 13:17				Greenwich Culmination Time: 16:18				Greenwich Culmination Time: 12:05			

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	246 22.4	+00.7	N 21 53.1	+00.2	243 20.8	+02.0	N 21 59.4	+00.1	328 01.7	+02.6	S 06 38.5	+00.0	00
01	261 23.1	+00.7	N 21 53.3	+00.3	258 22.8	+02.0	N 21 59.5	+00.0	343 04.3	+02.6	S 06 38.5	+00.1	01
02	276 23.8	+00.7	N 21 53.6	+00.2	273 24.8	+02.0	N 21 59.5	+00.1	358 06.9	+02.6	S 06 38.6	+00.1	02
03	291 24.5	+00.8	N 21 53.8	+00.3	288 26.8	+02.1	N 21 59.6	+00.0	13 09.5	+02.6	S 06 38.7	+00.0	03
04	306 25.3	+00.7	N 21 54.1	+00.2	303 28.9	+02.0	N 21 59.6	+00.0	28 12.1	+02.6	S 06 38.7	+00.1	04
05	321 26.0	+00.7	N 21 54.3	+00.2	318 30.9	+02.0	N 21 59.6	+00.1	43 14.7	+02.6	S 06 38.8	+00.1	05
06	336 26.7	+00.7	N 21 54.5	+00.3	333 32.9	+02.0	N 21 59.7	+00.0	58 17.3	+02.6	S 06 38.9	+00.0	06
07	351 27.4	+00.7	N 21 54.8	+00.2	348 34.9	+02.1	N 21 59.7	+00.1	73 19.9	+02.6	S 06 38.9	+00.1	07
08	6 28.1	+00.7	N 21 55.0	+00.3	3 37.0	+02.0	N 21 59.8	+00.0	88 22.5	+02.6	S 06 39.0	+00.1	08
09	21 28.8	+00.7	N 21 55.3	+00.2	18 39.0	+02.0	N 21 59.8	+00.1	103 25.1	+02.6	S 06 39.1	+00.0	09
10	36 29.5	+00.7	N 21 55.5	+00.3	33 41.0	+02.0	N 21 59.9	+00.0	118 27.7	+02.6	S 06 39.1	+00.1	10
11	51 30.2	+00.7	N 21 55.8	+00.2	48 43.0	+02.1	N 21 59.9	+00.0	133 30.3	+02.6	S 06 39.2	+00.1	11
12	66 30.9	+00.7	N 21 56.0	+00.2	63 45.1	+02.0	N 21 59.9	+00.1	148 32.9	+02.6	S 06 39.3	+00.0	12
13	81 31.6	+00.7	N 21 56.2	+00.3	78 47.1	+02.0	N 21 60.0	+00.0	163 35.5	+02.6	S 06 39.3	+00.1	13
14	96 32.3	+00.7	N 21 56.5	+00.2	93 49.1	+02.0	N 22 00.0	+00.1	178 38.1	+02.6	S 06 39.4	+00.1	14
15	111 33.0	+00.7	N 21 56.7	+00.3	108 51.1	+02.1	N 22 00.1	+00.0	193 40.7	+02.6	S 06 39.5	+00.0	15
16	126 33.7	+00.7	N 21 57.0	+00.2	123 53.2	+02.0	N 22 00.1	+00.0	208 43.3	+02.6	S 06 39.5	+00.1	16
17	141 34.4	+00.7	N 21 57.2	+00.2	138 55.2	+02.0	N 22 00.1	+00.1	223 45.9	+02.6	S 06 39.6	+00.1	17
18	156 35.1	+00.7	N 21 57.4	+00.3	153 57.2	+02.0	N 22 00.2	+00.0	238 48.5	+02.6	S 06 39.7	+00.0	18
19	171 35.8	+00.7	N 21 57.7	+00.2	168 59.2	+02.1	N 22 00.2	+00.1	253 51.1	+02.6	S 06 39.7	+00.1	19
20	186 36.5	+00.7	N 21 57.9	+00.2	184 01.3	+02.0	N 22 00.3	+00.0	268 53.7	+02.6	S 06 39.8	+00.	

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 215° 215° 215° 214° 214° 214°
Greenwich Culmination Time: 12:04

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 218° 218° 217° 217° 217° 217°
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 284° 284° 284° 284° 284° 284°
Greenwich Culmination Time: 07:27

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 285° 285° 285° 285° 285° 285°
Greenwich Culmination Time: 07:35

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8 15°8 15°8 15°8 15°8 15°8
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 217° 217° 216° 216° 216° 216°
Greenwich Culmination Time: 12:04

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8 15°8 15°8 15°8 15°8 15°8
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 216° 216° 216° 215° 215° 215°
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 286° 285° 285° 285° 285° 285°
Greenwich Culmination Time: 07:29

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 285° 285° 285° 284° 284° 284°
Greenwich Culmination Time: 07:28

Table for August 19 showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a footer with SHA and Greenwich Culmination Time.

Table for August 16 showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a footer with SHA and Greenwich Culmination Time.

Table for August 19 showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a footer with SHA and Greenwich Culmination Time.

Table for August 16 showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a footer with SHA and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8 15°8 15°8 15°8 15°8 15°8
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 213° 213° 213° 213° 213° 212°
Greenwich Culmination Time: 12:03

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8 15°8 15°8 15°8 15°8 15°8
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 212° 212° 212° 212° 211° 211°
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°3 00°3 00°3 00°3 00°3 00°3
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 283° 283° 282° 282° 282° 282°
Greenwich Culmination Time: 07:25

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°3 00°3 00°3 00°3 00°3 00°3
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 284° 284° 284° 284° 284° 284°
Greenwich Culmination Time: 07:16

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22 SD 15°8 15°8 15°8 15°8 15°8 15°8 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 207° 207° 207° 207° 207° 207° Greenwich Culmination Time: 12:02

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22 SD 15°8 15°8 15°8 15°8 15°8 15°8 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 210° 210° 210° 210° 210° 209° Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 279° 278° 278° 278° 278° 278° Greenwich Culmination Time: 07:17

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 281° 281° 280° 280° 280° 280° Greenwich Culmination Time: 07:21

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UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				UT						
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec							
00	179	12.8	+00.1	N 12 01.0	-00.8	158	55.7	-00.3	N 05 21.5	-01.2	342	16.1	-31.1	S 07 24.3	-17.5	00			
01	194	12.9	+00.2	N 12 00.2	-00.9	173	55.4	-00.4	N 05 20.3	-01.3	356	45.0	-31.0	S 07 06.8	-17.5	01			
02	209	13.1	+00.2	N 11 59.3	-00.8	188	55.0	-00.3	N 05 19.0	-01.2	11	14.0	-30.9	S 06 49.3	-17.5	02			
03	224	13.3	+00.1	N 11 58.5	-00.8	203	54.7	-00.3	N 05 17.8	-01.3	25	43.1	-30.9	S 06 31.8	-17.6	03			
04	239	13.4	+00.2	N 11 57.7	-00.9	218	54.4	-00.4	N 05 16.5	-01.2	40	12.2	-30.9	S 06 14.2	-17.6	04			
05	254	13.6	+00.1	N 11 56.8	-00.8	233	54.0	-00.3	N 05 15.3	-01.3	54	41.3	-30.8	S 05 56.6	-17.7	05			
06	269	13.7	+00.2	N 11 56.0	-00.8	248	53.7	-00.4	N 05 14.0	-01.2	69	10.5	-30.8	S 05 38.9	-17.7	06			
07	284	13.9	+00.1	N 11 55.2	-00.9	263	53.3	-00.3	N 05 12.8	-01.3	83	39.7	-30.8	S 05 21.2	-17.7	07			
08	299	14.0	+00.2	N 11 54.3	-00.8	278	53.0	-00.4	N 05 11.5	-01.3	98	08.9	-30.7	S 05 03.5	-17.7	08			
09	314	14.2	+00.2	N 11 53.5	-00.9	293	52.6	-00.3	N 05 10.2	-01.2	112	38.2	-30.7	S 04 45.8	-17.8	09			
10	329	14.4	+00.1	N 11 52.6	-00.8	308	52.3	-00.4	N 05 09.0	-01.3	127	07.5	-30.7	S 04 28.0	-17.8	10			
11	344	14.5	+00.2	N 11 51.8	-00.8	323	51.9	-00.3	N 05 07.7	-01.2	141	36.8	-30.7	S 04 10.2	-17.8	11			
12	359	14.7	+00.1	N 11 51.0	-00.9	338	51.6	-00.3	N 05 06.5	-01.3	156	06.1	-30.6	S 03 52.4	-17.8	12			
13	14	14.8	+00.2	N 11 50.1	-00.8	353	51.3	-00.4	N 05 05.2	-01.2	170	35.5	-30.5	S 03 34.6	-17.8	13			
14	29	15.0	+00.2	N 11 49.3	-00.8	8	50.9	-00.3	N 05 04.0	-01.3	185	05.0	-30.6	S 03 16.8	-17.9	14			
15	44	15.2	+00.1	N 11 48.5	-00.9	23	50.6	-00.4	N 05 02.7	-01.2	199	34.4	-30.5	S 02 58.9	-17.8	15			
16	59	15.3	+00.2	N 11 47.6	-00.8	38	50.2	-00.3	N 05 01.5	-01.3	214	03.9	-30.5	S 02 41.1	-17.9	16			
17	74	15.5	+00.1	N 11 46.8	-00.9	53	49.9	-00.4	N 05 00.2	-01.2	228	33.4	-30.5	S 02 23.2	-17.9	17			
18	89	15.6	+00.2	N 11 45.9	-00.8	68	49.5	-00.3	N 04 59.0	-01.3	243	02.9	-30.5	S 02 05.3	-17.9	18			
19	104	15.8	+00.2	N 11 45.1	-00.8	83	49.2	-00.3	N 04 57.7	-01.2	257	32.4	-30.4	S 01 47.4	-17.9	19			
20	119	16.0	+00.1	N 11 44.3	-00.9	98	48.9	-00.4	N 04 56.5	-01.3	272	02.0	-30.5	S 01 29.5	-17.9	20			
21	134	16.1	+00.2	N 11 43.4	-00.8	113	48.5	-00.3	N 04 55.2	-01.3	286	31.5	-30.4	S 01 11.6	-17.9	21			
22	149	16.3	+00.1	N 11 42.6	-00.9	128	48.2	-00.4	N 04 53.9	-01.2	301	01.1	-30.4	S 00 53.7	-17.9	22			
23	164	16.4	+00.2	N 11 41.7	-00.8	143	47.8	-00.3	N 04 52.7	-01.3	315	30.7	-30.3	S 00 35.8	-17.9	23			
UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 209° 209° 209° 209° 209° 209°	Greenwich Culmination Time: 12:03	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 189° 189° 189° 189° 188° 188°	Greenwich Culmination Time: 13:24	UT 02 06 10 14 18 22	SD 16°6' 16°6' 16°6' 16°6' 16°6' 16°6'	HP 60°8' 60°8' 60°8' 60°8' 60°8' 60°8'	SHA 011° 009° 007° 005° 003° 008°	Greenwich Culmination Time: 01:13	UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 208° 208° 208° 208° 208° 208°	Greenwich Culmination Time: 12:02

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	179	16.6	+00.2	N 11 40.9	-00.8	158	47.5	-00.3	N 04 51.4	-01.2	330	00.4	-30.4	S 00 17.9	-17.9	00
01	194	16.8	+00.1	N 11 40.1	-00.9	173	47.2	-00.4	N 04 50.2	-01.3	344	30.0	-30.4	N 00 00.0	+17.9	01
02	209	16.9	+00.2	N 11 39.2	-00.8	188	46.8	-00.3	N 04 48.9	-01.2	358	59.6	-30.3	N 00 17.9	+17.9	02
03	224	17.1	+00.1	N 11 38.4	-00.9	203	46.5	-00.4	N 04 47.7	-01.3	13	29.3	-30.3	N 00 35.8	+17.9	03
04	239	17.2	+00.2	N 11 37.5	-00.8	218	46.1	-00.3	N 04 46.4	-01.2	27	59.0	-30.3	N 00 53.7	+17.8	04
05	254	17.4	+00.2	N 11 36.7	-00.9	233	45.8	-00.3	N 04 45.2	-01.3	42	28.7	-30.4	N 01 11.5	+17.9	05
06	269	17.6	+00.1	N 11 35.8	-00.8	248	45.5	-00.4	N 04 43.9	-01.3	56	58.3	-30.3	N 01 29.4	+17.8	06
07	284	17.7	+00.2	N 11 35.0	-00.8	263	45.1	-00.3	N 04 42.6	-01.2	71	28.0	-30.3	N 01 47.2	+17.8	07
08	299	17.9	+00.2	N 11 34.2	-00.9	278	44.8	-00.4	N 04 41.4	-01.3	85	57.7	-30.3	N 02 05.0	+17.8	08
09	314	18.1	+00.1	N 11 33.3	-00.8	293	44.4	-00.3	N 04 40.1	-01.2	100	27.4	-30.4	N 02 22.8	+17.8	09
10	329	18.2	+00.2	N 11 32.5	-00.9	308	44.1	-00.3	N 04 38.9	-01.3	114	57.1	-30.3	N 02 40.6	+17.7	10
11	344	18.4	+00.1	N 11 31.6	-00.8	323	43.8	-00.4	N 04 37.6	-01.2	129	26.8	-30.3	N 02 58.3	+17.8	11
12	359	18.5	+00.2	N 11 30.8	-00.9	338	43.4	-00.3	N 04 36.4	-01.3	143	56.5	-30.3	N 03 16.1	+17.6	12
13	14	18.7	+00.2	N 11 29.9	-00.8	353	43.1	-00.4	N 04 35.1	-01.3	158	26.2	-30.3	N 03 33.7	+17.7	13
14	29	18.9	+00.1	N 11 29.1	-00.9	8	42.7	-00.3	N 04 33.8	-01.2	172	55.9	-30.3	N 03 51.4	+17.6	14
15	44	19.0	+00.2	N 11 28.2	-00.8	23	42.4	-00.3	N 04 32.6	-01.3	187	25.6	-30.3	N 04 09.0	+17.7	15
16	59	19.2	+00.2	N 11 27.4	-00.9	38	42.1	-00.4	N 04 31.3	-01.2	201	55.3	-30.3	N 04 26.7	+17.5	16
17	74	19.4	+00.1	N 11 26.5	-00.8	53	41.7	-00.3	N 04 30.1	-01.3	216	25.0	-30.3	N 04 44.2	+17.6	17
18	89	19.5	+00.2	N 11 25.7	-00.9	68	41.4	-00.3	N 04 28.8	-01.3	230	54.7	-30.3	N 05 01.8	+17.4	18
19	104	19.7	+00.2	N 11 24.8	-00.8	83	41.1	-00.4	N 04 27.5	-01.2	245	24.4	-30.4	N 05 19.2	+17.5	19
20	119	19.9	+00.1	N 11 24.0	-00.9	98	40.7	-00.3	N 04 26.3	-01.3	259	54.0	-30.3	N 05 36.7	+17.4	20
21	134	20.0	+00.2	N 11 23.1	-00.8	113	40.4	-00.4	N 04 25.0	-01.2	274	23.7	-30.4	N 05 54.1	+17.4	21
22	149	20.2	+00.1	N 11 22.3	-00.8	128	40.0	-00.3	N 04 23.8	-01.3	288	53.3	-30.4	N 06 11.5	+17.3	22
23	164	20.3	+00.2	N 11 21.5	-00.9	143	39.7	-00.3	N 04 22.5	-01.3	303	22.9	-30.4	N 06 28.8	+17.3	23
UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 208° 208° 208° 208° 208° 208°	Greenwich Culmination Time: 12:02	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	SHA 188° 188° 188° 187° 187° 187°	Greenwich Culmination Time: 13:25	UT 02 06 10 14 18 22	SD 16°5' 16°5' 16°5' 16°5' 16°5' 16°5'	HP 60°7' 60°7' 60°6' 60°6' 60°5' 60°5'	SHA 358° 356° 354° 352° 349° 347°	Greenwich Culmination Time: 02:04		

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

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UT	Sun				Venus				Moon				UT																									
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec																										
00	179	28.7	+00.1	N	10	39.5	-00.9		158	23.4	-00.3	N	03	20.5	-01.3		292	55.1	-32.3	N	19	08.0	+13.0		00													
01	194	28.8	+00.2	N	10	38.6	-00.8		173	23.1	-00.3	N	03	19.2	-01.3		307	22.8	-32.4	N	19	21.0	+12.9		01													
02	209	29.0	+00.2	N	10	37.8	-00.9		188	22.8	-00.4	N	03	17.9	-01.3		321	50.4	-32.4	N	19	33.9	+12.8		02													
03	224	29.2	+00.2	N	10	36.9	-00.9		203	22.4	-00.3	N	03	16.6	-01.2		336	18.0	-32.5	N	19	46.7	+12.6		03													
04	239	29.4	+00.1	N	10	36.0	-00.8		218	22.1	-00.3	N	03	15.4	-01.3		350	45.5	-32.6	N	19	59.3	+12.5		04													
05	254	29.5	+00.2	N	10	35.2	-00.9		233	21.8	-00.3	N	03	14.1	-01.3		5	12.9	-32.6	N	20	11.8	+12.4		05													
06	269	29.7	+00.2	N	10	34.3	-00.9		248	21.5	-00.4	N	03	12.8	-01.2		19	40.3	-32.6	N	20	24.2	+12.2		06													
07	284	29.9	+00.1	N	10	33.4	-00.8		263	21.1	-00.3	N	03	11.6	-01.3		34	07.7	-32.8	N	20	36.4	+12.1		07													
08	299	30.0	+00.2	N	10	32.6	-00.9		278	20.8	-00.3	N	03	10.3	-01.3		48	34.9	-32.7	N	20	48.5	+12.0		08													
09	314	30.2	+00.2	N	10	31.7	-00.9		293	20.5	-00.3	N	03	09.0	-01.3		63	02.2	-32.9	N	21	00.5	+11.9		09													
10	329	30.4	+00.2	N	10	30.8	-00.8		308	20.2	-00.4	N	03	07.7	-01.2		77	29.3	-32.9	N	21	12.4	+11.7		10													
11	344	30.6	+00.2	N	10	30.0	-00.9		323	19.8	-00.3	N	03	06.5	-01.3		91	56.4	-32.9	N	21	24.1	+11.5		11													
12	359	30.8	+00.1	N	10	29.1	-00.9		338	19.5	-00.3	N	03	05.2	-01.3		106	23.5	-33.0	N	21	35.6	+11.5		12													
13	14	30.9	+00.2	N	10	28.2	-00.8		353	19.2	-00.3	N	03	03.9	-01.2		120	50.5	-33.1	N	21	47.1	+11.3		13													
14	29	31.1	+00.2	N	10	27.4	-00.9		8	18.9	-00.4	N	03	02.7	-01.3		135	17.4	-33.1	N	21	58.4	+11.1		14													
15	44	31.3	+00.2	N	10	26.5	-00.9		23	18.5	-00.3	N	03	01.4	-01.3		149	44.3	-33.2	N	22	09.5	+11.1		15													
16	59	31.5	+00.1	N	10	25.6	-00.8		38	18.2	-00.3	N	03	00.1	-01.3		164	11.1	-33.2	N	22	20.6	+10.8		16													
17	74	31.6	+00.2	N	10	24.8	-00.9		53	17.9	-00.3	N	02	58.8	-01.2		178	37.9	-33.3	N	22	31.4	+10.8		17													
18	89	31.8	+00.2	N	10	23.9	-00.9		68	17.6	-00.4	N	02	57.6	-01.3		193	04.6	-33.3	N	22	42.2	+10.6		18													
19	104	32.0	+00.2	N	10	23.0	-00.8		83	17.2	-00.3	N	02	56.3	-01.3		207	31.3	-33.4	N	22	52.8	+10.4		19													
20	119	32.2	+00.1	N	10	22.2	-00.9		98	16.9	-00.3	N	02	55.0	-01.3		221	57.9	-33.4	N	23	03.2	+10.3		20													
21	134	32.3	+00.2	N	10	21.3	-00.9		113	16.6	-00.3	N	02	53.7	-01.2		236	24.5	-33.5	N	23	13.5	+10.1		21													
22	149	32.5	+00.2	N	10	20.4	-00.9		128	16.3	-00.4	N	02	52.5	-01.3		250	51.0	-33.6	N	23	23.6	+10.1		22													
23	164	32.7	+00.2	N	10	19.5	-00.8		143	15.9	-00.3	N	02	51.2	-01.3		265	17.4	-33.6	N	23	33.7	+09.8		23													
UT	02	06	10	14	18	22		UT	02	06	10	14	18	22		UT	02	06	10	14	18	22																
SD	15°8	15°8	15°8	15°8	15°8	15°8		SD	00°1	00°1	00°1	00°1	00°1	00°1		SD	16°1	16°1	16°0	16°0	16°0	15°9																
HP	00°1	00°1	00°1	00°1	00°1	00°1		HP	00°1	00°1	00°1	00°1	00°1	00°1		HP	59°1	59°0	58°9	58°8	58°7	58°5																
SHA	206°	205°	205°	205°	205°	205°		SHA	185°	184°	184°	184°	184°	184°		SHA	318°	318°	313°	311°	309°	306°																
Greenwich Culmination Time: 12:01													Greenwich Culmination Time: 13:26													Greenwich Culmination Time: 04:38												

UT	Sun				Venus				Moon				UT																									
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec																										
00	179	32.9	+00.1	N	10	18.7	-00.9		158	15.6	-00.3	N	02	49.9	-01.3		279	43.8	-33.6	N	23	43.5	+09.7		00													
01	194	33.0	+00.2	N	10	17.8	-00.9		173	15.3	-00.3	N	02	48.6	-01.2		294	10.2	-33.7	N	23	53.2	+09.6		01													
02	209	33.2	+00.2	N	10	16.9	-00.8		188	15.0	-00.4	N	02	47.4	-01.3		308	36.5	-33.8	N	24	02.8	+09.4		02													
03	224	33.4	+00.2	N	10	16.1	-00.9		203	14.6	-00.3	N	02	46.1	-01.3		323	02.7	-33.8	N	24	12.2	+09.2		03													
04	239	33.6	+00.2	N	10	15.2	-00.9		218	14.3	-00.3	N	02	44.8	-01.3		337	28.9	-33.8	N	24	21.4	+09.1		04													
05	254	33.8	+00.1	N	10	14.3	-00.9		233	14.0	-00.3	N	02	43.5	-01.2		351	55.1	-33.9	N	24	30.5	+09.0		05													
06	269	33.9	+00.2	N	10	13.4	-00.8		248	13.7	-00.4	N	02	42.3	-01.3		6	21.2	-34.0	N	24	39.5	+08.7		06													
07	284	34.1	+00.2	N	10	12.6	-00.9		263	13.3	-00.3	N	02	41.0	-01.3		20	47.2	-33.9	N	24	48.2	+08.7		07													
08	299	34.3	+00.2	N	10	11.7	-00.9		278	13.0	-00.3	N	02	39.7	-01.3		35	13.3	-34.1	N	24	56.9	+08.4		08													
09	314	34.5	+00.2	N	10	10.8	-00.9		293	12.7	-00.3	N	02	38.4	-01.2		49	39.2	-34.1	N	25	05.3	+08.4		09													
10	329	34.7	+00.1	N	10	9.9	-00.8		308	12.4	-00.4	N	02	37.2	-01.3		64	05.1	-34.1	N	25	13.7	+08.1		10													
11	344	34.8	+00.2	N	10	9.1	-00.9		323	12.0	-00.3	N	02	35.9	-01.3		78	31.0	-34.2	N	25	21.8	+08.0		11													
12	359	35.0	+00.2	N	10	8.2	-00.9		338	11.7	-00.3	N	02	34.6	-01.2		92	56.8	-34.2	N	25	29.8	+07.8		12													
13	14	35.2	+00.2	N	10	7.3	-00.9		353	11.4	-00.3	N	02	33.3	-01.3		107	22.6	-34.2	N	25	37.6	+07.7		13													
14	29	35.4	+00.2	N	10	6.4	-00.8		8	11.1	-00.4	N	02	32.1	-01.3		121	48.4	-34.3	N	25	45.3	+07.5		14													
15	44	35.6	+00.1	N	10	5.6	-00.9		23	10.7	-00.3	N	02	30.8	-01.3		136	14.1	-34.3	N	25	52.8	+07.4		15													
16	59	35.7	+00.2	N	10	4.7	-00.9		38	10.4	-00.3	N	02	29.5	-01.3		150	39.8	-34.4	N	26	00.2	+07.2		16													
17	74	35.9	+00.2	N	10	3.8	-00.9		53	10.1	-00.3	N	02	28.2	-01.3		165	05.4	-34.4	N	26	07.4	+07.0		17													
18	89	36.1	+00.2	N	10	2.9	-00.8		68	09.8	-00.3	N	02	26.9	-01.2		179	31.0	-34.4	N	26	14.4	+06.9		18													
19	104	36.3	+00.2	N	10	2.1	-00.9		83	09.5	-00.4	N	02	25.7	-01.3		193	56.6	-34.5	N	26	21.3	+06.6		19													
20	119	36.5	+00.1	N	10	1.2	-00.9		98	09.1	-00.3	N	02	24.4	-01.3		208	22.1	-34.5	N	26	27.9	+06.6		20													
21	134	36.6	+00.2	N	10	0.3	-00.9		113	08.8	-00.3	N	02	23.1	-01.3		222	47.6	-34.5	N	26	34.5	+06.3		21													
22	149	36.8	+00.2	N	09	59.4	-00.8		128	08.5	-00.3	N	02	21.8	-01.2		237	13.1	-34.6	N	26	40.8	+06.2		22													
23	164	37.0	+00.2	N	09	58.6	-00.9		143	08.2	-00.4	N	02	20.6	-01.3		251	38.5	-34.6	N	26	47.0	+06.1		23													
UT	02	06	10	14	18	22		UT	02	06	10	14	18	22		UT	02	06	10	14	18	22																
SD	15°8	15°8	15°8	15°8	15°8	15°8		SD	15°8	15°8	15°8	15°8	15°8	15°8		SD	15°9	15°9	15°8	15°8	15°8	15°7																
HP	00°1	00°1	00°1	00°1	00°1	00°1		HP	00°1	00°1	00°1	00°1	00°1	00°1		HP	58°4	58°3	58°2	58°0	57°9	57°8																
SHA	205°	205°	204°	204°	204°	204°		SHA	183°	183°	183°	183°	183°	183°		SHA	304°	301°	299°	296°	294°	292°																
Greenwich Culmination Time: 12:01													Greenwich Culmination Time: 13:27													Greenwich Culmination Time: 05:33												

UT	Mars				Jupiter				Saturn				UT												
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec													
00	251	01.3	+00.7	N	23	03.1	+00.2		256	33.4	+02.1	N	22	13.0	+00.0		344	46.2	+02.6	S	07	05.7	+00.1		00
01	266	02.0	+00.8	N	23	03.3	+00.1		271	35.5	+02.1	N	22	13.0	+00.0		359	48.8	+02.7	S	07	05.8	+00.0		01
02	281	02.8	+00.8	N	23	03.4	+00.1		286	37.6</															

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:00.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:01.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 07:08.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 07:11.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 85%).

Summary table for Sun, Venus, and Moon with columns for UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, and SHA coordinates.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 89%).

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 89%).

Summary table for Sun, Venus, and Moon with columns for UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, and SHA coordinates.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 89%).

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°9 15°9 15°9 15°9 15°9 15°9
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 197° 196° 196° 196° 196° 196°
Greenwich Culmination Time: 11:58

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°8 15°8 15°8 15°8 15°9 15°9
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 199° 199° 199° 199° 199° 199°
Greenwich Culmination Time: 11:59

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 270° 270° 270° 270° 270° 270°
Greenwich Culmination Time: 07:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 272° 272° 272° 272° 272° 272°
Greenwich Culmination Time: 07:06

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for September 8, 2024, such as GHA, ddGHA, Dec, and dDec for various celestial bodies.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for September 5, 2024, such as GHA, ddGHA, Dec, and dDec for various celestial bodies.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for September 8, 2024, such as GHA, ddGHA, Dec, and dDec for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for September 5, 2024, such as GHA, ddGHA, Dec, and dDec for Mars, Jupiter, and Saturn.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 195° 195° 194° 194° 194° 194°
Greenwich Culmination Time: 11:58

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 269° 269° 269° 269° 269° 269°
Greenwich Culmination Time: 07:00

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 194° 194° 194° 193° 193° 193°
Greenwich Culmination Time: 11:57

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 281° 281° 281° 281° 281° 281°
Greenwich Culmination Time: 06:59

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

Summary table for Sun, Venus, and Moon with columns for UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

Summary table for Mars, Jupiter, and Saturn with columns for UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

Summary table for Sun, Venus, and Moon with columns for UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

Summary table for Mars, Jupiter, and Saturn with columns for UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, and SHA coordinates and Greenwich Culmination Time.

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> A: 21%				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	180	45.3	+00.2	N 04 49.7	-01.0	156	21.6	-00.4	S 04 52.4	+01.3	109	07.3	-30.4	S 25 09.0	+07.5	00							
01	195	45.5	+00.2	N 04 48.7	-00.9	171	21.2	-00.3	S 04 53.7	+01.3	123	36.9	-30.5	S 25 16.5	+07.4	01							
02	210	45.7	+00.2	N 04 47.8	-01.0	186	20.9	-00.3	S 04 55.0	+01.2	138	06.4	-30.6	S 25 23.9	+07.3	02							
03	225	45.9	+00.3	N 04 46.8	-00.9	201	20.6	-00.3	S 04 56.2	+01.3	152	35.8	-30.8	S 25 31.7	+07.1	03							
04	240	46.2	+00.2	N 04 45.9	-01.0	216	20.3	-00.4	S 04 57.5	+01.3	167	05.0	-30.8	S 25 38.3	+07.1	04							
05	255	46.4	+00.2	N 04 44.9	-00.9	231	19.9	-00.3	S 04 58.8	+01.3	181	34.2	-30.9	S 25 45.4	+06.9	05							
06	270	46.6	+00.2	N 04 44.0	-01.0	246	19.6	-00.3	S 05 00.1	+01.2	196	03.3	-31.0	S 25 52.3	+06.8	06							
07	285	46.8	+00.2	N 04 43.0	-00.9	261	19.3	-00.3	S 05 01.3	+01.3	210	32.3	-31.0	S 25 59.1	+06.6	07							
08	300	47.0	+00.3	N 04 42.1	-01.0	276	19.0	-00.4	S 05 02.6	+01.3	225	01.3	-31.2	S 26 05.7	+06.6	08							
09	315	47.3	+00.2	N 04 41.1	-00.9	291	18.6	-00.3	S 05 03.9	+01.3	239	30.1	-31.3	S 26 12.3	+06.4	09							
10	330	47.5	+00.2	N 04 40.2	-01.0	306	18.3	-00.3	S 05 05.2	+01.2	253	58.8	-31.4	S 26 18.7	+06.3	10							
11	345	47.7	+00.2	N 04 39.2	-00.9	321	18.0	-00.3	S 05 06.4	+01.3	268	27.4	-31.4	S 26 25.0	+06.2	11							
12	0	47.9	+00.2	N 04 38.3	-01.0	336	17.7	-00.4	S 05 07.7	+01.3	282	56.0	-31.6	S 26 31.2	+06.0	12							
13	15	48.1	+00.3	N 04 37.3	-00.9	351	17.3	-00.3	S 05 09.0	+01.2	297	24.4	-31.7	S 26 37.2	+05.9	13							
14	30	48.4	+00.2	N 04 36.4	-01.0	6	17.0	-00.3	S 05 10.2	+01.3	311	52.7	-31.7	S 26 43.1	+05.8	14							
15	45	48.6	+00.2	N 04 35.4	-00.9	21	16.7	-00.3	S 05 11.5	+01.3	326	21.0	-31.8	S 26 48.9	+05.6	15							
16	60	48.8	+00.2	N 04 34.5	-01.0	36	16.4	-00.4	S 05 12.8	+01.3	340	49.2	-32.0	S 26 54.5	+05.6	16							
17	75	49.0	+00.2	N 04 33.5	-00.9	51	16.0	-00.3	S 05 14.1	+01.2	355	17.2	-32.0	S 27 00.1	+05.3	17							
18	90	49.2	+00.3	N 04 32.6	-01.0	66	15.7	-00.3	S 05 15.3	+01.3	9	45.2	-32.1	S 27 05.4	+05.3	18							
19	105	49.5	+00.2	N 04 31.6	-00.9	81	15.4	-00.4	S 05 16.6	+01.3	24	13.1	-32.2	S 27 10.7	+05.1	19							
20	120	49.7	+00.2	N 04 30.7	-01.0	96	15.0	-00.3	S 05 17.9	+01.3	38	40.9	-32.3	S 27 15.8	+05.0	20							
21	135	49.9	+00.2	N 04 29.7	-00.9	111	14.7	-00.3	S 05 19.2	+01.2	53	08.6	-32.4	S 27 20.8	+04.8	21							
22	150	50.1	+00.2	N 04 28.8	-01.0	126	14.4	-00.3	S 05 20.4	+01.3	67	36.2	-32.4	S 27 25.6	+04.7	22							
23	165	50.3	+00.3	N 04 27.8	-00.9	141	14.1	-00.4	S 05 21.7	+01.3	82	03.8	-32.6	S 27 30.3	+04.6	23							
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22			
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°0'	15°1'	15°1'	15°1'	15°2'	15°2'			
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	55°2'	55°3'	55°4'	55°6'	55°7'	55°8'			
SHA	191°	191°	191°	191°	191°	190°	SHA	167°	167°	166°	166°	166°	166°	SHA	119°	117°	114°	112°	109°	107°			
Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 13:34				Greenwich Culmination Time: 17:19				Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 13:35				Greenwich Culmination Time: 18:14			

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> A: 25%				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	180	50.6	+00.2	N 04 26.9	-01.0	156	13.7	-00.3	S 05 23.0	+01.2	96	31.2	-32.6	S 27 34.9	+04.4	00							
01	195	50.8	+00.2	N 04 25.9	-00.9	171	13.4	-00.3	S 05 24.2	+01.3	110	58.6	-32.8	S 27 39.3	+04.2	01							
02	210	51.0	+00.2	N 04 25.0	-01.0	186	13.1	-00.4	S 05 25.5	+01.3	125	25.8	-32.8	S 27 43.5	+04.2	02							
03	225	51.2	+00.2	N 04 24.0	-00.9	201	12.7	-00.3	S 05 26.8	+01.2	139	53.0	-32.9	S 27 47.7	+03.9	03							
04	240	51.4	+00.3	N 04 23.1	-01.0	216	12.4	-00.3	S 05 28.0	+01.3	154	20.1	-32.9	S 27 51.6	+03.9	04							
05	255	51.7	+00.2	N 04 22.1	-00.9	231	12.1	-00.3	S 05 29.3	+01.3	168	47.2	-33.1	S 27 55.5	+03.7	05							
06	270	51.9	+00.2	N 04 21.2	-01.0	246	11.8	-00.4	S 05 30.6	+01.3	183	14.1	-33.1	S 27 59.2	+03.5	06							
07	285	52.1	+00.2	N 04 20.2	-00.9	261	11.4	-00.3	S 05 31.9	+01.2	197	41.0	-33.3	S 28 02.7	+03.4	07							
08	300	52.3	+00.2	N 04 19.3	-01.0	276	11.1	-00.3	S 05 33.1	+01.3	212	07.7	-33.3	S 28 06.1	+03.2	08							
09	315	52.5	+00.3	N 04 18.3	-01.0	291	10.8	-00.4	S 05 34.4	+01.3	226	34.4	-33.3	S 28 09.3	+03.1	09							
10	330	52.8	+00.2	N 04 17.3	-00.9	306	10.4	-00.3	S 05 35.7	+01.2	241	01.1	-33.5	S 28 12.4	+02.9	10							
11	345	53.0	+00.2	N 04 16.4	-01.0	321	10.1	-00.3	S 05 36.9	+01.3	255	27.6	-33.5	S 28 15.3	+02.8	11							
12	0	53.2	+00.2	N 04 15.4	-00.9	336	09.8	-00.3	S 05 38.2	+01.3	269	54.1	-33.6	S 28 18.1	+02.7	12							
13	15	53.4	+00.3	N 04 14.5	-01.0	351	09.5	-00.4	S 05 39.5	+01.2	284	20.5	-33.7	S 28 20.8	+02.4	13							
14	30	53.7	+00.2	N 04 13.5	-00.9	6	09.1	-00.3	S 05 40.7	+01.3	298	46.8	-33.7	S 28 23.2	+02.3	14							
15	45	53.9	+00.2	N 04 12.6	-01.0	21	08.8	-00.3	S 05 42.0	+01.3	313	13.1	-33.8	S 28 25.5	+02.2	15							
16	60	54.1	+00.2	N 04 11.6	-00.9	36	08.5	-00.4	S 05 43.3	+01.2	327	39.3	-33.9	S 28 27.7	+02.0	16							
17	75	54.3	+00.2	N 04 10.7	-01.0	51	08.1	-00.3	S 05 44.5	+01.3	342	05.4	-34.0	S 28 29.7	+01.8	17							
18	90	54.5	+00.3	N 04 09.7	-00.9	66	07.8	-00.3	S 05 45.8	+01.3	356	31.4	-34.0	S 28 31.5	+01.7	18							
19	105	54.8	+00.2	N 04 08.8	-01.0	81	07.5	-00.4	S 05 47.1	+01.3	10	57.4	-34.1	S 28 33.2	+01.5	19							
20	120	55.0	+00.2	N 04 07.8	-00.9	96	07.1	-00.3	S 05 48.4	+01.2	25	23.3	-34.1	S 28 34.7	+01.4	20							
21	135	55.2	+00.2	N 04 06.9	-01.0	111	06.8	-00.3	S 05 49.6	+01.3	39	49.2	-34.2	S 28 36.1	+01.2	21							
22	150	55.4	+00.2	N 04 05.9	-00.9	126	06.5	-00.4	S 05 50.9	+01.3	54	15.0	-34.3	S 28 37.3	+01.0	22							
23	165	55.6	+00.3	N 04 05.0	-01.0	141	06.1	-00.3	S 05 52.2	+01.2	68	40.7	-34.3	S 28 38.3	+00.9	23							
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22			
SD	15°9'	15°9'	15°9'	15°9'	15°9'	15°9'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	SD	15°2'	15°3'	15°3'	15°3'	15°4'	15°4'			
HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	HP	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'			
SHA	190°	190°	190°	190°	190°	190°	SHA	166°	165°	165°	165°	165°	165°	SHA	105°	102°	100°	098°	095°	093°			
Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 13:35				Greenwich Culmination Time: 18:14				Greenwich Culmination Time: 11:56				Greenwich Culmination Time: 13:34				Greenwich Culmination Time: 18:14			

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	256	08.8	+00.8	N 23 28.7	+00.0	270	23.5	+02.2	N 22 21.4	+00.0	1	39.1	+02.6	S 07 35.1	+00.1	00
01	271	09.6	+00.9	N 23 28.7	+00.0	285	25.7	+02.2	N 22 21.4	+00.0	16	41.7	+02.7	S 07 35.2	+00.1	01
02	286	10.5	+00.8	N 23 28.7	+00.0	300	27.9	+02.2	N 22 21.4	+00.0	31	44.4	+02.6	S 07 35.3	+00.1	02
03	301	11.3	+00.9	N 23 28.7	+00.0	315	30.1	+02.2	N 22 21.4	+00.0	46	47.0	+02.7	S 07 35.4	+00.0	03
04	316	12.2	+00.8	N 23 28.7	+00.0	330	32.3	+02.2	N 22 21.4	+00.0	61	49.7	+02.6	S 07 35.4	+00.1	04
05	331	13.0	+00.9	N 23 28.7	+00.1	345	34.5	+02.3	N 22 21.4	+00.1	76	52.3	+02.6	S 07 35.5	+00.1	05
06	346	13.9	+00.8	N 23 28.8	+00.0	0	36.8	+02.2	N 22 21.5	+00.0	91	54.9	+02.7	S 07 35.6	+00.1	06
07	1	14.7	+00.9	N 23 28.8	+00.0	15	39.0	+02.2	N 22 21.5	+00.0	106	57.6	+02.6	S 07 35.7	+00.1	07
08	16	15.6	+00.8	N 23 28.8	+00.0	30	41.2	+02.2	N 22 21.5	+00.0	122	00.2	+02.7	S 07 35.8	+00.0	08
09	31	16.4	+00.9	N 23 28.8	+00.0	45	43.4	+02.2	N 22 21.5	+00.0	137	02.9	+02.6	S 07 35.8	+00.1	09
10	46	17.3	+00.9	N 23 28.8	+00.0	60	45.6	+02.3	N 22 21.5	+00.0	152	05.5	+02.7	S 07 35.9	+00.1	10
11	61	18.2	+00.8	N 23 28.8	+00.0	75	47.9	+02.2	N 22 21.5	+00.1	167	08.2	+02.6	S 07 36.0	+00.1	11
12	76	19.0	+00.9	N												

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing astronomical data like SD, HP, and SHA.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for each planet.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing astronomical data like SD, HP, and SHA.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for each planet.

Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a 24-hour time grid. Data rows show celestial coordinates and Greenwich Culmination Times for Sun, Venus, and Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a 24-hour time grid. Data rows show celestial coordinates and Greenwich Culmination Times for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a 24-hour time grid. Data rows show celestial coordinates and Greenwich Culmination Times for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a 24-hour time grid. Data rows show celestial coordinates and Greenwich Culmination Times for Mars, Jupiter, and Saturn.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 182° 182° 182° 182° 182° 181°
Greenwich Culmination Time: 11:53

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 260° 260° 260° 260° 260° 260°
Greenwich Culmination Time: 06:40

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 185° 185° 185° 184° 184° 184°
Greenwich Culmination Time: 11:54

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec values for each hour of the day.

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 262° 262° 262° 262° 262° 262°
Greenwich Culmination Time: 06:45

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	28.1	+00.2	N 01 45.5	-00.9	155	15.9	-00.3	S 08 53.3	+01.2	2	24.6	-31.0	S 03 25.3	-18.2	00
01	196	28.3	+00.2	N 01 44.6	-01.0	170	15.6	-00.4	S 08 54.5	+01.3	16	53.6	-31.1	S 03 07.1	-18.2	01
02	211	28.5	+00.2	N 01 43.6	-01.0	185	15.2	-00.4	S 08 55.8	+01.2	31	22.5	-31.0	S 02 48.9	-18.2	02
03	226	28.7	+00.3	N 01 42.6	-01.0	200	14.8	-00.3	S 08 57.0	+01.2	45	51.5	-31.1	S 02 30.7	-18.3	03
04	241	29.0	+00.2	N 01 41.7	-01.0	215	14.5	-00.4	S 08 58.2	+01.2	60	20.4	-31.0	S 02 12.4	-18.3	04
05	256	29.2	+00.2	N 01 40.7	-01.0	230	14.1	-00.4	S 08 59.4	+01.3	74	49.4	-31.0	S 01 54.1	-18.2	05
06	271	29.4	+00.2	N 01 39.7	-00.9	245	13.7	-00.3	S 09 00.7	+01.2	89	18.4	-31.0	S 01 35.9	-18.3	06
07	286	29.6	+00.3	N 01 38.8	-01.0	260	13.4	-00.4	S 09 01.9	+01.2	103	47.4	-31.1	S 01 17.6	-18.3	07
08	301	29.9	+00.2	N 01 37.8	-01.0	275	13.0	-00.4	S 09 03.1	+01.2	118	16.3	-31.0	S 00 59.3	-18.4	08
09	316	30.1	+00.2	N 01 36.8	-01.0	290	12.6	-00.3	S 09 04.3	+01.3	132	45.3	-31.0	S 00 40.9	-18.3	09
10	331	30.3	+00.2	N 01 35.9	-01.0	305	12.3	-00.4	S 09 05.6	+01.2	147	14.3	-31.0	S 00 22.6	-18.3	10
11	346	30.5	+00.2	N 01 34.9	-01.0	320	11.9	-00.4	S 09 06.8	+01.2	161	43.3	-31.0	S 00 04.3	-18.3	11
12	1	30.7	+00.3	N 01 33.9	-01.0	335	11.5	-00.3	S 09 08.0	+01.2	176	12.3	-31.0	N 00 14.0	+18.3	12
13	16	31.0	+00.2	N 01 32.9	-00.9	350	11.2	-00.4	S 09 09.2	+01.3	190	41.3	-31.0	N 00 32.3	+18.4	13
14	31	31.2	+00.2	N 01 32.0	-01.0	5	10.8	-00.4	S 09 10.5	+01.2	205	10.3	-31.0	N 00 50.7	+18.3	14
15	46	31.4	+00.2	N 01 31.0	-01.0	20	10.4	+00.3	S 09 11.7	+01.2	219	39.3	-31.0	N 01 09.0	+18.3	15
16	61	31.6	+00.3	N 01 30.0	-00.9	35	10.1	-00.4	S 09 12.9	+01.2	234	08.3	-31.1	N 01 27.3	+18.3	16
17	76	31.9	+00.2	N 01 29.1	-01.0	50	09.7	-00.4	S 09 14.1	+01.3	248	37.2	-31.0	N 01 45.6	+18.3	17
18	91	32.1	+00.2	N 01 28.1	-01.0	65	09.3	-00.3	S 09 15.4	+01.2	263	06.2	-31.1	N 02 03.9	+18.2	18
19	106	32.3	+00.2	N 01 27.1	-00.9	80	09.0	-00.4	S 09 16.6	+01.2	277	35.1	-31.0	N 02 22.1	+18.3	19
20	121	32.5	+00.3	N 01 26.2	-01.0	95	08.6	-00.4	S 09 17.8	+01.2	292	04.1	-31.1	N 02 40.4	+18.2	20
21	136	32.8	+00.2	N 01 25.2	-01.0	110	08.2	-00.3	S 09 19.0	+01.3	306	33.0	-31.1	N 02 58.6	+18.2	21
22	151	33.0	+00.2	N 01 24.2	-00.9	125	07.9	-00.4	S 09 20.3	+01.2	321	01.9	-31.1	N 03 16.8	+18.2	22
23	166	33.2	+00.2	N 01 23.3	-01.0	140	07.5	-00.4	S 09 21.5	+01.2	335	30.8	-31.1	N 03 35.0	+18.2	23

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 184° 184° 184° 184° 183° 183°
Greenwich Culmination Time: 11:53

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 158° 158° 157° 157° 157° 157°
Greenwich Culmination Time: 13:39

UT 02 06 10 14 18 22
SD 16°7' 16°7' 16°7' 16°7' 16°7' 16°7'
HP 61°3' 61°3' 61°3' 61°3' 61°3' 61°3'
SHA 004° 002° 359° 357° 355° 353°
Greenwich Culmination Time: -1:00

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	258	58.3	+00.9	N 23 27.0	+00.0	277	35.1	+02.3	N 22 23.9	+00.0	10	05.9	+02.7	S 07 49.5	+00.1	00
01	273	59.2	+00.9	N 23 27.0	+00.0	292	37.4	+02.3	N 22 23.9	+00.0	25	08.6	+02.6	S 07 49.6	+00.0	01
02	289	00.1	+00.9	N 23 27.0	+00.0	307	39.7	+02.3	N 22 23.9	+00.1	40	11.2	+02.6	S 07 49.6	+00.1	02
03	304	01.0	+00.9	N 23 27.0	+00.0	322	42.0	+02.3	N 22 24.0	+00.0	55	13.8	+02.7	S 07 49.7	+00.1	03
04	319	01.9	+00.9	N 23 26.9	+00.0	337	44.3	+02.2	N 22 24.0	+00.0	70	16.5	+02.6	S 07 49.8	+00.1	04
05	334	02.8	+00.9	N 23 26.9	+00.0	352	46.5	+02.3	N 22 24.0	+00.0	85	19.1	+02.7	S 07 49.9	+00.0	05
06	349	03.7	+01.0	N 23 26.9	+00.1	7	48.8	+02.3	N 22 24.0	+00.0	100	21.8	+02.6	S 07 49.9	+00.1	06
07	4	04.7	+00.9	N 23 26.8	+00.0	22	51.1	+02.3	N 22 24.0	+00.0	115	24.4	+02.6	S 07 50.0	+00.1	07
08	19	05.6	+00.9	N 23 26.8	+00.0	37	53.4	+02.3	N 22 24.0	+00.0	130	27.0	+02.7	S 07 50.1	+00.0	08
09	34	06.5	+00.9	N 23 26.8	+00.1	52	55.7	+02.3	N 22 24.0	+00.0	145	29.7	+02.6	S 07 50.1	+00.1	09
10	49	07.4	+00.9	N 23 26.7	+00.0	67	58.0	+02.2	N 22 24.0	+00.0	160	32.3	+02.6	S 07 50.2	+00.1	10
11	64	08.3	+01.0	N 23 26.7	+00.0	83	00.2	+02.3	N 22 24.0	+00.1	175	34.9	+02.7	S 07 50.3	+00.1	11
12	79	09.3	+00.9	N 23 26.7	+00.1	98	02.5	+02.3	N 22 24.1	+00.0	190	37.6	+02.6	S 07 50.4	+00.0	12
13	94	10.2	+00.9	N 23 26.6	+00.0	113	04.8	+02.3	N 22 24.1	+00.0	205	40.2	+02.7	S 07 50.4	+00.1	13
14	109	11.1	+00.9	N 23 26.6	+00.0	128	07.1	+02.3	N 22 24.1	+00.0	220	42.9	+02.6	S 07 50.5	+00.1	14
15	124	12.0	+00.9	N 23 26.6	+00.1	143	09.4	+02.3	N 22 24.1	+00.0	235	45.5	+02.6	S 07 50.6	+00.1	15
16	139	12.9	+01.0	N 23 26.5	+00.0	158	11.7	+02.2	N 22 24.1	+00.0	250	48.1	+02.7	S 07 50.7	+00.0	16
17	154	13.9	+00.9	N 23 26.5	+00.0	173	13.9	+02.3	N 22 24.1	+00.0	265	50.8	+02.6	S 07 50.7	+00.1	17
18	169	14.8	+00.9	N 23 26.5	+00.1	188	16.2	+02.3	N 22 24.1	+00.0	280	53.4	+02.6	S 07 50.8	+00.1	18
19	184	15.7	+00.9	N 23 26.4	+00.0	203	18.5	+02.3	N 22 24.1	+00.0	295	56.0	+02.7	S 07 50.9	+00.0	19
20	199	16.6	+00.9	N 23 26.4	+00.0	218	20.8	+02.3	N 22 24.1	+00.0	310	58.7	+02.6	S 07 50.9	+00.1	20
21	214	17.5	+01.0	N 23 26.4	+00.1	233	23.1	+02.3	N 22 24.1	+00.0	326	01.3	+02.7	S 07 51.0	+00.1	21
22	229	18.5	+00.9	N 23 26.3	+00.0	248	25.4	+02.3	N 22 24.2	+00.0	341	04.0	+02.6	S 07 51.1	+00.1	22
23	244	19.4	+00.9	N 23 26.3	+00.0	263	27.7	+02.3	N 22 24.2	+00.0	356	06.6	+02.6	S 07 51.2	+00.0	23

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 262° 261° 261° 261° 261° 261°
Greenwich Culmination Time: 06:43

UT 02 06 10 14 18 22
SD 00°2' 00°3' 00°3' 00°3' 00°3' 00°3'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 280° 280° 280° 280° 280° 280°
Greenwich Culmination Time: 05:28

UT 02 06 10 14 18 22
SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 013° 013° 013° 013° 013° 013°
Greenwich Culmination Time: 23:15

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	33.4	+00.3	N 01 22.3	-01.0	155	07.1	-00.3	S 09 22.7	+01.2	349	59.7	-31.1	N 03 53.2	+18.2	00
01	196	33.7	+00.2	N 01 21.3	-00.9	170	06.8	-00.4	S 09 23.9	+01.2	4	28.6	-31.1	N 04 11.4	+18.1	01
02	211	33.9	+00.2	N 01 20.4	-01.0	185	06.4	-00.4	S 09 25.1	+01.3	18	57.5	-31.2	N 04 29.5	+18.1	02
03	226	34.1	+00.2	N 01 19.4	-01.0	200	06.0	-00.4	S 09 26.4	+01.2	33	26.3	-31.2	N 04 47.6	+18.0	03
04	241	34.3	+00.3	N 01 18.4	-01.0	215	05.6	-00.3	S 09 27.6	+01.2	47	55.1	-31.2	N 05 05.6	+18.0	04
05	256	34.6	+00.2	N 01 17.4	-00.9	230	05.3	-00.4	S 09 28.8	+01.2	62	23.9	-31.2	N 05 23.6	+18.0	05
06	271	34.8	+00.2	N 01 16.5	-01.0	245	04.9	-00.4	S 09 30.0	+01.2	76	52.7	-31.3	N 05 41.6	+18.0	06
07	286	35.0	+00.2	N 01 15.5	-01.0	260	04.5	-00.3	S 09 31.2	+01.2	91	21.4	-31.2	N 05 59.6	+17.9	07
08	301	35.2	+00.3	N 01 14.5	-00.9	275	04.2	-00.4	S 09 32.4	+01.3	105	50.2	-31.3	N 06 17.5	+17.8	08
09	316	35.5	+00.2	N 01 13.6	-01.0	290	03.8	-00.4	S 09 33.7	+01.2	120	18.9	-31.4	N 06 35.3	+17.8	09
10	331	35.7	+00.2	N 01 12.6	-01.0	305	03.4	-00.4	S 09 34.9	+01.2	134	47.5	-31.3	N 06 53.1	+17.8	10
11	346	35.9	+00.2	N 01 11.6	-00.9	320	03.0	-00.3	S 09 36.1	+01.2	149	16.2	-31.4	N 07 10.9	+17.7	11
12	1	36.1	+00.2	N 01 10.7	-01.0	335	02.7	-00.4	S 09 37.3	+01.2	163	44.8	-31.4	N 07 28.6	+17.7	12
13	16	36.3	+00.3	N 01 09.7	-01.0	350	02.3	-00.4	S 09 38.5	+01.2	178	13.4	-31.5	N 07 46.3	+17.6	13
14	31	36.6	+00.2	N 01 08.7	-01.0	5	01.9	-00.4	S 09 39.7	+01.3	192	41.9	-31.4	N 08 03.9	+17.6	14
15	46	36.8	+00.2	N 01 07.7	-00.9	20	01.5	-00.3	S 09 41.0	+01.2	207	10.5	-31.5	N 08 21.5	+17.5	15
16	61	37.0	+00.2	N 01 06.8	-01.0	35	01.2	-00.4	S 09 42.2	+01.2	221	39.0	-31.6	N 08 39.0	+17.4	16
17	76	37.2	+00.3	N 01 05.8	-01.0	50	00.8	-00.4	S 09 43.4	+01.2	236	07.4	-31.6	N 08 56.4	+17.4	17

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Data rows are numbered 00 to 23.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 179° 178° 178° 178° 178° 178°
Greenwich Culmination Time: 11:51

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Data rows are numbered 00 to 23.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 181° 181° 181° 181° 181° 181°
Greenwich Culmination Time: 11:52

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Data rows are numbered 00 to 23.

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 258° 258° 258° 258° 257° 257°
Greenwich Culmination Time: 06:34

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Data rows are numbered 00 to 23.

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 260° 260° 259° 259° 259° 259°
Greenwich Culmination Time: 06:39

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	49.5	+00.2	N 00 12.4	-01.0	154	39.7	-00.4	S 10 49.6	+01.2	310	57.8	-34.5	N 22 29.3	+11.2	00
01	196	49.7	+00.2	N 00 11.4	-01.0	169	39.3	-00.4	S 10 50.8	+01.2	325	23.3	-34.5	N 22 40.5	+11.1	01
02	211	49.9	+00.2	N 00 10.4	-00.9	184	38.9	-00.4	S 10 52.0	+01.2	339	48.8	-34.6	N 22 51.6	+10.9	02
03	226	50.1	+00.2	N 00 09.5	-01.0	199	38.5	-00.4	S 10 53.2	+01.2	354	14.2	-34.6	N 23 02.5	+10.7	03
04	241	50.3	+00.3	N 00 08.5	-01.0	214	38.1	-00.4	S 10 54.4	+01.2	8	39.6	-34.7	N 23 13.2	+10.6	04
05	256	50.6	+00.2	N 00 07.5	-00.9	229	37.7	-00.4	S 10 55.6	+01.2	23	04.9	-34.7	N 23 23.8	+10.4	05
06	271	50.8	+00.2	N 00 06.6	-01.0	244	37.3	-00.4	S 10 56.8	+01.2	37	30.2	-34.8	N 23 34.2	+10.3	06
07	286	51.0	+00.2	N 00 05.6	-01.0	259	36.9	-00.4	S 10 58.0	+01.2	51	55.4	-34.8	N 23 44.5	+10.1	07
08	301	51.2	+00.3	N 00 04.6	-01.0	274	36.5	-00.4	S 10 59.2	+01.2	66	20.6	-34.8	N 23 54.6	+09.9	08
09	316	51.5	+00.2	N 00 03.6	-00.9	289	36.1	-00.3	S 11 00.4	+01.2	80	45.8	-35.0	N 24 04.5	+09.8	09
10	331	51.7	+00.2	N 00 02.7	-01.0	304	35.8	-00.4	S 11 01.6	+01.1	95	10.8	-34.9	N 24 14.3	+09.6	10
11	346	51.9	+00.2	N 00 01.7	-01.0	319	35.4	-00.4	S 11 02.7	+01.2	109	35.9	-35.0	N 24 23.9	+09.4	11
12	1	52.1	+00.2	N 00 00.7	-01.0	334	35.0	-00.4	S 11 03.9	+01.2	124	00.9	-35.1	N 24 33.3	+09.3	12
13	16	52.3	+00.3	S 00 00.3	+00.9	349	34.6	-00.4	S 11 05.1	+01.2	138	25.8	-35.1	N 24 42.6	+09.1	13
14	31	52.6	+00.2	S 00 01.2	+01.0	4	34.2	-00.4	S 11 06.3	+01.2	152	50.7	-35.1	N 24 51.7	+09.0	14
15	46	52.8	+00.2	S 00 02.2	+01.0	19	33.8	-00.4	S 11 07.5	+01.2	167	15.6	-35.2	N 25 00.7	+08.7	15
16	61	53.0	+00.2	S 00 03.2	+00.9	34	33.4	-00.4	S 11 08.7	+01.2	181	40.4	-35.2	N 25 09.4	+08.6	16
17	76	53.2	+00.2	S 00 04.1	+01.0	49	33.0	-00.4	S 11 09.9	+01.2	196	05.2	-35.2	N 25 18.0	+08.5	17
18	91	53.4	+00.3	S 00 05.1	+01.0	64	32.6	-00.4	S 11 11.1	+01.1	210	30.0	-35.3	N 25 26.5	+08.2	18
19	106	53.7	+00.2	S 00 06.1	+01.0	79	32.2	-00.4	S 11 12.2	+01.2	224	54.7	-35.3	N 25 34.7	+08.1	19
20	121	53.9	+00.2	S 00 07.1	+00.9	94	31.8	-00.4	S 11 13.4	+01.2	239	19.4	-35.4	N 25 42.8	+07.9	20
21	136	54.1	+00.2	S 00 08.0	+01.0	109	31.4	-00.4	S 11 14.6	+01.2	253	44.0	-35.4	N 25 50.7	+07.8	21
22	151	54.3	+00.2	S 00 09.0	+01.0	124	31.0	-00.4	S 11 15.8	+01.2	268	08.6	-35.4	N 25 58.5	+07.5	22
23	166	54.5	+00.3	S 00 10.0	+01.0	139	30.6	-00.4	S 11 17.0	+01.2	282	33.2	-35.5	N 26 06.0	+07.4	23

UT	02	06	10	14	18	22
SD	15°9	15°9	15°9	15°9	15°9	15°9
HP	00°1	00°1	00°1	00°1	00°1	00°1
SHA	180°	180°	180°	180°	180°	180°
Greenwich Culmination Time: 11:52						
SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°1	00°1	00°1	00°1	00°1	00°1
SHA	153°	153°	153°	153°	152°	152°
Greenwich Culmination Time: 13:41						
SD	16°2	16°2	16°2	16°1	16°1	16°0
HP	59°6	59°4	59°3	59°1	59°0	58°8
SHA	308°	306°	303°	301°	298°	296°
Greenwich Culmination Time: 03:23						

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	260	27.7	+01.0	N 23 23.2	-00.1	281	15.5	+02.4	N 22 24.8	+00.1	14	19.0	+02.6	S 07 56.4	+00.0	00
01	275	28.7	+00.9	N 23 23.1	+00.0	296	17.9	+02.3	N 22 24.9	+00.0	29	21.6	+02.6	S 07 56.4	+00.1	01
02	290	29.6	+01.0	N 23 23.1	-00.1	311	20.2	+02.3	N 22 24.9	+00.0	44	24.2	+02.7	S 07 56.5	+00.1	02
03	305	30.6	+00.9	N 23 23.0	+00.0	326	22.5	+02.3	N 22 24.9	+00.0	59	26.9	+02.6	S 07 56.6	+00.0	03
04	320	31.5	+01.0	N 23 23.0	-00.1	341	24.8	+02.3	N 22 24.9	+00.0	74	29.5	+02.6	S 07 56.6	+00.1	04
05	335	32.5	+00.9	N 23 22.9	+00.0	356	27.1	+02.3	N 22 24.9	+00.0	89	32.1	+02.7	S 07 56.7	+00.1	05
06	350	33.4	+01.0	N 23 22.9	-00.1	11	29.4	+02.3	N 22 24.9	+00.0	104	34.8	+02.6	S 07 56.8	+00.0	06
07	5	34.4	+00.9	N 23 22.8	+00.0	26	31.7	+02.4	N 22 24.9	+00.0	119	37.4	+02.6	S 07 56.8	+00.1	07
08	20	35.3	+01.0	N 23 22.8	-00.1	41	34.1	+02.3	N 22 24.9	+00.0	134	40.0	+02.7	S 07 56.9	+00.1	08
09	35	36.3	+00.9	N 23 22.7	+00.0	56	36.4	+02.3	N 22 24.9	+00.0	149	42.7	+02.6	S 07 57.0	+00.1	09
10	50	37.2	+01.0	N 23 22.7	-00.1	71	38.7	+02.3	N 22 24.9	+00.0	164	45.3	+02.6	S 07 57.1	+00.0	10
11	65	38.2	+00.9	N 23 22.6	+00.0	86	41.0	+02.3	N 22 24.9	+00.0	179	47.9	+02.7	S 07 57.1	+00.1	11
12	80	39.1	+01.0	N 23 22.6	-00.1	101	43.3	+02.3	N 22 24.9	+00.1	194	50.6	+02.6	S 07 57.2	+00.0	12
13	95	40.1	+00.9	N 23 22.5	+00.0	116	45.6	+02.3	N 22 25.0	+00.0	209	53.2	+02.6	S 07 57.3	+00.1	13
14	110	41.0	+01.0	N 23 22.5	-00.1	131	47.9	+02.4	N 22 25.0	+00.0	224	55.8	+02.7	S 07 57.3	+00.1	14
15	125	42.0	+00.9	N 23 22.4	+00.0	146	50.3	+02.3	N 22 25.0	+00.0	239	58.5	+02.6	S 07 57.4	+00.1	15
16	140	42.9	+01.0	N 23 22.4	-00.1	161	52.6	+02.3	N 22 25.0	+00.0	255	01.1	+02.6	S 07 57.5	+00.0	16
17	155	43.9	+01.0	N 23 22.3	+00.0	176	54.9	+02.3	N 22 25.0	+00.0	270	03.7	+02.6	S 07 57.5	+00.1	17
18	170	44.9	+00.9	N 23 22.3	-00.1	191	57.2	+02.3	N 22 25.0	+00.0	285	06.3	+02.7	S 07 57.6	+00.1	18
19	185	45.8	+01.0	N 23 22.2	-00.1	206	59.5	+02.4	N 22 25.0	+00.0	300	09.0	+02.6	S 07 57.7	+00.1	19
20	200	46.8	+00.9	N 23 22.1	+00.0	222	01.9	+02.3	N 22 25.0	+00.0	315	11.6	+02.6	S 07 57.8	+00.0	20
21	215	47.7	+01.0	N 23 22.1	-00.1	237	04.2	+02.3	N 22 25.0	+00.0	330	14.2	+02.7	S 07 57.8	+00.1	21
22	230	48.7	+00.9	N 23 22.0	+00.0	252	06.5	+02.3	N 22 25.0	+00.0	345	16.9	+02.6	S 07 57.9	+00.1	22
23	245	49.6	+01.0	N 23 22.0	-00.1	267	08.8	+02.3	N 22 25.0	+00.0	0	19.5	+02.6	S 07 58.0	+00.0	23

UT	02	06	10	14	18	22
SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°1	00°1	00°1	00°1	00°1	00°1
SHA	259°	259°	259°	259°	259°	259°
Greenwich Culmination Time: 06:37						
SD	00°2	00°3	00°3	00°3	00°3	00°3
HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	280°	280°	280°	280°	280°	280°
Greenwich Culmination Time: 05:14						
SD	00°2	00°2	00°2	00°2	00°2	00°2
HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	013°	013°	013°	013°	013°	013°
Greenwich Culmination Time: 22:58						

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	54.8	+00.2	S 00 11.0	+00.9	154	30.2	-00.4	S 11 18.2	+01.2	296	57.7	-35.5	N 26 13.4	+07.2	00
01	196	55.0	+00.2	S 00 11.9	+01.0	169	29.8	-00.4	S 11 19.4	+01.1	311	22.2	-35.5	N 26 20.6	+07.1	01
02	211	55.2	+00.2	S 00 12.9	+01.0	184	29.4	-00.4	S 11 20.5	+01.2	325	46.7	-35.5	N 26 27.7	+06.8	02
03	226	55.4	+00.2	S 00 13.9	+00.9	199	29.0	-00.4	S 11 21.7	+01.2	340	11.2	-35.6	N 26 34.5	+06.7	03
04	241	55.6	+00.2	S 00 14.8	+01.0	214	28.6	-00.4	S 11 22.9	+01.2	354	35.6	-35.5	N 26 41.2	+06.5	04
05	256	55.8	+00.3	S 00 15.8	+01.0	229	28.2	-00.4	S 11 24.1	+01.2	9	00.1	-35.6	N 26 47.7	+06.4	05
06	271	56.1	+00.2	S 00 16.8	+01.0	244	27.8	-00.4	S 11 25.3	+01.1	23	24.5	-35.7	N 26 54.1	+06.1	06
07	286	56.3	+00.2	S 00 17.8	+00.9	259	27.4	-00.4	S 11 26.4	+01.2	37	48.8	-35.6	N 27 00.2	+06.0	07
08	301	56.5	+00.2	S 00 18.7	+01.0	274	27.0	-00.4	S 11 27.6	+01.2	52	13.2	-35.7	N 27 06.2	+05.8	08
09	316	56.7	+00.2	S 00 19.7	+01.0	289	26.6	-00.5	S 11 28.8	+01.2	66	37.5	-35.6	N 27 12.0	+05.6	09
10	331	56.9	+00.3	S 00 20.7	+01.0	304	26.1	-00.4	S 11 30.0	+01.2	81	01.9	-35.7	N 27 17.6	+05.4	10
11	346	57.2	+00.2	S 00 21.7	+00.9	319	25.7	-00.4	S 11 31.2	+01.1	95	26.2	-35.7	N 27 23.0	+05.3	11
12	1	57.4	+00.2	S 00 22.6	+01.0	334	25.3	-00.4	S 11 32.3	+01.2	109	50.5	-35.7	N 27 28.3	+05.0	12
13	16	57.6	+00.2	S												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	182	20.5	+00.3	S 02 07.8	+00.9	153	39.4	-00.5	S 13 36.9	+01.1	230	30.6	-28.3	N 21 00.3	-10.5	00
01	197	20.8	+00.2	S 02 08.7	+01.0	168	38.9	-00.4	S 13 38.0	+01.1	245	02.3	-28.2	N 20 49.8	-10.6	01
02	212	21.0	+00.2	S 02 09.7	+01.0	183	38.5	-00.5	S 13 39.1	+01.2	259	34.1	-28.1	N 20 39.2	-10.7	02
03	227	21.2	+00.2	S 02 10.7	+00.9	198	38.0	-00.4	S 13 40.3	+01.1	274	06.0	-27.9	N 20 28.5	-10.7	03
04	242	21.4	+00.2	S 02 11.6	+01.0	213	37.6	-00.5	S 13 41.4	+01.1	288	38.1	-27.9	N 20 17.8	-10.9	04
05	257	21.6	+00.2	S 02 12.6	+01.0	228	37.1	-00.4	S 13 42.5	+01.1	303	10.2	-27.9	N 20 06.9	-10.9	05
06	272	21.8	+00.2	S 02 13.6	+01.0	243	36.7	-00.5	S 13 43.6	+01.1	317	42.3	-27.7	N 19 56.0	-11.0	06
07	287	22.0	+00.2	S 02 14.6	+00.9	258	36.2	-00.4	S 13 44.7	+01.2	332	14.6	-27.6	N 19 45.0	-11.1	07
08	302	22.2	+00.2	S 02 15.5	+01.0	273	35.8	-00.5	S 13 45.9	+01.1	346	47.0	-27.6	N 19 33.9	-11.2	08
09	317	22.4	+00.2	S 02 16.5	+01.0	288	35.3	-00.4	S 13 47.0	+01.1	1 19.4	-27.4	N 19 22.7	-11.2	09	
10	332	22.6	+00.2	S 02 17.5	+01.0	303	34.9	-00.5	S 13 48.1	+01.1	15	52.0	-27.4	N 19 11.5	-11.3	10
11	347	22.8	+00.2	S 02 18.5	+00.9	318	34.4	-00.4	S 13 49.2	+01.1	30	24.6	-27.3	N 19 00.2	-11.4	11
12		2 23.0	+00.3	S 02 19.4	+01.0	333	34.0	-00.5	S 13 50.3	+01.2	44	57.3	-27.2	N 18 48.8	-11.4	12
13		17 23.3	+00.2	S 02 20.4	+01.0	348	33.5	-00.4	S 13 51.5	+01.1	59	30.1	-27.1	N 18 37.4	-11.5	13
14		32 23.5	+00.2	S 02 21.4	+00.9	3 33.1	-00.5	S 13 52.6	+01.1	74	03.0	-27.1	N 18 25.9	-11.6	14	
15		47 23.7	+00.2	S 02 22.3	+01.0	18	32.6	-00.5	S 13 53.7	+01.1	88	35.9	-26.9	N 18 14.3	-11.7	15
16		62 23.9	+00.2	S 02 23.3	+01.0	33	32.1	-00.4	S 13 54.8	+01.1	103	09.0	-26.9	N 18 02.6	-11.7	16
17		77 24.1	+00.2	S 02 24.3	+01.0	48	31.7	-00.5	S 13 55.9	+01.2	117	42.1	-26.8	N 17 50.9	-11.8	17
18		92 24.3	+00.2	S 02 25.3	+00.9	63	31.2	-00.4	S 13 57.1	+01.1	132	15.3	-26.7	N 17 39.1	-11.9	18
19		107 24.5	+00.2	S 02 26.2	+01.0	78	30.8	-00.5	S 13 58.2	+01.1	146	48.6	-26.7	N 17 27.2	-11.9	19
20		122 24.7	+00.2	S 02 27.2	+01.0	93	30.3	-00.4	S 13 59.3	+01.1	161	21.9	-26.6	N 17 15.3	-12.0	20
21		137 24.9	+00.2	S 02 28.2	+00.9	108	29.9	-00.5	S 14 00.4	+01.1	175	55.3	-26.5	N 17 03.3	-12.0	21
22		152 25.1	+00.2	S 02 29.1	+01.0	123	29.4	-00.4	S 14 01.5	+01.1	190	28.8	-26.4	N 16 51.3	-12.1	22
23		167 25.3	+00.2	S 02 30.1	+01.0	138	29.0	-00.5	S 14 02.6	+01.1	205	02.4	-26.3	N 16 39.2	-12.2	23
UT 02 06 10 14 18 22																
SD 16°0 16°0 16°0 16°0 16°0 16°0 16°0																
HP 00°1 00°1 00°1 00°1 00°1 00°1 00°1																
SHA 175° 175° 175° 175° 175° 174° 174°																
Greenwich Culmination Time: 11:50																
SD 00°1 00°1 00°1 00°1 00°1 00°1 00°1																
HP 00°1 00°1 00°1 00°1 00°1 00°1 00°1																
SHA 146° 146° 146° 146° 146° 146° 145°																
Greenwich Culmination Time: 13:45																
UT 02 06 10 14 18 22																
SD 15°0 15°0 14°9 14°9 14°9 14°9 14°9																
HP 55°0 54°9 54°8 54°7 54°7 54°6																
SHA 222° 220° 218° 216° 214° 212°																
Greenwich Culmination Time: 08:54																

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	182	05.2	+00.2	S 00 57.7	+01.0	154	10.5	-00.4	S 12 14.5	+01.1	268	34.8	-34.7	N 28 37.9	-01.3	00
01	197	05.4	+00.2	S 00 58.7	+00.9	169	10.1	-00.4	S 12 15.6	+01.2	283	00.1	-34.7	N 28 36.6	-01.4	01
02	212	05.6	+00.3	S 00 59.6	+01.0	184	09.7	-00.4	S 12 16.8	+01.2	297	25.4	-34.6	N 28 35.2	-01.7	02
03	227	05.9	+00.2	S 01 00.6	+01.0	199	09.3	-00.5	S 12 18.0	+01.1	311	50.8	-34.5	N 28 33.5	-01.8	03
04	242	06.1	+00.2	S 01 01.6	+00.9	214	08.8	-00.4	S 12 19.1	+01.2	326	16.3	-34.5	N 28 31.7	-01.9	04
05	257	06.3	+00.2	S 01 02.5	+01.0	229	08.4	-00.4	S 12 20.3	+01.1	340	41.8	-34.4	N 28 29.8	-02.2	05
06	272	06.5	+00.2	S 01 03.5	+01.0	244	08.0	-00.4	S 12 21.4	+01.2	355	07.4	-34.4	N 28 27.6	-02.3	06
07	287	06.7	+00.2	S 01 04.5	+01.0	259	07.6	-00.4	S 12 22.6	+01.2	9	33.0	-34.3	N 28 25.3	-02.4	07
08	302	06.9	+00.3	S 01 05.5	+00.9	274	07.2	-00.5	S 12 23.8	+01.1	23	58.7	-34.2	N 28 22.9	-02.6	08
09	317	07.2	+00.2	S 01 06.4	+01.0	289	06.7	-00.4	S 12 24.9	+01.2	38	24.5	-34.1	N 28 20.3	-02.8	09
10	332	07.4	+00.2	S 01 07.4	+01.0	304	06.3	-00.4	S 12 26.1	+01.1	52	50.4	-34.1	N 28 17.5	-03.0	10
11	347	07.6	+00.2	S 01 08.4	+01.0	319	05.9	-00.4	S 12 27.2	+01.2	67	16.3	-34.0	N 28 14.5	-03.0	11
12		2 07.8	+00.2	S 01 09.4	+00.9	334	05.5	-00.5	S 12 28.4	+01.1	81	42.3	-33.9	N 28 11.5	-03.3	12
13		17 08.0	+00.2	S 01 10.3	+01.0	349	05.0	-00.4	S 12 29.5	+01.2	96	08.4	-33.8	N 28 08.2	-03.4	13
14		32 08.2	+00.2	S 01 11.3	+01.0	4 04.6	-00.4	S 12 30.7	+01.2	110	34.6	-33.7	N 28 04.8	-03.6	14	
15		47 08.4	+00.3	S 01 12.3	+01.0	19	04.2	-00.4	S 12 31.9	+01.1	125	00.9	-33.7	N 28 01.2	-03.7	15
16		62 08.7	+00.2	S 01 13.3	+00.9	34	03.8	-00.5	S 12 33.0	+01.2	139	27.2	-33.6	N 27 57.5	-03.8	16
17		77 08.9	+00.2	S 01 14.2	+01.0	49	03.3	-00.4	S 12 34.2	+01.1	153	53.6	-33.5	N 27 53.7	-04.1	17
18		92 09.1	+00.2	S 01 15.2	+01.0	64	02.9	-00.4	S 12 35.3	+01.2	168	20.1	-33.4	N 27 49.6	-04.1	18
19		107 09.3	+00.2	S 01 16.2	+01.0	79	02.5	-00.4	S 12 36.5	+01.1	182	46.7	-33.4	N 27 45.5	-04.4	19
20		122 09.5	+00.2	S 01 17.2	+00.9	94	02.1	-00.5	S 12 37.6	+01.2	197	13.3	-33.2	N 27 41.1	-04.4	20
21		137 09.7	+00.2	S 01 18.1	+01.0	109	01.6	-00.4	S 12 38.8	+01.1	211	40.1	-33.2	N 27 36.7	-04.6	21
22		152 09.9	+00.3	S 01 19.1	+01.0	124	01.2	-00.4	S 12 39.9	+01.2	226	06.9	-33.1	N 27 32.1	-04.8	22
23		167 10.2	+00.2	S 01 20.1	+00.9	139	00.8	-00.4	S 12 41.1	+01.1	240	33.8	-33.0	N 27 27.3	-04.9	23
UT 02 06 10 14 18 22																
SD 15°9 15°9 15°9 16°0 16°0 16°0																
HP 00°1 00°1 00°1 00°1 00°1 00°1																
SHA 178° 178° 177° 177° 177° 177°																
Greenwich Culmination Time: 11:51																
UT 02 06 10 14 18 22																
SD 00°1 00°1 00°1 00°1 00°1 00°1																
HP 00°1 00°1 00°1 00°1 00°1 00°1																
SHA 150° 150° 149° 149° 149° 149°																
Greenwich Culmination Time: 13:43																
UT 02 06 10 14 18 22																
SD 15°5 15°5 15°4 15°4 15°4 15°4																
HP 56°9 56°8 56°7 56°5 56°4 56°3																
SHA 263° 261° 258° 256° 253° 251°																
Greenwich Culmination Time: 06:20																

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	262	48.5	+01.0	N 23 14.1	-00.1	286	52.1	+02.4	N 22 25.8	+00.0	20	37.6	+02.6	S 08 06.1	+00.1	00
01	277	49.5	+01.0	N 23 14.0	-00.1	301	54.5	+02.4	N 22 25.8	+00.0	35	40.2	+02.6	S 08 06.2	+00.1	01
02	292	50.5	+01.1	N 23 13.9	+00.0	316	56.9	+02.3	N 22 25.8	+00.0	50	42.8	+02.7	S 08 06.3	+00.0	02
03	307	51.6	+01.0	N 23 13.9	+00.1	331	59.2	+02.4	N 22 25.8	+00.0	65	45.5	+02.6	S 08 06.3	+00.1	03
04	322	52.6	+01.0	N 23 13.8	-00.1	347	01.6	+02.4	N 22 25.8	+00.1	80	48.1	+02.6	S 08 06.4	+00.0	04
05	337	53.6	+01.0	N 23 13.7	-00.1	2 04.0	+02.3	N 22 25.9	+00.0	95	50.7	+02.6	S 08 06.4	+00.1	05	
06	352	54.6	+01.0	N 23 13.6	+00.0	17	06.3	+02.4	N 22 25.9	+00.0	110	53.3	+02.7	S 08 06.5	+00.1	06
07	7 55.6	+01.0	N 23 13.6	-00.1	32	08.7	+02.4	N 22 25.9	+00.0	125	56.0	+02.6	S 08 06.6	+00.0	07	
08	22 56.6	+01.0	N 23 13.5	-00.1	47	11.1	+02.3	N 22 25.9	+00.0	140	58.6	+02.6	S 08 06.6	+00.1	08	
09	37 57.6	+01.0	N 23 13.4	-00.1	62	13.4	+02.4	N 22 25.9	+00.0	156	01.2	+02.6	S 08 06.7	+00.1	09	
10	52 58.6	+01.0	N 23 13.3	-00.1	77	15.8	+02.4	N 22 25.9	+00.0	171	03.8	+02.7	S 08 06.8	+00.0	10	
11	67 59.6	+01.0	N 23 13.2	+00.0	92	18.2	+02.3	N 22 25.9	+00.0	186	06.5	+02.6	S 08 06.8	+00.1	11	
12	83 00.6	+01.1	N 23 13.2	-00.1	107	20.5	+02.4	N 22 25.9	+00.0	201	09.1	+02.6	S 08 06.9	+00.1	12	
13	98 01.7	+01.0	N 23 13.1	-00.1	122	22.9	+02.4	N 22 25.9	+00.0	216	11.7	+02.6	S 08 07.0	+00.0	13	
14	113 02.7	+01.0	N 23 13.0	-00.1	137	25.3	+02.3	N 22 25.9	+00.0	231	14.3	+02.7	S 08 07.0	+00.1	14	
15	128 03.7	+01.0	N 23 12.9	+00.0	152	27.6	+02.4	N 22 25.9	+00.0	246	17.0	+02.6	S 08 07.1	+00.1	15	
16	143 04.7	+01.0	N 23 12.9	-00.1	167	30.0	+02.4	N 22 25.9	+00.0	261	19.6	+02.6	S 08 07.2	+00.0	16	
17	158 05.7															

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA/Dec and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 177° 177° 177° 176° 176° 176°
Greenwich Culmination Time: 11:51

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA/Dec and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 257° 257° 256° 256° 256° 256°
Greenwich Culmination Time: 04:31

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA/Dec and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 176° 176° 176° 175° 175° 175°
Greenwich Culmination Time: 11:50

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA/Dec and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 256° 256° 256° 256° 256° 256°
Greenwich Culmination Time: 06:29

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes SD, HP, SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and distance data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22. Includes RA, Dec, and distance data for each planet.

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> A: 10%				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	182 58.4	+00.2	S 05 13.4	+01.0	152 05.2	-00.5	S 17 02.0	+01.0	150 29.3	-27.6	S 20 36.6	+10.4	00		
01	197 58.6	+00.2	S 05 14.4	+01.0	167 04.7	-00.6	S 17 03.0	+01.0	165 01.7	-27.7	S 20 47.0	+10.4	01		
02	212 58.8	+00.1	S 05 15.4	+00.9	182 04.1	-00.5	S 17 04.0	+01.0	179 34.0	-27.7	S 20 57.4	+10.2	02		
03	227 58.9	+00.2	S 05 16.3	+01.0	197 03.6	-00.5	S 17 05.0	+01.0	194 06.3	-27.9	S 21 07.6	+10.2	03		
04	242 59.1	+00.2	S 05 17.3	+00.9	212 03.1	-00.6	S 17 06.0	+01.0	208 38.4	-27.9	S 21 17.8	+10.1	04		
05	257 59.3	+00.2	S 05 18.2	+01.0	227 02.5	-00.5	S 17 07.0	+01.1	223 10.5	-28.0	S 21 27.9	+09.9	05		
06	272 59.5	+00.2	S 05 19.2	+00.9	242 02.0	-00.5	S 17 08.1	+01.0	237 42.5	-28.0	S 21 37.8	+09.9	06		
07	287 59.7	+00.2	S 05 20.1	+01.0	257 01.5	-00.6	S 17 09.1	+01.0	252 14.5	-28.2	S 21 47.7	+09.9	07		
08	302 59.9	+00.1	S 05 21.1	+01.0	272 00.9	-00.5	S 17 10.1	+01.0	266 46.3	-28.2	S 21 57.6	+09.7	08		
09	318 00.0	+00.2	S 05 22.1	+00.9	287 00.4	-00.6	S 17 11.1	+00.9	281 18.1	-28.4	S 22 07.3	+09.6	09		
10	333 00.2	+00.2	S 05 23.0	+01.0	301 59.8	-00.5	S 17 12.0	+01.0	295 49.7	-28.4	S 22 16.9	+09.5	10		
11	348 00.4	+00.2	S 05 24.0	+00.9	316 59.3	-00.5	S 17 13.0	+01.0	310 21.3	-28.4	S 22 26.4	+09.5	11		
12	3 00.6	+00.2	S 05 24.9	+01.0	331 58.8	-00.6	S 17 14.0	+01.0	324 52.9	-28.6	S 22 35.9	+09.3	12		
13	18 00.8	+00.1	S 05 25.9	+01.0	346 58.2	-00.5	S 17 15.0	+01.0	339 24.3	-28.7	S 22 45.2	+09.3	13		
14	33 00.9	+00.2	S 05 26.8	+01.0	1 57.7	-00.6	S 17 16.0	+01.0	353 55.6	-28.7	S 22 54.5	+09.1	14		
15	48 01.1	+00.2	S 05 27.8	+01.0	16 57.1	-00.5	S 17 17.0	+01.0	8 26.9	-28.9	S 23 03.6	+09.1	15		
16	63 01.3	+00.2	S 05 28.8	+00.9	31 56.6	-00.6	S 17 18.0	+01.0	22 58.0	-28.9	S 23 12.7	+08.9	16		
17	78 01.5	+00.2	S 05 29.7	+01.0	46 56.0	-00.5	S 17 19.0	+01.0	37 29.1	-29.0	S 23 21.6	+08.9	17		
18	93 01.7	+00.1	S 05 30.7	+00.9	61 55.5	-00.5	S 17 20.0	+01.0	52 00.1	-29.1	S 23 30.5	+08.8	18		
19	108 01.8	+00.2	S 05 31.6	+01.0	76 55.0	-00.6	S 17 21.0	+01.0	66 31.0	-29.1	S 23 39.3	+08.6	19		
20	123 02.0	+00.2	S 05 32.6	+00.9	91 54.4	-00.5	S 17 22.0	+01.0	81 01.9	-29.3	S 23 47.9	+08.6	20		
21	138 02.2	+00.2	S 05 33.5	+01.0	106 53.9	-00.6	S 17 23.0	+01.0	95 32.6	-29.4	S 23 56.5	+08.4	21		
22	153 02.4	+00.2	S 05 34.5	+01.0	121 53.3	-00.5	S 17 24.0	+01.0	110 03.2	-29.4	S 24 04.9	+08.3	22		
23	168 02.6	+00.1	S 05 35.5	+00.9	136 52.8	-00.6	S 17 25.0	+01.0	124 33.8	-29.5	S 24 13.2	+08.3	23		
UT	02 06 10 14 18 22				UT	02 06 10 14 18 22			UT	02 06 10 14 18 22					
SD	16°0 16'0 16°0 16'0 16'0 16°0				SD	00°1 00'1 00°1 00'1 00'1 00°1			SD	14°8 14'8 14°9 14'9 14°9 14'9					
HP	00°1 00'1 00°1 00'1 00'1 00°1				HP	00°1 00'1 00°1 00'1 00'1 00°1			HP	54°4 54'5 54°5 54'6 54°6 54°7					
SHA	168° 168° 167° 167° 167° 167°				SHA	137° 137° 136° 136° 136° 136°			SHA	134° 132° 130° 128° 128° 124°					
Greenwich Culmination Time: 11:47				Greenwich Culmination Time: 13:52				Greenwich Culmination Time: 14:25							

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> A: 01%				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	182 44.8	+00.2	S 04 04.1	+01.0	152 42.5	-00.5	S 15 47.8	+01.1	180 48.7	-23.7	S 05 29.2	+14.0	00		
01	197 45.0	+00.2	S 04 05.1	+01.0	167 42.0	-00.5	S 15 48.9	+01.0	195 25.0	-23.8	S 05 43.2	+14.0	01		
02	212 45.2	+00.2	S 04 06.1	+00.9	182 41.5	-00.5	S 15 49.9	+01.1	210 01.2	-23.8	S 05 57.2	+13.9	02		
03	227 45.4	+00.2	S 04 07.0	+01.0	197 41.0	-00.5	S 15 51.0	+01.1	224 37.4	-23.8	S 06 11.1	+13.9	03		
04	242 45.6	+00.2	S 04 08.0	+01.0	212 40.5	-00.5	S 15 52.1	+01.0	239 13.6	-23.8	S 06 25.0	+13.9	04		
05	257 45.8	+00.2	S 04 09.0	+00.9	227 40.0	-00.5	S 15 53.1	+01.1	253 49.8	-23.8	S 06 38.9	+13.9	05		
06	272 46.0	+00.2	S 04 09.9	+01.0	242 39.5	-00.5	S 15 54.2	+01.0	268 26.0	-23.9	S 06 52.8	+13.8	06		
07	287 46.2	+00.2	S 04 10.9	+01.0	257 39.0	-00.5	S 15 55.2	+01.1	283 02.1	-23.9	S 07 06.6	+13.9	07		
08	302 46.4	+00.1	S 04 11.9	+00.9	272 38.5	-00.5	S 15 56.3	+01.0	297 38.2	-23.9	S 07 20.5	+13.7	08		
09	317 46.5	+00.2	S 04 12.8	+01.0	287 38.0	-00.5	S 15 57.3	+01.1	312 14.3	-24.0	S 07 34.2	+13.8	09		
10	332 46.7	+00.2	S 04 13.8	+01.0	302 37.5	-00.5	S 15 58.4	+01.0	326 50.3	-24.0	S 07 48.0	+13.8	10		
11	347 46.9	+00.2	S 04 14.8	+00.9	317 37.0	-00.5	S 15 59.4	+01.0	341 26.3	-24.0	S 08 01.8	+13.7	11		
12	2 47.1	+00.2	S 04 15.7	+01.0	332 36.5	-00.5	S 16 00.4	+01.1	356 02.3	-24.1	S 08 15.5	+13.7	12		
13	17 47.3	+00.2	S 04 16.7	+01.0	347 36.0	-00.5	S 16 01.5	+01.0	10 38.2	-24.1	S 08 29.2	+13.6	13		
14	32 47.5	+00.2	S 04 17.7	+00.9	2 35.5	-00.5	S 16 02.5	+01.1	25 14.1	-24.1	S 08 42.8	+13.7	14		
15	47 47.7	+00.2	S 04 18.6	+01.0	17 35.0	-00.6	S 16 03.6	+01.0	39 50.0	-24.2	S 08 56.5	+13.6	15		
16	62 47.9	+00.2	S 04 19.6	+00.9	32 34.4	-00.5	S 16 04.6	+01.1	54 25.8	-24.2	S 09 10.1	+13.5	16		
17	77 48.1	+00.2	S 04 20.5	+01.0	47 33.9	-00.5	S 16 05.7	+01.0	69 01.6	-24.2	S 09 23.6	+13.6	17		
18	92 48.3	+00.2	S 04 21.5	+01.0	62 33.4	-00.5	S 16 06.7	+01.1	83 37.4	-24.3	S 09 37.2	+13.5	18		
19	107 48.5	+00.2	S 04 22.5	+00.9	77 32.9	-00.5	S 16 07.8	+01.0	98 13.1	-24.3	S 09 50.7	+13.4	19		
20	122 48.7	+00.2	S 04 23.4	+01.0	92 32.4	-00.5	S 16 08.8	+01.0	112 48.8	-24.3	S 10 04.1	+13.5	20		
21	137 48.9	+00.1	S 04 24.4	+01.0	107 31.9	-00.5	S 16 09.8	+01.0	127 24.5	-24.4	S 10 17.6	+13.4	21		
22	152 49.0	+00.2	S 04 25.4	+00.9	122 31.4	-00.5	S 16 10.9	+01.0	142 00.1	-24.4	S 10 31.0	+13.3	22		
23	167 49.2	+00.2	S 04 26.3	+01.0	137 30.9	-00.5	S 16 11.9	+01.1	156 35.7	-24.5	S 10 44.3	+13.4	23		
UT	02 06 10 14 18 22				UT	02 06 10 14 18 22			UT	02 06 10 14 18 22					
SD	16°0 16'0 16°0 16'0 16'0 16°0				SD	00°1 00'1 00°1 00'1 00'1 00°1			SD	14°7 14'7 14°7 14'7 14°7 14'7					
HP	00°1 00'1 00°1 00'1 00'1 00°1				HP	00°1 00'1 00°1 00'1 00'1 00°1			HP	53°9 53'9 53°9 53'9 53°9 54°0					
SHA	170° 170° 170° 170° 170° 170°				SHA	140° 140° 140° 140° 140° 139°			SHA	168° 166° 164° 162° 161° 159°					
Greenwich Culmination Time: 11:48				Greenwich Culmination Time: 13:49				Greenwich Culmination Time: 12:16							

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	266 10.4	+01.1	N 22 56.9	-00.1	294 32.7	+02.4	N 22 26.4	+00.0	29 00.1	+02.6	S 08 17.9	+00.0	00
01	281 11.5	+01.1	N 22 56.8	-00.1	309 35.1	+02.4	N 22 26.4	+00.0	44 02.7	+02.6	S 08 17.9	+00.1	01
02	296 12.6	+01.1	N 22 56.7	-00.1	324 37.5	+02.5	N 22 26.4	+00.0	59 05.3	+02.6	S 08 18.0	+00.0	02
03	311 13.7	+01.1	N 22 56.6	-00.1	339 40.0	+02.4	N 22 26.4	+00.0	74 07.9	+02.6	S 08 18.0	+00.1	03
04	326 14.8	+01.1	N 22 56.5	-00.1	354 42.4	+02.4	N 22 26.4	+00.0	89 10.5	+02.6	S 08 18.1	+00.1	04
05	341 15.9	+01.1	N 22 56.4	-00.1	9 44.8	+02.5	N 22 26.4	+00.0	104 13.1	+02.6	S 08 18.2	+00.0	05
06	356 17.0	+01.1	N 22 56.3	-00.1	24 47.3	+02.4	N 22 26.4	+00.0	119 15.7	+02.6	S 08 18.2	+00.1	06
07	11 18.1	+01.1	N 22 56.2	-00.1	39 49.7	+02.5	N 22 26.4	+00.0	134 18.3	+02.6	S 08 18.3	+00.0	07
08	26 19.2	+01.1	N 22 56.1	-00.1	54 52.2	+02.4	N 22 26.4	+00.0	149 20.9	+02.6	S 08 18.3	+00.1	08
09	41 20.3	+01.1	N 22 56.0	-00.1	69 54.6	+02.4	N 22 26.4	+00.0	164 23.5	+02.7	S 08 18.4	+00.0	09
10	56 21.4	+01.1	N 22 55.9	-00.1	84 57.0	+02.5	N 22 26.4	+00.0	179 26.2	+02.6	S 08 18.4	+00.1	10
11	71 22.5	+01.1	N 22 55.8	-00.1	99 59.5	+02.4	N 22 26.4	+00.0	194 28.8	+02.6	S 08 18.5	+00.0	11
12	86 23.6	+01.1	N 22 55.7	-00.1	115 01.9	+02.4	N 22 26.4	+00.0	209 31.4	+02.6	S 08 18.5	+00.1	12
13	101 24.7	+01.1	N 22 55.6	-00.1	130 04.3	+02.5	N 22 26.4	+00.0	224 34.0	+02.6	S 08 18.6	+00.1	13
14	116 25.8	+01.1	N 22 55.5	-00.1	145 06.8	+02.4	N 22 26.4	+00.0	239 36.6	+02.6	S 08 18.7	+00.0	14
15	131 26.9	+01.1	N 22 55.4	-00.1	160 09.2	+02.5	N 22 26.4	+00.0	254 39.2	+02.6	S 08 18.7	+00.1	15
16	146 28.0	+01.2	N 22 55.3	-00.1	175 11.7	+02.4	N 22 26.4	+00.0	269 41.8	+02.6	S 08 18.8	+00.0	16
17	161 29.2	+01.1	N 22 55.2	-00.1	190 14.1	+02.4	N 22 26.4	+00.0	284 44.4	+02.6	S 08 18.8	+00.1	17
18	176 30.3	+01.1	N 22 55.1	-00.1	205 16.5	+02.5	N 22 26.4	+00.0	299 47.0	+02.6	S 08 18.9	+00.0	18
19	191 31.4	+01.1	N 22 55.0	-00.1	220 19.0	+02.4	N 22 26.4	+00.0	314 49.6	+02.6	S 08 18.9	+00.1	19
20	206 32.5	+01.1	N 22 54.9	-00.1	235 21.4	+02.5	N						

Table for Sun, Venus, and Moon on October 4, 2024. Columns include UT, GHA, ddGHA, Dec, dDec, and A:04%. Rows list celestial coordinates for each body from 00:00 to 23:00.

Table for Sun, Venus, and Moon on October 5, 2024. Columns include UT, GHA, ddGHA, Dec, dDec, and A:07%. Rows list celestial coordinates for each body from 00:00 to 23:00.

Table for Mars, Jupiter, and Saturn on October 4, 2024. Columns include UT, GHA, ddGHA, Dec, dDec, and A:04%. Rows list celestial coordinates for each body from 00:00 to 23:00.

Table for Mars, Jupiter, and Saturn on October 5, 2024. Columns include UT, GHA, ddGHA, Dec, dDec, and A:07%. Rows list celestial coordinates for each body from 00:00 to 23:00.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time.

Table for Sun, Venus, and Moon on October 12. Columns include UT, GHA, ddGHA, Dec, dDec, and A:36%. Rows 00-23. Includes sub-tables for UT 02-06, 10-14, 18-22 and planetary data for SD, HP, and SHA.

Table for Sun, Venus, and Moon on October 13. Columns include UT, GHA, ddGHA, Dec, dDec, and A:36%. Rows 00-23. Includes sub-tables for UT 02-06, 10-14, 18-22 and planetary data for SD, HP, and SHA.

Table for Mars, Jupiter, and Saturn on October 12. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23. Includes sub-tables for UT 02-06, 10-14, 18-22 and planetary data for SD, HP, and SHA.

Table for Mars, Jupiter, and Saturn on October 13. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23. Includes sub-tables for UT 02-06, 10-14, 18-22 and planetary data for SD, HP, and SHA.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22 SD 16°1 16°1 16°1 16°1 16°1 16°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 157° 157° 156° 156° 156° 156° Greenwich Culmination Time: 11:45

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22 SD 16°0 16°0 16°0 16°0 16°0 16°0 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 159° 159° 159° 159° 159° 159° Greenwich Culmination Time: 11:45

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 245° 245° 245° 244° 244° Greenwich Culmination Time: 05:52

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 246° 246° 246° 246° 246° Greenwich Culmination Time: 05:58

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 159° 158° 158° 158° 158° 158°
Greenwich Culmination Time: 11:45

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 246° 246° 246° 245° 245° 245°
Greenwich Culmination Time: 05:56

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°0 16°0 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 158° 157° 157° 157° 157° 157°
Greenwich Culmination Time: 11:45

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 245° 245° 245° 245° 245° 245°
Greenwich Culmination Time: 05:54

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 153° 153° 153° 152° 152° 152°
Greenwich Culmination Time: 11:44

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°4 00°4 00°4 00°4 00°4 00°4
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 243° 243° 243° 243° 243° 243°
Greenwich Culmination Time: 05:44

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 156° 156° 155° 155° 155° 155°
Greenwich Culmination Time: 11:44

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°4 00°4 00°4 00°4 00°4 00°4
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 244° 244° 244° 244° 244° 244°
Greenwich Culmination Time: 05:50

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UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				A: 61%	UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	183	48.4	+00.1	S 10 26.1	+00.9	148	37.4	-00.7	S 21 53.7	+00.7	329	36.2	-36.4	N 24 53.9	+09.2	00
01	198	48.5	+00.1	S 10 27.0	+00.9	163	36.7	-00.7	S 21 54.4	+00.7	343	59.8	-36.5	N 25 03.1	+09.0	01
02	213	48.6	+00.1	S 10 27.9	+00.9	178	36.0	-00.7	S 21 55.1	+00.7	358	23.3	-36.5	N 25 12.1	+08.7	02
03	228	48.7	+00.1	S 10 28.8	+00.9	193	35.3	-00.7	S 21 55.8	+00.7	12	46.8	-36.5	N 25 20.8	+08.6	03
04	243	48.8	+00.1	S 10 29.7	+00.9	208	34.6	-00.7	S 21 56.5	+00.8	27	10.3	-36.6	N 25 29.4	+08.5	04
05	258	48.9	+00.1	S 10 30.6	+00.9	223	33.9	-00.7	S 21 57.3	+00.7	41	33.7	-36.6	N 25 37.9	+08.2	05
06	273	49.0	+00.1	S 10 31.5	+00.9	238	33.2	-00.7	S 21 58.0	+00.7	55	57.1	-36.7	N 25 46.1	+08.0	06
07	288	49.1	+00.1	S 10 32.4	+00.9	253	32.5	-00.7	S 21 58.7	+00.7	70	20.4	-36.7	N 25 54.1	+07.9	07
08	303	49.2	+00.2	S 10 33.3	+00.9	268	31.8	-00.7	S 21 59.4	+00.7	84	43.7	-36.7	N 26 02.0	+07.7	08
09	318	49.4	+00.1	S 10 34.2	+00.9	283	31.1	-00.7	S 22 00.1	+00.7	99	07.0	-36.8	N 26 09.7	+07.5	09
10	333	49.5	+00.1	S 10 35.1	+00.9	298	30.4	-00.7	S 22 00.8	+00.7	113	30.2	-36.8	N 26 17.2	+07.3	10
11	348	49.6	+00.1	S 10 36.0	+00.9	313	29.7	-00.7	S 22 01.5	+00.7	127	53.4	-36.8	N 26 24.5	+07.1	11
12	3	49.7	+00.1	S 10 36.9	+00.8	328	29.0	-00.7	S 22 02.2	+00.7	142	16.6	-36.9	N 26 31.6	+06.9	12
13	18	49.8	+00.1	S 10 37.7	+00.8	343	28.3	-00.8	S 22 02.9	+00.7	156	39.7	-36.9	N 26 38.5	+06.7	13
14	33	49.9	+00.1	S 10 38.6	+00.9	358	27.5	-00.7	S 22 03.6	+00.7	171	02.8	-36.9	N 26 45.2	+06.6	14
15	48	50.0	+00.1	S 10 39.5	+00.9	13	26.8	-00.7	S 22 04.3	+00.7	185	25.9	-36.9	N 26 51.8	+06.3	15
16	63	50.1	+00.1	S 10 40.4	+00.9	28	26.1	-00.7	S 22 05.0	+00.7	199	49.0	-37.0	N 26 58.1	+06.2	16
17	78	50.2	+00.1	S 10 41.3	+00.9	43	25.4	-00.7	S 22 05.7	+00.7	214	12.0	-37.0	N 27 04.3	+06.0	17
18	93	50.3	+00.1	S 10 42.2	+00.9	58	24.7	-00.7	S 22 06.4	+00.7	228	35.0	-36.9	N 27 10.3	+05.7	18
19	108	50.4	+00.1	S 10 43.1	+00.9	73	24.0	-00.7	S 22 07.1	+00.7	242	58.1	-37.0	N 27 16.0	+05.6	19
20	123	50.5	+00.1	S 10 44.0	+00.9	88	23.3	-00.7	S 22 07.8	+00.7	257	21.1	-37.0	N 27 21.6	+05.4	20
21	138	50.6	+00.1	S 10 44.9	+00.9	103	22.6	-00.7	S 22 08.5	+00.7	271	44.1	-37.1	N 27 27.0	+05.2	21
22	153	50.7	+00.1	S 10 45.8	+00.9	118	21.9	-00.7	S 22 09.2	+00.7	286	07.0	-37.0	N 27 32.2	+05.0	22
23	168	50.8	+00.1	S 10 46.6	+00.9	133	21.2	-00.7	S 22 09.9	+00.6	300	30.0	-37.0	N 27 37.2	+04.9	23
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 155° 155° 154° 154° 154° 154° Greenwich Culmination Time: 11:44				SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 120° 119° 119° 119° 119° 119° Greenwich Culmination Time: 14:06				SD 16°3 16°3 16°2 16°2 16°2 16°1 HP 59°9 59°8 59°6 59°5 59°3 59°2 SHA 299° 297° 294° 292° 289° 286° Greenwich Culmination Time: 02:06				UT 02 06 10 14 18 22			

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				A: 65%	UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	183	50.9	+00.1	S 10 47.5	+00.9	148	20.5	-00.8	S 22 10.5	+00.7	314	53.0	-37.0	N 27 42.1	+04.6	00
01	198	51.0	+00.1	S 10 48.4	+00.9	163	19.7	-00.7	S 22 11.2	+00.7	329	16.0	-37.1	N 27 46.7	+04.4	01
02	213	51.1	+00.1	S 10 49.3	+00.9	178	19.0	-00.7	S 22 11.9	+00.7	343	38.9	-37.0	N 27 51.1	+04.2	02
03	228	51.2	+00.1	S 10 50.2	+00.9	193	18.3	-00.7	S 22 12.6	+00.7	358	01.9	-37.0	N 27 55.3	+04.1	03
04	243	51.3	+00.1	S 10 51.1	+00.9	208	17.6	-00.7	S 22 13.3	+00.7	12	24.9	-37.0	N 27 59.4	+03.8	04
05	258	51.4	+00.1	S 10 52.0	+00.9	223	16.9	-00.7	S 22 14.0	+00.7	26	47.9	-37.0	N 28 03.2	+03.7	05
06	273	51.5	+00.1	S 10 52.9	+00.8	238	16.2	-00.7	S 22 14.7	+00.6	41	10.9	-37.0	N 28 06.9	+03.4	06
07	288	51.6	+00.1	S 10 53.7	+00.9	253	15.5	-00.7	S 22 15.3	+00.7	55	33.9	-36.9	N 28 10.3	+03.3	07
08	303	51.7	+00.1	S 10 54.6	+00.9	268	14.8	-00.8	S 22 16.0	+00.7	69	57.0	-37.0	N 28 13.6	+03.1	08
09	318	51.8	+00.1	S 10 55.5	+00.9	283	14.0	-00.7	S 22 16.7	+00.7	84	20.0	-36.9	N 28 16.7	+02.8	09
10	333	51.9	+00.1	S 10 56.4	+00.9	298	13.3	-00.7	S 22 17.4	+00.7	98	43.1	-36.9	N 28 19.5	+02.7	10
11	348	52.0	+00.1	S 10 57.3	+00.9	313	12.6	-00.7	S 22 18.1	+00.6	113	06.2	-36.9	N 28 22.2	+02.5	11
12	3	52.1	+00.1	S 10 58.2	+00.8	328	11.9	-00.7	S 22 18.7	+00.7	127	29.3	-36.9	N 28 24.7	+02.3	12
13	18	52.2	+00.1	S 10 59.0	+00.9	343	11.2	-00.7	S 22 19.4	+00.7	141	52.4	-36.8	N 28 27.0	+02.1	13
14	33	52.3	+00.1	S 10 59.9	+00.9	358	10.5	-00.8	S 22 20.1	+00.7	156	15.6	-36.8	N 28 29.1	+02.0	14
15	48	52.4	+00.1	S 11 00.8	+00.9	13	09.7	-00.7	S 22 20.8	+00.6	170	38.8	-36.7	N 28 31.1	+01.7	15
16	63	52.5	+00.1	S 11 01.7	+00.9	28	09.0	-00.7	S 22 21.4	+00.7	185	02.1	-36.8	N 28 32.8	+01.5	16
17	78	52.6	+00.1	S 11 02.6	+00.9	43	08.3	-00.7	S 22 22.1	+00.7	199	25.3	-36.6	N 28 34.3	+01.4	17
18	93	52.7	+00.1	S 11 03.5	+00.8	58	07.6	-00.7	S 22 22.8	+00.7	213	48.7	-36.7	N 28 35.7	+01.1	18
19	108	52.8	+00.1	S 11 04.3	+00.9	73	06.9	-00.8	S 22 23.5	+00.6	228	12.0	-36.6	N 28 36.8	+01.0	19
20	123	52.9	+00.1	S 11 05.2	+00.9	88	06.1	-00.7	S 22 24.1	+00.7	242	35.4	-36.5	N 28 37.8	+00.8	20
21	138	53.0	+00.0	S 11 06.1	+00.9	103	05.4	-00.7	S 22 24.8	+00.7	256	58.9	-36.5	N 28 38.6	+00.6	21
22	153	53.0	+00.1	S 11 07.0	+00.9	118	04.7	-00.7	S 22 25.5	+00.6	271	22.4	-36.5	N 28 39.2	+00.4	22
23	168	53.1	+00.1	S 11 07.9	+00.9	133	04.0	-00.7	S 22 26.1	+00.7	285	45.9	-36.4	N 28 39.6	+00.2	23
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 154° 154° 154° 153° 153° 153° Greenwich Culmination Time: 11:44				SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 118° 118° 118° 118° 117° 117° Greenwich Culmination Time: 14:07				SD 16°1 16°0 16°0 15°9 15°9 15°9 HP 59°0 58°9 58°7 58°5 58°4 58°2 SHA 284° 281° 278° 276° 273° 271° Greenwich Culmination Time: 03:08				UT 02 06 10 14 18 22			

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	272	49.5	+01.3	N 22 18.6	-00.1	308	31.9	+02.5	N 22 25.5	+00.0	43	30.1	+02.5	S 08 33.9	+00.0	00
01	287	50.8	+01.2	N 22 18.5	-00.1	323	34.4	+02.6	N 22 25.5	+00.0	58	32.6	+02.6	S 08 33.9	+00.0	01
02	302	52.0	+01.3	N 22 18.4	-00.1	338	37.0	+02.5	N 22 25.5	+00.0	73	35.2	+02.6	S 08 33.9	+00.1	02
03	317	53.3	+01.3	N 22 18.3	-00.2	353	39.5	+02.6	N 22 25.5	+00.0	88	37.8	+02.6	S 08 34.0	+00.0	03
04	332	54.6	+01.3	N 22 18.1	-00.1	8	42.1	+02.6	N 22 25.5	+00.0	103	40.4	+02.5	S 08 34.0	+00.0	04
05	347	55.9	+01.3	N 22 18.0	-00.1	23	44.7	+02.5	N 22 25.5	+00.0	118	42.9	+02.6	S 08 34.0	+00.1	05
06	2	57.2	+01.3	N 22 17.9	-00.1	38	47.2	+02.6	N 22 25.5	+00.0	133	45.5	+02.6	S 08 34.1	+00.0	06
07	17	58.5	+01.3	N 22 17.8	-00.1	53	49.8	+02.6	N 22 25.5	+00.0	148	48.1	+02.5	S 08 34.1	+00.1	07
08	32	59.8	+01.2	N 22 17.7	-00.2	68	52.4	+02.5	N 22 25.5	+00.0	163	50.6	+02.6	S 08 34.2	+00.0	08
09	48	01.0	+01.3	N 22 17.5	-00.1	83	54.9	+02.6	N 22 25.5	+00.0	178	53.2	+02.6	S 08 34.2	+00.0	09
10	63	02.3	+01.3	N 22 17.4	-00.1	98	57.5	+02.5	N 22 25.5	+00.0	193	55.8	+02.5	S 08 34.2	+00.1	10

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for the three planets and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for the three planets and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for the three planets and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for the three planets and Greenwich Culmination Time.

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	184 03.5	+00.0	S 13 12.4	+00.9	146 14.9	-00.8	S 23 51.4	+00.5	229 00.2	-24.0	N 07 13.1	-13.9	00		
01	199 03.5	+00.1	S 13 13.3	+00.8	161 14.1	-00.8	S 23 51.9	+00.5	243 36.2	-23.9	N 06 59.2	-13.9	01		
02	214 03.6	+00.0	S 13 14.1	+00.8	176 13.3	-00.8	S 23 52.4	+00.5	258 12.3	-24.0	N 06 45.3	-13.9	02		
03	229 03.6	+00.1	S 13 14.9	+00.9	191 12.5	-00.8	S 23 52.9	+00.5	272 48.3	-23.9	N 06 31.4	-13.9	03		
04	244 03.7	+00.0	S 13 15.8	+00.8	206 11.7	-00.7	S 23 53.4	+00.5	287 24.4	-23.8	N 06 17.5	-13.9	04		
05	259 03.7	+00.1	S 13 16.6	+00.8	221 11.0	-00.8	S 23 53.9	+00.5	302 00.6	-23.8	N 06 03.6	-14.0	05		
06	274 03.8	+00.0	S 13 17.4	+00.9	236 10.2	-00.8	S 23 54.4	+00.5	316 36.8	-23.8	N 05 49.6	-13.9	06		
07	289 03.8	+00.1	S 13 18.3	+00.8	251 09.4	-00.8	S 23 54.9	+00.5	331 13.0	-23.8	N 05 35.7	-14.0	07		
08	304 03.9	+00.0	S 13 19.1	+00.8	266 08.6	-00.8	S 23 55.4	+00.5	345 49.2	-23.8	N 05 21.7	-14.0	08		
09	319 03.9	+00.0	S 13 19.9	+00.9	281 07.8	-00.8	S 23 55.9	+00.5	0 25.4	-23.7	N 05 07.7	-14.0	09		
10	334 03.9	+00.1	S 13 20.8	+00.8	296 07.0	-00.7	S 23 56.4	+00.5	15 01.7	-23.7	N 04 53.7	-14.1	10		
11	349 04.0	+00.0	S 13 21.6	+00.8	311 06.3	-00.8	S 23 56.9	+00.5	29 38.0	-23.7	N 04 39.6	-14.0	11		
12	4 04.0	+00.1	S 13 22.4	+00.9	326 05.5	-00.8	S 23 57.4	+00.5	44 14.3	-23.6	N 04 25.6	-14.1	12		
13	19 04.1	+00.0	S 13 23.3	+00.9	341 04.7	-00.8	S 23 57.9	+00.5	58 50.7	-23.7	N 04 11.5	-14.0	13		
14	34 04.1	+00.1	S 13 24.1	+00.8	356 03.9	-00.8	S 23 58.4	+00.4	73 27.0	-23.6	N 03 57.5	-14.1	14		
15	49 04.2	+00.0	S 13 24.9	+00.9	11 03.1	-00.8	S 23 58.8	+00.5	88 03.4	-23.6	N 03 43.4	-14.1	15		
16	64 04.2	+00.0	S 13 25.8	+00.8	26 02.3	-00.8	S 23 59.3	+00.5	102 39.8	-23.6	N 03 29.3	-14.1	16		
17	79 04.2	+00.1	S 13 26.6	+00.8	41 01.5	-00.7	S 23 59.8	+00.5	117 16.2	-23.5	N 03 15.2	-14.1	17		
18	94 04.3	+00.0	S 13 27.4	+00.8	56 00.8	-00.8	S 24 00.3	+00.5	131 52.7	-23.6	N 03 01.1	-14.1	18		
19	109 04.3	+00.1	S 13 28.2	+00.9	70 60.0	-00.8	S 24 00.8	+00.5	146 29.1	-23.5	N 02 47.0	-14.1	19		
20	124 04.4	+00.0	S 13 29.1	+00.8	85 59.2	-00.8	S 24 01.3	+00.5	161 05.6	-23.6	N 02 32.9	-14.2	20		
21	139 04.4	+00.1	S 13 29.9	+00.8	100 58.4	-00.8	S 24 01.8	+00.5	175 42.0	-23.5	N 02 18.7	-14.1	21		
22	154 04.5	+00.0	S 13 30.7	+00.8	115 57.6	-00.8	S 24 02.3	+00.4	190 18.5	-23.5	N 02 04.6	-14.2	22		
23	169 04.5	+00.0	S 13 31.5	+00.9	130 56.8	-00.8	S 24 02.7	+00.5	204 55.0	-23.5	N 01 50.4	-14.1	23		
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°8 14°7 14°7 14°7 14°7 14°7	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°8 14°7 14°7 14°7 14°7 14°7	SD 00°1 00°1 00°1 00°1 00°1 00°1							
HP 100°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 100°1 00°1 00°1 00°1 00°1 00°1	HP 54°2 54°1 54°1 54°1 54°0 54°0	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°2 54°1 54°1 54°1 54°0 54°0	HP 100°1 00°1 00°1 00°1 00°1 00°1	HP 54°2 54°1 54°1 54°1 54°0 54°0	HP 00°1 00°1 00°1 00°1 00°1 00°1							
SHA 147° 147° 147° 147° 147° 146°	SHA 109° 109° 109° 109° 108° 108°	SHA 147° 147° 147° 147° 146°	SHA 191° 109° 109° 108° 108° 108°	SHA 147° 147° 147° 147° 146°	SHA 109° 109° 109° 108° 108° 108°	SHA 147° 147° 147° 147° 146°	SHA 109° 109° 109° 108° 108° 108°	SHA 147° 147° 147° 147° 146°							
Greenwich Culmination Time: 11:43				Greenwich Culmination Time: 14:15				Greenwich Culmination Time: 08:58				Greenwich Culmination Time: 11:43			

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	184 04.5	+00.1	S 13 32.4	+00.8	145 56.0	-00.8	S 24 03.2	+00.5	219 31.5	-23.5	N 01 36.3	-14.2	00		
01	199 04.6	+00.0	S 13 33.2	+00.8	160 55.2	-00.7	S 24 03.7	+00.5	234 08.0	-23.5	N 01 22.1	-14.1	01		
02	214 04.6	+00.0	S 13 34.0	+00.9	175 54.5	-00.8	S 24 04.2	+00.4	248 44.5	-23.5	N 01 08.0	-14.2	02		
03	229 04.6	+00.1	S 13 34.9	+00.8	190 53.7	-00.8	S 24 04.6	+00.5	263 21.0	-23.4	N 00 53.8	-14.1	03		
04	244 04.7	+00.0	S 13 35.7	+00.8	205 52.9	-00.8	S 24 05.1	+00.5	277 57.6	-23.5	N 00 39.7	-14.2	04		
05	259 04.7	+00.1	S 13 36.5	+00.8	220 52.1	-00.8	S 24 05.6	+00.5	292 34.1	-23.5	N 00 25.5	-14.2	05		
06	274 04.8	+00.0	S 13 37.3	+00.9	235 51.3	-00.8	S 24 06.1	+00.4	307 10.6	-23.4	N 00 11.3	-14.1	06		
07	289 04.8	+00.0	S 13 38.2	+00.8	250 50.5	-00.8	S 24 06.5	+00.5	321 47.2	-23.5	S 00 02.8	+14.2	07		
08	304 04.8	+00.1	S 13 39.0	+00.8	265 49.7	-00.8	S 24 07.0	+00.5	336 23.7	-23.5	S 00 17.0	+14.2	08		
09	319 04.9	+00.0	S 13 39.8	+00.8	280 48.9	-00.8	S 24 07.5	+00.5	351 00.2	-23.4	S 00 31.2	+14.1	09		
10	334 04.9	+00.0	S 13 40.6	+00.8	295 48.1	-00.8	S 24 08.0	+00.4	5 36.8	-23.5	S 00 45.3	+14.2	10		
11	349 04.9	+00.1	S 13 41.4	+00.9	310 47.3	-00.8	S 24 08.4	+00.5	20 13.3	-23.5	S 00 59.5	+14.1	11		
12	4 05.0	+00.0	S 13 42.3	+00.8	325 46.5	-00.8	S 24 08.9	+00.4	34 49.8	-23.5	S 01 13.6	+14.2	12		
13	19 05.0	+00.1	S 13 43.1	+00.8	340 45.7	-00.7	S 24 09.3	+00.5	48 25.7	-23.5	S 01 27.8	+14.1	13		
14	34 05.1	+00.0	S 13 43.9	+00.8	355 45.0	-00.8	S 24 09.8	+00.5	64 02.8	-23.5	S 01 41.9	+14.2	14		
15	49 05.1	+00.0	S 13 44.7	+00.8	10 44.2	-00.8	S 24 10.3	+00.4	78 39.3	-23.5	S 01 56.1	+14.1	15		
16	64 05.1	+00.1	S 13 45.5	+00.9	25 43.4	-00.8	S 24 10.7	+00.5	93 15.8	-23.5	S 02 10.2	+14.1	16		
17	79 05.2	+00.0	S 13 46.4	+00.8	40 42.6	-00.8	S 24 11.2	+00.5	107 52.3	-23.5	S 02 24.3	+14.1	17		
18	94 05.2	+00.0	S 13 47.2	+00.8	55 41.8	-00.8	S 24 11.7	+00.4	122 28.8	-23.5	S 02 38.4	+14.1	18		
19	109 05.2	+00.1	S 13 48.0	+00.8	70 41.0	-00.8	S 24 12.1	+00.5	137 05.3	-23.6	S 02 52.5	+14.1	19		
20	124 05.3	+00.0	S 13 48.8	+00.8	85 40.2	-00.8	S 24 12.6	+00.4	151 41.7	-23.5	S 03 06.6	+14.1	20		
21	139 05.3	+00.0	S 13 49.6	+00.9	100 39.4	-00.8	S 24 13.0	+00.5	166 18.2	-23.6	S 03 20.7	+14.1	21		
22	154 05.3	+00.1	S 13 50.5	+00.8	115 38.6	-00.8	S 24 13.5	+00.4	180 54.6	-23.6	S 03 34.8	+14.1	22		
23	169 05.4	+00.0	S 13 51.3	+00.8	130 37.8	-00.8	S 24 13.9	+00.5	195 31.0	-23.6	S 03 48.9	+14.0	23		
UT 02 06 10 14 18 22	SD 16°1 16°1 16°1 16°1 16°1 16°1	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 00°1 00°1 00°1 00°1 00°1 00°1	UT 02 06 10 14 18 22	SD 14°7 14°7 14°7 14°7 14°7 14°7	SD 00°1 00°1 00°1 00°1 00°1 00°1							
HP 100°1 00°1 00°1 00°1 00°1 00°1	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 100°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°0 54°0 54°0 54°0 54°0	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°0 54°0 54°0 54°0 54°0	HP 100°1 00°1 00°1 00°1 00°1 00°1	HP 54°0 54°0 54°0 54°0 54°0 54°0	HP 00°1 00°1 00°1 00°1 00°1 00°1							
SHA 146° 146° 146° 146° 145°	SHA 108° 108° 108° 107° 107° 107°	SHA 146° 146° 146° 146° 145°	SHA 108° 108° 108° 107° 107° 107°	SHA 146° 146° 146° 146° 145°	SHA 108° 108° 108° 107° 107° 107°	SHA 146° 146° 146° 146° 145°	SHA 108° 108° 108° 107° 107° 107°	SHA 146° 146° 146° 146° 145°							
Greenwich Culmination Time: 11:43				Greenwich Culmination Time: 14:17				Greenwich Culmination Time: 09:36				Greenwich Culmination Time: 11:43			

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	277 08.1	+01.4	N 21 55.6	-00.1	316 50.3	+02.6	N 22 24.0	+00.0	51 40.5	+02.6	S 08 39.9	+00.0	00
01	292 09.5	+01.4	N 21 55.5	-00.1	331 52.9	+02.6	N 22 24.0	+00.0	66 43.1	+02.5	S 08 39.9	+00.1	01
02	307 10.9	+01.4	N 21 55.4	-00.1	346 55.5	+02.7	N 22 24.0	+00.0	81 45.6	+02.6	S 08 40.0	+00.0	02
03	322 12.3	+01.5	N 21 55.3	-00.1	1 58.2	+02.6	N 22 24.0	+00.0	96 48.2	+02.5	S 08 40.0	+00.0	03
04	337 13.8	+01.4	N 21 55.2	-00.1	17 00.8	+02.6	N 22 24.0	-00.1	111 50.7	+02.5	S 08 40.0	+00.0	04
05	352 15.2	+01.4	N 21 55.1	-00.2	32 03.4	+02.7	N 22 23.9	+00.0	126 53.2	+02.6	S 08 40.0	+00.1	05
06	7 16.6	+01.4	N 21 54.9	-00.1	47 06.1	+02.6	N 22 23.9	+00.0	141 55.8	+02.5	S 08 40.1	+00.0	06
07	22 18.0	+01.4	N 21 54.8	-00.1	62 08.7	+02.6	N 22 23.9	+00.0	156 58.3	+02.6	S 08 40.1	+00.0	07
08	37 19.4	+01.5	N 21 54.7	-00.1	77 11.3	+02.7	N 22 23.9	+00.0	172 00.9	+02.5	S 08 40.1	+00.0	08
09	52 20.9	+01.4	N 21 54.6	-00.1	92 14.0	+02.6	N 22 23.9	+00.0	187 03.4	+02.5	S 08 40.1	+00.1	09
10	67 22.3	+01.4	N 21 54.5	-00.1	107 16.6	+02.6	N 22 23.9	+00.0	202 05.9	+02.6	S 08 40.2	+00.0	10
11	82 23.7	+01.4	N 21 54.4	-00.1	122 19.2	+02.7	N 22 23.9	+00.0	217 08.5	+02.5	S 08 40.2	+00.0	11
12	97 25.1	+01.4	N 21 54.3	-00.2	137 21.9	+02.6	N 22 23.9	+00.0	232 11.0	+02.6	S 08 40.2	+00.0	12
13	112 26.5	+01.5	N 21 54.1	-00.1	152 24.5	+02.6	N 22 23.9	+00.0	247 13.6	+02.5	S 08 40.2	+00.1	13
14	127 28.0	+01.4	N 21 54.0	-00.1	167 27.1	+02.7	N 22 23.9	-00.1	262 16.1	+02.5	S 08 40.3	+00.0	14
15	142 29.4	+01.4	N 21 53.9	-00.1	182 29.8	+02.6	N 22 23.8	+00.0	277 18.6	+02.6	S 0		

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 11:43.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 11:43.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 05:16.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 05:24.

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Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for November 1st, including Right Ascension (GHA, ddGHA), Declination (Dec, dDec), and magnitude (A: 99%).

Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for November 2nd, including Right Ascension (GHA, ddGHA), Declination (Dec, dDec), and magnitude (A: 02%).

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UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	184	05.0	-00.1	S 16 21.4	+00.7	142	59.4	-00.8	S 25 18.9	+00.2	117	01.6	-33.5	S 27 19.4	-05.0					
01	199	04.9	+00.0	S 16 22.1	+00.7	157	58.6	-00.9	S 25 19.1	+00.2	131	28.1	-33.4	S 27 14.4	-05.2					
02	214	04.9	+00.0	S 16 22.8	+00.8	172	57.7	-00.8	S 25 19.3	+00.2	145	54.7	-33.5	S 27 09.2	-05.3					
03	229	04.9	-00.1	S 16 23.6	+00.7	187	56.9	-00.8	S 25 19.5	+00.3	160	21.2	-33.4	S 27 03.9	-05.5					
04	244	04.8	+00.0	S 16 24.3	+00.7	202	56.1	-00.9	S 25 19.8	+00.2	174	47.8	-33.3	S 26 58.4	-05.6					
05	259	04.8	+00.0	S 16 25.0	+00.8	217	55.2	-00.8	S 25 20.0	+00.2	189	14.5	-33.4	S 26 52.8	-05.8					
06	274	04.8	-00.1	S 16 25.8	+00.7	232	54.4	-00.8	S 25 20.2	+00.2	203	41.1	-33.3	S 26 47.0	-05.9					
07	289	04.7	+00.0	S 16 26.5	+00.7	247	53.6	-00.9	S 25 20.4	+00.2	218	07.8	-33.3	S 26 41.1	-06.1					
08	304	04.7	-00.1	S 16 27.2	+00.8	262	52.7	-00.8	S 25 20.6	+00.2	232	34.5	-33.2	S 26 35.0	-06.3					
09	319	04.6	+00.0	S 16 28.0	+00.7	277	51.9	-00.9	S 25 20.8	+00.2	247	01.3	-33.3	S 26 28.7	-06.4					
10	334	04.6	+00.0	S 16 28.7	+00.7	292	51.0	-00.8	S 25 21.0	+00.2	261	28.0	-33.1	S 26 22.3	-06.5					
11	349	04.6	-00.1	S 16 29.4	+00.7	307	50.2	-00.8	S 25 21.2	+00.2	275	54.9	-33.2	S 26 15.8	-06.7					
12	4	04.5	+00.0	S 16 30.1	+00.8	322	49.4	-00.9	S 25 21.4	+00.2	290	21.7	-33.1	S 26 09.1	-06.9					
13	19	04.5	-00.1	S 16 30.9	+00.7	337	48.5	-00.8	S 25 21.6	+00.2	304	48.6	-33.1	S 26 02.2	-07.0					
14	34	04.4	+00.0	S 16 31.6	+00.7	352	47.7	-00.9	S 25 21.8	+00.2	319	15.5	-33.0	S 25 55.2	-07.2					
15	49	04.4	+00.0	S 16 32.3	+00.8	7	46.8	-00.8	S 25 22.0	+00.2	333	42.5	-33.0	S 25 48.0	-07.3					
16	64	04.4	-00.1	S 16 33.1	+00.7	22	46.0	-00.8	S 25 22.2	+00.2	348	09.5	-33.0	S 25 40.7	-07.4					
17	79	04.3	+00.0	S 16 33.8	+00.7	37	45.2	-00.9	S 25 22.4	+00.2	2	36.5	-32.9	S 25 33.3	-07.6					
18	94	04.3	-00.1	S 16 34.5	+00.7	52	44.3	-00.8	S 25 22.6	+00.2	17	03.6	-32.9	S 25 25.7	-07.8					
19	109	04.2	+00.0	S 16 35.2	+00.8	67	43.5	-00.8	S 25 22.8	+00.2	31	30.7	-32.8	S 25 17.9	-07.9					
20	124	04.2	-00.1	S 16 36.0	+00.7	82	42.7	-00.9	S 25 23.0	+00.2	45	57.9	-32.8	S 25 10.0	-08.1					
21	139	04.1	+00.0	S 16 36.7	+00.7	97	41.8	-00.8	S 25 23.2	+00.2	60	25.1	-32.7	S 25 01.9	-08.2					
22	154	04.1	-00.1	S 16 37.4	+00.7	112	41.0	-00.9	S 25 23.4	+00.2	74	52.4	-32.7	S 24 53.7	-08.3					
23	169	04.0	+00.0	S 16 38.1	+00.8	127	40.1	-00.8	S 25 23.6	+00.2	89	19.7	-32.7	S 24 45.4	-08.5					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°1	16°1	16°1	16°1	16°1	16°1	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°4	15°5	15°5	15°5	15°6	15°6
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	56°6	56°7	56°9	57°0	57°1	57°2
SHA	137°	137°	137°	137°	137°	136°	SHA	096°	096°	096°	096°	095°	095°	SHA	060°	060°	062°	062°	063°	063°
Greenwich Culmination Time: 11:43					Greenwich Culmination Time: 14:28					Greenwich Culmination Time: 16:49										

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	283	09.7	+01.6	N 21 30.4	+00.0	327	31.4	+02.7	N 22 20.9	+00.0	61	45.7	+02.5	S 08 44.0	+00.0					
01	298	11.3	+01.6	N 21 30.4	-00.1	342	34.1	+02.7	N 22 20.9	+00.0	76	48.2	+02.5	S 08 44.0	+00.0					
02	313	12.9	+01.6	N 21 30.3	-00.1	357	36.8	+02.7	N 22 20.9	+00.0	91	50.7	+02.5	S 08 44.0	+00.0					
03	328	14.5	+01.6	N 21 30.2	-00.1	12	39.5	+02.7	N 22 20.9	+00.0	106	53.2	+02.5	S 08 44.0	+00.0					
04	343	16.1	+01.6	N 21 30.1	-00.1	27	42.2	+02.8	N 22 20.9	-00.1	121	55.7	+02.5	S 08 44.0	+00.0					
05	358	17.7	+01.6	N 21 30.0	-00.1	42	45.0	+02.7	N 22 20.8	+00.0	136	58.2	+02.5	S 08 44.0	+00.0					
06	13	19.3	+01.7	N 21 29.9	-00.1	57	47.7	+02.7	N 22 20.8	+00.0	152	00.7	+02.5	S 08 44.0	+00.0					
07	28	21.0	+01.6	N 21 29.8	-00.1	72	50.4	+02.7	N 22 20.8	+00.0	167	03.2	+02.5	S 08 44.0	+00.0					
08	43	22.6	+01.6	N 21 29.7	-00.1	87	53.1	+02.7	N 22 20.8	+00.0	182	05.7	+02.5	S 08 44.0	+00.0					
09	58	24.2	+01.6	N 21 29.6	+00.0	102	55.8	+02.7	N 22 20.8	+00.0	197	08.2	+02.5	S 08 44.0	+00.0					
10	73	25.8	+01.6	N 21 29.6	-00.1	117	58.5	+02.7	N 22 20.8	-00.1	212	10.7	+02.5	S 08 44.0	+00.1					
11	88	27.4	+01.6	N 21 29.5	-00.1	133	01.2	+02.7	N 22 20.7	+00.0	227	13.2	+02.5	S 08 44.1	+00.0					
12	103	29.0	+01.6	N 21 29.4	-00.1	148	03.9	+02.8	N 22 20.7	+00.0	242	15.7	+02.5	S 08 44.1	+00.0					
13	118	30.6	+01.7	N 21 29.3	+00.0	163	06.7	+02.7	N 22 20.7	+00.0	257	18.2	+02.5	S 08 44.1	+00.0					
14	133	32.3	+01.6	N 21 29.2	-00.1	178	09.4	+02.7	N 22 20.7	+00.0	272	20.7	+02.5	S 08 44.1	+00.0					
15	148	33.9	+01.6	N 21 29.1	-00.1	193	12.1	+02.7	N 22 20.7	+00.0	287	23.2	+02.5	S 08 44.1	+00.0					
16	163	35.5	+01.6	N 21 29.0	-00.1	208	14.8	+02.7	N 22 20.7	+00.0	302	25.7	+02.5	S 08 44.1	+00.0					
17	178	37.1	+01.6	N 21 28.9	-00.1	223	17.5	+02.7	N 22 20.7	-00.1	317	28.2	+02.5	S 08 44.1	+00.0					
18	193	38.7	+01.7	N 21 28.8	+00.0	238	20.2	+02.7	N 22 20.6	+00.0	332	30.7	+02.5	S 08 44.1	+00.0					
19	208	40.4	+01.6	N 21 28.8	-00.1	253	22.9	+02.8	N 22 20.6	+00.0	347	33.2	+02.5	S 08 44.1	+00.0					
20	223	42.0	+01.6	N 21 28.7	-00.1	268	25.7	+02.7	N 22 20.6	+00.0	2	35.7	+02.5	S 08 44.1	+00.0					
21	238	43.6	+01.6	N 21 28.6	-00.1	283	28.4	+02.7	N 22 20.6	+00.0	17	38.2	+02.5	S 08 44.1	+00.0					
22	253	45.2	+01.7	N 21 28.5	-00.1	298	31.1	+02.7	N 22 20.6	+00.0	32	40.7	+02.5	S 08 44.1	+00.0					
23	268	46.9	+01.6	N 21 28.4	-00.1	313	33.8	+02.7	N 22 20.6	-00.1	47	43.2	+02.5	S 08 44.1	+00.1					
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	00°4	00°4	00°4	00°4	00°4	00°4	SD	00°2	00°2	00°2	00°2	00°2	00°2
HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	236°	236°	236°	236°	236°	236°	SHA	281°	281°	281°	281°	281°	281°	SHA	015°	015°	015°	015°	015°	015°
Greenwich Culmination Time: 05:06					Greenwich Culmination Time: 02:09					Greenwich Culmination Time: 19:49										

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	184	06.7	-00.1	S 15 27.3	+00.7	143	59.4	-00.8	S 24 60.0	+00.3	156	37.4	-31.3	S 26 27.7	+05.9
01	199	06.6	+00.0	S 15 28.0	+00.8	158	58.6	-00.9	S 25 00.3	+00.3	171	06.1	-31.3	S 26 33.6	+05.8
02	214	06.6	+00.0	S 15 28.8	+00.8	173	57.7	-00.8	S 25 00.6	+00.3	185	34.8	-31.5	S 26 39.4	+05.7
03	229	06.6	+00.0	S 15 29.6	+00.7	188	56.9	-00.8	S 25 00.9	+00.3	200	03.3	-31.5	S 26 45.1	+05.5
04	244	06.6	+00.0	S 15 30.3	+00.8	203	56.1	-00.8	S 25 01.2	+00.3	214	31.8	-31.5	S 26 50.6	+05.4
05	259	06.6	+00.0	S 15 31.1	+00.8	218	55.3	-00.9	S 25 01.5	+00.3	229	00.3	-31.7	S 26 56.0	+05.3
06	274	06.6	+00.0	S 15 31.9	+00.7	233	54.4	-00.8	S 25 01.8	+00.3	243	28.6	-31.7	S 27 01.3	+05.2
07	289	06.6	+00.0	S 15 32.6	+00.8	248	53.6	-00.8	S 25 02.1	+00.3	257	56.9	-31.8	S 27 06.5	+05.0
08	304	06.6	-00.1	S 15 33.4	+00.8	263	52.8	-00.9	S 25 02.4	+00.3	272	25.1	-31.9	S 27 11.5	+04.8
09	319	06.5	+00.0	S 15 34.2	+00.7	278	51.9	-00.8	S 25 02.7	+00.3	286	53.2	-31.9	S 27 16.3	+04.8
10	334	06.5	+00.0	S 15 34.9	+00.8	293	51.1	-00.8	S 25 03.0	+00.3	301	21.3	-32.0	S 27 21.1	+04.6
11	349	06.5	+00.0	S 15 35.7	+00.7	308	50.3	-00.8	S 25 03.3	+00.3	315	49.3	-32.1	S 27 25.7	+04.4
12	4	06.5	+00.0	S 15 36.4	+00.8	323	49.5	-00.9	S 25 03.6	+00.3	330	17.2	-32.2	S 27 30.1	+04.3
13	19	06.5	+00.0	S 15 37.2	+00.8	338	48.6	-00.8	S 25 03.9	+00.3	344	45.0	-32.2	S 27 34.4	+04.2
14	34	06.5	+00.0	S 15 38.0	+00.7	353	47.8	-00.8	S 25 04.2	+00.3	359	12.8	-32.2	S 27 38.6	+04.0
15	49	06.5	-00.1	S 15 38.7	+00.8	8	47.0	-00.9	S 25 04.5	+00.2	13	40.6	-32.4	S 27 42.6	+

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 139° 139° 139° 139° 139° 138°
Greenwich Culmination Time: 11:43

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 237° 237° 237° 237° 237° 237°
Greenwich Culmination Time: 05:11

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 138° 138° 138° 138° 138° 137°
Greenwich Culmination Time: 11:43

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 237° 237° 237° 237° 237° 237°
Greenwich Culmination Time: 05:09

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows show astronomical data for days 00 to 23, including GHA, ddGHA, Dec, and dDec for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 133° 133° 133° 133° 133° 132°
Greenwich Culmination Time: 11:44

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows show astronomical data for days 00 to 23, including GHA, ddGHA, Dec, and dDec for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 235° 235° 235° 235° 235° 235°
Greenwich Culmination Time: 04:56

Table with columns for UT, Sun, Venus, Moon, and UT. Rows show astronomical data for days 00 to 23, including GHA, ddGHA, Dec, and dDec for each planet.

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 136° 136° 136° 136° 136° 135°
Greenwich Culmination Time: 11:43

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows show astronomical data for days 00 to 23, including GHA, ddGHA, Dec, and dDec for each planet.

UT 02 06 10 14 18 22
SD 00°4 00°4 00°4 00°4 00°4 00°4
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 281° 281° 281° 281° 281° 281°
Greenwich Culmination Time: 02:05

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 16°1 16°1 16°1 16°1 16°1 16°2 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 135° 135° 135° 135° 135° 134° Greenwich Culmination Time: 11:43

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 236° 236° 236° 236° 236° 236° Greenwich Culmination Time: 05:01

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 16°2 16°2 16°2 16°2 16°2 16°2 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 134° 134° 134° 134° 134° 133° Greenwich Culmination Time: 11:43

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 235° 235° 235° 235° 235° 235° Greenwich Culmination Time: 04:58

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	183	51.4	-00.1	S 18 33.0	+00.6	140	18.4	-00.9	S 25 37.4	+00.0	17	19.7	-33.9	N 17 48.3	+14.5	00
01	198	51.3	-00.1	S 18 33.6	+00.7	155	17.5	-00.8	S 25 37.4	+00.0	31	45.8	-34.1	N 18 02.8	+14.3	01
02	213	51.2	-00.1	S 18 34.3	+00.6	170	16.7	-00.8	S 25 37.4	-00.1	46	11.7	-34.1	N 18 17.1	+14.1	02
03	228	51.1	-00.1	S 18 34.9	+00.6	185	15.9	-00.9	S 25 37.3	+00.0	60	37.6	-34.2	N 18 31.2	+14.1	03
04	243	51.0	-00.1	S 18 35.5	+00.7	200	15.0	-00.8	S 25 37.3	+00.0	75	03.4	-34.3	N 18 45.3	+14.0	04
05	258	50.9	-00.1	S 18 36.2	+00.6	215	14.2	-00.8	S 25 37.3	-00.1	89	29.1	-34.4	N 18 59.3	+13.8	05
06	273	50.8	-00.1	S 18 36.8	+00.6	230	13.4	-00.9	S 25 37.2	+00.0	103	54.7	-34.6	N 19 13.1	+13.7	06
07	288	50.7	-00.1	S 18 37.4	+00.7	245	12.5	-00.8	S 25 37.2	+00.0	118	20.1	-34.5	N 19 26.8	+13.5	07
08	303	50.6	-00.2	S 18 38.1	+00.6	260	11.7	-00.8	S 25 37.2	-00.1	132	45.6	-34.7	N 19 40.3	+13.5	08
09	318	50.4	-00.1	S 18 38.7	+00.6	275	10.9	-00.8	S 25 37.1	+00.0	147	10.9	-34.8	N 19 53.8	+13.2	09
10	333	50.3	-00.1	S 18 39.3	+00.6	290	10.1	-00.9	S 25 37.1	+00.0	161	36.1	-34.9	N 20 07.0	+13.2	10
11	348	50.2	-00.1	S 18 39.9	+00.7	305	09.2	-00.8	S 25 37.1	-00.1	176	01.2	-34.9	N 20 20.2	+13.0	11
12	3	50.1	-00.1	S 18 40.6	+00.6	320	08.4	-00.8	S 25 37.0	+00.0	190	26.3	-35.1	N 20 33.2	+12.9	12
13	18	50.0	-00.1	S 18 41.2	+00.6	335	07.6	-00.9	S 25 37.0	-00.1	204	51.2	-35.1	N 20 46.1	+12.8	13
14	33	49.9	-00.1	S 18 41.8	+00.6	350	06.7	-00.8	S 25 36.9	+00.0	219	16.1	-35.3	N 20 58.9	+12.5	14
15	48	49.8	-00.1	S 18 42.4	+00.7	5	05.9	-00.8	S 25 36.9	-00.1	233	40.8	-35.3	N 21 11.4	+12.5	15
16	63	49.7	-00.1	S 18 43.1	+00.6	20	05.1	-00.9	S 25 36.8	+00.0	248	05.5	-35.4	N 21 23.9	+12.3	16
17	78	49.6	-00.1	S 18 43.7	+00.6	35	04.2	-00.8	S 25 36.8	-00.1	262	30.1	-35.5	N 21 36.2	+12.2	17
18	93	49.5	-00.2	S 18 44.3	+00.6	50	03.4	-00.8	S 25 36.7	+00.0	276	54.6	-35.6	N 21 48.4	+12.0	18
19	108	49.3	-00.1	S 18 44.9	+00.7	65	02.6	-00.8	S 25 36.7	-00.1	291	19.0	-35.7	N 22 00.4	+11.8	19
20	123	49.2	-00.1	S 18 45.6	+00.6	80	01.8	-00.9	S 25 36.6	+00.0	305	43.3	-35.7	N 22 12.2	+11.7	20
21	138	49.1	-00.1	S 18 46.2	+00.6	95	00.9	-00.8	S 25 36.6	-00.1	320	07.6	-35.9	N 22 23.9	+11.5	21
22	153	49.0	-00.1	S 18 46.8	+00.6	110	00.1	-00.8	S 25 36.5	+00.0	334	31.7	-35.9	N 22 35.4	+11.4	22
23	168	48.9	-00.1	S 18 47.4	+00.6	124	59.3	-00.9	S 25 36.5	-00.1	348	55.8	-36.0	N 22 46.8	+11.2	23

UT 02 06 10 14 18 22
SD 16°2 16'2 16°2 16'2 16°2 16'2
HP 00°1 00'1 00°1 00'1 00°1 00'1
SHA 129° 129° 129° 129° 129° 128°
Greenwich Culmination Time: 11:44

UT 02 06 10 14 18 22
SD 00°1 00'1 00°1 00'1 00°1 00'1
HP 00°1 00'1 00°1 00'1 00°1 00'1
SHA 086° 085° 085° 085° 085° 085°
Greenwich Culmination Time: 14:39

UT 02 06 10 14 18 22
SD 16°6 16'6 16°5 16'5 16°5 16'5
HP 60°8 60'8 60°7 60'7 60°6 60'6
SHA 322° 319° 317° 314° 312° 309°
Greenwich Culmination Time: 23:46

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	288	34.7	+01.8	N 21 16.4	-00.1	336	16.9	+02.8	N 22 17.5	+00.0	69	42.9	+02.5	S 08 44.3	+00.0	00
01	303	36.5	+01.8	N 21 16.3	+00.0	351	19.7	+02.7	N 22 17.5	+00.0	84	45.4	+02.4	S 08 44.3	+00.0	01
02	318	38.3	+01.8	N 21 16.3	-00.1	6	22.4	+02.8	N 22 17.5	+00.0	99	47.8	+02.5	S 08 44.3	+00.0	02
03	333	40.1	+01.7	N 21 16.2	+00.0	21	25.2	+02.7	N 22 17.5	+00.0	114	50.3	+02.5	S 08 44.3	-00.1	03
04	348	41.8	+01.8	N 21 16.2	-00.1	36	27.9	+02.8	N 22 17.5	-00.1	129	52.8	+02.4	S 08 44.2	+00.0	04
05	3	43.6	+01.8	N 21 16.1	+00.0	51	30.7	+02.8	N 22 17.4	+00.0	144	55.2	+02.5	S 08 44.2	+00.0	05
06	18	45.4	+01.8	N 21 16.1	-00.1	66	33.5	+02.7	N 22 17.4	+00.0	159	57.7	+02.5	S 08 44.2	+00.0	06
07	33	47.2	+01.8	N 21 16.0	-00.1	81	36.2	+02.8	N 22 17.4	+00.0	175	00.2	+02.4	S 08 44.2	+00.0	07
08	48	49.0	+01.8	N 21 15.9	+00.0	96	39.0	+02.8	N 22 17.4	+00.0	190	02.6	+02.5	S 08 44.2	+00.0	08
09	63	50.8	+01.8	N 21 15.9	-00.1	111	41.8	+02.7	N 22 17.4	-00.1	205	05.1	+02.5	S 08 44.2	+00.0	09
10	78	52.6	+01.8	N 21 15.8	+00.0	126	44.5	+02.8	N 22 17.3	+00.0	220	07.6	+02.4	S 08 44.2	+00.0	10
11	93	54.4	+01.8	N 21 15.8	-00.1	141	47.3	+02.8	N 22 17.3	+00.0	235	10.0	+02.5	S 08 44.2	+00.0	11
12	108	56.2	+01.8	N 21 15.7	+00.0	156	50.1	+02.7	N 22 17.3	+00.0	250	12.5	+02.5	S 08 44.2	+00.0	12
13	123	58.0	+01.8	N 21 15.7	-00.1	171	52.8	+02.8	N 22 17.3	+00.0	265	15.0	+02.4	S 08 44.2	+00.0	13
14	138	59.8	+01.8	N 21 15.6	+00.0	186	55.6	+02.8	N 22 17.3	-00.1	280	17.4	+02.5	S 08 44.2	+00.0	14
15	154	01.6	+01.8	N 21 15.6	-00.1	201	58.4	+02.7	N 22 17.2	+00.0	295	19.9	+02.5	S 08 44.2	+00.0	15
16	169	03.4	+01.8	N 21 15.5	+00.0	217	01.1	+02.8	N 22 17.2	+00.0	310	22.4	+02.4	S 08 44.2	+00.0	16
17	184	05.2	+01.8	N 21 15.5	-00.1	232	03.9	+02.8	N 22 17.2	+00.0	325	24.8	+02.5	S 08 44.2	+00.0	17
18	199	07.0	+01.8	N 21 15.4	+00.0	247	06.7	+02.7	N 22 17.2	+00.0	340	27.3	+02.5	S 08 44.2	+00.0	18
19	214	08.8	+01.8	N 21 15.4	-00.1	262	09.4	+02.8	N 22 17.2	-00.1	355	29.8	+02.4	S 08 44.2	-00.1	19
20	229	10.6	+01.8	N 21 15.3	+00.0	277	12.2	+02.8	N 22 17.1	+00.0	10	32.2	+02.5	S 08 44.1	+00.0	20
21	244	12.4	+01.8	N 21 15.3	-00.1	292	15.0	+02.7	N 22 17.1	+00.0	25	34.7	+02.5	S 08 44.1	+00.0	21
22	259	14.2	+01.8	N 21 15.2	+00.0	307	17.7	+02.8	N 22 17.1	+00.0	40	37.2	+02.4	S 08 44.1	+00.0	22
23	274	16.0	+01.8	N 21 15.2	-00.1	322	20.5	+02.8	N 22 17.1	+00.0	55	39.6	+02.5	S 08 44.1	+00.0	23

UT 02 06 10 14 18 22
SD 00°1 00'1 00°1 00'1 00°1 00'1
HP 00°2 00'2 00°2 00'2 00°2 00'2
SHA 234° 234° 234° 234° 234° 234°
Greenwich Culmination Time: 04:45

UT 02 06 10 14 18 22
SD 00°4 00'4 00°4 00'4 00°4 00'4
HP 00°0 00'0 00°0 00'0 00°0 00'0
SHA 282° 282° 282° 282° 282° 282°
Greenwich Culmination Time: 01:34

UT 02 06 10 14 18 22
SD 00°1 00'1 00°1 00'1 00°1 00'1
HP 00°0 00'0 00°0 00'0 00°0 00'0
SHA 015° 015° 015° 015° 015° 015°
Greenwich Culmination Time: 19:17

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	183	58.1	-00.1	S 17 45.9	+00.7	141	18.6	-00.9	S 25 36.0	+00.0	54	50.9	-29.6	S 02 21.2	-17.4	00
01	198	58.0	-00.1	S 17 46.6	+00.7	156	17.7	-00.8	S 25 36.0	+00.1	69	21.3	-29.6	S 02 03.8	-17.4	01
02	213	57.9	-00.1	S 17 47.3	+00.6	171	16.9	-00.8	S 25 36.1	+00.0	83	51.7	-29.7	S 01 46.4	-17.5	02
03	228	57.8	-00.1	S 17 47.9	+00.7	186	16.1	-00.9	S 25 36.1	+00.0	98	22.0	-29.7	S 01 28.9	-17.4	03
04	243	57.7	+00.0	S 17 48.6	+00.7	201	15.2	-00.8	S 25 36.2	+00.1	112	52.3	-29.6	S 01 11.5	-17.5	04
05	258	57.7	-00.1	S 17 49.3	+00.7	216	14.4	-00.9	S 25 36.3	+00.0	127	22.7	-29.7	S 00 54.0	-17.6	05
06	273	57.6	-00.1	S 17 50.0	+00.6	231	13.5	-00.8	S 25 36.3	+00.1	141	53.0	-29.8	S 00 36.4	-17.5	06
07	288	57.5	-00.1	S 17 50.6	+00.7	246	12.7	-00.8	S 25 36.4	+00.0	156	23.2	-29.7	S 00 18.9	-17.5	07
08	303	57.4	-00.1	S 17 51.3	+00.7	261	11.9	-00.9	S 25 36.4	+00.1	170	53.5	-29.8	S 00 01.4	-17.6	08
09	318	57.3	-00.1	S 17 52.0	+00.6	276	11.0	-00.8	S 25 36.5	+00.1	185	23.7	-29.8	N 00 16.2	+17.6	09
10	333	57.2	+00.0	S 17 52.6	+00.7	291	10.2	-00.8	S 25 36.6	+00.0	199	53.9	-29.8	N 00 33.8	+17.6	10
11	348	57.2	-00.1	S 17 53.3	+00.7	306	09.4	-00.9	S 25 36.6	+00.1	214	24.1	-29.9	N 00 51.4	+17.6	11
12	3	57.1	-00.1	S 17 54.0	+00.6	321	08.5	-00.8	S 25 36.7	+00.0	228	54.2	-29.9	N 01 09.0	+17.6	12
13	18	57.0	-00.1	S 17 54.6	+00.7	336	07.7	-00.9	S 25 36.7	+00.0	243	24.3	-29.9	N 01 26.6	+17.6	13
14	33	56.9	-00.1	S 17 55.3	+00.7	351	06.8	-00.8	S 25 36.8	+00.0	257	54.4	-30.0	N 01 44.2	+17.6	14
15	48	56.8	-00.1	S 17 56.0	+00.6	6	06.0	-00.8	S 25 36.8	+00.0	272	24.4	-30.0	N 02 01.8	+17.6	15
16	63	56.7	+00.0	S 17 56.6	+00.7	21	05.2	-00.9	S 25 36.8	+00.1	286	54.4	-30.0	N 02 19.4	+17.6	16
17	78	56.7	-00.1	S 17 57.3	+00.7	36	04.3	-00.8	S 25 36.9	+00.0	301	24.4	-30.1	N 02 37.0		

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 131° 131° 131° 131° 131° 130°
Greenwich Culmination Time: 11:44

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 130° 130° 130° 130° 130° 129°
Greenwich Culmination Time: 11:44

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°4 00°4 00°4 00°4 00°4 00°4
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 235° 234° 234° 234° 234° 234°
Greenwich Culmination Time: 04:50

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°4 00°4 00°4 00°4 00°4 00°4
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 234° 234° 234° 234° 234° 234°
Greenwich Culmination Time: 04:47

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 125° 125° 125° 125° 124° 124°
Greenwich Culmination Time: 11:45

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 128° 128° 128° 128° 127° 127°
Greenwich Culmination Time: 11:44

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 233° 233° 233° 233° 233° 233°
Greenwich Culmination Time: 04:33

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°4 00°4 00°4 00°4 00°4 00°4
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 234° 234° 234° 234° 234° 234°
Greenwich Culmination Time: 04:42

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Table for Sun, Venus, and Moon on 2024 November 17. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 56%. Rows 00-23.

Table for Sun, Venus, and Moon on 2024 November 18. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 60%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on 2024 November 17. Columns include UT, GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time. Rows 00-23.

Table for Mars, Jupiter, and Saturn on 2024 November 18. Columns include UT, GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time. Rows 00-23.

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UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	183	24.5	-00.2	S 20 23.7	+00.5	137	43.0	-00.8	S 25 09.3	-00.3	268	50.1	-25.9	N 14 00.8	-13.0
01	198	24.3	-00.2	S 20 24.2	+00.6	152	42.2	-00.8	S 25 09.0	-00.3	283	24.2	-25.9	N 13 47.8	-13.0
02	213	24.1	-00.1	S 20 24.8	+00.5	167	41.4	-00.7	S 25 08.7	-00.2	297	58.3	-25.8	N 13 34.8	-13.1
03	228	24.0	-00.2	S 20 25.3	+00.5	182	40.7	-00.8	S 25 08.5	-00.3	312	32.5	-25.7	N 13 21.7	-13.1
04	243	23.8	-00.2	S 20 25.8	+00.5	197	39.9	-00.8	S 25 08.2	-00.3	327	06.8	-25.7	N 13 08.6	-13.1
05	258	23.6	-00.2	S 20 26.3	+00.5	212	39.1	-00.8	S 25 07.9	-00.3	341	41.1	-25.5	N 12 55.5	-13.2
06	273	23.4	-00.1	S 20 26.8	+00.5	227	38.3	-00.7	S 25 07.6	-00.2	356	15.6	-25.5	N 12 42.3	-13.2
07	288	23.3	-00.2	S 20 27.3	+00.5	242	37.6	-00.8	S 25 07.4	-00.3	10	50.1	-25.5	N 12 29.1	-13.2
08	303	23.1	-00.2	S 20 27.8	+00.6	257	36.8	-00.8	S 25 07.1	-00.3	25	24.6	-25.3	N 12 15.9	-13.3
09	318	22.9	-00.2	S 20 28.4	+00.5	272	36.0	-00.8	S 25 06.8	-00.3	39	59.3	-25.3	N 12 02.6	-13.3
10	333	22.7	-00.1	S 20 28.9	+00.5	287	35.2	-00.7	S 25 06.5	-00.2	54	34.0	-25.3	N 11 49.3	-13.4
11	348	22.6	-00.2	S 20 29.4	+00.5	302	34.5	-00.8	S 25 06.3	-00.3	69	08.7	-25.1	N 11 35.9	-13.4
12	3	22.4	-00.2	S 20 29.9	+00.5	317	33.7	-00.8	S 25 06.0	-00.3	83	43.6	-25.1	N 11 22.5	-13.4
13	18	22.2	-00.2	S 20 30.4	+00.5	332	32.9	-00.8	S 25 05.7	-00.3	98	18.5	-25.1	N 11 09.1	-13.5
14	33	22.0	-00.2	S 20 30.9	+00.5	347	32.1	-00.7	S 25 05.4	-00.3	112	53.4	-25.0	N 10 55.6	-13.5
15	48	21.8	-00.1	S 20 31.4	+00.5	2	31.4	-00.8	S 25 05.1	-00.3	127	28.4	-24.9	N 10 42.1	-13.5
16	63	21.7	-00.2	S 20 31.9	+00.5	17	30.6	-00.8	S 25 04.8	-00.2	142	03.5	-24.8	N 10 28.6	-13.5
17	78	21.5	-00.2	S 20 32.4	+00.5	32	29.8	-00.7	S 25 04.6	-00.3	156	38.7	-24.8	N 10 15.1	-13.6
18	93	21.3	-00.2	S 20 32.9	+00.5	47	29.1	-00.8	S 25 04.3	-00.3	171	13.9	-24.8	N 10 01.5	-13.6
19	108	21.1	-00.2	S 20 33.4	+00.5	62	28.3	-00.8	S 25 04.0	-00.3	185	49.1	-24.7	N 09 47.9	-13.6
20	123	20.9	-00.1	S 20 33.9	+00.5	77	27.5	-00.8	S 25 03.7	-00.3	200	24.4	-24.6	N 09 34.3	-13.7
21	138	20.8	-00.2	S 20 34.4	+00.5	92	26.7	-00.7	S 25 03.4	-00.3	214	59.8	-24.6	N 09 20.6	-13.7
22	153	20.6	-00.2	S 20 34.9	+00.5	107	26.0	-00.8	S 25 03.1	-00.3	229	35.2	-24.6	N 09 06.9	-13.7
23	168	20.4	-00.2	S 20 35.4	+00.5	122	25.2	-00.8	S 25 02.8	-00.3	244	10.6	-24.5	N 08 53.2	-13.7
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22							
SD 16°2 16°2 16°2 16°2 16°2 16°2				SD 00°1 00°1 00°1 00°1 00°1 00°1				SD 15°0 15°0 14°9 14°9 14°9 14°9							
HP 00°1 00°1 00°1 00°1 00°1 00°1				HP 00°1 00°1 00°1 00°1 00°1 00°1				HP 55°0 54°9 54°8 54°7 54°7 54°6							
SHA 121° 121° 121° 120° 120° 120°				SHA 075° 075° 075° 074° 074° 074°				SHA 205° 204° 202° 200° 198° 196°							
Greenwich Culmination Time: 11:46				Greenwich Culmination Time: 14:49				Greenwich Culmination Time: 06:15							

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	294	36.6	+02.0	N 21 10.5	+00.0	345	11.2	+02.8	N 22 13.3	+00.0	77	33.8	+02.5	S 08 41.9	+00.0
01	309	38.6	+02.0	N 21 10.5	+00.0	0	14.0	+02.8	N 22 13.3	+00.0	92	36.3	+02.4	S 08 41.9	+00.0
02	324	40.6	+02.0	N 21 10.5	+00.0	15	16.8	+02.8	N 22 13.3	+00.0	107	38.7	+02.5	S 08 41.9	+00.0
03	339	42.6	+01.9	N 21 10.5	+00.0	30	19.6	+02.8	N 22 13.3	+00.0	122	41.2	+02.4	S 08 41.9	+00.0
04	354	44.5	+02.0	N 21 10.5	+00.0	45	22.4	+02.8	N 22 13.3	-00.1	137	43.6	+02.4	S 08 41.9	-00.1
05	9	46.5	+02.0	N 21 10.5	+00.0	60	25.2	+02.8	N 22 13.2	+00.0	152	46.0	+02.5	S 08 41.8	+00.0
06	24	48.5	+02.0	N 21 10.5	+00.0	75	28.0	+02.8	N 22 13.2	+00.0	167	48.5	+02.4	S 08 41.8	+00.0
07	39	50.5	+02.0	N 21 10.5	+00.0	90	30.8	+02.8	N 22 13.2	+00.0	182	50.9	+02.4	S 08 41.8	+00.0
08	54	52.5	+02.0	N 21 10.5	+00.0	105	33.6	+02.8	N 22 13.2	-00.1	197	53.3	+02.5	S 08 41.8	+00.0
09	69	54.5	+02.0	N 21 10.5	+00.0	120	36.4	+02.8	N 22 13.1	+00.0	212	55.8	+02.4	S 08 41.8	-00.1
10	84	56.5	+02.0	N 21 10.5	+00.0	135	39.2	+02.8	N 22 13.1	+00.0	227	58.2	+02.4	S 08 41.7	+00.0
11	99	58.5	+02.1	N 21 10.5	+00.0	150	42.0	+02.8	N 22 13.1	+00.0	243	00.6	+02.5	S 08 41.7	+00.0
12	115	00.6	+02.0	N 21 10.5	+00.0	165	44.8	+02.8	N 22 13.1	-00.1	258	03.1	+02.4	S 08 41.7	+00.0
13	130	02.6	+02.0	N 21 10.5	+00.0	180	47.6	+02.8	N 22 13.0	+00.0	273	05.5	+02.4	S 08 41.7	+00.0
14	145	04.6	+02.0	N 21 10.5	+00.0	195	50.4	+02.8	N 22 13.0	+00.0	288	07.9	+02.5	S 08 41.7	-00.1
15	160	06.6	+02.0	N 21 10.5	+00.0	210	53.2	+02.9	N 22 13.0	+00.0	303	10.4	+02.4	S 08 41.6	+00.0
16	175	08.6	+02.0	N 21 10.5	+00.0	225	56.1	+02.8	N 22 13.0	-00.1	318	12.8	+02.4	S 08 41.6	+00.0
17	190	10.6	+02.0	N 21 10.5	+00.0	240	58.9	+02.8	N 22 12.9	+00.0	333	15.2	+02.5	S 08 41.6	+00.0
18	205	12.6	+02.0	N 21 10.5	+00.0	256	01.7	+02.8	N 22 12.9	+00.0	348	17.7	+02.4	S 08 41.6	+00.0
19	220	14.6	+02.0	N 21 10.5	+00.0	271	04.5	+02.8	N 22 12.9	+00.0	3	20.1	+02.4	S 08 41.6	-00.1
20	235	16.6	+02.0	N 21 10.5	+00.0	286	07.3	+02.8	N 22 12.9	-00.1	18	22.5	+02.5	S 08 41.5	+00.0
21	250	18.6	+02.1	N 21 10.5	+00.0	301	10.1	+02.8	N 22 12.8	+00.0	33	25.0	+02.4	S 08 41.5	+00.0
22	265	20.7	+02.0	N 21 10.5	+00.0	316	12.9	+02.8	N 22 12.8	+00.0	48	27.4	+02.4	S 08 41.5	+00.0
23	280	22.7	+02.0	N 21 10.5	+00.0	331	15.7	+02.8	N 22 12.8	+00.0	63	29.8	+02.5	S 08 41.5	+00.0
UT 02 06 10 14 18 22				UT 02 06 10 14 18 22				UT 02 06 10 14 18 22							
SD 00°1 00°1 00°1 00°1 00°1 00°1				SD 00°4 00°4 00°4 00°4 00°4 00°4				SD 00°1 00°1 00°1 00°1 00°1 00°1							
HP 00°2 00°2 00°2 00°2 00°2 00°2				HP 00°0 00°0 00°0 00°0 00°0 00°0				HP 00°0 00°0 00°0 00°0 00°0 00°0							
SHA 232° 232° 232° 232° 232° 232°				SHA 283° 283° 283° 283° 283° 283°				SHA 015° 015° 015° 015° 015° 015°							
Greenwich Culmination Time: 04:20				Greenwich Culmination Time: 00:59				Greenwich Culmination Time: 18:46							

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	183	36.1	-00.1	S 19 44.9	+00.5	138	40.0	-00.8	S 25 25.2	-00.2	304	26.4	-33.8	N 26 24.0	-06.6
01	198	36.0	-00.2	S 19 45.4	+00.6	153	39.2	-00.8	S 25 25.0	-00.1	318	52.6	-33.8	N 26 17.4	-06.7
02	213	35.8	-00.1	S 19 46.0	+00.5	168	38.4	-00.8	S 25 24.9	-00.2	333	18.8	-33.6	N 26 10.7	-06.8
03	228	35.7	-00.2	S 19 46.5	+00.6	183	37.6	-00.8	S 25 24.7	-00.2	347	45.2	-33.5	N 26 03.9	-07.0
04	243	35.5	-00.1	S 19 47.1	+00.6	198	36.8	-00.8	S 25 24.5	-00.2	2	11.7	-33.3	N 25 56.9	-07.1
05	258	35.4	-00.2	S 19 47.7	+00.5	213	36.0	-00.8	S 25 24.3	-00.2	16	38.4	-33.3	N 25 49.8	-07.3
06	273	35.2	-00.1	S 19 48.2	+00.6	228	35.2	-00.8	S 25 24.1	-00.1	31	05.1	-33.1	N 25 42.5	-07.3
07	288	35.1	-00.2	S 19 48.8	+00.5	243	34.4	-00.8	S 25 24.0	-00.2	45	32.0	-33.0	N 25 35.2	-07.6
08	303	34.9	-00.1	S 19 49.3	+00.6	258	33.6	-00.8	S 25 23.8	-00.2	59	59.0	-32.9	N 25 27.6	-07.6
09	318	34.8	-00.2	S 19 49.9	+00.5	273	32.8	-00.8	S 25 23.6	-00.2	74	26.1	-32.7	N 25 20.0	-07.8
10	333	34.6	-00.1	S 19 50.4	+00.6	288	32.0	-00.8	S 25 23.4	-00.2	88	53.4	-32.7	N 25 12.2	-07.9
11	348	34.5	-00.2	S 19 51.0	+00.6	303	31.2	-00.8	S 25 23.2	-00.2	103	20.7	-32.5	N 25 04.3	-08.0
12	3	34.3	-00.1	S 19 51.6	+00.5	318	30.4	-00.8	S 25 23.0	-00.2					

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 16°2 16°2 16°2 16°2 16°2 16°2 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 123° 123° 123° 122° 122° 122° Greenwich Culmination Time: 11:45

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 233° 232° 232° 232° 232° 232° Greenwich Culmination Time: 04:27

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 16°2 16°2 16°2 16°2 16°2 16°2 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 122° 122° 122° 121° 121° 121° Greenwich Culmination Time: 11:46

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates for each planet.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°0 00°0 00°0 00°0 00°0 00°0 SHA 232° 232° 232° 232° 232° 232° Greenwich Culmination Time: 04:24

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing additional celestial coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing additional celestial coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing additional celestial coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing additional celestial coordinates and Greenwich Culmination Time.

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	183	15.7	-00.2	S 20 47.8	+00.5	137	06.1	-00.8	S 24 55.1	-00.4	249	10.1	-23.6	N 03 04.6	-14.1
01	198	15.5	-00.1	S 20 48.3	+00.5	152	05.3	-00.7	S 24 54.7	-00.3	263	46.5	-23.7	N 02 50.5	-14.1
02	213	15.4	-00.2	S 20 48.8	+00.4	167	04.6	-00.8	S 24 54.4	-00.3	278	22.8	-23.6	N 02 36.4	-14.1
03	228	15.2	-00.2	S 20 49.2	+00.5	182	03.8	-00.7	S 24 54.1	-00.3	292	52.2	-23.6	N 02 22.3	-14.2
04	243	15.0	-00.2	S 20 49.7	+00.5	197	03.1	-00.8	S 24 53.8	-00.4	307	35.6	-23.6	N 02 08.1	-14.1
05	258	14.8	-00.2	S 20 50.2	+00.5	212	02.3	-00.7	S 24 53.4	-00.3	322	12.0	-23.5	N 01 54.0	-14.1
06	273	14.6	-00.2	S 20 50.7	+00.5	227	01.6	-00.8	S 24 53.1	-00.3	336	48.5	-23.6	N 01 39.9	-14.1
07	288	14.4	-00.2	S 20 51.2	+00.4	242	00.8	-00.8	S 24 52.8	-00.4	351	24.9	-23.5	N 01 25.8	-14.1
08	303	14.2	-00.2	S 20 51.6	+00.5	257	00.0	-00.7	S 24 52.4	-00.3	6	01.4	-23.6	N 01 11.7	-14.2
09	318	14.0	-00.2	S 20 52.1	+00.5	271	59.3	-00.8	S 24 52.1	-00.3	20	37.8	-23.5	N 00 57.5	-14.1
10	333	13.8	-00.2	S 20 52.6	+00.5	286	58.5	-00.7	S 24 51.8	-00.4	35	14.3	-23.5	N 00 43.4	-14.1
11	348	13.6	-00.2	S 20 53.1	+00.5	301	57.8	-00.8	S 24 51.4	-00.3	49	50.8	-23.5	N 00 29.3	-14.1
12	3	13.4	-00.2	S 20 53.6	+00.4	316	57.0	-00.7	S 24 51.1	-00.3	64	27.3	-23.5	N 00 15.2	-14.2
13	18	13.2	-00.2	S 20 54.0	+00.5	331	56.3	-00.8	S 24 50.8	-00.4	79	03.8	-23.5	N 00 01.0	-14.1
14	33	13.0	-00.2	S 20 54.5	+00.5	346	55.5	-00.7	S 24 50.4	-00.3	93	40.3	-23.5	S 00 13.1	+14.1
15	48	12.8	-00.2	S 20 55.0	+00.5	1	54.8	-00.8	S 24 50.1	-00.4	108	16.8	-23.6	S 00 27.2	+14.1
16	63	12.6	-00.2	S 20 55.5	+00.4	16	54.0	-00.7	S 24 49.7	-00.3	122	53.2	-23.5	S 00 41.3	+14.1
17	78	12.4	-00.2	S 20 55.9	+00.5	31	53.3	-00.8	S 24 49.4	-00.4	137	29.7	-23.5	S 00 55.4	+14.1
18	93	12.2	-00.1	S 20 56.4	+00.5	46	52.5	-00.7	S 24 49.0	-00.3	152	06.2	-23.5	S 01 09.5	+14.1
19	108	12.1	-00.2	S 20 56.9	+00.5	61	51.8	-00.8	S 24 48.7	-00.4	166	42.7	-23.5	S 01 23.6	+14.1
20	123	11.9	-00.2	S 20 57.4	+00.4	76	51.0	-00.7	S 24 48.3	-00.3	181	19.2	-23.5	S 01 37.7	+14.1
21	138	11.7	-00.2	S 20 57.8	+00.5	91	50.3	-00.8	S 24 48.0	-00.4	195	55.7	-23.5	S 01 51.8	+14.1
22	153	11.5	-00.2	S 20 58.3	+00.5	106	49.5	-00.7	S 24 47.6	-00.3	210	32.2	-23.5	S 02 05.9	+14.1
23	168	11.3	-00.2	S 20 58.8	+00.4	121	48.8	-00.8	S 24 47.3	-00.4	225	08.7	-23.5	S 02 20.0	+14.0
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 119° 119° 118° 118° 118° 118° Greenwich Culmination Time: 11:47	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 073° 072° 072° 072° 072° 071° Greenwich Culmination Time: 14:52	UT 02 06 10 14 18 22	SD 14°8 14°8 14°8 14°7 14°7 14°7 HP 54°2 54°2 54°2 54°1 54°1 54°1 SHA 184° 184° 180° 179° 179° 175° Greenwich Culmination Time: 07:35										

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	183	11.1	-00.2	S 20 59.2	+00.5	136	48.0	-00.7	S 24 46.9	-00.3	239	45.2	-23.6	S 02 34.0	+14.1
01	198	10.9	-00.2	S 20 59.7	+00.5	151	47.3	-00.8	S 24 46.6	-00.4	254	21.6	-23.5	S 02 48.1	+14.0
02	213	10.7	-00.2	S 21 00.2	+00.4	166	46.5	-00.7	S 24 46.2	-00.3	268	58.1	-23.6	S 03 02.1	+14.1
03	228	10.5	-00.2	S 21 00.6	+00.5	181	45.8	-00.8	S 24 45.9	-00.4	283	34.5	-23.6	S 03 16.2	+14.0
04	243	10.3	-00.2	S 21 01.1	+00.5	196	45.0	-00.7	S 24 45.5	-00.3	298	10.9	-23.5	S 03 30.2	+14.0
05	258	10.1	-00.2	S 21 01.6	+00.4	211	44.3	-00.8	S 24 45.2	-00.4	312	47.4	-23.6	S 03 44.2	+14.0
06	273	09.9	-00.2	S 21 02.0	+00.5	226	43.5	-00.7	S 24 44.8	-00.4	327	23.8	-23.7	S 03 58.2	+14.0
07	288	09.7	-00.2	S 21 02.5	+00.5	241	42.8	-00.7	S 24 44.4	-00.3	342	00.1	-23.6	S 04 12.2	+13.9
08	303	09.5	-00.2	S 21 03.0	+00.4	256	42.1	-00.8	S 24 44.1	-00.4	356	36.5	-23.6	S 04 26.1	+14.0
09	318	09.3	-00.2	S 21 03.4	+00.5	271	41.3	-00.7	S 24 43.7	-00.4	11	12.9	-23.7	S 04 40.1	+13.9
10	333	09.1	-00.2	S 21 03.9	+00.5	286	40.6	-00.8	S 24 43.3	-00.3	25	49.2	-23.7	S 04 54.0	+14.0
11	348	08.9	-00.2	S 21 04.4	+00.4	301	39.8	-00.7	S 24 43.0	-00.4	40	25.5	-23.7	S 05 08.0	+13.9
12	3	08.7	-00.2	S 21 04.8	+00.5	316	39.1	-00.8	S 24 42.6	-00.4	55	01.8	-23.8	S 05 21.9	+13.9
13	18	08.5	-00.2	S 21 05.3	+00.4	331	38.3	-00.7	S 24 42.2	-00.3	69	38.0	-23.7	S 05 35.8	+13.8
14	33	08.3	-00.3	S 21 05.7	+00.5	346	37.6	-00.7	S 24 41.9	-00.4	84	14.3	-23.8	S 05 49.6	+13.9
15	48	08.0	-00.2	S 21 06.2	+00.4	1	36.9	-00.8	S 24 41.5	-00.4	98	50.5	-23.8	S 06 03.5	+13.8
16	63	07.8	-00.2	S 21 06.6	+00.5	16	36.1	-00.7	S 24 41.1	-00.3	113	26.7	-23.8	S 06 17.3	+13.8
17	78	07.6	-00.2	S 21 07.1	+00.5	31	35.4	-00.8	S 24 40.8	-00.4	128	02.9	-23.9	S 06 31.1	+13.8
18	93	07.4	-00.2	S 21 07.6	+00.4	46	34.6	-00.7	S 24 40.4	-00.4	142	39.0	-23.9	S 06 44.9	+13.8
19	108	07.2	-00.2	S 21 08.0	+00.5	61	33.9	-00.7	S 24 40.0	-00.4	157	15.1	-23.9	S 06 58.7	+13.7
20	123	07.0	-00.2	S 21 08.5	+00.4	76	33.2	-00.8	S 24 39.6	-00.4	171	51.2	-24.0	S 07 12.4	+13.7
21	138	06.8	-00.2	S 21 08.9	+00.5	91	32.4	-00.7	S 24 39.2	-00.3	186	27.2	-23.9	S 07 26.1	+13.7
22	153	06.6	-00.2	S 21 09.4	+00.4	106	31.7	-00.7	S 24 38.9	-00.4	201	03.3	-24.1	S 07 39.8	+13.7
23	168	06.4	-00.2	S 21 09.8	+00.5	121	31.0	-00.8	S 24 38.5	-00.4	215	39.2	-24.0	S 07 53.5	+13.7
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2 HP 00°1 00°1 00°1 00°1 00°1 00°1 SHA 118° 118° 117° 117° 117° 117° Greenwich Culmination Time: 11:47	UT 02 06 10 14 18 22	SD 00°1 00°1 00°1 00°1 00°1 00°1 HP 54°1 54°1 54°1 54°1 54°1 54°1 SHA 173° 172° 170° 168° 166° 165° Greenwich Culmination Time: 08:13												

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	296	13.5	+02.1	N 21 10.7	+00.0	347	25.9	+02.8	N 22 12.2	+00.0	79	30.6	+02.4	S 08 40.9	+00.0
01	311	15.6	+02.0	N 21 10.7	+00.0	2	28.7	+02.8	N 22 12.2	-00.1	94	33.0	+02.5	S 08 40.9	+00.0
02	326	17.6	+02.1	N 21 10.7	+00.0	17	31.5	+02.8	N 22 12.1	+00.0	109	35.5	+02.4	S 08 40.9	+00.0
03	341	19.7	+02.0	N 21 10.7	+00.0	32	34.3	+02.8	N 22 12.1	+00.0	124	37.9	+02.4	S 08 40.9	-00.1
04	356	21.7	+02.1	N 21 10.7	+00.0	47	37.1	+02.8	N 22 12.1	+00.0	139	40.3	+02.4	S 08 40.8	+00.0
05	11	23.8	+02.0	N 21 10.7	+00.0	62	39.9	+02.8	N 22 12.1	-00.1	154	42.7	+02.5	S 08 40.8	+00.0
06	26	25.8	+02.1	N 21 10.7	+00.1	77	42.7	+02.8	N 22 12.0	+00.0	169	45.2	+02.4	S 08 40.8	+00.0
07	41	27.9	+02.0	N 21 10.8	+00.0	92	45.5	+02.8	N 22 12.0	+00.0	184	47.6	+02.4	S 08 40.8	+00.0
08	56	29.9	+02.1	N 21 10.8	+00.0	107	48.3	+02.8	N 22 12.0	+00.0	199	50.0	+02.4	S 08 40.8	-00.1
09	71	32.0	+02.1	N 21 10.8	+00.0	122	51.1	+02.9	N 22 12.0	-00.1	214	52.4	+02.5	S 08 40.7	+00.0
10	86	34.1	+02.0	N 21 10.8	+00.0	137	54.0	+02.8	N 22 11.9	+00.0	229	54.9	+02.4	S 08 40.7	+00.0
11	101	36.1	+02.1	N 21 10.8	+00.0	152	56.8	+02.8	N 22 11.9	+00.0	244	57.3	+02.4	S 08 40.7	+00.0
12	116	38.2	+02.1	N 21 10.8	+00.0	167	59.6	+02.8	N 22 11.9	+00.0	259	59.7	+02.4	S 08 40.7	-00.1
13	131	40.3	+02.0	N 21 10.8	+00.0	183	02.4	+02.8	N 22 11.9	-00.1	275	02.1	+02.5	S 08 40.6	+00.0
14	146	42.3	+02.1	N 21 10.8	+00.1	198	05.2	+02.8	N 22 11.8	+00.0	290				

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	182	45.0	-00.3	S 21 50.5	+00.4	135	22.1	-00.7	S 23 56.1	-00.5	186	48.9	-31.2	S 25 43.7	+06.7	00				
01	197	44.7	-00.2	S 21 50.9	+00.4	150	21.4	-00.7	S 23 55.6	-00.5	201	17.7	-31.2	S 25 50.4	+06.6	01				
02	212	44.5	-00.2	S 21 51.3	+00.3	165	20.7	-00.7	S 23 55.1	-00.5	215	46.5	-31.4	S 25 57.0	+06.5	02				
03	227	44.3	-00.3	S 21 51.6	+00.4	180	20.0	-00.7	S 23 54.6	-00.5	230	15.1	-31.4	S 26 03.5	+06.3	03				
04	242	44.0	-00.2	S 21 52.0	+00.4	195	19.3	-00.6	S 23 54.1	-00.5	244	43.7	-31.5	S 26 09.8	+06.2	04				
05	257	43.8	-00.2	S 21 52.4	+00.4	210	18.7	-00.7	S 23 53.6	-00.5	259	12.2	-31.6	S 26 16.0	+06.1	05				
06	272	43.6	-00.3	S 21 52.8	+00.4	225	18.0	-00.7	S 23 53.1	-00.5	273	40.6	-31.6	S 26 22.1	+05.9	06				
07	287	43.3	-00.2	S 21 53.2	+00.3	240	17.3	-00.7	S 23 52.6	-00.5	288	09.0	-31.8	S 26 28.0	+05.9	07				
08	302	43.1	-00.2	S 21 53.5	+00.4	255	16.6	-00.7	S 23 52.1	-00.5	302	37.2	-31.8	S 26 33.9	+05.6	08				
09	317	42.9	-00.3	S 21 53.9	+00.4	270	15.9	-00.6	S 23 51.6	-00.5	317	05.4	-31.9	S 26 39.5	+05.6	09				
10	332	42.6	-00.2	S 21 54.3	+00.4	285	15.3	-00.7	S 23 51.1	-00.5	331	33.5	-32.0	S 26 45.1	+05.4	10				
11	347	42.4	-00.3	S 21 54.7	+00.3	300	14.6	-00.7	S 23 50.6	-00.5	346	01.5	-32.0	S 26 50.5	+05.3	11				
12	2	42.1	-00.2	S 21 55.0	+00.4	315	13.9	-00.7	S 23 50.1	-00.5	0	29.5	-32.1	S 26 55.8	+05.1	12				
13	17	41.9	-00.2	S 21 55.4	+00.4	330	13.2	-00.6	S 23 49.6	-00.5	14	57.4	-32.2	S 27 00.9	+05.0	13				
14	32	41.7	-00.3	S 21 55.8	+00.4	345	12.6	-00.7	S 23 49.1	-00.6	29	25.2	-32.3	S 27 05.9	+04.9	14				
15	47	41.4	-00.2	S 21 56.2	+00.3	0	11.9	-00.7	S 23 48.5	-00.3	43	52.9	-32.4	S 27 10.8	+04.7	15				
16	62	41.2	-00.3	S 21 56.5	+00.4	15	11.2	-00.6	S 23 48.0	-00.5	58	20.5	-32.4	S 27 15.5	+04.6	16				
17	77	40.9	-00.2	S 21 56.9	+00.4	30	10.6	-00.7	S 23 47.5	-00.5	72	48.1	-32.5	S 27 20.1	+04.4	17				
18	92	40.7	-00.2	S 21 57.3	+00.4	45	09.9	-00.7	S 23 47.0	-00.5	87	15.6	-32.5	S 27 24.5	+04.3	18				
19	107	40.5	-00.3	S 21 57.7	+00.3	60	09.2	-00.7	S 23 46.5	-00.5	101	43.1	-32.7	S 27 28.8	+04.2	19				
20	122	40.2	-00.2	S 21 58.0	+00.4	75	08.5	-00.6	S 23 46.0	-00.5	116	10.4	-32.7	S 27 33.0	+04.0	20				
21	137	40.0	-00.3	S 21 58.4	+00.4	90	07.9	-00.7	S 23 45.5	-00.6	130	37.7	-32.7	S 27 37.0	+03.8	21				
22	152	39.7	-00.2	S 21 58.8	+00.3	105	07.2	-00.7	S 23 44.9	-00.6	145	05.0	-32.8	S 27 40.8	+03.7	22				
23	167	39.5	-00.2	S 21 59.1	+00.4	120	06.5	-00.6	S 23 44.4	-00.5	159	32.2	-32.9	S 27 44.5	+03.6	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°2	16°2	16°2	16°2	16°2	16°2	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	15°0	15°1	15°1	15°1	15°1	15°1
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	55°2	55°3	55°4	55°4	55°5	55°6
SHA	112°	112°	112°	112°	112°	111°	SHA	065°	065°	064°	064°	064°	064°	SHA	115°	113°	111°	109°	106°	104°
Greenwich Culmination Time: 11:49				Greenwich Culmination Time: 14:59				Greenwich Culmination Time: 11:57												

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	183	01.2	-00.3	S 21 20.9	+00.5	136	12.7	-00.7	S 24 28.6	-00.4	220	24.9	-25.3	S 13 25.1	+12.7	00				
01	198	00.9	-00.2	S 21 21.4	+00.4	151	12.0	-00.7	S 24 28.2	-00.4	234	59.6	-25.3	S 13 37.8	+12.8	01				
02	213	00.7	-00.2	S 21 21.8	+00.5	166	11.3	-00.8	S 24 27.8	-00.4	249	34.3	-25.4	S 13 50.6	+12.6	02				
03	228	00.5	-00.2	S 21 22.3	+00.4	181	10.5	-00.7	S 24 27.4	-00.5	264	08.9	-25.4	S 14 03.2	+12.6	03				
04	243	00.3	-00.2	S 21 22.7	+00.4	196	09.8	-00.7	S 24 26.9	-00.4	278	43.5	-25.5	S 14 15.8	+12.6	04				
05	258	00.1	-00.2	S 21 23.1	+00.5	211	09.1	-00.7	S 24 26.5	-00.4	293	18.0	-25.6	S 14 28.4	+12.5	05				
06	272	59.9	-00.2	S 21 23.6	+00.4	226	08.4	-00.7	S 24 26.1	-00.4	307	52.4	-25.6	S 14 40.9	+12.5	06				
07	287	59.7	-00.3	S 21 24.0	+00.4	241	07.7	-00.8	S 24 25.7	-00.4	322	26.8	-25.7	S 14 53.4	+12.4	07				
08	302	59.4	-00.2	S 21 24.4	+00.4	256	06.9	-00.7	S 24 25.3	-00.4	337	01.1	-25.7	S 15 05.8	+12.3	08				
09	317	59.2	-00.2	S 21 24.8	+00.5	271	06.2	-00.7	S 24 24.9	-00.5	351	35.4	-25.9	S 15 18.1	+12.3	09				
10	332	59.0	-00.2	S 21 25.3	+00.4	286	05.5	-00.7	S 24 24.4	-00.4	6	09.5	-25.9	S 15 30.4	+12.3	10				
11	347	58.8	-00.2	S 21 25.7	+00.4	301	04.8	-00.7	S 24 24.0	-00.4	20	43.6	-25.9	S 15 42.7	+12.2	11				
12	2	58.6	-00.2	S 21 26.1	+00.5	316	04.1	-00.8	S 24 23.6	-00.4	35	17.7	-26.1	S 15 54.9	+12.1	12				
13	17	58.4	-00.3	S 21 26.6	+00.4	331	03.3	-00.7	S 24 23.2	-00.5	49	51.6	-26.1	S 16 07.0	+12.1	13				
14	32	58.1	-00.2	S 21 27.0	+00.4	346	02.6	-00.7	S 24 22.7	-00.4	64	25.5	-26.2	S 16 19.1	+12.0	14				
15	47	57.9	-00.2	S 21 27.4	+00.4	1	01.9	-00.7	S 24 22.3	-00.4	78	59.3	-26.2	S 16 31.1	+12.0	15				
16	62	57.7	-00.2	S 21 27.8	+00.5	16	01.2	-00.7	S 24 21.9	-00.4	93	33.1	-26.4	S 16 43.1	+11.9	16				
17	77	57.5	-00.2	S 21 28.3	+00.4	31	00.5	-00.7	S 24 21.5	-00.5	108	06.7	-26.4	S 16 55.0	+11.8	17				
18	92	57.3	-00.3	S 21 28.7	+00.4	45	59.8	-00.7	S 24 21.0	-00.4	122	40.3	-26.4	S 17 06.8	+11.8	18				
19	107	57.0	-00.2	S 21 29.1	+00.4	60	59.1	-00.8	S 24 20.6	-00.4	137	13.9	-26.6	S 17 18.6	+11.7	19				
20	122	56.8	-00.2	S 21 29.5	+00.4	75	58.3	-00.7	S 24 20.2	-00.5	151	47.3	-26.6	S 17 30.3	+11.6	20				
21	137	56.6	-00.2	S 21 29.9	+00.5	90	57.6	-00.7	S 24 19.7	-00.4	166	20.7	-26.8	S 17 41.9	+11.6	21				
22	152	56.4	-00.2	S 21 30.4	+00.4	105	56.9	-00.7	S 24 19.3	-00.4	180	53.9	-26.7	S 17 53.5	+11.5	22				
23	167	56.2	-00.3	S 21 30.8	+00.4	120	56.2	-00.7	S 24 18.9	-00.5	195	27.2	-26.9	S 18 05.0	+11.5	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°2	16°2	16°2	16°2	16°2	16°2	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	14°8	14°8	14°8	14°8	14°8	14°8
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	54°2	54°3	54°3	54°4	54°4	54°4
SHA	116°	115°	115°	115°	115°	115°	SHA	069°	069°	068°	068°	068°	068°	SHA	152°	150°	148°	146°	145°	143°
Greenwich Culmination Time: 11:48				Greenwich Culmination Time: 14:55				Greenwich Culmination Time: 09:34												

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	301	21.6	+02.2	N 21 15.6	+00.0	354	11.6	+02.9	N 22 08.4	+00.0	85	18.5	+02.4	S 08 37.0	-00.1	00
01	316	23.8	+02.2	N 21 15.6	+00.1	9	14.5	+02.8	N 22 08.4	+00.0	100	20.9	+02.4	S 08 36.9	+00.0	01
02	331	26.0	+02.3	N 21 15.7	+00.0	24	17.3	+02.8	N 22 08.4	+00.1	115	23.3	+02.4	S 08 36.9	+00.0	02
03	346	28.3	+02.2	N 21 15.7	+00.1	39	20.1	+02.8	N 22 08.3	-00.0	130	25.7	+02.4	S 08 36.9	+00.0	03
04	1	30.5	+02.2	N 21 15.8	+00.1	54	22.9	+02.9	N 22 08.3	+00.0	145	28.1	+02.4	S 08 36.9	-00.1	04
05	16	32.7	+02.3	N 21 15.9	+00.0	69	25.8	+02.8	N 22 08.3	+00.0	160	30.5	+02.4	S 08 36.8	+00.0	05
06	31	35.0	+02.2	N 21 15.9	+00.1	84	28.6	+02.8	N 22 08.3	-00.1	175	32.9	+02.4	S 08 36.8	+00.0	06
07	46	37.2	+02.3	N 21 16.0	+00.0	99	31.4	+02.8	N 22 08.2	+00.0	190	35.3	+02.4	S 08 36.8	-00.1	07
08	61	39.5	+02.2	N 21 16.0	+00.1	114	34.2	+02.9	N 22 08.2	+00.0	205	37.7	+02.4	S 08 36.7	+00.0	08
09	76	41.7	+02.3	N 21 16.1	+00.1	129	37.1	+02.8	N 22 08.2	+00.0	220	40.1	+02.4	S 08 36.7	+00.0	09
10	91	44.0	+02.2	N 21 16.2	+00.0	144	39.9	+02.8	N 22 08.2	-00.1	235	42.5	+02.4	S 08 36.7	-00.1	10
11	106	46.2	+02.2	N 21 16.2	+00.1	159	42.7	+02.8	N 22 08.1	+00.0	250	44.9	+02.4	S 08 36.6	+00.0	11
12	121	48.4	+02.3	N 21 16.3	+00.1	174	45.5	+02.9	N 22 08.1	+00.0	265	47.3	+02.4	S 08 36.6	+00.0	12
13	136	50.7	+02.2	N 21 16.4	+00.0	189	48.4	+02.8	N 22 08.1	-00.1	280	49.7	+02.4	S 08 36.6	-00.1	13
14	151	52.9</														

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 114° 114° 114° 114° 114° 114°
Greenwich Culmination Time: 11:48

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 231° 231° 231° 231° 231° 231°
Greenwich Culmination Time: 04:01

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Sun, Venus, and Moon.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 113° 113° 113° 113° 113° 112°
Greenwich Culmination Time: 11:48

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates and magnitudes for Mars, Jupiter, and Saturn.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 231° 231° 231° 231° 231° 231°
Greenwich Culmination Time: 03:57

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on Dec 5, 2024.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on Dec 2, 2024.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on Dec 5, 2024.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on Dec 2, 2024.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 07%.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 110° 110° 110° 110° 109° 109°
Greenwich Culmination Time: 11:49

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 11%.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 109° 109° 109° 109° 108° 108°
Greenwich Culmination Time: 11:50

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 231° 231° 231° 231° 231° 231°
Greenwich Culmination Time: 03:46

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 231° 231° 231° 231° 231° 231°
Greenwich Culmination Time: 03:43

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UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	181	55.3	-00.3	S 22 50.5	+00.2	133	23.3	-00.5	S 22 01.5	-00.7	85	09.7	-28.6	S 04 05.8	-16.7	00				
01	196	55.0	-00.3	S 22 50.7	+00.3	148	22.8	-00.6	S 22 00.8	-00.7	99	41.1	-28.5	S 03 49.1	-16.6	01				
02	211	54.7	-00.3	S 22 51.0	+00.2	163	22.2	-00.5	S 22 00.1	-00.7	114	12.6	-28.6	S 03 32.5	-16.7	02				
03	226	54.4	-00.2	S 22 51.2	+00.2	178	21.7	-00.6	S 21 59.4	-00.7	128	44.0	-28.6	S 03 15.8	-16.7	03				
04	241	54.2	-00.3	S 22 51.4	+00.3	193	21.1	-00.5	S 21 58.7	-00.7	143	15.4	-28.5	S 02 59.1	-16.7	04				
05	256	53.9	-00.3	S 22 51.7	+00.2	208	20.6	-00.6	S 21 58.0	-00.7	157	46.9	-28.6	S 02 42.4	-16.8	05				
06	271	53.6	-00.3	S 22 51.9	+00.3	223	20.0	-00.5	S 21 57.3	-00.7	172	18.3	-28.6	S 02 25.6	-16.8	06				
07	286	53.3	-00.3	S 22 52.2	+00.2	238	19.5	-00.5	S 21 56.6	-00.7	186	49.7	-28.6	S 02 08.8	-16.8	07				
08	301	53.0	-00.2	S 22 52.4	+00.2	253	19.0	-00.6	S 21 55.9	-00.7	201	21.1	-28.6	S 01 52.0	-16.8	08				
09	316	52.8	-00.3	S 22 52.6	+00.2	268	18.4	-00.5	S 21 55.2	-00.7	215	52.5	-28.6	S 01 35.2	-16.8	09				
10	331	52.5	-00.3	S 22 52.8	+00.3	283	17.9	-00.6	S 21 54.5	-00.7	230	23.9	-28.7	S 01 18.4	-16.9	10				
11	346	52.2	-00.3	S 22 53.1	+00.2	298	17.3	-00.5	S 21 53.8	-00.7	244	55.2	-28.6	S 01 01.5	-16.9	11				
12	1	51.9	-00.3	S 22 53.3	+00.2	313	16.8	-00.5	S 21 53.1	-00.7	259	26.6	-28.7	S 00 44.6	-16.9	12				
13	16	51.6	-00.2	S 22 53.5	+00.2	328	16.3	-00.6	S 21 52.4	-00.3	273	57.9	-28.7	S 00 27.7	-16.8	13				
14	31	51.4	-00.3	S 22 53.8	+00.2	343	15.7	-00.5	S 21 51.7	-00.7	288	29.2	-28.7	S 00 10.9	-17.0	14				
15	46	51.1	-00.3	S 22 54.0	+00.2	358	15.2	-00.6	S 21 51.0	-00.7	303	00.5	-28.7	S 00 06.1	+16.9	15				
16	61	50.8	-00.3	S 22 54.2	+00.2	13	14.6	-00.5	S 21 50.3	-00.7	317	31.8	-28.7	N 00 23.0	+16.9	16				
17	76	50.5	-00.3	S 22 54.4	+00.3	28	14.1	-00.5	S 21 49.6	-00.8	332	03.1	-28.8	N 00 39.9	+16.9	17				
18	91	50.2	-00.3	S 22 54.7	+00.2	43	13.6	-00.6	S 21 48.8	-00.7	346	34.3	-28.8	N 00 56.8	+17.0	18				
19	106	49.9	-00.2	S 22 54.9	+00.2	58	13.0	-00.5	S 21 48.1	-00.7	1	05.5	-28.8	N 01 13.8	+16.9	19				
20	121	49.7	-00.3	S 22 55.1	+00.2	73	12.5	-00.5	S 21 47.4	-00.7	15	36.7	-28.8	N 01 30.7	+17.0	20				
21	136	49.4	-00.3	S 22 55.3	+00.3	88	12.0	-00.6	S 21 46.7	-00.7	30	07.9	-28.9	N 01 47.7	+16.9	21				
22	151	49.1	-00.3	S 22 55.6	+00.2	103	11.4	-00.5	S 21 46.0	-00.7	44	39.0	-28.9	N 02 04.6	+17.0	22				
23	166	48.8	-00.3	S 22 55.8	+00.2	118	10.9	-00.5	S 21 45.3	-00.7	59	10.1	-28.9	N 02 21.6	+16.9	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°2	16°2	16°2	16°2	16°2	16°2	SD	00°2	00°2	00°2	00°2	00°2	00°2	SD	16°1	16°1	16°1	16°2	16°2	16°2
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	59°1	59°1	59°2	59°3	59°3	59°4
SHA	104°	103°	103°	103°	103°	103°	SHA	055°	055°	055°	054°	054°	054°	SHA	006°	004°	002°	360°	358°	356°
Greenwich Culmination Time: 11:52						Greenwich Culmination Time: 15:06						Greenwich Culmination Time: 18:55								

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	308	55.9	+02.5	N 21 33.5	+00.1	3	14.8	+02.9	N 22 03.0	-00.1	92	56.9	+02.4	S 08 29.5	-00.1	00				
01	323	58.4	+02.5	N 21 33.6	+00.2	18	17.7	+02.8	N 22 02.9	+00.0	107	59.3	+02.4	S 08 29.4	+00.0	01				
02	339	00.9	+02.5	N 21 33.8	+00.1	33	20.5	+02.8	N 22 02.9	+00.0	123	01.7	+02.3	S 08 29.4	-00.1	02				
03	354	03.4	+02.5	N 21 33.9	+00.1	48	23.3	+02.9	N 22 02.9	+00.0	138	04.0	+02.4	S 08 29.3	+00.0	03				
04	9	05.9	+02.5	N 21 34.0	+00.2	63	26.2	+02.8	N 22 02.9	-00.1	153	06.4	+02.4	S 08 29.3	+00.0	04				
05	24	08.4	+02.5	N 21 34.2	+00.1	78	29.0	+02.8	N 22 02.8	+00.0	168	08.8	+02.4	S 08 29.3	-00.1	05				
06	39	10.9	+02.5	N 21 34.3	+00.1	93	31.8	+02.9	N 22 02.8	+00.0	183	11.2	+02.3	S 08 29.2	+00.0	06				
07	54	13.4	+02.5	N 21 34.4	+00.1	108	34.7	+02.8	N 22 02.8	-00.1	198	13.5	+02.4	S 08 29.2	-00.1	07				
08	69	15.9	+02.6	N 21 34.5	+00.2	123	37.5	+02.8	N 22 02.7	+00.0	213	15.9	+02.4	S 08 29.1	+00.0	08				
09	84	18.5	+02.5	N 21 34.7	+00.1	138	40.3	+02.8	N 22 02.7	+00.0	228	18.3	+02.3	S 08 29.1	-00.1	09				
10	99	21.0	+02.5	N 21 34.8	+00.1	153	43.1	+02.9	N 22 02.7	+00.0	243	20.6	+02.4	S 08 29.0	+00.0	10				
11	114	23.5	+02.5	N 21 34.9	+00.2	168	46.0	+02.8	N 22 02.7	-00.1	258	23.0	+02.4	S 08 29.0	-00.1	11				
12	129	26.0	+02.5	N 21 35.1	+00.1	183	48.8	+02.8	N 22 02.6	+00.0	273	25.4	+02.3	S 08 28.9	+00.0	12				
13	144	28.5	+02.6	N 21 35.2	+00.1	198	51.6	+02.9	N 22 02.6	+00.0	288	27.7	+02.4	S 08 28.9	-00.1	13				
14	159	31.1	+02.5	N 21 35.3	+00.2	213	54.5	+02.8	N 22 02.6	-00.1	303	30.1	+02.4	S 08 28.8	+00.0	14				
15	174	33.6	+02.5	N 21 35.5	+00.1	228	57.3	+02.8	N 22 02.5	+00.0	318	32.5	+02.4	S 08 28.8	-00.1	15				
16	189	36.1	+02.5	N 21 35.6	+00.1	244	00.1	+02.9	N 22 02.5	+00.0	333	34.9	+02.3	S 08 28.7	+00.0	16				
17	204	38.6	+02.6	N 21 35.7	+00.2	259	03.0	+02.8	N 22 02.5	-00.1	348	37.2	+02.4	S 08 28.7	+00.0	17				
18	219	41.2	+02.5	N 21 35.9	+00.1	274	05.8	+02.8	N 22 02.4	+00.0	3	39.6	+02.4	S 08 28.7	-00.1	18				
19	234	43.7	+02.5	N 21 36.0	+00.2	289	08.6	+02.8	N 22 02.4	+00.0	18	42.0	+02.3	S 08 28.6	+00.0	19				
20	249	46.2	+02.6	N 21 36.2	+00.1	304	11.4	+02.9	N 22 02.4	+00.0	33	44.3	+02.4	S 08 28.6	-00.1	20				
21	264	48.8	+02.5	N 21 36.3	+00.1	319	14.3	+02.8	N 22 02.4	-00.1	48	46.7	+02.4	S 08 28.5	+00.0	21				
22	279	51.3	+02.5	N 21 36.4	+00.2	334	17.1	+02.8	N 22 02.3	+00.0	63	49.1	+02.3	S 08 28.5	-00.1	22				
23	294	53.8	+02.6	N 21 36.6	+00.1	349	19.9	+02.9	N 22 02.3	+00.0	78	51.4	+02.4	S 08 28.4	+00.0	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	00°4	00°4	00°4	00°4	00°4	00°4	SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	231°	231°	231°	231°	231°	231°	SHA	285°	285°	285°	285°	285°	285°	SHA	015°	015°	015°	015°	015°	015°
Greenwich Culmination Time: 03:23						Greenwich Culmination Time: 23:42						Greenwich Culmination Time: 17:45								

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	182	14.9	-00.3	S 22 31.3	+00.3	134	04.8	-00.6	S 22 49.0	-00.6	120	43.4	-31.5	S 21 21.2	-11.1	00
01	197	14.6	-00.2	S 22 31.6	+00.3	149	04.2	-00.6	S 22 48.4	-00.6	135	11.9	-31.4	S 21 10.1	-11.3	01
02	212	14.4	-00.3	S 22 31.9	+00.3	164	03.6	-00.6	S 22 47.8	-00.7	149	40.5	-31.3	S 20 58.8	-11.3	02
03	227	14.1	-00.3	S 22 32.2	+00.2	179	03.0	-00.6	S 22 47.1	-00.6	164	09.2	-31.2	S 20 47.5	-11.5	03
04	242	13.8	-00.2	S 22 32.4	+00.3	194	02.4	-00.6	S 22 46.5	-00.6	178	38.0	-31.2	S 20 36.0	-11.6	04
05	257	13.6	-00.3	S 22 32.7	+00.3	209	01.8	-00.6	S 22 45.9	-00.7	193	06.8	-31.1	S 20 24.4	-11.7	05
06	272	13.3	-00.3	S 22 33.0	+00.3	224	01.2	-00.6	S 22 45.2	-00.6	207	35.7	-31.1	S 20 12.7	-11.9	06
07	287	13.0	-00.2	S 22 33.3	+00.3	239	00.6	-00.6	S 22 44.6	-00.6	222	04.6	-31.0	S 20 00.8	-11.9	07
08	302	12.8	-00.3	S 22 33.6	+00.3	254	00.0	-00.6	S 22 44.0	-00.6	236	33.6	-31.0	S 19 48.9	-12.1	08
09	317	12.5	-00.3	S 22 33.9	+00.3	268	59.4	-00.6	S 22 43.4	-00.7	251	02.6	-30.8	S 19 36.8	-12.1	09
10	332	12.2	-00.2	S 22 34.2	+00.3	283	58.8	-00.6	S 22 42.7	-00.6	265	31.8	-30.8	S 19 24.7	-12.3	10
11	347	12.0	-00.3	S 22 34.5	+00.3	298	58.2	-00.6	S 22 42.1	-00.6	280	01.0	-30.8	S 19 12.4	-12.4	11
12	2	11.7	-00.3	S 22 34.8	+00.2	313	57.6	-00.6	S 22 41.5	-00.7	294	30.2	-30.7			

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02-22 showing detailed coordinates and Greenwich Culmination Times for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates and magnitudes for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02-22 showing detailed coordinates and Greenwich Culmination Times for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02-22 showing detailed coordinates and Greenwich Culmination Times for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing celestial coordinates and magnitudes for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02-22 showing detailed coordinates and Greenwich Culmination Times for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 42%.

Summary table for Sun, Venus, Moon with columns UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA values and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Summary table for Mars, Jupiter, Saturn with columns UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA values and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 31%.

Summary table for Sun, Venus, Moon with columns UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA values and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet.

Summary table for Mars, Jupiter, Saturn with columns UT, 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA values and Greenwich Culmination Time.

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Warning: This page has been generated by a computer program. Complex computer programs usually have bugs and may produce wrong data. The data on this page is believed to be accurate but no warranty is given for its correctness. Use it only for training and exercising!

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Dec 11, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Dec 12, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Dec 11, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Dec 12, 2024, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	58.9	-00.3	S 23 21.8	+00.1	131	52.9	-00.4	S 19 31.1	-00.9	337	22.8	-35.6	N 27 13.3	-05.2	00
01	195	58.6	-00.3	S 23 21.9	+00.0	146	52.5	-00.4	S 19 30.2	-00.8	351	47.2	-35.4	N 27 08.1	-05.4	01
02	210	58.3	-00.3	S 23 21.9	+00.1	161	52.1	-00.4	S 19 29.4	-00.9	6	11.8	-35.4	N 27 02.7	-05.5	02
03	225	58.0	-00.3	S 23 22.0	+00.1	176	51.7	-00.4	S 19 28.5	-00.9	20	36.4	-35.2	N 26 57.2	-05.7	03
04	240	57.7	-00.3	S 23 22.1	+00.1	191	51.3	-00.4	S 19 27.6	-00.8	35	01.2	-35.1	N 26 51.5	-05.8	04
05	255	57.4	-00.3	S 23 22.2	+00.1	206	50.9	-00.3	S 19 26.8	-00.9	49	26.1	-35.0	N 26 45.7	-06.0	05
06	270	57.1	-00.3	S 23 22.3	+00.0	221	50.6	-00.4	S 19 25.9	-00.9	63	51.1	-34.9	N 26 39.7	-06.1	06
07	285	56.8	-00.3	S 23 22.3	+00.1	236	50.2	-00.4	S 19 25.0	-00.8	78	16.2	-34.8	N 26 33.6	-06.4	07
08	300	56.5	-00.3	S 23 22.4	+00.1	251	49.8	-00.4	S 19 24.2	-00.9	92	41.4	-34.7	N 26 27.2	-06.4	08
09	315	56.2	-00.3	S 23 22.5	+00.1	266	49.4	-00.4	S 19 23.3	-00.9	107	06.7	-34.5	N 26 20.8	-06.6	09
10	330	55.9	-00.3	S 23 22.6	+00.1	281	49.0	-00.4	S 19 22.4	-00.9	121	32.2	-34.5	N 26 14.2	-06.8	10
11	345	55.6	-00.3	S 23 22.7	+00.0	296	48.6	-00.3	S 19 21.5	-00.8	135	57.7	-34.3	N 26 07.4	-06.9	11
12	0	55.3	-00.4	S 23 22.7	+00.1	311	48.3	-00.4	S 19 20.7	-00.9	150	23.4	-34.2	N 26 00.5	-07.1	12
13	15	54.9	-00.3	S 23 22.8	+00.1	326	47.9	-00.4	S 19 19.8	-00.9	164	49.2	-34.1	N 25 53.4	-07.2	13
14	30	54.6	-00.3	S 23 22.9	+00.1	341	47.5	-00.4	S 19 18.9	-00.9	179	15.1	-34.0	N 25 46.2	-07.3	14
15	45	54.3	-00.3	S 23 23.0	+00.0	356	47.1	-00.4	S 19 18.0	-00.8	193	41.1	-33.8	N 25 38.9	-07.5	15
16	60	54.0	-00.3	S 23 23.0	+00.1	11	46.7	-00.3	S 19 17.2	-00.9	208	07.3	-33.8	N 25 31.4	-07.6	16
17	75	53.7	-00.3	S 23 23.1	+00.1	26	46.4	-00.4	S 19 16.3	-00.9	222	33.5	-33.6	N 25 23.8	-07.8	17
18	90	53.4	-00.3	S 23 23.2	+00.1	41	46.0	-00.4	S 19 15.4	-00.9	236	59.9	-33.5	N 25 16.0	-07.9	18
19	105	53.1	-00.3	S 23 23.3	+00.0	56	45.6	-00.4	S 19 14.5	-00.9	251	26.4	-33.3	N 25 08.1	-08.0	19
20	120	52.8	-00.3	S 23 23.3	+00.1	71	45.2	-00.3	S 19 13.6	-00.8	265	53.1	-33.3	N 25 00.1	-08.2	20
21	135	52.5	-00.3	S 23 23.4	+00.1	86	44.9	-00.4	S 19 12.8	-00.9	280	19.8	-33.1	N 24 51.9	-08.3	21
22	150	52.2	-00.3	S 23 23.5	+00.0	101	44.5	-00.4	S 19 11.9	-00.9	294	46.7	-33.0	N 24 43.6	-08.4	22
23	165	51.9	-00.3	S 23 23.5	+00.1	116	44.1	-00.3	S 19 11.0	-00.9	309	13.7	-32.9	N 24 35.2	-08.6	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 095° 095° 094° 094° 094° 094°	Greenwich Culmination Time: 11:56	UT 02 06 10 14 18 22	SD 00°2 00°2 00°2 00°2 00°2 00°2	HP 00°2 00°2 00°2 00°2 00°2 00°2	SHA 046° 045° 045° 045° 045° 045°	Greenwich Culmination Time: 15:12	UT 02 06 10 14 18 22	SD 15°8 15°8 15°7 15°7 15°7 15°6	HP 58°0 57°9 57°7 57°6 57°5 57°3	SHA 250° 247° 245° 243° 240° 238°	Greenwich Culmination Time: 01:34		

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	20.6	-00.3	S 23 13.5	+00.1	132	23.2	-00.5	S 20 31.3	-00.8	22	01.8	-36.6	N 25 15.2	+08.5	00
01	196	20.3	-00.3	S 23 13.6	+00.2	147	22.7	-00.4	S 20 30.5	-00.8	36	25.2	-36.6	N 25 23.7	+08.2	01
02	211	20.0	-00.3	S 23 13.8	+00.1	162	22.3	-00.5	S 20 29.7	-00.8	50	48.6	-36.7	N 25 31.9	+08.1	02
03	226	19.7	-00.3	S 23 13.9	+00.2	177	21.8	-00.4	S 20 28.9	-00.8	65	11.9	-36.8	N 25 40.0	+07.8	03
04	241	19.4	-00.3	S 23 14.1	+00.1	192	21.4	-00.5	S 20 28.1	-00.8	79	35.1	-36.9	N 25 47.8	+07.7	04
05	256	19.1	-00.3	S 23 14.2	+00.1	207	20.9	-00.4	S 20 27.3	-00.8	93	58.2	-36.9	N 25 55.5	+07.6	05
06	271	18.8	-00.3	S 23 14.3	+00.2	222	20.5	-00.4	S 20 26.5	-00.8	108	21.3	-37.0	N 26 03.1	+07.3	06
07	286	18.5	-00.3	S 23 14.5	+00.1	237	20.1	-00.5	S 20 25.7	-00.9	122	44.3	-37.0	N 26 10.4	+07.1	07
08	301	18.2	-00.3	S 23 14.6	+00.2	252	19.6	-00.4	S 20 24.8	-00.8	137	07.3	-37.2	N 26 17.5	+07.0	08
09	316	17.9	-00.3	S 23 14.8	+00.1	267	19.2	-00.5	S 20 24.0	-00.8	151	30.1	-37.1	N 26 24.5	+06.8	09
10	331	17.6	-00.3	S 23 14.9	+00.1	282	18.7	-00.4	S 20 23.2	-00.8	165	53.0	-37.3	N 26 31.3	+06.6	10
11	346	17.3	-00.3	S 23 15.0	+00.2	297	18.3	-00.5	S 20 22.4	-00.8	180	15.7	-37.2	N 26 37.9	+06.4	11
12	1	17.0	-00.3	S 23 15.2	+00.1	312	17.8	-00.4	S 20 21.6	-00.8	194	38.5	-37.4	N 26 44.3	+06.2	12
13	16	16.7	-00.3	S 23 15.3	+00.1	327	17.4	-00.4	S 20 20.8	-00.9	209	01.1	-37.4	N 26 50.5	+06.1	13
14	31	16.4	-00.3	S 23 15.4	+00.2	342	17.0	-00.5	S 20 19.9	-00.8	223	23.7	-37.4	N 26 56.6	+05.8	14
15	46	16.1	-00.3	S 23 15.6	+00.1	357	16.5	-00.4	S 20 19.1	-00.8	237	46.3	-37.5	N 27 02.4	+05.6	15
16	61	15.8	-00.3	S 23 15.7	+00.1	12	16.1	-00.5	S 20 18.3	-00.8	252	08.8	-37.5	N 27 08.0	+05.5	16
17	76	15.5	-00.3	S 23 15.8	+00.2	27	15.6	-00.4	S 20 17.5	-00.8	266	31.3	-37.5	N 27 13.5	+05.3	17
18	91	15.2	-00.3	S 23 16.0	+00.1	42	15.2	-00.4	S 20 16.7	-00.9	280	53.8	-37.6	N 27 18.8	+05.0	18
19	106	14.9	-00.3	S 23 16.1	+00.1	57	14.8	-00.5	S 20 15.8	-00.8	295	16.2	-37.7	N 27 23.8	+04.9	19
20	121	14.6	-00.3	S 23 16.2	+00.1	72	14.3	-00.4	S 20 15.0	-00.8	309	38.5	-37.6	N 27 28.7	+04.7	20
21	136	14.3	-00.3	S 23 16.3	+00.2	87	13.9	-00.4	S 20 14.2	-00.8	324	00.9	-37.7	N 27 33.4	+04.5	21
22	151	14.0	-00.3	S 23 16.5	+00.1	102	13.5	-00.5	S 20 13.4	-00.8	338	23.2	-37.8	N 27 37.9	+04.3	22
23	166	13.7	-00.3	S 23 16.6	+00.2	117	13.0	-00.4	S 20 12.6	-00.9	352	45.4	-37.7	N 27 42.2	+04.1	23
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°3	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 098° 098° 098° 098° 097° 097°	Greenwich Culmination Time: 11:54	UT 02 06 10 14 18 22	SD 00°2 00°2 00°2 00°2 00°2 00°2	HP 00°2 00°2 00°2 00°2 00°2 00°2	SHA 049° 049° 049° 049° 048° 048°	Greenwich Culmination Time: 15:10	UT 02 06 10 14 18 22	SD 16°3 16°3 16°2 16°2 16°2 16°2	HP 59°0 59°7 59°6 59°6 59°5 59°4	SHA 298° 295° 292° 290° 287° 284°	Greenwich Culmination Time: 23:30		

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	317	24.1	+02.8	N 22 04.8	+00.2	12	17.3	+02.8	N 21 57.3	+00.0	100	29.4	+02.3	S 08 19.6	-00.1	00
01	332	26.9	+02.8	N 22 05.0	+00.2	27	20.1	+02.8	N 21 57.3	-00.1	115	31.7	+02.4	S 08 19.5	-00.1	01
02	347	29.7	+02.8	N 22 05.2	+00.2	42	22.9	+02.9	N 21 57.2	+00.0	130	34.1	+02.3	S 08 19.4	+00.0	02
03	2	32.5	+02.8	N 22 05.4	+00.2	57	25.8	+02.8	N 21 57.2	+00.0	145	36.4	+02.4	S 08 19.4	-00.1	03
04	17	35.3	+02.8	N 22 05.6	+00.2	72	28.6	+02.8	N 21 57.2	-00.1	160	38.8	+02.3	S 08 19.3	+00.0	04
05	32	38.1	+02.8	N 22 05.8	+00.2	87	31.4	+02.8	N 21 57.1	+00.0	175	41.1	+02.4	S 08 19.3	-00.1	05
06	47	40.9	+02.8	N 22 06.0	+00.2	102	34.2	+02.8	N 21 57.1	+00.0	190	43.5	+02.3	S 08 19.2	+00.0	06
07	62	43.7	+02.8	N 22 06.2	+00.2	117	37.0	+02.8	N 21 57.1	-00.1	205	45.8	+02.3	S 08 19.2	-00.1	07
08	77	46.5	+02.8	N 22 06.4	+00.2	132	39.8	+02.9	N 21 57.0	+00.0	220	48.1	+02.4	S 08 19.1	-00.1	08
09	92	49.3	+02.8	N 22 06.6	+00.2	147	42.7	+02.8	N 21 57.0	+00.0	235	50.5	+02.3	S 08 19.0	+00.0	09
10	107	52.1	+02.8	N 22 06.8	+00.2	162	45.5	+02.8	N 21 57.0	+00.0	250	52.8	+02.4	S 08 19.0	-00.1	10
11	122	54.9	+02.8	N 22 07.0	+00.2	177	48.3	+02.8	N 21 57.0	-00.1	265	55.2	+02.3	S 08 18.9	+00.0	11
12	137	57.7	+02.8	N 22 07.2	+00.2	192	51.1	+02.8	N 21 56.9	+00.0	280	57.5	+02.3	S 08 18.9	-00.1	12
13	153	60.5	+02.9	N 22 07.4	+00.2	207	53.9	+02.8	N 21 56.9	+00.0	295	59.8	+02.4	S 08 18.8	-00.1	13
14	168	63.4	+02.8	N 22 07.6	+00.2	222	56.7	+02.8	N 21 56.9	+00.0	311	02.2	+02.3	S 08 18.7	+00.0	14
15	183	06.2	+02.8	N 22 07.8	+00.2	237	59.5	+02.9	N 21 56.8	-00.1	326	04.5	+02.4	S 08 18.7	-00.1	15
16	198	09.0	+02.8	N 22 08.0	+00.2	253	02.4	+02.8	N 21 56.8	+00.0	341	06.9	+02.3	S 08 18.6	+00.0	16
17	213	11.8	+02.8	N 22 08.2	+00.2	268	05.2	+02.8	N 21 56.8	+00.0	356					

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	181	13.4	-00.3	S 23 16.7	+00.1	132	12.6	-00.4	S 20 11.7	-00.8	7	07.7	-37.8	N 27 46.3	+03.8	00				
01	196	13.1	-00.3	S 23 16.8	+00.2	147	12.2	-00.5	S 20 10.9	-00.8	21	29.9	-37.8	N 27 50.1	+03.7	01				
02	211	12.8	-00.3	S 23 17.0	+00.1	162	11.7	-00.4	S 20 10.1	-00.9	35	52.1	-37.8	N 27 53.8	+03.5	02				
03	226	12.5	-00.3	S 23 17.1	+00.1	177	11.3	-00.4	S 20 09.2	-00.8	50	14.3	-37.8	N 27 57.3	+03.3	03				
04	241	12.2	-00.3	S 23 17.2	+00.1	192	10.9	-00.4	S 20 08.4	-00.8	64	36.5	-37.8	N 28 00.6	+03.1	04				
05	256	11.9	-00.3	S 23 17.3	+00.1	207	10.5	-00.5	S 20 07.6	-00.9	78	58.7	-37.9	N 28 03.7	+02.9	05				
06	271	11.6	-00.3	S 23 17.4	+00.2	222	10.0	-00.4	S 20 06.8	-00.9	93	20.8	-37.8	N 28 06.6	+02.8	06				
07	286	11.3	-00.3	S 23 17.6	+00.1	237	09.6	-00.4	S 20 05.9	-00.8	107	43.0	-37.8	N 28 09.4	+02.5	07				
08	301	11.0	-00.3	S 23 17.7	+00.1	252	09.2	-00.5	S 20 05.1	-00.8	122	05.2	-37.9	N 28 11.9	+02.3	08				
09	316	10.7	-00.3	S 23 17.8	+00.1	267	08.7	-00.4	S 20 04.3	-00.9	136	27.3	-37.8	N 28 14.2	+02.1	09				
10	331	10.4	-00.3	S 23 17.9	+00.1	282	08.3	-00.4	S 20 03.4	-00.8	150	49.5	-37.8	N 28 16.3	+01.9	10				
11	346	10.1	-00.3	S 23 18.0	+00.2	297	07.9	-00.4	S 20 02.6	-00.9	165	11.7	-37.9	N 28 18.2	+01.7	11				
12	1	09.8	-00.3	S 23 18.2	+00.1	312	07.5	-00.4	S 20 01.7	-00.8	179	33.8	-37.8	N 28 19.9	+01.5	12				
13	16	09.5	-00.3	S 23 18.3	+00.1	327	07.1	-00.5	S 20 00.9	-00.8	193	56.0	-37.8	N 28 21.4	+01.3	13				
14	31	09.2	-00.3	S 23 18.4	+00.1	342	06.6	-00.4	S 20 00.1	-00.9	208	18.2	-37.7	N 28 22.7	+01.1	14				
15	46	08.9	-00.3	S 23 18.5	+00.1	357	06.2	-00.4	S 19 59.2	-00.8	222	40.5	-37.8	N 28 23.8	+00.9	15				
16	61	08.6	-00.3	S 23 18.6	+00.1	12	05.8	-00.4	S 19 58.4	-00.8	237	02.7	-37.7	N 28 24.7	+00.7	16				
17	76	08.3	-00.3	S 23 18.7	+00.1	27	05.4	-00.4	S 19 57.6	-00.9	251	25.0	-37.7	N 28 25.4	+00.6	17				
18	91	08.0	-00.3	S 23 18.8	+00.1	42	05.0	-00.4	S 19 56.7	-00.8	265	47.3	-37.7	N 28 26.0	+00.3	18				
19	106	07.7	-00.3	S 23 18.9	+00.1	57	04.6	-00.5	S 19 55.9	-00.9	280	09.6	-37.6	N 28 26.3	+00.1	19				
20	121	07.4	-00.3	S 23 19.0	+00.2	72	04.1	-00.4	S 19 55.0	-00.8	294	32.0	-37.6	N 28 26.4	-00.1	20				
21	136	07.1	-00.3	S 23 19.2	+00.1	87	03.7	-00.4	S 19 54.2	-00.9	308	54.4	-37.6	N 28 26.3	-00.2	21				
22	151	06.8	-00.3	S 23 19.3	+00.1	102	03.3	-00.4	S 19 53.3	-00.8	323	16.8	-37.5	N 28 26.1	-00.5	22				
23	166	06.5	-00.3	S 23 19.4	+00.1	117	02.9	-00.4	S 19 52.5	-00.8	337	39.3	-37.4	N 28 25.6	-00.6	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°2	00°2	00°2	00°2	00°2	00°2	SD	16°0	16°0	15°9	15°9	15°9	15°8
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°0	00°2	00°2	00°2	00°2	00°2	HP	58°7	58°6	58°5	58°4	58°3	58°1
SHA	097°	097°	097°	096°	096°	096°	SHA	048°	048°	048°	047°	047°	047°	SHA	282°	279°	276°	274°	271°	268°
Greenwich Culmination Time: 11:55				Greenwich Culmination Time: 15:11				Greenwich Culmination Time: -1:00												

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	315	11.8	+02.7	N 21 55.8	+00.2	10	01.9	+02.9	N 21 58.7	+00.0	98	36.8	+02.4	S 08 22.3	-00.1	00				
01	330	14.5	+02.8	N 21 56.0	+00.2	25	04.8	+02.8	N 21 58.7	+00.0	113	39.2	+02.3	S 08 22.2	-00.1	01				
02	345	17.3	+02.7	N 21 56.2	+00.1	40	07.6	+02.8	N 21 58.7	-00.1	128	41.5	+02.4	S 08 22.1	+00.0	02				
03	0	20.0	+02.7	N 21 56.3	+00.2	55	10.4	+02.8	N 21 58.6	+00.0	143	43.9	+02.3	S 08 22.1	-00.1	03				
04	15	22.7	+02.7	N 21 56.5	+00.2	70	13.2	+02.9	N 21 58.6	+00.0	158	46.2	+02.4	S 08 22.0	+00.0	04				
05	30	25.4	+02.8	N 21 56.7	+00.2	85	16.1	+02.8	N 21 58.6	-00.1	173	48.6	+02.3	S 08 22.0	-00.1	05				
06	45	28.2	+02.7	N 21 56.9	+00.2	100	18.9	+02.8	N 21 58.5	+00.0	188	50.9	+02.3	S 08 21.9	+00.0	06				
07	60	30.9	+02.7	N 21 57.1	+00.2	115	21.7	+02.8	N 21 58.5	+00.0	203	53.3	+02.3	S 08 21.9	-00.1	07				
08	75	33.6	+02.7	N 21 57.3	+00.1	130	24.5	+02.8	N 21 58.5	-00.1	218	55.6	+02.4	S 08 21.8	+00.0	08				
09	90	36.3	+02.8	N 21 57.4	+00.2	145	27.3	+02.9	N 21 58.4	+00.0	233	58.0	+02.3	S 08 21.8	-00.1	09				
10	105	39.1	+02.7	N 21 57.6	+00.2	160	30.2	+02.8	N 21 58.4	+00.0	249	00.3	+02.4	S 08 21.7	+00.0	10				
11	120	41.8	+02.8	N 21 57.8	+00.2	175	33.0	+02.8	N 21 58.4	+00.0	264	02.7	+02.3	S 08 21.7	-00.1	11				
12	135	44.6	+02.7	N 21 58.0	+00.2	190	35.8	+02.8	N 21 58.4	-00.1	279	05.0	+02.4	S 08 21.6	-00.1	12				
13	150	47.3	+02.7	N 21 58.2	+00.2	205	38.6	+02.8	N 21 58.3	+00.0	294	07.4	+02.3	S 08 21.5	+00.0	13				
14	165	50.0	+02.8	N 21 58.4	+00.1	220	41.4	+02.9	N 21 58.3	+00.0	309	09.7	+02.3	S 08 21.5	-00.1	14				
15	180	52.8	+02.7	N 21 58.5	+00.2	235	44.3	+02.8	N 21 58.3	-00.1	324	12.0	+02.4	S 08 21.4	+00.0	15				
16	195	55.5	+02.8	N 21 58.7	+00.2	250	47.1	+02.8	N 21 58.2	+00.0	339	14.4	+02.3	S 08 21.4	-00.1	16				
17	210	58.3	+02.7	N 21 58.9	+00.2	265	49.9	+02.8	N 21 58.2	+00.0	354	16.7	+02.4	S 08 21.3	+00.0	17				
18	226	01.0	+02.8	N 21 59.1	+00.2	280	52.7	+02.8	N 21 58.2	-00.1	9	19.1	+02.3	S 08 21.3	-00.1	18				
19	241	03.8	+02.7	N 21 59.3	+00.2	295	55.5	+02.9	N 21 58.1	+00.0	24	21.4	+02.4	S 08 21.2	+00.0	19				
20	256	06.5	+02.8	N 21 59.5	+00.2	310	58.4	+02.8	N 21 58.1	+00.0	39	23.8	+02.3	S 08 21.2	-00.1	20				
21	271	09.3	+02.7	N 21 59.7	+00.1	326	01.2	+02.8	N 21 58.1	+00.0	54	26.1	+02.4	S 08 21.1	-00.1	21				
22	286	12.0	+02.8	N 21 59.8	+00.1	341	04.0	+02.8	N 21 58.1	-00.1	69	28.5	+02.3	S 08 21.0	+00.0	22				
23	301	14.8	+02.7	N 22 00.0	+00.2	356	06.8	+02.8	N 21 58.0	+00.0	84	30.8	+02.4	S 08 21.0	-00.1	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	231°	231°	231°	231°	231°	231°	SHA	286°	286°	286°	286°	286°	286°	SHA	014°	014°	014°	014°	014°	014°
Greenwich Culmination Time: 02:58				Greenwich Culmination Time: 23:15				Greenwich Culmination Time: 17:22												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	06.2	-00.3	S 23 19.5	+00.1	132	02.5	-00.4	S 19 51.7	-00.9	352	01.9	-37.5	N 28 25.0	-00.9	00
01	196	05.9	-00.3	S 23 19.6	+00.1	147	02.1	-00.4	S 19 50.8	-00.8	6	24.4	-37.3	N 28 24.1	-01.0	01
02	211	05.6	-00.3	S 23 19.7	+00.1	162	01.7	-00.4	S 19 50.0	-00.9	20	47.1	-37.3	N 28 23.1	-01.3	02
03	226	05.3	-00.3	S 23 19.8	+00.1	177	01.3	-00.4	S 19 49.1	-00.8	35	09.8	-37.3	N 28 21.8	-01.4	03
04	241	05.0	-00.3	S 23 19.9	+00.1	192	00.9	-00.5	S 19 48.3	-00.9	49	32.5	-37.2	N 28 20.4	-01.6	04
05	256	04.7	-00.3	S 23 20.0	+00.1	207	00.4	-00.4	S 19 47.4	-00.8	63	55.3	-37.2	N 28 18.8	-01.8	05
06	271	04.4	-00.3	S 23 20.1	+00.1	222	00.0	-00.4	S 19 46.6	-00.9	78	18.1	-37.0	N 28 17.0	-02.0	06
07	286	04.1	-00.3	S 23 20.2	+00.1	236	59.6	-00.4	S 19 45.7	-00.8	92	41.1	-37.0	N 28 15.0	-02.2	07
08	301	03.8	-00.3	S 23 20.3	+00.1	251	59.2	-00.4	S 19 44.9	-00.9	107	04.1	-37.0	N 28 12.8	-02.4	08
09	316	03.5	-00.3	S 23 20.4	+00.1	266	58.8	-00.4	S 19 44.0	-00.9	121	27.1	-36.9	N 28 10.4	-02.5	09
10	331	03.2	-00.3	S 23 20.5	+00.1	281	58.4	-00.4	S 19 43.1	-00.8	135	50.2	-36.8	N 28 07.9	-02.8	10
11	346	02.9	-00.3	S 23 20.6	+00.1	296	58.0	-00.4	S 19 42.3	-00.9	150	13.4	-36.7	N 28 05.1	-02.9	11
12	1	02.6	-00.3	S 23 20.7	+00.1	311	57.6	-00.4	S 19 41.4	-00.8	164	36.7	-36.6	N 28 02.2	-03.1	12
13	16															

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and sub-rows for UT 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 11:58, 15:15, 04:51.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and sub-rows for UT 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 11:56, 15:13, 02:30.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and sub-rows for UT 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 22:31, 22:48, 17:00.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and sub-rows for UT 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 02:45, 23:02, 17:11.

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UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	44.2	-00.3	S 23 25.0	+00.0	131	35.2	-00.4	S 18 48.6	-00.9	311	09.1	-29.8	N 20 27.3	-11.2	00
01	195	43.9	-00.3	S 23 25.0	+00.0	146	34.8	-00.3	S 18 47.7	-00.9	325	39.3	-29.7	N 20 16.1	-11.3	01
02	210	43.6	-00.3	S 23 25.0	+00.1	161	34.5	-00.4	S 18 46.8	-00.9	340	09.6	-29.6	N 20 04.8	-11.4	02
03	225	43.3	-00.3	S 23 25.1	+00.0	176	34.1	-00.3	S 18 45.9	-00.9	354	40.0	-29.4	N 19 53.4	-11.4	03
04	240	43.0	-00.3	S 23 25.1	+00.1	191	33.8	-00.4	S 18 45.0	-00.9	9	10.6	-29.4	N 19 42.0	-11.5	04
05	255	42.7	-00.3	S 23 25.2	+00.0	206	33.4	-00.3	S 18 44.1	-00.9	23	41.2	-29.2	N 19 30.5	-11.7	05
06	270	42.4	-00.4	S 23 25.2	+00.1	221	33.1	-00.4	S 18 43.2	-00.9	38	12.0	-29.1	N 19 18.8	-11.6	06
07	285	42.0	-00.3	S 23 25.3	+00.0	236	32.7	-00.3	S 18 42.3	-00.9	52	42.9	-29.0	N 19 07.2	-11.8	07
08	300	41.7	-00.3	S 23 25.3	+00.0	251	32.4	-00.3	S 18 41.4	-00.9	67	13.9	-28.9	N 18 55.4	-11.8	08
09	315	41.4	-00.3	S 23 25.3	+00.1	266	32.1	-00.4	S 18 40.5	-00.9	81	45.0	-28.8	N 18 43.6	-12.0	09
10	330	41.1	-00.3	S 23 25.4	+00.0	281	31.7	-00.3	S 18 39.6	-00.9	96	16.2	-28.6	N 18 31.6	-11.9	10
11	345	40.8	-00.3	S 23 25.4	+00.1	296	31.4	-00.4	S 18 38.7	-00.9	110	47.6	-28.6	N 18 19.7	-12.1	11
12	0	40.5	-00.3	S 23 25.5	+00.0	311	31.0	-00.3	S 18 37.8	-01.0	125	19.0	-28.4	N 18 07.6	-12.1	12
13	15	40.2	-00.3	S 23 25.5	+00.0	326	30.7	-00.3	S 18 36.8	-00.9	139	50.6	-28.4	N 17 55.5	-12.2	13
14	30	39.9	-00.3	S 23 25.5	+00.1	341	30.4	-00.4	S 18 35.9	-00.9	154	22.2	-28.2	N 17 43.3	-12.2	14
15	45	39.6	-00.3	S 23 25.6	+00.0	356	30.0	-00.3	S 18 35.0	-00.9	168	54.0	-28.1	N 17 31.1	-12.4	15
16	60	39.3	-00.3	S 23 25.6	+00.0	11	29.7	-00.3	S 18 34.1	-00.9	183	25.9	-28.1	N 17 18.7	-12.3	16
17	75	39.0	-00.4	S 23 25.6	+00.1	26	29.4	-00.4	S 18 33.2	-00.9	197	57.8	-27.9	N 17 06.4	-12.5	17
18	90	38.6	-00.3	S 23 25.7	+00.0	41	29.0	-00.3	S 18 32.3	-00.9	212	29.9	-27.8	N 16 53.9	-12.5	18
19	105	38.3	-00.3	S 23 25.7	+00.0	56	28.7	-00.3	S 18 31.4	-01.0	227	02.1	-27.7	N 16 41.4	-12.6	19
20	120	38.0	-00.3	S 23 25.7	+00.1	71	28.4	-00.4	S 18 30.4	-00.9	241	34.4	-27.7	N 16 28.8	-12.6	20
21	135	37.7	-00.3	S 23 25.8	+00.0	86	28.0	-00.3	S 18 29.5	-00.9	256	06.7	-27.5	N 16 16.2	-12.7	21
22	150	37.4	-00.3	S 23 25.8	+00.0	101	27.7	-00.3	S 18 28.6	-00.9	270	39.2	-27.4	N 16 03.5	-12.7	22
23	165	37.1	-00.3	S 23 25.8	+00.0	116	27.4	-00.4	S 18 27.7	-00.9	285	11.8	-27.3	N 15 50.8	-12.8	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	SD 00°2 00°2 00°2 00°2 00°2 00°2	UT 02 06 10 14 18 22	SD 15°4 15°3 15°3 15°3 15°2 15°2	SD 00°2 00°2 00°2 00°2 00°2 00°2											
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°2 00°2 00°2 00°2 00°2 00°2	HP 56°4 56°3 56°2 56°1 55°9 55°8	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°2 00°2 00°2 00°2 00°2 00°2	HP 55°7 55°6 55°5 55°4 55°3 55°3											
SHA 093° 092° 091° 090° 091° 092°	SHA 043° 043° 043° 043° 043° 042°	SHA 222° 220° 218° 216° 214° 212°	SHA 091° 091° 091° 091° 091° 091°	SHA 042° 042° 042° 042° 042° 041°	SHA 210° 208° 206° 204° 202° 200°											
Greenwich Culmination Time: 11:57		Greenwich Culmination Time: 15:14		Greenwich Culmination Time: 03:22												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	36.8	-00.3	S 23 25.8	+00.1	131	27.0	-00.3	S 18 26.8	-01.0	299	44.5	-27.3	N 15 38.0	-12.8	00
01	195	36.5	-00.3	S 23 25.9	+00.0	146	26.7	-00.3	S 18 25.8	-00.9	314	17.2	-27.1	N 15 25.2	-12.9	01
02	210	36.2	-00.3	S 23 25.9	+00.0	161	26.4	-00.3	S 18 24.9	-00.9	328	50.1	-27.1	N 15 12.3	-12.9	02
03	225	35.9	-00.3	S 23 25.9	+00.0	176	26.1	-00.4	S 18 24.0	-00.9	343	23.0	-26.9	N 14 59.4	-13.0	03
04	240	35.6	-00.4	S 23 25.9	+00.1	191	25.7	-00.3	S 18 23.1	-00.9	357	56.1	-26.9	N 14 46.4	-13.1	04
05	255	35.2	-00.3	S 23 26.0	+00.0	206	25.4	-00.3	S 18 22.2	-01.0	12	29.2	-26.8	N 14 33.3	-13.1	05
06	270	34.9	-00.3	S 23 26.0	+00.0	221	25.1	-00.3	S 18 21.2	-00.9	27	02.4	-26.7	N 14 20.2	-13.1	06
07	285	34.6	-00.3	S 23 26.0	+00.0	236	24.8	-00.3	S 18 20.3	-00.9	41	35.7	-26.6	N 14 07.1	-13.2	07
08	300	34.3	-00.3	S 23 26.0	+00.1	251	24.5	-00.4	S 18 19.4	-01.0	56	09.1	-26.5	N 13 53.9	-13.2	08
09	315	34.0	-00.3	S 23 26.1	+00.0	266	24.1	-00.3	S 18 18.4	-00.9	70	42.6	-26.4	N 13 40.7	-13.2	09
10	330	33.7	-00.3	S 23 26.1	+00.0	281	23.8	-00.3	S 18 17.5	-00.9	85	16.2	-26.4	N 13 27.5	-13.3	10
11	345	33.4	-00.3	S 23 26.1	+00.0	296	23.5	-00.3	S 18 16.6	-00.9	99	49.8	-26.2	N 13 14.2	-13.4	11
12	0	33.1	-00.3	S 23 26.1	+00.0	311	23.2	-00.3	S 18 15.7	-01.0	114	23.6	-26.2	N 13 00.8	-13.4	12
13	15	32.8	-00.3	S 23 26.1	+00.0	326	22.9	-00.3	S 18 14.7	-01.0	128	57.4	-26.1	N 12 47.4	-13.4	13
14	30	32.5	-00.3	S 23 26.1	+00.1	341	22.6	-00.4	S 18 13.8	-00.9	143	31.3	-26.1	N 12 34.0	-13.5	14
15	45	32.2	-00.4	S 23 26.2	+00.0	356	22.2	-00.3	S 18 12.9	-01.0	158	05.2	-25.9	N 12 20.5	-13.4	15
16	60	31.8	-00.3	S 23 26.2	+00.0	11	21.9	-00.3	S 18 11.9	-00.9	172	39.3	-25.9	N 12 07.1	-13.6	16
17	75	31.5	-00.3	S 23 26.2	+00.0	26	21.6	-00.3	S 18 11.0	-00.9	187	13.4	-25.8	N 11 53.5	-13.5	17
18	90	31.2	-00.3	S 23 26.2	+00.0	41	21.3	-00.3	S 18 10.1	-01.0	201	47.6	-25.7	N 11 40.0	-13.6	18
19	105	30.9	-00.3	S 23 26.2	+00.0	56	21.0	-00.3	S 18 09.1	-00.9	216	21.9	-25.7	N 11 26.4	-13.7	19
20	120	30.6	-00.3	S 23 26.2	+00.0	71	20.7	-00.3	S 18 08.2	-00.9	230	56.2	-25.6	N 11 12.7	-13.6	20
21	135	30.3	-00.3	S 23 26.2	+00.0	86	20.4	-00.3	S 18 07.3	-01.0	245	30.6	-25.5	N 10 59.1	-13.7	21
22	150	30.0	-00.3	S 23 26.2	+00.1	101	20.1	-00.3	S 18 06.3	-00.9	260	05.1	-25.4	N 10 45.4	-13.7	22
23	165	29.7	-00.3	S 23 26.3	+00.0	116	19.8	-00.4	S 18 05.4	-00.9	274	39.7	-25.4	N 10 31.7	-13.8	23
UT 02 06 10 14 18 22	SD 16°3 16°3 16°3 16°3 16°3 16°3	SD 00°2 00°2 00°2 00°2 00°2 00°2	UT 02 06 10 14 18 22	SD 15°2 15°1 15°1 15°1 15°1 15°1	SD 00°2 00°2 00°2 00°2 00°2 00°2											
HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°2 00°2 00°2 00°2 00°2 00°2	HP 55°7 55°6 55°5 55°4 55°3 55°3	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 00°2 00°2 00°2 00°2 00°2 00°2	HP 55°7 55°6 55°5 55°4 55°3 55°3											
SHA 091° 091° 091° 091° 091° 091°	SHA 042° 042° 042° 042° 042° 041°	SHA 210° 208° 206° 204° 202° 200°	SHA 091° 091° 091° 091° 091° 091°	SHA 042° 042° 042° 042° 042° 041°	SHA 210° 208° 206° 204° 202° 200°											
Greenwich Culmination Time: 11:57		Greenwich Culmination Time: 15:14		Greenwich Culmination Time: 04:08												

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 086° 086° 086° 085° 085° 085°
Greenwich Culmination Time: 12:00

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 16°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 089° 089° 089° 089° 088° 088°
Greenwich Culmination Time: 11:58

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 233° 233° 233° 233° 233° 233°
Greenwich Culmination Time: 02:12

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, and magnitude data for each planet.

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 232° 232° 232° 232° 232° 232°
Greenwich Culmination Time: 02:26

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UT	Sun				Venus				Moon				UT				
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec					
00	180	14.4	-00.3	S 23 25.7	+00.0	131	05.8	-00.3	S 17 18.6	-00.9	269	49.9	-23.6	S 00 58.9	+14.2	00	
01	195	14.1	-00.3	S 23 25.7	-00.1	146	05.5	-00.2	S 17 17.7	-01.0	284	26.3	-23.6	S 01 13.1	+14.1	01	
02	210	13.8	-00.3	S 23 25.6	+00.0	161	05.3	-00.3	S 17 16.7	-01.0	299	02.7	-23.7	S 01 27.2	+14.1	02	
03	225	13.5	-00.3	S 23 25.6	+00.0	176	05.0	-00.2	S 17 15.7	-01.0	313	39.0	-23.6	S 01 41.3	+14.2	03	
04	240	13.2	-00.3	S 23 25.6	-00.1	191	04.8	-00.3	S 17 14.7	-00.9	328	15.4	-23.7	S 01 55.5	+14.1	04	
05	255	12.9	-00.3	S 23 25.5	+00.0	206	04.5	-00.3	S 17 13.8	-01.0	342	51.7	-23.6	S 02 09.6	+14.1	05	
06	270	12.6	-00.3	S 23 25.5	+00.0	221	04.2	-00.2	S 17 12.8	-01.0	357	28.1	-23.6	S 02 23.7	+14.1	06	
07	285	12.3	-00.3	S 23 25.5	-00.1	236	04.0	-00.3	S 17 11.8	-01.0	12	04.5	-23.7	S 02 37.8	+14.1	07	
08	300	12.0	-00.3	S 23 25.4	+00.0	251	03.7	-00.2	S 17 10.8	-00.9	26	40.8	-23.6	S 02 51.9	+14.0	08	
09	315	11.7	-00.4	S 23 25.4	-00.1	266	03.5	-00.3	S 17 09.9	-01.0	41	17.2	-23.7	S 03 05.9	+14.1	09	
10	330	11.3	-00.3	S 23 25.3	+00.0	281	03.2	-00.2	S 17 08.9	-01.0	55	53.5	-23.6	S 03 20.0	+14.0	10	
11	345	11.0	-00.3	S 23 25.3	+00.0	296	03.0	-00.3	S 17 07.9	-01.0	70	29.9	-23.7	S 03 34.0	+14.0	11	
12	0	10.7	-00.3	S 23 25.3	-00.1	311	02.7	-00.2	S 17 06.9	-00.9	85	06.2	-23.7	S 03 48.0	+14.0	12	
13	15	10.4	-00.3	S 23 25.2	+00.0	326	02.5	-00.3	S 17 06.0	-01.0	99	42.5	-23.7	S 04 02.0	+14.0	13	
14	30	10.1	-00.3	S 23 25.2	-00.1	341	02.2	-00.2	S 17 05.0	-01.0	114	18.8	-23.7	S 04 16.0	+14.0	14	
15	45	09.8	-00.3	S 23 25.1	+00.0	356	02.0	-00.3	S 17 04.0	-01.0	128	55.1	-23.7	S 04 30.0	+13.9	15	
16	60	09.5	-00.3	S 23 25.1	-00.1	11	01.7	-00.2	S 17 03.0	-01.0	143	31.4	-23.7	S 04 43.9	+14.0	16	
17	75	09.2	-00.3	S 23 25.0	+00.0	26	01.5	-00.3	S 17 02.0	-00.9	158	07.7	-23.7	S 04 57.9	+13.9	17	
18	90	08.9	-00.4	S 23 25.0	+00.0	41	01.2	-00.2	S 17 01.1	-01.0	172	44.0	-23.8	S 05 11.8	+13.9	18	
19	105	08.5	-00.3	S 23 25.0	-00.1	56	01.0	-00.3	S 17 00.1	-01.0	187	20.2	-23.8	S 05 25.7	+13.9	19	
20	120	08.2	-00.3	S 23 24.9	+00.0	71	00.7	-00.2	S 16 59.1	-01.0	201	56.4	-23.8	S 05 39.6	+13.8	20	
21	135	07.9	-00.3	S 23 24.9	-00.1	86	00.5	-00.3	S 16 58.1	-01.0	216	32.6	-23.8	S 05 53.4	+13.9	21	
22	150	07.6	-00.3	S 23 24.8	+00.0	101	00.2	-00.2	S 16 57.1	-01.0	231	08.8	-23.8	S 06 07.3	+13.8	22	
23	165	07.3	-00.3	S 23 24.8	-00.1	115	60.0	-00.3	S 16 56.1	-01.0	245	45.0	-23.9	S 06 21.1	+13.8	23	
UT	02	06	10	14	18	22											
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°2	00°2	00°2	00°2	00°2	00°2	SD	14°8	14°8	14°8
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	54°3	54°3	54°3
SHA	088°	088°	088°	088°	088°	088°	SHA	039°	039°	039°	038°	038°	038°	SHA	177°	175°	173°
Greenwich Culmination Time: 11:59																	

UT	Sun				Venus				Moon				UT				
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec					
00	180	07.0	-00.3	S 23 24.7	+00.0	130	59.7	-00.2	S 16 55.1	-00.9	260	21.1	-23.8	S 06 34.9	+13.7	00	
01	195	06.7	-00.3	S 23 24.7	-00.1	145	59.5	-00.2	S 16 54.2	-01.0	274	57.3	-23.9	S 06 48.6	+13.8	01	
02	210	06.4	-00.3	S 23 24.6	-00.1	160	59.3	-00.3	S 16 53.2	-01.0	289	33.4	-24.0	S 07 02.4	+13.7	02	
03	225	06.1	-00.4	S 23 24.5	+00.0	175	59.0	-00.2	S 16 52.2	-01.0	304	09.4	-23.9	S 07 16.1	+13.7	03	
04	240	05.7	-00.3	S 23 24.5	-00.1	190	58.8	-00.2	S 16 51.2	-01.0	318	45.5	-24.0	S 07 29.8	+13.6	04	
05	255	05.4	-00.3	S 23 24.4	+00.0	205	58.6	-00.3	S 16 50.2	-01.0	333	21.5	-24.0	S 07 43.4	+13.7	05	
06	270	05.1	-00.3	S 23 24.4	-00.1	220	58.3	-00.2	S 16 49.2	-01.0	347	57.5	-24.1	S 07 57.1	+13.6	06	
07	285	04.8	-00.3	S 23 24.3	+00.0	235	58.1	-00.3	S 16 48.2	-01.0	2	33.4	-24.0	S 08 10.7	+13.5	07	
08	300	04.5	-00.3	S 23 24.3	-00.1	250	57.8	-00.2	S 16 47.2	-01.0	17	09.4	-24.1	S 08 24.2	+13.6	08	
09	315	04.2	-00.3	S 23 24.2	+00.0	265	57.6	-00.2	S 16 46.2	-00.9	31	45.3	-24.2	S 08 37.8	+13.5	09	
10	330	03.9	-00.3	S 23 24.2	-00.1	280	57.4	-00.3	S 16 45.3	-01.0	46	21.1	-24.1	S 08 51.3	+13.5	10	
11	345	03.6	-00.3	S 23 24.1	-00.1	295	57.1	-00.2	S 16 44.3	-01.0	60	57.0	-24.3	S 09 04.8	+13.5	11	
12	0	03.3	-00.3	S 23 24.0	+00.0	310	56.9	-00.2	S 16 43.3	-01.0	75	32.7	-24.2	S 09 18.3	+13.4	12	
13	15	03.0	-00.4	S 23 24.0	-00.1	325	56.7	-00.2	S 16 42.3	-01.0	90	08.5	-24.3	S 09 31.7	+13.4	13	
14	30	02.6	-00.3	S 23 23.9	-00.1	340	56.5	-00.3	S 16 41.3	-01.0	104	44.2	-24.3	S 09 45.1	+13.3	14	
15	45	02.3	-00.3	S 23 23.8	+00.0	355	56.2	-00.2	S 16 40.3	-01.0	119	19.9	-24.4	S 09 58.4	+13.4	15	
16	60	02.0	-00.3	S 23 23.8	-00.1	10	56.0	-00.2	S 16 39.3	-01.0	133	55.5	-24.4	S 10 11.8	+13.3	16	
17	75	01.7	-00.3	S 23 23.7	+00.0	25	55.8	-00.3	S 16 38.3	-01.0	148	31.1	-24.4	S 10 25.1	+13.2	17	
18	90	01.4	-00.3	S 23 23.7	-00.1	40	55.5	-00.2	S 16 37.3	-01.0	163	06.7	-24.5	S 10 38.3	+13.2	18	
19	105	01.1	-00.3	S 23 23.6	-00.1	55	55.3	-00.2	S 16 36.3	-01.0	177	42.2	-24.6	S 10 51.5	+13.2	19	
20	120	00.8	-00.3	S 23 23.5	+00.0	70	55.1	-00.2	S 16 35.3	-01.0	192	17.6	-24.5	S 11 04.7	+13.2	20	
21	135	00.5	-00.3	S 23 23.5	-00.1	85	54.9	-00.2	S 16 34.3	-01.0	206	53.1	-24.7	S 11 17.9	+13.1	21	
22	150	00.2	-00.4	S 23 23.4	-00.1	100	54.7	-00.3	S 16 33.3	-01.0	221	28.4	-24.6	S 11 31.0	+13.1	22	
23	164	59.8	-00.3	S 23 23.3	-00.1	115	54.4	-00.2	S 16 32.3	-01.0	236	03.8	-24.8	S 11 44.1	+13.0	23	
UT	02	06	10	14	18	22											
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°2	00°2	00°2	00°2	00°2	00°2	SD	14°8	14°8	14°8
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	54°2	54°2	54°2
SHA	087°	087°	087°	086°	086°	086°	SHA	038°	038°	037°	037°	037°	037°	SHA	166°	165°	163°
Greenwich Culmination Time: 11:59																	

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	324	22.2	+03.0	N 22 36.4	+00.2	19	01.7	+02.8	N 21 53.1	-00.1	106	05.1	+02.3	S 08 10.6	+00.0	00
01	339	25.2	+03.0	N 22 36.6	+00.3	34	04.5	+02.7	N 21 53.0	+00.0	121	07.4	+02.3	S 08 10.6	-00.1	01
02	354	28.2	+03.1	N 22 36.9	+00.2	49	07.2	+02.8	N 21 53.0	+00.0	136	09.7	+02.3	S 08 10.5	-00.1	02
03	9	31.3	+03.0	N 22 37.1	+00.2	64	10.0	+02.8	N 21 53.0	+00.0	151	12.0	+02.3	S 08 10.4	+00.0	03
04	24	34.3	+03.0	N 22 37.3	+00.3	79	12.8	+02.8	N 21 53.0	-00.1	166	14.3	+02.4	S 08 10.4	-00.1	04
05	39	37.3	+03.0	N 22 37.6	+00.2	94	15.6	+02.8	N 21 52.9	+00.0	181	16.7	+02.3	S 08 10.3	-00.1	05
06	54	40.3	+03.0	N 22 37.8	+00.3	109	18.4	+02.8	N 21 52.9	+00.0	196	19.0	+02.3	S 08 10.2	+00.0	06
07	69	43.3	+03.1	N 22 38.1	+00.2	124	21.2	+02.8	N 21 52.9	-00.1	211	21.3	+02.3	S 08 10.2	-00.1	07
08	84	46.4	+03.0	N 22 38.3	+00.2	139	24.0	+02.8	N 21 52.8	+00.0	226	23.6	+02.3	S 08 10.1	-00.1	08
09	99	49.4	+03.0	N 22 38.5	+00.3	154	26.8	+02.8	N 21 52.8	+00.0	241	25.9	+02.4	S 08 10.0	+00.0	09
10	114	52.4	+03.0	N 22 38.8	+00.2	169	29.6	+02.8	N 21 52.8	+00.0	256	28.3	+02.3	S 08 10.0	-00.1	10
11	129	55.4	+03.1	N 22 39.0	+00.3	184	32.4	+02.8	N 21 52.8	-00.1	271	30.6	+02.3	S 08 09.9	-00.1	11
12	144	58.5	+03.0	N 22 39.3	+00.2	199	35.2	+02.8	N 21 52.7	+00.0	286	32.9	+02.3	S 08 09.8	+00.0	12
13	160	01.5	+03.0	N 22 39.5	+00.3	214	38.0	+02.8	N 21 52.7	+00.0	301	35.2	+02.3	S 08 09.8	-00.1	13
14	175	04.5	+03.1	N 22 39.8	+00.2	229	40.8	+02.8	N 21 52.7	-00.1	316	37.5	+02.4	S 08 09.7	-00.1	14
15	190															

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 30.0	-00.3	S 23 12.7	-00.2	130 37.3	-00.1	S 14 52.5	-01.1	205 09.5	-32.7	S 27 19.2	+04.4	00
01	194 29.7	-00.3	S 23 12.5	-00.1	145 37.2	-00.1	S 14 51.4	-01.0	219 36.8	-32.8	S 27 23.6	+04.3	01
02	209 29.4	-00.3	S 23 12.4	-00.2	160 37.1	-00.1	S 14 50.4	-01.1	234 04.0	-32.9	S 27 27.9	+04.2	02
03	224 29.1	-00.3	S 23 12.2	-00.1	175 37.0	-00.2	S 14 49.3	-01.1	248 31.1	-32.9	S 27 32.1	+04.0	03
04	239 28.8	-00.3	S 23 12.1	-00.2	190 36.8	-00.1	S 14 48.2	-01.0	262 58.2	-33.1	S 27 36.1	+03.8	04
05	254 28.5	-00.3	S 23 11.9	-00.1	205 36.7	-00.1	S 14 47.2	-01.1	277 25.1	-33.1	S 27 39.9	+03.8	05
06	269 28.2	-00.3	S 23 11.8	-00.2	220 36.6	-00.2	S 14 46.1	-01.0	291 52.0	-33.1	S 27 43.7	+03.5	06
07	284 27.9	-00.3	S 23 11.6	-00.1	235 36.4	-00.1	S 14 45.1	-01.1	306 18.9	-33.3	S 27 47.2	+03.4	07
08	299 27.6	-00.3	S 23 11.5	-00.2	250 36.3	-00.1	S 14 44.0	-01.0	320 45.6	-33.3	S 27 50.6	+03.3	08
09	314 27.3	-00.3	S 23 11.3	-00.1	265 36.2	-00.1	S 14 43.0	-01.1	335 12.3	-33.4	S 27 53.9	+03.1	09
10	329 27.0	-00.3	S 23 11.2	-00.2	280 36.1	-00.1	S 14 41.9	-01.1	349 38.9	-33.4	S 27 57.0	+03.0	10
11	344 26.7	-00.3	S 23 11.0	-00.1	295 36.0	-00.2	S 14 40.8	-01.0	4 05.5	-33.5	S 27 60.0	+02.8	11
12	359 26.4	-00.4	S 23 10.9	-00.2	310 35.8	-00.1	S 14 39.8	-01.1	18 32.0	-33.6	S 28 02.8	+02.6	12
13	14 26.0	-00.3	S 23 10.7	-00.2	325 35.7	-00.1	S 14 38.7	-01.1	32 58.4	-33.6	S 28 05.4	+02.5	13
14	29 25.7	-00.3	S 23 10.5	-00.1	340 35.6	-00.1	S 14 37.6	-01.0	47 24.8	-33.7	S 28 07.9	+02.4	14
15	44 25.4	-00.3	S 23 10.4	-00.2	355 35.5	-00.1	S 14 36.6	-01.1	61 51.1	-33.8	S 28 10.3	+02.2	15
16	59 25.1	-00.3	S 23 10.2	-00.2	10 35.4	-00.2	S 14 35.5	-01.0	76 17.3	-33.8	S 28 12.5	+02.0	16
17	74 24.8	-00.3	S 23 10.0	-00.1	25 35.2	-00.1	S 14 34.5	-01.1	90 43.5	-33.8	S 28 14.5	+01.9	17
18	89 24.5	-00.3	S 23 09.9	-00.2	40 35.1	-00.1	S 14 33.4	-01.1	105 09.7	-34.0	S 28 16.4	+01.7	18
19	104 24.2	-00.3	S 23 09.7	-00.1	55 35.0	-00.1	S 14 32.3	-01.0	119 35.7	-33.9	S 28 18.1	+01.5	19
20	119 23.9	-00.3	S 23 09.6	-00.2	70 34.9	-00.1	S 14 31.3	-01.1	134 01.8	-34.0	S 28 19.6	+01.4	20
21	134 23.6	-00.3	S 23 09.4	-00.2	85 34.8	-00.1	S 14 30.2	-01.1	148 27.8	-34.1	S 28 21.0	+01.3	21
22	149 23.3	-00.3	S 23 09.2	-00.1	100 34.7	-00.1	S 14 29.1	-01.0	162 53.7	-34.1	S 28 22.3	+01.0	22
23	164 23.0	-00.3	S 23 09.1	-00.2	115 34.6	-00.1	S 14 28.1	-01.1	177 19.6	-34.2	S 28 23.3	+00.9	23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT						
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°2	00°2	00°2	00°2	00°2	00°2	SD						
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP						
SHA	081°	081°	081°	081°	081°	081°	SHA	033°	032°	032°	032°	032°	032°	SHA						
Greenwich Culmination Time: 12:02							Greenwich Culmination Time: 15:17							Greenwich Culmination Time: 10:43						

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	331 51.3	+03.2	N 23 13.1	+00.3	25 42.4	+02.8	N 21 49.1	+00.0	111 37.7	+02.3	S 08 00.5	-00.1	00
01	346 54.5	+03.2	N 23 13.4	+00.3	40 45.2	+02.7	N 21 49.1	-00.1	126 40.0	+02.3	S 08 00.4	+00.0	01
02	1 57.7	+03.2	N 23 13.7	+00.2	55 47.9	+02.8	N 21 49.0	+00.0	141 42.3	+02.3	S 08 00.4	-00.1	02
03	17 00.9	+03.3	N 23 13.9	+00.3	70 50.7	+02.8	N 21 49.0	+00.0	156 44.6	+02.3	S 08 00.3	-00.1	03
04	32 04.2	+03.2	N 23 14.2	+00.3	85 53.5	+02.7	N 21 49.0	+00.0	171 46.9	+02.3	S 08 00.2	-00.1	04
05	47 07.4	+03.2	N 23 14.5	+00.2	100 56.2	+02.8	N 21 49.0	-00.1	186 49.2	+02.3	S 08 00.1	+00.0	05
06	62 10.6	+03.3	N 23 14.7	+00.3	115 59.0	+02.8	N 21 48.9	+00.0	201 51.5	+02.3	S 08 00.1	-00.1	06
07	77 13.9	+03.2	N 23 15.0	+00.3	131 01.8	+02.7	N 21 48.9	+00.0	216 53.8	+02.3	S 07 60.0	-00.1	07
08	92 17.1	+03.2	N 23 15.3	+00.3	146 04.5	+02.8	N 21 48.9	-00.1	231 56.1	+02.3	S 07 59.9	-00.1	08
09	107 20.3	+03.2	N 23 15.6	+00.2	161 07.3	+02.8	N 21 48.8	+00.0	246 58.4	+02.3	S 07 59.8	+00.0	09
10	122 23.5	+03.3	N 23 15.8	+00.3	176 10.1	+02.7	N 21 48.8	+00.0	262 00.7	+02.3	S 07 59.8	-00.1	10
11	137 26.8	+03.2	N 23 16.1	+00.3	191 12.8	+02.8	N 21 48.8	+00.0	277 03.0	+02.3	S 07 59.7	-00.1	11
12	152 30.0	+03.3	N 23 16.4	+00.2	206 15.6	+02.8	N 21 48.8	-00.1	292 05.3	+02.3	S 07 59.6	-00.1	12
13	167 33.3	+03.2	N 23 16.6	+00.3	221 18.4	+02.7	N 21 48.7	+00.0	307 07.6	+02.3	S 07 59.5	+00.0	13
14	182 36.5	+03.2	N 23 16.9	+00.3	236 21.1	+02.8	N 21 48.7	+00.0	322 09.9	+02.3	S 07 59.5	-00.1	14
15	197 39.7	+03.3	N 23 17.2	+00.2	251 23.9	+02.8	N 21 48.7	+00.0	337 12.2	+02.3	S 07 59.4	-00.1	15
16	212 43.0	+03.2	N 23 17.4	+00.3	266 26.7	+02.7	N 21 48.7	-00.1	352 14.5	+02.3	S 07 59.3	-00.1	16
17	227 46.2	+03.3	N 23 17.7	+00.3	281 29.4	+02.8	N 21 48.6	+00.0	7 16.8	+02.3	S 07 59.2	+00.0	17
18	242 49.5	+03.2	N 23 18.0	+00.3	296 32.2	+02.7	N 21 48.6	+00.0	22 19.1	+02.3	S 07 59.2	-00.1	18
19	257 52.7	+03.2	N 23 18.3	+00.2	311 34.9	+02.8	N 21 48.6	+00.0	37 21.4	+02.3	S 07 59.1	-00.1	19
20	272 55.9	+03.3	N 23 18.5	+00.3	326 37.7	+02.8	N 21 48.6	-00.1	52 23.7	+02.3	S 07 59.0	-00.1	20
21	287 59.2	+03.2	N 23 18.8	+00.3	341 40.5	+02.7	N 21 48.5	+00.0	67 26.0	+02.3	S 07 58.9	+00.0	21
22	303 02.4	+03.3	N 23 19.1	+00.2	356 43.2	+02.8	N 21 48.5	+00.0	82 28.3	+02.3	S 07 58.9	-00.1	22
23	318 05.7	+03.2	N 23 19.3	+00.3	11 46.0	+02.8	N 21 48.5	+00.0	97 30.6	+02.3	S 07 58.8	-00.1	23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT						
SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	00°1	00°1	00°1	00°1	00°1	00°1	SD						
HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP						
SHA	234°	234°	234°	234°	234°	234°	SHA	288°	288°	288°	288°	288°	288°	SHA						
Greenwich Culmination Time: 01:52							Greenwich Culmination Time: 22:13							Greenwich Culmination Time: 16:30						

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 52.1	-00.3	S 23 21.3	-00.1	130 49.2	-00.2	S 16 07.1	-01.0	240 28.1	-26.3	S 16 55.7	+11.8	00
01	194 51.8	-00.3	S 23 21.2	-00.1	145 49.0	-00.2	S 16 06.1	-01.0	255 01.8	-26.4	S 17 07.5	+11.7	01
02	209 51.5	-00.3	S 23 21.1	-00.1	160 48.8	-00.2	S 16 05.1	-01.1	269 35.4	-26.4	S 17 19.2	+11.6	02
03	224 51.2	-00.3	S 23 21.0	-00.1	175 48.6	-00.2	S 16 04.0	-01.0	284 09.0	-26.5	S 17 30.8	+11.6	03
04	239 50.9	-00.3	S 23 20.9	-00.1	190 48.4	-00.2	S 16 03.0	-01.0	298 42.5	-26.6	S 17 42.4	+11.5	04
05	254 50.6	-00.3	S 23 20.8	+00.0	205 48.2	-00.2	S 16 02.0	-01.0	313 15.9	-26.7	S 17 53.9	+11.5	05
06	269 50.3	-00.4	S 23 20.8	-00.1	220 48.0	-00.2	S 16 01.0	-01.0	327 49.2	-26.8	S 18 05.4	+11.3	06
07	284 49.9	-00.3	S 23 20.7	-00.1	235 47.8	-00.1	S 15 60.0	-01.1	342 22.4	-26.8	S 18 16.7	+11.3	07
08	299 49.6	-00.3	S 23 20.6	-00.1	250 47.7	-00.2	S 15 58.9	-01.0	356 55.6	-26.9	S 18 28.0	+11.3	08
09	314 49.3	-00.3	S 23 20.5	-00.1	265 47.5	-00.2	S 15 57.9	-01.0	11 28.7	-27.0	S 18 39.3	+11.2	09
10	329 49.0	-00.3	S 23 20.4	-00.1	280 47.3	-00.2	S 15 56.9	-01.0	26 01.7	-27.1	S 18 50.5	+11.1	10
11	344 48.7	-00.3	S 23 20.3	-00.1	295 47.1	-00.2	S 15 55.9	-01.0	40 34.6	-27.2	S 19 01.6	+11.0	11
12	359 48.4	-00.3	S 23 20.2	-00.1	310 46.9	-00.2	S 15 54.9	-01.1	55 07.4	-27.3	S 19 12.6	+10.9	12
13	14 48.1	-00.3	S 23 20.1	-00.1	325 46.7	-00.2	S 15 53.8	-01.0	69 40.1	-27.3	S 19 23.5	+10.9	13

Table with columns for UT, Sun, Venus, Moon, and UT. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for each planet.

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
	°	'	°	'	°	'	°	'	°	'	°	'			
00	179	22.7	-00.3	S 23 08.9	-00.2	130	34.5	-00.2	S 14 27.0	-01.1	191	45.4	-34.2	S 28 24.2	+00.8
01	194	22.4	-00.3	S 23 08.7	-00.1	145	34.3	-00.1	S 14 25.9	-01.0	206	11.2	-34.2	S 28 25.0	+00.5
02	209	22.1	-00.3	S 23 08.6	-00.2	160	34.2	-00.1	S 14 24.9	-01.1	220	37.0	-34.3	S 28 25.5	+00.5
03	224	21.8	-00.3	S 23 08.4	-00.2	175	34.1	-00.1	S 14 23.8	-01.1	235	02.7	-34.3	S 28 26.0	+00.2
04	239	21.5	-00.3	S 23 08.2	-00.2	190	34.0	-00.1	S 14 22.7	-01.1	249	28.4	-34.3	S 28 26.2	+00.1
05	254	21.2	-00.3	S 23 08.0	-00.1	205	33.9	-00.1	S 14 21.6	-01.0	263	54.1	-34.4	S 28 26.3	-00.1
06	269	20.9	-00.3	S 23 07.9	-00.2	220	33.8	-00.1	S 14 20.6	-01.1	278	19.7	-34.4	S 28 26.2	-00.2
07	284	20.6	-00.3	S 23 07.7	-00.2	235	33.7	-00.1	S 14 19.5	-01.1	292	45.3	-34.5	S 28 26.0	-00.5
08	299	20.3	-00.3	S 23 07.5	-00.2	250	33.6	-00.1	S 14 18.4	-01.0	307	10.8	-34.4	S 28 25.5	-00.5
09	314	20.0	-00.3	S 23 07.3	-00.1	265	33.5	-00.1	S 14 17.4	-01.1	321	36.4	-34.5	S 28 25.0	-00.8
10	329	19.7	-00.3	S 23 07.2	-00.2	280	33.4	-00.1	S 14 16.3	-01.1	336	01.9	-34.5	S 28 24.2	-00.9
11	344	19.4	-00.3	S 23 07.0	-00.2	295	33.3	-00.1	S 14 15.2	-01.1	350	27.4	-34.5	S 28 23.3	-01.1
12	359	19.1	-00.3	S 23 06.8	-00.2	310	33.2	-00.1	S 14 14.1	-01.0	4	52.9	-34.6	S 28 22.2	-01.2
13	14	18.8	-00.3	S 23 06.6	-00.1	325	33.1	-00.1	S 14 13.1	-01.1	19	18.3	-34.5	S 28 21.0	-01.5
14	29	18.5	-00.3	S 23 06.5	-00.2	340	33.0	-00.1	S 14 12.0	-01.1	33	43.8	-34.6	S 28 19.5	-01.6
15	44	18.2	-00.3	S 23 06.3	-00.2	355	32.9	-00.1	S 14 10.9	-01.1	48	09.2	-34.6	S 28 17.9	-01.7
16	59	17.9	-00.3	S 23 06.1	-00.2	10	32.8	-00.1	S 14 09.8	-01.0	62	34.6	-34.6	S 28 16.2	-01.9
17	74	17.6	-00.3	S 23 05.9	-00.2	25	32.7	-00.1	S 14 08.8	-01.1	76	60.0	-34.6	S 28 14.3	-02.1
18	89	17.3	-00.3	S 23 05.7	-00.2	40	32.6	-00.1	S 14 07.7	-01.1	91	25.4	-34.6	S 28 12.2	-02.3
19	104	17.0	-00.3	S 23 05.5	-00.1	55	32.5	+00.0	S 14 06.6	-01.1	105	50.8	-34.6	S 28 09.9	-02.4
20	119	16.7	-00.3	S 23 05.4	-00.2	70	32.5	-00.1	S 14 05.5	-01.0	120	16.2	-34.7	S 28 07.5	-02.6
21	134	16.4	-00.3	S 23 05.2	-00.2	85	32.4	-00.1	S 14 04.5	-01.1	134	41.5	-34.6	S 28 04.9	-02.8
22	149	16.1	-00.3	S 23 05.0	-00.2	100	32.3	-00.1	S 14 03.4	-01.1	149	06.9	-34.6	S 28 02.1	-02.9
23	164	15.8	-00.3	S 23 04.8	-00.2	115	32.2	-00.1	S 14 02.3	-01.1	163	32.3	-34.6	S 27 59.2	-03.1
	UT 02 06 10 14 18 22					UT 02 06 10 14 18 22					UT 02 06 10 14 18 22				
	SD 16°3 16'3 16°3 16'3 16°3 16'3					SD 00°2 00'2 00°2 00'2 00°2 00'2					SD 15°4 15'4 15°4 15'4 15°4 15'5				
	HP 00°1 00'1 00°1 00'1 00°1 00'1					HP 00°2 00'2 00°2 00'2 00°2 00'2					HP 56°3 56'4 56°5 56'6 56°7 56°8				
	SHA 080° 080° 080° 080° 080° 079°					SHA 032° 031° 031° 031° 031° 031°					SHA 092° 089° 087° 084° 082° 079°				
	Greenwich Culmination Time: 12:02					Greenwich Culmination Time: 15:17					Greenwich Culmination Time: 11:39				

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
	°	'	°	'	°	'	°	'	°	'	°	'			
00	333	08.9	+03.3	N 23 19.6	+00.3	26	48.8	+02.7	N 21 48.5	-00.1	112	32.9	+02.3	S 07 58.7	-00.1
01	348	12.2	+03.2	N 23 19.9	+00.2	41	51.5	+02.8	N 21 48.4	+00.0	127	35.2	+02.3	S 07 58.6	-00.1
02	3	15.4	+03.3	N 23 20.1	+00.3	56	54.3	+02.7	N 21 48.4	+00.0	142	37.5	+02.3	S 07 58.5	+00.0
03	18	18.7	+03.2	N 23 20.4	+00.3	71	57.0	+02.8	N 21 48.4	+00.0	157	39.8	+02.3	S 07 58.5	-00.1
04	33	21.9	+03.3	N 23 20.7	+00.3	86	59.8	+02.8	N 21 48.4	-00.1	172	42.1	+02.3	S 07 58.4	-00.1
05	48	25.2	+03.3	N 23 21.0	+00.2	102	02.6	+02.7	N 21 48.3	+00.0	187	44.4	+02.3	S 07 58.3	-00.1
06	63	28.5	+03.2	N 23 21.2	+00.3	117	05.3	+02.8	N 21 48.3	+00.0	202	46.7	+02.3	S 07 58.2	+00.0
07	78	31.7	+03.3	N 23 21.5	+00.3	132	08.1	+02.7	N 21 48.3	+00.0	217	49.0	+02.3	S 07 58.2	-00.1
08	93	35.0	+03.2	N 23 21.8	+00.2	147	10.8	+02.8	N 21 48.3	-00.1	232	51.3	+02.3	S 07 58.1	-00.1
09	108	38.2	+03.3	N 23 22.0	+00.3	162	13.6	+02.8	N 21 48.2	+00.0	247	53.6	+02.3	S 07 58.0	-00.1
10	123	41.5	+03.3	N 23 22.3	+00.3	177	16.4	+02.7	N 21 48.2	+00.0	262	55.9	+02.3	S 07 57.9	+00.0
11	138	44.8	+03.2	N 23 22.6	+00.3	192	19.1	+02.8	N 21 48.2	-00.1	277	58.2	+02.2	S 07 57.9	-00.1
12	153	48.0	+03.3	N 23 22.9	+00.2	207	21.9	+02.7	N 21 48.1	+00.0	293	00.4	+02.3	S 07 57.8	-00.1
13	168	51.3	+03.3	N 23 23.1	+00.3	222	24.6	+02.8	N 21 48.1	+00.0	308	02.7	+02.3	S 07 57.7	+00.1
14	183	54.6	+03.2	N 23 23.4	+00.3	237	27.4	+02.8	N 21 48.1	+00.0	323	05.0	+02.3	S 07 57.6	+00.0
15	198	57.8	+03.3	N 23 23.7	+00.3	252	30.2	+02.7	N 21 48.1	-00.1	338	07.3	+02.3	S 07 57.6	-00.1
16	214	01.1	+03.3	N 23 24.0	+00.2	267	32.9	+02.8	N 21 48.0	+00.0	353	09.6	+02.3	S 07 57.5	-00.1
17	229	04.4	+03.3	N 23 24.2	+00.3	282	35.7	+02.7	N 21 48.0	+00.0	8	11.9	+02.3	S 07 57.4	-00.1
18	244	07.7	+03.2	N 23 24.5	+00.3	297	38.4	+02.8	N 21 48.0	+00.0	23	14.2	+02.3	S 07 57.3	+00.0
19	259	10.9	+03.3	N 23 24.8	+00.2	312	41.2	+02.7	N 21 48.0	-00.1	38	16.5	+02.3	S 07 57.3	-00.1
20	274	14.2	+03.3	N 23 25.0	+00.3	327	43.9	+02.8	N 21 47.9	+00.0	53	18.8	+02.3	S 07 57.2	-00.1
21	289	17.5	+03.3	N 23 25.3	+00.3	342	46.7	+02.8	N 21 47.9	+00.0	68	21.1	+02.3	S 07 57.1	-00.1
22	304	20.8	+03.2	N 23 25.6	+00.3	357	49.5	+02.7	N 21 47.9	+00.0	83	23.4	+02.3	S 07 57.0	-00.1
23	319	24.0	+03.3	N 23 25.9	+00.2	12	52.2	+02.8	N 21 47.9	-00.1	98	25.7	+02.3	S 07 56.9	+00.0
	UT 02 06 10 14 18 22					UT 02 06 10 14 18 22					UT 02 06 10 14 18 22				
	SD 00°1 00'1 00°1 00'1 00°1 00'1					SD 00°4 00'4 00°4 00'4 00°4 00'4					SD 00°1 00'1 00°1 00'1 00°1 00'1				
	HP 00°2 00'2 00°2 00'2 00°2 00'2					HP 00°0 00'0 00°0 00'0 00°0 00'0					HP 00°0 00'0 00°0 00'0 00°0 00'0				
	SHA 234° 234° 234° 234° 234° 235°					SHA 288° 288° 288° 288° 288° 288°					SHA 014° 014° 014° 014° 014° 014°				
	Greenwich Culmination Time: 01:47					Greenwich Culmination Time: 22:08					Greenwich Culmination Time: 16:27				

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	15.5	-00.3	S 23 04.6	-00.2	130	32.1	-00.1	S 14 01.2	-01.1	177	57.7	-34.6	S 27 56.1	-03.3	00				
01	194	15.2	-00.3	S 23 04.4	-00.2	145	32.0	-00.1	S 14 00.1	-01.0	192	23.1	-34.6	S 27 52.8	-03.5	01				
02	209	14.9	-00.3	S 23 04.2	-00.1	160	31.9	-00.1	S 13 59.1	-01.1	206	48.5	-34.6	S 27 49.3	-03.6	02				
03	224	14.6	-00.3	S 23 04.1	-00.2	175	31.8	+00.0	S 13 58.0	-01.1	221	13.9	-34.6	S 27 45.7	-03.8	03				
04	239	14.3	-00.3	S 23 03.9	-00.2	190	31.8	-00.1	S 13 56.9	-01.1	235	39.3	-34.5	S 27 41.9	-03.9	04				
05	254	14.0	-00.3	S 23 03.7	-00.2	205	31.7	-00.1	S 13 55.8	-01.1	250	04.8	-34.6	S 27 38.0	-04.1	05				
06	269	13.7	-00.3	S 23 03.5	-00.2	220	31.6	-00.1	S 13 54.7	-01.0	264	30.2	-34.5	S 27 33.9	-04.3	06				
07	284	13.4	-00.3	S 23 03.3	-00.2	235	31.5	-00.1	S 13 53.7	-01.1	278	55.7	-34.5	S 27 29.6	-04.5	07				
08	299	13.1	-00.3	S 23 03.1	-00.2	250	31.4	+00.0	S 13 52.6	-01.1	293	21.2	-34.5	S 27 25.1	-04.6	08				
09	314	12.8	-00.3	S 23 02.9	-00.2	265	31.4	-00.1	S 13 51.5	-01.1	307	46.7	-34.5	S 27 20.5	-04.8	09				
10	329	12.5	-00.3	S 23 02.7	-00.2	280	31.3	-00.1	S 13 50.4	-01.1	322	12.2	-34.4	S 27 15.7	-04.9	10				
11	344	12.2	-00.3	S 23 02.5	-00.2	295	31.2	-00.1	S 13 49.3	-01.1	336	37.8	-34.4	S 27 10.8	-05.1	11				
12	359	11.9	-00.3	S 23 02.3	-00.2	310	31.1	+00.0	S 13 48.2	-01.0	351	03.4	-34.4	S 27 05.7	-05.3	12				
13	14	11.6	-00.3	S 23 02.1	-00.2	325	31.1	-00.1	S 13 47.2	-01.1	5	29.0	-34.4	S 27 00.4	-05.4	13				
14	29	11.3	-00.3	S 23 01.9	-00.2	340	31.0	-00.1	S 13 46.1	-01.1	19	54.6	-34.3	S 26 55.0	-05.7	14				
15	44	11.0	-00.3	S 23 01.7	-00.2	355	30.9	-00.1	S 13 45.0	-01.1	34	20.3	-34.3	S 26 49.3	-05.7	15				
16	59	10.7	-00.3	S 23 01.5	-00.2	10	30.8	+00.0	S 13 43.9	-01.1	48	46.0	-34.2	S 26 43.6	-06.0	16				
17	74	10.4	-00.3	S 23 01.3	-00.2	25	30.8	-00.1	S 13 42.8	-01.1	63	11.8	-34.2	S 26 37.6	-06.0	17				
18	89	10.1	-00.2	S 23 01.1	-00.2	40	30.7	-00.1	S 13 41.7	-01.1	77	37.6	-34.2	S 26 31.6	-06.3	18				
19	104	09.9	-00.3	S 23 00.9	-00.2	55	30.6	+00.0	S 13 40.6	-01.1	92	03.4	-34.1	S 26 25.3	-06.4	19				
20	119	09.6	-00.3	S 23 00.7	-00.2	70	30.6	-00.1	S 13 39.5	-01.0	106	29.3	-34.1	S 26 18.9	-06.6	20				
21	134	09.3	-00.3	S 23 00.5	-00.2	85	30.5	-00.1	S 13 38.5	-01.1	120	55.2	-34.1	S 26 12.3	-06.7	21				
22	149	09.0	-00.3	S 23 00.3	-00.2	100	30.4	+00.0	S 13 37.4	-01.1	135	21.1	-34.0	S 26 05.6	-06.9	22				
23	164	08.7	-00.3	S 23 00.1	-00.2	115	30.4	-00.1	S 13 36.3	-01.1	149	47.1	-33.9	S 25 58.7	-07.1	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°3	16°3	16°3	16°3	16°3	16°3	SD	00°2	00°2	00°2	00°2	00°2	00°2	SD	15°5	15°5	15°6	15°6	15°6	15°6
HP	00°1	00°1	00°1	00°1	00°1	00°1	HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	56°9	57°0	57°1	57°2	57°3	57°4
SHA	079°	079°	079°	079°	079°	078°	SHA	031°	030°	030°	030°	030°	030°	SHA	077°	074°	072°	069°	067°	065°
Greenwich Culmination Time: 12:03						Greenwich Culmination Time: 15:17						Greenwich Culmination Time: 12:37								

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	334	27.3	+03.3	N 23 26.1	+00.3	27	55.0	+02.7	N 21 47.8	+00.0	113	28.0	+02.3	S 07 56.9	-00.1	00				
01	349	30.6	+03.3	N 23 26.4	+00.3	42	57.7	+02.8	N 21 47.8	+00.0	128	30.3	+02.3	S 07 56.8	-00.1	01				
02	4	33.9	+03.3	N 23 26.7	+00.3	58	00.5	+02.7	N 21 47.8	+00.0	143	32.6	+02.3	S 07 56.7	-00.1	02				
03	19	37.2	+03.3	N 23 27.0	+00.2	73	03.2	+02.8	N 21 47.8	-00.1	158	34.9	+02.3	S 07 56.6	+00.0	03				
04	34	40.5	+03.2	N 23 27.2	+00.3	88	06.0	+02.7	N 21 47.7	+00.0	173	37.2	+02.2	S 07 56.6	-00.1	04				
05	49	43.7	+03.3	N 23 27.5	+00.3	103	08.7	+02.8	N 21 47.7	+00.0	188	39.4	+02.3	S 07 56.5	-00.1	05				
06	64	47.0	+03.3	N 23 27.8	+00.3	118	11.5	+02.8	N 21 47.7	+00.0	203	41.7	+02.3	S 07 56.4	-00.1	06				
07	79	50.3	+03.3	N 23 28.1	+00.2	133	14.3	+02.7	N 21 47.7	-00.1	218	44.0	+02.3	S 07 56.3	+00.0	07				
08	94	53.6	+03.3	N 23 28.3	+00.3	148	17.0	+02.8	N 21 47.6	+00.0	233	46.3	+02.3	S 07 56.3	-00.1	08				
09	109	56.9	+03.3	N 23 28.6	+00.3	163	19.8	+02.7	N 21 47.6	+00.0	248	48.6	+02.3	S 07 56.2	-00.1	09				
10	125	00.2	+03.3	N 23 28.9	+00.2	178	22.5	+02.8	N 21 47.6	+00.0	263	50.9	+02.3	S 07 56.1	-00.1	10				
11	140	03.5	+03.3	N 23 29.1	+00.3	193	25.3	+02.7	N 21 47.6	-00.1	278	53.2	+02.3	S 07 56.0	-00.1	11				
12	155	06.8	+03.3	N 23 29.4	+00.3	208	28.0	+02.8	N 21 47.5	+00.0	293	55.5	+02.3	S 07 55.9	+00.0	12				
13	170	10.1	+03.3	N 23 29.7	+00.3	223	30.8	+02.7	N 21 47.5	+00.0	308	57.8	+02.3	S 07 55.9	-00.1	13				
14	185	13.4	+03.3	N 23 30.0	+00.2	238	33.5	+02.8	N 21 47.5	+00.0	324	00.1	+02.3	S 07 55.8	-00.1	14				
15	200	16.7	+03.3	N 23 30.2	+00.3	253	36.3	+02.7	N 21 47.5	-00.1	339	02.4	+02.3	S 07 55.7	-00.1	15				
16	215	20.0	+03.3	N 23 30.5	+00.3	268	39.0	+02.8	N 21 47.4	+00.0	354	04.7	+02.3	S 07 55.6	+00.0	16				
17	230	23.3	+03.3	N 23 30.8	+00.3	283	41.8	+02.7	N 21 47.4	+00.0	9	07.0	+02.2	S 07 55.6	-00.1	17				
18	245	26.6	+03.3	N 23 31.1	+00.2	298	44.5	+02.8	N 21 47.4	+00.0	24	09.2	+02.3	S 07 55.5	-00.1	18				
19	260	29.9	+03.3	N 23 31.3	+00.3	313	47.3	+02.7	N 21 47.4	-00.1	39	11.5	+02.3	S 07 55.4	-00.1	19				
20	275	33.2	+03.3	N 23 31.6	+00.3	328	50.0	+02.8	N 21 47.3	+00.0	54	13.8	+02.3	S 07 55.3	-00.1	20				
21	290	36.5	+03.3	N 23 31.9	+00.3	343	52.8	+02.7	N 21 47.3	+00.0	69	16.1	+02.3	S 07 55.2	+00.0	21				
22	305	39.8	+03.3	N 23 32.2	+00.2	358	55.5	+02.8	N 21 47.3	+00.0	84	18.4	+02.3	S 07 55.2	-00.1	22				
23	320	43.1	+03.3	N 23 32.4	+00.3	13	58.3	+02.7	N 21 47.3	-00.1	99	20.7	+02.3	S 07 55.1	-00.1	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	00°1	00°1	00°1	00°1	00°1	00°1	SD	00°4	00°4	00°4	00°4	00°4	00°4	SD	00°1	00°1	00°1	00°1	00°1	00°1
HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	00°0	00°0	00°0	00°0	00°0	00°0	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	235°	235°	235°	235°	235°	235°	SHA	288°	288°	288°	288°	288°	288°	SHA	014°	014°	014°	014°	014°	013°
Greenwich Culmination Time: 01:41						Greenwich Culmination Time: 22:04						Greenwich Culmination Time: 16:23								

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