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Nautical Almanac

**2020**

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## **The Nautical Almanac 2020**

Compiled with *Nautical Almanac* revision V2.4 - Mar 2020, 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 Tue Mar 10 08:20:38 2020

## 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 : 69.4 s	Apr : 69.4 s	Jul : 69.5 s	Oct : 69.5 s
Feb : 69.4 s	May : 69.4 s	Aug : 69.5 s	Nov : 69.6 s
Mar : 69.4 s	Jun : 69.5 s	Sep : 69.5 s	Dec : 69.6 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 increment (+) or decrement (-) for the next one hour of time for the GHA and Dec are recorded. For the Greenwich Hour Angle (GHA) this value for increment/decrement is not the complete variation since each hour angle increases with about 15° per hour. The value ddGHA is only the increment/decrement additional to this fixed increment of 15° per hour. It is important to notice that for the interpolation of the GHA values, also this fixed increment of 15° per hour must be taken into account.

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

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## Positions of the Celestial Objects

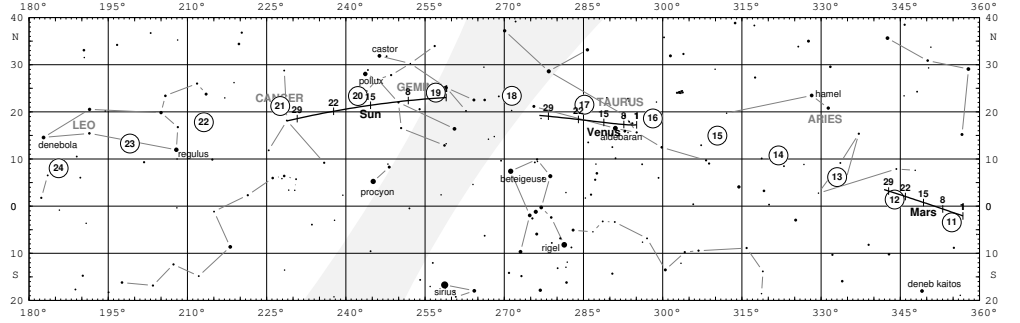
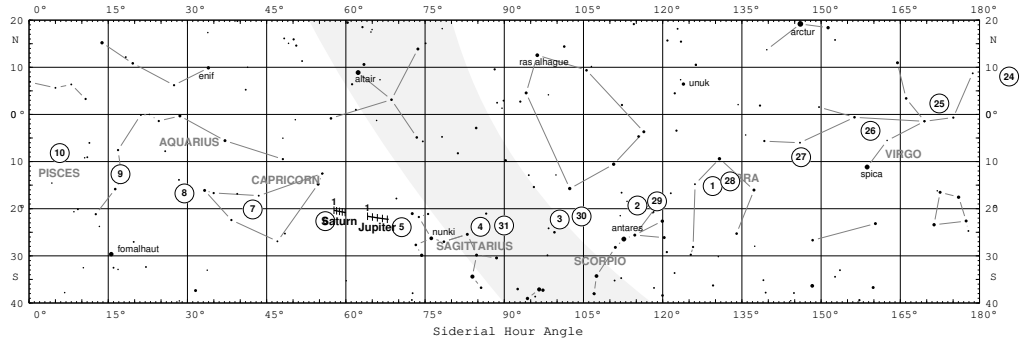
The charts on the following pages show the position of the Celestial Objects used in this Nautical Almanac relative to the stars (celestial background). The charts can be used to find the location of the planets and also for the planning of astronomical observations.

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 =  $0^\circ$ ) is not on the same position in the two different parts of each of the charts.

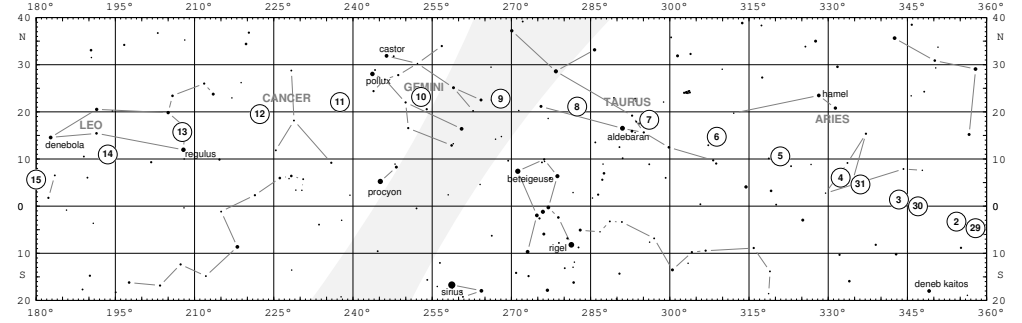
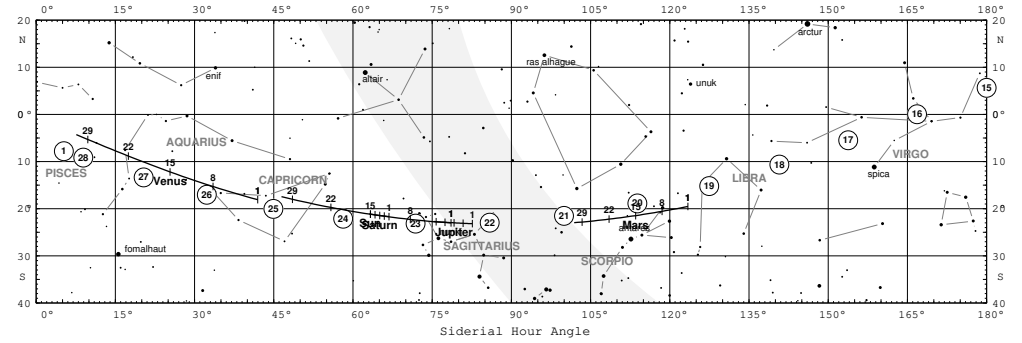
The changing position of a Celestial Object through the month is drawn as a solid line (not for the Moon). Marker tics along this line are shown to indicate the position of the Object on the 1st, 8th, 15th, 22nd and 29th day of the month (at 12:00 UT). For Jupiter and Saturn only the first day is marked 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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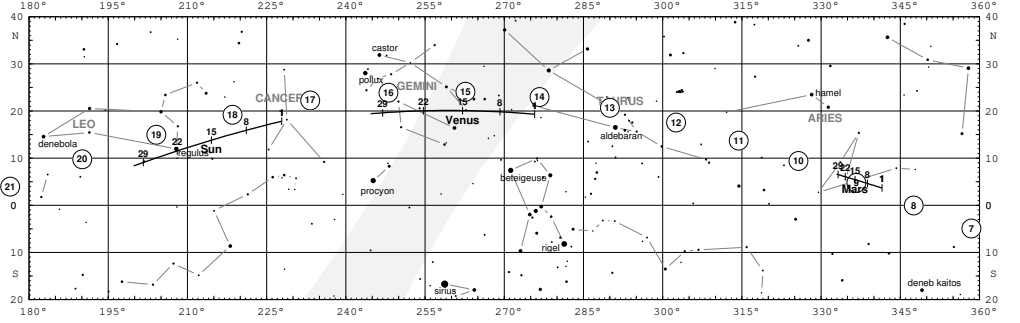
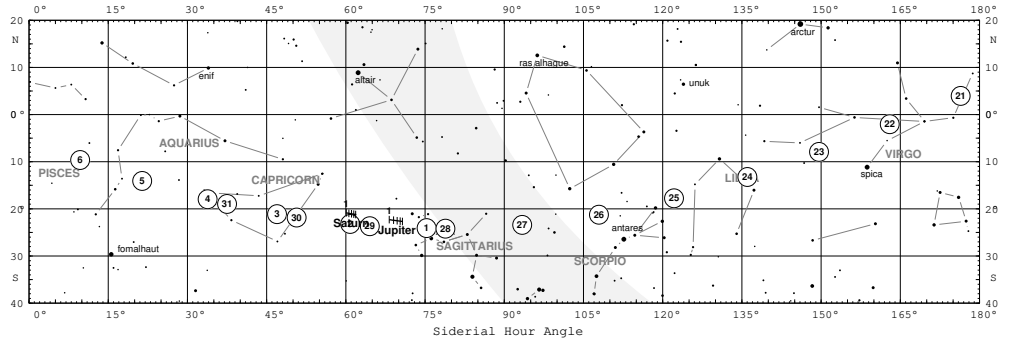
### July 2020



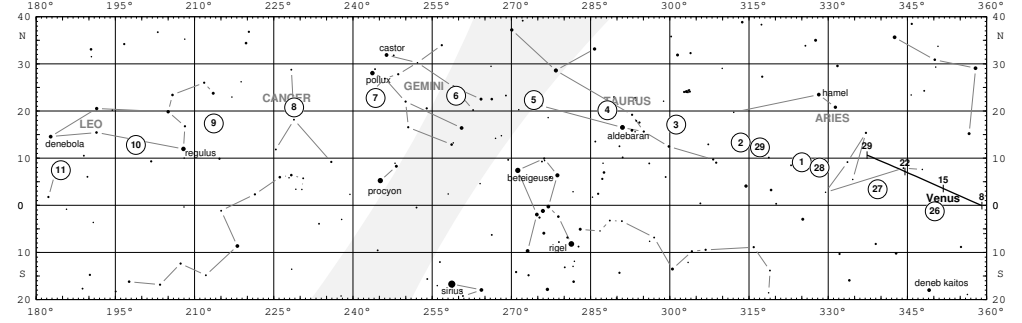
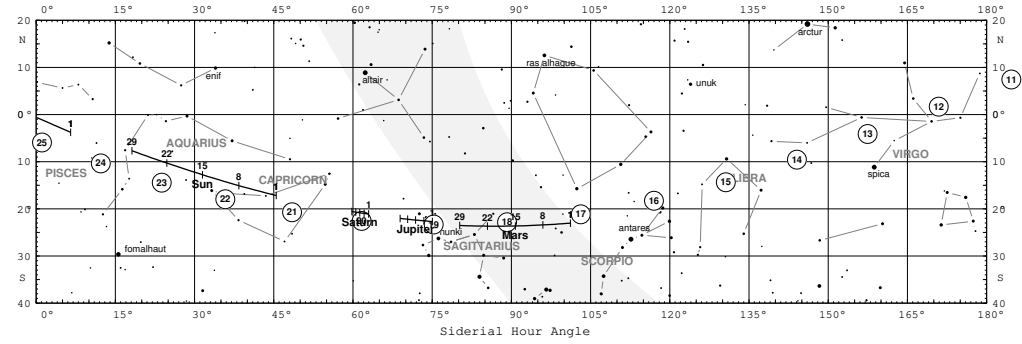
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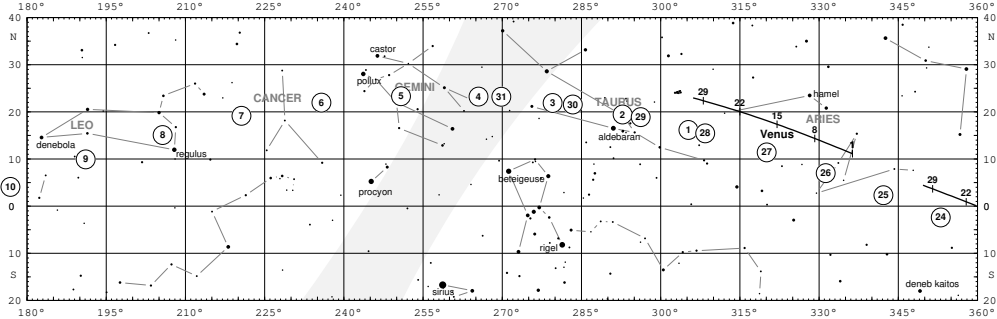
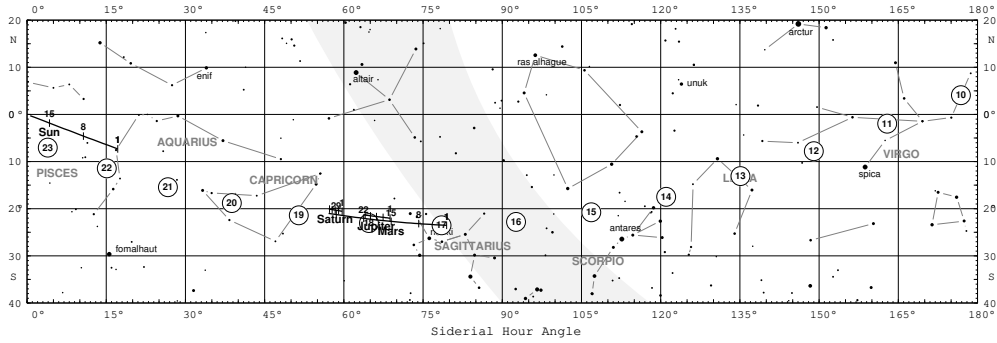
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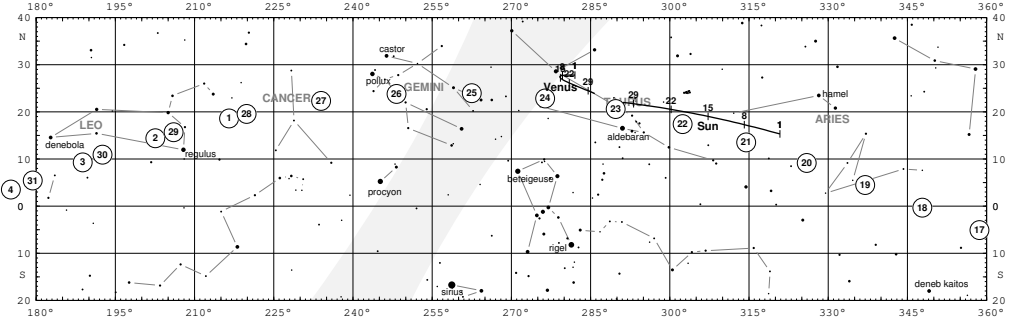
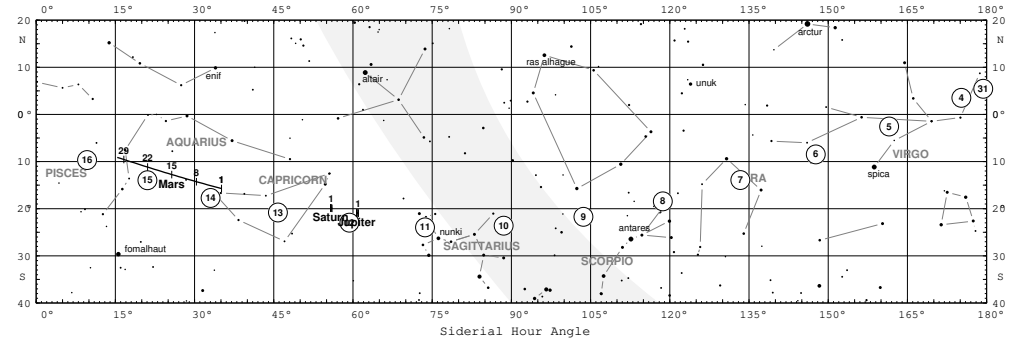
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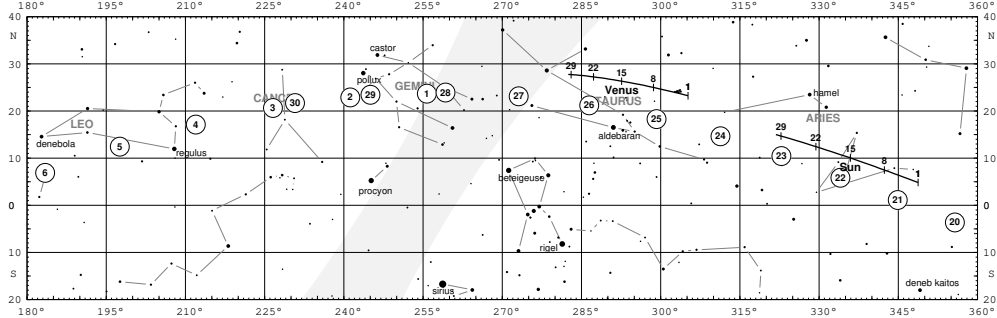
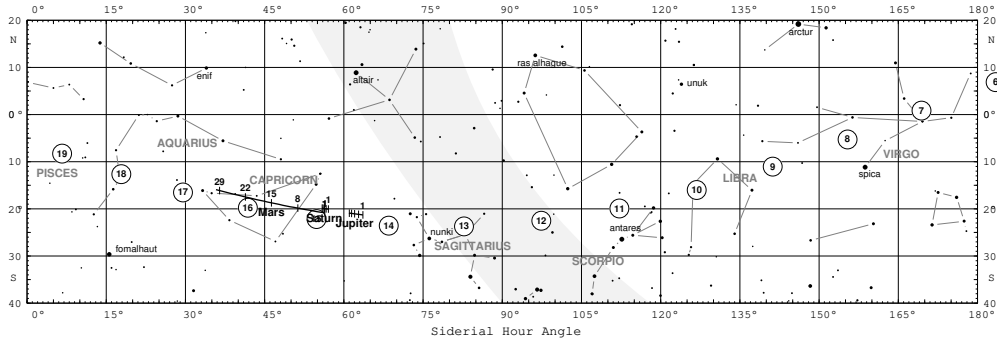
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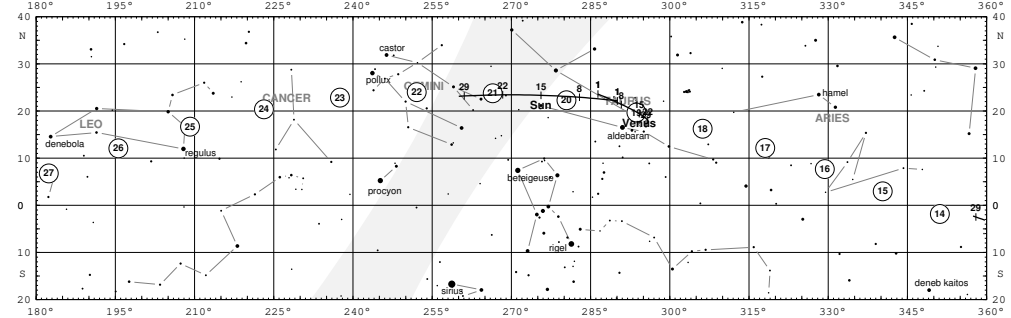
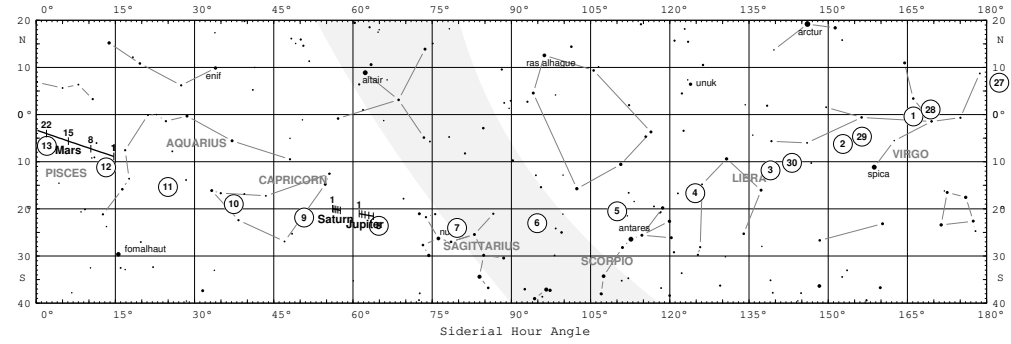
### May 2020



### April 2020






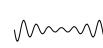




### June 2020



# Phases of the Moon

The following table lists the phases of the Moon through the year 2020. 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  $\Delta GHA$  is equal to  $0^\circ$ ,  $90^\circ$ ,  $180^\circ$  and  $270^\circ$  respectively.

	 <b>New Moon</b>	 <b>First Quarter</b>	 <b>Full Moon</b>	 <b>Last Quarter</b>
January	Fri 24 20:33	Fri 3 04:44	Fri 10 19:04	Fri 17 17:20
February	Sun 23 11:58	Sun 2 09:45	Sun 9 05:36	Sun 16 05:20
March	Tue 24 04:42	Tue 3 00:54	Mon 9 14:22	Mon 16 10:41
April	Wed 22 22:59	Wed 1 06:34 Thu 30 10:04	Tue 7 23:14	Tue 14 15:03
May	Fri 22 16:36	Fri 29 17:32	Thu 7 08:57	Thu 14 01:13
June	Sun 21 06:41	Sun 28 06:33	Fri 5 18:58	Fri 12 22:30
July	Mon 20 16:34	Mon 27 18:48	Sun 5 04:29	Mon 13 03:06
August	Tue 18 23:56	Wed 26 00:25	Mon 3 13:58	Wed 12 01:34
September	Thu 17 07:19	Thu 24 01:27	Wed 2 01:15	Thu 10 13:12
October	Fri 16 16:36	Fri 23 04:07	Thu 1 16:31 Sat 31 12:10	Fri 9 19:00
November	Sun 15 04:03	Sat 21 16:01	Mon 30 09:08	Sun 8 01:53
December	Mon 14 16:18	Mon 21 18:55	Wed 30 03:14	Mon 7 15:48
Tidal Phase	spring 	neap 	spring 	neap 

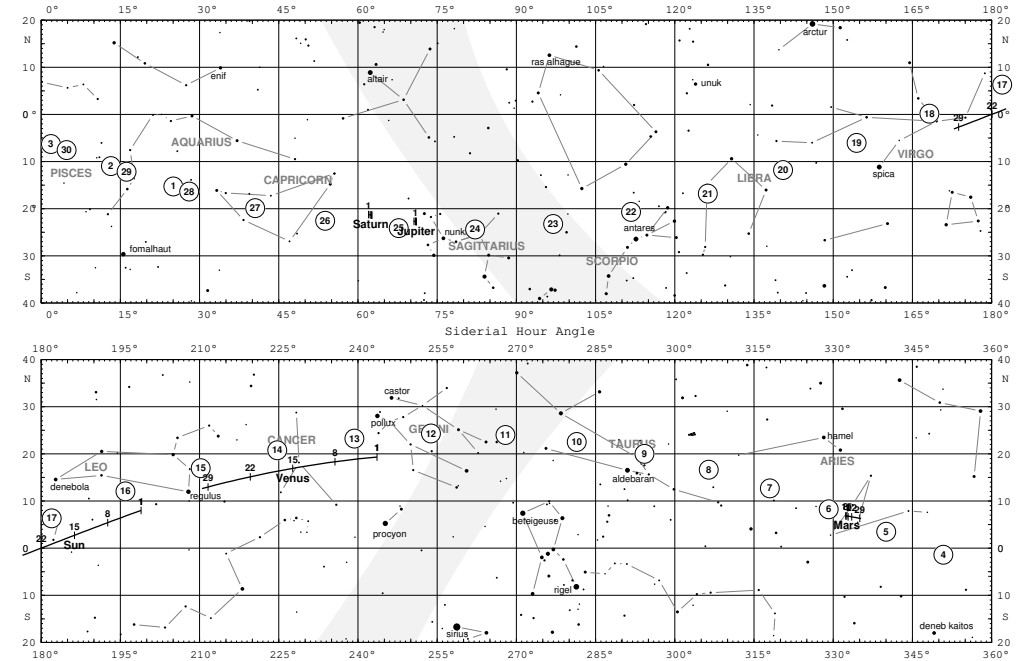
## Lunar Phases and Tides

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.

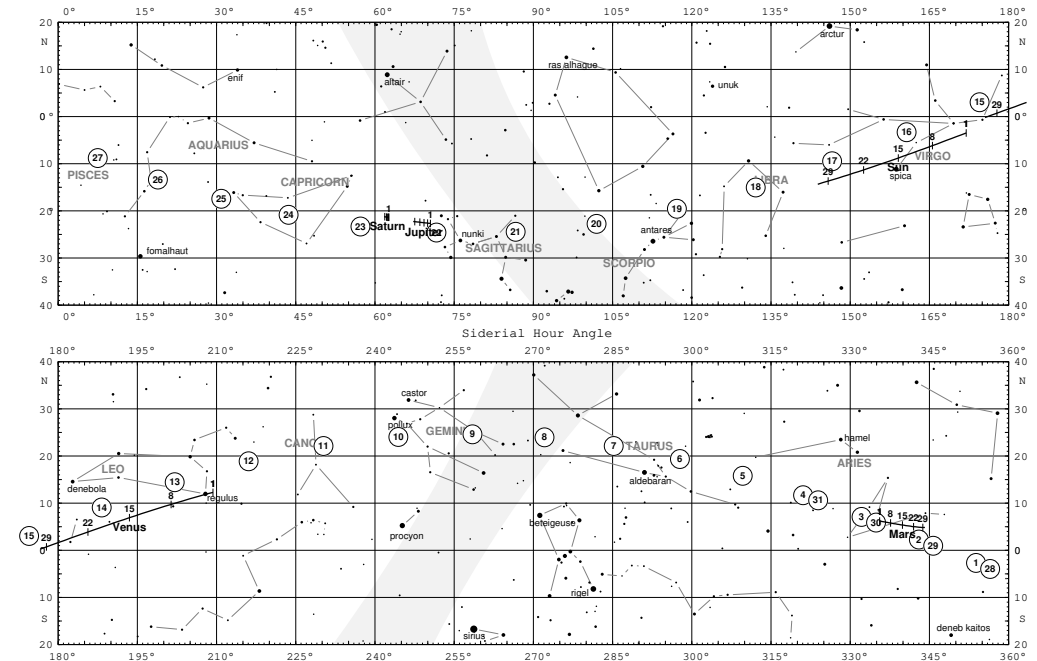
Each tidal region on Earth, has a characteristic "tidal delay" which, specifies the time difference between the occurrence of a particular lunar phase and the occurrence of the resulting tidal phase. The tidal delay can be a couple of hours for the open seas, or up to several days for branched tidal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

Reliable tidal predictions are obtained from a Tidal Almanac.

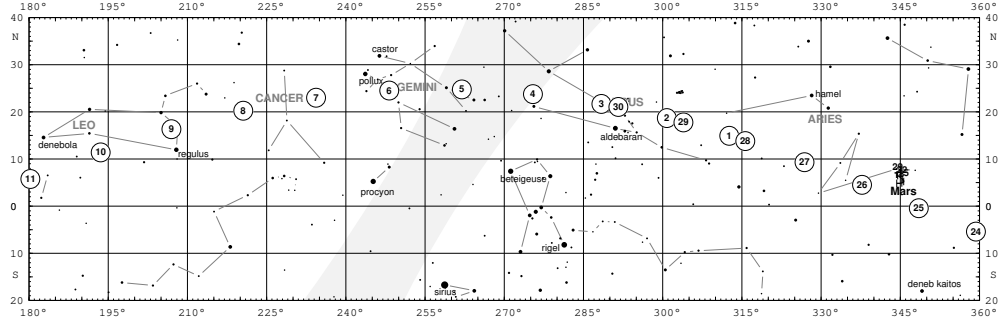
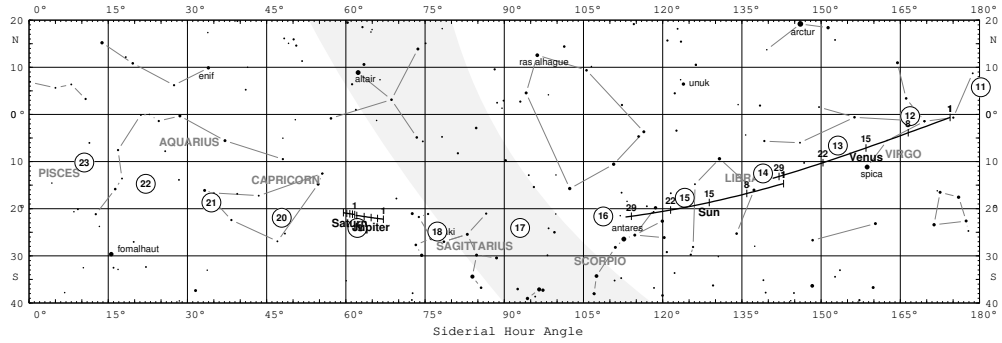
## September 2020



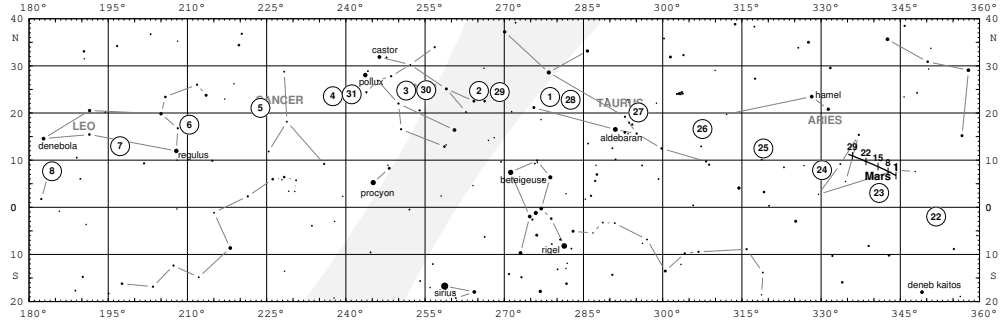
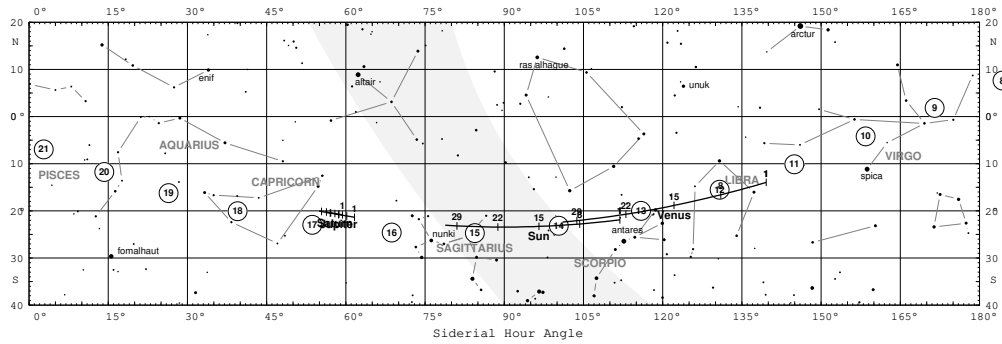
## October 2020



# November 2020



# December 2020

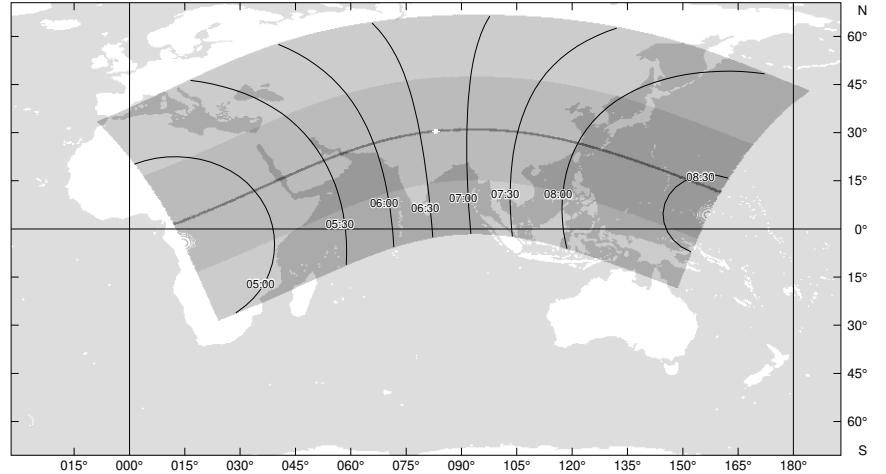


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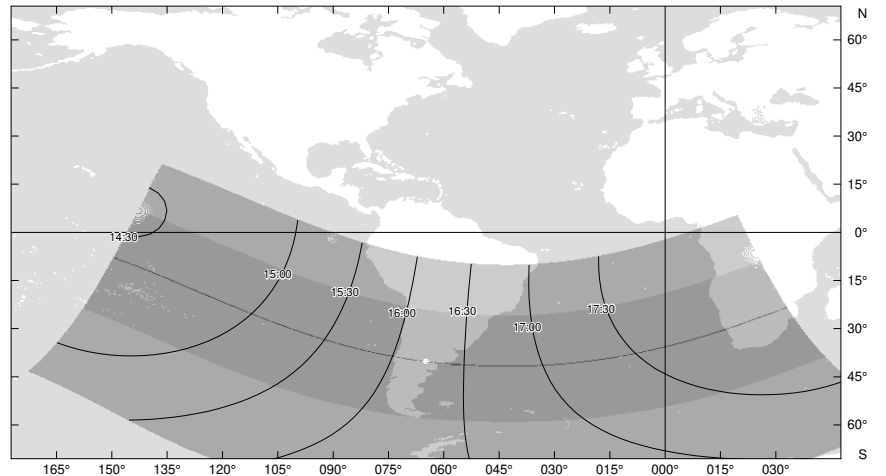
The following solar eclipses may be observed during the year 2020:

**June 21 :**      **annular solar eclipse**      begin [ Jun 21, 03:46 UT ] / end [ Jun 21, 09:34 UT ]



<b>Circumstances at Moment of Greatest Eclipse</b>		<b>Fist Contacts (P1/U1)</b>		<b>Last Contacts (U4/P4)</b>	
Time:	06:40 UT	Duration (full):	2.4 min	Penumbra	Umbr
Location:	N 30.4 E 083.0	Path Width:	136 km	03:46 UT	04:48 UT
				08:32 UT	09:34 UT

**December 14 :**      **total solar eclipse**      begin [ Dec 14, 13:34 UT ] / end [ Dec 14, 18:53 UT ]



<b>Circumstances at Moment of Greatest Eclipse</b>		<b>Fist Contacts (P1/U1)</b>		<b>Last Contacts (U4/P4)</b>	
Time:	16:14 UT	Duration (full):	1.4 min	Penumbra	Umbr
Location:	S 40.2 W 064.9	Path Width:	90 km	13:34 UT	14:33 UT
				17:54 UT	18:53 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 2020:

**January 10 :**      a penumbral lunar eclipse      begin [ Jan 10, 17:16 UTC ] / end [ Jan 10, 21:03 UTC ]

**June 5 :**      a penumbral lunar eclipse      begin [ Jun 5, 17:48 UTC ] / end [ Jun 5, 20:56 UTC ]

**July 5 :**      a penumbral lunar eclipse      begin [ Jul 5, 03:13 UTC ] / end [ Jul 5, 05:47 UTC ]

**November 30 :** a penumbral lunar eclipse      begin [ Nov 30, 07:35 UTC ] / end [ Nov 30, 11:42 UTC ]

## 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:

$$GCT = 11:57:23$$

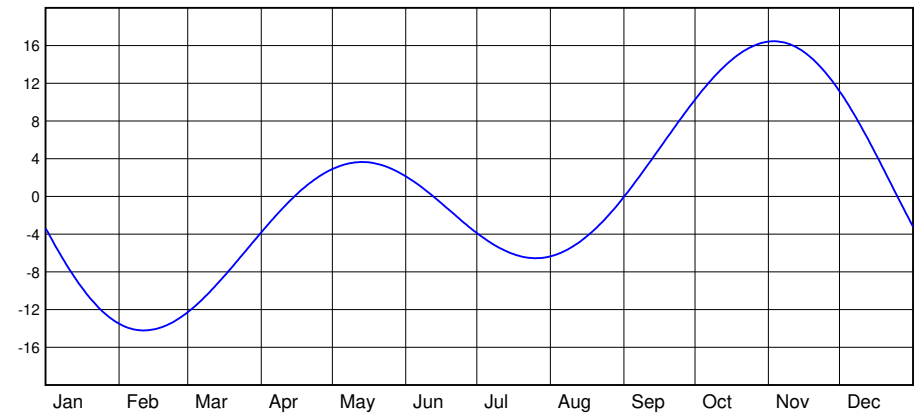
$$GCT = 12:01:57$$

$$EoT = 12:00:00 - 11:57:23 = +00:02:37$$

$$EoT = 12:00:00 - 12:01:57 = -00:01:57$$

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 2020.



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## 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.

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° 076° 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.

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 122° 122° 121° 121° 121° 121°
Greenwich Culmination Time: 09:00

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 124° 124° 123° 123° 123° 123°
Greenwich Culmination Time: 09:03

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	06.6	-00.3	S 22 58.7	-00.2	142	26.3	-00.6	S 17 53.7	-01.0	100	50.8	-25.0	S 05 33.4	-11.3	00				
01	194	06.3	-00.3	S 22 58.5	-00.2	157	25.7	-00.6	S 17 52.7	-00.9	115	25.8	-24.9	S 05 22.1	-11.4	01				
02	209	06.0	-00.3	S 22 58.3	-00.2	172	25.1	-00.6	S 17 51.8	-01.0	130	00.9	-24.9	S 05 10.7	-11.4	02				
03	224	05.7	-00.3	S 22 58.1	-00.2	187	24.5	-00.6	S 17 50.8	-00.9	144	36.0	-24.8	S 04 59.3	-11.4	03				
04	239	05.4	-00.3	S 22 57.9	-00.3	202	23.9	-00.6	S 17 49.9	-00.9	159	11.2	-24.9	S 04 47.9	-11.4	04				
05	254	05.1	-00.3	S 22 57.6	-00.2	217	23.3	-00.6	S 17 49.0	-01.0	173	46.3	-24.9	S 04 36.5	-11.5	05				
06	269	04.8	-00.2	S 22 57.4	-00.2	232	22.7	-00.5	S 17 48.0	-00.9	188	21.4	-24.8	S 04 25.0	-11.5	06				
07	284	04.6	-00.3	S 22 57.2	-00.2	247	22.2	-00.6	S 17 47.1	-01.0	202	56.6	-24.8	S 04 13.5	-11.4	07				
08	299	04.3	-00.3	S 22 57.0	-00.2	262	21.6	-00.6	S 17 46.1	-00.9	217	31.8	-24.8	S 04 02.1	-11.5	08				
09	314	04.0	-00.3	S 22 56.8	-00.2	277	21.0	-00.6	S 17 45.2	-01.0	232	07.0	-24.8	S 03 50.6	-11.6	09				
10	329	03.7	-00.3	S 22 56.6	-00.3	292	20.4	-00.6	S 17 44.2	-00.9	246	42.2	-24.8	S 03 39.0	-11.5	10				
11	344	03.4	-00.3	S 22 56.3	-00.2	307	19.8	-00.6	S 17 43.3	-01.0	261	17.4	-24.8	S 03 27.5	-11.5	11				
12	359	03.1	-00.3	S 22 56.1	-00.2	322	19.2	-00.6	S 17 42.3	-00.9	275	52.6	-24.8	S 03 16.0	-11.6	12				
13	14	02.8	-00.3	S 22 55.9	-00.2	337	18.6	-00.6	S 17 41.4	-01.0	290	27.8	-24.7	S 03 04.4	-11.6	13				
14	29	02.5	-00.3	S 22 55.7	-00.2	352	18.0	-00.6	S 17 40.4	-00.9	305	03.1	-24.8	S 02 52.8	-11.5	14				
15	44	02.2	-00.3	S 22 55.5	-00.3	7	17.4	-00.6	S 17 39.5	-01.0	319	38.3	-24.7	S 02 41.3	-11.6	15				
16	59	01.9	-00.3	S 22 55.2	-00.2	22	16.8	-00.6	S 17 38.5	-00.9	334	13.6	-24.8	S 02 29.7	-11.6	16				
17	74	01.6	-00.3	S 22 55.0	-00.2	37	16.2	-00.5	S 17 37.6	-01.0	348	48.8	-24.7	S 02 18.1	-11.6	17				
18	89	01.3	-00.3	S 22 54.8	-00.2	52	15.7	-00.6	S 17 36.6	-00.9	3	24.1	-24.8	S 02 06.5	-11.7	18				
19	104	01.0	-00.2	S 22 54.6	-00.3	67	15.1	-00.6	S 17 35.7	-01.0	17	59.3	-24.7	S 01 54.8	-11.6	19				
20	119	00.8	-00.3	S 22 54.3	-00.2	82	14.5	-00.6	S 17 34.7	-00.9	32	34.6	-24.8	S 01 43.2	-11.6	20				
21	134	00.5	-00.3	S 22 54.1	-00.2	97	13.9	-00.6	S 17 33.8	-01.0	47	09.8	-24.7	S 01 31.6	-11.7	21				
22	149	00.2	-00.3	S 22 53.9	-00.2	112	13.3	-00.6	S 17 32.8	-00.9	61	45.1	-24.8	S 01 19.9	-11.7	22				
23	163	59.9	-00.3	S 22 53.7	-00.3	127	12.7	-00.5	S 17 31.9	-01.0	76	20.3	-24.7	S 01 08.2	-11.6	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°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°2	54°2	54°2	54°2	54°2
SHA	078°	078°	078°	077°	077°	077°	SHA	041°	041°	041°	041°	040°	040°	SHA	359°	357°	355°	353°	352°	350°
Greenwich Culmination Time: 12:03						Greenwich Culmination Time: 14:30						Greenwich Culmination Time: 17:46								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	178	59.6	-00.3	S 22 53.4	-00.2	142	12.2	-00.6	S 17 30.9	-00.9	90	55.6	-24.8	S 00 56.6	-11.7	00				
01	193	59.3	-00.3	S 22 53.2	-00.2	157	11.6	-00.6	S 17 30.0	-01.0	105	30.8	-24.7	S 00 44.9	-11.7	01				
02	208	59.0	-00.3	S 22 53.0	-00.3	172	11.0	-00.6	S 17 29.0	-01.0	120	06.1	-24.8	S 00 33.2	-11.7	02				
03	223	58.7	-00.3	S 22 52.7	-00.2	187	10.4	-00.6	S 17 28.0	-00.9	134	41.3	-24.8	S 00 21.5	-11.6	03				
04	238	58.4	-00.3	S 22 52.5	-00.2	202	09.8	-00.5	S 17 27.1	-01.0	149	16.5	-24.8	S 00 09.9	-11.7	04				
05	253	58.1	-00.3	S 22 52.3	-00.3	217	09.3	-00.6	S 17 26.1	-01.0	163	51.7	-24.7	N 00 01.8	+11.7	05				
06	268	57.8	-00.2	S 22 52.0	-00.2	232	08.7	-00.6	S 17 25.1	-00.9	178	27.0	-24.8	N 00 13.5	+11.7	06				
07	283	57.6	-00.3	S 22 51.8	-00.2	247	08.1	-00.6	S 17 24.2	-01.0	193	02.2	-24.8	N 00 25.2	+11.7	07				
08	298	57.3	-00.3	S 22 51.6	-00.3	262	07.5	-00.6	S 17 23.2	-00.9	207	37.4	-24.9	N 00 36.9	+11.7	08				
09	313	57.0	-00.3	S 22 51.3	-00.2	277	06.9	-00.5	S 17 22.3	-01.0	222	12.5	-24.8	N 00 48.6	+11.7	09				
10	328	56.7	-00.3	S 22 51.1	-00.3	292	06.4	-00.6	S 17 21.3	-01.0	236	47.7	-24.8	N 01 00.3	+11.7	10				
11	343	56.4	-00.3	S 22 50.8	-00.2	307	05.8	-00.6	S 17 20.3	-00.9	251	22.9	-24.9	N 01 12.0	+11.7	11				
12	358	56.1	-00.3	S 22 50.6	-00.2	322	05.2	-00.6	S 17 19.4	-01.0	265	58.0	-24.9	N 01 23.7	+11.7	12				
13	13	55.8	-00.3	S 22 50.4	-00.3	337	04.6	-00.5	S 17 18.4	-01.0	280	33.1	-24.9	N 01 35.4	+11.7	13				
14	28	55.5	-00.3	S 22 50.1	-00.2	352	04.1	-00.6	S 17 17.4	-00.9	295	08.2	-24.9	N 01 47.1	+11.7	14				
15	43	55.2	-00.2	S 22 49.9	-00.3	7	03.5	-00.6	S 17 16.5	-01.0	309	43.3	-24.9	N 01 58.8	+11.7	15				
16	58	55.0	-00.3	S 22 49.6	-00.2	22	02.9	-00.6	S 17 15.5	-01.0	324	18.4	-24.9	N 02 10.5	+11.7	16				
17	73	54.7	-00.3	S 22 49.4	-00.2	37	02.3	-00.5	S 17 14.5	-01.0	338	53.5	-25.0	N 02 22.2	+11.7	17				
18	88	54.4	-00.3	S 22 49.2	-00.3	52	01.8	-00.6	S 17 13.5	-00.9	353	28.5	-25.0	N 02 33.9	+11.7	18				
19	103	54.1	-00.3	S 22 48.9	-00.2	67	01.2	-00.6	S 17 12.6	-01.0	8	03.5	-25.0	N 02 45.6	+11.7	19				
20	118	53.8	-00.3	S 22 48.7	-00.3	82	00.6	-00.5	S 17 11.6	-01.0	22	38.5	-25.0	N 02 57.3	+11.7	20				
21	133	53.5	-00.3	S 22 48.4	-00.2	97	00.1	-00.6	S 17 10.6	-01.0	37	13.5	-25.1	N 03 09.0	+11.6	21				
22	148	53.2	-00.3	S 22 48.2	-00.3	111	59.5	-00.6	S 17 09.6	-00.9	51	48.4	-25.1	N 03 20.6	+11.7	22				
23	163	52.9	-00.2	S 22 47.9	-00.2	126	58.9	-00.5	S 17 08.7	-01.0	66	23.3	-25.1	N 03 32.3	+11.7	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	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	077°	077°	076°	076°	076°	076°	SHA	040°	040°	040°	039°	039°	039°	SHA	348°	346°	344°	342°	341°	339°
Greenwich Culmination Time: 12:04						Greenwich Culmination Time: 14:31						Greenwich Culmination Time: 18:26								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	224	11.0	+00.7	S 19 36.1	+00.4	183	35.6	+01.9	S 23 10.2	-00.1	167	51.8	+02.2	S 21 40.0	+00.0	00
01	239	11.7	+00.7	S 19 36.5	+00.4	198	37.5	+01.8	S 23 10.1	+00.0	182	54.0	+02.1	S 21 40.0	-00.1	01
02	254	12.4	+00.8	S 19 36.9	+00.4	213	39.3	+01.8	S 23 10.1	+00.0	197	56.1	+02.2	S 21 39.9	+00.0	02
03	269	13.2	+00.7	S 19 37.3	+00.4	228	41.1	+01.9	S 23 10.1	+00.0	212	58.3	+02.1	S 21 39.9	+00.0	03
04	284	13.9	+00.7	S 19 37.7	+00.4	243	43.0	+01.8	S 23 10.1	-00.1	228	00.4	+02.2	S 21 39.9	-00.1	04
05	299	14.6	+00.7	S 19 38.1	+00.4	258	44.8	+01.9	S 23 10.0	+00.0	243	02.6	+02.1	S 21 39.8	+00.0	05
06	314	15.3	+00.8	S 19 38.5	+00.3	273	46.7	+01.8	S 23 10.0	+00.0	258	04.7	+02.2	S 21 39.8	-00.1	06
07	329	16.1	+00.7	S 19 38.8	+00.4	288	48.5	+01.8	S 23 10.0	+00.0	273	06.9	+02.1	S 21 39.7	+00.0	07
08	344	16.8	+00.7	S 19 39.2	+00.4	303	50.3	+01.9	S 23 10.0	-00.1	288	09.0	+02.2	S 21 39.7	-00.1	08
09	359	17.5	+00.7	S 19 39.6	+00.4	318	52.2	+01.8	S 23 09.9	+00.0	303	11.2	+02.1	S 21 39.6	+00.0	09
10	14	18.2	+00.8	S 19 40.0	+00.4	333	54.0	+01.8	S 23 09.9	+00.0	318	13.3	+02.2	S 21 39.6	+00.0	10
11	29	19.0	+00.7	S 19 40.4	+00.4	348	55.8	+01.9	S 23 09.9	+00.0	333	15.5	+02.1	S 21 39.6	-00.1	11
12	44	19.7	+00.7	S 19 40.8	+00.4	3	57.7	+01.8	S 23 09.9	-00.1	348	17.6	+02.2	S		

UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	178	26.0	-00.3	S 22 20.2	-00.3	141	06.8	-00.5	S 15 30.4	-01.0	36	25.1	-31.7	N 19 50.6	+06.9	00							
01	193	25.7	-00.2	S 22 19.9	-00.3	156	06.3	-00.5	S 15 29.4	-01.1	50	53.4	-31.8	N 19 57.5	+06.9	01							
02	208	25.5	-00.3	S 22 19.6	-00.3	171	05.8	-00.5	S 15 28.3	-01.0	65	21.6	-31.9	N 20 04.4	+06.8	02							
03	223	25.2	-00.3	S 22 19.3	-00.4	186	05.3	-00.5	S 15 27.3	-01.1	79	49.7	-32.0	N 20 11.2	+06.6	03							
04	238	24.9	-00.2	S 22 18.9	-00.3	201	04.8	-00.5	S 15 26.2	-01.0	94	17.7	-32.1	N 20 17.8	+06.6	04							
05	253	24.7	-00.3	S 22 18.6	-00.3	216	04.3	-00.5	S 15 25.2	-01.1	108	45.6	-32.2	N 20 24.4	+06.4	05							
06	268	24.4	-00.3	S 22 18.3	-00.4	231	03.8	-00.5	S 15 24.1	-01.0	123	13.4	-32.3	N 20 30.8	+06.3	06							
07	283	24.1	-00.2	S 22 17.9	-00.3	246	03.3	-00.5	S 15 23.1	-01.1	137	41.1	-32.3	N 20 37.1	+06.3	07							
08	298	23.9	-00.3	S 22 17.6	-00.3	261	02.8	-00.5	S 15 22.0	-01.0	152	08.8	-32.5	N 20 43.4	+06.1	08							
09	313	23.6	-00.3	S 22 17.3	-00.3	276	02.3	-00.5	S 15 21.0	-01.1	166	36.3	-32.5	N 20 49.5	+06.0	09							
10	328	23.3	-00.2	S 22 17.0	-00.4	291	01.8	-00.5	S 15 19.9	-01.1	181	03.8	-32.7	N 20 55.5	+05.9	10							
11	343	23.1	-00.3	S 22 16.6	-00.3	306	01.3	-00.5	S 15 18.8	-01.0	195	31.1	-32.7	N 21 01.4	+05.8	11							
12	358	22.8	-00.3	S 22 16.3	-00.3	321	00.8	-00.5	S 15 17.8	-01.1	209	58.4	-32.8	N 21 07.2	+05.7	12							
13	13	22.5	-00.2	S 22 16.0	-00.4	336	00.3	-00.5	S 15 16.7	-01.0	224	25.6	-32.9	N 21 12.9	+05.5	13							
14	28	22.3	-00.3	S 22 15.6	-00.3	350	59.8	-00.5	S 15 15.7	-01.1	238	52.7	-33.0	N 21 18.4	+05.5	14							
15	43	22.0	-00.3	S 22 15.3	-00.3	5	59.3	-00.5	S 15 14.6	-01.0	253	19.7	-33.1	N 21 23.9	+05.3	15							
16	58	21.7	-00.2	S 22 15.0	-00.4	20	58.8	-00.5	S 15 13.6	-01.1	267	46.6	-33.1	N 21 29.2	+05.2	16							
17	73	21.5	-00.3	S 22 14.6	-00.3	35	58.3	-00.5	S 15 12.5	-01.1	282	13.5	-33.3	N 21 34.4	+05.0	17							
18	88	21.2	-00.2	S 22 14.3	-00.3	50	57.8	-00.5	S 15 11.4	-01.0	296	40.2	-33.3	N 21 39.4	+05.0	18							
19	103	21.0	-00.3	S 22 14.0	-00.4	65	57.3	-00.5	S 15 10.4	-01.1	311	06.9	-33.4	N 21 44.4	+04.8	19							
20	118	20.7	-00.3	S 22 13.6	-00.3	80	56.8	-00.5	S 15 09.3	-01.1	325	33.5	-33.5	N 21 49.2	+04.8	20							
21	133	20.4	-00.2	S 22 13.3	-00.4	95	56.3	-00.5	S 15 08.2	-01.0	340	00.0	-33.5	N 21 54.0	+04.5	21							
22	148	20.2	-00.3	S 22 12.9	-00.3	110	55.8	-00.4	S 15 07.2	-01.1	354	26.5	-33.7	N 21 58.5	+04.5	22							
23	163	19.9	-00.3	S 22 12.6	-00.3	125	55.4	-00.5	S 15 06.1	-01.0	8	52.8	-33.7	N 22 03.0	+04.3	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	15°5	15°6	15°6	15°6	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°0	57°2	57°3	57°4	57°6	57°7			
SHA	071°	071°	071°	071°	071°	070°	SHA	034°	034°	034°	033°	033°	033°	SHA	288°	286°	284°	281°	279°	277°			
Greenwich Culmination Time: 12:06				Greenwich Culmination Time: 14:36				Greenwich Culmination Time: 22:23				Greenwich Culmination Time: 12:05				Greenwich Culmination Time: 14:33				Greenwich Culmination Time: 19:52			

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	178	45.8	-00.3	S 22 41.5	-00.3	141	44.9	-00.5	S 16 44.0	-01.0	70	45.1	-26.1	N 08 19.8	+11.3	00				
01	193	45.5	-00.2	S 22 41.2	-00.2	156	44.4	-00.6	S 16 43.0	-01.0	85	19.0	-26.2	N 08 31.1	+11.2	01				
02	208	45.3	-00.3	S 22 41.0	-00.3	171	43.8	-00.5	S 16 42.0	-01.0	99	52.8	-26.2	N 08 42.3	+11.2	02				
03	223	45.0	-00.3	S 22 40.7	-00.3	186	43.3	-00.6	S 16 41.0	-01.0	114	26.6	-26.2	N 08 53.5	+11.2	03				
04	238	44.7	-00.3	S 22 40.4	-00.3	201	42.7	-00.5	S 16 40.0	-01.0	129	00.4	-26.3	N 09 04.7	+11.1	04				
05	253	44.4	-00.3	S 22 40.1	-00.2	216	42.2	-00.6	S 16 39.0	-01.0	143	34.1	-26.4	N 09 15.8	+11.1	05				
06	268	44.1	-00.3	S 22 39.9	-00.3	231	41.6	-00.5	S 16 38.0	-01.0	158	07.7	-26.4	N 09 26.9	+11.1	06				
07	283	43.8	-00.2	S 22 39.6	-00.3	246	41.1	-00.6	S 16 37.0	-01.0	172	41.3	-26.5	N 09 38.0	+11.1	07				
08	298	43.6	-00.3	S 22 39.3	-00.2	261	40.5	-00.5	S 16 36.0	-01.0	187	14.8	-26.5	N 09 49.1	+11.0	08				
09	313	43.3	-00.3	S 22 39.1	-00.3	276	40.0	-00.6	S 16 35.0	-01.0	201	48.3	-26.6	N 10 00.1	+11.0	09				
10	328	43.0	-00.3	S 22 38.8	-00.3	291	39.4	-00.5	S 16 34.0	-01.0	216	21.7	-26.6	N 10 11.1	+11.0	10				
11	343	42.7	-00.3	S 22 38.5	-00.3	306	38.9	-00.5	S 16 33.0	-01.0	230	55.1	-26.8	N 10 22.1	+10.9	11				
12	358	42.4	-00.2	S 22 38.2	-00.3	321	38.4	-00.6	S 16 32.0	-01.0	245	28.3	-26.7	N 10 33.0	+10.9	12				
13	13	42.2	-00.3	S 22 37.9	-00.2	336	37.8	-00.5	S 16 31.0	-01.0	260	01.6	-26.9	N 10 43.9	+10.9	13				
14	28	41.9	-00.3	S 22 37.7	-00.3	351	37.3	-00.6	S 16 30.0	-01.0	274	34.7	-26.9	N 10 54.8	+10.8	14				
15	43	41.6	-00.3	S 22 37.4	-00.3	6	36.7	-00.5	S 16 29.0	-01.0	289	07.8	-26.9	N 11 05.6	+10.8	15				
16	58	41.3	-00.3	S 22 37.1	-00.3	21	36.2	-00.6	S 16 28.0	-01.0	303	40.9	-27.1	N 11 16.4	+10.7	16				
17	73	41.0	-00.2	S 22 36.8	-00.2	36	35.6	-00.5	S 16 27.0	-01.0	318	13.8	-27.1	N 11 27.1	+10.8	17				
18	88	40.8	-00.3	S 22 36.6	-00.3	51	35.1	-00.5	S 16 26.0	-01.0	332	46.7	-27.1	N 11 37.9	+10.6	18				
19	103	40.5	-00.3	S 22 36.3	-00.3	66	34.6	-00.6	S 16 25.0	-01.0	347	19.6	-27.3	N 11 48.5	+10.7	19				
20	118	40.2	-00.3	S 22 36.0	-00.3	81	34.0	-00.5	S 16 24.0	-01.0	1	52.3	-27.3	N 11 59.2	+10.5	20				
21	133	39.9	-00.2	S 22 35.7	-00.3	96	33.5	-00.6	S 16 23.0	-01.0	16	25.0	-27.3	N 12 09.7	+10.6	21				
22	148	39.7	-00.3	S 22 35.4	-00.3	111	32.9	-00.5	S 16 21.9	-01.0	30	57.7	-27.5	N 12 20.3	+10.5	22				
23	163	39.4	-00.3	S 22 35.1	-00.3	126	32.4	-00.5	S 16 20.9	-01.0	45	30.2	-27.5	N 12 30.8	+10.5	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°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°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°2	55°3	55°4
SHA	075°	074°	074°	074°	074°	074°	SHA	038°	037°	037°	037°	037°	037°	SHA	326°	324°	322°	320°	318°	316°
Greenwich Culmination Time: 12:05				Greenwich Culmination Time: 14:33				Greenwich Culmination Time: 19:52				Greenwich Culmination Time: 12:36								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	225	53.9	+00.7	S 20 29.4	+00.3	188	00.6	+01.8	S 23 06.0	+00.0	173	01.6	+02.1	S 21 33.7	+00.0	00
01	240	54.6	+00.7	S 20 29.7	+00.4	203	02.4	+01.8	S 23 06.0	-00.1	188	03.7	+02.2	S 21 33.7	-00.1	01
02	255	55.3	+00.7	S 20 30.1	+00.3	218	04.2	+01.9	S 23 05.9	+00.0	203	05.9	+02.1	S 21 33.6	+00.0	02
03	270	56.0	+00.7	S 20 30.4	+00.4	233	06.1	+01.8	S 23 05.9	+00.0	218	08.0	+02.2	S 21 33.6	-00.1	03
04	285	56.7	+00.7	S 20 30.8	+00.3	248	07.9	+01.9	S 23 05.9	-00.1	233	10.2	+02.1	S 21 33.5	+00.0	04
05	300	57.4	+00.7	S 20 31.1	+00.4	263	09.8	+01.8	S 23 05.8	+00.0	248	12.3	+02.2	S 21 33.5	-00.1	05
06	315	58.1	+00.7	S 20 31.5	+00.3	278	11.6	+01.9	S 23 05.8	+00.0	263	14.5	+02.1	S 21 33.4	+00.0	06
07	330	58.8	+00.7	S 20 31.8	+00.4	293	13.5	+01.8	S 23 05.8	-00.1	278	16.6	+02.2	S 21 33.4	-00.1	07
08	345	59.5	+00.7	S 20 32.2	+00.3	308	15.3	+01.8	S 23 05.7	+00.0	293	18.8	+02.1	S 21 33.3	+00.0	08
09	1	00.2	+00.7	S 20 32.5	+00.4	323	17.1	+01.9	S 23 05.7	+00.0	308	20.9	+02.2	S 21 33.3	-00.1	09
10	16	00.9	+00.7	S 20 32.9	+00.3	338	19.0	+01.8	S 23 05.7	-00.1	323	23.1	+02.1	S 21 33.2	+00.0	10
11	31	01.6	+00.7	S 20 33.2	+00.4	353	20.8	+01.9	S 23 05.6	+00.0	338	25.2	+02.2	S 21 33.2	+00.0	11
12	46	02.3	+00.7	S 20 33.6	+00.3	8	22.7	+01.8	S 23 05.6	+00.0	353	27.4	+02.1	S 21 33.2	-00.1	12
13	61	03.0	+00.7	S 20 33.9	+00.4	23	24.5	+01.8	S 23 05.6	-00.1	8					

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	178 39.1	-00.3	S 22 34.8	-00.2	141 31.9	-00.6	S 16 19.9	-01.0	60 02.7	-27.6	N 12 41.3	+10.4	00
01	193 38.8	-00.3	S 22 34.6	-00.3	156 31.3	-00.5	S 16 18.9	-01.0	74 35.1	-27.6	N 12 51.7	+10.3	01
02	208 38.5	-00.2	S 22 34.3	-00.3	171 30.8	-00.5	S 16 17.9	-01.0	89 07.5	-27.8	N 13 02.0	+10.4	02
03	223 38.3	-00.3	S 22 34.0	-00.3	186 30.3	-00.6	S 16 16.9	-01.0	103 39.7	-27.8	N 13 12.4	+10.2	03
04	238 38.0	-00.3	S 22 33.7	-00.3	201 29.7	-00.5	S 16 15.9	-01.1	118 11.9	-27.9	N 13 22.6	+10.2	04
05	253 37.7	-00.3	S 22 33.4	-00.3	216 29.2	-00.5	S 16 14.8	-01.0	132 44.0	-27.9	N 13 32.8	+10.2	05
06	268 37.4	-00.2	S 22 33.1	-00.3	231 28.7	-00.6	S 16 13.8	-01.0	147 16.1	-28.1	N 13 43.0	+10.1	06
07	283 37.2	-00.3	S 22 32.8	-00.3	246 28.1	-00.5	S 16 12.8	-01.0	161 48.0	-28.1	N 13 53.1	+10.1	07
08	298 36.9	-00.3	S 22 32.5	-00.3	261 27.6	-00.5	S 16 11.8	-01.0	176 19.9	-28.2	N 14 03.2	+10.0	08
09	313 36.6	-00.3	S 22 32.2	-00.3	276 27.1	-00.6	S 16 10.8	-01.1	190 51.7	-28.2	N 14 13.2	+10.0	09
10	328 36.3	-00.2	S 22 31.9	-00.2	291 26.5	-00.5	S 16 09.7	-01.0	205 23.5	-28.4	N 14 23.2	+09.9	10
11	343 36.1	-00.3	S 22 31.7	-00.3	306 26.0	-00.5	S 16 08.7	-01.0	219 55.1	-28.4	N 14 33.1	+09.8	11
12	358 35.8	-00.3	S 22 31.4	-00.3	321 25.5	-00.5	S 16 07.7	-01.0	234 26.7	-28.5	N 14 42.9	+09.8	12
13	13 35.5	-00.3	S 22 31.1	-00.3	336 25.0	-00.6	S 16 06.7	-01.1	248 58.2	-28.6	N 14 52.7	+09.8	13
14	28 35.2	-00.2	S 22 30.8	-00.3	351 24.4	-00.5	S 16 05.6	-01.0	263 29.6	-28.7	N 15 02.5	+09.6	14
15	43 35.0	-00.3	S 22 30.5	-00.3	6 23.9	-00.5	S 16 04.6	-01.0	278 00.9	-28.8	N 15 12.1	+09.7	15
16	58 34.7	-00.3	S 22 30.2	-00.3	21 23.4	-00.6	S 16 03.6	-01.0	292 32.1	-28.8	N 15 21.8	+09.5	16
17	73 34.4	-00.3	S 22 29.9	-00.3	36 22.8	-00.5	S 16 02.6	-01.1	307 03.3	-28.9	N 15 31.3	+09.5	17
18	88 34.1	-00.2	S 22 29.6	-00.3	51 22.3	-00.5	S 16 01.5	-01.0	321 34.4	-29.1	N 15 40.8	+09.4	18
19	103 33.9	-00.3	S 22 29.3	-00.3	66 21.8	-00.5	S 16 00.5	-01.0	336 05.3	-29.0	N 15 50.2	+09.4	19
20	118 33.6	-00.3	S 22 29.0	-00.3	81 21.3	-00.6	S 15 59.5	-01.0	350 36.3	-29.2	N 15 59.6	+09.3	20
21	133 33.3	-00.3	S 22 28.7	-00.3	96 20.7	-00.5	S 15 58.5	-01.1	5 07.1	-29.3	N 16 08.9	+09.2	21
22	148 33.0	-00.2	S 22 28.4	-00.3	111 20.2	-00.5	S 15 57.4	-01.0	19 37.8	-29.4	N 16 18.1	+09.2	22
23	163 32.8	-00.3	S 22 28.1	-00.3	126 19.7	-00.5	S 15 56.4	-01.0	34 08.4	-29.4	N 16 27.3	+09.1	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 074° 073° 073° 073° 073° 073°  
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 036° 036° 036° 036° 036° 035°  
Greenwich Culmination Time: 14:34

UT 02 06 10 14 18 22  
SD 15°1 15°2 15°2 15°2 15°3 15°3  
HP 55°6 55°7 55°8 55°9 56°0 56°1  
SHA 314° 312° 310° 308° 306° 304°  
Greenwich Culmination Time: 20:38

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	225 20.0	+00.7	S 20 12.3	+00.3	186 32.2	+01.8	S 23 07.5	+00.0	171 18.4	+02.1	S 21 35.8	+00.0	00
01	240 20.7	+00.7	S 20 12.6	+00.4	201 34.0	+01.9	S 23 07.5	-00.1	186 20.5	+02.2	S 21 35.8	-00.1	01
02	255 21.4	+00.7	S 20 13.0	+00.4	216 35.9	+01.8	S 23 07.4	+00.0	201 22.7	+02.1	S 21 35.7	+00.0	02
03	270 22.1	+00.7	S 20 13.4	+00.4	231 37.7	+01.9	S 23 07.4	+00.0	216 24.8	+02.2	S 21 35.7	+00.0	03
04	285 22.8	+00.7	S 20 13.7	+00.4	246 39.6	+01.8	S 23 07.4	-00.1	231 27.0	+02.1	S 21 35.7	-00.1	04
05	300 23.5	+00.7	S 20 14.1	+00.3	261 41.4	+01.8	S 23 07.3	+00.0	246 29.1	+02.2	S 21 35.6	+00.0	05
06	315 24.2	+00.8	S 20 14.4	+00.4	276 43.2	+01.9	S 23 07.3	+00.0	261 31.3	+02.1	S 21 35.6	-00.1	06
07	330 25.0	+00.7	S 20 14.8	+00.4	291 45.1	+01.8	S 23 07.3	-00.1	276 33.4	+02.2	S 21 35.5	+00.0	07
08	345 25.7	+00.7	S 20 15.2	+00.3	306 46.9	+01.9	S 23 07.2	+00.0	291 35.6	+02.1	S 21 35.5	-00.1	08
09	0 26.4	+00.7	S 20 15.5	+00.4	321 48.8	+01.8	S 23 07.2	+00.0	306 37.7	+02.2	S 21 35.4	+00.0	09
10	15 27.1	+00.7	S 20 15.9	+00.3	336 50.6	+01.8	S 23 07.2	-00.1	321 39.9	+02.1	S 21 35.4	-00.1	10
11	30 27.8	+00.7	S 20 16.2	+00.4	351 52.4	+01.9	S 23 07.1	+00.0	336 42.0	+02.2	S 21 35.3	+00.0	11
12	45 28.5	+00.7	S 20 16.6	+00.4	6 54.3	+01.8	S 23 07.1	+00.0	351 44.2	+02.1	S 21 35.3	+00.0	12
13	60 29.2	+00.7	S 20 17.0	+00.3	21 56.1	+01.9	S 23 07.1	+00.0	6 46.3	+02.2	S 21 35.3	-00.1	13
14	75 29.9	+00.7	S 20 17.3	+00.4	36 58.0	+01.8	S 23 07.1	-00.1	21 48.5	+02.1	S 21 35.2	+00.0	14
15	90 30.6	+00.7	S 20 17.7	+00.3	51 59.8	+01.8	S 23 07.0	+00.0	36 50.6	+02.2	S 21 35.2	-00.1	15
16	105 31.3	+00.7	S 20 18.0	+00.4	67 01.6	+01.9	S 23 07.0	+00.0	51 52.8	+02.1	S 21 35.1	+00.0	16
17	120 32.0	+00.7	S 20 18.4	+00.4	82 03.5	+01.8	S 23 07.0	-00.1	66 54.9	+02.2	S 21 35.1	-00.1	17
18	135 32.7	+00.8	S 20 18.8	+00.3	97 05.3	+01.9	S 23 06.9	+00.0	81 57.1	+02.1	S 21 35.0	+00.0	18
19	150 33.5	+00.7	S 20 19.1	+00.4	112 07.2	+01.8	S 23 06.9	+00.0	96 59.2	+02.2	S 21 35.0	-00.1	19
20	165 34.2	+00.7	S 20 19.5	+00.3	127 09.0	+01.8	S 23 06.9	-00.1	112 01.4	+02.1	S 21 34.9	+00.0	20
21	180 34.9	+00.7	S 20 19.8	+00.4	142 10.8	+01.9	S 23 06.8	+00.0	127 03.5	+02.2	S 21 34.9	+00.0	21
22	195 35.6	+00.7	S 20 20.2	+00.4	157 12.7	+01.8	S 23 06.8	+00.0	142 05.7	+02.1	S 21 34.9	-00.1	22
23	210 36.3	+00.7	S 20 20.6	+00.3	172 14.5	+01.9	S 23 06.8	+00.0	157 07.8	+02.2	S 21 34.8	+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 120° 120° 120° 120° 120° 120°  
Greenwich Culmination Time: 08:58

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 081° 081° 081° 081° 081° 081°  
Greenwich Culmination Time: 11:32

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 066° 066° 066° 066° 066° 066°  
Greenwich Culmination Time: 12:32

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	178 32.5	-00.3	S 22 27.8	-00.3	141 19.2	-00.5	S 15 55.4	-01.1	48 39.0	-29.5	N 16 36.4	+09.0	00
01	193 32.2	-00.3	S 22 27.5	-00.4	156 18.7	-00.6	S 15 54.3	-01.0	63 09.5	-29.7	N 16 45.4	+08.9	01
02	208 31.9	-00.2	S 22 27.1	-00.3	171 18.1	-00.5	S 15 53.3	-01.0	77 39.8	-29.7	N 16 54.3	+08.9	02
03	223 31.7	-00.3	S 22 26.8	-00.3	186 17.6	-00.5	S 15 52.3	-01.1	92 10.1	-29.8	N 17 03.2	+08.8	03
04	238 31.4	-00.3	S 22 26.5	-00.3	201 17.1	-00.5	S 15 51.2	-01.0	106 40.3	-29.9	N 17 12.0	+08.7	04
05	253 31.1	-00.2	S 22 26.2	-00.3	216 16.6	-00.5	S 15 50.2	-01.0	121 10.4	-29.9	N 17 20.7	+08.7	05
06	268 30.9	-00.3	S 22 25.9	-00.3	231 16.1	-00.6	S 15 49.2	-01.1	135 40.5	-30.1	N 17 29.4	+08.5	06
07	283 30.6	-00.3	S 22 25.6	-00.3	246 15.5	-00.5	S 15 48.1	-01.0	150 10.4	-30.2	N 17 37.9	+08.5	07
08	298 30.3	-00.3	S 22 25.3	-00.3	261 15.0	-00.5	S 15 47.1	-01.0	164 40.2	-30.2	N 17 46.4	+08.4	08
09	313 30.0	-00.2	S 22 25.0	-00.3	276 14.5	-00.5	S 15 46.0	-01.1	179 10.0	-30.4	N 17 54.8	+08.4	09
10	328 29.8	-00.3	S 22 24.7	-00.3	291 14.0	-00.5	S 15 45.0	-01.0	193 39.6	-30.4	N 18 03.2	+08.2	10
11	343 29.5	-00.3	S 22 24.4	-00.4	306 13.5	-00.5	S 15 44.0	-01.1	208 09.2	-30.5	N 18 11.4	+08.2	11
12	358 29.2	-00.2	S 22 24.0	-00.3	321 13.0	-00.5	S 15 42.9	-01.0	222 38.7	-30.7	N 18 19.6	+08.1	12
13	13 29.0	-00.3	S 22 23.7	-00.3	336 12.5	-00.6	S 15 41.9	-01.0	237 08.0	-30.7	N 18 27.7	+08.0	13
14	28 28.7	-00.3	S 22 23.4	-00.3	351 11.9	-00.5	S 15 40.9	-01.1	251 37.3	-30.8	N 18 35.7	+07.9	14
15	43 28.4	-00.3	S 22 23.1	-00.3	6 11.4	-00.5	S 15 39.8	-01.0	266 06.5	-30.9	N 18 43.6	+07.8	15
16	58 28.1	-00.2	S 22 22.8	-00.3	21 10.9	-00.5	S 15 38.8	-01.1	280 35.6	-30.9	N 18 51.4	+07.7	16
17	73 27.9	-00.3	S 22 22.5	-00.3	36 10.4	-00.5	S 15 37.7	-01.0	295 04.7	-31.1	N 18 59.1	+07.6	17
18	88 27.6	-00.3	S 22 22.2	-00.4	51 09.9	-00.5	S 15 36.7	-01.1	309 33.6	-31.2	N 19 06.7	+07.6	18
19	103 27.3	-00.2	S 22 21.8	-00.3	66 09.4	-00.5	S 15 35.6	-01.0	324 02.4	-31.3	N 19 14.3	+07.4	19
20	118 27.1	-00.3	S 22 21.5	-00.3	81 08.9	-00.5	S 15 34.6	-01.0	338 31.1	-31.3	N 19 21.7	+07.4	20
21	133 26.8	-00.3	S 22 21.2	-00.3	96 08.4	-00.5	S 15 33.6	-01.0	352 59.8	-31.5	N 19 29.1	+07.2	21
22	148 26.5	-00.2	S 22 20.9	-00.4	111 07.9	-00.6	S 15 32.5	-01.0	7 28.3	-31.5	N 19 36.3	+07.2	22
23	1												



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 029° 029° 029° 029° 029° 028°
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 116° 116° 116° 116° 116° 115°
Greenwich Culmination Time: 08:51

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 070° 070° 070° 070° 070° 069°
Greenwich Culmination Time: 12:06

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 118° 118° 118° 118° 118° 118°
Greenwich Culmination Time: 08:54

Table with columns for UT, Sun, Venus, Moon (A: 48%), and UT. Rows 00-23. Includes sub-rows for UT 02, 06, 10, 14, 18, 22 and data for GHA, ddGHA, Dec, dDec. Includes Greenwich Culmination Time: 12:07.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes sub-rows for UT 02, 06, 10, 14, 18, 22 and data for GHA, ddGHA, Dec, dDec. Includes Greenwich Culmination Time: 08:53.

Table with columns for UT, Sun, Venus, Moon (A: 52%), and UT. Rows 00-23. Includes sub-rows for UT 02, 06, 10, 14, 18, 22 and data for GHA, ddGHA, Dec, dDec. Includes Greenwich Culmination Time: 12:07.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes sub-rows for UT 02, 06, 10, 14, 18, 22 and data for GHA, ddGHA, Dec, dDec. Includes Greenwich Culmination Time: 11:17.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show astronomical data for these bodies on Jan 16, including GHA, ddGHA, Dec, and dDec.

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, Sun, Venus, Moon, and UT. Rows 00-23 show astronomical data for these bodies on Jan 13, including GHA, ddGHA, Dec, and dDec.

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° 066° 066° 065° 065°
Greenwich Culmination Time: 12:08

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show astronomical data for these bodies on Jan 16, including GHA, ddGHA, Dec, and dDec.

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 113° 113° 113° 113° 113° 113°
Greenwich Culmination Time: 08:47

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show astronomical data for these bodies on Jan 13, including GHA, ddGHA, Dec, and dDec.

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 115° 115° 115° 115° 115° 115°
Greenwich Culmination Time: 08:50

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for GHA, ddGHA, Dec, dDec for each planet and Moon. Includes a small table for UT 02-22 and Greenwich Culmination Time: 12:08.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for GHA, ddGHA, Dec, dDec for each planet and Moon. Includes a small table for UT 02-22 and Greenwich Culmination Time: 12:09.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for GHA, ddGHA, Dec, dDec for each planet. Includes a small table for UT 02-22 and Greenwich Culmination Time: 08:49.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for GHA, ddGHA, Dec, dDec for each planet. Includes a small table for UT 02-22 and Greenwich Culmination Time: 08:48.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 84%.

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 058° 058° 058° 058° 058° 058°
Greenwich Culmination Time: 12:10

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 74%.

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 062° 061° 061° 061° 061° 061°
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 110° 110° 110° 110° 110° 110°
Greenwich Culmination Time: 08:43

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°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 079° 079° 079° 079° 079° 079°
Greenwich Culmination Time: 11:00

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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. 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.

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 054° 054° 054° 054° 053° 053°
Greenwich Culmination Time: 12:11

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 107° 107° 107° 107° 107° 107°
Greenwich Culmination Time: 08:38

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 057° 057° 057° 057° 057° 056°
Greenwich Culmination Time: 12:11

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 110° 109° 109° 109° 109° 109°
Greenwich Culmination Time: 08:41





UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	48.9	-00.1	S 18 23.5	-00.7	138	08.0	-00.3	S 06 04.1	-01.2	141	19.7	-26.1	S 11 18.5	-10.4
01	191	48.8	-00.1	S 18 22.8	-00.6	153	07.7	-00.3	S 06 02.9	-01.3	155	53.6	-26.0	S 11 08.1	-10.5
02	206	48.7	-00.2	S 18 22.2	-00.7	168	07.4	-00.2	S 06 01.6	-01.3	170	27.6	-26.0	S 10 57.6	-10.6
03	221	48.5	-00.1	S 18 21.5	-00.6	183	07.2	-00.3	S 06 00.3	-01.3	185	01.6	-26.0	S 10 47.0	-10.6
04	236	48.4	-00.1	S 18 20.9	-00.7	198	06.9	-00.2	S 05 59.0	-01.2	199	35.6	-25.9	S 10 36.4	-10.6
05	251	48.3	-00.1	S 18 20.2	-00.6	213	06.7	-00.3	S 05 57.8	-01.3	214	09.7	-25.8	S 10 25.8	-10.7
06	266	48.2	-00.2	S 18 19.6	-00.7	228	06.4	-00.2	S 05 56.5	-01.3	228	43.9	-25.8	S 10 15.1	-10.7
07	281	48.0	-00.1	S 18 18.9	-00.6	243	06.2	-00.3	S 05 55.2	-01.3	243	18.1	-25.8	S 10 04.4	-10.7
08	296	47.9	-00.1	S 18 18.3	-00.7	258	05.9	-00.2	S 05 53.9	-01.2	257	52.3	-25.7	S 09 53.7	-10.8
09	311	47.8	-00.1	S 18 17.6	-00.6	273	05.7	-00.3	S 05 52.7	-01.3	272	26.6	-25.7	S 09 42.9	-10.8
10	326	47.7	-00.1	S 18 17.0	-00.7	288	05.4	-00.2	S 05 51.4	-01.3	287	00.9	-25.7	S 09 32.1	-10.8
11	341	47.6	-00.2	S 18 16.3	-00.6	303	05.2	-00.3	S 05 50.1	-01.3	301	35.2	-25.6	S 09 21.3	-10.9
12	356	47.4	-00.1	S 18 15.7	-00.7	318	04.9	-00.2	S 05 48.8	-01.3	316	09.6	-25.5	S 09 10.4	-10.9
13	11	47.3	-00.1	S 18 15.0	-00.7	333	04.7	-00.3	S 05 47.5	-01.2	330	44.1	-25.6	S 08 59.5	-10.9
14	26	47.2	-00.1	S 18 14.3	-00.6	348	04.4	-00.3	S 05 46.3	-01.3	345	18.5	-25.5	S 08 48.6	-11.0
15	41	47.1	-00.2	S 18 13.7	-00.7	3	04.1	-00.2	S 05 45.0	-01.3	359	53.0	-25.4	S 08 37.6	-11.0
16	56	46.9	-00.1	S 18 13.0	-00.6	18	03.9	-00.3	S 05 43.7	-01.3	14	27.6	-25.4	S 08 26.6	-11.0
17	71	46.8	-00.1	S 18 12.4	-00.7	33	03.6	-00.2	S 05 42.4	-01.3	29	02.2	-25.4	S 08 15.6	-11.0
18	86	46.7	-00.1	S 18 11.7	-00.6	48	03.4	-00.3	S 05 41.1	-01.2	43	36.8	-25.4	S 08 04.6	-11.1
19	101	46.6	-00.1	S 18 11.1	-00.7	63	03.1	-00.2	S 05 39.9	-01.3	58	11.4	-25.3	S 07 53.5	-11.1
20	116	46.5	-00.1	S 18 10.4	-00.7	78	02.9	-00.3	S 05 38.6	-01.3	72	46.1	-25.3	S 07 42.4	-11.2
21	131	46.4	-00.2	S 18 09.7	-00.6	93	02.6	-00.2	S 05 37.3	-01.3	87	20.8	-25.2	S 07 31.2	-11.1
22	146	46.2	-00.1	S 18 09.1	-00.7	108	02.4	-00.3	S 05 36.0	-01.3	101	55.6	-25.2	S 07 20.1	-11.2
23	161	46.1	-00.1	S 18 08.4	-00.6	123	02.1	-00.2	S 05 34.7	-01.2	116	30.4	-25.2	S 07 08.9	-11.2
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	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 050° 050° 050° 049° 049° 049°	Greenwich Culmination Time: 12:12	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 011° 011° 011° 011° 011° 010°	Greenwich Culmination Time: 14:47	UT 02 06 10 14 18 22	SD 14°8 14°8 14°8 14°8 14°8 14°7	HP 54°3 54°2 54°2 54°2 54°2 54°1	SHA 014° 012° 010° 008° 006° 004°	Greenwich Culmination Time: 15:00

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	58.9	-00.2	S 19 08.7	-00.6	138	27.6	-00.3	S 07 35.3	-01.3	175	13.6	-30.5	S 21 12.0	-05.3
01	191	58.7	-00.1	S 19 08.1	-00.7	153	27.3	-00.3	S 07 34.0	-01.2	189	43.1	-30.5	S 21 06.7	-05.4
02	206	58.6	-00.2	S 19 07.4	-00.6	168	27.0	-00.3	S 07 32.8	-01.3	204	12.6	-30.4	S 21 01.3	-05.6
03	221	58.4	-00.1	S 19 06.8	-00.6	183	26.7	-00.3	S 07 31.5	-01.3	218	42.2	-30.4	S 20 55.7	-05.6
04	236	58.3	-00.2	S 19 06.2	-00.6	198	26.4	-00.3	S 07 30.2	-01.2	233	11.8	-30.2	S 20 50.1	-05.7
05	251	58.1	-00.1	S 19 05.6	-00.6	213	26.1	-00.3	S 07 29.0	-01.3	247	41.6	-30.3	S 20 44.4	-05.9
06	266	58.0	-00.2	S 19 05.0	-00.6	228	25.8	-00.2	S 07 27.7	-01.2	262	11.3	-30.1	S 20 38.5	-05.9
07	281	57.8	-00.1	S 19 04.4	-00.6	243	25.6	-00.3	S 07 26.5	-01.3	276	41.2	-30.1	S 20 32.6	-06.0
08	296	57.7	-00.2	S 19 03.8	-00.6	258	25.3	-00.3	S 07 25.2	-01.2	291	11.1	-30.0	S 20 26.6	-06.2
09	311	57.5	-00.1	S 19 03.2	-00.6	273	25.0	-00.3	S 07 24.0	-01.3	305	41.1	-30.0	S 20 20.4	-06.2
10	326	57.4	-00.2	S 19 02.6	-00.6	288	24.7	-00.3	S 07 22.7	-01.3	320	11.1	-29.9	S 20 14.2	-06.3
11	341	57.2	-00.1	S 19 02.0	-00.7	303	24.4	-00.3	S 07 21.4	-01.2	334	41.2	-29.8	S 20 07.9	-06.4
12	356	57.1	-00.1	S 19 01.3	-00.6	318	24.1	-00.2	S 07 20.2	-01.3	349	11.4	-29.8	S 20 01.5	-06.5
13	11	57.0	-00.2	S 19 00.7	-00.6	333	23.9	-00.3	S 07 18.9	-01.2	3	41.6	-29.7	S 19 55.0	-06.6
14	26	56.8	-00.1	S 19 00.1	-00.6	348	23.6	-00.3	S 07 17.7	-01.3	18	11.9	-29.6	S 19 48.4	-06.7
15	41	56.7	-00.2	S 18 59.5	-00.6	3	23.3	-00.3	S 07 16.4	-01.3	32	42.3	-29.6	S 19 41.7	-06.8
16	56	56.5	-00.1	S 18 58.9	-00.6	18	23.0	-00.3	S 07 15.1	-01.2	47	12.7	-29.5	S 19 34.9	-06.8
17	71	56.4	-00.2	S 18 58.3	-00.6	33	22.7	-00.2	S 07 13.9	-01.3	61	43.2	-29.4	S 19 28.1	-07.0
18	86	56.2	-00.1	S 18 57.7	-00.7	48	22.5	-00.3	S 07 12.6	-01.2	76	13.8	-29.4	S 19 21.1	-07.0
19	101	56.1	-00.2	S 18 57.0	-00.6	63	22.2	-00.3	S 07 11.4	-01.3	90	44.4	-29.3	S 19 14.1	-07.2
20	116	55.9	-00.1	S 18 56.4	-00.6	78	21.9	-00.3	S 07 10.1	-01.3	105	15.1	-29.2	S 19 06.9	-07.2
21	131	55.8	-00.2	S 18 55.8	-00.6	93	21.6	-00.3	S 07 08.8	-01.2	119	45.9	-29.2	S 18 59.7	-07.3
22	146	55.6	-00.1	S 18 55.2	-00.6	108	21.3	-00.2	S 07 07.6	-01.3	134	16.7	-29.1	S 18 52.4	-07.4
23	161	55.5	-00.1	S 18 54.6	-00.7	123	21.1	-00.3	S 07 06.3	-01.2	148	47.6	-29.0	S 18 45.0	-07.4
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	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 053° 053° 053° 053° 052° 052°	Greenwich Culmination Time: 12:12	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 015° 014° 014° 014° 014° 014°	Greenwich Culmination Time: 14:46	UT 02 06 10 14 18 22	SD 15°1 15°1 15°0 15°0 15°0 15°0	HP 55°4 55°3 55°2 55°1 55°1 55°0	SHA 050° 048° 046° 044° 042° 040°	Greenwich Culmination Time: 12:44

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	231	12.5	+00.6	S 22 42.5	+00.2	202	50.0	+01.9	S 22 46.5	+00.1	190	14.2	+02.1	S 21 11.1	+00.1
01	246	13.1	+00.7	S 22 42.7	+00.2	217	51.9	+01.9	S 22 46.4	+00.0	205	16.3	+02.2	S 21 11.0	+00.0
02	261	13.8	+00.6	S 22 42.9	+00.2	232	53.8	+01.9	S 22 46.4	+00.1	220	18.5	+02.1	S 21 11.0	+00.1
03	276	14.4	+00.6	S 22 43.1	+00.2	247	55.7	+01.8	S 22 46.3	+00.0	235	20.6	+02.2	S 21 10.9	+00.0
04	291	15.0	+00.7	S 22 43.3	+00.2	262	57.5	+01.9	S 22 46.3	+00.1	250	22.8	+02.1	S 21 10.9	+00.1
05	306	15.7	+00.6	S 22 43.5	+00.2	277	59.4	+01.9	S 22 46.2	+00.0	265	24.9	+02.2	S 21 10.8	+00.0
06	321	16.3	+00.6	S 22 43.7	+00.2	293	01.3	+01.8	S 22 46.2	+00.1	280	27.1	+02.2	S 21 10.8	+00.1
07	336	16.9	+00.6	S 22 43.9	+00.2	308	03.1	+01.9	S 22 46.1	+00.0	295	29.3	+02.1	S 21 10.7	+00.0
08	351	17.5	+00.7	S 22 44.1	+00.2	323	05.0	+01.9	S 22 46.1	+00.1	310	31.4	+02.2	S 21 10.7	+00.0
09	6	18.2	+00.6	S 22 44.3	+00.2	338	06.9	+01.8	S 22 46.0	+00.0	325	33.6	+02.1	S 21 10.7	+00.1
10	21	18.8	+00.6	S 22 44.5	+00.2	353	08.7	+01.9	S 22 46.0	+00.1	340	35.7	+02.2	S 21 10.6	+00.0
11	36	19.4	+00.7	S 22 44.7	+00.2	8	10.6	+01.9	S 22 45.9	+00.0	355	37.9	+02.1	S 21 10.6	+00.1
12	51	20.1	+00.6	S 22 44.9	+00.2	23	12.5	+01.8	S 22 45.9	+00.1	10	40.0	+02.2	S 21 10.5	+00.0
13	66	20.7	+00.6	S 22 45.1	+00.2	38	14.3	+01.9	S 22 45.8	+00.0	25	42.2	+02.2	S 21 10.5	+00.1
14	81	21.3	+00.6	S 22 45.3	+00.2	53	16.2	+01.9	S 22 45.8	+00.1	40	44.4	+02.1	S 21 10.4	+00.0
15	96	21.9	+00.7	S 22 45.5	+00.2	68	18.1	+01.9	S 22 45.7	+00.0	55	46.5	+02.2	S 21 10.4	+00.1
16	111	22.6	+00.6	S 22 45.7	+00.1	83	20.0	+01.8	S 22 45.7	+00.1	70	48.7	+02.1	S 21 10.3	+00.0
17	126	23.2	+00.6	S 22 45.8	+00.2	98	21.8	+01.9	S 22 45.6	+00.0	85	50.8	+02.2	S 21 10.3	+00.1
18	141	23.8	+00.6	S 22 46.0	+00.2	113	23.7	+01.9	S 22 45.6	+00.1	100	53.0	+02.1	S 21 10.2	+00.0
19	156	24.4	+00.7	S 22 46.2	+00.2	128	25.6	+01.8	S 22 45.5	+00.0	115	55.1	+02.2	S 21 10.2	+00.1
20	171	25.1	+00.6	S											

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	55.4	-00.2	S 18 53.9	-00.6	138	20.8	-00.3	S 07 05.1	-01.3	163	18.6	-28.9	S 18 37.6	-07.6
01	191	55.2	-00.1	S 18 53.3	-00.6	153	20.5	-00.3	S 07 03.8	-01.3	177	49.7	-28.9	S 18 30.0	-07.6
02	206	55.1	-00.2	S 18 52.7	-00.6	168	20.2	-00.2	S 07 02.5	-01.2	192	20.8	-28.9	S 18 22.4	-07.7
03	221	54.9	-00.1	S 18 52.1	-00.6	183	20.0	-00.3	S 07 01.3	-01.3	206	51.9	-28.7	S 18 14.7	-07.8
04	236	54.8	-00.1	S 18 51.5	-00.7	198	19.7	-00.3	S 07 00.0	-01.3	221	23.2	-28.7	S 18 06.9	-07.9
05	251	54.7	-00.2	S 18 50.8	-00.6	213	19.4	-00.3	S 06 58.7	-01.2	235	54.5	-28.7	S 17 59.0	-08.0
06	266	54.5	-00.1	S 18 50.2	-00.6	228	19.1	-00.2	S 06 57.5	-01.3	250	25.8	-28.5	S 17 51.0	-08.0
07	281	54.4	-00.2	S 18 49.6	-00.6	243	18.9	-00.3	S 06 56.2	-01.3	264	57.3	-28.5	S 17 43.0	-08.1
08	296	54.2	-00.1	S 18 49.0	-00.7	258	18.6	-00.3	S 06 54.9	-01.2	279	28.8	-28.4	S 17 34.9	-08.2
09	311	54.1	-00.1	S 18 48.3	-00.6	273	18.3	-00.3	S 06 53.7	-01.3	294	00.4	-28.4	S 17 26.7	-08.2
10	326	54.0	-00.2	S 18 47.7	-00.6	288	18.0	-00.2	S 06 52.4	-01.2	308	32.0	-28.3	S 17 18.5	-08.4
11	341	53.8	-00.1	S 18 47.1	-00.6	303	17.8	-00.3	S 06 51.2	-01.3	323	03.7	-28.2	S 17 10.1	-08.4
12	356	53.7	-00.2	S 18 46.5	-00.7	318	17.5	-00.3	S 06 49.9	-01.3	337	35.5	-28.2	S 17 01.7	-08.4
13	11	53.5	-00.1	S 18 45.8	-00.6	333	17.2	-00.3	S 06 48.6	-01.2	352	07.3	-28.1	S 16 53.3	-08.6
14	26	53.4	-00.1	S 18 45.2	-00.6	348	16.9	-00.2	S 06 47.4	-01.3	6	39.2	-28.0	S 16 44.7	-08.6
15	41	53.3	-00.2	S 18 44.6	-00.7	3	16.7	-00.3	S 06 46.1	-01.3	21	11.2	-28.0	S 16 36.1	-08.7
16	56	53.1	-00.1	S 18 43.9	-00.6	18	16.4	-00.3	S 06 44.8	-01.2	35	43.2	-27.9	S 16 27.4	-08.7
17	71	53.0	-00.2	S 18 43.3	-00.6	33	16.1	-00.2	S 06 43.6	-01.3	50	15.3	-27.9	S 16 18.7	-08.8
18	86	52.8	-00.1	S 18 42.7	-00.7	48	15.9	-00.3	S 06 42.3	-01.3	64	47.4	-27.7	S 16 09.9	-08.9
19	101	52.7	-00.1	S 18 42.0	-00.6	63	15.6	-00.3	S 06 41.0	-01.2	79	19.7	-27.8	S 16 01.0	-09.0
20	116	52.6	-00.2	S 18 41.4	-00.6	78	15.3	-00.2	S 06 39.8	-01.3	93	51.9	-27.6	S 15 52.0	-09.0
21	131	52.4	-00.1	S 18 40.8	-00.6	93	15.1	-00.3	S 06 38.5	-01.3	108	24.3	-27.6	S 15 43.0	-09.0
22	146	52.3	-00.1	S 18 40.2	-00.7	108	14.8	-00.3	S 06 37.2	-01.3	122	56.7	-27.5	S 15 34.0	-09.2
23	161	52.2	-00.2	S 18 39.5	-00.6	123	14.5	-00.2	S 06 35.9	-01.2	137	29.2	-27.5	S 15 24.8	-09.2
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	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	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 013° 013° 013° 013° 013° 013°	Greenwich Culmination Time: 14:46	UT 02 06 10 14 18 22	SD 15°0 15°0 14°9 14°9 14°9 14°9	HP 54°9 54°9 54°8 54°7 54°7 54°6	SHA 038° 038° 033° 031° 029° 027°	Greenwich Culmination Time: 13:32

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	52.0	-00.1	S 18 38.9	-00.7	138	14.3	-00.3	S 06 34.7	-01.3	152	01.7	-27.4	S 15 15.6	-09.2
01	191	51.9	-00.1	S 18 38.2	-00.6	153	14.0	-00.3	S 06 33.4	-01.3	166	34.3	-27.4	S 15 06.4	-09.4
02	206	51.8	-00.2	S 18 37.6	-00.6	168	13.7	-00.2	S 06 32.1	-01.2	181	06.9	-27.2	S 14 57.0	-09.3
03	221	51.6	-00.1	S 18 37.0	-00.7	183	13.5	-00.3	S 06 30.9	-01.3	195	39.7	-27.3	S 14 47.7	-09.5
04	236	51.5	-00.1	S 18 36.3	-00.6	198	13.2	-00.3	S 06 29.6	-01.3	210	12.4	-27.1	S 14 38.2	-09.5
05	251	51.4	-00.2	S 18 35.7	-00.6	213	12.9	-00.2	S 06 28.3	-01.2	224	45.3	-27.1	S 14 28.7	-09.5
06	266	51.2	-00.1	S 18 35.1	-00.7	228	12.7	-00.3	S 06 27.1	-01.3	239	18.2	-27.1	S 14 19.2	-09.6
07	281	51.1	-00.1	S 18 34.4	-00.6	243	12.4	-00.3	S 06 25.8	-01.3	253	51.1	-27.0	S 14 09.6	-09.7
08	296	51.0	-00.2	S 18 33.8	-00.7	258	12.1	-00.2	S 06 24.5	-01.3	268	24.1	-26.9	S 13 59.9	-09.7
09	311	50.8	-00.1	S 18 33.1	-00.6	273	11.9	-00.3	S 06 23.2	-01.2	282	57.2	-26.9	S 13 50.2	-09.8
10	326	50.7	-00.1	S 18 32.5	-00.6	288	11.6	-00.3	S 06 22.0	-01.3	297	30.3	-26.8	S 13 40.4	-09.8
11	341	50.6	-00.2	S 18 31.9	-00.7	303	11.3	-00.2	S 06 20.7	-01.3	312	03.5	-26.8	S 13 30.6	-09.9
12	356	50.4	-00.1	S 18 31.2	-00.6	318	11.1	-00.3	S 06 19.4	-01.2	326	36.7	-26.7	S 13 20.7	-09.9
13	11	50.3	-00.1	S 18 30.6	-00.7	333	10.8	-00.2	S 06 18.2	-01.3	341	10.0	-26.6	S 13 10.8	-10.0
14	26	50.2	-00.1	S 18 29.9	-00.6	348	10.6	-00.3	S 06 16.9	-01.3	355	43.4	-26.6	S 13 00.8	-10.0
15	41	50.1	-00.2	S 18 29.3	-00.6	3	10.3	-00.3	S 06 15.6	-01.3	10	16.8	-26.6	S 12 50.8	-10.1
16	56	49.9	-00.1	S 18 28.7	-00.7	18	10.0	-00.2	S 06 14.3	-01.2	24	50.2	-26.5	S 12 40.7	-10.1
17	71	49.8	-00.1	S 18 28.0	-00.6	33	09.8	-00.3	S 06 13.1	-01.3	39	23.7	-26.4	S 12 30.6	-10.1
18	86	49.7	-00.2	S 18 27.4	-00.7	48	09.5	-00.2	S 06 11.8	-01.3	53	57.3	-26.4	S 12 20.5	-10.3
19	101	49.5	-00.1	S 18 26.7	-00.6	63	09.3	-00.3	S 06 10.5	-01.3	68	30.9	-26.3	S 12 10.2	-10.2
20	116	49.4	-00.1	S 18 26.1	-00.7	78	09.0	-00.3	S 06 09.2	-01.2	83	04.6	-26.3	S 11 60.0	-10.3
21	131	49.3	-00.1	S 18 25.4	-00.6	93	08.7	-00.2	S 06 08.0	-01.3	97	38.3	-26.3	S 11 49.7	-10.4
22	146	49.2	-00.2	S 18 24.8	-00.7	108	08.5	-00.3	S 06 06.7	-01.3	112	12.0	-26.1	S 11 39.3	-10.3
23	161	49.0	-00.1	S 18 24.1	-00.6	123	08.2	-00.2	S 06 05.4	-01.3	126	45.9	-26.2	S 11 29.0	-10.5
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	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 051° 051° 051° 051° 050° 050°	Greenwich Culmination Time: 12:12	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 012° 012° 012° 012° 012° 011°	Greenwich Culmination Time: 14:47	UT 02 06 10 14 18 22	SD 14°9 14°9 14°8 14°8 14°8 14°8	HP 54°6 54°5 54°5 54°4 54°4 54°3	SHA 025° 023° 021° 019° 017° 016°	Greenwich Culmination Time: 14:17

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	230	42.1	+00.7	S 22 32.5	+00.2	201	20.4	+01.9	S 22 48.8	-00.1	188	30.7	+02.2	S 21 13.4	+00.0
01	245	42.8	+00.6	S 22 32.7	+00.2	216	22.3	+01.9	S 22 48.7	+00.0	203	32.9	+02.1	S 21 13.4	-00.1
02	260	43.4	+00.7	S 22 32.9	+00.2	231	24.2	+01.8	S 22 48.7	-00.1	218	35.0	+02.2	S 21 13.3	+00.0
03	275	44.1	+00.6	S 22 33.1	+00.2	246	26.0	+01.9	S 22 48.6	+00.0	233	37.2	+02.1	S 21 13.3	-00.1
04	290	44.7	+00.6	S 22 33.3	+00.3	261	27.9	+01.9	S 22 48.6	-00.1	248	39.3	+02.2	S 21 13.2	+00.0
05	305	45.3	+00.7	S 22 33.6	+00.2	276	29.8	+01.8	S 22 48.5	+00.0	263	41.5	+02.2	S 21 13.2	-00.1
06	320	46.0	+00.6	S 22 33.8	+00.2	291	31.6	+01.9	S 22 48.5	-00.1	278	43.7	+02.1	S 21 13.1	+00.0
07	335	46.6	+00.6	S 22 34.0	+00.2	306	33.5	+01.9	S 22 48.4	+00.0	293	45.8	+02.2	S 21 13.1	-00.1
08	350	47.2	+00.7	S 22 34.2	+00.2	321	35.4	+01.8	S 22 48.4	-00.1	308	48.0	+02.1	S 21 13.0	+00.0
09	5	47.9	+00.6	S 22 34.4	+00.2	336	37.2	+01.9	S 22 48.3	+00.0	323	50.1	+02.2	S 21 13.0	-00.1
10	20	48.5	+00.6	S 22 34.6	+00.2	351	39.1	+01.9	S 22 48.3	+00.0	338	52.3	+02.1	S 21 12.9	+00.0
11	35	49.1	+00.7	S 22 34.8	+00.3	6	41.0	+01.8	S 22 48.3	-00.1	353	54.4	+02.2	S 21 12.9	-00.1
12	50	49.8	+00.6	S 22 35.1	+00.2	21	42.8	+01.9	S 22 48.2	+00.0	8	56.6	+02.1	S 21 12.8	+00.0
13	65	50.4	+00.6	S 22 35.3	+00.2	36	44.7	+01.9	S 22 48.2	-00.1	23	58.7	+02.2	S 21 12.8	-00.1
14	80	51.0	+00.7	S 22 35.5	+00.2	51	46.6	+01.8	S 22 48.1	+00.0	39	00.9	+02.1	S 21 12.7	+00.0
15	95	51.7	+00.6	S 22 35.7	+00.2	66	48.4	+01.9	S 22 48.1	-00.1	54	03.0	+02.2	S 21 12.7	-00.1
16	110	52.3	+00.6	S 22 35.9	+00.2	81	50.3	+01.8	S 22 48.0	+00.0	69	05.2	+02.2	S 21 12.6	+00.0
17	125	52.9	+00.7	S 22 36.1	+00.2	96	52.1	+01.9	S 22 48.0	-00.1	84	07.4	+02.1	S 21 12.6	+00.0
18	140	53.6	+00.6	S 22 36.3	+00.2	111	54.0	+01.9	S 22 47.9	+00.0	99	09.5	+02.2	S 21 12.6	-00.1
19	155	54.2	+00.6	S 22 36.5	+00.2	126	55.9	+01.8	S 22 47.9	-00.1	114	11.7	+02.1	S 21 12.5	+00.0
20	170	54.8	+00.7	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°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, 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 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 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 101° 101° 101° 101° 101° 101°
Greenwich Culmination Time: 08:30

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 104° 104° 103° 103° 103° 103°
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.

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 048° 048° 048° 047° 047° 047°
Greenwich Culmination Time: 12:13

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 103° 103° 103° 103° 102° 102°
Greenwich Culmination Time: 08:32

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 047° 047° 047° 046° 046° 046°
Greenwich Culmination Time: 12:13

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 102° 102° 102° 102° 102° 102°
Greenwich Culmination Time: 08:31

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:13.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:13.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 08:26.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 08:29.

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 044° 044° 044° 043° 043° 043°
Greenwich Culmination Time: 12:13

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 100° 100° 100° 100° 100° 099°
Greenwich Culmination Time: 08:28

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 043° 043° 042° 042° 042° 042°
Greenwich Culmination Time: 12:13

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 099° 099° 099° 099° 099° 099°
Greenwich Culmination Time: 08:27

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UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	27.6	+00.0	S 14 54.7	-00.8	137	08.3	-00.1	N 00 09.9	+01.4	359	46.2	-35.6	N 19 14.2	-08.6
01	191	27.6	+00.0	S 14 53.9	-00.8	152	08.2	-00.2	N 00 11.3	+01.3	14	10.6	-35.5	N 19 05.6	-08.7
02	206	27.6	-00.1	S 14 53.1	-00.8	167	08.0	-00.2	N 00 12.6	+01.3	28	35.1	-35.5	N 18 56.9	-08.9
03	221	27.5	+00.0	S 14 52.3	-00.8	182	07.8	-00.1	N 00 13.9	+01.3	42	59.6	-35.5	N 18 48.0	-09.0
04	236	27.5	+00.0	S 14 51.5	-00.8	197	07.7	-00.2	N 00 15.2	+01.3	57	24.1	-35.4	N 18 39.0	-09.1
05	251	27.5	+00.0	S 14 50.7	-00.8	212	07.5	-00.1	N 00 16.5	+01.3	71	48.7	-35.3	N 18 29.9	-09.3
06	266	27.5	+00.0	S 14 49.9	-00.8	227	07.4	-00.2	N 00 17.8	+01.3	86	13.4	-35.3	N 18 20.6	-09.4
07	281	27.5	-00.1	S 14 49.1	-00.8	242	07.2	-00.2	N 00 19.1	+01.3	100	38.1	-35.3	N 18 11.2	-09.5
08	296	27.4	+00.0	S 14 48.3	-00.8	257	07.0	-00.1	N 00 20.4	+01.3	115	02.8	-35.2	N 18 01.7	-09.7
09	311	27.4	+00.0	S 14 47.5	-00.8	272	06.9	-00.2	N 00 21.7	+01.3	129	27.6	-35.2	N 17 52.0	-09.7
10	326	27.4	+00.0	S 14 46.7	-00.8	287	06.7	-00.2	N 00 23.0	+01.4	143	52.4	-35.1	N 17 42.3	-10.0
11	341	27.4	+00.0	S 14 45.9	-00.8	302	06.5	-00.1	N 00 24.4	+01.3	158	17.3	-35.1	N 17 32.3	-10.0
12	356	27.4	-00.1	S 14 45.1	-00.8	317	06.4	-00.2	N 00 25.7	+01.3	172	42.2	-35.0	N 17 22.3	-10.1
13	11	27.3	+00.0	S 14 44.3	-00.8	332	06.2	-00.1	N 00 27.0	+01.3	187	07.2	-35.0	N 17 12.2	-10.3
14	26	27.3	+00.0	S 14 43.5	-00.8	347	06.1	-00.2	N 00 28.3	+01.3	201	32.2	-34.9	N 17 01.9	-10.4
15	41	27.3	+00.0	S 14 42.7	-00.8	2	05.9	-00.2	N 00 29.6	+01.3	215	57.3	-34.9	N 16 51.5	-10.5
16	56	27.3	+00.0	S 14 41.9	-00.8	17	05.7	-00.1	N 00 30.9	+01.3	230	22.4	-34.9	N 16 41.0	-10.6
17	71	27.3	+00.0	S 14 41.1	-00.8	32	05.6	-00.2	N 00 32.2	+01.3	244	47.5	-34.7	N 16 30.4	-10.8
18	86	27.3	-00.1	S 14 40.3	-00.8	47	05.4	-00.1	N 00 33.5	+01.3	259	12.8	-34.7	N 16 19.6	-10.8
19	101	27.2	+00.0	S 14 39.5	-00.8	62	05.3	-00.2	N 00 34.8	+01.3	273	38.1	-34.7	N 16 08.8	-11.0
20	116	27.2	+00.0	S 14 38.7	-00.8	77	05.1	-00.2	N 00 36.1	+01.4	288	03.4	-34.6	N 15 57.8	-11.1
21	131	27.2	+00.0	S 14 37.9	-00.8	92	04.9	-00.1	N 00 37.5	+01.3	302	28.8	-34.6	N 15 46.7	-11.2
22	146	27.2	+00.0	S 14 37.1	-00.8	107	04.8	-00.2	N 00 38.8	+01.3	316	54.2	-34.5	N 15 35.5	-11.3
23	161	27.2	+00.0	S 14 36.3	-00.8	122	04.6	-00.1	N 00 40.1	+01.3	331	19.7	-34.4	N 15 24.2	-11.4

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

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 358° 358° 358° 358° 358° 358°  
Greenwich Culmination Time: 14:51

UT 02 06 10 14 18 22  
SD 16°4 16°5 16°5 16°5 16°5 16°5  
HP 60°4 60°4 60°5 60°6 60°6 60°7  
SHA 220° 217° 215° 212° 210° 207°  
Greenwich Culmination Time: 00:00

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	234	09.4	+00.6	S 23 26.0	+00.1	211	52.3	+01.9	S 22 31.3	+00.0	200	36.8	+02.2	S 20 56.9	+00.0
01	249	10.0	+00.6	S 23 26.1	+00.1	226	54.2	+01.9	S 22 31.3	-00.1	215	39.0	+02.2	S 20 56.9	-00.1
02	264	10.6	+00.6	S 23 26.2	+00.1	241	56.1	+01.9	S 22 31.2	-00.1	230	41.2	+02.1	S 20 56.8	+00.0
03	279	11.2	+00.6	S 23 26.3	+00.1	256	58.0	+01.9	S 22 31.1	+00.0	245	43.3	+02.2	S 20 56.8	+00.0
04	294	11.8	+00.6	S 23 26.4	+00.1	271	59.9	+01.9	S 22 31.1	-00.1	260	45.5	+02.2	S 20 56.8	-00.1
05	309	12.4	+00.6	S 23 26.5	+00.1	287	01.8	+01.9	S 22 31.0	+00.0	275	47.7	+02.1	S 20 56.7	+00.0
06	324	13.0	+00.6	S 23 26.6	+00.1	302	03.7	+01.9	S 22 31.0	-00.1	290	49.8	+02.2	S 20 56.7	-00.1
07	339	13.6	+00.6	S 23 26.7	+00.1	317	05.6	+01.9	S 22 30.9	+00.0	305	52.0	+02.2	S 20 56.6	+00.0
08	354	14.2	+00.6	S 23 26.8	+00.1	332	07.5	+01.9	S 22 30.9	-00.1	320	54.2	+02.1	S 20 56.6	-00.1
09	9	14.8	+00.5	S 23 26.9	+00.1	347	09.4	+01.9	S 22 30.8	+00.0	335	56.3	+02.2	S 20 56.5	+00.0
10	24	15.3	+00.6	S 23 27.0	+00.1	2	11.3	+01.9	S 22 30.8	-00.1	350	58.5	+02.2	S 20 56.5	-00.1
11	39	15.9	+00.6	S 23 27.1	+00.1	17	13.2	+01.9	S 22 30.7	-00.1	6	00.7	+02.2	S 20 56.4	+00.0
12	54	16.5	+00.6	S 23 27.2	+00.1	32	15.1	+01.9	S 22 30.6	+00.0	21	02.9	+02.1	S 20 56.4	-00.1
13	69	17.1	+00.6	S 23 27.3	+00.1	47	17.0	+01.9	S 22 30.6	-00.1	36	05.0	+02.2	S 20 56.3	+00.0
14	84	17.7	+00.6	S 23 27.4	+00.1	62	18.9	+01.9	S 22 30.5	+00.0	51	07.2	+02.2	S 20 56.3	-00.1
15	99	18.3	+00.6	S 23 27.5	+00.1	77	20.8	+01.9	S 22 30.5	-00.1	66	09.4	+02.1	S 20 56.2	+00.0
16	114	18.9	+00.6	S 23 27.6	+00.1	92	22.7	+01.9	S 22 30.4	+00.0	81	11.5	+02.2	S 20 56.2	-00.1
17	129	19.5	+00.6	S 23 27.7	+00.1	107	24.6	+01.9	S 22 30.4	-00.1	96	13.7	+02.2	S 20 56.1	+00.0
18	144	20.1	+00.6	S 23 27.8	+00.1	122	26.5	+01.9	S 22 30.3	-00.1	111	15.9	+02.1	S 20 56.1	-00.1
19	159	20.7	+00.6	S 23 27.8	+00.1	137	28.4	+01.9	S 22 30.2	+00.0	126	18.0	+02.2	S 20 56.0	+00.0
20	174	21.3	+00.6	S 23 27.9	+00.1	152	30.3	+01.9	S 22 30.2	-00.1	141	20.2	+02.2	S 20 56.0	-00.1
21	189	21.9	+00.6	S 23 28.0	+00.1	167	32.1	+01.9	S 22 30.1	+00.0	156	22.4	+02.2	S 20 55.9	+00.0
22	204	22.5	+00.6	S 23 28.1	+00.1	182	34.1	+01.9	S 22 30.1	-00.1	171	24.6	+02.1	S 20 55.9	-00.1
23	219	23.1	+00.6	S 23 28.2	+00.1	197	36.0	+01.9	S 22 30.0	+00.0	186	26.7	+02.2	S 20 55.8	+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 096° 095° 095° 095° 095° 095°  
Greenwich Culmination Time: 08:23

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 073° 073° 073° 073° 073° 073°  
Greenwich Culmination Time: 09:51

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 062° 062° 062° 062° 062° 062°  
Greenwich Culmination Time: 10:36

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	176	30.1	+00.0	S 15 50.7	-00.7	137	20.8	-00.2	S 01 24.3	-01.3	42	34.8	-34.4	N 22 56.7	+02.3
01	191	30.1	+00.0	S 15 50.0	-00.8	152	20.6	-00.1	S 01 23.0	-01.3	57	00.4	-34.5	N 22 59.0	+02.1
02	206	30.1	-00.1	S 15 49.2	-00.7	167	20.5	-00.2	S 01 21.7	-01.3	71	25.9	-34.5	N 23 01.1	+02.0
03	221	30.0	+00.0	S 15 48.5	-00.8	182	20.3	-00.2	S 01 20.4	-01.3	85	51.4	-34.6	N 23 03.1	+01.9
04	236	30.0	-00.1	S 15 47.7	-00.8	197	20.1	-00.2	S 01 19.1	-01.3	100	16.8	-34.7	N 23 05.0	+01.7
05	251	29.9	+00.0	S 15 46.9	-00.7	212	19.9	-00.2	S 01 17.8	-01.3	114	42.1	-34.7	N 23 06.7	+01.6
06	266	29.9	-00.1	S 15 46.2	-00.8	227	19.7	-00.2	S 01 16.5	-01.3	129	07.4	-34.8	N 23 08.3	+01.4
07	281	29.8	+00.0	S 15 45.4	-00.8	242	19.5	-00.1	S 01 15.2	-01.3	143	32.6	-34.8	N 23 09.7	+01.3
08	296	29.8	-00.1	S 15 44.6	-00.7	257	19.4	-00.2	S 01 13.9	-01.3	157	57.8	-35.0	N 23 11.0	+01.1
09	311	29.7	+00.0	S 15 43.9	-00.8	272	19.2	-00.2	S 01 12.6	-01.3	172	22.8	-35.0	N 23 12.1	+01.0
10	326	29.7	-00.1	S 15 43.1	-00.8	287	19.0	-00.2	S 01 11.3	-01.3	186	47.8	-35.0	N 23 13.1	+00.9
11	341	29.6	+00.0	S 15 42.3	-00.7	302	18.8	-00.2	S 01 10.0	-01.4	201	12.8	-35.1	N 23 14.0	+00.7
12	356	29.6	+00.0	S 15 41.6	-00.8	317	18.6	-00.1	S 01 08.6	-01.3	215	37.7	-35.2	N 23 14.7	+00.5
13	11	29.6	-00.1	S 15 40.8	-00.8	332	18.5	-00.2	S 01 07.3	-01.3	230	02.5	-35.2	N 23 15.2	+00.4
14	26	29.5	+00.0	S 15 40.0	-00.7	347	18.3	-00.2	S 01 06.0	-01.3	244	27.3	-35.3	N 23 15.6	+00.3
15	41	29.5	-00.1	S 15 39.3	-00.8	2	18.1	-00.2	S 01 04.7	-01.3	258	52.0	-35.3	N 23 15.9	+00.1
16	56	29.4	+00.0	S 15 38.5	-00.8	17	17.9	-00.2	S 01 03.4	-01.3	273	16.7	-35.4	N 23 16.0	-00.1
17	71	29.4	-00.1	S 15 37.7	-00.7	32	17.7	-00.1	S 01 02.1	-01.3	287	41.3	-35.4	N 23 15.9	-00.2
18	86	29.3	+00.0	S 15 37.0	-00.8	47	17.6	-00.2	S 01 00.8	-01.3	302	05.9	-35.5	N 23 15.7	-00.4
19	101	29.3	+00.0	S 15 36.2	-00.8	62	17.4	-00.2	S 00 59.5	-01.3	316	30.4	-35.5	N 23 15.3	-00.5
20	116	29.3	-00.1	S 15 35.4	-00.8	77	17.2	-00.2	S 00 58.2	-01.3	330	54.9	-35.5		

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	176 29.1	+00.0	S 15 32.3	-00.8	137 16.5	-00.2	S 00 52.9	-01.3	28 32.4	-35.7	N 23 11.3	-01.3	00
01	191 29.1	-00.1	S 15 31.5	-00.7	152 16.3	-00.1	S 00 51.6	-01.3	42 56.7	-35.8	N 23 10.0	-01.5	01
02	206 29.0	+00.0	S 15 30.8	-00.8	167 16.2	-00.2	S 00 50.3	-01.3	57 20.9	-35.8	N 23 08.5	-01.6	02
03	221 29.0	-00.1	S 15 30.0	-00.8	182 16.0	-00.2	S 00 49.0	-01.3	71 45.1	-35.8	N 23 06.9	-01.7	03
04	236 28.9	+00.0	S 15 29.2	-00.7	197 15.8	-00.2	S 00 47.7	-01.3	86 09.3	-35.9	N 23 05.2	-01.9	04
05	251 28.9	+00.0	S 15 28.5	-00.8	212 15.6	-00.1	S 00 46.4	-01.3	100 33.4	-35.9	N 23 03.3	-02.1	05
06	266 28.9	-00.1	S 15 27.7	-00.8	227 15.5	-00.2	S 00 45.1	-01.3	114 57.5	-35.9	N 23 01.2	-02.2	06
07	281 28.8	+00.0	S 15 26.9	-00.8	242 15.3	-00.2	S 00 43.8	-01.3	129 21.6	-36.0	N 22 59.0	-02.4	07
08	296 28.8	+00.0	S 15 26.1	-00.8	257 15.1	-00.2	S 00 42.5	-01.4	143 45.6	-36.0	N 22 56.6	-02.5	08
09	311 28.8	-00.1	S 15 25.3	-00.7	272 14.9	-00.1	S 00 41.1	-01.3	158 09.7	-36.0	N 22 54.1	-02.7	09
10	326 28.7	+00.0	S 15 24.6	-00.8	287 14.8	-00.2	S 00 39.8	-01.3	172 33.7	-36.0	N 22 51.4	-02.8	10
11	341 28.7	-00.1	S 15 23.8	-00.8	302 14.6	-00.2	S 00 38.5	-01.3	186 57.7	-36.1	N 22 48.6	-03.1	11
12	356 28.6	+00.0	S 15 23.0	-00.8	317 14.4	-00.2	S 00 37.2	-01.3	201 21.6	-36.0	N 22 45.5	-03.1	12
13	11 28.6	+00.0	S 15 22.2	-00.8	332 14.2	-00.1	S 00 35.9	-01.3	215 45.6	-36.1	N 22 42.4	-03.3	13
14	26 28.6	-00.1	S 15 21.5	-00.8	347 14.1	-00.2	S 00 34.6	-01.3	230 09.5	-36.1	N 22 39.1	-03.5	14
15	41 28.5	+00.0	S 15 20.7	-00.8	2 13.9	-00.2	S 00 33.3	-01.3	244 33.4	-36.1	N 22 35.6	-03.7	15
16	56 28.5	+00.0	S 15 19.9	-00.8	17 13.7	-00.2	S 00 32.0	-01.3	258 57.3	-36.1	N 22 31.9	-03.8	16
17	71 28.5	-00.1	S 15 19.1	-00.8	32 13.5	-00.1	S 00 30.7	-01.3	273 21.2	-36.1	N 22 28.1	-03.9	17
18	86 28.4	+00.0	S 15 18.3	-00.7	47 13.4	-00.2	S 00 29.4	-01.4	287 45.1	-36.1	N 22 24.2	-04.1	18
19	101 28.4	+00.0	S 15 17.6	-00.8	62 13.2	-00.2	S 00 28.0	-01.3	302 09.0	-36.1	N 22 20.1	-04.3	19
20	116 28.4	-00.1	S 15 16.8	-00.8	77 13.0	-00.1	S 00 26.7	-01.3	316 32.9	-36.2	N 22 15.8	-04.4	20
21	131 28.3	+00.0	S 15 16.0	-00.8	92 12.9	-00.2	S 00 25.4	-01.3	330 56.7	-36.1	N 22 11.4	-04.6	21
22	146 28.3	+00.0	S 15 15.2	-00.8	107 12.7	-00.2	S 00 24.1	-01.3	345 20.6	-36.1	N 22 06.8	-04.8	22
23	161 28.3	+00.0	S 15 14.4	-00.8	122 12.5	-00.2	S 00 22.8	-01.3	359 44.5	-36.1	N 22 02.0	-04.8	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°1 16'1 16°1 16'2 16°2 16'2	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°1 00'1 00°1 00'1 00°1 00'1	HP	58°9 59'1 59°2 59'4 59°5 59'6	HP	58°9 59'1 59°2 59'4 59°5 59'6						
SHA	040° 040° 039° 039° 039° 039°	SHA	001° 000° 000° 000° 000° 000°	SHA	251° 248° 246° 243° 240° 238°	SHA	251° 248° 246° 243° 240° 238°						
Greenwich Culmination Time: 12:14				Greenwich Culmination Time: 14:51				Greenwich Culmination Time: 23:01					

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	176 28.3	-00.1	S 15 13.6	-00.7	137 12.3	-00.1	S 00 21.5	-01.3	14 08.4	-36.2	N 21 57.2	-05.1	00
01	191 28.2	+00.0	S 15 12.9	-00.8	152 12.2	-00.2	S 00 20.2	-01.3	28 32.2	-36.1	N 21 52.1	-05.2	01
02	206 28.2	+00.0	S 15 12.1	-00.8	167 12.0	-00.2	S 00 18.9	-01.3	42 56.1	-36.1	N 21 46.9	-05.4	02
03	221 28.2	-00.1	S 15 11.3	-00.8	182 11.8	-00.1	S 00 17.6	-01.3	57 20.0	-36.1	N 21 41.5	-05.5	03
04	236 28.1	+00.0	S 15 10.5	-00.8	197 11.7	-00.2	S 00 16.3	-01.4	71 43.9	-36.1	N 21 36.0	-05.7	04
05	251 28.1	+00.0	S 15 09.7	-00.8	212 11.5	-00.2	S 00 14.9	-01.3	86 07.8	-36.0	N 21 30.3	-05.8	05
06	266 28.1	-00.1	S 15 08.9	-00.8	227 11.3	-00.1	S 00 13.6	-01.3	100 31.8	-36.1	N 21 24.5	-06.0	06
07	281 28.0	+00.0	S 15 08.1	-00.7	242 11.2	-00.2	S 00 12.3	-01.3	114 55.7	-36.1	N 21 18.5	-06.1	07
08	296 28.0	+00.0	S 15 07.4	-00.8	257 11.0	-00.2	S 00 11.0	-01.3	129 19.6	-36.0	N 21 12.4	-06.3	08
09	311 28.0	+00.0	S 15 06.6	-00.8	272 10.8	-00.1	S 00 09.7	-01.3	143 43.6	-36.0	N 21 06.1	-06.4	09
10	326 28.0	-00.1	S 15 05.8	-00.8	287 10.7	-00.2	S 00 08.4	-01.3	158 07.6	-36.0	N 20 59.7	-06.6	10
11	341 27.9	+00.0	S 15 05.0	-00.8	302 10.5	-00.2	S 00 07.1	-01.3	172 31.6	-36.0	N 20 53.1	-06.7	11
12	356 27.9	+00.0	S 15 04.2	-00.8	317 10.3	-00.1	S 00 05.8	-01.3	186 55.6	-35.9	N 20 46.4	-06.9	12
13	11 27.9	+00.0	S 15 03.4	-00.8	332 10.2	-00.2	S 00 04.5	-01.3	201 19.7	-35.9	N 20 39.5	-07.0	13
14	26 27.9	-00.1	S 15 02.6	-00.8	347 10.0	-00.2	S 00 03.2	-01.4	215 43.8	-35.9	N 20 32.5	-07.2	14
15	41 27.8	+00.0	S 15 01.8	-00.8	2 09.8	-00.1	S 00 01.8	-01.3	230 07.9	-35.9	N 20 25.3	-07.3	15
16	56 27.8	+00.0	S 15 01.0	-00.7	17 09.7	-00.2	S 00 00.5	-01.3	244 32.0	-35.8	N 20 18.0	-07.5	16
17	71 27.8	-00.1	S 15 00.3	-00.8	32 09.5	-00.2	N 00 00.8	+01.3	258 56.2	-35.9	N 20 10.5	-07.6	17
18	86 27.7	+00.0	S 14 59.5	-00.8	47 09.3	-00.1	N 00 02.1	+01.3	273 20.3	-35.7	N 20 02.9	-07.8	18
19	101 27.7	+00.0	S 14 58.7	-00.8	62 09.2	-00.2	N 00 03.4	+01.3	287 44.6	-35.8	N 19 55.1	-07.9	19
20	116 27.7	+00.0	S 14 57.9	-00.8	77 09.0	-00.2	N 00 04.7	+01.3	302 08.8	-35.7	N 19 47.2	-08.0	20
21	131 27.7	+00.0	S 14 57.1	-00.8	92 08.8	-00.1	N 00 06.0	+01.3	316 33.1	-35.7	N 19 39.2	-08.2	21
22	146 27.7	-00.1	S 14 56.3	-00.8	107 08.7	-00.2	N 00 07.3	+01.3	330 57.4	-35.6	N 19 31.0	-08.3	22
23	161 27.6	+00.0	S 14 55.5	-00.8	122 08.5	-00.2	N 00 08.6	+01.3	345 21.8	-35.6	N 19 22.7	-08.5	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°1 16'1 16°1 16'2 16°2 16'2	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°1 00'1 00°1 00'1 00°1 00'1	HP	58°9 59'1 59°2 59'4 59°5 59'6	HP	58°9 59'1 59°2 59'4 59°5 59'6						
SHA	039° 039° 038° 038° 038° 038°	SHA	360° 359° 359° 359° 359° 359°	SHA	235° 233° 230° 228° 225° 222°	SHA	235° 233° 230° 228° 225° 222°						
Greenwich Culmination Time: 12:14				Greenwich Culmination Time: 14:51				Greenwich Culmination Time: -1:00					

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	233 40.4	+00.6	S 23 20.7	+00.2	210 21.3	+01.9	S 22 34.0	-00.1	198 52.8	+02.1	S 20 59.3	+00.0	00
01	248 41.0	+00.6	S 23 20.9	+00.1	225 23.2	+01.9	S 22 33.9	+00.0	213 54.9	+02.2	S 20 59.3	-00.1	01
02	263 41.6	+00.7	S 23 21.0	+00.1	240 25.1	+01.9	S 22 33.9	+00.1	228 57.1	+02.2	S 20 59.2	+00.0	02
03	278 42.3	+00.6	S 23 21.1	+00.1	255 27.0	+01.9	S 22 33.8	+00.0	243 59.3	+02.1	S 20 59.2	-00.1	03
04	293 42.9	+00.6	S 23 21.2	+00.1	270 28.9	+01.9	S 22 33.8	-00.1	259 01.4	+02.2	S 20 59.1	+00.0	04
05	308 43.5	+00.6	S 23 21.3	+00.1	285 30.8	+01.9	S 22 33.7	+00.0	274 03.6	+02.2	S 20 59.1	-00.1	05
06	323 44.1	+00.6	S 23 21.4	+00.2	300 32.7	+01.9	S 22 33.7	-00.1	289 05.8	+02.1	S 20 59.0	+00.0	06
07	338 44.7	+00.6	S 23 21.6	+00.1	315 34.6	+01.9	S 22 33.6	-00.1	304 07.9	+02.2	S 20 59.0	-00.1	07
08	353 45.3	+00.6	S 23 21.7	+00.1	330 36.5	+01.9	S 22 33.5	+00.0	319 10.1	+02.2	S 20 58.9	+00.0	08
09	8 45.9	+00.6	S 23 21.8	+00.1	345 38.4	+01.8	S 22 33.5	-00.1	334 12.3	+02.1	S 20 58.9	-00.1	09
10	23 46.5	+00.6	S 23 21.9	+00.1	0 40.2	+01.9	S 22 33.4	+00.0	349 14.4	+02.2	S 20 58.8	+00.0	10
11	38 47.1	+00.6	S 23 22.0	+00.1	15 42.1	+01.9	S 22 33.4	-00.1	4 16.6	+02.2	S 20 58.8	-00.1	11
12	53 47.7	+00.6	S 23 22.1	+00.1	30 44.0	+01.9	S 22 33.3	+00.0	19 18.8	+02.1	S 20 58.7	+00.0	12
13	68 48.3	+00.6	S 23 22.2	+00.2	45 45.9	+01.9	S 22 33.3	-00.1	34 20.9	+02.2	S 20 58.7	-00.1	13
14	83 48.9	+00.6	S 23 22.4	+00.1	60 47.8	+01.9	S 22 33.2	+00.0	49 23.1	+02.2	S 20 58.6	+00.0	14
15	98 49.5	+00.6	S 23 22.5	+00.1	75 49.7	+01.9	S 22 33.2	-00.1	64 25.3	+02.1	S 20 58.6	-00.1	15
16	113 50.1	+00.6	S 23 22.6	+00.1	90 51.6	+01.9	S 22 33.1	-00.1	79 27.4	+02.2	S 20 58.5	+00.0	16
17	128 50.7	+00.6	S 23 22.7	+00.1	105 53.5	+01.9	S 22 33.0	+00.0	94 29.6	+02.2	S 20 58.5	-00.1	17
18	143 51.3	+00.6	S 23 22.8	+00.1	120 55.4	+01.9	S 22 33.0	-00.1	109 31.8	+02.1	S 20 58.4	+00.0	18
19	158 51.9	+00.6	S 23 22.9	+00.1	135 57.3	+01.9	S 22 32.9	+00.0					





Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 58%.

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: 62%.

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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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 030° 030° 030° 029° 029° 029°
Greenwich Culmination Time: 12:14

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 033° 033° 033° 032° 032° 032°
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 090° 089° 089° 089° 089° 089°
Greenwich Culmination Time: 08:15

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 092° 092° 092° 091° 091° 091°
Greenwich Culmination Time: 08:18

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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 026° 026° 026° 026° 025° 025°
Greenwich Culmination Time: 12:13

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 087° 086° 086° 086° 086° 086°
Greenwich Culmination Time: 08:11

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°2 16°2 16°2 16°2 16°2 16°2
HP 00°2 00°2 00°2 00°2 00°2 00°2
SHA 029° 029° 029° 029° 028° 028°
Greenwich Culmination Time: 12:13

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 089° 089° 089° 088° 088° 088°
Greenwich Culmination Time: 08:14

Table for Feb 19 containing Sun, Venus, Moon, Mars, and Jupiter data. Includes columns for UT, GHA, ddGHA, Dec, and dDec, with sub-columns for different times of day (02, 06, 10, 14, 18, 22). Includes Greenwich Culmination Time: 12:13 for Sun and 14:53 for Venus.

Table for Feb 20 containing Sun, Venus, Moon, Mars, Jupiter, and Saturn data. Includes columns for UT, GHA, ddGHA, Dec, and dDec, with sub-columns for different times of day (02, 06, 10, 14, 18, 22). Includes Greenwich Culmination Time: 12:13 for Sun and 14:53 for Venus.

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 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 022° 022° 022° 022° 022° 022° Greenwich Culmination Time: 12:13

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 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 025° 025° 025° 025° 025° 025° Greenwich Culmination Time: 12:13

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 084° 083° 083° 083° 083° 083° Greenwich Culmination Time: 08:07

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 086° 086° 086° 085° 085° 085° Greenwich Culmination Time: 08:10

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

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. Columns include 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 085° 085° 085° 085° 085° 084°
Greenwich Culmination Time: 08:09

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 02%.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°2 00°2 00°2 00°2 00°2 00°2
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. Columns include 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 084° 084° 084° 084° 084° 084°
Greenwich Culmination Time: 08:08

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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.

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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°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 020° 020° 020° 020° 020° 020°
Greenwich Culmination Time: 12:12

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 082° 082° 082° 082° 081°
Greenwich Culmination Time: 08:06

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°2 00°2 00°2 00°2 00°2 00°2
SHA 019° 019° 019° 019° 019° 019°
Greenwich Culmination Time: 12:12

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° 081° 081° 081° 081°
Greenwich Culmination Time: 08:05

Table with columns for UT, Sun, Venus, Moon, and Mars/Jupiter/Saturn data for March 4, 2020. Includes celestial coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and Mars/Jupiter/Saturn data for March 1, 2020. Includes celestial coordinates and Greenwich Culmination Time.

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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 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: 12:12

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°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 079° 079° 079° 079° 079° 078°
Greenwich Culmination Time: 08:02

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 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°2 00°2 00°2 00°2 00°2 00°2
SHA 016° 016° 015° 015° 015° 015°
Greenwich Culmination Time: 12:11

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°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 078° 078° 078° 078° 078° 078°
Greenwich Culmination Time: 08:01

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°0 00°0 00°0 00°0 00°0 00°0
SHA 011° 011° 011° 011° 011° 010°
Greenwich Culmination Time: 12:10

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° 074° 074° 074° 074° 074°
Greenwich Culmination Time: 07:56

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°0 00°0 00°0 00°0 00°0 00°0
SHA 014° 014° 014° 013° 013° 013°
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°0 00°0 00°0 00°0 00°0 00°0
SHA 077° 077° 077° 076° 076° 076°
Greenwich Culmination Time: 07:59



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°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 007° 007° 007° 007° 007° 007°
Greenwich Culmination Time: 12:09

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 067° 067° 067° 067° 067° 067°
Greenwich Culmination Time: 08:11

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°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 010° 010° 010° 010° 010° 009°
Greenwich Culmination Time: 12:10

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°0 00°0 00°0 00°0 00°0 00°0
SHA 074° 074° 074° 073° 073° 073°
Greenwich Culmination Time: 07:55

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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°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 009° 009° 009° 009° 009° 008°
Greenwich Culmination Time: 12:10

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°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 008° 008° 008° 008° 008° 008°
Greenwich Culmination Time: 12:09

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°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 073° 073° 073° 073° 073° 072°
Greenwich Culmination Time: 07:54

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°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: 07:53

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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 02-22. 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 02-22. 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 02-22. 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 02-22. 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 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.



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°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 356° 356° 356° 356° 356° 356°
Greenwich Culmination Time: 12:06

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 063° 062° 062° 062° 062° 062°
Greenwich Culmination Time: 12:41

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 359° 359° 359° 359° 359° 358°
Greenwich Culmination Time: 12:07

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 065° 065° 065° 064° 064° 064°
Greenwich Culmination Time: 07:44

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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes RA, Dec, Az, and El 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 064° 064° 064° 064° 063° 063°
Greenwich Culmination Time: 12:06

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA, Dec, Az, and El 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 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 RA, Dec, Az, and El 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 063° 063° 063° 063° 063° 063°
Greenwich Culmination Time: 12:06

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show planetary data for Sun, Venus, and Moon. Includes sub-tables for UT 02, 06, 10, 14, 18, 22.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show planetary data for Sun, Venus, and Moon. Includes sub-tables for UT 02, 06, 10, 14, 18, 22.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show planetary data for Mars, Jupiter, and Saturn. Includes sub-tables for UT 02, 06, 10, 14, 18, 22.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show planetary data for Mars, Jupiter, and Saturn. Includes sub-tables for UT 02, 06, 10, 14, 18, 22.

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

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° 354° 354° 354° 354° 354°
Greenwich Culmination Time: 12:05

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

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°2 00°2 00°2 00°2 00°2 00°2
SHA 354° 354° 353° 353° 353° 353°
Greenwich Culmination Time: 12:05

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

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 061° 061° 061° 061° 060°
Greenwich Culmination Time: 07:39

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

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 060° 060° 060° 060° 060°
Greenwich Culmination Time: 07:38



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 for Sun, Venus, and Moon on 2020 April 5. Columns include UT, Planet, GHA, ddGHA, Dec, dDec, and UT. Data rows 00-23.

Table with 14 columns (UT 02-18) for Sun, Venus, and Moon. Includes SD, HP, and SHA data with Greenwich Culmination Time.

Table for Mars, Jupiter, and Saturn on 2020 April 5. Columns include UT, Planet, GHA, ddGHA, Dec, dDec, and UT. Data rows 00-23.

Table with 14 columns (UT 02-18) for Mars, Jupiter, and Saturn. Includes SD, HP, and SHA data with Greenwich Culmination Time.

Table for Sun, Venus, and Moon on 2020 April 2. Columns include UT, Planet, GHA, ddGHA, Dec, dDec, and UT. Data rows 00-23.

Table with 14 columns (UT 02-18) for Sun, Venus, and Moon. Includes SD, HP, and SHA data with Greenwich Culmination Time.

Table for Mars, Jupiter, and Saturn on 2020 April 2. Columns include UT, Planet, GHA, ddGHA, Dec, dDec, and UT. Data rows 00-23.

Table with 14 columns (UT 02-18) for Mars, Jupiter, and Saturn. Includes SD, HP, and SHA data with Greenwich Culmination Time.

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

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° 342° 341° 341° 341°
Greenwich Culmination Time: 12:01

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

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° 344° 344° 344° 344° 344°
Greenwich Culmination Time: 12:02

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

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 063° 063° 063° 063° 063° 063°
Greenwich Culmination Time: 06:37

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

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 063° 063° 063° 063° 063° 063°
Greenwich Culmination Time: 06:47

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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 celestial body.

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° 344° 343° 343° 343° 343°
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 celestial body.

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 052° 052° 052° 052° 052° 052°
Greenwich Culmination Time: 07:27

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

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 RA, Dec, and magnitude data for each celestial body.

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 052° 051° 051° 051° 051° 051°
Greenwich Culmination Time: 07:26

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: 70%.

UT 02 06 10 14 18 22
SD 16°0 15'9 15°9 15'9 15°9 15'9
HP 00°1 00'1 00°1 00'1 00°1 00'1
SHA 338° 338° 338° 338° 338° 337°
Greenwich Culmination Time: 12:00

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: 59%.

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 341° 341° 341° 340° 340° 340°
Greenwich Culmination Time: 12:01

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 048° 048° 048° 048° 047°
Greenwich Culmination Time: 07:20

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 050° 050° 050° 050° 050° 050°
Greenwich Culmination Time: 07:24

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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 340° 340° 340° 340° 339° 339°
Greenwich Culmination Time: 12:00

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°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 049° 049° 049° 049° 049° 049°
Greenwich Culmination Time: 07:23

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 339° 339° 339° 339° 338° 338°
Greenwich Culmination Time: 12:00

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°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 062° 062° 062° 062° 062° 062°
Greenwich Culmination Time: 06:30



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 334° 334° 334° 334° 334° 334°
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°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 062° 062° 062° 062° 062° 062°
Greenwich Culmination Time: 06:09

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 337° 337° 337° 337° 337° 336°
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°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 062° 062° 062° 062° 062° 062°
Greenwich Culmination Time: 06:19



Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and astronomical data for the Sun, Venus, and Moon 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 331\* 331\* 330\* 330\* 330\* 330\*
Greenwich Culmination Time: 11:58

Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and astronomical data for the Sun, Venus, and Moon 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 334\* 333\* 333\* 333\* 333\* 333\*
Greenwich Culmination Time: 11:59

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and astronomical data for Mars, Jupiter, and Saturn for each hour of the day.

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 062\* 062\* 062\* 062\* 062\* 062\*
Greenwich Culmination Time: 05:54

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and astronomical data for Mars, Jupiter, and Saturn for each hour of the day.

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 062\* 062\* 062\* 062\* 062\* 062\*
Greenwich Culmination Time: 06:05

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 11:59.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 11:58.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 07:14.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 07:13.

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Table with columns UT, Sun, Venus, Moon, UT. Includes astronomical data for Sun, Venus, and Moon for the 24 hours of Saturday, April 25, 2020.

Table with columns UT, Sun, Venus, Moon, UT. Includes astronomical data for Sun, Venus, and Moon for the 24 hours of Wednesday, April 22, 2020.

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 327° 327° 327° 327° 327° 327°
Greenwich Culmination Time: 11:57

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 330° 330° 329° 329° 329° 329°
Greenwich Culmination Time: 11:58

Table with columns UT, Mars, Jupiter, Saturn, UT. Includes astronomical data for Mars, Jupiter, and Saturn for the 24 hours of Saturday, April 25, 2020.

Table with columns UT, Mars, Jupiter, Saturn, UT. Includes astronomical data for Mars, Jupiter, and Saturn for the 24 hours of Wednesday, April 22, 2020.

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°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 329° 329° 329° 328° 328° 328°
Greenwich Culmination Time: 11:58

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°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° 327° 327° 327°
Greenwich Culmination Time: 11:58

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 041° 041° 041° 041° 040° 040°
Greenwich Culmination Time: 07:09

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°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 040° 040° 040° 040° 040° 040°
Greenwich Culmination Time: 07:08



Table for Sun, Venus, Moon on 2020 April 27. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and A:14% for Moon. Rows 00-23 show celestial coordinates and culmination times.

Table for Sun, Venus, Moon on 2020 April 28. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and A:17% for Moon. Rows 00-23 show celestial coordinates and culmination times.

Table for Mars, Jupiter, Saturn on 2020 April 27. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and A:14% for Saturn. Rows 00-23 show celestial coordinates and culmination times.

Table for Mars, Jupiter, Saturn on 2020 April 28. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and A:17% for Saturn. Rows 00-23 show celestial coordinates and culmination times.



Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for SD, HP, SHA.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for SD, HP, SHA.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for SD, HP, SHA.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for SD, HP, SHA.

Table with columns for Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each celestial body from 00:00 to 23:00.

Table with columns for Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each celestial body from 00:00 to 23:00.

Table with columns for Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each celestial body from 00:00 to 23:00.

Table with columns for Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each celestial body from 00:00 to 23:00.

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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 02, 06, 10, 14, 18, 22. Includes transit times and Greenwich Culmination Time.

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 02, 06, 10, 14, 18, 22. Includes transit times 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 02, 06, 10, 14, 18, 22. Includes transit times and Greenwich Culmination Time.

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 02, 06, 10, 14, 18, 22. Includes transit times and Greenwich Culmination Time.

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Table for Sun, Venus, and Moon on 2020 May 5. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show celestial coordinates for each body.

Summary table for Sun, Venus, and Moon on 2020 May 5. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show summary data for each body.

Table for Mars, Jupiter, and Saturn on 2020 May 5. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show celestial coordinates for each body.

Summary table for Mars, Jupiter, and Saturn on 2020 May 5. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show summary data for each body.

Table for Sun, Venus, and Moon on 2020 May 6. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show celestial coordinates for each body.

Summary table for Sun, Venus, and Moon on 2020 May 6. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show summary data for each body.

Table for Mars, Jupiter, and Saturn on 2020 May 6. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show celestial coordinates for each body.

Summary table for Mars, Jupiter, and Saturn on 2020 May 6. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Rows 00-23 show summary data for each body.

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.



Table for 2020 May 15 Friday showing astronomical data for Sun, Venus, Moon, and Mars. Includes columns for UT, GHA, ddGHA, Dec, dDec, and A: 79% for Moon. Rows are numbered 00 to 23.

Table for 2020 May 12 Tuesday showing astronomical data for Sun, Venus, Moon, and Mars. Includes columns for UT, GHA, ddGHA, Dec, dDec, and A: 69% for Moon. Rows are numbered 00 to 23.

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Table with columns UT, Sun, Venus, Moon, UT. Rows for UT 00 to 23, showing GHA, ddGHA, Dec, dDec 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 304° 304° 303° 303° 303° 303°
Greenwich Culmination Time: 11:56

Table with columns UT, Mars, Jupiter, Saturn, UT. Rows for UT 00 to 23, showing 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°5' 00°5' 00°5' 00°5' 00°5' 00°5'
SHA 280° 280° 280° 280° 280° 332°
Greenwich Culmination Time: 13:29

Table with columns UT, Sun, Venus, Moon, UT. Rows for UT 00 to 23, showing GHA, ddGHA, Dec, dDec 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 307° 306° 306° 306° 306° 306°
Greenwich Culmination Time: 11:56

Table with columns UT, Mars, Jupiter, Saturn, UT. Rows for UT 00 to 23, showing 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°4' 00°4' 00°4' 00°4' 00°4' 00°4'
SHA 023° 023° 023° 023° 023° 023°
Greenwich Culmination Time: 16:37

Table with 5 columns: UT, Sun, Venus, Moon (A: 85%), UT. Rows 00-23 showing astronomical data for Sunday, May 17, 2020.

Table with 5 columns: UT, Sun, Venus, Moon (A: 87%), UT. Rows 00-23 showing astronomical data for Monday, May 18, 2020.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23 showing astronomical data for Sunday, May 17, 2020.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23 showing astronomical data for Monday, May 18, 2020.

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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.

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Table for Sun, Venus, Moon observations on May 21, 2020. Columns include UT, GHA, ddGHA, Dec, dDec for each celestial body, and UT. Includes Greenwich Culmination Time: 11:56 for Sun, 13:18 for Venus, and 11:02 for Moon.

Table for Sun, Venus, Moon observations on May 22, 2020. Columns include UT, GHA, ddGHA, Dec, dDec for each celestial body, and UT. Includes Greenwich Culmination Time: 11:56 for Sun, 13:13 for Venus, and 11:47 for Moon.

Summary table for Sun, Venus, Moon on May 21, 2020. Columns: UT, SD, HP, SHA, Greenwich Culmination Time for each body.

Summary table for Sun, Venus, Moon on May 22, 2020. Columns: UT, SD, HP, SHA, Greenwich Culmination Time for each body.

Table for Mars, Jupiter, Saturn observations on May 21, 2020. Columns include UT, GHA, ddGHA, Dec, dDec for each celestial body, and UT. Includes Greenwich Culmination Time: 08:34 for Mars, 04:00 for Jupiter, and 04:19 for Saturn.

Table for Mars, Jupiter, Saturn observations on May 22, 2020. Columns include UT, GHA, ddGHA, Dec, dDec for each celestial body, and UT. Includes Greenwich Culmination Time: 06:33 for Mars, 03:56 for Jupiter, and 04:15 for Saturn.

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Table with 12 columns (Sun, Venus, Moon) and 24 rows (UT 00-23). Columns include GHA, ddGHA, Dec, dDec for each celestial body.

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 296° 295° 295° 295° 295° 295°
Greenwich Culmination Time: 11:57

Table with 12 columns (Sun, Venus, Moon) and 24 rows (UT 00-23). Columns include GHA, ddGHA, Dec, dDec for each celestial body.

UT 02 06 10 14 18 22
SD 15°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°5' 00°5' 00°5' 00°5' 00°5' 00°5'
SHA 299° 298° 298° 298° 298° 298°
Greenwich Culmination Time: 11:56

Table with 12 columns (Mars, Jupiter, Saturn) and 24 rows (UT 00-23). Columns include GHA, ddGHA, Dec, dDec for each celestial body.

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° 018° 018°
Greenwich Culmination Time: 06:26

Table with 12 columns (Mars, Jupiter, Saturn) and 24 rows (UT 00-23). Columns include GHA, ddGHA, Dec, dDec for each celestial body.

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 061° 061° 061° 061° 061° 061°
Greenwich Culmination Time: 03:47

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Table for Sun, Venus, and Moon positions on May 25. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 09%. Rows 00-23 show hourly data for each planet.

Table for Mars, Jupiter, and Saturn positions on May 25. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 13%. Rows 00-23 show hourly data for each planet.

Table for Sun, Venus, and Moon positions on May 26. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 13%. Rows 00-23 show hourly data for each planet.

Table for Mars, Jupiter, and Saturn positions on May 26. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 13%. Rows 00-23 show hourly data for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on May 31, 2020, 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 May 28, 2020, 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 May 31, 2020, 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 May 28, 2020, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for 24 hours and Greenwich Culmination Time: 11:57.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for 24 hours and Greenwich Culmination Time: 11:57.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for 24 hours and Greenwich Culmination Time: 06:24.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for 24 hours and Greenwich Culmination Time: 06:22.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for UT 02-22. Includes Greenwich Culmination Time: 11:58.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for UT 02-22. Includes Greenwich Culmination Time: 11:57.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for UT 02-22. Includes Greenwich Culmination Time: 06:15.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes sub-headers for GHA, ddGHA, Dec, dDec and a sub-table for UT 02-22. Includes Greenwich Culmination Time: 06:19.

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Table with 15 columns (UT, Sun, Venus, Moon, UT) for June 10. Includes columns for GHA, ddGHA, Dec, dDec and a small table at the bottom with dates 02, 06, 10, 14, 18, 22.

Table with 15 columns (UT, Sun, Venus, Moon, UT) for June 11. Includes columns for GHA, ddGHA, Dec, dDec and a small table at the bottom with dates 02, 06, 10, 14, 18, 22.

Table with 15 columns (UT, Mars, Jupiter, Saturn, UT) for June 10. Includes columns for GHA, ddGHA, Dec, dDec and a small table at the bottom with dates 02, 06, 10, 14, 18, 22.

Table with 15 columns (UT, Mars, Jupiter, Saturn, UT) for June 11. Includes columns for GHA, ddGHA, Dec, dDec and a small table at the bottom with dates 02, 06, 10, 14, 18, 22.



Table with columns for UT, Sun, Venus, Moon, and UT. Includes sub-columns for GHA, ddGHA, Dec, dDec and a small table for UT 02-22. Includes Greenwich Culmination Time: 12:00.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes sub-columns for GHA, ddGHA, Dec, dDec and a small table for UT 02-22. Includes Greenwich Culmination Time: 12:00.

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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 271° 271° 271° 270° 270° 270°
Greenwich Culmination Time: 12:01

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 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 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 063° 063° 063° 063° 063° 063°
Greenwich Culmination Time: 01:54

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 062° 062° 062° 062° 063° 063°
Greenwich Culmination Time: 02:07

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Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for these planets from June 00 to June 23, including Right Ascension, Declination, and other coordinates.

Table with columns for UT, Sun, Venus, Moon, and UT. It provides specific astronomical details and Greenwich Culmination Times for the Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists astronomical data for these planets from June 00 to June 23, including Right Ascension, Declination, and other coordinates.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It provides specific astronomical details and Greenwich Culmination Times for Mars, Jupiter, and Saturn.

Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for these planets from June 00 to June 23, including Right Ascension, Declination, and other coordinates.

Table with columns for UT, Sun, Venus, Moon, and UT. It provides specific astronomical details and Greenwich Culmination Times for the Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists astronomical data for these planets from June 00 to June 23, including Right Ascension, Declination, and other coordinates.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It provides specific astronomical details and Greenwich Culmination Times for Mars, Jupiter, and Saturn.

Table with columns for UT, Sun, Venus, Moon (A: 11%), and UT. Rows 00-23. Sub-tables for UT 02, 06, 10, 14, 18, 22 showing SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon (A: 00%), and UT. Rows 00-23. Sub-tables for UT 02, 06, 10, 14, 18, 22 showing SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Sub-tables for UT 02, 06, 10, 14, 18, 22 showing SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Sub-tables for UT 02, 06, 10, 14, 18, 22 showing SD, HP, and SHA coordinates and Greenwich Culmination Time.

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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Times.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Times.

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, 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, 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, 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, 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, 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 02, 06, 10, 14, 18, 22. 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 02, 06, 10, 14, 18, 22. 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 02, 06, 10, 14, 18, 22. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

Table with columns for UT, Sun, Venus, Moon (A: 39%), and Mars, Jupiter, Saturn. Each planet section contains columns for GHA, ddGHA, Dec, and dDec, followed by numerical data for each UT from 00 to 23. Includes Greenwich Culmination Time information.

Table with columns for UT, Sun, Venus, Moon (A: 29%), and Mars, Jupiter, Saturn. Each planet section contains columns for GHA, ddGHA, Dec, and dDec, followed by numerical data for each UT from 00 to 23. Includes Greenwich Culmination Time information.

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UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 04.6	-00.1	N 23 09.2	-00.2	213 55.8	+02.0	N 17 17.8	-00.1	68 20.4	-30.7	S 07 30.3	+13.9	00
01	194 04.5	-00.1	N 23 09.0	-00.1	228 57.8	+01.9	N 17 17.7	-00.1	82 49.7	-30.7	S 07 44.2	+13.8	01
02	209 04.4	-00.2	N 23 08.9	-00.2	243 59.7	+02.0	N 17 17.6	-00.1	97 19.0	-30.7	S 07 58.0	+13.8	02
03	224 04.2	-00.1	N 23 08.7	-00.2	259 01.7	+02.0	N 17 17.5	-00.1	111 48.3	-30.8	S 08 11.8	+13.8	03
04	239 04.1	-00.1	N 23 08.5	-00.1	274 03.7	+02.0	N 17 17.4	-00.1	126 17.5	-30.8	S 08 25.6	+13.7	04
05	254 04.0	-00.1	N 23 08.4	-00.2	289 05.7	+01.9	N 17 17.3	-00.1	140 46.7	-30.8	S 08 39.3	+13.6	05
06	269 03.9	-00.1	N 23 08.2	-00.1	304 07.6	+02.0	N 17 17.2	-00.1	155 15.9	-30.9	S 08 52.9	+13.6	06
07	284 03.8	-00.2	N 23 08.1	-00.2	319 09.6	+01.9	N 17 17.1	-00.1	169 45.0	-31.0	S 09 06.5	+13.6	07
08	299 03.6	-00.1	N 23 07.9	-00.2	334 11.5	+02.0	N 17 17.0	-00.2	184 14.0	-31.0	S 09 20.1	+13.4	08
09	314 03.5	-00.1	N 23 07.7	-00.1	349 13.5	+01.9	N 17 16.8	-00.1	198 43.0	-31.0	S 09 33.5	+13.5	09
10	329 03.4	-00.1	N 23 07.6	-00.2	4 15.4	+02.0	N 17 16.7	-00.1	213 12.0	-31.1	S 09 47.0	+13.4	10
11	344 03.3	-00.1	N 23 07.4	-00.2	19 17.4	+01.9	N 17 16.6	-00.1	227 40.9	-31.1	S 10 00.4	+13.3	11
12	359 03.2	-00.2	N 23 07.2	-00.1	34 19.3	+02.0	N 17 16.5	-00.1	242 09.8	-31.2	S 10 13.7	+13.3	12
13	14 03.0	-00.1	N 23 07.1	-00.2	49 21.3	+01.9	N 17 16.4	+00.0	256 38.6	-31.2	S 10 27.0	+13.2	13
14	29 02.9	-00.1	N 23 06.9	-00.1	64 23.2	+02.0	N 17 16.4	-00.1	271 07.4	-31.3	S 10 40.2	+13.1	14
15	44 02.8	-00.1	N 23 06.8	-00.2	79 25.2	+01.9	N 17 16.3	-00.1	285 36.1	-31.3	S 10 53.3	+13.1	15
16	59 02.7	-00.2	N 23 06.6	-00.2	94 27.1	+01.9	N 17 16.2	-00.1	300 04.8	-31.3	S 11 06.4	+13.1	16
17	74 02.5	-00.1	N 23 06.4	-00.1	109 29.0	+01.9	N 17 16.1	-00.1	314 33.5	-31.4	S 11 19.5	+12.9	17
18	89 02.4	-00.1	N 23 06.3	-00.2	124 30.9	+01.9	N 17 16.0	-00.1	329 02.1	-31.5	S 11 32.4	+12.9	18
19	104 02.3	-00.1	N 23 06.1	-00.2	139 32.8	+02.0	N 17 15.9	-00.1	343 30.6	-31.5	S 11 45.3	+12.9	19
20	119 02.2	-00.1	N 23 05.9	-00.2	154 34.8	+01.9	N 17 15.8	-00.1	357 59.1	-31.6	S 11 58.2	+12.7	20
21	134 02.1	-00.2	N 23 05.7	-00.1	169 36.7	+01.9	N 17 15.7	-00.1	12 27.5	-31.6	S 12 10.9	+12.7	21
22	149 01.9	-00.1	N 23 05.6	-00.2	184 38.6	+01.9	N 17 15.6	-00.1	26 55.9	-31.7	S 12 23.6	+12.6	22
23	164 01.8	-00.1	N 23 05.4	-00.2	199 40.5	+01.9	N 17 15.5	+00.0	41 24.2	-31.7	S 12 36.2	+12.6	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 260° 260° 260° 260° 260° 260°  
Greenwich Culmination Time: 12:03

UT 02 06 10 14 18 22  
SD 00°4' 00°4' 00°4' 00°4' 00°4' 00°4'  
HP 00°4' 00°4' 00°4' 00°4' 00°4' 00°4'  
SHA 295° 295° 295° 295° 295° 295°  
Greenwich Culmination Time: 09:43

UT 02 06 10 14 18 22  
SD 16°2' 16°2' 16°2' 16°2' 16°2' 16°2'  
HP 59°4' 59°4' 59°4' 59°4' 59°4' 59°4'  
SHA 149° 146° 144° 142° 140° 138°  
Greenwich Culmination Time: 20:08

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 01.7	-00.1	N 23 05.2	-00.1	214 42.4	+01.9	N 17 15.5	-00.1	55 52.5	-31.8	S 12 48.8	+12.4	00
01	194 01.6	-00.1	N 23 05.1	-00.2	229 44.3	+01.9	N 17 15.4	-00.1	70 20.7	-31.8	S 13 01.2	+12.4	01
02	209 01.5	-00.1	N 23 04.9	-00.2	244 46.2	+01.9	N 17 15.3	-00.1	84 48.9	-31.9	S 13 13.6	+12.4	02
03	224 01.4	-00.2	N 23 04.7	-00.2	259 48.1	+01.9	N 17 15.2	-00.1	99 17.0	-32.0	S 13 26.0	+12.2	03
04	239 01.2	-00.1	N 23 04.5	-00.1	274 50.0	+01.8	N 17 15.1	+00.0	113 45.0	-32.0	S 13 38.2	+12.2	04
05	254 01.1	-00.1	N 23 04.4	-00.2	289 51.8	+01.9	N 17 15.1	-00.1	128 13.0	-32.0	S 13 50.4	+12.0	05
06	269 01.0	-00.1	N 23 04.2	-00.2	304 53.7	+01.9	N 17 15.0	-00.1	142 41.0	-32.1	S 14 02.4	+12.0	06
07	284 00.9	-00.1	N 23 04.0	-00.2	319 55.6	+01.9	N 17 14.9	-00.1	157 08.9	-32.2	S 14 14.4	+11.9	07
08	299 00.8	-00.2	N 23 03.8	-00.1	334 57.5	+01.8	N 17 14.8	+00.0	171 36.7	-32.2	S 14 26.3	+11.9	08
09	314 00.6	-00.1	N 23 03.7	-00.2	349 59.3	+01.9	N 17 14.8	-00.1	186 04.5	-32.3	S 14 38.2	+11.7	09
10	329 00.5	-00.1	N 23 03.5	-00.2	5 01.2	+01.9	N 17 14.7	-00.1	200 32.2	-32.4	S 14 49.9	+11.6	10
11	344 00.4	-00.1	N 23 03.3	-00.2	20 03.1	+01.8	N 17 14.6	-00.1	214 59.8	-32.4	S 15 01.5	+11.6	11
12	359 00.3	-00.1	N 23 03.1	-00.2	35 04.9	+01.9	N 17 14.5	+00.0	229 27.4	-32.4	S 15 13.1	+11.5	12
13	14 00.2	-00.2	N 23 02.9	-00.2	50 06.8	+01.8	N 17 14.5	-00.1	243 55.0	-32.5	S 15 24.6	+11.3	13
14	29 00.0	-00.1	N 23 02.7	-00.1	65 08.6	+01.9	N 17 14.4	-00.1	258 22.5	-32.6	S 15 35.9	+11.3	14
15	43 59.9	-00.1	N 23 02.6	-00.2	80 10.5	+01.8	N 17 14.3	+00.0	272 49.9	-32.6	S 15 47.2	+11.2	15
16	58 59.8	-00.1	N 23 02.4	-00.2	95 12.3	+01.9	N 17 14.3	-00.1	287 17.3	-32.7	S 15 58.4	+11.1	16
17	73 59.7	-00.1	N 23 02.2	-00.2	110 14.2	+01.8	N 17 14.2	+00.0	301 44.6	-32.8	S 16 09.5	+11.0	17
18	88 59.6	-00.1	N 23 02.0	-00.2	125 16.0	+01.9	N 17 14.2	+00.0	316 11.8	-32.8	S 16 20.5	+10.8	18
19	103 59.5	-00.2	N 23 01.8	-00.2	140 17.9	+01.8	N 17 14.1	-00.1	330 39.0	-32.9	S 16 31.3	+10.8	19
20	118 59.3	-00.1	N 23 01.6	-00.1	155 19.7	+01.8	N 17 14.0	+00.0	345 06.1	-32.9	S 16 42.1	+10.7	20
21	133 59.2	-00.1	N 23 01.5	-00.2	170 21.5	+01.9	N 17 14.0	-00.1	359 33.2	-33.0	S 16 52.8	+10.6	21
22	148 59.1	-00.1	N 23 01.3	-00.2	185 23.4	+01.8	N 17 13.9	+00.0	14 00.2	-33.0	S 17 03.4	+10.5	22
23	163 59.0	-00.1	N 23 01.1	-00.2	200 25.2	+01.8	N 17 13.9	-00.1	28 27.2	-33.1	S 17 13.9	+10.3	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 259° 259° 259° 259° 259° 259°  
Greenwich Culmination Time: 12:03

UT 02 06 10 14 18 22  
SD 00°4' 00°4' 00°4' 00°4' 00°4' 00°4'  
HP 00°4' 00°4' 00°4' 00°4' 00°4' 00°4'  
SHA 295° 295° 295° 295° 295° 295°  
Greenwich Culmination Time: 09:39

UT 02 06 10 14 18 22  
SD 16°2' 16°2' 16°2' 16°1' 16°1' 16°1'  
HP 59°3' 59°3' 59°3' 59°3' 59°2' 59°2'  
SHA 135° 133° 131° 128° 126° 124°  
Greenwich Culmination Time: 21:01



Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for the Sun, Venus, and Moon on July 6, 2020, including Right Ascension, Declination, and other parameters.

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, Mars, Jupiter, Saturn, and UT. It lists astronomical data for Mars, Jupiter, and Saturn on July 6, 2020, including Right Ascension, Declination, and other parameters.

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 354° 354° 354° 354° 354° 354°
Greenwich Culmination Time: 05:24

Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for the Sun, Venus, and Moon on July 3, 2020, including Right Ascension, Declination, and other parameters.

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° 257°
Greenwich Culmination Time: 12:04

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists astronomical data for Mars, Jupiter, and Saturn on July 3, 2020, including Right Ascension, Declination, and other parameters.

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 356° 356° 356° 356° 356° 356°
Greenwich Culmination Time: 05:29

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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°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° 256°
Greenwich Culmination Time: 12:04

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°2' 00°2' 00°2' 00°2' 00°2' 00°2'
SHA 355° 355° 355° 355° 355° 355°
Greenwich Culmination Time: 05:27

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 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 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°2' 00°2' 00°2' 00°2' 00°2' 00°2'
SHA 355° 355° 355° 355° 355° 354°
Greenwich Culmination Time: 05:26

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes RA/Dec coordinates and Greenwich Culmination Time for Sun, Venus, and Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes RA/Dec coordinates and Greenwich Culmination Time for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes RA/Dec coordinates and Greenwich Culmination Time for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes RA/Dec coordinates and Greenwich Culmination Time for Mars, Jupiter, and Saturn.

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

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, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for each body.

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 show celestial coordinates for each body.

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 353° 353° 353° 353° 353° 353°
Greenwich Culmination Time: 05:20

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

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 353° 353° 353° 352° 352° 352°
Greenwich Culmination Time: 05:18

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Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) for various celestial bodies from UT 00 to 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 246\* 246\* 246\* 246\* 245\* 245\*

Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) for various celestial bodies from UT 00 to 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 249\* 249\* 291\* 291\* 291\* 291\*

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) for Mars, Jupiter, and Saturn from UT 00 to 23.

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 350\* 350\* 350\* 350\* 350\* 350\*

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) for Mars, Jupiter, and Saturn from UT 00 to 23.

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 352\* 352\* 352\* 351\* 351\* 351\*

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Table with columns for UT, Sun, Venus, Moon, and UT. Contains astronomical data for July 12, 2020, including coordinates and magnitude for various celestial bodies.

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 248° 248° 248° 248° 247° 247°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Contains astronomical data for July 12, 2020, including coordinates and magnitude 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 351° 351° 351° 351° 351° 351°
Greenwich Culmination Time: 05:13

Table with columns for UT, Sun, Venus, Moon, and UT. Contains astronomical data for July 13, 2020, including coordinates and magnitude for various celestial bodies.

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 247° 247° 247° 247° 246° 246°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Contains astronomical data for July 13, 2020, including coordinates and magnitude 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 351° 351° 350° 350° 350° 350°
Greenwich Culmination Time: 05:11

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for Sun, Venus, and Moon on July 18, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show sunrise/sunset times and Greenwich Culmination Time for Sun, Venus, and Moon on July 18, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for Sun, Venus, and Moon on July 15, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show sunrise/sunset times and Greenwich Culmination Time for Sun, Venus, and Moon on July 15, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates for Mars, Jupiter, and Saturn on July 18, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show sunrise/sunset times and Greenwich Culmination Time for Mars, Jupiter, and Saturn on July 18, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates for Mars, Jupiter, and Saturn on July 15, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show sunrise/sunset times and Greenwich Culmination Time for Mars, Jupiter, and Saturn on July 15, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on July 16, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on July 16, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on July 16, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on July 17, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on July 17, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on July 17, 2020.

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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.

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, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates and magnitudes 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 celestial coordinates and magnitudes 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 346° 346° 346° 346° 346° 346°
Greenwich Culmination Time: 04:53

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°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 348° 348° 347° 347° 347° 347°
Greenwich Culmination Time: 04:59

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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. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for various dates from 00 to 23.

Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for various dates from 00 to 23.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for various dates from 00 to 23.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for various dates from 00 to 23.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 27%.

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° 232° 231°
Greenwich Culmination Time: 12:06

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

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° 231° 230°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Columns include 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°2 00°2 00°2 00°2 00°2 00°2
SHA 343° 343° 343° 343° 343° 343°
Greenwich Culmination Time: 04:41

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Columns include 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°2 00°2 00°2 00°2 00°2 00°2
SHA 343° 343° 343° 343° 343° 343°
Greenwich Culmination Time: 04:39

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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 226° 226° 226° 226° 226° 226°
Greenwich Culmination Time: 12:06

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 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 229° 229° 229° 229° 229° 228°
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°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 341° 341° 341° 341° 341° 341°
Greenwich Culmination Time: 04:27

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°2' 00°2' 00°2' 00°2' 00°2' 00°2'
SHA 342° 342° 342° 342° 342° 342°
Greenwich Culmination Time: 04:34

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

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

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



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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Times.

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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 August 5, 2020.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for August 6, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for August 5, 2020.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and Greenwich Culmination Time for August 6, 2020.

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Table with columns for UT, Sun, Venus, Moon, and UT. It contains astronomical data for the first 23 days of August 2020, including Right Ascension (GHA, ddGHA, Dec, dDec) and magnitude (A: 73%).

Summary table for Sun, Venus, and Moon with columns for UT, date (02, 06, 10, 14, 18, 22), and time (SD, HP, SHA) for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. It contains astronomical data for the first 23 days of August 2020, including Right Ascension (GHA, ddGHA, Dec, dDec) and magnitude (A: 64%).

Summary table for Sun, Venus, and Moon with columns for UT, date (02, 06, 10, 14, 18, 22), and time (SD, HP, SHA) for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It contains astronomical data for the first 23 days of August 2020, including Right Ascension (GHA, ddGHA, Dec, dDec) and magnitude (A: 73%).

Summary table for Mars, Jupiter, and Saturn with columns for UT, date (02, 06, 10, 14, 18, 22), and time (SD, HP, SHA) for each planet.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It contains astronomical data for the first 23 days of August 2020, including Right Ascension (GHA, ddGHA, Dec, dDec) and magnitude (A: 64%).

Summary table for Mars, Jupiter, and Saturn with columns for UT, date (02, 06, 10, 14, 18, 22), and time (SD, HP, SHA) for each planet.

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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Times.

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Table with columns for UT, Sun, Venus, Moon, and UT. It contains astronomical data for the first 23 hours of the day, including Right Ascension (GHA, ddGHA), Declination (Dec, dDec), and magnitude (A: 79%).

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° 217° 216° 216° 216°
Greenwich Culmination Time: 12:04

Table with columns for UT, Sun, Venus, Moon, and UT. It contains astronomical data for the first 23 hours of the day, including Right Ascension (GHA, ddGHA), Declination (Dec, dDec), and magnitude (A: 82%).

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. It contains astronomical data for the first 23 hours of the day, including Right Ascension (GHA, ddGHA), Declination (Dec, dDec), and magnitude (UT).

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 337° 337° 337° 337° 337° 337°
Greenwich Culmination Time: 04:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It contains astronomical data for the first 23 hours of the day, including Right Ascension (GHA, ddGHA), Declination (Dec, dDec), and magnitude (UT).

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 337° 337° 337° 337° 337° 337°
Greenwich Culmination Time: 04:00

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) for Sun, Venus, and Moon. Includes A: 94% for 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 213° 213° 213° 213° 212° 212°
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates for Mars, Jupiter, and Saturn. Includes A: 98% for Saturn.

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 336° 336° 336° 336° 336° 336°
Greenwich Culmination Time: 03:52

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for Sun, Venus, and Moon. Includes A: 98% for 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 212° 212° 212° 212° 211° 211°
Greenwich Culmination Time: 12:03

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates for Mars, Jupiter, and Saturn. Includes A: 98% for Saturn.

UT 02 06 10 14 18 22
SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 336° 336° 336° 336° 336° 336°
Greenwich Culmination Time: 03:49

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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°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° 207° 207° 207° 207° 207°
Greenwich Culmination Time: 12:02

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°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° 210°
Greenwich Culmination Time: 12:03

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°3 00°3 00°3 00°3 00°3 00°3
SHA 334° 334° 334° 334° 334° 334°
Greenwich Culmination Time: 03:34

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°3 00°3 00°3 00°3 00°3 00°3
SHA 335° 335° 335° 335° 335° 335°
Greenwich Culmination Time: 03:43

UT	Sun				Venus				Moon				UT																																																																																																												
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec																																																																																																													
<b>00</b>	179	12.7	+00.2	N 12 01.7	-00.9	226	03.5	-00.2	N 20 04.7	-00.1	152	60.0	-31.6	N 06 54.4	-14.5	<b>00</b>																																																																																																									
<b>01</b>	194	12.9	+00.1	N 12 00.8	-00.8	241	03.3	-00.2	N 20 04.6	-00.1	167	28.4	-31.6	N 06 39.9	-14.6	<b>01</b>																																																																																																									
<b>02</b>	209	13.0	+00.2	N 11 60.0	-00.8	256	03.1	-00.2	N 20 04.5	+00.0	181	56.8	-31.5	N 06 25.3	-14.7	<b>02</b>																																																																																																									
<b>03</b>	224	13.2	+00.1	N 11 59.2	-00.9	271	02.9	-00.3	N 20 04.5	+00.0	196	25.3	-31.6	N 06 10.6	-14.6	<b>03</b>																																																																																																									
<b>04</b>	239	13.3	+00.2	N 11 58.3	-00.8	286	02.6	-00.2	N 20 04.4	+00.0	210	53.7	-31.5	N 05 56.0	-14.7	<b>04</b>																																																																																																									
<b>05</b>	254	13.5	+00.2	N 11 57.5	-00.8	301	02.4	-00.2	N 20 04.4	-00.1	225	22.2	-31.4	N 05 41.3	-14.8	<b>05</b>																																																																																																									
<b>06</b>	269	13.7	+00.1	N 11 56.7	-00.9	316	02.2	-00.2	N 20 04.3	+00.0	239	50.8	-31.5	N 05 26.5	-14.8	<b>06</b>																																																																																																									
<b>07</b>	284	13.8	+00.2	N 11 55.8	-00.8	331	02.0	-00.3	N 20 04.3	-00.1	254	19.3	-31.4	N 05 11.7	-14.8	<b>07</b>																																																																																																									
<b>08</b>	299	14.0	+00.1	N 11 55.0	-00.9	346	01.7	-00.2	N 20 04.2	-00.1	268	47.9	-31.3	N 04 56.9	-14.8	<b>08</b>																																																																																																									
<b>09</b>	314	14.1	+00.2	N 11 54.1	-00.8	1	01.5	-00.2	N 20 04.1	+00.0	283	16.6	-31.4	N 04 42.1	-14.9	<b>09</b>																																																																																																									
<b>10</b>	329	14.3	+00.1	N 11 53.3	-00.8	16	01.3	-00.3	N 20 04.1	-00.1	297	45.2	-31.3	N 04 27.2	-14.8	<b>10</b>																																																																																																									
<b>11</b>	344	14.4	+00.2	N 11 52.5	-00.9	31	01.0	-00.2	N 20 04.0	-00.1	312	13.9	-31.3	N 04 12.4	-14.9	<b>11</b>																																																																																																									
<b>12</b>	359	14.6	+00.1	N 11 51.6	-00.8	46	00.8	-00.2	N 20 03.9	+00.0	326	42.6	-31.3	N 03 57.5	-15.0	<b>12</b>																																																																																																									
<b>13</b>	14	14.7	+00.2	N 11 50.8	-00.8	61	00.6	-00.3	N 20 03.9	+00.0	341	11.3	-31.3	N 03 42.5	-14.9	<b>13</b>																																																																																																									
<b>14</b>	29	14.9	+00.2	N 11 50.0	-00.9	76	00.3	-00.2	N 20 03.8	+00.0	355	40.0	-31.2	N 03 27.6	-15.0	<b>14</b>																																																																																																									
<b>15</b>	44	15.1	+00.1	N 11 49.1	-00.8	91	00.1	-00.2	N 20 03.8	-00.1	10	08.8	-31.2	N 03 12.6	-15.0	<b>15</b>																																																																																																									
<b>16</b>	59	15.2	+00.2	N 11 48.3	-00.9	105	59.9	-00.3	N 20 03.7	-00.1	24	37.6	-31.2	N 02 57.6	-15.0	<b>16</b>																																																																																																									
<b>17</b>	74	15.4	+00.1	N 11 47.4	-00.8	120	59.6	-00.2	N 20 03.6	+00.0	39	06.4	-31.2	N 02 42.6	-15.0	<b>17</b>																																																																																																									
<b>18</b>	89	15.5	+00.2	N 11 46.6	-00.8	135	59.4	-00.2	N 20 03.6	+00.0	53	35.2	-31.2	N 02 27.6	-15.0	<b>18</b>																																																																																																									
<b>19</b>	104	15.7	+00.1	N 11 45.8	-00.9	150	59.2	-00.3	N 20 03.5	-00.1	68	04.0	-31.1	N 02 12.6	-15.1	<b>19</b>																																																																																																									
<b>20</b>	119	15.8	+00.2	N 11 44.9	-00.8	165	58.9	-00.2	N 20 03.4	-00.1	82	32.9	-31.2	N 01 57.5	-15.0	<b>20</b>																																																																																																									
<b>21</b>	134	16.0	+00.2	N 11 44.1	-00.9	180	58.7	-00.2	N 20 03.3	+00.0	97	01.7	-31.1	N 01 42.5	-15.1	<b>21</b>																																																																																																									
<b>22</b>	149	16.2	+00.1	N 11 43.2	-00.8	195	58.5	-00.3	N 20 03.3	+00.1	111	30.6	-31.1	N 01 27.4	-15.0	<b>22</b>																																																																																																									
<b>23</b>	164	16.3	+00.2	N 11 42.4	-00.8	210	58.2	-00.2	N 20 03.2	-00.1	125	59.5	-31.1	N 01 12.4	-15.1	<b>23</b>																																																																																																									
<table border="0"> <tr> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> </tr> <tr> <td>SD</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>SD</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>SD</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> </tr> <tr> <td>HP</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>HP</td> <td>00°3'</td> <td>00°3'</td> <td>00°3'</td> <td>00°3'</td> <td>00°3'</td> <td>00°3'</td> <td>HP</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> </tr> <tr> <td>SHA</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>SHA</td> <td>256°</td> <td>256°</td> <td>256°</td> <td>256°</td> <td>255°</td> <td>255°</td> <td>SHA</td> <td>182°</td> <td>180°</td> <td>178°</td> <td>175°</td> <td>173°</td> <td>171°</td> </tr> <tr> <td colspan="22">Greenwich Culmination Time: 12:03</td> </tr> </table>																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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	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°3'	00°3'	00°3'	00°3'	00°3'	00°3'	HP	60°3'	60°3'	60°3'	60°3'	60°3'	60°3'	SHA	209°	209°	209°	209°	209°	209°	SHA	256°	256°	256°	256°	255°	255°	SHA	182°	180°	178°	175°	173°	171°	Greenwich Culmination Time: 12:03																					
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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	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°3'	00°3'	00°3'	00°3'	00°3'	00°3'	HP	60°3'	60°3'	60°3'	60°3'	60°3'	60°3'																																																																																																					
SHA	209°	209°	209°	209°	209°	209°	SHA	256°	256°	256°	256°	255°	255°	SHA	182°	180°	178°	175°	173°	171°																																																																																																					
Greenwich Culmination Time: 12:03																																																																																																																									
<table border="0"> <tr> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> </tr> <tr> <td>SD</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>SD</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>SD</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> </tr> <tr> <td>HP</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>HP</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>HP</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> <td>60°3'</td> </tr> <tr> <td>SHA</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>209°</td> <td>SHA</td> <td>256°</td> <td>256°</td> <td>256°</td> <td>256°</td> <td>255°</td> <td>255°</td> <td>SHA</td> <td>182°</td> <td>180°</td> <td>178°</td> <td>175°</td> <td>173°</td> <td>171°</td> </tr> <tr> <td colspan="22">Greenwich Culmination Time: 08:55</td> </tr> </table>																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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	HP	60°3'	60°3'	60°3'	60°3'	60°3'	60°3'	SHA	209°	209°	209°	209°	209°	209°	SHA	256°	256°	256°	256°	255°	255°	SHA	182°	180°	178°	175°	173°	171°	Greenwich Culmination Time: 08:55																					
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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	HP	60°3'	60°3'	60°3'	60°3'	60°3'	60°3'																																																																																																					
SHA	209°	209°	209°	209°	209°	209°	SHA	256°	256°	256°	256°	255°	255°	SHA	182°	180°	178°	175°	173°	171°																																																																																																					
Greenwich Culmination Time: 08:55																																																																																																																									

UT	Sun				Venus				Moon				UT																																																																																																											
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec																																																																																																												
<b>00</b>	179	16.5	+00.1	N 11 41.6	-00.9	225	58.0	-00.3	N 20 03.1	+00.0	140	28.4	-31.1	N 00 57.3	-15.0	<b>00</b>																																																																																																								
<b>01</b>	194	16.6	+00.2	N 11 40.7	-00.8	240	57.7	-00.2	N 20 03.1	-00.1	154	57.3	-31.0	N 00 42.3	-15.1	<b>01</b>																																																																																																								
<b>02</b>	209	16.8	+00.2	N 11 39.9	-00.9	255	57.5	-00.2	N 20 03.0	-00.1	169	26.3	-31.1	N 00 27.2	-15.1	<b>02</b>																																																																																																								
<b>03</b>	224	17.0	+00.1	N 11 39.0	-00.8	270	57.3	-00.3	N 20 02.9	-00.1	183	55.3	-31.0	N 00 12.1	-15.0	<b>03</b>																																																																																																								
<b>04</b>	239	17.1	+00.2	N 11 38.2	-00.9	285	57.0	-00.2	N 20 02.8	+00.0	198	24.2	-31.0	S 00 02.9	+15.1	<b>04</b>																																																																																																								
<b>05</b>	254	17.3	+00.1	N 11 37.3	-00.8	300	56.8	-00.3	N 20 02.8	-00.1	212	53.2	-31.1	S 00 18.0	+15.0	<b>05</b>																																																																																																								
<b>06</b>	269	17.4	+00.2	N 11 36.5	-00.8	315	56.5	-00.2	N 20 02.7	-00.1	227	22.1	-31.0	S 00 33.0	+15.1	<b>06</b>																																																																																																								
<b>07</b>	284	17.6	+00.2	N 11 35.7	-00.9	330	56.3	-00.2	N 20 02.6	-00.1	241	51.1	-31.0	S 00 48.1	+15.0	<b>07</b>																																																																																																								
<b>08</b>	299	17.8	+00.1	N 11 34.8	-00.8	345	56.1	-00.3	N 20 02.5	+00.0	256	20.1	-31.0	S 01 03.1	+15.0	<b>08</b>																																																																																																								
<b>09</b>	314	17.9	+00.2	N 11 34.0	-00.9	1	55.8	-00.2	N 20 02.4	+00.0	270	49.1	-31.0	S 01 18.1	+15.1	<b>09</b>																																																																																																								
<b>10</b>	329	18.1	+00.1	N 11 33.1	-00.8	15	55.6	-00.3	N 20 02.4	-00.1	285	18.1	-31.0	S 01 33.2	+15.0	<b>10</b>																																																																																																								
<b>11</b>	344	18.2	+00.2	N 11 32.3	-00.9	30	55.3	-00.2	N 20 02.3	-00.1	299	47.1	-31.0	S 01 48.2	+14.9	<b>11</b>																																																																																																								
<b>12</b>	359	18.4	+00.2	N 11 31.4	-00.8	45	55.1	-00.3	N 20 02.2	-00.1	314	16.1	-31.0	S 02 03.1	+15.0	<b>12</b>																																																																																																								
<b>13</b>	14	18.6	+00.1	N 11 30.6	-00.9	60	54.8	-00.2	N 20 02.1	-00.1	328	45.1	-31.0	S 02 18.1	+15.0	<b>13</b>																																																																																																								
<b>14</b>	29	18.7	+00.2	N 11 29.7	-00.8	75	54.6	-00.3	N 20 02.0	+00.0	343	14.1	-30.9	S 02 33.1	+14.9	<b>14</b>																																																																																																								
<b>15</b>	44	18.9	+00.2	N 11 28.9	-00.9	90	54.3	-00.2	N 20 02.0	-00.1	357	43.2	-31.0	S 02 48.0	+14.9	<b>15</b>																																																																																																								
<b>16</b>	59	19.1	+00.1	N 11 28.0	-00.8	105	54.1	-00.3	N 20 01.9	-00.1	12	12.2	-31.0	S 03 02.9	+14.9	<b>16</b>																																																																																																								
<b>17</b>	74	19.2	+00.2	N 11 27.2	-00.9	120	53.8	-00.2	N 20 01.8	-00.1	26	41.2	-31.0	S 03 17.8	+14.8	<b>17</b>																																																																																																								
<b>18</b>	89	19.4	+00.1	N 11 26.3	-00.8	135	53.6	-00.2	N 20 01.7	-00.1	41	10.2	-31.0	S 03 32.6	+14.9	<b>18</b>																																																																																																								
<b>19</b>	104	19.5	+00.2	N 11 25.5	-00.8	150	53.4	-00.3	N 20 01.6	-00.1	55	39.2	-31.0	S 03 47.5	+14.8	<b>19</b>																																																																																																								
<b>20</b>	119	19.7	+00.2	N 11 24.7	-00.9	165	53.1	-00.2	N 20 01.5	-00.1	70	08.2	-31.0	S 04 02.3	+14.7	<b>20</b>																																																																																																								
<b>21</b>	134	19.9	+00.1	N 11 23.8	-00.8	180	52.9	-00.3	N 20 01.4	-00.1	84	37.2	-31.0	S 04 17.0	+14.8	<b>21</b>																																																																																																								
<b>22</b>	149	20.0	+00.2	N 11 23.0	-00.9	195	52.6	-00.2	N 20 01.3	-00.1	99	06.2	-31.0	S 04 31.8	+14.7	<b>22</b>																																																																																																								
<b>23</b>	164	20.2	+00.2	N 11 22.1	-00.8	210	52.4	-00.3	N 20 01.2	+00.0	113	35.2	-31.1	S 04 46.5	+14.7	<b>23</b>																																																																																																								
<table border="0"> <tr> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> </tr> <tr> <td>SD</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>SD</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>SD</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> <td>16°4'</td> </tr> <tr> <td>HP</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>00°1'</td> <td>HP</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>00°2'</td> <td>HP</td> <td>60°2'</td> <td>60°2'</td> <td>60°2'</td> <td>60°2'</td> <td>60°1'</td> <td>60°1'</td> </tr> <tr> <td>SHA</td> <td>208°</td> <td>208°</td> <td>208°</td> <td>208°</td> <td>208°</td> <td>208°</td> <td>SHA</td> <td>255°</td> <td>255°</td> <td>255°</td> <td>254°</td> <td>254°</td> <td>SHA</td> <td>169°</td> <td>166°</td> <td>164°</td> <td>162°</td> <td>160°</td> <td>157°</td> </tr> <tr> <td colspan="22">Greenwich Culmination Time: 12:02</td> </tr> </table>																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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	HP	60°2'	60°2'	60°2'	60°2'	60°1'	60°1'	SHA	208°	208°	208°	208°	208°	208°	SHA	255°	255°	255°	254°	254°	SHA	169°	166°	164°	162°	160°	157°	Greenwich Culmination Time: 12:02																					
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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	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°2'	00°2'	00°2'	00°2'	00°2'	00°2'	HP	60°2'	60°2'	60°2'	60°2'	60°1'	60°1'																																																																																																				
SHA	208°	208°	208°	208°	208°	208°	SHA	255°	255°	255°	254°	254°	SHA	169°	166°	164°	162°	160°	157°																																																																																																					
Greenwich Culmination Time: 12:02																																																																																																																								
<table border="0"> <tr> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> <td>UT</td> <td>02</td> <td>06</td> <td>10</td> <td>14</td> <td>18</td> <td>22</td> </tr> <tr> <td>SD</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'</td> <td>15°8'&lt;/</td></tr></table>																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'</																																																																															
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'</																																																																																																																				

UT	Sun				Venus				Moon A: 30%				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	37.0	+00.1	N 09 58.3	-00.8	225	25.5	-00.3	N 19 48.7	-00.2	76	22.2	-33.8	S 22 28.9	+05.4					
01	194	37.1	+00.2	N 09 57.5	-00.9	240	25.2	-00.3	N 19 48.5	-00.2	90	48.4	-33.9	S 22 34.3	+05.3					
02	209	37.3	+00.2	N 09 56.6	-00.9	255	24.9	-00.3	N 19 48.3	-00.1	105	14.5	-33.8	S 22 39.6	+05.1					
03	224	37.5	+00.2	N 09 55.7	-00.9	270	24.6	-00.3	N 19 48.2	-00.2	119	40.7	-33.9	S 22 44.7	+05.0					
04	239	37.7	+00.2	N 09 54.8	-00.9	285	24.3	-00.3	N 19 48.0	-00.2	134	06.8	-33.9	S 22 49.7	+04.8					
05	254	37.9	+00.2	N 09 53.9	-00.8	300	24.0	-00.3	N 19 47.8	-00.2	148	32.9	-33.9	S 22 54.5	+04.7					
06	269	38.1	+00.1	N 09 53.1	-00.9	315	23.7	-00.3	N 19 47.6	-00.1	162	59.0	-33.9	S 22 59.2	+04.6					
07	284	38.2	+00.2	N 09 52.2	-00.9	330	23.4	-00.3	N 19 47.5	-00.2	177	25.1	-33.9	S 23 03.8	+04.4					
08	299	38.4	+00.2	N 09 51.3	-00.9	345	23.1	-00.3	N 19 47.3	-00.2	191	51.2	-34.0	S 23 08.2	+04.2					
09	314	38.6	+00.2	N 09 50.4	-00.9	0	22.8	-00.3	N 19 47.1	-00.2	206	17.2	-33.9	S 23 12.4	+04.2					
10	329	38.8	+00.2	N 09 49.5	-00.8	15	22.5	-00.3	N 19 46.9	-00.1	220	43.2	-34.0	S 23 16.6	+03.9					
11	344	39.0	+00.1	N 09 48.7	-00.9	30	22.2	-00.3	N 19 46.8	-00.2	235	09.3	-33.9	S 23 20.5	+03.9					
12	359	39.1	+00.2	N 09 47.8	-00.9	45	21.9	-00.3	N 19 46.6	-00.2	249	35.4	-34.0	S 23 24.4	+03.7					
13	14	39.3	+00.2	N 09 46.9	-00.9	60	21.6	-00.3	N 19 46.4	-00.2	264	01.4	-34.0	S 23 28.1	+03.5					
14	29	39.5	+00.2	N 09 46.0	-00.9	75	21.3	-00.3	N 19 46.2	-00.2	278	27.4	-34.0	S 23 31.6	+03.4					
15	44	39.7	+00.2	N 09 45.1	-00.8	90	21.0	-00.4	N 19 46.0	-00.1	292	53.4	-33.9	S 23 35.0	+03.3					
16	59	39.9	+00.2	N 09 44.3	-00.9	105	20.6	-00.3	N 19 45.9	-00.2	307	19.5	-34.0	S 23 38.3	+03.1					
17	74	40.1	+00.2	N 09 43.4	-00.9	120	20.3	-00.3	N 19 45.7	-00.2	321	45.5	-34.0	S 23 41.4	+03.0					
18	89	40.3	+00.1	N 09 42.5	-00.9	135	20.0	-00.3	N 19 45.5	-00.2	336	11.5	-34.0	S 23 44.4	+02.8					
19	104	40.4	+00.2	N 09 41.6	-00.9	150	19.7	-00.3	N 19 45.3	-00.2	350	37.5	-34.0	S 23 47.2	+02.7					
20	119	40.6	+00.2	N 09 40.7	-00.9	165	19.4	-00.3	N 19 45.1	-00.2	5	03.5	-33.9	S 23 49.9	+02.5					
21	134	40.8	+00.2	N 09 39.8	-00.8	180	19.1	-00.3	N 19 44.9	-00.2	19	29.6	-34.0	S 23 52.4	+02.4					
22	149	41.0	+00.2	N 09 39.0	-00.9	195	18.8	-00.3	N 19 44.7	-00.1	33	55.6	-34.0	S 23 54.8	+02.2					
23	164	41.2	+00.2	N 09 38.1	-00.9	210	18.5	-00.3	N 19 44.6	-00.2	48	21.6	-33.9	S 23 57.0	+02.1					
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°2	00°2	00°2	00°2	00°2	00°2	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	HP	00°2	00°2	00°2	00°2	00°2	00°2	HP	58°0	57°9	57°8	57°7	57°6	57°5
SHA	204°	204°	204°	203°	203°	203°	SHA	250°	249°	249°	249°	249°	249°	SHA	090°	097°	095°	092°	089°	087°
Greenwich Culmination Time: 12:01				Greenwich Culmination Time: 08:58				Greenwich Culmination Time: 19:38												

UT	Sun				Venus				Moon A: 19%				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	24.3	+00.2	N 11 00.8	-00.9	225	45.9	-00.3	N 19 58.7	-00.1	115	35.2	-31.5	S 10 39.4	+13.3					
01	194	24.5	+00.2	N 10 59.9	-00.8	240	45.6	-00.2	N 19 58.6	-00.1	130	03.7	-31.5	S 10 52.7	+13.3					
02	209	24.7	+00.2	N 10 59.1	-00.9	255	45.4	-00.3	N 19 58.5	-00.1	144	32.2	-31.5	S 11 06.0	+13.2					
03	224	24.9	+00.1	N 10 58.2	-00.8	270	45.1	-00.3	N 19 58.4	-00.1	159	00.7	-31.6	S 11 19.2	+13.2					
04	239	25.0	+00.2	N 10 57.4	-00.9	285	44.8	-00.2	N 19 58.3	-00.1	173	29.1	-31.6	S 11 32.4	+13.0					
05	254	25.2	+00.2	N 10 56.5	-00.9	300	44.6	-00.3	N 19 58.2	-00.1	187	57.5	-31.6	S 11 45.4	+13.0					
06	269	25.4	+00.1	N 10 55.6	-00.8	315	44.3	-00.3	N 19 58.1	-00.2	202	25.9	-31.6	S 11 58.4	+12.9					
07	284	25.5	+00.2	N 10 54.8	-00.9	330	44.0	-00.2	N 19 57.9	-00.1	216	54.3	-31.7	S 12 11.3	+12.8					
08	299	25.7	+00.2	N 10 53.9	-00.8	345	43.8	-00.3	N 19 57.8	-00.1	231	22.6	-31.7	S 12 24.1	+12.8					
09	314	25.9	+00.1	N 10 53.1	-00.9	0	43.5	-00.3	N 19 57.7	-00.1	245	50.9	-31.8	S 12 36.9	+12.7					
10	329	26.0	+00.2	N 10 52.2	-00.9	15	43.2	-00.3	N 19 57.6	-00.1	260	19.1	-31.7	S 12 49.6	+12.5					
11	344	26.2	+00.2	N 10 51.3	-00.8	30	42.9	-00.2	N 19 57.5	-00.2	274	47.4	-31.9	S 13 02.1	+12.5					
12	359	26.4	+00.2	N 10 50.5	-00.9	45	42.7	-00.3	N 19 57.3	-00.1	289	15.5	-31.8	S 13 14.6	+12.5					
13	14	26.6	+00.1	N 10 49.6	-00.8	60	42.4	-00.3	N 19 57.2	-00.1	303	43.7	-31.9	S 13 27.1	+12.3					
14	29	26.7	+00.2	N 10 48.8	-00.9	75	42.1	-00.2	N 19 57.1	-00.1	318	11.8	-31.9	S 13 39.4	+12.2					
15	44	26.9	+00.2	N 10 47.9	-00.9	90	41.9	-00.3	N 19 57.0	-00.1	332	39.9	-31.9	S 13 51.6	+12.2					
16	59	27.1	+00.1	N 10 47.0	-00.8	105	41.6	-00.3	N 19 56.9	-00.2	347	08.0	-32.0	S 14 03.8	+12.0					
17	74	27.2	+00.2	N 10 46.2	-00.9	120	41.3	-00.3	N 19 56.7	-00.1	1	36.0	-32.0	S 14 15.8	+12.0					
18	89	27.4	+00.2	N 10 45.3	-00.9	135	41.0	-00.2	N 19 56.6	-00.1	16	04.0	-32.0	S 14 27.8	+11.9					
19	104	27.6	+00.2	N 10 44.4	-00.8	150	40.8	-00.3	N 19 56.5	-00.1	30	32.0	-32.1	S 14 39.7	+11.8					
20	119	27.8	+00.1	N 10 43.6	-00.9	165	40.5	-00.3	N 19 56.4	-00.2	44	59.9	-32.1	S 14 51.5	+11.6					
21	134	27.9	+00.2	N 10 42.7	-00.8	180	40.2	-00.3	N 19 56.2	-00.1	59	27.8	-32.2	S 15 03.1	+11.6					
22	149	28.1	+00.2	N 10 41.9	-00.9	195	39.9	-00.2	N 19 56.1	-00.1	73	55.6	-32.2	S 15 14.7	+11.5					
23	164	28.3	+00.1	N 10 41.0	-00.9	210	39.7	-00.3	N 19 56.0	-00.2	88	23.4	-32.2	S 15 26.2	+11.4					
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°2	00°2	00°2	00°2	00°2	00°2	SD	16°2	16°2	16°2	16°2	16°2	16°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	59°6	59°5	59°5	59°4	59°3	59°2
SHA	207°	206°	206°	206°	206°	206°	SHA	253°	253°	253°	252°	252°	252°	SHA	142°	139°	137°	135°	133°	130°
Greenwich Culmination Time: 12:02				Greenwich Culmination Time: 08:57				Greenwich Culmination Time: 16:53												

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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°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 206° 206° 205° 205° 205° 205°
Greenwich Culmination Time: 12:01

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°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 334° 334° 334° 334° 334° 334°
Greenwich Culmination Time: 03:28

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°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 205° 205° 204° 204° 204° 204°
Greenwich Culmination Time: 12:01

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°2' 00°2' 00°2' 00°2' 00°2'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 334° 334° 334° 334° 334° 334°
Greenwich Culmination Time: 03:25

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 transit times and Greenwich Culmination Time 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 transit times and Greenwich Culmination Time 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 transit times and Greenwich Culmination Time 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 transit times and Greenwich Culmination Time for Mars, Jupiter, and Saturn.

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 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 202° 202° 202° 202° 201° 201°
Greenwich Culmination Time: 12:00

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°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 333° 333° 333° 333° 333° 333°
Greenwich Culmination Time: 03:15

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 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 201° 201° 201° 201° 200° 200°
Greenwich Culmination Time: 12:00

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°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 333° 333° 333° 333° 333° 333°
Greenwich Culmination Time: 03:12

UT	<b>Sun</b>				<b>Venus</b>				<b>Moon</b> <small>A: 57%</small>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180 14.6	+00.2	N 07 05.3	-00.9	224 20.8	-00.4	N 19 00.6	-00.4	339 54.9	-25.0	S 03 50.6	-12.2	00
01	195 14.8	+00.2	N 07 04.4	-00.9	239 20.4	-00.3	N 19 00.2	-00.3	354 29.9	-25.0	S 03 38.4	-12.2	01
02	210 15.0	+00.2	N 07 03.5	-01.0	254 20.1	-00.4	N 18 59.9	-00.3	9 04.9	-24.9	S 03 26.2	-12.2	02
03	225 15.2	+00.2	N 07 02.5	-00.9	269 19.7	-00.4	N 18 59.6	-00.4	23 40.0	-24.9	S 03 14.0	-12.2	03
04	240 15.4	+00.2	N 07 01.6	-00.9	284 19.3	-00.4	N 18 59.2	-00.3	38 15.1	-24.9	S 03 01.8	-12.3	04
05	255 15.6	+00.2	N 07 00.7	-00.9	299 18.9	-00.3	N 18 58.9	-00.3	52 50.2	-24.9	S 02 49.5	-12.2	05
06	270 15.8	+00.2	N 06 59.8	-01.0	314 18.6	-00.4	N 18 58.6	-00.4	67 25.3	-24.9	S 02 37.3	-12.3	06
07	285 16.0	+00.2	N 06 58.8	-00.9	329 18.2	-00.4	N 18 58.2	-00.3	82 00.4	-24.8	S 02 25.0	-12.2	07
08	300 16.2	+00.2	N 06 57.9	-00.9	344 17.8	-00.3	N 18 57.9	-00.4	96 35.6	-24.8	S 02 12.8	-12.3	08
09	315 16.4	+00.2	N 06 57.0	-00.9	359 17.5	-00.4	N 18 57.5	-00.3	111 10.8	-24.8	S 02 00.5	-12.3	09
10	330 16.6	+00.3	N 06 56.1	-01.0	14 17.1	-00.4	N 18 57.2	-00.3	125 46.0	-24.8	S 01 48.2	-12.2	10
11	345 16.9	+00.2	N 06 55.1	-00.9	29 16.7	-00.3	N 18 56.9	-00.4	140 21.2	-24.8	S 01 36.0	-12.3	11
12	0 17.1	+00.2	N 06 54.2	-00.9	44 16.4	-00.4	N 18 56.5	-00.3	154 56.4	-24.7	S 01 23.7	-12.3	12
13	15 17.3	+00.2	N 06 53.3	-00.9	59 16.0	-00.4	N 18 56.2	-00.4	169 31.7	-24.8	S 01 11.4	-12.2	13
14	30 17.5	+00.2	N 06 52.4	-01.0	74 15.6	-00.4	N 18 55.8	-00.3	184 06.9	-24.7	S 00 59.2	-12.3	14
15	45 17.7	+00.2	N 06 51.4	-00.9	89 15.2	-00.3	N 18 55.5	-00.4	198 42.2	-24.7	S 00 46.9	-12.3	15
16	60 17.9	+00.2	N 06 50.5	-00.9	104 14.9	-00.4	N 18 55.1	-00.3	213 17.5	-24.7	S 00 34.6	-12.2	16
17	75 18.1	+00.2	N 06 49.6	-00.9	119 14.5	-00.4	N 18 54.8	-00.4	227 52.8	-24.7	S 00 22.4	-12.3	17
18	90 18.3	+00.2	N 06 48.7	-01.0	134 14.1	-00.3	N 18 54.4	-00.3	242 28.1	-24.7	S 00 10.1	-12.3	18
19	105 18.5	+00.2	N 06 47.7	-00.9	149 13.8	-00.4	N 18 54.1	-00.4	257 03.4	-24.7	N 00 02.2	+12.2	19
20	120 18.7	+00.3	N 06 46.8	-00.9	164 13.4	-00.4	N 18 53.7	-00.3	271 38.7	-24.6	N 00 14.4	+12.3	20
21	135 19.0	+00.2	N 06 45.9	-00.9	179 13.0	-00.4	N 18 53.4	-00.4	286 14.1	-24.7	N 00 26.7	+12.2	21
22	150 19.2	+00.2	N 06 45.0	-01.0	194 12.6	-00.3	N 18 53.0	-00.3	300 49.4	-24.6	N 00 38.9	+12.3	22
23	165 19.4	+00.2	N 06 44.0	-00.9	209 12.3	-00.4	N 18 52.7	-00.4	315 24.8	-24.7	N 00 51.2	+12.2	23
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'	UT 02 06 10 14 18 22	SD 14°8' 14°8' 14°8' 14°8' 14°8' 14°8'	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'	UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°9' 15°9' 15°9' 15°9'	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'					
Greenwich Culmination Time: 11:58				Greenwich Culmination Time: 09:02				Greenwich Culmination Time: 01:22					

UT	<b>Sun</b>				<b>Venus</b>				<b>Moon</b> <small>A: 48%</small>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 59.9	+00.2	N 08 11.2	-00.9	224 46.5	-00.3	N 19 22.3	-00.3	11 48.4	-28.7	S 17 12.9	-09.4	00
01	195 00.1	+00.2	N 08 10.3	-00.9	239 46.2	-00.4	N 19 22.0	-00.2	26 19.7	-28.6	S 17 03.5	-09.4	01
02	210 00.3	+00.2	N 08 09.4	-00.9	254 45.8	-00.3	N 19 21.8	-00.3	40 51.1	-28.5	S 16 54.1	-09.5	02
03	225 00.5	+00.2	N 08 08.5	-00.9	269 45.5	-00.3	N 19 21.5	-00.3	55 22.6	-28.5	S 16 44.6	-09.5	03
04	240 00.7	+00.2	N 08 07.6	-00.9	284 45.2	-00.4	N 19 21.2	-00.3	69 54.1	-28.4	S 16 35.1	-09.6	04
05	255 00.9	+00.2	N 08 06.7	-01.0	299 44.8	-00.3	N 19 20.9	-00.2	84 25.7	-28.3	S 16 25.5	-09.7	05
06	270 01.1	+00.2	N 08 05.7	-00.9	314 44.5	-00.4	N 19 20.7	-00.3	98 57.4	-28.3	S 16 15.8	-09.8	06
07	285 01.3	+00.2	N 08 04.8	-00.9	329 44.1	-00.3	N 19 20.4	-00.3	113 29.1	-28.2	S 16 06.0	-09.8	07
08	300 01.5	+00.2	N 08 03.9	-00.9	344 43.8	-00.4	N 19 20.1	-00.3	128 00.9	-28.1	S 15 56.2	-09.9	08
09	315 01.7	+00.2	N 08 03.0	-00.9	359 43.4	-00.3	N 19 19.8	-00.2	142 32.8	-28.1	S 15 46.3	-10.0	09
10	330 01.9	+00.2	N 08 02.1	-00.9	14 43.1	-00.4	N 19 19.6	-00.3	157 04.7	-28.0	S 15 36.3	-10.0	10
11	345 02.1	+00.2	N 08 01.2	-00.9	29 42.7	-00.3	N 19 19.3	-00.3	171 36.7	-27.9	S 15 26.3	-10.1	11
12	0 02.3	+00.2	N 08 00.3	-00.9	44 42.4	-00.4	N 19 19.0	-00.3	186 08.8	-27.8	S 15 16.2	-10.1	12
13	15 02.5	+00.2	N 07 59.4	-00.9	59 42.0	-00.3	N 19 18.7	-00.3	200 41.0	-27.8	S 15 06.1	-10.3	13
14	30 02.7	+00.2	N 07 58.5	-00.9	74 41.7	-00.4	N 19 18.4	-00.2	215 13.2	-27.7	S 14 55.8	-10.2	14
15	45 02.9	+00.2	N 07 57.6	-00.9	89 41.3	-00.3	N 19 18.2	-00.3	229 45.5	-27.7	S 14 45.6	-10.4	15
16	60 03.1	+00.2	N 07 56.7	-01.0	104 41.0	-00.4	N 19 17.9	-00.3	244 17.8	-27.6	S 14 35.2	-10.3	16
17	75 03.3	+00.2	N 07 55.7	-00.9	119 40.6	-00.3	N 19 17.6	-00.3	258 50.2	-27.5	S 14 24.9	-10.5	17
18	90 03.5	+00.2	N 07 54.8	-00.9	134 40.3	-00.4	N 19 17.3	-00.3	273 22.7	-27.5	S 14 14.4	-10.5	18
19	105 03.7	+00.2	N 07 53.9	-00.9	149 39.9	-00.4	N 19 17.0	-00.3	287 55.2	-27.4	S 14 03.9	-10.6	19
20	120 03.9	+00.2	N 07 53.0	-00.9	164 39.5	-00.3	N 19 16.7	-00.3	302 27.8	-27.3	S 13 53.3	-10.6	20
21	135 04.1	+00.2	N 07 52.1	-00.9	179 39.2	-00.4	N 19 16.4	-00.3	317 00.5	-27.3	S 13 42.7	-10.6	21
22	150 04.3	+00.2	N 07 51.2	-00.9	194 38.8	-00.3	N 19 16.1	-00.2	331 33.2	-27.2	S 13 32.1	-10.8	22
23	165 04.5	+00.2	N 07 50.3	-00.9	209 38.5	-00.4	N 19 15.9	-00.3	346 06.0	-27.1	S 13 21.3	-10.7	23
UT 02 06 10 14 18 22	SD 15°8' 15°8' 15°9' 15°9' 15°9' 15°9'	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'	UT 02 06 10 14 18 22	SD 15°1' 15°1' 15°0' 15°0' 15°0' 15°0'	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'	UT 02 06 10 14 18 22	SD 15°1' 15°1' 15°0' 15°0' 15°0' 15°0'	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'					
Greenwich Culmination Time: 11:59				Greenwich Culmination Time: 09:01				Greenwich Culmination Time: 23:57					

UT	<b>Mars</b>				<b>Jupiter</b>				<b>Saturn</b>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	316 08.5	+02.3	N 06 44.5	+00.0	54 30.6	+02.5	S 22 41.8	+00.0	45 40.8	+02.6	S 21 15.5	+00.0	00
01	331 10.8	+02.2	N 06 44.5	+00.1	69 33.1	+02.5	S 22 41.8	+00.0	60 43.4	+02.6	S 21 15.5	+00.0	01
02	346 13.0	+02.3	N 06 44.6	+00.1	84 35.6	+02.6	S 22 41.8	+00.0	75 46.0	+02.5	S 21 15.5	+00.0	02
03	1 15.3	+02.3	N 06 44.7	+00.1	99 38.2	+02.5	S 22 41.8	+00.0	90 48.5	+02.6	S 21 15.5	+00.1	03
04	16 17.6	+02.3	N 06 44.8	+00.0	114 40.7	+02.6	S 22 41.8	+00.0	105 51.1	+02.6	S 21 15.6	+00.0	04
05	31 19.9	+02.2	N 06 44.8	+00.1	129 43.3	+02.5	S 22 41.8	+00.0	120 53.7	+02.5	S 21 15.6	+00.0	05
06	46 22.1	+02.3	N 06 44.9	+00.1	144 45.8	+02.5	S 22 41.8	+00.1	135 56.2	+02.6	S 21 15.6	+00.0	06
07	61 24.4	+02.3	N 06 45.0	+00.1	159 48.3	+02.6	S 22 41.9	+00.0	150 58.8	+02.6	S 21 15.6	+00.1	07
08	76 26.7	+02.3	N 06 45.1	+00.0	174 50.9	+02.5	S 22 41.9	+00.0	166 01.4	+02.5	S 21 15.7	+00.0	08
09	91 29.0	+02.2	N 06 45.1	+00.1	189 53.4	+02.6	S 22 41.9	+00.0	181 03.9	+02.6	S 21 15.7	+00.0	09
10	106 31.2	+02.3	N 06 45.2	+00.1	204 56.0	+02.5	S 22 41.9	+00.0	196 06.5	+02.6	S 21 15.7	+00.0	10
11	121 33.5	+02.3	N 06 45.3	+00.0	219 58.5	+02.5	S 22 41.9	+00.0	211 09.1	+02.5	S 21 15.7	+00.0	11
12	136 35.8	+02.3	N 06 45.3	+00.1	235 01.0	+02.6	S 22 41.9	+00.0	226 11.6	+02.6	S 21 15.7	+00.1	12
13	151 38.1	+02.3	N 06 45.4	+00.1	250 03.6	+02.5	S 22 41.9	+00.0	241 14.2	+02.6	S 21 15.8	+00.0	13
14	166 40.4	+02.2	N 06 45.5	+00.1	265 06.1	+02.5	S 22 41.9	+00.0	256 16.8	+02.5	S 21 15.8	+00.0	14
15	181 42.6	+02.3	N 06 45.6	+00.0	280 08.6	+02.6	S 22 42.0	+00.0	271 19.3	+02.6	S 21 15.8	+00.0	15
16	196 44.9	+02.3	N 06 45.6	+00.1	295 11.2	+02.5	S 22 42.0	+00.0	286 21.9	+02.6	S 21 15.8	+00.0	16
17	211 47.2	+02.3	N 06 45.7	+00.1	310 13.7	+02.5	S 22 42.0	+00.0	301 24.5	+02.5	S 21 15.8	+00.1	17
18	226 49.5	+02.3	N 06 45.8	+00.0	325 16.2	+02.6	S 22 42.0	+00.0	316 27.0	+02.6	S 21 15.9	+00.0	18
19	241 51.8	+02.3	N 06 45.8	+00.1	340 18.8	+02.5	S 22 42.0	+00.0	331 29.6	+02.6	S 21 15.9	+00.0	19
20	256 54.1	+02.3	N 06 45.9	+00.1	355 21.3	+02.5	S 22 42.0	+00.0	346 32.2	+02.5	S 21 15.9	+00.0	20
21	271 56.4	+02.3	N 06 46.0	+00.0	10 23.8	+02.6	S 22 42.0	+00.0	1 34.7	+02.6	S 21 15.9	+00.0	21
22	286 58.7	+02.3	N 06 46.0	+00.1	25 26.4	+02.5	S 22 42.0	+00.0	16 37.3	+02.6	S 21 15.9	+00.1	22
23	302 01.0	+02.3	N 06 46.1	+00.1	40 28.9	+02.5	S 22 42.0	+00.0	31 39.9	+02.5	S 21 16.0	+00.0</	

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes astronomical data for each planet and a small table at the bottom for UT 02-22.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes astronomical data for each planet and a small table at the bottom for UT 02-22.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes astronomical data for each planet and a small table at the bottom for UT 02-22.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes astronomical data for each planet and a small table at the bottom for UT 02-22.

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Sun					Venus					Moon					A: 68%					
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT							
00	180	34.9	+00.3	N 05 35.9	-01.0	223	44.4	-00.4	N 18 24.6	-00.4	299	46.6	-26.5	N 14 43.3	+09.9					
01	195	35.2	+00.2	N 05 34.9	-00.9	238	44.0	-00.3	N 18 24.2	-00.4	314	20.1	-26.5	N 14 53.2	+09.9					
02	210	35.4	+00.2	N 05 34.0	-01.0	253	43.7	-00.4	N 18 23.8	-00.5	328	53.6	-26.6	N 15 03.1	+09.8					
03	225	35.6	+00.2	N 05 33.0	-00.9	268	43.3	-00.4	N 18 23.3	-00.9	343	27.0	-26.6	N 15 12.9	+09.8					
04	240	35.8	+00.2	N 05 32.1	-00.9	283	42.9	-00.4	N 18 22.9	-00.4	358	00.4	-26.7	N 15 22.7	+09.7					
05	255	36.0	+00.2	N 05 31.2	-01.0	298	42.5	-00.4	N 18 22.5	-00.4	12	33.7	-26.7	N 15 32.4	+09.6					
06	270	36.2	+00.3	N 05 30.2	-00.9	313	42.1	-00.4	N 18 22.1	-00.5	27	07.0	-26.8	N 15 42.0	+09.6					
07	285	36.5	+00.2	N 05 29.3	-01.0	328	41.7	-00.4	N 18 21.6	-00.4	41	40.2	-26.9	N 15 51.6	+09.5					
08	300	36.7	+00.2	N 05 28.3	-00.9	343	41.3	-00.4	N 18 21.2	-00.4	56	13.3	-26.9	N 16 01.1	+09.5					
09	315	36.9	+00.2	N 05 27.4	-00.9	358	40.9	-00.4	N 18 20.8	-00.4	70	46.4	-27.0	N 16 10.6	+09.4					
10	330	37.1	+00.2	N 05 26.5	-01.0	13	40.5	-00.3	N 18 20.4	-00.4	85	19.4	-27.0	N 16 20.0	+09.3					
11	345	37.3	+00.2	N 05 25.5	-00.9	28	40.2	-00.4	N 18 20.0	-00.5	99	52.4	-27.1	N 16 29.3	+09.3					
12	0	37.5	+00.3	N 05 24.6	-01.0	43	39.8	-00.4	N 18 19.5	-00.4	114	25.3	-27.2	N 16 38.6	+09.2					
13	15	37.8	+00.2	N 05 23.6	-00.9	58	39.4	-00.4	N 18 19.1	-00.4	128	58.1	-27.2	N 16 47.8	+09.1					
14	30	38.0	+00.2	N 05 22.7	-01.0	73	39.0	-00.4	N 18 18.7	-00.5	143	30.9	-27.3	N 16 56.9	+09.0					
15	45	38.2	+00.2	N 05 21.7	-00.9	88	38.6	-00.4	N 18 18.2	-00.9	158	03.6	-27.3	N 17 05.9	+09.0					
16	60	38.4	+00.2	N 05 20.8	-00.9	103	38.2	-00.4	N 18 17.8	-00.4	172	36.3	-27.4	N 17 14.9	+09.0					
17	75	38.6	+00.2	N 05 19.9	-01.0	118	37.8	-00.4	N 18 17.4	-00.5	187	08.9	-27.5	N 17 23.9	+08.8					
18	90	38.8	+00.3	N 05 18.9	-00.9	133	37.4	-00.4	N 18 16.9	-00.4	201	41.4	-27.5	N 17 32.7	+08.8					
19	105	39.1	+00.2	N 05 18.0	-01.0	148	37.0	-00.4	N 18 16.5	-00.4	216	13.9	-27.6	N 17 41.5	+08.7					
20	120	39.3	+00.2	N 05 17.0	-00.9	163	36.6	-00.4	N 18 16.1	-00.5	230	46.3	-27.7	N 17 50.2	+08.7					
21	135	39.5	+00.2	N 05 16.1	-01.0	178	36.2	-00.3	N 18 15.6	-00.4	245	18.6	-27.7	N 17 58.9	+08.6					
22	150	39.7	+00.2	N 05 15.1	-00.9	193	35.9	-00.4	N 18 15.2	-00.4	259	50.9	-27.8	N 18 07.5	+08.5					
23	165	39.9	+00.2	N 05 14.2	-00.9	208	35.5	-00.4	N 18 14.8	-00.5	274	23.1	-27.9	N 18 16.0	+08.4					
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°2	00°2	00°2	00°2	00°2	00°2	00°2	SD	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°2	00°2	00°2	00°2	00°2	00°2	00°2	HP	54°3	54°3	54°4	54°4	54°5
SHA	193°	193°	193°	193°	192°	192°	SHA	236°	236°	236°	236°	235°	235°	235°	SHA	311°	309°	307°	305°	303°
Greenwich Culmination Time: 11:57					Greenwich Culmination Time: 09:05					Greenwich Culmination Time: 04:08										

Sun					Venus					Moon					A: 59%				
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT						
00	180	19.6	+00.2	N 06 43.1	-00.9	224	11.9	-00.4	N 18 52.3	-00.3	330	00.1	-24.6	N 01 03.4	+12.2				
01	195	19.8	+00.2	N 06 42.2	-00.9	239	11.5	-00.4	N 18 52.0	-00.4	344	35.5	-24.6	N 01 15.6	+12.2				
02	210	20.0	+00.2	N 06 41.3	-01.0	254	11.1	-00.3	N 18 51.6	-00.3	359	10.9	-24.7	N 01 27.8	+12.2				
03	225	20.2	+00.2	N 06 40.3	-00.9	269	10.8	-00.4	N 18 51.3	-00.4	13	46.2	-24.6	N 01 40.0	+12.2				
04	240	20.4	+00.2	N 06 39.4	-00.9	284	10.4	-00.4	N 18 50.9	-00.3	28	21.6	-24.6	N 01 52.2	+12.2				
05	255	20.6	+00.2	N 06 38.5	-01.0	299	10.0	-00.4	N 18 50.6	-00.4	42	57.0	-24.6	N 02 04.4	+12.2				
06	270	20.8	+00.3	N 06 37.5	-00.9	314	09.6	-00.3	N 18 50.2	-00.4	57	32.4	-24.7	N 02 16.6	+12.2				
07	285	21.1	+00.2	N 06 36.6	-00.9	329	09.3	-00.4	N 18 49.8	-00.3	72	07.7	-24.6	N 02 28.8	+12.1				
08	300	21.3	+00.2	N 06 35.7	-00.9	344	08.9	-00.4	N 18 49.5	-00.4	86	43.1	-24.6	N 02 40.9	+12.2				
09	315	21.5	+00.2	N 06 34.8	-01.0	359	08.5	-00.4	N 18 49.1	-00.3	101	18.5	-24.7	N 02 53.1	+12.1				
10	330	21.7	+00.2	N 06 33.8	-00.9	14	08.1	-00.3	N 18 48.8	-00.4	115	53.8	-24.6	N 03 05.2	+12.1				
11	345	21.9	+00.2	N 06 32.9	-00.9	29	07.8	-00.4	N 18 48.4	-00.4	130	29.2	-24.6	N 03 17.3	+12.1				
12	0	22.1	+00.2	N 06 32.0	-01.0	44	07.4	-00.4	N 18 48.0	-00.3	145	04.6	-24.7	N 03 29.4	+12.1				
13	15	22.3	+00.2	N 06 31.0	-00.9	59	07.0	-00.4	N 18 47.7	-00.4	159	39.9	-24.6	N 03 41.5	+12.1				
14	30	22.5	+00.2	N 06 30.1	-00.9	74	06.6	-00.3	N 18 47.3	-00.4	174	15.3	-24.7	N 03 53.6	+12.0				
15	45	22.7	+00.3	N 06 29.2	-01.0	89	06.3	-00.4	N 18 46.9	-00.3	188	50.6	-24.6	N 04 05.6	+12.1				
16	60	23.0	+00.2	N 06 28.2	-00.9	104	05.9	-00.4	N 18 46.6	-00.4	203	26.0	-24.7	N 04 17.7	+12.0				
17	75	23.2	+00.2	N 06 27.3	-00.9	119	05.5	-00.4	N 18 46.2	-00.4	218	01.3	-24.7	N 04 29.7	+12.0				
18	90	23.4	+00.2	N 06 26.4	-00.9	134	05.1	-00.3	N 18 45.8	-00.3	232	36.6	-24.7	N 04 41.7	+11.9				
19	105	23.6	+00.2	N 06 25.5	-01.0	149	04.8	-00.4	N 18 45.5	-00.4	247	11.9	-24.7	N 04 53.6	+12.0				
20	120	23.8	+00.2	N 06 24.5	-00.9	164	04.4	-00.4	N 18 45.1	-00.4	261	47.2	-24.7	N 05 05.6	+11.9				
21	135	24.0	+00.2	N 06 23.6	-00.9	179	04.0	-00.4	N 18 44.7	-00.4	276	22.5	-24.7	N 05 17.5	+12.0				
22	150	24.2	+00.2	N 06 22.7	-01.0	194	03.6	-00.4	N 18 44.3	-00.3	290	57.8	-24.8	N 05 29.5	+11.9				
23	165	24.4	+00.3	N 06 21.7	-00.9	209	03.2	-00.3	N 18 44.0	-00.4	305	33.0	-24.7	N 05 41.4	+11.8				
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°2	00°2	00°2	00°2	00°2	00°2	SD	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°2	00°2	00°2	00°2	00°2	00°2	HP	54°1	54°1	54°1	54°1	54°0
SHA	196°	196°	195°	195°	195°	195°	SHA	240°	239°	239°	239°	239°	239°	SHA	345°	343°	341°	339°	337°
Greenwich Culmination Time: 11:58					Greenwich Culmination Time: 09:03					Greenwich Culmination Time: 02:03									

Mars					Jupiter					Saturn					
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT		
00	319	52.5	+02.4	N 06 49.9	+00.0	58	32.9	+02.5	S 22 42.7	+00.0	49	46.6	+02.5	S 21 17.4	+00.0
01	334	54.9	+02.4	N 06 49.9	+00.0	73	35.4	+02.5	S 22 42.7	+00.0	64	49.1	+02.6	S 21 17.4	+00.0
02	349	57.3	+02.4	N 06 49.9	+00.1	88	37.9	+02.5	S 22 42.7	+00.0	79	51.7	+02.6	S 21 17.4	+00.0
03	4	59.7	+02.4	N 06 50.0	+00.0	103	40.4	+02.5	S 22 42.7	+00.0	94	54.3	+02.5	S 21 17.4	+00.0
04	20	02.1	+02.4	N 06 50.0	+00.1	118	42.9	+02.5	S 22 42.7	+00.0	109	56.8	+02.6	S 21 17.4	+00.0
05	35	04.5	+02.4	N 06 50.1	+00.0	133	45.4	+02.5	S 22 42.7	+00.0	124	59.4	+02.5	S 21 17.4	+00.1
06	50	06.9	+02.4	N 06 50.1	+00.0	148	47.9	+02.5	S 22 42.7	+00.0	140	01.9	+02.6	S 21 17.5	+00.0
07	65	09.3	+02.4	N 06 50.1	+00.1	163	50.4	+02.5	S 22 42.7	+00.1	155	04.5	+02.5	S 21 17.5	+00.0
08	80	11.7	+02.4	N 06 50.2	+00.0	178	52.9	+02.5	S 22 42.8	+00.0	170	07.0	+02.6	S 21 17.5	+00.0
09	95	14.1	+02.5	N 06 50.2	+00.0	193	55.4	+02.5	S 22 42.8	+00.0	185	09.6	+02.5	S 21 17.5	+00.0
10	110	16.6	+02.4	N 06 50.2	+00.1	208	57.9	+02.5	S 22 42.8	+00.0	200	12.1	+02.6	S 21 17.5	+00.1
11	125	19.0	+02.4	N 06 50.3	+00.0	224	00.4	+02.5	S 22 42.8	+00.0	215	14.7	+02.5	S 21 17.6	+00.0
12	140	21.4	+02.4	N 06 50.3	+00.0	239	02.9	+02.5	S 22 42.8	+00.0	230	17.2	+02.6	S 21 17.6	+00.0
13	155	23.8	+02.4	N 06 50.3	+00.1	254	05.4	+02.6	S 22 42.8	+00.0	245	19.8	+02.5	S 21 17.6	+00.0
14	170	26.2	+02.5	N 06 50.4	+00.0	269	08.0	+02.5	S 22 42.8	+00.0	260	22.3	+02.6	S 21 17.6	+00.0
15	185	28.7	+02.4	N 06 50.4	+00.0	284	10.5	+02.5	S 22 42.8	+00.0	275	24.9	+02.5	S 21 17.6	+00.0
16	200	31.1	+02.4	N 06 50.4	+00.0	299	13.0	+02.5	S 22 42.8	+00.0	290	27.4	+02.6	S 21 17.6	+00.1
17	2														

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	24.7	+00.2	N 06 20.8	-00.9	224	02.9	-00.4	N 18 43.6	-00.4	320	08.3	-24.8	N 05 53.2	+11.9	00
01	195	24.9	+00.2	N 06 19.9	-01.0	239	02.5	-00.4	N 18 43.2	-00.4	334	43.5	-24.8	N 06 05.1	+11.8	01
02	210	25.1	+00.2	N 06 18.9	-00.9	254	02.1	-00.4	N 18 42.8	-00.3	349	18.7	-24.8	N 06 16.9	+11.8	02
03	225	25.3	+00.2	N 06 18.0	-00.9	269	01.7	-00.4	N 18 42.5	-00.4	3	53.9	-24.8	N 06 28.7	+11.8	03
04	240	25.5	+00.2	N 06 17.1	-01.0	284	01.3	-00.3	N 18 42.1	-00.4	18	29.1	-24.9	N 06 40.5	+11.7	04
05	255	25.7	+00.2	N 06 16.1	-00.9	299	01.0	-00.4	N 18 41.7	-00.4	33	04.2	-24.8	N 06 52.2	+11.7	05
06	270	25.9	+00.2	N 06 15.2	-00.9	314	00.6	-00.4	N 18 41.3	-00.4	47	39.4	-24.9	N 07 03.9	+11.7	06
07	285	26.1	+00.3	N 06 14.3	-01.0	329	00.2	-00.4	N 18 40.9	-00.3	62	14.5	-24.9	N 07 15.6	+11.7	07
08	300	26.4	+00.2	N 06 13.3	-00.9	343	59.8	-00.4	N 18 40.6	-00.4	76	49.6	-25.0	N 07 27.3	+11.6	08
09	315	26.6	+00.2	N 06 12.4	-00.9	358	59.4	-00.3	N 18 40.2	-00.4	91	24.6	-24.9	N 07 38.9	+11.6	09
10	330	26.8	+00.2	N 06 11.5	-01.0	13	59.1	-00.4	N 18 39.8	-00.4	105	59.7	-25.0	N 07 50.5	+11.6	10
11	345	27.0	+00.2	N 06 10.5	-00.9	28	58.7	-00.4	N 18 39.4	-00.4	120	34.7	-25.0	N 08 02.1	+11.6	11
12	0	27.2	+00.2	N 06 09.6	-00.9	43	58.3	-00.4	N 18 39.0	-00.4	135	09.7	-25.0	N 08 13.7	+11.5	12
13	15	27.4	+00.2	N 06 08.7	-01.0	58	57.9	-00.4	N 18 38.6	-00.3	149	44.7	-25.0	N 08 25.2	+11.5	13
14	30	27.6	+00.3	N 06 07.7	-00.9	73	57.5	-00.4	N 18 38.3	-00.4	164	19.7	-25.1	N 08 36.7	+11.4	14
15	45	27.9	+00.2	N 06 06.8	-00.9	88	57.1	-00.3	N 18 37.9	-00.4	178	54.6	-25.1	N 08 48.1	+11.4	15
16	60	28.1	+00.2	N 06 05.9	-01.0	103	56.8	-00.4	N 18 37.5	-00.4	193	29.5	-25.2	N 08 59.5	+11.4	16
17	75	28.3	+00.2	N 06 04.9	-00.9	118	56.4	-00.4	N 18 37.1	-00.4	208	04.3	-25.1	N 09 10.9	+11.4	17
18	90	28.5	+00.2	N 06 04.0	-00.9	133	56.0	-00.4	N 18 36.7	-00.4	222	39.2	-25.2	N 09 22.3	+11.3	18
19	105	28.7	+00.2	N 06 03.1	-01.0	148	55.6	-00.4	N 18 36.3	-00.4	237	14.0	-25.2	N 09 33.6	+11.3	19
20	120	28.9	+00.2	N 06 02.1	-00.9	163	55.2	-00.3	N 18 35.9	-00.4	251	48.8	-25.3	N 09 44.9	+11.2	20
21	135	29.1	+00.2	N 06 01.2	-00.9	178	54.9	-00.4	N 18 35.5	-00.4	266	23.5	-25.3	N 09 56.1	+11.2	21
22	150	29.3	+00.3	N 06 00.3	-01.0	193	54.5	-00.4	N 18 35.1	-00.4	280	58.2	-25.3	N 10 07.3	+11.2	22
23	165	29.6	+00.2	N 05 59.3	-00.9	208	54.1	-00.4	N 18 34.7	-00.4	295	32.9	-25.4	N 10 18.5	+11.1	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°9' 15°9' 15°9' 15°9' 15°9' 15°9'				SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'				SD 14°7' 14°7' 14°7' 14°7' 14°7' 14°7'				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'				HP 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'				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 195° 195° 194° 194° 194° 194°				SHA 238° 238° 238° 238° 238° 237°				SHA 334° 332° 330° 328° 326° 325°				SHA 194° 194° 194° 193° 193° 193°				
Greenwich Culmination Time: 11:58				Greenwich Culmination Time: 09:04				Greenwich Culmination Time: 02:43				Greenwich Culmination Time: 11:57				

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	180	29.8	+00.2	N 05 58.4	-01.0	223	53.7	-00.4	N 18 34.3	-00.4	310	07.5	-25.4	N 10 29.6	+11.1	00
01	195	30.0	+00.2	N 05 57.4	-00.9	238	53.3	-00.4	N 18 33.9	-00.4	324	42.1	-25.4	N 10 40.7	+11.0	01
02	210	30.2	+00.2	N 05 56.5	-00.9	253	52.9	-00.4	N 18 33.5	-00.4	339	16.7	-25.5	N 10 51.7	+11.0	02
03	225	30.4	+00.2	N 05 55.6	-01.0	268	52.5	-00.3	N 18 33.1	-00.3	353	51.2	-25.5	N 11 02.7	+11.0	03
04	240	30.6	+00.2	N 05 54.6	-00.9	283	52.2	-00.4	N 18 32.8	-00.4	8	25.7	-25.5	N 11 13.7	+10.9	04
05	255	30.8	+00.3	N 05 53.7	-00.9	298	51.8	-00.4	N 18 32.4	-00.4	23	00.2	-25.6	N 11 24.6	+10.9	05
06	270	31.1	+00.2	N 05 52.8	-01.0	313	51.4	-00.4	N 18 32.0	-00.5	37	34.6	-25.6	N 11 35.5	+10.9	06
07	285	31.3	+00.2	N 05 51.8	-00.9	328	51.0	-00.4	N 18 31.5	-00.4	52	09.0	-25.7	N 11 46.4	+10.7	07
08	300	31.5	+00.2	N 05 50.9	-01.0	343	50.6	-00.4	N 18 31.1	-00.4	66	43.3	-25.7	N 11 57.1	+10.8	08
09	315	31.7	+00.2	N 05 49.9	-00.9	358	50.2	-00.3	N 18 30.7	-00.4	81	17.6	-25.7	N 12 07.9	+10.7	09
10	330	31.9	+00.2	N 05 49.0	-00.9	13	49.9	-00.4	N 18 30.3	-00.4	95	51.9	-25.8	N 12 18.6	+10.7	10
11	345	32.1	+00.3	N 05 48.1	-01.0	28	49.5	-00.4	N 18 29.9	-00.4	110	26.1	-25.8	N 12 29.3	+10.6	11
12	0	32.4	+00.2	N 05 47.1	-00.9	43	49.1	-00.4	N 18 29.5	-00.4	125	00.3	-25.9	N 12 39.9	+10.5	12
13	15	32.6	+00.2	N 05 46.2	-00.9	58	48.7	-00.4	N 18 29.1	-00.4	139	34.4	-25.9	N 12 50.4	+10.5	13
14	30	32.8	+00.2	N 05 45.3	-01.0	73	48.3	-00.4	N 18 28.7	-00.4	154	08.5	-26.0	N 13 00.9	+10.5	14
15	45	33.0	+00.2	N 05 44.3	-00.9	88	47.9	-00.4	N 18 28.3	-00.4	168	42.5	-26.0	N 13 11.4	+10.4	15
16	60	33.2	+00.2	N 05 43.4	-01.0	103	47.5	-00.4	N 18 27.9	-00.4	183	16.5	-26.1	N 13 21.8	+10.4	16
17	75	33.4	+00.2	N 05 42.4	-00.9	118	47.1	-00.3	N 18 27.5	-00.4	197	50.4	-26.1	N 13 32.2	+10.3	17
18	90	33.6	+00.3	N 05 41.5	-00.9	133	46.8	-00.4	N 18 27.1	-00.4	212	24.3	-26.1	N 13 42.5	+10.3	18
19	105	33.9	+00.2	N 05 40.6	-01.0	148	46.4	-00.4	N 18 26.7	-00.5	226	58.2	-26.3	N 13 52.8	+10.2	19
20	120	34.1	+00.2	N 05 39.6	-00.9	163	46.0	-00.4	N 18 26.2	-00.4	241	31.9	-26.2	N 14 03.0	+10.1	20
21	135	34.3	+00.2	N 05 38.7	-01.0	178	45.6	-00.4	N 18 25.8	-00.4	256	05.7	-26.3	N 14 13.1	+10.1	21
22	150	34.5	+00.2	N 05 37.7	-00.9	193	45.2	-00.4	N 18 25.4	-00.4	270	39.4	-26.4	N 14 23.2	+10.1	22
23	165	34.7	+00.2	N 05 36.8	-00.9	208	44.8	-00.4	N 18 25.0	-00.4	285	13.0	-26.4	N 14 33.3	+10.0	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°9' 15°9' 15°9' 15°9' 15°9' 15°9'				SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'				SD 14°7' 14°7' 14°7' 14°7' 14°7' 14°7'				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'				HP 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'				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 194° 194° 194° 193° 193° 193°				SHA 237° 237° 237° 237° 237° 236°				SHA 323° 323° 319° 319° 317° 315° 313°				SHA 147° 147° 147° 147° 147° 148°				
Greenwich Culmination Time: 11:57				Greenwich Culmination Time: 09:04				Greenwich Culmination Time: 03:25				Greenwich Culmination Time: 11:57				

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	317	58.8	+02.4	N 06 47.6	+00.1	56	32.1	+02.6	S 22 42.3	+00.0	47	43.9	+02.6	S 21 16.5	+00.0	00
01	333	01.2	+02.3	N 06 47.7	+00.											

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and a summary row with dates 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 11:56.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and a summary row with dates 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 11:57.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and a summary row with dates 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 12:24.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and a summary row with dates 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 12:36.

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UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				A: 74%	UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	180 45.4+00.2	N 04 50.6-01.0	223 25.6-00.4	N 18 03.6-00.5	277 25.6-29.7	N 21 22.0+06.3	00							
01	195 45.6+00.2	N 04 49.6-00.9	238 25.2-00.4	N 18 03.1-00.4	291 55.9-29.7	N 21 28.3+06.2	01							
02	210 45.8+00.2	N 04 48.7-01.0	253 24.8-00.4	N 18 02.7-00.5	306 26.2-29.8	N 21 34.5+06.1	02							
03	225 46.0+00.3	N 04 47.7-00.9	268 24.4-00.4	N 18 02.2-00.5	320 56.4-29.8	N 21 40.6+06.0	03							
04	240 46.3+00.2	N 04 46.8-01.0	283 24.0-00.4	N 18 01.7-00.4	335 26.6-30.0	N 21 46.6+05.9	04							
05	255 46.5+00.2	N 04 45.8-00.9	298 23.6-00.3	N 18 01.3-00.5	349 56.6-30.0	N 21 52.5+05.8	05							
06	270 46.7+00.2	N 04 44.9-01.0	313 23.3-00.4	N 18 00.8-00.5	4 26.6-30.1	N 21 58.3+05.7	06							
07	285 46.9+00.2	N 04 43.9-00.9	328 22.9-00.4	N 18 00.3-00.4	18 56.5-30.1	N 22 04.0+05.6	07							
08	300 47.1+00.3	N 04 43.0-01.0	343 22.5-00.4	N 17 59.9-00.5	33 26.4-30.3	N 22 09.6+05.5	08							
09	315 47.4+00.2	N 04 42.0-00.9	358 22.1-00.4	N 17 59.4-00.5	47 56.1-30.3	N 22 15.1+05.3	09							
10	330 47.6+00.2	N 04 41.1-01.0	13 21.7-00.4	N 17 58.9-00.4	62 25.8-30.3	N 22 20.4+05.3	10							
11	345 47.8+00.2	N 04 40.1-00.9	28 21.3-00.4	N 17 58.5-00.5	76 55.5-30.5	N 22 25.7+05.2	11							
12	0 48.0+00.2	N 04 39.2-01.0	43 20.9-00.4	N 17 58.0-00.5	91 25.0-30.5	N 22 30.9+05.1	12							
13	15 48.2+00.3	N 04 38.2-00.9	58 20.5-00.4	N 17 57.5-00.4	105 54.5-30.6	N 22 36.0+04.9	13							
14	30 48.5+00.2	N 04 37.3-01.0	73 20.1-00.4	N 17 57.1-00.5	120 23.9-30.7	N 22 40.9+04.9	14							
15	45 48.7+00.2	N 04 36.3-00.9	88 19.7-00.4	N 17 56.6-00.9	134 53.2-30.7	N 22 45.8+04.7	15							
16	60 48.9+00.2	N 04 35.4-01.0	103 19.3-00.4	N 17 56.1-00.4	149 22.5-30.8	N 22 50.5+04.6	16							
17	75 49.1+00.2	N 04 34.4-00.9	118 18.9-00.4	N 17 55.7-00.5	163 51.7-30.9	N 22 55.1+04.5	17							
18	90 49.3+00.2	N 04 33.5-01.0	133 18.5-00.4	N 17 55.2-00.5	178 20.8-31.0	N 22 59.6+04.4	18							
19	105 49.5+00.3	N 04 32.5-00.9	148 18.1-00.4	N 17 54.7-00.5	192 49.8-31.0	N 23 04.0+04.3	19							
20	120 49.8+00.2	N 04 31.6-01.0	163 17.7-00.4	N 17 54.2-00.4	207 18.8-31.1	N 23 08.3+04.2	20							
21	135 50.0+00.2	N 04 30.6-00.9	178 17.3-00.4	N 17 53.8-00.5	221 47.7-31.2	N 23 12.5+04.1	21							
22	150 50.2+00.2	N 04 29.7-01.0	193 16.9-00.4	N 17 53.3-00.5	236 16.5-31.2	N 23 16.6+03.9	22							
23	165 50.4+00.2	N 04 28.7-00.9	208 16.5-00.4	N 17 52.8-00.5	250 45.3-31.3	N 23 20.5+03.9	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 191° 191° 191° 191° 191° 190°	Greenwich Culmination Time: 11:56	SD 00°2' 00°2' 00°2' 00°2' 00°1' 00°1'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°2'	SHA 234° 234° 233° 233° 233° 233°	Greenwich Culmination Time: 09:06	UT 02 06 10 14 18 22	SD 15°0' 15°0' 15°1' 15°1' 15°2' 15°2'	HP 55°1' 55°2' 55°3' 55°4' 55°5' 55°7'	SHA 287° 287° 283° 280° 278° 276°	Greenwich Culmination Time: 05:41	

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i>				A: 78%	UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec		
00	180 50.6+00.3	N 04 27.8-01.0	223 16.1-00.4	N 17 52.3-00.5	265 14.0-31.4	N 23 24.4+03.7	00							
01	195 50.9+00.2	N 04 26.8-00.9	238 15.7-00.4	N 17 51.8-00.4	279 42.6-31.5	N 23 28.1+03.6	01							
02	210 51.1+00.2	N 04 25.9-01.0	253 15.3-00.4	N 17 51.4-00.5	294 11.1-31.5	N 23 31.7+03.5	02							
03	225 51.3+00.2	N 04 24.9-00.9	268 14.9-00.4	N 17 51.0-00.5	308 39.6-31.6	N 23 35.2+03.3	03							
04	240 51.5+00.2	N 04 24.0-01.0	283 14.5-00.4	N 17 50.4-00.5	323 08.0-31.6	N 23 38.5+03.3	04							
05	255 51.7+00.3	N 04 23.0-00.9	298 14.1-00.4	N 17 49.9-00.5	337 36.4-31.8	N 23 41.8+03.1	05							
06	270 52.0+00.2	N 04 22.1-01.0	313 13.7-00.4	N 17 49.4-00.5	352 04.6-31.7	N 23 44.9+03.0	06							
07	285 52.2+00.2	N 04 21.1-00.9	328 13.3-00.4	N 17 48.9-00.4	6 32.9-31.9	N 23 47.9+02.8	07							
08	300 52.4+00.2	N 04 20.2-01.0	343 12.9-00.4	N 17 48.5-00.5	21 01.0-31.9	N 23 50.7+02.8	08							
09	315 52.6+00.2	N 04 19.2-01.0	358 12.5-00.4	N 17 48.0-00.5	35 29.1-32.0	N 23 53.5+02.6	09							
10	330 52.8+00.3	N 04 18.2-00.9	13 12.1-00.4	N 17 47.5-00.5	49 57.1-32.0	N 23 56.1+02.5	10							
11	345 53.1+00.2	N 04 17.3-01.0	28 11.7-00.4	N 17 47.0-00.5	64 25.1-32.2	N 23 58.6+02.4	11							
12	0 53.3+00.2	N 04 16.3-00.9	43 11.3-00.4	N 17 46.5-00.5	78 52.9-32.1	N 24 01.0+02.2	12							
13	15 53.5+00.2	N 04 15.4-01.0	58 10.9-00.4	N 17 46.0-00.5	93 20.8-32.3	N 24 03.2+02.2	13							
14	30 53.7+00.3	N 04 14.4-00.9	73 10.5-00.4	N 17 45.5-00.5	107 48.5-32.3	N 24 05.4+02.0	14							
15	45 54.0+00.2	N 04 13.5-01.0	88 10.1-00.4	N 17 45.0-00.5	122 16.2-32.3	N 24 07.4+01.8	15							
16	60 54.2+00.2	N 04 12.5-00.9	103 09.7-00.4	N 17 44.5-00.5	136 43.9-32.4	N 24 09.2+01.7	16							
17	75 54.4+00.2	N 04 11.6-01.0	118 09.3-00.4	N 17 44.0-00.4	151 11.5-32.5	N 24 10.9+01.6	17							
18	90 54.6+00.2	N 04 10.6-00.9	133 08.9-00.4	N 17 43.6-00.5	165 39.0-32.6	N 24 12.5+01.5	18							
19	105 54.8+00.3	N 04 09.7-01.0	148 08.5-00.4	N 17 43.1-00.5	180 06.4-32.6	N 24 14.0+01.4	19							
20	120 55.1+00.2	N 04 08.7-00.9	163 08.1-00.4	N 17 42.6-00.5	194 33.8-32.6	N 24 15.4+01.2	20							
21	135 55.3+00.2	N 04 07.8-01.0	178 07.7-00.4	N 17 42.1-00.5	209 01.2-32.7	N 24 16.6+01.0	21							
22	150 55.5+00.2	N 04 06.8-00.9	193 07.3-00.4	N 17 41.6-00.5	223 28.5-32.8	N 24 17.6+01.0	22							
23	165 55.7+00.2	N 04 05.9-01.0	208 06.9-00.4	N 17 41.1-00.5	237 55.7-32.8	N 24 18.6+00.8	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 190° 190° 190° 190° 190° 190°	Greenwich Culmination Time: 11:56	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 55°8' 55°9' 56°0' 56°2' 56°3' 56°4'	SHA 233° 233° 232° 232° 232° 232°	Greenwich Culmination Time: 09:07	UT 02 06 10 14 18 22	SD 15°2' 15°2' 15°3' 15°3' 15°3' 15°4'	HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'	SHA 274° 271° 269° 267° 264° 262°	Greenwich Culmination Time: 06:32	

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	321 49.5+02.4	N 06 51.2+00.0	60 32.8+02.5	S 22 43.0+00.0	51 48.9+02.6	S 21 18.2+00.0	00						
01	336 51.9+02.5	N 06 51.2+00.0	75 35.3+02.5	S 22 43.0+00.0	66 51.5+02.5	S 21 18.2+00.0	01						
02	351 54.4+02.5	N 06 51.2+00.0	90 37.8+02.5	S 22 43.0+00.0	81 54.0+02.6	S 21 18.2+00.0	02						
03	6 56.9+02.5	N 06 51.2+00.0	105 40.3+02.5	S 22 43.0+00.0	96 56.6+02.5	S 21 18.2+00.1	03						
04	21 59.4+02.5	N 06 51.2+00.1	120 42.8+02.5	S 22 43.0+00.0	111 59.1+02.5	S 21 18.3+00.0	04						
05	37 01.9+02.4	N 06 51.3+00.0	135 45.3+02.5	S 22 43.0+00.0	127 01.6+02.6	S 21 18.3+00.0	05						
06	52 04.3+02.5	N 06 51.3+00.0	150 47.8+02.4	S 22 43.0+00.0	142 04.2+02.5	S 21 18.3+00.0	06						
07	67 06.8+02.5	N 06 51.3+00.0	165 50.2+02.5	S 22 43.0+00.0	157 06.7+02.6	S 21 18.3+00.0	07						
08	82 09.3+02.5	N 06 51.3+00.0	180 52.7+02.5	S 22 43.0+00.0	172 09.3+02.5	S 21 18.3+00.0	08						
09	97 11.8+02.5	N 06 51.3+00.0	195 55.2+02.5	S 22 43.0+00.0	187 11.8+02.6	S 21 18.3+00.0	09						
10	112 14.3+02.5	N 06 51.3+00.0	210 57.7+02.5	S 22 43.0+00.1	202 14.4+02.5	S 21 18.3+00.1	10						
11	127 16.8+02.5	N 06 51.3+00.1	226 00.2+02.5	S 22 43.1+00.0	217 16.9+02.5	S 21 18.4+00.0	11						
12	142 19.3+02.5	N 06 51.4+00.0	241 02.7+02.5	S 22 43.1+00.0	232 19.4+02.6	S 21 18.4+00.0	12						
13	157 21.8+02.4	N 06 51.4+00.0	256 05.2+02.4	S 22 43.1+00.0	247 22.0+02.5	S 21 18.4+00.0	13						
14	172 24.2+02.5	N 06 51.4+00.0	271 07.6+02.5	S 22 43.1+00.0	262 24.5+02.6	S 21 18.4+00.0	14						
15	187 26.7+02.5	N 06 51.4+00.0	286 10.1+02.5	S 22 43.1+00.0	277 27.1+02.5	S 21 18.4+00.0	15						
16	202 29.2+02.5	N 06 51.4+00.0	301 12.6+02.5	S 22 43.1+00.0	292 29.6+02.6	S 21 18.4+00.1	16						
17	217 31.7+02.5	N 06 51.4+00.0	316 15.1+02.5	S 22 43.1+00.0	307 32.2+02.5	S 21 18.5+00.0	17						
18	232 34.2+02.5	N 06 51.4+00.0	331 17.6+02.5	S 22 43.1+00.0	322 34.7+02.5	S 21 18.5+00.0	18						
19	247 36.7+02.5	N 06 51.4+00.0	346 20.1+02.5	S 22 43.1+00.0	337 37.2+02.6	S 21 18.5+00.0	19						
20	262 39.2+02.5	N 06 51.4+00.0	1 22.6+02.4	S 22 43.1+00.0	352 39.8+02.5	S 21 18.5+00.0	20						
21	277 41.7+02.5	N 06 51.4+00.1	16 25.0+02.5	S 22 43.1+00.0	7 42.3+02.6	S 21 18.5+00.0	21						
22	292 44.2+02.6	N 06 51.5+00.0	31 27.5+02.5	S 22 43.1+00.0	22 44.9+02.5	S 21 18.5+00.1	22						
23	307 46.8+02.5	N 06 51.5+00.0	46 30.0+02.5	S 22 43.1+00.0	37 47.4+02.5	S 21 18.6+00.0	23						
UT 02 06 10 14 18 22	SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'	HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'	SHA 332° 332° 332° 332° 332° 332°	Greenwich Culmination Time: 12:32	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 071° 071° 071° 071° 071° 071°	Greenwich Culmination Time: 19:54	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 062° 062° 062° 062° 062° 062°	Greenwich Culmination Time: 20:29

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	322 49.3+02.5	N 06 51.5+00.0	61 32.5+02.5	S 22 43.1+00.0	52 49.9+02.6	S 21 18.6+00.0	00						
01	337 51.8+02.5	N 06 51.5+00.0	76 35.0+02.4	S 22 43.1+00.0	67 52.5+02.5	S 21 18.6+00.0	01						
02	352 54.3+02.5	N 06 51.5+00.0	91 37.4+02.5	S 22 43.1+00.0	82 55.0+02.6	S 21 18.6+00.0	02						
03	7 56.8+02.5	N 06 51.5+00.0	106 39.9+02.5	S 22 43.1+00.0	97 57.6+02.5	S 21 18.6+00.0	03						
04	22 59.3+02.5	N 06 51.5+00.0	121 42.4+02.5	S 22 43.1+00.0	113 00.1+02.5	S 21 18.6+00.1	04						
05	38 01.8+02.5	N 06 51.5+00.0	136 44.9+02.5	S 22 43.1+00.0	128 02.6+02.6	S 21 18.7+00.0	05						
06	53 04.3+02.6	N 06 51.5+00.0	151 47.4+02.4	S 22 43.1+00.0	143 05.2+02.5	S 21 18.7+00.0	06						
07	68 06.9+02.5	N 06 51.5+00.0											

Table with columns for UT, Sun, Venus, Moon (A: 97%), and UT. Rows 00-23 show celestial coordinates for each body.

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 186° 186° 186° 185° 185° 185°
Greenwich Culmination Time: 11:54

Table with columns for UT, Sun, Venus, Moon (A: 85%), and UT. Rows 00-23 show celestial coordinates for each body.

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 189° 188° 188° 188° 188° 188°
Greenwich Culmination Time: 11:55

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

UT 02 06 10 14 18 22
SD 00°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 333° 333° 333° 333° 333° 333°
Greenwich Culmination Time: 02:07

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

UT 02 06 10 14 18 22
SD 00°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 332° 332° 332° 332° 332° 332°
Greenwich Culmination Time: 02:20

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Table with columns for Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and a footer with coordinates and Greenwich Culmination Time.

Table with columns for Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and a footer with coordinates and Greenwich Culmination Time.

Table with columns for Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and a footer with coordinates and Greenwich Culmination Time.

Table with columns for Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and a footer with coordinates and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet column contains 4 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 182° 182° 182° 182° 181° 181°
Greenwich Culmination Time: 11:53

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet column contains 4 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 185° 185° 185° 184° 184° 184°
Greenwich Culmination Time: 11:54

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet column contains 4 sub-columns for GHA, ddGHA, Dec, and dDec. Data rows are numbered 00 to 23.

UT 02 06 10 14 18 22
SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 333° 333° 333° 333° 333° 333°
Greenwich Culmination Time: 11:49

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet column contains 4 sub-columns for GHA, ddGHA, Dec, and dDec. Data rows are numbered 00 to 23.

UT 02 06 10 14 18 22
SD 00°2' 00°2' 00°2' 00°2' 00°2' 00°2'
HP 00°3' 00°3' 00°3' 00°3' 00°3' 00°3'
SHA 333° 333° 333° 333° 333° 333°
Greenwich Culmination Time: 02:03

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Table with 5 columns (UT, Sun, Venus, Moon, UT) showing celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes for UT 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 184° 184° 184° 184° 183° 183°
Greenwich Culmination Time: 11:53

Table with 5 columns (UT, Mars, Jupiter, Saturn, UT) showing celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes for UT 00 to 23.

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, UT) showing celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes for UT 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 183° 183° 183° 183° 183° 182°
Greenwich Culmination Time: 11:53

Table with 5 columns (UT, Mars, Jupiter, Saturn, UT) showing celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes for UT 00 to 23.

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	181	59.7	+00.2	S 00 33.6	+00.9	221	10.5	-00.4	N 14 42.0	-00.7	92	50.2	-34.5	S 24 00.4	+02.8	00
01	196	59.9	+00.2	S 00 34.5	+01.0	236	10.1	-00.4	N 14 41.3	-00.8	107	15.7	-34.4	S 24 03.2	+02.6	01
02	212	00.1	+00.2	S 00 35.5	+01.0	251	09.7	-00.4	N 14 40.5	-00.7	121	41.3	-34.4	S 24 05.8	+02.5	02
03	227	00.3	+00.2	S 00 36.5	+01.0	266	09.3	+00.4	N 14 39.8	-00.7	136	06.9	+34.4	S 24 08.3	+02.3	03
04	242	00.5	+00.3	S 00 37.5	+00.9	281	08.9	-00.4	N 14 39.1	-00.8	150	32.5	-34.4	S 24 10.6	+02.2	04
05	257	00.8	+00.2	S 00 38.4	+01.0	296	08.5	-00.4	N 14 38.3	-00.7	164	58.1	-34.4	S 24 12.8	+02.0	05
06	272	01.0	+00.2	S 00 39.4	+01.0	311	08.1	-00.4	N 14 37.6	-00.8	179	23.7	-34.3	S 24 14.8	+01.9	06
07	287	01.2	+00.2	S 00 40.4	+01.0	326	07.7	-00.4	N 14 36.8	-00.7	193	49.4	-34.3	S 24 16.7	+01.7	07
08	302	01.4	+00.2	S 00 41.4	+00.9	341	07.3	-00.4	N 14 36.1	-00.7	208	15.1	-34.3	S 24 18.4	+01.6	08
09	317	01.6	+00.2	S 00 42.3	+01.0	356	06.9	-00.4	N 14 35.4	-00.8	222	40.9	-34.2	S 24 20.0	+01.4	09
10	332	01.8	+00.3	S 00 43.3	+01.0	11	06.5	-00.4	N 14 34.6	-00.7	237	06.6	-34.3	S 24 21.4	+01.3	10
11	347	02.1	+00.2	S 00 44.3	+01.0	26	06.1	-00.4	N 14 33.9	-00.8	251	32.3	-34.2	S 24 22.7	+01.1	11
12	2	02.3	+00.2	S 00 45.3	+00.9	41	05.7	-00.4	N 14 33.1	-00.7	265	58.1	-34.2	S 24 23.8	+01.0	12
13	17	02.5	+00.2	S 00 46.2	+01.0	56	05.3	-00.4	N 14 32.4	-00.8	280	23.9	-34.1	S 24 24.8	+00.8	13
14	32	02.7	+00.2	S 00 47.2	+01.0	71	04.9	-00.4	N 14 31.6	-00.7	294	49.8	-34.1	S 24 25.6	+00.7	14
15	47	02.9	+00.2	S 00 48.2	+01.0	86	04.5	-00.4	N 14 30.9	-00.8	309	15.7	-34.1	S 24 26.3	+00.5	15
16	62	03.1	+00.3	S 00 49.2	+00.9	101	04.1	-00.4	N 14 30.1	-00.7	323	41.6	-34.0	S 24 26.8	+00.4	16
17	77	03.4	+00.2	S 00 50.1	+01.0	116	03.7	-00.3	N 14 29.4	-00.8	338	07.6	-34.0	S 24 27.2	+00.3	17
18	92	03.6	+00.2	S 00 51.1	+01.0	131	03.4	-00.4	N 14 28.6	-00.8	352	33.6	-34.0	S 24 27.5	+00.1	18
19	107	03.8	+00.2	S 00 52.1	+00.9	146	03.0	-00.4	N 14 27.9	-00.8	6	59.6	-33.9	S 24 27.6	-00.1	19
20	122	04.0	+00.2	S 00 53.0	+01.0	161	02.6	-00.4	N 14 27.1	-00.7	21	25.7	-33.9	S 24 27.5	-00.2	20
21	137	04.2	+00.2	S 00 54.0	+01.0	176	02.2	-00.4	N 14 26.4	-00.8	35	51.8	-33.8	S 24 27.3	-00.3	21
22	152	04.4	+00.3	S 00 55.0	+01.0	191	01.8	-00.4	N 14 25.6	-00.7	50	18.0	-33.8	S 24 27.0	-00.5	22
23	167	04.7	+00.2	S 00 56.0	+00.9	206	01.4	-00.4	N 14 24.9	-00.8	64	44.2	-33.8	S 24 26.5	-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 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°8' 15°7' 15°7' 15°7' 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°9' 57°8' 57°6' 57°5' 57°4' 57°3'
SHA 179° 178° 178° 178° 178° 178°	SHA 218° 218° 217° 217° 217° 217°	SHA 088° 086° 083° 081° 079° 076°
Greenwich Culmination Time: 11:51	Greenwich Culmination Time: 09:15	Greenwich Culmination Time: 18:30

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	337	04.0	+02.9	N 06 35.3	-00.1	74	09.1	+02.4	S 22 42.2	+00.0	65	54.3	+02.5	S 21 22.0	+00.0	00
01	352	06.9	+03.0	N 06 35.2	-00.1	89	11.5	+02.4	S 22 42.2	+00.0	80	56.8	+02.4	S 21 22.0	+00.0	01
02	7	09.9	+03.0	N 06 35.1	-00.1	104	13.9	+02.3	S 22 42.2	+00.0	95	59.2	+02.5	S 21 22.0	+00.0	02
03	22	12.9	+02.9	N 06 35.0	-00.1	119	16.2	+02.4	S 22 42.2	+00.0	111	01.7	+02.5	S 21 22.0	+00.0	03
04	37	15.8	+03.0	N 06 34.9	-00.1	134	18.6	+02.4	S 22 42.2	+00.0	126	04.2	+02.5	S 21 22.0	+00.0	04
05	52	18.8	+03.0	N 06 34.8	-00.2	149	21.0	+02.3	S 22 42.2	+00.0	141	06.7	+02.5	S 21 22.0	+00.1	05
06	67	21.8	+02.9	N 06 34.6	-00.2	164	23.3	+02.4	S 22 42.2	-00.1	156	09.2	+02.5	S 21 22.1	+00.0	06
07	82	24.7	+03.0	N 06 34.5	-00.1	179	25.7	+02.4	S 22 42.1	+00.0	171	11.7	+02.5	S 21 22.1	+00.0	07
08	97	27.7	+02.9	N 06 34.4	-00.1	194	28.1	+02.3	S 22 42.1	+00.0	186	14.2	+02.4	S 21 22.1	+00.0	08
09	112	30.6	+03.0	N 06 34.3	-00.1	209	30.4	+02.4	S 22 42.1	+00.0	201	16.6	+02.5	S 21 22.1	+00.0	09
10	127	33.6	+03.0	N 06 34.2	-00.1	224	32.8	+02.4	S 22 42.1	+00.0	216	19.1	+02.5	S 21 22.1	+00.0	10
11	142	36.6	+03.0	N 06 34.1	-00.1	239	35.2	+02.3	S 22 42.1	+00.0	231	21.6	+02.5	S 21 22.1	+00.0	11
12	157	39.6	+02.9	N 06 34.0	-00.1	254	37.5	+02.4	S 22 42.1	+00.0	246	24.1	+02.5	S 21 22.1	+00.0	12
13	172	42.5	+03.0	N 06 33.9	-00.1	269	39.9	+02.3	S 22 42.1	+00.0	261	26.6	+02.5	S 21 22.1	+00.0	13
14	187	45.5	+03.0	N 06 33.8	-00.1	284	42.2	+02.4	S 22 42.1	+00.0	276	29.1	+02.5	S 21 22.1	+00.0	14
15	202	48.5	+03.0	N 06 33.7	-00.1	299	44.6	+02.4	S 22 42.1	+00.0	291	31.6	+02.4	S 21 22.1	+00.0	15
16	217	51.5	+02.9	N 06 33.6	-00.1	314	47.0	+02.3	S 22 42.1	-00.1	306	34.0	+02.5	S 21 22.1	+00.0	16
17	232	54.4	+03.0	N 06 33.5	-00.2	329	49.3	+02.4	S 22 42.0	+00.0	321	36.5	+02.5	S 21 22.1	+00.0	17
18	247	57.4	+03.0	N 06 33.3	-00.2	344	51.7	+02.4	S 22 42.0	+00.0	336	39.0	+02.5	S 21 22.1	+00.0	18
19	263	00.4	+03.0	N 06 33.2	-00.1	359	54.1	+02.3	S 22 42.0	+00.0	351	41.5	+02.5	S 21 22.1	+00.0	19
20	278	03.4	+02.9	N 06 33.1	-00.1	14	56.4	+02.4	S 22 42.0	+00.0	6	44.0	+02.4	S 21 22.1	+00.0	20
21	293	06.3	+03.0	N 06 33.0	-00.1	29	58.8	+02.3	S 22 42.0	+00.0	21	46.4	+02.5	S 21 22.1	+00.0	21
22	308	09.3	+03.0	N 06 32.9	-00.1	45	01.1	+02.4	S 22 42.0	+00.0	36	48.9	+02.5	S 21 22.1	+00.0	22
23	323	12.3	+03.0	N 06 32.8	-00.1	60	03.5	+02.4	S 22 42.0	+00.0	51	51.4	+02.5	S 21 22.1	+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°2' 00°2' 00°2' 00°2' 00°2' 00°2'	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°3' 00°3' 00°3' 00°3' 00°3' 00°3'	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 071° 071° 071° 071° 071° 071°	SHA 063° 063° 063° 063° 063° 063°
Greenwich Culmination Time: 01:31	Greenwich Culmination Time: 19:00	Greenwich Culmination Time: 19:33

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	43.9	+00.2	N 00 36.5	-01.0	221	39.3	-00.4	N 15 32.9	-00.7	133	44.3	-33.1	S 14 25.2	+12.5	00
01	196	44.1	+00.2	N 00 35.5	-01.0	236	38.9	-00.4	N 15 32.2	-00.6	148	11.2	-33.2	S 14 37.7	+12.3	01
02	211	44.3	+00.2	N 00 34.5	-00.9	251	38.5	-00.4	N 15 31.6	-00.7	162	38.0	-33.2	S 14 50.0	+12.3	02
03	226	44.5	+00.3	N 00 33.6	-01.0	266	38.1	-00.4	N 15 30.9	-00.7	177	04.8	-33.2	S 15 02.3	+12.1	03
04	241	44.8	+00.2	N 00 32.6	-01.0	281	37.7	-00.4	N 15 30.2	-00.7	191	31.6	-33.3	S 15 14.4	+12.1	04
05	256	45.0	+00.2	N 00 31.6	-00.9	296	37.3	-00.4	N 15 29.5	-00.7	205	58.3	-33.3	S 15 26.5	+11.9	05
06	271	45.2	+00.2	N 00 30.7	-01.0	311	36.9	-00.4	N 15 28.8	-00.6	220	25.0	-33.3	S 15 38.4	+11.9	06
07	286	45.4	+00.2	N 00 29.7	-01.0	326	36.5	-00.4	N 15 28.2	-00.7	234	51.7	-33.4	S 15 50.3	+11.7	07
08	301	45.6	+00.3	N 00 28.7	-01.0	341	36.1	-00.4	N 15 27.5	-00.7	249	18.3	-33.4	S 16 02.0	+11.6	08
09	316	45.9	+00.2	N 00 27.7	-00.9	356	35.7	-00.4	N 15 26.8	-00.7	263	44.9	-33.4	S 16 13.6	+11.5	09
10	331	46.1	+00.2	N 00 26.8	-01.0	11	35.3	-00.4	N 15 26.1	-00.7	278	11.5	-33.5	S 16 25.1	+11.4	10
11	346	46.3	+00.2	N 00 25.8	-01.0	26	34.9	-00.4	N 15 25.4	-00.7	292	38.0	-33.5	S 16 36.5	+11.3	11
12	1	46.5	+00.2	N 00 24.8	-01.0	41	34.5	-00.4	N 15 24.7	-00.7	307	04.5	-33.5	S 16 47.8	+11.1	12
13	16	46.7	+00.3	N 00 23.8	-00.9	56	34.1	-00.4	N 15 24.0	-00.7	321	31.1	-33.6	S 16 58.9	+11.1	13
14	31	47.0	+00.2	N 00 22.9	-01.0	71	33.7	-00.4	N 15 23.3	-00.7	335	57.4	-33.6	S 17 10.0	+10.9	14
15	46	47.2	+00.2	N 00 21.9	-01.0	86	33.3	-00.4	N 15 22.6	-00.6	350	23.8	-33.6	S 17 20.9	+10.8	15
16	61	47.4	+00.2	N 00 20.9	-00.9	101	32.9	-00.4	N 15 22.0	-00.7	4	50.2	-33.7	S 17 31.7	+10.7	16
17																

UT	Sun				Venus				Moon				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	181	49.2	+00.2	N 00 13.1	-00.9	221	29.6	-00.4	N 15 16.4	-00.7	120	19.9	-33.9	S 18 53.7	+09.7	00							
01	196	49.4	+00.2	N 00 12.2	-01.0	236	29.2	-00.4	N 15 15.7	-00.7	134	46.0	-34.0	S 19 03.4	+09.6	01							
02	211	49.6	+00.2	N 00 11.2	-01.0	251	28.8	-00.4	N 15 15.0	-00.7	149	12.0	-34.0	S 19 13.0	+09.4	02							
03	226	49.8	+00.2	N 00 10.2	-00.9	266	28.4	-00.4	N 15 14.3	-00.7	163	38.0	-34.0	S 19 22.4	+09.3	03							
04	241	50.0	+00.3	N 00 09.3	-01.0	281	28.0	-00.4	N 15 13.6	-00.7	178	04.0	-34.0	S 19 31.7	+09.1	04							
05	256	50.3	+00.2	N 00 08.3	-01.0	296	27.6	-00.4	N 15 12.9	-00.7	192	30.0	-34.1	S 19 40.8	+09.1	05							
06	271	50.5	+00.2	N 00 07.3	-01.0	311	27.2	-00.4	N 15 12.2	-00.7	206	55.9	-34.1	S 19 49.9	+08.9	06							
07	286	50.7	+00.2	N 00 06.3	-00.9	326	26.8	-00.4	N 15 11.5	-00.7	221	21.8	-34.1	S 19 58.8	+08.7	07							
08	301	50.9	+00.2	N 00 05.4	-01.0	341	26.4	-00.4	N 15 10.8	-00.7	235	47.7	-34.2	S 20 07.5	+08.7	08							
09	316	51.1	+00.3	N 00 04.4	-01.0	356	26.0	-00.4	N 15 10.1	-00.7	250	13.5	-34.2	S 20 16.2	+08.4	09							
10	331	51.4	+00.2	N 00 03.4	-01.0	11	25.6	-00.4	N 15 09.4	-00.7	264	39.3	-34.2	S 20 24.6	+08.4	10							
11	346	51.6	+00.2	N 00 02.4	-00.9	26	25.2	-00.4	N 15 08.7	-00.7	279	05.1	-34.2	S 20 33.0	+08.2	11							
12	1	51.8	+00.2	N 00 01.5	-01.0	41	24.8	-00.4	N 15 08.0	-00.7	293	30.9	-34.2	S 20 41.2	+08.1	12							
13	16	52.0	+00.2	N 00 00.5	-01.0	56	24.4	-00.4	N 15 07.3	-00.8	307	56.7	-34.3	S 20 49.3	+07.9	13							
14	31	52.2	+00.3	S 00 00.5	+01.0	71	24.0	-00.4	N 15 06.5	-00.7	322	22.4	-34.3	S 20 57.2	+07.8	14							
15	46	52.5	+00.2	S 00 01.5	+00.9	86	23.6	-00.4	N 15 05.8	-00.9	336	48.1	-34.3	S 21 05.0	+07.7	15							
16	61	52.7	+00.2	S 00 02.4	+01.0	101	23.2	-00.4	N 15 05.1	-00.7	351	13.8	-34.4	S 21 12.7	+07.5	16							
17	76	52.9	+00.2	S 00 03.4	+01.0	116	22.8	-00.4	N 15 04.4	-00.7	5	39.4	-34.3	S 21 20.2	+07.4	17							
18	91	53.1	+00.2	S 00 04.4	+00.9	131	22.4	-00.4	N 15 03.7	-00.7	20	05.1	-34.4	S 21 27.6	+07.2	18							
19	106	53.3	+00.3	S 00 05.3	+01.0	146	22.0	-00.4	N 15 03.0	-00.7	34	30.7	-34.4	S 21 34.8	+07.1	19							
20	121	53.6	+00.2	S 00 06.3	+01.0	161	21.6	-00.4	N 15 02.3	-00.7	48	56.3	-34.4	S 21 41.9	+06.9	20							
21	136	53.8	+00.2	S 00 07.3	+01.0	176	21.2	-00.4	N 15 01.6	-00.7	63	21.9	-34.4	S 21 48.8	+06.8	21							
22	151	54.0	+00.2	S 00 08.3	+00.9	191	20.8	-00.4	N 15 00.9	-00.8	77	47.5	-34.5	S 21 55.6	+06.7	22							
23	166	54.2	+00.2	S 00 09.2	+01.0	206	20.4	-00.4	N 15 00.1	-00.7	92	13.0	-34.4	S 22 02.3	+06.5	23							
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 16°2' 16°2' 16°1' 16°1' 16°1' 16°0'	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' 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 16°0' 16°0' 15°9' 15°9' 15°8' 15°8'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'												
Greenwich Culmination Time: 11:52				Greenwich Culmination Time: 09:14				Greenwich Culmination Time: 16:36				Greenwich Culmination Time: 11:52				Greenwich Culmination Time: 09:14				Greenwich Culmination Time: 17:33			

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	54.4	+00.2	S 00 10.2	+01.0	221	20.0	-00.4	N 14 59.4	-00.7	106	38.6	-34.5	S 22 08.8	+06.3	00
01	196	54.6	+00.3	S 00 11.2	+01.0	236	19.6	-00.4	N 14 58.7	-00.7	121	04.1	-34.5	S 22 15.1	+06.2	01
02	211	54.9	+00.2	S 00 12.2	+00.9	251	19.2	-00.4	N 14 58.0	-00.7	135	29.6	-34.5	S 22 21.3	+06.1	02
03	226	55.1	+00.2	S 00 13.1	+01.0	266	18.8	-00.3	N 14 57.3	-00.8	149	55.1	-34.5	S 22 27.4	+05.9	03
04	241	55.3	+00.2	S 00 14.1	+01.0	281	18.5	-00.4	N 14 56.5	-00.7	164	20.6	-34.5	S 22 33.3	+05.8	04
05	256	55.5	+00.2	S 00 15.1	+01.0	296	18.1	-00.4	N 14 55.8	-00.7	178	46.1	-34.5	S 22 39.1	+05.6	05
06	271	55.7	+00.3	S 00 16.1	+00.9	311	17.7	-00.4	N 14 55.1	-00.7	193	11.6	-34.5	S 22 44.7	+05.5	06
07	286	56.0	+00.2	S 00 17.0	+01.0	326	17.3	-00.4	N 14 54.4	-00.7	207	37.1	-34.6	S 22 50.2	+05.3	07
08	301	56.2	+00.2	S 00 18.0	+01.0	341	16.9	-00.4	N 14 53.7	-00.8	222	02.5	-34.5	S 22 55.5	+05.2	08
09	316	56.4	+00.2	S 00 19.0	+00.9	356	16.5	-00.4	N 14 52.9	-00.7	236	28.0	-34.5	S 23 00.7	+05.1	09
10	331	56.6	+00.2	S 00 19.9	+01.0	11	16.1	-00.4	N 14 52.2	-00.7	250	53.5	-34.6	S 23 05.8	+04.8	10
11	346	56.8	+00.3	S 00 20.9	+01.0	26	15.7	-00.4	N 14 51.5	-00.7	265	18.9	-34.5	S 23 10.6	+04.8	11
12	1	57.1	+00.2	S 00 21.9	+01.0	41	15.3	-00.4	N 14 50.8	-00.8	279	44.4	-34.6	S 23 15.4	+04.5	12
13	16	57.3	+00.2	S 00 22.9	+00.9	56	14.9	-00.4	N 14 50.0	-00.7	294	09.8	-34.5	S 23 19.9	+04.5	13
14	31	57.5	+00.2	S 00 23.8	+01.0	71	14.5	-00.4	N 14 49.3	-00.7	308	35.3	-34.6	S 23 24.4	+04.3	14
15	46	57.7	+00.2	S 00 24.8	+01.0	86	14.1	-00.4	N 14 48.6	-00.7	323	00.7	-34.5	S 23 28.7	+04.1	15
16	61	57.9	+00.2	S 00 25.8	+01.0	101	13.7	-00.4	N 14 47.9	-00.8	337	26.2	-34.5	S 23 32.8	+04.0	16
17	76	58.1	+00.3	S 00 26.8	+00.9	116	13.3	-00.4	N 14 47.1	-00.7	351	51.7	-34.6	S 23 36.8	+03.8	17
18	91	58.4	+00.2	S 00 27.7	+01.0	131	12.9	-00.4	N 14 46.4	-00.7	6	17.1	-34.5	S 23 40.6	+03.7	18
19	106	58.6	+00.2	S 00 28.7	+01.0	146	12.5	-00.4	N 14 45.7	-00.8	20	42.6	-34.5	S 23 44.3	+03.5	19
20	121	58.8	+00.2	S 00 29.7	+01.0	161	12.1	-00.4	N 14 44.9	-00.7	35	08.1	-34.5	S 23 47.8	+03.4	20
21	136	59.0	+00.2	S 00 30.7	+00.9	176	11.7	-00.4	N 14 44.2	-00.7	49	33.6	-34.5	S 23 51.2	+03.2	21
22	151	59.2	+00.2	S 00 31.6	+01.0	191	11.3	-00.4	N 14 43.5	-00.8	63	59.1	-34.5	S 23 54.4	+03.1	22
23	166	59.4	+00.3	S 00 32.6	+01.0	206	10.9	-00.4	N 14 42.7	-00.7	78	24.6	-34.4	S 23 57.5	+02.9	23
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 16°0' 16°0' 15°9' 15°9' 15°8' 15°8'	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'											
Greenwich Culmination Time: 11:52				Greenwich Culmination Time: 09:14				Greenwich Culmination Time: 17:33								

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	334	43.6	+02.8	N 06 40.0	-00.1	72	15.0	+02.4	S 22 42.6	+00.0	63	54.7	+02.5	S 21 21.7	+00.0	00
01	349	46.4	+02.9	N 06 39.9	-00.1	87	17.4	+02.4	S 22 42.6	+00.0	78	57.2	+02.5	S 21 21.7	+00.0	01
02	4	49.3	+02.9	N 06 39.8	-00.1	102	19.8	+02.3	S 22 42.6	+00.0	93	59.7	+02.5	S 21 21.7	+00.0	02
03	19	52.2	+02.9	N 06 39.7	-00.1	117	22.1	+02.4	S 22 42.6	+00.0	109	02.2	+02.5	S 21 21.7	+00.0	03
04	34	55.1	+02.9	N 06 39.6	-00.1	132	24.5	+02.4	S 22 42.6	+00.0	124	04.7	+02.5	S 21 21.7	+00.0	04
05	49	58.0	+02.9	N 06 39.5	-00.1	147	26.9	+02.4	S 22 42.6	+00.0	139	07.2	+02.5	S 21 21.7	+00.0	05
06	65	00.9	+02.9	N 06 39.4	-00.1	162	29.3	+02.4	S 22 42.6	+00.0	154	09.7	+02.5	S 21 21.7	+00.0	06
07	80	03.8	+02.9	N 06 39.3	-00.1	177	31.7	+02.4	S 22 42.6	+00.0	169	12.2	+02.5	S 21 21.7	+00.0	07
08	95	06.7	+03.0	N 06 39.2	-00.1	192	34.1	+02.3	S 22 42.6	+00.0	184	14.7	+02.5	S 21 21.7	+00.1	08
09	110	09.7	+02.9	N 06 39.1	-00.1	207	36.4	+02.4	S 22 42.6	+00.0	199	17.2	+02.5	S 21 21.8	+00.0	09
10	125	12.6	+02.9	N 06 39.0	+00.0	222	38.8	+02.4	S 22 42.6	+00.0	214	19.7	+02.5	S 21 21.8	+00.0	10
11	140	15.5	+02.9	N 06 39.0	-00.1	237	41.2	+02.4	S 22 42.6	-00.1	229	22.2	+02.5	S 21 21.8	+00.0	11
12	155	18.4	+02.9	N 06 38.9	-00.1	252	43.6	+02.4	S 22 42.5	+00.0	244	24.7	+02.4	S 21 21.8	+00.0	12
13	170	21.3	+02.9	N 06 38.8	-00.1	267	46.0	+02.4	S 22 42.5	+00.0	259	27.1	+02.5	S 21 21.8	+00.0	13
14	185	24.2	+02.9	N 06 38.7	-00.1	282	48.4	+02.3	S 22 42.5	+00.0	274	29.6	+02.5	S 21 21.8	+00.0	14
15	200	27.1	+02.9	N 06 38.6	-00.1	297	50.7	+02.3	S 22 42.5	+00.0	289	32.1	+02.5	S 21 21.8	+00.0	15
16	215	30.0	+02.9	N 06 38.5	-00.1	312	53.1	+02.4	S 22 42.5	+00.0	304	34.6	+02.5	S 21 21.8	+00.0	16
17	230	32.9	+03.0	N 06 38.4	-00.1	327	55.5	+02.4	S 22 42.5	+00.0	319	37.1	+02.5	S 21 21.8	+00.0	17
18	245	35.9	+02.9	N 06 38.3	-00.1	342	57.9	+02.4	S 22 42.5	+00.0	334	39.6</				

Table with columns for Sun, Venus, and Moon. Each planet section includes UT, GHA, ddGHA, Dec, dDec, and A:40%. Includes a small table at the bottom for Mars, Jupiter, and Saturn.

Table with columns for Sun, Venus, and Moon. Each planet section includes UT, GHA, ddGHA, Dec, dDec, and A:30%. Includes a small table at the bottom for Mars, Jupiter, and Saturn.

Table with columns for Mars, Jupiter, and Saturn. Each planet section includes UT, GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for Mars, Jupiter, and Saturn. Each planet section includes UT, 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	182	10.0	+00.3	S 01 20.3	+01.0	220	51.5	-00.4	N 14 05.9	-00.8	65	55.9	-32.3	S 23 29.5	-04.0	00							
01	197	10.3	+00.2	S 01 21.3	+01.0	235	51.1	-00.4	N 14 05.1	-00.8	80	23.6	-32.3	S 23 25.5	-04.1	01							
02	212	10.5	+00.2	S 01 22.3	+00.9	250	50.7	-00.4	N 14 04.3	-00.8	94	51.3	-32.2	S 23 21.4	-04.2	02							
03	227	10.7	+00.2	S 01 23.2	+00.5	265	50.3	-00.4	N 14 03.5	-00.7	109	19.1	-32.2	S 23 17.2	-04.4	03							
04	242	10.9	+00.2	S 01 24.2	+01.0	280	49.9	-00.4	N 14 02.8	-00.8	123	46.9	-32.0	S 23 12.8	-04.5	04							
05	257	11.1	+00.2	S 01 25.2	+00.9	295	49.5	-00.3	N 14 02.0	-00.8	138	14.9	-32.0	S 23 08.3	-04.6	05							
06	272	11.3	+00.2	S 01 26.1	+01.0	310	49.2	-00.4	N 14 01.2	-00.8	152	42.9	-32.0	S 23 03.7	-04.7	06							
07	287	11.5	+00.3	S 01 27.1	+01.0	325	48.8	-00.4	N 14 00.4	-00.7	167	10.9	-31.8	S 22 59.0	-04.9	07							
08	302	11.8	+00.2	S 01 28.1	+01.0	340	48.4	-00.4	N 13 59.7	-00.8	181	39.1	-31.8	S 22 54.1	-05.0	08							
09	317	12.0	+00.2	S 01 29.1	+00.9	355	48.0	-00.4	N 13 58.9	-00.8	196	07.3	-31.7	S 22 49.1	-05.0	09							
10	332	12.2	+00.2	S 01 30.0	+01.0	10	47.6	-00.4	N 13 58.1	-00.8	210	35.6	-31.7	S 22 44.1	-05.2	10							
11	347	12.4	+00.2	S 01 31.0	+01.0	25	47.2	-00.4	N 13 57.3	-00.7	225	03.9	-31.6	S 22 38.9	-05.4	11							
12	2	12.6	+00.2	S 01 32.0	+01.0	40	46.8	-00.4	N 13 56.6	-00.8	239	32.3	-31.5	S 22 33.5	-05.4	12							
13	17	12.8	+00.2	S 01 33.0	+00.9	55	46.4	-00.4	N 13 55.8	-00.8	254	00.8	-31.4	S 22 28.1	-05.5	13							
14	32	13.0	+00.3	S 01 33.9	+01.0	70	46.0	-00.4	N 13 55.0	-00.8	268	29.4	-31.3	S 22 22.6	-05.7	14							
15	47	13.3	+00.2	S 01 34.9	+01.0	85	45.6	-00.4	N 13 54.2	-00.8	282	58.1	-31.3	S 22 16.9	-05.8	15							
16	62	13.5	+00.2	S 01 35.9	+01.0	100	45.2	-00.4	N 13 53.4	-00.8	297	26.8	-31.2	S 22 11.1	-05.9	16							
17	77	13.7	+00.2	S 01 36.9	+00.9	115	44.8	-00.3	N 13 52.6	-00.7	311	55.6	-31.1	S 22 05.2	-06.0	17							
18	92	13.9	+00.2	S 01 37.8	+01.0	130	44.5	-00.4	N 13 51.9	-00.8	326	24.5	-31.1	S 21 59.2	-06.1	18							
19	107	14.1	+00.2	S 01 38.8	+01.0	145	44.1	-00.4	N 13 51.1	-00.8	340	53.4	-31.0	S 21 53.1	-06.2	19							
20	122	14.3	+00.2	S 01 39.8	+00.9	160	43.7	-00.4	N 13 50.3	-00.8	355	22.4	-30.9	S 21 46.9	-06.3	20							
21	137	14.5	+00.2	S 01 40.7	+01.0	175	43.3	-00.4	N 13 49.5	-00.8	9	51.5	-30.8	S 21 40.6	-06.4	21							
22	152	14.7	+00.3	S 01 41.7	+01.0	190	42.9	-00.4	N 13 48.7	-00.8	24	20.7	-30.8	S 21 34.2	-06.5	22							
23	167	15.0	+00.2	S 01 42.7	+01.0	205	42.5	-00.4	N 13 47.9	-00.8	38	49.9	-30.6	S 21 27.7	-06.7	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	15°4	15°3	15°3	15°3	15°3	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	56°4	56°3	56°2	56°1	56°0	55°9			
SHA	177°1	177°1	177°1	176°1	176°1	176°1	SHA	216°1	215°1	215°1	215°1	215°1	215°1	SHA	060°0	56°7	055°1	053°0	050°0	048°0			
Greenwich Culmination Time: 11:51				Greenwich Culmination Time: 09:16				Greenwich Culmination Time: 20:19				Greenwich Culmination Time: 11:50				Greenwich Culmination Time: 09:17				Greenwich Culmination Time: 21:08			

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	182	15.2	+00.2	S 01 43.7	+00.9	220	42.1	-00.4	N 13 47.1	-00.7	53	19.3	-30.6	S 21 21.0	-06.7	00				
01	197	15.4	+00.2	S 01 44.6	+01.0	235	41.7	-00.4	N 13 46.4	-00.8	67	48.7	-30.6	S 21 14.3	-06.9	01				
02	212	15.6	+00.2	S 01 45.6	+01.0	250	41.3	-00.4	N 13 45.6	-00.8	82	18.1	-30.4	S 21 07.4	-06.9	02				
03	227	15.8	+00.2	S 01 46.6	+01.0	265	40.9	-00.4	N 13 44.8	-00.8	96	47.7	-30.4	S 21 00.5	-07.0	03				
04	242	16.0	+00.2	S 01 47.6	+00.9	280	40.5	-00.4	N 13 44.0	-00.8	111	17.3	-30.3	S 20 53.5	-07.2	04				
05	257	16.2	+00.2	S 01 48.5	+01.0	295	40.1	-00.3	N 13 43.2	-00.8	125	47.0	-30.2	S 20 46.3	-07.2	05				
06	272	16.4	+00.3	S 01 49.5	+01.0	310	39.8	-00.4	N 13 42.4	-00.8	140	16.8	-30.1	S 20 39.1	-07.3	06				
07	287	16.7	+00.2	S 01 50.5	+00.9	325	39.4	-00.4	N 13 41.6	-00.8	154	46.7	-30.1	S 20 31.8	-07.5	07				
08	302	16.9	+00.2	S 01 51.4	+01.0	340	39.0	-00.4	N 13 40.8	-00.8	169	16.6	-30.0	S 20 24.3	-07.5	08				
09	317	17.1	+00.2	S 01 52.4	+01.0	355	38.6	-00.4	N 13 40.0	-00.8	183	46.6	-29.9	S 20 16.8	-07.6	09				
10	332	17.3	+00.2	S 01 53.4	+01.0	10	38.2	-00.4	N 13 39.2	-00.8	198	16.7	-29.8	S 20 09.2	-07.7	10				
11	347	17.5	+00.2	S 01 54.4	+00.9	25	37.8	-00.4	N 13 38.4	-00.8	212	46.9	-29.8	S 20 01.5	-07.8	11				
12	2	17.7	+00.2	S 01 55.3	+01.0	40	37.4	-00.4	N 13 37.6	-00.8	227	17.1	-29.7	S 19 53.7	-07.9	12				
13	17	17.9	+00.2	S 01 56.3	+01.0	55	37.0	-00.4	N 13 36.8	-00.8	241	47.4	-29.6	S 19 45.8	-08.0	13				
14	32	18.1	+00.2	S 01 57.3	+01.0	70	36.6	-00.4	N 13 36.0	-00.8	256	17.8	-29.5	S 19 37.8	-08.1	14				
15	47	18.3	+00.3	S 01 58.3	+00.9	85	36.2	-00.3	N 13 35.2	-00.8	270	48.3	-29.5	S 19 29.7	-08.2	15				
16	62	18.6	+00.2	S 01 59.2	+01.0	100	35.9	-00.4	N 13 34.4	-00.8	285	18.8	-29.3	S 19 21.5	-08.2	16				
17	77	18.8	+00.2	S 02 00.2	+01.0	115	35.5	-00.4	N 13 33.6	-00.8	299	49.5	-29.3	S 19 13.3	-08.3	17				
18	92	19.0	+00.2	S 02 01.2	+00.9	130	35.1	-00.4	N 13 32.8	-00.8	314	20.2	-29.3	S 19 05.0	-08.5	18				
19	107	19.2	+00.2	S 02 02.1	+01.0	145	34.7	-00.4	N 13 32.0	-00.8	328	50.9	-29.1	S 18 56.5	-08.5	19				
20	122	19.4	+00.2	S 02 03.1	+01.0	160	34.3	-00.4	N 13 31.2	-00.8	343	21.8	-29.1	S 18 48.0	-08.6	20				
21	137	19.6	+00.2	S 02 04.1	+01.0	175	33.9	-00.4	N 13 30.4	-00.8	357	52.7	-29.0	S 18 39.4	-08.6	21				
22	152	19.8	+00.2	S 02 05.1	+00.9	190	33.5	-00.4	N 13 29.6	-00.8	1	23.7	-28.9	S 18 30.8	-08.8	22				
23	167	20.0	+00.2	S 02 06.0	+01.0	205	33.1	-00.4	N 13 28.8	-00.8	26	54.8	-28.9	S 18 22.0	-08.8	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	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°8	55°7	55°6	55°6	55°5	55°4
SHA	176°1	176°1	176°1	175°1	175°1	175°1	SHA	214°1	214°1	214°1	214°1	214°1	213°1	SHA	046°0	044°0	042°0	039°0	037°0	035°0
Greenwich Culmination Time: 11:50				Greenwich Culmination Time: 09:17				Greenwich Culmination Time: 21:08				Greenwich Culmination Time: 19:21								

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	182	39.9	+00.2	S 03 40.1	+01.0	219	55.9	-00.4	N 12 07.5	-00.9	359	34.1	-24.6	S 00 12.3	-12.4	00				
01	197	40.1	+00.2	S 03 41.1	+00.9	234	55.5	-00.3	N 12 06.6	-00.8	14	09.5	-24.6	N 00 00.1	+12.3	01				
02	212	40.3	+00.2	S 03 42.0	+01.0	249	55.2	-00.4	N 12 05.8	-00.9	28	44.9	-24.6	N 00 12.4	+12.4	02				
03	227	40.5	+00.2	S 03 43.0	+01.0	264	54.8	-00.4	N 12 04.9	-00.9	43	20.3	-24.5	N 00 24.8	+12.3	03				
04	242	40.7	+00.2	S 03 44.0	+00.9	279	54.4	-00.4	N 12 04.0	-00.8	57	55.8	-24.6	N 00 37.1	+12.4	04				
05	257	40.9	+00.2	S 03 44.9	+01.0	294	54.0	-00.4	N 12 03.2	-00.9	72	31.2	-24.6	N 00 49.5	+12.3	05				
06	272	41.1	+00.2	S 03 45.9	+01.0	309	53.6	-00.3	N 12 02.3	-00.9	87	06.6	-24.6	N 01 01.8	+12.3	06				
07	287	41.3	+00.2	S 03 46.9	+00.9	324	53.3	-00.4	N 12 01.4	-00.9	101	42.0	-24.5	N 01 14.1	+12.3	07				
08	302	41.5	+00.2	S 03 47.8	+01.0	339	52.9	-00.4	N 12 00.5	-00.8	116	17.5	-24.6	N 01 26.4	+12.4	08				
09	317	41.7	+00.2	S 03 48.8	+01.0	354	52.5	-00.4	N 11 59.7	-00.9	130	52.9	-24.6	N 01 38.8	+12.3	09				
10	332	41.9	+00.2	S 03 49.8	+00.9	9	52.1	-00.3	N 11 58.8	-00.9	145	28.3	-24.5	N 01 51.1	+12.3	10				
11	347	42.1	+00.2	S 03 50.7	+01.0	24	51.8	-00.4	N 11 57.9	-00.9	160	03.8	-24.6	N 02 03.4	+12.2	11				
12	2	42.3	+00.2	S 03 51.7	+01.0	39	51.4	-00.4	N 11 57.0	-00.9	174	39.2	-24.6	N 02 15.6	+12.3	12				
13	17	42.5	+00.2	S 03 52.7	+00.9	54	51.0	-00.4	N 11 56.1	-00.8	189	14.6	-24.6	N 02 27.9	+12.3	13				
14	32	42.7	+00.2	S 03 53.6	+01.0	69	50.6	-00.4	N 11 55.3	-00.9	203	50.0	-24.5	N 02 40.2	+12.2	14				
15	47	42.9	+00.2	S 03 54.6	+01.0	84	50.2	-00.3	N 11 54.4	-00.9	218	25.5	-24.6	N 02 52.4	+12.3	15				
16	62	43.1	+00.2	S 03 55.6	+00.9	99	49.9	-00.4	N 11 53.5	-00.9	233	00.9	-24.6	N 03 04.7	+12.2	16				
17	77	43.3	+00.2	S 03 56.5	+01.0	114	49.5	-00.4	N 11 52.6	-00.9	247	36.3	-24.6	N 03 16.9	+12.2	17				
18	92	43.5	+00.2	S 03 57.5	+01.0	129	49.1	-00.4	N 11 51.7	-00.8	262	11.7	-24.6	N 03 29.1	+12.2	18				
19	107	43.7	+00.2	S 03 58.5	+00.9	144	48.7	-00.3	N 11 50.9	-00.9	276	47.1	-24.6	N 03 41.3	+12.2	19				
20	122	43.9	+00.2	S 03 59.4	+01.0	159	48.4	-00.4	N 11 50.0	-00.9	291	22.5	-24.6	N 03 53.5	+12.2	20				
21	137	44.1	+00.2	S 04 00.4	+01.0	174	48.0	-00.4	N 11 49.1	-00.9	305	57.9	-24.7	N 04 05.7	+12.1	21				
22	152	44.3	+00.2	S 04 01.4	+01.0	189	47.6	-00.4	N 11 48.2	-00.9	320	33.2	-24.6	N 04 17.8	+12.2	22				
23	167	44.5	+00.2	S 04 02.3	+01.0	204	47.2	-00.3	N 11 47.3	-00.9	335	08.6	-24.7	N 04 30.0	+12.1	23				
UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°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	54°1	54°0	54°0	54°0	54°0	54°0
SHA	171°	171°	171°	171°	171°	171°	SHA	209°	208°	208°	208°	208°	208°	SHA	347°	346°	344°	342°	340°	338°
Greenwich Culmination Time: 11:49				Greenwich Culmination Time: 09:20				Greenwich Culmination Time: 00:01												

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	346	52.4	+03.1	N 06 10.8	-00.1	81	37.6	+02.3	S 22 39.5	+00.0	73	48.3	+02.5	S 21 22.6	+00.0	00				
01	1	55.5	+03.2	N 06 10.7	-00.2	96	39.9	+02.3	S 22 39.5	+00.0	88	50.8	+02.4	S 21 22.6	+00.0	01				
02	16	58.7	+03.2	N 06 10.5	-00.1	111	42.2	+02.3	S 22 39.5	-00.1	103	53.2	+02.5	S 21 22.6	+00.0	02				
03	32	01.9	+03.1	N 06 10.4	-00.2	126	44.5	+02.3	S 22 39.4	+00.0	118	55.7	+02.4	S 21 22.6	+00.0	03				
04	47	05.0	+03.2	N 06 10.2	-00.1	141	46.8	+02.3	S 22 39.4	+00.0	133	58.1	+02.5	S 21 22.6	+00.0	04				
05	62	08.2	+03.1	N 06 10.1	-00.2	156	49.1	+02.3	S 22 39.4	+00.0	149	00.6	+02.4	S 21 22.6	+00.0	05				
06	77	11.3	+03.2	N 06 09.9	-00.1	171	51.4	+02.3	S 22 39.4	+00.0	164	03.0	+02.5	S 21 22.6	+00.0	06				
07	92	14.5	+03.2	N 06 09.8	-00.2	186	53.7	+02.3	S 22 39.4	-00.1	179	05.5	+02.4	S 21 22.6	+00.0	07				
08	107	17.7	+03.1	N 06 09.6	-00.1	201	56.0	+02.3	S 22 39.3	+00.0	194	07.9	+02.5	S 21 22.6	+00.0	08				
09	122	20.8	+03.2	N 06 09.5	-00.2	216	58.3	+02.3	S 22 39.3	+00.0	209	10.4	+02.4	S 21 22.6	+00.0	09				
10	137	24.0	+03.2	N 06 09.3	-00.1	232	00.6	+02.3	S 22 39.3	+00.0	224	12.8	+02.5	S 21 22.6	+00.0	10				
11	152	27.2	+03.1	N 06 09.2	-00.2	247	02.9	+02.3	S 22 39.3	+00.0	239	15.3	+02.4	S 21 22.6	+00.0	11				
12	167	30.3	+03.2	N 06 09.0	-00.1	262	05.2	+02.3	S 22 39.3	-00.1	254	17.7	+02.5	S 21 22.6	+00.0	12				
13	182	33.5	+03.2	N 06 08.9	-00.2	277	07.5	+02.3	S 22 39.2	+00.0	269	20.2	+02.4	S 21 22.6	+00.0	13				
14	197	36.7	+03.1	N 06 08.7	-00.1	292	09.8	+02.3	S 22 39.2	+00.0	284	22.6	+02.5	S 21 22.6	+00.0	14				
15	212	39.8	+03.2	N 06 08.6	-00.2	307	12.1	+02.3	S 22 39.2	+00.0	299	25.1	+02.4	S 21 22.6	+00.0	15				
16	227	43.0	+03.2	N 06 08.4	-00.1	322	14.4	+02.3	S 22 39.2	+00.0	314	27.5	+02.5	S 21 22.6	+00.0	16				
17	242	46.2	+03.2	N 06 08.3	-00.2	337	16.7	+02.3	S 22 39.2	-00.1	329	30.0	+02.4	S 21 22.6	+00.0	17				
18	257	49.4	+03.1	N 06 08.1	-00.1	352	19.0	+02.3	S 22 39.1	+00.0	344	32.4	+02.5	S 21 22.6	+00.0	18				
19	272	52.5	+03.2	N 06 08.0	-00.1	7	21.3	+02.3	S 22 39.1	+00.0	359	34.9	+02.4	S 21 22.6	+00.0	19				
20	287	55.7	+03.2	N 06 07.9	-00.2	22	23.6	+02.3	S 22 39.1	+00.0	14	37.3	+02.4	S 21 22.6	+00.0	20				
21	302	58.9	+03.2	N 06 07.7	-00.1	37	25.9	+02.2	S 22 39.1	+00.0	29	39.7	+02.5	S 21 22.6	+00.0	21				
22	318	02.1	+03.1	N 06 07.6	-00.2	52	28.1	+02.3	S 22 39.1	-00.1	44	42.2	+02.4	S 21 22.6	+00.0	22				
23	333	05.2	+03.2	N 06 07.4	-00.1	67	30.4	+02.3	S 22 39.0	+00.0	59	44.6	+02.5	S 21 22.6	+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°2	00°2	00°2	00°2	00°2	00°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
HP	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	HP	00°0	00°0	00°0	00°0	00°0	00°0
SHA	336°	336°	336°	336°	336°	336°	SHA	070°	070°	070°	070°	070°	070°	SHA	063°	063°	063°	063°	063°	063°
Greenwich Culmination Time: 00:52				Greenwich Culmination Time: 18:30				Greenwich Culmination Time: 19:01												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	182	25.3	+00.2	S 02 30.3	+01.0	220	23.4	-00.3	N 13 08.5	-00.8	30	14.5	-27.2	S 14 19.7	-10.5	00
01	197	25.5	+00.2	S 02 31.3	+01.0	235	23.1	-00.4	N 13 07.7	-00.9	44	47.3	-27.1	S 14 09.2	-10.6	01
02	212	25.7	+00.2	S 02 32.3	+00.9	250	22.7	-00.4	N 13 06.8	-00.8	59	20.2	-27.0	S 13 58.6	-10.6	02
03	227	25.9	+00.2	S 02 33.2	+01.0	265	22.3	-00.4	N 13 06.0	-00.8	73	53.2	-27.0	S 13 48.0	-10.7	03
04	242	26.1	+00.2	S 02 34.2	+01.0	280	21.9	-00.4	N 13 05.2	-00.8	88	26.2	-26.9	S 13 37.3	-10.7	04
05	257	26.3	+00.2	S 02 35.2	+01.0	295	21.5	-00.4	N 13 04.4	-00.9	102	59.3	-26.8	S 13 26.6	-10.8	05
06	272	26.5	+00.2	S 02 36.2	+00.9	310	21.1	-00.4	N 13 03.5	-00.9	117	32.5	-26.8	S 13 15.8	-10.8	06
07	287	26.7	+00.2	S 02 37.1	+01.0	325	20.7	-00.3	N 13 02.7	-00.8	132	05.7	-26.8	S 13 05.0	-10.9	07
08	302	26.9	+00.2	S 02 38.1	+01.0	340	20.4	-00.4	N 13 01.9	-00.8	146	38.9	-26.6	S 12 54.1	-11.0	08
09	317	27.1	+00.2	S 02 39.1	+00.9	355	20.0	-00.4	N 13 01.1	-00.9	161	12.3	-26.7	S 12 43.1	-10.9	09
10	332	27.3	+00.2	S 02 40.0	+01.0	10	19.6	-00.4	N 13 00.2	-00.8	175	45.6	-26.5	S 12 32.2	-11.1	10
11	347	27.5	+00.2	S 02 41.0	+01.0	25	19.2	-00.4	N 12 59.4	-00.8	190	19.1	-26.5	S 12 21.1	-11.0	11
12	2	27.7	+00.3	S 02 42.0	+00.9	40	18.8	-00.4	N 12 58.6	-00.9	204	52.6	-26.5	S 12 10.1	-11.2	12
13	17	28.0	+00.2	S 02 42.9	+01.0	55	18.4	-00.3	N 12 57.7	-00.8						

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	182 30.2	+00.2	S 02 53.6	+01.0	220 14.2	-00.4	N 12 48.6	-00.9	19 38.5	-25.9	S 09 53.8	-11.6	00
01	197 30.4	+00.2	S 02 54.6	+01.0	235 13.8	-00.4	N 12 47.7	-00.8	34 12.6	-25.8	S 09 42.2	-11.6	01
02	212 30.6	+00.2	S 02 55.6	+00.9	250 13.4	-00.3	N 12 46.9	-00.9	48 46.8	-25.8	S 09 30.6	-11.7	02
03	227 30.8	+00.2	S 02 56.5	+01.0	265 13.1	-00.4	N 12 46.0	-00.9	63 21.0	-25.7	S 09 18.9	-11.7	03
04	242 31.0	+00.2	S 02 57.5	+01.0	280 12.7	-00.4	N 12 45.2	-00.8	77 55.3	-25.7	S 09 07.2	-11.7	04
05	257 31.2	+00.3	S 02 58.5	+00.9	295 12.3	-00.4	N 12 44.4	-00.9	92 29.6	-25.6	S 08 55.5	-11.7	05
06	272 31.5	+00.2	S 02 59.4	+01.0	310 11.9	-00.4	N 12 43.5	-00.8	107 04.0	-25.6	S 08 43.8	-11.8	06
07	287 31.7	+00.2	S 03 00.4	+01.0	325 11.5	-00.4	N 12 42.7	-00.9	121 38.4	-25.6	S 08 32.0	-11.9	07
08	302 31.9	+00.2	S 03 01.4	+01.0	340 11.1	-00.3	N 12 41.8	-00.8	136 12.8	-25.5	S 08 20.1	-11.8	08
09	317 32.1	+00.2	S 03 02.4	+01.0	355 10.8	-00.4	N 12 41.0	-00.9	150 47.3	-25.5	S 08 08.3	-11.9	09
10	332 32.3	+00.2	S 03 03.3	+01.0	10 10.4	-00.4	N 12 40.1	-00.8	165 21.8	-25.5	S 07 56.4	-11.9	10
11	347 32.5	+00.2	S 03 04.3	+01.0	25 10.0	-00.4	N 12 39.3	-00.9	179 56.3	-25.4	S 07 44.5	-11.9	11
12	2 32.7	+00.2	S 03 05.3	+00.9	40 09.6	-00.4	N 12 38.4	-00.8	194 30.9	-25.4	S 07 32.6	-12.0	12
13	17 32.9	+00.2	S 03 06.2	+01.0	55 09.2	-00.4	N 12 37.6	-00.9	209 05.5	-25.3	S 07 20.6	-12.0	13
14	32 33.1	+00.2	S 03 07.2	+01.0	70 08.8	-00.3	N 12 36.7	-00.8	223 40.2	-25.3	S 07 08.6	-12.0	14
15	47 33.3	+00.2	S 03 08.2	+00.9	85 08.5	-00.4	N 12 35.9	-00.9	238 14.9	-25.3	S 06 56.6	-12.0	15
16	62 33.5	+00.2	S 03 09.1	+01.0	100 08.1	-00.4	N 12 35.0	-00.8	252 49.6	-25.2	S 06 44.6	-12.0	16
17	77 33.7	+00.2	S 03 10.1	+01.0	115 07.7	-00.4	N 12 34.2	-00.9	267 24.4	-25.2	S 06 32.6	-12.1	17
18	92 33.9	+00.2	S 03 11.1	+00.9	130 07.3	-00.4	N 12 33.3	-00.8	281 59.2	-25.2	S 06 20.5	-12.1	18
19	107 34.1	+00.2	S 03 12.0	+01.0	145 06.9	-00.3	N 12 32.5	-00.9	296 34.0	-25.1	S 06 08.4	-12.1	19
20	122 34.3	+00.2	S 03 13.0	+01.0	160 06.6	-00.4	N 12 31.6	-00.8	311 08.9	-25.1	S 05 56.3	-12.1	20
21	137 34.5	+00.2	S 03 14.0	+00.9	175 06.2	-00.4	N 12 30.8	-00.9	325 43.8	-25.1	S 05 44.2	-12.2	21
22	152 34.7	+00.2	S 03 14.9	+01.0	190 05.8	-00.4	N 12 29.9	-00.8	340 18.7	-25.1	S 05 32.0	-12.1	22
23	167 34.9	+00.2	S 03 15.9	+01.0	205 05.4	-00.4	N 12 29.1	-00.9	354 53.6	-25.0	S 05 19.9	-12.2	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 173° 173° 173° 173° 173° 172° Greenwich Culmination Time: 11:49	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 211° 211° 211° 210° 210° 210° Greenwich Culmination Time: 09:19	UT 02 06 10 14 18 22	SD 14°9 14°8 14°8 14°8 14°8 14°8 HP 54°5 54°5 54°4 54°4 54°3 54°3 SHA 009° 008° 006° 004° 002° 000° Greenwich Culmination Time: 23:21								

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	182 35.1	+00.2	S 03 16.9	+01.0	220 05.0	-00.3	N 12 28.2	-00.8	9 28.6	-25.0	S 05 07.7	-12.2	00
01	197 35.3	+00.2	S 03 17.9	+00.9	235 04.7	-00.4	N 12 27.4	-00.9	24 03.6	-25.0	S 04 55.5	-12.2	01
02	212 35.5	+00.2	S 03 18.8	+01.0	250 04.3	-00.4	N 12 26.5	-00.8	38 38.6	-24.9	S 04 43.3	-12.3	02
03	227 35.7	+00.2	S 03 19.8	+01.0	265 03.9	-00.4	N 12 25.7	-00.8	53 13.7	-24.9	S 04 31.0	-12.2	03
04	242 35.9	+00.2	S 03 20.8	+00.9	280 03.5	-00.4	N 12 24.8	-00.9	67 48.8	-25.0	S 04 18.8	-12.2	04
05	257 36.1	+00.2	S 03 21.7	+01.0	295 03.1	-00.4	N 12 23.9	-00.8	82 23.8	-24.8	S 04 06.6	-12.3	05
06	272 36.3	+00.2	S 03 22.7	+01.0	310 02.7	-00.3	N 12 23.1	-00.9	96 59.0	-24.9	S 03 54.3	-12.3	06
07	287 36.5	+00.2	S 03 23.7	+00.9	325 02.4	-00.4	N 12 22.2	-00.8	111 34.1	-24.8	S 03 42.0	-12.3	07
08	302 36.7	+00.2	S 03 24.6	+01.0	340 02.0	-00.4	N 12 21.4	-00.9	126 09.3	-24.8	S 03 29.7	-12.3	08
09	317 36.9	+00.2	S 03 25.6	+01.0	355 01.6	-00.4	N 12 20.5	-00.9	140 44.5	-24.8	S 03 17.4	-12.3	09
10	332 37.1	+00.2	S 03 26.6	+00.9	10 01.2	-00.4	N 12 19.6	-00.8	155 19.7	-24.8	S 03 05.1	-12.3	10
11	347 37.3	+00.2	S 03 27.5	+01.0	25 00.8	-00.3	N 12 18.8	-00.9	169 54.9	-24.8	S 02 52.8	-12.3	11
12	2 37.5	+00.2	S 03 28.5	+01.0	40 00.5	-00.4	N 12 17.9	-00.8	184 30.1	-24.7	S 02 40.5	-12.3	12
13	17 37.7	+00.2	S 03 29.5	+00.9	55 00.1	-00.4	N 12 17.1	-00.9	199 05.4	-24.7	S 02 28.2	-12.4	13
14	32 37.9	+00.2	S 03 30.4	+01.0	69 59.7	-00.4	N 12 16.2	-00.9	213 40.7	-24.7	S 02 15.8	-12.3	14
15	47 38.1	+00.2	S 03 31.4	+01.0	84 59.3	-00.4	N 12 15.3	-00.8	228 16.0	-24.7	S 02 03.5	-12.4	15
16	62 38.3	+00.2	S 03 32.4	+00.9	99 58.9	-00.3	N 12 14.5	-00.9	242 51.3	-24.7	S 01 51.1	-12.3	16
17	77 38.5	+00.2	S 03 33.3	+01.0	114 58.6	-00.4	N 12 13.6	-00.9	257 26.6	-24.7	S 01 38.8	-12.4	17
18	92 38.7	+00.2	S 03 34.3	+01.0	129 58.2	-00.4	N 12 12.7	-00.8	272 01.9	-24.7	S 01 26.4	-12.3	18
19	107 38.9	+00.2	S 03 35.3	+00.9	144 57.8	-00.4	N 12 11.9	-00.9	286 37.3	-24.7	S 01 14.1	-12.4	19
20	122 39.1	+00.2	S 03 36.2	+01.0	159 57.4	-00.3	N 12 11.0	-00.9	301 12.6	-24.6	S 01 01.7	-12.3	20
21	137 39.3	+00.2	S 03 37.2	+01.0	174 57.1	-00.4	N 12 10.1	-00.8	315 48.0	-24.6	S 00 49.4	-12.4	21
22	152 39.5	+00.2	S 03 38.2	+00.9	189 56.7	-00.4	N 12 09.3	-00.9	330 23.4	-24.7	S 00 37.0	-12.4	22
23	167 39.7	+00.2	S 03 39.1	+01.0	204 56.3	-00.4	N 12 08.4	-00.9	344 58.7	-24.6	S 00 24.6	-12.3	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 172° 172° 172° 172° 172° 172° Greenwich Culmination Time: 11:49	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 210° 210° 209° 209° 209° 209° Greenwich Culmination Time: 09:19	UT 02 06 10 14 18 22	SD 14°8 14°8 14°8 14°8 14°7 14°7 HP 54°3 54°2 54°2 54°1 54°1 54°1 SHA 358° 357° 355° 353° 351° 349° Greenwich Culmination Time: -1:00								

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	344 21.7	+03.2	N 06 17.6	-00.1	79 46.6	+02.4	S 22 40.3	+00.0	71 50.4	+02.5	S 21 22.6	+00.0	00
01	359 24.9	+03.1	N 06 17.5	-00.2	94 49.0	+02.3	S 22 40.3	+00.0	86 52.9	+02.4	S 21 22.6	+00.0	01
02	14 28.0	+03.1	N 06 17.3	-00.1	109 51.3	+02.3	S 22 40.3	+00.0	101 55.3	+02.5	S 21 22.6	+00.0	02
03	29 31.1	+03.1	N 06 17.2	-00.1	124 53.6	+02.3	S 22 40.3	+00.0	116 57.8	+02.5	S 21 22.6	+00.0	03
04	44 34.2	+03.1	N 06 17.1	-00.2	139 55.9	+02.3	S 22 40.3	-00.1	132 00.3	+02.4	S 21 22.6	+00.0	04
05	59 37.3	+03.2	N 06 16.9	-00.1	154 58.2	+02.3	S 22 40.2	+00.0	147 02.7	+02.5	S 21 22.6	+00.0	05
06	74 40.5	+03.1	N 06 16.8	-00.2	170 00.5	+02.4	S 22 40.2	+00.0	162 05.2	+02.4	S 21 22.6	+00.0	06
07	89 43.6	+03.1	N 06 16.6	-00.1	185 02.9	+02.3	S 22 40.2	+00.0	177 07.6	+02.5	S 21 22.6	+00.0	07
08	104 46.7	+03.1	N 06 16.5	-00.1	200 05.2	+02.3	S 22 40.2	+00.0	192 10.1	+02.5	S 21 22.6	+00.0	08
09	119 49.8	+03.2	N 06 16.4	-00.2	215 07.5	+02.3	S 22 40.2	+00.0	207 12.6	+02.4	S 21 22.6	+00.0	09
10	134 53.0	+03.1	N 06 16.2	-00.1	230 09.8	+02.3	S 22 40.2	-00.1	222 15.0	+02.5	S 21 22.6	+00.0	10
11	149 56.1	+03.1	N 06 16.1	-00.2	245 12.1	+02.3	S 22 40.1	+00.0	237 17.5	+02.4	S 21 22.6	+00.0	11
12	164 59.2	+03.1	N 06 15.9	-00.1	260 14.4	+02.4	S 22 40.1	+00.0	252 19.9	+02.5	S 21 22.6	+00.0	12
13	180 02.3	+03.2	N 06 15.8	-00.1	275 16.8	+02.3	S 22 40.1	+00.0	267 22.4	+02.5	S 21 22.6	+00.0	13
14	195 05.5	+03.1	N 06 15.7	-00.2	290 19.1	+02.3	S 22 40.1	+00.0	282 24.9	+02.4	S 21 22.6	+00.0	14
15	210 08.6	+03.1	N 06 15.5	-00.1	305 21.4	+02.3	S 22 40.1	+00.0	297 27.3	+02.5	S 21 22.6	+00.0	15
16	225 11.7	+03.2	N 06 15.4	-00.2	320 23.7	+02.3	S 22 40.1	-00.1	312 29.8	+02.4	S 21 22.6	+	

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 63%.

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 168° 168° 167° 167° 167° 167°
Greenwich Culmination Time: 11:47

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°4 00°4 00°4 00°4 00°4 00°4
SHA 337° 337° 337° 337° 337° 337°
Greenwich Culmination Time: 00:31

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon A: 55%.

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 171° 170° 170° 170° 170° 170°
Greenwich Culmination Time: 11:48

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°4 00°4 00°4 00°4 00°4 00°4
SHA 336° 336° 336° 336° 336° 336°
Greenwich Culmination Time: 00:47

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°0 16°0 16°0 16°0 16°0 16°0
SHA 170° 169° 169° 169° 169° 169°
Greenwich Culmination Time: 11:48

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°2 00°2 00°2 00°2 00°2 00°2
SHA 336° 336° 336° 336° 336° 337°
Greenwich Culmination Time: 00:42

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°0 16°0 16°0 16°0 16°0 16°0
SHA 169° 169° 168° 168° 168° 168°
Greenwich Culmination Time: 11:48

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°2 00°2 00°2 00°2 00°2 00°2
SHA 337° 337° 337° 337° 337° 337°
Greenwich Culmination Time: 00:37



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°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 164° 164° 164° 164° 164° 163°
Greenwich Culmination Time: 11:46

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°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 167° 167° 167° 167° 166° 166°
Greenwich Culmination Time: 11:47

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°4 00°4 00°4 00°4 00°4 00°4
SHA 338° 338° 338° 338° 338° 338°
Greenwich Culmination Time: 00:11

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°4 00°4 00°4 00°4 00°4 00°4
SHA 337° 337° 337° 337° 337° 337°
Greenwich Culmination Time: 00:26

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UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	183 07.0	+00.2	S 05 58.4	+01.0	219 02.5	-00.3	N 09 55.6	-00.9	295 49.4	-30.4	N 23 10.3	+04.5	00
01	198 07.2	+00.2	S 05 59.4	+00.9	234 02.2	-00.4	N 09 54.7	-01.0	310 19.0	-30.4	N 23 14.8	+04.3	01
02	213 07.4	+00.1	S 06 00.3	+01.0	249 01.8	-00.4	N 09 53.7	-00.9	324 48.6	-30.5	N 23 19.1	+04.3	02
03	228 07.5	+00.2	S 06 01.3	+00.9	264 01.4	-00.3	N 09 52.8	-01.0	339 18.1	-30.6	N 23 23.4	+04.1	03
04	243 07.7	+00.2	S 06 02.2	+01.0	279 01.1	-00.4	N 09 51.8	-01.0	353 47.5	-30.6	N 23 27.5	+04.1	04
05	258 07.9	+00.2	S 06 03.2	+00.9	294 00.7	-00.4	N 09 50.8	-00.9	8 16.9	-30.7	N 23 31.6	+03.9	05
06	273 08.1	+00.1	S 06 04.1	+01.0	309 00.3	-00.3	N 09 49.9	-01.0	22 46.2	-30.7	N 23 35.5	+03.8	06
07	288 08.2	+00.2	S 06 05.1	+00.9	323 60.0	-00.4	N 09 48.9	-01.0	37 15.5	-30.8	N 23 39.3	+03.7	07
08	303 08.4	+00.2	S 06 06.0	+01.0	338 59.6	-00.3	N 09 47.9	-00.9	51 44.7	-30.8	N 23 43.0	+03.5	08
09	318 08.6	+00.1	S 06 07.0	+00.9	353 59.3	-00.4	N 09 47.0	-01.0	66 13.9	-30.9	N 23 46.5	+03.5	09
10	333 08.7	+00.2	S 06 07.9	+01.0	8 58.9	-00.4	N 09 46.0	-00.9	80 43.0	-31.0	N 23 50.0	+03.3	10
11	348 08.9	+00.2	S 06 08.9	+00.9	23 58.5	-00.3	N 09 45.1	-01.0	95 12.0	-31.0	N 23 53.3	+03.3	11
12	3 09.1	+00.2	S 06 09.8	+01.0	38 58.2	-00.4	N 09 44.1	-01.0	109 41.0	-31.1	N 23 56.6	+03.1	12
13	18 09.3	+00.1	S 06 10.8	+00.9	53 57.8	-00.4	N 09 43.1	-00.9	124 09.9	-31.2	N 23 59.7	+02.9	13
14	33 09.4	+00.2	S 06 11.7	+01.0	68 57.4	-00.3	N 09 42.2	-01.0	138 38.7	-31.1	N 24 02.6	+02.9	14
15	48 09.6	+00.2	S 06 12.7	+00.9	83 57.1	-00.4	N 09 41.2	-01.0	153 07.6	-31.3	N 24 05.5	+02.7	15
16	63 09.8	+00.2	S 06 13.6	+01.0	98 56.7	-00.3	N 09 40.2	-00.9	167 36.3	-31.3	N 24 08.2	+02.7	16
17	78 10.0	+00.1	S 06 14.6	+00.9	113 56.4	-00.4	N 09 39.3	-01.0	182 05.0	-31.3	N 24 10.9	+02.5	17
18	93 10.1	+00.2	S 06 15.5	+01.0	128 56.0	-00.4	N 09 38.3	-01.0	196 33.7	-31.5	N 24 13.4	+02.4	18
19	108 10.3	+00.2	S 06 16.5	+00.9	143 55.6	-00.3	N 09 37.3	-00.9	211 02.2	-31.4	N 24 15.8	+02.2	19
20	123 10.5	+00.1	S 06 17.4	+01.0	158 55.3	-00.4	N 09 36.4	-01.0	225 30.8	-31.5	N 24 18.0	+02.1	20
21	138 10.6	+00.2	S 06 18.4	+00.9	173 54.9	-00.3	N 09 35.4	-01.0	239 59.3	-31.6	N 24 20.1	+02.0	21
22	153 10.8	+00.2	S 06 19.3	+01.0	188 54.6	-00.4	N 09 34.4	-01.0	254 27.7	-31.6	N 24 22.1	+01.9	22
23	168 11.0	+00.2	S 06 20.3	+00.9	203 54.2	-00.4	N 09 33.4	-00.9	268 56.1	-31.7	N 24 24.0	+01.8	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 166° 166° 166° 165° 165° 165° 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 202° 202° 201° 201° 201° 201° Greenwich Culmination Time: 09:24	UT 02 06 10 14 18 22	SD 15°0 15'0 15'1 15°1 15°1 15°1 HP 55°1 55°1 55°2 55°3 55°4 55°6 SHA 278° 275° 273° 271° 269° 266° Greenwich Culmination Time: 04:25								

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	183 11.2	+00.1	S 06 21.2	+01.0	218 53.8	-00.3	N 09 32.5	-01.0	283 24.4	-31.7	N 24 25.8	+01.6	00
01	198 11.3	+00.2	S 06 22.2	+00.9	233 53.5	-00.4	N 09 31.5	-01.0	297 52.7	-31.7	N 24 27.4	+01.5	01
02	213 11.5	+00.2	S 06 23.1	+01.0	248 53.1	-00.4	N 09 30.5	-01.0	312 21.0	-31.8	N 24 28.9	+01.4	02
03	228 11.7	+00.1	S 06 24.1	+00.9	263 52.7	-00.3	N 09 29.6	-01.0	326 49.2	-31.9	N 24 30.3	+01.3	03
04	243 11.8	+00.2	S 06 25.0	+01.0	278 52.4	-00.4	N 09 28.6	-01.0	341 17.3	-31.9	N 24 31.6	+01.1	04
05	258 12.0	+00.2	S 06 26.0	+00.9	293 52.0	-00.3	N 09 27.6	-01.0	355 45.4	-31.9	N 24 32.7	+01.0	05
06	273 12.2	+00.1	S 06 26.9	+01.0	308 51.7	-00.4	N 09 26.6	-00.9	10 13.5	-32.0	N 24 33.7	+00.8	06
07	288 12.3	+00.2	S 06 27.9	+00.9	323 51.3	-00.4	N 09 25.7	-01.0	24 41.5	-32.0	N 24 34.5	+00.8	07
08	303 12.5	+00.2	S 06 28.8	+01.0	338 50.9	-00.3	N 09 24.7	-01.0	39 09.5	-32.1	N 24 35.3	+00.6	08
09	318 12.7	+00.2	S 06 29.8	+00.9	353 50.6	-00.4	N 09 23.7	-01.0	53 37.4	-32.1	N 24 35.9	+00.4	09
10	333 12.9	+00.1	S 06 30.7	+01.0	8 50.2	-00.3	N 09 22.7	-01.0	68 05.3	-32.2	N 24 36.3	+00.4	10
11	348 13.0	+00.2	S 06 31.7	+00.9	23 49.9	-00.4	N 09 21.7	-00.9	82 33.1	-32.2	N 24 36.7	+00.2	11
12	3 13.2	+00.2	S 06 32.6	+01.0	38 49.5	-00.3	N 09 20.8	-01.0	97 00.9	-32.2	N 24 36.9	+00.1	12
13	18 13.4	+00.1	S 06 33.6	+00.9	53 49.2	-00.4	N 09 19.8	-01.0	111 28.7	-32.3	N 24 37.0	-00.1	13
14	33 13.5	+00.2	S 06 34.5	+00.9	68 48.8	-00.4	N 09 18.8	-01.0	125 56.1	-32.3	N 24 36.9	-00.2	14
15	48 13.7	+00.2	S 06 35.4	+01.0	83 48.4	-00.3	N 09 17.8	-00.9	140 24.1	-32.4	N 24 36.7	-00.3	15
16	63 13.9	+00.1	S 06 36.4	+00.9	98 48.1	-00.4	N 09 16.9	-01.0	154 51.7	-32.3	N 24 36.4	-00.4	16
17	78 14.0	+00.2	S 06 37.3	+01.0	113 47.7	-00.3	N 09 15.9	-01.0	169 19.4	-32.5	N 24 36.0	-00.6	17
18	93 14.2	+00.2	S 06 38.3	+00.9	128 47.4	-00.4	N 09 14.9	-01.0	183 46.9	-32.4	N 24 35.4	-00.8	18
19	108 14.4	+00.1	S 06 39.2	+01.0	143 47.0	-00.4	N 09 13.9	-01.0	198 14.5	-32.5	N 24 34.6	-00.8	19
20	123 14.5	+00.2	S 06 40.2	+00.9	158 46.6	-00.3	N 09 12.9	-01.0	212 42.0	-32.5	N 24 33.8	-01.0	20
21	138 14.7	+00.2	S 06 41.1	+01.0	173 46.3	-00.4	N 09 11.9	-00.9	227 09.5	-32.6	N 24 32.8	-01.1	21
22	153 14.9	+00.1	S 06 42.1	+00.9	188 45.9	-00.3	N 09 11.0	-01.0	241 36.9	-32.5	N 24 31.7	-01.3	22
23	168 15.0	+00.2	S 06 43.0	+01.0	203 45.6	-00.4	N 09 10.0	-01.0	256 04.4	-32.6	N 24 30.4	-01.4	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 165° 165° 165° 165° 164° 164° 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 201° 201° 200° 200° 200° 200° Greenwich Culmination Time: 09:24	UT 02 06 10 14 18 22	SD 15°2 15'2 15'2 15°3 15°3 15°3 HP 55°7 55°8 55°9 56°0 56°2 56°3 SHA 264° 262° 260° 257° 255° 253° Greenwich Culmination Time: 05:17								

UT	Mars				Jupiter				Saturn				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	354 34.3	+03.3	N 05 48.8	-00.2	87 05.7	+02.3	S 22 36.3	+00.0	79 39.4	+02.5	S 21 22.3	-00.1	00
01	9 37.6	+03.2	N 05 48.6	-00.1	102 08.0	+02.3	S 22 36.3	+00.0	94 41.9	+02.4	S 21 22.2	+00.0	01
02	24 40.8	+03.3	N 05 48.5	-00.2	117 10.3	+02.2	S 22 36.3	+00.0	109 44.3	+02.4	S 21 22.2	+00.0	02
03	39 44.1	+03.2	N 05 48.3	-00.1	132 12.5	+02.3	S 22 36.3	-00.1	124 46.7	+02.4	S 21 22.2	+00.0	03
04	54 47.3	+03.3	N 05 48.2	-00.2	147 14.8	+02.2	S 22 36.2	+00.0	139 49.1	+02.5	S 21 22.2	+00.0	04
05	69 50.6	+03.2	N 05 48.0	-00.2	162 17.0	+02.3	S 22 36.2	+00.0	154 51.6	+02.4	S 21 22.2	+00.0	05
06	84 53.8	+03.3	N 05 47.8	-00.1	177 19.3	+02.2	S 22 36.2	+00.0	169 54.0	+02.4	S 21 22.2	+00.0	06
07	99 57.1	+03.2	N 05 47.7	-00.2	192 21.5	+02.3	S 22 36.2	-00.1	184 56.4	+02.4	S 21 22.2	+00.0	07
08	115 00.3	+03.3	N 05 47.5	-00.1	207 23.8	+02.2	S 22 36.1	+00.0	199 58.8	+02.5	S 21 22.2	+00.0	08
09	130 03.6	+03.2	N 05 47.4	-00.2	222 26.0	+02.3	S 22 36.1	+00.0	215 01.3	+02.4	S 21 22.2	+00.0	09
10	145 06.8	+03.3	N 05 47.2	-00.1	237 28.3	+02.2	S 22 36.1	+00.0	230 03.7	+02.4	S 21 22.2	+00.0	10
11	160 10.1	+03.2	N 05 47.1	-00.2	252 30.5	+02.3	S 22 36.1	-00.1	245 06.1	+02.4	S 21 22.2	+00.0	11
12	175 13.3	+03.3	N 05 46.9	-00.2	267 32.8	+02.2	S 22 36.0	+00.0	260 08.5	+02.4	S 21 22.2	+00.0	12
13	190 16.6	+03.2	N 05 46.7	-00.1	282 35.0	+02.3	S 22 36.0	+00.0	275 10.9	+02.5	S 21 22.2	+00.0	13
14	205 19.8	+03.3	N 05 46.6	-00.2	297 37.3	+02.2	S 22 36.0	+00.0	290 13.4	+02.4	S 21 22.2	+00.0	14
15	220 23.1	+03.2	N 05 46.4	-00.1	312 39.5	+02.3	S 22 36.0	-00.1	305 15.8	+02.4	S 21 22.2	+00.0	15
16	235 26.3	+03.3	N 05 46.3	-00.2	327 41.8	+02.2	S 22 35.9	+00.0	320 18.2	+02.4	S 21 22.2	+00.0</	

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 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 160° 160° 160° 160° 160° 160°
Greenwich Culmination Time: 11:45

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 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 163° 163° 163° 163° 163° 162°
Greenwich Culmination Time: 11:46

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 339° 339° 340° 340° 340° 340°
Greenwich Culmination Time: 23:45

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°4 00°4 00°4 00°4 00°4 00°4
SHA 338° 339° 339° 339° 339° 339°
Greenwich Culmination Time: 00:06

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UT	<b>Sun</b>				<b>Venus</b>				<b>Moon</b>				A: 84%	UT	
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	183	22.9	+00.1	S 07 29.2	+00.9	218	28.1	-00.3	N 08 21.1	-01.0	244	10.6	-32.9	N 20 38.8	-08.2
01	198	23.0	+00.2	S 07 30.1	+00.9	233	27.8	-00.4	N 08 20.1	-01.0	258	37.7	-32.9	N 20 30.6	-08.3
02	213	23.2	+00.2	S 07 31.0	+01.0	248	27.4	-00.3	N 08 19.1	-01.0	273	04.8	-32.9	N 20 22.3	-08.4
03	228	23.4	+00.1	S 07 32.0	+00.9	263	27.1	-00.4	N 08 18.1	-01.0	287	31.9	-32.9	N 20 13.9	-08.5
04	243	23.5	+00.2	S 07 32.9	+00.9	278	26.7	-00.4	N 08 17.1	-01.0	301	59.0	-32.9	N 20 05.4	-08.7
05	258	23.7	+00.1	S 07 33.8	+01.0	293	26.3	-00.3	N 08 16.1	-01.0	316	26.1	-32.9	N 19 56.7	-08.8
06	273	23.8	+00.2	S 07 34.8	+00.9	308	26.0	-00.4	N 08 15.1	-01.0	330	53.2	-32.8	N 19 47.9	-08.9
07	288	24.0	+00.1	S 07 35.7	+01.0	323	25.6	-00.3	N 08 14.1	-01.1	345	20.4	-32.8	N 19 39.0	-09.1
08	303	24.1	+00.2	S 07 36.7	+00.9	338	25.3	-00.4	N 08 13.0	-01.0	359	47.6	-32.8	N 19 29.9	-09.2
09	318	24.3	+00.1	S 07 37.6	+00.9	353	24.9	-00.3	N 08 12.0	-01.0	14	14.8	-32.8	N 19 20.7	-09.3
10	333	24.4	+00.2	S 07 38.5	+01.0	8	24.6	-00.4	N 08 11.0	-01.0	28	42.0	-32.8	N 19 11.4	-09.4
11	348	24.6	+00.1	S 07 39.5	+00.9	23	24.2	-00.3	N 08 10.0	-01.0	43	09.2	-32.8	N 19 02.0	-09.6
12	3	24.7	+00.2	S 07 40.4	+00.9	38	23.9	-00.4	N 08 09.0	-01.0	57	36.4	-32.7	N 18 52.4	-09.7
13	18	24.9	+00.1	S 07 41.3	+01.0	53	23.5	-00.3	N 08 08.0	-01.0	72	03.7	-32.8	N 18 42.7	-09.8
14	33	25.0	+00.2	S 07 42.3	+00.9	68	23.2	-00.4	N 08 07.0	-01.1	86	30.9	-32.7	N 18 32.9	-09.9
15	48	25.2	+00.1	S 07 43.2	+00.9	83	22.8	-00.3	N 08 05.9	-01.0	100	58.2	-32.7	N 18 23.0	-10.1
16	63	25.3	+00.2	S 07 44.1	+01.0	98	22.5	-00.4	N 08 04.9	-01.0	115	25.5	-32.6	N 18 12.9	-10.2
17	78	25.5	+00.1	S 07 45.1	+00.9	113	22.1	-00.3	N 08 03.9	-01.0	129	52.9	-32.7	N 18 02.7	-10.2
18	93	25.6	+00.2	S 07 46.0	+00.9	128	21.8	-00.4	N 08 02.9	-01.0	144	20.2	-32.6	N 17 52.5	-10.5
19	108	25.8	+00.1	S 07 46.9	+01.0	143	21.4	-00.3	N 08 01.9	-01.0	158	47.6	-32.7	N 17 42.0	-10.5
20	123	25.9	+00.2	S 07 47.9	+00.9	158	21.1	-00.4	N 08 00.9	-01.1	173	14.9	-32.6	N 17 31.5	-10.7
21	138	26.1	+00.1	S 07 48.8	+00.9	173	20.7	-00.3	N 07 59.8	-01.0	187	42.3	-32.6	N 17 20.8	-10.7
22	153	26.2	+00.2	S 07 49.7	+01.0	188	20.4	-00.4	N 07 58.8	-01.0	202	09.7	-32.5	N 17 10.1	-10.9
23	168	26.4	+00.1	S 07 50.7	+00.9	203	20.0	-00.3	N 07 57.8	-01.0	216	37.2	-32.6	N 16 59.2	-11.0

<b>UT</b> 02 06 10 14 18 22	<b>SD</b> 16°0 16°0 16°0 16°0 16°0 16°0	<b>UT</b> 02 06 10 14 18 22	<b>SD</b> 00°1 00°1 00°1 00°1 00°1 00°1	<b>UT</b> 02 06 10 14 18 22	<b>SD</b> 15°9 15°9 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 58°2 58°4 58°6 58°7 58°9 59°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 00°0 00°0 00°0 00°0 00°0 00°0
SHA 162° 162° 162° 162° 162° 162°	SHA 197° 197° 197° 197° 197° 196°	SHA 222° 220° 217° 215° 213° 210°	SHA 161° 161° 161° 161° 161° 161°	SHA 196° 196° 196° 196° 195° 195°	SHA 208° 208° 203° 201° 199° 196°
Greenwich Culmination Time: 11:46		Greenwich Culmination Time: 09:26		Greenwich Culmination Time: 08:00	

UT	<b>Mars</b>				<b>Jupiter</b>				<b>Saturn</b>				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	359	47.3	+03.3	N 05 33.8	-00.1	90	40.8	+02.2	S 22 33.7	+00.0	83	31.4	+02.4	S 21 21.7	-00.1
01	14	50.6	+03.2	N 05 33.7	-00.2	105	43.0	+02.2	S 22 33.7	+00.0	98	33.8	+02.4	S 21 21.6	+00.0
02	29	53.8	+03.3	N 05 33.5	-00.1	120	45.2	+02.3	S 22 33.7	+00.1	113	36.2	+02.4	S 21 21.6	+00.0
03	44	57.1	+03.3	N 05 33.4	-00.2	135	47.5	+02.2	S 22 33.6	+00.0	128	38.6	+02.5	S 21 21.6	+00.0
04	60	00.4	+03.3	N 05 33.2	-00.1	150	49.7	+02.2	S 22 33.6	+00.0	143	41.1	+02.4	S 21 21.6	+00.0
05	75	03.7	+03.2	N 05 33.1	-00.2	165	51.9	+02.2	S 22 33.6	-00.1	158	43.5	+02.4	S 21 21.6	+00.0
06	90	06.9	+03.3	N 05 32.9	-00.1	180	54.1	+02.3	S 22 33.5	+00.0	173	45.9	+02.4	S 21 21.6	+00.0
07	105	10.2	+03.3	N 05 32.8	-00.2	195	56.4	+02.2	S 22 33.5	+00.0	188	48.3	+02.4	S 21 21.6	+00.0
08	120	13.5	+03.2	N 05 32.6	-00.1	210	58.6	+02.2	S 22 33.5	-00.1	203	50.7	+02.4	S 21 21.6	+00.0
09	135	16.7	+03.3	N 05 32.5	-00.2	226	00.8	+02.2	S 22 33.4	+00.0	218	53.1	+02.4	S 21 21.6	+00.0
10	150	20.0	+03.3	N 05 32.3	-00.1	241	03.0	+02.2	S 22 33.4	+00.0	233	55.5	+02.4	S 21 21.6	+00.0
11	165	23.3	+03.2	N 05 32.2	-00.2	256	05.2	+02.3	S 22 33.4	+00.0	248	57.9	+02.4	S 21 21.6	+00.0
12	180	26.5	+03.3	N 05 32.0	-00.1	271	07.5	+02.2	S 22 33.4	-00.1	264	00.3	+02.4	S 21 21.6	-00.1
13	195	29.8	+03.3	N 05 31.9	-00.2	286	09.7	+02.2	S 22 33.3	+00.0	279	02.7	+02.4	S 21 21.5	+00.0
14	210	33.1	+03.2	N 05 31.7	-00.1	301	11.9	+02.2	S 22 33.3	+00.0	294	05.1	+02.4	S 21 21.5	+00.0
15	225	36.3	+03.3	N 05 31.6	-00.2	316	14.1	+02.3	S 22 33.3	-00.1	309	07.5	+02.4	S 21 21.5	+00.0
16	240	39.6	+03.3	N 05 31.4	-00.1	331	16.4	+02.2	S 22 33.2	+00.0	324	09.9	+02.4	S 21 21.5	+00.0
17	255	42.9	+03.2	N 05 31.3	-00.2	346	18.6	+02.2	S 22 33.2	+00.0	339	12.3	+02.4	S 21 21.5	+00.0
18	270	46.1	+03.3	N 05 31.1	-00.1	1	20.8	+02.2	S 22 33.2	-00.1	354	14.7	+02.4	S 21 21.5	+00.0
19	285	49.4	+03.3	N 05 31.0	-00.2	16	23.0	+02.2	S 22 33.1	+00.0	9	17.1	+02.4	S 21 21.5	+00.0
20	300	52.7	+03.2	N 05 30.8	-00.1	31	25.2	+02.2	S 22 33.1	+00.0	24	19.5	+02.5	S 21 21.5	+00.0
21	315	55.9	+03.3	N 05 30.7	-00.2	46	27.4	+02.3	S 22 33.1	+00.0	39	22.0	+02.4	S 21 21.5	+00.0
22	330	59.2	+03.3	N 05 30.5	-00.1	61	29.7	+02.2	S 22 33.1	-00.1	54	24.4	+02.4	S 21 21.5	+00.0
23	346	02.5	+03.2	N 05 30.4	-00.2	76	31.9	+02.2	S 22 33.0	+00.0	69	26.8	+02.4	S 21 21.5	+00.0

<b>UT</b> 02 06 10 14 18 22	<b>SD</b> 00°2 00°2 00°2 00°2 00°2 00°2	<b>UT</b> 02 06 10 14 18 22	<b>SD</b> 00°3 00°3 00°3 00°3 00°3 00°3	<b>UT</b> 02 06 10 14 18 22	<b>SD</b> 00°1 00°1 00°1 00°1 00°1 00°1
HP 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	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 339° 339° 339° 339° 339° 339°	SHA 070° 070° 070° 070° 070° 070°	SHA 070° 070° 070° 070° 070° 070°	SHA 070° 070° 070° 070° 070° 070°	SHA 062° 062° 062° 062° 062° 062°	SHA 062° 062° 062° 062° 062° 062°
Greenwich Culmination Time: 00:00		Greenwich Culmination Time: 17:54		Greenwich Culmination Time: 18:22	

UT	<b>Sun</b>				<b>Venus</b>				<b>Moon</b>				A: 88%	UT	
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	183	26.5	+00.2	S 07 51.6	+00.9	218	19.7	-00.4	N 07 56.8	-01.0	231	04.6	-32.5	N 16 48.2	-11.1
01	198	26.7	+00.1	S 07 52.5	+01.0	233	19.3	-00.3	N 07 55.8	-01.1	245	32.1	-32.5	N 16 37.1	-11.3
02	213	26.8	+00.2	S 07 53.5	+00.9	248	19.0	-00.4	N 07 54.7	-01.0	259	59.6	-32.5	N 16 25.8	-11.3
03	228	27.0	+00.1	S 07 54.4	+00.9	263	18.6	-00.4	N 07 53.7	-01.0	274	27.1	-32.5	N 16 14.5	-11.5
04	243	27.1	+00.2	S 07 55.3	+01.0	278	18.2	-00.3	N 07 52.7	-01.0	288	54.6	-32.4	N 16 03.0	-11.5
05	258	27.3	+00.1	S 07 56.3	+00.9	293	17.9	-00.4	N 07 51.7	-01.1	303	22.2	-32.5	N 15 51.5	-11.7
06	273	27.4	+00.2	S 07 57.2	+00.9	308	17.5	-00.3	N 07 50.6	-01.0	317	49.7	-32.4	N 15 39.8	-11.8
07	288	27.6	+00.1	S 07 58.1	+01.0	323	17.2	-00.4	N 07 49.6	-01.0	332	17.3	-32.4	N 15 28.0	-11.9
08	303	27.7	+00.2	S 07 59.1	+00.9	338	16.8	-00.3	N 07 48.6	-01.0	346	44.9	-32.3	N 15 16.1	-12.0
09	318	27.9	+00.1	S 08 00.0	+00.9										

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet and Moon. Moon A: 06%.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. 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 and Moon. Moon A: 95%.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. 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	183	36.7	+00.1	S	08	58.3	+00.9		217	54.6	-00.4	N	06	42.1	-01.0		192	34.5	-32.1	S	00	07.7	+15.9		00
01	198	36.8	+00.1	S	08	59.2	+00.9		232	54.2	-00.3	N	06	41.1	-01.1		207	02.4	-32.1	S	00	23.6	+15.8		01
02	213	36.9	+00.2	S	09	00.1	+01.0		247	53.9	-00.4	N	06	40.0	-01.1		221	30.3	-32.2	S	00	39.4	+15.9		02
03	228	37.1	+00.1	S	09	01.1	+00.9		262	53.5	-00.3	N	06	38.9	-01.0		235	58.1	-32.1	S	00	55.3	+15.9		03
04	243	37.2	+00.1	S	09	02.0	+00.9		277	53.2	-00.4	N	06	37.9	-01.1		250	26.0	-32.2	S	01	11.2	+15.9		04
05	258	37.3	+00.2	S	09	02.9	+00.9		292	52.8	-00.3	N	06	36.8	-01.0		264	53.8	-32.2	S	01	27.1	+15.9		05
06	273	37.5	+00.1	S	09	03.8	+00.9		307	52.5	-00.4	N	06	35.8	-01.1		279	21.6	-32.2	S	01	43.0	+15.8		06
07	288	37.6	+00.1	S	09	04.7	+00.9		322	52.1	-00.3	N	06	34.7	-01.0		293	49.4	-32.3	S	01	58.8	+15.9		07
08	303	37.7	+00.2	S	09	05.6	+01.0		337	51.8	-00.4	N	06	33.7	-01.1		308	17.1	-32.2	S	02	14.7	+15.8		08
09	318	37.9	+00.1	S	09	06.6	+00.9		352	51.4	-00.3	N	06	32.6	-01.0		322	44.9	-32.3	S	02	30.5	+15.9		09
10	333	38.0	+00.1	S	09	07.5	+00.9		7	51.1	-00.3	N	06	31.6	-01.1		337	12.6	-32.4	S	02	46.4	+15.8		10
11	348	38.1	+00.1	S	09	08.4	+00.9		22	50.8	-00.4	N	06	30.5	-01.1		351	40.2	-32.3	S	03	02.2	+15.8		11
12	3	38.2	+00.2	S	09	09.3	+00.9		37	50.4	-00.3	N	06	29.4	-01.0		6	07.9	-32.4	S	03	18.0	+15.8		12
13	18	38.4	+00.1	S	09	10.2	+00.9		52	50.1	-00.4	N	06	28.4	-01.1		20	35.5	-32.4	S	03	33.8	+15.8		13
14	33	38.5	+00.1	S	09	11.1	+01.0		67	49.7	-00.3	N	06	27.3	-01.0		35	03.1	-32.4	S	03	49.6	+15.8		14
15	48	38.6	+00.2	S	09	12.1	+00.9		82	49.4	-00.4	N	06	26.3	-01.1		49	30.7	-32.4	S	04	05.4	+15.7		15
16	63	38.8	+00.1	S	09	13.0	+00.9		97	49.0	-00.3	N	06	25.2	-01.1		63	58.3	-32.5	S	04	21.1	+15.8		16
17	78	38.9	+00.1	S	09	13.9	+00.9		112	48.7	-00.4	N	06	24.1	-01.0		78	25.8	-32.5	S	04	36.9	+15.6		17
18	93	39.0	+00.1	S	09	14.8	+00.9		127	48.3	-00.3	N	06	23.1	-01.1		92	53.3	-32.6	S	04	52.5	+15.7		18
19	108	39.1	+00.2	S	09	15.7	+00.9		142	48.0	-00.3	N	06	22.0	-01.0		107	20.7	-32.6	S	05	08.2	+15.6		19
20	123	39.3	+00.1	S	09	16.6	+00.9		157	47.7	-00.4	N	06	21.0	-01.1		121	48.1	-32.6	S	05	23.8	+15.6		20
21	138	39.4	+00.1	S	09	17.5	+01.0		172	47.3	-00.3	N	06	19.9	-01.1		136	15.5	-32.6	S	05	39.4	+15.6		21
22	153	39.5	+00.1	S	09	18.5	+00.9		187	47.0	-00.4	N	06	18.8	-01.0		150	42.9	-32.7	S	05	55.0	+15.5		22
23	168	39.6	+00.2	S	09	19.4	+00.9		202	46.6	-00.3	N	06	17.8	-01.1		165	10.2	-32.7	S	06	10.5	+15.5		23

UT	02	06	10	14	18	22	UT	02	06	10	14	18	22	UT	02	06	10	14	18	22
SD	16°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	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	61°3	61°3	61°4	61°4	61°4	61°4	HP	61°3	61°3	61°4	61°4	61°4	61°4
SHA	159°	158°	158°	158°	158°	158°	SHA	193°	193°	192°	192°	192°	192°	SHA	166°	164°	162°	160°	157°	157°
Greenwich Culmination Time: 11:45							Greenwich Culmination Time: 09:28							Greenwich Culmination Time: 11:34						

UT	Mars				Jupiter				Saturn				UT												
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec													
00	5	00.7	+03.3	N	05	19.8	-00.2		94	13.0	+02.2	S	22	30.7	-00.1		87	21.7	+02.4	S	21	20.8	-00.1		00
01	20	04.0	+03.2	N	05	19.6	-00.1		109	15.2	+02.1	S	22	30.6	+00.0		102	24.1	+02.4	S	21	20.7	+00.0		01
02	35	07.2	+03.3	N	05	19.5	-00.2		124	17.3	+02.2	S	22	30.6	+00.0		117	26.5	+02.4	S	21	20.7	+00.0		02
03	50	10.5	+03.2	N	05	19.3	-00.1		139	19.5	+02.2	S	22	30.6	-00.1		132	28.9	+02.4	S	21	20.7	+00.0		03
04	65	13.7	+03.3	N	05	19.2	-00.1		154	21.7	+02.2	S	22	30.5	+00.0		147	31.3	+02.4	S	21	20.7	+00.0		04
05	80	17.0	+03.2	N	05	19.1	-00.2		169	23.9	+02.2	S	22	30.5	+00.0		162	33.7	+02.4	S	21	20.7	+00.0		05
06	95	20.2	+03.3	N	05	18.9	-00.1		184	26.1	+02.2	S	22	30.5	-00.1		177	36.1	+02.4	S	21	20.7	+00.0		06
07	110	23.5	+03.2	N	05	18.8	-00.1		199	28.3	+02.2	S	22	30.4	+00.0		192	38.5	+02.4	S	21	20.7	+00.0		07
08	125	26.7	+03.3	N	05	18.7	-00.2		214	30.5	+02.2	S	22	30.4	-00.1		207	40.9	+02.4	S	21	20.7	+00.0		08
09	140	30.0	+03.2	N	05	18.5	-00.1		229	32.7	+02.2	S	22	30.3	+00.0		222	43.3	+02.3	S	21	20.7	-00.1		09
10	155	33.2	+03.3	N	05	18.4	-00.2		244	34.9	+02.2	S	22	30.3	+00.0		237	45.6	+02.4	S	21	20.6	+00.0		10
11	170	36.5	+03.2	N	05	18.2	-00.1		259	37.1	+02.2	S	22	30.3	-00.1		252	48.0	+02.4	S	21	20.6	+00.0		11
12	185	39.7	+03.3	N	05	18.1	-00.1		274	39.3	+02.2	S	22	30.2	+00.0		267	50.4	+02.4	S	21	20.6	+00.0		12
13	200	43.0	+03.2	N	05	18.0	-00.2		289	41.5	+02.2	S	22	30.2	+00.0		282	52.8	+02.4	S	21	20.6	+00.0		13
14	215	46.2	+03.3	N	05	17.8	-00.1		304	43.7	+02.2	S	22	30.2	-00.1		297	55.2	+02.4	S	21	20.6	+00.0		14
15	230	49.5	+03.2	N	05	17.7	-00.1		319	45.9	+02.1	S	22	30.1	+00.0		312	57.6	+02.4	S	21	20.6	+00.0		15
16	245	52.7	+03.3	N	05	17.6	-00.2		334	48.0	+02.2	S	22	30.1	+00.0		327	60.0	+02.4	S	21	20.6	+00.0		16
17	260	56.0	+03.2	N	05	17.4	-00.1		349	50.2	+02.2	S	22	30.1	-00.1		343	02.4	+02.3	S	21	20.6	+00.0		17
18	275	59.2	+03.3	N	05	17.3	-00.1		4	52.4	+02.2	S	22	30.0	+00.0		358	04.7	+02.4	S	21	20.6	-00.1		18
19	291	02.5	+03.2	N	05	17.2	-00.2		19	54.6	+02.2	S	22	30.0	+00.0		13	07.1	+02.4	S	21	20.5	+00.0		19
20	306	05.7	+03.3	N	05	17.0	-00.1		34	56.8	+02.2	S	22	30.0	-00.1		28	09.5	+02.4	S	21	20.5	+00.0		20
21	321	09.0	+03.2	N	05	16.9	-00.2		49	59.0	+02.2	S	22	29.9	+00.0		43	11.9	+02.4	S	21	20.5	+00.0		21
22	336	12.2	+03.3	N	05	16.7	-00.1		65	01.2	+02.2	S	22	29.9	+00.0		58	14.3	+02.4	S	21	20.5	+00.0		22
23	351	15.5	+03.2	N	05	16.6	-00.1		80	03.4	+02.2	S	22	29.9	-00.1		73	16.7	+02.4	S	21	20.5	+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°2	00°2	00°2	00°2	00°2	00°2	SD	00°1	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°3	00°3	00°3	00°3	00°3	00°3	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	340°	340°	340°	340°	340°	340°	SHA	069°	069°	069°	069°	069°	069°	SHA	062°	062°	062°	062°	062°	062°
Greenwich Culmination Time: 23:34							Greenwich Culmination Time: 17:40							Greenwich Culmination Time: 18:07						

UT	Sun				Venus				Moon				UT											
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec												
00	183	39.8	+00.1	S	09	20.3	+00.9		217	46.3	-00.4	N	06	16.7	-01.0		179	37.5	-32.7	S	06	26.0	+15.5	

Table for 2020 October 22 Thursday showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and A:22%.

Table for 2020 October 19 Monday showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and A:10%.

Table for 2020 October 22 Thursday showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table for 2020 October 19 Monday showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, 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. Includes RA, Dec, and magnitude data 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 155° 155° 154° 154° 154° 154°
Greenwich Culmination Time: 11:44

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°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

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 341° 341° 341° 341° 341° 342°
Greenwich Culmination Time: 23:14

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 069° 069° 069° 069° 069° 069°
Greenwich Culmination Time: 17:23

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UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> <small>A: 36%</small>				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	184	00.5	+00.1	S 12 31.3	+00.9	216	32.9	-00.3	N 02 19.3	-01.1	59	38.4	-27.5	S 15 29.2	-10.3	00							
01	199	00.6	+00.0	S 12 32.2	+00.8	231	32.6	-00.4	N 02 18.2	-01.2	74	10.9	-27.4	S 15 18.9	-10.3	01							
02	214	00.6	+00.1	S 12 33.0	+00.9	246	32.2	-00.3	N 02 17.0	-01.1	88	43.5	-27.3	S 15 08.6	-10.3	02							
03	229	00.7	+00.1	S 12 33.9	+00.8	261	31.9	-00.4	N 02 15.9	-01.1	103	16.2	-27.3	S 14 58.3	-10.5	03							
04	244	00.8	+00.0	S 12 34.7	+00.9	276	31.5	-00.3	N 02 14.8	-01.2	117	48.9	-27.1	S 14 47.8	-10.5	04							
05	259	00.8	+00.1	S 12 35.6	+00.8	291	31.2	-00.3	N 02 13.6	-01.1	132	21.8	-27.2	S 14 37.3	-10.5	05							
06	274	00.9	+00.0	S 12 36.4	+00.9	306	30.9	-00.4	N 02 12.5	-01.1	146	54.6	-27.0	S 14 26.8	-10.6	06							
07	289	00.9	+00.1	S 12 37.3	+00.8	321	30.5	-00.3	N 02 11.4	-01.2	161	27.6	-27.0	S 14 16.2	-10.7	07							
08	304	01.0	+00.1	S 12 38.1	+00.8	336	30.2	-00.4	N 02 10.2	-01.1	176	00.6	-26.9	S 14 05.5	-10.7	08							
09	319	01.1	+00.0	S 12 38.9	+00.9	351	29.8	-00.3	N 02 09.1	-01.1	190	33.7	-26.9	S 13 54.8	-10.7	09							
10	334	01.1	+00.1	S 12 39.8	+00.8	6 29.5	-00.3	N 02 08.0	-01.1	205	06.8	-26.8	S 13 44.1	-10.8	10								
11	349	01.2	+00.1	S 12 40.6	+00.9	21 29.2	-00.4	N 02 06.9	-01.2	219	40.0	-26.7	S 13 33.3	-10.9	11								
12	4 01.3	+00.0	S 12 41.5	+00.8	36 28.8	-00.3	N 02 05.7	-01.1	234	13.3	-26.7	S 13 22.4	-10.9	12									
13	19 01.3	+00.1	S 12 42.3	+00.9	51 28.5	-00.4	N 02 04.6	-01.1	248	46.6	-26.6	S 13 11.5	-10.9	13									
14	34 01.4	+00.0	S 12 43.2	+00.8	66 28.1	-00.3	N 02 03.5	-01.2	263	20.0	-26.6	S 13 00.6	-11.0	14									
15	49 01.4	+00.1	S 12 44.0	+00.9	81 27.8	-00.3	N 02 02.3	-01.1	277	53.4	-26.5	S 12 49.6	-11.1	15									
16	64 01.5	+00.1	S 12 44.9	+00.8	96 27.5	-00.4	N 02 01.2	-01.1	292	26.9	-26.4	S 12 38.5	-11.1	16									
17	79 01.6	+00.0	S 12 45.7	+00.9	111 27.1	-00.3	N 02 00.1	-01.2	307	00.5	-26.4	S 12 27.4	-11.1	17									
18	94 01.6	+00.1	S 12 46.6	+00.8	126 26.8	-00.3	N 01 58.9	-01.1	321	34.1	-26.3	S 12 16.3	-11.2	18									
19	109 01.7	+00.0	S 12 47.4	+00.9	141 26.5	-00.4	N 01 57.8	-01.1	336	07.8	-26.2	S 12 05.1	-11.2	19									
20	124 01.7	+00.1	S 12 48.3	+00.8	156 26.1	-00.3	N 01 56.7	-01.2	350	41.6	-26.2	S 11 53.9	-11.3	20									
21	139 01.8	+00.0	S 12 49.1	+00.8	171 25.8	-00.4	N 01 55.5	-01.1	5 15.4	-26.2	S 11 42.6	-11.3	21										
22	154 01.8	+00.1	S 12 49.9	+00.9	186 25.4	-00.3	N 01 54.4	-01.1	19 49.2	-26.1	S 11 31.3	-11.3	22										
23	169 01.9	+00.1	S 12 50.8	+00.8	201 25.1	-00.3	N 01 53.3	-01.2	34 23.1	-26.0	S 11 20.0	-11.4	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	15°0	15°0	15°0	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°1	55°0	54°9	54°8	54°7	54°7			
SHA	149°	149°	149°	149°	149°	148°	SHA	182°	181°	181°	181°	181°	181°	SHA	024°	022°	020°	018°	016°	014°			
				Greenwich Culmination Time: 11:43								Greenwich Culmination Time: 09:34								Greenwich Culmination Time: 20:38			

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> <small>A: 26%</small>				UT										
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec											
00	183	55.1	+00.1	S 11 29.1	+00.9	216	57.2	-00.3	N 03 40.0	-01.1	96	13.0	-33.5	S 24 06.5	-03.2	00							
01	198	55.2	+00.1	S 11 30.0	+00.9	231	56.9	-00.3	N 03 38.9	-01.1	110	39.5	-33.4	S 24 03.3	-03.4	01							
02	213	55.3	+00.0	S 11 30.9	+00.9	246	56.6	-00.4	N 03 37.8	-01.1	125	06.1	-33.4	S 23 59.9	-03.6	02							
03	228	55.3	+00.1	S 11 31.8	+00.8	261	56.2	-00.3	N 03 36.7	-01.2	139	32.7	-33.3	S 23 56.3	-03.7	03							
04	243	55.4	+00.1	S 11 32.6	+00.9	276	55.9	-00.3	N 03 35.5	-01.1	153	59.4	-33.2	S 23 52.6	-03.8	04							
05	258	55.5	+00.1	S 11 33.5	+00.9	291	55.6	-00.4	N 03 34.4	-01.1	168	26.2	-33.1	S 23 48.8	-03.9	05							
06	273	55.6	+00.1	S 11 34.4	+00.9	306	55.2	-00.3	N 03 33.3	-01.1	182	53.1	-33.0	S 23 44.9	-04.1	06							
07	288	55.7	+00.1	S 11 35.3	+00.8	321	54.9	-00.4	N 03 32.2	-01.1	197	20.1	-33.0	S 23 40.8	-04.2	07							
08	303	55.8	+00.0	S 11 36.1	+00.9	336	54.5	-00.3	N 03 31.1	-01.1	211	47.1	-32.8	S 23 36.6	-04.3	08							
09	318	55.8	+00.1	S 11 37.0	+00.9	351	54.2	-00.3	N 03 30.0	-01.1	226	14.3	-32.8	S 23 32.3	-04.5	09							
10	333	55.9	+00.1	S 11 37.9	+00.8	6 53.9	-00.4	N 03 28.9	-01.2	240	41.5	-32.7	S 23 27.8	-04.6	10								
11	348	56.0	+00.1	S 11 38.7	+00.9	21 53.5	-00.3	N 03 27.7	-01.1	255	08.8	-32.6	S 23 23.2	-04.7	11								
12	3 56.1	+00.1	S 11 39.6	+00.9	36 53.2	-00.3	N 03 26.6	-01.1	269	36.2	-32.5	S 23 18.5	-04.8	12									
13	18 56.2	+00.1	S 11 40.5	+00.9	51 52.9	-00.4	N 03 25.5	-01.1	284	03.7	-32.5	S 23 13.7	-05.0	13									
14	33 56.3	+00.0	S 11 41.4	+00.8	66 52.5	-00.3	N 03 24.4	-01.1	298	31.2	-32.3	S 23 08.7	-05.0	14									
15	48 56.3	+00.1	S 11 42.2	+00.9	81 52.2	-00.4	N 03 23.3	-01.1	312	58.9	-32.3	S 23 03.7	-05.2	15									
16	63 56.4	+00.1	S 11 43.1	+00.9	96 51.8	-00.3	N 03 22.2	-01.1	327	26.6	-32.2	S 22 58.5	-05.3	16									
17	78 56.5	+00.1	S 11 44.0	+00.8	111 51.5	-00.3	N 03 21.1	-01.2	341	54.4	-32.1	S 22 53.2	-05.5	17									
18	93 56.6	+00.1	S 11 44.8	+00.9	126 51.2	-00.4	N 03 19.9	-01.1	356	22.3	-32.0	S 22 47.7	-05.5	18									
19	108 56.7	+00.0	S 11 45.7	+00.9	141 50.8	-00.3	N 03 18.8	-01.1	10 50.3	-31.9	S 22 42.2	-05.7	19										
20	123 56.7	+00.1	S 11 46.6	+00.8	156 50.5	-00.4	N 03 17.7	-01.1	25 18.4	-31.9	S 22 36.5	-05.8	20										
21	138 56.8	+00.1	S 11 47.4	+00.9	171 50.1	-00.3	N 03 16.6	-01.1	39 46.5	-31.7	S 22 30.7	-05.9	21										
22	153 56.9	+00.1	S 11 48.3	+00.9	186 49.8	-00.3	N 03 15.5	-01.1	54 14.8	-31.7	S 22 24.8	-06.0	22										
23	168 57.0	+00.1	S 11 49.2	+00.8	201 49.5	-00.4	N 03 14.4	-01.2	68 43.1	-31.5	S 22 18.8	-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°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°5	15°5	15°5	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	57°2	57°1	56°9	56°8	56°6	56°5			
SHA	152°	152°	152°	151°	151°	151°	SHA	185°	185°	185°	184°	184°	184°	SHA	063°	061°	058°	056°	054°	051°			
				Greenwich Culmination Time: 11:44								Greenwich Culmination Time: 09:32								Greenwich Culmination Time: 18:15			

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	17	45.5	+03.1	N 04 54.4	-00.1	102	51.4	+02.2	S 22 21.1	-00.1	96	50.4	+02.3	S 21 17.2	+00.0	00
01	32	48.6	+03.1	N 04 54.3	-00.1	117	53.6	+02.1	S 22 21.0	+00.0	111	52.7	+02.4	S 21 17.2	+00.0	01
02	47	51.7	+03.1	N 04 54.2	+00.0	132	55.7	+02.1	S 22 21.0	-00.1	126	55.1	+02.3	S 21 17.2	+00.0	02
03	62	54.8	+03.0	N 04 54.2	-00.1	147	57.8	+02.1	S 22 20.9	+00.0	141	57.4	+02.4	S 21 17.2	-00.1	03
04	77	57.8	+03.1	N 04 54.1	-00.1	162	59.9	+02.2	S 22 20.9	+00.0	156	59.8	+02.3	S 21 17.1	+00.0	04
05	93	00.9	+03.1	N 04 54.0	+00.0	178	02.1	+02.1	S 22 20.9	-00.1	172	02.1	+02.4	S 21 17.1	+00.0	05
06	108	04.0	+03.1	N 04 54.0	-00.1	193	04.2	+02.1	S 22 20.8	+00.0	187	04.5	+02.3	S 21 17.1	+00.0	06
07	123	07.1	+03.1	N 04 53.9	-00.1	208	06.3	+02.1	S 22 20.8	-00.1	202	06.8	+02.4	S 21 17.1	+00.0	07
08	138	10.2	+03.1	N 04 53.8	+00.0	223	08.4	+02.2	S 22 20.7	+00.0	217	09.2	+02.3	S 21 17.1	+00.0	08
09	153	13.3	+03.0	N 04 53.8	-00.1	238	10.6	+02.1	S 22 20.7	-00.1	232	11.5	+02.4	S 21 17.1	-00.1	09
10	168	16.3	+03.1	N 04 53.7	+00.0	253	12.7	+02.1	S 22 20.6	+00.0	247	13.9	+02.3	S 21 17.0	+00.0	10
11	183	19.4	+03.1	N 04 53.7	-00.1	268	14.8	+02.1	S 22 20.6	-00.1	262	16.2	+02.4	S 21 17.0	+00.0	11
12	198	22.5	+03.1	N 04 53.6	-00.1	283	16.9	+02.2	S 22 20.5	+00.0	277	18.6	+02.3	S 21 17.0	+00.0	12
13	213	25.6	+03.0	N 04 53.5	+00.0	298	19.1	+02.1	S 22 20.5	-00.1	292	20.9	+02.4	S 21 17.0	+00.0	13
14	228	28.6	+03.1	N 04 53.5	-00.1	313	21.2	+02.1	S 22 20.4	+00.0	307	23.3	+02.3	S 21 17.0	-00.1	14
15	243	31.7	+03.1	N 04 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 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 151° 151° 151° 151° 151° 150°
Greenwich Culmination Time: 11:44

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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 342° 342° 343° 343° 343° 343°
Greenwich Culmination Time: 22:54

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°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 150° 150° 150° 150° 149° 149°
Greenwich Culmination Time: 11:44

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 343° 343° 343° 343° 343° 343°
Greenwich Culmination Time: 22:49

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Table with 5 columns: UT, Sun, Venus, Moon, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Data rows for UT 00 to 23.

Summary table for Sun, Venus, and Moon. Columns: UT, 02, 06, 10, 14, 18, 22. Contains SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with 5 columns: UT, Sun, Venus, Moon, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Data rows for UT 00 to 23.

Summary table for Sun, Venus, and Moon. Columns: UT, 02, 06, 10, 14, 18, 22. Contains SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Data rows for UT 00 to 23.

Summary table for Mars, Jupiter, and Saturn. Columns: UT, 02, 06, 10, 14, 18, 22. Contains SD, HP, and SHA coordinates and Greenwich Culmination Time.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Data rows for UT 00 to 23.

Summary table for Mars, Jupiter, and Saturn. Columns: UT, 02, 06, 10, 14, 18, 22. Contains SD, HP, and SHA coordinates and Greenwich Culmination Time.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on 2020 October 28. Includes sub-tables for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on 2020 October 29. Includes sub-tables for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on 2020 October 28. Includes sub-tables for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on 2020 October 29. Includes sub-tables for UT 02, 06, 10, 14, 18, 22 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 column includes 'A: 59%'.

Summary table for Sun, Venus, Moon with columns UT 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.

Summary table for Mars, Jupiter, Saturn with columns UT 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. Moon column includes 'A: 49%'.

Summary table for Sun, Venus, Moon with columns UT 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.

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

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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°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 143° 143° 143° 143° 143° 142°
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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 344° 344° 344° 344° 344° 344°
Greenwich Culmination Time: 22:15

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°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 142° 142° 142° 142° 142° 141°
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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 344° 344° 344° 345° 345° 345°
Greenwich Culmination Time: 22:11

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 137° 137° 137° 137° 137° 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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 21:48

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 140° 140° 140° 140° 140° 140°
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°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 22:02

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and times 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° 139°
Greenwich Culmination Time: 11:43

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

UT 02 06 10 14 18 22
SD 00°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 21:57

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and times 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° 138°
Greenwich Culmination Time: 11:43

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

UT 02 06 10 14 18 22
SD 00°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 21:53



UT	<b>Sun</b>				<b>Venus</b>				<b>Moon</b>				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	183	60.0	-00.1	S 17 28.9	+00.7	214	15.7	-00.4	S 05 03.1	+01.1	237	30.4	-30.8	N 08 39.7	-14.2	00
01	198	59.9	-00.1	S 17 29.6	+00.7	229	15.3	-00.4	S 05 04.2	+01.2	251	59.6	-30.8	N 08 25.5	-14.3	01
02	213	59.8	+00.0	S 17 30.3	+00.7	244	14.9	-00.4	S 05 05.4	+01.1	266	28.8	-30.8	N 08 11.2	-14.3	02
03	228	59.8	-00.1	S 17 31.0	+00.7	259	14.5	-00.4	S 05 06.5	+01.2	280	58.0	-30.7	N 07 56.9	-14.4	03
04	243	59.7	-00.1	S 17 31.7	+00.6	274	14.1	-00.4	S 05 07.7	+01.1	295	27.3	-30.8	N 07 42.5	-14.5	04
05	258	59.6	+00.0	S 17 32.3	+00.7	289	13.7	-00.4	S 05 08.8	+01.2	309	56.5	-30.8	N 07 28.0	-14.5	05
06	273	59.6	-00.1	S 17 33.0	+00.7	304	13.3	-00.4	S 05 10.0	+01.1	324	25.7	-30.8	N 07 13.5	-14.6	06
07	288	59.5	-00.1	S 17 33.7	+00.7	319	12.9	-00.4	S 05 11.1	+01.2	338	54.9	-30.8	N 06 58.9	-14.7	07
08	303	59.4	-00.1	S 17 34.4	+00.7	334	12.5	-00.3	S 05 12.3	+01.1	353	24.1	-30.8	N 06 44.2	-14.7	08
09	318	59.3	+00.0	S 17 35.1	+00.7	349	12.2	-00.4	S 05 13.4	+01.2	7	53.3	-30.8	N 06 29.5	-14.7	09
10	333	59.3	-00.1	S 17 35.8	+00.6	4	11.8	-00.4	S 05 14.6	+01.1	22	22.5	-30.8	N 06 14.8	-14.8	10
11	348	59.2	-00.1	S 17 36.4	+00.7	19	11.4	-00.4	S 05 15.7	+01.2	36	51.7	-30.9	N 05 60.0	-14.9	11
12	3	59.1	-00.1	S 17 37.1	+00.7	34	11.0	-00.4	S 05 16.9	+01.1	51	20.8	-30.8	N 05 45.1	-14.9	12
13	18	59.0	+00.0	S 17 37.8	+00.7	49	10.6	-00.4	S 05 18.0	+01.2	65	50.0	-30.8	N 05 30.2	-14.9	13
14	33	59.0	-00.1	S 17 38.5	+00.7	64	10.2	-00.4	S 05 19.2	+01.1	80	19.2	-30.9	N 05 15.3	-15.0	14
15	48	58.9	-00.1	S 17 39.2	+00.6	79	09.8	-00.4	S 05 20.3	+01.2	94	48.3	-30.8	N 05 00.3	-15.0	15
16	63	58.8	-00.1	S 17 39.8	+00.7	94	09.4	-00.4	S 05 21.5	+01.1	109	17.5	-30.9	N 04 45.3	-15.1	16
17	78	58.7	-00.1	S 17 40.5	+00.7	109	09.0	-00.4	S 05 22.6	+01.2	123	46.6	-30.9	N 04 30.2	-15.2	17
18	93	58.6	+00.0	S 17 41.2	+00.7	124	08.6	-00.4	S 05 23.8	+01.1	138	15.7	-30.9	N 04 15.0	-15.1	18
19	108	58.6	-00.1	S 17 41.9	+00.7	139	08.2	-00.4	S 05 24.9	+01.2	152	44.8	-30.9	N 03 59.9	-15.2	19
20	123	58.5	-00.1	S 17 42.6	+00.6	154	07.8	-00.4	S 05 26.1	+01.1	167	13.9	-31.0	N 03 44.7	-15.3	20
21	138	58.4	-00.1	S 17 43.2	+00.7	169	07.4	-00.4	S 05 27.2	+01.2	181	42.9	-30.9	N 03 29.4	-15.2	21
22	153	58.3	+00.0	S 17 43.9	+00.7	184	07.0	-00.4	S 05 28.4	+01.1	196	12.0	-31.0	N 03 14.2	-15.4	22
23	168	58.3	-00.1	S 17 44.6	+00.7	199	06.6	-00.4	S 05 29.5	+01.2	210	41.0	-31.0	N 02 58.8	-15.3	23
<b>UT 02 06 10 14 18 22</b>				<b>UT 02 06 10 14 18 22</b>				<b>UT 02 06 10 14 18 22</b>				<b>UT 02 06 10 14 18 22</b>				
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°2' 16°3' 16°3' 16°4' 16°4' 16°4'				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'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				HP 59°6' 59°8' 59°9' 60°0' 60°1' 60°3'				HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'				
SHA 133° 133° 133° 133° 133° 132°				SHA 164° 163° 163° 163° 163° 163°				SHA 186° 184° 181° 179° 177° 175°				SHA 136° 136° 136° 136° 136° 136°				
Greenwich Culmination Time: 11:44				Greenwich Culmination Time: 09:43				Greenwich Culmination Time: 08:27				Greenwich Culmination Time: 11:43				

UT	<b>Sun</b>				<b>Venus</b>				<b>Moon</b>				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	184	04.2	-00.1	S 16 38.1	+00.8	214	43.2	-00.4	S 03 39.8	+01.2	275	04.1	-32.0	N 21 46.4	-07.0	00
01	199	04.1	+00.0	S 16 38.9	+00.7	229	42.8	-00.4	S 03 41.0	+01.1	289	32.1	-32.0	N 21 39.4	-07.1	01
02	214	04.1	-00.1	S 16 39.6	+00.7	244	42.4	-00.4	S 03 42.1	+01.2	304	00.1	-31.9	N 21 32.3	-07.2	02
03	229	04.0	+00.0	S 16 40.3	+00.7	259	42.0	-00.3	S 03 43.3	+01.1	318	28.2	-32.0	N 21 25.1	-07.4	03
04	244	04.0	-00.1	S 16 41.0	+00.7	274	41.7	-00.4	S 03 44.4	+01.2	332	56.2	-31.9	N 21 17.7	-07.5	04
05	259	03.9	+00.0	S 16 41.7	+00.8	289	41.3	-00.4	S 03 45.6	+01.2	347	24.3	-31.9	N 21 10.2	-07.6	05
06	274	03.9	-00.1	S 16 42.5	+00.7	304	40.9	-00.4	S 03 46.8	+01.1	1	52.4	-31.9	N 21 02.6	-07.7	06
07	289	03.8	+00.0	S 16 43.2	+00.7	319	40.5	-00.3	S 03 47.9	+01.2	16	20.5	-31.9	N 20 54.9	-07.9	07
08	304	03.8	-00.1	S 16 43.9	+00.7	334	40.2	-00.4	S 03 49.1	+01.1	30	48.6	-31.8	N 20 47.0	-08.0	08
09	319	03.7	+00.0	S 16 44.6	+00.7	349	39.8	-00.4	S 03 50.2	+01.2	45	16.8	-31.8	N 20 39.0	-08.1	09
10	334	03.7	-00.1	S 16 45.3	+00.8	4	39.4	-00.4	S 03 51.4	+01.2	59	45.0	-31.9	N 20 30.9	-08.2	10
11	349	03.6	+00.0	S 16 46.1	+00.7	19	39.0	-00.3	S 03 52.6	+01.1	74	13.1	-31.7	N 20 22.7	-08.3	11
12	4	03.6	-00.1	S 16 46.8	+00.7	34	38.7	-00.4	S 03 53.7	+01.2	88	41.4	-31.8	N 20 14.4	-08.5	12
13	19	03.5	+00.0	S 16 47.5	+00.7	49	38.3	-00.4	S 03 54.9	+01.2	103	09.6	-31.8	N 20 05.9	-08.6	13
14	34	03.5	-00.1	S 16 48.2	+00.7	64	37.9	-00.4	S 03 56.0	+01.2	117	37.8	-31.7	N 19 57.3	-08.7	14
15	49	03.4	+00.0	S 16 48.9	+00.7	79	37.5	-00.4	S 03 57.2	+01.1	132	06.1	-31.7	N 19 48.6	-08.8	15
16	64	03.4	-00.1	S 16 49.6	+00.8	94	37.1	-00.3	S 03 58.3	+01.2	146	34.4	-31.7	N 19 39.8	-09.0	16
17	79	03.3	+00.0	S 16 50.4	+00.7	109	36.8	-00.4	S 03 59.5	+01.2	161	02.7	-31.6	N 19 30.8	-09.1	17
18	94	03.3	-00.1	S 16 51.1	+00.7	124	36.4	-00.4	S 04 00.7	+01.1	175	31.1	-31.7	N 19 21.7	-09.1	18
19	109	03.2	+00.0	S 16 51.8	+00.7	139	36.0	-00.4	S 04 01.8	+01.2	189	59.4	-31.6	N 19 12.6	-09.3	19
20	124	03.2	-00.1	S 16 52.5	+00.7	154	35.6	-00.3	S 04 03.0	+01.1	204	27.8	-31.6	N 19 03.3	-09.4	20
21	139	03.1	+00.0	S 16 53.2	+00.7	169	35.3	-00.4	S 04 04.1	+01.2	218	56.2	-31.5	N 18 53.9	-09.6	21
22	154	03.1	-00.1	S 16 53.9	+00.7	184	34.9	-00.4	S 04 05.3	+01.1	233	24.7	-31.6	N 18 44.3	-09.6	22
23	169	03.0	+00.0	S 16 54.6	+00.7	199	34.5	-00.4	S 04 06.4	+01.2	247	53.1	-31.5	N 18 34.7	-09.8	23
<b>UT 02 06 10 14 18 22</b>				<b>UT 02 06 10 14 18 22</b>				<b>UT 02 06 10 14 18 22</b>				<b>UT 02 06 10 14 18 22</b>				
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°7' 15°7' 15°7'				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°1' 57°2' 57°4' 57°5' 57°6' 57°8'				HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'				
SHA 136° 136° 136° 136° 136° 136°				SHA 167° 167° 167° 166° 166° 166°				SHA 226° 224° 222° 219° 217° 215°				SHA 061° 061° 061° 061° 061° 061°				
Greenwich Culmination Time: 11:43				Greenwich Culmination Time: 09:41				Greenwich Culmination Time: 05:52				Greenwich Culmination Time: 16:41				

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show astronomical data for these planets on November 9.

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° 135°
Greenwich Culmination Time: 11:43

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show astronomical data for these planets on November 10.

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 show astronomical data for these planets on November 9.

UT 02 06 10 14 18 22
SD 00°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 21:40

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show astronomical data for these planets on November 10.

UT 02 06 10 14 18 22
SD 00°2 00°2 00°2 00°2 00°2 00°2
HP 00°3 00°3 00°3 00°3 00°3 00°3
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 21:36

Table with 5 columns: UT, Sun, Venus, Moon, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Rows 00-23 show celestial data for the Sun, Venus, and Moon.

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

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Rows 00-23 show celestial data for Mars, Jupiter, and Saturn.

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

Table with 5 columns: UT, Sun, Venus, Moon, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Rows 00-23 show celestial data for the Sun, Venus, and Moon.

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

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Each planet column contains 4 sub-columns: GHA, ddGHA, Dec, dDec. Rows 00-23 show celestial data for Mars, Jupiter, and Saturn.

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

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Table with columns for UT, Sun, Venus, Moon, and UT. Contains astronomical data for 2020 November 13, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Contains astronomical data for 2020 November 14, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

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Sun				Venus				Moon				A: 17%				
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT			
00	183	39.5	-00.2	S 19 30.7	+00.6	212	55.7	-00.4	S 08 41.3	+01.2	128	08.2	-35.5	S 24 38.8	-02.1	00
01	198	39.3	-00.1	S 19 31.3	+00.5	227	55.3	-00.5	S 08 42.5	+01.1	142	32.7	-35.3	S 24 36.7	-02.2	01
02	213	39.2	-00.2	S 19 31.8	+00.6	242	54.8	-00.4	S 08 43.6	+01.1	156	57.4	-35.3	S 24 34.5	-02.4	02
03	228	39.0	-00.1	S 19 32.4	+00.6	257	54.4	-00.5	S 08 44.7	+01.1	171	22.1	-35.2	S 24 32.1	-02.6	03
04	243	38.9	-00.2	S 19 33.0	+00.6	272	53.9	-00.4	S 08 45.8	+01.1	185	46.9	-35.1	S 24 29.5	-02.7	04
05	258	38.7	-00.1	S 19 33.6	+00.5	287	53.5	-00.5	S 08 46.9	+01.1	200	11.8	-35.1	S 24 26.8	-02.8	05
06	273	38.6	-00.1	S 19 34.1	+00.6	302	53.0	-00.4	S 08 48.0	+01.1	214	36.7	-34.9	S 24 24.0	-03.0	06
07	288	38.5	-00.2	S 19 34.7	+00.6	317	52.6	-00.5	S 08 49.1	+01.2	229	01.8	-34.9	S 24 21.0	-03.2	07
08	303	38.3	-00.1	S 19 35.3	+00.6	332	52.1	-00.4	S 08 50.3	+01.1	243	26.9	-34.8	S 24 17.8	-03.3	08
09	318	38.2	-00.2	S 19 35.9	+00.5	347	51.7	-00.5	S 08 51.4	+01.1	257	52.1	-34.7	S 24 14.5	-03.4	09
10	333	38.0	-00.1	S 19 36.4	+00.6	2	51.2	-00.4	S 08 52.5	+01.1	272	17.4	-34.6	S 24 11.1	-03.6	10
11	348	37.9	-00.2	S 19 37.0	+00.6	17	50.8	-00.4	S 08 53.6	+01.1	286	42.8	-34.5	S 24 07.5	-03.7	11
12	3	37.7	-00.1	S 19 37.6	+00.5	32	50.4	-00.5	S 08 54.7	+01.1	301	08.3	-34.4	S 24 03.8	-03.9	12
13	18	37.6	-00.2	S 19 38.1	+00.6	47	49.9	-00.5	S 08 55.8	+01.1	315	33.9	-34.4	S 23 59.9	-04.0	13
14	33	37.4	-00.1	S 19 38.7	+00.6	62	49.4	-00.4	S 08 56.9	+01.1	329	59.5	-34.2	S 23 55.9	-04.1	14
15	48	37.3	-00.2	S 19 39.3	+00.6	77	49.0	-00.5	S 08 58.0	+01.1	344	25.3	-34.2	S 23 51.8	-04.3	15
16	63	37.1	-00.1	S 19 39.9	+00.5	92	48.5	-00.4	S 08 59.1	+01.2	358	51.1	-34.0	S 23 47.5	-04.5	16
17	78	37.0	-00.1	S 19 40.4	+00.6	107	48.1	-00.5	S 09 00.3	+01.1	13	17.1	-34.0	S 23 43.0	-04.5	17
18	93	36.9	-00.2	S 19 41.0	+00.6	122	47.6	-00.4	S 09 01.4	+01.1	27	43.1	-33.8	S 23 38.5	-04.7	18
19	108	36.7	-00.1	S 19 41.6	+00.5	137	47.2	-00.5	S 09 02.5	+01.1	42	09.3	-33.8	S 23 33.8	-04.8	19
20	123	36.6	-00.2	S 19 42.1	+00.6	152	46.7	-00.4	S 09 03.6	+01.1	56	35.5	-33.7	S 23 29.0	-05.0	20
21	138	36.4	-00.1	S 19 42.7	+00.6	167	46.3	-00.5	S 09 04.7	+01.1	71	01.8	-33.5	S 23 24.0	-05.1	21
22	153	36.3	-00.2	S 19 43.3	+00.5	182	45.8	-00.4	S 09 05.8	+01.1	85	28.3	-33.5	S 23 18.9	-05.2	22
23	168	36.1	-00.1	S 19 43.8	+00.6	197	45.4	-00.5	S 09 06.9	+01.1	99	54.8	-33.4	S 23 13.7	-05.4	23
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	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 15°8 15°8 15°7 15°7	UT 02 06 10 14 18 22	SD 58°4 58°2 58°1 57°9 57°8 57°6									
HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 125° 125° 125° 125° 124° 124°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 154° 154° 154° 154° 154° 153°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 068° 066° 063° 061° 058° 056°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 128° 128° 128° 128° 128° 127°									
Greenwich Culmination Time: 11:45				Greenwich Culmination Time: 09:48				Greenwich Culmination Time: 16:04				Greenwich Culmination Time: 11:44				

Sun				Venus				Moon				A: 05%				
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT			
00	183	48.7	-00.1	S 18 47.5	+00.6	213	27.0	-00.4	S 07 20.4	+01.1	172	03.3	-36.1	S 19 49.6	+09.9	00
01	198	48.6	-00.1	S 18 48.1	+00.6	228	26.6	-00.5	S 07 21.5	+01.1	186	27.2	-36.2	S 19 59.5	+09.7	01
02	213	48.5	-00.1	S 18 48.7	+00.6	243	26.1	-00.4	S 07 22.6	+01.2	200	51.0	-36.2	S 20 09.2	+09.5	02
03	228	48.4	-00.1	S 18 49.3	+00.7	258	25.7	-00.4	S 07 23.8	+01.1	215	14.8	-36.2	S 20 18.7	+09.4	03
04	243	48.3	-00.1	S 18 50.0	+00.6	273	25.3	-00.4	S 07 24.9	+01.1	229	38.6	-36.3	S 20 28.1	+09.3	04
05	258	48.2	-00.2	S 18 50.6	+00.6	288	24.9	-00.5	S 07 26.0	+01.2	244	02.3	-36.4	S 20 37.4	+09.1	05
06	273	48.0	-00.1	S 18 51.2	+00.6	303	24.4	-00.4	S 07 27.2	+01.1	258	25.9	-36.4	S 20 46.5	+08.9	06
07	288	47.9	-00.1	S 18 51.8	+00.6	318	24.0	-00.4	S 07 28.3	+01.1	272	49.5	-36.4	S 20 55.4	+08.8	07
08	303	47.8	-00.1	S 18 52.4	+00.7	333	23.6	-00.4	S 07 29.4	+01.2	287	13.1	-36.5	S 21 04.2	+08.6	08
09	318	47.7	-00.1	S 18 53.1	+00.6	348	23.2	-00.5	S 07 30.6	+01.1	301	36.6	-36.6	S 21 12.8	+08.5	09
10	333	47.6	-00.2	S 18 53.7	+00.6	3	22.7	-00.4	S 07 31.7	+01.1	316	00.0	-36.5	S 21 21.3	+08.3	10
11	348	47.4	-00.1	S 18 54.3	+00.6	18	22.3	-00.4	S 07 32.8	+01.2	330	23.5	-36.6	S 21 29.6	+08.2	11
12	3	47.3	-00.1	S 18 54.9	+00.6	33	21.9	-00.4	S 07 34.0	+01.1	344	46.9	-36.7	S 21 37.8	+08.0	12
13	18	47.2	-00.1	S 18 55.5	+00.6	48	21.5	-00.5	S 07 35.1	+01.1	359	10.2	-36.7	S 21 45.8	+07.9	13
14	33	47.1	-00.1	S 18 56.1	+00.6	63	21.0	-00.4	S 07 36.2	+01.2	13	33.5	-36.7	S 21 53.7	+07.6	14
15	48	47.0	-00.2	S 18 56.7	+00.6	78	20.6	-00.4	S 07 37.4	+01.1	27	56.8	-36.7	S 22 01.3	+07.6	15
16	63	46.8	-00.1	S 18 57.3	+00.7	93	20.2	-00.4	S 07 38.5	+01.1	42	20.1	-36.8	S 22 08.9	+07.3	16
17	78	46.7	-00.1	S 18 58.0	+00.6	108	19.8	-00.5	S 07 39.6	+01.1	56	43.3	-36.8	S 22 16.2	+07.2	17
18	93	46.6	-00.1	S 18 58.6	+00.6	123	19.3	-00.4	S 07 40.7	+01.2	71	06.5	-36.9	S 22 23.4	+07.1	18
19	108	46.5	-00.2	S 18 59.2	+00.6	138	18.9	-00.4	S 07 41.9	+01.1	85	29.6	-36.8	S 22 30.5	+06.8	19
20	123	46.3	-00.1	S 18 59.8	+00.6	153	18.5	-00.5	S 07 43.0	+01.1	99	52.8	-36.9	S 22 37.3	+06.7	20
21	138	46.2	-00.1	S 19 00.4	+00.6	168	18.0	-00.4	S 07 44.1	+01.2	114	15.9	-36.9	S 22 44.0	+06.6	21
22	153	46.1	-00.1	S 19 01.0	+00.6	183	17.6	-00.4	S 07 45.3	+01.1	128	39.0	-37.0	S 22 50.6	+06.3	22
23	168	46.0	-00.2	S 19 01.6	+00.6	198	17.2	-00.5	S 07 46.4	+01.1	143	02.0	-36.9	S 22 56.9	+06.2	23
UT 02 06 10 14 18 22	SD 16°2 16°2 16°2 16°2 16°2 16°2	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°6 16°6 16°5 16°5 16°5 16°4	UT 02 06 10 14 18 22	SD 60°8 60°7 60°6 60°5 60°4 60°3									
HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 128° 128° 128° 128° 128° 127°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 158° 158° 157° 157° 157° 157°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 115° 113° 110° 107° 105° 102°	HP 00°1 00°1 00°1 00°1 00°1 00°1	SHA 065° 065° 065° 065° 065° 065°									
Greenwich Culmination Time: 11:44				Greenwich Culmination Time: 09:46				Greenwich Culmination Time: 13:03				Greenwich Culmination Time: 16:12				

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<i>Sun</i>					<i>Venus</i>				<i>Moon</i>				A: 09%								
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT								
00	183	45.8	-00.1	S 19 02.2	+00.6	213	16.7	-00.4	S 07 47.5	+01.1	157	25.1	-37.0	S 23 03.1	+06.0	00					
01	198	45.7	-00.1	S 19 02.8	+00.6	228	16.3	-00.4	S 07 48.6	+01.2	171	48.1	-37.0	S 23 09.1	+05.9	01					
02	213	45.6	-00.1	S 19 03.4	+00.6	243	15.9	-00.4	S 07 49.8	+01.1	186	11.1	-37.0	S 23 15.0	+05.7	02					
03	228	45.5	-00.2	S 19 04.0	+00.6	258	15.5	-00.5	S 07 50.9	+01.1	200	34.1	-37.0	S 23 20.7	+05.5	03					
04	243	45.3	-00.1	S 19 04.6	+00.7	273	15.0	-00.4	S 07 52.0	+01.1	214	57.1	-37.0	S 23 26.2	+05.3	04					
05	258	45.2	-00.1	S 19 05.3	+00.6	288	14.6	-00.4	S 07 53.1	+01.2	229	20.1	-37.1	S 23 31.5	+05.2	05					
06	273	45.1	-00.1	S 19 05.9	+00.6	303	14.2	-00.5	S 07 54.3	+01.2	243	43.0	-37.0	S 23 36.7	+05.0	06					
07	288	45.0	-00.2	S 19 06.5	+00.6	318	13.7	-00.4	S 07 55.4	+01.1	258	06.0	-37.0	S 23 41.7	+04.8	07					
08	303	44.8	-00.1	S 19 07.1	+00.6	333	13.3	-00.4	S 07 56.5	+01.2	272	29.0	-37.1	S 23 46.5	+04.7	08					
09	318	44.7	-00.1	S 19 07.7	+00.6	348	12.9	-00.5	S 07 57.7	+01.1	286	51.9	-37.0	S 23 51.2	+04.5	09					
10	333	44.6	-00.1	S 19 08.3	+00.6	3	12.4	-00.4	S 07 58.8	+01.1	301	14.9	-37.0	S 23 55.7	+04.3	10					
11	348	44.5	-00.2	S 19 08.9	+00.6	18	12.0	-00.4	S 07 59.9	+01.1	315	37.9	-37.1	S 23 60.0	+04.1	11					
12	3	44.3	-00.1	S 19 09.5	+00.6	33	11.6	-00.5	S 08 01.0	+01.2	330	00.8	-37.0	S 24 04.1	+04.0	12					
13	18	44.2	-00.1	S 19 10.1	+00.6	48	11.1	-00.4	S 08 02.2	+01.1	344	23.8	-37.0	S 24 08.1	+03.7	13					
14	33	44.1	-00.2	S 19 10.7	+00.6	63	10.7	-00.4	S 08 03.3	+01.1	358	46.8	-37.0	S 24 11.8	+03.7	14					
15	48	43.9	-00.1	S 19 11.3	+00.6	78	10.3	-00.5	S 08 04.4	+01.1	13	09.8	-37.0	S 24 15.5	+03.4	15					
16	63	43.8	-00.1	S 19 11.9	+00.6	93	09.8	-00.4	S 08 05.5	+01.1	27	32.8	-37.0	S 24 18.9	+03.3	16					
17	78	43.7	-00.2	S 19 12.5	+00.6	108	09.4	-00.4	S 08 06.6	+01.2	41	55.8	-37.0	S 24 22.2	+03.1	17					
18	93	43.5	-00.1	S 19 13.1	+00.6	123	09.0	-00.5	S 08 07.8	+01.1	56	18.8	-36.9	S 24 25.3	+02.9	18					
19	108	43.4	-00.1	S 19 13.7	+00.5	138	08.5	-00.4	S 08 08.9	+01.1	70	41.9	-36.9	S 24 28.2	+02.7	19					
20	123	43.3	-00.1	S 19 14.2	+00.6	153	08.1	-00.5	S 08 10.0	+01.1	85	05.0	-36.9	S 24 30.9	+02.6	20					
21	138	43.2	-00.2	S 19 14.8	+00.6	168	07.6	-00.4	S 08 11.1	+01.2	99	28.1	-36.9	S 24 33.5	+02.4	21					
22	153	43.0	-00.1	S 19 15.4	+00.6	183	07.2	-00.4	S 08 12.3	+01.1	113	51.2	-36.8	S 24 35.9	+02.2	22					
23	168	42.9	-00.1	S 19 16.0	+00.6	198	06.8	-00.5	S 08 13.4	+01.1	128	14.4	-36.8	S 24 38.1	+02.0	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  
 HA 127° 127° 127° 127° 127° 126°  
 Greenwich Culmination Time: 11:45

<i>Sun</i>					<i>Venus</i>				<i>Moon</i>				A: 13%								
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT								
00	183	42.8	-00.2	S 19 16.6	+00.6	213	06.3	-00.4	S 08 14.5	+01.1	142	37.6	-36.8	S 24 40.1	+01.9	00					
01	198	42.6	-00.1	S 19 17.2	+00.6	228	05.9	-00.4	S 08 15.6	+01.1	157	00.8	-36.8	S 24 42.0	+01.7	01					
02	213	42.5	-00.1	S 19 17.8	+00.6	243	05.5	-00.5	S 08 16.7	+01.2	171	24.0	-36.7	S 24 43.7	+01.6	02					
03	228	42.4	-00.2	S 19 18.4	+00.6	258	05.0	-00.4	S 08 17.9	+01.1	185	47.1	-36.6	S 24 45.3	+01.3	03					
04	243	42.2	-00.1	S 19 19.0	+00.6	273	04.6	-00.5	S 08 19.0	+01.1	200	10.7	-36.7	S 24 46.6	+01.2	04					
05	258	42.1	-00.2	S 19 19.6	+00.6	288	04.1	-00.4	S 08 20.1	+01.1	214	34.0	-36.6	S 24 47.8	+01.0	05					
06	273	41.9	-00.1	S 19 20.2	+00.6	303	03.7	-00.4	S 08 21.2	+01.2	228	57.4	-36.5	S 24 48.8	+00.9	06					
07	288	41.8	-00.1	S 19 20.8	+00.5	318	03.3	-00.5	S 08 22.4	+01.1	243	20.9	-36.5	S 24 49.7	+00.7	07					
08	303	41.7	-00.2	S 19 21.3	+00.6	333	02.8	-00.4	S 08 23.5	+01.1	257	44.4	-36.5	S 24 50.4	+00.5	08					
09	318	41.5	-00.1	S 19 21.9	+00.6	348	02.4	-00.5	S 08 24.6	+01.1	272	07.9	-36.4	S 24 50.9	+00.3	09					
10	333	41.4	-00.1	S 19 22.5	+00.6	3	01.9	-00.4	S 08 25.7	+01.1	286	31.5	-36.3	S 24 51.2	+00.2	10					
11	348	41.3	-00.2	S 19 23.1	+00.6	18	01.5	-00.4	S 08 26.8	+01.1	300	55.2	-36.3	S 24 51.4	+00.0	11					
12	3	41.1	-00.1	S 19 23.7	+00.6	33	01.1	-00.5	S 08 27.9	+01.2	315	18.9	-36.3	S 24 51.4	-00.1	12					
13	18	41.0	-00.1	S 19 24.3	+00.6	48	00.6	-00.4	S 08 29.1	+01.1	329	42.6	-36.1	S 24 51.3	-00.4	13					
14	33	40.9	-00.2	S 19 24.9	+00.6	63	00.2	-00.5	S 08 30.2	+01.1	344	06.5	-36.2	S 24 50.9	-00.5	14					
15	48	40.7	-00.1	S 19 25.5	+00.5	77	59.7	-00.4	S 08 31.3	+01.1	358	30.3	-36.0	S 24 50.4	-00.6	15					
16	63	40.6	-00.2	S 19 26.0	+00.6	92	59.3	-00.5	S 08 32.4	+01.1	12	54.3	-36.0	S 24 49.8	-00.8	16					
17	78	40.4	-00.1	S 19 26.6	+00.6	107	58.8	-00.4	S 08 33.5	+01.2	27	18.3	-36.0	S 24 49.0	-01.0	17					
18	93	40.3	-00.1	S 19 27.2	+00.6	122	58.4	-00.4	S 08 34.7	+01.1	41	42.3	-35.8	S 24 48.0	-01.1	18					
19	108	40.2	-00.2	S 19 27.8	+00.6	137	58.0	-00.5	S 08 35.8	+01.1	56	06.5	-35.8	S 24 46.9	-01.3	19					
20	123	40.0	-00.1	S 19 28.4	+00.5	152	57.5	-00.4	S 08 36.9	+01.1	70	30.7	-35.8	S 24 45.6	-01.5	20					
21	138	39.9	-00.2	S 19 28.9	+00.6	167	57.1	-00.5	S 08 38.0	+01.1	84	54.9	-35.6	S 24 44.1	-01.6	21					
22	153	39.7	-00.1	S 19 29.5	+00.6	182	56.6	-00.4	S 08 39.1	+01.1	99	19.3	-35.6	S 24 42.5	-01.8	22					
23	168	39.6	-00.1	S 19 30.1	+00.6	197	56.2	-00.5	S 08 40.2	+01.1	113	43.7	-35.5	S 24 40.7	-01.9	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  
 HA 126° 126° 126° 126° 125° 125°  
 Greenwich Culmination Time: 11:45

<i>Mars</i>					<i>Jupiter</i>				<i>Saturn</i>												
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT								
00	42	08.6	+02.4	N 05 20.7	+00.2	121	00.5	+02.0	S 21 49.9	-00.1	117	08.3	+02.2	S 21 03.1	+00.0	00					
01	57	11.0	+02.4	N 05 20.9	+00.2	136	02.5	+02.0	S 21 49.8	+00.0	132	10.5	+02.3	S 21 03.1	+00.0	01					
02	72	13.4	+02.4	N 05 21.1	+00.1	151	04.5	+02.0	S 21 49.8	-00.1	147	12.8	+02.3	S 21 03.1	-00.1	02					
03	87	15.8	+02.5	N 05 21.2	+00.2	166	06.5	+02.0	S 21 49.7	-00.1	162	15.1	+02.2	S 21 03.0	+00.0	03					
04	102	18.3	+02.4	N 05 21.4	+00.2	181	08.5	+02.0	S 21 49.6	-00.1	177	17.3	+02.3	S 21 03.0	+00.0	04					
05	117	20.7	+02.4	N 05 21.6	+00.2	196	10.5	+02.0	S 21 49.5	+00.0	192	19.6	+02.3	S 21 03.0	-00.1	05					
06	132	23.1	+02.4	N 05 21.8	+00.1	211	12.5	+02.0	S 21 49.5	-00.1	207	21.9	+02.2	S 21 02.9	+00.0	06					
07	147	25.5	+02.4	N 05 21.9	+00.2	226	14.5	+02.0	S 21 49.4	-00.1	222	24.1	+02.3	S 21 02.9	+00.0	07					
08	162	27.9	+02.5	N 05 22.1	+00.2	241	16.5	+02.0	S 21 49.3	-00.1	237	26.4	+02.3	S 21 02.9	-00.1	08					
09	177	30.4	+02.4	N 05 22.3	+00.1	256	18.5	+02.0	S 21 49.2	+00.0	252	28.7	+02.2	S 21 02.8	+00.0	09					
10	192	32.8	+02.4	N 05 22.4	+00.2	271	20.5	+02.0	S 21 49.2	-00.1	267	30.9	+02.3	S 21 02.8	+00.0	10					
11	207	35.2	+02.4	N 05 22.6	+00.2	286	22.5	+02.0	S 21 49.1	-00.1	282	33.2	+02.3	S 21 02.8	-00.1	11					
12	222	37.6	+02.4	N 05 22.8	+00.2	301	24.5	+02.0	S 21 49.0	-00.1	297	35.5	+02.2	S 21 02.7	+00.0	12					
13	237	40.0	+02.4	N 05 23.0	+00.1	316	26.5	+02.0	S 21 48.9	+00.0	312	37.7	+02.3	S 21 02.7	-00.1	13					
14	252	42.4	+02.4	N 05 23.1	+00.2	331	28.5	+02.0	S 21 48.9	-00.1	327	40.0	+02.3	S 21 02.6	+00.0	14					
15	267	44.8	+02.4	N 05 23.3	+00.2	346	30.5	+02.0	S 21 48.8	-00.1	342	42.3	+02.2	S 21 02.6	+00.0	15					
16	282	47.2	+02.4	N 05 23.5	+00.2	1	32.5	+02.1	S 21 48.7	+00.0	357	44.5	+02.3	S 21 02.6	-00.1	16					
17	297	49.6	+02.4	N 05 23.7	+00.1	16	34.6	+02.0	S 21 48.7	-00.											

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 121° 121° 121° 120° 120° 120°
Greenwich Culmination Time: 11:46

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 124° 124° 124° 124° 123° 123°
Greenwich Culmination Time: 11:45

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°2 00°2 00°2 00°2 00°2 00°2
SHA 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 20:45

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°0 00°0 00°0 00°0 00°0 00°0
SHA 346° 346° 346° 345° 345° 345°
Greenwich Culmination Time: 20:56

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Table for 2020 November 21 Saturday showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and A:24%. Rows 00-23.

Table for 2020 November 21 Saturday showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and A:24%. Rows 00-23.

Table for 2020 November 22 Sunday showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and A:27%. Rows 00-23.

Table for 2020 November 22 Sunday showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and A:27%. Rows 00-23.



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. Includes data for Sun, Venus, and Moon positions and culminations for the date 2020 November 25.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for Sun, Venus, and Moon positions and culminations for the date 2020 November 26.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for Mars, Jupiter, and Saturn positions and culminations for the date 2020 November 25.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for Mars, Jupiter, and Saturn positions and culminations for the date 2020 November 26.

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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. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet. Moon column includes 'A: 53%'.

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 112° 112° 112° 112° 112° 111°
Greenwich Culmination Time: 11:49

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Columns include 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 344° 344° 344° 344° 344° 344°
Greenwich Culmination Time: 20:18

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet. Moon column includes 'A: 44%'.

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 116° 115° 115° 115° 115° 115°
Greenwich Culmination Time: 11:48

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Columns include 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 345° 345° 345° 345° 345° 345°
Greenwich Culmination Time: 20:28

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 115° 114° 114° 114° 114° 114°
Greenwich Culmination Time: 11:48

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 345° 345° 345° 344° 344° 344°
Greenwich Culmination Time: 20:25

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 113° 113° 113° 113° 113° 113°
Greenwich Culmination Time: 11:48

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°0 00°0 00°0 00°0 00°0 00°0
SHA 344° 344° 344° 344° 344° 344°
Greenwich Culmination Time: 20:22

Table with columns for UT, Sun, Venus, Moon, and UT. It lists astronomical data for the first three planets on Saturday, December 5, 2020. Each planet's section includes a grid of RA, Dec, and magnitude values for 24 hours, followed by a table of orbital elements (SD, HP, SHA) and the Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, Mars, Jupiter, Saturn, and UT. It lists astronomical data for the first three planets on Wednesday, December 2, 2020, and includes sections for Mars, Jupiter, and Saturn. Each planet's section includes a grid of RA, Dec, and magnitude values for 24 hours, followed by a table of orbital elements (SD, HP, SHA) and the Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on December 3, 2020, such as GHA, ddGHA, Dec, dDec, and A: 60%.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on December 4, 2020, such as GHA, ddGHA, Dec, dDec, and A: 64%.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on December 3, 2020, 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 December 4, 2020, 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 Dec 9, 2020, 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 Dec 6, 2020, 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 Dec 9, 2020, 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 Dec 6, 2020, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

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Table for Dec 7: Sun, Venus, Moon (A: 74%). Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 7: Mars, Jupiter, Saturn. Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 7: Mars, Jupiter, Saturn. Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 7: Mars, Jupiter, Saturn. Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 8: Sun, Venus, Moon (A: 77%). Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 8: Mars, Jupiter, Saturn. Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 8: Mars, Jupiter, Saturn. Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.

Table for Dec 8: Mars, Jupiter, Saturn. Columns: UT, GHA, ddGHA, Dec, dDec. Rows: 00-23.



UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	181	27.9	-00.3	S 23 09.6	+00.2	207	27.4	-00.7	S 18 05.3	+00.8	205	34.0	-34.8	S 17 53.3	+11.2	00				
01	196	27.6	-00.3	S 23 09.8	+00.1	222	26.7	-00.7	S 18 06.1	+00.8	219	59.2	-35.0	S 18 04.5	+11.1	01				
02	211	27.3	-00.3	S 23 09.9	+00.2	237	26.0	-00.7	S 18 06.9	+00.8	234	24.2	-35.0	S 18 15.6	+10.9	02				
03	226	27.0	-00.3	S 23 10.1	+00.1	252	25.3	-00.7	S 18 07.7	+00.8	248	49.2	-35.1	S 18 26.5	+10.8	03				
04	241	26.7	-00.3	S 23 10.2	+00.2	267	24.6	-00.7	S 18 08.5	+00.8	263	14.1	-35.1	S 18 37.3	+10.7	04				
05	256	26.4	-00.3	S 23 10.4	+00.2	282	23.9	-00.7	S 18 09.3	+00.7	277	39.0	-35.3	S 18 48.0	+10.6	05				
06	271	26.1	-00.3	S 23 10.6	+00.1	297	23.2	-00.8	S 18 10.0	+00.8	292	03.7	-35.3	S 18 58.6	+10.5	06				
07	286	25.8	-00.3	S 23 10.7	+00.2	312	22.4	-00.7	S 18 10.8	+00.8	306	28.4	-35.4	S 19 09.1	+10.3	07				
08	301	25.5	-00.3	S 23 10.9	+00.1	327	21.7	-00.7	S 18 11.6	+00.8	320	53.0	-35.5	S 19 19.4	+10.1	08				
09	316	25.2	-00.3	S 23 11.0	+00.2	342	21.0	-00.7	S 18 12.4	+00.8	335	17.5	-35.5	S 19 29.5	+10.1	09				
10	331	24.9	-00.3	S 23 11.2	+00.1	357	20.3	-00.7	S 18 13.2	+00.8	349	42.0	-35.6	S 19 39.6	+09.9	10				
11	346	24.6	-00.3	S 23 11.3	+00.2	12	19.6	-00.7	S 18 14.0	+00.7	4	06.4	-35.7	S 19 49.5	+09.8	11				
12	1	24.3	-00.3	S 23 11.5	+00.2	27	18.9	-00.8	S 18 14.7	+00.8	18	30.7	-35.8	S 19 59.3	+09.6	12				
13	16	24.0	-00.3	S 23 11.7	+00.1	42	18.1	-00.7	S 18 15.5	+00.8	32	54.9	-35.8	S 20 08.9	+09.5	13				
14	31	23.7	-00.3	S 23 11.8	+00.2	57	17.4	-00.7	S 18 16.3	+00.8	47	19.1	-35.9	S 20 18.4	+09.4	14				
15	46	23.4	-00.3	S 23 12.0	+00.1	72	16.7	-00.7	S 18 17.1	+00.8	61	43.2	-36.0	S 20 27.8	+09.2	15				
16	61	23.1	-00.3	S 23 12.1	+00.2	87	16.0	-00.7	S 18 17.9	+00.7	76	07.2	-36.0	S 20 37.0	+09.0	16				
17	76	22.8	-00.3	S 23 12.3	+00.1	102	15.3	-00.7	S 18 18.6	+00.8	90	31.2	-36.1	S 20 46.0	+09.0	17				
18	91	22.5	-00.3	S 23 12.4	+00.2	117	14.6	-00.8	S 18 19.4	+00.8	104	55.1	-36.2	S 20 55.0	+08.7	18				
19	106	22.2	-00.3	S 23 12.6	+00.1	132	13.8	-00.7	S 18 20.2	+00.8	119	18.9	-36.2	S 21 03.7	+08.7	19				
20	121	21.9	-00.3	S 23 12.7	+00.2	147	13.1	-00.7	S 18 21.0	+00.7	133	42.7	-36.3	S 21 12.4	+08.4	20				
21	136	21.6	-00.3	S 23 12.9	+00.1	162	12.4	-00.7	S 18 21.7	+00.8	148	06.4	-36.4	S 21 20.8	+08.4	21				
22	151	21.3	-00.3	S 23 13.0	+00.1	177	11.7	-00.8	S 18 22.5	+00.8	162	30.0	-36.4	S 21 29.2	+08.1	22				
23	166	21.0	-00.3	S 23 13.1	+00.2	192	10.9	-00.7	S 18 23.3	+00.7	176	53.6	-36.4	S 21 37.3	+08.1	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°5	16°5	16°5	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°6	60°6	60°5	60°5	60°5	60°4
SHA	099°	099°	099°	099°	098°	098°	SHA	125°	125°	125°	125°	124°	124°	SHA	122°	122°	117°	115°	112°	109°
Greenwich Culmination Time: 11:54				Greenwich Culmination Time: 10:10				Greenwich Culmination Time: 10:42												

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	63	38.8	+01.8	N 08 15.1	+00.4	141	19.2	+01.9	S 20 54.2	-00.1	140	19.7	+02.2	S 20 36.2	-00.1	00				
01	78	40.6	+01.7	N 08 15.5	+00.3	156	21.1	+02.0	S 20 54.1	-00.1	155	21.9	+02.2	S 20 36.1	+00.0	01				
02	93	42.3	+01.8	N 08 15.8	+00.4	171	23.1	+01.9	S 20 54.0	-00.1	170	24.1	+02.2	S 20 36.1	-00.1	02				
03	108	44.1	+01.7	N 08 16.2	+00.4	186	25.0	+01.9	S 20 53.9	-00.1	185	26.3	+02.2	S 20 36.0	+00.0	03				
04	123	45.8	+01.8	N 08 16.6	+00.3	201	26.9	+01.9	S 20 53.8	-00.1	200	28.5	+02.2	S 20 36.0	-00.1	04				
05	138	47.6	+01.8	N 08 16.9	+00.4	216	28.8	+01.9	S 20 53.7	-00.1	215	30.7	+02.2	S 20 35.9	+00.0	05				
06	153	49.4	+01.7	N 08 17.3	+00.4	231	30.7	+01.9	S 20 53.6	-00.1	230	32.9	+02.1	S 20 35.9	-00.1	06				
07	168	51.1	+01.8	N 08 17.7	+00.3	246	32.6	+01.9	S 20 53.5	-00.1	245	35.0	+02.2	S 20 35.8	+00.0	07				
08	183	52.9	+01.7	N 08 18.0	+00.4	261	34.5	+01.9	S 20 53.4	-00.2	260	37.2	+02.2	S 20 35.8	-00.1	08				
09	198	54.6	+01.8	N 08 18.4	+00.4	276	36.4	+01.9	S 20 53.2	-00.1	275	39.4	+02.2	S 20 35.7	-00.1	09				
10	213	56.4	+01.7	N 08 18.8	+00.3	291	38.3	+01.9	S 20 53.1	-00.1	290	41.6	+02.2	S 20 35.6	+00.0	10				
11	228	58.1	+01.8	N 08 19.1	+00.4	306	40.2	+01.9	S 20 53.0	-00.1	305	43.8	+02.2	S 20 35.6	-00.1	11				
12	243	59.9	+01.7	N 08 19.5	+00.4	321	42.1	+02.0	S 20 52.9	-00.1	320	46.0	+02.2	S 20 35.5	+00.0	12				
13	259	01.6	+01.8	N 08 19.9	+00.4	336	44.1	+01.9	S 20 52.8	-00.1	335	48.2	+02.2	S 20 35.5	-00.1	13				
14	274	03.4	+01.7	N 08 20.3	+00.3	351	46.0	+01.9	S 20 52.7	-00.1	350	50.4	+02.2	S 20 35.4	+00.0	14				
15	289	05.1	+01.8	N 08 20.6	+00.4	1	47.9	+01.9	S 20 52.6	-00.1	5	52.6	+02.2	S 20 35.4	-00.1	15				
16	304	06.9	+01.7	N 08 21.0	+00.4	21	49.8	+01.9	S 20 52.5	-00.1	20	54.8	+02.2	S 20 35.3	+00.0	16				
17	319	08.6	+01.8	N 08 21.4	+00.3	36	51.7	+01.9	S 20 52.4	-00.1	35	57.0	+02.2	S 20 35.3	-00.1	17				
18	334	10.4	+01.7	N 08 21.7	+00.4	51	53.6	+01.9	S 20 52.3	-00.1	50	59.2	+02.2	S 20 35.2	+00.0	18				
19	349	12.1	+01.8	N 08 22.1	+00.4	66	55.5	+01.9	S 20 52.2	-00.1	66	01.4	+02.2	S 20 35.2	-00.1	19				
20	4	13.9	+01.7	N 08 22.5	+00.4	81	57.4	+01.9	S 20 52.1	-00.1	81	03.6	+02.2	S 20 35.1	+00.0	20				
21	19	15.6	+01.8	N 08 22.9	+00.3	96	59.3	+01.9	S 20 52.0	-00.1	96	05.8	+02.2	S 20 35.1	-00.1	21				
22	34	17.4	+01.7	N 08 23.2	+00.3	112	01.2	+01.9	S 20 51.9	-00.1	111	08.0	+02.2	S 20 35.0	+00.0	22				
23	49	19.1	+01.8	N 08 23.6	+00.4	127	03.1	+01.9	S 20 51.8	-00.2	126	10.2	+02.2	S 20 35.0	-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°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°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	341°	341°	341°	341°	341°	341°	SHA	059°	059°	059°	059°	059°	059°	SHA	058°	058°	058°	058°	058°	058°
Greenwich Culmination Time: 19:43				Greenwich Culmination Time: 14:32				Greenwich Culmination Time: 14:36												

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	48.8	-00.3	S 22 55.7	+00.2	208	17.3	-00.6	S 17 06.3	+00.8	244	11.4	-30.2	S 01 10.2	+15.1	00
01	196	48.5	-00.3	S 22 55.9	+00.3	223	16.7	-00.7	S 17 07.1	+00.9	258	41.2	-30.2	S 01 25.3	+15.1	01
02	211	48.2	-00.2	S 22 56.2	+00.2	238	16.0	-00.7	S 17 08.0	+00.8	273	11.0	-30.2	S 01 40.4	+15.1	02
03	226	48.0	-00.3	S 22 56.4	+00.2	253	15.3	-00.7	S 17 08.8	+00.8	288	40.8	-30.3	S 01 55.5	+15.1	03
04	241	47.7	-00.3	S 22 56.6	+00.2	268	14.6	-00.6	S 17 09.6	+00.9	302	10.5	-30.3	S 02 10.6	+15.2	04
05	256	47.4	-00.3	S 22 56.8	+00.2	283	14.0	-00.7	S 17 10.5	+00.8	316	40.2	-30.3	S 02 25.8	+15.1	05
06	271	47.1	-00.3	S 22 57.0	+00.2	298	13.3	-00.7	S 17 11.3	+00.9	331	09.9	-30.4	S 02 40.9	+15.1	06
07	286	46.8	-00.3	S 22 57.2	+00.3	313	12.6	-00.7	S 17 12.2	+00.8	345	39.5	-30.5	S 02 56.0	+15.1	07
08	301	46.5	-00.3	S 22 57.5	+00.2	328	11.9	-00.7	S 17 13.0	+00.9	0	09.0	-30.4	S 03 11.1	+15.1	08
09	316	46.2	-00.2	S 22 57.7	+00.2	343	11.2	-00.6	S 17 13.9	+00.8	14	38.6	-30.5	S 03 26.2	+15.1	09
10	331	46.0	-00.3	S 22 57.9	+00.2	358	10.6	-00.7	S 17 14.7	+00.8	29	08.1	-30.6	S 03 41.3	+15.1	10
11	346	45.7	-00.3	S 22 58.1	+00.2	13	09.9	-00.7	S 17 15.5	+00.9	43	37.5	-30.6	S 03 56.4	+15.1	11
12	1	45.4	-00.3	S 22 58.3	+00.2	28	09.2	-00.7	S 17 16.4	+00.8	58	06.9	-30.6	S 04 11.5	+15.0	12
13	16	45.1	-00.3	S 22 58.5	+00.2	43	08.5	-00.7	S 17 17.2	+00.9	72	36.3	-30.7	S 04 26.5	+15.1	13
14	31	44.8	-00.3													

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	41.9	-00.3	S 23 00.8	+00.2	208	01.0	-00.7	S 17 26.4	+00.8	231	55.8	-31.3	S 07 11.0	+14.8	00
01	196	41.6	-00.2	S 23 01.0	+00.2	223	00.3	-00.7	S 17 27.2	+00.9	246	24.5	-31.4	S 07 25.8	+14.8	01
02	211	41.4	-00.3	S 23 01.2	+00.2	237	59.6	-00.7	S 17 28.1	+00.8	260	53.1	-31.4	S 07 40.6	+14.7	02
03	226	41.1	-00.3	S 23 01.4	+00.2	252	58.9	-00.6	S 17 28.9	+00.8	275	21.7	-31.4	S 07 55.3	+14.7	03
04	241	40.8	-00.3	S 23 01.6	+00.2	267	58.3	-00.7	S 17 29.7	+00.8	289	50.3	-31.6	S 08 10.0	+14.7	04
05	256	40.5	-00.3	S 23 01.8	+00.2	282	57.6	-00.7	S 17 30.5	+00.9	304	18.7	-31.6	S 08 24.7	+14.6	05
06	271	40.2	-00.3	S 23 02.0	+00.2	297	56.9	-00.7	S 17 31.4	+00.8	318	47.1	-31.6	S 08 39.3	+14.6	06
07	286	39.9	-00.3	S 23 02.2	+00.2	312	56.2	-00.7	S 17 32.2	+00.8	333	15.5	-31.7	S 08 53.9	+14.5	07
08	301	39.6	-00.3	S 23 02.4	+00.2	327	55.5	-00.7	S 17 33.0	+00.8	347	43.8	-31.8	S 09 08.4	+14.5	08
09	316	39.3	-00.3	S 23 02.6	+00.2	342	54.8	-00.7	S 17 33.8	+00.9	2	12.0	-31.9	S 09 22.9	+14.4	09
10	331	39.0	-00.3	S 23 02.8	+00.2	357	54.1	-00.7	S 17 34.7	+00.8	16	40.1	-31.9	S 09 37.3	+14.4	10
11	346	38.7	-00.2	S 23 03.0	+00.2	12	53.4	-00.7	S 17 35.5	+00.8	31	08.2	-32.0	S 09 51.7	+14.4	11
12	1	38.5	-00.3	S 23 03.2	+00.2	27	52.7	-00.7	S 17 36.3	+00.8	45	36.2	-32.1	S 10 06.1	+14.2	12
13	16	38.2	-00.3	S 23 03.4	+00.2	42	52.0	-00.7	S 17 37.1	+00.8	60	04.1	-32.1	S 10 20.3	+14.3	13
14	31	37.9	-00.3	S 23 03.6	+00.1	57	51.3	-00.7	S 17 37.9	+00.9	74	32.0	-32.2	S 10 34.6	+14.2	14
15	46	37.6	-00.3	S 23 03.7	+00.2	72	50.6	-00.7	S 17 38.8	+00.8	88	59.8	-32.3	S 10 48.8	+14.1	15
16	61	37.3	-00.3	S 23 03.9	+00.2	87	49.9	-00.6	S 17 39.6	+00.8	103	27.5	-32.3	S 11 02.9	+14.0	16
17	76	37.0	-00.3	S 23 04.1	+00.2	102	49.3	-00.7	S 17 40.4	+00.8	117	55.2	-32.4	S 11 16.9	+14.0	17
18	91	36.7	-00.3	S 23 04.3	+00.2	117	48.6	-00.7	S 17 41.2	+00.8	132	22.8	-32.5	S 11 30.9	+14.0	18
19	106	36.4	-00.3	S 23 04.5	+00.2	132	47.9	-00.7	S 17 42.0	+00.8	146	50.3	-32.6	S 11 44.9	+13.9	19
20	121	36.1	-00.3	S 23 04.7	+00.2	147	47.2	-00.7	S 17 42.8	+00.9	161	17.7	-32.6	S 11 58.8	+13.8	20
21	136	35.8	-00.3	S 23 04.9	+00.2	162	46.5	-00.7	S 17 43.7	+00.8	175	45.1	-32.8	S 12 12.6	+13.7	21
22	151	35.5	-00.3	S 23 05.1	+00.1	177	45.8	-00.7	S 17 44.5	+00.8	190	12.3	-32.8	S 12 26.3	+13.7	22
23	166	35.2	-00.2	S 23 05.2	+00.2	192	45.1	-00.7	S 17 45.3	+00.8	204	39.5	-32.8	S 12 40.0	+13.6	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 101° 101° 101° 101° 101° 101° 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 128° 128° 127° 127° 127° 127° Greenwich Culmination Time: 10:08	UT 02 06 10 14 18 22	SD 16°4 16°4 16°4 16°5 16°5 16°5 HP 60°2 60°3 60°3 60°4 60°4 60°5 SHA 151° 148° 146° 144° 141° 139° Greenwich Culmination Time: 08:50											

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	181	35.0	-00.3	S 23 05.4	+00.2	207	44.4	-00.7	S 17 46.1	+00.8	219	06.7	-33.0	S 12 53.6	+13.5	00
01	196	34.7	-00.3	S 23 05.6	+00.2	222	43.7	-00.7	S 17 46.9	+00.8	233	33.7	-33.0	S 13 07.1	+13.4	01
02	211	34.4	-00.3	S 23 05.8	+00.2	237	43.0	-00.7	S 17 47.7	+00.8	248	00.7	-33.1	S 13 20.5	+13.4	02
03	226	34.1	-00.3	S 23 06.0	+00.1	252	42.3	-00.7	S 17 48.5	+00.8	262	27.6	-33.2	S 13 33.9	+13.3	03
04	241	33.8	-00.3	S 23 06.1	+00.2	267	41.6	-00.7	S 17 49.3	+00.8	276	54.4	-33.2	S 13 47.2	+13.2	04
05	256	33.5	-00.3	S 23 06.3	+00.2	282	40.9	-00.7	S 17 50.1	+00.8	291	21.2	-33.4	S 14 00.4	+13.1	05
06	271	33.2	-00.3	S 23 06.5	+00.2	297	40.2	-00.7	S 17 50.9	+00.8	305	47.8	-33.4	S 14 13.5	+13.0	06
07	286	32.9	-00.3	S 23 06.7	+00.2	312	39.5	-00.7	S 17 51.7	+00.8	320	14.4	-33.5	S 14 26.5	+13.0	07
08	301	32.6	-00.3	S 23 06.9	+00.1	327	38.8	-00.7	S 17 52.5	+00.9	334	40.9	-33.6	S 14 39.5	+12.9	08
09	316	32.3	-00.3	S 23 07.0	+00.2	342	38.1	-00.7	S 17 53.4	+00.8	349	07.3	-33.6	S 14 52.4	+12.7	09
10	331	32.0	-00.3	S 23 07.2	+00.2	357	37.4	-00.8	S 17 54.2	+00.8	3	33.7	-33.8	S 15 05.1	+12.7	10
11	346	31.7	-00.3	S 23 07.4	+00.2	12	36.6	-00.7	S 17 55.0	+00.8	17	59.9	-33.8	S 15 17.8	+12.6	11
12	1	31.4	-00.3	S 23 07.6	+00.1	27	35.9	-00.7	S 17 55.8	+00.8	32	26.1	-33.9	S 15 30.4	+12.5	12
13	16	31.1	-00.3	S 23 07.7	+00.2	42	35.2	-00.7	S 17 56.6	+00.8	46	52.2	-34.0	S 15 42.9	+12.4	13
14	31	30.8	-00.3	S 23 07.9	+00.2	57	34.5	-00.7	S 17 57.4	+00.8	61	18.2	-34.0	S 15 55.3	+12.2	14
15	46	30.5	-00.2	S 23 08.1	+00.2	72	33.8	-00.7	S 17 58.2	+00.8	75	44.2	-34.1	S 16 07.5	+12.2	15
16	61	30.3	-00.3	S 23 08.3	+00.1	87	33.1	-00.7	S 17 59.0	+00.8	90	10.1	-34.3	S 16 19.7	+12.1	16
17	76	30.0	-00.3	S 23 08.4	+00.2	102	32.4	-00.7	S 17 59.8	+00.7	104	35.8	-34.3	S 16 31.8	+12.0	17
18	91	29.7	-00.3	S 23 08.6	+00.2	117	31.7	-00.7	S 18 00.5	+00.8	119	01.5	-34.4	S 16 43.8	+11.9	18
19	106	29.4	-00.3	S 23 08.8	+00.1	132	31.0	-00.7	S 18 01.3	+00.8	133	27.1	-34.4	S 16 55.7	+11.7	19
20	121	29.1	-00.3	S 23 08.9	+00.2	147	30.3	-00.7	S 18 02.1	+00.8	147	52.7	-34.6	S 17 07.4	+11.7	20
21	136	28.8	-00.3	S 23 09.1	+00.2	162	29.6	-00.7	S 18 02.9	+00.8	162	18.1	-34.6	S 17 19.1	+11.5	21
22	151	28.5	-00.3	S 23 09.3	+00.1	177	28.9	-00.7	S 18 03.7	+00.8	176	43.5	-34.7	S 17 30.6	+11.4	22
23	166	28.2	-00.3	S 23 09.4	+00.2	192	28.2	-00.8	S 18 04.5	+00.8	191	08.8	-34.8	S 17 42.0	+11.3	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 100° 100° 100° 100° 100° 099° 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 126° 126° 126° 126° 126° 125° Greenwich Culmination Time: 10:09	UT 02 06 10 14 18 22	SD 16°5 16°5 16°5 16°5 16°5 16°5 HP 60°5 60°5 60°6 60°6 60°6 60°6 SHA 137° 134° 132° 130° 127° 125° Greenwich Culmination Time: 09:45											

UT	Mars				Jupiter				Saturn				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	62	13.2	+01.8	N 07 57.7	+00.3	139	47.4	+01.9	S 20 59.2	-00.1	138	34.1	+02.2	S 20 38.6	-00.1	00
01	77	15.0	+01.8	N 07 58.0	+00.4	154	49.3	+02.0	S 20 59.1	-00.1	153	36.3	+02.2	S 20 38.5	+00.0	01
02	92	16.8	+01.8	N 07 58.4	+00.3	169	51.3	+01.9	S 20 59.0	-00.1	168	38.5	+02.2	S 20 38.5	-00.1	02
03	107	18.6	+01.8	N 07 58.7	+00.4	184	53.2	+01.9	S 20 58.9	-00.1	183	40.7	+02.2	S 20 38.4	+00.0	03
04	122	20.4	+01.8	N 07 59.1	+00.4	199	55.1	+01.9	S 20 58.8	-00.1	198	42.9	+02.2	S 20 38.4	-00.1	04
05	137	22.2	+01.8	N 07 59.5	+00.3	214	57.0	+01.9	S 20 58.7	-00.1	213	45.1	+02.2	S 20 38.3	+00.0	05
06	152	24.0	+01.8	N 07 59.8	+00.4	229	58.9	+01.9	S 20 58.6	-00.1	228	47.3	+02.2	S 20 38.3	-00.1	06
07	167	25.8	+01.8	N 08 00.2	+00.3	245	00.8	+01.9	S 20 58.5	-00.1	243	49.5	+02.2	S 20 38.2	+00.0	07
08	182	27.6	+01.8	N 08 00.5	+00.4	260	02.7	+02.0	S 20 58.4	-00.1	258	51.7	+02.2	S 20 38.2	-00.1	08
09	197	29.4	+01.8	N 08 00.9	+00.4	275	04.7	+01.9	S 20 58.3	-00.1	273	53.9	+02.2	S 20 38.1	+00.0	09
10	212	31.2	+01.8	N 08 01.3	+00.3	290	06.6	+01.9	S 20 58.2	-00.1	288	56.1	+02.2	S 20 38.1	-00.1	10
11	227</															

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns include 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 095° 095° 094° 094° 094° 094° Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Columns include 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 340° 340° 340° 340° 340° 340° Greenwich Culmination Time: 19:32

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns include 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 098° 098° 098° 098° 098° 097° Greenwich Culmination Time: 11:54

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Columns include 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°0 00°0 00°0 00°0 00°0 00°0 SHA 059° 059° 059° 059° 059° 059° Greenwich Culmination Time: 14:29

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UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	181	13.5	-00.3	S 23 16.5	+00.2	206	52.7	-00.7	S 18 42.3	+00.7	176	29.0	-37.4	S 24 08.8	+03.9
01	196	13.2	-00.3	S 23 16.7	+00.1	221	52.0	-00.8	S 18 43.0	+00.8	190	51.6	-37.3	S 24 12.7	+03.7
02	211	12.9	-00.3	S 23 16.8	+00.1	236	51.2	-00.7	S 18 43.8	+00.7	205	14.3	-37.3	S 24 16.4	+03.5
03	226	12.6	-00.3	S 23 16.9	+00.1	251	50.5	-00.7	S 18 44.5	+00.8	219	37.0	-37.4	S 24 19.9	+03.3
04	241	12.3	-00.3	S 23 17.0	+00.2	266	49.8	-00.8	S 18 45.3	+00.7	233	59.6	-37.3	S 24 23.2	+03.1
05	256	12.0	-00.3	S 23 17.2	+00.1	281	49.0	-00.7	S 18 46.0	+00.8	248	22.3	-37.4	S 24 26.3	+03.0
06	271	11.7	-00.3	S 23 17.3	+00.1	296	48.3	-00.8	S 18 46.8	+00.7	262	44.9	-37.3	S 24 29.3	+02.8
07	286	11.4	-00.3	S 23 17.4	+00.1	311	47.5	-00.7	S 18 47.5	+00.8	277	07.6	-37.4	S 24 32.1	+02.6
08	301	11.1	-00.3	S 23 17.5	+00.1	326	46.8	-00.7	S 18 48.3	+00.7	291	30.2	-37.3	S 24 34.7	+02.4
09	316	10.8	-00.3	S 23 17.6	+00.2	341	46.1	-00.8	S 18 49.0	+00.7	305	52.9	-37.3	S 24 37.1	+02.3
10	331	10.5	-00.3	S 23 17.8	+00.1	356	45.3	-00.7	S 18 49.7	+00.8	320	15.6	-37.3	S 24 39.4	+02.1
11	346	10.2	-00.3	S 23 17.9	+00.1	11	44.6	-00.8	S 18 50.5	+00.7	334	38.3	-37.3	S 24 41.5	+01.9
12	1	09.9	-00.3	S 23 18.0	+00.1	26	43.8	-00.7	S 18 51.2	+00.8	349	01.0	-37.3	S 24 43.4	+01.7
13	16	09.6	-00.3	S 23 18.1	+00.1	41	43.1	-00.8	S 18 52.0	+00.7	3	23.7	-37.3	S 24 45.1	+01.6
14	31	09.3	-00.3	S 23 18.2	+00.1	56	42.3	-00.7	S 18 52.7	+00.7	17	46.4	-37.2	S 24 46.7	+01.4
15	46	09.0	-00.3	S 23 18.3	+00.1	71	41.6	-00.7	S 18 53.4	+00.8	32	09.2	-37.2	S 24 48.1	+01.2
16	61	08.7	-00.3	S 23 18.4	+00.2	86	40.9	-00.8	S 18 54.2	+00.7	46	32.0	-37.2	S 24 49.3	+01.0
17	76	08.4	-00.3	S 23 18.6	+00.1	101	40.1	-00.7	S 18 54.9	+00.7	60	54.8	-37.1	S 24 50.3	+00.8
18	91	08.1	-00.3	S 23 18.7	+00.1	116	39.4	-00.8	S 18 55.6	+00.8	75	17.7	-37.1	S 24 51.1	+00.7
19	106	07.8	-00.4	S 23 18.8	+00.1	131	38.6	-00.7	S 18 56.4	+00.7	89	40.6	-37.1	S 24 51.8	+00.5
20	121	07.4	-00.3	S 23 18.9	+00.1	146	37.9	-00.8	S 18 57.1	+00.7	104	03.5	-37.0	S 24 52.3	+00.4
21	136	07.1	-00.3	S 23 19.0	+00.1	161	37.1	-00.7	S 18 57.8	+00.8	118	26.5	-37.1	S 24 52.7	+00.1
22	151	06.8	-00.3	S 23 19.1	+00.1	176	36.4	-00.8	S 18 58.6	+00.7	132	49.4	-36.9	S 24 52.8	+00.0
23	166	06.5	-00.3	S 23 19.2	+00.1	191	35.6	-00.7	S 18 59.3	+00.7	147	12.5	-36.9	S 24 52.8	-00.2
UT 02 06 10 14 18 22	SD 16°2 16°3 16°3 16°3 16°3 16°3	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 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 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 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 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 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 59°9 59°8 59°7 59°6 59°5 59°4	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 59°9 59°8 59°7 59°6 59°5 59°4	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	HP 09°7 09°7 09°7 09°7 09°7 09°7	
SHA 097° 097° 097° 096° 096° 096°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 091° 088° 086° 083° 080° 078°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 091° 088° 086° 083° 080° 078°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	SHA 123° 122° 122° 122° 122° 122°	
Greenwich Culmination Time: 11:55															

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 19.3	+00.1	206	34.9	-00.8	S 19 00.0	+00.8	161	35.6	-36.9	S 24 52.6	-00.3
01	196	05.9	-00.3	S 23 19.4	+00.1	221	34.1	-00.7	S 19 00.8	+00.7	175	58.7	-36.8	S 24 52.3	-00.6
02	211	05.6	-00.3	S 23 19.5	+00.1	236	33.4	-00.8	S 19 01.5	+00.7	190	21.9	-36.8	S 24 51.7	-00.7
03	226	05.3	-00.3	S 23 19.6	+00.1	251	32.6	-00.7	S 19 02.2	+00.7	204	45.1	-36.7	S 24 51.0	-00.8
04	241	05.0	-00.3	S 23 19.7	+00.1	266	31.9	-00.8	S 19 02.9	+00.8	219	08.4	-36.7	S 24 50.2	-01.1
05	256	04.7	-00.3	S 23 19.8	+00.1	281	31.1	-00.7	S 19 03.7	+00.7	233	31.7	-36.6	S 24 49.1	-01.2
06	271	04.4	-00.3	S 23 19.9	+00.1	296	30.4	-00.8	S 19 04.4	+00.7	247	55.1	-36.6	S 24 47.9	-01.4
07	286	04.1	-00.3	S 23 20.0	+00.1	311	29.6	-00.7	S 19 05.1	+00.7	262	18.5	-36.5	S 24 46.5	-01.5
08	301	03.8	-00.3	S 23 20.1	+00.1	326	28.9	-00.8	S 19 05.8	+00.8	276	42.0	-36.4	S 24 45.0	-01.7
09	316	03.5	-00.3	S 23 20.2	+00.1	341	28.1	-00.7	S 19 06.6	+00.7	291	05.6	-36.3	S 24 43.3	-01.9
10	331	03.2	-00.3	S 23 20.3	+00.1	356	27.4	-00.8	S 19 07.3	+00.7	305	29.3	-36.3	S 24 41.4	-02.0
11	346	02.9	-00.3	S 23 20.4	+00.1	11	26.6	-00.7	S 19 08.0	+00.7	319	53.0	-36.3	S 24 39.4	-02.2
12	1	02.6	-00.3	S 23 20.5	+00.1	26	25.9	-00.8	S 19 08.7	+00.7	334	16.7	-36.1	S 24 37.2	-02.4
13	16	02.3	-00.3	S 23 20.6	+00.1	41	25.1	-00.7	S 19 09.4	+00.7	348	40.6	-36.1	S 24 34.8	-02.5
14	31	02.0	-00.3	S 23 20.7	+00.1	56	24.4	-00.8	S 19 10.1	+00.8	3	04.5	-36.0	S 24 32.3	-02.7
15	46	01.7	-00.4	S 23 20.8	+00.1	71	23.6	-00.7	S 19 10.9	+00.7	17	28.5	-36.0	S 24 29.6	-02.8
16	61	01.3	-00.3	S 23 20.9	+00.1	86	22.9	-00.8	S 19 11.6	+00.7	31	52.5	-35.8	S 24 26.8	-03.0
17	76	01.0	-00.3	S 23 21.0	+00.1	101	22.1	-00.7	S 19 12.3	+00.7	46	16.7	-35.8	S 24 23.8	-03.2
18	91	00.7	-00.3	S 23 21.1	+00.1	116	21.4	-00.8	S 19 13.0	+00.7	60	40.9	-35.7	S 24 20.6	-03.3
19	106	00.4	-00.3	S 23 21.2	+00.1	131	20.6	-00.8	S 19 13.7	+00.7	75	05.2	-35.6	S 24 17.3	-03.4
20	121	00.1	-00.3	S 23 21.3	+00.1	146	19.8	-00.7	S 19 14.4	+00.7	89	29.6	-35.6	S 24 13.9	-03.7
21	136	59.8	-00.3	S 23 21.4	+00.1	161	19.1	-00.8	S 19 15.1	+00.7	103	54.0	-35.4	S 24 10.2	-03.7
22	150	59.5	-00.3	S 23 21.5	+00.0	176	18.3	-00.7	S 19 15.8	+00.8	118	18.6	-35.4	S 24 06.5	-03.9
23	165	59.2	-00.3	S 23 21.5	+00.1	191	17.6	-00.8	S 19 16.6	+00.7	132	43.2	-35.3	S 24 02.6	-04.1
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 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 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 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 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 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 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 59°9 59°8 59°7 59°6 59°5 59°4	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 59°9 59°8 59°7 59°6 59°5 59°4	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	HP 09°6 09°6 09°6 09°6 09°6 09°6	
SHA 096° 096° 096° 095° 095° 095°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 091° 088° 086° 083° 080° 078°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 091° 088° 086° 083° 080° 078°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	SHA 121° 121° 121° 121° 121° 120°	
Greenwich Culmination Time: 11:55															

UT	Mars				Jupiter				Saturn				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	65	02.5	+01.7	N 08 33.0	+00.4	142	50.8	+01.9	S 20 49.1	-00.1	142	05.1	+02.1	S 20 33.7	-00.1
01	80	04.2	+01.7	N 08 33.4	+00.4	157	52.7	+01.9	S 20 49.0	-00.2	157	07.2	+02.2	S 20 33.6	+00.0
02	95	05.9	+01.7	N 08 33.8	+00.3	172	54.6	+01.9	S 20 48.8	-00.1	172	09.4	+02.2	S 20 33.6	-00.1
03	110	07.6	+01.7	N 08 34.1	+00.4	187	56.5	+01.9	S 20 48.7	-00.1	187	11.6	+02.2	S 20 33.5	+00.0
04	125	09.3	+01.8	N 08 34.5	+00.4	202	58.4	+01.9	S 20 48.6	-00.1	202	13.8	+02.2	S 20 33.5	-00.1
05	140	11.1	+01.7	N 08 34.9	+										

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 Dec 19, 2020, 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 20, 2020, 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 19, 2020, 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 20, 2020, such as 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 086° 086° 086° 085° 085° 085°
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.

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 338° 338° 337° 337° 337° 337°
Greenwich Culmination Time: 19:11

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°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° 089° 088°
Greenwich Culmination Time: 11:58

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 339° 339° 339° 338° 338° 338°
Greenwich Culmination Time: 19:19

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Table with columns for Sun, Venus, and Moon (A: 29%) and rows for UT 00 to 23. Each row contains GHA, ddGHA, Dec, and dDec for each planet.

Table with columns for Sun, Venus, and Moon (A: 32%) and rows for UT 00 to 23. Each row contains GHA, ddGHA, Dec, and dDec for each planet.

Table with columns for Mars, Jupiter, and Saturn and rows for UT 00 to 23. Each row contains GHA, ddGHA, Dec, and dDec for each planet.

Table with columns for Mars, Jupiter, and Saturn and rows for UT 00 to 23. Each row contains GHA, ddGHA, Dec, and dDec for each planet.

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UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> A: 47%				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 30.0	-00.3	S 23 12.7	-00.1	202 19.2	-00.9	S 21 59.5	+00.4	13 49.8	-31.2	N 23 45.0	+04.0	00
01	194 29.7	-00.3	S 23 12.6	-00.2	217 18.3	-00.9	S 21 59.9	+00.4	28 18.6	-31.2	N 23 49.0	+03.9	01
02	209 29.4	-00.3	S 23 12.4	-00.1	232 17.4	-00.9	S 22 00.3	+00.4	42 47.4	-31.3	N 23 52.9	+03.9	02
03	224 29.1	-00.3	S 23 12.3	-00.2	247 16.5	-00.8	S 22 00.7	+00.4	57 16.1	-31.4	N 23 56.8	+03.6	03
04	239 28.8	-00.3	S 23 12.1	-00.1	262 15.7	-00.9	S 22 01.1	+00.4	71 44.7	-31.5	N 24 00.4	+03.6	04
05	254 28.5	-00.3	S 23 12.0	-00.2	277 14.8	-00.9	S 22 01.5	+00.4	86 13.2	-31.5	N 24 04.0	+03.5	05
06	269 28.2	-00.3	S 23 11.8	-00.1	292 13.9	-00.9	S 22 01.9	+00.4	100 41.7	-31.5	N 24 07.5	+03.3	06
07	284 27.9	-00.3	S 23 11.7	-00.2	307 13.0	-00.9	S 22 02.3	+00.4	115 10.2	-31.6	N 24 10.8	+03.2	07
08	299 27.6	-00.3	S 23 11.5	-00.2	322 12.1	-00.9	S 22 02.7	+00.4	129 38.6	-31.6	N 24 14.0	+03.0	08
09	314 27.3	-00.3	S 23 11.3	-00.1	337 11.2	-00.8	S 22 03.1	+00.4	144 07.0	-31.7	N 24 17.0	+03.0	09
10	329 27.0	-00.3	S 23 11.2	-00.2	352 10.4	-00.9	S 22 03.5	+00.4	158 35.3	-31.8	N 24 20.0	+02.8	10
11	344 26.7	-00.4	S 23 11.0	-00.1	7 09.5	-00.9	S 22 03.9	+00.4	173 03.5	-31.8	N 24 22.8	+02.7	11
12	359 26.3	-00.3	S 23 10.9	-00.2	22 08.6	-00.9	S 22 04.3	+00.4	187 31.7	-31.9	N 24 25.5	+02.6	12
13	14 26.0	-00.3	S 23 10.7	-00.1	37 07.7	-00.9	S 22 04.7	+00.4	201 59.8	-31.9	N 24 28.1	+02.4	13
14	29 25.7	-00.3	S 23 10.6	-00.2	52 06.8	-00.9	S 22 05.1	+00.4	216 27.9	-31.9	N 24 30.5	+02.3	14
15	44 25.4	-00.3	S 23 10.4	-00.2	67 05.9	-00.9	S 22 05.5	+00.4	230 56.0	-32.0	N 24 32.8	+02.2	15
16	59 25.1	-00.3	S 23 10.2	-00.1	82 05.0	-00.9	S 22 05.9	+00.4	245 24.0	-32.0	N 24 35.0	+02.1	16
17	74 24.8	-00.3	S 23 10.1	-00.2	97 04.1	-00.9	S 22 06.3	+00.4	259 52.0	-32.1	N 24 37.1	+01.9	17
18	89 24.5	-00.3	S 23 09.9	-00.2	112 03.2	-00.8	S 22 06.7	+00.4	274 19.9	-32.1	N 24 39.0	+01.8	18
19	104 24.2	-00.3	S 23 09.7	-00.1	127 02.4	-00.9	S 22 07.1	+00.3	288 47.8	-32.2	N 24 40.8	+01.7	19
20	119 23.9	-00.3	S 23 09.6	-00.2	142 01.5	-00.9	S 22 07.4	+00.4	303 15.6	-32.2	N 24 42.5	+01.5	20
21	134 23.6	-00.3	S 23 09.4	-00.1	157 00.6	-00.9	S 22 07.8	+00.4	317 43.4	-32.2	N 24 44.0	+01.4	21
22	149 23.3	-00.3	S 23 09.3	-00.2	171 59.7	-00.9	S 22 08.2	+00.4	332 11.2	-32.3	N 24 45.4	+01.3	22
23	164 23.0	-00.3	S 23 09.1	-00.2	186 58.8	-00.9	S 22 08.6	+00.4	346 38.9	-32.3	N 24 46.7	+01.1	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°1 15°1 15°1 15°1 15°2 15°2	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°3 55°4 55°5 55°5 55°6 55°7	HP 00°1 00°1 00°1 00°1 00°1 00°1	HP 55°3 55°4 55°5 55°5 55°6 55°7								
SHA 081° 081° 081° 081° 081° 081°	SHA 104° 104° 104° 104° 103° 103°	SHA 104° 104° 104° 104° 103° 103°	SHA 275° 273° 270° 268° 266° 263°	SHA 108° 108° 108° 108° 107° 107°	SHA 108° 108° 108° 108° 107° 107°								
Greenwich Culmination Time: 12:02		Greenwich Culmination Time: 10:31		Greenwich Culmination Time: 23:55									

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> A: 38%				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179 52.0	-00.3	S 23 21.3	-00.1	203 21.9	-00.9	S 21 27.1	+00.5	48 19.5	-26.4	N 14 36.2	+10.4	00
01	194 51.7	-00.3	S 23 21.2	-00.1	218 21.0	-00.9	S 21 27.6	+00.5	62 53.1	-26.4	N 14 46.6	+10.2	01
02	209 51.4	-00.4	S 23 21.1	-00.1	233 20.1	-00.8	S 21 28.1	+00.4	77 26.7	-26.6	N 14 56.8	+10.3	02
03	224 51.0	-00.3	S 23 21.0	-00.1	248 19.3	-00.9	S 21 28.5	+00.5	92 00.1	-26.5	N 15 07.1	+10.1	03
04	239 50.7	-00.3	S 23 20.9	-00.1	263 18.4	-00.8	S 21 29.0	+00.5	106 33.6	-26.7	N 15 17.2	+10.1	04
05	254 50.4	-00.3	S 23 20.8	-00.1	278 17.6	-00.9	S 21 29.5	+00.5	121 06.9	-26.7	N 15 27.3	+10.1	05
06	269 50.1	-00.3	S 23 20.7	-00.1	293 16.7	-00.9	S 21 30.0	+00.5	135 40.2	-26.7	N 15 37.4	+09.9	06
07	284 49.8	-00.3	S 23 20.6	-00.1	308 15.8	-00.8	S 21 30.5	+00.5	150 13.5	-26.8	N 15 47.3	+10.0	07
08	299 49.5	-00.3	S 23 20.5	-00.1	323 15.0	-00.9	S 21 31.0	+00.4	164 46.7	-26.9	N 15 57.3	+09.8	08
09	314 49.2	-00.3	S 23 20.4	-00.1	338 14.1	-00.8	S 21 31.4	+00.5	179 19.8	-26.9	N 16 07.1	+09.8	09
10	329 48.9	-00.3	S 23 20.3	-00.1	353 13.3	-00.9	S 21 31.9	+00.5	193 52.9	-27.0	N 16 16.9	+09.8	10
11	344 48.6	-00.3	S 23 20.2	-00.1	8 12.4	-00.9	S 21 32.4	+00.5	208 25.9	-27.1	N 16 26.7	+09.6	11
12	359 48.3	-00.3	S 23 20.1	-00.1	23 11.5	-00.8	S 21 32.9	+00.4	222 58.8	-27.1	N 16 36.3	+09.6	12
13	14 48.0	-00.3	S 23 20.0	-00.1	38 10.7	-00.9	S 21 33.3	+00.5	237 31.7	-27.2	N 16 45.9	+09.6	13
14	29 47.7	-00.3	S 23 19.9	-00.1	53 09.8	-00.8	S 21 33.8	+00.5	252 04.5	-27.3	N 16 55.5	+09.4	14
15	44 47.4	-00.3	S 23 19.8	-00.1	68 09.0	-00.9	S 21 34.3	+00.5	266 37.2	-27.3	N 17 04.9	+09.4	15
16	59 47.1	-00.4	S 23 19.7	-00.1	83 08.1	-00.9	S 21 34.8	+00.4	281 09.9	-27.4	N 17 14.3	+09.4	16
17	74 46.7	-00.3	S 23 19.6	-00.1	98 07.2	-00.8	S 21 35.2	+00.5	295 42.5	-27.4	N 17 23.7	+09.2	17
18	89 46.4	-00.3	S 23 19.5	-00.1	113 06.4	-00.9	S 21 35.7	+00.5	310 15.1	-27.5	N 17 32.9	+09.2	18
19	104 46.1	-00.3	S 23 19.4	-00.1	128 05.5	-00.9	S 21 36.2	+00.4	324 47.6	-27.6	N 17 42.1	+09.2	19
20	119 45.8	-00.3	S 23 19.3	-00.1	143 04.6	-00.8	S 21 36.6	+00.5	339 20.0	-27.7	N 17 51.3	+09.0	20
21	134 45.5	-00.3	S 23 19.2	-00.1	158 03.8	-00.9	S 21 37.1	+00.5	353 52.3	-27.7	N 18 00.3	+09.0	21
22	149 45.2	-00.3	S 23 19.1	-00.1	173 02.9	-00.9	S 21 37.6	+00.4	8 24.6	-27.8	N 18 09.3	+08.9	22
23	164 44.9	-00.3	S 23 19.0	-00.1	188 02.0	-00.8	S 21 38.0	+00.5	22 56.8	-27.8	N 18 18.2	+08.8	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 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 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	HP 54°3 54°3 54°3 54°4 54°4 54°5								
SHA 085° 085° 084° 084° 084° 084°	SHA 108° 108° 108° 108° 107° 107°	SHA 108° 108° 108° 108° 107° 107°	SHA 108° 108° 108° 108° 107° 107°	SHA 312° 310° 309° 307° 305° 303°	SHA 312° 310° 309° 307° 305° 303°								
Greenwich Culmination Time: 12:00		Greenwich Culmination Time: 10:27		Greenwich Culmination Time: 21:25									

UT	<i>Mars</i>				<i>Jupiter</i>				<i>Saturn</i>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	74 01.1	+01.5	N 10 49.6	+00.4	153 25.7	+01.9	S 20 09.9	-00.2	154 18.1	+02.1	S 20 14.8	+00.0	00
01	89 02.6	+01.5	N 10 50.0	+00.5	168 27.6	+01.9	S 20 09.7	-00.1	169 20.2	+02.2	S 20 14.8	-00.1	01
02	104 04.1	+01.5	N 10 50.5	+00.4	183 29.5	+01.9	S 20 09.6	-00.1	184 22.4	+02.2	S 20 14.7	-00.1	02
03	119 05.6	+01.5	N 10 50.9	+00.4	198 31.4	+01.8	S 20 09.5	-00.1	199 24.6	+02.1	S 20 14.6	+00.0	03
04	134 07.1	+01.5	N 10 51.3	+00.4	213 33.2	+01.9	S 20 09.4	-00.2	214 26.7	+02.2	S 20 14.6	-00.1	04
05	149 08.6	+01.5	N 10 51.7	+00.5	228 35.1	+01.9	S 20 09.2	-00.1	229 28.9	+02.2	S 20 14.5	+00.0	05
06	164 10.1	+01.5	N 10 52.2	+00.4	243 37.0	+01.9	S 20 09.1	-00.1	244 31.1	+02.2	S 20 14.5	-00.1	06
07	179 11.6	+01.5	N 10 52.6	+00.4	258 38.9	+01.9	S 20 09.0	-00.1	259 33.3	+02.1	S 20 14.4	-00.1	07
08	194 13.1	+01.5	N 10 53.0	+00.5	273 40.8	+01.8	S 20 08.9	-00.2	274 35.4	+02.2	S 20 14.3	+00.0	08
09	209 14.6	+01.5	N 10 53.5	+00.4	288 42.6	+01.9	S 20 08.7	-00.1	289 37.6	+02.2	S 20 14.3	-00.1	09
10	224 16.1	+01.4	N 10 53.9	+00.4	303 44.5	+01.9	S 20 08.6	-00.1	304 39.8	+02.1	S 20 14.2	+00.0	10
11	239 17.5	+01.5	N 10 54.3	+00.4	318 46.4	+01.9	S 20 08.5	-00.1	319 41.9	+02.2	S 20 14.2	-00.1	11
12	254 19.0	+01.5	N 10 54.7	+00.5	333 48.3	+01.8	S 20 08.4	-00.2	334 44.1	+02.2	S 20 14.1	-00.1	12
13	269 20.5	+01.5	N 10 55.2	+00.4	348 50.1	+01.9	S 20 08.2	-00.1	349 46.3	+02.2	S 20 14.0	+00.0	13
14	284 22.0	+01.5	N 10 55.6	+00.4	3 52.0	+01.9	S 20 08.1	-00.1	4 48.5	+02.1	S 20 14.0	-00.1	14
15	299 23.5	+01.5	N 10 56.0	+00.5	18 53.9	+01.9	S 20 08.0	-00.2	19 50.6	+02.2	S 20 13.9	+00.0	15
16	314 25.0	+01.5	N 10 56.5	+00.4	33 55.8	+01.8	S 20 07.8	-00.1	34 52.8	+02.2	S 20 13.9	-00.1	16
17	329 26.5	+01.5	N 10 56.9	+00.4	48 57.6	+01.9	S 20 07.7	-00.1	49 55.0	+02.1	S 20 13.8	-00.1	17
18	344 28.0	+01.4	N 10 57.3	+00.5	63 59.5	+01.9	S 20 07.6	-00.1	64 57.1	+02.2	S 20 13.7	+00.0	18
19	359 29.4	+01.5	N 10 57.8	+00.4	79 01.4	+01.9	S 20 07.5						

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Dec 27, 2020, 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 Dec 28, 2020, 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 Dec 27, 2020, 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 Dec 28, 2020, such as GHA, ddGHA, Dec, and dDec for various celestial bodies.

UT	Sun				Venus				Moon				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	22.7	-00.3	S 23 08.9	-00.1	201	57.9	-00.9	S 22 09.0	+00.4	1	06.6	-32.4	N 24 47.8	+01.0					
01	194	22.4	-00.3	S 23 08.8	-00.2	216	57.0	-00.9	S 22 09.4	+00.3	15	34.2	-32.4	N 24 48.8	+00.9					
02	209	22.1	-00.3	S 23 08.6	-00.2	231	56.1	-00.9	S 22 09.7	+00.4	30	01.8	-32.4	N 24 49.7	+00.7					
03	224	21.8	-00.3	S 23 08.4	-00.2	246	55.2	-00.9	S 22 10.1	+00.4	44	29.4	-32.5	N 24 50.4	+00.6					
04	239	21.5	-00.3	S 23 08.2	-00.1	261	54.3	-00.9	S 22 10.5	+00.4	58	56.9	-32.4	N 24 51.0	+00.5					
05	254	21.2	-00.3	S 23 08.1	-00.2	276	53.4	-00.8	S 22 10.9	+00.4	73	24.5	-32.5	N 24 51.5	+00.3					
06	269	20.9	-00.3	S 23 07.9	-00.2	291	52.6	-00.9	S 22 11.3	+00.3	87	52.0	-32.6	N 24 51.8	+00.2					
07	284	20.6	-00.3	S 23 07.7	-00.1	306	51.7	-00.9	S 22 11.6	+00.4	102	19.4	-32.5	N 24 52.0	+00.0					
08	299	20.3	-00.3	S 23 07.6	-00.2	321	50.8	-00.9	S 22 12.0	+00.4	116	46.9	-32.6	N 24 52.0	-00.1					
09	314	20.0	-00.3	S 23 07.4	-00.2	336	49.9	-00.9	S 22 12.4	+00.3	131	14.3	-32.6	N 24 51.9	-00.2					
10	329	19.7	-00.3	S 23 07.2	-00.2	351	49.0	-00.9	S 22 12.7	+00.4	145	41.7	-32.7	N 24 51.7	-00.3					
11	344	19.4	-00.2	S 23 07.0	-00.2	6	48.1	-00.9	S 22 13.1	+00.4	160	09.0	-32.6	N 24 51.4	-00.5					
12	359	19.2	-00.3	S 23 06.8	-00.1	21	47.2	-00.9	S 22 13.5	+00.4	174	36.4	-32.7	N 24 50.9	-00.7					
13	14	18.9	-00.3	S 23 06.7	-00.2	36	46.3	-00.9	S 22 13.9	+00.3	189	03.7	-32.7	N 24 50.2	+00.3					
14	29	18.6	-00.3	S 23 06.5	-00.2	51	45.4	-00.9	S 22 14.2	+00.4	203	31.0	-32.7	N 24 49.5	-00.9					
15	44	18.3	-00.3	S 23 06.3	-00.2	66	44.5	-00.9	S 22 14.6	+00.4	217	58.3	-32.8	N 24 48.6	-01.1					
16	59	18.0	-00.3	S 23 06.1	-00.1	81	43.6	-00.9	S 22 15.0	+00.3	232	25.5	-32.7	N 24 47.5	-01.2					
17	74	17.7	-00.3	S 23 06.0	-00.2	96	42.7	-00.9	S 22 15.3	+00.4	246	52.8	-32.8	N 24 46.3	-01.3					
18	89	17.4	-00.3	S 23 05.8	-00.2	111	41.8	-00.9	S 22 15.7	+00.4	261	20.0	-32.7	N 24 45.0	-01.4					
19	104	17.1	-00.3	S 23 05.6	-00.2	126	40.9	-00.9	S 22 16.0	+00.4	275	47.3	-32.8	N 24 43.6	-01.6					
20	119	16.8	-00.3	S 23 05.4	-00.2	141	40.0	-00.9	S 22 16.4	+00.4	290	14.5	-32.8	N 24 42.0	-01.8					
21	134	16.5	-00.3	S 23 05.2	-00.2	156	39.1	-00.9	S 22 16.8	+00.3	304	41.7	-32.8	N 24 40.2	-01.8					
22	149	16.2	-00.3	S 23 05.0	-00.1	171	38.2	-00.9	S 22 17.1	+00.4	319	08.9	-32.8	N 24 38.4	-02.0					
23	164	15.9	-00.3	S 23 04.9	-00.2	186	37.3	-00.9	S 22 17.5	+00.3	333	36.1	-32.8	N 24 36.4	-02.2					
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°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°8	55°9	55°9	56°0	56°1	56°2
SHA	080°	080°	080°	080°	080°	079°	SHA	103°	103°	103°	102°	102°	102°	SHA	261°	259°	256°	254°	252°	249°
Greenwich Culmination Time: 12:02						Greenwich Culmination Time: 10:32						Greenwich Culmination Time: -1:00								

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	74	36.9	+01.4	N 10 59.9	+00.4	154	10.8	+01.8	S 20 06.8	-00.1	155	10.2	+02.1	S 20 13.4	-00.1					
01	89	38.3	+01.5	N 11 00.3	+00.5	169	12.6	+01.9	S 20 06.7	-00.1	170	12.3	+02.2	S 20 13.3	+00.0					
02	104	39.8	+01.5	N 11 00.8	+00.4	184	14.5	+01.9	S 20 06.6	-00.1	185	14.5	+02.2	S 20 13.3	-00.1					
03	119	41.3	+01.5	N 11 01.2	+00.4	199	16.4	+01.9	S 20 06.5	-00.2	200	16.7	+02.1	S 20 13.2	-00.1					
04	134	42.8	+01.5	N 11 01.6	+00.5	214	18.3	+01.8	S 20 06.3	-00.1	215	18.8	+02.2	S 20 13.1	+00.0					
05	149	44.3	+01.4	N 11 02.1	+00.4	229	20.1	+01.9	S 20 06.2	-00.1	230	21.0	+02.2	S 20 13.1	-00.1					
06	164	45.7	+01.5	N 11 02.5	+00.4	244	22.0	+01.9	S 20 06.1	-00.1	245	23.2	+02.2	S 20 13.0	+00.0					
07	179	47.2	+01.5	N 11 02.9	+00.5	259	23.9	+01.9	S 20 06.0	-00.2	260	25.4	+02.1	S 20 13.0	-00.1					
08	194	48.7	+01.5	N 11 03.4	+00.4	274	25.8	+01.8	S 20 05.8	-00.1	275	27.5	+02.2	S 20 12.9	-00.1					
09	209	50.2	+01.4	N 11 03.8	+00.4	289	27.6	+01.9	S 20 05.7	-00.1	290	29.7	+02.2	S 20 12.8	+00.0					
10	224	51.6	+01.5	N 11 04.2	+00.5	304	29.5	+01.9	S 20 05.6	-00.1	305	31.9	+02.1	S 20 12.8	-00.1					
11	239	53.1	+01.5	N 11 04.7	+00.4	319	31.4	+01.9	S 20 05.5	-00.2	320	34.0	+02.2	S 20 12.7	+00.0					
12	254	54.6	+01.5	N 11 05.1	+00.4	334	33.3	+01.8	S 20 05.3	-00.1	335	36.2	+02.2	S 20 12.7	-00.1					
13	269	56.1	+01.4	N 11 05.5	+00.4	349	35.1	+01.9	S 20 05.2	-00.1	350	38.4	+02.1	S 20 12.6	-00.1					
14	284	57.5	+01.5	N 11 05.9	+00.5	4	37.0	+01.9	S 20 05.1	-00.2	5	40.5	+02.2	S 20 12.5	+00.0					
15	299	59.0	+01.5	N 11 06.4	+00.4	19	38.9	+01.9	S 20 04.9	-00.1	20	42.7	+02.2	S 20 12.5	-00.1					
16	315	00.5	+01.5	N 11 06.8	+00.4	34	40.8	+01.8	S 20 04.8	-00.1	35	44.9	+02.1	S 20 12.4	+00.0					
17	330	02.0	+01.4	N 11 07.2	+00.5	49	42.6	+01.9	S 20 04.7	-00.1	50	47.0	+02.2	S 20 12.4	-00.1					
18	345	03.4	+01.5	N 11 07.7	+00.4	64	44.5	+01.9	S 20 04.6	-00.2	65	49.2	+02.2	S 20 12.3	-00.1					
19	0	04.9	+01.5	N 11 08.1	+00.4	79	46.4	+01.9	S 20 04.4	-00.1	80	51.4	+02.2	S 20 12.2	+00.0					
20	15	06.4	+01.4	N 11 08.5	+00.5	94	48.3	+01.8	S 20 04.3	-00.1	95	53.6	+02.1	S 20 12.2	-00.1					
21	30	07.8	+01.5	N 11 09.0	+00.4	109	50.1	+01.9	S 20 04.2	-00.1	110	55.7	+02.2	S 20 12.1	+00.0					
22	45	09.3	+01.5	N 11 09.4	+00.4	124	52.0	+01.9	S 20 04.1	-00.2	125	57.9	+02.2	S 20 12.1	-00.1					
23	60	10.8	+01.5	N 11 09.8	+00.5	139	53.9	+01.9	S 20 03.9	-00.1	141	00.1	+02.1	S 20 12.0	-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°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°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	336°	336°	336°	335°	335°	335°	SHA	055°	055°	055°	055°	055°	055°	SHA	056°	056°	056°	056°	056°	056°
Greenwich Culmination Time: 18:59						Greenwich Culmination Time: 13:41						Greenwich Culmination Time: 13:37								

UT	Sun				Venus				Moon <small>A: 54%</small>				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	179	15.6	-00.3	S 23 04.7	-00.2	201	36.4	-00.9	S 22 17.8	+00.4	348	03.3	-32.8	N 24 34.2	-02.3					
01	194	15.3	-00.3	S 23 04.5	-00.2	216	35.5	-00.9	S 22 18.2	+00.3	2	30.5	-32.8	N 24 31.9	-02.4					
02	209	15.0	-00.3	S 23 04.3	-00.2	231	34.6	-00.9	S 22 18.5	+00.4	16	57.7	-32.8	N 24 29.5	-02.6					
03	224	14.7	-00.3	S 23 04.1	-00.2	246	33.7	-00.9	S 22 18.9	+00.3	31	24.9	-32.8	N 24 26.9	-02.7					
04	239	14.4	-00.3	S 23 03.9	-00.2	261	32.8	-00.9	S 22 19.2	+00.4	45	52.1	-32.9	N 24 24.2	-02.8					
05	254	14.1	-00.3	S 23 03.7	-00.2	276	31.9	-00.9	S 22 19.6	+00.3	60	19.2	-32.8	N 24 21.4	-03.0					
06	269	13.8	-00.3	S 23 03.5	-00.2	291	31.0	-00.9	S 22 19.9	+00.4	74	46.4	-32.8	N 24 18.4	-03.1					
07	284	13.5	-00.3	S 23 03.3	-00.2	306	30.1	-00.9	S 22 20.3	+00.3	89	13.6	-32.8	N 24 15.3	-03.3					
08	299	13.2	-00.3	S 23 03.1	-00.1	321	29.2	-00.9	S 22 20.6	+00.4	103	40.8	-32.8	N 24 12.0	-03.4					
09	314	12.9	-00.3	S 23 03.0	-00.2	336	28.3	-00.9	S 22 21.0	+00.3	118	08.0	-32.8	N 24 08.6	-03.5					
10	329	12.6	-00.3	S 23 02.8	-00.2	351	27.4	-00.9	S 22 21.3	+00.4	132	35.2	-32.7	N 24 05.1	-03.7					
11	344	12.3	-00.3	S 23 02.6	-00.2	6	26.5	-00.9	S 22 21.7	+00.3	147	02.5	-32.8	N 24 01.4	-03.8					
12	359	12.0	-00.3	S 23 02.4	-00.2	21	25.6	-00.9	S 22 22.0	+00.4	161	29.7	-32.8	N 23 57.6	-03.9					
13	14	11.7	-00.3	S 23 02.2	-00.2	36	24.7	-00.9	S 22 22.4	+00.3	175	56.9	-32.7	N 23 53.7	-04.1					
14	29	11.4	-00.3	S 23 02.0	-00.2	51	23.8	-00.9	S 22 22.7	+00.3	190	24.2	-32.7	N 23 49.6	-04.2					
15	44	11.1	-00.3	S 23 01.8	-00.2	66	22.9	-00.9	S 22 23.0	+00.4	204	51.5	-32.7	N 23 45.4	-04.4					
16	59	10.8	-00.3	S 23 01.6	-00.2	81	22.0	-00.9	S 22 23.4	+00.3	219	18.8	-32.7	N 23 41.0	-04.5					
17	74	10.5	-00.3	S 23 01.4	-00.2	96	21.1	-00.9	S 22 23.7	+00.3	233	46.1	-32.7	N 23 36.5	-04.6					
18	89	10.2	-00.2	S 23 01.2	-00.2	111	20.2	-00.9	S 22 24.0	+00.4	248	13.4	-32.7	N 23 31.9	-04.8					
19	104	10.0	-00.3	S 23 01.0	-00.2	126	19.3	-00.9	S 22 24.4	+00.3	262	40.7	-32.6	N 23 27.1	-04.8					
20	119	09.7	-00.3	S 23 00.8	-00.2	141	18.4	-00.9	S 22 24.7	+00.3	277	08.1	-32.7	N 23 22.3	-05.1					
21	134	09.4	-00.3	S 23 00.6	-00.2	156	17.5	-00.9	S 22 25.0	+00.4	291	35.4	-32.6	N 23 17.2	-05.1					
22	149	09.1	-00.3	S 23 00.4	-00.2	171	16.6	-00.9	S 22 25.4	+00.3	306	02.8	-32.5	N 23 12.1	-05.3					
23	164	08.8	-00.3	S 23 00.2	-00.2	186	15.7	-00.9	S 22 25.7	+00.3	320	30.3	-32.6	N 23 06.8	-05.4					
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°3	15°4	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°3	56°3	56°4	56°5	56°6	56°7
SHA	079°	079°	079°	079°	079°	078°	SHA	102°	101°	101°	101°	101°	100°	SHA	247°	245°	242°	240°	238°	235°
Greenwich Culmination Time: 12:03				Greenwich Culmination Time: 10:34				Greenwich Culmination Time: 00:49												

UT	Mars				Jupiter				Saturn				UT							
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec								
00	75	12.3	+01.4	N 11 10.3	+00.4	154	55.8	+01.8	S 20 03.8	-00.1	156	02.2	+02.2	S 20 11.9	+00.0					
01	90	13.7	+01.5	N 11 10.7	+00.4	169	57.6	+01.9	S 20 03.7	-00.2	171	04.4	+02.2	S 20 11.9	-00.1					
02	105	15.2	+01.5	N 11 11.1	+00.5	184	59.5	+01.9	S 20 03.5	-00.1	186	06.6	+02.1	S 20 11.8	+00.0					
03	120	16.7	+01.4	N 11 11.6	+00.4	200	01.4	+01.9	S 20 03.4	-00.1	201	08.7	+02.2	S 20 11.8	-00.1					
04	135	18.1	+01.5	N 11 12.0	+00.4	215	03.3	+01.8	S 20 03.3	-00.1	216	10.9	+02.2	S 20 11.7	-00.1					
05	150	19.6	+01.5	N 11 12.4	+00.5	230	05.1	+01.9	S 20 03.2	-00.2	231	13.1	+02.1	S 20 11.6	+00.0					
06	165	21.1	+01.4	N 11 12.9	+00.4	245	07.0	+01.9	S 20 03.0	-00.1	246	15.2	+02.2	S 20 11.6	-00.1					
07	180	22.5	+01.5	N 11 13.3	+00.4	260	08.9	+01.9	S 20 02.9	-00.1	261	17.4	+02.2	S 20 11.5	-00.1					
08	195	24.0	+01.5	N 11 13.7	+00.5	275	10.8	+01.8	S 20 02.8	-00.1	276	19.6	+02.2	S 20 11.4	+00.0					
09	210	25.5	+01.4	N 11 14.2	+00.4	290	12.6	+01.9	S 20 02.7	-00.2	291	21.8	+02.1	S 20 11.4	-00.1					
10	225	26.9	+01.5	N 11 14.6	+00.4	305	14.5	+01.9	S 20 02.5	-00.1	306	23.9	+02.2	S 20 11.3	+00.0					
11	240	28.4	+01.4	N 11 15.0	+00.5	320	16.4	+01.8	S 20 02.4	-00.1	321	26.1	+02.2	S 20 11.3	-00.1					
12	255	29.8	+01.5	N 11 15.5	+00.4	335	18.2	+01.9	S 20 02.3	-00.2	336	28.3	+02.1	S 20 11.2	-00.1					
13	270	31.3	+01.5	N 11 15.9	+00.4	350	20.1	+01.9	S 20 02.1	-00.1	351	30.4	+02.2	S 20 11.1	+00.0					
14	285	32.8	+01.4	N 11 16.3	+00.5	5	22.0	+01.9	S 20 02.0	-00.1	6	32.6	+02.2	S 20 11.1	-00.1					
15	300	34.2	+01.5	N 11 16.8	+00.4	20	23.9	+01.8	S 20 01.9	-00.1	21	34.8	+02.1	S 20 11.0	+00.0					
16	315	35.7	+01.4	N 11 17.2	+00.4	35	25.7	+01.9	S 20 01.8	-00.2	36	36.9	+02.2	S 20 11.0	-00.1					
17	330	37.1	+01.5	N 11 17.6	+00.5	50	27.6	+01.9	S 20 01.6	-00.1	51	39.1	+02.2	S 20 10.9	-00.1					
18	345	38.6	+01.5	N 11 18.1	+00.4	65	29.5	+01.9	S 20 01.5	-00.1	66	41.3	+02.1	S 20 10.8	+00.0					
19	0	40.1	+01.4	N 11 18.5	+00.4	80	31.4	+01.8	S 20 01.4	-00.1	81	43.4	+02.2	S 20 10.8	-00.1					
20	15	41.5	+01.5	N 11 18.9	+00.5	95	33.2	+01.9	S 20 01.3	-00.2	96	45.6	+02.2	S 20 10.7	+00.0					
21	30	43.0	+01.4	N 11 19.4	+00.4	110	35.1	+01.9	S 20 01.1	-00.1	111	47.8	+02.1	S 20 10.7	-00.1					
22	45	44.4	+01.5	N 11 19.8	+00.5	125	37.0	+01.8	S 20 01.0	-00.1	126	49.9	+02.2	S 20 10.6	-00.1					
23	60	45.9	+01.4	N 11 20.3	+00.4	140	38.8	+01.9	S 20 00.9	-00.2	141	52.1	+02.2	S 20 10.5	+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°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°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	335°	335°	335°	335°	335°	335°	SHA	055°	055°	055°	055°	055°	055°	SHA	056°	056°	056°	056°	056°	056°
Greenwich Culmination Time: 18:57				Greenwich Culmination Time: 13:38				Greenwich Culmination Time: 13:33												