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Nautical Almanac

2021

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The Nautical Almanac 2021

Compiled with *Nautical Almanac* revision V2.5 - 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 Wed Sep 2 17:01:00 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 : 69.4 s	Oct : 69.4 s
Feb : 69.4 s	May : 69.4 s	Aug : 69.4 s	Nov : 69.4 s
Mar : 69.4 s	Jun : 69.4 s	Sep : 69.4 s	Dec : 69.4 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

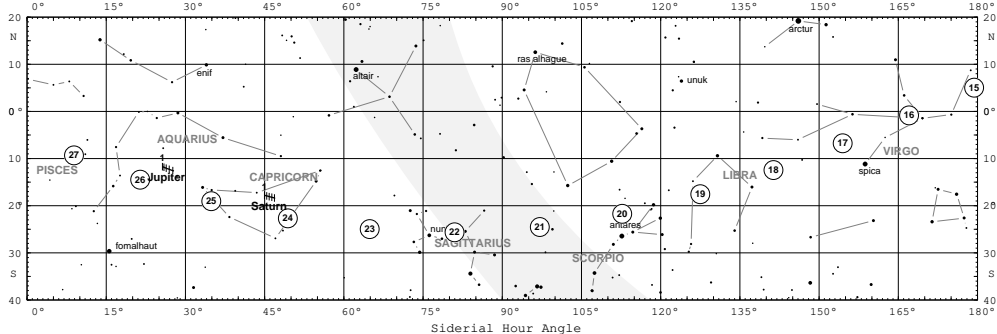
The charts on the following pages show the position of the Celestial Objects used in this Nautical Almanac relative to the stars (celestial background). The charts can be used to find the location of the planets and also for the planning of astronomical observations.

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°) is not on the same position in the two different parts of each of the charts.

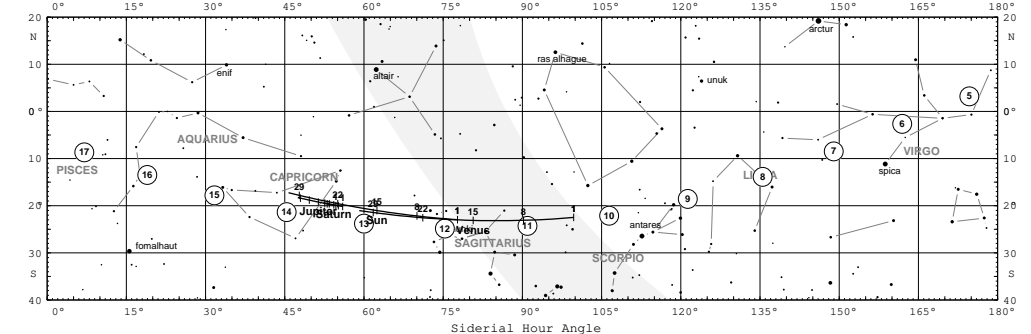
The changing position of a Celestial Object through the month is drawn as a solid line (not for the Moon). Marker tics along this line are shown to indicate the position of the Object on the 1st, 8th, 15th, 22nd and 29th day of the month (at 12:00 UT). For Jupiter and Saturn only the first day is marked 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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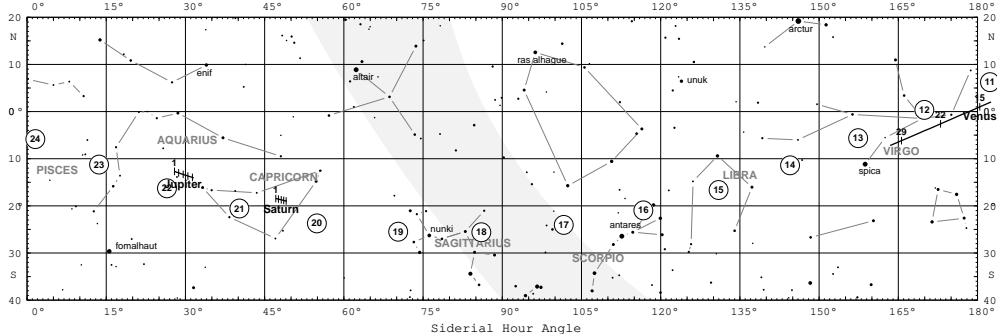
July 2021



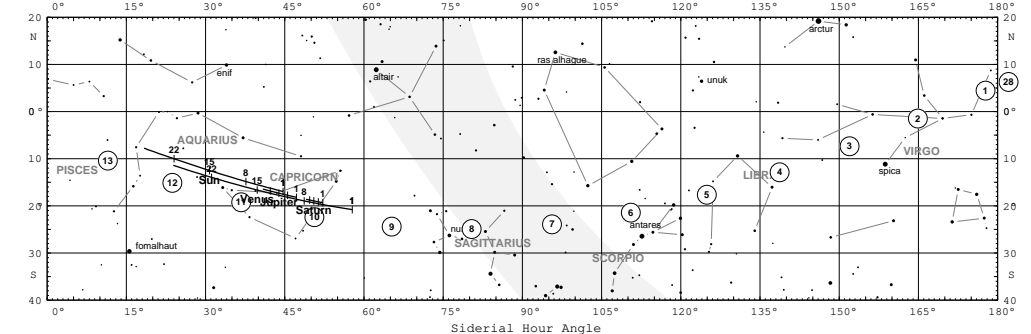
January 2021



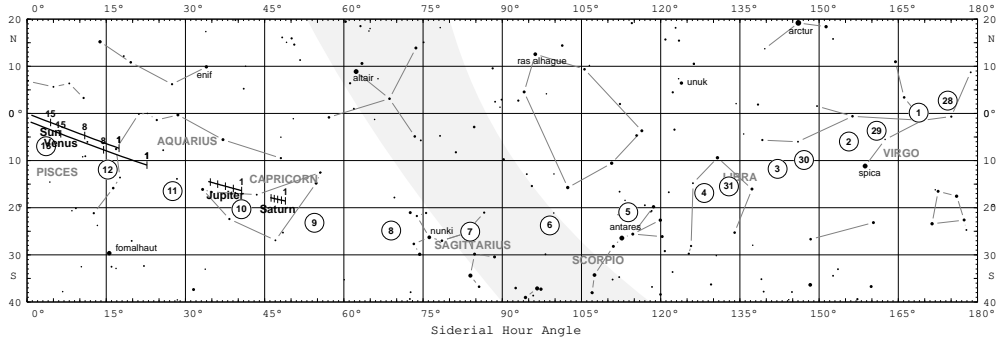
August 2021



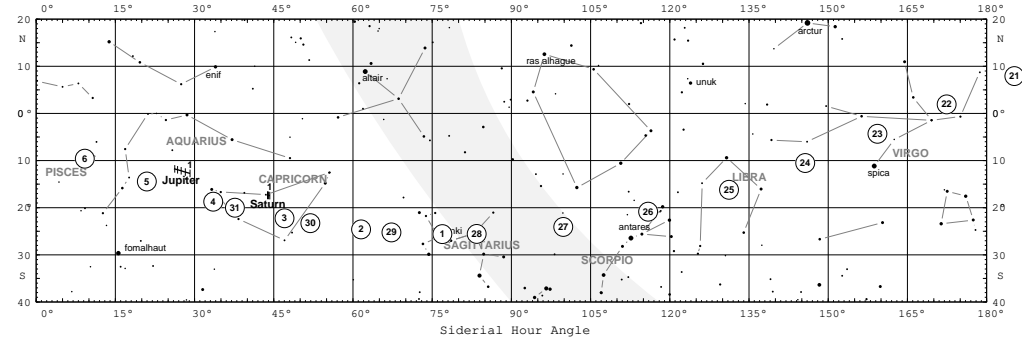
February 2021



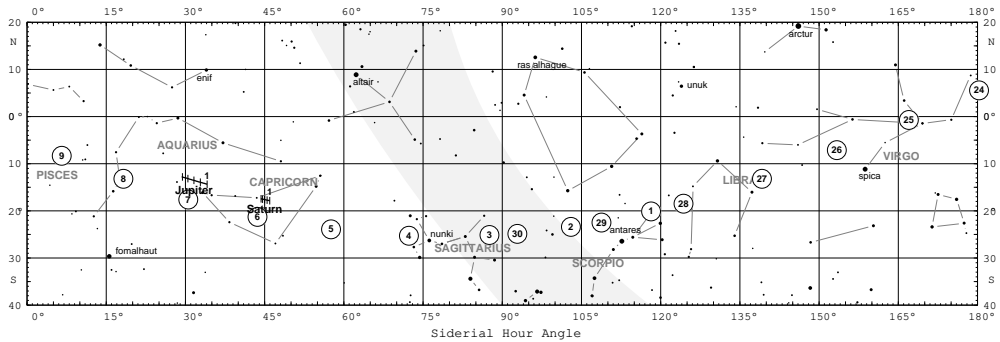
March 2021



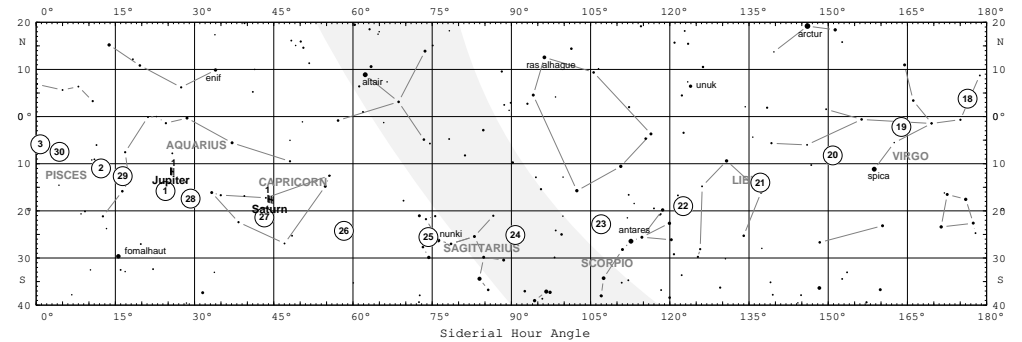
May 2021



April 2021






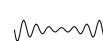




June 2021



Phases of the Moon

The following table lists the phases of the Moon through the year 2021. The table shows the day and the approximate time (in UTC) when the particular lunar phases occur. The calculations are based on the difference between the GHA of the Sun and the GHA of the Moon ($\Delta GHA = GHA_{sun} - GHA_{moon}$). The constellations "new moon", "first quarter", "full moon" and "last quarter" are obtained when ΔGHA is equal to 0° , 90° , 180° and 270° respectively.

	 New Moon	 First Quarter	 Full Moon	 Last Quarter
January	Wed 13 04:06	Thu 21 04:16	Thu 28 17:14	Wed 6 11:23
February	Thu 11 16:00	Sat 20 03:03	Sat 27 04:40	Fri 5 01:24
March	Sat 13 05:53	Sun 21 14:15	Sun 28 15:21	Sat 6 05:34
April	Sun 11 23:02	Mon 19 21:07	Tue 27 01:47	Sun 4 05:21
May	Tue 11 17:55	Wed 19 06:43	Wed 26 11:05	Mon 3 08:05
June	Thu 10 11:01	Thu 17 22:36	Thu 24 18:34	Tue 1 20:41
July	Sat 10 00:23	Sat 17 15:09	Sat 24 01:00	Thu 1 21:03 Sat 31 22:28
August	Sun 8 10:57	Sun 15 23:20	Sun 22 08:32	Mon 30 14:37
September	Mon 6 20:57	Mon 13 23:17	Mon 20 19:49	Tue 28 23:39
October	Wed 6 08:05	Tue 12 21:08	Wed 20 12:26	Thu 28 08:27
November	Thu 4 20:16	Thu 11 00:32	Fri 19 08:44	Sat 27 00:13
December	Sat 4 07:56	Fri 10 17:13	Sun 19 04:41	Mon 27 00:43
Tidal Phase	spring 	neap 	spring 	neap 

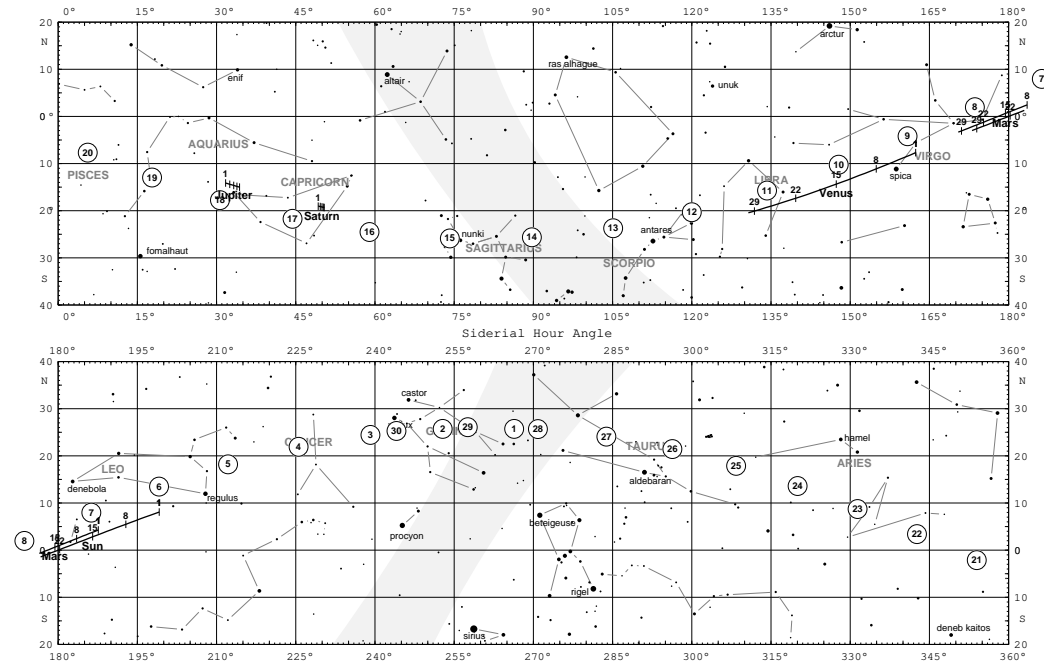
Lunar Phases and Tides

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.

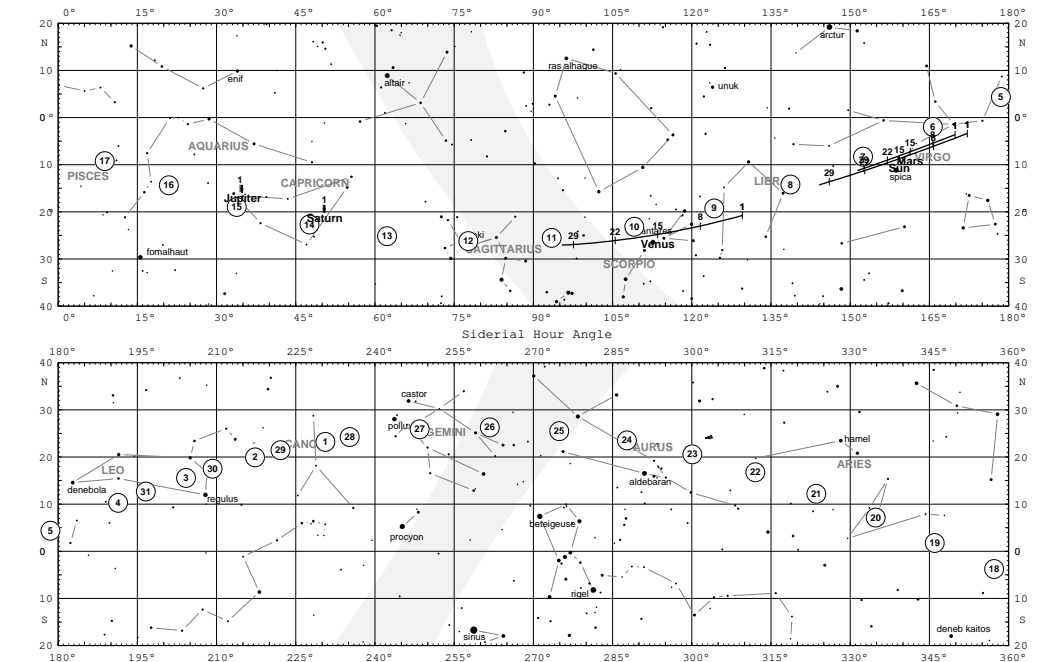
Each tidal region on Earth, has a characteristic "tidal delay" which, specifies the time difference between the occurrence of a particular lunar phase and the occurrence of the resulting tidal phase. The tidal delay can be a couple of hours for the open seas, or up to several days for branched tidal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

Reliable tidal predictions are obtained from a Tidal Almanac.

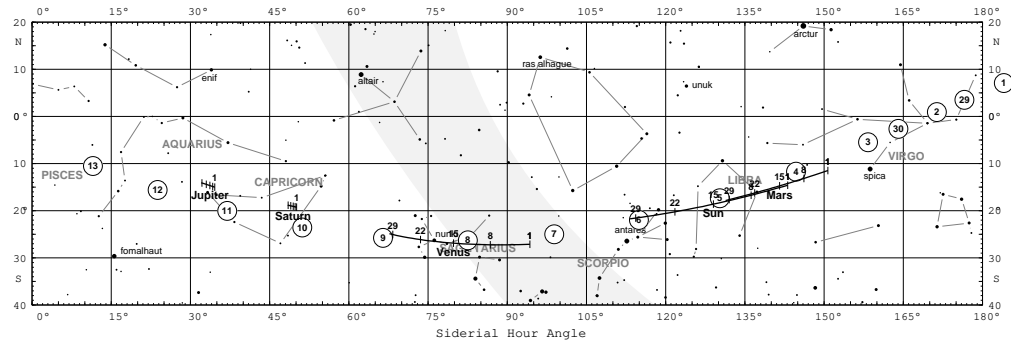
September 2021



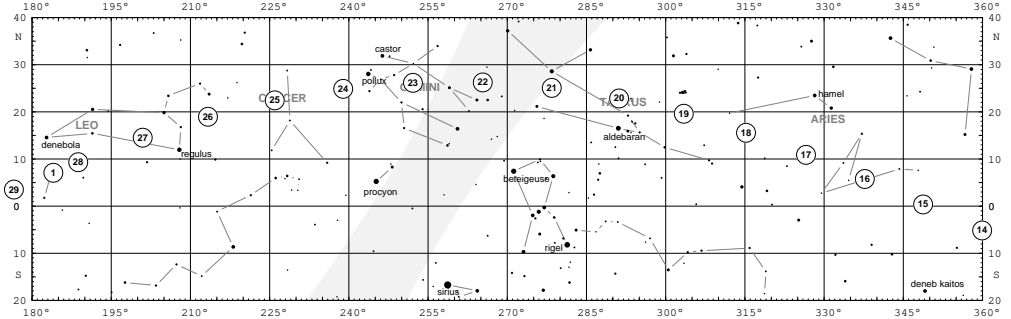
October 2021



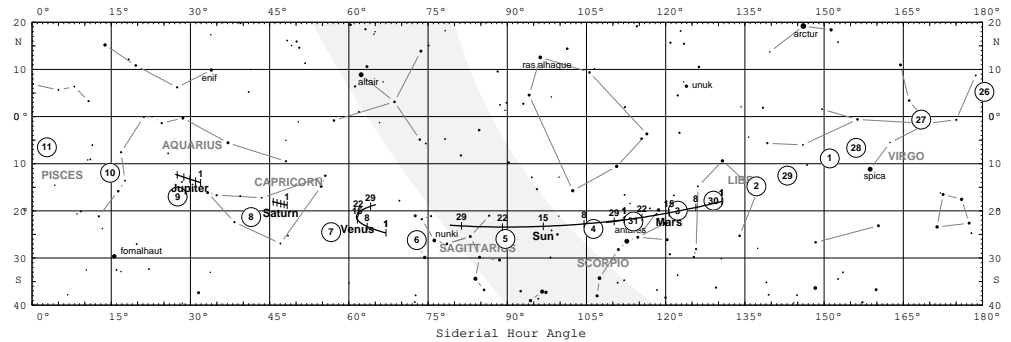
November 2021



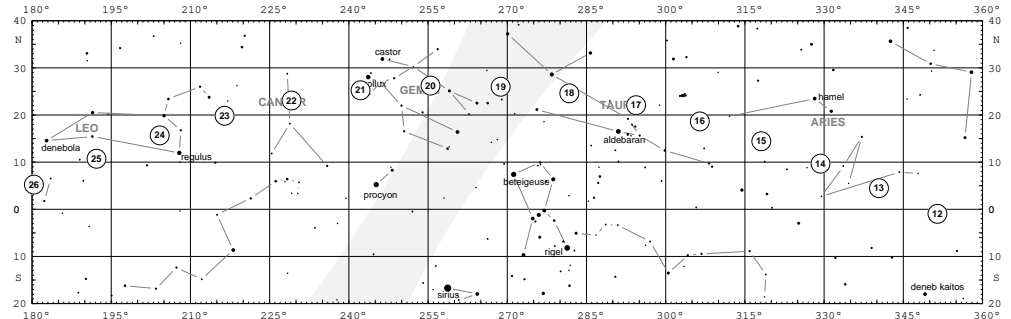
Sidereal Hour Angle



December 2021



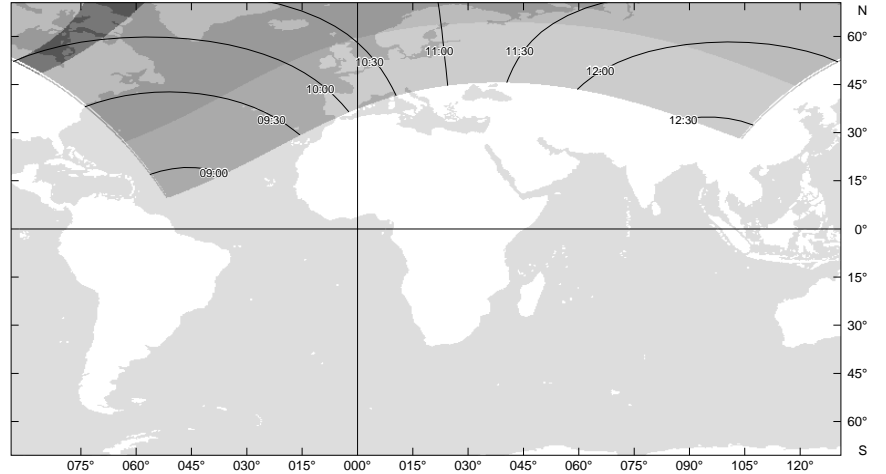
Sidereal Hour Angle



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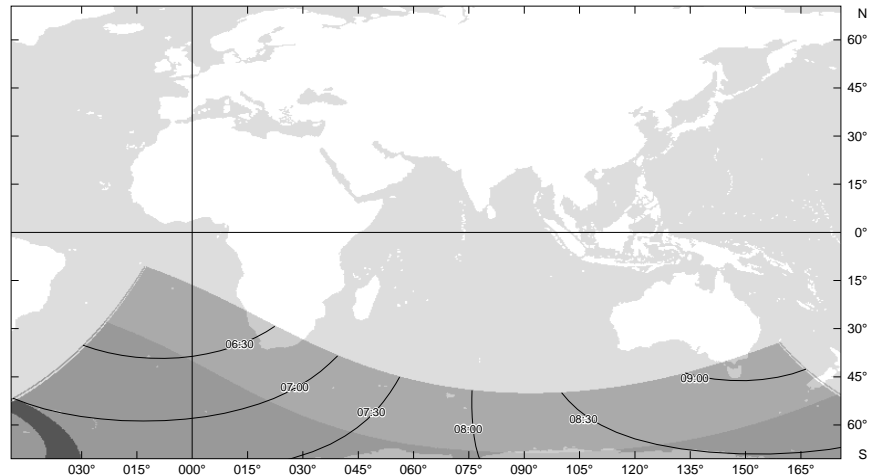
The following solar eclipses may be observed during the year 2021:

June 10 : annular solar eclipse begin [Jun 10, 08:12 UT] / end [Jun 10, 13:11 UT]



Circumstances at Moment of Greatest Eclipse		First Contacts (P1/U1)		Last Contacts (U4/P4)	
Time:	10:45 UT	Duration (full):	4.7 min	Penumbra	Umbr
Location:	N 82.3 W 062.4	Path Width:	637 km	08:12 UT	09:49 UT
				11:34 UT	13:11 UT

December 4 : total solar eclipse begin [Dec 4, 05:29 UT] / end [Dec 4, 09:38 UT]



Circumstances at Moment of Greatest Eclipse		First Contacts (P1/U1)		Last Contacts (U4/P4)	
Time:	07:37 UT	Duration (full):	2.0 min	Penumbra	Umbr
Location:	S 78.5 W 045.3	Path Width:	415 km	05:29 UT	07:00 UT
				08:07 UT	09:38 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:

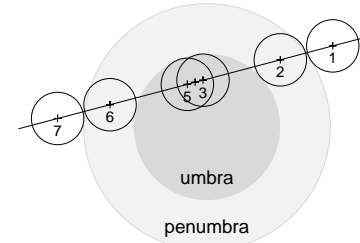
1. Penumbral Lunar Eclipse: the Moon passes through the Earth's penumbral shadow. These kind of eclipses are subtle and very difficult to observe.
2. Partial Lunar Eclipse: a part of the Moon passes through the Earth's umbral shadow.
3. Total Lunar Eclipse: the Moon passes entirely through the Earth's 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 2021:

May 26 : a total lunar eclipse begin [May 26, 08:54 UTC] / end [May 26, 13:40 UTC]

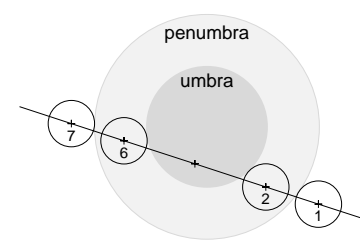
Rp = 1.308°
 Ru = 0.776°
 SD = 0.278°



- May 26**
- 1 - 08:54 UTC begin of penumbral eclipse (P1)
 - 2 - 09:49 UTC begin of partial eclipse (U1)
 - 3 - 11:09 UTC begin of total eclipse (U2)
 - 4 - 11:17 UTC moment of greatest eclipse
 - 5 - 11:25 UTC end of total eclips (U3)
 - 6 - 12:45 UTC end of partial eclipse (U4)
 - 7 - 13:40 UTC end of penumbral eclipse (P4)

November 19 : a partial lunar eclipse begin [Nov 19, 06:08 UTC] / end [Nov 19, 11:54 UTC]

Rp = 1.192°
 Ru = 0.647°
 SD = 0.246°



- November 19**
- 1 - 06:08 UTC begin of penumbral eclipse (P1)
 - 2 - 07:22 UTC begin of partial eclipse (U1)
 - 3 - 09:01 UTC moment of greatest eclipse
 - 4 - 10:41 UTC end of partial eclipse (U4)
 - 5 - 11:54 UTC end of penumbral eclipse (P4)

Solar Eclipses

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

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

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

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

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

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Equation of Time

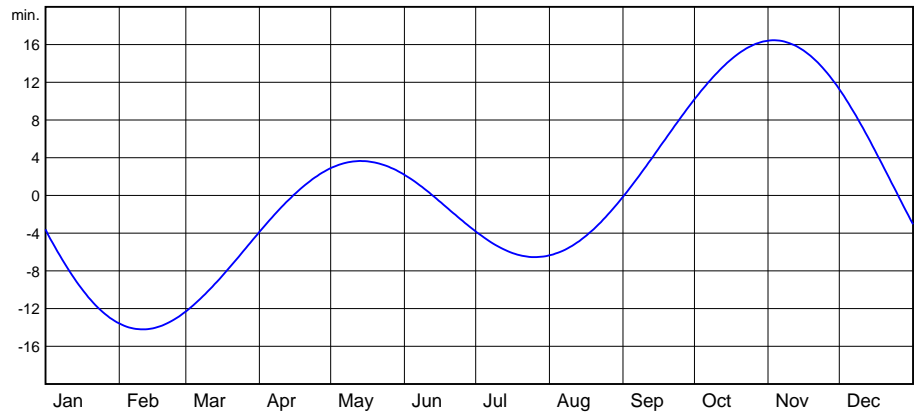
The "Equation of Time" is the difference between the Apparent Solar Time and the Mean Solar Time at the Prime Meridian of Greenwich. The value for the Equation of Time (EoT) for a specific day can be obtained from the Nautical Almanac. The section of the Sun records the "Greenwich Culmination Time" (GCT),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

Examples:

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

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

The graph below shows the values for the "Equation of Time" (in Minutes) for the year 2021.



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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:

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For more information please refer to the following web site: "<http://www.sirarah.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. Includes data for positions and times for each planet and the Moon on January 4, 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions and times for each planet and the Moon on January 1, 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions and times for Mars, Jupiter, and Saturn on January 4, 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions and times for Mars, Jupiter, and Saturn on January 1, 2021.

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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°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 077° 077° 077° 077° 077° 076°
Greenwich Culmination Time: 12:04

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

UT 02 06 10 14 18 22
SD 00°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 334° 334° 334° 334° 334° 334°
Greenwich Culmination Time: 18:52

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° 076° 075° 075° 075°
Greenwich Culmination Time: 12:04

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

UT 02 06 10 14 18 22
SD 00°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 334° 334° 334° 334° 334° 334°
Greenwich Culmination Time: 18:50

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

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

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

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

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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.

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	35.0	-00.2	S 20 56.0	-00.5	195	37.7	-00.9	S 23 05.8	-00.1	140	51.8	-29.3	S 15 43.8	-10.9	00
01	192	34.8	-00.2	S 20 55.5	-00.5	210	36.8	-00.9	S 23 05.7	-00.1	155	22.5	-29.2	S 15 32.9	-10.9	01
02	207	34.6	-00.2	S 20 55.0	-00.4	225	35.9	-01.0	S 23 05.6	-00.2	169	53.3	-29.1	S 15 22.0	-11.1	02
03	222	34.4	-00.3	S 20 54.6	-00.5	240	34.9	-00.9	S 23 05.4	-00.1	184	24.2	-29.1	S 15 10.9	-11.0	03
04	237	34.1	-00.2	S 20 54.1	-00.5	255	34.0	-01.0	S 23 05.3	-00.1	198	55.1	-28.9	S 14 59.9	-11.2	04
05	252	33.9	-00.2	S 20 53.6	-00.5	270	33.0	-00.9	S 23 05.2	-00.1	213	26.2	-28.8	S 14 48.7	-11.2	05
06	267	33.7	-00.2	S 20 53.1	-00.4	285	32.1	-01.0	S 23 05.1	-00.1	227	57.4	-28.8	S 14 37.5	-11.2	06
07	282	33.5	-00.2	S 20 52.7	-00.5	300	31.1	-00.9	S 23 05.0	-00.1	242	28.6	-28.7	S 14 26.3	-11.3	07
08	297	33.3	-00.2	S 20 52.2	-00.5	315	30.2	-00.9	S 23 04.9	-00.2	256	59.9	-28.5	S 14 15.0	-11.4	08
09	312	33.1	-00.2	S 20 51.7	-00.5	330	29.3	-01.0	S 23 04.7	-00.1	271	31.4	-28.5	S 14 03.6	-11.4	09
10	327	32.9	-00.2	S 20 51.2	-00.5	345	28.3	-00.9	S 23 04.6	-00.1	286	02.9	-28.4	S 13 52.2	-11.5	10
11	342	32.7	-00.3	S 20 50.7	-00.5	0	27.4	-01.0	S 23 04.5	-00.1	300	34.5	-28.3	S 13 40.7	-11.5	11
12	357	32.4	-00.2	S 20 50.2	-00.4	15	26.4	-00.9	S 23 04.4	-00.2	315	06.2	-28.3	S 13 29.2	-11.6	12
13	12	32.2	-00.2	S 20 49.8	-00.5	30	25.5	-01.0	S 23 04.2	-00.1	329	37.9	-28.1	S 13 17.6	-11.6	13
14	27	32.0	-00.2	S 20 49.3	-00.5	45	24.5	-00.9	S 23 04.1	-00.1	344	09.8	-28.1	S 13 06.0	-11.7	14
15	42	31.8	-00.2	S 20 48.8	-00.5	60	23.6	-00.9	S 23 04.0	-00.2	358	41.7	-28.0	S 12 54.3	-11.7	15
16	57	31.6	-00.2	S 20 48.3	-00.5	75	22.7	-01.0	S 23 03.8	-00.1	13	13.7	-27.9	S 12 42.6	-11.7	16
17	72	31.4	-00.2	S 20 47.8	-00.5	90	21.7	-00.9	S 23 03.7	-00.1	27	45.8	-27.8	S 12 30.9	-11.8	17
18	87	31.2	-00.2	S 20 47.3	-00.5	105	20.8	-01.0	S 23 03.6	-00.2	42	18.0	-27.8	S 12 19.1	-11.9	18
19	102	31.0	-00.2	S 20 46.8	-00.5	120	19.8	-00.9	S 23 03.4	-00.1	56	50.2	-27.6	S 12 07.2	-11.9	19
20	117	30.8	-00.2	S 20 46.3	-00.5	135	18.9	-00.9	S 23 03.3	-00.1	71	22.6	-27.6	S 11 55.3	-11.9	20
21	132	30.6	-00.2	S 20 45.8	-00.4	150	18.0	-01.0	S 23 03.2	-00.2	85	55.0	-27.5	S 11 43.4	-12.0	21
22	147	30.4	-00.3	S 20 45.4	-00.5	165	17.0	-00.9	S 23 03.0	-00.1	100	27.5	-27.5	S 11 31.4	-12.0	22
23	162	30.1	-00.2	S 20 44.9	-00.5	180	16.1	-01.0	S 23 02.9	-00.1	115	00.0	-27.3	S 11 19.4	-12.0	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 062° 062° 061° 061° 061° 061°	Greenwich Culmination Time: 12:09	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 080° 080° 079° 079° 079° 079°	Greenwich Culmination Time: 10:58	UT 02 06 10 14 18 22	SD 15°4 15°4 15°3 15°3 15°3 15°2	HP 56°6 56°4 56°3 56°2 56°1 56°0	SHA 016° 021° 020° 018° 016° 014°	Greenwich Culmination Time: 15:05		

UT	Sun				Venus				Moon				UT			
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec				
00	177	51.2	-00.2	S 21 28.5	-00.4	196	45.8	-00.9	S 23 10.5	+00.0	180	17.1	-35.9	S 24 31.6	-02.7	00
01	192	51.0	-00.2	S 21 28.1	-00.5	211	44.9	-01.0	S 23 10.5	+00.0	194	41.2	-35.8	S 24 28.9	-02.9	01
02	207	50.8	-00.3	S 21 27.6	-00.4	226	43.9	-00.9	S 23 10.5	+00.0	209	05.4	-35.8	S 24 26.0	-03.0	02
03	222	50.5	-00.2	S 21 27.2	-00.4	241	43.0	-01.0	S 23 10.5	+00.0	223	29.6	-35.7	S 24 23.0	-03.1	03
04	237	50.3	-00.2	S 21 26.8	-00.4	256	42.0	-00.9	S 23 10.5	-00.1	237	53.9	-35.7	S 24 19.9	-03.3	04
05	252	50.1	-00.3	S 21 26.4	-00.5	271	41.1	-01.0	S 23 10.4	+00.0	252	18.2	-35.5	S 24 16.6	-03.5	05
06	267	49.8	-00.2	S 21 25.9	-00.4	286	40.1	-00.9	S 23 10.4	+00.0	266	42.7	-35.6	S 24 13.1	-03.6	06
07	282	49.6	-00.2	S 21 25.5	-00.4	301	39.2	-01.0	S 23 10.4	-00.1	281	07.1	-35.4	S 24 09.5	-03.8	07
08	297	49.4	-00.3	S 21 25.1	-00.5	316	38.2	-00.9	S 23 10.3	+00.0	295	31.7	-35.4	S 24 05.7	-03.9	08
09	312	49.1	-00.2	S 21 24.6	-00.4	331	37.3	-00.9	S 23 10.3	+00.0	309	56.3	-35.3	S 24 01.8	-04.1	09
10	327	48.9	-00.2	S 21 24.2	-00.4	346	36.4	-01.0	S 23 10.3	-00.1	324	21.0	-35.3	S 23 57.7	-04.2	10
11	342	48.7	-00.3	S 21 23.8	-00.5	1	35.4	-00.9	S 23 10.2	+00.0	338	45.7	-35.1	S 23 53.5	-04.4	11
12	357	48.4	-00.2	S 21 23.3	-00.4	16	34.5	-01.0	S 23 10.2	+00.0	353	10.6	-35.1	S 23 49.1	-04.5	12
13	12	48.2	-00.2	S 21 22.9	-00.4	31	33.5	-00.9	S 23 10.2	-00.1	7	35.5	-35.0	S 23 44.6	-04.7	13
14	27	48.0	-00.3	S 21 22.5	-00.5	46	32.6	-01.0	S 23 10.1	+00.0	22	00.5	-34.9	S 23 39.9	-04.8	14
15	42	47.7	-00.2	S 21 22.0	-00.4	61	31.6	-00.9	S 23 10.1	-00.1	36	25.6	-34.9	S 23 35.1	-05.0	15
16	57	47.5	-00.2	S 21 21.6	-00.4	76	30.7	-01.0	S 23 10.0	+00.0	50	50.7	-34.7	S 23 30.1	-05.1	16
17	72	47.3	-00.3	S 21 21.2	-00.5	91	29.7	-00.9	S 23 10.0	+00.0	65	16.0	-34.7	S 23 25.0	-05.3	17
18	87	47.0	-00.2	S 21 20.7	-00.4	106	28.8	-01.0	S 23 10.0	-00.1	79	41.3	-34.6	S 23 19.7	-05.3	18
19	102	46.8	-00.2	S 21 20.3	-00.5	121	27.8	-00.9	S 23 09.9	+00.0	94	06.7	-34.5	S 23 14.4	-05.6	19
20	117	46.6	-00.3	S 21 19.8	-00.4	136	26.9	-01.0	S 23 09.9	-00.1	108	32.2	-34.4	S 23 08.8	-05.6	20
21	132	46.3	-00.2	S 21 19.4	-00.4	151	25.9	-00.9	S 23 09.8	+00.0	122	57.8	-34.4	S 23 03.2	-05.9	21
22	147	46.1	-00.2	S 21 19.0	-00.5	166	25.0	-01.0	S 23 09.8	-00.1	137	23.4	-34.2	S 22 57.3	-05.9	22
23	162	45.9	-00.2	S 21 18.5	-00.4	181	24.0	-00.9	S 23 09.7	+00.0	151	49.2	-34.2	S 22 51.4	-06.1	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 065° 065° 065° 065° 064° 064°	Greenwich Culmination Time: 12:08	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 084° 084° 084° 083° 083° 083°	Greenwich Culmination Time: 10:53	UT 02 06 10 14 18 22	SD 16°0 16°0 15°9 15°9 15°9 15°8	HP 58°7 58°6 58°5 58°4 58°2 58°1	SHA 066° 064° 061° 059° 056° 054°	Greenwich Culmination Time: 12:28		

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°3 16°3 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 064° 064° 064° 063° 063° 063°
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°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 329° 329° 329° 329° 329° 329°
Greenwich Culmination Time: 18:26

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

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

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

UT 02 06 10 14 18 22
SD 00°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 051° 051° 051° 051° 051° 051°
Greenwich Culmination Time: 12:53

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for these planets on January 20, 2021.

UT 02 06 10 14 18 22 SD 16°3 16°3 16°3 16°3 16°3 16°3 ... Greenwich Culmination Time: 12:11

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for these planets on January 20, 2021.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 ... Greenwich Culmination Time: 18:14

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for these planets on January 17, 2021.

UT 02 06 10 14 18 22 SD 16°3 16°3 16°3 16°3 16°3 16°3 ... Greenwich Culmination Time: 12:10

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for these planets on January 17, 2021.

UT 02 06 10 14 18 22 SD 00°1 00°1 00°1 00°1 00°1 00°1 ... Greenwich Culmination Time: 18:20

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:10.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:10.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 18:18.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 18:16.

Table with columns for Sun, Venus, and Moon. Includes UT, GHA, ddGHA, Dec, dDec, and A: 34%.

Table with columns for Sun, Venus, and Moon. Includes UT, GHA, ddGHA, Dec, dDec, and A: 25%.

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

Table with columns for Mars, Jupiter, and Saturn. Includes 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 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 055° 055° 055° 055° 055° 055°
Greenwich Culmination Time: 12:11

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

UT 02 06 10 14 18 22
SD 00°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 325° 325° 325° 325° 325° 325°
Greenwich Culmination Time: 18:10

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

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

UT 02 06 10 14 18 22
SD 00°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 050° 049° 049° 049° 049° 049°
Greenwich Culmination Time: 12:30

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.

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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) 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°0 00°0 00°0 00°0 00°0 00°0
SHA 323° 323° 323° 323° 323° 323°
Greenwich Culmination Time: 18:02

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

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 050° 050° 050° 050° 050° 049°
Greenwich Culmination Time: 12:12

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes 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 049° 048° 048° 048° 048° 048°
Greenwich Culmination Time: 12:18

Table with 5 columns: UT, Sun, Venus, Moon, UT. Rows 00-23. Moon A: 63%. Includes RA/Dec and Mag data for each planet.

Sub-table with 5 columns: UT, Sun, Venus, Moon, UT. Rows 02-22. Includes SHA and Greenwich Culmination Time for each planet.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23. Includes RA/Dec and Mag data for each planet.

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Table with 5 columns: UT, Sun, Venus, Moon, UT. Rows 00-23. Moon A: 52%. Includes RA/Dec and Mag data for each planet.

Sub-table with 5 columns: UT, Sun, Venus, Moon, UT. Rows 02-22. Includes SHA and Greenwich Culmination Time for each planet.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23. Includes RA/Dec and Mag data for each planet.

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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 041° 041° 041° 041° 041° 040°
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°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 318° 318° 318° 318° 318° 318°
Greenwich Culmination Time: 17:44

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° 044° 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°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 320° 320° 320° 319° 319° 319°
Greenwich Culmination Time: 17:49

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

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

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

UT 02 06 10 14 18 22
SD 00°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 316° 316° 316° 316° 315°
Greenwich Culmination Time: 17:37

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°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 040° 040° 040° 040° 039° 039°
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°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 318° 317° 317° 317° 317° 317°
Greenwich Culmination Time: 17:42

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 039° 039° 039° 039° 038° 038°
Greenwich Culmination Time: 12:14

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°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 317° 317° 317° 317° 317° 317°
Greenwich Culmination Time: 17:41

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 038° 038° 038° 038° 037° 037°
Greenwich Culmination Time: 12:14

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°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 316° 316° 316° 316° 316° 316°
Greenwich Culmination Time: 17:39

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for February 13, 2021, such as GHA, ddGHA, Dec, and dDec for each planet.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for February 10, 2021, such as GHA, ddGHA, Dec, and dDec for each planet.

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 035° 035° 035° 035° 034° 034°
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°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 315° 315° 315° 314° 314°
Greenwich Culmination Time: 17:34

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

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

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

UT 02 06 10 14 18 22
SD 00°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 314° 314° 314° 314° 314°
Greenwich Culmination Time: 17:32

Table with 14 columns for Sun, Venus, Moon, and UT. Columns include GHA, ddGHA, Dec, dDec, and UT. Data is organized in columns for each celestial body.

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

Table with 14 columns for Mars, Jupiter, Saturn, and UT. Columns include GHA, ddGHA, Dec, dDec, and UT. Data is organized in columns for each celestial body.

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Table with 14 columns for Sun, Venus, Moon, and UT. Columns include GHA, ddGHA, Dec, dDec, and UT. Data is organized in columns for each celestial body.

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 032° 032° 032° 032° 031° 031°
Greenwich Culmination Time: 12:14

Table with 14 columns for Mars, Jupiter, Saturn, and UT. Columns include GHA, ddGHA, Dec, dDec, and UT. Data is organized in columns for each celestial body.

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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 031° 031° 031° 031° 031° 031°
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°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 313° 312° 312° 312° 312° 312°
Greenwich Culmination Time: 17:27

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° 030° 030° 029°
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°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 312° 312° 312° 312° 312° 312°
Greenwich Culmination Time: 17:25

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 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 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 309° 309° 309° 309° 309° 309°
Greenwich Culmination Time: 17:17

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 028° 028° 028° 028° 028° 027°
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°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 311° 311° 311° 311° 310° 310°
Greenwich Culmination Time: 17:22

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

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

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

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

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes 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 022° 021° 021° 021° 021° 021°
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°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 307° 307° 307° 306° 306° 306°
Greenwich Culmination Time: 17:11

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°1 00°1 00°1 00°1 00°1 00°1
SHA 024° 024° 024° 024° 024° 024°
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°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 309° 308° 308° 308° 308° 308°
Greenwich Culmination Time: 17:16

Table for Sun, Venus, and Moon on Feb 23. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 36%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on Feb 23. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 36%. Rows 00-23.

Table for Sun, Venus, and Moon on Feb 24. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 40%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on Feb 24. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 40%. Rows 00-23.

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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°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 018° 018° 017° 017° 017° 017°
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°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 304° 304° 304° 304° 304° 304°
Greenwich Culmination Time: 17:05

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 021° 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°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 306° 306° 306° 306° 306° 306°
Greenwich Culmination Time: 17:09

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: UT, Sun, Venus, Moon, A: 72%, UT. Includes sub-tables for UT 00-23 and UT 02-22 for each planet. Sub-headers: GHA, ddGHA, Dec, dDec. Sub-data: SD 16°1 16°1, HP 00°1, SHA 014°.

Table with columns: UT, Sun, Venus, Moon, A: 61%, UT. Includes sub-tables for UT 00-23 and UT 02-22 for each planet. Sub-headers: GHA, ddGHA, Dec, dDec. Sub-data: SD 16°1 16°1, HP 00°1, SHA 017°.

Table with columns: UT, Mars, Jupiter, Saturn, UT. Includes sub-tables for UT 00-23 and UT 02-22 for each planet. Sub-headers: GHA, ddGHA, Dec, dDec. Sub-data: SD 00°1, HP 00°0, SHA 302°.

Table with columns: UT, Mars, Jupiter, Saturn, UT. Includes sub-tables for UT 00-23 and UT 02-22 for each planet. Sub-headers: GHA, ddGHA, Dec, dDec. Sub-data: SD 00°1, HP 00°0, SHA 304°.

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 016° 016° 016° 015° 015° 015°
Greenwich Culmination Time: 12:11

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 015° 015° 015° 015° 014° 014°
Greenwich Culmination Time: 12:11

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

UT 02 06 10 14 18 22
SD 00°1 00°1 00°1 00°1 00°1 00°1
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 303° 303° 303° 303° 303° 303°
Greenwich Culmination Time: 17:02

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

UT 02 06 10 14 18 22
SD 00°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 040° 040° 040° 040° 040° 040°
Greenwich Culmination Time: 10:30

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

UT 02 06 10 14 18 22
SD 16°1 06'1 16°1 06'1 16°1 06'1
HP 00°1 00'1 00°1 00'1 00°1 00'1
SHA 010° 010° 010° 010° 010° 010°
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.

UT 02 06 10 14 18 22
SD 16°1 06'1 16°1 06'1 16°1 06'1
HP 00°1 00'1 00°1 00'1 00°1 00'1
SHA 013° 013° 013° 013° 013° 016°
Greenwich Culmination Time: 12:11

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

UT 02 06 10 14 18 22
SD 00°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 299° 299° 299° 299° 299° 299°
Greenwich Culmination Time: 16:53

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 301° 301° 301° 301° 301° 301°
Greenwich Culmination Time: 16:57

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°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 00°7 00°7 00°6 00°6 00°6 00°6
Greenwich Culmination Time: 12:09

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

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 00°9 00°9 00°9 00°9 00°9 00°9
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 297° 297° 297° 297° 297° 296°
Greenwich Culmination Time: 16:47

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°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 039° 039° 039° 039° 039° 039°
Greenwich Culmination Time: 10:12

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

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 009° 008° 008° 008° 008° 008°
Greenwich Culmination Time: 12:09

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 298° 298° 298° 298° 298° 298°
Greenwich Culmination Time: 16:50

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

UT 02 06 10 14 18 22
SD 16°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° 007° 007° 007° 007° 007°
Greenwich Culmination Time: 12:09

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 298° 298° 297° 297° 297° 297°
Greenwich Culmination Time: 16:48

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 SHA and Greenwich Culmination Time for each planet.

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

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

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

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes 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 005° 005° 005° 004° 004° 004°
Greenwich Culmination Time: 12:08

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

UT 02 06 10 14 18 22
SD 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 004° 004° 004° 003° 003° 003°
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 296° 296° 296° 295° 295° 295°
Greenwich Culmination Time: 16:44

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 295° 295° 295° 295° 295° 295°
Greenwich Culmination Time: 16:43

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°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° 359°
Greenwich Culmination Time: 12:07

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°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 002° 002° 002° 002° 002° 001°
Greenwich Culmination Time: 12:07

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°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 292° 292° 292° 292° 291°
Greenwich Culmination Time: 16:36

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°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 294° 294° 294° 294° 293° 293°
Greenwich Culmination Time: 16:40

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes Greenwich Culmination Time: 12:07.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes Greenwich Culmination Time: 16:38.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes Greenwich Culmination Time: 12:07.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes Greenwich Culmination Time: 16:37.

Table with columns for Sun, Venus, and Moon. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:05.

Table with columns for Sun, Venus, and Moon. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 12:06.

Table with columns for Mars, Jupiter, and Saturn. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 16:30.

Table with columns for Mars, Jupiter, and Saturn. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for days 00-23 and Greenwich Culmination Time: 16:34.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA/Dec coordinates and magnitude 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 358° 357° 357° 357° 357° 357°
Greenwich Culmination Time: 12:06

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes RA/Dec coordinates and magnitude 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 357° 356° 356° 356° 356° 356°
Greenwich Culmination Time: 12:06

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

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 291° 291° 290° 290° 290° 290°
Greenwich Culmination Time: 16:33

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

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 290° 290° 290° 290° 290° 289°
Greenwich Culmination Time: 16:32

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

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 352° 352° 352° 352° 351° 351°
Greenwich Culmination Time: 12:04

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 287° 287° 287° 286° 286° 286°
Greenwich Culmination Time: 16:25

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

UT 02 06 10 14 18 22
SD 16°0 16°0 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 355° 355° 355° 354° 354° 354°
Greenwich Culmination Time: 12:05

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 289° 289° 289° 288° 288° 288°
Greenwich Culmination Time: 16:29

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°0 06°10 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 354° 354° 354° 353° 353° 353°
Greenwich Culmination Time: 12:05

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 06°10 16°0 16°0 16°0 16°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 353° 353° 353° 353° 352° 352°
Greenwich Culmination Time: 12:04

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 288° 288° 288° 288° 288° 288°
Greenwich Culmination Time: 16:27

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 287° 287° 287° 287° 287° 287°
Greenwich Culmination Time: 16:26

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

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

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

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

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

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

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

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

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° 346° 346° 346° 346° 346°
Greenwich Culmination Time: 12:02

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

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 283° 283° 283° 283° 282° 282°
Greenwich Culmination Time: 16:17

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 346° 346° 345° 345° 345° 345°
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°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 282° 282° 282° 282° 282° 282°
Greenwich Culmination Time: 16:15

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179	54.7	+00.2	N 09 24.6	175	02.4	-00.5	N 10 15.3	159	10.8	-26.0	N 14 07.6	00
01	194	54.9	+00.1	N 09 25.5	190	01.9	-00.4	N 10 16.5	173	44.8	-26.0	N 14 18.4	01
02	209	55.0	+00.2	N 09 26.4	205	01.5	-00.5	N 10 17.7	188	18.8	-26.1	N 14 29.1	02
03	224	55.2	+00.1	N 09 27.3	220	00.0	-00.4	N 10 18.8	202	52.7	-26.1	N 14 39.8	03
04	239	55.3	+00.2	N 09 28.2	235	00.6	-00.5	N 10 20.0	217	26.6	-26.2	N 14 50.5	04
05	254	55.5	+00.1	N 09 29.1	250	00.1	-00.4	N 10 21.2	232	00.4	-26.2	N 15 01.1	05
06	269	55.6	+00.2	N 09 30.0	264	59.7	-00.5	N 10 22.3	246	34.2	-26.2	N 15 11.6	06
07	284	55.8	+00.1	N 09 30.9	279	59.2	-00.4	N 10 23.5	261	08.0	-26.3	N 15 22.0	07
08	299	55.9	+00.2	N 09 31.8	294	58.8	-00.5	N 10 24.6	275	41.7	-26.3	N 15 32.4	08
09	314	56.1	+00.1	N 09 32.7	309	58.3	-00.4	N 10 25.8	290	15.4	-26.4	N 15 42.7	09
10	329	56.2	+00.2	N 09 33.6	324	57.9	-00.5	N 10 27.0	304	49.0	-26.4	N 15 53.0	10
11	344	56.4	+00.1	N 09 34.5	339	57.4	-00.5	N 10 28.1	319	22.6	-26.5	N 16 03.2	11
12	359	56.5	+00.2	N 09 35.4	354	56.9	-00.4	N 10 29.3	333	56.1	-26.5	N 16 13.3	12
13	14	56.7	+00.1	N 09 36.3	9	56.5	-00.5	N 10 30.4	348	29.6	-26.5	N 16 23.4	13
14	29	56.8	+00.2	N 09 37.2	24	56.0	-00.4	N 10 31.6	3	03.1	-26.6	N 16 33.4	14
15	44	57.0	+00.1	N 09 38.0	39	55.6	-00.5	N 10 32.7	17	36.5	-26.7	N 16 43.4	15
16	59	57.1	+00.2	N 09 38.9	54	55.1	-00.4	N 10 33.9	32	09.8	-26.7	N 16 53.2	16
17	74	57.3	+00.2	N 09 39.8	69	54.7	-00.5	N 10 35.1	46	43.1	-26.7	N 17 03.0	17
18	89	57.5	+00.1	N 09 40.7	84	54.2	-00.4	N 10 36.2	61	16.4	-26.8	N 17 12.7	18
19	104	57.6	+00.2	N 09 41.6	99	53.8	-00.5	N 10 37.4	75	49.6	-26.9	N 17 22.4	19
20	119	57.8	+00.1	N 09 42.5	114	53.3	-00.5	N 10 38.5	90	22.7	-26.8	N 17 31.9	20
21	134	57.9	+00.2	N 09 43.4	129	52.8	-00.4	N 10 39.7	104	55.9	-27.0	N 17 41.4	21
22	149	58.1	+00.1	N 09 44.3	144	52.4	-00.5	N 10 40.8	119	28.9	-27.0	N 17 50.9	22
23	164	58.2	+00.2	N 09 45.2	159	51.9	-00.4	N 10 42.0	134	01.9	-27.0	N 18 00.2	23
UT 02 06 10 14 18 22	SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°7' 14°7' 14°7' 14°7' 14°7' 14°7'	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'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'						
SHA 337° 337° 337° 337° 337° 337°	SHA 333° 332° 332° 332° 332° 332°	SHA 333° 332° 332° 332° 332° 332°	SHA 333° 332° 332° 332° 332° 332°	SHA 316° 314° 312° 310° 308° 306°	SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 336° 336° 336° 335° 335° 335°						
Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 13:47	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 11:42						

UT	Sun				Venus				Moon				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	179	43.2	+00.2	N 08 19.0	175	34.1	-00.5	N 08 50.6	189	18.8	-24.9	S 00 35.1	00
01	194	43.4	+00.2	N 08 20.0	190	33.6	-00.4	N 08 51.8	203	53.9	-24.9	S 00 22.1	01
02	209	43.6	+00.1	N 08 20.9	205	33.2	-00.4	N 08 53.0	218	29.0	-24.9	S 00 09.0	02
03	224	43.7	+00.2	N 08 21.8	220	32.8	-00.5	N 08 54.1	233	04.1	-24.9	S 00 04.0	03
04	239	43.9	+00.1	N 08 22.7	235	32.3	-00.4	N 08 55.3	247	39.2	-24.8	N 00 17.0	04
05	254	44.0	+00.2	N 08 23.6	250	31.9	-00.4	N 08 56.5	262	14.4	-24.9	N 00 30.0	05
06	269	44.2	+00.2	N 08 24.6	265	31.5	-00.4	N 08 57.7	276	49.5	-24.8	N 00 43.0	06
07	284	44.4	+00.1	N 08 25.5	280	31.1	-00.5	N 08 58.9	291	24.7	-24.8	N 00 56.0	07
08	299	44.5	+00.2	N 08 26.4	295	30.6	-00.4	N 09 00.1	305	59.9	-24.9	N 01 09.0	08
09	314	44.7	+00.2	N 08 27.3	310	30.2	-00.4	N 09 01.3	320	35.0	-24.8	N 01 22.0	09
10	329	44.9	+00.1	N 08 28.2	325	29.8	-00.5	N 09 02.5	335	10.2	-24.8	N 01 35.0	10
11	344	45.0	+00.2	N 08 29.1	340	29.3	-00.4	N 09 03.7	349	45.4	-24.8	N 01 47.9	11
12	359	45.2	+00.2	N 08 30.1	355	28.9	-00.4	N 09 04.8	4	20.6	-24.8	N 02 00.9	12
13	14	45.4	+00.1	N 08 31.0	10	28.5	-00.5	N 09 06.0	18	55.8	-24.8	N 02 13.8	13
14	29	45.5	+00.2	N 08 31.9	25	28.0	-00.4	N 09 07.2	33	31.0	-24.8	N 02 26.7	14
15	44	45.7	+00.1	N 08 32.8	40	27.6	-00.4	N 09 08.4	48	06.2	-24.8	N 02 39.6	15
16	59	45.8	+00.2	N 08 33.7	55	27.2	-00.5	N 09 09.6	62	41.4	-24.8	N 02 52.5	16
17	74	46.0	+00.2	N 08 34.6	70	26.7	-00.4	N 09 10.8	77	16.6	-24.8	N 03 05.4	17
18	89	46.2	+00.1	N 08 35.6	85	26.3	-00.4	N 09 12.0	91	51.8	-24.8	N 03 18.2	18
19	104	46.3	+00.2	N 08 36.5	100	25.9	-00.5	N 09 13.1	106	27.0	-24.8	N 03 31.1	19
20	119	46.5	+00.1	N 08 37.4	115	25.4	-00.4	N 09 14.3	121	02.2	-24.8	N 03 43.9	20
21	134	46.6	+00.2	N 08 38.3	130	25.0	-00.5	N 09 15.5	135	37.4	-24.8	N 03 56.7	21
22	149	46.8	+00.2	N 08 39.2	145	24.5	-00.4	N 09 16.7	150	12.6	-24.8	N 04 09.5	22
23	164	47.0	+00.1	N 08 40.1	160	24.1	-00.4	N 09 17.9	164	47.8	-24.8	N 04 22.3	23
UT 02 06 10 14 18 22	SD 16°0' 16°0' 16°0' 16°0' 16°0' 16°0'	UT 02 06 10 14 18 22	SD 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	UT 02 06 10 14 18 22	SD 14°9' 14°9' 14°8' 14°8' 14°8' 14°8'	UT 02 06 10 14 18 22	SD 14°9' 14°9' 14°8' 14°8' 14°8' 14°8'						
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'	HP 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'						
SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 340° 340° 340° 340° 340° 339°	SHA 349° 347° 345° 344° 342° 340°						
Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:00	Greenwich Culmination Time: 12:18	Greenwich Culmination Time: 12:18	Greenwich Culmination Time: 12:18	Greenwich Culmination Time: 12:18	Greenwich Culmination Time: 11:42						

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Table with 14 columns: UT, Sun (GHA, ddGHA, Dec, dDec), Venus (GHA, ddGHA, Dec, dDec), Moon (GHA, ddGHA, Dec, dDec), UT. Rows 00-23.

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

Table with 14 columns: UT, Mars (GHA, ddGHA, Dec, dDec), Jupiter (GHA, ddGHA, Dec, dDec), Saturn (GHA, ddGHA, Dec, dDec), UT. Rows 00-23.

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 278° 277° 277° 277° 277° 277°
Greenwich Culmination Time: 16:06

Table with 14 columns: UT, Sun (GHA, ddGHA, Dec, dDec), Venus (GHA, ddGHA, Dec, dDec), Moon (GHA, ddGHA, Dec, dDec), UT. Rows 00-23.

UT 02 06 10 14 18 22
SD 16°0 16°0 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° 338°
Greenwich Culmination Time: 12:00

Table with 14 columns: UT, Mars (GHA, ddGHA, Dec, dDec), Jupiter (GHA, ddGHA, Dec, dDec), Saturn (GHA, ddGHA, Dec, dDec), UT. Rows 00-23.

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 277° 277° 277° 277° 276° 276°
Greenwich Culmination Time: 16:05

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

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on April 16, 2021, including coordinates and culmination times.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on April 17, 2021, including coordinates and culmination times.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on April 16, 2021, including coordinates and culmination times.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on April 17, 2021, including coordinates and 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 00-23. Includes SD, HP, SHA, and Greenwich Culmination Time for each planet.

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

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

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) 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 326° 326° 326° 326° 326° 326°
Greenwich Culmination Time: 11:57

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) 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 322° 322° 322° 322° 321° 321°
Greenwich Culmination Time: 11:58

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) for each body.

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 268° 268° 268° 268° 268° 268°
Greenwich Culmination Time: 15:49

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) for each body.

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 270° 270° 270° 270° 270° 270°
Greenwich Culmination Time: 15:52

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows include celestial data for days 00-23, with sub-rows for UT 02, 06, 10, 14, 18, 22 and SH data.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows include celestial data for days 00-23, with sub-rows for UT 02, 06, 10, 14, 18, 22 and SH data.

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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 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 324° 324° 324° 324° 324° 324°
Greenwich Culmination Time: 11:57

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 323° 323° 323° 323° 323° 323°
Greenwich Culmination Time: 11:57

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

UT 02 06 10 14 18 22
SD 00°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 267° 267° 267° 267° 266° 266°
Greenwich Culmination Time: 15:46

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 266° 266° 266° 266° 266° 266°
Greenwich Culmination Time: 15:45

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Table for Sun, Venus, and Moon on May 4. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and UT. Includes a table for Mars below.

Table for Mars, Jupiter, and Saturn on May 4. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and UT. Includes a table for Mars below.

Table for Sun, Venus, and Moon on May 1. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and UT. Includes a table for Mars below.

Table for Mars, Jupiter, and Saturn on May 1. Columns include UT, GHA, ddGHA, Dec, dDec for each planet, and UT. Includes a table for Mars below.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Sub-headers: GHA, ddGHA, Dec, dDec. Includes A: 90%.

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 315° 315° 314° 314° 314° 314°
Greenwich Culmination Time: 11:56

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Sub-headers: GHA, ddGHA, Dec, dDec. Includes A: 82%.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°9' 15°9' 15°9' 15°9'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 318° 317° 317° 317° 317° 317°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Sub-headers: GHA, ddGHA, Dec, 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 260° 260° 260° 260° 260° 260°
Greenwich Culmination Time: 15:33

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Sub-headers: GHA, ddGHA, Dec, 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 262° 262° 262° 262° 262° 262°
Greenwich Culmination Time: 15:37

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (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 317° 317° 316° 316° 316° 316°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates (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 262° 261° 261° 261° 261° 261°
Greenwich Culmination Time: 15:36

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) for each planet.

UT 02 06 10 14 18 22
SD 15°9' 15°9' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 316° 316° 315° 315° 315° 315°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates (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 261° 261° 261° 261° 260° 260°
Greenwich Culmination Time: 15:35

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Includes RA, Dec, and distance data 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 307° 307° 307° 306° 306° 306°
Greenwich Culmination Time: 11:56

Table with columns for UT, Sun, Venus, Moon, and UT. Includes RA, Dec, and distance data 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 310° 310° 310° 309° 309° 309°
Greenwich Culmination Time: 11:56

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes RA, Dec, and distance data for each celestial body.

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 255° 255° 255° 254° 254°
Greenwich Culmination Time: 15:23

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes RA, Dec, and distance data for each celestial body.

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 257° 257° 257° 256° 256°
Greenwich Culmination Time: 15:27

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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.

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> <small>A: 22%</small>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180 53.5	+00.0	N 19 33.1	+00.6	166 34.2	-00.8	N 22 25.5	+00.5	106 30.1	-30.9	N 23 00.3	-06.4	00
01	195 53.5	+00.0	N 19 33.7	+00.5	181 33.4	-00.8	N 22 26.0	+00.5	120 59.2	-30.8	N 22 53.9	-06.5	01
02	210 53.5	+00.0	N 19 34.2	+00.6	196 32.6	-00.8	N 22 26.5	+00.6	135 28.4	-30.9	N 22 47.4	-06.6	02
03	225 53.5	+00.1	N 19 34.8	+00.5	211 31.8	-00.8	N 22 27.1	+00.5	149 57.5	-30.8	N 22 40.8	-06.8	03
04	240 53.4	+00.0	N 19 35.3	+00.6	226 31.0	-00.8	N 22 27.6	+00.5	164 26.7	-30.8	N 22 34.0	-06.8	04
05	255 53.4	+00.0	N 19 35.9	+00.5	241 30.2	-00.8	N 22 28.1	+00.5	178 55.9	-30.8	N 22 27.2	-07.0	05
06	270 53.4	+00.0	N 19 36.4	+00.6	256 29.4	-00.9	N 22 28.6	+00.6	193 25.1	-30.7	N 22 20.2	-07.2	06
07	285 53.4	+00.1	N 19 37.0	+00.5	271 28.5	-00.8	N 22 29.2	+00.5	207 54.4	-30.7	N 22 13.0	-07.2	07
08	300 53.3	+00.0	N 19 37.5	+00.5	286 27.7	-00.8	N 22 29.7	+00.5	222 23.7	-30.7	N 22 05.8	-07.3	08
09	315 53.3	+00.0	N 19 38.0	+00.6	301 26.9	-00.8	N 22 30.2	+00.5	236 53.0	-30.7	N 21 58.5	-07.5	09
10	330 53.3	+00.1	N 19 38.6	+00.5	316 26.1	-00.8	N 22 30.7	+00.5	251 22.3	-30.7	N 21 51.0	-07.6	10
11	345 53.2	+00.0	N 19 39.1	+00.6	331 25.3	-00.8	N 22 31.2	+00.6	265 51.6	-30.6	N 21 43.4	-07.7	11
12	0 53.2	+00.0	N 19 39.7	+00.5	346 24.5	-00.8	N 22 31.8	+00.5	280 21.0	-30.6	N 21 35.7	-07.8	12
13	15 53.2	+00.0	N 19 40.2	+00.6	1 23.7	-00.8	N 22 32.3	+00.5	294 50.4	-30.6	N 21 27.9	-07.8	13
14	30 53.2	+00.1	N 19 40.8	+00.5	16 22.9	-00.8	N 22 32.8	+00.5	309 19.8	-30.5	N 21 19.9	-08.0	14
15	45 53.1	+00.0	N 19 41.3	+00.5	31 22.1	-00.8	N 22 33.3	+00.5	323 49.3	-30.5	N 21 11.9	-08.2	15
16	60 53.1	+00.0	N 19 41.8	+00.6	46 21.3	-00.9	N 22 33.8	+00.5	338 18.8	-30.5	N 21 03.7	-08.3	16
17	75 53.1	+00.0	N 19 42.4	+00.5	61 20.4	-00.8	N 22 34.3	+00.6	352 48.3	-30.5	N 20 55.4	-08.4	17
18	90 53.1	+00.1	N 19 42.9	+00.6	76 19.6	-00.8	N 22 34.9	+00.6	7 17.8	-30.4	N 20 47.0	-08.5	18
19	105 53.0	+00.0	N 19 43.5	+00.5	91 18.8	-00.8	N 22 35.4	+00.5	21 47.4	-30.4	N 20 38.5	-08.6	19
20	120 53.0	+00.0	N 19 44.0	+00.5	106 18.0	-00.8	N 22 35.9	+00.5	36 17.0	-30.4	N 20 29.9	-08.7	20
21	135 53.0	+00.1	N 19 44.5	+00.6	121 17.2	-00.8	N 22 36.4	+00.5	50 46.6	-30.4	N 20 21.2	-08.9	21
22	150 52.9	+00.0	N 19 45.1	+00.5	136 16.4	-00.8	N 22 36.9	+00.5	65 16.2	-30.3	N 20 12.3	-08.9	22
23	165 52.9	+00.0	N 19 45.6	+00.5	151 15.6	-00.9	N 22 37.4	+00.5	79 45.9	-30.3	N 20 03.4	-09.1	23
<p><small>UT 02 06 10 14 18 22</small> 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 305° 305° 305° 304° 304° 304° Greenwich Culmination Time: 11:56</p>													
<p><small>UT 02 06 10 14 18 22</small> 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 291° 290° 290° 290° 290° 289° Greenwich Culmination Time: 12:54</p>													
<p><small>UT 02 06 10 14 18 22</small> SD 15°2 15°2 15°3 15°3 15°3 15°4 HP 55°8 55°9 56°0 56°2 56°3 56°4 SHA 229° 227° 225° 223° 221° 218° Greenwich Culmination Time: 17:29</p>													

UT	<i>Sun</i>				<i>Venus</i>				<i>Moon</i> <small>A: 25%</small>				UT
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	
00	180 52.9	-00.1	N 19 46.1	+00.6	166 14.7	-00.8	N 22 37.9	+00.5	94 15.6	-30.3	N 19 54.3	-09.2	00
01	195 52.8	+00.0	N 19 46.7	+00.5	181 13.9	-00.8	N 22 38.4	+00.5	108 45.3	-30.3	N 19 45.1	-09.3	01
02	210 52.8	+00.0	N 19 47.2	+00.5	196 13.1	-00.8	N 22 38.9	+00.5	123 15.0	-30.2	N 19 35.8	-09.4	02
03	225 52.8	+00.0	N 19 47.7	+00.6	211 12.3	-00.8	N 22 39.4	+00.5	137 44.8	-30.2	N 19 26.4	-09.5	03
04	240 52.8	-00.1	N 19 48.3	+00.5	226 11.5	-00.8	N 22 39.9	+00.5	152 14.6	-30.2	N 19 16.9	-09.6	04
05	255 52.7	+00.0	N 19 48.8	+00.5	241 10.7	-00.9	N 22 40.4	+00.5	166 44.4	-30.1	N 19 07.3	-09.7	05
06	270 52.7	+00.0	N 19 49.3	+00.6	256 09.8	-00.8	N 22 40.9	+00.5	181 14.3	-30.2	N 18 57.6	-09.8	06
07	285 52.7	-00.1	N 19 49.9	+00.5	271 09.0	-00.8	N 22 41.4	+00.5	195 44.1	-30.1	N 18 47.8	-10.0	07
08	300 52.6	+00.0	N 19 50.4	+00.5	286 08.2	-00.8	N 22 41.9	+00.5	210 14.0	-30.0	N 18 37.8	-10.0	08
09	315 52.6	+00.0	N 19 50.9	+00.6	301 07.4	-00.8	N 22 42.4	+00.5	224 44.0	-30.1	N 18 27.8	-10.1	09
10	330 52.6	-00.1	N 19 51.5	+00.5	316 06.6	-00.8	N 22 42.9	+00.5	239 13.9	-30.0	N 18 17.7	-10.3	10
11	345 52.5	+00.0	N 19 52.0	+00.5	331 05.8	-00.9	N 22 43.4	+00.5	253 43.9	-30.0	N 18 07.4	-10.3	11
12	0 52.5	+00.0	N 19 52.5	+00.6	346 04.9	-00.8	N 22 43.9	+00.5	268 13.9	-29.9	N 17 57.1	-10.5	12
13	15 52.5	-00.1	N 19 53.1	+00.5	1 04.1	-00.8	N 22 44.4	+00.5	282 44.0	-30.0	N 17 46.6	-10.5	13
14	30 52.4	+00.0	N 19 53.6	+00.5	16 03.3	-00.8	N 22 44.9	+00.5	297 14.0	-29.9	N 17 36.1	-10.7	14
15	45 52.4	+00.0	N 19 54.1	+00.5	31 02.5	-00.8	N 22 45.4	+00.5	311 44.1	-29.9	N 17 25.4	-10.7	15
16	60 52.4	-00.1	N 19 54.6	+00.6	46 01.7	-00.9	N 22 45.9	+00.4	326 14.2	-29.9	N 17 14.7	-10.9	16
17	75 52.3	+00.0	N 19 55.2	+00.5	61 00.8	-00.8	N 22 46.3	+00.5	340 44.3	-29.8	N 17 03.8	-10.9	17
18	90 52.3	+00.0	N 19 55.7	+00.5	76 00.0	-00.8	N 22 46.8	+00.5	355 14.5	-29.8	N 16 52.9	-11.1	18
19	105 52.3	-00.1	N 19 56.2	+00.5	90 59.2	-00.8	N 22 47.3	+00.5	9 44.7	-29.9	N 16 41.8	-11.1	19
20	120 52.2	+00.0	N 19 56.7	+00.6	105 58.4	-00.9	N 22 47.8	+00.5	24 14.8	-29.7	N 16 30.7	-11.2	20
21	135 52.2	+00.0	N 19 57.3	+00.5	120 57.5	-00.8	N 22 48.3	+00.5	38 45.1	-29.8	N 16 19.5	-11.4	21
22	150 52.2	-00.1	N 19 57.8	+00.5	135 56.7	-00.8	N 22 48.8	+00.4	53 15.3	-29.7	N 16 08.1	-11.4	22
23	165 52.1	+00.0	N 19 58.3	+00.5	150 55.9	-00.8	N 22 49.2	+00.5	67 45.6	-29.7	N 15 56.7	-11.5	23
<p><small>UT 02 06 10 14 18 22</small> 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° 304° 303° 303° 303° Greenwich Culmination Time: 11:56</p>													
<p><small>UT 02 06 10 14 18 22</small> 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 289° 289° 289° 289° 288° 288° Greenwich Culmination Time: 12:55</p>													
<p><small>UT 02 06 10 14 18 22</small> SD 15°4 15°4 15°5 15°5 15°5 15°6 HP 56°5 56°7 56°8 56°9 57°1 57°2 SHA 216° 214° 212° 210° 208° 205° Greenwich Culmination Time: 18:19</p>													

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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°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 299° 299° 299° 298° 298° 298° Greenwich Culmination Time: 11:56

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°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 302° 302° 302° 301° 301° 301° Greenwich Culmination Time: 11:56

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

UT 02 06 10 14 18 22 SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 250° 249° 249° 249° 249° 249° Greenwich Culmination Time: 15:13

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

UT 02 06 10 14 18 22 SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0' HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1' SHA 252° 251° 251° 251° 251° 251° Greenwich Culmination Time: 15:17

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UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180 50.1	+00.0	N 20 23.2	+00.4	165 15.2	-00.9	N 23 11.4	+00.4	58 41.9	-29.5	N 04 58.7	-15.0	00		
01	195 50.1	+00.0	N 20 23.6	+00.5	180 14.3	-00.8	N 23 11.8	+00.4	73 12.4	-29.6	N 04 43.7	-15.0	01		
02	210 50.1	-00.1	N 20 24.1	+00.5	195 13.5	-00.9	N 23 12.2	+00.4	87 42.8	-29.6	N 04 28.7	-15.1	02		
03	225 50.0	+00.0	N 20 24.6	+00.5	210 12.6	-00.8	N 23 12.6	+00.5	102 13.2	-29.6	N 04 13.6	-15.2	03		
04	240 50.0	-00.1	N 20 25.1	+00.5	225 11.8	-00.8	N 23 13.1	+00.4	116 43.6	-29.6	N 03 58.4	-15.1	04		
05	255 49.9	+00.0	N 20 25.6	+00.5	240 11.0	-00.9	N 23 13.5	+00.4	131 14.0	-29.6	N 03 43.3	-15.3	05		
06	270 49.9	-00.1	N 20 26.1	+00.5	255 10.1	-00.8	N 23 13.9	+00.4	145 44.4	-29.7	N 03 28.0	-15.2	06		
07	285 49.8	+00.0	N 20 26.6	+00.5	270 09.3	-00.9	N 23 14.3	+00.4	160 14.7	-29.7	N 03 12.8	-15.3	07		
08	300 49.8	-00.1	N 20 27.1	+00.5	285 08.4	-00.8	N 23 14.7	+00.4	174 45.0	-29.7	N 02 57.5	-15.3	08		
09	315 49.7	+00.0	N 20 27.6	+00.4	300 07.6	-00.8	N 23 15.1	+00.4	189 15.3	-29.7	N 02 42.2	-15.4	09		
10	330 49.7	-00.1	N 20 28.0	+00.5	315 06.8	-00.9	N 23 15.5	+00.5	203 45.6	-29.8	N 02 26.8	-15.4	10		
11	345 49.6	+00.0	N 20 28.5	+00.5	330 05.9	-00.8	N 23 16.0	+00.4	218 15.8	-29.8	N 02 11.4	-15.4	11		
12	0 49.6	-00.1	N 20 29.0	+00.5	345 05.1	-00.9	N 23 16.4	+00.4	232 46.0	-29.9	N 01 56.0	-15.5	12		
13	15 49.5	+00.0	N 20 29.5	+00.5	0 04.2	-00.8	N 23 16.8	+00.4	247 16.1	-29.8	N 01 40.5	-15.5	13		
14	30 49.5	-00.1	N 20 30.0	+00.5	15 03.4	-00.9	N 23 17.2	+00.4	261 46.3	-29.9	N 01 25.1	-15.6	14		
15	45 49.4	+00.0	N 20 30.5	+00.5	30 02.5	-00.8	N 23 17.6	+00.4	276 16.4	-30.0	N 01 09.5	-15.5	15		
16	60 49.4	-00.1	N 20 31.0	+00.4	45 01.7	-00.8	N 23 18.0	+00.4	290 46.4	-29.9	N 00 54.0	-15.6	16		
17	75 49.3	+00.0	N 20 31.4	+00.5	60 00.9	-00.9	N 23 18.4	+00.4	305 16.5	-30.0	N 00 38.4	-15.5	17		
18	90 49.3	-00.1	N 20 31.9	+00.5	75 00.0	-00.8	N 23 18.8	+00.4	319 46.5	-30.1	N 00 22.9	-15.6	18		
19	105 49.2	+00.0	N 20 32.4	+00.5	89 59.2	-00.9	N 23 19.2	+00.4	334 16.4	-30.1	N 00 07.3	-15.7	19		
20	120 49.2	-00.1	N 20 32.9	+00.5	104 58.3	-00.8	N 23 19.6	+00.4	348 46.3	-30.1	S 00 08.4	+15.6	20		
21	135 49.1	+00.0	N 20 33.4	+00.4	119 57.5	-00.9	N 23 20.0	+00.4	3 16.2	-30.2	S 00 24.0	+15.7	21		
22	150 49.1	-00.1	N 20 33.8	+00.5	134 56.6	-00.8	N 23 20.4	+00.4	17 46.0	-30.2	S 00 39.7	+15.6	22		
23	165 49.0	+00.0	N 20 34.3	+00.5	149 55.8	-00.9	N 23 20.8	+00.4	32 15.8	-30.2	S 00 55.3	+15.7	23		
UT	02	06	10	14	18	22			UT	02	06	10	14	18	22
SD	15°8'	15°8'	15°8'	15°8'	15°8'	15°8'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	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'	00°1'	00°1'
SHA	301°	301°	301°	300°	300°	300°	SHA	285°	285°	285°	285°	284°	284°	284°	284°
Greenwich Culmination Time: 11:56															

UT	Sun				Venus				Moon				UT		
	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec			
00	180 49.0	-00.1	N 20 34.8	+00.5	164 54.9	-00.8	N 23 21.2	+00.4	46 45.6	-30.3	S 01 11.0	+15.7	00		
01	195 48.9	+00.0	N 20 35.3	+00.4	179 54.1	-00.9	N 23 21.6	+00.4	61 15.3	-30.4	S 01 26.7	+15.7	01		
02	210 48.9	-00.1	N 20 35.7	+00.5	194 53.2	-00.8	N 23 22.0	+00.4	75 44.9	-30.4	S 01 42.4	+15.8	02		
03	225 48.8	+00.0	N 20 36.2	+00.5	209 52.4	-00.8	N 23 22.4	+00.4	90 14.5	-30.4	S 01 58.2	+15.7	03		
04	240 48.8	-00.1	N 20 36.7	+00.5	224 51.6	-00.9	N 23 22.8	+00.4	104 44.1	-30.5	S 02 13.9	+15.7	04		
05	255 48.7	+00.0	N 20 37.2	+00.4	239 50.7	-00.8	N 23 23.2	+00.4	119 13.6	-30.5	S 02 29.6	+15.8	05		
06	270 48.7	-00.1	N 20 37.6	+00.5	254 49.9	-00.9	N 23 23.6	+00.4	133 43.1	-30.6	S 02 45.4	+15.7	06		
07	285 48.6	+00.0	N 20 38.1	+00.5	269 49.0	-00.8	N 23 23.9	+00.4	148 12.5	-30.7	S 03 01.1	+15.7	07		
08	300 48.6	-00.1	N 20 38.6	+00.5	284 48.2	-00.9	N 23 24.3	+00.4	162 41.8	-30.7	S 03 16.8	+15.8	08		
09	315 48.5	+00.0	N 20 39.1	+00.4	299 47.3	-00.8	N 23 24.7	+00.4	177 11.1	-30.7	S 03 32.6	+15.7	09		
10	330 48.5	-00.1	N 20 39.5	+00.5	314 46.5	-00.9	N 23 25.1	+00.4	191 40.4	-30.8	S 03 48.3	+15.7	10		
11	345 48.4	-00.1	N 20 40.0	+00.5	329 45.6	-00.8	N 23 25.5	+00.4	206 09.6	-30.9	S 04 04.0	+15.8	11		
12	0 48.3	+00.0	N 20 40.5	+00.4	344 44.8	-00.9	N 23 25.9	+00.3	220 38.7	-30.9	S 04 19.8	+15.7	12		
13	15 48.3	-00.1	N 20 40.9	+00.5	359 43.9	-00.8	N 23 26.2	+00.4	235 07.8	-31.0	S 04 35.5	+15.7	13		
14	30 48.2	+00.0	N 20 41.4	+00.5	1 43.1	-00.9	N 23 26.6	+00.4	249 36.8	-31.0	S 04 51.2	+15.7	14		
15	45 48.2	-00.1	N 20 41.9	+00.5	29 42.2	-00.8	N 23 27.0	+00.4	264 05.8	-31.2	S 05 06.9	+15.7	15		
16	60 48.1	+00.0	N 20 42.4	+00.4	44 41.4	-00.9	N 23 27.4	+00.4	278 34.6	-31.1	S 05 22.6	+15.7	16		
17	75 48.1	-00.1	N 20 42.8	+00.5	59 40.5	-00.8	N 23 27.8	+00.4	293 03.5	-31.3	S 05 38.3	+15.6	17		
18	90 48.0	+00.0	N 20 43.3	+00.5	74 39.7	-00.9	N 23 28.1	+00.3	307 32.2	-31.3	S 05 53.9	+15.7	18		
19	105 48.0	-00.1	N 20 43.8	+00.4	89 38.8	-00.8	N 23 28.5	+00.4	322 00.9	-31.3	S 06 09.6	+15.6	19		
20	120 47.9	+00.0	N 20 44.2	+00.5	104 38.0	-00.9	N 23 28.9	+00.4	336 29.6	-31.5	S 06 25.2	+15.6	20		
21	135 47.9	-00.1	N 20 44.7	+00.4	119 37.1	-00.8	N 23 29.3	+00.3	350 58.1	-31.5	S 06 40.8	+15.5	21		
22	150 47.8	-00.1	N 20 45.1	+00.5	134 36.3	-00.9	N 23 29.6	+00.4	5 26.6	-31.5	S 06 56.3	+15.6	22		
23	165 47.7	+00.0	N 20 45.6	+00.5	149 35.4	-00.8	N 23 30.0	+00.4	19 55.1	-31.7	S 07 11.9	+15.5	23		
UT	02	06	10	14	18	22			UT	02	06	10	14	18	22
SD	15°8'	15°8'	15°8'	15°8'	15°8'	15°8'	SD	00°1'	00°1'	00°1'	00°1'	00°1'	00°1'	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'	00°1'	00°1'
SHA	300°	300°	300°	299°	299°	299°	SHA	284°	284°	283°	283°	283°	283°	283°	283°
Greenwich Culmination Time: 11:56															

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes RA/Dec coordinates and magnitude (A: 50%) 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 297° 297° 297° 296° 296° 296°
Greenwich Culmination Time: 11:57

Table with columns for UT, Sun, Venus, Moon, and UT. Includes RA/Dec coordinates and magnitude (A: 54%) 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 296° 296° 296° 295° 295° 295°
Greenwich Culmination Time: 11:57

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes RA/Dec coordinates and magnitude 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 248° 248° 248° 248° 248° 248°
Greenwich Culmination Time: 15:10

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes RA/Dec coordinates and magnitude 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 248° 248° 247° 247° 247° 247°
Greenwich Culmination Time: 15:09

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary culminations.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary culminations.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary culminations.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary culminations.

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Table with columns for UT, Sun, Venus, Moon, and Mars/Jupiter/Saturn. Includes astronomical data like GHA, ddGHA, Dec, dDec and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and Mars/Jupiter/Saturn. Includes astronomical data like GHA, ddGHA, Dec, dDec and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, dDec, and A: (85% for Moon). Rows 00-23 show celestial data.

Summary table for Sun, Venus, Moon with columns for 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. Each planet section includes GHA, ddGHA, Dec, dDec. Rows 00-23 show celestial data.

Summary table for Mars, Jupiter, Saturn with columns for 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. Each planet section includes GHA, ddGHA, Dec, dDec, and A: (76% for Moon). Rows 00-23 show celestial data.

Summary table for Sun, Venus, Moon with columns for 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. Each planet section includes GHA, ddGHA, Dec, dDec. Rows 00-23 show celestial data.

Summary table for Mars, Jupiter, Saturn with columns for 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. Includes astronomical data for Sun, Venus, and Moon on June 9, 2021, including GHA, ddGHA, Dec, and dDec values.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on June 6, 2021, including GHA, ddGHA, Dec, and dDec values.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on June 9, 2021, including GHA, ddGHA, Dec, and dDec values.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on June 6, 2021, including GHA, ddGHA, Dec, and dDec values.

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Table for Sun, Venus, and Moon on June 7. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 90%. Rows 00-23.

Table for Sun, Venus, and Moon on June 8. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 93%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on June 7. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 90%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on June 8. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 93%. Rows 00-23.

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22 showing specific data points.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22 showing specific data points.

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22 showing specific data points.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 02, 06, 10, 14, 18, 22 showing specific data points.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on June 11, 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on June 12, 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on June 11, 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on June 12, 2021.

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

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 274° 274° 274° 274° 274° 273°
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°4' 00°4' 00°4' 00°4' 00°4' 00°4'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 234° 234° 234° 234° 234° 233°
Greenwich Culmination Time: 14:41

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

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 277° 277° 277° 277° 277° 276°
Greenwich Culmination Time: 12:00

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
SHA 236° 236° 236° 236° 235° 235°
Greenwich Culmination Time: 14:45

Table with columns UT, Sun, Venus, Moon, UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet and Moon. Moon column includes 'A: 17%'.

Table with columns UT, Sun, Venus, Moon, UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet and Moon. Moon column includes 'A: 20%'.

Table with columns UT, Sun, Venus, Moon, UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet and Moon. Moon column includes 'A: 17%'.

Table with columns UT, Sun, Venus, Moon, UT. Rows 00-23. Columns include GHA, ddGHA, Dec, dDec for each planet and Moon. Moon column includes 'A: 20%'.

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

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

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 270* 270* 270* 270* 269* 269*
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*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 231* 231* 231* 231* 231* 231*
Greenwich Culmination Time: 14:35

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 273* 273* 273* 273* 272* 272*
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*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 233* 233* 233* 233* 233* 233*
Greenwich Culmination Time: 14:39

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show sunrise/sunset and moon phase data.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show sunrise/sunset and moon phase data.

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show sunrise/sunset and moon phase data.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show sunrise/sunset and moon phase data.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing astronomical data for June 23, 2021.

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 268° 268° 268° 267° 267° 267°
Greenwich Culmination Time: 12:02

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing astronomical data for June 23, 2021.

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 230° 230° 230° 230° 230° 230°
Greenwich Culmination Time: 14:32

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing astronomical data for June 24, 2021.

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 267° 267° 267° 266° 266° 266°
Greenwich Culmination Time: 12:02

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing astronomical data for June 24, 2021.

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 230° 229° 229° 229° 229° 229°
Greenwich Culmination Time: 14:31

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

UT 02 06 10 14 18 22
SD 15°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 262° 262° 261° 261° 261° 261°
Greenwich Culmination Time: 12:03

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

UT 02 06 10 14 18 22
SD 15°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 265° 265° 265° 264° 264° 264°
Greenwich Culmination Time: 12:02

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°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 026° 026° 026° 026° 026° 026°
Greenwich Culmination Time: 14:24

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°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 026° 026° 026° 026° 026° 026°
Greenwich Culmination Time: 14:28

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

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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show astronomical data including SD, HP, and SHA coordinates.

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

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

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show astronomical data including SD, HP, and SHA coordinates.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for July 3, 2021, 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 June 30, 2021, 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 July 3, 2021, such as GHA, ddGHA, Dec, and dDec for Mars, Jupiter, and Saturn.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for June 30, 2021, such as GHA, ddGHA, Dec, and dDec for Mars, Jupiter, and Saturn.

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

UT 02 06 10 14 18 22
SD 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° 259° 259° 259° 259°
Greenwich Culmination Time: 12:03

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

UT 02 06 10 14 18 22
SD 15°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° 258° 258° 258° 258° 258°
Greenwich Culmination Time: 12:04

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

UT 02 06 10 14 18 22
SD 00°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 225° 225° 225° 225° 225° 225°
Greenwich Culmination Time: 14:21

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°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 224° 224° 224° 224° 224° 224°
Greenwich Culmination Time: 14:19

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22 showing specific astronomical data points.

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 02, 06, 10, 14, 18, 22 showing specific astronomical data points.

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

Table for July 5, Monday, showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a small table at the bottom for Mars, Jupiter, and Saturn.

Table for July 6, Tuesday, showing astronomical data for Sun, Venus, and Moon. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes a small table at the bottom for Mars, Jupiter, and Saturn.

Table for July 5, Monday, showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and UT.

Table for July 6, Tuesday, showing astronomical data for Mars, Jupiter, and Saturn. Columns include UT, GHA, ddGHA, Dec, dDec, and UT.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes A: 05%.

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° 249° 249° 249° 249°
Greenwich Culmination Time: 12:05

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: 94%.

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

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 219° 219° 219° 219° 218° 218°
Greenwich Culmination Time: 14:06

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 221° 221° 221° 220° 220° 220°
Greenwich Culmination Time: 14:11

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 251° 251° 251° 251° 251° 251°
Greenwich Culmination Time: 12:05

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 220° 220° 220° 220° 220° 220°
Greenwich Culmination Time: 14:09

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 250° 250° 250° 250° 250° 250°
Greenwich Culmination Time: 12:05

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 220° 219° 219° 219° 219° 219°
Greenwich Culmination Time: 14:08

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for these 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 245° 245° 245° 245° 245° 245°
Greenwich Culmination Time: 12:06

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates for these 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° 248° 248°
Greenwich Culmination Time: 12:05

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

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 216° 216° 216° 216° 216° 216°
Greenwich Culmination Time: 14:00

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

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 218° 218° 218° 218° 218° 218°
Greenwich Culmination Time: 14:05

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

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 247° 247° 247° 247° 247° 247°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00 to 23. Includes RA, Dec, and magnitude data 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 218° 218° 217° 217° 217° 217°
Greenwich Culmination Time: 14:03

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

UT 02 06 10 14 18 22
SD 15°7' 15°7' 15°7' 15°7' 15°7' 15°7'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 246° 246° 246° 246° 246° 246°
Greenwich Culmination Time: 12:05

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00 to 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 217° 217° 217° 217° 217° 217°
Greenwich Culmination Time: 14:02

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary rise and set times.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary rise and set times.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary rise and set times.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet, along with a small table for planetary rise and set times.

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 47%).

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 47%).

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 212* 211* 211* 211* 211* 211*
Greenwich Culmination Time: 13:48

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 35%).

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 240* 240* 240* 240* 240* 239*
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 35%).

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 213* 213* 213* 213* 213* 213*
Greenwich Culmination Time: 13:53

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes (A: 39%) for the three planets.

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° 238° 238°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes for the three planets.

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 213° 213° 213° 212° 212° 212°
Greenwich Culmination Time: 13:51

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes (A: 43%) for the three planets.

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° 238° 238°
Greenwich Culmination Time: 12:06

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 show celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitudes for the three planets.

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 212° 212° 212° 212° 212° 212°
Greenwich Culmination Time: 13:50

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and times (UT 00-23) for each celestial body.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and times (UT 00-23) for each celestial body.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and times (UT 00-23) for each celestial body.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for positions (GHA, ddGHA, Dec, dDec) and times (UT 00-23) for each celestial body.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 with GHA, ddGHA, Dec, and dDec values.

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 235° 235° 235° 235° 235° 235°
Greenwich Culmination Time: 12:06

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 with GHA, ddGHA, Dec, and dDec values.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 with GHA, ddGHA, Dec, and dDec values.

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 210° 210° 210° 210° 210° 210°
Greenwich Culmination Time: 13:45

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 with GHA, ddGHA, Dec, and dDec values.

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 210° 210° 210° 209° 209° 209°
Greenwich Culmination Time: 13:44

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on August 4, 2021, including GHA, ddGHA, Dec, and dDec values.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on August 1, 2021, including GHA, ddGHA, Dec, and dDec values.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on August 4, 2021, including GHA, ddGHA, Dec, and dDec values.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on August 1, 2021, including GHA, ddGHA, Dec, and dDec values.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for three planets and their positions over time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for three planets and their positions over time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for three planets and their positions over time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for three planets and their positions over time.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows contain astronomical data for each planet on various dates in August 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows contain astronomical data for each planet on various dates in August 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows contain astronomical data for each planet on various dates in August 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows contain astronomical data for each planet on various dates in August 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows contain astronomical data for each planet on various dates in August 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows contain astronomical data for each planet on various dates in August 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for August 10, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for August 11, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for August 10, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for August 11, 2021, such as 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 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 211° 210° 210° 210° 210° 210°
Greenwich Culmination Time: 12:03

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 195° 195° 195° 195° 194°
Greenwich Culmination Time: 13:05

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 213° 213° 213° 213° 213° 213°
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°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 197° 197° 196° 196° 196° 196°
Greenwich Culmination Time: 13:09

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°8' 15°8' 15°8' 15°8' 15°8' 15°8'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 207° 207° 207° 206° 206° 206°
Greenwich Culmination Time: 12:02

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

UT 02 06 10 14 18 22
SD 00°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 193° 192° 192° 192° 192° 192°
Greenwich Culmination Time: 12:58

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

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

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 194° 194° 194° 194° 194° 194°
Greenwich Culmination Time: 13:03

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on August 22, 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for Sun, Venus, and Moon on August 23, 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on August 22, 2021.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn on August 23, 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for Sun, Venus, and Moon with GHA, ddGHA, Dec, and dDec values. Includes a small table for Mars, Jupiter, and Saturn at the bottom.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for Sun, Venus, and Moon with GHA, ddGHA, Dec, and dDec values. Includes a small table for Mars, Jupiter, and Saturn at the bottom.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for Mars, Jupiter, and Saturn with GHA, ddGHA, Dec, and dDec values. Includes a small table for Sun, Venus, and Moon at the bottom.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for Mars, Jupiter, and Saturn with GHA, ddGHA, Dec, and dDec values. Includes a small table for Sun, Venus, and Moon at the bottom.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and sub-rows for 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 12:01, 14:25, 02:49.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and sub-rows for 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 12:55, 23:34, 22:22.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for days 00 to 23 and sub-rows for 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 12:01, 14:25, 03:31.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for days 00 to 23 and sub-rows for 02, 06, 10, 14, 18, 22. Includes Greenwich Culmination Time: 12:53, 23:29, 22:18.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes 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° 201° 201°
Greenwich Culmination Time: 12:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing 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 189° 189° 189° 189° 189° 189°
Greenwich Culmination Time: 12:49

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes 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 200° 200° 200° 200° 200° 200°
Greenwich Culmination Time: 12:00

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing 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 188° 188° 188° 188° 188° 188°
Greenwich Culmination Time: 12:47

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

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

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

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

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

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes SD, HP, and SHA coordinates and Greenwich Culmination Time.

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

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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.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes SD, HP, and SHA coordinates and Greenwich Culmination Time.

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

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

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

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for September 7, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for September 8, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for September 7, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for September 8, 2021, such as GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for three days (00-23) and a summary row with UT, 02, 06, 10, 14, 18, 22.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for three days (00-23) and a summary row with UT, 02, 06, 10, 14, 18, 22.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for three days (00-23) and a summary row with UT, 02, 06, 10, 14, 18, 22.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for three days (00-23) and a summary row with UT, 02, 06, 10, 14, 18, 22.

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

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

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

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

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

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

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

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

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Table with columns for UT, Sun, Venus, Moon, and Mars/Jupiter/Saturn. Includes astronomical data like GHA, ddGHA, Dec, dDec and Greenwich Culmination Time.

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes 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 183° 183° 183° 183° 183° 183°
Greenwich Culmination Time: 11:53

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and magnitudes 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 182° 182° 182° 182° 182° 182°
Greenwich Culmination Time: 11:53

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23 showing 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 177° 177° 177° 177° 177° 177°
Greenwich Culmination Time: 12:17

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

UT 02 06 10 14 18 22
SD 00°0' 00°0' 00°0' 00°0' 00°0' 00°0'
HP 00°1' 00°1' 00°1' 00°1' 00°1' 00°1'
SHA 177° 177° 176° 176° 176° 176°
Greenwich Culmination Time: 12:15

Table with columns: UT, Sun (GHA, ddGHA, Dec, dDec), Venus (GHA, ddGHA, Dec, dDec), Moon (GHA, ddGHA, Dec, dDec, A: 63%), UT. Rows 00-23. Includes sub-headers for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time: 11:51.

Table with columns: UT, Sun (GHA, ddGHA, Dec, dDec), Venus (GHA, ddGHA, Dec, dDec), Moon (GHA, ddGHA, Dec, dDec, A: 54%), UT. Rows 00-23. Includes sub-headers for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time: 11:52.

Table with columns: UT, Mars (GHA, ddGHA, Dec, dDec), Jupiter (GHA, ddGHA, Dec, dDec), Saturn (GHA, ddGHA, Dec, dDec), UT. Rows 00-23. Includes sub-headers for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time: 12:08.

Table with columns: UT, Mars (GHA, ddGHA, Dec, dDec), Jupiter (GHA, ddGHA, Dec, dDec), Saturn (GHA, ddGHA, Dec, dDec), UT. Rows 00-23. Includes sub-headers for UT 02, 06, 10, 14, 18, 22 and Greenwich Culmination Time: 12:12.

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Table with columns for Sun, Venus, and Moon data. Includes UT, GHA, ddGHA, Dec, dDec, and magnitude (A: 57%).

Table with columns for Sun, Venus, and Moon data. Includes UT, GHA, ddGHA, Dec, dDec, and magnitude (A: 60%).

Table with columns for Mars, Jupiter, and Saturn data. Includes UT, GHA, ddGHA, Dec, dDec, and magnitude (A: 60%).

Table with columns for Mars, Jupiter, and Saturn data. Includes UT, GHA, ddGHA, Dec, dDec, and magnitude (A: 60%).

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes phase (A: 76%).

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes GHA, ddGHA, Dec, dDec for each planet. Moon column includes phase (A: 66%).

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. 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 Sun, Venus, and Moon. Includes UT, GHA, ddGHA, Dec, dDec, and A: 90%.

Table with columns for Sun, Venus, and Moon. Includes UT, GHA, ddGHA, Dec, dDec, and A: 80%.

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

Table with columns for Mars, Jupiter, and Saturn. Includes UT, 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.

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

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

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

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

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

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

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

Table for 2021 Oct 5 showing Sun, Venus, and Moon data. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 97%. Rows 00-23.

Table for 2021 Oct 6 showing Sun, Venus, and Moon data. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 00%. Rows 00-23.

Table for 2021 Oct 5 showing Mars, Jupiter, and Saturn data. Columns include UT, GHA, ddGHA, Dec, dDec. Rows 00-23.

Table for 2021 Oct 6 showing Mars, Jupiter, and Saturn data. Columns include UT, GHA, ddGHA, Dec, dDec. Rows 00-23.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for the Sun, Venus, and Moon on October 11, 2021, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for the Sun, Venus, and Moon on October 8, 2021, 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 October 11, 2021, 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 October 8, 2021, including GHA, ddGHA, Dec, dDec, and Greenwich Culmination Time.

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

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

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

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

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

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

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

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

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Table for Sun, Venus, and Moon on 2021 October 15. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for Sun, Venus, and Moon, and a small table for Mars at the bottom.

Table for Sun, Venus, and Moon on 2021 October 12. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for Sun, Venus, and Moon, and a small table for Mars at the bottom.

Table for Mars, Jupiter, and Saturn on 2021 October 15. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for Mars, Jupiter, and Saturn, and a small table for Mars at the bottom.

Table for Mars, Jupiter, and Saturn on 2021 October 12. Columns include UT, GHA, ddGHA, Dec, dDec, and UT. Includes data for Mars, Jupiter, and Saturn, and a small table for Mars at the bottom.

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for 23rd hour and Greenwich Culmination Time: 11:46.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for 23rd hour and Greenwich Culmination Time: 11:45.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for 23rd hour and Greenwich Culmination Time: 11:40.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for 23rd hour and Greenwich Culmination Time: 11:39.

Table for Sun, Venus, and Moon positions on 2021 October 19. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 47%. Rows 00-23 show hourly data.

Table for Mars, Jupiter, and Saturn positions on 2021 October 19. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

Table for Sun, Venus, and Moon positions on 2021 October 16. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

Table for Mars, Jupiter, and Saturn positions on 2021 October 16. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

Table for Sun, Venus, and Moon positions on 2021 October 16. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

Table for Mars, Jupiter, and Saturn positions on 2021 October 16. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

Table for Sun, Venus, and Moon positions on 2021 October 16. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

Table for Mars, Jupiter, and Saturn positions on 2021 October 16. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 38%. Rows 00-23 show hourly data.

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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°0 16°0 16°0 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 158° 158° 158° 157° 157° 157°
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°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 160° 160° 160° 160° 160°
Greenwich Culmination Time: 11:34

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 157° 157° 157° 156° 156° 156°
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°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 160° 160° 160° 159° 159°
Greenwich Culmination Time: 11:33

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Table with columns for UT, Sun, Venus, Moon, and Mars/Jupiter/Saturn. Includes astronomical data for various celestial bodies and their positions over time.

Table with columns for UT, Sun, Venus, Moon, Mars, Jupiter, and Saturn. Includes astronomical data for various celestial bodies and their positions over time.

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Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec. Includes a small table at the bottom with UT 02, 06, 10, 14, 18, 22 and SD, HP, SHA values.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec. Includes a small table at the bottom with UT 02, 06, 10, 14, 18, 22 and SD, HP, SHA values.

Table with columns for UT 02, 06, 10, 14, 18, 22 and SD, HP, SHA values for Sun, Venus, and Moon.

Table with columns for UT 02, 06, 10, 14, 18, 22 and SD, HP, SHA values for Sun, Venus, and Moon.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec. Includes a small table at the bottom with UT 02, 06, 10, 14, 18, 22 and SD, HP, SHA values.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section includes GHA, ddGHA, Dec, and dDec. Includes a small table at the bottom with UT 02, 06, 10, 14, 18, 22 and SD, HP, SHA values.

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Includes data for hours 00 through 23.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Includes data for hours 00 through 23.

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

Table with columns for UT, Sun, Venus, Moon, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Includes data for hours 00 through 23.

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Each planet section has sub-columns for GHA, ddGHA, Dec, and dDec. Includes data for hours 00 through 23.

Summary table for Mars, Jupiter, and Saturn with columns for 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 (A: 85%), and UT. Rows 00-23 show celestial coordinates and data for each planet.

Table with columns for UT, Sun, Venus, Moon (A: 75%), and UT. Rows 00-23 show celestial coordinates and data for each planet.

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

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

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for these planets and the Moon for the date 2021 October 29. Includes a small table at the bottom with columns UT, 02, 06, 10, 14, 18, 22 and rows for SD, HP, and SHA.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes astronomical data for these planets and the Moon for the date 2021 October 30. Includes a small table at the bottom with columns UT, 02, 06, 10, 14, 18, 22 and rows for SD, HP, and SHA.

Table with columns UT, 02, 06, 10, 14, 18, 22 and rows for SD, HP, and SHA. Greenwich Culmination Time: 11:43.

Table with columns UT, 02, 06, 10, 14, 18, 22 and rows for SD, HP, and SHA. Greenwich Culmination Time: 11:43.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn for the date 2021 October 29. Includes a small table at the bottom with columns UT, 02, 06, 10, 14, 18, 22 and rows for SD, HP, and SHA.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes astronomical data for Mars, Jupiter, and Saturn for the date 2021 October 30. Includes a small table at the bottom with columns UT, 02, 06, 10, 14, 18, 22 and rows for SD, HP, and SHA.

Table for Sun, Venus, and Moon on 2021 November 4. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 98%. Rows 00-23.

Table for Sun, Venus, and Moon on 2021 November 1. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 88%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on 2021 November 4. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 88%. Rows 00-23.

Table for Mars, Jupiter, and Saturn on 2021 November 1. Columns include UT, GHA, ddGHA, Dec, dDec, and A: 88%. Rows 00-23.

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

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

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

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 139° 138° 138° 138° 138° 138°
Greenwich Culmination Time: 11:43

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

UT 02 06 10 14 18 22
SD 00°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 148° 148° 148° 147° 147° 147°
Greenwich Culmination Time: 11:06

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°1 00°1 00°1 00°1 00°1 00°1
SHA 138° 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°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 147° 147° 147° 147° 147° 147°
Greenwich Culmination Time: 11:05

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

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 133° 132° 132° 132° 132° 132°
Greenwich Culmination Time: 11:44

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

UT 02 06 10 14 18 22
SD 16°1 16°1 16°1 16°1 16°1 16°1
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 136° 135° 135° 135° 135° 135°
Greenwich Culmination Time: 11:43

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

UT 02 06 10 14 18 22
SD 00°3 00°3 00°3 00°3 00°3 00°3
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 034° 034° 034° 034° 034° 034°
Greenwich Culmination Time: 18:16

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

UT 02 06 10 14 18 22
SD 00°0 00°0 00°0 00°0 00°0 00°0
HP 00°0 00°0 00°0 00°0 00°0 00°0
SHA 034° 034° 034° 034° 034° 034°
Greenwich Culmination Time: 18:26

Table with columns for Sun, Venus, and Moon. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes sub-headers for each planet and a footer with SD, HP, and SHA data.

Table with columns for Sun, Venus, and Moon. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes sub-headers for each planet and a footer with SD, HP, and SHA data.

Table with columns for Mars, Jupiter, and Saturn. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes sub-headers for each planet and a footer with SD, HP, and SHA data.

Table with columns for Mars, Jupiter, and Saturn. Rows include UT, GHA, ddGHA, Dec, dDec, and UT. Includes sub-headers for each planet and a footer with SD, HP, and SHA data.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 36%).

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 36%).

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 38%).

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

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Rows 00-23. Includes celestial coordinates (GHA, ddGHA, Dec, dDec) and magnitude (A: 38%).

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

Table with columns for UT, Sun, Venus, Moon (A: 66%), and UT. Rows 00-23 show celestial coordinates and data for each planet.

Table with columns for UT, Sun, Venus, Moon (A: 56%), and UT. Rows 00-23 show celestial coordinates and data for each planet.

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

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

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Includes data for GHA, ddGHA, Dec, dDec and A: 60%.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 122° 122° 122° 122° 122° 121°
Greenwich Culmination Time: 11:46

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

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 137° 137° 137° 137° 137°
Greenwich Culmination Time: 10:45

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

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

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

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 136° 136° 136° 136° 136°
Greenwich Culmination Time: 10:44

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: 79%.

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° 116° 115° 115° 115° 115°
Greenwich Culmination Time: 11:47

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°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 119° 119° 119° 119° 118° 118°
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°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 133° 133° 133° 133° 133° 132°
Greenwich Culmination Time: 10:38

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 135° 135° 135° 135° 135° 135°
Greenwich Culmination Time: 10:42

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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 118° 118° 118° 117° 117° 117°
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°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 134° 134° 134° 134° 134° 134°
Greenwich Culmination Time: 10:41

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°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 117° 117° 117° 116° 116° 116°
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°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 134° 134° 133° 133° 133° 133°
Greenwich Culmination Time: 10:39

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

UT 02 06 10 14 18 22
SD 16°2 16°2 16°2 16°2 16°2 16°2
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 114° 114° 113° 113° 113° 113°
Greenwich Culmination Time: 11:48

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

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

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

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 132° 132° 131° 131° 131° 131°
Greenwich Culmination Time: 10:36

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

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 131° 131° 131° 131° 130° 130°
Greenwich Culmination Time: 10:35

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Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and times 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 109° 109° 109° 109° 109° 108°
Greenwich Culmination Time: 11:50

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23 showing celestial coordinates and times 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 108° 108° 108° 108° 108° 107°
Greenwich Culmination Time: 11:50

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

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

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Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet from UT 00 to 23. Includes a sub-table for Greenwich Culmination Time.

Table with columns for UT, Sun, Venus, Moon, and UT. Includes data for RA, Dec, and magnitude for each planet from UT 00 to 23. Includes a sub-table for Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet from UT 00 to 23. Includes a sub-table for Greenwich Culmination Time.

Table with columns for UT, Mars, Jupiter, Saturn, and UT. Includes data for RA, Dec, and magnitude for each planet from UT 00 to 23. Includes a sub-table for Greenwich Culmination Time.

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Table with 5 columns: UT, Sun, Venus, Moon, UT. Rows 00-23. Includes astronomical data for Sun, Venus, and Moon on Dec 8, 2021.

Table with 5 columns: UT, Sun, Venus, Moon, UT. Rows 00-23. Includes astronomical data for Sun, Venus, and Moon on Dec 9, 2021.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23. Includes astronomical data for Mars, Jupiter, and Saturn on Dec 8, 2021.

Table with 5 columns: UT, Mars, Jupiter, Saturn, UT. Rows 00-23. Includes astronomical data for Mars, Jupiter, and Saturn on Dec 9, 2021.

Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and visibility data for the Sun, Venus, and Moon from UT 00 to 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 094° 094° 094° 093° 093° 093°
Greenwich Culmination Time: 11:56

Table with columns for UT, Sun, Venus, Moon, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and visibility data for the Sun, Venus, and Moon from UT 00 to 23.

UT 02 06 10 14 18 22
SD 16°2 16°2 16°3 16°3 16°3 16°3
HP 00°1 00°1 00°1 00°1 00°1 00°1
SHA 097° 097° 097° 097° 097° 096°
Greenwich Culmination Time: 11:55

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and visibility data for Mars, Jupiter, and Saturn from UT 00 to 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 119° 119° 119° 118° 118° 118°
Greenwich Culmination Time: 10:16

Table with columns for UT, Mars, Jupiter, Saturn, and UT. It lists celestial coordinates (GHA, ddGHA, Dec, dDec) and visibility data for Mars, Jupiter, and Saturn from UT 00 to 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 030° 030° 030° 030° 030° 030°
Greenwich Culmination Time: 16:22

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Table with columns: UT, Sun, Venus, Moon (A: 41%), UT. Rows 00-23 showing astronomical data for each planet.

Table with columns: UT, Mars, Jupiter, Saturn (A: 14%), UT. Rows 00-23 showing astronomical data for each planet.

Table with columns: UT, Sun, Venus, Moon (A: 44%), UT. Rows 00-23 showing astronomical data for each planet.

Table with columns: UT, Mars, Jupiter, Saturn (A: 14%), UT. Rows 00-23 showing astronomical data for each planet.

Table for Dec 20 showing astronomical data for Sun, Venus, Moon, and Mars. Columns include UT, GHA, ddGHA, Dec, dDec, and planet name. Includes Greenwich Culmination Time for each planet.

Table for Dec 21 showing astronomical data for Sun, Venus, Moon, and Mars. Columns include UT, GHA, ddGHA, Dec, dDec, and planet name. Includes Greenwich Culmination Time for each planet.

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

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

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

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

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

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

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

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

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns: UT, GHA, ddGHA, Dec, dDec, GHA, ddGHA, Dec, dDec, GHA, ddGHA, Dec, dDec, UT. Includes A: 82% for Moon.

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

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns: UT, GHA, ddGHA, Dec, dDec, GHA, ddGHA, Dec, dDec, GHA, ddGHA, Dec, dDec, UT. Includes A: 82% for Moon.

Table with columns for UT, Sun, Venus, Moon, and UT. Rows 00-23. Columns: UT, GHA, ddGHA, Dec, dDec, GHA, ddGHA, Dec, dDec, GHA, ddGHA, Dec, dDec, UT. Includes A: 82% for Moon.

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

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Sun					Venus				Moon				A: 90%			
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT			
00	179	17.6	-00.3	S 23 05.8	-00.2	164	28.8	+03.7	S 18 45.7	-00.4	221	15.2	-35.5	S 20 12.0	+10.9	00
01	194	17.3	-00.3	S 23 05.6	-00.2	179	32.5	+03.8	S 18 45.3	-00.5	235	39.7	-35.5	S 20 22.9	+10.8	01
02	209	17.0	-00.3	S 23 05.4	-00.1	194	36.3	+03.8	S 18 44.8	-00.4	250	04.2	-35.7	S 20 33.7	+10.7	02
03	224	16.7	-00.3	S 23 05.3	-00.2	209	40.1	+03.8	S 18 44.4	-00.5	264	28.5	-35.8	S 20 44.4	+10.6	03
04	239	16.4	-00.3	S 23 05.1	-00.2	224	43.9	+03.7	S 18 43.9	-00.4	278	52.7	-35.9	S 20 55.0	+10.4	04
05	254	16.1	-00.3	S 23 04.9	-00.2	239	47.6	+03.8	S 18 43.5	-00.5	293	16.8	-36.1	S 21 05.4	+10.3	05
06	269	15.8	-00.3	S 23 04.7	-00.2	254	51.4	+03.8	S 18 43.0	-00.5	307	40.7	-36.2	S 21 15.7	+10.1	06
07	284	15.5	-00.3	S 23 04.5	-00.2	269	55.2	+03.8	S 18 42.6	-00.5	322	04.5	-36.2	S 21 25.8	+10.1	07
08	299	15.2	-00.3	S 23 04.3	-00.2	284	59.0	+03.8	S 18 42.1	-00.4	336	28.3	-36.4	S 21 35.9	+09.8	08
09	314	14.9	-00.3	S 23 04.1	-00.2	300	02.8	+03.8	S 18 41.7	-00.5	350	51.9	-36.6	S 21 45.7	+09.7	09
10	329	14.6	-00.3	S 23 03.9	-00.1	315	06.6	+03.8	S 18 41.2	-00.4	5	15.3	-36.6	S 21 55.4	+09.6	10
11	344	14.3	-00.3	S 23 03.8	-00.2	330	10.4	+03.8	S 18 40.8	-00.4	19	38.7	-36.7	S 22 05.0	+09.4	11
12	359	14.0	-00.2	S 23 03.6	-00.2	345	14.2	+03.8	S 18 40.4	-00.5	34	02.0	-36.9	S 22 14.4	+09.3	12
13	14	13.8	-00.3	S 23 03.4	-00.2	0	18.0	+03.8	S 18 39.9	-00.5	48	25.1	-37.0	S 22 23.7	+09.1	13
14	29	13.5	-00.3	S 23 03.2	-00.2	15	21.8	+03.8	S 18 39.5	-00.5	62	48.1	-37.1	S 22 32.8	+09.0	14
15	44	13.2	-00.3	S 23 03.0	-00.2	30	25.6	+03.8	S 18 39.0	-00.4	77	11.0	-37.2	S 22 41.8	+08.8	15
16	59	12.9	-00.3	S 23 02.8	-00.2	45	29.4	+03.8	S 18 38.6	-00.5	91	33.8	-37.3	S 22 50.6	+08.7	16
17	74	12.6	-00.3	S 23 02.6	-00.2	60	33.2	+03.9	S 18 38.1	-00.4	105	56.5	-37.4	S 22 59.3	+08.4	17
18	89	12.3	-00.3	S 23 02.4	-00.2	75	37.1	+03.8	S 18 37.7	-00.5	120	19.1	-37.5	S 23 07.7	+08.4	18
19	104	12.0	-00.3	S 23 02.2	-00.2	90	40.9	+03.8	S 18 37.2	-00.4	134	41.6	-37.6	S 23 16.1	+08.1	19
20	119	11.7	-00.3	S 23 02.0	-00.2	105	44.7	+03.8	S 18 36.8	-00.4	149	04.0	-37.7	S 23 24.2	+08.0	20
21	134	11.4	-00.3	S 23 01.8	-00.2	120	48.5	+03.9	S 18 36.4	-00.5	163	26.3	-37.9	S 23 32.2	+07.9	21
22	149	11.1	-00.3	S 23 01.6	-00.2	135	52.4	+03.8	S 18 35.9	-00.4	177	48.4	-37.9	S 23 40.1	+07.6	22
23	164	10.8	-00.3	S 23 01.4	-00.2	150	56.2	+03.8	S 18 35.5	-00.5	192	10.5	-38.0	S 23 47.7	+07.5	23
UT 02 06 10 14 18 22					UT 02 06 10 14 18 22				UT 02 06 10 14 18 22							
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SHA 080° 079° 079° 079° 079° 079°					SHA 065° 065° 065° 065° 065° 065°				SHA 120° 118° 115° 113° 110° 107°							
Greenwich Culmination Time: 12:03					Greenwich Culmination Time: 12:58				Greenwich Culmination Time: 09:38							

Mars					Jupiter				Saturn							
UT	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	GHA	ddGHA	Dec	dDec	UT			
00	208	44.6	+00.5	S 22 23.9	+00.3	126	51.4	+02.0	S 12 16.9	-00.2	145	08.7	+02.2	S 18 02.4	-00.1	00
01	223	45.1	+00.6	S 22 24.2	+00.2	141	53.4	+02.0	S 12 16.7	-00.2	160	10.9	+02.2	S 18 02.3	+00.0	01
02	238	45.7	+00.5	S 22 24.4	+00.3	156	55.4	+02.0	S 12 16.5	-00.2	175	13.1	+02.2	S 18 02.3	-00.1	02
03	253	46.2	+00.6	S 22 24.7	+00.2	171	57.4	+02.0	S 12 16.3	-00.1	190	15.3	+02.2	S 18 02.2	-00.1	03
04	268	46.8	+00.6	S 22 24.9	+00.3	186	59.4	+02.0	S 12 16.2	-00.2	205	17.5	+02.2	S 18 02.1	-00.1	04
05	283	47.4	+00.5	S 22 25.2	+00.2	202	01.4	+02.0	S 12 16.0	-00.2	220	19.7	+02.2	S 18 02.0	+00.0	05
06	298	47.9	+00.6	S 22 25.4	+00.3	217	03.4	+02.0	S 12 15.8	-00.2	235	21.9	+02.2	S 18 02.0	-00.1	06
07	313	48.5	+00.6	S 22 25.7	+00.3	232	05.4	+02.0	S 12 15.6	-00.1	250	24.1	+02.2	S 18 01.9	-00.1	07
08	328	49.1	+00.5	S 22 26.0	+00.2	247	07.4	+02.0	S 12 15.5	-00.2	265	26.3	+02.1	S 18 01.8	-00.1	08
09	343	49.6	+00.6	S 22 26.2	+00.3	262	09.4	+02.0	S 12 15.3	-00.2	280	28.4	+02.2	S 18 01.7	+00.0	09
10	358	50.2	+00.5	S 22 26.5	+00.2	277	11.4	+02.0	S 12 15.1	-00.2	295	30.6	+02.2	S 18 01.7	-00.1	10
11	13	50.7	+00.6	S 22 26.7	+00.3	292	13.4	+02.0	S 12 14.9	-00.1	310	32.8	+02.2	S 18 01.6	-00.1	11
12	28	51.3	+00.6	S 22 27.0	+00.2	307	15.4	+02.0	S 12 14.8	-00.2	325	35.0	+02.2	S 18 01.5	+00.0	12
13	43	51.9	+00.5	S 22 27.2	+00.3	322	17.4	+02.0	S 12 14.6	-00.2	340	37.2	+02.2	S 18 01.5	-00.1	13
14	58	52.4	+00.6	S 22 27.5	+00.2	337	19.4	+02.0	S 12 14.4	-00.2	355	39.4	+02.2	S 18 01.4	-00.1	14
15	73	53.0	+00.6	S 22 27.7	+00.3	352	21.4	+02.0	S 12 14.2	-00.1	10	41.6	+02.2	S 18 01.3	-00.1	15
16	88	53.6	+00.5	S 22 28.0	+00.2	7	23.4	+02.0	S 12 14.1	-00.2	25	43.8	+02.2	S 18 01.2	+00.0	16
17	103	54.1	+00.6	S 22 28.2	+00.3	22	25.4	+02.0	S 12 13.9	-00.2	40	46.0	+02.2	S 18 01.2	-00.1	17
18	118	54.7	+00.5	S 22 28.5	+00.2	37	27.4	+02.0	S 12 13.7	-00.2	55	48.2	+02.2	S 18 01.1	-00.1	18
19	133	55.2	+00.6	S 22 28.7	+00.3	52	29.4	+02.0	S 12 13.5	-00.1	70	50.4	+02.2	S 18 01.0	-00.1	19
20	148	55.8	+00.6	S 22 29.0	+00.2	67	31.4	+02.0	S 12 13.4	-00.2	85	52.6	+02.1	S 18 00.9	+00.0	20
21	163	56.4	+00.5	S 22 29.2	+00.3	82	33.4	+02.0	S 12 13.2	-00.2	100	54.7	+02.2	S 18 00.9	-00.1	21
22	178	56.9	+00.6	S 22 29.5	+00.2	97	35.4	+02.0	S 12 13.0	-00.2	115	56.9	+02.2	S 18 00.8	-00.1	22
23	193	57.5	+00.5	S 22 29.7	+00.3	112	37.4	+02.0	S 12 12.8	-00.1	130	59.1	+02.2	S 18 00.7	-00.1	23
UT 02 06 10 14 18 22					UT 02 06 10 14 18 22				UT 02 06 10 14 18 22							
SD 00°0 00°0 00°0 00°0 00°0 00°0					SD 00°3 00°3 00°3 00°3 00°3 00°3				SD 00°1 00°1 00°1 00°1 00°1 00°1							
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SHA 109° 109° 109° 109° 109° 108°					SHA 027° 027° 027° 027° 027° 027°				SHA 045° 045° 045° 045° 045° 045°							
Greenwich Culmination Time: 10:04					Greenwich Culmination Time: 15:30				Greenwich Culmination Time: 14:17							

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