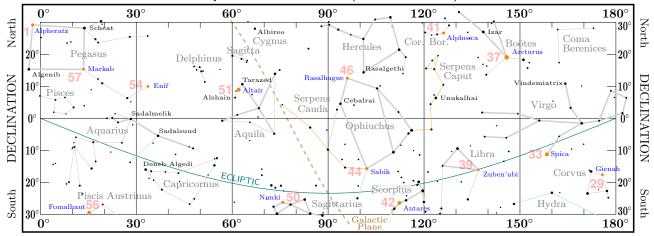
GENERATED USING SKYFIELD

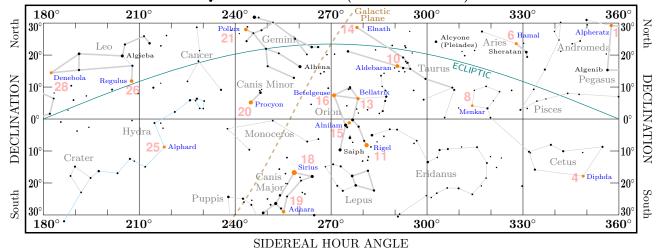
http://rhodesmill.org/skyfield/

EQUATORIAL STARS (SHA 0° to 180°)



SIDEREAL HOUR ANGLE

EQUATORIAL STARS (SHA 180° to 360°)



Lunar Distance

2025

Author: Andrew Bauer

September 7, 2025

Disclaimer: These are computer generated tables - use them at your own risk. They replicate Lunar Distance algorithms with no guarantee of accuracy. They are intended to encourage the use of sextants, be it as a hobby or as a backup when electronics fail. The author claims no liability for any consequences arising from use of these tables and accompanying charts.

Lunar Distance

The Lunar Distance method (or the old method of "lunars") is an 18th century technique to find the time, typically to reset ship's clocks or as an emergency procedure. The method uses the Moon's apparent motion relative to the Sun, planets or stars like a clock to find a reference time (e.g. GMT). "Until 1906, the Nautical Almanac included lunar distance tables showing predicted geocentric angular distances between the Moon and selected bodies in 3-hour intervals. After the tables were dropped, lunar distances fell more or less into oblivion." ¹

"The methods are a good deal more laborious than the more commonplace procedures of celestial navigation. It is perhaps the most difficult possible operation within the discipline of celestial navigation. However, one argument for maintaining celestial skills is the utility of celestial navigation as an emergency substitute for electronic navigation." "Nothing else comes close to the lunar for developing skill with a sextant - and the observation is demanding enough to hold one's interest for a lifetime." Thus it is still a valuable process to learn and indeed worthwhile mastering. (A practised user can routinely find the correct time to within ± 30 seconds.)

"Because the Moon moves much slower across the sky than the stars, its changing position can be used in sort of a reverse process of sight reduction to find the time." 4 "The basic idea of the lunar distance method is easy to comprehend. Since the Moon moves across the celestial sphere at a rate of about 0.5° per hour, the angular distance between the Moon and a celestial body in her path varies at a similar rate and rapidly enough to be used to measure the time. The time corresponding with an observed lunar distance can be found by comparison with tabulated values." 5 (The continuous motion of the Moon through the sky day-by-day implies that different celestial bodies will be selected for LD measurements on different days.)

The following Lunar Distance tables can contain up to 8 celestial bodies per day (due to the page width limitation). Generally, an attempt is made to include an even number of objects to the east and west of the Moon. The maximum LD angle chosen for inclusion in the tables is 120°, which is about the maximum angle a sextant can measure.

The celestial bodies available for LD measurement include the Sun, four planets (Venus, Mars, Jupiter, Saturn), 21 navigational stars (with magnitude ≤ 1.5) and Polaris.

Three different strategies are available to select suitable celestial bodies for inclusion in a daily LD table:

- pick celestial bodies closest to the Moon
- pick celestial bodies with the highest hourly LD delta (for best accuracy in time determination)
- pick the brightest celestial bodies (possibly easier to locate in the sky)

The celestial body LD angle at a particular hour of day still needs to fulfill several requirements:

- the LD of the Sun is >10° as the Moon is hardly visible during New Moon. (This applies to all celestial bodies)
- the LD of the Sun is >40° (otherwise the Moon is not visible)
- only LD angles <120° are tabulated
- the angle between the celestial body and the Sun ("Solar Distance") is $>10^{\circ}$ (otherwise the celestial body might not be visible)
- the Sun is not between the celestial body and the Moon (based on the Right Ascenscion of all three)
- the hourly LD delta is >15' of arc (to avoid measurement errors). "The rate of change of LD becomes zero when LD passes through a minimum or maximum, making an observation useless." 6
- the rate of change of the hourly LD delta does not exceed 0.016° (= 0.96′). This empirical figure removes LD values where linear interpolation (between hours) becomes unreliable.

Suggested further reading: "Stark Tables: For Clearing the Lunar Distance and Finding Universal Time by Sextant Observation" by Bruce Stark, ISBN 978-0-914025-21-4

¹Henning Umland, Chapter 7 - Finding Time and Longitude by Lunar Distances

²Eric Romelczyk, The Journal of Navigation, Volume 72, Issue 6

³Bruce Stark, page vi, Tables For Clearing the Lunar Distance and Finding Universal Time by Sextant Observation

⁴Bruce Stark, https://www.celestaire.com/product/tables-for-clearing-the-lunar-distance/

 $^{^5 \}mathrm{Henning}$ Umland, Chapter 7 - Finding Time and Longitude by Lunar Distances

 $^{^6\}mathrm{Henning}$ Umland, Chapter 7 - Finding Time and Longitude by Lunar Distances

h		Мос	n (1 st Ja	n)		Lı	ınar Distan	ce
Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Venus
0	164°13.2	7.1'	S 25°51.6	7.2'	57.4'	50°35.1	42°25.9	33°53.9
1	178°39.2	7.1'	25°44.4	7.4'	57.4'	50°01.8	41°56.5	33°23.1
2	193°05.4	7.2'	25°37.1	7.5'	57.4'	49°28.4	41°27.2	32°52.2
3	207°31.6	7.2'	25°29.5	7.7'	57.4'	48°55.0	40°57.9	32°21.4
4	221°57.8	7.3'	25°21.9	7.8'	57.5'	48°21.6	40°28.7	31°50.5
5	236°24.1	7.3'	25°14.0	8.0'	57.5'	47°48.2	39°59.6	31°19.6
6	250°50.4	7.4'	S 25°06.1	8.1'	57.5'	47°14.7	39°30.5	30°48.6
7	265°16.8	7.5'	24°57.9	8.3'	57.5'	46°41.2	39°01.6	30°17.7
8	279°43.3	7.5'	24°49.7	8.4'	57.5'	46°07.7	38°32.7	29°46.7
9	294°09.8	7.6'	24°41.2	8.6'	57.6'	45°34.2	38°03.9	29°15.7
10	308°36.4	7.6'	24°32.6	8.7'	57.6'	45°00.7	37°35.2	28°44.7
11	323°03.0	7.7'	24°23.9	8.9'	57.6'	44°27.1	37°06.6	28°13.6
12	337°29.7	7.8'	S 24°15.0	9.0'	57.6'	43°53.5	36°38.2	27°42.6
13	351°56.5	7.8'	24°06.0	9.2'	57.6'	43°19.9	36°09.8	27°11.5
14	6°23.3	7.9'	23°56.9	9.3'	57.7'	42°46.2	35°41.5	26°40.4
15	20°50.1	7.9'	23°47.6	9.4'	57.7'	42°12.6	35°13.4	26°09.3
16	35°17.1	8.0'	23°38.1	9.6'	57.7'	41°38.9	34°45.4	25°38.1
17	49°44.1	8.1'	23°28.5	9.7'	57.7'	41°05.2	34°17.6	25°06.9
18	64°11.2	8.1'	S 23°18.8	9.9'	57.7'	40°31.5	33°49.9	24°35.8
19	78°38.3	8.2'	23°08.9	10.0'	57.8'	39°57.8	33°22.3	24°04.6
20	93°05.5	8.3'	22°58.9	10.1'	57.8'	39°24.0	32°54.9	23°33.3
21	107°32.8	8.3'	22°48.8	10.3'	57.8'	38°50.2	32°27.7	23°02.1
22	122°00.1	8.4'	22°38.5	10.4'	57.8'	38°16.4	32°00.6	22°30.8
23	136°27.5	8.5'	22°28.1	10.5'	57.8'	37°42.6	31°33.7	21°59.5
1 st	SD	= 15.6'	Mer. pas	s. 13:33				

h		Moor	n (2 nd Jai	n)		Lunar D	Distance (objects wit	h largest	t hourly LD	delta)
Thu	GHA	ν	Dec	d	HP	-Rigel	-Jupiter	-Aldebaran	-Saturn	-Fomalhaut	-Venus
0	150°55.0	8.5'	S 22°17.6	10.7'	57.8'				37°08.8	31°07.1	21°28.2
1	165°22.5	8.6'	22°06.9	10.8'	57.9'				36°34.9	30°40.6	20°56.9
2	179°50.1	8.7'	21°56.1	10.9'	57.9'	119°48.2			36°01.0	30°14.3	20°25.6
3	194°17.8	8.7'	$21^{\circ}45.1$	11.1'	57.9'	119°23.0			35°27.1	29°48.3	19°54.3
4	208°45.5	8.8'	21°34.1	11.2'	57.9'	118°57.8		119°45.3	34°53.2	29°22.5	19°22.9
5	223°13.3	8.9'	21°22.9	11.3'	57.9'	118°32.5		119°11.9	34°19.3	28° 56.9	18°51.5
6	237°41.2	9.0'	S 21°11.6	11.4'	58.0'	118°07.1		118°38.4	33°45.3	28°31.6	18°20.1
7	252°09.2	9.0'	21°00.2	11.6'	58.0'	117°41.5		118°04.9	33°11.4	28°06.6	17°48.7
8	266°37.2	9.1'	20°48.6	11.7'	58.0'	117°15.9		117°31.4	32°37.4	27°41.8	17°17.3
9	281°05.3	9.2'	20°36.9	11.8'	58.0'	116°50.2		116°57.9	32°03.4	27° 17.4	16°45.8
10	295°33.4	9.2'	$20^{\circ}25.1$	11.9'	58.0'	116°24.5	119°48.1	116°24.4	31°29.4	26°53.3	16°14.4
11	310°01.7	9.3'	$20^{\circ}13.2$	12.0'	58.0'	115°58.6	119°13.8	115°50.8	30°55.3	26° 29.5	15°42.9
12	324°30.0	9.4'	S 20°01.2	12.1'	58.1'	115°32.6	118°39.5	115°17.2	30°21.3	26°06.0	15°11.5
13	338°58.3	9.4'	19°49.0	12.3'	58.1'	115°06.6	118°05.2	114°43.6	29°47.2	25°42.9	14°40.0
14	353°26.8	9.5'	19°36.8	12.4'	58.1'	114°40.5	117°30.8	114°09.9	29°13.1	25°20.2	14°08.5
15	7°55.3	9.6'	19°24.4	12.5'	58.1'	114°14.3	116°56.4	113°36.3	28°39.0	24° 57.9	13°37.0
16	22°23.9	9.7'	$19^{\circ}11.9$	12.6'	58.1'	113°48.0	116°22.0	113°02.6	28°04.9	24°36.1	13°05.5
17	36°52.5	9.7'	18°59.3	12.7'	58.1'	113°21.6	115°47.6	112°28.9	27°30.7	24°14.6	12°34.0
18	51°21.3	9.8'	S 18°46.6	12.8'	58.2'	112°55.2	115°13.2	111°55.1	26°56.6	23°53.6	12°02.5
19	65°50.0	9.9'	18°33.8	12.9'	58.2'	112°28.7	114°38.8	111°21.4	26°22.4	23°33.1	11°31.0
20	80°18.9	9.9'	18°20.9	13.0'	58.2'	112°02.1	114°04.3	110°47.6	25°48.2	23°13.1	10°59.4
21	94°47.8	10.0'	$18^{\circ}07.8$	13.1'	58.2'	111°35.5	113°29.8	110°13.8	25°14.0	22°53.7	10°27.9
22	109°16.8	10.1'	17°54.7	13.2'	58.2'	111°08.8	112°55.3	109°40.0	24°39.8	22°34.8	9°56.4
23	123°45.9	10.1'	17°41.5	13.3'	58.2'	110°42.0	112°20.8	109°06.2	24°05.5	22°16.5	9°25.0
2nd	SD	_ 15.8 [']	Mor pass	14.27							

h		Moo	n (3 rd Jar	1)		L	unar Dist	ance (obj	jects with I	argest h	ourly LD	delta)	
Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Jupiter	-Aldebaran	-Saturn	±Venus	+Altair	+Sun
0	138°15.0	10.2'	S 17°28.2	13.4'	58.3'		119°44.8	111°46.3	108°32.3	23°31.3	8°53.5		
1	152°44.2	10.3'	$17^{\circ}14.7$	13.5'	58.3'		119°12.6	111°11.7	107°58.5	22°57.0	8°22.0		
2	167°13.5	10.3'	$17^{\circ}01.2$	13.6'	58.3'		118°40.3	110°37.1	107°24.6	22°22.7	7°50.6		
3	181°42.8	10.4'	16°47.6	13.7'	58.3'		118°08.0	110°02.6	106°50.7	21°48.4	7°19.3	38°00.3	i i
4	196°12.2	10.5'	16°33.9	13.8'	58.3'		117°35.6	109°28.0	106°16.7	21°14.1	6°48.0	38°15.7	
5	210°41.7	10.5'	$16^{\circ}20.1$	13.9'	58.3'		117°03.2	108°53.3	105°42.8	20°39.8	6°16.7	38°31.5	41°03.7
6	225°11.2	10.6'	S 16°06.2	14.0'	58.3'		116°30.7	108°18.7	105°08.8	20°05.5	5°45.6	38°47.6	41°35.4
7	239°40.8	10.7'	15°52.2	14.1'	58.4'		115°58.3	107°44.1	104°34.8	19°31.1	5°14.6	39°04.0	42°07.1
8	254°10.4	10.7'	$15^{\circ}38.1$	14.2'	58.4'		115°25.8	107°09.4	104°00.8	18°56.8	4°43.8	39°20.8	42°38.9
9	268°40.1	10.8'	15°24.0	14.2'	58.4'		114°53.2	106°34.7	103°26.8	18°22.4	4°13.3	39°37.9	43°10.7
10	283°09.9	10.8'	$15^{\circ}09.7$	14.3'	58.4'	119°52.3	114°20.7	106°00.0	102°52.8	17°48.0	3°43.1	39°55.4	43°42.4
11	297°39.8	10.9'	14°55.4	14.4'	58.4'	119°20.8	113°48.1	105°25.3	102°18.8	17°13.6	3°13.5	40°13.1	44°14.3
12	312°09.6	11.0'	S 14°41.0	14.5'	58.4'	118°49.3	113°15.4	104°50.6	101°44.7	16°39.2	2°44.8	40°31.2	44°46.1
13	326°39.6	11.0'	14°26.5	14.6'	58.4'	118° 17.6	112°42.8	104°15.9	101°10.6	16°04.8		40°49.5	45°17.9
14	341°09.6	11.1'	$14^{\circ}11.9$	14.7'	58.5'	117°46.0	$112^{\circ}10.1$	103°41.1	100°36.5	15°30.3		41°08.2	45°49.8
15	355°39.7	11.1'	13°57.2	14.7'	58.5'	117° 14.3	111°37.4	103°06.4	100°02.4	14°55.9		41°27.1	46°21.7
16	10°09.8	11.2'	13°42.5	14.8'	58.5'	116°42.5	111°04.6	102°31.6	99°28.3	14°21.4		41°46.3	46°53.6
17	24°40.0	11.2'	13°27.7	14.9'	58.5'	116° 10.8	110°31.8	101°56.8	98°54.2	13°46.9		42°05.8	47°25.5
18	39°10.2	11.3'	S 13°12.8	15.0'	58.5'	115°38.9	109°59.0	101°22.0	98°20.0	13° 12.5		42°25.6	47°57.4
19	53°40.5	11.3'	12°57.8	15.0'	58.5'	115°07.1	109°26.2	100°47.2	97°45.8	12°38.0		42°45.7	48°29.4
20	68°10.9	11.4'	$12^{\circ}42.8$	15.1'	58.5'	114°35.2	108°53.4	100°12.4	97°11.7	12°03.5		43°05.9	49°01.4
21	82°41.3	11.4'	12°27.7	15.2'	58.5'	114°03.3	108°20.5	99°37.5	96°37.5	11°29.0		43°26.5	49°33.3
22	97°11.7	11.5'	$12^{\circ}12.5$	15.2'	58.6'	113°31.3	107°47.6	99°02.7	96°03.3	10°54.5		43°47.3	50°05.3
23	111°42.2	11.5'	11°57.3	15.3'	58.6'	112°59.3	107°14.7	98°27.8	95°29.1	10°20.0	3°41.7	44°08.3	50°37.3
3 rd	SD	= 15.9'	Mer. pass	s. 15:18					Sun SD = 10	6.3 [']			

h Moon (4th Jan)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Jupiter	-Aldebaran	±Saturn	+Venus	+Altair	+Sun				
0	126°12.8	11.6'	S 11°42.0	15.4'	58.6'	112°27.3	106°41.7	97°53.0	94°54.8	9°45.4	4°12.0	44°29.6	51°09.4				
1	140°43.4	11.6'	$11^{\circ}26.6$	15.4'	58.6'	111°55.2	106°08.8	97°18.1	94°20.6	9°10.9	4°42.8	44°51.1	51°41.4				
2	155°14.0	11.7'	$11^{\circ}11.2$	15.5'	58.6'	111°23.1	105°35.8	96°43.2	93°46.3	8°36.4	5°13.8	45° 12.8	52°13.5				
3	169°44.7	11.7'	10°55.7	15.5'	58.6'	110°51.0	105°02.8	96°08.3	93°12.1	8°01.9	5°45.0	45°34.8	52°45.5				
4	184°15.4	11.8'	10°40.2	15.6'	58.6'	110° 18.8	104°29.7	95°33.4	92°37.8	7°27.3	6°16.4	45°56.9	53°17.6				
5	198°46.2	11.8'	$10^{\circ}24.6$	15.7'	58.6'	109°46.6	103°56.7	94°58.4	92°03.5	6°52.8	6°48.0	46° 19.3	53°49.7				
6	213°17.0	11.9'	S 10°08.9	15.7'	58.7'	109°14.4	103°23.6	94°23.5	91°29.2	6°18.3	7°19.6	46°41.9	54°21.8				
7	227°47.9	11.9'	09°53.2	15.8'	58.7'	108°42.1	102°50.5	93°48.5	90°54.9	5°43.8	7°51.4	47°04.6	54°53.9				
8	242°18.8	11.9'	09°37.4	15.8'	58.7'	108°09.9	102°17.4	93°13.6	90°20.6	5°09.4	8°23.2	47°27.6	55°26.1				
9	256°49.8	12.0'	09°21.6	15.9'	58.7'	107°37.6	101°44.3	92°38.6	89°46.2	4°35.0	8°55.0	47° 50.7	55°58.2				
10	271°20.7	12.0'	09°05.7	15.9'	58.7'	107°05.3	101°11.2	92°03.6	89°11.9	4°00.6	9°26.9	48° 14.1	56°30.4				
11	285°51.8	12.1'	08°49.8	16.0'	58.7'	106°32.9	100°38.0	91°28.6	88°37.5	3°26.4	9°58.9	48° 37.6	57°02.6				
12	300°22.8	12.1'	S 08°33.8	16.0'	58.7'	106°00.5	100°04.9	90°53.6	88°03.2	2°52.3	10°30.9	49°01.3	57°34.7				
13	314°53.9	12.1'	$08^{\circ}17.8$	16.1'	58.7'	105°28.1	99°31.7	90°18.6	87°28.8	2°18.6	11°02.9	49°25.2	58°06.9				
14	329°25.0	12.2'	$08^{\circ}01.8$	16.1'	58.7'	104°55.7	98°58.5	89°43.6	86°54.4	1°45.4	11°35.0	49°49.2	58°39.1				
15	343°56.2	12.2'	07°45.6	16.2'	58.7'	104°23.3	98°25.3	89°08.6	86°20.0		12°07.1	50° 13.4	59°11.4				
16	358°27.4	12.2'	07°29.5	16.2'	58.8'	103°50.8	97°52.0	88°33.5	85°45.6		12°39.2	50°37.7	59°43.6				
17	12°58.6	12.3'	$07^{\circ}13.3$	16.2'	58.8'	103°18.3	97°18.8	87°58.5	85°11.2		13°11.4	51°02.3	60°15.8				
18	27°29.9	12.3'	S 06°57.1	16.3'	58.8'	102°45.8	96°45.5	87°23.4	84°36.8		13°43.6	51°26.9	60°48.1				
19	42°01.2	12.3'	06°40.8	16.3'	58.8'	102° 13.3	96°12.3	86°48.4	84°02.4		14°15.8	51°51.7	61°20.4				
20	56°32.5	12.3'	06°24.5	16.3'	58.8'	101°40.8	95°39.0	86°13.3	83°28.0			52° 16.7	61°52.6				
21	71°03.8	12.4'	$06^{\circ}08.1$	16.4'	58.8'	101°08.2	95°05.7	85°38.2	82°53.5		15°20.2	52°41.8	62°24.9				
22	85°35.2	12.4'	$05^{\circ}51.8$	16.4'	58.8'	100°35.6	94°32.4	85°03.1	82°19.1	3°02.8	15°52.5	53°07.0	62°57.2				
23	100°06.5	12.4'	05°35.3	16.4'	58.8'	100°03.1	93°59.1	84°28.0	81°44.7	3°37.0							
4 th	SD	= 16.0'	Mer. pass	. 16:06					Sun SD = 1	l6.3′	12°39.2 50°37.7 59°43. 13°11.4 51°02.3 60°15. 13°43.6 51°26.9 60°48. 14°15.8 51°51.7 61°20. 14°48.0 52°16.7 61°52. 15°20.2 52°41.8 62°24. 3 15°52.5 53°07.0 62°57.						

h Moon (5th Jan) Lunar Distance (objects with largest hourly LD delta)

		11100	11 (3 341	.,			Lunai L		(02)0000	ith largest hourly LD delta)			
Sun	GHA	ν	Dec	d	HP	-Pollux	-Mars	-Jupiter	-Aldebaran	+Saturn	+Venus	+Fomalhaut	+Sun
0	114°37.9	12.4'	S 05°18.9	16.5'	58.8'			83°52.9	81°10.2	4°11.4	16°57.0	24°43.3	64°01.8
1	129°09.4	12.4'	05°02.4	16.5'	58.8'			83°17.8	80°35.7	4°45.9	17° 29.3	25°05.7	64°34.2
2	143°40.8	12.5'	04°45.9	16.5'	58.8'			82°42.7	80°01.3	5°20.5	18°01.6	25° 28.7	65°06.5
3	158°12.3	12.5'	04°29.4	16.6'	58.9'			82°07.5	79°26.8	5°55.2	18°33.9	25°52.0	65°38.8
4	172°43.7	12.5'	04°12.8	16.6'	58.9'			81°32.4	78°52.3	6°29.9	19°06.3	26° 15.8	66°11.2
5	187°15.2	12.5'	03°56.3	16.6'	58.9'			80°57.3	78°17.8	7°04.6	19°38.6	26°40.0	66°43.6
6	201°46.7	12.5'	S 03°39.7	16.6'	58.9'			80°22.1	77°43.3	7°39.3	20°11.0	27°04.5	67°15.9
7	216°18.2	12.5'	03°23.0	16.6'	58.9'			79°46.9	77°08.8	8°14.1	20°43.4	27° 29.4	67°48.3
8	230°49.8	12.5'	03°06.4	16.7'	58.9'	119°50.8		79°11.8	76°34.3	8°48.9	21° 15.7	27° 54.6	68°20.7
9	245°21.3	12.5'	02°49.7	16.7'	58.9'	119° 15.7		78°36.6	75°59.8	9°23.7	21°48.1	28° 20.2	68°53.1
10	259°52.9	12.6'	02°33.0	16.7'	58.9'	118°40.6		78°01.4	75°25.3	9°58.5	22°20.6	28°46.1	69°25.5
11	274°24.4	12.6'	$02^{\circ}16.3$	16.7'	58.9'	118°05.6		77°26.2	74°50.8	10°33.4	22°53.0	29° 12.2	69°57.9
12	288°56.0	12.6'	S 01°59.6	16.7'	58.9'	117° 30.5		76°51.1	74°16.3	11°08.2	23°25.4	29°38.7	70°30.3
13	303°27.5	12.6'	01°42.9	16.7'	58.9'	116°55.4		76°15.9	73°41.8	11°43.1	23°57.8	30°05.4	71°02.8
14	317°59.1	12.6'	$01^{\circ}26.2$	16.7'	58.9'	116°20.3		75°40.7	73°07.2	12°18.0	24°30.3	30° 32.4	71°35.2
15	332°30.7	12.6'	$01^{\circ}09.4$	16.8'	58.9'	115°45.2		75°05.5	72°32.7	12°52.9	25°02.7	30°59.7	72°07.7
16	347°02.2	12.6'	00°52.7	16.8'	59.0'	115° 10.0		74°30.2	71°58.2	13°27.8	25°35.2	31°27.2	72°40.1
17	1°33.8	12.6'	00°35.9	16.8'	59.0'	114°34.9		73°55.0	71°23.6	14°02.7	26°07.7	31°54.9	73°12.6
18	16°05.4	12.6'	S 00°19.1	16.8'	59.0'	113°59.8		73°19.8	70°49.1	14°37.6	26°40.2	32°22.8	73°45.1
19	30°36.9	12.6'	S 00°02.4	16.8'	59.0'	113°24.7		72°44.6	70°14.6	15°12.6	27° 12.7	32°51.0	74°17.5
20	45°08.5	12.5'	N00°14.4	16.8'	59.0'	112°49.5	119°34.2	72°09.3	69°40.0	15°47.5	27°45.2	33° 19.3	74°50.0
21	59°40.0	12.5'	$00^{\circ}31.2$	16.8'	59.0'	112° 14.4	118°58.1	71°34.1	69°05.5	16°22.4	28° 17.7	33°47.9	75°22.5
22	74°11.5	12.5'	00°48.0	16.8'	59.0'	111°39.2	118°22.0	70°58.8	68°30.9	16°57.4	28°50.2	34° 16.6	75°55.0
23	88°43.1	12.5'	01°04.7	16.8'	59.0'	111°04.0	117°45.9	70°23.6	67°56.4	17°32.4	29°22.7	34° 45.5	76°27.5
5 th	SD	= 16.0'	Mer. pass	. 16:54					Sun SD	= 16.3'			

h		Moo	n (6 th Jar	1)			Lunar D	istance	(objects wi	th larges	t hourly	LD delta)	
Mon	GHA	ν	Dec	d	HP	-Mars	-Pollux	-Jupiter	-Aldebaran	+Saturn	+Venus	+Fomalhaut	+Sun
0	103°14.6	12.5'	N 01°21.5	16.8'	59.0'	117°09.7	110°28.9	69°48.3	67°21.9	18°07.3	29°55.3	35°14.6	77°00.0
1	117°46.1	12.5'	01°38.3	16.8'	59.0'	116°33.6	109°53.7	69°13.1	66°47.3	18°42.3	30°27.8	35°43.9	77°32.5
2	132°17.6	12.5'	$01^{\circ}55.1$	16.8'	59.0'	115°57.5	109° 18.5	68° 37.8	66°12.8	19°17.3	31°00.4	36°13.3	78°05.1
3	146°49.1	12.5'	$02^{\circ}11.8$	16.8'	59.0'	115°21.3	108°43.3	68°02.6	65°38.2	19°52.3	31°32.9	36°42.8	78°37.6
4	161°20.5	12.4'	02°28.6	16.7'	59.0'	114°45.2	108°08.1	67°27.3	65°03.7	20°27.3	32°05.5	37°12.5	79°10.1
5	175°52.0	12.4'	$02^{\circ}45.3$	16.7'	59.0'	114°09.0	107°32.9	66°52.0	64°29.1	21°02.3	32°38.1	37°42.4	79°42.7
6	190°23.4	12.4'	N03°02.1	16.7'	59.0'	113°32.9	106°57.7	66° 16.7	63°54.6	21°37.3	33°10.6	38°12.4	80°15.2
7	204°54.8	12.4'	03°18.8	16.7'	59.0'	112°56.7	106°22.5	65°41.5	63°20.1	22°12.3	33°43.2	38°42.5	80°47.8
8	219°26.2	12.4'	03°35.5	16.7'	59.1'	112°20.6	105°47.3	65°06.2	62°45.5	22°47.3	34°15.8	39°12.7	81°20.3
9	233°57.5	12.3'	03°52.2	16.7'	59.1'	111°44.4	105°12.1	64°30.9	62°11.0	23°22.3	34°48.4	39°43.1	81°52.9
10	248°28.9	12.3'	04°08.9	16.7'	59.1'	111°08.2	104°36.9	63°55.6	61°36.5	23°57.4	35°21.0	40°13.5	82°25.5
11	263°00.2	12.3'	04°25.5	16.6'	59.1'	110°32.0	104°01.6	63°20.3	61°01.9	24°32.4	35°53.6	40°44.1	82°58.1
12	277°31.5	12.2'	N04°42.1	16.6'	59.1'	109°55.8	103°26.4	62°45.0	60°27.4	25°07.5	36°26.2	41°14.8	83°30.6
13	292°02.7	12.2'	04°58.8	16.6'	59.1'	109°19.6	102°51.2	62°09.7	59°52.9	25°42.5	36°58.9	41°45.6	84°03.2
14	306°33.9	12.2'	05° 15.4	16.6'	59.1'	108°43.4	102°15.9	61°34.4	59°18.4	26°17.6	37°31.5	42°16.5	84°35.8
15	321°05.1	12.2'	05°31.9	16.5'	59.1'	108°07.2	101°40.7	60°59.1	58°43.9	26°52.6	38°04.1	42°47.5	85°08.4
16	335°36.3	12.1'	05°48.5	16.5'	59.1'	107°31.0	101°05.4	60°23.8	58°09.4	27°27.7	38°36.8	43°18.6	85°41.0
17	350°07.4	12.1'	$06^{\circ}05.0$	16.5'	59.1'	106°54.8	100°30.1	59°48.5	57°34.9	28°02.7	39°09.4	43°49.8	86°13.6
18	4°38.5	12.0'	$N06^{\circ}21.5$	16.5'	59.1'	106°18.6	99°54.9	59° 13.2	57°00.4	28°37.8	39°42.1	44°21.0	86°46.3
19	19°09.5	12.0'	06°38.0	16.4'	59.1'	105°42.3	99° 19.6	58° 37.9	56°25.9	29°12.9	40°14.7	44°52.3	87°18.9
20	33°40.5	12.0'	06°54.4	16.4'	59.1'	105°06.1	98°44.3	58°02.6	55°51.4	29°48.0	40°47.4	45°23.8	87°51.5
21	48°11.5	11.9'	$07^{\circ}10.8$	16.4'	59.1'	104°29.9	98°09.1	57° 27.3	55°16.9	30°23.1	41°20.1	45°55.3	88°24.1
22	62°42.4	11.9'	$07^{\circ}27.1$	16.3'	59.1'	103°53.6	97°33.8	56°52.0	54°42.4	30°58.1	41°52.7	46°26.8	88°56.7
23	77°13.3	11.8'	07°43.5	16.3'	59.1'	103°17.4	96°58.5	56°16.7	54°08.0	31°33.2	42°25.4	46°58.5	89°29.4
6 th	SD	$= 16.1^{\prime}$	Mer. pass	. 17:41					Sun SD	= 16.3'			

h		Moo	n (/" Jar	1)			Lunar	Distance	(objects w	ith larges	st hourly	LD delta)	
Tue	GHA	ν	Dec	d	HP	-Mars	-Pollux	-Jupiter	-Aldebaran	+Saturn	+Venus	+Fomalhaut	+Sun
0	91°44.1	11.8'	N 07°59.8	16.3'	59.1'	102°41.1	96°23.2	55°41.3	53°33.5	32°08.3	42°58.1	47°30.2	90°02.0
1	106°14.9	11.7'	$08^{\circ}16.0$	16.2'	59.1'	102°04.9	95°47.9	55°06.0	52°59.1	32°43.4	43°30.8	48°02.0	90°34.7
2	120°45.7	11.7'	08°32.2	16.2'	59.1'	101°28.6	95°12.6	54°30.7	52°24.7	33°18.5	44°03.5	48°33.8	91°07.3
3	135°16.4	11.6'	08°48.4	16.1'	59.1'	100°52.3	94°37.3	53°55.4	51°50.2	33°53.6	44°36.2	49°05.7	91°40.0
4	149°47.0	11.6'	09°04.5	16.1'	59.1'	100°16.1	94°02.0	53°20.1	51° 15.8	34°28.8	45°08.9	49°37.7	92°12.6
5	164°17.6	11.5'	09°20.6	16.0'	59.1'	99°39.8	93°26.7	52°44.8	50°41.4	35°03.9	45°41.6	50°09.7	92°45.3
6	178°48.2	11.5'	N09°36.7	16.0'	59.1'	99°03.5	92°51.4	52°09.5	50°07.0	35°39.0	46° 14.3	50°41.8	93°17.9
7	193°18.7	11.4'	09°52.7	15.9'	59.1'	98°27.3	92°16.1	51°34.2	49°32.7	$36^{\circ}14.1$	46°47.0	51°13.9	93°50.6
8	207°49.1	11.4'	10°08.6	15.9'	59.1'	97°51.0	91°40.8	50°58.9	48° 58.3	36°49.2	47° 19.7	51°46.1	94°23.2
9	222°19.5	11.3'	10°24.5	15.8'	59.1'	97°14.7	91°05.5	50°23.6	48°24.0	37°24.4	47°52.4	52°18.4	94°55.9
10	236°49.8	11.3'	10°40.3	15.8'	59.1'	96°38.4	90°30.1	49°48.3	47°49.6	37°59.5	48°25.1	52°50.7	95°28.6

37°59.5 95°28.6 49°48.3 10 11.3' 59.1' 15.8 53°23.0 251°20.1 10°56.1 96°02.1 89°54.8 49°13.0 47°15.3 38°34.6 48°57.9 96°01.3 11.2' 59.1' 11 15.7 39°09.8 49°30.6 $\text{N}11^{\circ}11.8$ 95°25.8 $89^{\circ}19.5$ 48°37.7 53°55.4 96°33.9 12 $265^{\circ}50.3$ 11.1' 15.7 59.1' $46^{\circ}41.0$ 88°44.1 46°06.8 39°44.9 280°20.4 $11^{\circ}27.5$ 94°49.5 48°02.4 50°03.3 54°27.8 97°06.6 13 11.1' 15.6' 59.1' 97°39.3 94°13.2 40°20.0 294°50.5 47°27.1 $50^{\circ}36.1$ 55°00.3 11°43.1 88°08.8 45°32.5 14 11.0' 15.6 59.1 51°08.8 51°41.6 87°33.5 86°58.1 93°36.9 46°51.8 98°12.0 309°20.5 11°58.7 40°55.2 55°32.8 11.0' 15.5 59.1 44°58.3 15 323°50.5 12° 14.2 93°00.6 46°16.5 44°24.0 41°30.3 56°05.3 98°44.7 16 10.9' 15.4' 59.2 17 338°20.4 10.8' 12°29.6 15.4' 59.2' 92°24.3 86°22.8 $45^{\circ}41.2$ 43°49.8 $42^{\circ}05.5$ 52°14.3 56°37.9 99°17.3 57°10.6 **N**12°45.0 91°48.0 45°05.9 43°15.7 42°40.6 52°47.1 99°50.0 352°50.2 85°47.5 59.2 18 10.8 15.3 85°12.1 84°36.8 43°15.8 57°43.2 100°22.7 7°20.0 13°00.3 91°11.7 44°30.7 42°41.5 53°19.8 10.7 15.2' 59.2 19 21°49.7 90°35.3 43°55.4 43°50.9 53°52.6 58°15.9 100°55.4 10.6' 13°15.5 15.2' 59.2 42°07.4 20 21 36°19.3 10.5' 13°30.7 15.1' 59.2 89°59.0 84°01.4 43°20.1 41°33.3 44°26.1 54°25.3 58°48.7 101°28.1 $50^{\circ}48.8$ 10.5' $13^{\circ}45.8$ 89°22.7 $83^{\circ}26.1$ $42^{\circ}44.9$ 40°59.2 $45^{\circ}01.2$ 54°58.1 59°21.4 $102^{\circ}00.8$ 23 $65^{\circ}18.3$ 10.4' $14^{\circ}00.8$ 14.9' 59.2' $88^{\circ}46.4$ 82°50.7 $42^{\circ}09.6$ $40^{\circ}25.2$ $45^{\circ}36.4$ $55^{\circ}30.9$ $59^{\circ}54.2$ $102^{\circ}33.5$

7th Mer. pass. 18:30 SD = 16.1'Sun SD = 16.3'

h		Моо	n (8 th Jar	1)			Lunar D	istance	(objects	with larg	est hourl	y LD delta)	
Wed	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Pollux	-Jupiter	+Saturn	+Venus	+Fomalhaut	+Sun
0	79°47.7	10.3'	$N14^{\circ}15.8$	14.9'	59.2'	119°03.5	88° 10.0	82°15.4	41°34.4	46°11.5	56°03.6	60°27.1	103°06.2
1	94°17.0	10.3'	14°30.6	14.8'	59.2'	118°28.1	87°33.7	81°40.0	40°59.1	46°46.7	56°36.4	60°59.9	103°38.9
2	108°46.3	10.2'	14°45.4	14.7'	59.2'	117°52.8	86°57.4	81°04.7	40°23.9	47°21.9	57°09.2	61°32.8	104°11.6
3	123°15.5	10.1'	$15^{\circ}00.1$	14.6'	59.2'	117°17.4	86°21.0	80°29.3	39°48.7	47°57.0	57°41.9	62°05.7	104°44.3
4	137°44.6	10.0'	15°14.8	14.6'	59.2'	116°42.1	85°44.7	79°54.0	39°13.5	48°32.2	58° 14.7	62°38.7	105°17.0
5	152°13.6	9.9'	15°29.3	14.5'	59.2'	116°06.7	85°08.4	79°18.6	38°38.3	49°07.3	58° 47.5	63°11.6	105°49.7
6	166°42.5	9.9'	N 15°43.8	14.4'	59.2'	115°31.4	84°32.0	78°43.3	38°03.1	49°42.5	59°20.2	63°44.6	106°22.4
7	181°11.4	9.8'	15°58.2	14.3'	59.2'	114°56.0	83°55.7	78°07.9	37°27.9	50°17.7	59°53.0	64° 17.7	106°55.1
8	195°40.2	9.7'	$16^{\circ}12.5$	14.2'	59.2'	114°20.7	83° 19.4	77°32.6	36°52.7	50°52.8	60°25.8	64°50.7	107°27.8
9	210°08.9	9.6'	16°26.7	14.1'	59.1'	113°45.3	82°43.0	76°57.2	36°17.6	51°28.0	60°58.6	65°23.8	108°00.5
10	224°37.5	9.5'	16°40.8	14.0'	59.1'	113°10.0	82°06.7	76°21.8	35°42.4	52°03.2	61°31.4	65° 56.8	108°33.2
11	239°06.0	9.5'	16°54.8	13.9'	59.1'	112°34.6	81°30.4	75°46.5	35°07.3	52°38.3	62°04.1	66° 29.9	109°05.9
12	253°34.5	9.4'	$N17^{\circ}08.8$	13.8'	59.1'	111°59.3	80°54.0	75°11.1	34°32.2	53°13.5	62°36.9	67°03.1	109°38.6
13	268°02.9	9.3'	17°22.6	13.7'	59.1'	111°23.9	80° 17.7	74°35.8	33°57.1	53°48.7	63°09.7	67°36.2	110°11.3
14	282°31.1	9.2'	17°36.3	13.6'	59.1'	110°48.6	79°41.3	74°00.4	33°22.0	54°23.8	63°42.5	68°09.4	110°44.0
15	296°59.3	9.1'	17°50.0	13.5'	59.1'	110°13.2	79°05.0	73°25.1	32°46.9	54°59.0	64°15.3	68° 42.5	111°16.7
16	311°27.4	9.0'	18°03.5	13.4'	59.1'	109°37.9	78°28.7	72°49.7	32°11.9	55°34.1	64°48.0	69° 15.7	111°49.4
17	325°55.5	8.9'	18°17.0	13.3'	59.1'	109°02.5	77°52.3	72°14.4	31°36.9	56°09.3	65°20.8	69°48.9	112°22.0
18	340°23.4	8.8'	N18°30.3	13.2'	59.1'	108°27.2	77°16.0	71°39.0	31°01.9	56°44.5	65°53.6	70°22.2	112°54.7
19	354°51.2	8.8'	18°43.5	13.1'	59.1'	107°51.8	76°39.6	71°03.7	30°26.9	57°19.6	66°26.4	70°55.4	113°27.4
20	9°19.0	8.7'	18°56.6	13.0'	59.1'	107°16.5	76°03.3	70°28.3	29°51.9	57°54.8	66°59.2	71°28.7	114°00.1
21	23°46.7	8.6'	19°09.7	12.9'	59.1'	106°41.1	75°27.0	69°53.0	29°17.0	58°29.9	67°32.0	72°01.9	114°32.8
22	38°14.2	8.5'	19°22.6	12.8'	59.1'	106°05.8	74°50.6	69°17.6	28°42.0	59°05.1	68°04.7	72°35.2	115°05.5
23	52°41.7	8.4'	19°35.4	12.7'	59.1'	105°30.4	74°14.3	68°42.3	28°07.1	59°40.2	68° 37.5	73°08.5	115°38.1

	J2 41.1	0.4	19 33.4	12.1	39.1	103 30.4	14 14.3	00 42.5	20 07.1	39 40.2	00 37.3	13 00.3	113 30.1
8 th	SD	= 16.3	1^\prime Mer. pa	ss. 19:2	1				Sun	SD = 16.3	′		
h		Мос	on (9 th Ja	n)			Lunar D	istance	(objects	with large	est hourl	y LD delta)	
Thu	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Pollux	-Jupiter	+Saturn	+Venus	+Fomalhaut	+Sun
0	67°09.1	8.3'	N 19°48.0	12.6'	59.1'	$104^{\circ}55.1$	73°38.0	68°06.9	27°32.3	$60^{\circ}15.4$	69°10.3	73°41.8	116° 10.8
1	81°36.4	8.2'	20°00.6	12.4'	59.1'	104° 19.7	73°01.6	67°31.6	26°57.5	60°50.5	69°43.1	74°15.1	116°43.5
2	96°03.7	8.1'	20°13.1	12.3'	59.1'	103°44.4	72°25.3	66°56.3	26°22.7	61°25.7	70°15.8	74°48.4	117° 16.1
3	110°30.8	8.0'	20°25.4	12.2'	59.1'	103°09.1	71°49.0	66°20.9	25°47.9	62°00.8	70°48.6	75°21.7	117°48.8
4	124°57.8	7.9'	20°37.6	12.1'	59.1'	102°33.7	71° 12.7	65°45.6	25°13.2	62°36.0	71°21.4	75°55.1	118°21.5
5	139°24.8	7.8'	20°49.7	12.0'	59.1'	101°58.4	70°36.3	65°10.3	24°38.5	63°11.1	71°54.2	76°28.4	118°54.1
6	153°51.6	7.8'	N 21°01.6	11.8'	59.1'	101°23.1	70°00.0	64°34.9	24°03.9	63°46.2	72°26.9	77°01.8	119°26.8
7	168°18.4	7.7'	21°13.5	11.7'	59.1'	100°47.8	69°23.7	63°59.6	23°29.3	64°21.4	72°59.7	77°35.1	119°59.4
8	182°45.0	7.6'	21°25.2	11.6'	59.1'	100°12.4	68°47.4	63°24.3	22°54.7	64°56.5	73°32.4	78°08.5	
9	197°11.6	7.5'	21°36.8	11.5'	59.1'	99°37.1	68°11.1	62°49.0	22°20.2	65°31.6	74°05.2	78°41.8	
10	211°38.1	7.4'	21°48.2	11.3'	59.1'	99°01.8	67°34.8	62°13.7	21°45.8	66°06.7	74°38.0	79°15.2	İ
11	226°04.5	7.3'	21°59.5	11.2'	59.1'	$98^{\circ}26.5$	66°58.5	61°38.4	21°11.5	$66^{\circ}41.9$	75°10.7	79°48.6	
12	240°30.8	7.2'	$N22^{\circ}10.7$	11.1'	59.1'	97°51.2	66°22.2	61°03.1	20°37.2	67°17.0	75°43.5	80°21.9	
13	254°57.0	7.1'	22°21.8	10.9'	59.1'	97° 15.9	65°45.9	60°27.8	20°02.9	67°52.1	76°16.2	80°55.3	İ
14	269°23.1	7.0'	22°32.7	10.8'	59.0'	96°40.6	65°09.6	59°52.5	19°28.8	68°27.2	76°48.9	81°28.7	
15	283°49.1	6.9'	22°43.5	10.6'	59.0'	96°05.3	64°33.3	59°17.2	18°54.7	69°02.3	77°21.7	82°02.1	
16	298°15.0	6.8'	22°54.1	10.5'	59.0'	95°30.0	63°57.0	58°41.9	18°20.8	69°37.4	77°54.4	82°35.5	
17	312°40.9	6.8'	23°04.6	10.4'	59.0'	94°54.7	63°20.7	58°06.6	17°46.9	70°12.5	78°27.2	83°08.9	
18	327°06.6	6.7'	N 23°15.0	10.2'	59.0'	94°19.4	62°44.4	57°31.4	17°13.1	70°47.6	78°59.9	83°42.2	
19	341°32.3	6.6'	23°25.2	10.1'	59.0'	93°44.2	62°08.2	56°56.1	16°39.5	71°22.6	79°32.6	84°15.6	
20	355°57.9	6.5'	23°35.2	9.9'	59.0'	93°08.9	61°31.9	56°20.8	16°06.0	71°57.7	80°05.3	84°49.0	
21	10°23.4	6.4'	23°45.2	9.8'	59.0'	92°33.6	60°55.6	55°45.6	15°32.7	72°32.8	80°38.0	85°22.4	
22	24°48.8	6.3'	23°54.9	9.6'	59.0'	91°58.4	60° 19.4	55°10.3	14°59.5	73°07.8	81°10.7	85°55.8	
23	39°14.1	6.2'	24°04.5	9.5'	59.0'	91°23.1	59°43.1	54°35.1	14°26.5	73°42.9	81°43.4	86°29.1	
9 th	SD	= 16.1	' Mer. pas	s. 20:17					Sun S	5D = 16.3'			

h	Moon	(10 th Jan)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Pollux	-Jupiter	+Saturn	+Venus	+Fomalhaut	+Altair
0	53°39.3	6.1'	N24°14.0	9.3'	59.0'	90°47.9	59°06.9	53°59.9	13°53.7	74°17.9	82°16.1	87°02.5	111°09.1
1	68°04.5	6.1'	24°23.3	9.2'	59.0'	90°12.6	58° 30.6	53°24.6	13°21.2	74°53.0	82°48.8	87°35.9	111°37.5
2	82°29.5	6.0'	24°32.5	9.0'	59.0'	89°37.4	57°54.4	52°49.4	12°48.9	75°28.0	83°21.5	88°09.2	112°05.8
3	96°54.5	5.9'	24°41.5	8.8'	59.0'	89°02.2	57°18.2	52°14.2	12°16.9	76°03.0	83°54.2	88°42.6	112°34.1
4	111°19.4	5.8'	24°50.3	8.7'	58.9'	88°27.0	56°42.0	51°39.0	11°45.2	76°38.1	84°26.9	89° 15.9	113°02.3
5	125°44.2	5.7'	24°59.0	8.5'	58.9'	87°51.8	56°05.8	51°03.8	11°13.9	77°13.1	84°59.5	89°49.3	113°30.4
6	140°09.0	5.7'	N25°07.5	8.4'	58.9'	87°16.6	55°29.6	50°28.6	10°43.0	77°48.1	85°32.2	90°22.6	113°58.5
7	154°33.6	5.6'	25°15.9	8.2'	58.9'	86°41.4	54°53.4	49°53.4	10°12.7	78°23.1	86°04.8	90°55.9	114°26.5
8	168°58.2	5.5'	25°24.1	8.0'	58.9'	86°06.2	54° 17.2	49° 18.3	9°42.9	78°58.1	86°37.5	91°29.2	114°54.5
9	183°22.7	5.4'	25°32.1	7.9'	58.9'	85°31.0	53°41.0	48°43.1	9°13.7	79°33.1	87°10.1	92°02.6	115°22.3
10	197°47.1	5.4'	25°40.0	7.7'	58.9'	84°55.8	53°04.8	48°08.0	8°45.4	80°08.0	87°42.7	92°35.9	115°50.1
11	212°11.5	5.3'	25°47.7	7.5'	58.9'	84°20.7	52°28.7	47°32.8	8°17.9	80°43.0	88° 15.4	93°09.1	116°17.9
12	226°35.8	5.2'	N25°55.2	7.4'	58.9'	83°45.5	51°52.5	46°57.7		81°17.9	88°48.0	93°42.4	116°45.5
13	241°00.0	5.1'	26°02.6	7.2'	58.9'	83°10.4	51°16.4	46°22.6		81°52.9	89°20.6	94° 15.7	117°13.1
14	255°24.1	5.1'	26°09.8	7.0'	58.9'	82°35.2	50°40.2	45°47.4		82°27.8	89°53.2	94°49.0	117°40.6
15	269°48.2	5.0'	$26^{\circ}16.8$	6.9'	58.8'	82°00.1	50°04.1	45°12.3		83°02.8	90°25.7	95°22.2	118°08.1
16	284°12.2	4.9'	26°23.7	6.7'	58.8'	81°25.0	49°28.0	44°37.3		83°37.7	90°58.3	95°55.4	118°35.4
17	298°36.1	4.9'	26°30.4	6.5'	58.8'	80°49.9	48°51.9	44°02.2		84°12.6	91°30.9	96°28.6	119°02.7
18	313°00.0	4.8'	N26°36.9	6.3'	58.8'	80°14.8	48° 15.8	43°27.1		84°47.5	92°03.4	97°01.8	119°29.9
19	327°23.8	4.8'	26°43.2	6.1'	58.8'	79°39.7	47°39.7	42°52.0		85°22.4	92°36.0	97°35.0	119°56.9
20	341°47.6	4.7'	26°49.3	6.0'	58.8'	79°04.6	47°03.6	42°17.0		85°57.2	93°08.5	98°08.2	
21	356°11.3	4.7'	26°55.3	5.8'	58.8'	78°29.6	46°27.5	41°42.0		86°32.1	93°41.1	98°41.4	
22	10°35.0	4.6'	27°01.1	5.6'	58.8'	77°54.5	45°51.5	41°06.9		87°06.9	94° 13.6	99° 14.5	
23	24°58.6	4.5'	27°06.7	5.4'	58.8'	77°19.5	45°15.4	40°31.9		87°41.8	94°46.1	99°47.6	
10 th	SD =	= 16.1'	Mer. pass	. 21:16	5								

Moon (11th Jan)

Lunar Distance (objects with largest hourly LD delta)

h		Moor	ı (11 th Ja	n)			Lunar D	istance	(objects	with large	est hourly	LD delta	a)
Sat	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Saturn	+Venus	+Fomalhaut
0	39°22.1	4.5'	N27°12.1	5.3'	58.7'		76°44.5	44°39.4	39°56.9		88° 16.6	95°18.6	100°20.7
1	53°45.6	4.5'	27°17.4	5.1'	58.7'		76°09.5	44°03.4	39°22.0		88°51.4	95°51.1	100°53.8
2	68°09.1	4.4'	27°22.5	4.9'	58.7'		75°34.5	43°27.4	38°47.0		89°26.2	96°23.5	101°26.9
3	82°32.5	4.4'	27°27.3	4.7'	58.7'		74°59.5	42°51.4	38°12.0		90°01.0	96°56.0	101°59.9
4	96°55.8	4.3'	27°32.0	4.5'	58.7'		74°24.5	42°15.4	37°37.1		90°35.8	97°28.4	102°33.0
5	111°19.2	4.3'	27°36.6	4.3'	58.7'		73°49.5	41°39.4	37°02.2		91°10.6	98°00.9	103°06.0
6	125°42.4	4.3'	N27°40.9	4.1'	58.7'		73°14.6	41°03.4	36°27.3		91°45.3	98°33.3	103°39.0
7	140°05.7	4.2'	27°45.0	4.0'	58.7'		72°39.6	40°27.5	35°52.4		92°20.1	99°05.7	104°11.9
8	154°28.9	4.2'	27°49.0	3.8'	58.6'		72°04.7	39°51.6	35°17.5		92°54.8	99°38.1	104°44.9
9	168°52.1	4.2'	27°52.8	3.6'	58.6'		71°29.8	39°15.7	34°42.6		93°29.5	100°10.5	105°17.8
10	183°15.3	4.1'	27°56.4	3.4'	58.6'		70°54.9	38°39.7	34°07.8	8°56.8	94°04.2	100°42.9	105°50.7
11	197°38.4	4.1'	$27^{\circ}59.8$	3.2'	58.6'		70°20.0	38°03.9	33°32.9	9°25.3	94°38.9	101°15.2	106°23.5
12	212°01.5	4.1'	N28°03.0	3.0'	58.6'		69°45.2	37°28.0	32°58.1	9°54.4	95°13.5	101°47.5	106°56.4
13	226°24.6	4.1'	28°06.0	2.8'	58.6'		69°10.3	36°52.1	32°23.3	10°24.1	95°48.2	102°19.9	107°29.2
14	240°47.7	4.1'	28°08.8	2.6'	58.6'		68°35.5	36°16.3	31°48.6	10°54.4	96°22.8	102°52.2	108°02.0
15	255°10.7	4.0'	28°11.5	2.5'	58.5'		68°00.7	35°40.4	31°13.8	11°25.0	96°57.4	103°24.5	108°34.7
16	269°33.8	4.0'	28°13.9	2.3'	58.5'		67°25.9	35°04.6	30°39.1	11°56.1	97°32.0	103°56.8	109°07.4
17	283°56.8	4.0'	28°16.2	2.1'	58.5'		66°51.1	34°28.8	30°04.3	12°27.5	98°06.6	104°29.0	109°40.1
18	298°19.8	4.0'	N 28°18.2	1.9'	58.5'		66°16.3	33°53.0	29°29.6	12°59.2	98°41.2	105°01.3	110°12.8
19	312°42.8	4.0'	28°20.1	1.7'	58.5'	119°42.4	65°41.6	33°17.3	28°54.9	13°31.1	99° 15.7	105°33.5	110°45.4
20	327°05.8	4.0'	$28^{\circ}21.8$	1.5'	58.5'	119°07.7	65°06.8	32°41.5	28°20.3	14°03.3	99°50.3	106°05.7	111°18.1
21	341°28.8	4.0'	28°23.3	1.3'	58.4'	118°32.9	64°32.1	32°05.8	27°45.6	14°35.6	100°24.8	106°37.9	111°50.6
22	355°51.9	4.0'	28°24.6	1.1'	58.4'	117°58.2	63°57.4	31°30.1	27°11.0	15°08.1	100°59.3	107°10.1	112°23.2
23	10°14.9	4.0'	28°25.7	0.9'	58.4'	117°23.5	63°22.7	30°54.4	26°36.4	15°40.8	101°33.8	107°42.3	112°55.7
11 th	SD =	= 16.0'	Mer. pass	. 22:17	7		•			•	•	•	

Moon (12th Jan)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Aldebaran	+Saturn	+Fomalhaut
0	24°37.9	4.0'	N 28°26.7	0.7'	58.4'	116°48.8	62°48.1	30°18.7	26°01.9	16°13.6	20°13.2	102°08.2	113°28.1
1	39°00.9	4.1'	28°27.4	0.5'	58.4'	116°14.1	62°13.4	29°43.0	25°27.3	16°46.5	20°43.1	102°42.7	114°00.6
2	53°24.0	4.1'	28°27.9	0.4'	58.4'	115°39.5	61°38.8	29°07.4	24°52.8	17°19.5	21° 13.2	103°17.1	114°33.0
3	67°47.1	4.1'	28°28.3	0.2'	58.3'	115°04.9	61°04.2	28°31.8	24°18.3	17°52.7	21°43.5	103°51.5	115°05.3
4	82°10.1	4.1'	28°28.5	-0.0'	58.3'	114°30.2	60°29.6	27°56.2	23°43.8	18°25.9	22°14.0	104°25.9	115°37.7
5	96°33.3	4.1'	28°28.5	-0.2'	58.3'	113°55.6	59°55.1	27°20.6	23°09.3	18°59.1	22°44.7	105°00.3	116°09.9
6	110°56.4	4.2'	N 28°28.2	-0.4'	58.3'	113°21.1	59°20.5	26°45.0	22°34.9	19°32.5	23° 15.5	105°34.6	116°42.2
7	125°19.5	4.2'	28°27.8	-0.6'	58.3'	112°46.5	58°46.0	26°09.5	22°00.5	20°05.9	23°46.5	106°09.0	117°14.4
8	139°42.7	4.2'	28°27.3	-0.8'	58.2'	112°12.0	58°11.5	25°33.9	21°26.1	20°39.3	24° 17.6	106°43.3	117°46.5
9	154°05.9	4.2'	28°26.5	-1.0'	58.2'	111°37.4	57°37.0	24°58.4	20°51.8	21°12.8	24°48.8	107°17.6	118°18.6
10	168°29.2	4.3'	28°25.5	-1.1'	58.2'	111°02.9	57°02.5	24°22.9	20° 17.5	21°46.4	25°20.1	107°51.9	118°50.7
11	182°52.5	4.3'	28°24.4	-1.3'	58.2'	110°28.5	56°28.1	23°47.5	19°43.2	22°20.0	25°51.6	108°26.1	119°22.7
12	197°15.8	4.4'	N 28°23.0	-1.5'	58.2'	109°54.0	55°53.6	23°12.0	19°08.9	22°53.6	26°23.1	109°00.3	119°54.7
13	211°39.2	4.4'	$28^{\circ}21.5$	-1.7'	58.2'	109°19.6	55°19.2	22°36.6	18°34.7	23°27.2	26° 54.7	109°34.5	
14	226°02.6	4.5'	$28^{\circ}19.8$	-1.9'	58.1'	108°45.2	54°44.9	22°01.2	18°00.5	24°00.9	27°26.5	110°08.7	
15	240°26.0	4.5'	28°17.9	-2.1'	58.1'	108°10.8	54°10.5	21°25.8	17°26.4	24°34.5	27°58.3	110°42.9	
16	254°49.5	4.6'	28°15.8	-2.3'	58.1'	107°36.4	53°36.2	20°50.4	16°52.3	25°08.2	28°30.1	111°17.0	
17	269°13.1	4.6'	28°13.6	-2.4'	58.1'	107°02.1	53°01.8	20°15.1	16° 18.2	25°41.9	29°02.1	111°51.2	
18	283°36.7	4.7'	$N28^{\circ}11.1$	-2.6'	58.1'	106°27.7	52°27.6	19°39.8	15°44.2	26°15.6	29°34.1	112°25.3	
19	298°00.4	4.7'	28°08.5	-2.8'	58.0'	105°53.4	51°53.3	19°04.5	15° 10.2	26°49.4	30°06.1	112°59.3	
20	312°24.1	4.8'	28°05.7	-3.0'	58.0'	105°19.1	51°19.0	18°29.2	14°36.2	27°23.1	30°38.2	113°33.4	
21	326°47.9	4.9'	28°02.7	-3.2'	58.0'	104°44.9	50°44.8	17°54.0	14°02.3	27°56.8	31°10.4	114°07.4	
22	341°11.7	4.9'	27°59.6	-3.3'	58.0'	104°10.7	50°10.6	17°18.7	13°28.5	28°30.6	31°42.6	114°41.4	
23	355°35.7	5.0'	27°56.2	-3.5'	58.0'	103°36.4	49°36.4	16°43.5	12°54.7	29°04.3	32°14.8	115°15.4	
12 th	SD :	= 15.9'	Mer. pas	s. 23:18									

Moon (13th Jan) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Capella	+Jupiter	+Aldebaran	+Saturn
0	9°59.6	5.1'	N 27°52.7	-3.7'	57.9'	103°02.3	49°02.3	16°08.3	12°21.0	25°41.9	29°38.1	32°47.1	115°49.4
1	24°23.7	5.1'	27°49.0	-3.9'	57.9'	102°28.1	48°28.2	15°33.2	11°47.4	26°06.2	30°11.8	33° 19.4	116°23.3
2	38°47.8	5.2'	27°45.2	-4.0'	57.9'	101°54.0	47°54.1	14°58.1	11°13.8	26°30.8	30°45.5	33°51.7	116°57.2
3	53°12.0	5.3'	27°41.1	-4.2'	57.9'	101°19.8	47°20.0	14°23.0	10°40.3	26°55.7	31°19.3	34°24.1	117°31.1
4	67°36.3	5.4'	27°36.9	-4.4'	57.8'	100°45.8	46°45.9	13°47.9	10°06.9	27°21.0	31°53.0	34° 56.5	118°04.9
5	82°00.6	5.4'	27°32.5	-4.6'	57.8'	100°11.7	46°11.9	13° 12.8	9°33.6	27°46.5	32°26.7	35°28.9	118°38.8
6	96°25.1	5.5'	N27°28.0	-4.7'	57.8'	99°37.7	45°37.9	12°37.8	9°00.4	28°12.2	33°00.4	36°01.4	119°12.6
7	110°49.6	5.6'	27°23.3	-4.9'	57.8'	99°03.6	45°04.0	12°02.8	8°27.4	28°38.2	33°34.1	36°33.8	119°46.4
8	125°14.2	5.7'	27°18.4	-5.1'	57.8'	98°29.7	44°30.0	11°27.8	7°54.5	29°04.4	34°07.8	37°06.3	
9	139°38.9	5.8'	27°13.3	-5.2'	57.7'	97°55.7	43°56.1	10°52.9	7°21.9	29°30.9	34°41.5	37° 38.8	
10	154°03.6	5.9'	27°08.1	-5.4'	57.7'	97°21.8	43°22.2	10° 17.9	6°49.4	29°57.6	35°15.1	38° 11.3	
11	168°28.5	5.9'	27°02.7	-5.5'	57.7'	96°47.8	42°48.3	9°43.0	6°17.3	30°24.4	35°48.8	38°43.8	
12	182°53.4	6.0'	N26°57.2	-5.7'	57.7'	96°14.0	42°14.5	9°08.2	5°45.5	30°51.5	36°22.4	39° 16.3	
13	197°18.5	6.1'	26°51.5	-5.9'	57.6'	95°40.1	41°40.7	8°33.3	5°14.1	31°18.7	36°56.0	39°48.8	
14	211°43.6	6.2'	26°45.6	-6.0'	57.6'	95°06.3	41°06.9	7°58.5	4°43.4	31°46.1	37°29.6	40°21.3	
15	226°08.8	6.3'	26°39.6	-6.2'	57.6'	94°32.5	40°33.1	7°23.7	4°13.4	32°13.7	38°03.2	40°53.8	
16	240°34.2	6.4'	26°33.4	-6.3'	57.6'	93°58.7	39°59.4	6°49.0		32°41.4	38°36.8	41°26.4	
17	254°59.6	6.5'	26°27.1	-6.5'	57.5'	93°24.9	39°25.7	6°14.2		33°09.2	39°10.3	41°58.9	
18	269°25.1	6.6'	N26°20.6	-6.6'	57.5'	92°51.2	38°52.0	5°39.5		33°37.2	39°43.9	42°31.4	
19	283°50.7	6.7'	26°13.9	-6.8'	57.5'	92°17.5	38°18.4	5°04.9		34°05.4	40°17.4	43°03.9	
20	298°16.4	6.8'	26°07.2	-6.9'	57.5'	91°43.9	37°44.8	4°30.2		34°33.6	40°50.9	43° 36.5	
21	312°42.3	6.9'	26°00.2	-7.1'	57.5'	91°10.2	37°11.2	3°55.7		35°02.0	41°24.3	44°09.0	
22	327°08.2	7.0'	25°53.1	-7.2'	57.4'	90°36.6	36°37.7	3°21.1		35°30.4	41°57.8	44°41.5	
23	341°34.2	7.1'	25°45.9	-7.4'	57.4'	90°03.0	36°04.1	2°46.6		35°59.0	42°31.2	45°14.0	
13 th	SD	= 15.8	B' Mer. pa	ss:-									

Moon (14th Jan) Lunar Distance (objects with largest hourly LD delta) h

			, -	,					· · · J · · · · ·		55 mai 1.		,
Tue	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Regulus	±Mars	+Pollux	+Capella	+Jupiter	+Aldebaran
0	356°00.4	7.2'	N 25°38.5	-7.5'	57.4'	89°29.5	87°25.7	35°30.6	2°12.2		36°27.7	43°04.6	45°46.5
1	10°26.6	7.4'	25°31.0	-7.7'	57.4'	88°56.0	86° 57.5	34°57.2	1°37.9		36°56.5	43°38.0	46°19.0
2	24°53.0	7.5'	25°23.3	-7.8'	57.3'	88°22.5	86°29.4	34°23.8	1°03.9		37°25.3	44°11.4	46°51.5
3	39°19.4	7.6'	$25^{\circ}15.5$	-7.9'	57.3'	87°49.0	86°01.2	33°50.4			37°54.3	44°44.7	47°24.0
4	53°46.0	7.7'	25°07.6	-8.1'	57.3'	87°15.6	85°33.1	33°17.0			38°23.3	45°18.0	47°56.4
5	68°12.7	7.8'	24°59.5	-8.2'	57.3'	86°42.1	85°05.1	32°43.6			38°52.4	45°51.3	48°28.9
6	82°39.5	7.9'	N24°51.3	-8.4'	57.2'	86°08.8	84°37.1	32°10.3		5°09.0	39°21.6	46°24.6	49°01.3
7	97°06.4	8.0'	24°42.9	-8.5'	57.2'	85°35.4	84°09.1	31°37.1	1°50.3	5°39.8	39°50.8	46° 57.8	49°33.7
8	111°33.4	8.1'	24°34.4	-8.6'	57.2'	85°02.1	83°41.1	31°03.8	2°24.4	6°11.0	40°20.1	47°31.1	50°06.1
9	126°00.5	8.2'	24°25.8	-8.7'	57.2'	84°28.8	83° 13.2	30°30.6	2°58.6	6°42.5	40°49.5	48°04.3	50°38.5
10	140°27.7	8.4'	$24^{\circ}17.1$	-8.9'	57.1'	83°55.6	82°45.3	29°57.4	3°32.8	7°14.2	41°18.9	48°37.4	51°10.9
11	154°55.1	8.5'	24°08.2	-9.0'	57.1'	83°22.3	82°17.4	29°24.3	4°06.9	7°46.1	41°48.3	49°10.6	51°43.3
12	169°22.6	8.6'	N23°59.2	-9.1'	57.1'	82°49.1	81°49.6	28°51.2	4°41.1	8°18.2	42°17.9	49°43.7	52°15.6
13	183°50.1	8.7'	23°50.1	-9.2'	57.1'	82°16.0	81°21.8	28°18.1	5°15.2	8°50.4	42°47.4	50°16.8	52°47.9
14	198°17.8	8.8'	23°40.8	-9.4'	57.0'	81°42.8	80°54.1	27°45.0	5°49.3	9°22.6	43°17.0	50°49.9	53°20.2
15	212°45.7	8.9'	23°31.5	-9.5'	57.0'	81°09.7	80°26.4	27°12.0	6°23.4	9°55.0	43°46.7	51°22.9	53°52.5
16	227°13.6	9.0'	23°22.0	-9.6'	57.0'	80°36.6	79°58.8	26°39.1	6°57.5	10°27.3	44°16.4	51°55.9	54°24.8
17	241°41.6	9.2'	23°12.4	-9.7'	57.0'	80°03.6	79°31.2	26°06.1	7°31.5	10°59.8	44°46.1	52°28.9	54°57.1
18	256°09.8	9.3'	N23°02.7	-9.8'	56.9'	79°30.6	79°03.6	25°33.2	8°05.5	11°32.2	45°15.8	53°01.8	55°29.3
19	270°38.0	9.4'	22°52.8	-9.9'	56.9'	78°57.6	78°36.1	25°00.3	8°39.5	12°04.7	45°45.6	53°34.8	56°01.5
20	285°06.4	9.5'	22°42.9	-10.1'	56.9'	78°24.6	78°08.6	24°27.5	9°13.4	12°37.2	46°15.4	54°07.7	56°33.7
21	299°34.9	9.6'	22°32.8	-10.2'	56.8'	77°51.7	77°41.2	23°54.7	9°47.3	13°09.6	46°45.3	54°40.5	57°05.9
22	314°03.5	9.7'	22°22.7	-10.3'	56.8'	77°18.8	77°13.8	23°21.9	10°21.2	13°42.1	47°15.1	55°13.4	57°38.0
23	328°32.3	9.8'	22°12.4	-10.4'	56.8'	76°46.0	76°46.5	22°49.2	10°55.1	14°14.6	47°45.0	55°46.2	58°10.2
14 th	SD	= 15.6	5′ Mer. pas	ss. 00:17									

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I_	Moon (15 th Ian)	Lunar Distance (objects with largest hourly LD delta)
n	MOOD LID. IDDI	I linar i listance i oniects with largest nollriv i i l'ideita i

Wed	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	343°01.1	10.0'	N 22°02.0	-10.5'	56.8'		76°19.2	76°13.1	22°16.5	11°28.9	14°47.1	56° 19.0	58°42.3
1	357°30.1	10.1'	21°51.5	-10.6'	56.7'		75°52.0	75°40.3	21°43.8	12°02.7	15°19.6	56°51.8	59°14.4
2	11°59.1	10.2'	21°40.9	-10.7'	56.7'		75°24.8	75°07.6	21°11.2	12°36.4	15°52.1	57°24.5	59°46.4
3	26°28.3	10.3'	21°30.3	-10.8'	56.7'		74°57.7	74°34.8	20°38.7	13°10.2	16°24.5	57°57.2	60°18.5
4	40°57.6	10.4'	$21^{\circ}19.5$	-10.9'	56.7'	119°56.2	74°30.6	74°02.1	20°06.1	13°43.9	16°56.9	58°29.8	60°50.5
5	55°27.0	10.5'	$21^{\circ}08.6$	-11.0'	56.6'	119°23.5	74°03.6	73°29.5	19°33.6	14°17.5	17°29.4	59°02.5	61°22.5
6	69°56.6	10.6'	N 20°57.6	-11.1'	56.6'	118°50.9	73°36.6	72°56.8	19°01.2	14°51.2	18°01.8	59°35.1	61°54.4
7	84°26.2	10.8'	20°46.5	-11.2'	56.6'	118° 18.3	73°09.7	72°24.2	18°28.7	15°24.8	18°34.2	60°07.7	62°26.4
8	98°56.0	10.9'	20°35.4	-11.3'	56.6'	117° 45.7	72°42.8	71°51.6	17°56.4	15°58.3	19°06.5	60°40.2	62°58.3
9	113°25.8	11.0'	20°24.1	-11.3'	56.5'	117° 13.1	72°16.0	71°19.1	17°24.1	16°31.9	19°38.9	61°12.8	63°30.2
10	127°55.8	11.1'	20°12.8	-11.4'	56.5'	116°40.6	71°49.3	70°46.6	16°51.8	17°05.4	20°11.2	61°45.2	64°02.1
11	142°25.9	11.2'	20°01.3	-11.5'	56.5'	116°08.2	71°22.6	70°14.1	16°19.5	17°38.9	20°43.5	62°17.7	64°33.9
12	156°56.1	11.3'	N 19°49.8	-11.6'	56.5'	115°35.7	70°56.0	69°41.7	15°47.3	18°12.3	21°15.8	62°50.1	65°05.7
13	171°26.4	11.4'	19°38.2	-11.7'	56.4'	115°03.3	70°29.4	69°09.2	15°15.2	18°45.7	21°48.1	63°22.5	65°37.5
14	185°56.8	11.5'	$19^{\circ}26.5$	-11.8'	56.4'	114°30.9	70°02.9	68°36.9	14°43.1	19°19.1	22°20.3	63°54.9	66°09.3
15	200°27.4	11.6'	$19^{\circ}14.7$	-11.9'	56.4'	113°58.6	69°36.5	68°04.5	14°11.1	19°52.4	22°52.5	64°27.3	66°41.0
16	214°58.0	11.7'	19°02.9	-11.9'	56.3'	113°26.2	69°10.1	67°32.2	13°39.1	20°25.8	23°24.7	64°59.6	67°12.7
17	229°28.7	11.9'	18°50.9	-12.0'	56.3'	112°54.0	68°43.8	66°59.9	13°07.2	20°59.0	23°56.9	65°31.8	67°44.4
18	243°59.6	12.0'	N 18°38.9	-12.1'	56.3'	112°21.7	68°17.6	66°27.6	12°35.3	21°32.3	24°29.0	66°04.1	68°16.0
19	258°30.6	12.1'	18°26.8	-12.2'	56.3'	111°49.5	67°51.4	65°55.4	12°03.5	22°05.5	25°01.1	66°36.3	68°47.7
20	273°01.6	12.2'	$18^{\circ}14.7$	-12.2'	56.2'	111°17.3	67°25.3	65°23.2	11°31.8	22°38.7	25°33.2	67°08.5	69°19.3
21	287°32.8	12.3'	18°02.4	-12.3'	56.2'	110°45.1	66°59.3	64°51.1	11°00.2	23°11.9	26°05.2	67°40.6	69°50.9
22	302°04.1	12.4'	17°50.1	-12.4'	56.2'	110°13.0	66°33.3	64°18.9	10°28.6	23°45.0	26°37.2	68° 12.8	70°22.4
23	316°35.4	12.5'	17°37.7	-12.4'	56.2'	109°40.9	66°07.4	63°46.8	9°57.1	24°18.1	27°09.2	68°44.9	70°53.9
15 th	SD	= 15.5	Mer. pas	s. 01:10									

Moon (16th Jan)

h		Моо	n (16 th Ja	n)			Lunar Di	stance (objects w	ith large	st hourly	LD delta	1)
Thu	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	331°06.9	12.6'	$N17^{\circ}25.3$	-12.5'	56.1'	109°08.8	65°41.6	63°14.8	9°25.8	24°51.1	27°41.2	69°16.9	71°25.4
1	345°38.5	12.7'	$17^{\circ}12.8$	-12.6'	56.1'	108°36.8	65°15.8	62°42.8	8°54.5	25°24.2	28°13.1	69°49.0	71°56.9
2	0°10.2	12.8'	17°00.2	-12.6'	56.1'	108°04.8	64°50.2	62°10.8	8°23.4	25°57.2	28°45.0	70°21.0	72°28.3
3	14°41.9	12.9'	16°47.6	-12.7'	56.1'	107°32.8	64°24.6	61°38.8	7°52.4	26°30.1	29°16.9	70°52.9	72°59.7
4	29°13.8	13.0'	16°34.8	-12.8'	56.0'	107°00.9	63°59.1	61°06.8	7°21.6	27°03.1	29°48.8	71°24.9	73°31.1
5	43°45.8	13.1'	$16^{\circ}22.1$	-12.8'	56.0'	106°29.0	63°33.6	60°34.9	6°51.0	27°36.0	30°20.6	71°56.8	74°02.5
6	58°17.9	13.2'	$N16^{\circ}09.2$	-12.9'	56.0'	105°57.1	63°08.2	60°03.1	6°20.6	28°08.8	30°52.4	72°28.7	74°33.8
7	72°50.0	13.3'	15°56.4	-12.9'	56.0'	105°25.3	62°43.0	59°31.2	5°50.5	28°41.7	31°24.2	73°00.5	75°05.1
8	87°22.3	13.4'	15°43.4	-13.0'	55.9'	104°53.5	62°17.8	58°59.4	5°20.8	29° 14.5	31°55.9	73°32.3	75°36.4
9	101°54.6	13.4'	15°30.4	-13.1'	55.9'	104°21.7	61°52.6	58°27.6	4°51.6	29°47.2	32°27.6	74°04.1	76°07.6
10	116°27.1	13.5'	$15^{\circ}17.3$	-13.1'	55.9'	103°49.9	61°27.6	57°55.9	4°23.0	30°20.0	32°59.3	74°35.9	76°38.8
11	130°59.6	13.6'	15°04.2	-13.2'	55.9'	103°18.2	61°02.7	57°24.2	3°55.2	30°52.7	33°30.9	75°07.6	77°10.0
12	145°32.3	13.7'	$N14^{\circ}51.1$	-13.2'	55.8'	102°46.5	60°37.8	56°52.5		31°25.4	34°02.6	75°39.3	77°41.1
13	160°05.0	13.8'	14°37.8	-13.3'	55.8'	102°14.9	60°13.0	56°20.8		31°58.0	34°34.1	76°11.0	78°12.3
14	174°37.8	13.9'	14°24.6	-13.3'	55.8'	101°43.3	59°48.3	55°49.2		32°30.7	35°05.7	76°42.6	78°43.4
15	189°10.7	14.0'	$14^{\circ}11.2$	-13.4'	55.8'	101°11.7	59°23.7	55°17.6		33°03.2	35°37.2	77°14.2	79°14.4
16	203°43.7	14.1'	13°57.9	-13.4'	55.7'	100°40.1	58°59.2	54°46.0		33°35.8	36°08.7	77°45.8	79°45.5
17	218°16.8	14.2'	13°44.5	-13.5'	55.7'	100°08.6	58°34.8	54°14.5		34°08.3	36°40.2	78°17.3	80°16.5
18	232°49.9	14.2'	N 13°31.0	-13.5'	55.7'	99°37.1	58°10.5	53°43.0		34°40.8	37°11.7	78°48.8	80°47.5
19	247°23.1	14.3'	13°17.5	-13.5'	55.7'	99°05.6	57°46.3	53°11.5		35° 13.3	37°43.1	79°20.3	81°18.4
20	261°56.5	14.4'	13°04.0	-13.6'	55.6'	98°34.2	57°22.2	52°40.1		35°45.7	38°14.5	79°51.8	81°49.4
21	276°29.9	14.5'	12°50.4	-13.6'	55.6'	98°02.7	56°58.1	52°08.7		36° 18.1	38°45.8	80°23.2	82°20.3
22	291°03.4	14.6'	12°36.8	-13.7'	55.6'	97°31.4	56°34.2	51°37.3		36° 50.5	39°17.2	80°54.6	82°51.1
23	305°36.9	14.6'	12°23.1	-13.7'	55.6'	97°00.0	56°10.4	51°06.0		37°22.9	39°48.5	81°25.9	83°22.0

23	305°36.9	14.6	12°23.1	-13.7	55.6	97°00.0	56°10.4	51°06.0		37°22.9	39°48.5	81°25.9	83°22.0
16 th	SD	= 15.3'	Mer. pas	s. 01:59									
h		Moor	n (17 th Ja	an)			Lunar Dis	tance (o	bjects w	ith large	st hourly	LD delta	1)
Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Mars	+Pollux	+Jupiter	+Aldebaran
0	320°10.6	14.7'	N 12°09.4	-13.7'	55.5'	96°28.7	88°32.8	84°37.8	50°34.6	37°55.2	40° 19.7	81°57.3	83°52.8
1	334°44.3	14.8'	11°55.7	-13.8'	55.5'	95°57.4	88°08.1	84°13.9	50°03.4	38°27.4	40°51.0	82°28.6	84°23.6
2	349°18.1	14.9'	$11^{\circ}41.9$	-13.8'	55.5'	95°26.1	87°43.6	83°50.0	49°32.1	38°59.7	41°22.2	82°59.8	84°54.3
3	3°51.9	14.9'	11°28.1	-13.8'	55.5'	94°54.9	87°19.0	83°26.1	49°00.9	39°31.9	41°53.4	83°31.1	85°25.1
4	18°25.9	15.0'	$11^{\circ}14.2$	-13.9'	55.4'	94°23.7	86°54.5	83°02.3	48°29.7	40°04.1	42°24.5	84°02.3	85°55.8
5	32°59.9	15.1'	11°00.3	-13.9'	55.4'	93°52.5	86°30.0	82°38.5	47°58.5	40°36.3	42°55.7	84°33.5	86°26.4
6	47°34.0	15.2'	N 10°46.4	-13.9'	55.4'	93°21.4	86°05.5	82°14.8	47°27.3	41°08.4	43°26.8	85°04.6	86°57.1
7	62°08.1	15.2'	10°32.5	-14.0'	55.4'	92°50.3	85°41.1	81°51.1	46°56.2	41°40.5	43°57.8	85°35.8	87°27.7
8	76°42.4	15.3'	$10^{\circ}18.5$	-14.0'	55.4'	92°19.2	85°16.7	81°27.4	46°25.1	42°12.6	44°28.9	86°06.9	87°58.3
9	91°16.7	15.4'	10°04.5	-14.0'	55.3'	91°48.1	84°52.3	81°03.8	45°54.1	42°44.7	44°59.9	86°37.9	88° 28.8
10	105°51.0	15.4'	09°50.5	-14.0'	55.3'	91°17.1	84°28.0	80°40.2	45°23.0	43°16.7	45°30.9	87°09.0	88°59.4
11	120°25.4	15.5'	09°36.5	-14.1'	55.3'	90°46.1	84°03.6	80°16.7	44°52.0	43°48.7	46°01.9	87°40.0	89°29.9
12	134°59.9	15.6'	N09°22.4	-14.1'	55.3'	90°15.1	83°39.4	79°53.2	44°21.1	44°20.7	46°32.8	88°11.0	90°00.4
13	149°34.5	15.6'	09°08.3	-14.1'	55.2'	89°44.2	83°15.1	79°29.7	43°50.1	44°52.6	47°03.7	88°42.0	90°30.8
14	164°09.1	15.7'	08°54.2	-14.1'	55.2'	89°13.3	82°50.9	79°06.3	43°19.2	45°24.5	47°34.6	89°12.9	91°01.2
15	178°43.8	15.7'	08°40.0	-14.2'	55.2'	88°42.4	82°26.7	78°42.9	42°48.3	45°56.4	48°05.4	89°43.8	91°31.6
16	193°18.5	15.8'	08°25.9	-14.2'	55.2'	88°11.5	82°02.6	78°19.6	42°17.4	46°28.2	48°36.3	90°14.7	92°02.0
17	207°53.3	15.8'	$08^{\circ}11.7$	-14.2'	55.2'	87°40.7	81°38.5	77°56.3	41°46.6	47°00.1	49°07.1	90°45.5	92°32.3
18	222°28.1	15.9'	N07°57.5	-14.2'	55.1'	87°09.8	81°14.4	77°33.0	41°15.8	47°31.9	49°37.9	91°16.3	93°02.7
19	237°03.0	16.0'	07°43.3	-14.2'	55.1'	86°39.1	80°50.4	77°09.8	40°45.0	48°03.6	50°08.6	91°47.1	93°33.0
20	251°38.0	16.0'	$07^{\circ}29.0$	-14.3'	55.1'	86°08.3	80°26.4	76°46.7	40°14.3	48°35.4	50°39.3	92°17.9	94°03.2
21	266°13.0	16.1'	07°14.8	-14.3'	55.1'	85°37.6	80°02.4	76°23.6	39°43.5	49°07.1	51°10.0	92°48.6	94°33.5
22	280°48.1	16.1'	$07^{\circ}00.5$	-14.3'	55.0'	85°06.9	79°38.5	76°00.5	39°12.8	49°38.8	51°40.7	93°19.4	95°03.7
23	295°23.2	16.2'	06°46.2	-14.3'	55.0'	84°36.2	79°14.6	75°37.5	38°42.1	50°10.5	52°11.4	93°50.1	95°33.8
17 th	SD	- 15 1 [']	Mer nas	s 02·44									

h		Moo	n (18 th Ja	ın)			Lunar Dist	ance (ob	jects wit	h largest	hourly L	D delta)	
Sat	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	309°58.4	16.2'	N 06°31.9	-14.3'	55.0'	84°05.5	78°50.8	75°14.6	38°11.5	15° 57.6	50°42.1	52°42.0	94°20.7
1	324°33.6	16.3'	$06^{\circ}17.6$	-14.3'	55.0'	83°34.9	78°27.0	74°51.7	37°40.9	16°27.9	51°13.7	53°12.6	94°51.4
2	339°08.8	16.3'	06°03.3	-14.3'	55.0'	83°04.3	78°03.2	74°28.8	37°10.2	16°58.3	51°45.3	53°43.2	95°22.0
3	353°44.1	16.4'	05°48.9	-14.3'	54.9'	82°33.7	77°39.5	74°06.0	36°39.7	17°28.7	52°16.9	54°13.7	95°52.6
4	8°19.5	16.4'	05°34.6	-14.4'	54.9'	82°03.2	77°15.9	73°43.3	36°09.1	17°59.0	52°48.5	54°44.2	96°23.1
5	22°54.9	16.4'	05°20.2	-14.4'	54.9'	81°32.6	76°52.2	73°20.6	35°38.6	18° 29.4	53°20.0	55°14.7	96°53.7
6	37°30.3	16.5'	N 05°05.8	-14.4'	54.9'	81°02.1	76°28.6	72°57.9	35°08.1	18° 59.7	53°51.5	55°45.2	97°24.2
7	52°05.8	16.5'	04°51.5	-14.4'	54.9'	80°31.6	76°05.1	72°35.3	34°37.6	19°30.0	54°22.9	56°15.7	97°54.7
8	66°41.3	16.6'	04°37.1	-14.4'	54.9'	80°01.2	75°41.6	72°12.8	34°07.1	20°00.3	54°54.4	56°46.1	98°25.1
9	81°16.9	16.6'	04°22.7	-14.4'	54.8'	79°30.7	75°18.2	71°50.3	33°36.7	20°30.6	55° 25.8	57°16.5	98°55.6
10	95°52.5	16.6'	04°08.3	-14.4'	54.8'	79°00.3	74°54.8	71°27.9	33°06.3	21°00.9	55°57.2	57°46.9	99°26.0
11	110°28.1	16.7'	03°53.9	-14.4'	54.8'	78°29.9	74°31.4	71°05.5	32°35.9	21°31.1	56°28.6	58°17.3	99°56.4
12	125°03.8	16.7'	N03°39.5	-14.4'	54.8'	77°59.6	74°08.1	70°43.2	32°05.5	22°01.3	56°59.9	58°47.6	100°26.8
13	139°39.5	16.7'	$03^{\circ}25.1$	-14.4'	54.8'	77°29.2	73°44.8	70°21.0	31°35.2	22°31.6	57°31.3	59°17.9	100°57.1
14	154°15.2	16.8'	$03^{\circ}10.7$	-14.4'	54.7'	76°58.9	73°21.6	69°58.8	31°04.9	23°01.8	58°02.6	59°48.2	101°27.4
15	168°51.0	16.8'	02°56.3	-14.4'	54.7'	76°28.6	72°58.5	69°36.7	30°34.5	23°32.0	58° 33.9	60°18.5	101°57.7
16	183°26.8	16.8'	02°41.9	-14.4'	54.7'	75°58.3	72°35.3	69°14.6	30°04.3	24°02.1	59°05.1	60°48.8	102°28.0
17	198°02.6	16.9'	02°27.5	-14.4'	54.7'	75°28.1	72°12.3	68°52.6	29°34.0	24°32.3	59°36.4	61°19.0	102°58.3
18	212°38.5	16.9'	$N02^{\circ}13.1$	-14.4'	54.7'	74°57.8	71°49.3	68°30.7	29°03.8	25°02.4	60°07.6	61°49.2	103°28.5
19	227°14.4	16.9'	$01^{\circ}58.7$	-14.4'	54.7'	74°27.6	71°26.3	68°08.8	28°33.6	25° 32.5	60°38.8	62°19.4	103°58.7
20	241°50.3	16.9'	01°44.3	-14.4'	54.6'	73°57.4	71°03.4	67°47.0	28°03.4	26°02.6	61°10.0	62°49.6	104°28.9
21	256°26.2	17.0'	$01^{\circ}29.9$	-14.4'	54.6'	73°27.2	70°40.6	67°25.3	27°33.2	26° 32.7	61°41.1	63°19.7	104°59.1
22	271°02.1	17.0'	$01^{\circ}15.5$	-14.4'	54.6'	72°57.1	70°17.8	67°03.6	27°03.0	27°02.8	62° 12.3	63°49.9	105°29.2
23	285°38.1	17.0'	$01^{\circ}01.1$	-14.4'	54.6'	72°26.9	69°55.0	66°42.0	26°32.9	27°32.8	62°43.4	64°20.0	105°59.4
18 th	SD	= 15.0	Mer. pas	s. 03:26									

Mer. pass. 04:06

SD = 14.9'

19th

h		Моо	n (19 th Ja	n)			Lunar Dis	tance (o	bjects wi	th largest	hourly L	.D delta)	
Sun	GHA	ν	Dec	d	HP	-Sun	-Altair	-Antares	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	300°14.1	17.0'	N 00°46.7	-14.4'	54.6'		119°03.3	71°56.8	26°02.8	28°02.9	63°14.5	64°50.1	106°29.5
1	314°50.1	17.0'	00°32.3	-14.4'	54.6'		118°39.9	71°26.7	25°32.7	28°32.9	63°45.6	65°20.1	106°59.6
2	329°26.2	17.1'	$00^{\circ}18.0$	-14.4'	54.6'		118°16.5	70°56.6	25°02.6	29°02.9	64°16.6	65°50.2	107°29.7
3	344°02.2	17.1'	N 00°03.6	-14.4'	54.5'	119°33.2	117°53.1	70°26.6	24°32.5	29°32.9	64°47.7	66°20.2	107°59.7
4	358°38.3	17.1'	S 00°10.8	-14.3'	54.5'	119°05.8	117°29.6	69°56.5	24°02.5	30°02.8	65°18.7	66°50.3	108°29.7
5	13°14.4	17.1'	$00^{\circ}25.1$	-14.3'	54.5'	118°38.4	117°06.1	69°26.5	23°32.5	30°32.8	65°49.7	67°20.3	108°59.8
6	27°50.5	17.1'	S 00°39.4	-14.3'	54.5'	118°11.1	116°42.5	68°56.5	23°02.4	31°02.7	66°20.7	67°50.3	109°29.8
7	42°26.6	17.1'	00°53.8	-14.3'	54.5'	117°43.7	116°18.9	68°26.5	22°32.5	31°32.6	66°51.7	68° 20.2	109°59.7
8	57°02.7	17.1'	$01^{\circ}08.1$	-14.3'	54.5'	117°16.4	115°55.3	67°56.5	22°02.5	32°02.6	67°22.6	68° 50.2	110°29.7
9	71°38.9	17.1'	$01^{\circ}22.4$	-14.3'	54.5'	116°49.1	115°31.6	67°26.6	21°32.5	32°32.5	67°53.6	69°20.1	110°59.6
10	86°15.0	17.2'	01°36.7	-14.3'	54.4'	116°21.8	115°08.0	66°56.6	21°02.6	33°02.3	68°24.5	69°50.0	111°29.6
11	100°51.2	17.2'	$01^{\circ}51.0$	-14.3'	54.4'	115°54.6	114°44.2	66°26.7	20°32.6	33°32.2	68°55.4	70°19.9	111°59.5
12	115°27.3	17.2'	S 02°05.2	-14.3'	54.4'	115°27.3	114°20.5	65°56.8	20°02.7	34°02.1	69°26.3	70°49.8	112°29.4
13	130°03.5	17.2'	$02^{\circ}19.5$	-14.2'	54.4'	115°00.0	113°56.7	65°26.9	19°32.8	34°31.9	69°57.2	71° 19.7	112°59.2
14	144°39.6	17.2'	02°33.7	-14.2'	54.4'	114°32.8	113°32.8	64°57.0	19°03.0	35°01.7	70°28.0	71°49.6	113°29.1
15	159°15.8	17.2'	02°47.9	-14.2'	54.4'	114°05.6	113°09.0	64°27.1	18°33.1	35°31.5	70°58.9	72°19.4	113°58.9
16	173°52.0	17.2'	$03^{\circ}02.1$	-14.2'	54.4'	113°38.4	112°45.1	63°57.3	18°03.2	36°01.3	71°29.7	72°49.3	114°28.8
17	188°28.2	17.2'	03°16.3	-14.2'	54.4'	113°11.2	112°21.2	63°27.5	17°33.4	36°31.1	72°00.5	73°19.1	114°58.6
18	203°04.3	17.2'	S 03°30.5	-14.2'	54.4'	112°44.0	111°57.3	62°57.6	17°03.6	37°00.9	72°31.3	73°48.9	115°28.4
19	217°40.5	17.2'	03°44.6	-14.1'	54.3'	112°16.9	111°33.3	62°27.8	16°33.8	37°30.7	73°02.1	74° 18.7	115°58.1
20	232°16.7	17.2'	03°58.8	-14.1'	54.3'	111°49.7	111°09.3	61°58.0	16°04.0	38°00.4	73°32.9	74°48.5	116°27.9
21	246°52.8	17.2'	$04^{\circ}12.9$	-14.1'	54.3'	111°22.6	110°45.3	61°28.2	15°34.2	38°30.1	74°03.6	75° 18.2	116°57.7
22	261°29.0	17.2'	04°27.0	-14.1'	54.3'	110°55.4	110°21.3	60°58.5	15°04.4	38°59.9	74°34.4	75°48.0	117°27.4
23	276°05.1	17.1'	04°41.1	-14.0'	54.3'	110°28.3	109°57.2	60°28.7	14°34.6	39°29.6	75°05.1	76° 17.7	117°57.1

 $\mathsf{Sun}\;\mathsf{SD}=16.2'$

h		Мооі	n (20 th Ja	an)			Lunar Dis	tance (o	bjects wi	th largest	hourly L	.D delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Altair	-Antares	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	290°41.3	17.1'	S 04°55.1	-14.0'	54.3'	110°01.2	109°33.1	59°58.9	14°04.9	39°59.3	75°35.9	76°47.5	118°26.8
1	305°17.4	17.1'	$05^{\circ}09.1$	-14.0'	54.3'	109°34.1	109°09.0	59°29.2	13°35.2	40°29.0	76°06.6	77°17.2	118°56.5
2	319°53.6	17.1'	05°23.1	-14.0'	54.3'	109°07.0	108°44.9	58° 59.5	13°05.4	40°58.7	76°37.3	77°46.9	119°26.2
3	334°29.7	17.1'	05°37.1	-14.0'	54.3'	108°39.9	108°20.8	58°29.8	12°35.7	41°28.4	77°08.0	78°16.6	119°55.9
4	349°05.8	17.1'	$05^{\circ}51.1$	-13.9'	54.3'	108°12.9	107°56.6	58°00.0	12°06.0	41°58.0	77°38.6	78°46.3	
5	3°41.9	17.1'	$06^{\circ}05.0$	-13.9'	54.3'	107°45.8	107°32.4	57°30.3	11°36.3	42°27.7	78°09.3	79°16.0	
6	18°17.9	17.1'	S 06°18.9	-13.9'	54.3'	107°18.8	107°08.2	57°00.7	11°06.6	42°57.3	78°40.0	79°45.6	
7	32°54.0	17.0'	06°32.8	-13.9'	54.2'	106°51.7	106°44.0	56°31.0	10°36.9	43°27.0	79° 10.6	80°15.3	
8	47°30.0	17.0'	06°46.6	-13.8'	54.2'	106°24.7	106°19.7	56°01.3	10°07.3	43°56.6	79°41.3	80°44.9	
9	62°06.1	17.0'	07°00.5	-13.8'	54.2'	105°57.6	105°55.5	55°31.6	9°37.6	44°26.2	80°11.9	81°14.6	
10	76°42.1	17.0'	$07^{\circ}14.2$	-13.8'	54.2'	105°30.6	105°31.2	55°02.0	9°07.9	44°55.9	80°42.5	81°44.2	
11	91°18.1	17.0'	07°28.0	-13.7'	54.2'	105°03.6	105°06.9	54°32.3	8°38.3	45°25.5	81°13.1	82°13.9	
12	105°54.0	16.9'	S 07°41.8	-13.7'	54.2'	104°36.6	104°42.6	54°02.7	8°08.7	45°55.1	81°43.7	82°43.5	
13	120°30.0	16.9'	07°55.5	-13.7'	54.2'	104°09.6	104°18.2	53°33.1	7°39.0	46°24.7	82°14.3	83°13.1	
14	135°05.9	16.9'	$08^{\circ}09.1$	-13.6'	54.2'	103°42.6	103°53.9	53°03.4	7°09.4	46°54.3	82°44.9	83°42.7	
15	149°41.8	16.9'	08°22.8	-13.6'	54.2'	103°15.6	103°29.5	52°33.8	6°39.8	47°23.9	83° 15.5	84°12.3	
16	164°17.7	16.8'	08°36.4	-13.6'	54.2'	102°48.6	103°05.2	52°04.2	6°10.2	47°53.4	83°46.1	84°41.9	
17	178°53.5	16.8'	08°50.0	-13.5'	54.2'	102°21.7	102°40.8	51°34.6	5°40.6	48°23.0	84°16.7	85°11.5	
18	193°29.3	16.8'	S 09°03.5	-13.5'	54.2'	101°54.7	102°16.4	51°05.0	5°11.0	48°52.6	84°47.3	85°41.1	
19	208°05.1	16.8'	09°17.0	-13.5'	54.2'	101°27.7	101°51.9	50°35.4	4°41.4	49°22.2	85° 17.8	86°10.7	
20	222°40.9	16.7'	09°30.5	-13.4'	54.2'	101°00.8	101°27.5	50°05.8	4°11.8	49°51.7	85°48.4	86°40.2	
21	237°16.6	16.7'	09°43.9	-13.4'	54.2'	100°33.8	101°03.1	49°36.2	3°42.2	50°21.3	86°18.9	87°09.8	
22	251°52.3	16.7'	09°57.4	-13.4'	54.2'	100°06.8	100°38.6	49°06.6	3°12.6	50°50.8	86°49.5	87°39.4	
23	266°27.9	16.6'	10°10.7	-13.3'	54.2'	99°39.9	100°14.1	48°37.0	2°43.1	51°20.4	87°20.0	88°08.9	
20 th	SD	= 14.8'	Mer. pas	s. 04:45					Sun SD	= 16.2'			

h		Moo	n (21 st Ja	n)			Lunar Di	stance (c	bjects v	vith larges	t hourly	LD delta	1)
Tue	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	±Spica	+Regulus	+Mars	+Pollux	+Capella
0	281°03.6	16.6'	S 10°24.0	-13.3'	54.2'	99°49.7	99°12.9	48°07.5	2°13.5	51°49.9	87°50.6	88°38.5	118°03.9
1	295°39.2	16.6'	10°37.3	-13.3'	54.2'	99°25.2	98°46.0	47°37.9	1°44.0	52°19.5	88°21.1	89°08.1	118°31.6
2	310°14.7	16.5'	10°50.6	-13.2'	54.2'	99°00.7	98° 19.0	47°08.3	1°14.5	52°49.0	88°51.7	89°37.6	118°59.3
3	324°50.2	16.5'	11°03.8	-13.2'	54.2'	98°36.1	97°52.1	46°38.7	0°45.2	53°18.6	89°22.2	90°07.2	119°27.0
4	339°25.7	16.4'	$11^{\circ}17.0$	-13.1'	54.2'	98°11.6	97°25.1	46°09.1	$0^{\circ}16.5$	53°48.1	89°52.7	90°36.7	119°54.7
5	354°01.1	16.4'	11°30.1	-13.1'	54.2'	97°47.1	96°58.2	45°39.6		54°17.7	90°23.3	91°06.3	
6	8°36.5	16.3'	S 11°43.2	-13.0'	54.2'	97°22.5	96°31.3	45°10.0		54°47.2	90°53.8	91°35.8	
7	23°11.9	16.3'	$11^{\circ}56.2$	-13.0'	54.2'	96°58.0	96°04.3	44°40.4	1°14.0	55°16.8	91°24.3	92°05.4	
8	37° 47.2	16.3'	$12^{\circ}09.3$	-13.0'	54.2'	96°33.4	95°37.4	44°10.9	1°43.5	55°46.3	91°54.9	92°35.0	
9	52°22.4	16.2'	12°22.2	-12.9'	54.2'	96°08.8	95°10.4	43°41.3	2°13.0	56°15.9	92°25.4	93°04.5	
10	66°57.7	16.2'	$12^{\circ}35.1$	-12.9'	54.2'	95°44.2	94°43.5	43°11.7	2°42.5	56°45.4	92°55.9	93°34.1	
11	81°32.8	16.1'	12°48.0	-12.8'	54.2'	95°19.6	94° 16.5	42°42.1	3°12.1	57°15.0	93°26.5	94°03.6	
12	96°07.9	16.1'	S 13°00.8	-12.8'	54.2'	94°55.0	93°49.6	42°12.6	3°41.6	57°44.5	93°57.0	94°33.2	
13	110°43.0	16.0'	13°13.6	-12.7'	54.2'	94°30.4	93°22.6	41°43.0	4°11.2	58°14.1	94°27.5	95°02.7	
14	125°18.0	16.0'	13°26.3	-12.7'	54.2'	94°05.8	92°55.7	41°13.4	4°40.8	58°43.6	94°58.1	95°32.3	
15	139°53.0	15.9'	13°39.0	-12.6'	54.2'	93°41.2	92°28.7	40°43.8	5°10.3	59°13.2	95°28.6	96°01.9	
16	154°27.9	15.9'	13°51.6	-12.6'	54.2'	93°16.5	92°01.7	40°14.2	5°39.9	59°42.7	95°59.1	96°31.4	
17	169°02.8	15.8'	14°04.2	-12.5'	54.2'	92°51.9	91°34.8	39°44.7	6°09.5	60°12.3	96°29.7	97°01.0	
18	183°37.6	15.8'	S 14°16.7	-12.5'	54.2'	92°27.2	91°07.8	39°15.1	6°39.1	60°41.9	97°00.2	97°30.6	
19	198°12.4	15.7'	14°29.2	-12.4'	54.2'	92°02.6	90°40.8	38°45.5	7°08.7	61°11.4	97°30.8	98°00.2	
20	212°47.1	15.6'	$14^{\circ}41.7$	-12.4'	54.2'	91°37.9	90°13.8	38°15.9	7°38.3	61°41.0	98°01.3	98° 29.7	
21	227°21.7	15.6'	$14^{\circ}54.0$	-12.3'	54.2'	91°13.3	89°46.9	37°46.3	8°07.9	62°10.6	98°31.9	98°59.3	
22	241°56.3	15.5'	$15^{\circ}06.4$	-12.3'	54.2'	90°48.6	89° 19.9	37°16.6	8°37.5	62°40.2	99°02.5	99°28.9	
23	256° 30.8	15.5'	$15^{\circ}18.6$	-12.2'	54.2'	90°23.9	88°52.9	36°47.0	9°07.1	63°09.8	99°33.0	99°58.5	
21 st	SD	= 14.8'	Mer. pas	s. 05:25					Sun S	D = 16.2'			

Moon (22nd Jan) Lunar Distance (objects with largest hourly LD delta) h Wed HP +Regulus **GHA** ν Dec d -Altair -Sun -Antares +Spica +Procyon +Mars +Pollux 271°05.3 **S**15°30.8 89°59.2 88°25.9 36°17.4 63°39.4 100°03.6 100°28.1 15.4 -12.254.2 9°36.7 96°31.2 0 15°43.0 35°47.8 10°06.4 285°39.7 15.3 54.2 89°34.5 87°58.9 64°09.0 96°58.9 $100^{\circ}34.2$ 100°57.7 -12.11 10°36.0 11°05.7 300°14.0 15°55.1 87°31.9 $35^{\circ}18.1$ 64°38.6 97°26.6 $101^{\circ}04.8$ $101^{\circ}27.4$ 15.3 -12.0' 54.2 $89^{\circ}09.8$ 314°48.3 87°04.8 97°54.4 101°57.0 $16^{\circ}07.1$ -12.0' 54.2' $88^{\circ}45.1$ $34^{\circ}48.5$ 65°08.2 $101^{\circ}35.4$ 15.2 34°18.8 98°22.1 4 329°22.5 15.1 $16^{\circ}19.1$ -11.9 54 3' 88°20.4 86°37.8 11°35.3 65°37.9 102°06.0 102°26.6 343°56.7 16°31.0 86°10.8 33°49.2 66°07.5 98°49.8 102°36.6 5 15.1 -11.9 54.3' 87°55.7 12°05.0 102°56.3 6 358°30.8 15.0' $\mathbf{S}16^{\circ}42.9$ -11.8' 54.3' $87^{\circ}31.0$ $85^{\circ}43.7$ $33^{\circ}19.5$ 12°34.6 66°37.2 $99^{\circ}17.5$ $103^{\circ}07.2$ $103^{\circ}25.9$ 87°06.2 103°55.6 $13^{\circ}04.8$ $16^{\circ}54.7$ 85°16.7 32°49.8 13°04.3 67°06.8 $99^{\circ}45.3$ $103^{\circ}37.8$ 14.9' -11.7' 54.3' 17°06.4 17°18.1 17°29.7 84°49.6 67°36.5 8 $27^{\circ}38.7$ 14.9 -11.7 54.3' $86^{\circ}41.5$ $32^{\circ}20.1$ $13^{\circ}34.0$ $100^{\circ}\,13.0$ $104^{\circ}08.4$ $104^{\circ}25.3$ 42°12.6 31°50.4 31°20.7 14°03.7 14°33.4 104°54.9 68°06.2 86°16.8 84°22.5 100°40.8 104°39.1 9 14.8 -11.6' 54.3' 105°09.7 85°52.1 68°35.9 101°08.5 105°24.6 56°46.4 83°55.4 10 14.7 -11.5 54.3 71°20.1 17°41.2 30°51.0 15°03.1 69°05.6 105°40.4 85°27.3 83°28.3 101°36.2 105°54.3 11 14.7 -11.5' 54.3 **S**17°52.7 69°35.3 106°11.1 12 $85^{\circ}53.8$ 14.6 -11.4' 54.3 $85^{\circ}02.6$ $83^{\circ}01.2$ $30^{\circ}21.3$ $15^{\circ}32.9$ $102^{\circ}04.0$ $106^{\circ}24.0$ 18°04.1 29°51.5 70°05.0 106°41.8 106°53.7 100°27.4 16°02.6 102°31.7 13 14.5 -11.3' 54.3' 84°37.9 82°34.1 29°21 8 70°34.7 102°59.5 107°12.5 18°15 5 84°131 82°07.0 16°32.3 107°23 5 14 115°00 9 14.4 -11.3 54 3' 71°04.5 71°34.2 81°39.8 81°12.7 17°02.1 17°31.9 129°34.4 83°48.4 28°52.0 103°27.2 107°43.2 107°53.2 14.4 18°26.8 15 -11.2 54.4 144°07.7 18°38.0 103°55.0 108°13.9 108°23.0 14.3 -11.1 54.4 83°23.6 28°22.3 16 17 $158^{\circ}41.0$ 14.2 $18^{\circ}49.1$ 54.4 $82^{\circ}58.9$ $80^{\circ}45.5$ $27^{\circ}52.5$ $18^{\circ}01.7$ 72°04.0 $104^{\circ}22.8$ 108°44.6 $108^{\circ}52.7$ -11.1 **S**19°00.2 80°18.3 109°15.3 82°34 1 27°22 7 72°33 8 104°50 5 173°14 2 18° 31 5 109°22 5 18 14.1 -11.0 54 4' 19°11.2 82°09.4 79°51.1 26°52.9 73°03.6 105°18.3 109°46.1 109°52.3 187°47.4 19°01.3 19 14.1 -10.9'54.4 202°20.4 19°22.1 81°44.6 79°23.9 19°31.1 73°33.4 105°46.1 110°16.9 14.0 26°23.0 110°22.1 -10.854.4 20 21 216°53.4 13.9 19°33.0 54.4 81°19.9 78°56.7 25°53.2 20°01.0 74°03.2 106° 13.9 $110^{\circ}47.6$ 110°51.9 -10.8 231°26.3 19°43.7 54.4' $80^{\circ}55.1$ 78°29.5 25°23.3 $20^{\circ}30.8$ 74°33.0 $106^{\circ}41.6$ 111°18.4 111°21.8 13.8 -10.7' 23 $245^{\circ}59.1$ 13.7 $19^{\circ}54.4$ -10.6' 54.4 $80^{\circ}30.4$ $78^{\circ}02.2$ $24^{\circ}53.5$ $21^{\circ}00.7$ $75^{\circ}02.9$ $107^{\circ}09.4$ $111^{\circ}49.2$ $111^{\circ}51.6$ 22nd SD = 14.8'Sun SD = 16.2Mer. pass. 06:06

h		Мооі	n (23 rd Ja	ın)			Lunar [Distance	(objects	with large	st hourly l	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	+Spica	+Regulus	+Procyon	+Mars	+Pollux
0	260°31.9	13.7'	S 20°05.0	-10.5'	54.5'	80°05.6	77°35.0	24°23.6	21°30.6	75°32.7	107°37.2	112°20.1	112°21.5
1	275°04.5	13.6'	$20^{\circ}15.6$	-10.5'	54.5'	79°40.9	77°07.7	23°53.7	22°00.5	76°02.6	108°05.0	112°50.9	112°51.4
2	289°37.1	13.5'	20°26.1	-10.4'	54.5'	79°16.2	76°40.4	23°23.8	22°30.4	76°32.5	108°32.8	113°21.7	113°21.3
3	304°09.6	13.4'	20°36.4	-10.3'	54.5'	78°51.4	76°13.1	22°53.8	23°00.3	77°02.4	109°00.6	113°52.6	113°51.2
4	318°42.0	13.3'	20°46.7	-10.2'	54.5'	78°26.7	75°45.8	22°23.9	23°30.3	77°32.4	109°28.4	114°23.5	114°21.1
5	333°14.3	13.2'	20°57.0	-10.1'	54.5'	78°01.9	75°18.4	21°53.9	24°00.2	78°02.3	109°56.2	114°54.4	114°51.1
6	347°46.5	13.1'	S 21°07.1	-10.1'	54.5'	77°37.2	74°51.1	21°23.9	24°30.2	78°32.3	110°24.0	115°25.3	115°21.0
7	2°18.7	13.1'	$21^{\circ}17.2$	-10.0'	54.6'	77°12.5	74°23.7	20°53.9	25°00.2	79°02.3	110°51.8	115°56.2	115°51.0
8	16°50.7	13.0'	21°27.1	-9.9'	54.6'	76°47.8	73°56.3	20°23.9	25°30.2	79°32.3	111°19.6	116°27.2	116°21.0
9	31°22.7	12.9'	21°37.0	-9.8'	54.6'	76°23.0	73°28.9	19°53.9	26°00.3	80°02.3	111°47.4	116°58.2	116°51.0
10	45°54.6	12.8'	21°46.8	-9.7'	54.6'	75°58.3	73°01.4	19°23.8	26°30.3	80°32.3	112°15.3	117°29.2	117°21.1
11	60°26.4	12.7'	$21^{\circ}56.5$	-9.6'	54.6'	75°33.6	72°34.0	18°53.8	27°00.4	81°02.4	112°43.1	118°00.2	117°51.1
12	74°58.1	12.6'	S 22°06.2	-9.5'	54.6'	75°08.9	72°06.5	18°23.7	27°30.5	81°32.5	113°10.9	118°31.2	118°21.2
13	89°29.7	12.5'	22°15.7	-9.4'	54.7'	74°44.2	71°39.0	17°53.6	28°00.6	82°02.6	113°38.7	119°02.2	118°51.3
14	104°01.2	12.4'	22°25.1	-9.3'	54.7'	74°19.5	71°11.5	17°23.4	28°30.8	82° 32.7	114°06.5	119°33.3	119°21.4
15	118°32.6	12.3'	22°34.5	-9.3'	54.7'	73°54.8	70°44.0	16°53.3	29°00.9	83°02.8	114°34.4		119°51.5
16	133°04.0	12.2'	22°43.7	-9.2'	54.7'	73°30.2	70°16.4	16°23.1	29°31.1	83°33.0	115°02.2		
17	147°35.2	12.2'	22°52.9	-9.1'	54.7'	73°05.5	69°48.9	15°52.9	30°01.3	84°03.2	115°30.0		
18	162°06.4	12.1'	S 23°02.0	-9.0'	54.7'	72°40.8	69°21.3	15°22.7	30°31.5	84°33.4	115°57.8		
19	176°37.4	12.0'	23°10.9	-8.9'	54.8'	72°16.2	68°53.7	14°52.4	31°01.8	85°03.6	116°25.7		
20	191°08.4	11.9'	$23^{\circ}19.8$	-8.8'	54.8'	71°51.6	68°26.0	14°22.2	31°32.0	85° 33.8	116°53.5		
21	205°39.3	11.8'	23°28.6	-8.7'	54.8'	71°26.9	67°58.4	13°51.9	32°02.3	86°04.1	117°21.3		
22	220°10.1	11.7'	23°37.3	-8.6'	54.8'	71°02.3	67°30.7	13°21.6	32°32.6	86°34.4	117°49.2		
23	234°40.8	11.6'	23°45.8	-8.5'	54.8'	70°37.7	67°03.0	12°51.3	33°03.0	87°04.7	118°17.0		
23 rd	SD	= 14.9'	Mer. pas	s. 06:50					Sun S	SD = 16.2'			

h		Moon	(24 th Ja	n)			Lunar	Distance	(objects	with large	st hourly	LD delta)	
Fri	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	+Spica	+Arcturus	+Regulus	+Sirius	+Procyon
0	249°11.4	11.5'	S 23°54.3	-8.4'	54.9'	70°13.1	66°35.2	12°20.9	33°33.3	47°14.7	87°35.0	118°33.8	118°44.8
1	263°41.9	11.4'	24°02.7	-8.3'	54.9'	69°48.6	66°07.5	11°50.6	34°03.7	47°35.2	88°05.4	118°52.1	119°12.6
2	278°12.3	11.3'	24°10.9	-8.2'	54.9'	69°24.0	65°39.7	11°20.2	34°34.1	47°56.0	88°35.8	119° 10.2	119°40.5
3	292°42.6	11.2'	$24^{\circ}19.1$	-8.0'	54.9'	68°59.5	65°11.9	10°49.7	35°04.5	48°16.8	89°06.2	119°28.3	
4	307°12.8	11.1'	$24^{\circ}27.1$	-7.9'	54.9'	68°34.9	64°44.1	10°19.3	35°35.0	48°37.9	89°36.6	119°46.3	
5	321°42.9	11.0'	$24^{\circ}35.1$	-7.8'	55.0'	68°10.4	64°16.3	9°48.8	36°05.4	48°59.0	90°07.1		
6	336°12.9	10.9'	S 24°42.9	-7.7'	55.0'	67°45.9	63°48.4	9°18.3	36°35.9	49°20.3	90°37.6		
7	350°42.9	10.8'	24°50.6	-7.6'	55.0'	67°21.5	63°20.5	8°47.8	37°06.5	49°41.7	91°08.1		
8	5°12.7	10.7'	24°58.2	-7.5'	55.0'	66°57.0	62°52.6	8°17.3	37°37.0	50°03.3	91°38.6		
9	19°42.5	10.6'	25°05.7	-7.4'	55.0'	66°32.6	62°24.6	7°46.7	38°07.6	50°25.0	92°09.2		
10	34°12.1	10.6'	$25^{\circ}13.1$	-7.3'	55.1'	66°08.2	61°56.6	7°16.1	38°38.2	50°46.8	92°39.8		
11	48°41.7	10.5'	25°20.4	-7.2'	55.1'	65°43.8	61°28.6	6°45.5	39°08.9	51°08.8	93°10.4		
12	63°11.1	10.4'	S 25°27.5	-7.0'	55.1'	65°19.4	61°00.6	6°14.9	39°39.5	51°30.8	93°41.0		
13	77°40.5	10.3'	25°34.6	-6.9'	55.1'	64°55.1	60°32.6	5°44.2	40°10.2	51°53.0	94°11.7		
14	92°09.7	10.2'	25°41.5	-6.8'	55.2'	64°30.8	60°04.5	5°13.5	40°40.9	52°15.4	94°42.4		
15	106°38.9	10.1'	25°48.3	-6.7'	55.2'	64°06.5	59°36.4	4°42.8	41°11.7	52°37.8	95°13.1		
16	121°08.0	10.0'	25°55.0	-6.6'	55.2'	63°42.2	59°08.2	4°12.1	41°42.5	53°00.4	95°43.9		
17	135°37.0	9.9'	$26^{\circ}01.5$	-6.4'	55.2'	63°18.0	58°40.1	3°41.4	42°13.3	53°23.1	96°14.7		
18	150°05.9	9.8'	S 26°08.0	-6.3'	55.2'	62°53.8	58° 11.9	3°10.6	42°44.1	53°45.9	96°45.5		
19	164°34.7	9.7'	$26^{\circ}14.3$	-6.2'	55.3'	62°29.6	57°43.7	2°39.9	43°14.9	54°08.8	97°16.3		
20	179°03.4	9.6'	$26^{\circ}20.5$	-6.1'	55.3'	62°05.5	57° 15.4	2°09.2	43°45.8	54°31.8	97°47.2		
21	193°32.0	9.5'	$26^{\circ}26.5$	-5.9'	55.3'	61°41.4	56°47.1	1°38.6	44°16.8	54°54.9	98°18.1		
22	208°00.5	9.4'	26°32.4	-5.8'	55.3'	61°17.3	56° 18.8	1°08.2	44°47.7	55°18.2	98°49.0		
23	222°29.0	9.3'	$26^{\circ}38.2$	-5.7'	55.4'	60°53.3	55° 50.5	0°38.7	45°18.7	55°41.5	99°20.0		
24 th	SD	= 15.0'	Mer. pass	. 07:38					Sun	SD = 16.2'			

SD = 15.1' Mer. pass. 08:30

25th

h		Моо	n (25 th Ja	ın)		Lunar [Distance	(objects v	with larg	est hourly	LD delta)
Sat	GHA	ν	Dec	d	HP	-Altair	-Sun	+Antares	+Spica	+Arcturus	+Regulus
0	236°57.3	9.3'	S 26°43.9	-5.5'	55.4'	60°29.3	55°22.1		45°49.7	56°04.9	99°51.0
1	251°25.5	9.2'	26°49.5	-5.4'	55.4'	60°05.3	54°53.8		46°20.7	56°28.5	100°22.0
2	265°53.7	9.1'	26°54.9	-5.3'	55.4'	59°41.4	54°25.3		46°51.8	56°52.1	100°53.1
3	280°21.8	9.0'	$27^{\circ}00.1$	-5.1'	55.5'	59°17.6	53°56.9		47°22.9	57° 15.9	101°24.1
4	294°49.8	8.9'	27°05.3	-5.0'	55.5'	58°53.7	53°28.4	2°01.0	47°54.0	57° 39.8	101°55.3
5	309°17.7	8.8'	$27^{\circ}10.3$	-4.9'	55.5'	58°30.0	52°59.9	2°32.0	48°25.2	58°03.7	102°26.4
6	323°45.5	8.7'	S 27°15.1	-4.7'	55.5'	58°06.2	52°31.3	3°03.0	48° 56.4	58°27.7	102°57.6
7	338°13.2	8.6'	$27^{\circ}19.9$	-4.6'	55.6'	57°42.6	52°02.8	3°34.2	49°27.6	58°51.9	103°28.8
8	352°40.8	8.6'	27°24.5	-4.5'	55.6'	57°18.9	51°34.1	4°05.4	49°58.9	59° 16.1	104°00.0
9	7°08.4	8.5'	27°28.9	-4.3'	55.6'	56°55.4	51°05.5	4°36.6	50°30.2	59° 40.5	104°31.3
10	21°35.9	8.4'	27°33.2	-4.2'	55.7'	56°31.9	50°36.8	5°07.9	51°01.5	60°04.9	105°02.6
11	36°03.3	8.3'	27°37.4	-4.0'	55.7'	56°08.4	50°08.1	5°39.2	51°32.9	60°29.4	105°34.0
12	50°30.6	8.2'	S 27°41.4	-3.9'	55.7'	55°45.0	49°39.4	6° 10.6	52°04.3	60°54.0	106°05.3
13	64°57.8	8.2'	27°45.3	-3.7'	55.7'	55°21.7	49°10.6	6°42.0	52°35.7	61° 18.7	106°36.7
14	79°25.0	8.1'	27°49.0	-3.6'	55.8'	54°58.4	48°41.8	7° 13.4	53°07.2	61°43.4	107°08.2
15	93°52.0	8.0'	27°52.6	-3.4'	55.8'	54°35.2	48°13.0	7°44.9	53°38.7	62°08.3	107°39.7
16	108°19.0	7.9'	$27^{\circ}56.1$	-3.3'	55.8'	54°12.1	47°44.1	8° 16.4	54° 10.2	62°33.2	108°11.2
17	122°45.9	7.8'	$27^{\circ}59.4$	-3.1'	55.8'	53°49.0	47°15.3	8°48.0	54°41.8	62°58.3	108°42.7
18	137°12.8	7.8'	S 28°02.5	-3.0'	55.9'	53°26.0	46°46.3	9° 19.5	55°13.4	63°23.4	109°14.3
19	151°39.6	7.7'	28°05.5	-2.8'	55.9'	53°03.1	46°17.4	9°51.2	55°45.0	63°48.6	109°45.9
20	166°06.3	7.6'	28°08.3	-2.7'	55.9'	52°40.3	45°48.4	10°22.8	56° 16.7	64°13.8	110°17.6
21	180°32.9	7.6'	28°11.0	-2.5'	56.0'	52°17.5	45°19.3	10°54.5	56°48.4	64°39.2	110°49.2
22	194°59.5	7.5'	28°13.6	-2.4'	56.0'	51°54.9	44°50.3	11°26.3	57°20.1	65°04.6	111°21.0
23	209°26.0	7.4'	$28^{\circ}15.9$	-2.2'	56.0'	51°32.3	44°21.2	11°58.0	57°51.9	65°30.1	111°52.7

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h Moon (26 th Jan)	Lunar Distance (objects with largest hourly LD delta)

 $\mathsf{Sun}\;\mathsf{SD}=\mathsf{16.2}'$

Sun	GHA	ν	Dec	d	HP	-Altair	-Sun	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Regulus
0	223°52.4	7.4'	S 28°18.2	-2.1'	56.0'	51°09.8	43°52.1	12°29.8			58°23.7	65°55.7	112°24.5
1	238°18.7	7.3'	28°20.2	-1.9'	56.1'	50°47.4	43°22.9	13°01.7			58°55.6	66°21.3	112°56.3
2	252°45.0	7.2'	28°22.2	-1.8'	56.1'	50°25.1	42°53.7	13° 33.5		46°53.0	59°27.4	66°47.1	113°28.2
3	267°11.3	7.2'	28°23.9	-1.6'	56.1'	50°02.9	42°24.5	14°05.4		47°08.3	59°59.4	67°12.9	114°00.1
4	281°37.5	7.1'	28°25.5	-1.4'	56.2'	49°40.8	41°55.2	14°37.4		47°23.9	60°31.3	67°38.7	114°32.0
5	296°03.6	7.1'	28°26.9	-1.3'	56.2'	49°18.8	41°25.9	15°09.4		47°39.8	61°03.3	68°04.7	115°04.0
6	310°29.6	7.0'	S 28°28.2	-1.1'	56.2'	48°56.9	40°56.6	15°41.4		47°55.8	61°35.3	68°30.7	115°36.0
7	324°55.7	7.0'	28°29.3	-1.0'	56.3'	48°35.2	40°27.3	16° 13.5		48°12.1	62°07.4	68°56.8	116°08.0
8	339°21.6	6.9'	28°30.3	-0.8'	56.3'	48°13.5		16°45.6	44°32.6	48°28.6	62°39.5	69°22.9	116°40.1
9	353°47.5	6.9'	28°31.1	-0.6'	56.3'	47°52.0		17° 17.7	44°48.0	48°45.3	63°11.6	69°49.1	117°12.2
10	8°13.4	6.8'	28°31.7	-0.5'	56.3'	47°30.6		17°49.9	45°03.7	49°02.2	63°43.8	70°15.4	117°44.4
11	22°39.2	6.8'	28°32.2	-0.3'	56.4'	47°09.4		18°22.1	45°19.6	49°19.3	64°16.0	70°41.8	118°16.6
12	37°04.9	6.7'	S 28°32.5	-0.1'	56.4'	46°48.2		18°54.3	45°35.7	49°36.6	64°48.3	71°08.2	118°48.8
13	51°30.6	6.7'	28°32.6	0.0'	56.4'	46°27.3		19°26.6	45°52.1	49°54.1	65°20.6	71°34.7	119°21.0
14	65°56.3	6.6'	28°32.6	0.2'	56.5'	46°06.4		19°58.9	46°08.8	50°11.8	65°52.9	72°01.2	119°53.3
15	80°21.9	6.6'	28°32.4	0.4'	56.5'	45°45.7		20°31.3	46°25.6	50°29.8	66°25.2	72°27.8	
16	94°47.5	6.5'	28°32.1	0.5'	56.5'	45°25.2		21°03.7	46°42.7	50°47.9	66°57.6	72°54.5	
17	109°13.1	6.5'	28°31.5	0.7'	56.6'	45°04.8		21°36.1	47°00.0	51°06.2	67°30.1	73°21.2	
18	123°38.6	6.5'	S 28°30.8	0.9'	56.6'	44°44.5		22°08.6	47°17.6	51°24.7	68°02.5	73°48.0	
19	138°04.1	6.4'	28°30.0	1.0'	56.6'	44°24.5		22°41.1	47°35.3	51°43.4	68°35.1	74°14.9	
20	152°29.5	6.4'	28°29.0	1.2'	56.6'	44°04.6		23° 13.6	47°53.3	52°02.2	69°07.6	74°41.8	
21	166°54.9	6.4'	28°27.8	1.4'	56.7'	43°44.9		23°46.2	48°11.5	52°21.3	69°40.2	75°08.7	
22	181°20.3	6.4'	28°26.4	1.5'	56.7'	43°25.4		24° 18.8	48°29.9	52°40.5	70°12.8	75°35.8	
23	195°45.7	6.3'	28°24.9	1.7'	56.7'	43°06.0		24°51.5	48°48.5	52°59.9	70°45.5	76°02.8	
26 th	SD :	SD = 15.3' Mer. pass. 09:26							Sun SD =	= 16.2'			

h Moon (27 th Jan)	Lunar Distance (ol	bjects with largest h	nourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus
0	210°11.0	6.3'	S 28°23.2	1.9'	56.8'	42°46.9	25°24.2	49°07.4	53°19.5	64°35.6	71°18.2	76°30.0
1	224°36.3	6.3'	$28^{\circ}21.3$	2.0'	56.8'	42°27.9	25°56.9	49°26.4	53°39.3	64°53.5	71°50.9	76°57.2
2	239°01.6	6.3'	$28^{\circ}19.2$	2.2'	56.8'	42°09.2	26°29.7	49°45.6	53°59.2	65°11.5	72°23.7	77°24.4
3	253°26.9	6.3'	28° 17.0	2.4'	56.9'	41°50.7	27°02.5	50°05.0	54°19.3	65°29.7	72°56.5	77°51.7
4	267°52.2	6.2'	$28^{\circ}14.6$	2.6'	56.9'	41°32.4	27°35.4	50°24.6	54°39.5	65°47.9	73°29.4	78°19.1
5	282°17.4	6.2'	$28^{\circ}12.1$	2.7'	56.9'	41°14.3	28°08.3	50°44.4	54°59.9	66°06.3	74°02.2	78°46.5
6	296°42.7	6.2'	S 28°09.3	2.9'	57.0'	40°56.4	28°41.2	51°04.4	55°20.5	66°24.8	74°35.2	79°13.9
7	311°07.9	6.2'	28°06.4	3.1'	57.0'	40°38.8	29°14.1	51°24.6	55°41.2	66°43.4	75°08.1	79°41.4
8	325°33.1	6.2'	28°03.4	3.2'	57.0'	40°21.5	29°47.1	51°44.9	56°02.1	67°02.2	75°41.1	80°09.0
9	339°58.3	6.2'	28°00.1	3.4'	57.0'	40°04.3	30°20.2	52°05.4	56°23.1	67°21.0	76°14.2	80°36.5
10	354°23.5	6.2'	27°56.7	3.6'	57.1'	39°47.5	30°53.3	52°26.1	56°44.3	67°40.0	76°47.3	81°04.2
11	8°48.7	6.2'	$27^{\circ}53.1$	3.8'	57.1'	39°30.9	31°26.4	52°47.0	57°05.6	67°59.0	77°20.4	81°31.9
12	23°13.9	6.2'	S 27°49.3	3.9'	57.1'	39°14.6	31°59.5	53°08.1	57°27.1	68°18.2	77°53.5	81°59.6
13	37°39.2	6.2'	27°45.4	4.1'	57.2'	38°58.5	32°32.7	53° 29.3	57°48.7	68°37.5	78°26.7	82°27.4
14	52°04.4	6.2'	27°41.3	4.3'	57.2'	38°42.8	33°06.0	53°50.7	58°10.5	68°56.9	79°00.0	82°55.2
15	66°29.6	6.2'	27°37.0	4.4'	57.2'	38°27.3	33°39.2	54° 12.2	58°32.4	69°16.4	79°33.2	83°23.1
16	80°54.8	6.2'	27°32.6	4.6'	57.3'	38°12.2	34°12.5	54° 33.9	58°54.4	69°36.0	80°06.5	83°51.0
17	95°20.0	6.2'	27°28.0	4.8'	57.3'		34°45.9	54°55.7	59°16.6	69°55.7	80°39.9	84°19.0
18	109°45.3	6.3'	S 27°23.2	5.0'	57.3'		35°19.3	55° 17.7	59°38.9	70°15.5	81°13.3	84°47.0
19	124°10.5	6.3'	27° 18.2	5.1'	57.3'		35°52.7	55° 39.9	60°01.3	70°35.4	81°46.7	85°15.0
20	138°35.8	6.3'	$27^{\circ}13.1$	5.3'	57.4'		36°26.1	56°02.2	60°23.9	70°55.4	82°20.1	85°43.1
21	$153^{\circ}01.1$	6.3'	27°07.8	5.5'	57.4'		36°59.6	56° 24.7	60°46.6	71°15.4	82°53.6	86°11.2
22	167°26.4	6.3'	27°02.3	5.6'	57.4'		37°33.2	56° 47.3	61°09.4	71°35.6	83°27.2	86°39.3
23	181°51.7	6.3'	26°56.7	5.8'	57.5'		38°06.7	57°10.0	61°32.3	71°55.9	84°00.7	87°07.5
27 th	SD =	= 15.5′	Mer. pass	. 10:23	3							

h		Moon	(28 th Ja	an)		Lunar D	istance (obj	ects with	largest	hourly L	.D delta)	
Tue	GHA	ν	Dec	d	HP	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturu:	s

Tue	GHA	ν	Dec	d	HP	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus		
0	196°17.1	6.4'	S 26°50.9	6.0'	57.5'	38°40.3	57°32.9	61°55.3	72°16.2	84°34.3	87°35.7		
1	210°42.4	6.4'	26°44.9	6.1'	57.5'	39°14.0	57°55.9	62°18.5	72°36.7	85°08.0	88°04.0		
2	225°07.8	6.4'	26°38.8	6.3'	57.6'	39°47.7	58°19.1	62°41.8	72°57.2	85°41.7	88°32.3		
3	239°33.3	6.5'	26°32.5	6.5'	57.6'	40°21.4	58°42.3	63°05.2	73°17.8	86°15.4	89°00.6		
4	253°58.7	6.5'	26°26.0	6.6'	57.6'	40°55.1	59°05.8	63°28.7	73°38.6	86°49.1	89°29.0		
5	268°24.2	6.5'	$26^{\circ}19.4$	6.8'	57.6'	41°28.9	59°29.3	63°52.3	73°59.3	87°22.9	89°57.4		
6	282°49.7	6.5'	S 26°12.6	7.0'	57.7'	42°02.7	59°53.0	64°16.1	74°20.2	87°56.8	90°25.8		
7	297°15.2	6.6'	26°05.6	7.1'	57.7'	42°36.6	60°16.8	64°39.9	74°41.2	88°30.6	90°54.2		
8	311°40.8	6.6'	25°58.5	7.3'	57.7'	43°10.5	60°40.7	65°03.8	75°02.2	89°04.5	91°22.7		
9	326°06.4	6.7'	25°51.2	7.5'	57.8'	43°44.4	61°04.7	65°27.9	75°23.3	89°38.5	91°51.2 92°19.7		
10	340°32.1	6.7'	25°43.7	7.6'	57.8'								
11	354°57.8	6.7'	25°36.1	7.8'	57.8'								
12	9°23.5	6.8'	S 25°28.3	7.9'	57.9'	45°26.5	62°17.5	66°40.6	76°27.1	91°20.5	93°16.9		
13	23°49.3	6.8'	25°20.4	8.1'	57.9'	46°00.5	62°42.0	67°05.1	76°48.5	91°54.5	93°45.5		
14	38°15.1	6.9'	25°12.3	8.3'	57.9'	46°34.6	63°06.6	67°29.6	77° 10.0	92°28.7	94°14.1		
15	52°41.0	6.9'	25°04.0	8.4'	57.9'	47°08.8	63°31.3	67°54.3	77°31.5	93°02.8	94°42.8		
16	67°06.9	7.0'	24°55.6	8.6'	58.0'	47°43.0	63°56.2	68°19.0	77°53.1	93°37.0	95°11.4		
17	81°32.9	7.0'	24°47.0	8.7'	58.0'	48°17.2	64°21.1	68°43.8	78° 14.8	94°11.2	95°40.1		
18	95°58.9	7.1'	S 24°38.3	8.9'	58.0'	48°51.4	64°46.1	69°08.7	78°36.6	94°45.5	96°08.8		
19	110°24.9	7.1'	24°29.4	9.0'	58.1'								
20	124°51.0	7.2'	24°20.3	9.2'	58.1'			— New M			_		
21	139°17.2	7.2'	24°11.1	9.4'	58.1'				oon ———		-		
22	153°43.4	7.3'	24°01.8	9.5'	58.1'				oon ———		-		
23	168°09.7	7.3'	23°52.3	9.7'	58.2'			— New M	oon ——		_		
28 th	SD =	= 15.7′	Mer. pass	s. 11:2	1								

h Moon (29th Jan)

		141001				
Wed	GHA	ν	Dec	d	HP	
0	182°36.0	7.4'	S 23°42.6	9.8'	58.2'	New Moon
1	197°02.4	7.4'	23°32.8	10.0'	58.2'	New Moon
2 3	211°28.8	7.5'	23°22.9	10.1'	58.2'	New Moon
	225°55.3	7.5'	23°12.8	10.2'	58.3'	New Moon
4	240°21.9	7.6'	23°02.5	10.4'	58.3'	New Moon
5	254°48.5	7.7'	$22^{\circ}52.1$	10.5'	58.3'	New Moon
6	269°15.1	7.7'	S 22°41.6	10.7'	58.3'	New Moon
7	283°41.9	7.8'	22°30.9	10.8'	58.4'	New Moon
8	298°08.6	7.8'	22°20.1	11.0'	58.4'	New Moon
9	312°35.5	7.9'	22°09.1	11.1'	58.4'	New Moon
10	327°02.4	8.0'	$21^{\circ}58.0$	11.2'	58.4'	New Moon
11	341°29.4	8.0'	$21^{\circ}46.8$	11.4'	58.5'	New Moon
12	355°56.4	8.1'	S 21°35.5	11.5'	58.5'	New Moon
13	10°23.5	8.2'	21°23.9	11.6'	58.5'	New Moon
14	24°50.7	8.2'	$21^{\circ}12.3$	11.8'	58.5'	New Moon
15	39°17.9	8.3'	$21^{\circ}00.5$	11.9'	58.6'	New Moon
16	53°45.2	8.4'	20°48.6	12.0'	58.6'	New Moon
17	68°12.6	8.4'	20°36.6	12.2'	58.6'	New Moon
18	82°40.0	8.5'	S 20°24.5	12.3'	58.6'	New Moon
19	97°07.5	8.6'	20°12.2	12.4'	58.7'	New Moon
20	111°35.0	8.6'	19°59.8	12.5'	58.7'	New Moon
21	126°02.6	8.7'	19°47.2	12.7'	58.7'	New Moon
22	140°30.3	8.8'	19°34.6	12.8'	58.7'	New Moon
23	154°58.1	8.8'	19°21.8	12.9'	58.8'	New Moon
29 th	SD	= 15.9'	Mer. pas	s. 12:17		

h Moon (30th Jan) Lunar Distance (objects with largest hourly LD delta)

										6000 .			
Thu	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Jupiter	-Aldebaran	-Venus	-Saturn	-Fomalhaut
0	169°25.9	8.9'	S 19°08.9	13.0'	58.8'				New I	Moon			
1	183°53.8	8.9'	18°55.9	13.1'	58.8'				New I	Moon			
2	198°21.7	9.0'	18°42.8	13.2'	58.8'				New I	Moon			
3	212°49.7	9.1'	$18^{\circ}29.6$	13.4'	58.8'				New I	Moon			
4	227°17.8	9.1'	$18^{\circ}16.2$	13.5'	58.9'				New I	Moon			
5	241°46.0	9.2'	18°02.7	13.6'	58.9'				New I	Moon			
6	256°14.2	9.3'	S 17°49.2	13.7'	58.9'				New I	Moon			
7	270°42.4	9.3'	$17^{\circ}35.5$	13.8'	58.9'			110°43.7	110°38.4	109°05.0	35°45.6	26°37.1	22°20.0
8	285°10.8	9.4'	$17^{\circ}21.7$	13.9'	58.9'		119°39.8	110°16.3	110°03.2	108°30.3	35°12.3	26°02.1	22°02.0
9	299°39.2	9.5'	$17^{\circ}07.8$	14.0'	59.0'		119°06.7	109°48.7	109°27.9	107°55.5	34°39.1	25°27.0	21°44.7
10	314°07.6	9.5'	$16^{\circ}53.8$	14.1'	59.0'		118°33.5	109°21.1	108°52.7	107°20.8	34°05.8	24°51.9	21°28.1
11	328°36.2	9.6'	$16^{\circ}39.7$	14.2'	59.0'		118°00.3	108°53.5	108°17.4	106°46.0	33°32.5	24°16.7	21° 12.2
12	343°04.8	9.7'	S 16°25.5	14.3'	59.0'		117°27.0	108°25.8	107°42.1	106°11.2	32°59.2	23°41.6	20°57.1
13	357°33.4	9.7'	$16^{\circ}11.2$	14.4'	59.0'		116°53.7	107°58.0	107°06.7	105°36.3	32°25.9	23°06.4	
14	12°02.1	9.8'	$15^{\circ}56.8$	14.5'	59.1'		116°20.4	107°30.1	106°31.4	105°01.4	31°52.6	22°31.3	
15	26°30.9	9.8'	15°42.3	14.6'	59.1'		115°47.0	107°02.2	105°56.0	104°26.6	31°19.2	21°56.1	
16	40°59.8	9.9'	$15^{\circ}27.7$	14.7'	59.1'		115°13.5	106°34.2	105°20.6	103°51.7	30°45.8	21°20.8	
17	55°28.7	10.0'	$15^{\circ}13.0$	14.8'	59.1'		114°40.1	106°06.2	104°45.2	103°16.7	30°12.4	20°45.6	
18	69°57.6	10.0'	S 14°58.2	14.9'	59.1'	119°43.9	114°06.6	105°38.1	104°09.8	102°41.8	29°39.0	20°10.3	
19	84°26.6	10.1'	14°43.4	15.0'	59.1'	119° 11.5	113°33.0	105°09.9	103°34.3	102°06.8	29°05.6	19°35.1	
20	98°55.7	10.1'	$14^{\circ}28.4$	15.0'	59.2'	118° 39.1	112°59.4	104°41.8	102°58.8	101°31.8	28°32.1	18°59.8	
21	113°24.9	10.2'	14° 13.4	15.1'	59.2'	118°06.6	112°25.8	104°13.5	102°23.4	100°56.8	27°58.6	18°24.5	
22	127°54.1	10.3'	13°58.2	15.2'	59.2'	117°34.1	111°52.2	103°45.2	101°47.8	100°21.8	27°25.1	17°49.2	
23	142°23.3	10.3'	13°43.0	15.3'	59.2'	117°01.5	111°18.5	103°16.9	101°12.3	99°46.7	26°51.6	17°13.8	
30 th	SD	$=16.0^{\prime}$	Mer. pass	s. 13:10									

Moon (31st Jan) Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sirius	-Betelgeuse	-Capella	-Rigel	-Jupiter	-Aldebaran	-Venus	-Saturn
0	156°52.6	10.4'	S 13°27.7	15.4'	59.2'		116°28.8	110°44.8	102°48.5	100°36.8	99°11.6	26°18.1	16°38.5
1	171°22.0	10.4'	13°12.4	15.4'	59.2'		115°56.2	110°11.0	102°20.1	100°01.2	98°36.5	25°44.6	16°03.1
2	185°51.4	10.5'	12°56.9	15.5'	59.3'	119°41.7	115°23.5	109°37.3	101°51.6	99°25.6	98°01.4	25°11.1	15°27.8
3	200°20.9	10.5'	12°41.4	15.6'	59.3'	119°20.6	114°50.7	109°03.5	101°23.1	98°50.1	97°26.3	24°37.5	14°52.4
4	214°50.4	10.6'	12°25.8	15.7'	59.3'	118°59.3	114°17.9	108°29.6	100°54.5	98°14.5	96°51.2	24°03.9	14°17.0
5	229°20.0	10.6'	$12^{\circ}10.1$	15.7'	59.3'	118°37.9	113°45.1	107°55.8	100°26.0	97°38.8	96°16.0	23°30.4	13°41.6
6	243°49.6	10.7'	S 11°54.4	15.8'	59.3'	118°16.3	113°12.2	107°21.9	99°57.3	97°03.2	95°40.8	22°56.8	13°06.2
7	258° 19.3	10.7'	11°38.6	15.9'	59.3'	117°54.6	112°39.3	106°48.0	99°28.7	96°27.5	95°05.6	22°23.2	12°30.8
8	272°49.0	10.8'	11°22.7	15.9'	59.3'	117°32.8	112°06.3	106°14.1	99°00.0	95°51.9	94°30.4	21°49.6	11°55.4
9	287°18.8	10.8'	$11^{\circ}06.8$	16.0'	59.3'	$117^{\circ}10.8$	111°33.4	105°40.1	98°31.3	95°16.2	93°55.2	21°16.0	11°20.0
10	301°48.6	10.9'	10°50.8	16.1'	59.4'	116°48.7	111°00.3	105°06.1	98°02.5	94°40.5	93°20.0	20°42.4	10°44.6
11	316°18.5	10.9'	10°34.7	16.1'	59.4'	116°26.5	110°27.3	104°32.1	97°33.7	94°04.8	92°44.7	20°08.7	10°09.2
12	330°48.4	11.0'	S 10°18.6	16.2'	59.4'	116°04.2	109°54.2	103°58.1	97°04.9	93°29.1	92°09.5	19°35.1	9°33.8
13	345°18.4	11.0'	10°02.4	16.3'	59.4'	115°41.7	109°21.1	103°24.1	96°36.1	92°53.4	91°34.2	19°01.5	8°58.4
14	359°48.4	11.1'	09°46.1	16.3'	59.4'	$115^{\circ}19.1$	108°48.0	102°50.0	96°07.3	92°17.7	90°58.9	18°27.9	8°23.0
15	14° 18.5	11.1'	09°29.8	16.4'	59.4'	114°56.4	108°14.8	102°15.9	95°38.4	91°41.9	90°23.7	17°54.3	7°47.7
16	28°48.6	11.1'	09°13.4	16.4'	59.4'	114°33.6	107°41.6	101°41.8	95°09.5	91°06.2	89°48.4	17°20.6	7°12.4
17	43°18.7	11.2'	08°57.0	16.5'	59.4'	114°10.7	107°08.4	101°07.7	94°40.6	90°30.4	89°13.1	16°47.0	6°37.1
18	57°48.9	11.2'	S 08°40.6	16.5'	59.4'	113°47.7	106°35.1	100°33.6	94°11.6	89°54.6	88°37.7	16°13.4	6°01.9
19	72° 19.1	11.3'	08°24.0	16.6'	59.5'	113°24.6	106°01.9	99°59.4	93°42.7	89° 18.8	88°02.4	15°39.8	5°26.7
20	86°49.4	11.3'	08°07.5	16.6'	59.5'	113°01.4	105°28.6	99°25.3	93°13.7	88°43.0	87°27.1	15°06.2	4°51.7
21	101°19.7	11.3'	$07^{\circ}50.9$	16.7'	59.5'	112°38.1	104°55.2	98°51.1	92°44.7	88°07.2	86°51.7	14°32.6	4°16.8
22	115°50.0	11.4'	07°34.2	16.7'	59.5'	112°14.7	104°21.9	98°16.9	92°15.7	87°31.4	86°16.4	13°59.1	3°42.2
23	130°20.3	11.4'	07°17.5	16.7'	59.5'	111°51.2	103°48.5	97°42.7	91°46.7	86°55.6	85°41.0	13°25.5	3°08.0
31 st	SD	$=16.2^{\prime}$	Mer. pass	s. 14:01									

Moon (1st Feb) h Lunar Distance (objects with largest hourly LD delta)

									(<u> </u>	,	
Sat	GHA	ν	Dec	d	HP	-Mars	-Pollux	-Capella	-Jupiter	-Aldebaran	±Saturn	+Fomalhaut	+Sun
0	144°50.7	11.4'	S 07°00.8	16.8'	59.5'			97°08.5	86°19.8	85°05.7	2°34.4	22°32.8	
1	159°21.2	11.5'	06°44.0	16.8'	59.5'			96°34.3	85°44.0	84°30.3		22°52.2	
2	173°51.6	11.5'	$06^{\circ}27.2$	16.9'	59.5'			96°00.0	85°08.1	83°54.9		23°12.2	
3	188°22.1	11.5'	$06^{\circ}10.3$	16.9'	59.5'			95°25.8	84°32.3	83°19.5		23°32.8	
4	202°52.6	11.5'	05°53.4	16.9'	59.5'			94°51.5	83°56.5	82°44.2		23°54.0	
5	217°23.2	11.6'	05°36.5	17.0'	59.5'			94°17.3	83°20.6	82°08.8		24°15.7	
6	231°53.8	11.6'	S 05°19.6	17.0'	59.5'			93°43.0	82°44.8	81°33.4		24°38.0	
7	246°24.4	11.6'	05°02.6	17.0'	59.5'			93°08.7	82°08.9	80°58.0		25°00.7	
8	260°55.0	11.6'	04°45.6	17.0'	59.5'			92°34.5	81°33.0	80°22.6		25°24.0	
9	275°25.6	11.7'	04°28.5	17.1'	59.6'	119°59.0		92°00.2	80°57.2	79°47.2		25°47.7	
10	289°56.3	11.7'	04°11.5	17.1'	59.6'	119°22.3		91°25.9	80°21.3	79°11.8	3°41.5	26°11.8	
11	304°27.0	11.7'	03°54.4	17.1'	59.6'	118°45.6		90°51.6	79°45.5	78°36.4	4°16.1	26°36.4	
12	318°57.7	11.7'	S 03°37.3	17.1'	59.6'	118°08.8		90°17.3	79°09.6	78°01.0	4°51.1	27°01.3	
13	333°28.4	11.7'	$03^{\circ}20.1$	17.1'	59.6'	117°32.1		89°43.0	78°33.7	77°25.6	5°26.2	27°26.7	
14	347°59.2	11.8'	03°03.0	17.2'	59.6'	116°55.4		89°08.7	77°57.8	76°50.2	6°01.4	27°52.4	
15	2°29.9	11.8'	02°45.8	17.2'	59.6'	116°18.6	119°28.4	88°34.4	77°22.0	76°14.8	6°36.7	28°18.4	_
16	17°00.7	11.8'	02°28.7	17.2'	59.6'	115°41.9	118°52.5	88°00.1	76°46.1	75°39.4	7°12.1	28°44.8	41°28.4
17	31°31.5	11.8'	02°11.5	17.2'	59.6'	115°05.2	118°16.5	87°25.8	76°10.2	75°04.0	7°47.6	29°11.5	42°01.8
18	46°02.3	11.8'	S 01°54.3	17.2'	59.6'	114°28.4	117°40.5	$86^{\circ}51.5$	75°34.4	74°28.7	8°23.1	29°38.5	42°35.1
19	60°33.1	11.8'	01°37.1	17.2'	59.6'	113°51.7	117°04.5	86°17.2	74°58.5	73°53.3	8°58.6	30°05.8	43°08.4
20	75°03.9	11.8'	01°19.8	17.2'	59.6'	113°15.0	116°28.5	85°42.9	74°22.6	73°17.9	9°34.2	30°33.3	43°41.7
21	89°34.7	11.8'	01°02.6	17.2'	59.6'	112°38.3	115°52.5	85°08.6	73°46.8	72°42.5	10°09.7	31°01.1	44°15.1
22	104°05.6	11.8'	00°45.4	17.2'	59.6'	112°01.5	115°16.5	84°34.3	73°10.9	72°07.2	10°45.3	31°29.2	44°48.4
23	118°36.4	11.8'	00°28.2	17.2'	59.6'	111°24.8	114°40.5	84°00.0	72°35.0	71°31.8	11°20.9	31°57.5	45°21.7
1 st	SD	= 16.2'	Mer. pass	s. 14:50					Sun :	SD = 16.2'			

h		Моо	n (2 nd Fel	o)			Lunar D	istance	(objects wi	th larges	t hourly	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Pollux	-Mars	-Jupiter	-Aldebaran	+Venus	+Saturn	+Fomalhaut	+Sun
0	133°07.3	11.8'	S 00°10.9	17.2'	59.6'	114°04.5	110°48.1	71°59.2	70°56.4		11°56.5	32°26.1	45°55.1
1	147°38.1	11.8'	N 00°06.3	17.2'	59.6'	113°28.6	110°11.4	71°23.3	70°21.1		12° 32.2	32°54.8	46°28.4
2	162°08.9	11.8'	00°23.6	17.2'	59.6'	112°52.6	109°34.7	70°47.5	69°45.7		13°07.8	33°23.8	47°01.7
3	176°39.8	11.8'	00°40.8	17.2'	59.6'	112°16.6	108°57.9	70°11.6	69°10.4		13°43.5	33°52.9	47°35.1
4	191°10.6	11.8'	00°58.0	17.2'	59.6'	111°40.6	108°21.2	69°35.8	68°35.1		14° 19.1	34°22.2	48°08.4
5	205°41.5	11.8'	01°15.2	17.2'	59.6'	111°04.6	107°44.5	69°00.0	67°59.8		14°54.8	34°51.8	48°41.7
6	220°12.3	11.8'	N 01°32.4	17.2'	59.6'	110°28.7	107°07.8	68°24.1	67°24.4		15° 30.4	35°21.5	49°15.1
7	234°43.2	11.8'	$01^{\circ}49.7$	17.2'	59.6'	109°52.7	106°31.1	67°48.3	66°49.1	5°17.6	16°06.1	35°51.3	49°48.4
8	249°14.0	11.8'	02°06.8	17.2'	59.6'	109°16.7	105°54.5	67°12.5	66°13.9	5°49.2	16°41.7	36°21.3	50°21.7
9	263°44.8	11.8'	02°24.0	17.2'	59.6'	108° 40.8	105°17.8	66°36.7	65°38.6	6°21.2	17° 17.4	36° 51.5	50°55.1
10	278°15.6	11.8'	02°41.2	17.2'	59.6'	108°04.8	104°41.1	66°00.9	65°03.3	6°53.5	17°53.0	37°21.8	51°28.4
11	292°46.4	11.8'	02°58.3	17.1'	59.6'	107°28.9	104°04.4	65°25.1	64°28.1	7°26.0	18°28.7	37°52.3	52°01.7
12	307°17.2	11.8'	N 03°15.5	17.1'	59.6'	106°52.9	103°27.8	64°49.3	63°52.8	7°58.8	19°04.3	38° 22.8	52°35.0
13	321°48.0	11.8'	03°32.6	17.1'	59.6'	106° 17.0	102°51.1	64°13.5	63°17.6	8°31.7	19°40.0	38°53.6	53°08.3
14	336°18.7	11.7'	03°49.7	17.1'	59.6'	105°41.0	102°14.5	63°37.7	62°42.4	9°04.8	20° 15.6	39°24.4	53°41.7
15	350°49.5	11.7'	04°06.8	17.0'	59.6'	105°05.1	101°37.8	63°02.0	62°07.2	9°37.9	20°51.3	39°55.3	54°15.0
16	5°20.2	11.7'	04°23.8	17.0'	59.6'	104°29.2	101°01.2	62°26.2	61°32.0	10°11.2	21°26.9	40°26.4	54°48.3
17	19°50.9	11.7'	04°40.8	17.0'	59.6'	103°53.3	100°24.6	61°50.4	60°56.8	10°44.5	22°02.5	40°57.5	55°21.6
18	34°21.6	11.7'	N 04°57.8	17.0'	59.6'	103°17.4	99°48.0	61°14.7	60°21.6	11°17.9	22°38.1	41°28.8	55°54.9
19	48°52.3	11.6'	05°14.8	16.9'	59.6'	102°41.5	99°11.3	60°39.0	59°46.5	11°51.3	23° 13.8	42°00.1	56°28.2
20	63°22.9	11.6'	05°31.7	16.9'	59.6'	102°05.6	98°34.7	60°03.3	59°11.4	12°24.8	23°49.4	42°31.6	57°01.4
21	77°53.6	11.6'	05°48.6	16.9'	59.6'	101°29.7	97°58.2	59°27.5	58°36.3	12°58.3	24°25.0	43°03.1	57°34.7
22	92°24.2	11.6'	06°05.5	16.8'	59.5'	100°53.8	97°21.6	58°51.9	58°01.2	13°31.8	25°00.6	43°34.7	58°08.0
23	106°54.7	11.5'	06°22.3	16.8'	59.5'	100°17.9	96°45.0	58°16.2	57°26.1	14°05.4	25°36.2	44°06.4	58°41.2
2 nd	SD	= 16.3'	Mer. pass	. 15:38					Sun SD	= 16.2'			

Moon (3rd Feb)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Pollux	-Mars	-Jupiter	-Aldebaran	+Venus	+Saturn	+Fomalhaut	+Sun
0	121°25.3	11.5'	N 06°39.1	16.8'	59.5'	99°42.1	96°08.4	57°40.5	56°51.0	14°39.0	26°11.8	44°38.2	59°14.5
1	135°55.8	11.5'	06°55.9	16.7'	59.5'	99°06.2	95°31.9	57°04.8	56°16.0	15°12.6	26°47.3	45°10.0	59°47.7
2	150°26.3	11.5'	$07^{\circ}12.6$	16.7'	59.5'	98°30.4	94°55.3	56°29.2	55°41.0	15°46.2	27°22.9	45°42.0	60°21.0
3	164°56.7	11.4'	07°29.3	16.6'	59.5'	97°54.5	94° 18.8	55°53.5	55°06.0	16°19.9	27°58.5	46°13.9	60°54.2
4	179°27.2	11.4'	07°45.9	16.6'	59.5'	97°18.7	93°42.3	55°17.9	54°31.0	16°53.5	28°34.0	46°46.0	61°27.4
5	193°57.6	11.4'	$08^{\circ}02.5$	16.5'	59.5'	96°42.9	93°05.8	54°42.3	53°56.1	17°27.2	29°09.6	47°18.1	62°00.7
6	208°27.9	11.3'	$N08^{\circ}19.1$	16.5'	59.5'	96°07.1	92°29.3	54°06.7	53°21.2	18°00.9	29°45.1	47°50.3	62°33.9
7	222°58.2	11.3'	08°35.6	16.5'	59.5'	95°31.3	91°52.8	53°31.1	52°46.3	18°34.5	30°20.6	48°22.5	63°07.1
8	237°28.5	11.2'	08°52.0	16.4'	59.5'	94°55.5	91°16.3	52°55.6	52°11.4	19°08.2	30°56.2	48°54.8	63°40.3
9	251°58.8	11.2'	09°08.4	16.3'	59.5'	94°19.7	90°39.8	52°20.0	51°36.6	19°41.9	31°31.7	49°27.1	64°13.4
10	266°29.0	11.2'	09°24.8	16.3'	59.5'	93°43.9	90°03.4	51°44.5	51°01.7	20°15.6	32°07.2	49°59.5	64°46.6
11	280°59.1	11.1'	$09^{\circ}41.1$	16.2'	59.5'	93°08.2	89°27.0	51°08.9	50°26.9	20°49.3	32°42.6	50°31.9	65°19.8
12	295°29.3	11.1'	N09°57.3	16.2'	59.5'	92°32.4	88°50.5	50°33.4	49°52.2	21°22.9	33°18.1	51°04.4	65°52.9
13	309°59.3	11.0'	$10^{\circ}13.5$	16.1'	59.4'	91°56.7	88°14.1	49°57.9	49°17.4	21°56.6	33°53.6	51°36.9	66°26.1
14	324°29.4	11.0'	$10^{\circ}29.6$	16.1'	59.4'	91°21.0	87°37.7	49°22.5	48°42.7	22°30.3	34°29.0	52°09.4	66°59.2
15	338°59.4	10.9'	10°45.7	16.0'	59.4'	90°45.3	87°01.3	48°47.0	48°08.0	23°04.0	35°04.5	52°42.0	67°32.3
16	353°29.3	10.9'	$11^{\circ}01.7$	15.9'	59.4'	90°09.6	86°24.9	48°11.6	47°33.4	23°37.7	35°39.9	53°14.7	68°05.4
17	7°59.2	10.8'	$11^{\circ}17.6$	15.9'	59.4'	89°33.9	85°48.6	47°36.1	46°58.8	24°11.3	36°15.3	53°47.3	68°38.5
18	22°29.1	10.8'	N11°33.5	15.8'	59.4'	88° 58.2	85°12.2	47°00.7	46°24.2	24°45.0	36°50.7	54°20.0	69°11.6
19	36°58.8	10.7'	11°49.3	15.7'	59.4'	88°22.5	84°35.9	46°25.3	45°49.6	25°18.7	37°26.1	54°52.7	69°44.7
20	51°28.6	10.7'	$12^{\circ}05.1$	15.7'	59.4'	87°46.9	83°59.6	45°50.0	45°15.1	25°52.3	38°01.5	55°25.5	70°17.7
21	65°58.3	10.6'	12°20.7	15.6'	59.4'	87°11.3	83°23.3	45°14.6	44°40.6	26°26.0	38°36.9	55°58.3	70°50.8
22	80°27.9	10.6'	12°36.3	15.5'	59.4'	86°35.6	82°47.0	44°39.3	44°06.2	26°59.6	39°12.2	56°31.1	71°23.8
23	94°57.5	10.5'	12°51.9	15.5'	59.4'	86°00.0	82°10.7	44°04.0	43°31.8	27°33.2	39°47.6	57°03.9	71°56.8
3 rd	SD	= 16.2'	Mer. pass	. 16:27					Sun SE	0 = 16.2'			

Moon (4th Feb) h Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Mars	-Jupiter	+Venus	+Saturn	+Fomalhaut	+Sun
0	109°27.0	10.5'	N13°07.3	15.4'	59.4'		85°24.4	81°34.4	43°28.7	28°06.9	40°22.9	57°36.8	72°29.9
1	123°56.5	10.4'	13°22.7	15.3'	59.3'		84°48.8	80°58.2	42°53.4	28°40.5	40°58.2	58°09.7	73°02.9
2	138°25.9	10.4'	13°38.0	15.2'	59.3'		84°13.3	80°21.9	42°18.2	29°14.1	41°33.5	58°42.6	73°35.8
3	152°55.3	10.3'	13°53.2	15.1'	59.3'		83°37.7	79°45.7	41°43.0	29°47.7	42°08.8	59°15.5	74°08.8
4	167°24.6	10.2'	14°08.4	15.1'	59.3'	119°51.4	83°02.2	79°09.5	41°07.8	30°21.3	42°44.1	59°48.4	74°41.8
5	181°53.8	10.2'	14°23.4	15.0'	59.3'	119°15.9	82°26.6	78°33.3	40°32.6	30°54.9	43°19.4	60°21.4	75°14.7
6	196°23.0	10.1'	N14°38.4	14.9'	59.3'	118°40.4	81°51.1	77°57.1	39°57.4	31°28.4	43°54.6	60°54.4	75°47.7
7	210°52.1	10.0'	14°53.3	14.8'	59.3'	118°04.9	81°15.6	77°21.0	39°22.3	32°02.0	44°29.9	61°27.3	76°20.6
8	225°21.1	10.0'	15°08.1	14.7'	59.3'	117°29.4	80°40.1	76°44.8	38°47.2	32°35.5	45°05.1	62°00.4	76°53.5
9	239°50.1	9.9'	15°22.8	14.6'	59.3'	116°53.9	80°04.7	76°08.7	38°12.1	33°09.1	45°40.3	62°33.4	77°26.4
10	254°19.1	9.9'	15°37.4	14.5'	59.2'	116°18.5	79°29.2	75°32.6	37°37.0	33°42.6	46°15.5	63°06.4	77°59.3
11	268°47.9	9.8'	$15^{\circ}52.0$	14.4'	59.2'	115°43.0	78°53.8	74°56.5	37°02.0	34°16.1	46°50.7	63°39.4	78°32.1
12	283°16.7	9.7'	$N16^{\circ}06.4$	14.4'	59.2'	115°07.6	78°18.3	74°20.4	36°27.0	34°49.7	47°25.8	64°12.5	79°05.0
13	297°45.4	9.7'	16°20.8	14.3'	59.2'	114°32.2	77°42.9	73°44.3	35°52.0	35°23.2	48°01.0	64°45.5	79°37.8
14	312°14.1	9.6'	16°35.0	14.2'	59.2'	113°56.8	77°07.5	73°08.3	35° 17.1	35°56.6	48°36.1	65°18.6	80°10.6
15	326°42.7	9.5'	16°49.2	14.1'	59.2'	113°21.4	76°32.2	72°32.3	34°42.2	36°30.1	49°11.2	65°51.7	80°43.4
16	341°11.2	9.4'	17°03.3	14.0'	59.2'	112°46.0	75°56.8	71°56.3	34°07.3	37°03.6	49°46.3	66°24.8	81°16.2
17	355°39.6	9.4'	17° 17.2	13.9'	59.2'	112°10.7	75°21.4	71°20.3	33°32.4	37°37.0	50°21.4	66°57.8	81°49.0
18	10°08.0	9.3'	$N17^{\circ}31.1$	13.8'	59.2'	111°35.4	74°46.1	70°44.3	32°57.6	38°10.5	50°56.5	67°30.9	82°21.8
19	24°36.3	9.2'	17°44.8	13.6'	59.1'	111°00.0	74°10.8	70°08.3	32°22.8	38°43.9	51°31.6	68°04.0	82°54.5
20	39°04.5	9.2'	$17^{\circ}58.5$	13.5'	59.1'	110°24.7	73°35.5	69°32.4	31°48.0	39°17.3	52°06.6	68°37.1	83°27.3
21	53°32.7	9.1'	18° 12.0	13.4'	59.1'	109°49.5	73°00.2	68°56.4	31° 13.3	39°50.7	52°41.6	69°10.2	84°00.0
22	68°00.8	9.0'	18°25.5	13.3'	59.1'	109°14.2	72°24.9	68°20.5	30°38.6	40°24.1	53°16.6	69°43.3	84°32.7
23	82°28.8	8.9'	18°38.8	13.2'	59.1'	108°38.9	71°49.7	67°44.6	30°04.0	40°57.5	53°51.6	70°16.4	85°05.4
4 th	SD	$= 16.2^{\prime}$	Mer. pass	. 17:18					Sun S	D = 16.2'			

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1.	Moon (5 th Feb)	Lunar Distance (objects with largest hourly LD delta)
n	MOON (5" Feb.)	I linar i listance i oniects with largest nollriv i i li delta i

Wed	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Mars	-Jupiter	+Venus	+Saturn	+Fomalhaut	+Sun
0	96°56.7	8.9'	N 18°52.0	13.1'	59.1'	108°03.7	71°14.4	67°08.7	29°29.3	41°30.9	54°26.6	70°49.5	85°38.0
1	111°24.6	8.8'	$19^{\circ}05.1$	13.0'	59.1'	107°28.5	70°39.2	66°32.9	28°54.8	42°04.2	55°01.6	71°22.6	86° 10.7
2	125°52.3	8.7'	19° 18.1	12.9'	59.0'	106°53.2	70°04.0	65°57.0	28°20.2	42°37.5	55°36.5	71°55.8	86°43.3
3	140°20.1	8.6'	19°31.0	12.8'	59.0'	106°18.1	69°28.8	65°21.2	27°45.7	43°10.9	56°11.5	72°28.9	87°16.0
4	154°47.7	8.6'	19°43.7	12.6'	59.0'	105°42.9	68°53.6	64°45.4	$27^{\circ}11.3$	43°44.2	56°46.4	73°02.0	87°48.6
5	$169^{\circ}15.2$	8.5'	19°56.4	12.5'	59.0'	105°07.7	68°18.5	64°09.6	26°36.9	44°17.5	57°21.3	73°35.1	88°21.2
6	183°42.7	8.4'	N 20°08.9	12.4'	59.0'	104°32.6	67°43.3	63°33.8	26°02.5	44°50.8	57°56.2	74°08.1	88°53.7
7	198°10.1	8.3'	20°21.3	12.3'	59.0'	103°57.4	67°08.2	62°58.1	25°28.2	45°24.0	58°31.0	74°41.2	89°26.3
8	212°37.5	8.3'	20°33.6	12.2'	59.0'	103°22.3	66°33.1	62°22.3	24°54.0	45°57.3	59°05.9	75°14.3	89°58.8
9	227°04.7	8.2'	20°45.7	12.0'	59.0'	102°47.2	65°58.0	61°46.6	24° 19.8	46°30.5	59°40.7	75°47.4	90°31.4
10	241°31.9	8.1'	20°57.7	11.9'	58.9'	102°12.1	65°22.9	61°10.9	23°45.7	47°03.7	60°15.5	76°20.5	91°03.9
11	255°59.0	8.0'	$21^{\circ}09.6$	11.8'	58.9'	101°37.1	64°47.8	60°35.2	23°11.6	47°37.0	60°50.3	76°53.5	91°36.4
12	270°26.0	7.9'	N21°21.4	11.6'	58.9'	101°02.0	64°12.8	59°59.6	22°37.6	48°10.2	61°25.1	77°26.6	92°08.8
13	284°52.9	7.9'	21°33.0	11.5'	58.9'	100°27.0	63°37.8	59°23.9	22°03.6	48°43.3	61°59.9	77°59.7	92°41.3
14	299°19.8	7.8'	21°44.5	11.4'	58.9'	99°52.0	63°02.8	58°48.3	21°29.8	49°16.5	62°34.6	78°32.7	93°13.7
15	313°46.6	7.7'	21°55.9	11.2'	58.9'	99°17.0	62°27.8	58°12.7	20°56.0	49°49.7	63°09.4	79°05.8	93°46.2
16	328°13.3	7.6'	22°07.2	11.1'	58.9'	98°42.0	61°52.8	57°37.1	20°22.3	50°22.8	63°44.1	79°38.8	94°18.6
17	342°39.9	7.6'	22°18.3	11.0'	58.8'	98°07.1	61°17.9	57°01.5	19°48.6	50°55.9	64°18.8	80°11.8	94°51.0
18	357°06.5	7.5'	$N22^{\circ}29.2$	10.8'	58.8'	97°32.1	60°42.9	56°26.0	19° 15.1	51°29.1	64°53.4	80°44.8	95°23.4
19	11°33.0	7.4'	22°40.1	10.7'	58.8'	96°57.2	60°08.0	55°50.4	18°41.7	52°02.2	65°28.1	81°17.8	95°55.7
20	25°59.4	7.3'	22°50.8	10.6'	58.8'	96°22.3	59°33.1	55°14.9	18°08.3	52°35.2	66°02.8	81°50.8	96°28.1
21	40°25.7	7.2'	23°01.3	10.4'	58.8'	95°47.4	58°58.2	54°39.4	17°35.1	53°08.3	66°37.4	82°23.8	97°00.4
22	54°51.9	7.2'	23°11.7	10.3'	58.8'	95°12.5	58°23.3	54°03.9	17°02.1	53°41.4	67°12.0	82°56.8	97°32.7
23	69°18.1	7.1'	23°22.0	10.1'	58.7'	94°37.6	57°48.5	53°28.4	16°29.1	54°14.4	67°46.6	83°29.7	98°05.0
5 th	SD :	= 16.1	′ Mer. pas	s. 18:12					Sun S	D = 16.2'			

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TI	 101001	-		LID	D			` '		i	- Famalland	_
h	Moor	າ (6 th Fe	h)			Lunar D)istance	(ohiects	with larg	sest hour	v LD delta	١

Thu	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Mars	-Jupiter	+Venus	+Saturn	+Fomalhaut	+Sun
0	83°44.2	7.0'	$N23^{\circ}32.1$	10.0'	58.7'	94°02.8	57°13.7	52°53.0	15°56.3	54°47.4	68°21.2	84°02.7	98°37.3
1	98°10.2	6.9'	23°42.1	9.8'	58.7'	93°28.0	56°38.8	52°17.6	15°23.7	55°20.4	68°55.7	84°35.6	99°09.5
2	112°36.2	6.9'	23°51.9	9.7'	58.7'	92°53.2	56°04.0	51°42.2	14°51.2	55°53.4	69°30.3	85°08.5	99°41.8
3	127°02.1	6.8'	24°01.6	9.5'	58.7'	92°18.4	55°29.3	51°06.8	14° 19.0	56°26.4	70°04.8	85°41.5	100°14.0
4	141°27.9	6.7'	$24^{\circ}11.1$	9.4'	58.7'	91°43.6	54°54.5	50°31.4	13°47.0	56°59.4	70°39.3	86°14.4	100°46.2
5	155°53.6	6.7'	24°20.5	9.2'	58.7'	91°08.8	54°19.7	49°56.1	13° 15.2	57°32.3	71°13.8	86°47.2	101°18.4
6	170°19.2	6.6'	N 24°29.7	9.1'	58.6'	90°34.1	53°45.0	49°20.7	12°43.6	58°05.2	71°48.3	87°20.1	101°50.6
7	184°44.8	6.5'	24°38.8	8.9'	58.6'	89°59.4	53°10.3	48°45.4	12°12.4	58°38.2	72°22.7	87°53.0	102°22.7
8	199°10.4	6.4'	24°47.7	8.8'	58.6'	89°24.7	52°35.6	48°10.1	11°41.5	59°11.1	72°57.2	88°25.8	102°54.9
9	213°35.8	6.4'	24°56.5	8.6'	58.6'	88°50.0	52°01.0	47°34.8	11°11.0	59°44.0	73°31.6	88°58.6	103°27.0
10	228°01.2	6.3'	$25^{\circ}05.1$	8.4'	58.6'	88°15.3	51°26.3	46°59.6	10°41.0	60°16.8	74°06.0	89°31.4	103°59.1
11	242°26.5	6.2'	$25^{\circ}13.5$	8.3'	58.6'	87°40.7	50°51.7	46°24.4	10°11.4	60°49.7	74°40.4	90°04.2	104°31.2
12	256°51.7	6.2'	N 25°21.8	8.1'	58.5'	87°06.0	50°17.0	45°49.1	9°42.4	61°22.5	75°14.8	90°37.0	105°03.2
13	271°16.9	6.1'	25°29.9	8.0'	58.5'	86°31.4	49°42.4	45°13.9	9°14.1	61°55.3	75°49.1	91°09.7	105°35.3
14	285°42.0	6.1'	25°37.9	7.8'	58.5'	85°56.8	49°07.9	44°38.8	8°46.5	62°28.2	76°23.4	91°42.5	106°07.3
15	300°07.1	6.0'	25°45.7	7.6'	58.5'	85°22.2	48°33.3	44°03.6	8° 19.8	63°01.0	76°57.8	92°15.2	106°39.3
16	314°32.1	5.9'	25°53.3	7.5'	58.5'	84°47.7	47°58.8	43°28.4		63°33.7	77°32.1	92°47.9	107°11.3
17	328°57.0	5.9'	26°00.8	7.3'	58.5'	84°13.1	47°24.2	42°53.3		64°06.5	78°06.3	93°20.6	107°43.3
18	343°21.9	5.8'	$N26^{\circ}08.1$	7.1'	58.4'	83°38.6	46°49.7	42°18.2		64°39.2	78°40.6	93°53.2	108°15.3
19	357°46.7	5.8'	$26^{\circ}15.3$	7.0'	58.4'	83°04.1	46°15.2	41°43.1		65°12.0	79°14.8	94°25.9	108°47.2
20	12°11.5	5.7'	26°22.2	6.8'	58.4'	82°29.6	45°40.8	41°08.1		65°44.7	79°49.1	94°58.5	109°19.1
21	26°36.2	5.6'	$26^{\circ}29.0$	6.6'	58.4'	81°55.1	45°06.3	40°33.0		66°17.4	80°23.3	95°31.1	109°51.0
22	41°00.8	5.6'	26°35.7	6.5'	58.4'	81°20.7	44°31.9	39°58.0		66°50.1	80°57.5	96°03.7	110°22.9
23	55°25.4	5.5'	26°42.1	6.3'	58.4'	80°46.2	43°57.5	39°23.0		67°22.7	81°31.6	96°36.3	110°54.8
6 th	SD	= 16.0	Mer. pas	s. 19:09					Sun S	SD = 16.2'			

Moon (7 th Feb)	Lunar Distance	(objec	ts with	largest l	hourly	I D	delta)
1410011 (1 1 65)	Edital Distance	(OD ICC	CO VVICII	iui Ecst i	ilouily i	,	acitai

Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	+Venus	+Saturn	+Fomalhaut	+Sun
0	69°49.9	5.5'	N 26°48.4	6.1'	58.3'	80°11.8	50°13.9	43°23.1	38°48.0	67°55.4	82°05.8	97°08.8	111°26.6
1	84°14.4	5.4'	26°54.6	5.9'	58.3'	79°37.4	49°43.3	42°48.7	38°13.0	68°28.0	82°39.9	97°41.3	111°58.5
2	98°38.9	5.4'	27°00.5	5.8'	58.3'	79°03.0	49°12.8	42°14.3	37°38.1	69°00.7	83°14.1	98°13.8	112°30.3
3	113°03.3	5.4'	27°06.3	5.6'	58.3'	78°28.7	48°42.4	41°40.0	37°03.2	69°33.3	83°48.2	98°46.3	113°02.1
4	127°27.6	5.3'	$27^{\circ}11.9$	5.4'	58.3'	77°54.3	48°12.0	41°05.7	36°28.3	70°05.8	84°22.2	99°18.8	113°33.9
5	141°52.0	5.3'	$27^{\circ}17.3$	5.3'	58.3'	77°20.0	47°41.8	40°31.4	35°53.4	70°38.4	84°56.3	99°51.2	114°05.6
6	156° 16.2	5.2'	N27°22.6	5.1'	58.2'	76°45.7	47°11.6	39°57.1	35°18.5	71°11.0	85°30.4	100°23.6	114°37.4
7	170°40.5	5.2'	27°27.6	4.9'	58.2'	76°11.4	46°41.5	39°22.8	34°43.6	71°43.5	86°04.4	100°56.0	115°09.1
8	185°04.6	5.2'	27°32.5	4.7'	58.2'	75°37.1	46°11.5	38°48.6	34°08.8	72°16.0	86°38.4	101°28.4	115°40.8
9	199°28.8	5.1'	27°37.3	4.5'	58.2'	75°02.8	45°41.6	38°14.3	33°34.0	72°48.6	87°12.4	102°00.7	116°12.5
10	213°52.9	5.1'	$27^{\circ}41.8$	4.4'	58.2'	74°28.6	45°11.8	37°40.1	32°59.2	73°21.1	87°46.4	102°33.0	116°44.2
11	228°17.0	5.1'	27°46.2	4.2'	58.2'	73°54.4	44°42.1	37°05.9	32°24.4	73°53.5	88°20.3	103°05.3	117°15.8
12	242°41.1	5.0'	$N27^{\circ}50.3$	4.0'	58.1'	73°20.2	44°12.5	36°31.8	31°49.7	74°26.0	88°54.3	103°37.5	117°47.5
13	257°05.1	5.0'	27°54.3	3.8'	58.1'	72°46.0	43°43.0	35°57.6	31°15.0	74°58.4	89°28.2	104°09.8	118° 19.1
14	271°29.1	5.0'	27°58.2	3.6'	58.1'	72°11.8	43°13.6	35°23.5	30°40.2	75°30.9	90°02.1	104°42.0	118°50.7
15	285°53.1	5.0'	28°01.8	3.5'	58.1'	71°37.7	42°44.3	34°49.4	30°05.5	76°03.3	90°36.0	105°14.2	119°22.3
16	300°17.1	4.9'	28°05.3	3.3'	58.1'	71°03.6	42°15.2	34°15.3	29°30.9	76°35.7	91°09.8	105°46.3	119°53.8
17	314°41.0	4.9'	28°08.6	3.1'	58.1'	70°29.4	41°46.1	33°41.2	28°56.2	77°08.1	91°43.7	106°18.4	
18	329°04.9	4.9'	$N28^{\circ}11.7$	2.9'	58.0'	69°55.4	41°17.2	33°07.2	28°21.6	77°40.4	92°17.5	106°50.5	
19	343°28.9	4.9'	28°14.6	2.7'	58.0'	69°21.3	40°48.4	32°33.2	27°47.0	78°12.8	92°51.3	107°22.6	
20	357°52.7	4.9'	28° 17.3	2.6'	58.0'	68°47.2	40°19.7	31°59.2	27°12.4	78°45.1	93°25.1	107°54.6	
21	12°16.6	4.9'	28° 19.9	2.4'	58.0'	68°13.2	39°51.2	31°25.2	26°37.8	79°17.4	93°58.9	108°26.6	
22	26°40.5	4.9'	28°22.2	2.2'	58.0'	67°39.2	39°22.8	30°51.2	26°03.3	79°49.7	94°32.6	108°58.6	
23	41°04.4	4.9'	28°24.4	2.0'	58.0'	67°05.2	38°54.5	30°17.3	25°28.7	80°22.0	95°06.4	109°30.5	
7 th	SD =	= 15.9'	Mer. pass	. 20:09	9				Sun S	5D = 16.2'			

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I_	Moon (8 th Feb)	Lunar Distance (objects with largest hourly LD delta)
n	MOOD 18 FED 1	I linar i listance i oniects with largest nollriv i i l'i delta i

Sat	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Pollux	-Mars	+Jupiter	+Venus	+Saturn	+Fomalhaut
0	55°28.2	4.9'	N 28°26.4	1.8'	57.9'		66°31.2	29°43.4	24°54.2	13°37.2	80°54.3	95°40.1	110°02.5
1	69°52.1	4.9'	28°28.3	1.6'	57.9'	119°57.8	65°57.2	29°09.5	24°19.7	14°08.4	81°26.5	96° 13.8	110°34.3
2	84°16.0	4.9'	28°29.9	1.5'	57.9'	119°23.9	65°23.3	28°35.6	23°45.3	14°39.8	81°58.8	96°47.5	111°06.2
3	98°39.8	4.9'	28°31.4	1.3'	57.9'	118°49.9	64°49.3	28°01.7	23°10.8	15°11.4	82°31.0	97°21.1	111°38.0
4	113°03.7	4.9'	28°32.6	1.1'	57.9'	118°16.0	64°15.4	27°27.9	22°36.4	15°43.1	83°03.2	97°54.8	112°09.8
5	127°27.6	4.9'	28°33.7	0.9'	57.8'	117°42.1	63°41.6	26°54.1	22°02.0	16°14.9	83°35.4	98°28.4	112°41.5
6	141°51.5	4.9'	N28°34.7	0.7'	57.8'	117°08.2	63°07.7	26°20.3	21°27.6	16°46.8	84°07.5	99°02.0	113°13.2
7	156°15.4	4.9'	28°35.4	0.5'	57.8'	116°34.3	62°33.8	25°46.5	20°53.2	17°18.9	84°39.7	99°35.6	113°44.9
8	170°39.3	4.9'	28°35.9	0.4'	57.8'	116°00.4	62°00.0	25°12.8	20°18.9	17°51.0	85°11.8	100°09.2	114° 16.5
9	185°03.2	4.9'	28°36.3	0.2'	57.8'	115°26.6	61°26.2	24°39.1	19°44.6	18°23.2	85°43.9	100°42.7	114°48.2
10	199°27.1	5.0'	28°36.5	0.0'	57.8'	114°52.8	60°52.4	24°05.4	19°10.3	18°55.5	86°16.0	101°16.2	115° 19.7
11	213°51.1	5.0'	28°36.5	-0.2'	57.7'	114°19.0	60°18.6	23°31.7	18°36.0	19°27.8	86°48.1	101°49.8	115°51.2
12	228°15.1	5.0'	N28°36.3	-0.4'	57.7'	113°45.2	59°44.9	22°58.0	18°01.7	20°00.2	87°20.2	102°23.2	116°22.7
13	242°39.1	5.0'	28°35.9	-0.5'	57.7'	113°11.4	59°11.1	22°24.4	17°27.5	20°32.7	87°52.2	102°56.7	116°54.2
14	257°03.1	5.1'	28°35.4	-0.7'	57.7'	112°37.7	58°37.4	21°50.8	16°53.3	21°05.2	88°24.3	103°30.2	117° 25.6
15	271°27.2	5.1'	28°34.7	-0.9'	57.7'	112°04.0	58°03.7	21°17.2	16°19.1	21°37.7	88°56.3	104°03.6	117°57.0
16	285°51.3	5.1'	28°33.8	-1.1'	57.6'	111°30.3	57°30.0	20°43.7	15°44.9	22°10.3	89°28.3	104°37.0	118°28.3
17	300°15.4	5.2'	28°32.7	-1.3'	57.6'	110°56.6	56°56.4	20°10.2	15°10.8	22°42.9	90°00.3	105° 10.4	118°59.6
18	314°39.6	5.2'	N28°31.4	-1.4'	57.6'	110°22.9	56°22.7	19°36.7	14°36.7	23°15.5	90°32.2	105°43.8	119°30.8
19	329°03.8	5.2'	28°30.0	-1.6'	57.6'	109°49.2	55°49.1	19°03.2	14°02.6	23°48.2	91°04.2	106° 17.2	
20	343°28.0	5.3'	28°28.4	-1.8'	57.6'	109°15.6	55°15.5	18°29.8	13°28.5	24°20.9	91°36.1	106°50.5	
21	357°52.3	5.3'	28°26.6	-2.0'	57.5'	108°42.0	54°41.9	17°56.4	12°54.4	24°53.6	92°08.0	107°23.8	
22	12°16.7	5.4'	28°24.6	-2.1'	57.5'	108°08.4	54°08.4	17°23.0	12°20.4	25°26.3	92°39.9	107°57.1	
23	26°41.0	5.4'	28°22.5	-2.3'	57.5'	107°34.8	53°34.8	16°49.7	11°46.4	25°59.0	93°11.8	108°30.4	
8 th	SD :	= 15.8	Mer. pass	s. 21:09									

Moon (9th Feb) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Pollux	-Mars	+Jupiter	+Aldebaran	+Venus	+Saturn
0	41°05.5	5.5'	N28°20.1	-2.5'	57.5'	107°01.3	53°01.3	16°16.4	11°12.5	26°31.7	29°05.5	93°43.7	109°03.7
1	55°29.9	5.5'	28°17.6	-2.7'	57.5'	106°27.8	52°27.8	15°43.1	10°38.5	27°04.5	29°36.7	94°15.5	109°36.9
2	69°54.5	5.6'	$28^{\circ}15.0$	-2.8'	57.5'	105°54.2	51°54.3	15°09.9	10°04.6	27°37.2	30°07.9	94°47.3	110°10.2
3	84°19.0	5.6'	$28^{\circ}12.1$	-3.0'	57.4'	105°20.7	51°20.8	14°36.7	9°30.7	28° 10.0	30°39.2	95°19.1	110°43.4
4	98°43.7	5.7'	$28^{\circ}09.1$	-3.2'	57.4'	104°47.3	50°47.4	14°03.6	8°56.9	28°42.8	31°10.6	95°50.9	111°16.5
5	113°08.4	5.8'	28°05.9	-3.4'	57.4'	104°13.8	50°14.0	13°30.5	8°23.1	29° 15.6	31°42.0	96°22.7	111°49.7
6	127°33.1	5.8'	N 28°02.6	-3.5'	57.4'	103°40.4	49°40.6	12°57.5	7°49.3	29°48.3	32° 13.4	96°54.5	112°22.9
7	141°58.0	5.9'	$27^{\circ}59.1$	-3.7'	57.4'	103°07.0	49°07.2	12°24.5	7° 15.6	30°21.1	32°44.9	97°26.2	112°56.0
8	156°22.9	6.0'	27°55.4	-3.9'	57.3'	102°33.6	48°33.8	11°51.6	6°41.9	30°53.9	33° 16.4	97°57.9	113°29.1
9	170°47.8	6.0'	27°51.5	-4.0'	57.3'	102°00.2	48°00.5	11°18.7	6°08.3	31°26.7	33°47.9	98°29.6	114°02.2
10	185°12.8	6.1'	27°47.5	-4.2'	57.3'	101°26.8	47°27.1	10°45.9	5°34.8	31°59.4	34° 19.5	99°01.3	114°35.3
11	199°37.9	6.2'	27°43.3	-4.4'	57.3'	100°53.5	46°53.8	10°13.2	5°01.3	32°32.2	34°51.1	99°33.0	115°08.3
12	214°03.1	6.2'	N 27°38.9	-4.5'	57.3'	100°20.2	46°20.6	9°40.6	4°28.0	33°05.0	35°22.8	100°04.6	115°41.3
13	228°28.3	6.3'	27°34.4	-4.7'	57.2'	99°46.9	45°47.3	9°08.1	3°54.8	33°37.7	35° 54.4	100°36.3	116°14.3
14	242°53.6	6.4'	27°29.7	-4.8'	57.2'	99°13.6	45°14.0	8°35.7	3°21.8	34° 10.5	36°26.1	101°07.9	116°47.3
15	257°19.0	6.5'	27°24.9	-5.0'	57.2'	98°40.3	44°40.8	8°03.4	2°49.1	34°43.2	36° 57.8	101°39.5	117°20.3
16	271°44.5	6.5'	$27^{\circ}19.9$	-5.2'	57.2'	98°07.1	44°07.6	7°31.3	2°17.0	35° 16.0	37°29.6	102°11.1	117°53.2
17	286°10.0	6.6'	$27^{\circ}14.7$	-5.3'	57.2'	97°33.9	43°34.4	6°59.4		35°48.7	38°01.3	102°42.6	118°26.2
18	300°35.6	6.7'	N27°09.4	-5.5'	57.1'	97°00.7	43°01.3	6°27.7		36°21.4	38°33.1	103°14.2	118°59.1
19	315°01.3	6.8'	27°03.9	-5.6'	57.1'	96°27.5	42°28.1	5°56.4		36°54.2	39°04.9	103°45.7	119°32.0
20	329°27.1	6.9'	26°58.2	-5.8'	57.1'	95°54.3	41°55.0	5°25.4		37°26.9	39° 36.6	104°17.2	
21	343°53.0	7.0'	26°52.5	-5.9'	57.1'	95°21.2	41°21.9	4°54.9		37°59.6	40°08.4	104°48.7	
22	358°18.9	7.0'	26°46.5	-6.1'	57.1'	94°48.1	40°48.9	4°25.0		38°32.2	40°40.3	105°20.2	
23	12°45.0	7.1'	26°40.4	-6.2'	57.0'	94°15.0	40°15.8	3°56.1		39°04.9	41°12.1	105°51.6	
9 th	SD	= 15.7	' Mer. pas	s. 22:07	,								

h Moon (10 th Feb)	Lunar Distance (objects with largest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Rigil Kent.	-Spica	-Arcturus	-Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	27°11.1	7.2'	N 26°34.2	-6.4'	57.0'		93°41.9	90°55.9	39°42.8			39°37.6	41°43.9
1	41°37.3	7.3'	26°27.8	-6.5'	57.0'		93°08.8	90°28.1	39°09.8	2°59.3		40° 10.2	42° 15.7
2	56°03.6	7.4'	$26^{\circ}21.2$	-6.7'	57.0'		92°35.8	90°00.4	38°36.8	3°31.9		40°42.9	42°47.6
3	70°30.0	7.5'	$26^{\circ}14.5$	-6.8'	57.0'		92°02.8	89°32.7	38°03.8	4°04.6		41° 15.5	43°19.4
4	84°56.5	7.6'	26°07.7	-7.0'	57.0'	119°45.0	91°29.8	89°05.0	37°30.9	4°37.6		41°48.1	43°51.3
5	99°23.1	7.7'	26°00.7	-7.1'	56.9'	119°21.7	90°56.8	88°37.3	36°57.9	5°10.6		42°20.7	44°23.1
6	113°49.8	7.8'	N 25°53.6	-7.3'	56.9'	118°58.3	90°23.9	88°09.7	36°25.0	5°43.6		42°53.3	44°55.0
7	128°16.5	7.9'	25°46.3	-7.4'	56.9'	118°34.9	89°50.9	87°42.0	35°52.2	6°16.8		43°25.9	45°26.8
8	142°43.4	8.0'	25°38.9	-7.5'	56.9'	118°11.4	89° 18.0	87°14.4	35°19.3	6°49.9		43°58.4	45°58.7
9	157°10.4	8.1'	25°31.4	-7.7'	56.9'	117°47.8	88°45.1	86°46.8	34°46.5	7°23.0		44°30.9	46°30.5
10	171°37.5	8.2'	25°23.7	-7.8'	56.8'	117°24.1	88° 12.2	86°19.3	34°13.6	7°56.2		45°03.5	47°02.4
11	186°04.6	8.3'	$25^{\circ}15.9$	-8.0'	56.8'	117°00.4	87°39.4	85°51.7	33°40.9	8°29.3		45°36.0	47°34.2
12	200°31.9	8.4'	N 25°07.9	-8.1'	56.8'	116°36.6	87°06.6	85°24.2	33°08.1	9°02.5		46°08.5	48°06.1
13	214°59.2	8.5'	24°59.8	-8.2'	56.8'	116°12.8	86°33.8	84°56.7	32°35.3	9°35.6	4°45.4	46°40.9	48°37.9
14	229°26.7	8.6'	24°51.6	-8.4'	56.8'	115°48.9	86°01.0	84°29.2	32°02.6	10°08.7	5°15.4	47° 13.4	49°09.7
15	243°54.3	8.7'	24°43.2	-8.5'	56.7'	115°25.0	85°28.2	84°01.8	31°29.9	10°41.8	5°45.9	47°45.8	49°41.6
16	258°21.9	8.8'	24°34.8	-8.6'	56.7'	115°01.0	84°55.5	83°34.4	30°57.2	11°14.9	6°16.7	48° 18.3	50°13.4
17	272°49.7	8.9'	24°26.2	-8.7'	56.7'	114°36.9	84°22.7	83°07.0	30°24.6	11°48.0	6°47.8	48°50.7	50°45.2
18	287°17.6	9.0'	N 24°17.4	-8.9'	56.7'	114°12.8	83°50.0	82°39.6	29°52.0	12°21.1	7° 19.1	49°23.1	51°17.0
19	301°45.5	9.1'	24°08.6	-9.0'	56.7'	113°48.7	83° 17.4	82°12.3	29°19.4	12°54.1	7°50.6	49°55.4	51°48.8
20	316°13.6	9.2'	23°59.6	-9.1'	56.6'	113°24.5	82°44.7	81°45.0	28°46.8	13°27.1	8°22.3	50°27.8	52°20.6
21	330°41.8	9.3'	23°50.5	-9.2'	56.6'	113°00.2	82°12.1	81°17.7	28°14.2	14°00.2	8°54.0	51°00.1	52°52.4
22	345°10.1	9.4'	23°41.3	-9.3'	56.6'	112°36.0	81°39.4	80°50.5	27°41.7	14°33.1	9°25.8	51°32.5	53°24.2
23	359°38.5	9.5'	23°31.9	-9.5'	56.6'	112°11.6	81°06.8	80°23.3	27°09.2	15°06.1	9°57.7	52°04.8	53°55.9
10 th	SD :	= 15.6	Mer. pas	s. 23:01									

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I_	Moon (11 th Feb)	Lunar Distance (objects with largest hourly ID delta)
n	IVIOON LITS:: FED I	I linar i listance i oniects with largest nollriv i i li delta i

Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Arcturus	-Regulus	+Pollux	+Mars	+Jupiter	+Aldebaran
0	14°06.9	9.6'	N23°22.5	-9.6'	56.5'		80°34.3	79°56.1	26°36.7	10°29.6	15°39.1	52°37.0	54°27.7
1	28°35.5	9.7'	23°12.9	-9.7'	56.5'		80°01.7	79°29.0	26°04.3	11°01.6	16°12.0	53°09.3	54°59.4
2	43°04.2	9.8'	23°03.2	-9.8'	56.5'		79°29.2	79°01.9	25°31.8	11°33.6	16°44.9	53°41.6	55°31.2
3	57°33.0	9.9'	22°53.4	-9.9'	56.5'		78°56.7	78°34.9	24°59.4	12°05.6	17°17.8	54°13.8	56°02.9
4	72°01.9	10.0'	22°43.5	-10.0'	56.5'		78°24.2	78°07.8	24°27.0	12°37.6	17°50.7	54°46.0	56°34.6
5	86°31.0	10.1'	22°33.5	-10.1'	56.4'		77°51.7	77°40.9	23°54.7	13°09.7	18°23.5	55°18.2	57°06.3
6	101°00.1	10.2'	N22°23.3	-10.2'	56.4'		77°19.3	77°13.9	23°22.4	13°41.8	18°56.4	55°50.3	57°38.0
7	115°29.3	10.3'	22°13.1	-10.3'	56.4'		76°46.9	76°47.0	22°50.1	14°13.8	19°29.2	56°22.5	58°09.7
8	129°58.6	10.4'	22°02.7	-10.4'	56.4'		76°14.5	76°20.2	22°17.8	14°45.9	20°02.0	56°54.6	58°41.3
9	144°28.0	10.5'	21°52.3	-10.6'	56.4'		75°42.1	75°53.3	21°45.5	15°18.0	20°34.7	57°26.7	59°13.0
10	158°57.6	10.6'	21°41.7	-10.7'	56.3'		75°09.8	75°26.6	21°13.3	15°50.1	21°07.5	57°58.8	59°44.6
11	173°27.2	10.7'	21°31.1	-10.8'	56.3'		74°37.4	74°59.8	20°41.1	16°22.1	21°40.2	58°30.9	60°16.2
12	187°56.9	10.8'	N 21°20.3	-10.8'	56.3'	119°59.2	74°05.1	74°33.1	20°09.0	16°54.2	22°12.9	59°03.0	60°47.8
13	202°26.8	10.9'	$21^{\circ}09.5$	-10.9'	56.3'	119°26.9	73°32.8	74°06.5	19°36.9	17°26.2	22°45.5	59°35.0	61°19.4
14	216°56.7	11.0'	20°58.5	-11.0'	56.3'	118°54.6	73°00.6	73°39.9	19°04.8	17°58.3	23°18.2	60°07.0	61°51.0
15	231°26.7	11.1'	20°47.5	-11.1'	56.2'	118°22.4	72°28.3	73°13.3	18°32.7	18°30.3	23°50.8	60°39.0	62°22.6
16	245°56.9	11.2'	20°36.4	-11.2'	56.2'	117°50.1	71°56.1	72°46.8	18°00.7	19°02.4	24°23.4	61°10.9	62°54.1
17	260°27.1	11.3'	20°25.1	-11.3'	56.2'	117°17.9	71°23.9	72°20.4	17°28.7	19°34.4	24°56.0	61°42.9	63°25.6
18	274°57.5	11.4'	N 20°13.8	-11.4'	56.2'	116°45.8	70°51.7	71°54.0	16°56.7	20°06.4	25°28.5	62°14.8	63°57.1
19	289°27.9	11.5'	20°02.4	-11.5'	56.2'	116°13.6	70°19.6	71°27.6	16°24.8	20°38.4	26°01.1	62°46.7	64°28.6
20	303°58.5	11.6'	19°50.9	-11.6'	56.1'	115°41.5	69°47.5	71°01.3	15°52.9	21°10.3	26°33.6	63°18.6	65°00.1
21	318°29.1	11.7'	19°39.3	-11.7'	56.1'	115°09.4	69°15.4	70°35.1	15°21.0	21°42.3	27°06.1	63°50.5	65°31.6
22	332°59.9	11.8'	19°27.7	-11.8'	56.1'	114°37.3	68°43.3	70°08.9	14°49.2	22°14.2	27°38.5	64°22.3	66°03.0
23	347°30.7	11.9'	19°15.9	-11.8'	56.1'	114°05.2	68°11.2	69°42.7	14°17.4	22°46.2	28°11.0	64°54.1	66°34.5
11 th	SD	= 15.4'	Mer. pas	s. 23:52									

Moon (12th Feb) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Regulus	+Pollux	+Mars	+Jupiter	+Aldebaran
0	2°01.7	12.0'	N 19°04.1	-11.9'	56.1'	113°33.2	69°16.7	67°39.2	13°45.7	23°18.1	28°43.4	65°25.9	67°05.9
1	16°32.7	12.1'	18°52.2	-12.0'	56.0'	113°01.2	68°50.6	67°07.2	13°14.0	23°50.0	29°15.8	65°57.7	67°37.3
2	31°03.8	12.2'	18°40.2	-12.1'	56.0'	112°29.2	68°24.7	66°35.2	12°42.4	24°21.8	29°48.1	66° 29.5	68°08.7
3	45°35.1	12.3'	$18^{\circ}28.1$	-12.1'	56.0'	111°57.2	67°58.7	66°03.2	12°10.8	24°53.7	30°20.5	67°01.2	68°40.0
4	60°06.4	12.4'	$18^{\circ}16.0$	-12.2'	56.0'	111°25.3	67°32.9	65°31.3	11°39.3	25°25.5	30°52.8	67°32.9	69°11.4
5	74°37.8	12.5'	18°03.7	-12.3'	56.0'	110°53.4	67°07.1	64°59.3	11°07.9	25°57.4	31°25.1	68°04.6	69°42.7
6	89°09.3	12.6'	$N17^{\circ}51.4$	-12.4'	55.9'	110°21.5	66°41.4	64°27.4	10°36.5	26°29.2	31°57.4	68°36.3	70°14.0
7	103°41.0	12.7'	17°39.1	-12.4'	55.9'	109°49.6	66°15.7	63°55.6	10°05.2	27°00.9	32°29.6	69°07.9	70°45.3
8	118°12.7	12.8'	17°26.6	-12.5'	55.9'	109° 17.7	65°50.1	63°23.7	9°33.9	27°32.7	33°01.9	69°39.6	71°16.5
9	132°44.5	12.9'	$17^{\circ}14.1$	-12.6'	55.9'	108°45.9	65°24.6	62°51.9	9°02.8	28°04.4	33°34.1	70°11.2	71°47.8
10	147°16.3	13.0'	$17^{\circ}01.5$	-12.6'	55.9'	108°14.1	64°59.1	62°20.1	8°31.8	28°36.2	34°06.2	70°42.7	72°19.0
11	161°48.3	13.1'	16°48.9	-12.7'	55.8'	107°42.3	64°33.7	61°48.3	8°00.9	29°07.9	34°38.4	71°14.3	72°50.2
12	176°20.4	13.2'	$N16^{\circ}36.2$	-12.8'	55.8'	107° 10.5	64°08.4	61°16.5	7°30.1	29°39.5	35°10.5	71°45.8	73°21.4
13	190°52.6	13.2'	16°23.4	-12.8'	55.8'	106°38.8	63°43.1	60°44.8	6°59.5	30°11.2	35°42.6	72° 17.4	73°52.6
14	205°24.8	13.3'	$16^{\circ}10.6$	-12.9'	55.8'	106°07.1	63°17.9	60°13.0	6°29.1	30°42.9	36°14.7	72°48.8	74°23.8
15	219°57.1	13.4'	15°57.7	-13.0'	55.8'	105°35.4	62°52.8	59°41.4	5°59.0	31°14.5	36°46.8	73°20.3	74°54.9
16	234°29.6	13.5'	15°44.7	-13.0'	55.7'	105°03.7	62°27.8	59°09.7	5°29.2	31°46.1	37°18.8	73°51.8	75°26.0
17	249°02.1	13.6'	15°31.7	-13.1'	55.7'	104°32.1	62°02.8	58°38.0	4°59.8	32° 17.7	37°50.8	74°23.2	75°57.1
18	263°34.7	13.7'	$N15^{\circ}18.6$	-13.1'	55.7'	104°00.4	61°37.9	58°06.4	4°30.9	32°49.2	38°22.8	74°54.6	76°28.2
19	278°07.3	13.8'	$15^{\circ}05.5$	-13.2'	55.7'	103°28.8	61°13.1	57°34.8	4°02.7	33°20.8	38°54.7	75°26.0	76°59.2
20	292°40.1	13.8'	14°52.3	-13.2'	55.7'	102°57.3	60°48.4	57°03.2		33°52.3	39°26.7	75°57.3	77°30.3
21	307°12.9	13.9'	14°39.1	-13.3'	55.6'	102°25.7	60°23.7	56°31.7		34°23.8	39°58.6	76°28.7	78°01.3
22	321°45.9	14.0'	14°25.8	-13.3'	55.6'	101°54.2	59°59.2	56°00.1		34°55.2	40°30.5	77°00.0	78°32.3
23	336°18.9	14.1'	14°12.4	-13.4'	55.6'	101°22.7	59°34.7	55°28.6		35°26.7	41°02.3	77°31.3	79°03.2
12 th	SI	0 = 15.3	3' Mer. pa	ss:-									

h		Мооі	n (13 th Fe	b)		Lunar Distance (objects with largest hourly LD delta)							
Thu	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Arcturus	-Spica	+Pollux	+Mars	+Jupiter	+Aldebaran
0	350°52.0	14.2'	N 13°59.0	-13.4'	55.6'	100°51.2	91°56.8	59° 10.3	54°57.1	35°58.1	41°34.2	78°02.5	79°34.2
1	5°25.1	14.2'	13°45.6	-13.5'	55.6'	100°19.7	91°32.0	58°46.0	54°25.7	36°29.5	42°06.0	78° 33.8	80°05.1
2	19°58.4	14.3'	13°32.1	-13.5'	55.5'	99°48.3	91°07.3	58°21.7	53°54.2	37°00.9	42°37.8	79°05.0	80°36.0
3	34°31.7	14.4'	13°18.5	-13.6'	55.5'	99°16.9	90°42.5	57° 57.6	53°22.8	37°32.3	43°09.5	79°36.2	81°06.9
4	49°05.1	14.5'	13°04.9	-13.6'	55.5'	98°45.5	90°17.7	57°33.6	52°51.4	38°03.6	43°41.3	80°07.4	81°37.8
5	63°38.5	14.5'	12°51.3	-13.7'	55.5'	98°14.1	89°53.0	57°09.6	52°20.0	38°35.0	44°13.0	80°38.5	82°08.6
6	78°12.1	14.6'	N12°37.6	-13.7'	55.5'	97°42.7	89°28.3	56°45.8	51°48.7	39°06.3	44°44.7	81°09.7	82°39.5
7	92°45.7	14.7'	12°23.9	-13.8'	55.4'	97°11.4	89°03.6	56°22.0	51°17.4	39°37.6	45° 16.4	81°40.8	83°10.3
8	107°19.4	14.8'	12°10.1	-13.8'	55.4'	96°40.1	88°38.9	55° 58.4	50°46.1	40°08.8	45°48.0	82°11.9	83°41.0
9	121°53.1	14.8'	11°56.3	-13.8'	55.4'	96°08.8	88°14.2	55°34.8	50°14.8	40°40.1	46° 19.6	82°42.9	84°11.8
10	136°26.9	14.9'	11°42.5	-13.9'	55.4'	95°37.6	87°49.6	55° 11.3	49°43.5	41°11.3	46°51.2	83°14.0	84°42.5
11	151°00.8	15.0'	11°28.6	-13.9'	55.4'	95°06.3	87°25.0	54°48.0	49°12.3	41°42.5	47°22.8	83°45.0	85°13.3
12	165°34.8	15.0'	$N11^{\circ}14.7$	-13.9'	55.3'	94°35.1	87°00.4	54°24.7	48°41.1	42°13.6	47°54.4	84°16.0	85°44.0
13	180°08.8	15.1'	11°00.8	-14.0'	55.3'	94°03.9	86°35.8	54°01.6	48°09.9	42°44.8	48° 25.9	84°47.0	86°14.6
14	194°42.9	15.2'	10°46.8	-14.0'	55.3'	93°32.7	86°11.3	53°38.6	47°38.7	43° 15.9	48° 57.4	85° 17.9	86°45.3
15	209°17.1	15.2'	10°32.8	-14.0'	55.3'	93°01.6	85°46.7	53° 15.7	47°07.5	43°47.0	49°28.9	85°48.8	87°15.9
16	223°51.3	15.3'	10°18.7	-14.1'	55.3'	92°30.5	85°22.2	52°52.9	46°36.4	44°18.1	50°00.3	86° 19.8	87°46.5
17	238°25.6	15.3'	10°04.7	-14.1'	55.2'	91°59.4	84°57.8	52°30.2	46°05.3	44°49.2	50°31.8	86°50.6	88°17.1
18	252°59.9	15.4'	N09°50.6	-14.1'	55.2'	91°28.3	84°33.3	52°07.6	45°34.2	45°20.2	51°03.2	87°21.5	88°47.7
19	267°34.3	15.5'	09°36.4	-14.2'	55.2'	90°57.2	84°08.9	51°45.1	45°03.2	45°51.2	51°34.5	87°52.3	89°18.2
20	282°08.8	15.5'	09°22.3	-14.2'	55.2'	90°26.2	83°44.5	51°22.8	44°32.1	46°22.2	52°05.9	88°23.2	89°48.8
21	296°43.3	15.6'	09°08.1	-14.2'	55.2'	89°55.2	83°20.2	51°00.6	44°01.1	46°53.2	52° 37.2	88°54.0	90°19.3
22	311°17.9	15.6'	08°53.8	-14.2'	55.2'	89°24.2	82°55.8	50°38.5	43°30.1	47°24.2	53°08.6	89°24.7	90°49.7
23	325°52.5	15.7'	08°39.6	-14.3'	55.1'	88°53.2	82°31.5	50°16.6	42°59.2	47°55.1	53°39.8	89°55.5	91°20.2
13 th	SD	= 15.2'	Mer. pass	s. 00:38									

h	Moon	(14 th	Feh)

	Moon	(14 th Fe	b)			Lunar Dist	ance (ob	jects wit	th largest	hourly LI	D delta)		
GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Mars	+Jupiter	1

Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Mars	+Jupiter
0	340°27.2	15.7'	N08°25.3	-14.3'	55.1'	88°22.3	82°07.3	78°23.8	42°28.2	11°42.7	48°26.0	54°11.1	90°26.2
1	355°02.0	15.8'	$08^{\circ}11.1$	-14.3'	55.1'	87°51.3	81°43.0	78°00.4	41°57.3	12° 13.2	48°56.9	54°42.4	90°56.9
2	9°36.8	15.8'	07°56.8	-14.3'	55.1'	87°20.4	81°18.8	77°37.0	41°26.4	12°43.8	49°27.8	55°13.6	91°27.6
3	24°11.6	15.9'	07°42.4	-14.3'	55.1'	86°49.6	80°54.6	77° 13.6	40°55.5	13° 14.3	49°58.6	55°44.8	91°58.3
4	38°46.5	15.9'	$07^{\circ}28.1$	-14.4'	55.0'	86°18.7	80°30.5	76°50.3	40°24.7	13°44.8	50°29.5	56°16.0	92°28.9
5	53°21.5	16.0'	$07^{\circ}13.7$	-14.4'	55.0'	85°47.9	80°06.4	76°27.1	39°53.8	14° 15.4	51°00.3	56°47.1	92°59.5
6	67°56.5	16.0'	N06°59.3	-14.4'	55.0'	85°17.0	79°42.3	76°03.9	39°23.0	14°45.9	51°31.1	57°18.2	93°30.1
7	82°31.5	16.1'	06°44.9	-14.4'	55.0'	84°46.2	79°18.3	75°40.7	38°52.2	15° 16.4	52°01.8	57°49.3	94°00.7
8	97°06.6	16.1'	06°30.5	-14.4'	55.0'	84°15.5	78°54.3	75° 17.6	38°21.4	15°47.0	52°32.6	58°20.4	94°31.2
9	111°41.7	16.2'	$06^{\circ}16.1$	-14.4'	55.0'	83°44.7	78°30.4	74°54.5	37°50.7	16° 17.5	53°03.3	58°51.5	95°01.8
10	126°16.9	16.2'	$06^{\circ}01.6$	-14.5'	54.9'	83°14.0	78°06.4	74°31.5	37°19.9	16°48.0	53°34.0	59°22.5	95°32.3
11	140°52.1	16.3'	05°47.2	-14.5'	54.9'	82°43.3	77°42.6	74°08.5	36°49.2	17° 18.5	54°04.7	59°53.5	96°02.8
12	155°27.4	16.3'	N05°32.7	-14.5'	54.9'	82°12.6	77°18.7	73°45.6	36°18.5	17°49.0	54°35.4	60°24.5	96°33.2
13	170°02.7	16.3'	05°18.2	-14.5'	54.9'	81°41.9	76°54.9	73°22.7	35°47.9	18° 19.5	55°06.0	60°55.5	97°03.7
14	184°38.1	16.4'	05°03.7	-14.5'	54.9'	81°11.3	76°31.2	72°59.9	35°17.2	18°50.0	55°36.6	61°26.5	97°34.1
15	199°13.4	16.4'	04°49.2	-14.5'	54.9'	80°40.6	76°07.5	72°37.1	34°46.6	19°20.5	56°07.2	61°57.4	98°04.5
16	213°48.9	16.5'	04°34.7	-14.5'	54.8'	80°10.0	75°43.8	72°14.4	34°16.0	19°50.9	56°37.8	62°28.3	98°34.9
17	228°24.3	16.5'	04°20.2	-14.5'	54.8'	79°39.4	75°20.1	71°51.8	33°45.4	20°21.4	57°08.4	62°59.2	99°05.2
18	242°59.8	16.5'	N 04°05.7	-14.5'	54.8'	79°08.9	74°56.6	71°29.2	33°14.8	20°51.8	57°38.9	63°30.0	99°35.6
19	257°35.3	16.6'	03°51.2	-14.5'	54.8'	78°38.3	74°33.0	71°06.6	32°44.3	21°22.2	58°09.4	64°00.9	100°05.9
20	272°10.9	16.6'	03°36.6	-14.5'	54.8'	78°07.8	74°09.5	70°44.1	32°13.8	21°52.6	58°39.9	64°31.7	100°36.2
21	286°46.5	16.6'	$03^{\circ}22.1$	-14.5'	54.8'	77°37.3	73°46.1	70°21.7	31°43.3	22°23.0	59°10.4	65°02.5	101°06.5
22	301°22.1	16.7'	03°07.5	-14.5'	54.7'	77°06.8	73°22.7	69°59.3	31°12.8	22°53.4	59°40.9	65°33.3	101°36.7
23	315°57.8	16.7'	02°53.0	-14.5'	54.7'	76°36.3	72°59.3	69°37.0	30°42.3	23°23.7	60°11.3	66°04.0	102°07.0
14 th	SD	= 15.0	Mer. pas	s. 01:20									

Moon (15th Feb) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Mars	+Jupiter
0	330°33.5	16.7'	N 02°38.5	-14.5'	54.7'		76°05.9	72°36.0	30°11.9	23°54.0	60°41.8	66°34.8	102°37.2
1	345°09.2	16.7'	02°23.9	-14.5'	54.7'		75°35.5	72°12.8	29°41.4	24°24.4	61°12.2	67°05.5	103°07.4
2	359°44.9	16.8'	02°09.4	-14.5'	54.7'		75°05.1	71°49.6	29°11.0	24°54.7	61°42.5	67°36.2	103°37.6
3	14°20.7	16.8'	01°54.8	-14.5'	54.7'		74°34.7	71°26.4	28°40.6	25°25.0	62°12.9	68°06.8	104°07.7
4	28°56.4	16.8'	01°40.3	-14.5'	54.7'		74°04.3	71°03.3	28°10.3	25°55.3	62°43.3	68°37.5	104°37.8
5	43°32.3	16.8'	$01^{\circ}25.7$	-14.5'	54.6'		73°33.9	70°40.3	27°39.9	26°25.5	63°13.6	69°08.1	105°08.0
6	58°08.1	16.9'	N 01°11.2	-14.5'	54.6'		73°03.6	70°17.3	27°09.6	26°55.8	63°43.9	69°38.7	105°38.1
7	72°43.9	16.9'	00°56.7	-14.5'	54.6'	119°36.7	72°33.3	69°54.3	26°39.3	27°26.0	64°14.2	70°09.3	106°08.1
8	87°19.8	16.9'	00°42.2	-14.5'	54.6'	119°13.3	72°03.0	69°31.5	26°09.0	27°56.2	64°44.5	70°39.9	106°38.2
9	101°55.7	16.9'	00°27.6	-14.5'	54.6'	118°49.8	71°32.7	69°08.6	25°38.7	28°26.4	65°14.7	$71^{\circ}10.5$	107°08.2
10	116°31.6	16.9'	N 00°13.1	-14.5'	54.6'	118°26.3	71°02.5	68°45.9	25°08.4	28°56.6	65°45.0	71°41.0	107°38.3
11	131°07.5	16.9'	S 00°01.4	-14.5'	54.6'	118°02.8	70°32.2	68°23.2	24°38.2	29°26.8	66°15.2	72°11.5	108°08.3
12	145°43.5	17.0'	S 00°15.9	-14.5'	54.5'	117°39.2	70°02.0	68°00.5	24°08.0	29°56.9	66°45.4	72°42.0	108°38.2
13	160°19.4	17.0'	00°30.4	-14.5'	54.5'	117°15.5	69°31.8	67°37.9	23°37.8	30°27.1	67°15.6	73°12.5	109°08.2
14	174°55.4	17.0'	00°44.8	-14.5'	54.5'	116°51.9	69°01.6	67°15.4	23°07.6	30°57.2	67°45.8	73°42.9	109°38.1
15	189°31.4	17.0'	00°59.3	-14.5'	54.5'	116°28.2	68°31.4	66°52.9	22°37.4	31°27.3	68°15.9	74°13.4	110°08.1
16	204°07.4	17.0'	01°13.8	-14.4'	54.5'	116°04.4	68°01.3	66°30.5	22°07.2	31°57.4	68°46.0	74°43.8	110°38.0
17	218°43.4	17.0'	$01^{\circ}28.2$	-14.4'	54.5'	115°40.6	67°31.1	66°08.2	21°37.1	32°27.5	69°16.2	75° 14.2	111°07.9
18	233°19.4	17.0'	S 01°42.6	-14.4'	54.5'	115°16.8	67°01.0	65°45.9	21°07.0	32°57.6	69°46.3	75°44.6	111°37.7
19	247°55.4	17.0'	01°57.0	-14.4'	54.5'	114°53.0	66°30.9	65°23.7	20°36.9	33°27.6	70°16.3	76° 15.0	112°07.6
20	262°31.4	17.0'	02°11.4	-14.4'	54.4'	114°29.1	66°00.8	65°01.5	20°06.8	33°57.6	70°46.4	76°45.3	112°37.4
21	277°07.5	17.0'	02°25.8	-14.4'	54.4'	114°05.2	65°30.7	64°39.5	19°36.7	34°27.7	71°16.5	77° 15.6	113°07.2
22	291°43.5	17.0'	02°40.2	-14.4'	54.4'	113°41.2	65°00.7	64°17.5	19°06.7	34°57.7	71°46.5	77°46.0	113°37.0
23	306°19.5	17.0'	02°54.6	-14.3'	54.4'	113°17.3	64°30.6	63°55.5	18°36.6	35°27.7	72°16.5	78° 16.3	114°06.8
15 th	SD	= 14.9'	Mer. pas	s. 02:01									

h Moon (16 th Feb) Lunar Dis	stance (objects with largest hourly LD delta)
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Sun	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Mars	+Jupiter
0	320°55.6	17.0'	S 03°08.9	-14.3'	54.4'	112°53.3	64°00.6	63°33.7	18°06.6	35°57.6	72°46.5	78°46.5	114°36.6
1	335°31.6	17.0'	03°23.2	-14.3'	54.4'	112°29.2	63°30.6	63°11.9	17°36.6	36°27.6	73° 16.5	79°16.8	115°06.3
2	350°07.7	17.0'	03°37.5	-14.3'	54.4'	112°05.2	63°00.6	62°50.2	17°06.6	36°57.5	73°46.5	79°47.0	115°36.1
3	4°43.7	17.0'	03°51.8	-14.3'	54.4'	111°41.1	62°30.6	62°28.5	16°36.6	37°27.5	74° 16.5	80°17.3	116°05.8
4	19°19.8	17.0'	04°06.0	-14.2'	54.3'	111°17.0	62°00.7	62°07.0	16°06.7	37°57.4	74°46.4	80°47.5	116°35.5
5	33°55.8	17.0'	04°20.3	-14.2'	54.3'	110°52.9	61°30.7	61°45.5	15°36.7	38°27.3	75° 16.4	81°17.7	117°05.2
6	48°31.8	17.0'	S 04°34.5	-14.2'	54.3'	110°28.7	$61^{\circ}00.8$	61°24.1	15°06.8	38°57.2	75°46.3	81°47.9	117°34.8
7	63°07.9	17.0'	04°48.7	-14.2'	54.3'	110°04.5	60°30.8	61°02.7	14°36.9	39°27.1	76° 16.2	82°18.0	118°04.5
8	77°43.9	17.0'	05°02.9	-14.1'	54.3'	109°40.3	60°00.9	60°41.5	14°07.0	39°57.0	76°46.1	82°48.2	118°34.1
9	92°19.9	17.0'	05° 17.0	-14.1'	54.3'	109°16.1	59°31.0	60°20.3	13°37.1	40°26.8	77°16.0	83°18.3	119°03.8
10	106°55.9	17.0'	$05^{\circ}31.1$	-14.1'	54.3'	108°51.9	59°01.2	59°59.2	13°07.2	40°56.7	77°45.8	83°48.5	119°33.4
11	121°31.9	17.0'	05°45.2	-14.1'	54.3'	108°27.6	58°31.3	59°38.2	12°37.3	41°26.5	78° 15.7	84°18.6	
12	136°07.9	17.0'	S 05°59.3	-14.0'	54.3'	108°03.3	58°01.4	59°17.3	12°07.5	41°56.3	78° 45.5	84°48.7	
13	150°43.9	17.0'	$06^{\circ}13.3$	-14.0'	54.3'	107°39.1	$57^{\circ}31.6$	58°56.5	11°37.6	42°26.1	79°15.3	85°18.7	
14	165°19.8	17.0'	06°27.3	-14.0'	54.3'	107°14.7	$57^{\circ}01.7$	58°35.7	11°07.8	42°55.9	79°45.2	85°48.8	
15	179°55.8	16.9'	06°41.3	-14.0'	54.2'	106°50.4	56°31.9	58°15.1	10°38.0	43°25.7	80° 15.0	86°18.9	
16	194°31.7	16.9'	06°55.3	-13.9'	54.2'	106°26.1	$56^{\circ}02.1$	57°54.5	10°08.2	43°55.5	80°44.8	86°48.9	
17	209°07.6	16.9'	$07^{\circ}09.2$	-13.9'	54.2'	106°01.7	55°32.3	57°34.1	9°38.4	44°25.2	81° 14.5	87°18.9	
18	223°43.6	16.9'	S 07°23.1	-13.9'	54.2'	105°37.3	55°02.5	57°13.7	9°08.7	44°55.0	81°44.3	87°49.0	
19	238°19.4	16.9'	07°37.0	-13.8'	54.2'	105°12.9	54°32.8	56°53.4	8°38.9	45°24.7	82°14.1	88°19.0	
20	252°55.3	16.8'	$07^{\circ}50.8$	-13.8'	54.2'	104°48.5	54°03.0	56°33.2	8°09.2	45°54.5	82°43.8	88°48.9	
21	267°31.2	16.8'	08°04.6	-13.8'	54.2'	104°24.1	53°33.3	56°13.2	7°39.4	46°24.2	83° 13.5	89°18.9	
22	282°07.0	16.8'	$08^{\circ}18.4$	-13.7'	54.2'	103°59.7	53°03.5	55°53.2	7°09.7	46°53.9	83°43.3	89°48.9	
23	296°42.8	16.8'	08°32.1	-13.7'	54.2'	103°35.2	52°33.8	55°33.3	6°40.0	47°23.6	84°13.0	90°18.8	
16 th	SD	= 14.8'	Mer. pas	s. 02:41									

h Moon (1	17 th Feb)	Lunar Distance (o	objects with larg	gest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	±Spica	+Regulus	+Pollux	+Mars	+Capella
0	311°18.6	16.8'	S 08°45.8	-13.7'	54.2'	103°10.8	55°13.6	52°04.1	6°10.3	47°53.3	84°42.7	90°48.8	114°25.2
1	325°54.3	16.7'	08°59.5	-13.6'	54.2'	102°46.3	54°53.9	51°34.4	5°40.6	48°23.0	85° 12.4	91°18.7	114°53.2
2	340°30.1	16.7'	$09^{\circ}13.1$	-13.6'	54.2'	102°21.8	54°34.3	51°04.7	5°11.0	48°52.6	85°42.1	91°48.6	115°21.2
3	355°05.8	16.7'	09°26.7	-13.6'	54.2'	101°57.4	54°14.9	50°35.0	4°41.3	49°22.3	86°11.7	92°18.5	115°49.2
4	9°41.4	16.7'	09°40.2	-13.5'	54.2'	101°32.9	53°55.6	50°05.3	4°11.7	49°51.9	86°41.4	92°48.4	116°17.1
5	24°17.1	16.6'	09°53.7	-13.5'	54.1'	101°08.4	53°36.3	49°35.6	3°42.1	50°21.6	87°11.1	93°18.3	116°45.0
6	38°52.7	16.6'	S 10°07.2	-13.4'	54.1'	100°43.8	53°17.2	49°05.9	3°12.6	50°51.2	87°40.7	93°48.2	117°12.9
7	53°28.3	16.6'	$10^{\circ}20.6$	-13.4'	54.1'	100°19.3	52°58.3	48°36.3	2°43.0	51°20.9	88° 10.4	94°18.1	117°40.8
8	68°03.9	16.5'	$10^{\circ}34.0$	-13.4'	54.1'	99°54.8	52°39.4	48°06.6	2°13.6	51°50.5	88°40.0	94°47.9	118°08.7
9	82°39.4	16.5'	10°47.4	-13.3'	54.1'	99°30.2	52°20.6	47°37.0	1°44.3	52°20.1	89°09.6	95°17.8	118°36.5
10	97°14.9	16.5'	$11^{\circ}00.7$	-13.3'	54.1'	99°05.7	52°02.0	47°07.3	1°15.2	52°49.7	89°39.2	95°47.6	119°04.3
11	111°50.4	16.4'	$11^{\circ}14.0$	-13.2'	54.1'	98°41.1	51°43.5	46°37.7	0°47.0	53°19.3	90°08.9	96°17.5	119°32.1
12	126°25.8	16.4'	S 11°27.2	-13.2'	54.1'	98°16.6	51°25.2	46°08.1		53°48.9	90°38.5	96°47.3	119°59.8
13	141°01.2	16.4'	11°40.4	-13.1'	54.1'	97°52.0	51°06.9	45°38.5		54°18.5	91°08.1	97°17.1	
14	155°36.5	16.3'	$11^{\circ}53.5$	-13.1'	54.1'	97°27.4	50°48.8	45°08.9		54°48.1	91°37.7	97°46.9	
15	170°11.9	16.3'	$12^{\circ}06.6$	-13.0'	54.1'	97°02.9	50°30.8	44°39.3		55°17.7	92°07.3	98°16.7	
16	184°47.1	16.2'	$12^{\circ}19.6$	-13.0'	54.1'	96°38.3	50°13.0	44°09.7	1°46.0	55°47.3	92°36.8	98°46.5	
17	199°22.4	16.2'	12°32.6	-12.9'	54.1'	96°13.7	49°55.3	43°40.1	2°15.3	56°16.8	93°06.4	99°16.3	
18	213°57.6	16.2'	S 12°45.6	-12.9'	54.1'	95°49.1	49°37.7	43°10.5	2°44.7	56°46.4	93°36.0	99°46.1	
19	228°32.7	16.1'	12°58.5	-12.9'	54.1'	95°24.5	49°20.3	42°40.9	3°14.1	57°16.0	94°05.6	100°15.9	
20	243°07.8	16.1'	13°11.3	-12.8'	54.1'	94°59.9	49°03.1	42°11.3	3°43.6	57°45.5	94°35.1	100°45.7	
21	257°42.9	16.0'	$13^{\circ}24.1$	-12.7'	54.1'	94°35.3	48°45.9	41°41.7	4°13.1	58°15.1	95°04.7	101°15.4	
22	272°17.9	16.0'	13°36.9	-12.7'	54.1'	94°10.7	48°29.0	41°12.2	4°42.6	58°44.6	95°34.2	101°45.2	
23	286°52.9	15.9'	13°49.6	-12.6'	54.1'	93°46.1	48°12.2	40°42.6	5°12.1	59°14.2	96°03.8	102°15.0	
17 th	SD	= 14.8'	Mer. pas	s. 03:20									

Moon (18th Feb)

SD = 14.8' Mer. pass. 04:01

18th

h		Мооі	n (18 th Fe	eb)			Lunar [Distance (ol	ojects wit	h largest	t hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Sun	-Altair	-Rigil Kent.	-Antares	+Spica	+Regulus	+Pollux	+Mars
0	301°27.8	15.9'	S 14°02.2	-12.6'	54.1'	119°41.4	93°21.5	47°55.5	40°13.0	5°41.6	59°43.7	96°33.3	102°44.7
1	316°02.7	15.8'	14°14.8	-12.5'	54.1'	119°14.4	92°56.8	47°39.0	39°43.5	6°11.2	60°13.3	97°02.9	103°14.5
2	330°37.5	15.8'	14°27.4	-12.5'	54.1'	118°47.4	92°32.2	47°22.7	39°13.9	6°40.7	60°42.8	97°32.4	103°44.2
3	345°12.3	15.7'	14°39.9	-12.4'	54.1'	118°20.4	92°07.6	47°06.5	38°44.4	7° 10.2	61°12.3	98°02.0	104°14.0
4	359°47.0	15.7'	14°52.3	-12.4'	54.1'	117°53.4	91°43.0	46°50.5	38°14.8	7°39.8	61°41.9	98°31.5	104°43.7
5	14°21.7	15.6'	15°04.7	-12.3'	54.1'	117°26.4	91°18.4	46°34.6	37°45.2	8°09.3	62°11.4	99°01.1	105°13.4
6	28°56.3	15.6'	S 15°17.0	-12.3'	54.1'	116°59.4	90°53.7	46°19.0	37°15.7	8°38.8	62°40.9	99°30.6	105°43.2
7	43°30.9	15.5'	15°29.2	-12.2'	54.1'	116°32.4	90°29.1	46°03.5	36°46.1	9°08.4	63°10.5	100°00.1	106°12.9
8	58°05.4	15.5'	15°41.4	-12.1'	54.1'	116°05.4	90°04.5	45°48.2	36°16.6	9°37.9	63°40.0	100°29.7	106°42.6
9	72°39.9	15.4'	15°53.6	-12.1'	54.1'	115°38.4	89°39.9	45°33.0	35°47.0	10°07.5	64°09.5	100°59.2	107°12.4
10	87°14.3	15.3'	$16^{\circ}05.7$	-12.0'	54.1'	115°11.3	89°15.2		35°17.5	10°37.0	64°39.1	101°28.7	107°42.1
11	101°48.6	15.3'	$16^{\circ}17.7$	-12.0'	54.1'	114°44.3	88°50.6		34°47.9	11°06.5	65°08.6	101°58.3	108°11.8
12	116°22.9	15.2'	S 16°29.6	-11.9'	54.1'	114°17.3	88°26.0		34°18.4	11°36.1	65°38.1	102°27.8	108°41.6
13	130°57.1	15.2'	$16^{\circ}41.5$	-11.8'	54.1'	113°50.3	88°01.4		33°48.8	12°05.6	66°07.7	102°57.4	109°11.3
14	145°31.3	15.1'	16°53.4	-11.8'	54.1'	113°23.3	87°36.8		33°19.3	12°35.2	66°37.2	103°26.9	109°41.0
15	160°05.4	15.0'	$17^{\circ}05.1$	-11.7'	54.1'	112°56.3	87°12.1		32°49.7	13°04.7	67°06.8	103°56.5	110°10.7
16	174°39.5	15.0'	$17^{\circ}16.8$	-11.6'	54.1'	112°29.3	86°47.5		32°20.1	13°34.3	67°36.3	104°26.0	110°40.5
17	189°13.5	14.9'	$17^{\circ}28.5$	-11.6'	54.1'	112°02.3	86°22.9		31°50.6	14°03.9	68°05.9	104°55.5	111°10.2
18	203°47.4	14.9'	S 17°40.0	-11.5'	54.1'	111°35.2	85°58.3		31°21.0	14°33.4	68°35.4	105°25.1	111°39.9
19	218°21.2	14.8'	17°51.5	-11.4'	54.1'	111°08.2	85°33.7		30°51.4	15°03.0	69°05.0	105°54.6	112°09.7
20	232°55.0	14.7'	18°03.0	-11.4'	54.1'	110°41.2	85°09.1		30°21.9	15°32.6	69°34.5	106°24.2	112°39.4
21	247°28.7	14.7'	18° 14.3	-11.3'	54.1'	110°14.1	84°44.5		29°52.3	16°02.1	70°04.1	106°53.8	113°09.1
22	262°02.4	14.6'	18°25.6	-11.2'	54.2'	109°47.1	84°19.9		29°22.7	16°31.7	70°33.6	107°23.3	113°38.9
23	276°36.0	14.5'	$18^{\circ}36.9$	-11.2'	54.2'	109°20.1	83°55.3		28°53.1	17°01.3	71°03.2	107°52.9	114°08.6

 $\mathsf{Sun}\;\mathsf{SD}=16.2'$

h		Moor	n (19 th Fe	eb)			Lunar D	istance (objects	with larges	st hourly L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Sun	-Altair	-Antares	+Spica	+Regulus	+Procyon	+Pollux	+Mars
0	291°09.5	14.5'	S 18°48.0	-11.1'	54.2'	108°53.0	83°30.7	28°23.5	17°30.9	71°32.8	103°50.1	108°22.5	114°38.4
1	305°43.0	14.4'	$18^{\circ}59.1$	-11.0'	54.2'	108°26.0	83°06.1	27°53.9	18°00.5	72°02.4	104°17.7	108°52.1	115°08.1
2	320°16.4	14.3'	$19^{\circ}10.1$	-10.9'	54.2'	107°58.9	82°41.5	27°24.3	18°30.1	72°32.0	104°45.2	109°21.6	115°37.9
3	334°49.7	14.2'	$19^{\circ}21.1$	-10.9'	54.2'	107°31.8	82°17.0	26°54.7	18°59.7	73°01.5	105°12.8	109°51.2	116°07.6
4	349°22.9	14.2'	19°31.9	-10.8'	54.2'	107°04.7	81°52.4	26°25.1	19°29.3	73°31.1	105°40.4	110°20.8	116°37.4
5	3°56.1	14.1'	19°42.7	-10.7'	54.2'	106°37.7	81°27.8	25°55.5	19°58.9	74°00.7	106°08.0	110°50.4	117°07.1
6	18°29.2	14.0'	S 19°53.4	-10.6'	54.2'	106°10.6	81°03.3	25°25.9	20°28.5	74°30.4	106°35.5	111°20.0	117°36.9
7	33°02.2	14.0'	20°04.0	-10.6'	54.2'	105°43.5	80°38.7	24°56.2	20°58.2	75°00.0	107°03.1	111°49.7	118°06.7
8	47°35.2	13.9'	$20^{\circ}14.6$	-10.5'	54.2'	105°16.4	80°14.2	24°26.6	21°27.8	75° 29.6	107°30.6	112°19.3	118°36.5
9	62°08.0	13.8'	$20^{\circ}25.1$	-10.4'	54.2'	104°49.3	79°49.6	23°56.9	21°57.5	75°59.2	107°58.2	112°48.9	119°06.3
10	76°40.8	13.7'	20°35.4	-10.3'	54.2'	104°22.1	79°25.1	23°27.3	22°27.1	76°28.9	108°25.7	113°18.6	119°36.1
11	91°13.6	13.6'	20°45.8	-10.2'	54.3'	103°55.0	79°00.6	22°57.6	22°56.8	76°58.5	108°53.3	113°48.2	
12	105°46.2	13.6'	S 20°56.0	-10.1'	54.3'	103°27.9	78°36.1	22°27.9	23°26.5	77°28.2	109°20.8	114°17.9	
13	120°18.8	13.5'	$21^{\circ}06.1$	-10.1'	54.3'	103°00.7	78°11.6	21°58.3	23°56.2	77°57.9	109°48.4	114°47.6	
14	134°51.3	13.4'	$21^{\circ}16.2$	-10.0'	54.3'	102°33.6	77°47.1	21°28.6	24°25.9	78° 27.6	110°15.9	115°17.2	
15	149°23.7	13.3'	21°26.2	-9.9'	54.3'	102°06.4	77°22.6	20°58.9	24°55.6	78° 57.3	110°43.4	115°46.9	
16	163°56.0	13.3'	$21^{\circ}36.1$	-9.8'	54.3'	101°39.2	76°58.1	20°29.1	25°25.3	79°27.0	111°11.0	116°16.6	
17	178°28.3	13.2'	21°45.9	-9.7'	54.3'	101°12.0	76°33.6	19°59.4	25°55.0	79°56.7	111°38.5	116°46.3	
18	193°00.5	13.1'	S 21°55.6	-9.6'	54.3'	100°44.8	76°09.2	19°29.7	26°24.8	80°26.4	112°06.0	117°16.1	
19	207°32.6	13.0'	22°05.2	-9.5'	54.3'	100°17.6	75°44.7	18°59.9	26°54.5	80°56.1	112°33.5	117°45.8	
20	222°04.6	12.9'	22°14.7	-9.4'	54.4'	99°50.3	75°20.3	18° 30.2	27°24.3	81°25.9	113°01.0	118° 15.5	
21	236°36.5	12.8'	22°24.2	-9.4'	54.4'	99°23.1	74°55.9	18°00.4	27°54.1	81°55.7	113°28.5	118°45.3	
22	251°08.4	12.8'	22°33.5	-9.3'	54.4'	98°55.8	74°31.5	17°30.6	28°23.9	82°25.4	113°56.0	119°15.1	
23	265°40.1	12.7'	22°42.8	-9.2'	54.4'	98°28.6	74°07.1	17°00.8	28°53.7	82°55.2	114°23.5	119°44.9	
19 th	SD	= 14.8'	Mer. pas	s. 04:44					Sun S	5D = 16.2'			

h		Moon	(20 th Fe	b)			Lunar	Distance	(objects	with large	st hourly	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Sun	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Procyon	+Sirius
0	280°11.8	12.6'	S 22°52.0	-9.1'	54.4'	98°01.3	73°42.7	16°31.0	29°23.5	44°39.4	83°25.0	114°51.0	115°51.9
1	294°43.4	12.5'	23°01.0	-9.0'	54.4'	97°34.0	73°18.3	16°01.2	29°53.3	44°58.4	83°54.8	115° 18.5	116°10.5
2	309°14.9	12.4'	$23^{\circ}10.0$	-8.9'	54.4'	97°06.7	72°54.0	15°31.3	30°23.2	45°17.5	84°24.7	115°46.0	116°29.0
3	323°46.4	12.3'	$23^{\circ}18.9$	-8.8'	54.4'	96°39.4	72°29.6	15°01.5	30°53.0	45°36.8	84°54.5	116° 13.5	116°47.5
4	338°17.7	12.3'	23°27.7	-8.7'	54.5'	96°12.0	72°05.3	14°31.6	31°22.9	45°56.2	85°24.4	116°40.9	117°05.9
5	352°49.0	12.2'	23°36.4	-8.6'	54.5'	95°44.6	71°41.0	14°01.7	31°52.8	46°15.8	85°54.3	117°08.4	117°24.2
6	7°20.1	12.1'	S 23°44.9	-8.5'	54.5'	95°17.3	$71^{\circ}16.7$	13°31.8	32°22.7	46°35.5	86°24.2	117°35.9	117°42.5
7	21°51.2	12.0'	23°53.4	-8.4'	54.5'	94°49.9	70°52.4	13°01.9	32°52.7	46°55.4	86°54.1	118°03.3	118°00.7
8	36°22.2	11.9'	24°01.8	-8.3'	54.5'	94°22.5	70°28.1	12°32.0	33°22.6	47°15.5	87°24.0	118° 30.8	118°18.8
9	50°53.2	11.8'	$24^{\circ}10.1$	-8.2'	54.5'	93°55.0	70°03.9	12°02.1	33°52.6	47°35.7	87°53.9	118°58.2	118°36.8
10	65°24.0	11.7'	$24^{\circ}18.3$	-8.1'	54.6'	93°27.6	69°39.7	11°32.1	34°22.5	47°56.0	88°23.9	119°25.6	118°54.7
11	79°54.7	11.7'	24°26.3	-8.0'	54.6'	93°00.1	69° 15.5	11°02.1	34°52.5	48°16.4	88°53.9	119°53.1	119°12.6
12	94°25.4	11.6'	S 24°34.3	-7.9'	54.6'	92°32.7	68°51.3	10°32.1	35°22.5	48°37.0	89°23.9		119°30.3
13	108°56.0	11.5'	24°42.2	-7.8'	54.6'	92°05.2	68°27.1	10°02.1	35°52.6	48°57.8	89°53.9		119°48.0
14	123°26.5	11.4'	24°49.9	-7.6'	54.6'	91°37.6	68°03.0	9°32.1	36°22.6	49°18.6	90°23.9		
15	137°56.9	11.3'	24°57.6	-7.5'	54.6'	91°10.1	67°38.9	9°02.1	36°52.7	49°39.6	90°54.0		
16	152°27.2	11.2'	$25^{\circ}05.1$	-7.4'	54.7'	90°42.5	67° 14.8	8°32.0	37°22.8	50°00.8	91°24.1		
17	166°57.4	11.1'	$25^{\circ}12.5$	-7.3'	54.7'	90°15.0	66°50.7	8°01.9	37°52.9	50°22.0	91°54.2		
18	181°27.5	11.1'	S 25°19.8	-7.2'	54.7'	89°47.4	66°26.6	7°31.9	38°23.0	50°43.4	92°24.3		
19	195°57.6	11.0'	25°27.0	-7.1'	54.7'	89°19.7	66°02.6	7°01.8	38°53.2	51°04.9	92°54.4		
20	210°27.5	10.9'	$25^{\circ}34.1$	-7.0'	54.7'	88°52.1	65°38.6	6°31.6	39°23.4	51°26.5	93°24.6		
21	224°57.4	10.8'	$25^{\circ}41.1$	-6.9'	54.8'	88°24.4	65° 14.7	6°01.5	39°53.6	51°48.2	93°54.7		
22	239°27.2	10.7'	25°47.9	-6.7'	54.8'	87°56.8	64°50.7	5°31.4	40°23.8	52°10.1	94°24.9		
23	253°56.9	10.6'	25°54.7	-6.6'	54.8'	87°29.1	64°26.8	5°01.2	40°54.0	52°32.1	94°55.2		
20 th	SD	= 14.8'	Mer. pass	. 05:30					Sun	SD = 16.2'			

h		Moon	(21st Fe	b)		Lunar [Distance	(objects v	with larg	est hourly	LD delta)
Fri	GHA	ν	Dec	d	HP	-Sun	-Altair	± Antares	+Spica	+Arcturus	+Regulus
0	268°26.5	10.5'	S 26°01.3	-6.5'	54.8'	87°01.3	64°02.9	4°31.1	41°24.3	52°54.1	95°25.4
1	282°56.1	10.4'	$26^{\circ}07.8$	-6.4'	54.8'	86°33.6	63°39.1	4°01.0	41°54.6	53°16.3	95°55.7
2	297°25.5	10.4'	26°14.2	-6.3'	54.9'	86°05.8	63°15.2	3°30.9	42°24.9	53°38.6	96°26.0
3	311°54.9	10.3'	26°20.4	-6.1'	54.9'	85°38.0	62°51.5	3°00.8	42°55.2	54°01.0	96°56.3
4	326°24.1	10.2'	26°26.6	-6.0'	54.9'	85°10.2	62°27.7	2°30.8	43°25.6	54°23.5	97°26.6
5	340°53.3	10.1'	26°32.6	-5.9'	54.9'	84°42.3	62°04.0	2°01.0	43°55.9	54°46.1	97°57.0
6	355°22.4	10.0'	S 26°38.5	-5.8'	54.9'	84°14.4	61°40.3	1°31.5	44°26.3	55°08.9	98°27.4
7	9°51.5	9.9'	26°44.2	-5.6'	55.0'	83°46.5	61°16.7	1°02.9	44°56.8	55°31.7	98° 57.8
8	24°20.4	9.9'	26°49.9	-5.5'	55.0'	83°18.6	60°53.0		45°27.2	55°54.6	99°28.2
9	38°49.2	9.8'	26°55.4	-5.4'	55.0'	82°50.7	60°29.5		45° 57.7	56° 17.6	99° 58.7
10	53°18.0	9.7'	27°00.8	-5.3'	55.0'	82°22.7	60°06.0		46°28.2	56°40.7	100°29.2
11	67°46.7	9.6'	27°06.0	-5.1'	55.1'	81°54.7	59°42.5		46° 58.8	57°03.9	100°59.7
12	82°15.3	9.5'	S 27°11.1	-5.0'	55.1'	81°26.6	59°19.0		47°29.3	57° 27.2	101°30.3
13	96°43.8	9.4'	$27^{\circ}16.1$	-4.9'	55.1'	80°58.6	58°55.7	2°08.4	47°59.9	57°50.6	102°00.8
14	111°12.3	9.4'	$27^{\circ}21.0$	-4.7'	55.1'	80°30.5	58°32.3	2°38.5	48° 30.5	58°14.1	102°31.4
15	125°40.6	9.3'	27°25.7	-4.6'	55.2'	80°02.4	58°09.0	3°08.8	49°01.2	58° 37.7	103°02.1
16	140°08.9	9.2'	27°30.3	-4.5'	55.2'	79°34.2	57°45.8	3°39.2	49°31.9	59°01.4	103°32.7
17	154°37.1	9.1'	27°34.7	-4.3'	55.2'	79°06.1	57°22.6	4°09.8	50°02.6	59°25.1	104°03.4
18	169°05.2	9.0'	S 27°39.1	-4.2'	55.2'	78°37.9	56°59.4	4°40.4	50°33.3	59°49.0	104°34.1
19	183°33.3	9.0'	27°43.2	-4.0'	55.3'	78°09.6	56°36.4	5°11.0	51°04.1	60°12.9	105°04.9
20	198°01.2	8.9'	27°47.3	-3.9'	55.3'	77°41.4	56°13.3	5°41.7	51°34.8	60°36.9	105°35.6
21	212°29.1	8.8'	$27^{\circ}51.2$	-3.8'	55.3'	77°13.1	55°50.4	6°12.4	52°05.7	61°01.0	106°06.4
22	226° 57.0	8.7'	$27^{\circ}55.0$	-3.6'	55.3'	76°44.7	55°27.5	6°43.2	52°36.5	61°25.2	106°37.3
23	241°24.7	8.7'	27°58.6	-3.5'	55.4'	76°16.4	55°04.6	7°14.0	53°07.4	61°49.5	107°08.1
21 st	SD	= 15.0'	Mer. pass	. 06:19				Sun S	D = 16.2'		

	h Mo	on (22 nd Feb)	Lunar Distance	(objects with la	rgest hourly LD delta
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Sat	GHA	ν	Dec	d	HP	-Sun	-Altair	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Regulus
0	255°52.4	8.6'	S 28°02.1	-3.3'	55.4'	75°48.0	54°41.8	7°44.9			53°38.3	62°13.8	107°39.0
1	270°20.0	8.5'	28°05.4	-3.2'	55.4'	75°19.6	54°19.1	8°15.8			54°09.3	62°38.2	108°10.0
2	284°47.5	8.5'	28°08.6	-3.0'	55.4'	74°51.1	53°56.5	8°46.7			54°40.2	63°02.7	108°40.9
3	299°14.9	8.4'	28°11.6	-2.9'	55.5'	74°22.7	53°33.9	9°17.7			55°11.3	63°27.3	109°11.9
4	313°42.3	8.3'	$28^{\circ}14.5$	-2.8'	55.5'	73°54.1	53°11.4	9°48.7			55°42.3	63°52.0	109°42.9
5	328°09.7	8.3'	28°17.3	-2.6'	55.5'	73°25.6	52°49.0	10°19.8			56°13.4	64°16.7	110°14.0
6	342°36.9	8.2'	S 28°19.9	-2.5'	55.6'	72°57.0	52°26.7	10°50.9			56°44.5	64°41.6	110°45.1
7	357°04.1	8.1'	28°22.4	-2.3'	55.6'	72°28.4	52°04.4	11°22.0			57°15.6	65°06.4	111°16.2
8	11°31.2	8.1'	28°24.7	-2.2'	55.6'	71°59.7	51°42.2	11°53.1			57°46.8	65°31.4	111°47.4
9	25°58.3	8.0'	28°26.8	-2.0'	55.6'	71°31.1	51°20.1	12°24.3			58°18.0	65°56.5	112° 18.6
10	40°25.3	7.9'	28°28.8	-1.9'	55.7'	71°02.3	50°58.1	12°55.6			58°49.3	66°21.6	112°49.8
11	54°52.2	7.9'	28°30.7	-1.7'	55.7'	70°33.6	50°36.2	13°26.8			59°20.5	66°46.8	113°21.0
12	69°19.1	7.8'	S 28°32.4	-1.6'	55.7'	70°04.8	50°14.4	13°58.1		46°56.9	59°51.9	67°12.0	113°52.3
13	83°45.9	7.8'	28°34.0	-1.4'	55.8'	69°36.0	49°52.7	14°29.5		47°12.2	60°23.2	67°37.3	114°23.7
14	98°12.6	7.7'	28°35.4	-1.2'	55.8'	69°07.1	49°31.1	15°00.8		47°27.8	60°54.6	68°02.7	114°55.0
15	112°39.3	7.6'	28°36.6	-1.1'	55.8'	68°38.2	49°09.6	15°32.3		47°43.5	61°26.0	68°28.2	115°26.4
16	127°06.0	7.6'	28°37.7	-0.9'	55.9'	68°09.3	48°48.2	16°03.7		47°59.5	61°57.5	68°53.7	115°57.9
17	141°32.6	7.5'	28°38.6	-0.8'	55.9'	67°40.3	48°26.9	16°35.2		48°15.7	62°29.0	69°19.3	116°29.4
18	155°59.1	7.5'	S 28°39.4	-0.6'	55.9'	67°11.3	48°05.7	17°06.7	44°35.1	48°32.1	63°00.5	69°45.0	117°00.9
19	170°25.6	7.4'	28°40.0	-0.5'	56.0'	66°42.3	47°44.7	17°38.3	44°50.5	48°48.7	63°32.1	70°10.7	117°32.4
20	184°52.0	7.4'	28°40.5	-0.3'	56.0'	66°13.2	47°23.8	18°09.9	45°06.1	49°05.5	64°03.7	70°36.5	118°04.0
21	199°18.4	7.3'	28°40.8	-0.1'	56.0'	65°44.1	47°02.9	18°41.5	45°21.9	49°22.5	64°35.4	71°02.4	118° 35.6
22	213°44.8	7.3'	28°40.9	0.0'	56.0'	65°14.9	46°42.3	19°13.2	45°38.0	49°39.7	65°07.0	71°28.3	119°07.3
23	228°11.1	7.3'	28°40.9	0.2'	56.1'	64°45.7	46°21.7	19°44.9	45°54.3	49°57.1	65°38.8	71°54.3	119°39.0
22 nd	SD :	= 15.1'	Mer. pas	s. 07:12	2				Sun SD =	= 16.2'			

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L-	Moon (23 rd Feb)	Lunar Distance (objects with largest hourly ID delta)
n	MOOD 1/3.4 Feb.	I linar i listance i oniects with largest nollriv i i li delta i

Sun	GHA	ν	Dec	d	HP	-Sun	-Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus			
0	242°37.3	7.2'	S 28°40.7	0.3'	56.1'	64°16.5	46°01.3	20° 16.7	46°10.9	50°14.7	61°45.6	66° 10.5	72°20.4			
1	257°03.6	7.2'	28°40.4	0.5'	56.1'	63°47.2	45°41.1	20° 48.5	46°27.6	50°32.5	62°02.0	66°42.3	72°46.5			
2	271°29.7	7.1'	28° 39.9	0.7'	56.2'	63°17.9	45°21.0	21°20.3	46°44.6	50°50.5	62°18.6	67° 14.2	73°12.7			
3	285°55.9	7.1'	28°39.2	0.8'	56.2'	62°48.6	45°01.0	21°52.2	47°01.8	51°08.6	62°35.3	67°46.0	73°38.9			
4	300°22.0	7.1'	28°38.4	1.0'	56.2'	62°19.2	44°41.2	22°24.1	47°19.2	51°27.0	62°52.1	68° 18.0	74°05.2			
5	314°48.0	7.0'	28°37.4	1.2'	56.3'	61°49.7	44°21.5	22°56.0	47°36.9	51°45.5	63°09.1	68°49.9	74°31.6			
6	329°14.1	7.0'	S 28°36.3	1.3'	56.3'	61°20.3	44°02.1	23°28.0	47°54.7	52°04.2	63°26.2	69°21.9	74°58.0			
7	343°40.1	7.0'	28°35.0	1.5'	56.3'	60°50.8	43°42.8	24°00.1	48°12.8	52°23.1	63°43.4	69°54.0	75°24.5			
8	358°06.1	6.9'	28° 33.5	1.6'	56.4'	60°21.2	43°23.6	24°32.1	48°31.0	52°42.1	64°00.8	70°26.0	75°51.0			
9	12°32.0	6.9'	28°31.8	1.8'	56.4'	59°51.6	43°04.7	25°04.3	48°49.5	53°01.3	64°18.2	70°58.2	76° 17.6			
10	26°57.9	6.9'	28°30.0	2.0'	56.4'	59°22.0	42°45.9	25°36.4	49°08.2	53°20.7	64°35.8	71°30.3	76°44.3			
11	41°23.8	6.9'	$28^{\circ}28.1$	2.1'	56.5'	58°52.3	42°27.3	26°08.6	49°27.0	53°40.3	64°53.5	72°02.5	77°11.0			
12	55°49.7	6.8'	S 28°25.9	2.3'	56.5'	58°22.6	42°09.0	26°40.9	49°46.1	54°00.0	65°11.4	72°34.8	77°37.7			
13	70°15.5	6.8'	28°23.6	2.5'	56.5'	57°52.8	41°50.8	27° 13.1	50°05.3	54°19.9	65°29.3	73°07.1	78°04.6			
14	84°41.4	6.8'	$28^{\circ}21.1$	2.6'	56.6'	57°23.0	41°32.8	27° 45.5	50°24.8	54°39.9	65°47.4	73°39.4	78°31.4			
15	99°07.2	6.8'	$28^{\circ}18.5$	2.8'	56.6'	56°53.2	41°15.1	28° 17.8	50°44.4	55°00.1	66°05.6	74°11.8	78°58.4			
16	113°33.0	6.8'	$28^{\circ}15.7$	3.0'	56.7'	56°23.3	40°57.5	28°50.2	51°04.2	55°20.5	66°23.9	74°44.2	79°25.3			
17	127°58.7	6.8'	$28^{\circ}12.7$	3.1'	56.7'	55°53.4	40°40.3	29°22.7	51°24.1	55°41.0	66°42.4	75°16.6	79°52.4			
18	142°24.5	6.8'	S 28°09.6	3.3'	56.7'	55°23.4	40°23.2	29°55.2	51°44.3	56°01.7	67°00.9	75°49.1	80° 19.5			
19	156°50.2	6.7'	28°06.3	3.5'	56.8'	54°53.4	40°06.4	30°27.7	52°04.6	56°22.5	67°19.5	76°21.7	80°46.6			
20	171°16.0	6.7'	28°02.8	3.6'	56.8'	54°23.3	39°49.8	31°00.3	52°25.1	56°43.5	67°38.3	76°54.3	81°13.8			
21	185°41.7	6.7'	$27^{\circ}59.1$	3.8'	56.8'	53°53.2	39°33.5	31°33.0	52°45.8	57°04.6	67°57.2	77°26.9	81°41.0			
22	200°07.5	6.7'	27°55.3	4.0'	56.9'	53°23.1	39°17.4	32°05.6	53°06.7	57°25.9	68°16.2	77°59.6	82°08.3			
23	214°33.2	6.7'	27°51.3	4.1'	56.9'	52°52.9	39°01.6	32°38.3	53°27.7	57°47.3	68°35.3	78°32.3	82°35.7			
23 rd	SD =	= 15.3′	Mer. pass	s. 08:08	3	·			Sun SD =	Sun SD = $16.2'$						

h Moon (24th Feb) Lunar Distance (objects with largest hourly LD delta)

Mon GHA ν Dec d HP -Sun +Antares +Rigil Kent. +Hadar +Acrux +Spica +Arct

Mon	GHA	ν	Dec	d	HP	-Sun	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus
0	228°58.9	6.7'	S 27°47.2	4.3'	56.9'	52°22.7	33°11.1	53°48.8	58°08.8	68°54.5	79°05.1	83°03.1
1	243°24.6	6.7'	27°42.9	4.5'	57.0'	51°52.4	33°43.9	54° 10.2	58°30.5	69°13.8	79°37.9	83°30.5
2	257°50.3	6.7'	27°38.4	4.7'	57.0'	51°22.1	34°16.7	54°31.7	58°52.3	69°33.2	80°10.7	83°58.0
3	272°16.0	6.7'	27°33.7	4.8'	57.0'	50°51.7	34°49.6	54°53.3	59°14.3	69°52.7	80°43.6	84°25.5
4	286°41.8	6.7'	$27^{\circ}28.9$	5.0'	57.1'	50°21.3	35°22.6	55° 15.1	59°36.3	70°12.3	81°16.5	84°53.1
5	301°07.5	6.7'	$27^{\circ}23.9$	5.2'	57.1'	49°50.8	35°55.5	55°37.1	59°58.6	70°32.0	81°49.5	85°20.7
6	315°33.2	6.7'	$S27^{\circ}18.8$	5.3'	57.2'	49°20.4	36°28.6	55°59.2	60°20.9	70°51.8	82°22.5	85°48.4
7	329°59.0	6.8'	$27^{\circ}13.5$	5.5'	57.2'	48°49.8	37°01.6	56°21.5	60°43.4	71°11.7	82°55.6	86°16.1
8	344°24.7	6.8'	27°08.0	5.7'	57.2'	48°19.2	37°34.8	56° 43.9	61°06.0	71°31.7	83°28.7	86°43.9
9	358°50.5	6.8'	$27^{\circ}02.3$	5.8'	57.3'	47°48.6	38°07.9	57°06.4	61°28.7	71°51.8	84°01.9	87°11.7
10	13°16.2	6.8'	26°56.5	6.0'	57.3'	47°17.9	38°41.1	57°29.1	61°51.6	72°12.0	84°35.1	87°39.5
11	27°42.0	6.8'	$26^{\circ}50.5$	6.2'	57.3'	46°47.2	39°14.4	57°51.9	62°14.5	72°32.3	85°08.4	88°07.4
12	42°07.8	6.8'	S 26°44.3	6.3'	57.4'	46°16.4	39°47.7	58° 14.9	62°37.6	72°52.7	85°41.7	88°35.3
13	56°33.7	6.8'	26°38.0	6.5'	57.4'	45°45.6	40°21.0	58°38.0	63°00.9	73°13.1	86°15.0	89°03.3
14	70°59.5	6.9'	$26^{\circ}31.5$	6.6'	57.4'	45°14.8	40°54.4	59°01.2	63°24.2	73°33.7	86°48.4	89°31.3
15	85°25.4	6.9'	26°24.9	6.8'	57.5'	44°43.9	41°27.8	59°24.6	63°47.6	73°54.3	87°21.8	89°59.4
16	99°51.2	6.9'	$26^{\circ}18.1$	7.0'	57.5'	44°12.9	42°01.3	59°48.1	64°11.2	74°15.1	87°55.3	90°27.4
17	$114^{\circ}17.1$	6.9'	$26^{\circ}11.1$	7.1'	57.6'	43°41.9	42°34.8	60°11.7	64°34.8	74°35.9	88°28.8	90°55.6
18	128°43.1	7.0'	S 26°04.0	7.3'	57.6'	43°10.9	43°08.4	60°35.5	64°58.6	74°56.8	89°02.4	91°23.7
19	143°09.0	7.0'	25°56.7	7.5'	57.6'	42°39.8	43°42.0	60° 59.3	65°22.5	75°17.7	89°36.0	91°51.9
20	157°35.0	7.0'	25°49.2	7.6'	57.7'	42°08.7	44°15.7	61°23.3	65°46.5	75°38.8	90°09.7	92°20.1
21	172°01.0	7.0'	$25^{\circ}41.6$	7.8'	57.7'	41°37.5	44°49.4	61°47.5	66°10.6	75°59.9	90°43.4	92°48.4
22	186°27.0	7.1'	25°33.8	8.0'	57.7'	41°06.3	45°23.2	62°11.7	66°34.8	76°21.2	91°17.2	93°16.7
23	200°53.1	7.1'	25°25.8	8.1'	57.8'	40°35.0	45°57.0	62°36.1	66°59.1	76°42.5	91°51.0	93°45.0
24 th	SD =	= 15.5 [']	Mer. pass	s. 09:0!	5			Sun	SD = 16.2'	,		

h Moon (25th Feb) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus
0	215°19.2	7.1'	S 25°17.7	8.3'	57.8'	46°30.8	63°00.5	67°23.5	77°03.8	92°24.8	94°13.4
1	229°45.3	7.2'	25°09.4	8.4'	57.9'	47°04.7	63°25.1	67°48.0	77°25.3	92°58.7	94°41.8
2	244°11.5	7.2'	25°01.0	8.6'	57.9'	47°38.6	63°49.8	68°12.6	77°46.8	93°32.6	95°10.2
3	258°37.7	7.2'	24°52.4	8.7'	57.9'	48°12.6	64°14.6	68°37.3	78°08.4	94°06.6	95°38.7
4	273°03.9	7.3'	24°43.7	8.9'	58.0'	48°46.6	64°39.5	69°02.1	78°30.1	94°40.6	96°07.1
5	287°30.2	7.3'	24°34.8	9.1'	58.0'	49°20.7	65°04.6	69°27.0	78°51.8	95°14.7	96°35.6
6	301°56.5	7.3'	S 24°25.7	9.2'	58.0'	49°54.8	65°29.7	69°52.0	79°13.6	95°48.8	97°04.2
7	316°22.9	7.4'	24°16.5	9.4'	58.1'	50°29.0	65°54.9	70°17.1	79°35.5	96°23.0	97°32.7
8	330°49.3	7.4'	24°07.1	9.5'	58.1'	51°03.2	66°20.3	70°42.3	79°57.4	96°57.2	98°01.3
9	345°15.7	7.5'	23°57.6	9.7'	58.1'	51°37.5	66°45.7	71°07.5	80°19.4	97°31.5	98°29.9
10	359°42.2	7.5'	23°47.9	9.8'	58.2'	52°11.8	67°11.3	71°32.8	80°41.5	98°05.8	98°58.6
11	14°08.7	7.6'	23°38.1	10.0'	58.2'	52°46.1	67°36.9	71°58.3	81°03.6	98°40.1	99°27.2
12	28°35.2	7.6'	S 23°28.1	10.1'	58.3'	53°20.5	68°02.6	72°23.8	81°25.8	99°14.5	99°55.9
13	43°01.8	7.6'	23°18.0	10.3'	58.3'	53°54.9	68°28.5	72°49.4	81°48.1	99°49.0	100°24.6
14	57°28.5	7.7'	23°07.7	10.4'	58.3'	54°29.4	68° 54.4	73°15.0	82°10.4	100°23.5	100°53.3
15	71°55.2	7.7'	22°57.3	10.6'	58.4'	55°04.0	69°20.4	73°40.8	82°32.7	100°58.0	101°22.0
16	86°21.9	7.8'	22°46.7	10.7'	58.4'	55°38.5	69°46.5	74°06.6	82°55.2	101°32.6	101°50.8
17	100°48.7	7.8'	22°36.0	10.9'	58.4'	56°13.1	70°12.7	74°32.5	83°17.6	102°07.2	102° 19.5
18	115°15.5	7.9'	S 22°25.1	11.0'	58.5'	56°47.8	70°39.0	74°58.5	83°40.2	102°41.8	102°48.3
19	129°42.4	7.9'	22°14.1	11.2'	58.5'	57°22.5	71°05.4	75°24.6	84°02.7	103°16.5	103°17.1
20	144°09.3	8.0'	22°02.9	11.3'	58.5'	57°57.3	71°31.8	75°50.7	84°25.4	103°51.3	103°45.9
21	158°36.3	8.0'	$21^{\circ}51.6$	11.4'	58.6'	58°32.1	71°58.3	76°16.9	84°48.0	104°26.1	104° 14.7
22	173°03.3	8.1'	21°40.2	11.6'	58.6'	59°06.9	72°25.0	76°43.2	85°10.8	105°00.9	104°43.5
23	187°30.4	8.1'	21°28.6	11.7'	58.6'	59°41.8	72°51.7	77°09.5	85°33.5	105°35.8	105°12.3
25 th	SD	= 15.8	Mer. pas	s. 10:01							

h Moon (26th Feb) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	201°57.6	8.2'	S 21°16.9	11.9'	58.7'		60°16.7	73°18.4	77°36.0	85°56.4	105°41.1	106° 10.7
1	216°24.7	8.2'	$21^{\circ}05.1$	12.0'	58.7'		60°51.7	73°45.3	78°02.4	86°19.2	106°09.9	106°45.7
2	230°52.0	8.3'	$20^{\circ}53.1$	12.1'	58.7'		61°26.7	74°12.2	78° 29.0	86°42.1	106°38.7	107°20.7
3	245°19.2	8.3'	20°40.9	12.3'	58.8'		62°01.7	74°39.2	78°55.6	87°05.1	107°07.6	107°55.8
4	259°46.6	8.4'	20°28.7	12.4'	58.8'		62°36.8	75°06.3	79°22.3	87°28.0	107°36.4	108°30.9
5	274°14.0	8.4'	$20^{\circ}16.3$	12.5'	58.8'		63°12.0	75°33.4	79°49.0	87°51.0	108°05.2	109°06.0
6	288°41.4	8.5'	S 20°03.8	12.7'	58.9'		63°47.2	76°00.6	80° 15.8	88°14.1	108°34.0	109°41.2
7	303°08.9	8.5'	$19^{\circ}51.1$	12.8'	58.9'		64°22.4	76°27.9	80°42.6	88°37.2	109°02.9	110°16.4
8	317°36.4	8.6'	19°38.3	12.9'	58.9'		64°57.7	76°55.3	81°09.5	89°00.3	109°31.7	110°51.7
9	332°04.0	8.6'	19°25.4	13.0'	59.0'		65°33.0	77°22.7	81°36.5	89°23.4	110°00.5	111°27.0
10	346°31.6	8.7'	19°12.4	13.2'	59.0'		66°08.3	77°50.2	82°03.5	89°46.6	110°29.3	112°02.4
11	0°59.3	8.7'	$18^{\circ}59.2$	13.3'	59.0'		66°43.7	78°17.7	82°30.6	90°09.8	110°58.0	112°37.8
12	15°27.1	8.8'	S 18°46.0	13.4'	59.1'		67°19.1	78°45.3	82°57.7	90°33.1	111°26.8	113°13.2
13	29°54.9	8.9'	18°32.6	13.5'	59.1'		67°54.6	79°13.0	83°24.8	90°56.3	111°55.5	113°48.7
14	44°22.7	8.9'	$18^{\circ}19.0$	13.6'	59.1'		68°30.1	79°40.7	83°52.1	91°19.6	112°24.3	114°24.2
15	58°50.6	9.0'	18°05.4	13.8'	59.2'		69°05.7	80°08.5	84° 19.3	91°42.9	112°53.0	114°59.7
16	73°18.6	9.0'	$17^{\circ}51.6$	13.9'	59.2'		69°41.3	80°36.4	84°46.6	92°06.2	113°21.6	115°35.3
17	87°46.6	9.1'	17°37.8	14.0'	59.2'		70°16.9	81°04.2	85°14.0	92°29.5	113°50.3	116°10.9
18	102°14.7	9.1'	S 17°23.8	14.1'	59.3'		70°52.6	81°32.2	85°41.4	92°52.9	114°18.9	116°46.6
19	116°42.8	9.2'	$17^{\circ}09.7$	14.2'	59.3'		71°28.3	82°00.2	86°08.8	93°16.3	114°47.5	117°22.3
20	131°10.9	9.2'	$16^{\circ}55.4$	14.3'	59.3'	37°41.6	72°04.0	82°28.2	86°36.3	93°39.6	115°16.1	117°58.1
21	145°39.1	9.3'	$16^{\circ}41.1$	14.4'	59.4'	37°57.0	72°39.8	82°56.3	87°03.8	94°03.0	115°44.6	118°33.9
22	160°07.4	9.3'	$16^{\circ}26.7$	14.5'	59.4'	38°12.9	73°15.6	83°24.5	87°31.3	94°26.4	116°13.1	119°09.7
23	174°35.7	9.4'	$16^{\circ}12.1$	14.6'	59.4'	38°29.1	73°51.5	83°52.7	87°58.9	94°49.9	116°41.6	119°45.5
26 th	SD	= 16.0'	Mer. pas	s. 10:56				-				

h		Moor	n (27 th Fe	b)		Lunar	Distance	(objects with	n largest	hourly L	D delta)
Thu	GHA	ν	Dec	d	HP	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus
0	189°04.1	9.4'	S 15°57.5	14.8'	59.4'	38°45.8	74°27.4	84°20.9	88°26.5	95°13.3	117° 10.0
1	203°32.5	9.5'	$15^{\circ}42.7$	14.9'	59.5'	39°02.8	75°03.3	84°49.2	88°54.2	95°36.7	117°38.4
2	218°00.9	9.5'	$15^{\circ}27.9$	15.0'	59.5'	39°20.2	75°39.3	85°17.5	89°21.9	96°00.1	118°06.7
3	232°29.4	9.6'	15° 12.9	15.1'	59.5'	39°38.0	76°15.3	85°45.8	89°49.6	96°23.5	118°35.0
4	246°58.0	9.6'	$14^{\circ}57.9$	15.2'	59.6'	39°56.1	76°51.3	86°14.2	90°17.3	96°46.9	119°03.2
5	261°26.6	9.6'	$14^{\circ}42.7$	15.3'	59.6'	40°14.6	77°27.4	86°42.7	90°45.1	97°10.4	119°31.4
6	275°55.2	9.7'	S 14°27.5	15.3'	59.6'	40°33.4	78°03.5	87°11.1	91°12.9	97°33.8	119°59.5
7	290°23.9	9.7'	$14^{\circ}12.1$	15.4'	59.6'	40°52.6	78°39.6	87°39.6	91°40.7	97°57.2	
8	304°52.7	9.8'	$13^{\circ}56.7$	15.5'	59.7'		'	New M			_
9	319°21.5	9.8'	13°41.1	15.6'	59.7'			New M	oon ——		-
10	333°50.3	9.9'	$13^{\circ}25.5$	15.7'	59.7'			New M	oon ———		-
11	348°19.2	9.9'	$13^{\circ}09.8$	15.8'	59.7'			New M	oon ———		_
12	2°48.1	10.0'	S 12°54.0	15.9'	59.8'			New M	oon ——		-
13	17°17.0	10.0'	12°38.1	16.0'	59.8'			New M	oon ——		_
14	31°46.0	10.0'	12°22.2	16.0'	59.8'			New M	oon ——		_
15	46°15.1	10.1'	$12^{\circ}06.1$	16.1'	59.8'			New M	oon ——		-
16	60°44.1	10.1'	$11^{\circ}50.0$	16.2'	59.9'			New M	oon ———		-
17	75°13.3	10.2'	11°33.8	16.3'	59.9'			New M	oon ———		_
18	89°42.4	10.2'	S 11°17.5	16.4'	59.9'			New M	oon ———		_
19	104°11.6	10.2'	$11^{\circ}01.2$	16.4'	59.9'			New M			
20	118°40.8	10.3'	$10^{\circ}44.7$	16.5'	60.0'				oon ——		_
21	133°10.1	10.3'	$10^{\circ}28.2$	16.6'	60.0'			New M	oon ——		-
22	147°39.4	10.3'	$10^{\circ}11.7$	16.6'	60.0'						_
23	162°08.8	10.4'	$09^{\circ}55.0$	16.7'	60.0'			New M	oon ——		-
27 th	SD	= 16.2'	Mer. pass	s. 11:48							

h		Moor	ı (28 th Fe	b)			Lu	nar Dis	stance (c	bjects w	ith large	st hourly L	D delta	
Fri	GHA	ν	Dec	d	HP	-Mars	-Bete	elgeuse	-Capella	-Rigel	-Jupiter	-Aldebaran	-Venus	+Fomalhaut
0	176°38.1	10.4'	S 09°38.3	16.8'	60.0'					New	Moon —			
1	191°07.5	10.4'	$09^{\circ}21.6$	16.8'	60.1'									
2	205°37.0	10.5'	09°04.8	16.9'	60.1'									
3	220°06.4	10.5'	08° 47.9	16.9'	60.1'									
4	234°35.9	10.5'	08°30.9	17.0'	60.1'									
5	249°05.4	10.5'	$08^{\circ}13.9$	17.1'	60.1'					New	Moon —			
6	263°35.0	10.6'	S 07°56.9	17.1'	60.1'									
7	278°04.6	10.6'	$07^{\circ}39.8$	17.2'	60.2'									
8	292°34.2	10.6'	07°22.6	17.2'	60.2'									
9	307°03.8	10.6'	07°05.4	17.3'	60.2'									
10	321°33.4	10.7'	06°48.1	17.3'	60.2'									
11	336°03.1	10.7'	06°30.8	17.3'	60.2'									
12	350°32.8	10.7'	S 06°13.5	17.4'	60.2'									
13	5°02.5	10.7'	05°56.1	17.4'	60.3'									
14	19°32.2	10.7'	05°38.6	17.5'	60.3'									
15	34°02.0	10.8'	05°21.2	17.5'	60.3									
16	48°31.8	10.8'	05°03.7	17.5'	60.3									
17	63°01.5	10.8'	04°46.1	17.6'	60.3'									
18	77°31.3	10.8'	S 04°28.6	17.6'	60.3'						Moon —			
19	92°01.2	10.8'	04° 10.9	17.6'	60.3'	116°17.4		7°46.2	91°29.5	86°33.1	81°24.5	79°17.2		26°10.8
20	106°31.0	10.8'	03°53.3	17.7'	60.4	115°40.5		7°11.8	90°54.2	86°03.3	80°47.8	78°40.8	20°36.8	26°36.0
21	121°00.8	10.8'	03°35.6	17.7'	60.4	115°03.6		6°37.3	90°18.9	85°33.5	80°11.1	78°04.4	20°01.4	27°01.7
22 23	135°30.7 150°00.5	10.9'	03°18.0	17.7'	60.4' 60.4'	114°26.7		6°02.8	89°43.6 89°08.3	85°03.7	79°34.4	77°28.0	19°26.1	27°27.8 27°54.2
		10.9'	03°00.2	17.7'	00.4	113°49.8	9	5°28.3	o9 Uö.3	84°33.9	78°57.7	76°51.6	18°50.9	21 54.2
28 th	SD	= 16.4'	Mer. pass	s. 12:39										

h		Моо	n (1 st Ma	r)			Lunar D	Distance	(objects	with larges	t hourly	LD delta)
Sat	GHA	ν	Dec	d	HP	-Pollux	-Mars	-Capella	-Jupiter	-Aldebaran	-Venus	+Saturn	+Fomalhaut
0	164°30.4 179°00.2	10.9' 10.9'	S 02°42.5 02°24.8	17.8' 17.8'	60.4' 60.4'	119°28.0 118°50.9	113°12.9 112°36.0	88°32.9 87°57.6	78°21.0 77°44.3	76°15.2 75°38.7	18°15.7 17°40.7	4°10.8	28°21.0 28°48.2
2 3	193°30.1	10.9'	02°07.0	17.8'	60.4'	118° 13.9	111°59.0	87°22.2	77°07.6	75°02.3	17°05.8	4°46.1	29°15.8
	208°00.0	10.9'	01°49.2	17.8'	60.4'	117° 36.8	111°22.1	86°46.9	76°30.9	74°25.8	16°31.0	5°21.6	29°43.6
4 5	222°29.9	10.9'	01°31.4	17.8'	60.4'	116°59.7	110°45.1	86°11.5	75°54.1	73°49.4	15°56.4	5°57.5	30°11.8
	236°59.8	10.9'	01°13.6	17.8'	60.4'	116°22.6	110°08.2	85°36.1	75°17.4	73°13.0	15°22.0	6°33.5	30°40.2
6	251°29.6	10.9'	\$ 00°55.8	17.8'	60.4'	115°45.5	109°31.2	85°00.7	74°40.6	72°36.5	14°47.7	7°09.7	31°09.0
7	265°59.5	10.9'	00°37.9	17.8'	60.5'	115°08.4	108°54.2	84°25.4	74°03.9	72°00.0	14°13.7		31°38.0
8	280°29.4	10.9'	00°20.1	17.8'	60.5'	114°31.3	108°17.3	83°50.0	73°27.1	71°23.6	13°39.8		32°07.2
9	294°59.3	10.9'	S 00°02.2	17.8'	60.5'	113°54.1	107°40.3	83°14.6	72°50.3	70°47.1	13°06.3		32°36.7
10	309°29.1	10.9'	N 00°15.6	17.8'	60.5'	113°17.0	107°03.3	82°39.2	72°13.6	70°10.7	12°33.1		33°06.5
11	323°59.0	10.9'	00°33.5	17.8'	60.5'	112°39.9	106°26.3	82°03.8	71°36.8	69°34.2	12°00.3		33°36.4
12	338°28.9	10.9'	N00°51.3	17.8'	60.5'	112°02.7	105°49.3	81°28.4	71°00.0	68° 57.8	11°27.8		34°06.6
13	352°58.7	10.8'	01°09.1	17.8'	60.5'	111°25.6	105°12.3	80°53.0	70°23.2	68° 21.3	10°55.9		34°37.0
14	7°28.6	10.8'	01°27.0	17.8'	60.5'	110°48.4	104°35.3	80°17.7	69°46.5	67° 44.9	10°24.5		35°07.5
15	21°58.4	10.8'	01°44.8	17.8'	60.5'	110°11.3	103°58.3	79°42.3	69°09.7	67° 08.4	9°53.7		35°38.3
16	36°28.2	10.8'	02°02.6	17.8'	60.5'	109°34.1	103°21.3	79°06.9	68°32.9	66°32.0	9°23.7		36°09.2
17	50°58.0	10.8'	02°20.5	17.8'	60.5'	108°57.0	102°44.3	78°31.5	67°56.1	65°55.5	8°54.6		36°40.3
18 19 20	65°27.8 79°57.6 94°27.3	10.8' 10.8' 10.7'	N02°38.3 02°56.0 03°13.8	17.8' 17.8' 17.8'	60.5' 60.5' 60.5'	108°19.8 107°42.6 107°05.5	102°07.3 101°30.4 100°53.4	77°56.2 77°20.8 76°45.5	67°19.3 66°42.6 66°05.8	65°19.1 64°42.7 64°06.3			37°11.6 37°43.0 38°14.5
21 22 23	108°57.1 123°26.8 137°56.5	10.7' 10.7' 10.7'	03°31.6 03°49.3 04°07.0	17.7' 17.7' 17.7'	60.5' 60.5' 60.5'	106°28.3 105°51.2 105°14.0	100°16.4 99°39.4 99°02.4	76°10.2 75°34.8 74°59.5	65°29.0 64°52.3 64°15.5	63°29.9 62°53.5 62°17.1			38°46.2 39°18.1 39°50.0
1 st		= 16.5'	Mer. pass		00.5	103 14.0	99 02.4	14 59.5	04 15.5	02 17.1			39 30.0

h	Moon (2 nd Mar)	Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Mars	-Capella	-Jupiter	-Aldebaran	+Venus	+Fomalhaut
0	152°26.2	10.7'	N 04°24.7	17.7'	60.5'	107°00.9	104°36.9	98°25.4	74°24.2	63°38.7	61°40.7		40°22.1
1	166°55.9	10.6'	04°42.4	17.6'	60.5'	106°26.3	103°59.7	97°48.4	73°49.0	63°02.0	61°04.4		40°54.3
2	181°25.5	10.6'	05°00.0	17.6'	60.5'	105°51.8	103°22.6	97°11.5	73°13.7	62°25.3	60°28.0		41°26.6
3	195°55.1	10.6'	05°17.6	17.6'	60.5'	105°17.2	102°45.5	96°34.5	72°38.4	61°48.5	59°51.7		41°59.0
4	210°24.7	10.6'	05°35.2	17.5'	60.5'	104°42.6	102°08.3	95°57.6	72°03.2	61°11.8	59°15.4		42°31.5
5	224°54.2	10.5'	05°52.7	17.5'	60.5'	104°08.0	101°31.2	95°20.6	71°28.0	60°35.1	58°39.1		43°04.1
6	239°23.8	10.5'	$N06^{\circ}10.2$	17.5'	60.5'	103°33.4	100°54.1	94°43.7	70°52.8	59°58.4	58°02.8		43°36.9
7	253°53.3	10.5'	06°27.7	17.4'	60.5'	102°58.8	100°17.0	94°06.7	70°17.6	59°21.7	57°26.5		44°09.6
8	268°22.7	10.4'	06°45.1	17.4'	60.5'	102°24.1	99°39.9	93°29.8	69°42.5	58°45.0	56°50.3		44°42.5
9	282°52.2	10.4'	07°02.5	17.3'	60.5'	101°49.5	99°02.8	92°52.9	69°07.4	58°08.3	56°14.1		45°15.5
10	297°21.6	10.4'	$07^{\circ}19.9$	17.3'	60.5'	101°14.9	98° 25.7	92°16.0	68° 32.3	57°31.7	55°37.9		45°48.5
11	311°50.9	10.3'	07°37.2	17.3'	60.5'	100°40.3	97°48.6	91°39.1	67°57.2	56°55.0	55°01.7		46°21.6
12	326°20.3	10.3'	N 07°54.4	17.2'	60.5'	100°05.6	97°11.6	91°02.2	67°22.2	56°18.4	54°25.6		46°54.8
13	340°49.6	10.3'	$08^{\circ}11.6$	17.2'	60.4'	99°31.0	96°34.5	90°25.3	66°47.1	55°41.7	53°49.4		47°28.0
14	355°18.8	10.2'	08°28.8	17.1'	60.4'	98°56.4	95°57.5	89°48.5	66°12.1	55°05.1	53°13.3		48°01.3
15	9°48.0	10.2'	08°45.9	17.1'	60.4'	98°21.8	95°20.4	89°11.6	65°37.2	54°28.5	52°37.3		48°34.6
16	24°17.2	10.1'	09°02.9	17.0'	60.4'	97°47.2	94°43.4	88°34.8	65°02.2	53°52.0	52°01.2		49°08.1
17	38°46.3	10.1'	$09^{\circ}19.9$	16.9'	60.4'	97°12.5	94°06.4	87°58.0	64°27.4	53°15.4	51°25.2	9°44.6	49°41.5
18	53°15.4	10.0'	N09°36.9	16.9'	60.4'	96°37.9	93°29.4	87°21.2	63°52.5	52°38.9	50°49.2	10°15.1	50°15.0
19	67°44.5	10.0'	09°53.8	16.8'	60.4'	96°03.3	92°52.4	86°44.4	63°17.7	52°02.3	50°13.2	10°46.3	50°48.6
20	82°13.5	10.0'	10°10.6	16.8'	60.4'	95°28.7	92°15.4	86°07.6	62°42.9	51°25.8	49°37.3	11°18.1	51°22.2
21	96°42.4	9.9'	10°27.3	16.7'	60.4'	94°54.2	91°38.5	85°30.8	62°08.1	50°49.3	49°01.4	11°50.3	51°55.8
22	111°11.4	9.9'	10°44.0	16.6'	60.4'	94°19.6	91°01.5	84°54.1	61°33.4	50°12.9	48°25.6	12°23.0	52°29.5
23	125°40.2	9.8'	$11^{\circ}00.6$	16.6'	60.4'	93°45.0	90°24.6	84°17.4	60°58.7	49°36.4	47°49.7	12°56.0	53°03.2
2 nd	SD	= 16.5'	Mer. pass	. 14:19									

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Mon	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Mars	-Jupiter	-Aldebaran	+Venus	+Sun	+Fomalhaut
0	140°09.0	9.8'	N11°17.2	16.5'	60.3'		89°47.7	83°40.7	49°00.0	47° 13.9	13°29.4	40°54.0	53°37.0
1	154°37.8	9.7'	11°33.7	16.4'	60.3'		89°10.8	83°04.0	48°23.6	46°38.2	14°03.0	41°28.4	54° 10.8
2	169°06.5	9.7'	$11^{\circ}50.1$	16.3'	60.3'		88°33.9	82°27.3	47°47.2	46°02.5	14°37.0	42°02.7	54°44.6
3	183°35.2	9.6'	12°06.4	16.3'	60.3'		87°57.1	81°50.6	47°10.9	45°26.8	15°11.1	42°37.1	55° 18.5
4	198°03.8	9.6'	12°22.7	16.2'	60.3'		87°20.2	81°14.0	46°34.5	44°51.2	15°45.4	43°11.4	55°52.3
5	212°32.4	9.5'	12°38.9	16.1'	60.3'		86°43.4	80°37.4	45°58.2	44°15.6	16°19.9	43°45.8	56°26.2
6	227°00.9	9.4'	$N12^{\circ}55.0$	16.0'	60.3'		86°06.6	80°00.8	45°21.9	43°40.1	16°54.5	44°20.1	57°00.2
7	241°29.3	9.4'	13°11.0	15.9'	60.3'		85°29.8	79°24.2	44°45.7	43°04.6	17°29.3	44°54.4	57°34.1
8	255°57.7	9.3'	13°26.9	15.9'	60.2'		84°53.1	78°47.6	44°09.5	42°29.2	18°04.2	45°28.6	58°08.1
9	270°26.0	9.3'	13°42.8	15.8'	60.2'		84°16.3	78°11.1	43°33.3	41°53.8	18°39.2	46°02.9	58°42.1
10	284°54.3	9.2'	13°58.5	15.7'	60.2'		83°39.6	77°34.6	42°57.1	41°18.4	19°14.3	46°37.1	59° 16.1
11	299°22.5	9.2'	14°14.2	15.6'	60.2'	119°52.7	83°02.9	76°58.1	42°20.9	40°43.2	19°49.5	47° 11.3	59°50.1
12	313°50.7	9.1'	N14°29.8	15.5'	60.2'	119°16.0	82°26.2	76°21.6	41°44.8	40°07.9	20°24.8	47°45.5	60°24.1
13	328°18.8	9.0'	14°45.3	15.4'	60.2'	118°39.4	81°49.5	75°45.2	41°08.7	39°32.8	21°00.1	48° 19.7	60°58.1
14	342°46.8	9.0'	15°00.7	15.3'	60.2'	118°02.7	81°12.9	75°08.7	40°32.7	38° 57.7	21°35.5	48°53.8	61°32.2
15	357°14.8	8.9'	$15^{\circ}16.0$	15.2'	60.1'	117°26.1	80°36.3	74°32.3	39°56.7	38°22.6	22°11.0	49°27.9	62°06.2
16	11°42.7	8.9'	15°31.2	15.1'	60.1'	116°49.5	79°59.7	73°56.0	39°20.7	37° 47.6	22°46.5	50°02.0	62°40.3
17	26°10.6	8.8'	15°46.3	15.0'	60.1'	116°13.0	79°23.1	73°19.6	38°44.7	37° 12.7	23°22.0	50°36.1	63° 14.4
18	40°38.4	8.7'	$N16^{\circ}01.3$	14.9'	60.1'	115°36.4	78°46.6	72°43.3	38°08.8	36° 37.9	23°57.6	51°10.2	63°48.4
19	55°06.1	8.7'	$16^{\circ}16.3$	14.8'	60.1'	114°59.9	78° 10.0	72°07.0	37°32.9	36°03.1	24°33.2	51°44.2	64°22.5
20	69°33.7	8.6'	16°31.1	14.7'	60.1'	114°23.4	77°33.5	71°30.7	36°57.1	35°28.4	25°08.9	52°18.2	
21	84°01.3	8.5'	16°45.8	14.6'	60.0'	113°46.9	76° 57.0	70°54.4	36°21.3	34°53.8	25°44.5	52°52.2	
22	98°28.9	8.5'	17°00.3	14.5'	60.0'	113° 10.5	76°20.6	70°18.2	35°45.5	34° 19.2	26°20.2	53°26.1	
23	112°56.3	8.4'	17°14.8	14.4'	60.0'	112°34.1	75°44.2	69°42.0	35°09.7	33°44.8	26°55.9	54°00.1	
3 rd	SD	= 16.5	' Mer. pas	s. 15:11					Sun	SD = 16.1'			

h Moon (4 th Mar)	Lunar Distance (objects with largest hourly LD delta)
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Tue	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Mars	-Jupiter	-Aldebaran	+Venus	+Sun	+Achernar
0	127°23.7	8.3'	$N17^{\circ}29.2$	14.3'	60.0'	111°57.7	75°07.8	69°05.8	34°34.0	33° 10.4	27°31.6	54°34.0	75°03.7
1	141°51.0	8.3'	17°43.4	14.1'	60.0'	111°21.3	74°31.4	68°29.7	33°58.4	32°36.1	28°07.4	55°07.9	75°21.3
2	156°18.3	8.2'	17°57.6	14.0'	59.9'	110°44.9	73°55.0	67°53.6	33°22.8	32°01.9	28°43.1	55°41.7	75°38.8
3	170°45.5	8.1'	$18^{\circ}11.6$	13.9'	59.9'	110°08.6	73° 18.7	67°17.5	32°47.2	31°27.8	29°18.9	56°15.6	75° 56.5
4	185°12.6	8.1'	18°25.5	13.8'	59.9'	109°32.3	72°42.4	66°41.4	32°11.7	30°53.8	29°54.6	56°49.4	76°14.2
5	199°39.7	8.0'	18°39.3	13.7'	59.9'	108°56.0	$72^{\circ}06.1$	66°05.4	31°36.2	30° 19.9	30°30.4	57°23.2	76°32.0
6	214°06.6	7.9'	N18°53.0	13.5'	59.9'	108° 19.8	71°29.9	65°29.4	31°00.8	29°46.1	31°06.1	57°56.9	76°49.8
7	228°33.6	7.8'	$19^{\circ}06.5$	13.4'	59.8'	107°43.6	70°53.7	64°53.4	30°25.4	29° 12.5	31°41.9	58°30.7	77° 07.7
8	243°00.4	7.8'	$19^{\circ}19.9$	13.3'	59.8'	107°07.4	$70^{\circ}17.5$	64°17.4	29°50.1	28° 38.9	32°17.7	59°04.4	77°25.7
9	257°27.2	7.7'	19°33.2	13.2'	59.8'	106°31.2	69°41.3	63°41.5	29°14.8	28°05.5	32°53.4	59°38.0	77°43.7
10	271°53.9	7.6'	19°46.4	13.0'	59.8'	105°55.1	69°05.2	63°05.6	28°39.6	27°32.2	33°29.2	60°11.7	78°01.7
11	286°20.5	7.6'	19°59.4	12.9'	59.8'	105°19.0	68°29.1	62°29.7	28°04.4	26°59.1	34°04.9	60°45.3	78° 19.8
12	300°47.1	7.5'	$N20^{\circ}12.3$	12.8'	59.7'	104°42.9	67°53.0	61°53.9	27°29.3	26°26.1	34°40.7	61°18.9	78°37.9
13	315°13.6	7.4'	20°25.1	12.6'	59.7'	104°06.9	67° 17.0	61°18.1	26°54.2	25°53.3	35°16.4	61°52.5	78°56.1
14	329°40.0	7.4'	20°37.8	12.5'	59.7'	103°30.8	66°40.9	60°42.3	26°19.2	25°20.6	35°52.1	62°26.0	79°14.3
15	344°06.4	7.3'	20°50.3	12.4'	59.7'	102°54.8	66°05.0	60°06.6	25°44.3	24°48.1	36°27.9	62°59.5	79°32.5
16	358°32.6	7.2'	21°02.6	12.2'	59.6'	102°18.9	65°29.0	59°30.9	25°09.5	24° 15.7	37°03.6	63°33.0	79°50.8
17	12°58.9	7.1'	21°14.9	12.1'	59.6'	101°43.0	64°53.1	58°55.2	24°34.7	23°43.6	37°39.3	64°06.4	80°09.2
18	27°25.0	7.1'	$N21^{\circ}27.0$	12.0'	59.6'	101°07.0	64°17.2	58°19.5	23°59.9	23°11.7	38°15.0	64°39.8	80°27.5
19	41°51.1	7.0'	21°38.9	11.8'	59.6'	100°31.2	63°41.3	57°43.9	23°25.3	22°40.0	38°50.6	65°13.2	80°45.9
20	56°17.1	6.9'	21°50.7	11.7'	59.6'	99°55.3	63°05.5	57°08.3	22°50.7	22°08.5	39°26.3	65°46.6	81°04.3
21	70°43.0	6.9'	22°02.4	11.5'	59.5'	99° 19.5	62°29.7	56°32.8	22°16.2	21°37.2	40°01.9	66°19.9	81°22.8
22	85°08.9	6.8'	22°13.9	11.4'	59.5'	98°43.7	61°53.9	55°57.3	21°41.8	21°06.2	40°37.5	66°53.2	81°41.2
23	99°34.7	6.7'	22°25.3	11.2'	59.5'	98°08.0	61°18.1	55°21.8	21°07.5	20°35.5	41°13.2	67°26.5	81°59.7
4 th	SD	= 16.4	' Mer. pas	s. 16:06					Sun S	5D = 16.1'			

h		Moo	n (5 th Ma	ar)			Lunar Dis	tance (o	bjects w	ith large	st hourly	LD delt	a)
Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	-Jupiter	+Venus	+Sun	+

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	-Jupiter	+Venus	+Sun	+Achernar
0	114°00.4	6.7'	N22°36.5	11.1'	59.5'	97°32.3	66°02.6	60°42.4	54°46.3	20°33.3	41°48.7	67°59.7	82°18.2
1	128°26.1	6.6'	22°47.6	10.9'	59.4'	96°56.6	65°29.7	60°06.7	54° 10.9	19°59.2	42°24.3	68° 32.9	82°36.8
2	142°51.7	6.5'	22°58.5	10.8'	59.4'	96°20.9	64°56.8	59°31.1	53°35.5	19°25.2	42°59.9	69°06.1	82°55.3
3	157°17.2	6.5'	23°09.3	10.6'	59.4'	95°45.3	64°24.0	58° 55.4	53°00.1	18°51.3	43°35.4	69°39.2	83°13.9
4	171°42.7	6.4'	23°19.9	10.5'	59.4'	95°09.7	63°51.2	58° 19.9	52°24.8	18°17.6	44°10.9	70°12.4	83°32.5
5	186°08.1	6.3'	23°30.4	10.3'	59.3'	94°34.1	63°18.5	57°44.3	51°49.5	17°44.0	44°46.4	70°45.4	83°51.1
6	200°33.4	6.3'	N23°40.7	10.2'	59.3'	93°58.6	62°45.8	57°08.8	51°14.2	17°10.5	45°21.9	71°18.5	84°09.7
7	214°58.7	6.2'	23°50.9	10.0'	59.3'	93°23.1	62°13.2	56°33.3	50°39.0	16°37.2	45°57.4	71°51.5	84°28.3
8	229°23.9	6.1'	24°00.9	9.8'	59.3'	92°47.6	61°40.7	55° 57.8	50°03.8	16°04.0	46°32.8	72°24.5	84°47.0
9	243°49.0	6.1'	24°10.7	9.7'	59.2'	92°12.2	61°08.2	55°22.4	49°28.6	15°31.0	47°08.2	72°57.5	85°05.6
10	258°14.1	6.0'	24°20.4	9.5'	59.2'	91°36.8	60°35.8	54°47.0	48°53.5	14°58.2	47°43.6	73°30.4	85°24.3
11	272°39.1	6.0'	24°29.9	9.4'	59.2'	91°01.4	60°03.5	54°11.6	48° 18.4	14°25.7	48° 19.0	74°03.3	85°42.9
12	287°04.1	5.9'	N 24°39.3	9.2'	59.2'	90°26.0	59°31.2	53°36.3	47°43.3	13°53.3	48°54.4	74°36.1	86°01.6
13	301°29.0	5.8'	24°48.5	9.0'	59.1'	89°50.7	58°59.0	53°01.0	47°08.3	13°21.2	49°29.7	75°09.0	86°20.2
14	315°53.8	5.8'	24°57.5	8.9'	59.1'	89°15.5	58°26.8	52°25.7	46°33.3	12°49.5	50°05.0	75°41.8	86°38.9
15	330°18.6	5.7'	25°06.3	8.7'	59.1'	88°40.2	57°54.7	51°50.5	45°58.4	12°18.0	50°40.3	76° 14.5	86°57.6
16	344°43.4	5.7'	$25^{\circ}15.0$	8.5'	59.1'	88°05.0	57°22.7	51° 15.3	45°23.4	11°46.9	51°15.6	76°47.3	87°16.2
17	359°08.0	5.6'	25°23.6	8.4'	59.0'	87°29.8	56°50.7	50°40.1	44°48.5	11°16.2	51°50.8	77°20.0	87°34.9
18	13°32.7	5.6'	N 25°31.9	8.2'	59.0'	86°54.7	56°18.9	50°05.0	44° 13.7	10°45.9	52°26.0	77°52.6	87°53.5
19	27°57.2	5.5'	25°40.1	8.0'	59.0'	86°19.5	55°47.1	49°29.9	43°38.8	10°16.2	53°01.2	78°25.3	88°12.1
20	42°21.8	5.5'	25°48.1	7.8'	58.9'	85°44.5	55°15.3	48°54.8	43°04.1	9°47.1	53°36.4	78°57.9	88°30.8
21	56°46.2	5.4'	25°56.0	7.7'	58.9'	85°09.4	54°43.7	48° 19.8	42°29.3	9°18.6	54°11.5	79°30.4	88°49.4
22	71°10.7	5.4'	26°03.6	7.5'	58.9'	84°34.4	54°12.1	47°44.8	41°54.6	8°50.9	54°46.6	80°03.0	89°08.0
23	85°35.0	5.3'	26°11.1	7.3'	58.9'	83°59.4	53°40.6	47°09.8	41°19.9	8°24.2	55°21.7	80°35.5	89°26.6
5 th	SD	= 16.2	' Mer. pas	s. 17:04					Sun SD	= 16.1'			

h Moon (6 th Mar) Lunar Distance (objects with largest hourly LD delta	AA (cth AA)
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	6114					- ·	_	·					
Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	+Aldebaran	+Venus	+Sun	+Achernar
0	99°59.4	5.3'	N26°18.5	7.1'	58.8'	83°24.4	53°09.1	46°34.8	40°45.2		55° 56.8	81°08.0	89°45.1
1	114°23.7	5.2'	26°25.6	7.0'	58.8'	82°49.5	52° 37.8	45°59.9	40°10.6		56°31.8	81°40.4	90°03.7
2	128°47.9	5.2'	26°32.6	6.8'	58.8'	82°14.6	52°06.5	45°25.1	39°36.0		57°06.9	82°12.8	90°22.2
3	143°12.1	5.2'	26°39.4	6.6'	58.8'	81°39.8	51°35.4	44°50.2	39°01.5		57°41.9	82°45.2	90°40.8
4	157°36.3	5.1'	26°46.0	6.4'	58.7'	81°04.9	51°04.3	44° 15.4	38°27.0		58° 16.8	83°17.5	90°59.3
5	172°00.4	5.1'	26°52.4	6.3'	58.7'	80°30.2	50°33.3	43°40.7	37°52.5		58°51.8	83°49.9	91°17.7
6	186°24.5	5.1'	N26°58.7	6.1'	58.7'	79°55.4	50°02.4	43°05.9	37°18.0		59° 26.7	84°22.1	91°36.2
7	200°48.5	5.0'	27°04.8	5.9'	58.7'	79°20.7	49°31.5	42°31.2	36°43.6		60°01.6	84°54.4	91°54.6
8	215°12.6	5.0'	$27^{\circ}10.7$	5.7'	58.6'	78°46.0	49°00.8	41°56.5	36°09.2		60°36.5	85°26.6	92°13.0
9	229°36.6	5.0'	27°16.4	5.5'	58.6'	78°11.3	48°30.2	41°21.9	35°34.9		61°11.3	85°58.8	92°31.4
10	244°00.5	4.9'	27°22.0	5.4'	58.6'	77°36.7	47°59.6	40°47.3	35°00.6		61°46.1	86°30.9	92°49.8
11	258°24.5	4.9'	27°27.3	5.2'	58.5'	77°02.1	47°29.2	40° 12.7	34°26.3		62°20.9	87°03.1	93°08.1
12	272°48.4	4.9'	N27°32.5	5.0'	58.5'	76°27.5	46° 58.9	39°38.2	33°52.1		62°55.7	87°35.1	93°26.4
13	287°12.3	4.9'	27°37.5	4.8'	58.5'	75°53.0	46°28.6	39°03.7	33°17.9		63°30.4	88°07.2	93°44.6
14	301°36.2	4.8'	27°42.3	4.6'	58.5'	75° 18.5	45°58.5	38°29.2	32°43.7		64°05.1	88°39.2	94°02.9
15	316°00.0	4.8'	27°47.0	4.5'	58.4'	74°44.0	45°28.5	37°54.8	32°09.6		64°39.8	89°11.2	94°21.0
16	330°23.8	4.8'	27°51.4	4.3'	58.4'	74°09.6	44°58.6	37°20.4	31°35.5		65° 14.4	89°43.2	94°39.2
17	344°47.6	4.8'	27°55.7	4.1'	58.4'	73°35.2	44°28.8	36°46.0	31°01.4		65°49.1	90°15.1	94°57.3
18	359°11.5	4.8'	N 27°59.8	3.9'	58.4'	73°00.8	43°59.1	36° 11.7	30°27.4		66°23.7	90°47.0	95°15.4
19	13°35.2	4.8'	28°03.7	3.7'	58.3'	72°26.5	43°29.6	35°37.4	29°53.4		66°58.3	91°18.8	95°33.4
20	27°59.0	4.8'	28°07.4	3.5'	58.3'	71°52.2	43°00.1	35°03.1	29°19.4	13°27.9	67°32.8	91°50.7	95°51.4
21	42°22.8	4.8'	$28^{\circ}10.9$	3.3'	58.3'	71°17.9	42°30.8	34°28.9	28°45.5	13°49.6	68°07.3	92°22.5	96°09.4
22	56°46.6	4.8'	28°14.3	3.2'	58.2'	70°43.7	42°01.6	33°54.7	28°11.6	14°12.1	68°41.8	92°54.2	96°27.3
23	71°10.3	4.8'	$28^{\circ}17.4$	3.0'	58.2'	70°09.5	41°32.6	33°20.5	27°37.8	14°35.4	69°16.3	93°26.0	96°45.2
6 th	SD =	= 16.0'	Mer. pass	. 18:03	3				Sun S	5D = 16.1'			

h Moon (7 th Mar)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Pollux	-Mars	+Jupiter	+Aldebaran	+Venus	+Sun
0	85°34.1	4.8'	N 28°20.4	2.8'	58.2'		69°35.3	32°46.4	27°03.9	9°38.5	14°59.3	69°50.8	93°57.7
1	99°57.9	4.8'	28°23.2	2.6'	58.2'		69°01.1	32°12.3	26°30.2	10°06.6	15°23.9	70°25.2	94°29.3
2	114°21.6	4.8'	28°25.8	2.4'	58.1'		68°27.0	31°38.2	25°56.4	10°35.3	15°49.0	70°59.6	95°01.0
3	128°45.4	4.8'	28°28.2	2.2'	58.1'		67°52.9	31°04.2	25°22.7	11°04.4	16°14.6	71°34.0	95°32.6
4	143°09.2	4.8'	28°30.5	2.1'	58.1'		67°18.9	30°30.2	24°49.0	11°34.0	16°40.7	72°08.3	96°04.2
5	157°33.0	4.8'	28°32.5	1.9'	58.1'		66°44.9	29°56.2	24°15.4	12°03.9	17°07.2	72°42.6	96°35.7
6	171°56.8	4.8'	N 28°34.4	1.7'	58.0'		66°10.9	29°22.3	23°41.8	12°34.1	17°34.1	73°16.9	97°07.2
7	186°20.6	4.8'	28°36.1	1.5'	58.0'	119°37.4	65°36.9	28°48.4	23°08.2	13°04.5	18°01.4	73°51.2	97°38.7
8	200°44.4	4.8'	28°37.6	1.3'	58.0'	119°03.4	65°03.0	28°14.5	22°34.7	13°35.2	18°29.0	74°25.4	98°10.2
9	215°08.3	4.9'	28°38.9	1.1'	57.9'	118°29.5	64°29.1	27°40.7	22°01.2	14°06.0	18°56.9	74°59.6	98°41.6
10	229°32.1	4.9'	28°40.0	1.0'	57.9'	117°55.6	63°55.2	27°06.9	21°27.7	14°37.1	19°25.1	75°33.8	99°13.0
11	243°56.0	4.9'	28°41.0	0.8'	57.9'	117°21.8	63°21.4	26°33.1	20°54.3	15°08.3	19°53.5	76°08.0	99°44.3
12	258°19.9	4.9'	N 28°41.7	0.6'	57.9'	116°47.9	62°47.6	25°59.4	20°20.9	15°39.6	20°22.2	76°42.1	100°15.7
13	272°43.9	5.0'	28°42.3	0.4'	57.8'	116°14.1	62°13.8	25°25.7	19°47.6	16°11.0	20°51.1	77°16.2	100°47.0
14	287°07.9	5.0'	28°42.7	0.2'	57.8'	115°40.4	61°40.1	24°52.1	19°14.3	16°42.6	21°20.2	77°50.3	101°18.2
15	301°31.9	5.0'	28°43.0	0.0'	57.8'	115°06.6	61°06.4	24°18.4	18°41.0	17°14.2	21°49.5	78°24.4	101°49.5
16	315°55.9	5.1'	28°43.0	-0.1'	57.8'	114°32.9	60°32.7	23°44.8	18°07.7	17°45.9	22°19.0	78°58.4	102°20.7
17	330°20.0	5.1'	28°42.9	-0.3'	57.7'	113°59.3	59°59.1	23°11.3	17°34.6	18° 17.7	22°48.6	79°32.4	102°51.9
18	344°44.1	5.1'	N 28°42.5	-0.5'	57.7'	113°25.6	59°25.5	22°37.8	17°01.4	18°49.6	23°18.4	80°06.4	103°23.0
19	359°08.2	5.2'	28°42.0	-0.7'	57.7'	112°52.0	58°51.9	22°04.3	16°28.3	19°21.5	23°48.3	80°40.3	103°54.1
20	13°32.4	5.2'	28°41.4	-0.9'	57.6'	112°18.4	58° 18.3	21°30.8	15°55.2	19°53.4	24°18.3	81°14.3	104°25.2
21	27°56.6	5.3'	28° 40.5	-1.0'	57.6'	111°44.9	57°44.8	20°57.4	15°22.2	20°25.4	24°48.5	81°48.2	104°56.3
22	42°20.9	5.3'	28°39.5	-1.2'	57.6'	111°11.3	57°11.3	20°24.1	14°49.2	20°57.5	25°18.7	82°22.0	105°27.3
23	56°45.2	5.4'	28°38.2	-1.4'	57.6'	110°37.9	56°37.8	19°50.7	14°16.3	21°29.5	25°49.1	82°55.9	105°58.3
7 th	SD :	= 15.9'	Mer. pas	s. 19:04					Sun S	D = 16.1'			

Moon (8th Mar)

8th

 $\overline{\text{SD}} = 15.7'$

Mer. pass. 20:02

h		Мос	on (8 th Ma	r)			Lunar D	istance (objects v	with large	st hourly LI	D delta)	
Sat	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Pollux	-Mars	+Jupiter	+Aldebaran	+Venus	+Sun
0	71°09.6	5.4'	N 28°36.9	-1.6'	57.5'	110°04.4	56°04.4	19°17.4	13°43.4	22°01.6	26°19.5	83°29.7	106°29.3
1	85°34.0	5.5'	28°35.3	-1.7'	57.5'	109°31.0	55°31.0	18°44.2	13°10.5	22°33.8	26°50.1	84°03.5	107°00.2
2	99°58.5	5.5'	28°33.5	-1.9'	57.5'	108°57.5	54°57.6	18°11.0	12°37.7	23°05.9	27°20.7	84°37.3	107°31.2
3	114°23.0	5.6'	28°31.6	-2.1'	57.5'	108°24.2	54°24.2	17°37.8	12°05.0	23°38.0	27°51.4	85°11.1	108°02.0
4	128°47.6	5.6'	28°29.5	-2.3'	57.4'	107°50.8	53°50.9	17°04.7	11°32.3	24°10.2	28° 22.1	85°44.8	108°32.9
5	143°12.2	5.7'	28°27.3	-2.4'	57.4'	107°17.5	53°17.6	16°31.6	10°59.7	24°42.4	28°52.9	86°18.5	109°03.7
6	157°37.0	5.8'	N 28°24.8	-2.6'	57.4'	106°44.2	52°44.4	15°58.5	10°27.2	25°14.6	29°23.8	86°52.2	109°34.5
7	172°01.7	5.8'	28°22.2	-2.8'	57.4'	106°10.9	52°11.1	15°25.5	9°54.7	25°46.8	29°54.7	87°25.8	110°05.3
8	186°26.6	5.9'	$28^{\circ}19.5$	-2.9'	57.3'	105°37.7	51°37.9	14°52.6	9°22.3	26°18.9	30°25.7	87°59.5	110°36.0
9	200°51.4	6.0'	$28^{\circ}16.5$	-3.1'	57.3'	105°04.5	51°04.8	14°19.7	8°50.0	26°51.1	30°56.7	88°33.1	111°06.8
10	215°16.4	6.0'	28°13.4	-3.3'	57.3'	104°31.3	50°31.6	13°46.8	8°17.8	27°23.3	31°27.8	89°06.7	111°37.4
11	229°41.4	6.1'	$28^{\circ}10.1$	-3.4'	57.3'	103°58.2	49°58.5	13°14.0	7°45.7	27°55.5	31°58.9	89°40.2	112°08.1
12	244°06.6	6.2'	N 28°06.7	-3.6'	57.2'	103°25.0	49°25.4	12°41.2	7°13.7	28°27.7	32°30.0	90°13.8	112°38.7
13	258°31.7	6.3'	28°03.1	-3.8'	57.2'	102°52.0	48°52.3	12°08.6	6°41.9	28°59.9	33°01.2	90°47.3	113°09.3
14	272°57.0	6.3'	27°59.3	-3.9'	57.2'	102°18.9	48°19.3	11°35.9	6°10.3	29°32.1	33°32.3	91°20.8	113°39.9
15	287°22.3	6.4'	27°55.3	-4.1'	57.2'	101°45.8	47°46.3	11°03.4	5°38.9	30°04.3	34°03.6	91°54.2	114° 10.5
16	301°47.7	6.5'	27°51.2	-4.3'	57.1'	101°12.8	47°13.3	10°30.9	5°07.8	30°36.4	34°34.8	92°27.7	114°41.0
17	316°13.2	6.6'	27°47.0	-4.4'	57.1'	100°39.8	46°40.4	9°58.5	4°37.1	31°08.6	35°06.1	93°01.1	115°11.5
18	330°38.7	6.6'	N 27°42.5	-4.6'	57.1'	100°06.9	46°07.4	9°26.3	4°06.9	31°40.8	35°37.3	93°34.5	115°41.9
19	345°04.4	6.7'	27°38.0	-4.7'	57.1'	99°34.0	45°34.5	8°54.1	3°37.5	32°12.9	36°08.6	94°07.8	116°12.4
20	359°30.1	6.8'	27°33.2	-4.9'	57.0'	99°01.0	45°01.7	8°22.0		32°45.0	36°40.0	94°41.2	116°42.8
21	13°55.9	6.9'	27°28.3	-5.1'	57.0'	98°28.2	44°28.8	7°50.1		33°17.1	37°11.3	95°14.5	117°13.2
22	28°21.8	7.0'	27°23.3	-5.2'	57.0'	97°55.3	43°56.0	7°18.4		33°49.3	37°42.6	95°47.8	117°43.5
23	42°47.8	7.1'	27°18.0	-5.4'	57.0'	97°22.5	43°23.2	6°46.8		34°21.3	38°14.0	96°21.1	118° 13.9

h Moon (9 th Mar) Lunar Distance (objects with larg
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Sun SD = 16.1'

		IVIOO	ii (9° ivia	11)			Lunar D	istance (objects v	vitii large	est nourry	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Regulus	±Pollux	+Mars	+Jupiter	+Aldebaran	+Venus
0	57°13.8	7.2'	N27°12.7	-5.5'	56.9'	96°49.7	93°30.7	42°50.5	6°15.5		34°53.4	38°45.3	96°54.3
1	71°40.0	7.2'	27°07.2	-5.7'	56.9'	96°16.9	93°03.2	42°17.7	5°44.5		35° 25.5	39°16.7	97°27.5
2	86°06.2	7.3'	27°01.5	-5.8'	56.9'	95°44.2	92°35.8	41°45.0	5°13.9		35°57.5	39°48.1	98°00.8
3	100°32.6	7.4'	26°55.7	-6.0'	56.9'	95°11.5	92°08.3	41°12.4	4°43.7		36°29.6	40°19.5	98°33.9
4	114°59.0	7.5'	26°49.7	-6.1'	56.8'	94°38.8	91°40.9	40°39.7	4°14.3		37°01.6	40°50.9	99°07.1
5	129°25.5	7.6'	26°43.6	-6.3'	56.8'	94°06.1	91°13.5	40°07.1	3°45.7		37°33.6	41°22.2	99°40.2
6	143°52.1	7.7'	N26°37.4	-6.4'	56.8'	93°33.4	90°46.2	39°34.5			38°05.6	41°53.6	100°13.3
7	158°18.8	7.8'	26°31.0	-6.5'	56.8'	93°00.8	90°18.8	39°01.9			38° 37.6	42°25.0	100°46.4
8	172°45.6	7.9'	26°24.4	-6.7'	56.7'	92°28.2	89°51.5	38°29.4			39°09.5	42°56.4	101°19.5
9	187°12.5	8.0'	26°17.7	-6.8'	56.7'	91°55.7	89°24.2	37°56.8		4°37.5	39°41.5	43°27.8	101°52.6
10	201°39.5	8.1'	26°10.9	-7.0'	56.7'	91°23.1	88°56.9	37°24.3		5°07.8	40°13.4	43°59.2	102°25.6
11	216°06.6	8.2'	26°03.9	-7.1'	56.7'	90°50.6	88°29.6	36°51.9		5°38.4	40°45.3	44°30.6	102°58.6
12	230°33.7	8.3'	N25°56.8	-7.2'	56.6'	90°18.1	88°02.3	36°19.4		6°09.2	41°17.2	45°02.0	103°31.6
13	245°01.0	8.4'	25°49.6	-7.4'	56.6'	89°45.6	87°35.1	35°47.0		6°40.2	41°49.1	45°33.4	104°04.5
14	259°28.4	8.5'	25°42.2	-7.5'	56.6'	89°13.2	87°07.9	35°14.6		7°11.3	42°21.0	46°04.7	104°37.5
15	273°55.9	8.6'	25°34.7	-7.6'	56.6'	88°40.8	86°40.8	34°42.3		7°42.6	42°52.8	46°36.1	105°10.4
16	288°23.5	8.7'	$25^{\circ}27.1$	-7.8'	56.5'	88°08.4	86°13.6	34°09.9		8°13.9	43°24.6	47°07.5	105°43.3
17	302°51.1	8.8'	25°19.3	-7.9'	56.5'	87°36.0	85°46.5	33°37.6		8°45.3	43°56.4	47°38.9	106°16.1
18	317°18.9	8.9'	$N25^{\circ}11.4$	-8.0'	56.5'	87°03.6	85°19.4	33°05.3		9°16.7	44°28.2	48°10.2	106°49.0
19	331°46.8	9.0'	25°03.3	-8.2'	56.5'	86°31.3	84°52.3	32°33.1	4°46.0	9°48.2	45°00.0	48°41.6	107°21.8
20	346°14.8	9.1'	24°55.2	-8.3'	56.5'	85°59.0	84°25.3	32°00.8	5° 15.8	10°19.6	45°31.7	49°12.9	107°54.6
21	0°42.9	9.2'	24°46.9	-8.4'	56.4'	85°26.7	83°58.3	31°28.6	5°46.0	10°51.1	46°03.5	49°44.3	108°27.4
22	15°11.0	9.3'	24°38.5	-8.5'	56.4'	84°54.5	83°31.3	30°56.4	6° 16.5	11°22.7	46°35.2	50°15.6	109°00.1
23	29°39.3	9.4'	24°30.0	-8.7'	56.4'	84°22.2	83°04.3	30°24.3	6°47.3	11°54.2	47°06.9	50°46.9	109°32.9
9 th	SD	= 15.5'	Mer. pas	s. 20:57	,								

h		Moo	n (10 th M	ar)			Lunar Di	stance (o	bjects wit	th largest	t hourly	LD delta))
Mon	GHA	ν	Dec	d	HP	-Antares	-Spica	-Arcturus	-Regulus	+Pollux	+Mars	+Jupiter	+Venus
0	44°07.7	9.5'	N 24°21.3	-8.8'	56.4'		83°50.0	82°37.4	29°52.1	7°18.3	12°25.7	47°38.6	110°05.6
1	58°36.2	9.6'	$24^{\circ}12.5$	-8.9'	56.3'		83°17.8	82° 10.5	29°20.0	7°49.4	12°57.2	48°10.2	110°38.3
2	73°04.8	9.7'	24°03.6	-9.0'	56.3'		82°45.7	81°43.7	28° 47.9	8°20.6	13°28.7	48°41.9	111°11.0
3	87°33.5	9.8'	23°54.6	-9.1'	56.3'		82°13.5	81° 16.9	28° 15.9	8°51.9	14°00.3	49°13.5	111°43.6
4	102°02.3	9.9'	23°45.5	-9.2'	56.3'		81°41.4	80°50.1	27°43.8	9°23.3	14°31.8	49°45.1	112°16.3
5	116°31.2	10.0'	23°36.2	-9.4'	56.3'		81°09.3	80°23.3	27°11.8	9°54.7	15°03.3	50°16.7	112°48.9
6	131°00.2	10.1'	N23°26.9	-9.5'	56.2'		80°37.3	79°56.6	26°39.8	10°26.2	15°34.7	50°48.2	113°21.5
7	145°29.3	10.2'	23° 17.4	-9.6'	56.2'		80°05.2	79°29.9	26°07.9	10°57.7	16°06.2	51°19.8	113°54.0
8	159°58.5	10.3'	23°07.8	-9.7'	56.2'		79°33.2	79°03.2	25°36.0	11°29.2	16°37.7	51°51.3	114°26.6
9	174°27.8	10.4'	22°58.2	-9.8'	56.2'		79°01.2	78°36.6	25°04.0	12°00.8	17°09.1	52°22.8	114°59.1
10	188°57.2	10.5'	22°48.4	-9.9'	56.1'		78°29.2	78° 10.0	24°32.2	12°32.4	17°40.6	52°54.3	115°31.6
11	203°26.8	10.6'	22°38.5	-10.0'	56.1'		77°57.2	77°43.5	24°00.3	13°04.0	18°12.0	53°25.8	116°04.1
12	217°56.4	10.7'	N 22°28.4	-10.1'	56.1'		77°25.3	77° 17.0	23°28.5	13°35.6	18°43.4	53°57.2	116°36.6
13	232°26.1	10.8'	22°18.3	-10.2'	56.1'		76°53.4	76°50.5	22°56.7	14°07.2	19°14.8	54°28.7	117°09.0
14	246°55.9	10.9'	22°08.1	-10.3'	56.1'		76°21.5	76°24.1	22°24.9	14°38.8	19°46.2	55°00.1	117°41.4
15	261°25.8	11.0'	21°57.8	-10.4'	56.0'		75°49.6	75° 57.7	21°53.2	15°10.4	20°17.5	55°31.5	118°13.8
16	275°55.9	11.1'	21°47.4	-10.5'	56.0'		75°17.7	75°31.3	21°21.5	15°41.9	20°48.9	56°02.8	118°46.2
17	290°26.0	11.2'	21°36.9	-10.6'	56.0'		74°45.9	75°05.0	20°49.8	16°13.5	21°20.2	56°34.2	119°18.5
18	304°56.2	11.3'	N21°26.3	-10.7'	56.0'		74°14.1	74°38.8	20°18.1	16°45.1	21°51.5	57°05.5	119°50.9
19	319°26.5	11.4'	$21^{\circ}15.6$	-10.8'	56.0'	119°36.4	73°42.3	74° 12.6	19°46.5	17°16.7	22°22.8	57°36.9	
20	333°57.0	11.5'	21°04.8	-10.9'	55.9'	119°04.6	73°10.5	73°46.4	19° 14.9	17°48.3	22°54.1	58°08.2	
21	348°27.5	11.6'	20°53.9	-11.0'	55.9'	118°32.8	72°38.8	73°20.3	18°43.3	18°19.8	23°25.3	58°39.4	
22	2°58.1	11.7'	20°42.9	-11.1'	55.9'	118°01.1	72°07.1	72°54.2	18° 11.7	18°51.4	23°56.6	59°10.7	
23	17°28.8	11.8'	20°31.8	-11.2'	55.9'	117°29.4	71°35.3	72°28.1	17°40.2	19°22.9	24°27.8	59°42.0	

SD = 15.4'

10th

Mer. pass. 21:48

h Moon (11th Mar) Lu

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Regulus	+Pollux	+Mars	+Jupiter	+Aldebaran
0	31°59.6	11.9'	N 20°20.7	-11.3'	55.9'	116°57.7	72°02.1	71°03.7	17°08.7	19°54.5	24°59.0	60°13.2	63°46.3
1	46°30.5	12.0'	20°09.4	-11.3'	55.8'	116°26.1	71°36.2	70°32.0	16°37.3	20°26.0	25°30.1	60°44.4	64°17.3
2	61°01.6	12.1'	19°58.1	-11.4'	55.8'	115°54.4	71°10.3	70°00.3	16°05.9	20°57.5	26°01.3	61°15.6	64°48.3
3	75°32.7	12.2'	19°46.6	-11.5'	55.8'	115°22.8	70°44.5	69°28.7	15°34.5	21°29.0	26°32.5	61°46.8	65°19.3
4	90°03.9	12.3'	19°35.1	-11.6'	55.8'	114°51.2	70°18.7	68°57.1	15°03.2	22°00.4	27°03.6	62°17.9	65°50.3
5	104°35.2	12.4'	19°23.6	-11.7'	55.8'	114°19.6	69°52.9	68°25.5	14°31.8	22°31.9	27°34.7	62°49.0	66°21.2
6	119°06.5	12.5'	N 19°11.9	-11.7'	55.7'	113°48.0	69°27.2	67°54.0	14°00.6	23°03.3	28°05.8	63°20.2	66°52.2
7	133°38.0	12.6'	19°00.1	-11.8'	55.7'	113°16.5	69°01.6	67°22.4	13°29.4	23°34.8	28°36.8	63°51.3	67°23.1
8	148°09.6	12.7'	18°48.3	-11.9'	55.7'	112°45.0	68°36.0	66°50.9	12°58.2	24°06.2	29°07.9	64°22.3	67°54.0
9	162°41.3	12.8'	18°36.4	-12.0'	55.7'	112°13.5	68°10.5	66°19.4	12°27.1	24°37.6	29°38.9	64°53.4	68°24.9
10	177°13.0	12.8'	18°24.4	-12.1'	55.7'	111°42.0	67°45.0	65°47.9	11°56.0	25°09.0	30°09.9	65°24.4	68°55.8
11	191°44.9	12.9'	18°12.4	-12.1'	55.6'	111°10.5	67°19.6	65°16.4	11°25.0	25°40.3	30°40.9	65°55.5	69°26.6
12	206°16.8	13.0'	N 18°00.3	-12.2'	55.6'	110°39.0	66°54.2	64°45.0	10°54.0	26°11.7	31°11.9	66°26.5	69°57.5
13	220°48.8	13.1'	$17^{\circ}48.1$	-12.3'	55.6'	110°07.6	66°28.9	64°13.5	10°23.1	26°43.0	31°42.8	66°57.5	70°28.3
14	235°20.9	13.2'	17°35.8	-12.3'	55.6'	109°36.2	66°03.7	63°42.1	9°52.3	27°14.4	32°13.8	67°28.4	70°59.1
15	249°53.1	13.3'	17°23.4	-12.4'	55.6'	109°04.8	65°38.5	63°10.7	9°21.6	27°45.7	32°44.7	67°59.4	71°29.9
16	264°25.4	13.4'	$17^{\circ}11.0$	-12.5'	55.5'	108°33.4	65°13.4	62°39.4	8°50.9	28°17.0	33°15.6	68°30.3	72°00.7
17	278°57.8	13.5'	16°58.6	-12.5'	55.5'	108°02.1	64°48.3	62°08.0	8°20.4	28°48.2	33°46.5	69°01.2	72°31.5
18	293°30.2	13.5'	N 16°46.0	-12.6'	55.5'	107°30.8	64°23.3	61°36.7	7°50.0	29°19.5	34°17.3	69°32.1	73°02.3
19	308°02.8	13.6'	16°33.4	-12.7'	55.5'	106°59.4	63°58.4	61°05.4	7°19.7	29°50.7	34°48.2	70°03.0	73°33.0
20	322°35.4	13.7'	16°20.8	-12.7'	55.5'	106°28.2	63°33.5	60°34.1	6°49.7	30°22.0	35°19.0	70°33.9	74°03.7
21	337°08.1	13.8'	16°08.0	-12.8'	55.4'	105°56.9	63°08.7	60°02.8	6°19.8	30°53.2	35°49.8	71°04.7	74°34.4
22	351°40.9	13.9'	15°55.2	-12.9'	55.4'	105°25.6	62°44.0	59°31.5	5°50.2	31°24.4	36°20.6	71°35.6	75°05.1
23	6°13.8	13.9'	15°42.4	-12.9'	55.4'	104°54.4	62°19.3	59°00.3	5°20.9	31°55.5	36°51.4	72°06.4	75°35.8
11 th	SD	$= 15.2^{\circ}$	Mer. pas	s. 22:34									

Moon (12th Mar) Lunar Distance (objects with largest hourly LD delta)

			(==	- /				()	22,0000	- 6	, , ,	,	
Wed	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	±Regulus	+Pollux	+Mars	+Jupiter	+Aldebaran
0	20°46.7	14.0'	N 15°29.5	-13.0'	55.4'	104°23.2	94°44.9	58°29.1	4°52.1	32°26.7	37°22.1	72°37.2	76°06.5
1	35°19.7	14.1'	15° 16.5	-13.0'	55.4'	103°52.0	94°20.3	57°57.9	4°23.8	32°57.9	37°52.8	73°07.9	76°37.1
2	49°52.8	14.2'	$15^{\circ}03.5$	-13.1'	55.4'	103°20.8	93°55.7	57°26.7	3°56.3	33°29.0	38°23.5	73°38.7	77°07.8
3	64°26.0	14.3'	14°50.4	-13.1'	55.3'	102°49.6	93°31.1	56°55.5		34°00.1	38°54.2	74°09.4	77°38.4
4	78°59.3	14.3'	14°37.3	-13.2'	55.3'	102° 18.5	93°06.6	56°24.4		34°31.2	39°24.9	74°40.1	78°09.0
5	93°32.6	14.4'	$14^{\circ}24.1$	-13.2'	55.3'	101°47.3	92°42.0	55°53.2		35°02.3	39°55.6	75°10.9	78°39.6
6	108°06.0	14.5'	$N14^{\circ}10.8$	-13.3'	55.3'	101°16.2	92°17.5	55°22.1		35°33.3	40°26.2	75°41.5	79°10.2
7	122°39.5	14.6'	13°57.5	-13.3'	55.3'	100°45.1	91°52.9	54°51.0		36°04.4	40°56.8	76°12.2	79°40.7
8	137°13.1	14.6'	13°44.2	-13.4'	55.3'	100°14.0	91°28.4	54°19.9		36°35.4	41°27.4	76°42.9	80°11.3
9	151°46.7	14.7'	13°30.8	-13.4'	55.2'	99°43.0	91°03.9	53°48.9		37°06.4	41°58.0	77° 13.5	80°41.8
10	166°20.4	14.8'	13°17.4	-13.5'	55.2'	99°11.9	90°39.4	53°17.8		37°37.4	42°28.6	77°44.1	81°12.3
11	180°54.1	14.8'	13°03.9	-13.5'	55.2'	98°40.9	90°14.9	52°46.8		38°08.4	42°59.1	78° 14.7	81°42.8
12	195°28.0	14.9'	$N12^{\circ}50.4$	-13.6'	55.2'	98°09.9	89°50.4	52°15.8		38°39.4	43°29.7	78°45.3	82°13.3
13	210°01.9	15.0'	12°36.8	-13.6'	55.2'	97°38.9	89°25.9	51°44.8		39°10.3	44°00.2	79° 15.9	82°43.7
14	224°35.8	15.0'	12°23.2	-13.7'	55.1'	97°07.9	89°01.5	51°13.8		39°41.2	44°30.7	79°46.4	83°14.2
15	239°09.9	15.1'	$12^{\circ}09.5$	-13.7'	55.1'	96°37.0	88°37.1	50°42.9		40°12.1	45°01.2	80°17.0	83°44.6
16	253°44.0	15.2'	$11^{\circ}55.9$	-13.7'	55.1'	96°06.0	88°12.6	50°11.9		40°43.0	45°31.6	80°47.5	84°15.0
17	268°18.1	15.2'	11°42.1	-13.8'	55.1'	95°35.1	87°48.2	49°41.0	4°45.5	41°13.9	46°02.1	81°18.0	84°45.4
18	282°52.3	15.3'	N11°28.3	-13.8'	55.1'	95°04.2	87°23.9	49°10.1	5°13.9	41°44.8	46°32.5	81°48.5	85° 15.8
19	297°26.6	15.3'	$11^{\circ}14.5$	-13.8'	55.1'	94°33.3	86°59.5	48°39.2	5°42.7	42°15.6	47°02.9	82°18.9	85°46.2
20	312°01.0	15.4'	$11^{\circ}00.7$	-13.9'	55.1'	94°02.4	86°35.1	48°08.4	6°11.9	42°46.5	47°33.3	82°49.4	86° 16.5
21	326°35.4	15.5'	10°46.8	-13.9'	55.0'	93°31.6	86°10.8	47°37.5	6°41.3	43°17.3	48°03.7	83° 19.8	86°46.9
22	341°09.8	15.5'	10°32.9	-14.0'	55.0'	93°00.8	85°46.5	47°06.7	7°10.9	43°48.1	48°34.0	83°50.2	87° 17.2
23	355°44.3	15.6'	10°18.9	-14.0'	55.0'	92°29.9	85°22.2	46°35.8	7°40.6	44°18.9	49°04.3	84°20.6	87°47.5
12 th	SD	= 15.1	Mer. pas	s. 23:18									

h		Моог	n (13 th M	ar)			Lunar Dist	ance (ob	jects wit	h largest	hourly L	D delta)	
Thu	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Mars	+Jupiter
0	10°18.9	15.6'	N 10°05.0	-14.0'	55.0'	91°59.1	84°58.0	81°09.1	46°05.0	8° 10.5	44°49.7	49°34.7	84°51.0
1	24°53.5	15.7'	09°50.9	-14.0'	55.0'	91°28.3	84°33.7	80°45.6	45°34.3	8°40.4	45°20.4	50°05.0	85°21.4
2	39°28.2	15.7'	09°36.9	-14.1'	55.0'	90°57.6	84°09.5	80°22.1	45°03.5	9° 10.4	45°51.2	50°35.3	85°51.7
3	54°03.0	15.8'	09°22.8	-14.1'	54.9'	90°26.8	83°45.3	79°58.7	44°32.7	9°40.5	46°21.9	51°05.5	86°22.1
4	68°37.8	15.8'	09°08.7	-14.1'	54.9'	89°56.1	83°21.1	79°35.3	44°02.0	10° 10.7	46°52.6	51°35.8	86°52.4
5	83°12.6	15.9'	08°54.6	-14.2'	54.9'	89°25.4	82°57.0	79°11.9	43°31.3	10°40.8	47°23.3	52°06.0	87°22.7
6	97°47.5	15.9'	N 08°40.4	-14.2'	54.9'	88°54.6	82°32.9	78°48.5	43°00.6	11°11.0	47°54.0	52°36.2	87°53.0
7	112°22.4	16.0'	08°26.2	-14.2'	54.9'	88°24.0	82°08.8	78°25.2	42°29.9	11°41.3	48°24.6	53°06.4	88°23.2
8	126°57.4	16.0'	$08^{\circ}12.0$	-14.2'	54.9'	87°53.3	81°44.7	78°02.0	41°59.2	12° 11.5	48°55.3	53°36.6	88°53.5
9	141°32.4	16.1'	07°57.8	-14.3'	54.8'	87°22.6	81°20.7	77°38.8	41°28.5	12°41.8	49°25.9	54°06.8	89°23.7
10	156°07.5	16.1'	07°43.5	-14.3'	54.8'	86°52.0	80°56.6	77°15.6	40°57.9	13° 12.1	49°56.5	54°37.0	89°53.9
11	170°42.6	16.2'	07°29.3	-14.3'	54.8'	86°21.3	80°32.7	76°52.4	40°27.3	13°42.4	50°27.1	55°07.1	90°24.1
12	185°17.8	16.2'	N07°15.0	-14.3'	54.8'	85°50.7	80°08.7	76°29.3	39°56.6	14° 12.7	50°57.7	55°37.2	90°54.3
13	199°53.0	16.3'	07°00.7	-14.3'	54.8'	85°20.1	79°44.8	76°06.2	39°26.1	14°43.0	51°28.3	56°07.3	91°24.5
14	214°28.3	16.3'	06°46.3	-14.4'	54.8'	84°49.6	79°20.9	75°43.2	38°55.5	15° 13.3	51°58.8	56°37.4	91°54.7
15	229°03.6	16.3'	06°32.0	-14.4'	54.8'	84°19.0	78°57.0	75°20.2	38°24.9	15° 43.7	52°29.3	57°07.5	92°24.8
16	243°38.9	16.4'	06°17.6	-14.4'	54.7'	83°48.4	78°33.2	74°57.3	37°54.4	16° 14.0	52°59.9	57°37.5	92°54.9
17	258°14.3	16.4'	06°03.2	-14.4'	54.7'	83°17.9	78°09.4	74°34.3	37°23.8	16°44.3	53°30.4	58°07.6	93°25.1
18	272°49.7	16.4'	N 05°48.8	-14.4'	54.7'	82°47.4	77°45.6	74°11.5	36°53.3	17° 14.6	54°00.9	58°37.6	93°55.1
19	287°25.1	16.5'	05°34.4	-14.4'	54.7'	82°16.9	77°21.9	73°48.7	36°22.8	17° 44.9	54°31.4	59°07.6	94°25.2
20	302°00.6	16.5'	05°20.0	-14.4'	54.7'	81°46.4	76°58.2	73°25.9	35°52.3	18° 15.2	55°01.8	59°37.6	94°55.3
21	316°36.1	16.5'	05°05.5	-14.5'	54.7'	81°15.9	76°34.6	73°03.2	35°21.8	18° 45.5	55°32.3	60°07.6	95°25.3
22	331°11.7	16.6'	04°51.1	-14.5'	54.7'	80°45.5	76°11.0	72°40.5	34°51.4	19° 15.8	56°02.7	60°37.5	95°55.4
23	345°47.3	16.6'	04°36.6	-14.5'	54.6'	80°15.0	75°47.4	72°17.9	34°20.9	19°46.1	56°33.1	61°07.5	96°25.4
13 th	SD	= 15.0	Mer. pas	s. 23:58									

14th

SD = 14.9'

Mer. pass. -:-

Moon (14th Mar) Lunar Distance (objects with largest hourly LD delta) Fri GHA HP -Rigil Kent. +Regulus +Pollux 11 Dec d -Altair -Antares -Spica +Mars +Jupiter 0°22.9 N04°22.1 79°44.6 75°23.9 33°50.5 20°16.4 96°55.4 0 16.6 -14.554.6 57°03.5 61°37.4 14°58.5 75°00.4 20°46.7 97°25.4 16.7 04°07.7 -14.5 54.6 79°14.2 $33^{\circ}20.1$ 57°33.9 62°07.3 1 21°16.9 21°47.2 29°34.2 $78^{\circ}43.8$ 74°36.9 32°49.7 58°04.3 62°37.2 $97^{\circ}55.4$ 2 16.7 $03^{\circ}53.2$ -14.5' 54.6 74°13.5 32°19.3 98°25.3 3 44°09.9 16.7' $03^{\circ}38.7$ -14.5' 54.6' $78^{\circ}13.4$ 58°34.7 $63^{\circ}07.1$ 77°43.0 73°50.1 31°48.9 98°55.3 4 58°45.6 16.8 03°24.2 -14.5 54.6 22°17.4 59°05.0 63°37.0 22°47.7 77°12.7 73°26.8 59°35.4 99°25 2 5 73°21.4 16.8 03°09.6 -14.5 54.6' $31^{\circ}18.6$ 64°06.8 6 $87^{\circ}57.1$ 16.8' $\text{N}02^{\circ}55.1$ -14.5' 54.6 $76^{\circ}42.3$ 73°03.5 $30^{\circ}48.2$ $23^{\circ}17.9$ $60^{\circ}05.7$ 64°36.7 99°55.1 72°40.2 72°17.0 102°32.9 02°40.6 $76^{\circ}12.0$ $30^{\circ}17.9$ 23°48.1 $60^{\circ}36.0$ $65^{\circ}06.5$ 100°25.0 16.8' -14.5' 54.5' 29°47.6 100°54.9 8 $117^{\circ}08.8$ 16.8' $02^{\circ}26.1$ -14.5' 54.5 $75^{\circ}41.7$ $24^{\circ}18.3$ $61^{\circ}06.3$ $65^{\circ}36.3$ 71°53.9 71°30.8 131°44.6 61°36.6 02°11.6 24°48 5 75°11.4 $29^{\circ}17.3$ 66°06.1 101°24.8 9 16.9 -14.5 54.5 74°41.1 25°18.7 146°20.5 01°57.0 28°47.0 62°06.8 66°35.9 101°54.6 10 16.9 -14.554.5 160°56.4 74°10.8 71°07.7 28°16.7 25°48.9 62°37.1 67°05.6 16.9 $01^{\circ}42.5$ 102°24.5 11 -14.5 54.5 70°44.7 $175^{\circ}32.3$ 67°35.4 102°54.3 12 16.9' $\text{N}01^{\circ}28.0$ -14.5' 54.5' $73^{\circ}40.5$ $27^{\circ}46.5$ $26^{\circ}19.1$ $63^{\circ}07.3$ 190°08.2 70°21.7 27°16.2 26°49 2 68°05.1 103°24.1 13 16.9' 01°135 -14.5 54.5 73°10.3 63°37.5 204°44.1 119°42 5 72°40.1 69°58 8 27°194 26°46.0 64°078 68°348 103°53.9 14 17.0 $00^{\circ}59.0$ -14.5 54 5 26°15.8 25°45.6 27°49.5 219°20.1 00°44.4 119°19.2 72°09.8 69°36.0 64°38.0 69°04.5 -14.5 54.4 104°23.7 15 17.0 233°56.1 00°29.9 118°55.8 71°39.6 69°13.2 28°19.6 65°08.1 69°34.2 104°53.4 17.0 -14.5' 54.4 16 17 $248^{\circ}32.1$ 17.0 $00^{\circ}15.4$ -14.5' 54.4 $118^{\circ}32.4$ $71^{\circ}09.5$ 68°50.4 $25^{\circ}15.4$ $28^{\circ}49.8$ $65^{\circ}38.3$ $70^{\circ}03.9$ $105^{\circ}23.2$ 29°19.9 118°08 9 68°27.7 24°45.2 $66^{\circ}08.5$ 70°33.6 105°52 9 263°08 1 N00°00 9 70°393 18 17.0' -14 5' 54 4 70°09.1 68°05.1 24°15.0 29°50.0 66°38.6 106°22.7 277°44.1 S00°13.6 -14.5 117°45.4 71°03.2 19 17.0' 54.4 292°20.1 00°28.1 117°21.9 67°42.5 23°44.9 30°20.0 71°32.9 106°52.4 -14.5 54.4 69°39.0 67°08.8 20 17.0 21 $306^{\circ}56.1$ 17.0 $00^{\circ}42.6$ -14.5' 54.4 116°58.3 69°08.8 67°20.0 23°14.7 30°50.1 67°38.9 72°02.5 $107^{\circ}22.1$ 321°32.2 17.0' 00°57.0 -14.5' 54.4 116°34.6 68°38.7 66°57.5 22°44.6 31°20.2 68°09.0 72°32.1 107°51.8 23 $336^{\circ}08.2$ 17.1' $01^{\circ}11.5$ -14.5' 54.4' $116^{\circ}10.9$ $68^{\circ}08.6$ $66^{\circ}35.1$ $22^{\circ}14.5$ $31^{\circ}50.2$ $68^{\circ}39.1$ $73^{\circ}01.7$ $108^{\circ}21.4$

h		Moor	n (15 th M	ar)			Lunar D	istance (ob	jects wit	h largest l	nourly L[O delta)	
Sat	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Mars	+Jupiter
0	350°44.3	17.1'	S 01°26.0	-14.4'	54.3'	115°47.2	67°38.5	66°12.7	21°44.4	32°20.3	69°09.2	73°31.3	108°51.1
1	5°20.3	17.1'	01°40.4	-14.4'	54.3'	115°23.5	67°08.4	65°50.5	21°14.3	32°50.3	69°39.2	74°00.8	109°20.7
2	19°56.4	17.1'	01°54.8	-14.4'	54.3'	114°59.7	66°38.3	65°28.2	20°44.3	33°20.3	70°09.3	74°30.4	109°50.4
3	34°32.4	17.1'	$02^{\circ}09.3$	-14.4'	54.3'	114°35.8	66°08.2	65°06.1	20°14.2	33°50.3	70°39.3	74°59.9	110°20.0
4	49°08.5	17.1'	02°23.7	-14.4'	54.3'	114°12.0	65°38.2	64°44.0	19°44.1	34°20.3	71°09.4	75°29.5	110°49.6
5	63°44.6	17.1'	02°38.1	-14.4'	54.3'	113°48.1	65°08.2	64°21.9	19°14.1	34°50.3	71°39.4	75°59.0	111°19.2
6	78°20.6	17.1'	S 02°52.4	-14.4'	54.3'	113°24.1	64°38.1	64°00.0	18°44.1	35°20.3	72°09.4	76°28.5	111°48.7
7	92°56.7	17.1'	03°06.8	-14.3'	54.3'	113°00.2	64°08.1	63°38.1	18°14.1	35°50.3	72°39.4	76°58.0	112°18.3
8	107°32.8	17.1'	03°21.1	-14.3'	54.3'	112°36.2	63°38.1	63°16.2	17°44.1	36°20.2	73°09.4	77°27.4	112°47.9
9	122°08.8	17.1'	03°35.5	-14.3'	54.3'	112°12.1	63°08.1	62°54.5	17°14.1	36°50.2	73°39.4	77°56.9	113°17.4
10	136°44.9	17.1'	03°49.8	-14.3'	54.2'	111°48.1	62°38.1	62°32.8	16°44.1	37°20.1	74°09.3	78°26.4	113°46.9
11	151°21.0	17.1'	$04^{\circ}04.1$	-14.3'	54.2'	111°24.0	62°08.2	62°11.2	16°14.1	37°50.0	74°39.3	78°55.8	114°16.4
12	165°57.0	17.0'	S 04°18.3	-14.2'	54.2'	110°59.9	61°38.2	61°49.7	15°44.2	38°19.9	75°09.2	79°25.2	114°45.9
13	180°33.1	17.0'	04°32.6	-14.2'	54.2'	110°35.7	61°08.3	61°28.2	15°14.2	38°49.8	75°39.2	79°54.6	115°15.4
14	195°09.1	17.0'	04°46.8	-14.2'	54.2'	110°11.6	60°38.3	61°06.8	14°44.3	39°19.7	76°09.1	80°24.0	115°44.9
15	209°45.1	17.0'	$05^{\circ}01.0$	-14.2'	54.2'	109°47.4	60°08.4	60°45.5	14°14.4	39°49.6	76°39.0	80°53.4	116°14.3
16	224°21.1	17.0'	$05^{\circ}15.2$	-14.2'	54.2'	109°23.2	59°38.5	60°24.3	13°44.5	40°19.5	77°08.9	81°22.8	116°43.8
17	238°57.1	17.0'	05°29.4	-14.1'	54.2'	108°59.0	59°08.6	60°03.1	13°14.6	40°49.4	77°38.8	81°52.2	117°13.2
18	253°33.1	17.0'	S 05°43.5	-14.1'	54.2'	108°34.7	58° 38.7	59°42.1	12°44.7	41°19.2	78°08.7	82°21.5	117°42.6
19	268°09.1	17.0'	05°57.6	-14.1'	54.2'	108°10.4	58°08.8	59°21.1	12°14.8	41°49.1	78°38.5	82°50.9	118°12.1
20	282°45.1	17.0'	$06^{\circ}11.7$	-14.1'	54.2'	107°46.1	57°38.9	59°00.2	11°45.0	42°18.9	79°08.4	83°20.2	118°41.5
21	297°21.0	16.9'	$06^{\circ}25.7$	-14.0'	54.2'	107°21.8	57°09.1	58°39.4	11°15.1	42°48.7	79°38.2	83°49.5	119°10.8
22	311°57.0	16.9'	06°39.8	-14.0'	54.1'	106°57.5	56°39.2	58°18.7	10°45.3	43°18.5	80°08.1	84°18.9	119°40.2
23	326°32.9	16.9'	06°53.8	-14.0'	54.1'	106°33.1	56°09.4	57°58.1	10°15.5	43°48.3	80°37.9	84°48.2	
15 th	SD	= 14.8'	Mer. pas	s. 00:38									

h	Moon (16 th Mar)						Lunar Distance (objects with largest hourly LD delta)						
Sun	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	-Spica	+Regulus	+Pollux	+Mars	+Capella
0	341°08.8	16.9'	S 07°07.8	-13.9'	54.1'	106°08.7	57° 37.5	55°39.5	9°45.6	44°18.1	81°07.7	85°17.4	111°02.7
1	355°44.7	16.9'	$07^{\circ}21.7$	-13.9'	54.1'	105°44.4	57° 17.1	55°09.7	9°15.8	44°47.9	81°37.5	85°46.7	111°30.9
2	10°20.6	16.8'	07°35.6	-13.9'	54.1'	105°19.9	56°56.8	54°39.9	8°46.0	45° 17.7	82°07.3	86°16.0	111°59.1
3	24°56.4	16.8'	07°49.5	-13.8'	54.1'	104°55.5	56° 36.5	54°10.1	8°16.3	45°47.5	82°37.1	86°45.3	112°27.3
4	39°32.2	16.8'	08°03.3	-13.8'	54.1'	104°31.1	56° 16.4	53°40.3	7°46.5	46° 17.2	83°06.9	87° 14.5	112°55.4
5	54°08.0	16.8'	$08^{\circ}17.2$	-13.8'	54.1'	104°06.6	55° 56.3	53°10.5	7°16.7	46°47.0	83°36.6	87°43.7	113°23.5
6	68°43.8	16.8'	S 08°30.9	-13.7'	54.1'	103°42.2	55°36.4	52°40.7	6°47.0	47° 16.7	84°06.4	88°13.0	113°51.7
7	83°19.6	16.7'	08°44.7	-13.7'	54.1'	103°17.7	55° 16.5	52°11.0	6°17.3	47°46.5	84°36.2	88°42.2	114°19.7
8	97°55.3	16.7'	08°58.4	-13.7'	54.1'	102°53.2	54° 56.8	51°41.2	5°47.5	48° 16.2	85°05.9	89°11.4	114°47.8
9	112°31.0	16.7'	$09^{\circ}12.1$	-13.6'	54.1'	102°28.7	54°37.1	51°11.5	5°17.8	48°45.9	85°35.6	89°40.6	115°15.9
10	127°06.7	16.7'	09°25.7	-13.6'	54.1'	102°04.2	54° 17.6	50°41.7	4°48.2	49° 15.6	86°05.4	90°09.8	115°43.9
11	141°42.4	16.6'	09°39.3	-13.6'	54.1'	101°39.7	53°58.2	50°12.0	4°18.5	49°45.3	86°35.1	90°39.0	116°11.9
12	156°18.0	16.6'	S 09°52.9	-13.5'	54.1'	101°15.1	53°38.9	49°42.3	3°48.9	50° 15.0	87°04.8	91°08.2	116°39.9
13	170°53.6	16.6'	10°06.4	-13.5'	54.1'	100°50.6	53° 19.7	49°12.6	3°19.3	50°44.7	87°34.5	91°37.3	117°07.8
14	185°29.1	16.5'	$10^{\circ}19.9$	-13.4'	54.0'	100°26.0	53°00.7	48°42.8	2°49.8	51°14.4	88°04.2	92°06.5	117°35.8
15	200°04.7	16.5'	10°33.3	-13.4'	54.0'	100°01.5	52°41.7	48°13.1	2°20.3	51°44.1	88°33.9	92°35.6	118°03.7
16	214°40.2	16.5'	10°46.7	-13.4'	54.0'	99°36.9	52°22.9	47°43.5	1°51.0	52° 13.8	89°03.5	93°04.8	118°31.6
17	229°15.6	16.4'	$11^{\circ}00.1$	-13.3'	54.0'	99°12.3	52°04.2	47°13.8	1°22.0	52°43.4	89°33.2	93°33.9	118°59.4
18	243°51.1	16.4'	S 11°13.4	-13.3'	54.0'	98°47.7	51°45.6	46°44.1	0°53.7	53° 13.1	90°02.9	94°03.0	119°27.3
19	258°26.5	16.4'	11°26.7	-13.2'	54.0'	98°23.1	51°27.1	46°14.4		53°42.7	90°32.5	94°32.1	119°55.1
20	273°01.8	16.3'	11°39.9	-13.2'	54.0'	97°58.6	51°08.8	45°44.7		54°12.4	91°02.2	95°01.2	
21	287°37.1	16.3'	$11^{\circ}53.1$	-13.1'	54.0'	97°33.9	50° 50.6	45°15.1		54°42.0	91°31.8	95°30.3	
22	302°12.4	16.2'	$12^{\circ}06.2$	-13.1'	54.0'	97°09.3	50°32.6	44°45.4		55°11.6	92°01.5	95°59.4	
23	316°47.7	16.2'	$12^{\circ}19.3$	-13.0'	54.0'	96°44.7	50° 14.7	44°15.8		55°41.3	92°31.1	96°28.5	
16 th	SD	= 14.8	Mer. pas	s. 01:17							•		

Moon (17th Mar) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Regulus	+Pollux	+Mars
0	331°22.9	16.2'	S 12°32.4	-13.0'	54.0'		96°20.1	49°56.9	43°46.2	2°09.7	56°10.9	93°00.7	96°57.6
1	345°58.0	16.1'	12°45.4	-12.9'	54.0'		95°55.5	49°39.3	43°16.5	2°39.0	56°40.5	93°30.4	97°26.7
2	0°33.2	16.1'	12°58.3	-12.9'	54.0'		95°30.9	49°21.8	42°46.9	3°08.5	57°10.1	94°00.0	97°55.7
3	15°08.3	16.0'	13°11.2	-12.8'	54.0'		95°06.2	49°04.4	42°17.3	3°38.0	57°39.7	94°29.6	98°24.8
4	29°43.3	16.0'	13°24.1	-12.8'	54.0'		94°41.6	48°47.2	41°47.6	4°07.5	58°09.3	94°59.2	98°53.8
5	44°18.3	15.9'	13°36.9	-12.7'	54.0'		94°17.0	48°30.2	41°18.0	4°37.0	58°38.9	95°28.8	99°22.9
6	58°53.2	15.9'	S 13°49.6	-12.7'	54.0'		93°52.3	48°13.3	40°48.4	5°06.5	59°08.5	95°58.4	99°51.9
7	73°28.1	15.9'	14°02.3	-12.6'	54.0'		93°27.7	47°56.5	40°18.8	5°36.1	59°38.1	96°28.0	100°21.0
8	88°03.0	15.8'	14°14.9	-12.6'	54.0'		93°03.1	47°40.0	39°49.2	6°05.6	60°07.6	96°57.6	100°50.0
9	102°37.8	15.8'	14°27.5	-12.5'	54.0'	119°42.0	92°38.4	47°23.6	39°19.6	6°35.2	60°37.2	97°27.1	101°19.0
10	$117^{\circ}12.6$	15.7'	14°40.0	-12.5'	54.0'	119°14.5	92°13.8	47°07.3	38°50.0	7°04.7	61°06.8	97°56.7	101°48.0
11	131°47.3	15.7'	$14^{\circ}52.5$	-12.4'	54.0'	118°47.1	91°49.1	46°51.2	38°20.5	7°34.3	61°36.3	98°26.3	102°17.0
12	146°21.9	15.6'	S 15°04.9	-12.4'	54.0'	118°19.6	91°24.5	46°35.3	37°50.9	8°03.9	62°05.9	98°55.8	102°46.1
13	160°56.6	15.6'	15°17.3	-12.3'	54.0'	117°52.1	90°59.9	46°19.6	37°21.3	8°33.4	62°35.5	99°25.4	103°15.1
14	175°31.1	15.5'	15°29.5	-12.2'	54.0'	117°24.6	90°35.2	46°04.0	36°51.7	9°03.0	63°05.0	99°55.0	103°44.1
15	190°05.6	15.5'	15°41.8	-12.2'	54.0'	116°57.1	90°10.6	45°48.7	36°22.1	9°32.5	63°34.6	100°24.5	104°13.1
16	204°40.1	15.4'	15°54.0	-12.1'	54.0'	116°29.5	89°46.0	45°33.5	35°52.6	10°02.1	64°04.1	100°54.1	104°42.0
17	219°14.5	15.3'	$16^{\circ}06.1$	-12.0'	54.0'	116°02.0	89°21.3	45°18.5	35°23.0	10°31.6	64°33.7	101°23.6	105°11.0
18	233°48.8	15.3'	S 16°18.1	-12.0'	54.0'	115°34.4	88°56.7		34°53.4	11°01.2	65°03.2	101°53.2	105°40.0
19	248°23.1	15.2'	$16^{\circ}30.1$	-11.9'	54.0'	115°06.8	88°32.1		34°23.9	11°30.7	65°32.8	102°22.7	106°09.0
20	262°57.4	15.2'	16°42.0	-11.9'	54.0'	114°39.2	88°07.5		33°54.3	12°00.3	66°02.3	102°52.3	106°38.0
21	277°31.5	15.1'	$16^{\circ}53.9$	-11.8'	54.0'	114°11.6	87°42.9		33°24.8	12°29.8	66°31.8	103°21.8	107°07.0
22	292°05.7	15.1'	$17^{\circ}05.7$	-11.7'	54.0'	113°44.0	87°18.3		32°55.2	12°59.4	67°01.4	103°51.4	107°35.9
23	306°39.7	15.0'	17°17.4	-11.7'	54.0'	113°16.3	86°53.7		32°25.7	13°28.9	67°30.9	104°20.9	108°04.9
17 th	SD	= 14.7	Mer. pas	s. 01:58									

h Moon (18 th Mar)	Lunar Distance (objects with largest hourly LD delta)
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Tue	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	+Spica	+Regulus	+Procyon	+Pollux	+Mars
0	321°13.7	14.9'	S 17°29.1	-11.6'	54.0'	112°48.7	86°29.1	31°56.1	13°58.5	68°00.5	100°31.0	104°50.4	108°33.9
1	335°47.7	14.9'	17°40.6	-11.5'	54.0'	112°21.0	86°04.5	31°26.6	14°28.0	68°30.0	100°58.6	105°20.0	109°02.8
2	350°21.6	14.8'	$17^{\circ}52.2$	-11.5'	54.0'	111°53.3	85°39.9	30°57.0	14°57.6	68°59.5	101°26.2	105°49.5	109°31.8
3	4°55.4	14.8'	$18^{\circ}03.6$	-11.4'	54.0'	111°25.7	85°15.3	30°27.5	15°27.1	69°29.1	101°53.8	$106^{\circ}19.1$	110°00.8
4	19°29.1	14.7'	$18^{\circ}15.0$	-11.3'	54.0'	110°58.0	84°50.7	29°57.9	15°56.7	69°58.6	102°21.3	106°48.6	110°29.7
5	34°02.8	14.6'	18°26.3	-11.2'	54.0'	110°30.3	84°26.1	29°28.4	16°26.2	70°28.1	102°48.9	$107^{\circ}18.1$	110°58.7
6	48°36.5	14.6'	S 18°37.5	-11.2'	54.0'	110°02.5	84°01.6	28°58.8	16°55.8	70°57.7	103°16.4	107°47.7	111°27.7
7	63°10.0	14.5'	18°48.7	-11.1'	54.0'	109°34.8	83°37.0	28°29.3	17°25.3	71°27.2	103°44.0	108° 17.2	111°56.6
8	77°43.5	14.4'	$18^{\circ}59.8$	-11.0'	54.0'	109°07.1	83°12.5	27°59.7	17°54.9	71°56.7	104°11.5	108°46.7	112°25.6
9	92°17.0	14.4'	$19^{\circ}10.8$	-10.9'	54.0'	108°39.3	82°48.0	27°30.2	18°24.4	72°26.3	104°39.1	109° 16.3	112°54.5
10	106°50.4	14.3'	19°21.8	-10.9'	54.0'	108°11.5	82°23.4	27°00.6	18°54.0	72°55.8	105°06.6	109°45.8	113°23.5
11	121°23.7	14.2'	19°32.6	-10.8'	54.0'	107°43.8	81°58.9	26°31.1	19°23.5	73°25.4	105°34.1	110° 15.3	113°52.5
12	135°56.9	14.2'	S 19°43.4	-10.7'	54.0'	107°16.0	81°34.4	26°01.5	19°53.1	73°54.9	106°01.6	110°44.9	114°21.4
13	150°30.1	14.1'	$19^{\circ}54.1$	-10.6'	54.0'	106°48.2	81°09.9	25°31.9	20°22.6	74°24.4	106°29.1	111° 14.4	114°50.4
14	165°03.2	14.0'	20°04.7	-10.5'	54.0'	106°20.4	80°45.4	25°02.4	20°52.2	74°54.0	106°56.6	111°44.0	115°19.3
15	179°36.2	14.0'	20° 15.3	-10.5'	54.0'	105°52.5	80°20.9	24°32.8	21°21.8	75°23.5	107°24.1	112° 13.5	115°48.3
16	194°09.2	13.9'	20°25.8	-10.4'	54.0'	105°24.7	79°56.5	24°03.3	21°51.3	75°53.1	107°51.5	112°43.1	116°17.3
17	208°42.1	13.8'	$20^{\circ}36.1$	-10.3'	54.0'	104°56.9	79°32.0	23°33.7	22°20.9	76°22.6	108°19.0	113° 12.6	116°46.2
18	223°14.9	13.8'	S 20°46.4	-10.2'	54.0'	104°29.0	79°07.6	23°04.1	22°50.5	76°52.2	108°46.4	113°42.2	117°15.2
19	237°47.7	13.7'	$20^{\circ}56.7$	-10.1'	54.1'	104°01.1	78°43.2	22°34.5	23°20.1	77°21.8	109°13.9	114° 11.7	117°44.2
20	252°20.4	13.6'	$21^{\circ}06.8$	-10.0'	54.1'	103°33.3	78°18.7	22°05.0	23°49.6	77°51.3	109°41.3	114°41.3	118°13.2
21	266°53.0	13.5'	$21^{\circ}16.8$	-10.0'	54.1'	103°05.4	77°54.3	21°35.4	24°19.2	78°20.9	110°08.8	115° 10.9	118°42.1
22	281°25.5	13.5'	$21^{\circ}26.8$	-9.9'	54.1'	102°37.5	77°29.9	21°05.8	24°48.8	78°50.5	110°36.2	115°40.5	119°11.1
23	295°58.0	13.4'	21°36.7	-9.8'	54.1'	102°09.6	77°05.6	20°36.2	25°18.4	79°20.1	111°03.6	116° 10.0	119°40.1
18 th	SD	= 14.7'	Mer. pas	s. 02:40									

h Moon (1	19 th Mar)	Lunar Distance (objects with lar	gest hourly LD delta)
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Wed	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	310°30.4	13.3'	S 21°46.5	-9.7'	54.1'		101°41.7	76°41.2	20°06.6	25°48.0	79°49.6	111°31.0	116°39.6
1	325°02.7	13.2'	21°56.2	-9.6'	54.1'		101° 13.7	76°16.9	19°37.0	26° 17.6	80°19.2	111°58.4	117°09.2
2	339°35.0	13.2'	22°05.8	-9.5'	54.1'		100°45.8	75°52.5	19°07.4	26°47.2	80°48.8	112°25.8	117°38.8
3	354°07.1	13.1'	22°15.3	-9.4'	54.1'		100° 17.8	75°28.2	18°37.8	27°16.8	81°18.4	112°53.1	118°08.4
4	8°39.3	13.0'	22°24.7	-9.3'	54.1'		99°49.9	75°03.9	18°08.2	27°46.5	81°48.0	113°20.5	118°38.0
5	23°11.3	13.0'	22°34.1	-9.2'	54.1'		99°21.9	74°39.7	17°38.6	28°16.1	82°17.6	113°47.8	119°07.6
6	37°43.2	12.9'	S 22°43.3	-9.1'	54.1'		98°53.9	74°15.4	17°09.0	28°45.7	82°47.3	114°15.2	119° 37.2
7	52°15.1	12.8'	22°52.4	-9.0'	54.1'		98° 25.9	73°51.2	16°39.3	29° 15.4	83°16.9	114°42.5	
8	66°46.9	12.7'	23°01.5	-9.0'	54.2'		97° 57.9	73°26.9	16°09.7	29°45.0	83°46.5	115°09.8	
9	81°18.6	12.6'	23°10.4	-8.9'	54.2'		97°29.9	73°02.7	15°40.0	30°14.7	84°16.2	115°37.1	
10	95°50.3	12.6'	23°19.3	-8.8'	54.2'		97°01.9	72°38.5	15° 10.4	30°44.3	84°45.8	116°04.4	
11	110°21.8	12.5'	23°28.0	-8.7'	54.2'		96°33.8	72°14.4	14°40.7	31°14.0	85°15.5	116°31.7	
12	124°53.3	12.4'	S 23°36.7	-8.6'	54.2'		96°05.8	71°50.2	14° 11.1	31°43.7	85°45.1	116°59.0	
13	139°24.8	12.3'	23°45.3	-8.5'	54.2'		95°37.7	71°26.1	13°41.4	32°13.4	86°14.8	117°26.2	
14	153°56.1	12.3'	23°53.7	-8.4'	54.2'		95°09.7	71°02.0	13° 11.7	32°43.1	86°44.5	117°53.5	
15	168°27.4	12.2'	24°02.1	-8.3'	54.2'		94°41.6	70°37.9	12°42.0	33°12.8	87°14.2	118°20.7	
16	182°58.5	12.1'	24°10.3	-8.1'	54.2'		94° 13.5	70°13.9	12°12.3	33°42.5	87°43.9	118°47.9	
17	197°29.7	12.0'	24°18.5	-8.0'	54.2'		93°45.4	69°49.9	11°42.6	34°12.2	88°13.6	119°15.1	
18	212°00.7	12.0'	S 24°26.5	-7.9'	54.3'		93° 17.3	69°25.9	11° 12.9	34°42.0	88°43.3	119°42.3	
19	226°31.6	11.9'	24°34.4	-7.8'	54.3'	119°56.8	92°49.1	69°01.9	10°43.2	35°11.7	89°13.1		
20	241°02.5	11.8'	24°42.3	-7.7'	54.3'	119°29.5	92°21.0	68°37.9	10° 13.5	35°41.5	89°42.8		
21	255°33.3	11.7'	24°50.0	-7.6'	54.3'	119°02.2	91°52.8	68°14.0	9°43.7	36°11.2	90°12.6		
22	270°04.0	11.6'	24°57.6	-7.5'	54.3'	118°34.9	91°24.7	67°50.1	9°14.0	36°41.0	90°42.3		
23	284°34.7	11.6'	25°05.1	-7.4'	54.3'	118°07.6	90° 56.5	67°26.2	8°44.2	37°10.8	91°12.1		
19 th	SD	= 14.8'	Mer. pass	. 03:24					Sun SD	= 16.1'			

h		Moon	(20 th Ma	ar)	Lunar Distance (objects with largest hourly I							O delta)		
Thu	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	± Antares	+Spica	+Arcturus	+Reg		
										I		I		

Thu	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	± Antares	+Spica	+Arcturus	+Regulus
0	299°05.2	11.5'	S 25°12.5	-7.3'	54.3'	117°40.3	90°28.3	67°02.4	8°14.5	37°40.6	50° 15.5	91°41.9
1	313°35.7	11.4'	$25^{\circ}19.8$	-7.2'	54.3'	117°12.9	90°00.1	66°38.6	7°44.7	38° 10.4	50°36.6	92°11.7
2	328°06.1	11.3'	25°27.0	-7.1'	54.4'	116°45.6	89°31.9	66°14.8	7°14.9	38°40.3	50° 57.8	92°41.5
3	342°36.5	11.3'	25°34.0	-6.9'	54.4'	116°18.2	89°03.7	65°51.0	6°45.2	39° 10.1	51° 19.1	93°11.3
4	357°06.7	11.2'	25°41.0	-6.8'	54.4'	115°50.8	88°35.4	65°27.3	6°15.4	39°40.0	51°40.6	93°41.2
5	11°36.9	11.1'	25° 47.8	-6.7'	54.4'	115°23.4	88°07.2	65°03.6	5°45.6	40°09.8	52°02.1	94°11.0
6	26°07.0	11.0'	S 25°54.5	-6.6'	54.4'	114°56.0	87°38.9	64°40.0	5°15.8	40°39.7	52°23.8	94°40.9
7	40°37.0	10.9'	$26^{\circ}01.1$	-6.5'	54.4'	114°28.6	87°10.7	64°16.4	4°46.1	41°09.6	52°45.5	95°10.8
8	55°07.0	10.9'	$26^{\circ}07.6$	-6.4'	54.4'	114°01.1	86°42.4	63°52.8	4°16.3	41°39.5	53°07.4	95°40.7
9	69°36.9	10.8'	$26^{\circ}13.9$	-6.2'	54.5'	113°33.7	86°14.1	63°29.2	3°46.6	42°09.5	53°29.3	96°10.6
10	84°06.7	10.7'	26°20.2	-6.1'	54.5'	113°06.2	85°45.8	63°05.7	3°16.9	42°39.4	53°51.4	96°40.5
11	98°36.4	10.6'	$26^{\circ}26.3$	-6.0'	54.5'	112°38.7	85°17.5	62°42.3	2°47.4	43°09.4	54°13.5	97°10.5
12	113°06.0	10.6'	S 26°32.3	-5.9'	54.5'	112°11.2	84°49.1	62°18.8	2°17.9	43°39.4	54°35.8	97°40.4
13	127°35.6	10.5'	26°38.2	-5.8'	54.5'	111°43.7	84°20.8	61°55.4	1°48.8	44°09.3	54°58.1	98°10.4
14	142°05.1	10.4'	26°43.9	-5.6'	54.5'	111°16.1	83°52.4	61°32.1	1°20.3	44°39.4	55°20.6	98°40.4
15	156°34.5	10.4'	26° 49.5	-5.5'	54.6'	110°48.6	83°24.0	61°08.8		45°09.4	55°43.1	99°10.4
16	171°03.9	10.3'	26°55.0	-5.4'	54.6'	110°21.0	82°55.7	60°45.5		45°39.4	56°05.7	99°40.4
17	185°33.2	10.2'	$27^{\circ}00.4$	-5.3'	54.6'	109°53.4	82°27.3	60°22.3		46°09.5	56°28.5	100°10.5
18	200°02.4	10.1'	S 27°05.7	-5.1'	54.6'	109°25.8	81°58.8	59°59.1		46°39.6	56°51.3	100°40.5
19	214°31.5	10.1'	$27^{\circ}10.8$	-5.0'	54.6'	108°58.2	81°30.4	59°36.0		47°09.7	57° 14.2	101°10.6
20	229°00.6	10.0'	$27^{\circ}15.8$	-4.9'	54.7'	108°30.6	81°02.0	59°13.0		47°39.8	57°37.1	101°40.7
21	243°29.6	9.9'	$27^{\circ}20.7$	-4.7'	54.7'	108°02.9	80°33.5	58°49.9	2°18.7	48°09.9	58°00.2	102°10.8
22	257°58.5	9.9'	$27^{\circ}25.4$	-4.6'	54.7'	107°35.2	80°05.0	58°27.0	2°48.3	48°40.1	58°23.3	102°41.0
23	272°27.3	9.8'	27°30.0	-4.5'	54.7'	107°07.5	79°36.6	58°04.1	3°18.1	49° 10.2	58°46.6	103°11.1
20 th	SD	= 14.8'	Mer. pass	. 04:12		$Sun\;SD=16.1'$						

h Moon (21st Mar) Lunar Distance (objects with largest hourly LD delta)

		111001	1 (21 101	ui)		Edital Distance (Objects With largest floarly ED defta)							
Fri	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Regulus
0	286° 56.1	9.7'	S 27°34.5	-4.3'	54.7'	106°39.8	79°08.1	57°41.2	3°48.0		49°40.4	59°09.9	103°41.3
1	301°24.8	9.7'	27°38.8	-4.2'	54.7'	106°12.0	78°39.6	57°18.4	4° 18.0		50°10.7	59°33.2	104°11.5
2	315°53.5	9.6'	27°43.0	-4.1'	54.8'	105°44.3	78°11.0	56°55.7	4°48.1		50°40.9	59°56.7	104°41.7
3	330°22.1	9.5'	$27^{\circ}47.1$	-3.9'	54.8'	105°16.5	77°42.5	56°33.0	5°18.2		51°11.1	60°20.2	105°12.0
4	344°50.6	9.5'	$27^{\circ}51.0$	-3.8'	54.8'	104°48.7	77°14.0	56°10.4	5°48.4		51°41.4	60°43.9	105°42.2
5	359°19.0	9.4'	27°54.8	-3.7'	54.8'	104°20.8	76°45.4	55°47.8	6°18.6		52°11.7	61°07.6	106°12.5
6	13°47.4	9.3'	S 27°58.5	-3.5'	54.9'	103°53.0	76°16.8	55°25.3	6°48.8		52°42.0	61°31.3	106°42.8
7	28° 15.8	9.3'	28°02.0	-3.4'	54.9'	103°25.1	75°48.2	55°02.9	7° 19.1		53°12.4	61°55.2	107°13.1
8	42°44.0	9.2'	28°05.4	-3.2'	54.9'	102°57.2	75°19.6	54°40.5	7°49.4		53°42.8	62°19.1	107°43.5
9	57° 12.2	9.1'	28°08.6	-3.1'	54.9'	102°29.3	74°51.0	54°18.2	8° 19.8		54°13.2	62°43.1	108°13.9
10	71°40.4	9.1'	$28^{\circ}11.8$	-3.0'	54.9'	102°01.4	74°22.4	53°56.0	8°50.1		54°43.6	63°07.1	108°44.3
11	86°08.5	9.0'	28°14.7	-2.8'	55.0'	101°33.4	73°53.7	53°33.9	9°20.5		55°14.0	63°31.2	109°14.7
12	100°36.5	9.0'	S 28°17.5	-2.7'	55.0'	101°05.4	73°25.1	53°11.8	9°51.0		55°44.5	63°55.4	109°45.1
13	115°04.4	8.9'	28°20.2	-2.5'	55.0'	100°37.4	72°56.4	52°49.8	10°21.4		56°15.0	64°19.7	110°15.6
14	129°32.4	8.9'	28°22.8	-2.4'	55.0'	100°09.3	72°27.7	52°27.9	10°51.9		56°45.5	64°44.0	110°46.1
15	144°00.2	8.8'	28°25.2	-2.3'	55.1'	99°41.3	71°59.0	52°06.1	11°22.4		57°16.0	65°08.4	111°16.6
16	158°28.0	8.7'	28°27.4	-2.1'	55.1'	99°13.2	71°30.3	51°44.4	11°52.9		57°46.6	65°32.9	111°47.2
17	172°55.8	8.7'	28°29.5	-2.0'	55.1'	98°45.1	71°01.6	51°22.7	12°23.5		58°17.2	65°57.4	112°17.7
18	187°23.4	8.6'	S 28°31.5	-1.8'	55.1'	98°16.9	70°32.8	51°01.1	12°54.1		58°47.8	66°22.0	112°48.3
19	201°51.1	8.6'	28°33.3	-1.7'	55.2'	97°48.8	70°04.1	50°39.7	13°24.7		59°18.4	66°46.7	113°18.9
20	216° 18.7	8.5'	28°35.0	-1.5'	55.2'	97°20.6	69°35.3	50°18.3	13°55.4		59°49.1	67°11.4	113°49.6
21	230°46.2	8.5'	28°36.5	-1.4'	55.2'	96°52.3	69°06.5	49°57.0	14°26.1	47°08.1	60°19.8	67°36.2	114°20.3
22	245° 13.7	8.4'	28°37.9	-1.2'	55.2'	96°24.1	68°37.7	49°35.9	14°56.8	47°23.3	60°50.5	68°01.0	114°51.0
23	259°41.2	8.4'	28°39.1	-1.1'	55.3'	95°55.8	68°08.9	49°14.8	15°27.5	47°38.8	61°21.3	68°25.9	115°21.7
21 st	SD	= 14.9'	Mer. pas	s. 05:03	3			Sun S	D = 16.1' at	0h: 16.0' a	at 23h		

h	Moon (22 nd Mar)	Lunar Distance (objects with largest hourly LD delta)
11	IVIOOH IZZ IVIALI	Timar instance toblects with largest hours it is deliate

Sat	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Regulus
0	274°08.6	8.4'	S 28°40.2	-0.9'	55.3'	95°27.5	67°40.1	48°53.9	15°58.3	47°54.4	61°52.0	68°50.9	115°52.5
1	288°35.9	8.3'	28°41.1	-0.8'	55.3'	94°59.1	67°11.2	48°33.0	16°29.1	48°10.2	62°22.9	69°15.9	116°23.3
2	303°03.3	8.3'	28°41.9	-0.6'	55.3'	94°30.8	66°42.4	48°12.3	16°59.9	48°26.2	62°53.7	69°41.0	116°54.1
3	317°30.5	8.2'	28°42.5	-0.5'	55.4'	94°02.4	66°13.5	47°51.7	17° 30.7	48°42.4	63°24.6	70°06.1	117°24.9
4	331°57.8	8.2'	28°43.0	-0.3'	55.4'	93°33.9	65°44.6	47°31.2	18°01.6	48°58.9	63°55.5	70°31.3	117°55.8
5	346°25.0	8.2'	28°43.3	-0.2'	55.4'	93°05.5	65°15.7	47°10.8	18° 32.6	49°15.4	64°26.4	70°56.6	118°26.7
6	0°52.1	8.1'	S 28°43.5	-0.0'	55.4'	92°37.0	64°46.8	46°50.5	19°03.5	49°32.2	64°57.4	71°21.9	118°57.7
7	15°19.2	8.1'	28°43.5	0.1'	55.5'	92°08.5	64°17.9	46°30.4	19°34.5	49°49.2	65°28.4	71°47.3	119°28.6
8	29°46.3	8.1'	28°43.4	0.3'	55.5'	91°39.9	63°49.0	46°10.4	20°05.5	50°06.3	65°59.4	72°12.7	119°59.6
9	44°13.4	8.0'	28°43.1	0.4'	55.5'	91°11.3	63°20.1	45°50.6	20°36.5	50°23.7	66°30.4	72°38.2	
10	58°40.4	8.0'	28°42.7	0.6'	55.6'	90°42.7	62°51.1	45°30.9	21°07.6	50°41.2	67°01.5	73°03.7	
11	73°07.4	8.0'	28°42.1	0.8'	55.6'	90°14.1	62°22.2	45°11.3	21°38.7	50°58.8	67°32.6	73°29.3	
12	87°34.3	7.9'	S 28°41.3	0.9'	55.6'	89°45.4	61°53.2	44°51.9	22°09.9	51°16.7	68°03.8	73°54.9	
13	102°01.3	7.9'	28°40.4	1.1'	55.6'	89°16.7	61°24.2	44°32.7	22°41.1	51°34.7	68°35.0	74°20.6	
14	116°28.2	7.9'	28°39.3	1.2'	55.7'	88°47.9	60°55.2	44°13.6	23°12.3	51°52.9	69°06.2	74°46.4	
15	130°55.1	7.9'	28°38.1	1.4'	55.7'	88°19.1	60°26.2	43°54.6	23°43.5	52°11.3	69°37.4	75°12.2	
16	145°21.9	7.8'	28°36.8	1.5'	55.7'	87°50.3	59°57.2	43°35.9	24°14.8	52°29.8	70°08.7	75°38.1	
17	159°48.8	7.8'	28°35.2	1.7'	55.8'	87°21.5	59°28.2	43°17.3	24°46.1	52°48.5	70°40.1	76°04.0	
18	174°15.6	7.8'	S 28°33.5	1.8'	55.8'	86°52.6	58°59.2	42°58.9	25° 17.5	53°07.3	71°11.4	76°29.9	
19	188°42.4	7.8'	28°31.7	2.0'	55.8'	86°23.7	58°30.2	42°40.6	25°48.9	53°26.3	71°42.8	76°55.9	
20	203°09.1	7.8'	28°29.7	2.2'	55.9'	85°54.7	58°01.1	42°22.6	26°20.3	53°45.5	72°14.2	77°22.0	
21	217°35.9	7.7'	28°27.5	2.3'	55.9'	85°25.7	57°32.1	42°04.7	26°51.7	54°04.8	72°45.7	77°48.1	
22	232°02.6	7.7'	28°25.2	2.5'	55.9'	84°56.7	57°03.0	41°47.1	27°23.2	54°24.2	73°17.2	78°14.3	
23	246°29.3	7.7'	28°22.7	2.6'	56.0'	84°27.6	56°34.0	41°29.6	27°54.8	54°43.9	73°48.7	78°40.5	
22 nd	SD =	= 15.1'	Mer. pass	s. 05:56	i				Sun SD	= 16.0'			

h	Moon	(23rd	Mar)	١

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus
0	260°56.1	7.7'	S 28°20.1	2.8'	56.0'	83°58.5		56°04.9	41°12.4	28°26.3	55°03.6	74°20.3	79°06.7
1	275°22.8	7.7'	$28^{\circ}17.3$	3.0'	56.0'	83°29.4		55°35.9	40°55.4	28°57.9	55°23.5	74°51.9	79°33.0
2	289°49.5	7.7'	28° 14.3	3.1'	56.1'	83°00.2		55°06.8	40°38.5	29°29.6	55°43.6	75°23.5	79°59.4
3	304°16.1	7.7'	$28^{\circ}11.2$	3.3'	56.1'	82°31.0		54° 37.7	40°22.0	30°01.2	56°03.8	75°55.2	80°25.8
4	318°42.8	7.7'	28°07.9	3.4'	56.1'	82°01.8		54°08.6	40°05.6	30°33.0	56°24.1	76°26.9	80°52.2
5	333°09.5	7.7'	28°04.5	3.6'	56.2'	81°32.5		53°39.6	39°49.5	31°04.7	56°44.6	76°58.7	81°18.7
6	347°36.1	7.7'	S 28°00.9	3.7'	56.2'	81°03.1		53° 10.5	39°33.6	31°36.5	57°05.2	77°30.5	81°45.3
7	2°02.8	7.7'	27°57.2	3.9'	56.2'	80°33.8		52°41.4	39° 18.0	32°08.3	57°25.9	78°02.3	82°11.9
8	16°29.5	7.7'	27°53.3	4.1'	56.3'	80°04.4		52° 12.3	39°02.6	32°40.2	57°46.8	78°34.2	82°38.5
9	30°56.1	7.7'	$27^{\circ}49.2$	4.2'	56.3'	79°34.9		51°43.3	38° 47.5	33°12.1	58°07.8	79°06.1	83°05.2
10	45°22.8	7.7'	27°45.0	4.4'	56.3'	79°05.4		51°14.2		33°44.1	58°29.0	79°38.1	83°31.9
11	59°49.4	7.7'	27°40.6	4.5'	56.4'	78°35.9		50°45.2		34°16.1	58°50.2	80°10.1	83°58.6
12	74°16.1	7.7'	S 27°36.0	4.7'	56.4'	78°06.3		50°16.1		34°48.1	59°11.6	80°42.1	84°25.4
13	88°42.8	7.7'	$27^{\circ}31.3$	4.9'	56.4'	77°36.7		49°47.1		35°20.2	59°33.2	81°14.2	84°52.3
14	103°09.4	7.7'	$27^{\circ}26.5$	5.0'	56.5'	77°07.1		49° 18.0		35°52.3	59°54.8	81°46.3	85° 19.2
15	117°36.1	7.7'	27°21.5	5.2'	56.5'	76°37.4		48°49.0		36°24.5	60°16.6	82° 18.5	85°46.1
16	132°02.8	7.7'	27° 16.3	5.3'	56.5'	76°07.7	_	48°20.0		36°56.7	60°38.5	82°50.7	86°13.1
17	146°29.5	7.7'	$27^{\circ}10.9$	5.5'	56.6'	75°37.9	65°40.8	47°51.0		37°28.9	61°00.5	83°22.9	86°40.1
18	160°56.2	7.7'	S 27°05.4	5.7'	56.6'	75°08.1	65°08.9	47°22.0		38°01.2	61°22.6	83°55.2	87°07.2
19	175°23.0	7.7'	$26^{\circ}59.8$	5.8'	56.6'	74°38.2	64°36.9	46°53.0		38°33.5	61°44.8	84°27.6	87°34.3
20	189°49.7	7.8'	26°54.0	6.0'	56.7'	74°08.3	64°04.8	46°24.1		39°05.9	62°07.2	84°59.9	88°01.4
21	204°16.5	7.8'	26°48.0	6.1'	56.7'	73°38.4	63°32.7	45°55.1		39°38.3	62°29.7	85°32.3	88° 28.6
22	218°43.2	7.8'	26°41.9	6.3'	56.8'	73°08.4	63°00.6	45°26.2		40°10.8	62°52.3	86°04.8	88°55.8
23	233°10.0	7.8'	26°35.6	6.4'	56.8'	72°38.3	62°28.4	44°57.3		40°43.3	63°15.0	86°37.3	89°23.0
23 rd	SD =	= 15.3′	Mer. pass	. 06:5	1	$Sun\;SD=16.0'$							

Moon (24th Mar)

h

Lunar Distance (objects with largest hourly LD delta)

	ı				1								
Mon	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus
0	247°36.8	7.8'	S 26°29.2	6.6'	56.8'	72°08.3	61°56.2	44°28.5	41°15.8	59° 14.8	63°37.8	87°09.8	89°50.3
1	262°03.6	7.8'	26°22.6	6.8'	56.9'	71°38.2	61°23.9	43°59.6	41°48.4	59°37.6	64°00.7	87°42.4	90°17.7
2	276°30.5	7.9'	$26^{\circ}15.8$	6.9'	56.9'	71°08.0	60°51.6	43°30.8	42°21.0	60°00.6	64°23.7	88°15.1	90°45.0
3	290°57.3	7.9'	26°08.9	7.1'	56.9'	70°37.8	60°19.2	43°02.1	42°53.7	60°23.7	64°46.8	88°47.7	91°12.4
4	305°24.2	7.9'	26°01.8	7.2'	57.0'	70°07.5	59°46.8	42°33.3	43°26.4	60°46.9	65°10.1	89°20.5	91°39.9
5	319°51.1	7.9'	25°54.6	7.4'	57.0'	69°37.2	59°14.4	42°04.6	43°59.2	61°10.3	65°33.4	89°53.2	92°07.3
6	334°18.1	8.0'	S 25°47.2	7.5'	57.1'	69°06.9	58°41.9	41°36.0	44°32.0	61°33.7	65°56.9	90°26.1	92°34.8
7	348°45.0	8.0'	25°39.7	7.7'	57.1'	68°36.5	58°09.3	41°07.4	45°04.9	61°57.3	66°20.4	90°58.9	93°02.4
8	3°12.0	8.0'	25°32.0	7.8'	57.1'	68°06.1	57°36.7	40°38.8	45°37.8	62°21.0	66°44.0	91°31.8	93°29.9
9	17°39.0	8.0'	25°24.2	8.0'	57.2'	67°35.6	57°04.1	40°10.3	46°10.7	62°44.8	67°07.8	92°04.8	93°57.5
10	32°06.1	8.1'	$25^{\circ}16.2$	8.1'	57.2'	67°05.1	56°31.4	39°41.9	46°43.7	63°08.7	67°31.6	92°37.8	94°25.2
11	46°33.1	8.1'	$25^{\circ}08.1$	8.3'	57.2'	66°34.5	55°58.7	39°13.5	47°16.7	63°32.7	67°55.6	93°10.8	94°52.9
12	61°00.2	8.1'	S 24°59.8	8.4'	57.3'	66°03.9	55°26.0	38°45.2	47°49.8	63°56.8	68°19.6	93°43.9	95°20.6
13	75°27.4	8.2'	24°51.3	8.6'	57.3'	65°33.2	54°53.1	38°16.9	48°23.0	64°21.0	68°43.7	94°17.0	95°48.3
14	89°54.5	8.2'	24°42.7	8.7'	57.4'	65°02.5	54°20.3	37°48.7	48°56.2	64°45.4	69°07.9	94°50.2	96°16.1
15	104°21.7	8.2'	24°34.0	8.9'	57.4'	64°31.7	53°47.4	37°20.6	49°29.4	65°09.8	69°32.2	95°23.5	96°43.8
16	118°48.9	8.3'	24°25.1	9.0'	57.4'	64°00.9	53°14.4	36°52.6	50°02.7	65°34.4	69°56.6	95°56.7	97°11.7
17	133°16.2	8.3'	$24^{\circ}16.1$	9.2'	57.5'	63°30.1	52°41.4	36°24.6	50°36.0	65°59.0	70°21.1	96°30.1	97°39.5
18	147°43.5	8.3'	S 24°06.9	9.3'	57.5'	62°59.2	52°08.4	35°56.8	51°09.4	66°23.8	70°45.7	97°03.4	98°07.4
19	162°10.8	8.4'	23°57.6	9.5'	57.6'	62°28.2	51°35.3	35°29.0	51°42.8	66°48.6	71°10.3	97°36.9	98°35.3
20	176°38.2	8.4'	23°48.1	9.6'	57.6'	61°57.2	51°02.1	35°01.4	52°16.2	67° 13.6	71°35.1	98°10.3	99°03.2
21	191°05.5	8.4'	23°38.4	9.8'	57.6'	61°26.2	50°28.9	34°33.8	52°49.8	67°38.6	71°59.9	98°43.9	99°31.1
22	205°33.0	8.5'	23°28.7	9.9'	57.7'	60°55.1	49°55.7	34°06.4	53°23.3	68°03.7	72°24.8	99°17.4	99°59.1
23	220°00.4	8.5'	23°18.8	10.1'	57.7'	60°23.9	49°22.4	33°39.1	53°56.9	68°29.0	72°49.8	99°51.0	100°27.1
24 th	SD	= 15.5'	Mer. pas	s. 07:47					Sun SI	O = 16.0'			

h Moon (25th Mar)

Lunar Distance (objects with largest hourly LD delta)

		111001	1 (23 111					ii Distance	()	vitil laigest i			
Tue	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus
0	234°27.9	8.5'	S 23°08.7	10.2'	57.8'	59°52.7	48°49.0	33°11.9	54°30.6	68°54.3	73°14.9	100°24.7	100°55.1
1	248°55.5	8.6'	22°58.5	10.3'	57.8'	59°21.5	48°15.7	32°44.9	55°04.3	69°19.7	73°40.1	100°58.4	101°23.2
2	263°23.1	8.6'	22°48.1	10.5'	57.8'	58°50.2	47°42.2	32° 18.0	55°38.1	69°45.2	74°05.3	101°32.2	101°51.2
3	277°50.7	8.7'	22°37.7	10.6'	57.9'	58°18.9	47°08.7	31°51.3	56°11.9	70°10.8	74°30.6	102°06.0	102°19.3
4	292°18.3	8.7'	22°27.0	10.8'	57.9'	57°47.5	46°35.2	31°24.7	56°45.7	70°36.5	74°56.0	102°39.8	102°47.4
5	306°46.0	8.7'	$22^{\circ}16.3$	10.9'	58.0'	57°16.0	46°01.6	30°58.3	57°19.7	71°02.3	75°21.5	103°13.7	103°15.5
6	321°13.8	8.8'	S 22°05.3	11.0'	58.0'	56°44.5	45°28.0	30°32.1	57°53.6	71°28.1	75°47.0	103°47.7	103°43.6
7	335°41.5	8.8'	21°54.3	11.2'	58.0'	56°13.0	44°54.3	30°06.1	58°27.6	71°54.1	76° 12.7	104°21.7	104°11.8
8	350°09.4	8.9'	21°43.1	11.3'	58.1'	55°41.4	44°20.6	29°40.3	59°01.7	72°20.1	76°38.4	104°55.8	104°39.9
9	4°37.2	8.9'	21°31.8	11.5'	58.1'	55°09.8	43°46.8	29° 14.7	59°35.8	72°46.2	77°04.1	105°29.9	105°08.1
10	19°05.1	8.9'	21°20.4	11.6'	58.2'	54°38.1	43°13.0	28°49.4	60°09.9	73°12.4	77°30.0	106°04.0	105°36.3
11	33°33.0	9.0'	21°08.8	11.7'	58.2'	54°06.4	42°39.1	28°24.3	60°44.1	73°38.6	77°55.9	106°38.2	106°04.5
12	48°01.0	9.0'	S 20°57.0	11.9'	58.2'	53°34.6	42°05.2	27° 59.4	61°18.4	74°05.0	78°21.8	107°12.5	106°32.7
13	62°29.0	9.1'	20°45.2	12.0'	58.3'	53°02.8	41°31.2	27° 34.8	61°52.7	74°31.4	78°47.9	107°46.8	107°00.9
14	76°57.1	9.1'	20°33.2	12.1'	58.3'	52°30.9	40°57.2	27° 10.5	62°27.0	74°57.9	79° 14.0	108°21.2	107°29.1
15	91°25.2	9.1'	20°21.1	12.2'	58.4'	51°58.9	40°23.1	26°46.6	63°01.4	75°24.5	79°40.2	108°55.6	107°57.3
16	105°53.3	9.2'	20°08.8	12.4'	58.4'	51°27.0	39°49.0	26°22.9	63°35.9	75°51.2	80°06.4	109°30.0	108°25.5
17	120°21.5	9.2'	19°56.5	12.5'	58.4'	50°54.9	39°14.8	25°59.6	64°10.4	76°17.9	80°32.7	110°04.5	108°53.8
18	134°49.7	9.3'	S 19°44.0	12.6'	58.5'	50°22.9	38°40.6	25°36.6	64°45.0	76°44.7	80°59.1	110°39.1	109°22.0
19	149°18.0	9.3'	19°31.3	12.8'	58.5'	49°50.7	38°06.4	25° 14.0	65°19.6	77°11.6	81°25.5	111°13.7	109°50.2
20	163°46.3	9.3'	$19^{\circ}18.6$	12.9'	58.6'	49°18.5	37°32.0	24°51.8	65°54.2	77°38.5	81°52.0	111°48.3	110°18.4
21	178°14.6	9.4'	19°05.7	13.0'	58.6'	48°46.3	36°57.7	24°30.1	66°28.9	78°05.5	82° 18.5	112°23.0	110°46.7
22	192°43.0	9.4'	18°52.7	13.1'	58.6'	48°14.0	36°23.3	24°08.7	67°03.7	78°32.6	82°45.1	112°57.8	111°14.9
23	207°11.4 9.5' 18°39.6 13.2' 58.7					47°41.7 35°48.8 23°47.9 67°38.5 78°59.7 83°11.8 113°32.6 111°4							111°43.1
25 th	SD	= 15.8	Mer. pas	s. 08:41		$Sun\;SD=16.0'$							

h Moon (26th Mar)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Venus	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	221°39.9	9.5'	S 18°26.3	13.4'	58.7'	47°09.3	35°14.3		23°27.5	68°13.3	79° 26.9	112°11.3	114°07.4
1	236°08.4	9.5'	18°13.0	13.5'	58.8'	46°36.9	34°39.7		23°07.7	68°48.2	79°54.2	112°39.5	114°42.3
2	250°36.9	9.6'	$17^{\circ}59.5$	13.6'	58.8'	46°04.4	34°05.1		22°48.4	69°23.2	80°21.5	113°07.7	115°17.3
3	265°05.5	9.6'	17°45.9	13.7'	58.8'	45°31.9	33°30.5		22°29.6	69°58.2	80°48.9	113°35.8	115°52.3
4	279°34.1	9.7'	17°32.2	13.8'	58.9'	44°59.3	32°55.8		22°11.5	70°33.2	81°16.4	114°04.0	116°27.3
5	294°02.8	9.7'	17°18.4	13.9'	58.9'	44°26.7	32°21.0		21°53.9	71°08.3	81°43.9	114°32.1	117°02.4
6	308°31.4	9.7'	S 17°04.4	14.1'	58.9'	43°54.0	31°46.2		21°37.1	71°43.5	82°11.5	115°00.3	117°37.6
7	323°00.2	9.8'	16°50.4	14.2'	59.0'	43°21.3	31°11.4		21°20.9	72°18.7	82°39.1	115°28.4	118°12.8
8	337°28.9	9.8'	16°36.2	14.3'	59.0'	42°48.5	30°36.5		21°05.4	72°53.9	83°06.8	115° 56.4	118°48.0
9	351°57.7	9.8'	$16^{\circ}21.9$	14.4'	59.1'	42°15.7	30°01.6			73°29.2	83°34.6	116°24.5	119°23.3
10	6°26.6	9.9'	$16^{\circ}07.5$	14.5'	59.1'	41°42.9	29°26.6			74°04.5	84°02.4	116° 52.5	119°58.7
11	20°55.5	9.9'	15°53.0	14.6'	59.1'	41°09.9	28°51.5			74°39.9	84°30.2	117°20.5	
12	35°24.4	9.9'	S 15°38.4	14.7'	59.2'	40°37.0	28°16.5			75°15.4	84°58.1	117°48.4	
13	49°53.3	10.0'	15°23.7	14.8'	59.2'	40°04.0	27°41.3			75°50.9	85°26.1	118° 16.4	
14	64°22.3	10.0'	15°08.9	14.9'	59.3'		27°06.2			76°26.4	85°54.1	118° 44.2	
15	78°51.3	10.0'	14°54.0	15.0'	59.3'		26°31.0			77°02.0	86°22.1	119° 12.1	
16	93°20.3	10.1'	14°39.0	15.1'	59.3'		25°55.7			77°37.6	86°50.2	119°39.9	
17	107°49.4	10.1'	14°23.9	15.2'	59.4'		25°20.4			78°13.3	87° 18.4		
18	122°18.5	10.1'	S 14°08.7	15.3'	59.4'		24°45.1	32°55.7		78°49.0	87°46.6		
19	136°47.7	10.2'	13°53.4	15.4'	59.4'		24°09.7	32°19.6		79°24.8	88° 14.8		i i
20	151°16.8	10.2'	13°38.0	15.5'	59.5'		23°34.2	31°43.4		80°00.6	88°43.1		
21	165°46.0	10.2'	13°22.5	15.6'	59.5'		22°58.8	31°07.3		80°36.5	89°11.4		
22	180°15.2	10.3'	13°06.9	15.7'	59.5'		22°23.2	30°31.2		81°12.4	89°39.7		
23	194°44.5	10.3'	12°51.2	15.8'	59.6'	6' 21°47.7 29°55.0 81°48.3 90°08.1							
26 th	SD	= 16.0'	Mer. pass	. 09:33					Sun	SD = 16.0'			

Moon (27th Mar)

h

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Venus	-Saturn	±Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
								<u> </u>					
0	209°13.8	10.3'	S 12°35.5	15.9'	59.6'	29° 18.9	21°12.1		42°58.9	82°24.3	90°36.5	94°33.0	100°21.4
1	223°43.1	10.3'	12° 19.6	15.9'	59.7'	28°42.7	20°36.5		43°20.1	83°00.4	91°05.0	95°00.7	100°44.5
2	238°12.4	10.4'	12°03.7	16.0'	59.7'	28°06.6	20°00.8		43°41.6	83°36.5	91°33.5	95°28.4	101°07.6
3	252°41.8	10.4	11°47.7	16.1'	59.7'	27°30.5	19°25.1		44°03.3	84°12.6	92°02.0	95°56.1	101°30.7
4	267°11.2	10.4'	11°31.5	16.2'	59.8'	26°54.5	18°49.3		44°25.4	84°48.8	92°30.5	96°23.9	101°53.7
5	281°40.6	10.4'	11° 15.4	16.3'	59.8'	26° 18.4	18° 13.5		44° 47.7	85°25.0	92°59.1	96°51.6	102°16.7
6	296°10.0	10.4'	S 10°59.1	16.3'	59.8'	25°42.4	17° 37.7		45° 10.3	86°01.3	93°27.7	97°19.4	102°39.8
7	310°39.4	10.5'	$10^{\circ}42.7$	16.4'	59.9'	25°06.4	17°01.9		45°33.1	86°37.6	93°56.3	97°47.2	103°02.7
8	325°08.9	10.5'	10°26.3	16.5'	59.9'	24°30.5	16°26.0		45°56.2	87°13.9	94°25.0	98°15.0	103°25.7
9	339°38.4	10.5'	10°09.8	16.6'	59.9'	23°54.7	15°50.1		46° 19.5	87°50.3	94°53.7	98°42.8	103°48.6
10	354°07.9	10.5'	09°53.2	16.6'	60.0'	23° 18.8	15° 14.1		46°43.1	88°26.8	95°22.4	99°10.6	104°11.5
11	8°37.4	10.5'	09°36.6	16.7'	60.0'	22°43.1	14°38.2		47°06.9	89°03.3	95°51.1	99°38.4	104°34.4
12	23°07.0	10.6'	S 09°19.9	16.8'	60.0'	22°07.5	14°02.2		47°30.9	89°39.8	96°19.8	100°06.3	104°57.2
13	37°36.5	10.6'	$09^{\circ}03.1$	16.9'	60.1'	21°31.9	13°26.2		47°55.2	90°16.4	96°48.5	100°34.1	105°20.0
14	52°06.1	10.6'	08°46.2	16.9'	60.1'	20°56.4	12°50.2		48° 19.7	90°53.0	97°17.3	101°01.9	105°42.8
15	66°35.7	10.6'	08° 29.3	17.0'	60.1'	20°21.1	12°14.1	21°01.5	48° 44.4	91°29.6	97°46.1	101°29.8	106°05.5
16	81°05.3	10.6'	$08^{\circ}12.3$	17.0'	60.1'	19°45.8	11°38.1	21° 17.4	49°09.3	92°06.3	98°14.9	101°57.6	106°28.2
17	95°34.9	10.6'	$07^{\circ}55.3$	17.1'	60.2'	19° 10.8	11°02.0	21°34.1	49°34.5	92°43.0	98°43.7	102°25.4	106°50.8
18	110°04.5	10.6'	S 07°38.2	17.2'	60.2'	18° 35.8	10°26.0	21°51.6	49°59.8	93°19.8	99°12.5	102°53.2	107°13.3
19	124°34.1	10.6'	$07^{\circ}21.0$	17.2'	60.2'	18°01.1	9°49.9	22°09.9	50°25.3	93°56.6	99°41.3	103°21.0	107°35.9
20	139°03.8	10.6'	07°03.8	17.3'	60.3'	17°26.6	9°13.9	22°29.0	50°51.1	94°33.4	100°10.1	103°48.8	107°58.3
21	153°33.4	10.7'	06°46.5	17.3'	60.3'	16°52.3	8°38.0	22°48.7	51°17.0	95°10.3	100°38.9	104°16.6	108°20.7
22	168°03.1	10.7'	$06^{\circ}29.1$	17.4'	60.3'	16° 18.2	8°02.0	23°09.1	51°43.1	95°47.2	101°07.7	104°44.3	108°43.1
23	182°32.7	10.7'	$06^{\circ}11.8$	17.4'	60.4'	15°44.5	7°26.2	23°30.2	52°09.4	96°24.2	101°36.5	105°12.1	109°05.3
27 th	SD	= 16.3'	Mer. pass	. 10:24									

h	Moon	(noth	1122

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Venus	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux		
0	197°02.4	10.7'	S 05°54.3	17.5'	60.4'	15°11.1	6°50.5	23°51.9	52°35.8	97°01.2	102°05.3	105°39.8	109°27.5		
1	211°32.1	10.7'	05°36.8	17.5'	60.4'	14°38.0	6°14.9	24°14.2	53°02.5	97°38.2	102°34.1	106°07.5	109°49.7		
2	226°01.7	10.7'	05°19.3	17.6'	60.4'	14°05.4	5°39.5	24°37.1	53°29.3	98°15.2	103°02.9	106°35.2	110°11.8		
3	240°31.4	10.7'	05°01.7	17.6'	60.5'	13°33.2	5°04.4	25°00.6	53°56.2	98°52.3	103°31.7	107°02.8	110°33.8		
4	255°01.0	10.7'	04°44.1	17.7'	60.5'	13°01.6	4°29.8	25°24.5	54°23.4	99°29.5	104°00.5	107°30.4	110°55.7		
5	269°30.7	10.7'	04°26.4	17.7'	60.5'	12°30.6	3°55.7	25°49.0	54°50.7	100°06.6	104°29.2	107°58.0	111°17.5		
6	284°00.4	10.7'	S 04°08.7	17.7'	60.5'	12°00.3		26°14.0	55°18.1	100°43.8	104°58.0	108°25.6	111°39.3		
7	298°30.0	10.7'	03°51.0	17.8'	60.6'	11°30.9		26°39.4	55°45.7	101°21.0	105° 26.7	108°53.1	112°00.9		
8	312°59.7	10.6'	03°33.2	17.8'	60.6'	11°02.3		27°05.3	56°13.5	101°58.3	105°55.4	109°20.6	112°22.5		
9	327°29.3	10.6'	03°15.4	17.8'	60.6'			27°31.6	56°41.3	102°35.6	106°24.1	109°48.0	112°44.0		
10	341°59.0	10.6'	02°57.6	17.9'	60.6'	27°58.3 57°09.4 103°12.9 106°52.7 110°15.4 113°05.4									
11	356°28.6	10.6'	02°39.7	17.9'	60.7'	28°25.4 57°37.5 103°50.2 107°21.3 110°42.7 113°26.7									
12	10°58.2	10.6'	S 02°21.8	17.9'	60.7'			28°52.8	58°05.8	104°27.6	107°49.9	111°10.0	113°47.9		
13	25°27.8	10.6'	02°03.9	18.0'	60.7'			29°20.7	58°34.2	105°05.0	108° 18.5	111°37.3	114°08.9		
14	39°57.4	10.6'	01°45.9	18.0'	60.7'			29°48.8	59°02.8	105°42.5	108°47.0	112°04.5	114°29.9		
15	54°27.0	10.6'	01°27.9	18.0'	60.7'			30°17.3	59°31.5	106°19.9	109° 15.5	112°31.6	114°50.8		
16	68°56.6	10.6'	$01^{\circ}09.9$	18.0'	60.8'			30°46.1	60°00.2	106°57.4	109°43.9	112°58.6	115°11.5		
17	83°26.1	10.5'	$00^{\circ}51.9$	18.0'	60.8'			31°15.2	60°29.2	107°34.9	110° 12.3	113°25.6	115°32.1		
18	97°55.7	10.5'	S 00°33.9	18.0'	60.8'		' –		Ne	w Moon —	I		'		
19	112°25.2	10.5'	S 00°15.8	18.1'	60.8		_		Ne	w Moon —					
20	126°54.7	10.5'	N00°02.2	18.1'	60.8'	8' New Moon ———									
21	141°24.2	10.5'	00°20.3	18.1'	60.9'										
22	155°53.6	10.4'	00°38.4	18.1'	60.9'		_								
23	170°23.0	10.4'	00°56.5	18.1'	60.9'		_		Ne	w Moon —					
28 th	SD	$= 16.5^{\prime}$	Mer. pass	. 11:15											

h	Moon	(29 th	Mar)
n	ivioon	(29***	ıvıar)

Sat	GHA	ν	Dec	d	HP	
0	184°52.5	10.4'	N 01°14.6	18.1'	60.9'	New Moon
1	199°21.8	10.4'	01°32.7	18.1'	60.9'	New Moon
2	213°51.2	10.3'	01°50.8	18.1'	60.9'	New Moon
3	228°20.5	10.3'	02°08.9	18.1'	61.0'	New Moon
4	242°49.8	10.3'	$02^{\circ}26.9$	18.1'	61.0'	New Moon
5	257°19.1	10.2'	02°45.0	18.1'	61.0'	New Moon
6	271°48.3	10.2'	$N03^{\circ}03.1$	18.1'	61.0'	New Moon
7	286°17.5	10.2'	$03^{\circ}21.2$	18.1'	61.0'	New Moon
8	300°46.7	10.1'	03°39.2	18.0'	61.0'	New Moon
9	315°15.8	10.1'	03°57.3	18.0'	61.0'	New Moon
10	329°44.9	10.1'	04°15.3	18.0'	61.0'	New Moon
11	344°14.0	10.0'	04°33.3	18.0'	61.1'	New Moon
12	358°43.0	10.0'	N 04°51.3	18.0'	61.1'	New Moon
13	13°12.0	9.9'	05°09.3	17.9'	61.1'	New Moon
14	27°40.9	9.9'	05°27.2	17.9'	61.1'	New Moon
15	42°09.8	9.8'	05°45.2	17.9'	61.1'	New Moon
16	56°38.6	9.8'	$06^{\circ}03.1$	17.9'	61.1'	New Moon
17	71°07.4	9.8'	06°20.9	17.8'	61.1'	New Moon
18	85°36.2	9.7'	N 06°38.8	17.8'	61.1'	New Moon
19	100°04.9	9.7'	06°56.6	17.8'	61.1'	New Moon
20	114°33.6	9.6'	$07^{\circ}14.3$	17.7'	61.1'	New Moon
21	129°02.2	9.6'	07°32.0	17.7'	61.1'	New Moon
22	143°30.7	9.5'	07°49.7	17.6'	61.1'	New Moon
23	157°59.2	9.5'	08°07.3	17.6'	61.1'	New Moon
29 th	SD	= 16.6'	Mer. pass	. 12:05		

h Moon (30 th Mar)	Lunar Distance (objects with largest hourly LD delta)
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Sun	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	-Betelgeuse	-Capella	-Jupiter	-Aldebaran
0	172°27.7	9.4'	N08°24.9	17.5'	61.1'				Ne	w Moon —			
1	186°56.1	9.3'	08°42.5	17.5'	61.1'				Ne	w Moon ——			
2	201°24.4	9.3'	09°00.0	17.4'	61.1'				Ne	w Moon ——			
3	215°52.7	9.2'	09°17.4	17.4'	61.1'					w Moon ———			
4	230°20.9	9.2'	09°34.8	17.3'	61.1'		96°42.1	93°33.9	93°10.3	70°48.3	63°56.7	55°59.8	50°53.5
5	244°49.1	9.1'	09°52.1	17.3'	61.1'		96°06.6	92°55.9	92°33.2	70°13.3	63°20.9	55°22.4	50°16.6
6	259°17.2	9.1'	N10°09.4	17.2'	61.1'		95°31.1	92°17.9	91°56.0	69°38.2	62°45.2	54°45.1	49°39.7
7	273°45.3	9.0'	10°26.6	17.2'	61.1'		94°55.6	91°40.0	91°18.8	69°03.2	62°09.5	54°07.7	49°02.9
8	288°13.3	8.9'	10°43.8	17.1'	61.1'		94°20.0	91°02.0	90°41.7	68°28.2	61°33.8	53°30.4	48°26.0
9	302°41.2	8.9'	11°00.9	17.0'	61.1'		93°44.5	90°24.1	90°04.5	67°53.3	60°58.2	52°53.1	47°49.2
10	317°09.1	8.8'	$11^{\circ}17.9$	16.9'	61.1'		93°09.0	89°46.1	89°27.4	67°18.4	60°22.5	52°15.8	47°12.4
11	331°36.9	8.7'	11°34.8	16.9'	61.1'		92°33.5	89°08.2	88°50.2	66°43.5	59°47.0	51°38.4	46°35.6
12	346°04.6	8.7'	N11°51.7	16.8'	61.1'		91°57.9	88°30.2	88°13.1	66°08.6	59°11.4	51°01.1	45°58.9
13	0°32.3	8.6'	12°08.5	16.7'	61.1'		91°22.4	87°52.3	87°35.9	65°33.8	58°35.9	50°23.9	45°22.2
14	14°59.9	8.5'	12°25.2	16.7'	61.1'		90°46.9	87°14.4	86°58.8	64°59.0	58°00.4	49°46.6	44° 45.5
15	29°27.4	8.5'	12°41.9	16.6'	61.1'		90°11.4	86°36.4	86°21.7	64°24.3	57°25.0	49°09.3	44°08.9
16	43°54.9	8.4'	12°58.5	16.5'	61.1'		89°35.9	85°58.5	85°44.6	63°49.6	56°49.6	48°32.1	43°32.3
17	58°22.3	8.3'	13°15.0	16.4'	61.1'		89°00.4	85°20.6	85°07.5	63°14.9	56°14.3	47°54.8	42°55.7
18	72°49.6	8.3'	N13°31.4	16.3'	61.1'		88°24.9	84°42.7	84°30.4	62°40.3	55°39.0	47°17.6	42°19.2
19	87°16.8	8.2'	13°47.7	16.2'	61.1'		87°49.4	84°04.8	83°53.3	62°05.7	55°03.7	46°40.4	41°42.7
20	101°44.0	8.1'	14°03.9	16.1'	61.1'		87°14.0	83°27.0	83°16.2	61°31.2	54°28.5	46°03.2	41°06.3
21	116°11.1	8.0'	14°20.0	16.0'	61.1'	119°39.0	86°38.5	82°49.1	82°39.1	60°56.7	53°53.4	45°26.1	40°29.9
22	130°38.2	8.0'	14°36.1	16.0'	61.1'	119°01.2	86°03.1	82°11.3	82°02.1	60°22.3	53°18.3	44°48.9	39°53.6
23	145°05.1	7.9'	14°52.1	15.9'	61.1'	118°23.3	85°27.7	81°33.4	81°25.1	59°47.9	52°43.2	44°11.8	39°17.3
30 th	SD	= 16.7	Mer. pas	s. 12:58									

	h		Moon	(31 st Mar)			Lunar D	istance (objects '	with large	est hourl	y LD delta)
ſ	Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	-Capella	- Juniter	-Aldebaran	

Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Mars	-Capella	-Jupiter	-Aldebaran	+Achernar
0	159°32.0	7.8'	N 15°07.9	15.8'	61.1'	117° 45.5	84°52.3	80°55.6	80°48.1	52°08.3	43°34.7	38°41.1	72°20.2
1	173°58.8	7.7'	15°23.7	15.7'	61.0'	117°07.7	84°16.9	80°17.8	80°11.0	51°33.3	42°57.6	38°04.9	72°37.5
2	188°25.6	7.7'	15°39.3	15.6'	61.0'	116° 29.9	83°41.5	79°40.0	79°34.1	50°58.5	42°20.5	37°28.8	72°55.0
3	202°52.2	7.6'	15°54.9	15.4'	61.0'	115°52.2	83°06.2	79°02.2	78°57.1	50°23.7	41°43.5	36° 52.8	73° 12.5
4	$217^{\circ}18.8$	7.5'	$16^{\circ}10.3$	15.3'	61.0'	115°14.4	82°30.9	78°24.5	78°20.1	49°49.0	41°06.5	36° 16.8	73°30.2
5	231°45.3	7.4'	16°25.7	15.2'	61.0'	114°36.7	81°55.6	77° 46.7	77°43.2	49°14.3	40°29.5	35°40.9	73°47.9
6	246°11.8	7.4'	N 16°40.9	15.1'	61.0'	113°58.9	81°20.3	77°09.0	77°06.3	48°39.8	39°52.6	35°05.1	74°05.7
7	260°38.1	7.3'	16°56.0	15.0'	61.0'	113°21.2	80°45.0	76°31.3	76°29.4	48°05.3	39°15.6	34°29.3	74°23.6
8	275°04.4	7.2'	$17^{\circ}11.0$	14.9'	61.0'	112°43.6	80°09.8	75°53.6	75°52.5	47°30.8	38°38.8	33°53.6	74°41.5
9	289°30.6	7.1'	17°25.9	14.8'	60.9'	112°05.9	79°34.6	$75^{\circ}15.9$	75°15.7	46°56.5	38°01.9	33° 18.1	74° 59.6
10	303°56.7	7.0'	17°40.7	14.7'	60.9'	111°28.2	78° 59.5	74°38.3	74°38.8	46°22.2	37°25.1	32°42.6	75° 17.7
11	318°22.7	7.0'	17°55.3	14.5'	60.9'	110°50.6	78°24.3	74°00.6	74°02.0	45°48.1	36°48.3	32°07.2	75°35.9
12	332°48.7	6.9'	N18°09.8	14.4'	60.9'	110°13.0	77°49.2	73°23.0	73°25.2	45°14.0	36°11.5	31°31.8	75°54.2
13	347°14.6	6.8'	18°24.3	14.3'	60.9'	109°35.4	77° 14.2	72°45.5	72°48.5	44°40.0	35°34.8	30°56.6	76° 12.5
14	1°40.4	6.7'	18°38.5	14.2'	60.9'	108° 57.9	76°39.1	$72^{\circ}07.9$	72°11.7	44°06.1	34°58.1	30°21.5	76°30.9
15	$16^{\circ}06.1$	6.6'	18°52.7	14.0'	60.8'	108° 20.3	76°04.1	71°30.4	71°35.0	43°32.3	34°21.5	29°46.5	76°49.4
16	30°31.7	6.6'	19°06.7	13.9'	60.8'	107°42.8	75°29.2	$70^{\circ}52.9$	70°58.3	42°58.7	33°44.9	29° 11.7	77°07.9
17	44°57.3	6.5'	19°20.6	13.8'	60.8'	107°05.3	74°54.2	$70^{\circ}15.4$	70°21.6	42°25.1	33°08.3	28°36.9	77°26.5
18	59°22.8	6.4'	N19°34.4	13.6'	60.8'	106°27.9	74°19.3	69°37.9	69°45.0	41°51.6	32°31.8	28°02.3	77°45.1
19	73°48.2	6.3'	19°48.0	13.5'	60.8'	105°50.4	73°44.5	69°00.5	69°08.4	41°18.3	31°55.3	27°27.9	78°03.8
20	88°13.5	6.2'	20°01.5	13.3'	60.7'	105°13.0	73°09.7	$68^{\circ}23.1$	68°31.8	40°45.1	31°18.9	26°53.5	78°22.5
21	102°38.7	6.2'	$20^{\circ}14.8$	13.2'	60.7'	104°35.6	72°34.9	67°45.7	67°55.2	$40^{\circ}12.0$	30°42.5	26° 19.4	78°41.3
22	117°03.9	6.1'	20°28.0	13.1'	60.7'	103°58.3	72°00.2	$67^{\circ}08.3$	67°18.7	39°39.0	30°06.2	25° 45.4	79°00.2
23	131°29.0	6.0'	20°41.1	12.9'	60.7'	103°21.0	71°25.5	66°31.0	66°42.2	39°06.2	29°29.9	25° 11.5	79°19.1
31 st	SD	= 16.7	′ Mer. pas	s. 13:53									

h Moon (1st Apr) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Mars	-Pollux	-Jupiter	-Aldebaran	+Sun	+Achernar
0	145°54.0	5.9'	N 20°54.0	12.8'	60.7'	102°43.7	70°50.8	66°05.7	65°53.7	28°53.7	24°37.9		79°38.0
1	160°18.9	5.9'	21°06.8	12.6'	60.6'	102°06.4	70°16.2	65°29.3	65°16.4	28°17.5	24°04.4		79°56.9
2	174°43.8	5.8'	21°19.4	12.5'	60.6'	101°29.1	69°41.7	64°52.8	64°39.2	27°41.4	23°31.2		80°15.9
3	189°08.6	5.7'	21°31.9	12.3'	60.6'	100°51.9	69°07.2	64° 16.5	64°02.0	27°05.4	22°58.1		80°35.0
4	203°33.3	5.6'	21°44.2	12.2'	60.6'	100°14.8	68°32.8	63°40.1	63°24.8	26°29.4	22°25.4		80°54.1
5	217°57.9	5.5'	21°56.4	12.0'	60.6'	99°37.6	67°58.4	63°03.8	62°47.7	25°53.5	21°52.8		81°13.2
6	232°22.4	5.5'	N 22°08.4	11.9'	60.5'	99°00.5	67°24.0	62°27.5	62°10.6	25°17.6	21°20.5		81°32.3
7	246°46.9	5.4'	22°20.2	11.7'	60.5'	98°23.4	66°49.7	61°51.2	61°33.5	24°41.9	20°48.5		81°51.5
8	261°11.3	5.3'	22°31.9	11.5'	60.5'	97°46.3	66°15.5	61° 15.0	60°56.4	24°06.2	20° 16.9		82°10.6
9	275°35.7	5.3'	22°43.5	11.4'	60.5'	97°09.3	65°41.3	60°38.8	60°19.4	23°30.6	19°45.5	41°16.6	82°29.9
10	289°59.9	5.2'	22°54.8	11.2'	60.4'	96°32.3	65°07.2	60°02.7	59°42.4	22°55.0	19° 14.5	41°51.1	82°49.1
11	304°24.1	5.1'	23°06.1	11.0'	60.4'	95°55.4	64°33.1	59°26.6	59°05.5	22°19.6	18°43.9	42°25.7	83°08.3
12	318°48.2	5.0'	N23°17.1	10.9'	60.4'	95°18.5	63°59.1	58° 50.5	58°28.6	21°44.2	18° 13.6	43°00.1	83°27.6
13	333°12.3	5.0'	23°28.0	10.7'	60.4'	94°41.6	63°25.2	58° 14.4	57°51.7	21°09.0	17°43.8	43°34.6	83°46.9
14	347°36.2	4.9'	23°38.7	10.5'	60.3'	94°04.7	62°51.3	57°38.4	57°14.9	20°33.8	17° 14.5	44°09.0	84°06.2
15	2°00.1	4.8'	23°49.2	10.4'	60.3'	93°27.9	62°17.5	57°02.4	56°38.0	19°58.8	16°45.7	44°43.3	84°25.5
16	16°24.0	4.8'	23°59.6	10.2'	60.3'	92°51.1	61°43.8	56°26.5	56°01.3	19°23.9	16° 17.5	45° 17.6	84°44.8
17	30°47.8	4.7'	24°09.8	10.0'	60.2'	92°14.4	61°10.1	55°50.6	55°24.5	18°49.1	15°49.8	45°51.9	85°04.1
18	45°11.5	4.7'	N 24°19.9	9.9'	60.2'	91°37.7	60°36.5	55° 14.7	54°47.8	18°14.4	15°22.8	46°26.2	85°23.4
19	59°35.1	4.6'	24°29.7	9.7'	60.2'	91°01.0	60°02.9	54°38.9	54°11.2	17°39.9	14°56.5	47°00.4	85°42.8
20	73°58.7	4.5'	24°39.4	9.5'	60.2'	90°24.4	59°29.5	54°03.1	53°34.6	17°05.6	14°30.9	47°34.6	86°02.1
21	88°22.2	4.5'	24°48.9	9.3'	60.1'	89°47.8	58°56.1	53°27.4	52°58.0	16°31.4	14°06.2	48°08.7	86°21.4
22	102°45.7	4.4'	24°58.2	9.1'	60.1'	89°11.2	58°22.8	52°51.7	52°21.4	15°57.4	13°42.3	48°42.9	86°40.8
23	117°09.1	4.4'	25°07.4	9.0'	60.1'	88°34.7	57°49.5	52°16.0	51°44.9	15°23.5		49°16.9	87°00.1
1 st	SD	= 16.5	Mer. pas	s. 14:52					Sun S	D = 16.0'			

h Moon (2nd Apr) Lunar Distance (objects with largest hourly LD delta)

n		IVIOOI	n (2 Ap	r)			Lunar D	istance	(objects	with largest	nourly i	_D deita)
Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Mars	-Pollux	-Betelgeuse	-Jupiter	+Sun	+Achernar
0	131°32.5	4.3'	N 25°16.4	8.8'	60.0'	87°58.2	57°16.3	51°40.4	51°08.5	33°47.8	14°49.9	49°51.0	87°19.4
1	145°55.8	4.3'	25°25.1	8.6'	60.0'	87°21.8	56°43.3	51°04.8	50°32.0	33°20.3	14°16.6	50°25.0	87°38.7
2	160°19.0	4.2'	25°33.7	8.4'	60.0'	86°45.4	56°10.2	50°29.2	49°55.6	32°53.1	13°43.5	50°58.9	87°58.0
3	174°42.2	4.2'	25°42.2	8.2'	60.0'	86°09.0	55°37.3	49°53.7	49°19.3	32°26.2	13°10.6	51°32.8	88°17.3
4	189°05.4	4.1'	25°50.4	8.1'	59.9'	85°32.7	55°04.5	49°18.3	48°43.0	31°59.6	12°38.1	52°06.7	88°36.6
5	203°28.5	4.1'	25°58.5	7.9'	59.9'	84°56.4	54°31.7	48°42.8	48°06.7	31°33.3	12°06.0	52°40.5	88°55.8
6	217°51.6	4.0'	N 26°06.3	7.7'	59.9'	84°20.2	53°59.0	48°07.4	47°30.5	31°07.3	11°34.2	53°14.3	89°15.1
7	232°14.6	4.0'	26°14.0	7.5'	59.8'	83°43.9	53°26.5	47°32.1	46°54.3	30°41.7	11°02.9	53°48.1	89°34.3
8	246°37.6	3.9'	26°21.5	7.3'	59.8'	83°07.8	52°54.0	46°56.8	46°18.2	30° 16.4	10°32.1	54°21.8	89°53.5
9	261°00.5	3.9'	26°28.8	7.1'	59.8'	82°31.7	52°21.6	46°21.5	45°42.1	29°51.5	10°01.9	54°55.5	90°12.7
10	275°23.4	3.9'	26°35.9	6.9'	59.7'	81°55.6	51°49.3	45°46.3	45°06.0	29°27.0	9°32.4	55°29.1	90°31.9
11	289°46.3	3.8'	26°42.8	6.7'	59.7'	81°19.5	51°17.1	45°11.1	44°30.0	29°02.9	9°03.6	56°02.7	90°51.0
12	304°09.1	3.8'	N 26°49.5	6.5'	59.7'	80°43.5	50°44.9	44°36.0	43°54.0	28° 39.2	8°35.7	56°36.2	91°10.1
13	318°31.9	3.8'	$26^{\circ}56.1$	6.3'	59.6'	80°07.6	50°12.9	44°00.9	43°18.1	28° 15.9		57°09.8	91°29.2
14	332°54.7	3.7'	27°02.4	6.1'	59.6'	79°31.7	49°41.0	43°25.9	42°42.2	27°53.0		57°43.2	91°48.3
15	347°17.4	3.7'	27°08.6	6.0'	59.6'	78°55.8	49°09.2	42°50.9	42°06.3	27°30.6		58°16.7	92°07.3
16	1°40.1	3.7'	27° 14.5	5.8'	59.5'	78°20.0	48°37.5	42°15.9	41°30.5	27°08.7		58°50.0	92°26.3
17	16°02.8	3.7'	27°20.3	5.6'	59.5'	77°44.2	48°06.0	41°41.0	40°54.8	26°47.2		59°23.4	92°45.3
18	30°25.5	3.7'	N27°25.9	5.4'	59.5'	77°08.4	47°34.5	41°06.1	40°19.0	26° 26.3		59°56.7	93°04.2
19	44°48.2	3.6'	27°31.2	5.2'	59.4'	76°32.7	47°03.1	40°31.3	39°43.4	26°05.9		60°29.9	93°23.1
20	59°10.8	3.6'	27°36.4	5.0'	59.4'	75°57.1	46°31.9	39°56.5	39°07.7	25°46.0		61°03.1	93°41.9
21	73°33.4	3.6'	27°41.4	4.8'	59.4'	75°21.5	46°00.8	39°21.8	38°32.2	25°26.7		61°36.3	94°00.7
22	87°56.0	3.6'	27°46.2	4.6'	59.3'	74°45.9	45°29.8	38°47.1	37°56.6	25°07.9		62°09.4	94°19.5
23	102°18.6	3.6'	27°50.8	4.4'	59.3'	74°10.4	44°58.9	38°12.5	37°21.1	24°49.8		62°42.5	94°38.2
2 nd	SD :	= 16.4'	Mer. pass	. 15:53	3				Sun S	5D = 16.0'			

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I.	Moon (3rd Apr)	Lunar Distance (objects with largest hourly ID delta)
n	MOOD 13'9 Apri	I linar i listance i oniects with largest nollriv i i li delta i

Thu	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Aldebaran	+Sun	+Achernar
0	116°41.2	3.6'	N 27°55.2	4.2'	59.3'		73°34.9	37°37.9	36°45.7			63°15.6	94°56.9
1	131°03.8	3.6'	27°59.3	4.0'	59.2'		72°59.4	37°03.3	36°10.3			63°48.6	95°15.5
2	145°26.4	3.6'	28°03.3	3.8'	59.2'		72°24.0	36°28.8	35°34.9			64°21.5	95°34.1
3	159°49.0	3.6'	28°07.1	3.6'	59.2'		71°48.7	35° 54.4	34°59.6			64°54.4	95°52.7
4	174°11.6	3.6'	28°10.8	3.4'	59.1'		71°13.4	$35^{\circ}19.9$	34°24.3		13°52.1	65°27.3	96°11.2
5	188°34.2	3.6'	28°14.2	3.2'	59.1'		70°38.1	34°45.6	33°49.1		14°15.5	66°00.1	96°29.6
6	202°56.8	3.6'	N28°17.4	3.0'	59.1'		70°02.9	34°11.2	33°13.9		14°39.6	66°32.9	96°48.0
7	217°19.5	3.6'	28°20.4	2.8'	59.0'		69°27.7	33°37.0	32°38.8		15°04.3	67°05.6	97°06.3
8	231°42.1	3.7'	28°23.2	2.6'	59.0'		68°52.5	33°02.7	32°03.7		15°29.7	67°38.3	97°24.6
9	246°04.8	3.7'	28°25.8	2.4'	58.9'		68°17.4	32°28.6	31°28.6		15°55.7	68°11.0	97°42.8
10	260°27.4	3.7'	28°28.3	2.2'	58.9'		67°42.4	31°54.4	30°53.6		16°22.2	68°43.6	98°01.0
11	274°50.1	3.7'	28°30.5	2.0'	58.9'		67°07.4	31°20.3	30°18.7		16°49.2	69°16.2	98°19.1
12	289°12.8	3.7'	N 28°32.5	1.8'	58.8'		66°32.4	30°46.3	29°43.8	9°11.7	17°16.6	69°48.7	98°37.1
13	303°35.6	3.8'	28°34.4	1.6'	58.8'	119°58.1	65°57.5	30°12.3	29°08.9	9°39.7	17°44.4	70°21.1	98°55.1
14	317°58.3	3.8'	28°36.0	1.5'	58.8'	119°23.2	65°22.6	29°38.3	28°34.1	10°08.4	18°12.6	70°53.6	99°13.0
15	332°21.1	3.8'	28°37.5	1.3'	58.7'	118°48.4	64°47.8	29°04.4	27°59.4	10°37.6	18°41.0	71°26.0	99°30.9
16	346°44.0	3.9'	28°38.7	1.1'	58.7'	118° 13.6	64°13.0	28°30.6	27°24.6	11°07.3	19°09.8	71°58.3	99°48.6
17	1°06.8	3.9'	28°39.8	0.9'	58.7'	117°38.8	63°38.3	27°56.8	26°50.0	11°37.4	19°38.9	72°30.6	100°06.3
18	15°29.7	3.9'	N 28°40.7	0.7'	58.6'	117°04.1	63°03.6	27°23.0	26°15.4	12°07.8	20°08.2	73°02.9	100°24.0
19	29°52.7	4.0'	28°41.3	0.5'	58.6'	116°29.4	62°28.9	26°49.3	25°40.8	12°38.5	20°37.8	73°35.1	100°41.6
20	44°15.7	4.0'	28°41.8	0.3'	58.6'	115°54.8	61°54.3	26° 15.7	25°06.3	13°09.4	21°07.6	74°07.2	100°59.1
21	58°38.7	4.1'	28°42.1	0.1'	58.5'	115°20.2	61°19.8	25°42.1	24°31.8	13°40.6	21°37.5	74°39.4	101°16.5
22	73°01.8	4.1'	28°42.2	-0.1'	58.5'	114°45.6	60°45.2	25°08.5	23°57.4	14° 12.0	22°07.6	75°11.4	101°33.9
23	87°24.9	4.2'	28°42.1	-0.3'	58.5'	114°11.1	60°10.8	24°35.0	23°23.0	14°43.5	22°37.9	75°43.5	101°51.2
3 rd	SD	= 16.2	Mer. pass	s. 16:55					Sun	SD = 16.0'			

h	Moon (4 th Apr)	Lunar Distance (objects with largest hourly LD delta)

$\overline{}$			(, . , . ,						,				
Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Capella	+Aldebaran	+Sun
0	101°48.1	4.2'	N 28°41.9	-0.5'	58.4'	113°36.7	59°36.3	24°01.5	22°48.6	15°15.1		23°08.4	76°15.5
1	116° 11.3	4.3'	28°41.4	-0.7'	58.4'	113°02.3	59°01.9	23°28.1	22°14.4	15°46.9		23°39.0	76°47.4
2	130°34.6	4.3'	28°40.7	-0.8'	58.3'	112°27.9	58° 27.6	22°54.7	21°40.1	16°18.8	19°54.6	24°09.7	77°19.3
3	144°57.9	4.4'	28°39.9	-1.0'	58.3'	111°53.6	57°53.3	22°21.4	21°06.0	16°50.8	20° 10.7	24°40.5	77°51.2
4	159°21.3	4.5'	28°38.9	-1.2'	58.3'	111°19.3	57° 19.0	21°48.2	20°31.8	17°22.8	20°27.5	25°11.4	78°23.0
5	173°44.8	4.5'	28°37.7	-1.4'	58.2'	110°45.0	56°44.8	21°15.0	19°57.7	17°54.9	20°45.0	25°42.4	78°54.8
6	188°08.4	4.6'	N 28°36.3	-1.6'	58.2'	110°10.8	56° 10.6	20°41.8	19°23.7	18°27.1	21°03.1	26°13.5	79°26.5
7	202°32.0	4.7'	28°34.7	-1.8'	58.2'	109°36.7	55° 36.5	20°08.7	18°49.7	18°59.3	21°21.8	26°44.7	79°58.2
8	216°55.6	4.7'	28°32.9	-1.9'	58.1'	109°02.6	55°02.4	19°35.6	18°15.8	19°31.6	21°41.0	27°15.9	80°29.9
9	231°19.4	4.8'	28°31.0	-2.1'	58.1'	108°28.5	54°28.4	19°02.6	17°42.0	20°03.9	22°00.9	27°47.2	81°01.5
10	245°43.2	4.9'	28°28.9	-2.3'	58.1'	107°54.5	53°54.4	18°29.7	17°08.2	20°36.2	22°21.2	28°18.6	81°33.1
11	260°07.1	5.0'	28°26.6	-2.5'	58.0'	107°20.5	53°20.4	17°56.8	16°34.4	21°08.6	22°42.1	28°50.0	82°04.6
12	274°31.0	5.0'	$N28^{\circ}24.1$	-2.7'	58.0'	106°46.5	52°46.5	17°24.0	16°00.7	21°41.0	23°03.4	29°21.5	82°36.1
13	288°55.1	5.1'	28°21.4	-2.8'	58.0'	106°12.6	52°12.6	16°51.2	15°27.1	22°13.4	23°25.1	29°53.0	83°07.5
14	303° 19.2	5.2'	28° 18.6	-3.0'	57.9'	105°38.8	51°38.8	$16^{\circ}18.5$	14°53.5	22°45.8	23°47.3	30°24.6	83°38.9
15	317°43.4	5.3'	28° 15.6	-3.2'	57.9'	105°04.9	51°05.0	15°45.8	14°20.0	23°18.2	24°09.8	30°56.2	84°10.2
16	332°07.7	5.4'	28°12.4	-3.3'	57.8'	104°31.2	50°31.3	15°13.2	13°46.5	23°50.6	24°32.8	31°27.8	84°41.6
17	346°32.1	5.5'	28°09.1	-3.5'	57.8'	103°57.4	49°57.5	14°40.7	13°13.2	24°23.0	24°56.1	31°59.4	85°12.8
18	0°56.6	5.6'	N 28°05.6	-3.7'	57.8'	103°23.7	49°23.9	14°08.2	12°39.9	24°55.4	25° 19.7	32°31.1	85°44.1
19	15°21.1	5.6'	28°01.9	-3.9'	57.7'	102°50.1	48°50.3	13°35.8	12°06.6	25°27.8	25°43.7	33°02.8	86°15.3
20	29°45.8	5.7'	27°58.0	-4.0'	57.7'	102°16.5	48°16.7	13°03.5	11°33.5	26°00.2	26°07.9	33°34.5	86°46.4
21	44° 10.5	5.8'	27°54.0	-4.2'	57.7'	101°42.9	47°43.1	12°31.3	11°00.4	26°32.6	26°32.5	34°06.2	87°17.5
22	58° 35.3	5.9'	27°49.8	-4.4'	57.6'	101°09.3	47°09.6	$11^{\circ}59.1$	10°27.5	27°05.0	26°57.3	34°38.0	87°48.6
23	73°00.3	6.0'	27°45.4	-4.5'	57.6'	100°35.9	46°36.2	11°27.0	9°54.6	27°37.3	27°22.4	35°09.7	88°19.6
4 th	SD :	= 15.9'	Mer. pass	s. 17:56					Sun S	D = 16.0'			

4 th	SD =	= 15.9'	Mer. pass	. 17:56					Sun S	SD = 16.0'			
h		Моо	n (5 th Ap	r)			Lunar D	istance (objects	with large	est hourly	LD delta)	
Sat	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Capella	+Jupiter	+Aldebaran	+Sun
0	87°25.3	6.1'	N 27°40.9	-4.7'	57.6'	100°02.4	46°02.8	10°55.1	9°21.9	27° 47.7	28°09.7	35°41.5	88°50.6
1	101°50.4	6.2'	27°36.2	-4.8'	57.5'	99°29.0	45°29.4	10°23.2	8°49.2	28° 13.3	28°42.0	36°13.3	89°21.5
2	116°15.6	6.3'	27°31.4	-5.0'	57.5'	98°55.6	44°56.1	9°51.4	8°16.8	28°39.0	29°14.3	36°45.0	89°52.4
3	130°40.9	6.4'	27°26.4	-5.2'	57.5'	98°22.3	44°22.8	9°19.8	7°44.4	29°05.0	29°46.6	37°16.8	90°23.3
4	145°06.3	6.5'	27°21.2	-5.3'	57.4'	97°49.0	43°49.5	8°48.2	7°12.3	29°31.2	30° 18.9	37°48.6	90°54.1
5	159°31.9	6.6'	$27^{\circ}15.9$	-5.5'	57.4'	97°15.7	43°16.3	8°16.9	6°40.4	29° 57.5	30°51.2	38°20.3	91°24.9
6	173°57.5	6.7'	$N27^{\circ}10.5$	-5.6'	57.4'	96°42.5	42°43.1	7°45.7	6°08.8	30°24.0	31°23.4	38°52.1	91°55.7
7	188°23.2	6.8'	27°04.8	-5.8'	57.3'	96°09.4	42°10.0	7°14.7	5°37.5	30°50.7	31°55.6	39°23.9	92°26.4
8	202°49.0	6.9'	$26^{\circ}59.1$	-5.9'	57.3'	95°36.2	41°36.9	6°44.0	5°06.7	31° 17.5	32° 27.8	39°55.6	92°57.0
9	217°15.0	7.0'	26°53.1	-6.1'	57.3'	95°03.1	41°03.8	6°13.5	4°36.4	31°44.5	33°00.0	40° 27.4	93°27.7
10	231°41.0	7.2'	26°47.1	-6.2'	57.2'	94°30.1	40°30.8	5°43.4	4°06.9	32° 11.7	33°32.2	40°59.1	93°58.3
11	246°07.2	7.3'	26°40.8	-6.4'	57.2'	93°57.0	39°57.8	5°13.8		32°38.9	34°04.3	41°30.9	94°28.8
12	260°33.4	7.4'	N 26°34.5	-6.5'	57.2'	93°24.1	39°24.9	4°44.7		33°06.3	34°36.4	42°02.6	94°59.3
13	274°59.8	7.5'	26°28.0	-6.7'	57.1'	92°51.1	38°52.0	4°16.4		33°33.8	35°08.5	42°34.3	95°29.8
14	289°26.3	7.6'	26°21.3	-6.8'	57.1'	92°18.2	38°19.1			34°01.4	35°40.5	43°06.0	96°00.3
15	303°52.9	7.7'	$26^{\circ}14.5$	-6.9'	57.1'	91°45.3	37°46.3			34°29.1	36°12.6	43°37.7	96°30.7
16	318°19.6	7.8'	26°07.6	-7.1'	57.0'	91°12.5	37°13.5			34° 56.9	36°44.6	44°09.4	97°01.0
17	332°46.4	7.9'	26°00.5	-7.2'	57.0'	90°39.7	36°40.8			35° 24.8	37° 16.5	44°41.0	97°31.4
18	347°13.3	8.0'	N 25°53.3	-7.3'	57.0'	90°06.9	36°08.1			35°52.8	37° 48.5	45° 12.7	98°01.7
19	1°40.3	8.1'	25°45.9	-7.5'	56.9'	89°34.2	35°35.4			36° 20.9	38° 20.4	45°44.3	98°31.9
20	16°07.5	8.3'	25°38.4	-7.6'	56.9'	89°01.5	35°02.8			36°49.1	38° 52.3	46°16.0	99°02.1
21	30°34.8	8.4'	25°30.8	-7.7'	56.9'	88°28.9	34°30.2			37° 17.3	39°24.2	46° 47.6	99°32.3
22	45°02.1	8.5'	25°23.1	-7.9'	56.8'	87°56.3	33°57.6			37° 45.6	39°56.0	47° 19.2	100°02.5
23	59°29.6	8.6'	25°15.2	-8.0'	56.8'	87°23.7	33°25.1			38°14.0	40°27.8	47°50.7	100°32.6
_ th	l cn	_ 15 7/	1100 000	10.E3	•				C	CD _ 16 0/			

h		Mod	on (6 th Ap	r)			Lunar Di	stance (o	bjects wit	th larges	t hourly	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Rigil Kent.	-Spica	-Arcturus	-Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	73°57.2	8.7'	N 25°07.2	-8.1'	56.8'	116°27.8	86°51.1	85°09.5	32°52.6			40°59.6	48°22.3
1	88°24.9	8.8'	24°59.1	-8.3'	56.7'	116°04.1	86°18.6	84°42.3	32°20.2		4°58.3	41°31.4	48°53.8
2	102°52.8	8.9'	24°50.8	-8.4'	56.7'	115°40.4	85°46.1	84°15.1	31°47.8		5°28.4	42°03.1	49°25.3
3	117°20.7	9.1'	24°42.4	-8.5'	56.7'	115°16.6	85°13.7	83°48.0	31°15.4		5°58.9	42°34.8	49°56.8
4	131°48.8	9.2'	24°33.9	-8.6'	56.7'	114°52.8	84°41.3	83°20.9	30°43.0	4°43.3	6°29.6	43°06.5	50°28.3
5	146°17.0	9.3'	24°25.3	-8.7'	56.6'	114°28.9	84°08.9	82°53.8	30°10.7	$5^{\circ}11.8$	7°00.6	43°38.2	50°59.8
6	160°45.2	9.4'	N 24°16.6	-8.9'	56.6'	114°05.0	83°36.6	82°26.8	29°38.5	5°40.8	7°31.7	44°09.8	51°31.2
7	175°13.6	9.5'	24°07.7	-9.0'	56.6'	113°41.1	83°04.3	81°59.8	29°06.2	$6^{\circ}10.1$	8°03.0	44°41.4	52°02.7
8	189°42.2	9.6'	23°58.7	-9.1'	56.5'	113°17.1	82°32.0	81°32.9	28°34.1	6°39.7	8°34.4	45°12.9	52°34.1
9	204°10.8	9.7'	23°49.6	-9.2'	56.5'	112°53.1	81°59.8	81°06.0	28°01.9	$7^{\circ}09.6$	9°05.8	45°44.5	53°05.5
10	218°39.5	9.9'	23°40.4	-9.3'	56.5'	112°29.0	81°27.6	80°39.1	27°29.8	7°39.6	9°37.3	46°16.0	53°36.8
11	233°08.4	10.0'	23°31.1	-9.4'	56.4'	112°05.0	80°55.4	80°12.3	26°57.7	8°09.7	10°08.8	46°47.5	54°08.2
12	247°37.4	10.1'	N23°21.7	-9.5'	56.4'	111°40.9	80°23.2	79°45.5	26°25.6	8°40.0	10°40.4	47°18.9	54°39.5
13	262°06.5	10.2'	23°12.1	-9.6'	56.4'	111°16.8	79°51.1	79° 18.8	25°53.6	9°10.3	11°12.0	47°50.4	55°10.8
14	276°35.7	10.3'	23°02.5	-9.8'	56.4'	110°52.6	79°19.0	78°52.1	25°21.6	9°40.7	11°43.6	48°21.8	55°42.1
15	291°05.0	10.4'	22°52.7	-9.9'	56.3'	110°28.4	78°47.0	78° 25.5	24°49.7	$10^{\circ}11.1$	12°15.2	48°53.1	56°13.3
16	305°34.4	10.5'	22°42.9	-10.0'	56.3'	110°04.2	78°15.0	77°58.9	24°17.8	10°41.6	12°46.8	49°24.5	56°44.6
17	320°03.9	10.6'	22°32.9	-10.1'	56.3'	109°40.0	77°43.0	77°32.3	23°45.9	11°12.1	13°18.4	49°55.8	57°15.8
18	334°33.6	10.8'	N 22°22.9	-10.2'	56.2'	109°15.8	77°11.0	77°05.8	23°14.1	11°42.6	13°50.0	50°27.1	57°47.0
19	349°03.3	10.9'	22°12.7	-10.3'	56.2'	108°51.5	76°39.1	76°39.3	22°42.3	12°13.1	14°21.6	50°58.4	58°18.2
20	3°33.2	11.0'	22°02.4	-10.4'	56.2'	108°27.2	76°07.2	76°12.9	22°10.5	12°43.6	14°53.2	51°29.6	58°49.3
21	18°03.2	11.1'	21°52.1	-10.5'	56.2'	108°02.9	75°35.4	75°46.6	21°38.8	13° 14.2	15°24.8	52°00.8	59°20.5
22	32°33.2	11.2'	$21^{\circ}41.6$	-10.5'	56.1'	107°38.6	75°03.5	75°20.3	21°07.1	13°44.7	15°56.4	52°32.0	59°51.6
23	47°03.4	11.3'	21°31.1	-10.6'	56.1'	107°14.2	74°31.7	74°54.0	20°35.4	14° 15.3	16°27.9	53°03.2	60°22.7
6 th	SD	= 15.5'	Mer. pas	s. 19:45									

h Moon (7th Apr) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	61°33.7	11.4'	N 21°20.4	-10.7'	56.1'	119°54.1	74°27.8	74°00.0	20°03.8	14°45.8	16°59.5	53°34.3	60°53.8
1	76°04.1	11.5'	21°09.7	-10.8'	56.0'	119°22.4	74°01.6	73°28.2	19°32.2	15°16.3	17°31.0	54°05.4	61°24.8
2	90°34.7	11.6'	20°58.9	-10.9'	56.0'	118°50.7	73°35.5	72°56.5	19°00.6	15°46.8	18°02.6	54°36.5	61°55.8
3	105°05.3	11.7'	20°48.0	-11.0'	56.0'	118°19.0	73°09.4	72°24.8	18° 29.1	16°17.4	18°34.1	55°07.6	62°26.9
4	119°36.0	11.8'	20°37.0	-11.1'	56.0'	117°47.3	72°43.4	71°53.2	17° 57.7	16°47.8	19°05.5	55°38.6	62°57.8
5	134°06.8	11.9'	20°25.9	-11.2'	55.9'	117°15.7	72°17.4	71°21.5	17° 26.2	17°18.3	19°37.0	56°09.6	63°28.8
6	148°37.8	12.0'	N 20°14.7	-11.3'	55.9'	116°44.1	71°51.5	70°49.9	16°54.8	17°48.8	20°08.4	56°40.6	63°59.8
7	163°08.8	12.1'	20°03.5	-11.3'	55.9'	116°12.5	71°25.7	70°18.3	16°23.5	18°19.2	20°39.9	57°11.5	64°30.7
8	177°39.9	12.2'	$19^{\circ}52.1$	-11.4'	55.9'	115°41.0	70°59.9	69°46.8	15° 52.2	18°49.7	21°11.3	57°42.5	65°01.6
9	192°11.2	12.3'	19°40.7	-11.5'	55.8'	115°09.4	70°34.1	69°15.3	15° 20.9	19°20.1	21°42.7	58°13.4	65°32.5
10	206°42.5	12.4'	19° 29.2	-11.6'	55.8'	114°37.9	70°08.4	68°43.8	14°49.7	19°50.5	22°14.0	58°44.2	66°03.3
11	221°14.0	12.5'	19° 17.7	-11.7'	55.8'	114°06.5	69°42.8	68° 12.3	14° 18.5	20°20.9	22°45.4	59°15.1	66°34.2
12	235°45.5	12.6'	$N19^{\circ}06.0$	-11.7'	55.8'	113°35.0	69°17.2	67°40.9	13°47.3	20°51.2	23°16.7	59°45.9	67°05.0
13	250°17.2	12.7'	18° 54.3	-11.8'	55.7'	113°03.6	68°51.7	67°09.5	13° 16.3	21°21.6	23°48.0	60°16.7	67°35.8
14	264°48.9	12.8'	18° 42.5	-11.9'	55.7'	112°32.2	68°26.3	66°38.1	12°45.2	21°51.9	24°19.3	60°47.5	68°06.5
15	279°20.7	12.9'	18° 30.6	-11.9'	55.7'	112°00.9	68°00.9	66°06.7	12° 14.2	22°22.2	24°50.5	61°18.3	68° 37.3
16	293°52.7	13.0'	$18^{\circ}18.6$	-12.0'	55.7'	111°29.5	67°35.5	65°35.4	11°43.3	22°52.5	25°21.7	61°49.0	69°08.0
17	308°24.7	13.1'	$18^{\circ}06.6$	-12.1'	55.6'	110°58.2	67°10.2	65°04.1	11° 12.5	23°22.8	25°53.0	62°19.7	69°38.8
18	322°56.8	13.2'	$N17^{\circ}54.5$	-12.2'	55.6'	110°26.9	66°45.0	64°32.8	10°41.7	23°53.0	26°24.2	62°50.4	70°09.4
19	337°29.0	13.3'	17°42.4	-12.2'	55.6'	109°55.7	66°19.9	64°01.5	10° 11.0	24°23.2	26°55.3	63°21.1	70°40.1
20	352°01.3	13.4'	$17^{\circ}30.1$	-12.3'	55.6'	109°24.4	65°54.8	63°30.3	9°40.3	24°53.5	27°26.5	63°51.7	71°10.8
21	6°33.7	13.5'	$17^{\circ}17.9$	-12.4'	55.5'	108°53.2	65°29.8	62°59.1	9°09.8	25°23.6	27°57.6	64°22.3	71°41.4
22	21°06.2	13.6'	$17^{\circ}05.5$	-12.4'	55.5'	108°22.0	65°04.8	62°27.9	8°39.3	25°53.8	28°28.7	64°52.9	72°12.0
23	35°38.8	13.7'	$16^{\circ}53.1$	-12.5'	55.5'	107°50.9	64°39.9	61°56.7	8°09.0	26°23.9	28°59.8	65°23.5	72°42.6
7 th	SD	= 15.3	Mer. pas	s. 20:33				-					

	h	Moon (8 th Apr)	Lunar Distance (objects with largest hourly LD delta)
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			(,	02,0000		, , ,		
Tue	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	±Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	50°11.4	13.8'	N 16°40.6	-12.5'	55.5'	107°19.7	64°15.1	61°25.6	7°38.8	26°54.1	29°30.9	65°54.1	73°13.2
1	64°44.2	13.8'	$16^{\circ}28.1$	-12.6'	55.4'	106°48.6	63°50.3	60°54.4	7°08.8	27°24.2	30°01.9	66°24.6	73°43.7
2	79°17.0	13.9'	$16^{\circ}15.5$	-12.7'	55.4'	106°17.5	63°25.6	60°23.4	6°39.0	27°54.3	30°32.9	66°55.1	74°14.3
3	93°50.0	14.0'	$16^{\circ}02.8$	-12.7'	55.4'	105°46.5	63°01.0	59°52.3	6°09.4	28°24.3	31°04.0	67°25.6	74°44.8
4	108°23.0	14.1'	$15^{\circ}50.1$	-12.8'	55.4'	105°15.4	62°36.5	59°21.2	5°40.0	28°54.4	31°34.9	67°56.1	75°15.3
5	122°56.0	14.2'	15°37.3	-12.8'	55.4'	104°44.4	62°12.0	58° 50.2	5°11.1	29°24.4	32°05.9	68°26.5	75°45.8
6	137°29.2	14.3'	N 15°24.5	-12.9'	55.3'	104°13.4	61°47.6	58° 19.2	4°42.5	29°54.4	32°36.8	68° 56.9	76°16.2
7	152°02.5	14.3'	$15^{\circ}11.6$	-12.9'	55.3'	103°42.4	61°23.3	57°48.2	4°14.6	30°24.4	33°07.8	69°27.3	76°46.6
8	166°35.8	14.4'	14°58.6	-13.0'	55.3'	103°11.4	60°59.0	57° 17.3	3°47.5	30°54.3	33°38.7	69°57.7	77°17.1
9	181°09.2	14.5'	14°45.6	-13.0'	55.3'	102°40.5	60°34.9	56°46.3		31°24.3	34°09.6	70°28.1	77°47.5
10	195°42.7	14.6'	14°32.6	-13.1'	55.2'	102°09.6	60°10.8	56° 15.4		31°54.2	34°40.4	70°58.4	78°17.8
11	210°16.3	14.6'	$14^{\circ}19.5$	-13.1'	55.2'	101°38.7	59°46.7	55° 44.5		32°24.1	35°11.3	71°28.7	78°48.2
12	224°49.9	14.7'	N 14°06.4	-13.2'	55.2'	101°07.8	59°22.8	55° 13.6		32°54.0	35°42.1	71°59.0	79°18.5
13	239°23.6	14.8'	13°53.2	-13.2'	55.2'	100°36.9	58°59.0	54°42.8		33°23.9	36°12.9	72°29.3	79°48.9
14	253°57.4	14.9'	13°39.9	-13.3'	55.2'	100°06.1	58°35.2	54° 11.9		33°53.7	36°43.7	72°59.6	80°19.2
15	268°31.3	14.9'	13°26.6	-13.3'	55.1'	99°35.3	58°11.5	53°41.1		34°23.5	37°14.4	73°29.8	80°49.5
16	283°05.2	15.0'	13° 13.3	-13.4'	55.1'	99°04.5	57°47.9	53° 10.3		34°53.4	37°45.2	74°00.0	81°19.7
17	297°39.2	15.1'	12°59.9	-13.4'	55.1'	98°33.7	57°24.4	52°39.5		35°23.1	38°15.9	74°30.3	81°50.0
18	312°13.3	15.1'	N 12°46.5	-13.5'	55.1'	98°03.0	57°01.0	52°08.8		35°52.9	38°46.6	75°00.4	82°20.2
19	326°47.4	15.2'	12°33.1	-13.5'	55.1'	97°32.2	56°37.6	51°38.0		36°22.7	39°17.3	75°30.6	82°50.4
20	341°21.6	15.3'	$12^{\circ}19.6$	-13.5'	55.0'	97°01.5	56°14.4	51°07.3		36°52.4	39°48.0	76°00.7	83°20.6
21	355°55.9	15.3'	$12^{\circ}06.0$	-13.6'	55.0'	96°30.8	55°51.2	50°36.6		37°22.1	40°18.7	76°30.9	83°50.8
22	10°30.2	15.4'	11°52.4	-13.6'	55.0'	96°00.1	55°28.2	50°05.9		37°51.8	40°49.3	77°01.0	84°21.0
23	25°04.6	15.5'	11°38.8	-13.7'	55.0'	95°29.5	55°05.2	49° 35.3	4°50.5	38°21.5	41°19.9	77°31.1	84°51.1
8 th	SD	= 15.1	Mer. pas	s. 21:17									

h Moon (9 th Apr)	Lunar Distance (objects with largest hourly LD delta)
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Wed	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	39°39.1	15.5'	N11°25.2	-13.7'	55.0'	94°58.8	87°19.1	83°26.1	49°04.6	5°18.9	41°50.5	78°01.2	85°21.3
1	54°13.6	15.6'	$11^{\circ}11.5$	-13.7'	55.0'	94°28.2	86°55.0	83°02.6	48°34.0	5°47.5	42°21.1	78°31.2	85°51.4
2	68°48.2	15.6'	10°57.8	-13.8'	54.9'	93°57.6	86°30.9	82°39.2	48°03.4	6°16.5	42°51.7	79°01.3	86°21.5
3	83°22.9	15.7'	10°44.0	-13.8'	54.9'	93°27.0	86°06.8	82°15.8	47°32.8	6°45.7	43°22.2	79°31.3	86°51.5
4	97°57.6	15.8'	10°30.2	-13.8'	54.9'	92°56.4	85°42.7	81°52.4	47°02.2	7°15.1	43°52.8	80°01.3	87°21.6
5	112°32.3	15.8'	10°16.4	-13.9'	54.9'	92°25.9	85°18.6	81°29.0	46°31.7	7°44.6	44°23.3	80°31.3	87°51.6
6	127°07.1	15.9'	$N10^{\circ}02.5$	-13.9'	54.9'	91°55.3	84°54.5	81°05.7	46°01.1	8°14.2	44°53.8	81°01.2	88°21.7
7	141°42.0	15.9'	09°48.6	-13.9'	54.8'	91°24.8	84°30.5	80°42.4	45°30.6	8°44.0	45°24.3	81°31.2	88°51.7
8	156°16.9	16.0'	09°34.7	-13.9'	54.8'	90°54.3	84°06.5	80°19.2	45°00.1	9°13.7	45°54.7	82°01.1	89°21.7
9	170°51.9	16.0'	09°20.8	-14.0'	54.8'	90°23.8	83°42.5	79°56.0	44°29.6	9°43.6	46°25.2	82°31.1	89°51.7
10	185°26.9	16.1'	09°06.8	-14.0'	54.8'	89°53.3	83°18.6	79°32.8	43°59.2	10°13.5	46°55.6	83°01.0	90°21.6
11	200°02.0	16.1'	08°52.8	-14.0'	54.8'	89°22.9	82°54.7	79°09.6	43°28.7	10°43.4	47°26.1	83°30.9	90°51.6
12	214°37.1	16.2'	N08°38.8	-14.0'	54.8'	88°52.4	82°30.8	78°46.5	42°58.3	11°13.3	47°56.5	84°00.7	91°21.5
13	229°12.3	16.2'	08°24.7	-14.1'	54.7'	88°22.0	82°06.9	78°23.4	42°27.8	11°43.3	48° 26.9	84°30.6	91°51.4
14	243°47.5	16.3'	$08^{\circ}10.7$	-14.1'	54.7'	87°51.6	81°43.0	78°00.4	41°57.4	12°13.3	48° 57.2	85°00.4	92°21.3
15	258°22.8	16.3'	07°56.6	-14.1'	54.7'	87°21.2	81°19.2	77°37.4	41°27.0	12°43.4	49°27.6	85°30.3	92°51.2
16	272°58.1	16.4'	07°42.5	-14.1'	54.7'	86°50.8	80°55.4	77°14.4	40°56.7	13°13.4	49°58.0	86°00.1	93°21.1
17	287°33.5	16.4'	07°28.3	-14.2'	54.7'	86°20.5	80°31.7	76°51.4	40°26.3	13°43.4	50°28.3	86°29.9	93°50.9
18	302°08.9	16.4'	$N07^{\circ}14.2$	-14.2'	54.7'	85°50.1	80°07.9	76°28.5	39°56.0	14°13.5	50°58.6	86°59.7	94°20.8
19	316°44.3	16.5'	$07^{\circ}00.0$	-14.2'	54.6'	85° 19.8	79°44.2	76°05.7	39°25.6	14°43.5	51°28.9	87° 29.4	94°50.6
20	331°19.8	16.5'	06°45.8	-14.2'	54.6'	84°49.5	79°20.5	75°42.8	38°55.3	15°13.6	51°59.2	87°59.2	95°20.4
21	345°55.3	16.6'	06°31.6	-14.2'	54.6'	84° 19.2	78°56.9	75°20.1	38°25.0	15°43.7	52°29.5	88°28.9	95°50.2
22	0°30.9	16.6'	$06^{\circ}17.3$	-14.2'	54.6'	83°48.9	78°33.3	74°57.3	37°54.7	16°13.7	52°59.7	88°58.7	96°20.0
23	15°06.4	16.6'	06°03.1	-14.3'	54.6'	83° 18.6	78°09.7	74°34.6	37°24.4	16°43.8	53°30.0	89°28.4	96°49.7
9 th	SD	= 15.0	Mer. pas	s. 21:58									

Moon (10th Apr) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	29°42.1	16.7'	N 05°48.8	-14.3'	54.6'		82°48.4	77°46.2	36°54.2	17°13.8	54°00.2	89°58.1	97°19.5
1	44°17.7	16.7'	05°34.5	-14.3'	54.6'		82°18.1	77°22.6	36°23.9	17°43.9	54°30.5	90°27.7	97°49.2
2	58°53.4	16.7'	05°20.3	-14.3'	54.5'		81°47.9	76°59.2	35°53.7	18°14.0	55°00.7	90°57.4	98°19.0
3	73°29.2	16.8'	05°05.9	-14.3'	54.5'		81°17.6	76°35.7	35°23.5	18°44.0	55°30.9	91°27.1	98°48.7
4	88°04.9	16.8'	04°51.6	-14.3'	54.5'		80°47.4	76°12.3	34°53.3	19°14.1	56°01.0	91°56.7	99°18.4
5	102°40.7	16.8'	04°37.3	-14.3'	54.5'		80°17.2	75°48.9	34°23.1	19°44.1	56°31.2	92°26.4	99°48.0
6	117°16.5	16.8'	N 04°23.0	-14.3'	54.5'		79°47.1	75°25.6	33°52.9	20°14.1	57°01.4	92°56.0	100°17.7
7	131°52.4	16.9'	04°08.6	-14.4'	54.5'		79°16.9	75°02.3	33°22.7	20°44.2	57°31.5	93°25.6	100°47.4
8	146°28.3	16.9'	03°54.3	-14.4'	54.5'		78°46.7	74°39.0	32°52.5	21°14.2	58°01.7	93°55.2	101°17.0
9	161°04.2	16.9'	03°39.9	-14.4'	54.5'		78°16.6	74°15.8	32°22.4	21°44.2	58°31.8	94°24.7	101°46.6
10	175°40.1	17.0'	03°25.5	-14.4'	54.4'		77°46.4	73°52.6	31°52.3	22°14.2	59°01.9	94°54.3	102°16.2
11	190°16.0	17.0'	$03^{\circ}11.1$	-14.4'	54.4'		77°16.3	73°29.5	31°22.1	22°44.2	59°32.0	95°23.9	102°45.8
12	204°52.0	17.0'	N 02°56.8	-14.4'	54.4'		76°46.2	73°06.4	30°52.0	23°14.2	60°02.1	95°53.4	103°15.4
13	219°28.0	17.0'	02°42.4	-14.4'	54.4'		76°16.1	72°43.3	30°21.9	23°44.2	60°32.2	96°22.9	103°45.0
14	234°04.0	17.0'	02°28.0	-14.4'	54.4'		75°46.0	72°20.3	29°51.9	24°14.2	61°02.2	96°52.5	104°14.5
15	248°40.1	17.1'	02°13.6	-14.4'	54.4'		75°16.0	71°57.3	29°21.8	24°44.2	61°32.3	97°22.0	104°44.1
16	263°16.1	17.1'	$01^{\circ}59.2$	-14.4'	54.4'		74°45.9	71°34.4	28°51.7	25°14.1	62°02.3	97°51.5	105°13.6
17	277°52.2	17.1'	01°44.8	-14.4'	54.4'		74°15.8	71°11.5	28°21.7	25°44.1	62°32.3	98°21.0	105°43.1
18	292°28.3	17.1'	N 01°30.4	-14.4'	54.3'		73°45.8	70°48.7	27°51.6	26°14.1	63°02.4	98°50.4	106°12.6
19	307°04.4	17.1'	$01^{\circ}16.0$	-14.4'	54.3'		73°15.8	70°25.9	27°21.6	26°44.0	63°32.4	99°19.9	106°42.1
20	321°40.5	17.1'	$01^{\circ}01.6$	-14.4'	54.3'	119°46.9	72°45.7	70°03.2	26°51.6	27°13.9	64°02.4	99°49.3	107°11.6
21	336°16.6	17.1'	00°47.2	-14.4'	54.3'	119°23.8	72°15.7	69°40.5	26°21.6	27°43.9	64°32.4	100°18.8	107°41.0
22	350°52.8	17.2'	00°32.8	-14.4'	54.3'	119°00.6	71°45.7	69°17.8	25°51.6	28°13.8	65°02.3	100°48.2	108°10.5
23	5°28.9	17.2'	00°18.4	-14.4'	54.3'	118°37.3	71°15.7	68°55.2	25°21.6	28°43.7	65°32.3	101°17.6	108°39.9
10 th	SD	= 14.9'	Mer. pas	s. 22:37				·					

Moon (11th Apr) h Lunar Distance (objects with largest hourly LD delta)

			. (Tanta Distance (Superior Man langues Man ly 12 denta)							
Fri	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	20°05.1	17.2'	N 00°04.0	-14.4'	54.3'	118°14.0	70°45.8	68°32.7	24°51.6	29°13.6	66°02.3	101°47.0	109°09.3
1	34°41.2	17.2'	S 00°10.4	-14.4'	54.3'	117°50.6	70°15.8	68°10.2	24°21.6	29°43.5	66°32.2	102°16.4	109°38.7
2	49°17.4	17.2'	00°24.8	-14.4'	54.3'	117°27.2	69°45.8	67°47.8	23°51.7	30°13.4	67°02.2	102°45.8	110°08.1
3	63°53.6	17.2'	00°39.1	-14.4'	54.2'	117°03.8	69°15.9	67°25.4	23°21.7	30°43.3	67°32.1	103°15.2	110°37.5
4	78°29.8	17.2'	00°53.5	-14.4'	54.2'	116°40.3	68°45.9	67°03.1	22°51.8	31°13.2	68°02.0	103°44.6	111°06.9
5	93°06.0	17.2'	$01^{\circ}07.8$	-14.3'	54.2'	116°16.7	68°16.0	66°40.8	22°21.9	31°43.1	68°31.9	104°13.9	111°36.3
6	107°42.2	17.2'	S 01°22.2	-14.3'	54.2'	115°53.1	67°46.1	66°18.6	21°51.9	32°12.9	69°01.8	104°43.3	112°05.6
7	122°18.4	17.2'	01°36.5	-14.3'	54.2'	115°29.5	67°16.2	65°56.4	21°22.0	32°42.8	69°31.7	105°12.6	112°34.9
8	136°54.6	17.2'	$01^{\circ}50.9$	-14.3'	54.2'	115°05.9	66°46.3	65°34.3	20°52.1	33°12.6	70°01.6	105°41.9	113°04.2
9	151°30.8	17.2'	02°05.2	-14.3'	54.2'	114°42.2	66°16.4	65°12.3	20°22.2	33°42.5	70°31.5	106°11.2	113°33.6
10	166°07.0	17.2'	$02^{\circ}19.5$	-14.3'	54.2'	114°18.4	65°46.5	64°50.3	19°52.3	34°12.3	71°01.4	106°40.5	114°02.8
11	180°43.2	17.2'	02°33.8	-14.3'	54.2'	113°54.6	65°16.6	64°28.4	19°22.5	34°42.1	71°31.2	107°09.8	114°32.1
12	195°19.4	17.2'	S 02°48.1	-14.3'	54.2'	113°30.8	64°46.7	64°06.6	18°52.6	35°11.9	72°01.1	107°39.1	115°01.4
13	209°55.6	17.2'	03°02.3	-14.3'	54.2'	113°07.0	64°16.9	63°44.8	18°22.7	35°41.8	72°30.9	108°08.4	115°30.6
14	224°31.8	17.2'	03°16.6	-14.2'	54.1'	112°43.1	63°47.0	63°23.1	17°52.9	36°11.6	73°00.7	108°37.7	115°59.9
15	239°08.0	17.2'	03°30.8	-14.2'	54.1'	112°19.2	63°17.2	63°01.4	17°23.1	36°41.4	73°30.6	109°06.9	116°29.1
16	253°44.2	17.2'	03°45.1	-14.2'	54.1'	111°55.2	62°47.3	62°39.8	16°53.2	37°11.2	74°00.4	109°36.2	116°58.3
17	268°20.3	17.2'	03°59.3	-14.2'	54.1'	111°31.3	62°17.5	62°18.3	16°23.4	37°40.9	74°30.2	110°05.4	117°27.5
18	282°56.5	17.2'	S 04°13.4	-14.2'	54.1'	111°07.3	61°47.7	61°56.9	15°53.6	38°10.7	75°00.0	110°34.7	117°56.7
19	297°32.6	17.1'	04°27.6	-14.1'	54.1'	110°43.2	61°17.9	61°35.5	15°23.8	38°40.5	75°29.8	111°03.9	118°25.9
20	312°08.8	17.1'	04°41.8	-14.1'	54.1'	110°19.2	60°48.1	61°14.2	14°54.0	39°10.3	75°59.6	111°33.1	118°55.1
21	326°44.9	17.1'	04°55.9	-14.1'	54.1'	109°55.1	60°18.3	60°53.0	14°24.2	39°40.0	76°29.4	112°02.3	119°24.2
22	341°21.0	17.1'	$05^{\circ}10.0$	-14.1'	54.1'	109°31.0	59°48.5	60°31.9	13°54.4	40°09.8	76°59.2	112°31.5	119°53.3
23	355°57.1	17.1'	$05^{\circ}24.1$	-14.1'	54.1'	109°06.8	59°18.7	60°10.8	13°24.6	40°39.5	77°28.9	113°00.7	
11 th	SD	= 14.8'	Mer. pas	s. 23:17				-					

h		Мооі	n (12 th A _l	pr)			Lunar Distance (objects with largest hourly LD delta)						
Sat	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	10°33.2	17.1'	S 05°38.1	-14.0'	54.1'	108°42.7	59°49.8	58°48.9	12°54.8	41°09.3	73°50.7	77°58.7	113°29.9
1	25°09.3	17.1'	05°52.2	-14.0'	54.1'	108°18.5	59°28.9	58°19.1	12°25.1	41°39.0	$74^{\circ}19.5$	78°28.4	113°59.1
2	39°45.4	17.0'	06°06.2	-14.0'	54.1'	107°54.2	59°08.1	57°49.4	11°55.3	42°08.7	74°48.3	78°58.2	114°28.3
3	54°21.4	17.0'	06°20.2	-14.0'	54.0'	107°30.0	58°47.3	$57^{\circ}19.6$	11°25.6	42°38.4	$75^{\circ}17.1$	79°27.9	114°57.4
4	68°57.4	17.0'	06°34.2	-13.9'	54.0'	107°05.7	58° 26.7	56°49.9	10°55.8	43°08.2	75°45.8	79°57.7	115°26.6
5	83°33.4	17.0'	$06^{\circ}48.1$	-13.9'	54.0'	106°41.5	58°06.1	56°20.1	10°26.1	43°37.9	76°14.6	80°27.4	115°55.7
6	98°09.4	17.0'	S 07°02.0	-13.9'	54.0'	106°17.2	57°45.6	55°50.4	9°56.4	44°07.6	76°43.3	80°57.1	116°24.9
7	112°45.4	16.9'	$07^{\circ}15.9$	-13.9'	54.0'	105°52.8	57°25.3	55°20.6	9°26.6	44°37.3	$77^{\circ}12.1$	81°26.8	116°54.0
8	127°21.3	16.9'	07°29.8	-13.8'	54.0'	105°28.5	57°05.0	54°50.9	8°56.9	45°07.0	77°40.8	81°56.6	117°23.1
9	141°57.3	16.9'	07°43.6	-13.8'	54.0'	105°04.1	56°44.8	54°21.2	8°27.2	45°36.7	78°09.6	82°26.3	117°52.2
10	156°33.1	16.9'	07°57.4	-13.8'	54.0'	104°39.8	56°24.6	53°51.5	7°57.5	46°06.4	78°38.3	82°56.0	118°21.3
11	171°09.0	16.8'	08°11.2	-13.7'	54.0'	104°15.4	56°04.6	53°21.8	7°27.8	46°36.0	79°07.0	83°25.7	118°50.4
12	185°44.9	16.8'	S 08°24.9	-13.7'	54.0'	103°50.9	55° 44.7	52°52.1	6°58.1	47°05.7	79°35.7	83°55.3	119°19.5
13	200°20.7	16.8'	08°38.6	-13.7'	54.0'	103°26.5	55°24.9	52°22.4	6°28.5	47°35.4	80°04.4	84°25.0	119°48.6
14	214°56.5	16.8'	08°52.3	-13.6'	54.0'	103°02.1	55°05.2	51°52.7	5°58.8	48°05.1	80°33.1	84°54.7	
15	229°32.2	16.7'	09°05.9	-13.6'	54.0'	102°37.6	54° 45.6	51°23.0	5°29.2	48°34.7	81°01.8	85°24.4	
16	244°08.0	16.7'	$09^{\circ}19.5$	-13.6'	54.0'	102°13.1	54°26.1	50°53.3	4°59.5	49°04.4	81°30.5	85°54.1	
17	258°43.7	16.7'	09°33.1	-13.5'	54.0'	101°48.6	54°06.7	50°23.6	4°29.9	49°34.0	81°59.2	86°23.7	
18	273°19.3	16.6'	S 09°46.6	-13.5'	54.0'	101°24.1	53°47.4	49°53.9	4°00.3	50°03.7	82°27.9	86°53.4	
19	287°55.0	16.6'	10°00.1	-13.5'	54.0'	100°59.6	53°28.2	49°24.2	3°30.7	50°33.3	82°56.6	87°23.0	
20	302°30.6	16.6'	10° 13.5	-13.4'	54.0'	100°35.1	53°09.2	48°54.6	3°01.2	51°03.0	83°25.3	87°52.7	
21	317°06.1	16.5'	$10^{\circ}27.0$	-13.4'	54.0'	100°10.5	52°50.2	48°24.9	2°31.7	51°32.6	83°53.9	88°22.3	
22	331°41.7	16.5'	10°40.3	-13.3'	53.9'	99°46.0	52°31.4	47°55.3	2°02.4	52°02.2	84°22.6	88°52.0	
23	346°17.2	16.5'	10°53.7	-13.3'	53.9'	99°21.4	52°12.7	47°25.6	1°33.2	52°31.9	84°51.3	89°21.6	
12 th	SD	= 14.7	Mer. pas	s. 23:56									

Moon (13th Apr) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	±Spica	+Regulus	+Mars	+Procyon	+Pollux
0	0°52.6	16.4'	S 11°07.0	-13.3'	53.9'		98°56.9	46°56.0	1°04.4	53°01.5	85° 19.9	86°30.2	89°51.3
1	15°28.0	16.4'	11°20.2	-13.2'	53.9'		98°32.3	46°26.3		53°31.1	85°48.6	86°57.9	90°20.9
2	30°03.4	16.3'	11°33.4	-13.2'	53.9'		98°07.7	45°56.7		54°00.7	86° 17.2	87°25.7	90°50.5
3	44°38.8	16.3'	$11^{\circ}46.6$	-13.1'	53.9'		97°43.1	45°27.0		54°30.4	86°45.9	87°53.4	91°20.1
4	59°14.1	16.3'	$11^{\circ}59.7$	-13.1'	53.9'		97°18.5	44°57.4		55°00.0	87° 14.5	88°21.2	91°49.8
5	73°49.3	16.2'	$12^{\circ}12.8$	-13.0'	53.9'		96°53.9	44°27.8		55°29.6	87°43.2	88°48.9	92°19.4
6	88°24.6	16.2'	S 12°25.8	-13.0'	53.9'		96°29.2	43°58.1	1°57.7	55°59.2	88°11.8	89°16.6	92°49.0
7	102°59.7	16.1'	12°38.8	-12.9'	53.9'		96°04.6	43°28.5	2°27.0	56°28.8	88°40.4	89°44.4	93°18.6
8	117°34.9	16.1'	12°51.7	-12.9'	53.9'		95°40.0	42°58.9	2°56.5	56°58.4	89°09.0	90°12.1	93°48.2
9	132°10.0	16.0'	13°04.6	-12.8'	53.9'		95°15.3	42°29.2	3°26.0	57°28.0	89°37.7	90°39.8	94°17.8
10	146°45.0	16.0'	13° 17.4	-12.8'	53.9'		94°50.7	41°59.6	3°55.5	57°57.6	90°06.3	91°07.6	94°47.4
11	161°20.0	16.0'	13°30.2	-12.7'	53.9'		94°26.0	41°30.0	4°25.0	58°27.2	90°34.9	91°35.3	95°17.0
12	175°55.0	15.9'	S 13°43.0	-12.7'	53.9'		94°01.4	41°00.4	4°54.6	58°56.8	91°03.5	92°03.0	95°46.6
13	190°29.9	15.9'	13°55.6	-12.6'	53.9'		93°36.7	40°30.8	5°24.1	59°26.4	91°32.1	92°30.7	96°16.2
14	205°04.7	15.8'	14°08.3	-12.6'	53.9'		93°12.1	40°01.2	5°53.7	59°56.0	92°00.7	92°58.5	96°45.8
15	219°39.5	15.8'	14°20.8	-12.5'	53.9'	119°53.7	92°47.4	39°31.6	6°23.2	60°25.6	92°29.3	93°26.2	97°15.4
16	234°14.3	15.7'	14°33.4	-12.5'	53.9'	119°26.3	92°22.7	39°02.0	6°52.8	60°55.1	92°58.0	93°53.9	97°45.0
17	248°49.0	15.7'	14°45.8	-12.4'	53.9'	118°58.8	91°58.1	38°32.4	7°22.4	61°24.7	93°26.6	94°21.6	98°14.6
18	263°23.7	15.6'	S 14°58.2	-12.4'	53.9'	118°31.3	91°33.4	38°02.8	7°52.0	61°54.3	93°55.2	94°49.3	98°44.2
19	277°58.3	15.6'	$15^{\circ}10.6$	-12.3'	53.9'	118°03.8	91°08.7	37°33.2	8°21.6	62°23.9	94°23.8	95°17.0	99°13.7
20	292°32.8	15.5'	15°22.9	-12.2'	53.9'	117°36.3	90°44.1	37°03.6	8°51.1	62°53.5	94°52.3	95°44.7	99°43.3
21	307°07.3	15.4'	$15^{\circ}35.1$	-12.2'	53.9'	117°08.8	90°19.4	36°34.0	9°20.7	63°23.0	95°20.9	96°12.4	100°12.9
22	321°41.8	15.4'	15°47.3	-12.1'	53.9'	116°41.2	89°54.7	36°04.4	9°50.3	63°52.6	95°49.5	96°40.1	100°42.5
23	336°16.1	15.3'	15°59.4	-12.1'	53.9'	116°13.7	89°30.1	35°34.8	10°19.9	64°22.2	96°18.1	97°07.7	101°12.1
13 th	SI	0 = 14.	7' Mer. pa	iss:-									

h Moon (14 th Apr) Lunar Distance (objects wi	n largest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	+Spica	+Regulus	+Mars	+Procyon	+Pollux
0	350°50.5	15.3'	S 16°11.5	-12.0'	53.9'	115°46.1	89°05.4	35°05.2	10°49.5	64°51.8	96°46.7	97°35.4	101°41.6
1	5°24.7	15.2'	16°23.5	-11.9'	53.9'	115°18.5	88°40.7	34°35.6	11°19.1	65°21.4	97°15.3	98°03.1	102°11.2
2	19°59.0	15.2'	16°35.4	-11.9'	53.9'	114°50.9	88°16.1	34°06.0	11°48.6	65°50.9	97°43.9	98°30.7	102°40.8
3	34°33.1	15.1'	16°47.3	-11.8'	53.9'	114°23.3	87°51.4	33°36.4	12°18.2	66° 20.5	98°12.5	98°58.4	103°10.4
4	49°07.2	15.0'	$16^{\circ}59.1$	-11.7'	53.9'	113°55.6	87°26.7	33°06.8	12°47.8	66°50.1	98°41.1	99°26.1	103°40.0
5	63°41.3	15.0'	$17^{\circ}10.8$	-11.7'	53.9'	113°28.0	87°02.1	32°37.2	13°17.4	67° 19.7	99°09.6	99°53.7	104°09.5
6	78°15.3	14.9'	S 17°22.5	-11.6'	53.9'	113°00.3	86°37.4	32°07.6	13°47.0	67°49.2	99°38.2	100°21.3	104°39.1
7	92°49.2	14.9'	$17^{\circ}34.1$	-11.5'	53.9'	112°32.6	86°12.8	31°38.0	14°16.6	68° 18.8	100°06.8	100°49.0	105°08.7
8	107°23.0	14.8'	17°45.6	-11.5'	53.9'	112°04.9	85°48.1	31°08.4	14°46.2	68° 48.4	100°35.4	101°16.6	105°38.3
9	121°56.8	14.7'	17°57.1	-11.4'	53.9'	111°37.2	85°23.5	30°38.9	15°15.7	69° 18.0	101°04.0	101°44.2	106°07.8
10	136°30.6	14.7'	18°08.4	-11.3'	53.9'	111°09.5	84°58.9	30°09.3	15°45.3	69°47.5	101°32.6	102°11.9	106°37.4
11	151°04.2	14.6'	18°19.8	-11.2'	53.9'	110°41.7	84°34.2	29°39.7	16°14.9	70° 17.1	102°01.1	102°39.5	107°07.0
12	165°37.9	14.5'	S 18°31.0	-11.2'	53.9'	110°14.0	84°09.6	29°10.1	16°44.5	70°46.7	102°29.7	103°07.1	107°36.6
13	180°11.4	14.5'	18°42.2	-11.1'	53.9'	109°46.2	83°45.0	28°40.5	17°14.1	71°16.3	102°58.3	103°34.7	108°06.1
14	194°44.9	14.4'	18°53.3	-11.0'	53.9'	109°18.5	83°20.4	28°10.9	17°43.7	71°45.8	103°26.9	104°02.3	108°35.7
15	209°18.3	14.4'	19°04.3	-11.0'	53.9'	108°50.7	82°55.8	27°41.3	18°13.3	72° 15.4	103°55.5	104°29.9	109°05.3
16	223°51.6	14.3'	19°15.3	-10.9'	53.9'	108°22.9	82°31.2	27°11.7	18°42.9	72°45.0	104°24.1	104°57.4	109°34.9
17	238°24.9	14.2'	19°26.1	-10.8'	53.9'	107°55.1	82°06.7	26°42.1	19°12.5	73°14.6	104°52.6	105°25.0	110°04.4
18	252°58.1	14.2'	S 19°36.9	-10.7'	53.9'	107°27.3	81°42.1	26°12.5	19°42.1	73°44.2	105°21.2	105°52.6	110°34.0
19	267°31.3	14.1'	19°47.7	-10.6'	53.9'	106°59.4	81°17.5	25°42.9	20°11.7	74°13.8	105°49.8	106°20.1	111°03.6
20	282°04.4	14.0'	19°58.3	-10.6'	53.9'	106°31.6	80°53.0	25°13.3	20°41.3	74°43.4	106°18.4	106°47.7	111°33.2
21	296°37.4	13.9'	20°08.9	-10.5'	53.9'	106°03.7	80°28.5	24°43.7	21°10.9	75° 13.0	106°47.0	107°15.2	112°02.8
22	311°10.3	13.9'	20°19.3	-10.4'	53.9'	105°35.9	80°03.9	24°14.1	21°40.5	75° 42.5	107°15.6	107°42.7	112°32.4
23	325°43.2	13.8'	20°29.7	-10.3'	54.0'	105°08.0	79°39.4	23°44.5	22°10.1	76°12.1	107°44.2	108°10.2	113°02.0
14 th	SD	= 14.7'	Mer. pas	s. 00:38									

h Moon ((15 th Apr)	Lunar Distance (objects with lar	gest hourly LD delta	1)
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Tue	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	-Antares	+Spica	+Regulus	+Mars	+Pollux
0	340°16.0	13.7'	S 20°40.0	-10.2'	54.0'			104°40.1	23°14.9	22°39.7	76°41.7	108°12.8	113°31.6
1	354°48.8	13.7'	20°50.3	-10.1'	54.0'			104°12.2	22°45.3	23°09.3	77°11.4	108°41.4	114°01.2
2	9°21.4	13.6'	$21^{\circ}00.4$	-10.1'	54.0'			103°44.3	22°15.6	23°39.0	77°41.0	109°10.0	114°30.8
3	23°54.0	13.5'	$21^{\circ}10.5$	-10.0'	54.0'			103°16.4	21°46.0	24°08.6	78°10.6	109°38.6	115°00.4
4	38°26.6	13.5'	$21^{\circ}20.4$	-9.9'	54.0'			102°48.5	21°16.4	24°38.2	78°40.2	110°07.2	115°30.0
5	52°59.0	13.4'	21°30.3	-9.8'	54.0'			102°20.6	20°46.8	25°07.8	79°09.8	110°35.8	115°59.6
6	67°31.4	13.3'	S 21°40.1	-9.7'	54.0'			101°52.6	20°17.1	25°37.5	79°39.4	111°04.4	116°29.2
7	82°03.7	13.2'	21°49.8	-9.6'	54.0'			101°24.7	19°47.5	26°07.1	80°09.0	111°33.0	116°58.8
8	96°36.0	13.2'	21°59.4	-9.5'	54.0'			100°56.7	19° 17.9	26°36.8	80°38.7	112°01.7	117°28.4
9	111°08.1	13.1'	22°09.0	-9.4'	54.0'			100°28.8	18°48.2	27°06.4	81°08.3	112°30.3	117°58.1
10	125°40.2	13.0'	22° 18.4	-9.3'	54.0'			100°00.8	18° 18.6	27°36.0	81°37.9	112°58.9	118°27.7
11	140°12.2	13.0'	$22^{\circ}27.7$	-9.2'	54.0'			99°32.8	17°48.9	28°05.7	82°07.6	113°27.5	118°57.3
12	154°44.2	12.9'	S 22°37.0	-9.1'	54.0'			99°04.8	17° 19.3	28°35.4	82°37.2	113°56.2	119°27.0
13	169°16.1	12.8'	22°46.1	-9.1'	54.0'			98°36.8	16°49.6	29°05.0	83°06.9	114°24.8	119°56.6
14	183°47.9	12.7'	22°55.2	-9.0'	54.0'			98°08.8	16°20.0	29°34.7	83°36.5	114°53.4	
15	198°19.6	12.7'	23°04.1	-8.9'	54.0'			97°40.8	15°50.3	30°04.4	84°06.2	115°22.1	
16	212°51.3	12.6'	23°13.0	-8.8'	54.0'			97°12.7	15°20.6	30°34.0	84°35.8	115°50.7	
17	227°22.8	12.5'	$23^{\circ}21.8$	-8.7'	54.1'	119°43.3		96°44.7	14°51.0	31°03.7	85°05.5	116°19.4	
18	241°54.4	12.4'	S 23°30.4	-8.6'	54.1'	119°13.9		96°16.7	14°21.3	31°33.4	85°35.2	116°48.1	
19	256°25.8	12.4'	23°39.0	-8.5'	54.1'	118°44.6	119°42.2	95°48.6	13°51.6	32°03.1	86°04.9	117°16.7	
20	270°57.2	12.3'	23°47.4	-8.4'	54.1'	118°15.2	119°12.8	95°20.5	13°21.9	32°32.8	86°34.5	117°45.4	
21	285°28.4	12.2'	23°55.8	-8.3'	54.1'	117°45.9	118°43.3	94°52.5	12°52.2	33°02.5	87°04.2	118°14.1	
22	299°59.7	12.1'	24°04.0	-8.1'	54.1'	117°16.5	118°13.9	94°24.4	12°22.5	33°32.2	87°33.9	118°42.7	
23	314°30.8	12.1'	$24^{\circ}12.2$	-8.0'	54.1'	116°47.1	117° 44.5	93°56.3	11°52.8	34°01.9	88°03.6	119°11.4	
15 th	SD	= 14.7'	Mer. pas	s. 01:21									

Moon (16th Apr)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Venus	-Fomalhaut	-Antares	+Spica	+Arcturus	+Regulus	+Sirius
0	329°01.9	12.0'	S 24°20.2	-7.9'	54.1'	117° 15.1	116°17.7	93°28.2	11°23.1	34°31.7	48°01.9	88°33.4	119°00.9
1	343°32.9	11.9'	24°28.2	-7.8'	54.1'	116°45.6	115°48.4	93°00.1	10°53.4	35°01.4	48°22.2	89°03.1	119°18.6
2	358°03.8	11.8'	24°36.0	-7.7'	54.1'	116°16.2	$115^{\circ}19.0$	92°32.0	10°23.7	35°31.2	48°42.6	89°32.8	119°36.2
3	12°34.6	11.8'	24°43.7	-7.6'	54.1'	115°46.7	114°49.6	92°03.9	9°53.9	36°00.9	49°03.1	90°02.5	119°53.8
4	27°05.4	11.7'	24°51.3	-7.5'	54.1'	115° 17.3	114°20.2	91°35.8	9°24.2	36°30.7	49°23.8	90°32.3	
5	41°36.1	11.6'	24°58.8	-7.4'	54.1'	114°47.8	113°50.8	91°07.6	8°54.5	37°00.4	49°44.6	91°02.0	
6	56°06.8	11.6'	S 25°06.2	-7.3'	54.2'	114° 18.3	113°21.4	90°39.5	8°24.7	37°30.2	50°05.5	91°31.8	
7	70°37.3	11.5'	25°13.5	-7.2'	54.2'	113°48.9	112°52.0	90°11.3	7°55.0	38°00.0	50°26.5	92°01.5	
8	85°07.8	11.4'	25°20.7	-7.1'	54.2'	113° 19.4	112°22.6	89°43.2	7°25.3	38°29.8	50°47.7	92°31.3	
9	99°38.2	11.3'	25°27.7	-6.9'	54.2'	112°49.9	111°53.1	89°15.0	6°55.5	38°59.6	51°08.9	93°01.1	
10	114°08.6	11.3'	25°34.7	-6.8'	54.2'	112°20.4	111°23.7	88°46.8	6°25.8	39°29.4	51°30.2	93°30.9	
11	128°38.8	11.2'	25°41.5	-6.7'	54.2'	111°50.8	110°54.3	88°18.6	5°56.0	39°59.2	51°51.7	94°00.7	
12	143°09.0	11.1'	S 25°48.2	-6.6'	54.2'	111°21.3	110°24.8	87°50.4	5°26.3	40°29.0	52°13.3	94°30.5	
13	157°39.2	11.1'	25°54.8	-6.5'	54.2'	110°51.8	109°55.4	87°22.2	4°56.5	40°58.8	52°34.9	95°00.3	
14	172°09.2	11.0'	26°01.3	-6.4'	54.2'	110°22.2	109°25.9	86°54.0	4°26.8	41°28.7	52°56.7	95°30.1	
15	186°39.2	10.9'	26°07.6	-6.2'	54.3'	109°52.7	108°56.5	86°25.8	3°57.1	41°58.5	53°18.6	96°00.0	
16	201°09.1	10.9'	26°13.8	-6.1'	54.3'	109°23.1	108°27.0	85°57.6	3°27.4	42°28.4	53°40.5	96° 29.8	
17	215°39.0	10.8'	26°20.0	-6.0'	54.3'	108°53.5	107°57.5	85°29.4	2°57.8	42°58.3	54°02.6	96°59.7	
18	230°08.8	10.7'	S 26°25.9	-5.9'	54.3'	108°23.9	107°28.0	85°01.1	2°28.2	43°28.1	54°24.7	97° 29.5	
19	244°38.5	10.6'	26°31.8	-5.7'	54.3'	107°54.3	106°58.5	84°32.9	1°58.8	43°58.0	54°46.9	97°59.4	
20	259°08.1	10.6'	26°37.6	-5.6'	54.3'	107°24.7	106°29.0	84°04.6	1°29.8	44°27.9	55°09.3	98° 29.3	
21	273°37.7	10.5'	26°43.2	-5.5'	54.3'	106°55.1	105°59.5	83°36.4	1°01.6	44°57.9	55°31.7	98°59.2	
22	288°07.2	10.5'	26°48.7	-5.4'	54.3'	106°25.5	105°30.0	83°08.1		45°27.8	55°54.2	99°29.1	
23	302°36.7	10.4'	26°54.1	-5.2'	54.4'	105°55.8	105°00.5	82°39.8		45°57.7	56°16.8	99°59.0	
16 th	SD	= 14.8'	Mer. pass	. 02:08									

h		Moon	(17 th Ap	r)			Lunar [Distance (ol	bjects wi	th largest	hourly I	D delta)	
Thu	GHA	ν	Dec	d	HP	-Saturn	-Venus	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Regulus
0	317°06.1	10.3'	S 26°59.3	-5.1'	54.4'	105°26.2	104°30.9	82°11.6	60°05.6		46°27.7	56°39.4	100°29.0
1	331°35.4	10.3'	27°04.4	-5.0'	54.4'	104°56.5	104°01.4	81°43.3	59°42.5		46°57.6	57°02.2	100°58.9
2	346°04.6	10.2'	27°09.4	-4.9'	54.4'	104°26.8	103°31.8	81°15.0	59°19.5		47°27.6	57°25.0	101°28.9
3	0°33.8	10.1'	27° 14.3	-4.7'	54.4'	103°57.1	103°02.2	80°46.7	58°56.5	2°05.7	47°57.6	57°47.9	101°58.9
4	15°03.0	10.1'	$27^{\circ}19.0$	-4.6'	54.4'	103°27.4	102°32.7	80°18.4	58°33.6	2°35.2	48°27.6	58°10.9	102°28.8
5	29°32.0	10.0'	$27^{\circ}23.6$	-4.5'	54.4'	102°57.7	102°03.1	79°50.0	58°10.8	3°04.9	48°57.6	58°34.0	102°58.8
6	44°01.0	10.0'	S 27°28.1	-4.3'	54.4'	102°28.0	101°33.5	79°21.7	57°48.0	3°34.7	49°27.6	58°57.1	103°28.8
7	58°30.0	9.9'	$27^{\circ}32.4$	-4.2'	54.5'	101°58.2	101°03.9	78°53.4	57°25.3	4°04.6	49°57.7	59°20.3	103°58.9
8	72°58.9	9.8'	27°36.6	-4.1'	54.5'	101°28.5	100°34.3	78°25.0	57°02.6	4°34.5	50°27.7	59°43.6	104°28.9
9	87°27.7	9.8'	27°40.7	-3.9'	54.5'	100°58.7	100°04.6	77° 56.7	56°40.0	5°04.5	50°57.8	60°07.0	104°59.0
10	101°56.5	9.7'	27° 44.7	-3.8'	54.5'	100°28.9	99°35.0	77°28.3	56°17.4	5°34.4	51°27.9	60°30.4	105°29.0
11	116°25.2	9.7'	27°48.5	-3.7'	54.5'	99°59.1	99°05.3	77°00.0	55°55.0	6°04.5	51°58.0	60°53.9	105°59.1
12	130°53.9	9.6'	S 27°52.1	-3.5'	54.5'	99°29.3	98°35.7	76°31.6	55°32.6	6°34.5	52°28.1	61°17.5	106°29.2
13	145°22.5	9.6'	27°55.7	-3.4'	54.6'	98° 59.5	98°06.0	76°03.2	55°10.2	7°04.6	52°58.2	61°41.1	106°59.3
14	159°51.1	9.5'	$27^{\circ}59.1$	-3.3'	54.6'	98° 29.6	97°36.3	75°34.9	54°48.0	7°34.7	53°28.3	62°04.8	107°29.4
15	174°19.6	9.5'	28°02.3	-3.1'	54.6'	97°59.8	97°06.6	75°06.5	54°25.8	8°04.8	53°58.5	62°28.6	107°59.6
16	188°48.0	9.4'	28°05.5	-3.0'	54.6'	97°29.9	96°36.9	74°38.1	54°03.7	8°34.9	54°28.7	62°52.4	108°29.7
17	203°16.4	9.4'	28°08.4	-2.8'	54.6'	97°00.0	96°07.2	74°09.7	53°41.6	9°05.1	54°58.8	63°16.3	108°59.9
18	217°44.8	9.3'	S 28°11.3	-2.7'	54.6'	96°30.1	95°37.4	73°41.3	53°19.7	9°35.3	55°29.0	63°40.3	109°30.1
19	232°13.1	9.3'	28°14.0	-2.6'	54.7'	96°00.2	95°07.7	73°12.9	52°57.8	10°05.5	55°59.3	64°04.3	110°00.3
20	246°41.4	9.2'	$28^{\circ}16.6$	-2.4'	54.7'	95°30.2	94°37.9	72°44.4	52°36.0	10°35.7	56°29.5	64°28.4	110°30.5
21	261°09.6	9.2'	$28^{\circ}19.0$	-2.3'	54.7'	95°00.3	94°08.1	72°16.0	52°14.3	11°05.9	56°59.8	64°52.5	111°00.7
22	275°37.7	9.1'	$28^{\circ}21.3$	-2.1'	54.7'	94°30.3	93°38.3	71°47.6	51°52.7	11°36.1	57°30.0	65°16.7	111°31.0
23	290°05.9	9.1'	28°23.4	-2.0'	54.7'	94°00.3	93°08.5	71°19.1	51°31.1	12°06.4	58°00.3	65°41.0	112°01.2
17 th	SD	= 14.8'	Mer. pass	. 02:58									

h Mo	oon (18 th Apr)	Lunar Distance	(objects with	largest hourly LD delta	1)

Fri	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Venus	-Fomalhaut	+Antares	+Spica	+Arcturus	+Regulus
0	304°34.0	9.0'	S 28°25.4	-1.9'	54.7'		93°30.3	92°38.7	70°50.7	12°36.7	58°30.6	66°05.3	112°31.5
1	319°02.0	9.0'	28°27.3	-1.7'	54.8'		93°00.2	92°08.8	70°22.2	13°07.0	59°00.9	66°29.6	113°01.8
2	333°30.0	9.0'	28°29.0	-1.6'	54.8'		92°30.2	91°39.0	69°53.8	13°37.3	59°31.3	66°54.1	113°32.2
3	347°58.0	8.9'	28°30.5	-1.4'	54.8'		92°00.1	91°09.1	69°25.3	14°07.7	60°01.7	67° 18.5	114°02.5
4	2°25.9	8.9'	28°32.0	-1.3'	54.8'		91°30.0	90°39.2	68°56.9	14°38.1	60°32.0	67°43.1	114°32.9
5	16°53.8	8.9'	28°33.3	-1.1'	54.8'		90°59.9	90°09.3	68°28.4	15°08.4	61°02.4	68°07.7	115°03.2
6	31°21.6	8.8'	S 28°34.4	-1.0'	54.9'		90°29.8	89°39.4	67°59.9	15°38.9	61°32.8	68°32.3	115°33.6
7	45°49.5	8.8'	28°35.4	-0.8'	54.9'		89°59.7	89°09.5	67°31.4	16°09.3	62°03.3	68° 57.0	116°04.1
8	60°17.2	8.8'	28°36.2	-0.7'	54.9'		89°29.5	88°39.5	67°02.9	16°39.7	62°33.7	69°21.8	116°34.5
9	74°45.0	8.7'	28°36.9	-0.5'	54.9'		88° 59.3	88°09.6	66°34.4	17°10.2	63°04.2	69°46.5	117°05.0
10	89°12.7	8.7'	28°37.5	-0.4'	54.9'		88°29.1	87°39.6	66°05.9	17°40.7	63°34.7	70°11.4	117°35.4
11	103°40.4	8.7'	28°37.9	-0.3'	55.0'		87°58.9	87°09.6	65°37.4	18°11.2	64°05.2	70°36.3	118°05.9
12	118°08.1	8.6'	S 28°38.1	-0.1'	55.0'	119°41.5	87°28.6	86°39.5	65°08.9	18°41.7	64°35.8	71°01.2	118°36.5
13	132°35.7	8.6'	28°38.2	0.0'	55.0'	119°13.4	86°58.4	86°09.5	64°40.4	19°12.3	65°06.3	71°26.2	119°07.0
14	147°03.3	8.6'	28°38.2	0.2'	55.0'	118°45.3	86°28.1	85°39.4	64°11.9	19°42.9	65°36.9	71°51.3	119°37.6
15	161°30.9	8.6'	28°38.0	0.3'	55.0'	118°17.2	85°57.8	85°09.4	63°43.4	20°13.5	66° 07.5	72°16.4	
16	175°58.5	8.6'	28°37.6	0.5'	55.1'	117°49.0	85°27.4	84°39.3	63°14.9	20°44.1	66°38.2	72°41.5	
17	190°26.1	8.5'	28°37.1	0.6'	55.1'	117°20.8	84°57.1	84°09.2	62°46.4	21°14.7	67°08.8	73°06.7	
18	204°53.6	8.5'	S 28°36.5	0.8'	55.1'	116°52.6	84°26.7	83°39.0	62°17.8	21°45.4	67°39.5	73°31.9	
19	219°21.1	8.5'	28°35.7	0.9'	55.1'	116°24.4	83°56.3	83°08.9	61°49.3	22°16.1	68° 10.2	73°57.2	
20	233°48.6	8.5'	28°34.8	1.1'	55.2'	115°56.2	83°25.8	82°38.7	61°20.8	22°46.8	68°40.9	74°22.5	
21	248°16.1	8.5'	28°33.7	1.2'	55.2'	115°27.9	82°55.4	82°08.5	60°52.3	23°17.5	$69^{\circ}11.6$	74°47.8	
22	262°43.5	8.5'	28°32.4	1.4'	55.2'	114°59.6	82°24.9	81°38.3	60°23.7	23°48.3	69°42.4	75°13.3	
23	277°11.0	8.4'	28°31.0	1.5'	55.2'	5.2' 114°31.3 81°54.4 81°08.0 59°55.2 24°19.1 70°13.2 75°38.7							
18 th	SD =	= 14.9'	Mer. pass	s. 03:50)				Sun SD	= 15.9'			

Moon (19th Apr)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA ν Dec d					-Sun	-Saturn	-Venus	-Fomalhaut	+Antares	+Hadar	+Spica	+Arcturus
0	291°38.4	8.4'	S 28°29.5	1.7'	55.3'	114°02.9	81°23.9	80°37.8	59°26.7	24°49.9	52°55.3	70°44.0	76°04.2
1	306°05.9	8.4'	28°27.8	1.8'	55.3'	113°34.6	80°53.3	80°07.5	58°58.2	25°20.7	53°13.8	71°14.9	76°29.7
2	320°33.3	8.4'	28°25.9	2.0'	55.3'	113°06.2	80°22.8	79°37.2	58°29.6	25°51.6	53°32.5	71°45.7	76°55.3
3	335°00.7	8.4'	28°23.9	2.1'	55.3'	112°37.8	79°52.2	79°06.9	58°01.1	26°22.5	53°51.3	72°16.6	77°20.9
4	349°28.1	8.4'	28°21.8	2.3'	55.4'	112°09.3	79°21.5	78°36.5	57°32.6	26°53.4	54° 10.3	72°47.5	77°46.6
5	3°55.5	8.4'	$28^{\circ}19.5$	2.5'	55.4'	111°40.8	78°50.9	78°06.1	57°04.1	27°24.3	54°29.4	73° 18.5	78°12.3
6	18°22.9	8.4'	S 28°17.0	2.6'	55.4'	111°12.3	78°20.2	77°35.8	56°35.6	27°55.3	54°48.7	73°49.4	78°38.0
7	32°50.3	8.4'	28°14.4	2.8'	55.4'	110°43.8	77°49.5	77°05.3	56°07.0	28°26.3	55°08.1	74°20.4	79°03.8
8	47°17.7	8.4'	$28^{\circ}11.7$	2.9'	55.5'	110°15.3	77°18.8	76°34.9	55°38.5	28°57.3	55°27.6	74°51.5	79°29.6
9	61°45.1	8.4'	28°08.8	3.1'	55.5'	109°46.7	76°48.0	76°04.4	55°10.0	29°28.4	55°47.3	75°22.5	79°55.4
10	76°12.5	8.4'	28°05.7	3.2'	55.5'	109°18.1	76°17.2	75°33.9	54°41.5	29°59.5	56°07.1	75°53.6	80°21.3
11	90°39.9	8.4'	28°02.5	3.4'	55.5'	108°49.4	75°46.4	75°03.4	54°13.0	30°30.6	56°27.0	76°24.7	80°47.3
12	105°07.3	8.4'	S 27°59.1	3.5'	55.6'	108°20.8	75°15.6	74°32.9	53°44.5	31°01.7	56°47.1	76°55.8	81°13.2
13	119°34.7	8.4'	27°55.6	3.7'	55.6'	107°52.1	74°44.7	74°02.3	53°16.1	31°32.8	57°07.2	77°27.0	81°39.2
14	134°02.1	8.4'	27°52.0	3.8'	55.6'	107°23.4	74°13.8	73°31.7	52°47.6	32°04.0	57° 27.5	77°58.2	82°05.3
15	148°29.5	8.4'	27°48.2	4.0'	55.6'	106°54.6	73°42.9	73°01.1	52°19.1	32°35.3	57°48.0	78°29.4	82°31.3
16	162°57.0	8.4'	27°44.2	4.1'	55.7'	106°25.8	73°11.9	72°30.5	51°50.7	33°06.5	58°08.5	79°00.7	82°57.5
17	177°24.4	8.5'	27°40.1	4.3'	55.7'	105°57.0	72°40.9	71°59.8	51°22.3	33°37.8	58°29.2	79°31.9	83°23.6
18	191°51.9	8.5'	S 27°35.8	4.4'	55.7'	105°28.2	72°09.9	71°29.1	50°53.8	34°09.1	58° 50.0	80°03.3	83°49.8
19	206°19.3	8.5'	27°31.4	4.6'	55.8'	104°59.3	71°38.9	70°58.4	50°25.4	34°40.4	59° 10.9	80°34.6	84° 16.0
20	220°46.8	8.5'	27°26.8	4.7'	55.8'	104°30.4	71°07.8	70°27.6	49°57.0	35°11.8	59°31.9	81°06.0	84°42.3
21	235°14.3	8.5'	$27^{\circ}22.1$	4.9'	55.8'	104°01.5	70°36.7	69°56.9	49°28.7	35°43.2	59°53.0	81°37.4	85°08.5
22	249°41.8	8.5'	27°17.2	5.0'	55.8'	103°32.5	70°05.6	69°26.1	49°00.3	36°14.6	60°14.3	82°08.8	85°34.9
23						' 103°03.6 69°34.4 68°55.2 48°31.9 36°46.1 60°35.6 82°40.3 86°01.2							86°01.2
19 th	SD = 15.1' Mer. pass. 04:44					$Sun\;SD=15.9'$							

h		Moon	(20 th Ap	or)			Lunar	Distanc	e (objects v	with larges	st hourly LD	delta)	
Sun	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Venus	-Fomalhaut	+Antares	+Rigil Kent.	+Spica	+Arcturus
0	278°36.9	8.6'	S 27°07.0	5.3'	55.9'	102°34.5	69°03.2	68°24.4	48°03.6	37°17.6	56°35.1	83°11.8	86°27.6
1	293°04.4	8.6'	$27^{\circ}01.7$	5.5'	55.9'	102°05.5	68°31.9	67°53.5	47°35.3	37°49.1	56°56.5	83°43.3	86°54.0
2	307°32.0	8.6'	26°56.2	5.6'	56.0'	101°36.4	68°00.7	67°22.6	47°07.0	38°20.7	57°18.0	84° 14.8	87° 20.5
3	321°59.6	8.6'	26°50.6	5.8'	56.0'	101°07.3	67°29.4	66°51.6	46°38.8	38°52.3	57°39.6	84°46.4	87°46.9
4	336°27.3	8.6'	26°44.9	5.9'	56.0'	100°38.1	66°58.1	66°20.6	46°10.6	39°23.9	58°01.3	85° 18.1	88°13.4
5	350°54.9	8.7'	26°39.0	6.1'	56.0'	100°08.9	66°26.7	65°49.6	45°42.3	39°55.5	58°23.2	85°49.7	88°40.0
6	5°22.6	8.7'	S 26°32.9	6.2'	56.1'	99°39.7	65°55.3	65° 18.6	45°14.2	40°27.2	58°45.2	86°21.4	89°06.6
7	19°50.3	8.7'	26°26.7	6.4'	56.1'	99°10.5	65°23.9	64°47.5	44°46.0	40°59.0	59°07.3	86°53.1	89°33.2
8	34°18.0	8.7'	26°20.3	6.5'	56.1'	98°41.2	64°52.4	64°16.4	44°17.9	41°30.7	59°29.5	87°24.9	89°59.8
9	48°45.7	8.8'	$26^{\circ}13.8$	6.6'	56.2'	98°11.8	64°20.9	63°45.3	43°49.9	42°02.5	59°51.8	87°56.7	90°26.4
10	63°13.5	8.8'	26°07.2	6.8'	56.2'	97°42.5	63°49.3	63°14.1	43°21.8	42°34.3	60°14.3	88°28.5	90°53.1
11	77°41.3	8.8'	26°00.4	6.9'	56.2'	97°13.1	63°17.8	62°42.9	42°53.8	43°06.2	60°36.8	89°00.4	91°19.8
12	92°09.2	8.9'	S 25°53.5	7.1'	56.3'	96°43.7	62°46.2	62°11.7	42°25.9	43°38.1	60°59.5	89°32.3	91°46.6
13	106°37.0	8.9'	25°46.4	7.2'	56.3'	96°14.2	62°14.5	61°40.4	41°58.0	44°10.0	61°22.2	90°04.2	92°13.4
14	121°04.9	8.9'	$25^{\circ}39.1$	7.4'	56.3'	95°44.7	61°42.9	61°09.1	41°30.1	44°42.0	61°45.1	90°36.2	92°40.2
15	135°32.8	9.0'	25°31.8	7.5'	56.4'	95°15.2	61°11.1	60°37.8	41°02.3	45°14.0	62°08.1	91°08.2	93°07.0
16	150°00.8	9.0'	25°24.3	7.7'	56.4'	94°45.6	60°39.4	60°06.5	40°34.5	45°46.1	62°31.1	91°40.3	93°33.8
17	164°28.8	9.0'	$25^{\circ}16.6$	7.8'	56.4'	94°16.0	60°07.6	59°35.1	40°06.8	46°18.1	62°54.3	92°12.4	94°00.7
18	178°56.8	9.1'	S 25°08.8	7.9'	56.5'	93°46.3	59°35.8	59°03.6	39°39.2	46°50.3	63°17.6	92°44.5	94°27.6
19	193°24.9	9.1'	25°00.9	8.1'	56.5'	93°16.7	59°03.9	58°32.2	39°11.6	47°22.4	63°41.0	93° 16.6	94°54.5
20	207°53.0	9.1'	24°52.8	8.2'	56.5'	92°46.9	58°32.0	58°00.7	38°44.1	47°54.6	64°04.4	93°48.8	95°21.5
21	222°21.1	9.2'	24°44.6	8.4'	56.6'	92°17.2	58°00.1	57°29.2	38°16.6	48°26.9	64°28.0	94°21.1	95°48.4
22	236°49.3	9.2'	24°36.2	8.5'	56.6'	91°47.4	57°28.1	56° 57.6	37°49.3	48°59.1	64°51.6	94°53.3	96°15.4
23	251°17.5	9.2'	24°27.7	8.6'	56.6'	91°17.5	56°56.1	56°26.0	37°22.0	49°31.4	65°15.4	95°25.6	96°42.4
20 th	SD =	= 15.2′	Mer. pass	s. 05:38	3	$Sun\;SD=15.9'$							

Moon (21st Apr) h

Lunar Distance (objects with largest hourly LD delta)

-Saturn -Venus -Fomalhaut +Antares +Rigil Kent. +Spica

Mon	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Venus	-Fomalhaut	+Antares	+Rigil Kent.	+Spica	+Arcturus
0	265°45.7	9.3'	S 24°19.1	8.8'	56.7'	90°47.7	56°24.1	55°54.4	36° 54.8	50°03.8	65°39.2	95°58.0	97°09.5
1	280°14.0	9.3'	24°10.3	8.9'	56.7'	90° 17.8	55°52.0	55°22.7	36°27.6	50°36.2	66°03.2	96°30.4	97°36.5
2	294°42.3	9.3'	24°01.4	9.1'	56.7'	89°47.8	55°19.8	54°51.0	36°00.6	51°08.6	66°27.2	97°02.8	98°03.6
3	309°10.6	9.4'	23°52.3	9.2'	56.8'	89°17.8	54°47.7	54°19.3	35°33.7	51°41.1	66°51.3	97°35.3	98°30.7
4	323°39.0	9.4'	23°43.1	9.3'	56.8'	88°47.8	54°15.5	53°47.5	35°06.9	52° 13.6	67°15.5	98°07.8	98°57.8
5	338°07.4	9.5'	23°33.8	9.5'	56.8'	88° 17.7	53°43.2	53°15.7	34°40.1	52°46.1	67°39.8	98°40.3	99°25.0
6	352°35.9	9.5'	S 23°24.3	9.6'	56.9'	87°47.6	53°10.9	52°43.8	34° 13.5	53° 18.7	68°04.2	99°12.9	99°52.1
7	7°04.4	9.5'	23°14.7	9.7'	56.9'	87° 17.4	52°38.6	52°11.9	33°47.0	53°51.3	68°28.7	99°45.5	100°19.3
8	21°32.9	9.6'	23°05.0	9.9'	56.9'	86°47.2	52°06.2	51°40.0	33°20.7	54°24.0	68°53.2	100°18.2	100°46.5
9	36°01.5	9.6'	22°55.1	10.0'	57.0'	86° 17.0	51°33.8	51°08.1	32°54.4	54°56.7	69°17.9	100°50.9	101°13.7
10	50°30.1	9.7'	22°45.2	10.1'	57.0'	85°46.7	51°01.4	50°36.1	32°28.4	55°29.4	69°42.6	101°23.7	101°40.9
11	64°58.8	9.7'	22°35.0	10.3'	57.1'	85° 16.4	50°28.9	50°04.0	32°02.4	56°02.2	70°07.4	101°56.5	102°08.1
12	79°27.5	9.7'	S 22°24.8	10.4'	57.1'	84°46.1	49°56.4	49°31.9	31°36.6	56°35.1	70°32.3	102°29.3	102°35.4
13	93°56.2	9.8'	22°14.4	10.5'	57.1'	84° 15.7	49°23.8	48°59.8	31°11.0	57°08.0	70°57.2	103°02.2	103°02.7
14	108°25.0	9.8'	22°03.9	10.6'	57.2'	83°45.2	48°51.2	48°27.7	30°45.6	57°40.9	71°22.2	103°35.1	103°29.9
15	122°53.9	9.9'	21°53.2	10.8'	57.2'	83° 14.7	48°18.5	47°55.5	30°20.3	58° 13.8	71°47.4	104°08.1	103°57.2
16	137°22.7	9.9'	21°42.5	10.9'	57.2'	82°44.2	47°45.8	47°23.3	29°55.2	58°46.8	72°12.5	104°41.1	104°24.5
17	151°51.6	9.9'	21°31.6	11.0'	57.3'	82°13.6	47°13.1	46°51.0	29°30.4	59° 19.9	72°37.8	105°14.1	104°51.8
18	166°20.6	10.0'	S 21°20.5	11.1'	57.3'	81°43.0	46°40.3	46°18.7	29°05.7	59°53.0	73°03.1	105°47.2	105°19.1
19	180°49.5	10.0'	21°09.4	11.3'	57.3'	81°12.4	46°07.5	45°46.3	28°41.3	60°26.1	73°28.5	106°20.3	105°46.5
20	195°18.6	10.1'	20°58.1	11.4'	57.4'	80°41.7	45°34.6	45°13.9	28° 17.1	60°59.3	73°54.0	106°53.5	106°13.8
21	209°47.6	10.1'	20°46.7	11.5'	57.4'	$80^{\circ}10.9$	45°01.7	44°41.5	27°53.2	61°32.5	74°19.6	107°26.7	106°41.1
22	224°16.7	10.1' 10.2'	20°35.2	11.6'	57.5'	79°40.1	44°28.7	44°09.0	27° 29.5	62°05.8	74°45.2	108°00.0	107°08.5
23	238°45.9	20°23.5	11.8'	57.5'	5' 79°09.3 43°55.7 43°36.5 27°06.1 62°39.1 75°10.9 108°33.3 107°35.8							107°35.8	
21 st	SD	$=15.5^{\prime}$	Mer. pass	. 06:31					Sun	SD = 15.9'			

h Moon (22nd Apr)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Venus	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	253°15.1	10.2'	S 20°11.8	11.9'	57.5'	78°38.4	43°22.7	43°04.0	26°43.0	63°12.4	75°36.7	108°03.2	109°06.7
1	267°44.3	10.3'	$19^{\circ}59.9$	12.0'	57.6'	78°07.5	42°49.6	42°31.4	26°20.3	63°45.8	76°02.5	108°30.5	109°40.1
2	282°13.5	10.3'	19°47.9	12.1'	57.6'	77°36.5	42°16.4	41°58.8	25°57.8	64°19.3	76°28.4	108° 57.9	110°13.5
3	296°42.8	10.3'	19°35.8	12.2'	57.6'	77°05.5	41°43.3	41°26.1	25°35.7	64°52.8	76°54.4	109°25.2	110°47.0
4	311°12.2	10.4'	19°23.5	12.4'	57.7'	76°34.5	41°10.0	40°53.4	25°13.9	65°26.3	77°20.4	109°52.6	111°20.6
5	325°41.6	10.4'	$19^{\circ}11.2$	12.5'	57.7'	76°03.4	40°36.8	40°20.6	24°52.5	65°59.9	77°46.5	110° 19.9	111°54.1
6	340°11.0	10.5'	S 18°58.7	12.6'	57.8'	75°32.2	40°03.5	39°47.8	24°31.6	66°33.5	78° 12.7	110°47.3	112°27.8
7	354°40.4	10.5'	$18^{\circ}46.1$	12.7'	57.8'	75°01.0	39°30.1	39°15.0	24°11.0	67°07.2	78° 38.9	111° 14.6	113°01.4
8	9°09.9	10.5'	18°33.4	12.8'	57.8'	74°29.8	38°56.7	38°42.1	23°50.9	67°40.9	79°05.2	111°41.9	113°35.2
9	23°39.5	10.6'	18°20.6	12.9'	57.9'	73°58.5	38°23.3	38°09.2	23°31.2	68°14.7	79°31.5	112°09.3	114°08.9
10	38°09.0	10.6'	18°07.7	13.0'	57.9'	73°27.2	37°49.8	37°36.2	23°12.0	68°48.5	79°57.9	112°36.6	114°42.7
11	52°38.6	10.6'	17°54.7	13.1'	58.0'	72°55.8	37°16.2	37°03.2	22°53.3	69°22.4	80°24.4	113°03.9	115°16.6
12	67°08.3	10.7'	S 17°41.5	13.3'	58.0'	72°24.4	36°42.7	36°30.2	22°35.2	69°56.3	80°50.9	113°31.2	115°50.5
13	81°37.9	10.7'	$17^{\circ}28.3$	13.4'	58.0'	71°52.9	36°09.0	35°57.1	22°17.6	70°30.2	81°17.5	113°58.5	116°24.5
14	96°07.6	10.7'	$17^{\circ}14.9$	13.5'	58.1'	71°21.4	35°35.4	35°23.9	22°00.6	71°04.2	81°44.1	114°25.7	116°58.5
15	110°37.4	10.8'	$17^{\circ}01.4$	13.6'	58.1'	70°49.9	35°01.6	34°50.8	21°44.2	71°38.3	82°10.8	114°53.0	117°32.5
16	125°07.1	10.8'	16°47.9	13.7'	58.1'	70°18.3	34°27.9	34°17.5	21°28.5	72°12.4	82°37.6	115°20.2	118°06.6
17	139°37.0	10.8'	16°34.2	13.8'	58.2'	69°46.6	33°54.1	33°44.3	21°13.4	72°46.5	83°04.4	115°47.4	118°40.7
18	154°06.8	10.9'	S 16°20.4	13.9'	58.2'	69°14.9	33° 20.2	33°11.0		73°20.7	83°31.2	116° 14.6	119°14.9
19	168°36.7	10.9'	$16^{\circ}06.5$	14.0'	58.3'	68°43.2	32°46.3	32°37.6		73°54.9	83°58.1	116°41.8	119°49.2
20	183°06.6	10.9'	15°52.5	14.1'	58.3'	68°11.4 67°39.5	32°12.4	32°04.2		74°29.2	84°25.1	117°08.9	
21	197°36.5						31°38.4	31°30.8		75°03.5	84°52.1	117°36.0	
22	212°06.5						31°04.3	30°57.3		75°37.9	85° 19.1	118°03.1	
23	226°36.4 11.0' 15°10.0 14.4' 58.4'					66°35.7 30°30.3 30°23.8 76°12.4 85°46.3 118°30.1							
22 nd	SD = $15.7'$ Mer. pass. 07:22					$Sun\;SD=15.9'$							

h Moon (23rd Apr) Lunar Distance (objects with largest hourly LD delta)

			. (=0										
Wed	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Venus	+Altair	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	241°06.5	11.0'	S 14°55.6	14.5'	58.5'	66°03.7	29°56.1	29°50.3	39°50.0	76°46.8	86°13.4	90°16.6	118°57.1
1	255°36.5	11.1'	$14^{\circ}41.1$	14.6'	58.5'	65°31.7	29°22.0	29°16.7	40°07.7	77°21.3	86°40.6	90°43.2	119°24.1
2	270°06.6	11.1'	14°26.6	14.7'	58.5'	64°59.6	28°47.8	28°43.0	40°25.7	77°55.9	87°07.8	91°09.8	119°51.0
3	284°36.7	11.1'	$14^{\circ}11.9$	14.8'	58.6'	64°27.5	28° 13.5	28°09.4	40°44.0	78°30.5	87°35.1	91°36.4	
4	299°06.8	11.1'	13°57.1	14.9'	58.6'	63°55.3	27°39.2	27°35.6	41°02.6	79°05.2	88°02.5	92°03.1	
5	313°36.9	11.2'	13°42.3	14.9'	58.7'	63°23.1	27°04.8	27°01.9	41°21.6	79°39.9	88°29.8	92°29.8	
6	328°07.1	11.2'	S 13°27.3	15.0'	58.7'	62°50.8	26°30.4	26°28.1	41°40.8	80°14.7	88°57.3	92°56.5	
7	342°37.3	11.2'	13°12.3	15.1'	58.7'	62°18.5	25°56.0	25°54.2	42°00.4	80°49.5	89°24.7	93°23.3	
8	357°07.5	11.2'	12°57.2	15.2'	58.8'	61°46.2	25°21.5	25°20.4	42°20.2	81°24.4	89°52.2	93°50.1	
9	11°37.8	11.3'	12°42.0	15.3'	58.8'	61°13.7	24°47.0	24°46.4	42°40.4	81°59.3	90°19.8	94°16.9	
10	26°08.0	11.3'	12°26.7	15.4'	58.9'	60°41.3	24°12.4	24° 12.5	43°00.8	82°34.2	90°47.3	94°43.7	
11	40°38.3	11.3'	$12^{\circ}11.3$	15.5'	58.9'	60°08.8	23°37.8	23°38.5	43°21.5	83°09.2	91°14.9	95°10.6	
12	55°08.6	11.3'	S 11°55.9	15.5'	58.9'	59°36.2	23°03.2	23°04.4	43°42.4	83°44.3	91°42.6	95°37.5	
13	69°38.9	11.3'	11°40.3	15.6'	59.0'	59°03.6	22°28.5	22°30.3	44°03.7	84°19.4	92°10.3	96°04.4	
14	84°09.2	11.3' 11°24.7 15.7' 59.0'				58°31.0	21°53.7	21°56.2	44°25.2	84°54.5	92°38.0	96°31.3	
15	98°39.6	11.4'	$11^{\circ}09.0$	59.0'	57°58.3	21°19.0	$21^{\circ}22.1$	44°46.9	85°29.7	93°05.7	96°58.2		
16	113°09.9	11.4'	10°53.2	15.9'	59.1'	57°25.6	20°44.2	20°47.9	45°09.0	86°05.0	93°33.5	97°25.2	
17	127°40.3	11.4'	10°37.4	15.9'	59.1'	56°52.8	20°09.3	20°13.7	45°31.2	86°40.3	94°01.3	97°52.2	
18	142°10.7	11.4'	S 10°21.4	16.0'	59.2'	56°19.9	19°34.4	19°39.4	45°53.7	87°15.6	94°29.1	98°19.2	
19	156°41.0	11.4'	10°05.4	16.1'	59.2'	55°47.1	18°59.5	19°05.1	46°16.5	87°51.0	94°57.0	98°46.2	
20	171°11.4	11.4'	09°49.4	16.2'	59.2'	55°14.1	18°24.5	18°30.8	46°39.4	88°26.4	95°24.8	99°13.2	
21	185°41.9					54°41.2	17°49.5	17°56.4	47°02.7	89°01.9	95°52.7	99°40.3	
22	200°12.3					54°08.1	17° 14.5	17°22.0	47°26.1	89°37.5	96°20.7	100°07.3	
23	214°42.7 11.4' 09°00.7 16.4' 59.3'				53°35.1 16°39.4 16°47.6 47°49.7 90°13.0 96°48.6 100°34.4								
23 rd	SD	$=15.9^{\prime}$	Mer. pass	s. 08:12		Sun SD = 15.9'							

	h	Moon (24 th Apr)	Lunar Distance (objects with largest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Sun	±Fomalhaut	-Venus	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	229°13.1	11.4'	S 08°44.3	16.4'	59.4'	53°02.0		16° 13.2	16°04.4	48°13.6	90°48.7	97° 16.6	101°01.4
1	243°43.6	11.4'	08°27.9	16.5'	59.4'	52°28.8		15°38.7	15°29.2	48°37.7	91°24.3	97° 44.6	101°28.5
2	258°14.0	11.4'	$08^{\circ}11.4$	16.6'	59.5'	51°55.6	21°18.3	15°04.2	14°54.1	49°02.0	92°00.1	98° 12.6	101°55.6
3	272°44.4	11.4'	07°54.9	16.6'	59.5'	51°22.4	21°34.4	14°29.7	14° 18.9	49°26.5	92°35.8	98°40.6	102°22.7
4	287°14.9	11.4'	07°38.2	16.7'	59.5'	50°49.1	21°51.2	13°55.2	13°43.8	49°51.2	93°11.6	99°08.6	102°49.7
5	301°45.3	11.4'	$07^{\circ}21.6$	16.7'	59.6'	50° 15.7	22°08.8	13°20.7	13°08.6	50°16.1	93°47.5	99°36.7	103°16.8
6	316°15.8	11.4'	S 07°04.8	16.8'	59.6'	49°42.4	22°27.1	12°46.2	12°33.4	50°41.2	94°23.4	100°04.8	103°43.9
7	330°46.2	11.4'	06°48.0	16.8'	59.6'	49°08.9	22°46.1	$12^{\circ}11.6$	11°58.2	51°06.4	94°59.4	100°32.8	104°10.9
8	345°16.6	11.4'	06°31.2	16.9'	59.7'	48° 35.5	23°05.7	11°37.1	11°23.0	51°31.9	95°35.4	101°00.9	104°38.0
9	359°47.1	11.4'	$06^{\circ}14.3$	17.0'	59.7'	48°02.0	23°26.0	11°02.6	10°47.8	51°57.5	96°11.4	101°29.0	105°05.1
10	14°17.5	11.4'	05°57.3	17.0'	59.7'	47°28.4	23°46.9	10°28.1	10° 12.6	52°23.4	96°47.5	101°57.1	105°32.1
11	28°47.9	11.4'	05°40.3	17.1'	59.8'	46°54.8	24°08.4	9°53.7	9°37.5	52°49.4	97°23.6	102°25.2	105°59.1
12	43°18.3	11.4'	S 05°23.3	17.1'	59.8'	46°21.2	24°30.4	9°19.3	9°02.5	53°15.5	97°59.8	102°53.3	106°26.1
13	57°48.7						24°53.0	8°45.0	8°27.5	53°41.9	98°36.1	103°21.4	106°53.1
14		72°19.1 11.4' 04°49.0 17.2' 59.9					25°16.1	8° 10.7	7°52.6	54°08.4	99°12.3	103°49.5	107°20.1
15		86°49.5 11.4' 04°31.8 17.2' 59.9				44°40.0	25°39.8	7°36.6	7° 17.8	54°35.0	99°48.6	104° 17.5	107°47.1
16	101°19.8	11.3'	04° 14.5	17.3'	60.0'	44°06.2	26°03.9	7°02.7	6°43.2	55°01.8	100°25.0	104°45.6	108°14.0
17	115°50.2	115°50.2 11.3' 03°57.3 17.3' 60.0'				43°32.3	26°28.4	6°29.0	6°08.9	55°28.8	101°01.4	105°13.7	108°40.9
18	130°20.5						26°53.5	5°55.6	5°34.9	55°55.9	101°37.8	105°41.8	109°07.8
19	144°50.8	11.3'	03°22.6	17.4'	60.1'	42°24.5	27°18.9	5°22.5	5°01.4	56°23.2	102°14.3	106°09.8	109°34.6
20	159°21.1	11.3'	03°05.2	17.4'	60.1'	41°50.5	27°44.7	4°50.1	4°28.6	56°50.6	102°50.9	106°37.9	110°01.4
21	173°51.4	11.3'	02°47.7	17.5'	60.1'	41° 16.5	28°11.0	4°18.4		57°18.2	103°27.4	107°05.9	110°28.2
22	188°21.6	11.2'	02°30.2	17.5'	60.2'	40°42.5	28°37.6			57°45.9	104°04.1	107°33.9	110°55.0
23	202°51.9 11.2' 02°12.7 17.5' 60.2'				40°08.4	29°04.6			58°13.7	104°40.7	108°01.9	111°21.7	
24 th	SD = 16.2' Mer. pass. 09:01					SunSD = 15.9'							

h

Moon (25th Apr) Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	+Saturn	+Venus	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	217°22.1	11.2'	S 01°55.2	17.6'	60.2'			29°31.9	58°41.7	105°17.4	108°29.9	111°48.3	114°18.4
1	231°52.2	11.2'	01°37.6	17.6'	60.2'			29°59.6	59°09.8	105°54.2	108° 57.8	112°15.0	114°38.9
2	246°22.4	11.1'	$01^{\circ}20.0$	17.6'	60.3'			30°27.6	59°38.0	106°30.9	109°25.7	112°41.5	114°59.3
3	260°52.5	11.1'	$01^{\circ}02.4$	17.7'	60.3'			30°55.9	60°06.4	107°07.8	109°53.6	113°08.0	115° 19.5
4	275°22.6	11.1'	00°44.7	17.7'	60.3'			31°24.5	60°34.9	107°44.6	110°21.5	113°34.5	115°39.7
5	289°52.7	11.0'	$00^{\circ}27.1$	17.7'	60.4'			31°53.4	61°03.5	108°21.5	110°49.3	114°00.9	115°59.8
6	304°22.7	11.0'	S 00°09.4	17.7'	60.4'			32°22.5	61°32.2	108°58.5	111° 17.1	114°27.3	116° 19.8
7	318°52.7	11.0'	N00°08.4	17.7'	60.4'			32°52.0	62°01.0	109°35.4	111°44.8	114°53.6	116°39.6
8	333°22.7	10.9'	$00^{\circ}26.1$	17.7'	60.5'			33°21.6	62°29.9	110°12.5	112° 12.6	115°19.8	116°59.3
9	347°52.6	10.9'	00°43.8	17.8'	60.5'			33°51.6	62°59.0	110°49.5	112°40.2	115°46.0	117°18.9
10	2°22.5	10.9'	$01^{\circ}01.6$	17.8'	60.5'			34°21.7	63°28.2	111°26.6	113°07.8	116°12.1	117°38.4
11	16°52.4	10.8'	$01^{\circ}19.4$	17.8'	60.5'	5°31.4		34°52.1	63°57.4	112°03.7	113°35.4	116°38.1	117°57.7
12	31°22.2	10.8'	$N01^{\circ}37.1$	17.8'	60.6'	6°06.0	5°36.5	35°22.7	64°26.8	112°40.9	114°02.9	117°04.0	118°16.9
13	45°52.0	10.7'	01°54.9	17.8'	60.6'	6°41.1	6°10.4	35°53.5	64°56.3	113°18.1	114°30.4	117°29.9	118°35.9
14	60°21.7	10.7'	02°12.7	17.8'	60.6'	7°16.5	6°44.6	36°24.5	65°25.8	113°55.3	114°57.8	117°55.6	118°54.8
15	74°51.4	10.6'	02°30.5	17.8'	60.6'	7°52.2	7°19.2	36°55.7	65°55.5	114°32.6	115°25.1	118°21.3	119°13.6
16	89°21.0	10.6'	02°48.3	17.8'	60.7'	8°28.1	7°54.1	37°27.1	66°25.2	115°09.9	115°52.4	118°46.9	119°32.2
17	103°50.6	10.5'	$03^{\circ}06.1$	17.8'	60.7'	9°04.1	8°29.3	37°58.7	66°55.1	115°47.3	116° 19.6	119°12.4	119°50.6
18	118°20.2	10.5'	N03°23.9	17.8'	60.7'	9°40.4	9°04.6	38°30.4	67°25.0	116°24.6	116°46.8	119°37.8	
19	132°49.7	10.4'	03°41.7	17.8'	60.7'	10°16.8	9°40.0	39°02.3	67°55.1	117°02.0	117° 13.8		
20	147°19.1	10.4'	03°59.5	17.8'	60.8'	10°53.3	10°15.6	39°34.4	68°25.2	117°39.5	117°40.8		
21	161°48.5	10.3'	$04^{\circ}17.3$	17.8'	60.8'	11°29.8	10°51.3	40°06.7	68°55.4	118°16.9	118°07.7		
22	176°17.9	10.3'	$04^{\circ}35.1$	17.8'	60.8'	12°06.5	11°27.1	40°39.0	69°25.6	118°54.4	118°34.6		
23	190°47.2	10.2'	04°52.9	17.8'	60.8'	12°43.3	12°03.0	41°11.6	69°56.0	119°32.0	119°01.3		
25 th	SD	$=16.4^{\prime}$	Mer. pass	. 09:50		-							

Moon (26th Apr) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Achernar	+Venus	+Saturn	+Fomalhaut	+Altair	+Vega
0	205°16.4	10.2'	N 05°10.6	17.7'	60.9'		12°39.0	13°20.2	41°44.2	70°26.4	
1	219°45.6	10.1'	05°28.4	17.7'	60.9'		13°15.1	13°57.1	42°17.0	70°56.9	
2	234°14.7	10.1'	05°46.1	17.7'	60.9'		13°51.2	14°34.0	42°50.0	71°27.5	
3	248°43.8	10.0'	06°03.8	17.7'	60.9'		14°27.4	15°11.1	43°23.1	71°58.1	
4	263°12.7	9.9'	$06^{\circ}21.5$	17.7'	60.9'		15°03.7	15°48.2	43°56.2	72°28.8	
5	277°41.7	9.9'	$06^{\circ}39.1$	17.6'	61.0'		15°40.0	16°25.3	44°29.6	72°59.6	
6	292°10.6	9.8'	N06°56.7	17.6'	61.0'		16°16.3	17°02.5	45°03.0	73°30.4	
7	306°39.4	9.7'	$07^{\circ}14.3$	17.6'	61.0'		16°52.7	17°39.7	45°36.5	74°01.3	
8	321°08.1	9.7'	07°31.9	17.5'	61.0'		17°29.2	18°17.0	46°10.2	74°32.3	
9	335°36.8	9.6'	07°49.5	17.5'	61.0'		18°05.6	18°54.3	46°43.9	75°03.3	88°37.5
10	350°05.4	9.5'	08°07.0	17.5'	61.1'		18°42.2	19°31.7	47°17.7	75°34.4	88°52.5
11	4°33.9	9.5'	08°24.4	17.4'	61.1'		19°18.7	20°09.1	47°51.7	76°05.5	89°07.5
12	19°02.4	9.4'	N08°41.9	17.4'	61.1'		19°55.3	20°46.5	48°25.7	76°36.7	89°22.6
13	33°30.8	9.3'	08°59.2	17.3'	61.1'		20°31.9	21°23.9	48°59.8	77°07.9	89°37.6
14	47°59.1	9.2'	09°16.6	17.3'	61.1'		21°08.5	22°01.4	49°34.1	77°39.2	89°52.7
15	62°27.3	9.2'	09°33.9	17.3'	61.1'		21°45.2	22°38.9	50°08.4	78°10.5	90°07.8
16	76°55.5	9.1'	09°51.2	17.2'	61.2'		22°21.9	23°16.5	50°42.7	78°41.9	90°22.9
17	91°23.6	9.0'	10°08.4	17.2'	61.2'		22°58.6	23°54.0	51°17.2	79°13.3	90°38.0
18	105°51.6	8.9'	N10°25.5	17.1'	61.2'	67°41.2	23°35.4	24°31.6	51°51.7	79°44.7	90°53.1
19	120°19.5	8.9'	10°42.6	17.0'	61.2'	67° 56.5	24°12.1	25°09.2	52°26.3	80°16.2	91°08.2
20	134°47.4	8.8'	$10^{\circ}59.7$	17.0'	61.2'	68°11.9	24°48.9	25°46.9	53°01.0	80°47.7	91°23.3
21	149°15.2	8.7'	$11^{\circ}16.6$	16.9'	61.2'	68° 27.4	25°25.7	26°24.5	53°35.7	81°19.3	91°38.4
22	163°42.9	8.6'	11°33.6	16.9'	61.2'	68°43.1	26°02.6	27°02.2	54°10.5	81°50.9	91°53.5
23	178°10.5	8.5'	11°50.4	16.8'	61.2'	68°59.0	26°39.4	27°39.9	54°45.4	82°22.5	92°08.5
26 th	SD	= 16.6'	Mer. pass	. 10:41							

h		Moor	າ (27 th A	.pr)		Lunar Di	stance (objects w	ith largest h	ourly LD	delta)
Sun	GHA	ν	Dec	d	HP	-Achernar	+Venus	+Saturn	+Fomalhaut	+Altair	+Vega

Sun	GHA	ν	Dec	а	пР	-Achernar	+ venus	+Saturn	+romamaut	+Altair	+ vega
0	192°38.0	8.4'	N 12°07.2	16.7'	61.2'	69°14.9	27°16.3	28°17.6	55°20.3	82°54.1	92°23.6
1	207°05.4	8.4'	12°23.9	16.7'	61.3'	69°31.0	27°53.1	28°55.4	55°55.3	83°25.8	92°38.7
2	221°32.8	8.3'	12°40.6	16.6'	61.3'	69°47.3	28°30.0	29°33.1	56°30.3	83°57.5	92°53.7
3	236°00.1	8.2'	12°57.2	16.5'	61.3'	70°03.7	29°06.9	30°10.9	57°05.4	84°29.2	93°08.8
4	250°27.2	8.1'	13°13.7	16.4'	61.3'	-	<u>'</u>	New	Moon ———	<u> </u>	·
5	264°54.3	8.0'	13°30.1	16.4'	61.3'	-		——— New	Moon		
6	279°21.3	7.9'	N13°46.5	16.3'	61.3'	_		New	Moon		
7	293°48.2	7.8'	14°02.8	16.2'	61.3'	-			Moon		
8	308°15.0	7.7'	14°18.9	16.1'	61.3'	_		New	Moon		
9	322°41.8	7.6'	14°35.0	16.0'	61.3'	_		New	Moon		
10	337°08.4	7.5'	14°51.1	15.9'	61.3'	-			Moon		
11	351°34.9	7.4'	15°07.0	15.8'	61.3'	-		New	Moon		
12	6°01.4	7.4'	$N15^{\circ}22.8$	15.7'	61.3'	_		New	Moon		
13	20°27.7	7.3'	15°38.5	15.6'	61.3'	-		New	Moon		
14	34°54.0	7.2'	15°54.2	15.5'	61.3'	_		New	Moon		
15	49°20.2	7.1'	$16^{\circ}09.7$	15.4'	61.3'	_		New	Moon		
16	63°46.2	7.0'	16°25.2	15.3'	61.3'	-			Moon		
17	78°12.2	6.9'	16°40.5	15.2'	61.3'	-		New	Moon		
18	92°38.1	6.8'	$N16^{\circ}55.7$	15.1'	61.3'	_		New	Moon		
19	107°03.8	6.7'	17°10.8	15.0'	61.3'	-		New	Moon		
20	121°29.5	6.6'	17°25.8	14.9'	61.3'	-		New	Moon		
21	135°55.1	6.5'	17°40.7	14.8'	61.3'	_			Moon		
22	150°20.6	6.4'	17°55.5	14.7'	61.3'	_			Moon		
23	164°45.9	6.3'	18°10.1	14.5'	61.3'	-		New	Moon ———		
27 th	SD	= 16.7	['] Mer. pas	s. 11:35							
27"	SD	= 16.7	Mer. pas	s. 11:35							

Moon (28th Apr) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	-Betelgeuse	-Capella	-Jupiter	-Aldebaran
0	179°11.2	6.2'	N 18°24.6	14.4'	61.3'				Ne	w Moon ——			
1	193°36.4	6.1'	18°39.1	14.3'	61.3'				Ne	w Moon ——			
2	208°01.5	6.0'	18°53.3	14.2'	61.3'				Ne	w Moon ——			
3	222°26.5	5.9'	19°07.5	14.0'	61.3'				Ne	w Moon ——			
4	236°51.4	5.8'	19°21.5	13.9'	61.3'					w Moon ——			
5	251°16.2	5.7'	19°35.4	13.8'	61.3'				Ne	w Moon ——			
6	265°40.8	5.6'	N19°49.2	13.6'	61.3'				Ne	w Moon ——			
7	280°05.4	5.5'	20°02.8	13.5'	61.3'					w Moon ——			
8	294°29.9	5.4'	20°16.3	13.3'	61.2'				Ne	w Moon ——			
9	308°54.3	5.3'	20°29.6	13.2'	61.2'				Ne	w Moon ——			
10	323°18.6	5.2'	20°42.8	13.0'	61.2'				Ne	w Moon ——			
11	337°42.8	5.1'	20°55.8	12.9'	61.2'	102°29.7	76°42.5	70°36.8	65°39.9	45°39.1	38°22.9	33°29.1	24°24.0
12	352°06.9	5.0'	N21°08.7	12.8'	61.2'	101°51.6	76°05.6	70°01.4	65°01.9	45°06.3	37°49.8	32°52.1	23°49.9
13	6°31.0	4.9'	21°21.5	12.6'	61.2'	101°13.6	75°28.7	69°26.2	64°23.9	44°33.7	37°16.8	32°15.1	23°16.0
14	20°54.9	4.8'	21°34.1	12.4'	61.2'	100°35.6	74°51.9	68°50.9	63°45.9	44°01.1	36°44.0	31°38.2	22°42.3
15	35°18.7	4.7'	21°46.5	12.3'	61.2'	99°57.6	74°15.0	68° 15.7	63°07.9	43°28.7	36°11.4	31°01.3	22°08.8
16	49°42.4	4.6'	21°58.8	12.1'	61.2'	99°19.7	73°38.2	67°40.5	62°30.0	42°56.5	35°38.9	30°24.4	21°35.6
17	64°06.1	4.5'	22°11.0	12.0'	61.1'	98°41.7	73°01.3	67°05.4	61°52.0	42°24.3	35°06.6	29°47.6	21°02.6
18	78°29.6	4.5'	N22°22.9	11.8'	61.1'	98°03.8	72°24.5	66°30.3	61°14.1	41°52.3	34°34.5	29°10.8	20°30.0
19	92°53.1	4.4'	22°34.7	11.6'	61.1'	97°25.9	71°47.8	65°55.3	60°36.2	41°20.5	34°02.6	28°34.1	19°57.6
20	107°16.4	4.3'	22°46.4	11.5'	61.1'	96°48.0	71°11.0	65°20.3	59°58.3	40°48.9	33°30.8	27°57.4	19°25.6
21	121°39.7	4.2'	22°57.9	11.3'	61.1'	96°10.1	70°34.3	64°45.3	59°20.5	40°17.3	32°59.3	27°20.8	18°54.0
22	136°02.9	4.1'	23°09.2	11.1'	61.1'	95°32.3	69°57.6	64°10.4	58°42.6	39°46.0	32°28.0	26°44.2	18°22.7
23	150°26.0	4.0'	23°20.3	11.0'	61.0'	94°54.4	69°20.9	63°35.6	58°04.8	39°14.9	31°57.0	26°07.7	17°51.9
28 th	SD	= 16.7	Mer. pas	s. 12:33			-		-				

h	Moon (29 th Apr)	Lunar Distance (objects with largest hourly LD delta)
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n		IVIOOI	n (29*** Ap	or)			Lunar i	Distance	(objects	with largest	nourly L	LD deita,)
Tue	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	-Betelgeuse	-Capella	-Jupiter	-Aldebaran
0	164°49.0	3.9'	N23°31.3	10.8'	61.0'	94° 16.6	68°44.2	63°00.8	57°27.0	38°43.9	31°26.1	25°31.3	17°21.6
1	179°11.9	3.8'	23°42.1	10.6'	61.0'	93°38.8	68°07.6	62°26.0	56°49.3	38°13.1	30°55.6	24°54.9	16°51.7
2	193°34.8	3.8'	23°52.7	10.4'	61.0'	93°01.1	67°30.9	61°51.3	56°11.5	37°42.5	30°25.2	24°18.5	16°22.5
3	207°57.5	3.7'	24°03.2	10.3'	61.0'	92°23.3	66°54.4	61°16.7	55°33.8	37°12.2	29°55.2	23°42.3	15°53.8
4	222°20.2	3.6'	24°13.4	10.1'	61.0'	91°45.6	66°17.8	60°42.1	54°56.1	36°42.0	29°25.5	23°06.1	15°25.7
5	236°42.8	3.5'	24°23.5	9.9'	60.9'	91°08.0	65°41.2	60°07.6	54°18.5	36°12.1	28°56.0	22°30.0	14°58.4
6	251°05.3	3.5'	N24°33.4	9.7'	60.9'	90°30.3	65°04.7	59° 33.2	53°40.8	35°42.4	28°26.9	21°54.0	14°31.9
7	265°27.8	3.4'	24°43.2	9.5'	60.9'	89°52.7	64°28.3	58° 58.8	53°03.2	35°12.9	27°58.1	21°18.1	14°06.2
8	279°50.2	3.3'	24°52.7	9.4'	60.9'	89°15.1	63°51.8	58°24.5	52°25.6	34°43.7	27°29.7	20°42.2	13°41.4
9	294°12.5	3.2'	$25^{\circ}02.1$	9.2'	60.8'	88°37.5	63°15.4	57°50.2	51°48.1	34°14.8	27°01.6	20°06.5	
10	308°34.7	3.2'	25°11.2	9.0'	60.8'	88°00.0	62°39.0	57°16.1	51°10.6	33°46.1	26°33.9	19°30.9	
11	322°56.9	3.1'	25°20.2	8.8'	60.8'	87°22.5	62°02.6	56°42.0	50°33.1	33°17.7	26°06.6	18°55.4	
12	337°19.0	3.0'	N25°29.0	8.6'	60.8'	86°45.0	61°26.3	56°07.9	49°55.6	32°49.6	25°39.7	18°20.0	
13	351°41.1	3.0'	25°37.6	8.4'	60.8'	86°07.5	60°50.0	55°34.0	49°18.2	32°21.8	25°13.3	17°44.8	
14	6°03.0	2.9'	25°46.0	8.2'	60.7'	85°30.1	60°13.7	55°00.1	48°40.8	31°54.3	24°47.3	17°09.7	
15	20°25.0	2.9'	25°54.2	8.0'	60.7'	84°52.8	59°37.5	54°26.3	48°03.5	31°27.2	24°21.9	16°34.8	
16	34°46.8	2.8'	26°02.2	7.8'	60.7'	84° 15.4	59°01.3	53°52.6	47°26.1	31°00.4	23°56.9	16°00.0	
17	49°08.6	2.8'	$26^{\circ}10.0$	7.6'	60.7'	83°38.1	58°25.1	53° 19.0	46°48.9	30°33.9	23°32.5	15°25.4	
18	63°30.4	2.7'	N26°17.6	7.4'	60.6'	83°00.8	57°49.0	52° 45.5	46°11.6	30°07.8	23°08.6	14°51.1	
19	77°52.1	2.7'	26°25.0	7.2'	60.6'	82°23.6	57°12.9	52°12.0	45°34.4	29°42.1	22°45.3	14°17.0	
20	92°13.8	2.6'	26°32.3	7.0'	60.6'	81°46.3	56°36.8	51°38.7	44°57.2	29°16.8	22°22.7	13°43.1	
21	106°35.4	2.6'	26°39.3	6.8'	60.5'	81°09.2	56°00.8	51°05.4	44°20.1	28°52.0	22°00.7	13°09.5	
22	120°56.9	2.5'	26°46.1	6.6'	60.5'	80°32.0	55°24.8	50°32.3	43°42.9	28°27.5	21°39.3	12°36.2	
23	135°18.5	2.5'	26°52.7	6.4'	60.5'	79°54.9	54°48.9	49°59.2	43°05.9	28°03.5	21°18.7	12°03.3	
29 th	SD	= 16.6'	Mer. pas	s. 13:35									

h Moon (30 th Apr)	Lunar Distance (objects with largest hourly LD delta)
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Wed	GHA	ν	Dec	d	HP	-Arcturus	-Regulus	-Mars	-Procyon	-Pollux	-Jupiter	+Aldebaran	+Sun
0	149°40.0	2.5'	N 26°59.1	6.2'	60.5'		79°17.9	54°12.9	49°26.3	42°28.8	11°30.8		
1	164°01.4	2.4'	27°05.3	6.0'	60.4'		78°40.8	53°37.1	48°53.4	41°51.8	10°58.7		
2	178°22.9	2.4'	$27^{\circ}11.3$	5.8'	60.4'		78°03.8	53°01.2	48°20.7	41° 14.9	10°27.2		
3	192°44.3	2.4'	$27^{\circ}17.1$	5.6'	60.4'		77°26.9	52°25.4	47°48.1	40°38.0	9°56.2		
4	207°05.6	2.3'	27°22.7	5.4'	60.3'		76°50.0	51°49.7	47° 15.6	40°01.1	9°26.0		
5	221°27.0	2.3'	$27^{\circ}28.1$	5.2'	60.3'		76°13.1	51°14.0	46°43.2	39°24.3	8°56.5		
6	235°48.3	2.3'	N27°33.3	5.0'	60.3'		75°36.3	50°38.3	46°10.9	38° 47.5	8°27.9		
7	250°09.6	2.3'	27°38.2	4.8'	60.2'	119°53.6	74°59.5	50°02.7	45°38.8	38° 10.7			
8	264°30.9	2.3'	27°43.0	4.5'	60.2'	119°25.0	74°22.7	49°27.1	45°06.8	37°34.0			
9	278°52.2	2.3'	27°47.5	4.3'	60.2'	118°56.3	73°46.0	48°51.5	44°34.9	36°57.4			
10	293°13.4	2.3'	27°51.9	4.1'	60.2'	118°27.5	73°09.4	48°16.0	44°03.1	36°20.8			
11	307°34.7	2.3'	27°56.0	3.9'	60.1'	117°58.7	72°32.7	47°40.6	43°31.5	35°44.2			
12	321°56.0	2.3'	N 27°59.9	3.7'	60.1'	117°29.9	71°56.2	47°05.1	43°00.0	35°07.7			
13	336°17.2	2.3'	28°03.6	3.5'	60.1'	117°01.0	71°19.6	46°29.8	42°28.7	34°31.2			
14	350°38.5	2.3'	$28^{\circ}07.1$	3.3'	60.0'	116°32.1	70°43.1	45°54.4	41°57.5	33°54.7		14°07.1	
15	4°59.8	2.3'	28° 10.4	3.1'	60.0'	116°03.1	70°06.7	45° 19.1	41°26.5	33° 18.3		14°32.0	
16	19°21.0	2.3'	28° 13.5	2.9'	60.0'	115°34.1	69°30.3	44°43.9	40°55.7	32°42.0		14°57.6	40°26.2
17	33°42.3	2.3'	28°16.4	2.7'	59.9'	115°05.1	68°53.9	44°08.7	40°25.0	32°05.7		15°24.0	41°00.0
18	48°03.6	2.3'	N 28°19.1	2.5'	59.9'	114°36.1	68°17.6	43°33.5	39°54.4	31°29.4		15°50.9	41°33.8
19	62°24.9	2.3'	28°21.5	2.2'	59.8'	114°07.0	67°41.3	42°58.4	39°24.1	30°53.2		16°18.5	42°07.5
20	76°46.3	2.4'	28°23.8	2.0'	59.8'	113°37.9	67°05.1	42°23.4	38°53.9	30° 17.1		16°46.5	42°41.2
21	91°07.6	2.4'	28°25.8	1.8'	59.8'	113°08.7	66°28.9	41°48.4	38°23.9	29°40.9		17°15.0	43°14.8
22	105°29.0	2.4'	28°27.6	1.6'	59.7'	112°39.6	65°52.7	41°13.4	37°54.1	29°04.9		17°43.9	43°48.4
23	119°50.4	2.5'	28°29.2	1.4'	59.7'	112°10.4	65°16.6	40°38.5	37°24.5	28°28.9		18°13.1	44°22.0
30 th	SD =	= 16.5′	Mer. pass	. 14:39)				Sun SD	= 15.9'			

h Moon (1st May) Lunar Distance (objects with largest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Aldebaran	+Capella	+Sun
0	134°11.9	2.5'	N28°30.7	1.2'	59.7'	118°41.6	64°40.6	40°03.6	27°52.9		18°42.8		44°55.5
1	148°33.4	2.5'	28°31.9	1.0'	59.6'	118°05.6	64°04.6	39°28.8	27°17.0		19°12.7		45°29.0
2	162°54.9	2.6'	28°32.9	0.8'	59.6'	117°29.6	63°28.6	38°54.0	26°41.1		19°43.0		46°02.4
3	177°16.5	2.6'	28°33.7	0.6'	59.6'	116°53.7	62°52.7	38° 19.3	26°05.3		20°13.4		46°35.8
4	191°38.1	2.7'	28°34.3	0.4'	59.5'	116°17.8	62°16.9	37°44.6	25°29.6		20°44.2		47°09.2
5	205°59.7	2.7'	28°34.6	0.2'	59.5'	115°41.9	61°41.0	37°10.0	24°53.9	8°57.4	21°15.1		47°42.5
6	220°21.5	2.8'	N 28°34.8	-0.0'	59.5'	115°06.1	61°05.3	36°35.4	24°18.2	9°26.0	21°46.3		48° 15.7
7	234°43.2	2.8'	28°34.8	-0.2'	59.4'	114°30.4	60°29.6	36°00.8	23°42.6	9°55.2	22°17.6		48°48.9
8	249°05.0	2.9'	28°34.6	-0.4'	59.4'	113°54.7	59°53.9	35°26.4	23°07.1	10°25.1	22°49.1		49°22.1
9	263°26.9	2.9'	28°34.2	-0.6'	59.3'	113°19.1	59°18.3	34°51.9	22°31.6	10°55.4	23°20.7		49°55.2
10	277°48.9	3.0'	28°33.5	-0.8'	59.3'	112°43.5	58°42.7	34°17.5	21°56.2	11°26.1	23°52.5	19°54.3	50°28.3
11	292°10.9	3.1'	28°32.7	-1.0'	59.3'	112°07.9	58°07.2	33°43.2	21°20.8	11°57.2	24°24.4	20°10.6	51°01.3
12	306°32.9	3.1'	N28°31.7	-1.2'	59.2'	111°32.4	57°31.7	33°08.9	20°45.5	12°28.6	24°56.4	20°27.6	51°34.2
13	320°55.1	3.2'	28°30.5	-1.4'	59.2'	110°57.0	56°56.3	32°34.7	20°10.2	13°00.3	25°28.5	20°45.4	52°07.2
14	335°17.3	3.3'	28°29.0	-1.6'	59.1'	110°21.6	56°20.9	32°00.5	19°35.0	13°32.1	26°00.7	21°03.9	52°40.1
15	349°39.6	3.4'	28°27.4	-1.8'	59.1'	109°46.2	55°45.5	31°26.4	18°59.9	14°04.2	26°33.0	21°23.0	53°12.9
16	4°01.9	3.4'	28°25.6	-2.0'	59.1'	109°10.9	55°10.3	30°52.3	18°24.8	14°36.4	27°05.3	21°42.7	53°45.7
17	18°24.4	3.5'	28°23.6	-2.2'	59.0'	108°35.6	54°35.0	30°18.3	17°49.8	15°08.8	27°37.8	22°03.1	54°18.4
18	32°46.9	3.6'	N 28°21.4	-2.4'	59.0'	108°00.4	53°59.8	29°44.3	17°14.8	15°41.3	28°10.2	22°23.9	54°51.1
19	47°09.5	3.7'	$28^{\circ}19.1$	-2.6'	59.0'	107°25.3	53°24.7	29°10.4	16°39.9	16° 13.8	28°42.8	22°45.4	55°23.7
20	61°32.2	3.8'	$28^{\circ}16.5$	-2.8'	58.9'	106°50.1	52°49.6	28°36.5	16°05.1	16°46.5	29°15.4	23°07.3	55°56.3
21	75°55.0	3.9'	28°13.7	-2.9'	58.9'	106° 15.1	52°14.6	28°02.7	15°30.4	17° 19.3	29°48.0	23° 29.7	56°28.9
22	90°17.8	4.0'	28°10.8	-3.1'	58.8'	105°40.1	51°39.6	27°28.9	14°55.7	17°52.1	30°20.6	23°52.5	57°01.4
23	104°40.8	4.1'	28°07.6	-3.3'	58.8'	105°05.1	51°04.7	26°55.2	14°21.1	18°25.0	30°53.3	24°15.7	57°33.8
1 st	SD:	= 16.3	Mer. pas	s. 15:43	;				Sun S	D = 15.9'			

h Moon (2nd May) Lunar Distance (objects with largest hourly LD delta)

			(=e	<i>J</i> /					\ · · · J · · · · ·				
Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Capella	+Aldebaran	+Sun
0	119°03.9	4.2'	N 28°04.3	-3.5'	58.8'	104°30.2	50°29.8	26°21.5	13°46.6	18°57.9	24°39.4	31°26.1	58°06.2
1	133°27.0	4.3'	28°00.8	-3.7'	58.7'	103°55.3	49°54.9	25°47.9	13°12.1	19°30.8	25°03.4	31°58.8	58°38.6
2	147°50.3	4.4'	27°57.2	-3.9'	58.7'	103°20.5	49°20.1	25°14.4	12°37.8	20°03.8	25°27.8	32°31.6	59°10.9
3	162°13.6	4.5'	27°53.3	-4.0'	58.6'	102°45.7	48°45.4	24°40.9	12°03.5	20°36.8	25°52.6	33°04.3	59°43.2
4	176°37.1	4.6'	27°49.3	-4.2'	58.6'	102°11.0	48° 10.7	24°07.4	11°29.4	21°09.8	26°17.6	33°37.1	60°15.4
5	191°00.6	4.7'	27°45.0	-4.4'	58.6'	101°36.3	47°36.1	23°34.0	10°55.3	21°42.8	26°43.0	34°09.9	60°47.5
6	205°24.3	4.8'	N 27°40.7	-4.6'	58.5'	101°01.7	47°01.5	23°00.7	10°21.4	22°15.9	27°08.6	34°42.7	61°19.7
7	219°48.1	4.9'	27°36.1	-4.7'	58.5'	100°27.1	46°26.9	22°27.4	9°47.6	22°48.9	27°34.5	35° 15.5	61°51.7
8	234°12.0	5.0'	27°31.4	-4.9'	58.4'	99°52.6	45°52.4	21°54.2	9°13.9	23°21.9	28°00.6	35°48.4	62°23.7
9	248°36.0	5.1'	27°26.5	-5.1'	58.4'	99°18.1	45° 18.0	21°21.0	8°40.4	23°55.0	28°27.0	36°21.2	62°55.7
10	263°00.1	5.2'	27°21.4	-5.2'	58.4'	98°43.7	44°43.6	20°47.9	8°07.1	24°28.0	28°53.6	36°54.0	63°27.6
11	277°24.3	5.3'	$27^{\circ}16.1$	-5.4'	58.3'	98°09.3	44°09.3	20°14.8	7°34.0	25°01.0	29°20.4	37°26.8	63°59.5
12	291°48.7	5.5'	$N27^{\circ}10.7$	-5.6'	58.3'	97°35.0	43°35.0	19°41.8	7°01.1	25°34.0	29°47.4	37°59.6	64°31.3
13	306°13.1	5.6'	27°05.2	-5.7'	58.2'	97°00.7	43°00.7	19°08.9	6°28.6	26°07.0	30° 14.6	38°32.4	65°03.1
14	320°37.7	5.7'	26°59.4	-5.9'	58.2'	96° 26.5	42°26.5	18°36.0	5°56.4	26°39.9	30°42.0	39°05.1	65°34.8
15	335°02.4	5.8'	26°53.6	-6.0'	58.2'	95°52.3	41°52.4	18°03.2	5°24.6	27°12.9	31°09.6	39° 37.9	66°06.5
16	349°27.2	5.9'	26°47.5	-6.2'	58.1'	95° 18.2	41°18.3	17°30.4	4°53.5	27°45.8	31°37.2	40° 10.7	66°38.1
17	3°52.1	6.1'	26°41.3	-6.4'	58.1'	94°44.1	40°44.2	16°57.7	4°23.1	28°18.7	32°05.1	40°43.4	67°09.7
18	18° 17.2	6.2'	N26°34.9	-6.5'	58.0'	94°10.1	40° 10.3	16°25.1		28°51.6	32°33.1	41°16.1	67°41.3
19	32°42.4	6.3'	26°28.4	-6.7'	58.0'	93°36.1	39°36.3	15°52.5		29°24.5	33°01.2	41°48.8	68°12.8
20	47°07.7	6.4'	26°21.8	-6.8'	58.0'	93°02.1	39°02.4	15°20.0		29°57.3	33°29.4	42°21.5	68°44.2
21	61°33.1	6.6'	$26^{\circ}15.0$	-7.0'	57.9'	92°28.2	38° 28.6	14°47.5		30°30.1	33°57.7	42° 54.2	69°15.6
22	75°58.6	6.7'	26°08.0	-7.1'	57.9'	91°54.4	37°54.8	14° 15.2		31°02.9	34°26.2	43°26.8	69°46.9
23	90°24.3	6.8'	26°00.9	-7.3'	57.8'	91°20.6	37°21.0	13°42.9		31°35.6	34°54.7	43°59.4	70°18.3
2 nd	SD :	= 16.0'	Mer. pas	s. 16:44					Sun S	D = 15.9'			

h Moon ((3 rd May)	Lunar Distance (objects with	largest hourly	/ LD delta)

Sat	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Regulus	-Mars	+Pollux	+Jupiter	+Aldebaran	+Sun
0	104°50.1	6.9'	N 25°53.6	-7.4'	57.8'	90°46.8	88°31.7	36°47.3	13° 10.6		32°08.3	44°32.0	70°49.5
1	119°16.1	7.1'	25°46.2	-7.5'	57.8'	90°13.1	88°03.4	36°13.6	12°38.5		32°41.0	45°04.6	71°20.7
2	133°42.1	7.2'	25°38.7	-7.7'	57.7'	89°39.5	87°35.2	35°40.0	12°06.4		33°13.7	45°37.2	71°51.9
3	148°08.3	7.3'	25°31.0	-7.8'	57.7'	89°05.9	87°07.1	35°06.5	11°34.4		33°46.3	46°09.7	72°23.0
4	162°34.6	7.4'	25°23.2	-8.0'	57.7'	88°32.3	86°39.0	34°33.0	11°02.5		34°18.9	46°42.2	72°54.1
5	177°01.1	7.6'	25°15.2	-8.1'	57.6'	87°58.8	86°10.9	33°59.5	10°30.7		34°51.4	47°14.7	73°25.1
6	191°27.6	7.7'	N25°07.2	-8.2'	57.6'	87°25.3	85°42.9	33°26.1	9°59.0		35°24.0	47°47.1	73°56.0
7	205°54.3	7.8'	24°58.9	-8.3'	57.5'	86°51.9	85°14.9	32°52.7	9°27.5		35°56.4	48°19.5	74°27.0
8	220°21.2	8.0'	24°50.6	-8.5'	57.5'	86°18.5	84°47.0	32°19.4	8° 56.0	5°02.1	36°28.9	48°51.9	74°57.9
9	234°48.1	8.1'	24°42.1	-8.6'	57.5'	85°45.2	84°19.1	31°46.1	8° 24.7	5°32.6	37°01.3	49°24.3	75°28.7
10	249°15.2	8.2'	24°33.5	-8.7'	57.4'	85°11.9	83°51.2	31°12.9	7°53.5	6°03.6	37°33.7	49°56.6	75°59.5
11	263°42.4	8.4'	24°24.8	-8.9'	57.4'	84°38.7	83°23.4	30°39.7	7°22.6	6°35.0	38°06.0	50°28.9	76°30.2
12	278°09.8	8.5'	N24°15.9	-9.0'	57.3'	84°05.5	82°55.7	30°06.6	6°51.8	7°06.6	38°38.4	51°01.2	77°00.9
13	292°37.3	8.6'	24°07.0	-9.1'	57.3'	83°32.3	82°28.0	29°33.5	6°21.3	7°38.3	39°10.6	51°33.5	77°31.6
14	307°04.9	8.7'	23°57.9	-9.2'	57.3'	82°59.2	82°00.4	29°00.5	5°51.1	8°10.2	39°42.9	52°05.7	78°02.2
15	321°32.6	8.9'	23°48.6	-9.3'	57.2'	82°26.2	81°32.8	28°27.5	5°21.2	8°42.3	40°15.1	52°37.9	78°32.8
16	336°00.5	9.0'	23°39.3	-9.4'	57.2'	81°53.2	81°05.3	27°54.5	4°51.9	9°14.3	40°47.2	53°10.0	79°03.3
17	350°28.5	9.1'	23°29.9	-9.6'	57.2'	81°20.2	80°37.8	27°21.6	4°23.1	9°46.5	41°19.4	53°42.2	79°33.8
18	4°56.6	9.3'	N23°20.3	-9.7'	57.1'	80°47.3	80°10.3	26°48.8	3°55.2	10°18.7	41°51.4	54°14.3	80°04.2
19	19°24.9	9.4'	23°10.6	-9.8'	57.1'	80°14.4	79°43.0	26°16.0		10°50.9	42°23.5	54°46.3	80°34.6
20	33°53.3	9.5'	23°00.9	-9.9'	57.0'	79°41.6	79°15.6	25°43.2		11°23.1	42°55.5	55°18.3	81°04.9
21	48°21.8	9.6'	22°51.0	-10.0'	57.0'	79°08.8	78°48.4	25°10.5		11°55.4	43°27.5	55°50.3	81°35.2
22	62°50.4	9.8'	22°41.0	-10.1'	57.0'	78°36.0	78°21.2	24°37.9		12°27.7	43°59.4	56°22.3	82°05.5
23	77°19.2	9.9'	22°30.9	-10.2'	56.9'	78°03.3	77°54.0	24°05.3		12°59.9	44°31.4	56°54.2	82°35.7
3 rd	SD	= 15.8	Mer. pas	s. 17:39					Sun SI	D = 15.9'			

h Moon (4th May)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Arcturus	-Regulus	+Pollux	+Jupiter	+Aldebaran	+Sun
0	91°48.1	10.0'	N22°20.7	-10.3'	56.9'		77°30.6	77°26.9	23°32.7	13°32.2	45°03.2	57°26.1	83°05.9
1	106°17.1	10.1'	22°10.4	-10.4'	56.9'		76°58.0	76°59.8	23°00.2	14°04.4	45°35.1	57°58.0	83°36.0
2	120°46.2	10.3'	22°00.0	-10.5'	56.8'		76°25.4	76°32.9	22°27.7	14°36.6	46°06.9	58°29.9	84°06.1
3	135°15.5	10.4'	21°49.5	-10.6'	56.8'		75°52.9	76°05.9	21°55.3	15°08.8	46°38.6	59°01.7	84°36.2
4	149°44.9	10.5'	21°38.9	-10.7'	56.8'		75°20.4	75°39.1	21°22.9	15°41.0	47°10.3	59°33.4	85°06.2
5	164°14.4	10.6'	21°28.2	-10.8'	56.7'		74°47.9	75°12.2	20°50.5	16°13.2	47°42.0	60°05.2	85°36.2
6	178°44.0	10.8'	N 21°17.4	-10.9'	56.7'		74°15.5	74°45.5	20°18.3	16°45.3	48°13.7	60°36.9	86°06.1
7	193°13.8	10.9'	$21^{\circ}06.5$	-11.0'	56.6'	119°37.4	73°43.1	74°18.8	19°46.0	17°17.5	48°45.3	61°08.6	86°36.0
8	207°43.7	11.0'	20°55.5	-11.1'	56.6'	119°05.1	73°10.8	73°52.2	19°13.8	17°49.6	49°16.9	61°40.2	87°05.8
9	222°13.7	11.1'	20°44.5	-11.1'	56.6'	118°32.8	72°38.5	73°25.6	18°41.7	18°21.6	49°48.4	62°11.8	87°35.6
10	236°43.8	11.2'	20°33.3	-11.2'	56.5'	118°00.5	72°06.2	72°59.1	18°09.6	18°53.7	50°19.9	62°43.4	88°05.4
11	251°14.0	11.4'	$20^{\circ}22.1$	-11.3'	56.5'	117°28.3	71°34.0	72°32.6	17°37.5	19°25.7	50°51.4	63°14.9	88°35.1
12	265°44.4	11.5'	N 20°10.8	-11.4'	56.5'	116°56.1	71°01.8	72°06.2	17°05.5	19°57.7	51°22.8	63°46.5	89°04.8
13	280°14.8	11.6'	19°59.4	-11.5'	56.4'	116°24.0	70°29.7	71°39.9	16°33.6	20°29.6	51°54.2	64°17.9	89°34.5
14	294°45.4	11.7'	19°47.9	-11.6'	56.4'	115°51.9	69°57.6	71°13.7	16°01.7	21°01.6	52°25.6	64°49.4	90°04.1
15	309°16.1	11.8'	19°36.3	-11.6'	56.4'	115°19.8	69°25.6	70°47.5	15°29.8	21°33.5	52°56.9	65°20.8	90°33.6
16	323°46.9	11.9'	19°24.7	-11.7'	56.3'	114°47.8	68°53.5	70°21.3	14°58.1	22°05.3	53°28.2	65°52.2	91°03.2
17	338°17.9	12.0'	19°13.0	-11.8'	56.3'	114°15.8	68°21.5	69°55.3	14°26.3	22°37.2	53°59.5	66°23.5	91°32.7
18	352°48.9	12.2'	N19°01.2	-11.9'	56.3'	113°43.9	67°49.6	69°29.3	13°54.6	23°09.0	54°30.7	66°54.9	92°02.1
19	7°20.1	12.3'	18°49.3	-11.9'	56.2'	113°12.0	67°17.7	69°03.4	13°23.0	23°40.7	55°01.9	67°26.2	92°31.5
20	21°51.3	12.4'	18°37.4	-12.0'	56.2'	112°40.1	66°45.8	68°37.5	12°51.4	24°12.5	55°33.0	67°57.4	93°00.9
21	36°22.7	12.5'	18°25.4	-12.1'	56.2'	112°08.3	66°14.0	68°11.7	12°19.9	24°44.2	56°04.2	68°28.6	93°30.3
22	50°54.2	12.6'	18°13.3	-12.2'	56.1'	111°36.5	65°42.2	67°46.0	11°48.5	25°15.9	56°35.3	68°59.8	93°59.6
23	65°25.7	12.7'	18°01.1	-12.2'	56.1'	111°04.7	65°10.4	67°20.4	11°17.1	25°47.5	57°06.3	69°31.0	94°28.8
4 th	SD	= 15.5'	Mer. pass	s. 18:30					Sun SD	0 = 15.9'			

h Moon (5th May) Lunar Distance (objects with largest hourly LD delta)

			(<i>,</i>					0.00000	6 -			
Mon	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Regulus	+Mars	+Pollux	+Jupiter	+Aldebaran
0	79°57.4	12.8'	N 17°48.9	-12.3'	56.1'	110°33.0	66°54.8	64°38.7	10°45.8	12°19.5	26°19.1	57°37.3	70°02.1
1	94°29.2	12.9'	17°36.6	-12.4'	56.0'	110°01.3	66°29.3	64°07.0	10° 14.6	12°49.6	26°50.7	58°08.3	70°33.2
2	109°01.1	13.0'	17°24.3	-12.4'	56.0'	109°29.6	66°03.9	63°35.3	9°43.5	13°19.8	27°22.3	58°39.3	71°04.3
3	123°33.1	13.1'	$17^{\circ}11.9$	-12.5'	56.0'	108°58.0	65°38.5	63°03.7	9°12.4	13°49.9	27°53.8	59°10.2	71°35.4
4	138°05.2	13.2'	16°59.4	-12.5'	56.0'	108°26.4	65°13.2	62°32.1	8°41.5	14°20.0	28°25.3	59°41.1	72°06.4
5	152°37.4	13.3'	$16^{\circ}46.9$	-12.6'	55.9'	107°54.9	64°48.0	62°00.6	8° 10.7	14°50.1	28°56.8	60°11.9	72°37.4
6	167°09.7	13.4'	N 16°34.3	-12.7'	55.9'	107°23.4	64°22.9	61°29.1	7°40.0	15°20.2	29°28.2	60°42.8	73°08.3
7	181°42.1	13.5'	16°21.6	-12.7'	55.9'	106°51.9	63°57.9	60°57.6	7°09.5	15°50.2	29°59.6	61°13.6	73°39.2
8	196°14.6	13.6'	$16^{\circ}08.9$	-12.8'	55.8'	106°20.4	63°32.9	60°26.1	6°39.1	16°20.2	30°31.0	61°44.3	74°10.1
9	210°47.2	13.7'	$15^{\circ}56.1$	-12.8'	55.8'	105°49.0	63°08.0	59°54.7	6°09.0	16°50.3	31°02.3	62°15.1	74°41.0
10	225°19.9	13.8'	15°43.3	-12.9'	55.8'	105°17.6	62°43.2	59°23.3	5°39.1	17°20.3	31°33.6	62°45.8	75°11.8
11	239°52.7	13.9'	15°30.4	-12.9'	55.7'	104°46.2	62°18.5	58°52.0	5°09.5	17°50.2	32°04.9	63°16.4	75°42.6
12	254°25.6	14.0'	$N15^{\circ}17.5$	-13.0'	55.7'	104°14.9	61°53.8	58° 20.6	4°40.4	18°20.2	32°36.1	63°47.1	76°13.4
13	268°58.5	14.1'	15°04.5	-13.0'	55.7'	103°43.6	61°29.2	57°49.3	4°11.8	18°50.1	33°07.4	64°17.7	76°44.1
14	283°31.6	14.1'	14°51.5	-13.1'	55.7'	103°12.4	61°04.8	57° 18.1	3°44.0	19°20.1	33°38.6	64°48.3	77° 14.9
15	298°04.7	14.2'	14°38.4	-13.1'	55.6'	102°41.1	60°40.4	56°46.8		19°49.9	34°09.7	65°18.8	77° 45.5
16	312°37.9	14.3'	14°25.3	-13.2'	55.6'	102°09.9	60°16.1	56° 15.6		20°19.8	34°40.9	65°49.3	78° 16.2
17	327°11.2	14.4'	14° 12.1	-13.2'	55.6'	101°38.8	59°51.8	55°44.5		20°49.6	35°12.0	66°19.8	78°46.8
18	341°44.6	14.5'	N 13°58.9	-13.3'	55.5'	101°07.6	59°27.7	55° 13.3		21°19.5	35°43.0	66°50.3	79° 17.5
19	356°18.1	14.6'	13°45.6	-13.3'	55.5'	100°36.5	59°03.7	54° 42.2		21°49.3	36°14.1	67°20.7	79°48.0
20	10°51.7	14.6'	13°32.3	-13.4'	55.5'	100°05.5	58°39.7	54°11.2		22°19.0	36°45.1	67°51.1	80° 18.6
21	25°25.3	14.7'	$13^{\circ}18.9$	-13.4'	55.5'	99°34.4	58°15.8	53°40.1		22°48.8	37°16.1	68°21.5	80°49.1
22	39°59.1	14.8'	13°05.5	-13.4'	55.4'	99°03.4	57°52.1	53°09.1		23°18.5	37°47.1	68°51.9	81°19.6
23	54°32.9	14.9'	12°52.1	-13.5'	55.4'	98°32.4	57°28.4	52°38.1		23°48.2	38°18.0	69°22.2	81°50.1
5 th	SD	= 15.3	Mer. pas	s. 19:15									

h		Моо	n (6 th Ma	ıy)			Lunar Di	stance (d	objects w	ith larges	t hourly	LD delta)	
Tue	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	69°06.7	15.0'	N12°38.6	-13.5'	55.4'	98°01.4	89°38.3	85°41.1	52°07.1		38°48.9	69°52.5	82°20.5
1	83°40.7	15.0'	$12^{\circ}25.1$	-13.6'	55.4'	97°30.5	89° 13.9	85°17.3	51°36.2		39°19.8	70°22.7	82°50.9
2	98°14.7	15.1'	$12^{\circ}11.6$	-13.6'	55.3'	96°59.6	88° 49.5	84°53.6	51°05.3		39°50.7	70°53.0	83°21.3
3	112°48.8	15.2'	11°58.0	-13.6'	55.3'	96°28.7	88° 25.2	84°29.9	50°34.4		40°21.5	71°23.2	83°51.7
4	127°23.0	15.2'	11°44.4	-13.7'	55.3'	95°57.8	88°00.9	84°06.3	50°03.5	4°21.7	40°52.3	71°53.4	84°22.0
5	141°57.2	15.3'	11°30.7	-13.7'	55.3'	95°27.0	87°36.6	83°42.7	49°32.7	4°50.1	41°23.1	72°23.6	84°52.4
6	156°31.6	15.4'	N 11°17.0	-13.7'	55.2'	94°56.2	87°12.3	83°19.1	49°01.9	5°18.8	41°53.8	72°53.7	85°22.7
7	171°05.9	15.5'	11°03.3	-13.8'	55.2'	94°25.4	86°48.1	82°55.5	48°31.1	5°48.0	42°24.6	73°23.8	85°52.9
8	185°40.4	15.5'	10°49.5	-13.8'	55.2'	93°54.7	86°23.8	82°32.0	48°00.4	6° 17.3	42°55.3	73°53.9	86°23.2
9	200°14.9	15.6'	10°35.8	-13.8'	55.2'	93°24.0	85° 59.6	82°08.5	47°29.7	6°46.8	43°26.0	74°24.0	86°53.4
10	214°49.5	15.6'	$10^{\circ}21.9$	-13.8'	55.1'	92°53.3	85°35.5	81°45.1	46°59.0	7° 16.5	43°56.6	74°54.0	87°23.6
11	229°24.1	15.7'	$10^{\circ}08.1$	-13.9'	55.1'	92°22.6	85°11.3	81°21.6	46°28.3	7°46.3	44°27.2	75°24.0	87°53.7
12	243°58.9	15.8'	N09°54.2	-13.9'	55.1'	91°51.9	84°47.2	80°58.3	45°57.6	8° 16.1	44°57.9	75°54.0	88°23.9
13	258°33.6	15.8'	09°40.3	-13.9'	55.1'	91°21.3	84°23.1	80°34.9	45°27.0	8°46.1	45°28.4	76°24.0	88°54.0
14	273°08.4	15.9'	09°26.4	-13.9'	55.0'	90°50.7	83°59.1	80°11.6	44°56.4	9°16.0	45°59.0	76°53.9	89°24.1
15	287°43.3	15.9'	09° 12.5	-14.0'	55.0'	90°20.1	83°35.1	79°48.4	44°25.8	9°46.1	46°29.5	77°23.9	89°54.2
16	302°18.3	16.0'	08° 58.5	-14.0'	55.0'	89°49.6	83°11.1	79°25.1	43°55.3	10° 16.1	47°00.1	77°53.8	90°24.2
17	316°53.3	16.1'	08°44.5	-14.0'	55.0'	89°19.0	82°47.1	79°01.9	43°24.7	10°46.2	47°30.6	78°23.6	90°54.3
18	331°28.3	16.1'	N08°30.5	-14.0'	54.9'	88°48.5	82°23.2	78°38.8	42°54.2	11° 16.3	48°01.0	78°53.5	91°24.3
19	346°03.4	16.2'	$08^{\circ}16.4$	-14.1'	54.9'	88°18.0	81°59.3	78°15.7	42°23.8	11°46.4	48°31.5	79°23.3	91°54.3
20	0°38.6	16.2'	08°02.4	-14.1'	54.9'	87°47.6	81°35.4	77°52.6	41°53.3	12° 16.5	49°01.9	79°53.2	92°24.2
21	15°13.8	16.3'	07°48.3	-14.1'	54.9'	87°17.1	81°11.6	77°29.6	41°22.8	12°46.6	49°32.3	80°22.9	92°54.2
22	29°49.1	16.3'	07°34.2	-14.1'	54.9'	86°46.7	80°47.8	77°06.6	40°52.4	13° 16.8	50°02.7	80°52.7	93°24.1
23	44°24.4	16.4'	$07^{\circ}20.1$	-14.1'	54.8'	86°16.3	80°24.0	76°43.7	40°22.0	13°46.9	50°33.1	81°22.5	93°54.0
6 th	SD	= 15.1	Mer. pas	s. 19:57									

Moon (7th May)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	58°59.7	16.4'	N07°05.9	-14.2'	54.8'	85°45.9	80°00.3	76°20.8	39°51.6	14°17.0	51°03.4	81°52.2	94°23.9
1	73°35.1	16.4'	$06^{\circ}51.8$	-14.2'	54.8'	85° 15.6	79°36.6	75°57.9	39°21.3	14°47.1	51°33.8	82°21.9	94°53.8
2	88°10.6	16.5'	06°37.6	-14.2'	54.8'	84°45.2	79°12.9	75°35.1	38° 50.9	15°17.3	52°04.1	82°51.6	95°23.6
3	102°46.1	16.5'	06°23.4	-14.2'	54.8'	84° 14.9	78°49.3	75°12.3	38°20.6	15°47.4	52°34.4	83°21.3	95°53.4
4	117°21.6	16.6'	06°09.2	-14.2'	54.7'	83°44.6	78°25.7	74°49.6	37°50.3	16°17.5	53°04.6	83°50.9	96°23.2
5	131°57.2	16.6'	05°55.0	-14.2'	54.7'	83°14.3	78°02.1	74°26.9	37°20.0	16°47.6	53°34.9	84°20.6	96°53.0
6	146°32.8	16.6'	N 05°40.8	-14.2'	54.7'	82°44.0	77°38.6	74°04.3	36°49.8	17° 17.7	54°05.1	84°50.2	97°22.7
7	161°08.4	16.7'	05°26.6	-14.2'	54.7'	82°13.8	77°15.1	73°41.7	36° 19.5	17°47.8	54°35.3	85° 19.8	97°52.5
8	175°44.1	16.7'	$05^{\circ}12.3$	-14.3'	54.7'	81°43.6	76°51.7	73°19.2	35°49.3	18°17.8	55°05.5	85°49.3	98°22.2
9	190°19.8	16.8'	04°58.1	-14.3'	54.7'	81°13.4	76°28.2	72°56.7	35° 19.1	18°47.9	55°35.7	86°18.9	98°51.9
10	204°55.6	16.8'	04°43.8	-14.3'	54.6'	80°43.2	76°04.9	72°34.3	34°48.9	19°17.9	56°05.9	86°48.4	99°21.6
11	219°31.4	16.8'	04°29.5	-14.3'	54.6'	80°13.0	75°41.5	72°11.9	34° 18.7	19°48.0	56°36.0	87°18.0	99°51.3
12	234°07.2	16.9'	N04°15.3	-14.3'	54.6'	79°42.8	75°18.3	71°49.5	33°48.6	20°18.0	57°06.2	87°47.5	100°20.9
13	248°43.1	16.9'	$04^{\circ}01.0$	-14.3'	54.6'	79°12.7	74°55.0	71°27.3	33°18.4	20°48.0	57°36.3	88°17.0	100°50.5
14	263°18.9	16.9'	03°46.7	-14.3'	54.6'	78°42.6	74°31.8	71°05.0	32°48.3	21°18.0	58°06.4	88°46.4	101°20.1
15	277°54.9	16.9'	03°32.4	-14.3'	54.5'	78° 12.5	74°08.7	70°42.9	32°18.2	21°48.0	58°36.4	89°15.9	101°49.7
16	292°30.8	17.0'	$03^{\circ}18.1$	-14.3'	54.5'	77°42.4	73°45.5	70°20.7	31°48.1	22°18.0	59°06.5	89°45.4	102°19.3
17	307°06.8	17.0'	03°03.8	-14.3'	54.5'	77°12.3	73°22.5	69°58.7	31° 18.0	22°48.0	59°36.6	90°14.8	102°48.9
18	321°42.8	17.0'	N 02°49.5	-14.3'	54.5'	76°42.2	72°59.4	69°36.7	30°48.0	23°18.0	60°06.6	90°44.2	103°18.4
19	336°18.8	17.0'	02°35.1	-14.3'	54.5'	76° 12.2	72°36.4	69°14.7	30° 17.9	23°47.9	60°36.6	91°13.6	103°47.9
20	350°54.8	17.1'	02°20.8	-14.3'	54.5'	75°42.2	72°13.5	68°52.8	29°47.9	24°17.9	61°06.6	91°43.0	104°17.4
21	5°30.9	17.1'	02°06.5	-14.3'	54.5'	75° 12.2	71°50.6	68°31.0	29° 17.9	24°47.8	61°36.6	92°12.3	104°46.9
22	20°07.0	17.1'	$01^{\circ}52.2$	-14.3'	54.4'	74°42.2	71°27.8	68°09.2	28°47.9	25°17.7	62°06.6	92°41.7	105°16.4
23	34°43.1	17.1'	01°37.9	-14.3'	54.4'	74° 12.2	71°05.0	67°47.5	28° 17.9	25°47.6	62°36.5	93°11.0	105°45.9
7 th	SD	= 15.0'	Mer. pas	s. 20:37									

h		Моо	n (8 th Ma	y)			Lunar	Distance (o	bjects w	ith largest	hourly l	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	49°19.2	17.1'	N01°23.6	-14.3'	54.4'		73°42.2	70°42.2	27°47.9	26°17.5	63°06.5	93°40.3	106°15.3
1	63°55.3	17.2'	01°09.2	-14.3'	54.4'		73° 12.2	70°19.5	27° 18.0	26°47.4	63°36.4	94°09.7	106°44.7
2	78°31.5	17.2'	00°54.9	-14.3'	54.4'	119°47.9	72°42.3	69°56.9	26°48.0	27°17.3	64°06.3	94°39.0	107°14.1
3	93°07.7	17.2'	00°40.6	-14.3'	54.4'	119°24.7	72° 12.4	69°34.3	$26^{\circ}18.1$	27°47.1	64°36.3	95°08.2	107°43.5
4	107°43.8	17.2'	00°26.3	-14.3'	54.3'	119°01.5	71°42.4	69°11.7	25°48.2	28°17.0	65°06.2	95°37.5	108°12.9
5	122°20.0	17.2'	N 00°12.0	-14.3'	54.3'	118°38.3	71°12.5	68°49.2	25° 18.3	28°46.8	65°36.0	96°06.8	108°42.3
6	136°56.2	17.2'	S 00°02.3	-14.3'	54.3'	118°14.9	70°42.6	68°26.8	24°48.4	29°16.7	66°05.9	96°36.0	109°11.6
7	151°32.5	17.2'	$00^{\circ}16.6$	-14.3'	54.3'	117°51.6	70°12.7	68°04.4	24° 18.5	29°46.5	66°35.8	97°05.2	109°40.9
8	166°08.7	17.2'	00°30.9	-14.3'	54.3'	117°28.2	69°42.9	67°42.1	23°48.6	30°16.3	67°05.6	97°34.5	110°10.3
9	180°44.9	17.2'	00°45.1	-14.3'	54.3'	117°04.8	69°13.0	67°19.8	23° 18.8	30°46.1	67°35.5	98°03.7	110°39.6
10	195°21.2	17.2'	00°59.4	-14.3'	54.3'	116°41.3	68°43.2	66°57.6	22°48.9	31°15.9	68°05.3	98°32.9	111°08.9
11	209°57.4	17.3'	01°13.7	-14.2'	54.3'	116°17.8	68°13.3	66°35.4	22°19.1	31°45.7	68°35.1	99°02.1	111°38.1
12	224°33.7	17.3'	S 01°27.9	-14.2'	54.2'	115°54.2	67°43.5	66°13.3	21°49.3	32°15.5	69°04.9	99°31.2	112°07.4
13	239°09.9	17.3'	01°42.1	-14.2'	54.2'	115°30.6	67° 13.7	65°51.3	21° 19.5	32°45.2	69°34.7	100°00.4	112°36.6
14	253°46.2	17.3'	01°56.4	-14.2'	54.2'	115°07.0	66°43.9	65°29.3	20°49.6	33°15.0	70°04.5	100°29.5	113°05.9
15	268°22.4	17.3'	02°10.6	-14.2'	54.2'	114°43.3	66°14.1	65°07.3	20° 19.9	33°44.7	70°34.3	100°58.7	113°35.1
16	282°58.7	17.3'	02°24.8	-14.2'	54.2'	114°19.6	65°44.3	64°45.5	19°50.1	34°14.5	71°04.0	101°27.8	114°04.3
17	297°34.9	17.3'	02°39.0	-14.2'	54.2'	113°55.8	65°14.5	64°23.7	19°20.3	34°44.2	71°33.8	101°56.9	114°33.5
18	312°11.2	17.3'	S 02°53.1	-14.2'	54.2'	113°32.0	64° 44.7	64°02.0	18° 50.5	35°13.9	72°03.5	102°26.1	115°02.6
19	326°47.5	17.2'	03°07.3	-14.1'	54.2'	113°08.2	64°15.0	63°40.3	18°20.8	35°43.7	72°33.3	102°55.2	115°31.8
20	341°23.7	17.2'	$03^{\circ}21.5$	-14.1'	54.2'	112°44.4	63°45.2	63°18.7	17°51.0	36°13.4	73°03.0	103°24.3	116°01.0
21	355°59.9	17.2'	03°35.6	-14.1'	54.2'	112°20.5	63° 15.5	62°57.2	17°21.3	36°43.1	73°32.7	103°53.3	116°30.1
22	10°36.2	17.2'	03°49.7	-14.1'	54.1'	111°56.6	62°45.8	62°35.7	16°51.6	37°12.8	74°02.4	104°22.4	116°59.2
23	25°12.4	17.2'	04°03.8	-14.1'	54.1'	111°32.7	62°16.0	62°14.3	16°21.8	37°42.5	74°32.1	104°51.5	117°28.3
8 th	SD	= 14.8	Mer. pas	s. 21:16							•		

h		Мооі	n (9 th Ma	y)			Lunar Di	stance (c	bjects w	ith largest	hourly l	LD delta)	
Fri	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	-Spica	+Regulus	+Pollux	+Jupiter	+Aldebaran
0	39°48.6	17.2'	S 04°17.9	-14.1'	54.1'	111°08.7	61°53.0	61°46.3	15°52.1	38°12.1	75°01.8	105°20.5	117°57.4
1	54° 24.9	17.2'	04°31.9	-14.0'	54.1'	110°44.7	61°31.7	61°16.6	15°22.4	38°41.8	75°31.5	105°49.6	118°26.5
2	69°01.1	17.2'	04°46.0	-14.0'	54.1'	110°20.7	61°10.6	60°46.9	14°52.7	39°11.5	76°01.2	106°18.6	118°55.6
3	83°37.2	17.2'	$05^{\circ}00.0$	-14.0'	54.1'	109°56.6	60°49.4	60°17.2	14°23.0	39°41.1	76°30.9	106°47.7	119°24.6
4	98°13.4	17.2'	$05^{\circ}14.0$	-14.0'	54.1'	109°32.5	60°28.4	59°47.5	13°53.4	40° 10.8	77°00.5	107°16.7	119°53.7
5	112°49.6	17.1'	$05^{\circ}28.0$	-14.0'	54.1'	109°08.4	60°07.5	59°17.8	13°23.7	40°40.4	77°30.2	107°45.7	
6	127°25.7	17.1'	S 05°41.9	-13.9'	54.1'	108°44.3	59°46.6	58°48.2	12°54.0	41°10.1	77°59.8	108°14.7	
7	142°01.9	17.1'	05°55.8	-13.9'	54.1'	108°20.1	59°25.8	58°18.5	12°24.4	41°39.7	78°29.5	108°43.7	
8	156° 38.0	17.1'	06°09.7	-13.9'	54.1'	107°56.0	59°05.1	57°48.8	11°54.7	42°09.3	78°59.1	109°12.7	
9	171°14.1	17.1'	06°23.6	-13.9'	54.0'	107°31.8	58°44.5	57°19.2	11°25.1	42°39.0	79°28.8	109°41.7	
10	185°50.2	17.1'	06°37.5	-13.8'	54.0'	107°07.5	58°24.0	56°49.5	10°55.4	43°08.6	79°58.4	110°10.7	
11	200°26.2	17.0'	$06^{\circ}51.3$	-13.8'	54.0'	106°43.3	58°03.5	56°19.9	10°25.8	43°38.2	80°28.0	110°39.7	
12	215°02.3	17.0'	S 07°05.1	-13.8'	54.0'	106°19.0	57°43.1	55°50.2	9°56.2	44°07.8	80°57.7	111°08.7	
13	229°38.3	17.0'	$07^{\circ}18.9$	-13.7'	54.0'	105°54.7	57°22.9	55°20.6	9°26.6	44°37.4	81°27.3	111°37.6	
14	244°14.3	17.0'	07°32.6	-13.7'	54.0'	105°30.4	57°02.7	54°51.0	8°57.0	45°07.0	81°56.9	112°06.6	
15	258° 50.2	16.9'	07°46.4	-13.7'	54.0'	105°06.1	56°42.6	54°21.4	8°27.4	45° 36.6	82°26.5	112°35.5	
16	273°26.2	16.9'	$08^{\circ}00.1$	-13.7'	54.0'	104°41.8	56°22.6	53°51.7	7°57.8	46°06.2	82°56.1	113°04.5	
17	288°02.1	16.9'	08°13.7	-13.6'	54.0'	104°17.4	56°02.7	53°22.1	7°28.2	46°35.8	83°25.7	113°33.4	
18	302°38.0	16.9'	S 08°27.3	-13.6'	54.0'	103°53.0	55°42.9	52°52.5	6°58.6	47°05.4	83°55.3	114°02.4	
19	317° 13.8	16.8'	08°40.9	-13.6'	54.0'	103°28.6	55°23.2	52°22.9	6°29.0	47°35.0	84°24.9	114°31.3	
20	331°49.7	16.8'	08°54.5	-13.5'	54.0'	103°04.2	55°03.6	51°53.3	5°59.5	48°04.6	84°54.5	115°00.2	
21	346°25.5	16.8'	09°08.0	-13.5'	54.0'	102°39.8	54°44.1	51°23.7	5°29.9	48°34.1	85°24.0	115°29.2	
22	1°01.3	16.7'	$09^{\circ}21.5$	-13.5'	54.0'	102°15.3	54°24.7	50°54.1	5°00.4	49°03.7	85°53.6	115°58.1	
23	15°37.0	16.7'	09°35.0	-13.4'	54.0'	101°50.9	54°05.4	50°24.5	4°30.8	49°33.3	86°23.2	116°27.0	
9 th	SD	= 14.8'	Mer. pas	s. 21:56									

Moon (10th May)

Lunar Distance (objects with largest hourly LD delta)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	±Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	30°12.7	16.7'	S 09°48.4	-13.4'	54.0'		101°26.4	49°54.9	4°01.3	50°02.9	70°25.7	86°52.8	116°55.9
1	44°48.4	16.6'	$10^{\circ}01.8$	-13.4'	54.0'		101°01.9	49°25.3	3°31.9	50°32.4	70°54.1	87°22.3	117°24.8
2	59°24.0	16.6'	10° 15.2	-13.3'	54.0'		100°37.4	48°55.7	3°02.4	51°02.0	71°22.4	87°51.9	117°53.7
3	73°59.6	16.6'	10°28.5	-13.3'	53.9'		100°12.9	48°26.1	2°33.1	51°31.6	71°50.8	88°21.5	118°22.6
4	88°35.2	16.5'	10°41.7	-13.2'	53.9'		99°48.3	47°56.5	2°03.8	52°01.1	72°19.2	88°51.0	118°51.5
5	103°10.7	16.5'	10°55.0	-13.2'	53.9'		99°23.8	47°27.0	1°34.8	52°30.7	72°47.5	89°20.6	119°20.4
6	117°46.2	16.5'	S 11°08.2	-13.2'	53.9'		98°59.2	46°57.4	1°06.2	53°00.2	73°15.9	89°50.2	119°49.3
7	132°21.7	16.4'	11°21.3	-13.1'	53.9'		98°34.7	46°27.8		53°29.8	73°44.2	90°19.7	
8	146°57.1	16.4'	11°34.4	-13.1'	53.9'		98°10.1	45°58.2		53°59.4	74°12.6	90°49.3	
9	161°32.4	16.3'	11°47.5	-13.0'	53.9'		97°45.5	45°28.7		54°28.9	74°40.9	91°18.8	İ
10	176°07.8	16.3'	$12^{\circ}00.5$	-13.0'	53.9'		97°20.9	44°59.1		54° 58.5	75°09.2	91°48.4	
11	190°43.1	16.2'	$12^{\circ}13.5$	-12.9'	53.9'		96°56.3	44°29.5		55°28.0	75°37.6	92°17.9	
12	205°18.3	16.2'	S 12°26.4	-12.9'	53.9'		96°31.7	43°59.9	1°56.3	55° 57.6	76°05.9	92°47.5	
13	219°53.5	16.2'	12°39.3	-12.8'	53.9'		96°07.0	43°30.4	2°25.5	56°27.1	76°34.3	93°17.0	İ
14	234°28.6	16.1'	12°52.2	-12.8'	53.9'		95°42.4	43°00.8	2°54.8	56° 56.7	77°02.6	93°46.6	
15	249°03.7	16.1'	13°05.0	-12.7'	53.9'		95°17.8	42°31.2	3°24.2	57°26.2	77°31.0	94°16.1	
16	263°38.8	16.0'	13° 17.7	-12.7'	53.9'		94°53.1	42°01.6	3°53.7	57° 55.8	77°59.3	94°45.7	
17	278°13.8	16.0'	13°30.4	-12.6'	53.9'		94°28.5	41°32.1	4°23.2	58°25.3	78°27.6	95°15.2	
18	292°48.8	15.9'	S 13°43.1	-12.6'	53.9'		94°03.8	41°02.5	4°52.6	58° 54.9	78°56.0	95°44.8	
19	307°23.7	15.9'	13°55.7	-12.5'	53.9'		93°39.1	40°32.9	5°22.2	59°24.4	79°24.3	96°14.4	İ
20	321°58.5	15.8'	14°08.2	-12.5'	53.9'		93°14.5	40°03.4	5°51.7	59°54.0	79°52.7	96°43.9	İ
21	336°33.3	15.8'	14°20.7	-12.4'	53.9'	119°55.5	92°49.8	39°33.8	6°21.2	60°23.5	80°21.0	97°13.5	
22	351°08.1	15.7'	14°33.1	-12.4'	53.9'	119°28.2	92°25.1	39°04.2	6°50.7	60°53.1	80°49.4	97°43.0	
23	5°42.8	15.6'	14°45.5	-12.3'	53.9'	119°00.8	92°00.4	38°34.6	7°20.3	61°22.7	81°17.7	98°12.6	
10 th	SD	= 14.7	Mer. pas	s. 22:36									

Moon (11th May) h Lunar Distance (objects with largest hourly LD delta)

C	CIIA		D	- , ,	HP	F 11 A	A 14 - 1	Di-il K	A 4		1 Damilia	1 NA	1 D-II
Sun	GHA	ν	Dec	d	пР	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Regulus	+Mars	+Pollux
0	20°17.5	15.6'	S 14°57.8	-12.3'	53.9'	118°33.3	91°35.7	46° 44.2	38°05.1	7°49.8	61°52.2	81°46.0	98°42.1
1	34°52.0	15.5'	$15^{\circ}10.1$	-12.2'	53.9'	118°05.9	91°11.0	46° 28.5	37°35.5	8°19.4	62°21.8	82°14.4	99°11.7
2	49°26.6	15.5'	15°22.3	-12.2'	53.9'	117°38.4	90°46.3	46°13.0	37°05.9	8°48.9	62°51.4	82°42.7	99°41.2
3	64°01.1	15.4'	$15^{\circ}34.5$	-12.1'	53.9'	117°10.9	90°21.6	45°57.6	36°36.3	9°18.5	63°20.9	83°11.1	100°10.8
4	78°35.5	15.4'	15°46.6	-12.0'	53.9'	116°43.4	89°56.9	45° 42.4	36°06.7	9°48.1	63°50.5	83°39.4	100°40.4
5	93°09.9	15.3'	$15^{\circ}58.6$	-12.0'	53.9'	116°15.9	89°32.2		35°37.2	10°17.6	64°20.1	84°07.8	101°09.9
6	107°44.2	15.2'	S 16°10.6	-11.9'	53.9'	115°48.4	89°07.5		35°07.6	10°47.2	64°49.6	84°36.1	101°39.5
7	122°18.4	15.2'	$16^{\circ}22.5$	-11.9'	53.9'	115°20.8	88°42.8		34°38.0	11°16.8	65°19.2	85°04.5	102°09.1
8	136°52.6	15.1'	$16^{\circ}34.4$	-11.8'	53.9'	114°53.2	88°18.1		34°08.4	11°46.4	65°48.8	85°32.9	102°38.6
9	151°26.7	15.1'	$16^{\circ}46.2$	-11.7'	53.9'	114°25.6	87°53.4		33°38.8	12°15.9	66°18.4	86°01.2	103°08.2
10	166°00.8	15.0'	$16^{\circ}57.9$	-11.7'	53.9'	113°58.0	87°28.7		33°09.2	12°45.5	66°47.9	86°29.6	103°37.8
11	180°34.8	14.9'	$17^{\circ}09.6$	-11.6'	53.9'	113°30.4	87°04.0		32°39.6	13°15.1	67°17.5	86°57.9	104°07.4
12	195°08.7	14.9'	S 17°21.2	-11.5'	53.9'	113°02.7	86°39.2		32°10.0	13°44.7	67°47.1	87°26.3	104°37.0
13	209°42.6	14.8'	$17^{\circ}32.7$	-11.5'	53.9'	112°35.1	86°14.5		31°40.4	14°14.3	68°16.7	87°54.7	105°06.5
14	224°16.4	14.8'	$17^{\circ}44.2$	-11.4'	53.9'	112°07.4	85°49.8		31°10.8	14°43.9	68°46.3	88°23.1	105°36.1
15	238°50.2	14.7'	$17^{\circ}55.6$	-11.3'	53.9'	111°39.7	85°25.1		30°41.2	15°13.5	69°15.9	88°51.4	106°05.7
16	253°23.9	14.6'	$18^{\circ}06.9$	-11.3'	53.9'	111°12.0	85°00.4		30°11.6	15°43.1	69°45.5	89°19.8	106°35.3
17	267°57.5	14.6'	$18^{\circ}18.2$	-11.2'	53.9'	110°44.2	84°35.8		29°41.9	16°12.7	70°15.1	89°48.2	107°04.9
18	282°31.1	14.5'	S 18°29.3	-11.1'	53.9'	110°16.5	84°11.1		29°12.3	16°42.4	70°44.7	90°16.6	107°34.5
19	297°04.5	14.4'	$18^{\circ}40.5$	-11.0'	53.9'	109°48.7	83°46.4		28°42.7	17°12.0	71°14.3	90°45.0	108°04.1
20	311°38.0	14.4'	$18^{\circ}51.5$	-11.0'	53.9'	109°20.9	83°21.7		28°13.1	17°41.6	71°43.9	91°13.4	108°33.7
21	326°11.3	14.3'	$19^{\circ}02.5$	-10.9'	53.9'	108°53.2	82°57.0		27°43.4	18°11.2	72°13.6	91°41.8	109°03.3
22	340°44.6	14.2'	19° 13.4	-10.8'	53.9'	108°25.4	82°32.4		27°13.8	18°40.9	72°43.2	92°10.2	109°33.0
23	355°17.8	14.1'	$19^{\circ}24.2$	-10.7'	53.9'	107°57.5	82°07.7		26°44.1	19°10.5	73°12.8	92°38.6	110°02.6
11 th	SD	= 14.7'	Mer. pas	s. 23:19						•			

9°51.0 24°24.0	14.1'	S 19°34.9										
		JI3 JT.3	-10.7'	54.0'	107°29.7		81°43.0	26°14.5	19°40.2	73°42.5	93°07.0	110°32.2
	14.0'	19°45.6	-10.6'	54.0'	107°01.9		81°18.4	25°44.8	20°09.8	74°12.1	93°35.4	111°01.8
38°57.0	13.9'	19°56.2	-10.5'	54.0'	106°34.0		80°53.8	25°15.2	20°39.5	74°41.7	94°03.8	111°31.5
	13.9'		-10.4'	54.0'								112°01.1
68°02.8	13.8'	$20^{\circ}17.1$	-10.3'	54.0'	105°38.2		80°04.5	24°15.8				112°30.8
82°35.6	13.7'	20°27.4	-10.3'	54.0'	105°10.3		79°39.9	23°46.2	22°08.5	76°10.7	95°29.1	113°00.4
97°08.4	13.6'	S 20°37.7	-10.2'	54.0'	104°42.4		79°15.3	23°16.5	22°38.2	76°40.4	95°57.6	113°30.1
111°41.0	13.6'	20°47.8	-10.1'	54.0'	104°14.5		78°50.7	22°46.8	23°07.8	77°10.1	96°26.0	113°59.7
126°13.6	13.5'	20°57.9	-10.0'	54.0'	103°46.6		78°26.1	22°17.1	23°37.5	77°39.7	96° 54.5	114°29.4
	13.4'		-9.9'	54.0'								114°59.1
155°18.5	13.4'		-9.8'	54.0'		99°44.1						115°28.8
169°50.9	13.3'	21°27.7	-9.7'	54.0'	102°22.7	99°29.0	77° 12.4	20°48.0	25°06.6	79°08.8	98° 19.9	115°58.4
184°23.1	13.2'	S 21°37.4	-9.7'	54.0'	101°54.7	99° 13.8	76°47.9	20°18.3	25°36.3	79°38.5	98°48.3	116°28.1
198°55.4	13.1'	21°47.1	-9.6'	54.0'	101°26.7	98° 58.7	76°23.4	19°48.6	26°06.1	80°08.2	99°16.8	116°57.8
	13.1'		-9.5'	54.0'		98°43.4	75°58.9	19°18.9		80°37.9	99°45.3	117°27.5
	13.0'		-9.4'	54.0'								117°57.2
242°31.5	12.9'		-9.3'	54.0'	100°02.6			18°19.4				118°26.9
257°03.4	12.8'	22°24.8	-9.2'	54.0'	99°34.6	97°57.6	74°45.5	17°49.7	28°05.0	82°07.1	101°10.8	118°56.7
271°35.3	12.8'	S 22°34.0	-9.1'	54.0'	99°06.5	97°42.3	74°21.0	17°19.9	28°34.8	82°36.8	101°39.3	119°26.4
286°07.0	12.7'	22°43.1	-9.0'	54.1'	98°38.4	97°26.9	73°56.6	16°50.1	29°04.5	83°06.6	102°07.8	119°56.1
300°38.7	12.6'	$22^{\circ}52.1$	-8.9'	54.1'	98°10.4	97°11.6	73°32.2	16°20.4	29°34.3	83°36.4	102°36.4	
315°10.3	12.5'	$23^{\circ}01.0$	-8.8'	54.1'	97°42.3	96°56.1	73°07.8	15°50.6	30°04.1	84°06.1	103°04.9	
329°41.9	12.5'		-8.7'	54.1'								
344°13.3	12.4'	23°18.5	-8.6'	54.1'	96°46.1	96°25.2	72°19.1	14°51.0	31°03.6	85°05.7	104°02.0	
	38°57.0 53°30.0 68°02.8 82°35.6 97°08.4 111°41.0 126°13.6 140°46.1 155°18.5 169°50.9 184°23.1 198°55.4 213°27.5 227°59.5 242°31.5 257°03.4 271°35.3 286°07.0 300°38.7 315°10.3	38°57.0 13.9' 53°30.0 13.9' 68°02.8 13.8' 82°35.6 13.7' 97°08.4 13.6' 110°41.0 13.6' 126°13.6 13.5' 140°46.1 13.4' 155°18.5 13.4' 169°50.9 13.3' 184°23.1 13.2' 198°55.4 13.1' 227°59.5 13.0' 227°59.5 13.0' 227°59.5 12.9' 257°03.4 12.8' 271°35.3 12.8' 286°07.0 12.7' 300°38.7 12.6' 315°10.3 12.5' 329°41.9 12.5'	38°57.0 13.9' 19°56.2 53°30.0 13.9' 20°06.7 68°02.8 13.8' 20°17.1 82°35.6 13.7' 20°27.4 97°08.4 13.6' 520°37.7 111°41.0 13.6' 20°47.8 126°13.6 13.5' 20°57.9 140°46.1 13.4' 21°07.9 155°18.5 13.4' 21°17.9 160°50.9 13.3' 21°27.7 184°23.1 13.2' 521°37.4 198°55.4 13.1' 21°47.1 213°27.5 13.1' 21°56.7 227°59.5 13.0' 22°06.1 242°31.5 12.9' 22°15.5 257°03.4 12.8' 22°24.8 271°35.3 12.8' 522°34.0 286°07.0 12.7' 22°43.1 300°38.7 12.6' 22°52.1 315°10.3 12.5' 23°01.0 329°41.9 12.5' 23°09.8	38°57.0 13.9' 19°56.2 -10.5' 53°30.0 13.9' 20°06.7 -10.4' 68°02.8 13.8' 20°17.1 -10.3' 82°35.6 13.7' 20°27.4 -10.3' 97°08.4 13.6' \$20°37.7 -10.2' 111°41.0 13.6' 20°47.8 -10.1' 126°13.6 13.5' 20°57.9 -10.0' 140°46.1 13.4' 21°07.9 -9.8' 156°50.9 13.3' 21°27.7 -9.7' 184°23.1 13.2' \$21°37.4 -9.7' 198°55.4 13.1' 21°47.1 -9.6' 213°27.5 13.1' 21°56.7 -9.5' 227°59.5 13.0' 22°06.1 -9.4' 242°31.5 12.9' 22°15.5 -9.3' 257°03.4 12.8' 22°24.8 -9.2' 271°35.3 12.8' \$22°34.0 -9.1' 286°07.0 12.7' 22°52.1 -8.9' 35°10.3 12.5' <t< td=""><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 53°30.0 13.9' 20°06.7 -10.4' 54.0' 68°02.8 13.8' 20°17.1 -10.3' 54.0' 82°35.6 13.7' 20°27.4 -10.3' 54.0' 9°08.4 13.6' 520°37.7 -10.2' 54.0' 111°41.0 13.6' 20°47.8 -10.1' 54.0' 126°13.6 13.5' 20°57.9 -10.0' 54.0' 140°46.1 13.4' 21°07.9 -9.9' 54.0' 155°18.5 13.4' 21°17.9 -9.8' 54.0' 160°50.9 13.3' 21°27.7 -9.7' 54.0' 184°23.1 13.2' 521°37.4 -9.7' 54.0' 198°55.4 13.1' 21°47.1 -9.6' 54.0' 227°59.5 13.0' 22°66.7 -9.5' 54.0' 242°31.5 12.9' 22°15.5 -9.3' 54.0' 257°03.4 12.8' 22°24.8</td><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°38.2 97°08.4 13.6' \$20°37.7 -10.2' 54.0' 104°42.4 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°14.5 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°46.6 155°18.5 13.4' 21°17.9 -9.8' 54.0' 102°50.6 169°50.9 13.3' 21°27.7 -9.7' 54.0' 102°52.7 184°23.1 13.2' \$21°37.4 -9.7' 54.0' 101°54.7 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°54.7 198°55.4 13.1' 21°56.7 -9.5' 54.0' 100°58.7 227°59.5 <t< td=""><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°38.2 82°35.6 13.7' 20°27.4 -10.3' 54.0' 104°42.4 111°41.0 13.6' \$20°37.7 -10.2' 54.0' 104°42.4 111°41.0 13.6' 20°47.8 -10.1' 54.0' 103°46.6 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°46.6 140°46.1 13.4' 21°17.9 -9.8' 54.0' 102°50.6 99°44.1 169°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 184°23.1 13.2' \$21°37.4 -9.7' 54.0' 101°54.7 99°13.8 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°54.7 98°58.7 213°27.5 13.1' 21°56.7 -9.5'</td><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°10.3 79°39.9 9°08.4 13.6' 520°37.7 -10.2' 54.0' 104°42.4 79°15.3 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°42.4 79°15.3 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°26.1 140°46.1 13.4' 21°17.9 -9.8' 54.0' 102°50.6 99°44.1 77°37.0 160°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 77°12.4 184°23.1 13.2' 521°37.4 -9.7' 54.0' 101°54.7 99°13.8 76°47.9 198°55.4 13.1'</td><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 24°45.5 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 24°15.8 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°38.2 79°39.9 23°46.5 97°08.4 13.6' \$20°37.7 -10.2' 54.0' 104°42.4 79°15.3 23°16.5 111°41.0 13.6' 20°47.8 -10.1' 54.0' 103°46.6 78°50.7 22°46.8 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°01.5 21°17.1 140°46.1 13.4' 21°17.9 -9.8' 54.0' 102°50.6 99°59.1 78°01.5 21°17.7 169°50.9 13.3' 21°27.7 -9.7' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 169°50.8 13.1'<td> 38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 24°45.5 21°09.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 24°15.8 21°38.8 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°30.3 79°39.9 23°46.2 22°08.5 22°08.5 21°11°41.0 13.6' 520°37.7 -10.2' 54.0' 104°42.4 79°15.3 23°16.5 22°38.2 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°14.5 78°50.7 22°46.8 23°07.8 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°26.1 22°17.1 23°37.5 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°18.6 99°59.1 78°01.5 21°47.4 24°07.2 155°18.5 13.4' 21°17.7 -9.8' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 24°36.9 166°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 77°12.4 20°48.0 25°06.6 184°23.1 13.2' 521°37.4 -9.7' 54.0' 101°54.7 99°13.8 76°47.9 20°18.3 25°36.3 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°56.7 98°58.7 76°23.4 19°48.6 26°06.1 213°27.5 13.1' 21°56.7 -9.5' 54.0' 100°58.7 98°43.4 75°58.9 19°18.9 26°35.8 227°59.5 13.0' 22°06.1 -9.4' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°05.5 242°31.5 12.9' 22°15.5 -9.3' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°35.3 257°03.4 12.8' 22°24.8 -9.2' 54.0' 99°34.6 97°57.6 74°45.5 17°49.7 28°05.0 271°35.3 12.8' 522°34.0 -9.1' 54.0' 99°06.5 97°42.3 74°21.0 17°19.9 28°34.8 286°07.0 12.7' 22°43.1 -9.0' 54.1' 98°38.4 97°26.9 73°56.6 16°50.1 29°04.5 300°38.7 12.5' 23°01.0 -8.8' 54.1' 98°18.4 97°21.2 96°40.7 72°43.4 15°20.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 330°33.8 330°33.8 330°33.8 330°33.8 330°33.8 3</td><td> 38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 74°41.7 </td><td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td></td></t<></td></t<>	38°57.0 13.9' 19°56.2 -10.5' 54.0' 53°30.0 13.9' 20°06.7 -10.4' 54.0' 68°02.8 13.8' 20°17.1 -10.3' 54.0' 82°35.6 13.7' 20°27.4 -10.3' 54.0' 9°08.4 13.6' 520°37.7 -10.2' 54.0' 111°41.0 13.6' 20°47.8 -10.1' 54.0' 126°13.6 13.5' 20°57.9 -10.0' 54.0' 140°46.1 13.4' 21°07.9 -9.9' 54.0' 155°18.5 13.4' 21°17.9 -9.8' 54.0' 160°50.9 13.3' 21°27.7 -9.7' 54.0' 184°23.1 13.2' 521°37.4 -9.7' 54.0' 198°55.4 13.1' 21°47.1 -9.6' 54.0' 227°59.5 13.0' 22°66.7 -9.5' 54.0' 242°31.5 12.9' 22°15.5 -9.3' 54.0' 257°03.4 12.8' 22°24.8	38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°38.2 97°08.4 13.6' \$20°37.7 -10.2' 54.0' 104°42.4 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°14.5 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°46.6 155°18.5 13.4' 21°17.9 -9.8' 54.0' 102°50.6 169°50.9 13.3' 21°27.7 -9.7' 54.0' 102°52.7 184°23.1 13.2' \$21°37.4 -9.7' 54.0' 101°54.7 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°54.7 198°55.4 13.1' 21°56.7 -9.5' 54.0' 100°58.7 227°59.5 <t< td=""><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°38.2 82°35.6 13.7' 20°27.4 -10.3' 54.0' 104°42.4 111°41.0 13.6' \$20°37.7 -10.2' 54.0' 104°42.4 111°41.0 13.6' 20°47.8 -10.1' 54.0' 103°46.6 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°46.6 140°46.1 13.4' 21°17.9 -9.8' 54.0' 102°50.6 99°44.1 169°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 184°23.1 13.2' \$21°37.4 -9.7' 54.0' 101°54.7 99°13.8 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°54.7 98°58.7 213°27.5 13.1' 21°56.7 -9.5'</td><td>38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 53°30.0 13.9' 20°06.7 -10.4' 54.0' 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-9.7' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 169°50.8 13.1'<td> 38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 24°45.5 21°09.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 24°15.8 21°38.8 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°30.3 79°39.9 23°46.2 22°08.5 22°08.5 21°11°41.0 13.6' 520°37.7 -10.2' 54.0' 104°42.4 79°15.3 23°16.5 22°38.2 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°14.5 78°50.7 22°46.8 23°07.8 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°26.1 22°17.1 23°37.5 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°18.6 99°59.1 78°01.5 21°47.4 24°07.2 155°18.5 13.4' 21°17.7 -9.8' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 24°36.9 166°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 77°12.4 20°48.0 25°06.6 184°23.1 13.2' 521°37.4 -9.7' 54.0' 101°54.7 99°13.8 76°47.9 20°18.3 25°36.3 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°56.7 98°58.7 76°23.4 19°48.6 26°06.1 213°27.5 13.1' 21°56.7 -9.5' 54.0' 100°58.7 98°43.4 75°58.9 19°18.9 26°35.8 227°59.5 13.0' 22°06.1 -9.4' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°05.5 242°31.5 12.9' 22°15.5 -9.3' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°35.3 257°03.4 12.8' 22°24.8 -9.2' 54.0' 99°34.6 97°57.6 74°45.5 17°49.7 28°05.0 271°35.3 12.8' 522°34.0 -9.1' 54.0' 99°06.5 97°42.3 74°21.0 17°19.9 28°34.8 286°07.0 12.7' 22°43.1 -9.0' 54.1' 98°38.4 97°26.9 73°56.6 16°50.1 29°04.5 300°38.7 12.5' 23°01.0 -8.8' 54.1' 98°18.4 97°21.2 96°40.7 72°43.4 15°20.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 330°33.8 330°33.8 330°33.8 330°33.8 330°33.8 3</td><td> 38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 74°41.7 </td><td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td></td></t<>	38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 82°35.6 13.7' 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198°55.4 13.1'	38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 24°45.5 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 24°15.8 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°38.2 79°39.9 23°46.5 97°08.4 13.6' \$20°37.7 -10.2' 54.0' 104°42.4 79°15.3 23°16.5 111°41.0 13.6' 20°47.8 -10.1' 54.0' 103°46.6 78°50.7 22°46.8 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°01.5 21°17.1 140°46.1 13.4' 21°17.9 -9.8' 54.0' 102°50.6 99°59.1 78°01.5 21°17.7 169°50.9 13.3' 21°27.7 -9.7' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 169°50.8 13.1' <td> 38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 24°45.5 21°09.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 24°15.8 21°38.8 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°30.3 79°39.9 23°46.2 22°08.5 22°08.5 21°11°41.0 13.6' 520°37.7 -10.2' 54.0' 104°42.4 79°15.3 23°16.5 22°38.2 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°14.5 78°50.7 22°46.8 23°07.8 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°26.1 22°17.1 23°37.5 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°18.6 99°59.1 78°01.5 21°47.4 24°07.2 155°18.5 13.4' 21°17.7 -9.8' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 24°36.9 166°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 77°12.4 20°48.0 25°06.6 184°23.1 13.2' 521°37.4 -9.7' 54.0' 101°54.7 99°13.8 76°47.9 20°18.3 25°36.3 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°56.7 98°58.7 76°23.4 19°48.6 26°06.1 213°27.5 13.1' 21°56.7 -9.5' 54.0' 100°58.7 98°43.4 75°58.9 19°18.9 26°35.8 227°59.5 13.0' 22°06.1 -9.4' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°05.5 242°31.5 12.9' 22°15.5 -9.3' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°35.3 257°03.4 12.8' 22°24.8 -9.2' 54.0' 99°34.6 97°57.6 74°45.5 17°49.7 28°05.0 271°35.3 12.8' 522°34.0 -9.1' 54.0' 99°06.5 97°42.3 74°21.0 17°19.9 28°34.8 286°07.0 12.7' 22°43.1 -9.0' 54.1' 98°38.4 97°26.9 73°56.6 16°50.1 29°04.5 300°38.7 12.5' 23°01.0 -8.8' 54.1' 98°18.4 97°21.2 96°40.7 72°43.4 15°20.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 330°33.8 330°33.8 330°33.8 330°33.8 330°33.8 3</td> <td> 38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 74°41.7 </td> <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td>	38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 53°30.0 13.9' 20°06.7 -10.4' 54.0' 106°06.1 80°29.1 24°45.5 21°09.1 68°02.8 13.8' 20°17.1 -10.3' 54.0' 105°38.2 80°04.5 24°15.8 21°38.8 82°35.6 13.7' 20°27.4 -10.3' 54.0' 105°30.3 79°39.9 23°46.2 22°08.5 22°08.5 21°11°41.0 13.6' 520°37.7 -10.2' 54.0' 104°42.4 79°15.3 23°16.5 22°38.2 111°41.0 13.6' 20°47.8 -10.1' 54.0' 104°14.5 78°50.7 22°46.8 23°07.8 126°13.6 13.5' 20°57.9 -10.0' 54.0' 103°46.6 78°26.1 22°17.1 23°37.5 140°46.1 13.4' 21°07.9 -9.9' 54.0' 103°18.6 99°59.1 78°01.5 21°47.4 24°07.2 155°18.5 13.4' 21°17.7 -9.8' 54.0' 102°50.6 99°44.1 77°37.0 21°17.7 24°36.9 166°50.9 13.3' 21°27.7 -9.7' 54.0' 102°22.7 99°29.0 77°12.4 20°48.0 25°06.6 184°23.1 13.2' 521°37.4 -9.7' 54.0' 101°54.7 99°13.8 76°47.9 20°18.3 25°36.3 198°55.4 13.1' 21°47.1 -9.6' 54.0' 101°56.7 98°58.7 76°23.4 19°48.6 26°06.1 213°27.5 13.1' 21°56.7 -9.5' 54.0' 100°58.7 98°43.4 75°58.9 19°18.9 26°35.8 227°59.5 13.0' 22°06.1 -9.4' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°05.5 242°31.5 12.9' 22°15.5 -9.3' 54.0' 100°02.6 98°12.9 75°09.9 18°19.4 27°35.3 257°03.4 12.8' 22°24.8 -9.2' 54.0' 99°34.6 97°57.6 74°45.5 17°49.7 28°05.0 271°35.3 12.8' 522°34.0 -9.1' 54.0' 99°06.5 97°42.3 74°21.0 17°19.9 28°34.8 286°07.0 12.7' 22°43.1 -9.0' 54.1' 98°38.4 97°26.9 73°56.6 16°50.1 29°04.5 300°38.7 12.5' 23°01.0 -8.8' 54.1' 98°18.4 97°21.2 96°40.7 72°43.4 15°20.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 339°41.9 12.5' 23°01.0 -8.8' 54.1' 97°14.2 96°40.7 72°43.4 15°20.8 30°33.8 30°33.8 330°33.8 330°33.8 330°33.8 330°33.8 330°33.8 3	38°57.0 13.9' 19°56.2 -10.5' 54.0' 106°34.0 80°53.8 25°15.2 20°39.5 74°41.7	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

SD = 14.7'

12th

Mer. pass. -:-

Moon (12th May)

Moon (13th May)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	-Antares	+Spica	+Regulus	+Mars	+Procyon
0	358°44.7	12.3'	S 23°27.1	-8.5'	54.1'		96°17.9	71°54.8	14°21.3	31°33.4	85°35.5	104°30.5	116°52.7
1	13°16.0	12.2'	23°35.6	-8.4'	54.1'		95°49.8	71°30.5	13°51.5	32°03.2	86°05.2	104°59.1	117°20.1
2	27°47.2	12.2'	23°44.0	-8.3'	54.1'		95°21.7	71°06.2	13°21.6	32°33.1	86° 35.0	105°27.7	117°47.5
3	42°18.4	12.1'	23°52.3	-8.2'	54.1'		94°53.5	70°41.9	12°51.8	33°02.9	87°04.9	105°56.2	118°14.9
4	56°49.5	12.0'	24°00.5	-8.1'	54.1'		94°25.4	70°17.7	12°22.0	33°32.7	87°34.7	106°24.8	118°42.3
5	71°20.5	11.9'	$24^{\circ}08.6$	-8.0'	54.1'		93°57.2	69°53.5	11°52.2	34°02.5	88°04.5	106°53.4	119°09.7
6	85°51.4	11.9'	S 24°16.6	-7.9'	54.1'	119°59.6	93°29.0	69°29.3	11°22.3	34°32.4	88°34.3	107°22.0	119°37.0
7	100°22.3	11.8'	24°24.5	-7.8'	54.1'	119°30.0	93°00.8	69°05.1	10°52.5	35°02.2	89°04.2	107°50.6	
8	114°53.1	11.7'	24°32.2	-7.7'	54.1'	119°00.4	92°32.6	68°41.0	10°22.7	35°32.1	89°34.0	108°19.3	
9	129°23.8	11.6'	24°39.9	-7.6'	54.2'	118°30.8	92°04.4	68°16.9	9°52.8	36°02.0	90°03.9	108°47.9	
10	143°54.4	11.6'	24° 47.5	-7.4'	54.2'	118°01.2	91°36.2	67°52.8	9°22.9	36°31.9	90°33.8	109°16.5	
11	158°25.0	11.5'	24°54.9	-7.3'	54.2'	117°31.5	91°08.0	67°28.8	8°53.1	37°01.7	91°03.6	109°45.2	
12	172°55.4	11.4'	S 25°02.2	-7.2'	54.2'	117°01.9	90°39.7	67°04.8	8°23.2	37°31.6	91°33.5	110°13.8	
13	187°25.9	11.3'	25°09.4	-7.1'	54.2'	116°32.2	90°11.5	66°40.8	7°53.3	38°01.5	92°03.4	110°42.5	
14	201°56.2	11.3'	$25^{\circ}16.5$	-7.0'	54.2'	116°02.5	89°43.2	66°16.9	7°23.4	38°31.5	92°33.3	111°11.1	
15	216°26.5	11.2'	25°23.5	-6.9'	54.2'	115°32.9	89°15.0	65°52.9	6°53.5	39°01.4	93°03.2	111°39.8	
16	230°56.7	11.1'	25°30.4	-6.8'	54.2'	115°03.2	88°46.7	65°29.1	6°23.6	39°31.3	93°33.2	112°08.5	
17	245°26.8	11.1'	25°37.2	-6.6'	54.2'	114°33.5	88°18.4	65°05.2	5°53.7	40°01.3	94°03.1	112°37.2	
18	259°56.8	11.0'	S 25°43.8	-6.5'	54.2'	114°03.8	87°50.1	64°41.4	5°23.8	40°31.2	94°33.0	113°05.9	
19	274°26.8	10.9'	25°50.3	-6.4'	54.2'	113°34.1	87°21.8	64°17.6	4°53.9	41°01.2	95°03.0	113°34.6	
20	288°56.7	10.8'	$25^{\circ}56.7$	-6.3'	54.3'	113°04.3	86°53.5	63°53.9	4°24.0	41°31.2	95°32.9	114°03.3	
21	303°26.6	10.8'	$26^{\circ}03.0$	-6.2'	54.3'	112°34.6	86°25.2	63°30.2	3°54.1	42°01.1	96°02.9	114°32.1	
22	317°56.4	10.7'	26°09.2	-6.0'	54.3'	112°04.8	85°56.9	63°06.6	3°24.2	42°31.1	96°32.9	115°00.8	
23	332°26.1	10.6'	$26^{\circ}15.2$	-5.9'	54.3'	111°35.1	85°28.6	62°43.0	2°54.3	43°01.1	97°02.9	115°29.6	
13 th	SD	= 14.8'	Mer. pass	. 00:05									

h

Moon (14th May) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	±Antares	+Spica	+Arcturus	+Regulus	+Mars
0	346°55.7	10.6'	S 26°21.2	-5.8'	54.3'		111°05.3	85°00.2	2°24.5	43°31.2	54°23.4	97°32.9	115°58.3
1	1°25.3	10.5'	26°27.0	-5.7'	54.3'		110°35.5	84°31.9	1°54.8	44°01.2	54° 45.7	98°02.9	116°27.1
2	15°54.8	10.4'	26°32.6	-5.5'	54.3'		110°05.7	84°03.5	1°25.3	44°31.2	55°08.1	98°32.9	116°55.9
3	30°24.2	10.4'	26°38.2	-5.4'	54.3'	119°42.9	109°35.9	83°35.2	0°56.3	45°01.3	55° 30.5	99°03.0	117°24.7
4	44°53.6	10.3'	26°43.6	-5.3'	54.3'	119°14.8	109°06.1	83°06.8		45°31.3	55°53.1	99°33.0	117°53.5
5	59°22.9	10.2'	26°48.9	-5.2'	54.4'	118°46.7	108°36.3	82°38.4		46°01.4	56° 15.8	100°03.1	118°22.3
6	73°52.1	10.2'	S 26°54.1	-5.0'	54.4'	118° 18.5	108°06.5	82°10.1		46°31.5	56° 38.5	100°33.1	118°51.2
7	88°21.3	10.1'	26°59.1	-4.9'	54.4'	117°50.4	107°36.6	81°41.7		47°01.6	57°01.3	101°03.2	119°20.0
8	102°50.4	10.1'	27°04.0	-4.8'	54.4'	117°22.3	107°06.8	81°13.3		47°31.7	57°24.2	101°33.3	119°48.8
9	117°19.5	10.0'	27°08.8	-4.7'	54.4'	116°54.1	106°36.9	80°44.9	2°08.7	48°01.8	57° 47.2	102°03.4	
10	131°48.5	9.9'	27°13.5	-4.5'	54.4'	116°25.9	106°07.0	80°16.5	2°38.6	48°31.9	58° 10.3	102°33.5	
11	146°17.4	9.9'	$27^{\circ}18.0$	-4.4'	54.4'	115°57.8	105°37.1	79°48.1	3°08.5	49°02.1	58° 33.4	103°03.7	
12	160°46.3	9.8'	S 27°22.4	-4.3'	54.4'	115°29.6	105°07.2	79°19.7	3°38.6	49°32.2	58° 56.6	103°33.8	
13	175°15.1	9.8'	27°26.6	-4.1'	54.5'	115°01.4	104°37.3	78°51.3	4°08.6	50°02.4	59° 19.9	104°04.0	
14	189°43.9	9.7'	27°30.7	-4.0'	54.5'	114°33.2	104°07.3	78°22.8	4°38.7	50°32.6	59°43.3	104°34.1	
15	204°12.6	9.7'	27°34.7	-3.9'	54.5'	114°04.9	103°37.4	77°54.4	5°08.9	51°02.8	60°06.7	105°04.3	
16	218°41.3	9.6'	27°38.6	-3.7'	54.5'	113°36.7	103°07.4	77°26.0	5°39.0	51°33.0	60°30.2	105°34.5	
17	233°09.9	9.6'	27°42.3	-3.6'	54.5'	113°08.5	102°37.5	76°57.5	6°09.2	52°03.2	60°53.8	106°04.7	
18	247°38.4	9.5'	S 27°45.9	-3.4'	54.5'	112°40.2	102°07.5	76°29.1	6°39.4	52°33.4	61°17.4	106°34.9	
19	262°06.9	9.5'	27°49.3	-3.3'	54.5'	112°11.9	101°37.5	76°00.6	7°09.6	53°03.6	61°41.1	107°05.1	
20	276°35.4	9.4'	27°52.6	-3.2'	54.5'	111°43.7	101°07.5	75°32.2	7°39.8	53°33.9	62°04.9	107°35.4	
21	291°03.8	9.4'	27°55.8	-3.0'	54.6'	111°15.4	100°37.5	75°03.7	8° 10.1	54°04.2	62°28.7	108°05.6	
22	305°32.2	9.3'	27°58.8	-2.9'	54.6'	110°47.1	100°07.4	74°35.2	8°40.3	54°34.4	62°52.6	108°35.9	
23	320°00.5	9.3'	28°01.7	-2.8'	54.6'	110°18.8	99°37.4	74°06.8	9°10.6	55°04.7	63°16.6	109°06.2	
14 th	SD	= 14.8'	Mer. pass	. 00:54									

h	Moon	(15 th	May)

Lunar Distance	(objects with	largest hourly	y LD delta)
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Thu	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Regulus
0	334°28.7	9.2'	S 28°04.5	-2.6'	54.6'	109°50.4	99°07.3	73°38.3	53°10.4	9°40.9	55°35.0	63°40.6	109°36.5
1	348°57.0	9.2'	$28^{\circ}07.1$	-2.5'	54.6'	109°22.1	98°37.2	73°09.8	52°48.4	10°11.2	56°05.4	64°04.7	110°06.8
2	3°25.1	9.1'	28°09.6	-2.3'	54.6'	108°53.8	98°07.1	72°41.3	52°26.5	10°41.5	56° 35.7	64°28.8	110°37.1
3	17°53.3	9.1'	28°11.9	-2.2'	54.6'	108°25.4	97°37.0	72°12.9	52°04.6	11°11.9	57°06.0	64°53.0	111°07.4
4	32°21.4	9.1'	$28^{\circ}14.1$	-2.0'	54.7'	107°57.0	97°06.9	71°44.4	51°42.9	11°42.2	57°36.4	65°17.3	111°37.8
5	46°49.4	9.0'	$28^{\circ}16.1$	-1.9'	54.7'	107°28.6	96°36.8	71°15.9	51°21.2	12°12.6	58°06.8	65°41.6	112°08.1
6	61°17.4	9.0'	S 28°18.0	-1.8'	54.7'	107°00.2	96°06.6	70°47.4	50°59.7	12°43.0	58°37.2	66°05.9	112°38.5
7	75°45.4	8.9'	$28^{\circ}19.8$	-1.6'	54.7'	106°31.8	95°36.5	70°18.9	50°38.2	13°13.3	59°07.6	66°30.4	113°08.9
8	90°13.4	8.9'	28°21.4	-1.5'	54.7'	106°03.4	95°06.3	69°50.4	50°16.9	13°43.8	59°38.0	66°54.8	113°39.3
9	104°41.3	8.9'	28°22.8	-1.3'	54.7'	105°35.0	94°36.1	69°21.9	49°55.6	14°14.2	60°08.4	67°19.3	114°09.7
10	119°09.2	8.9'	28°24.2	-1.2'	54.8'	105°06.5	94°05.9	68°53.4	49°34.5	14°44.6	60°38.9	67°43.9	114°40.1
11	133°37.0	8.8'	28°25.3	-1.0'	54.8'	104°38.0	93°35.6	68°24.9	49°13.5	15°15.1	61°09.3	68°08.5	115°10.6
12	148°04.8	8.8'	S 28°26.4	-0.9'	54.8'	104°09.6	93°05.4	67°56.4	48°52.5	15°45.6	61°39.8	68°33.2	115°41.1
13	162°32.6	8.8'	28°27.3	-0.7'	54.8'	103°41.1	92°35.2	67°27.9	48°31.7	16°16.1	62°10.3	68° 57.9	116°11.5
14	177°00.4	8.7'	28°28.0	-0.6'	54.8'	103°12.5	92°04.9	66°59.4	48°11.0	16°46.6	62°40.8	69°22.7	116°42.0
15	191°28.1	8.7'	28°28.6	-0.4'	54.8'	102°44.0	91°34.6	66°30.9	47°50.5	17°17.1	63°11.4	69°47.5	117°12.6
16	205°55.9	8.7'	28°29.0	-0.3'	54.8'	102°15.5	91°04.3	66°02.4	47°30.0	17°47.6	63°41.9	70°12.4	117°43.1
17	220°23.5	8.7'	28°29.3	-0.1'	54.9'	101°46.9	90°34.0	65°33.9	47°09.7	18°18.2	64°12.5	70°37.3	118°13.6
18	234°51.2	8.7'	S 28°29.5	-0.0'	54.9'	101°18.4	90°03.6	65°05.4	46°49.5	18°48.8	64°43.0	71°02.2	118°44.2
19	249°18.9	8.6'	28°29.5	0.1'	54.9'	100°49.8	89°33.3	64°36.9	46°29.5	19°19.4	65°13.6	71°27.2	119°14.8
20	263°46.5	8.6'	28°29.3	0.3'	54.9'	100°21.2	89°02.9	64°08.4	46°09.5	19°50.0	65°44.2	71°52.3	119°45.4
21	278°14.1	8.6'	28°29.0	0.4'	54.9'	99°52.6	88°32.5	63°39.9	45°49.8	20°20.6	66° 14.9	72°17.4	
22	292°41.7	8.6'	28°28.6	0.6'	54.9'	99°24.0	88°02.1	63°11.5	45°30.1	20°51.2	66° 45.5	72°42.5	
23	307°09.3	8.6'	28°28.0	0.7'	55.0'	98°55.3	87°31.7	62°43.0	45°10.6	21°21.9	67°16.2	73°07.7	
15 th	SD :	= 14.9'	Mer. pas	s. 01:46									

Moon (16th May)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus
0	321°36.9	8.6'	S 28°27.2	0.9'	55.0'	98°26.7	87°01.3	62°14.5	44°51.3	21°52.6	51°18.9	67°46.9	73°32.9
1	336°04.5	8.6'	28°26.3	1.0'	55.0'	97°58.0	86°30.8	61°46.0	44°32.1	22°23.2	51°36.6	68°17.5	73°58.1
2	350°32.0	8.6'	28°25.3	1.2'	55.0'	97°29.3	86°00.3	61°17.5	44°13.1	22°54.0	51°54.4	68°48.3	74°23.4
3	4°59.6	8.5'	28°24.1	1.3'	55.0'	97°00.6	85°29.8	60°49.1	43°54.3	23°24.7	52°12.4	69°19.0	74°48.8
4	19°27.1	8.5'	28°22.8	1.5'	55.1'	96°31.9	84°59.3	60°20.6	43°35.6	23°55.4	52°30.5	69°49.7	75°14.1
5	33°54.7	8.5'	28°21.3	1.6'	55.1'	96°03.1	84°28.8	59°52.1	43°17.1	24°26.2	52°48.8	70°20.5	75°39.5
6	48°22.2	8.5'	S 28°19.6	1.8'	55.1'	95°34.4	83°58.3	59°23.7	42°58.7	24°57.0	53°07.2	70°51.3	76°05.0
7	62°49.7	8.5'	$28^{\circ}17.9$	1.9'	55.1'	95°05.6	83°27.7	58°55.2	42°40.6	25°27.8	53°25.8	71°22.1	76°30.5
8	77°17.3	8.5'	$28^{\circ}15.9$	2.1'	55.1'	94°36.8	82°57.1	58°26.8	42°22.6	25°58.6	53°44.5	71°52.9	76°56.0
9	91°44.8	8.5'	28°13.8	2.2'	55.2'	94°08.0	82°26.5	57°58.4	42°04.8	26°29.4	54°03.4	72°23.8	77°21.5
10	106°12.3	8.5'	28°11.6	2.4'	55.2'	93°39.2	81°55.9	57°30.0	41°47.2	27°00.3	54°22.4	72°54.6	77°47.1
11	120°39.9	8.5'	28°09.2	2.5'	55.2'	93°10.3	81°25.3	57°01.5	41°29.8	27°31.2	54°41.5	73°25.5	78°12.7
12	135°07.4	8.6'	S 28°06.7	2.7'	55.2'	92°41.5	80°54.6	56°33.1	41°12.7	28°02.1	55°00.7	73°56.4	78°38.4
13	149°35.0	8.6'	28°04.0	2.8'	55.2'	92°12.6	80°23.9	56°04.8	40°55.7	28°33.0	55°20.1	74°27.3	79°04.1
14	164°02.5	8.6'	$28^{\circ}01.2$	3.0'	55.2'	91°43.7	79°53.2	55°36.4	40°38.9	29°03.9	55°39.6	74°58.2	79°29.8
15	178°30.1	8.6'	27°58.2	3.1'	55.3'	91°14.8	79°22.5	55°08.0	40°22.4	29°34.9	55°59.3	75°29.2	79°55.6
16	192°57.7	8.6'	27°55.0	3.3'	55.3'	90°45.9	78°51.8	54°39.7	40°06.1	30°05.9	56°19.1	76°00.2	80°21.3
17	207°25.3	8.6'	27°51.8	3.4'	55.3'	90°16.9	78°21.0	54°11.3	39°50.0	30°36.9	56°38.9	76°31.2	80°47.2
18	221°52.9	8.6'	S 27°48.3	3.6'	55.3'	89°47.9	77°50.2	53°43.0	39°34.1	31°07.9	56°59.0	77°02.2	81°13.0
19	236°20.5	8.6'	27°44.7	3.7'	55.4'	89°19.0	77°19.4	53°14.7	39° 18.5	31°38.9	57°19.1	77°33.2	81°38.9
20	250°48.1	8.6'	$27^{\circ}41.0$	3.9'	55.4'	88°49.9	76°48.6	52°46.4	39°03.2	32°10.0	57°39.3	78°04.3	82°04.8
21	265°15.8	8.7'	27°37.1	4.0'	55.4'	88°20.9	76°17.8	52°18.1	38°48.1	32°41.0	57°59.7	78°35.4	82°30.7
22	279°43.4	8.7'	27°33.1	4.2'	55.4'	87°51.9	75°46.9	51°49.9		33°12.1	58°20.2	79°06.5	82°56.7
23	294°11.1	8.7'	27°29.0	4.3'	55.4'	87°22.8	75°16.0	51°21.6		33°43.3	58°40.8	79°37.6	83°22.7
16 th	SD =	= 15.0′	Mer. pass	. 02:39	9								

h	I	Moon	(17 th Ma	ay)			Luna	r Distance	(objects w	ith largest h	ourly LD	delta)	
Sat	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus
0	308°38.8	8.7'	S 27°24.6	4.5'	55.5'	86°53.7	74°45.1	50°53.4	34°14.4	54°41.0	59°01.5	80°08.7	83°48.7
1	323°06.5	8.8'	27°20.2	4.6'	55.5'	86°24.6	74°14.2	50°25.2	34°45.6	55°01.5	59°22.3	80°39.9	84°14.8
2	337°34.3	8.8'	$27^{\circ}15.6$	4.8'	55.5'	85°55.5	73°43.2	49°57.0	35° 16.8	55°22.2	59°43.2	81°11.1	84°40.8
3	352°02.1	8.8'	$27^{\circ}10.8$	4.9'	55.5'	85°26.3	73°12.3	49°28.9	35°48.0	55°42.9	60°04.2	81°42.3	85°06.9
4	6°29.9	8.8'	27°05.9	5.0'	55.5'	84°57.2	72°41.3	49°00.8	36° 19.2	56°03.8	60°25.4	82°13.5	85°33.1
5	20°57.7	8.9'	$27^{\circ}00.9$	5.2'	55.6'	84°28.0	72°10.3	48°32.7	36°50.5	56°24.8	60°46.6	82°44.8	85°59.2
6	35°25.6	8.9'	S 26°55.7	5.3'	55.6'	83°58.8	71°39.2	48°04.6	37°21.7	56°46.0	61°07.9	83°16.1	86°25.4
7	49°53.4	8.9'	26°50.3	5.5'	55.6'	83°29.5	71°08.2	47°36.6	37°53.0	57°07.2	61°29.4	83°47.4	86°51.6
8	64°21.4	8.9'	26°44.8	5.6'	55.6'	83°00.3	70°37.1	47°08.6	38°24.4	57°28.6	61°50.9	84°18.7	87°17.8
9	78°49.3	9.0'	26°39.2	5.8'	55.7'	82°31.0	70°06.0	46°40.6	38°55.7	57°50.0	62°12.5	84°50.1	87°44.1
10	93°17.3	9.0'	26°33.4	5.9'	55.7'	82°01.7	69°34.8	46°12.7	39°27.1	58°11.6	62°34.2	85°21.4	88°10.3
11	107°45.3	9.0'	26°27.5	6.1'	55.7'	81°32.4	69°03.7	45°44.8	39°58.5	58°33.3	62°56.1	85°52.8	88°36.6
12	122°13.3	9.1'	S 26°21.5	6.2'	55.7'	81°03.1	68°32.5	45°16.9	40°29.9	58°55.1	63°18.0	86°24.2	89°03.0
13	136°41.4	9.1'	$26^{\circ}15.3$	6.3'	55.8'	80°33.7	68°01.3	44°49.1	41°01.3	59°17.0	63°40.0	86°55.7	89°29.3
14	151°09.5	9.1'	26°08.9	6.5'	55.8'	80°04.3	67°30.1	44°21.3	41°32.8	59°39.0	64°02.0	87°27.1	89°55.7
15	165°37.7	9.2'	26°02.5	6.6'	55.8'	79°34.9	66°58.8	43°53.6	42°04.3	60°01.2	64°24.2	87°58.6	90°22.0
16	180°05.8	9.2'	25°55.9	6.8'	55.8'	79°05.5	66°27.6	43°25.9	42°35.8	60°23.4	64°46.5	88°30.2	90°48.4
17	194°34.1	9.3'	25°49.1	6.9'	55.8'	78°36.0	65°56.3	42°58.2	43°07.3	60°45.7	65°08.8	89°01.7	91°14.9
18	209°02.3	9.3'	S 25°42.2	7.0'	55.9'	78°06.6	65°24.9	42°30.6	43°38.9	61°08.1	65°31.3	89°33.3	91°41.3
19	223°30.6	9.3'	25°35.2	7.2'	55.9'	77°37.1	64°53.6	42°03.1	44° 10.5	61°30.6	65°53.8	90°04.9	92°07.7
20	237°59.0	9.4'	25°28.0	7.3'	55.9'	77°07.5	64°22.2	41°35.6	44°42.1	61°53.2	66°16.4	90°36.5	92°34.2
21	252°27.3	9.4'	25°20.7	7.4'	55.9'	76°38.0	63°50.8	41°08.2	45° 13.8	62°15.9	66°39.1	91°08.1	93°00.7
22	266°55.8	9.5'	25°13.2	7.6'	56.0'	76°08.4	63°19.4	40°40.8	45° 45.4	62°38.7	67°01.8	91°39.8	93°27.2
23	281°24.2	9.5'	25°05.6	7.7'	56.0'	75°38.8	62°47.9	40°13.5	46°17.1	63°01.6	67°24.7	92°11.5	93°53.8
17 th	SD = 15.1' Mer. pass. 03:33				3								

Sun	GHA ν Dec d I					-Sun	-Venus	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Spica	+Arcturus
0	295°52.7	9.5'	S 24°57.9	7.9'	56.0'		75°09.2	62°16.5	39°46.3	46°48.8	63°24.6	92°43.2	94°20.3
1	310°21.3	9.6'	$24^{\circ}50.1$	8.0'	56.0'	119°39.0	74°39.5	61°45.0	39° 19.1	47°20.6	63°47.7	93°14.9	94°46.9
2	324°49.9	9.6'	$24^{\circ}42.1$	8.1'	56.1'	119°09.7	74°09.9	61°13.4	38°52.1	47°52.4	64°10.8	93°46.7	95°13.4
3	339°18.5	9.7'	24°33.9	8.3'	56.1'	118°40.4	73°40.2	60°41.9	38° 25.0	48°24.2	64°34.1	94° 18.5	95°40.0
4	353°47.2	9.7'	24° 25.7	8.4'	56.1'	118°11.1	73°10.4	60°10.3	37°58.1	48°56.0	64°57.4	94°50.4	96°06.6
5	$8^{\circ}15.9$	9.8'	24° 17.3	8.5'	56.2'	117°41.8	72°40.7	59°38.7	37°31.3	49°27.9	65°20.8	95°22.2	96°33.2
6	22°44.7	9.8'	S 24°08.8	8.7'	56.2'	117°12.4	72°10.9	59°07.0	37°04.5	49°59.7	65°44.3	95°54.1	96°59.9
7	$37^{\circ}13.5$	9.9'	$24^{\circ}00.1$	8.8'	56.2'	116°43.0	71°41.1	58°35.4	36° 37.9	50°31.7	66°07.9	96°26.0	97° 26.5
8	51°42.4	9.9'	23°51.4	8.9'	56.2'	116°13.6	71°11.3	58°03.7	36°11.3	51°03.6	66°31.5	96°58.0	97°53.2
9	66°11.3	10.0'	23°42.4	9.0'	56.3'	115°44.2	70°41.4	57°32.0	35°44.9	51°35.6	66°55.3	97°29.9	98° 19.8
10	80°40.3	10.0'	23°33.4	9.2'	56.3'	115°14.7	70°11.6	57°00.2	35° 18.5	52°07.6	67°19.1	98°01.9	98°46.5
11	95°09.3	10.1'	23°24.2	9.3'	56.3'	114°45.2	69°41.7	56°28.4	34°52.3	52°39.6	67°43.0	98°33.9	99° 13.2
12	109°38.3	10.1'	S 23°14.9	9.4'	56.3'	114°15.7	69°11.7	55°56.6	34°26.2	53°11.6	68°06.9	99°06.0	99°39.9
13	124°07.4	10.1'	$23^{\circ}05.5$	9.5'	56.4'	113°46.1	68°41.8	55°24.8	34°00.2	53°43.7	68°31.0	99°38.1	100°06.6
14	138°36.6	10.2'	22°56.0	9.7'	56.4'	113°16.5	68°11.8	54°52.9	33°34.3	54°15.8	68°55.1	100°10.2	100°33.3
15	153°05.8	10.2'	22°46.3	9.8'	56.4'	112°46.9	67°41.8	54°21.0	33°08.6	54°48.0	69°19.3	100°42.3	101°00.0
16	167°35.0	10.3'	22°36.5	9.9'	56.5'	112°17.2	67°11.7	53°49.1	32°43.0	55°20.2	69°43.5	101°14.5	101°26.7
17	182°04.3	10.3'	22°26.6	10.0'	56.5'	111°47.5	66°41.6	53°17.2	32°17.6	55°52.4	70°07.9	101°46.7	101°53.4
18	196°33.6	10.4'	S 22°16.6	10.2'	56.5'	111°17.8	66°11.5	52°45.2	31°52.3	56°24.6	70°32.3	102°19.0	102°20.2
19	211°03.0	10.4'	22°06.4	10.3'	56.5'	110°48.1	65°41.4	52°13.2	31°27.2	56°56.9	70°56.7	102°51.2	102°46.9
20	225°32.5	10.5'	$21^{\circ}56.1$	10.4'	56.6'	110°18.3	65°11.2	51°41.1	31°02.3	57°29.2	71°21.3	103°23.5	103°13.7
21	240°02.0	10.5'	$21^{\circ}45.7$	10.5'	56.6'	109°48.5	64°41.1	51°09.0	30° 37.5	$58^{\circ}01.5$	71°45.9	103°55.8	103°40.4
22	254°31.5	10.6'	21°35.2	10.6'	56.6'	109°18.6	64°10.8	50°36.9	30°13.0	58°33.8	72°10.6	104°28.2	104°07.1
23	269°01.1	10.6'	21°24.6	10.8'	56.7'	108°48.7	63°40.6	50°04.8	29°48.6	59°06.2	72°35.3	105°00.6	104°33.9
18 th	SD	= 15.3'	Mer. pass	s. 04:26					Sun S	SD = 15.8'			

h		Moon	(19 th Ma	ay)			Luna	r Distand	ce (objects	with large	st hourly LC	delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Venus	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	283°30.7	10.7'	S 21°13.8	10.9'	56.7'	108°18.8	63°10.3	49°32.6	29°24.5	59°38.7	73°00.1	105°00.6	105°33.0
1	298°00.4	10.7'	$21^{\circ}02.9$	11.0'	56.7'	107°48.9	62°40.0	49°00.4	29°00.6	60°11.1	73°24.9	105°27.4	106°05.5
2	312°30.1	10.8'	20°51.9	11.1'	56.7'	107°18.9	62°09.7	48°28.2	28°36.9	60°43.6	73°49.9	105°54.1	106°37.9
3	326°59.9	10.8'	20°40.8	11.2'	56.8'	106°48.9	61°39.3	47°56.0	28°13.4	61°16.1	74°14.9	106°20.9	107°10.5
4	341°29.7	10.9'	20°29.6	11.3'	56.8'	106°18.9	61°08.9	47°23.7	27°50.3	61°48.7	74°39.9	106°47.6	107°43.0
5	355°59.6	10.9'	20°18.3	11.4'	56.8'	105°48.8	60°38.5	46°51.4	27°27.3	62°21.2	75°05.0	107°14.4	108°15.6
6	10°29.5	11.0'	S 20°06.9	11.6'	56.9'	105°18.7	60°08.0	46° 19.0	27°04.7	62°53.9	75°30.2	107°41.1	108°48.2
7	24°59.5	11.0'	19°55.3	11.7'	56.9'	104°48.6	59°37.6	45°46.6	26°42.4	63°26.5	75°55.4	108°07.8	109°20.9
8	39°29.5	11.1'	19°43.6	11.8'	56.9'	104°18.4	59°07.0	45° 14.2	26°20.3	63°59.2	76°20.7	108°34.6	109°53.5
9	53°59.5	11.1'	19°31.9	11.9'	56.9'	103°48.2	58°36.5	44°41.7	25°58.6	64°31.9	76°46.0	109°01.3	110°26.2
10	68°29.6	11.1'	19°20.0	12.0'	57.0'	103°18.0	58°05.9	44°09.3	25°37.2	65°04.6	77°11.4	109°28.0	110°59.0
11	82°59.8	11.2'	$19^{\circ}08.0$	12.1'	57.0'	102°47.7	57°35.3	43°36.7	25°16.2	65°37.4	77°36.8	109°54.7	111°31.8
12	97°30.0	11.2'	S 18°55.9	12.2'	57.0'	102°17.4	57°04.7	43°04.2	24°55.6	66°10.2	78°02.3	110°21.4	112°04.6
13	112°00.2	11.3'	18°43.7	12.3'	57.1'	101°47.1	56°34.0	42°31.6	24°35.4	66°43.1	78°27.9	110°48.1	112°37.4
14	126°30.5	11.3'	18°31.4	12.4'	57.1'	101°16.7	56°03.3	41°59.0	24°15.5	67°16.0	78°53.5	111°14.7	113°10.3
15	141°00.8	11.4'	$18^{\circ}19.0$	12.5'	57.1'	100°46.3	55°32.5	41°26.4	23°56.1	67°48.9	79°19.1	111°41.4	113°43.2
16	155°31.2	11.4'	$18^{\circ}06.5$	12.6'	57.2'	100°15.8	55°01.8	40°53.7	23°37.2	68°21.8	79°44.8	112°08.0	114°16.2
17	170°01.6	11.5'	17°53.9	12.7'	57.2'	99°45.4	54°31.0	40°21.0	23°18.7	68°54.8	80°10.6	112°34.6	114°49.2
18	184°32.1	11.5'	S 17°41.2	12.8'	57.2'	99°14.8	54°00.1	39°48.2	23°00.7	69°27.9	80°36.4	113°01.2	115°22.2
19	199°02.6	11.5'	17°28.3	12.9'	57.3'	98°44.3	53°29.3	39° 15.4	22°43.2	70°00.9	81°02.3	113°27.8	115°55.3
20	213°33.1	11.6'	$17^{\circ}15.4$	13.0'	57.3'	98°13.7	52°58.3	38°42.6	22°26.3	70°34.0	81°28.2	113°54.4	116°28.4
21	228°03.7	11.6'	$17^{\circ}02.4$	13.1'	57.3'	97°43.1	52°27.4	38°09.8	22°09.9	71°07.1	81°54.1	114°20.9	117°01.5
22	242°34.3	11.7'	$16^{\circ}49.3$	13.2'	57.4'	97°12.4	51°56.4	37°36.9	21°54.1	71°40.3	82°20.1	114°47.4	117°34.7
23	257°04.9	11.7'	16°36.1	13.3'	57.4'	96°41.7	51°25.4	37°04.0	21°38.9	72°13.5	82°46.1	115°13.9	118°07.9
19 th	SD	= 15.5'	Mer. pass	s. 05:17					Sun S	SD = 15.8'			

Moon (20th May) h

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Polaris	-Sun	-Venus	-Saturn	+Antares		+Arcturus	+Spica
0	271°35.6	11.7'	S 16°22.8	13.4'	57.4'		96°11.0	50°54.4	36°31.0	72°46.8	83°12.2	115°40.4	118°41.1
1	286°06.4	11.8'	$16^{\circ}09.4$	13.5'	57.4'		95°40.2	50°23.3	35°58.0	73°20.0	83°38.3	116°06.8	119°14.4
2	300°37.1	11.8'	$15^{\circ}55.9$	13.6'	57.5'		95°09.4	49°52.2	35°25.0	73°53.3	84°04.5	116°33.2	119°47.7
3	315°07.9	11.8'	15°42.4	13.7'	57.5'		94°38.6	49°21.1	34°52.0	74°26.7	84°30.7	116°59.6	
4	329°38.8	11.9'	15°28.7	13.8'	57.5'		94°07.7	48°49.9	34°18.9	75°00.1	84°57.0	117°25.9	
5	344°09.6	11.9'	$15^{\circ}14.9$	13.8'	57.6'		93°36.8	48°18.7	33°45.7	75°33.5	85°23.3	117°52.2	
6	358°40.5	11.9'	S 15°01.1	13.9'	57.6'		93°05.9	47°47.5	33°12.6	76°07.0	85°49.6	118°18.5	
7	13°11.5	12.0'	$14^{\circ}47.1$	14.0'	57.6'		92°34.9	47°16.2	32°39.4	76°40.5	86°16.0	118°44.7	
8	27°42.5	12.0'	14°33.1	14.1'	57.7'		92°03.8	46°44.9	32°06.2	77° 14.0	86°42.4	119°10.9	
9	42°13.5	12.0'	$14^{\circ}19.0$	14.2'	57.7'		91°32.8	46°13.6	31°32.9	77°47.6	87°08.8	119°37.1	
10	56°44.5	12.1'	14°04.8	14.3'	57.7'		91°01.7	45°42.2	30°59.6	78°21.2	87°35.3		
11	71°15.6	12.1'	13°50.5	14.4'	57.8'		90°30.5	45°10.8	30°26.3	78°54.8	88°01.8		
12	85°46.7	12.1'	S 13°36.2	14.4'	57.8'		89°59.4	44°39.3	29°52.9	79°28.5	88°28.4		
13	100°17.8	12.1'	13°21.7	14.5'	57.8'		89°28.1	44°07.8	29°19.5	80°02.3	88°54.9		
14	114°48.9	12.2'	13°07.2	14.6'	57.9'		88°56.9	43°36.3	28°46.1	80°36.0	89°21.6		
15	129°20.1	12.2'	12°52.6	14.7'	57.9'		88°25.6	43°04.8	28°12.6	81°09.8	89°48.2		
16	143°51.3	12.2'	12° 37.9	14.8'	57.9'	102°25.5	87°54.3	42°33.2	27°39.1	81°43.7	90°14.9		
17	158°22.5	12.2'	12°23.2	14.8'	58.0'	102°10.4	87°22.9	42°01.6	27°05.6	82°17.6	90°41.6		
18	172°53.8	12.3'	S 12°08.3	14.9'	58.0'	101°55.3	86°51.5	41°29.9	26°32.0	82°51.5	91°08.3		
19	187°25.0	12.3'	11°53.4	15.0'	58.0'	101°40.1	86°20.0	40°58.2	25°58.4	83°25.4	91°35.1		
20	201°56.3	12.3'	11°38.4	15.1'	58.1'	101°24.7	85°48.5	40°26.5	25°24.8	83°59.4	92°01.9		
21	216°27.6	12.3'	11°23.4	15.1'	58.1'	101°09.4	85°17.0	39°54.7	24°51.1	84°33.5	92°28.7		
22	230°58.9	12.3'	$11^{\circ}08.3$	15.2'	58.1'	100°53.9	84°45.5	39°22.9	24°17.4	85°07.6	92°55.6		
23	245°30.3	12.4'	10°53.1	15.3'	58.2'	100°38.4	84°13.9	38°51.1	23°43.7	85°41.7	93°22.4		
20 th	SD	= 15.7'	Mer. pass	. 06:05					Sur	SD = 15.8'	·		

Moon (21st May)

			(==	<i>J</i> /					(1.1)		·					
Wed	GHA	ν	Dec	d	HP	-Sun	-Venus	-Saturn	± Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar			
0	260°01.6	12.4'	S 10°37.8	15.3'	58.2'	83°42.2	38° 19.2	23°09.9		45°06.7	86°15.8	93°49.3	97°41.1			
1	274°33.0	12.4'	10°22.4	15.4'	58.2'	83°10.5	37°47.3	22°36.1		45°28.4	86°50.0	94°16.3	98°07.3			
2	289°04.4	12.4'	10°07.0	15.5'	58.3'	82°38.8	37° 15.4	22°02.3		45°50.3	87°24.3	94°43.2	98°33.4			
3	303°35.8	12.4'	09°51.6	15.5'	58.3'	82°07.0	36°43.4	21°28.5		46°12.5	87°58.6	95°10.2	98°59.6			
4	318°07.2	12.4'	09°36.0	15.6'	58.3'	81°35.2	36°11.4	20°54.6		46°34.9	88°32.9	95°37.1	99°25.7			
5	332°38.7	12.4'	09°20.4	15.7'	58.4'	81°03.4	35°39.4	20°20.7		46°57.4	89°07.3	96°04.1	99°51.9			
6	347°10.1	12.4'	S 09°04.7	15.7'	58.4'	80°31.5	35°07.3	19°46.8		47°20.2	89°41.7	96°31.2	100°18.0			
7	1°41.5	12.5'	08°49.0	15.8'	58.4'	79°59.6										
8	16°13.0	12.5'	08°33.2	15.9'	58.5'		79°27.6 34°03.1 18°38.8 48°06.4 90°50.6 97°25.2 101									
9	30°44.5	12.5'	08°17.4	15.9'	58.5'	78°55.6 33°30.9 18°04.8 48°29.8 91°25.1 97°52.3 10										
10	45°15.9	12.5'	08°01.5	16.0'	58.5'	78°23.6	32°58.7	17°30.8	_	48°53.4	91°59.7	98°19.4	102°02.7			
11	59°47.4	12.5'	07°45.5	16.0'	58.6'	77°51.5	32°26.4	16°56.8	21°43.7	49°17.2	92°34.3	98°46.5	102°28.9			
12	74°18.9	12.5'	S 07°29.5	16.1'	58.6'	77°19.4	31°54.2	16°22.7	21°59.8	49°41.2	93°08.9	99°13.6	102°55.1			
13	88°50.3	12.5'	07°13.4	16.1'	58.6'	76°47.2	31°21.8	15°48.7	22° 16.6	50°05.3	93°43.6	99°40.7	103°21.3			
14	103°21.8	12.5'	06°57.3	16.2'	58.7'	76°15.0	30°49.5	15° 14.6	22°34.0	50°29.6	94°18.3	100°07.8	103°47.4			
15	117°53.3	12.5'	06°41.1	16.2'	58.7'	75°42.8	30°17.1	14°40.5	22°52.1	50°54.1	94°53.1	100°34.9	104°13.6			
16	132°24.7	12.5'	06°24.8	16.3'	58.7'	75°10.5	29°44.7	14°06.4	23° 10.8	51°18.8	95°27.9	101°02.1	104°39.7			
17	146°56.2	12.5'	06°08.6	16.3'	58.8'	74°38.2	29°12.3	13°32.4	23°30.1	51°43.6	96°02.8	101°29.2	105°05.9			
18	161°27.7	12.5'	S 05°52.2	16.4'	58.8'	74°05.8	28°39.8	12°58.3	23°50.0	52°08.7	96°37.6	101°56.3	105°32.0			
19	175°59.1	12.4'	05°35.8	16.4'	58.8'	3' 73°33.4 28°07.3 12°24.2										
20	190°30.6	12.4'	05°19.4	16.5'	58.9'	73°00.9	27°34.8	11°50.2	24°31.4	52°59.2	97°47.5	102°50.6	106°24.2			
21	205°02.0	12.4'	05°02.9	16.5'	58.9'	72°28.5	27°02.3	$11^{\circ}16.2$	24°52.9	53°24.6	98°22.6	103°17.8	106°50.3			
22	219°33.4	12.4'	04°46.4	16.6'	58.9'	71°55.9	26°29.7	10°42.3	25° 14.9	53°50.3	98°57.6	103°44.9	107°16.4			
23	234°04.9	12.4'	04°29.9	16.6'	59.0'	71°23.4	25°57.1	10°08.4	25°37.4	54°16.1	99°32.7	104°12.0	107°42.4			
21 st	SD	$=15.9^{\prime}$	Mer. pass	s. 06:53		$Sun\;SD=15.8'$										

h Moon (22nd May)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Polaris	-Sun	-Venus	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	248°36.3	12.4'	S 04°13.3	16.6'	59.0'	93°51.2	70°50.8	25°24.4	9°34.6	26°00.4	54°42.0	100°07.8	104°39.2
1	263°07.7	12.4'	03°56.6	16.7'	59.0'	93°34.3	70°18.1	24°51.8	9°00.9	26°23.7	55°08.1	100°43.0	105°06.3
2	277°39.0	12.4'	03°40.0	16.7'	59.1'	93°17.3	69°45.4	24°19.1	8°27.3	26°47.6	55°34.3	101°18.2	105°33.4
3	292°10.4	12.3'	03°23.2	16.8'	59.1'	93°00.3	69°12.7	23°46.4	7°53.9	27°11.8	56°00.7	101°53.5	106°00.5
4	306°41.7	12.3'	03°06.5	16.8'	59.1'	92°43.3	68°40.0	23°13.7	7°20.7	27°36.4	56°27.2	102°28.8	106°27.6
5	321°13.1	12.3'	02°49.7	16.8'	59.2'	92°26.3	68°07.2	22°40.9	6°47.9	28°01.4	56°53.8	103°04.1	106°54.7
6	335°44.4	12.3'	S 02°32.9	16.9'	59.2'	92°09.2	67°34.3	22°08.1	6°15.3	28°26.8	57°20.6	103°39.5	107°21.8
7	350°15.6	12.3'	$02^{\circ}16.0$	16.9'	59.2'	91°52.1	67°01.4	21°35.4	5°43.3	28°52.5	57°47.5	104°14.9	107°48.8
8	4°46.9	12.2'	$01^{\circ}59.1$	16.9'	59.3'	91°34.9	66°28.5	21°02.6	5°11.9	29°18.5	58°14.5	104°50.4	108° 15.9
9	19°18.1	12.2'	01°42.2	16.9'	59.3'	91°17.8	65°55.6	20°29.7	4°41.4	29°44.9	58°41.7	105°25.9	108°42.9
10	33°49.3	12.2'	01°25.3	17.0'	59.3'	91°00.6	65°22.6	19°56.9		30°11.6	59°09.0	106°01.5	109°09.9
11	48°20.5	12.1'	$01^{\circ}08.3$	17.0'	59.4'	90°43.3	64°49.5	19°24.1		30°38.6	59°36.4	106°37.0	109°36.8
12	62°51.7	12.1'	S 00°51.3	17.0'	59.4'	90°26.1	64°16.5	18°51.2		31°05.9	60°03.9	107°12.7	110°03.8
13	77°22.8	12.1'	00°34.3	17.0'	59.4'	90°08.8	63°43.3	18°18.4		31°33.5	60°31.5	107°48.3	110°30.7
14	91°53.9	12.1'	00°17.3	17.1'	59.5'	89°51.5	63°10.2	17°45.5		32°01.3	60°59.3	108°24.0	110°57.6
15	106°24.9	12.0'	S 00°00.3	17.1'	59.5'	89°34.2	62°37.0	17°12.7		32°29.4	61°27.2	108°59.8	111°24.4
16	120°55.9	12.0'	N 00°16.8	17.1'	59.5'	89°16.9	62°03.8	16°39.9		32°57.7	61°55.1	109°35.5	111°51.2
17	135°26.9	11.9'	00°33.9	17.1'	59.6'	88°59.6	61°30.5	16°07.0		33°26.3	62°23.2	110°11.4	112° 18.0
18	149°57.8	11.9'	N00°51.0	17.1'	59.6'	88°42.2	60°57.2	15°34.2		33°55.2	62°51.4	110°47.2	112°44.8
19	164°28.7	11.9'	$01^{\circ}08.1$	17.1'	59.6'	88°24.9	60°23.9	15°01.5		34°24.2	63°19.7	111°23.1	113°11.5
20	178°59.6	11.8'	$01^{\circ}25.3$	17.1'	59.6'	88°07.5	59°50.5	14°28.7		34°53.5	63°48.1	111°59.1	113°38.1
21	193°30.4	11.8'	$01^{\circ}42.4$	17.2'	59.7'	87°50.1	59°17.1	13°56.0		35°23.0	64°16.6	112°35.0	114°04.7
22	208°01.2	11.7'	$01^{\circ}59.6$	17.2'	59.7'	87°32.7	58°43.6	13°23.4		35°52.7	64°45.2	113°11.1	114°31.3
23	222°31.9	11.7'	$02^{\circ}16.7$	17.2'	59.7'	87°15.3	58°10.1	12°50.8		36°22.5	65°13.8	113°47.1	114°57.8
22 nd	SD	= 16.1'	Mer. pass	. 07:40			-		Sı	ın SD = 15.8'			

h Moon (23rd May)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	GHA ν Dec d			HP	-Polaris	-Sun	-Venus	+Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
	237°02.6	11.6'	N02°33.9	17.2'	59.8'	86° 57.9	57° 36.6	12°18.3	, Gatain	36°52.6	65°42.6	114°23.2	115°24.3
0	251°33.3	11.6'	02°51.1	17.2'	59.8'	86°40.5	57°03.1	12 16.3 11°45.9	6°03.4	30° 52.0 37° 22.9	66°11.5	114 23.2 114°59.3	115 24.3 115°50.7
1 2	266°03.9	11.5	02 51.1 03°08.2	17.2'	59.8'	86°23.1	56°29.5	11°43.9 11°13.6	6°36.4	37°53.3	66°40.5	114 59.5 115°35.5	116°17.0
3	280°34.4	11.5'	03°25.4	17.2	59.8°	86°05.7	55°55.8	10°41.4	7°10.0	38°23.9	67°09.5	115° 33.3	116 17.0 116°43.3
4	295°04.9	11.4'	03°42.6	17.2'	59.9'	85°48.3	55°22.2	10°41.4	7°44.0	38°54.7	67°38.7	116°48.0	110 43.5 117°09.5
5	309°35.3	11.4'	03°59.8	17.2'	59.9'	85°30.9	54°48.5	9°37.6	8°18.3	39°25.6	68°07.9	117°24.2	117°35.7
6	324°05.7	11.3'	N04° 16.9	17.2'	59.9'	85° 13.5	54°14.7	9°06.0	8°52.9	39°56.7	68°37.2	118°00.6	118°01.8
7	338°36.0	11.3'	04°34.1	17.2'	60.0'	84°56.1	54 14.7 53°41.0	9°00.0 8°34.7	9°27.7	40°28.0	69°06.6	118°36.9	118°27.8
8	353°06.3	11.3	04 34.1 04°51.2	17.2 17.1'	60.0	84°38.8	53°07.2	8°03.8	10°02.7	40 28.0 40°59.4	69°36.1	110 30.9 119°13.3	116 27.6 118°53.7
9	7°36.5	11.1'	05°08.4	17.1'	60.0	84°21.4	52°33.3	7°33.3	10°02.7	40°30.9	70°05.6	119 13.3 119°49.7	110 55.7 119°19.6
10	22°06.6	11.1'	05° 25.5	17.1	60.0'	84°04.0	51°59.5	7°03.4	11°13.1	42°02.6	70°35.2	119 49.1	119 19.0 119°45.3
11	36°36.7	11.0'	05°42.7	17.1	60.1	83°46.7	51°25.6	6°34.1	11°48.6	42°34.4	71°04.9		119 45.5
	50° 36.7		N05° 59.8			83°29.4	50°51.6	6°05.7	12°24.1	43°06.4	71°34.7		
12 13	65°36.7	11.0' 10.9'	06° 16.9	17.1' 17.1'	60.1' 60.1'	83°12.1	50° 51.6	6 05.7	12°24.1	43 06.4 43°38.4	71 34.7 72°04.6		
14	80°06.5	10.9	06°10.9	17.1'	60.1	82°54.8	49°43.7		12 59.6 13°35.5	43 36.4 44°10.6	72 04.0 72°34.5		
15	94°36.4	10.8	06°51.0	17.1 17.0'	60.2'	82°37.5	49 43.7 49°09.7		13 35.5 14°11.4	44°10.0 44°42.9	72 34.5 73°04.5		
16	109°06.1	10.7	00° 31.0	17.0'	60.2	82°20.3	49° 09.7 48° 35.6		14° 11.4	45°15.4	73°34.5		
17	123°35.8	10.6'	07°25.1	17.0'	60.2	82°03.1	48°01.5		15°23.3	45°47.9	74°04.7		
18	138°05.4		N07°42.1			81°45.9	47° 27.4		15°59.4	46°20.6	74°34.8		
19	158 05.4 152°34.9	10.5' 10.5'	07°59.0	17.0' 16.9'	60.3' 60.3'	81 45.9 81°28.7	47 27.4 46°53.3		15 59.4 16°35.5	46°20.6 46°53.3	74 34.8 75°05.1		
	167°04.4	10.5	07 59.0 08° 15.9	16.9'	60.3	81°11.6	46° 19.1		10 35.5 17°11.7	40° 33.3 47° 26.2	75 05.1 75°35.4		
20 21	181°33.8	10.4	08 15.9 08° 32.9	16.9	60.3	80°54.5	45°44.9		17 11.7 17°48.0	47 26.2 47°59.2	75 35.4 76°05.8		
21 22	196°03.1	10.3	06 32.9 08°49.7	16.8	60.4	80°37.5	45° 44.9		17 46.0 18°24.3	47 59.2 48°32.2	76°36.2		
23	210°32.3	10.2	08 49.7 09°06.6	16.8'	60.4	80°20.5	44°36.4		19°00.7	49°05.4	77°06.7		
_					00.4	00 20.5	1 44 30.4				11 00.1		
23 rd	SD	= 16.3'	Mer. pass	. 08:29					Su	$n\;SD=15.8'$			

h Moon (24th May)

Sat	GHA	ν	Dec	d	HP	-Polaris	± Achernar	-Sun	+Venus	+Saturn	+Fomalhaut	+Altair
0	225°01.4	10.1'	N 09°23.4	16.8'	60.4'	80°03.5		44°02.2		19°37.1	49°38.7	77°37.2
1	239°30.5	10.0'	09°40.1	16.7'	60.4'	79°46.5		43°27.9		20°13.6	50°12.0	78°07.8
2	253°59.5	9.9'	09°56.8	16.7'	60.4'	79°29.7		42°53.6		20°50.1	50°45.4	78°38.4
3	268°28.4	9.8'	10°13.5	16.6'	60.5'	79°12.8		42°19.2		21°26.6	51°19.0	79°09.1
4	282°57.2	9.7'	10°30.2	16.6'	60.5'	78°56.0		41°44.8		22°03.2	51°52.6	79°39.8
5	297°25.9	9.6'	$10^{\circ}46.7$	16.5'	60.5'	78°39.3		41°10.4		22°39.9	52°26.2	80°10.6
6	311°54.6	9.5'	N11°03.3	16.5'	60.5'	78°22.6		40°36.0		23°16.6	53°00.0	80°41.4
7	326°23.1	9.5'	11°19.8	16.4'	60.5'	78°05.9	68°30.6	40°01.6		23°53.3	53°33.8	81°12.3
8	340°51.6	9.4'	11°36.2	16.4'	60.6'	77°49.3	68°45.8		7°28.2	24°30.1	54°07.8	81°43.2
9	355°19.9	9.3'	11°52.6	16.3'	60.6'	77°32.8	69°01.2		7°59.2	25°06.9	54°41.7	82°14.2
10	9°48.2	9.2'	12°08.9	16.3'	60.6'	77°16.3	69°16.6		8°30.8	25°43.7	55°15.8	82°45.2
11	24°16.4	9.1'	12°25.2	16.2'	60.6'	76°59.9	69°32.3		9°02.8	26°20.6	55°49.9	83°16.2
12	38°44.5	9.0'	N12°41.4	16.1'	60.6'	76°43.6	69°48.0		9°35.2	26°57.5	56°24.1	83°47.3
13	53°12.5	8.9'	12°57.5	16.1'	60.7'	76°27.3	70°03.9		10°07.9	27°34.4	56°58.4	84°18.4
14	67°40.3	8.8'	13°13.6	16.0'	60.7'	76°11.1	70°19.9		10°40.9	28°11.4	57°32.7	84°49.5
15	82°08.1	8.7'	13°29.6	15.9'	60.7'	75°54.9	70°36.0		11°14.1	28°48.4	58°07.1	85°20.7
16	96°35.8	8.6'	13°45.5	15.9'	60.7'	75°38.9	70°52.3		11°47.5	29°25.4	58°41.5	85°51.9
17	111°03.4	8.5'	$14^{\circ}01.4$	15.8'	60.7'	75°22.9	71°08.7		12°21.0	30°02.4	59°16.0	86°23.1
18	125°30.9	8.4'	N14°17.2	15.7'	60.7'	75°07.0	71°25.2		12°54.8	30°39.5	59°50.6	86°54.3
19	139°58.3	8.3'	14°32.9	15.6'	60.8'	74°51.1	71°41.8		13°28.6	31°16.6	60°25.2	87°25.6
20	154°25.6	8.2'	14°48.5	15.6'	60.8'	74°35.4	71°58.5		14°02.6	31°53.7	60°59.8	87°56.9
21	168°52.8	8.1'	$15^{\circ}04.1$	15.5'	60.8'	74°19.7	72°15.4		14°36.8	32°30.9	61°34.6	88°28.2
22	183°19.9	8.0'	$15^{\circ}19.5$	15.4'	60.8'	74°04.1	72°32.4		15°11.0	33°08.1	62°09.3	88°59.6
23	197°46.8	7.9'	15°34.9	15.3'	60.8'	73°48.6	72°49.4		15°45.3	33°45.3	62°44.1	89°30.9
24 th	SD	$= 16.5^{\prime}$	Mer. pass	. 09:19				S	un $SD = 1$	5.8'		

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Polaris	+Venus	+Saturn	+Fomalhaut	+Deneb	+Achernar	+Altair
0	212°13.7	7.8'	N 15°50.2	15.2'	60.8'	73°33.2	16° 19.6	34°22.5	63°19.0		73°06.6	90°02.3
1	226°40.5	7.7'	16°05.4	15.1'	60.8'	73°17.9	16°54.1	34°59.8	63°53.9		73°23.9	90°33.7
2	241°07.1	7.5'	16°20.5	15.0'	60.9'	73°02.7	17°28.6	35°37.0	64°28.8		73°41.3	91°05.1
3	255°33.7	7.4'	16°35.6	14.9'	60.9'	72°47.6	18°03.2	36°14.3	65°03.8		73°58.8	91°36.5
4	270°00.1	7.3'	$16^{\circ}50.5$	14.8'	60.9'	72°32.6	18° 37.9	36°51.6	65°38.8		74°16.4	92°07.9
5	284°26.4	7.2'	17°05.3	14.7'	60.9'		19°12.6	37°28.9	66°13.9	73°06.0	74°34.1	92°39.3
6	298°52.6	7.1'	N 17°20.0	14.6'	60.9'		19°47.4	38°06.3	66°49.0	$73^{\circ}21.2$	74°51.9	93°10.8
7	313°18.7	7.0'	17°34.6	14.5'	60.9'		20°22.2	38°43.7	67°24.1	73°36.4	75°09.8	93°42.2
8	327°44.7	6.9'	17°49.2	14.4'	60.9'		20°57.0	39°21.0	67°59.3	73°51.8	75°27.8	94°13.7
9	342°10.6	6.8'	18°03.6	14.3'	60.9'		21°31.9	39°58.4	68° 34.5	74°07.3	75°45.8	94°45.1
10	356°36.4	6.7'	18°17.9	14.2'	60.9'		22°06.8	40°35.8	69°09.8	74°22.9	76°04.0	95°16.6
11	11°02.0	6.5'	18°32.0	14.1'	60.9'		22°41.8	41°13.3	69°45.0	74°38.6	76°22.2	95°48.0
12	25°27.6	6.4'	N 18°46.1	13.9'	61.0'		23°16.8	41°50.7	70°20.3	74°54.3	76°40.5	96°19.5
13	39°53.0	6.3'	19°00.0	13.8'	61.0'		23°51.8	42°28.1	70°55.7	75°10.2	76°58.9	96°50.9
14	54°18.3	6.2'	19°13.9	13.7'	61.0'		24°26.8	43°05.6	71°31.0	75°26.2	77°17.4	97°22.4
15	68°43.5	6.1'	19°27.6	13.6'	61.0'		25°01.9	43°43.1	72°06.4	75°42.2	77°35.9	97°53.8
16	83°08.6	6.0'	19°41.2	13.5'	61.0'		25°37.0	44°20.6	72°41.8	75°58.4	77°54.6	98°25.2
17	97°33.6	5.9'	19°54.6	13.3'	61.0'		26°12.1	44°58.0	73° 17.2	76°14.6	78°13.2	98°56.6
18	111°58.5	5.8'	N20°07.9	13.2'	61.0'		26°47.3	45°35.5	73°52.7	76°31.0	78°32.0	99°28.0
19	126°23.2	5.6'	20°21.1	13.1'	61.0'		27°22.5	46°13.1	74°28.1	76°47.4	78°50.8	99°59.4
20	140°47.9	5.5'	20°34.2	12.9'	61.0'		27°57.6	46°50.6	75°03.6	77°03.9	79°09.7	100°30.7
21	155°12.4	5.4'	20°47.1	12.8'	61.0'		28°32.8	47°28.1	75°39.1	77°20.5	79°28.7	101°02.1
22	169°36.8	5.3'	20°59.9	12.6'	61.0'		29°08.0	48°05.6	76° 14.7	77°37.1	79°47.7	101°33.4
23	184°01.1	5.2'	21°12.5	12.5'	61.0'		29°43.3	48°43.1	76°50.2	77°53.8	80°06.8	102°04.7
25 th	SD	= 16.6	' Mer. pas	s. 10:14								

Moon	(26th	1/10/1	
IVIOON	1 /n	IVI AV I	

h

Moon (26 th May)	Lunar Distance (objects with	largest hourly	(ctlab (L)
IVIOOII (20° IVIAY)	Lulial Distance (objects with	iargest nouri	, LD deita)

Mon	GHA	ν	Dec	d	HP	+Venus	+Saturn	+Fomalhaut	+Deneb	+Achernar	+Altair	
0	198°25.3	5.1'	N 21°25.1	12.4'	61.0'	30° 18.5	49°20.7	77° 25.7	78°10.6	80°25.9	102°35.9	
1	212°49.4	5.0'	21°37.4	12.2'	61.0'	30°53.7	49°58.2	78°01.3	78°27.5	80°45.1	103°07.2	
2	227°13.3	4.9'	21°49.6	12.1'	61.0'	31°29.0	50°35.8	78° 36.9	78°44.4	81°04.3	103°38.4	
3	241°37.2	4.7'	22°01.7	11.9'	61.0'	32°04.3	51° 13.3	79°12.5	79°01.4	81°23.6	104°09.6	
4	256°00.9	4.6'	22°13.6	11.8'	61.0'	32°39.5	51°50.9	79°48.0	79°18.5	81°42.9	104°40.7	
5	270°24.6	4.5'	22°25.3	11.6'	61.0'	33°14.8	52°28.4	80°23.6	79°35.6	82°02.2	105°11.8	
6	284°48.1	4.4'	N22°36.9	11.4'	61.0'	33°50.1	53°06.0	80°59.3	79°52.8	82°21.7	105°42.9	
7	299°11.5	4.3'	22°48.4	11.3'	61.0'	34°25.4	53°43.5	81°34.9	80°10.1	82°41.1	106°14.0	
8	313°34.8	4.2'	22°59.7	11.1'	61.0'	35°00.7	54°21.1	82° 10.5	80°27.4	83°00.6	106°44.9	
9	327°58.1	4.1'	23°10.8	11.0'	61.0'	35°36.0	54° 58.6	82°46.1	80°44.8	83°20.1	107°15.9 107°46.8	
10	342°21.2	4.0'	23°21.7	10.8'	61.0'							
11	356°44.2	3.9'	23°32.5	10.6'	61.0'	36° 46.5	56° 13.7	83°57.4	81°19.6	83°59.2	108°17.7	
12	11°07.1	3.8'	N23°43.2	10.5'	61.0'		'	New I	Moon ——		'	
13	25°29.9	3.7'	23°53.6	10.3'	61.0'			New I	Moon ——			
14	39°52.6	3.6'	24°03.9	10.1'	61.0'			New I	Moon ——			
15	54°15.2	3.5'	24°14.0	9.9'	61.0'				Moon ——			
16	68°37.7	3.4'	24°23.9	9.8'	60.9'				Moon ——			
17	83°00.1	3.3'	24°33.7	9.6'	60.9'			New I	Moon ——			
18	97°22.5	3.2'	N 24°43.2	9.4'	60.9'			New I	Moon ——			
19	111°44.7	3.1'	24°52.6	9.2'	60.9'				Moon ——			
20	126°06.8	3.1'	25°01.8	9.0'	60.9'			New I	Moon ——			
21	140°28.9	3.0'	25°10.9	8.8'	60.9'							
22	154°50.9	2.9'	25°19.7	8.6'	60.9'				Moon ——			
23	169°12.7	2.8'	25°28.4	8.5'	60.9'			New I	Moon ——			
26 th	SD	= 16.6'	Mer. pas	s. 11:14								

Moon (27th May)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Arcturus	-Regulus	-Mars	-Sirius	-Procyon	-Pollux	-Betelgeuse	-Jupiter
0	183°34.5	2.7'	N 25°36.8	8.3'	60.9'				New	Moon ——			
1	197°56.3	2.6'	25°45.1	8.1'	60.9'				New	Moon ——			
2	212°17.9	2.6'	25°53.1	7.9'	60.8'					Moon ——			
3	226°39.5	2.5'	$26^{\circ}01.0$	7.7'	60.8'					Moon ——			
4	241°01.0	2.4'	26°08.7	7.5'	60.8'					Moon ——			
5	255°22.4	2.4'	$26^{\circ}16.2$	7.3'	60.8'				New	Moon ——			
6	269°43.8	2.3'	$N26^{\circ}23.5$	7.1'	60.8'				New	Moon ——			
7	284°05.1	2.2'	26°30.6	6.9'	60.8'				New	Moon ——			
8	298°26.3	2.2'	26°37.5	6.7'	60.8'					Moon ——			
9	312°47.5	2.1'	26°44.1	6.5'	60.7'					Moon ——			
10	327°08.6	2.1'	26°50.6	6.3'	60.7'					Moon ——			
11	341°29.7	2.0'	26°56.9	6.1'	60.7'				New	Moon ——			
12	355°50.7	2.0'	$N27^{\circ}03.0$	5.9'	60.7'				New	Moon ——			
13	10°11.7	1.9'	27°08.8	5.7'	60.7'					Moon ——			
14	24°32.6	1.9'	27°14.5	5.4'	60.6'				New	Moon ——			
15	38°53.5	1.8'	$27^{\circ}19.9$	5.2'	60.6'					Moon ——			
16	53°14.3	1.8'	27°25.2	5.0'	60.6'				——— New	Moon ——			
17	67°35.1	1.8'	27°30.2	4.8'	60.6'				New	Moon ——			
18	81°55.9	1.7'	$N27^{\circ}35.0$	4.6'	60.6'	119°45.1	74°44.2	63°19.1	51°57.4	45°23.1	37°56.0	24°57.5	12°40.3
19	96°16.6	1.7'	27°39.6	4.4'	60.5'	119°16.2	74°07.0	62°43.2	51°40.3	44°50.6	37°18.8	24°38.3	12°07.0
20	110°37.3	1.7'	27°44.0	4.2'	60.5'	118°47.1	73°29.8	62°07.3	51°23.5	44°18.2	36°41.7	24° 19.7	11°34.2
21	124°58.0	1.7'	27°48.2	4.0'	60.5'	118°18.0	72°52.6	61°31.4	51°07.0	43°46.0	36°04.6	24°01.8	11°01.7
22	139°18.7	1.6'	$27^{\circ}52.1$	3.8'	60.5'	117°48.8	72° 15.4	60°55.6	50°50.7	43°13.9	35°27.5	23°44.6	10°29.7
23	153°39.4	1.6'	27°55.9	3.5'	60.5'	117°19.6	71°38.3	60°19.8	50°34.7	42°41.9	34°50.4	23°28.1	9°58.3
27 th	SD =	= 16.6′	Mer. pass	. 12:17									

h Moon (28th May)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Regulus	-Mars	-Procyon	-Pollux	-Jupiter	+Capella
0	168°00.0	1.6'	N 27°59.4	3.3'	60.4'		116°50.3	71°01.2	59°44.0	42°10.0	34°13.4	9°27.5	
1	182°20.6	1.6'	28°02.8	3.1'	60.4'		116°20.9	70°24.1	59°08.2	41°38.3	33°36.4	8°57.4	
2	196°41.2	1.6'	28°05.9	2.9'	60.4'		115°51.5	69°47.1	58°32.5	41°06.8	32°59.5	8° 28.2	
3	211°01.8	1.6'	28°08.8	2.7'	60.4'		115°22.1	69°10.1	57°56.8	40°35.4	32°22.5		
4	225°22.5	1.6'	$28^{\circ}11.5$	2.5'	60.3'		114°52.6	68°33.1	57°21.1	40°04.2	31°45.6		
5	239°43.1	1.6'	28°13.9	2.3'	60.3'		114°23.1	67°56.2	56°45.5	39°33.1	31°08.8		
6	254°03.7	1.6'	$N28^{\circ}16.2$	2.0'	60.3'		113°53.5	67°19.3	56°09.9	39°02.2	30°32.0		
7	268°24.3	1.6'	28°18.2	1.8'	60.3'		113°23.9	66°42.4	55°34.3	38°31.5	29°55.2		
8	282°45.0	1.7'	28°20.0	1.6'	60.2'		112°54.3	66°05.6	54°58.8	38°00.9	29° 18.5		
9	297°05.6	1.7'	$28^{\circ}21.6$	1.4'	60.2'	119°30.1	112°24.6	65°28.7	54°23.3	37°30.6	28°41.8		
10	311°26.3	1.7'	28°23.0	1.2'	60.2'	118°53.3	111°54.9	64°52.0	53°47.8	37°00.4	28°05.1		
11	325°47.0	1.7'	28°24.2	1.0'	60.2'	118°16.6	111°25.2	64°15.2	53°12.4	36°30.5	27°28.5		
12	340°07.7	1.8'	N 28°25.2	0.8'	60.1'	117°39.9	110°55.4	63°38.5	52°37.0	36°00.7	26°51.9		
13	354°28.5	1.8'	28°25.9	0.5'	60.1'	117°03.2	110°25.7	63°01.9	52°01.7	35°31.2	26° 15.4		
14	8°49.3	1.8'	28° 26.5	0.3'	60.1'	116°26.5	109°55.9	62°25.2	51°26.4	35°01.9	25°38.9		
15	23°10.1	1.9'	28°26.8	0.1'	60.0'	115°49.9	109°26.1	61°48.6	50°51.1	34°32.8	25°02.4		
16	37°31.0	1.9'	28°26.9	-0.1'	60.0'	115°13.4	108°56.2	61°12.1	50°15.8	34°04.0	24°26.0		
17	51°51.9	2.0'	28°26.8	-0.3'	60.0'	114°36.8	108°26.4	60°35.6	49°40.6	33°35.4	23°49.7		
18	66°12.9	2.0'	N 28° 26.5	-0.5'	59.9'	114°00.3	107°56.6	59°59.1	49°05.5	33°07.0	23°13.3		
19	80°33.9	2.1'	28°26.0	-0.7'	59.9'	113°23.9	107°26.7	59°22.6	48°30.3	32°39.0	22°37.1		
20	94°54.9	2.1'	28°25.3	-0.9'	59.9'	112°47.5	106°56.9	58°46.2	47°55.3	32°11.2	22°00.9		19°59.9
21	109°16.0	2.2'	28°24.4	-1.1'	59.9'	112°11.1	106°27.0	58°09.9	47°20.2	31°43.7	21°24.7		20°16.5
22	123°37.2	2.2'	28°23.2	-1.3'	59.8'	111°34.7	105°57.1	57°33.6	46°45.2	31°16.5	20°48.6		20°33.9
23	137°58.5	2.3'	28°21.9	-1.5'	59.8'	110°58.4	105°27.2	56°57.3	46°10.2	30°49.7	20°12.5		20°52.1
28 th	SD	= 16.5	' Mer. pas	s. 13:23									

h Moon (29th May) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	-Pollux	+Jupiter	+Capella	+Betelgeuse	+Rigel
0	152°19.8	2.4'	N28°20.3	-1.8'	59.8'	110°22.2	56°21.0	45°35.3	19°36.5		21°10.9	_	_
1	166°41.1	2.4'	28°18.6	-2.0'	59.7'	109°46.0	55°44.8	45°00.4	19°00.5	8°49.9	21°30.5		
2	181°02.6	2.5'	28°16.6	-2.2'	59.7'	109°09.8	55°08.7	44°25.6	18° 24.7	9°19.1	21°50.7		
3	195°24.1	2.6'	28°14.5	-2.4'	59.7'	108°33.7	54°32.6	43°50.8	17°48.8	9°48.8	22°11.5		
4	209°45.7	2.7'	$28^{\circ}12.1$	-2.6'	59.6'	107°57.6	53°56.5	43°16.1	17° 13.1	10°19.2	22°33.0		
5	224°07.3	2.8'	28°09.6	-2.8'	59.6'	107°21.5	53°20.5	42°41.3	16°37.3	10°50.0	22°54.9		40°40.4
6	238°29.1	2.8'	N28°06.8	-3.0'	59.6'	106°45.5	52°44.5	42°06.7	16°01.7	11°21.3	23°17.4		40°56.0
7	252°50.9	2.9'	28°03.8	-3.1'	59.5'	106°09.6	52°08.6	41°32.0	15°26.1	11°52.9	23°40.4		41°11.9
8	267°12.9	3.0'	28°00.7	-3.3'	59.5'	105°33.6	51°32.7	40°57.5	14°50.6	12°24.8	24°03.9		41°28.1
9	281°34.9	3.1'	27°57.4	-3.5'	59.5'	104°57.8	50°56.8	40°22.9	14°15.2	12°56.9	24°27.8		41°44.6
10	295°57.0	3.2'	27°53.8	-3.7'	59.4'	104°21.9	50°21.0	39°48.4	13°39.9	13°29.3	24°52.2	23°28.1	42°01.4
11	310°19.2	3.3'	$27^{\circ}50.1$	-3.9'	59.4'	103°46.1	49°45.2	39°14.0	13°04.6	14°01.9	25°16.9	23°44.0	42°18.6
12	324°41.5	3.4'	N 27°46.2	-4.1'	59.3'	103°10.4	49°09.5	38°39.6	12°29.5	14°34.6	25°42.0	24°00.5	42°36.0
13	339°03.9	3.5'	27°42.1	-4.3'	59.3'	102°34.7	48°33.8	38°05.2	11°54.4	15°07.4	26°07.5	24°17.6	42°53.7
14	353°26.4	3.6'	27°37.8	-4.5'	59.3'	101°59.1	47°58.2	37°30.9	11° 19.5	15°40.4	26°33.2	24°35.3	43°11.7
15	7°49.0	3.7'	27°33.3	-4.7'	59.2'	101°23.5	47°22.6	36°56.7	10°44.7	16°13.5	26°59.4	24°53.6	43°29.9
16	22°11.7	3.8'	27°28.6	-4.8'	59.2'	100°47.9	46°47.1	36°22.5	10°10.0	16°46.7	27°25.8	25°12.5	43°48.5
17	36°34.5	3.9'	27°23.8	-5.0'	59.2'	100°12.4	46°11.6	35°48.3	9°35.5	17°19.9	27°52.4	25°31.8	44°07.2
18	50°57.5	4.0'	N27°18.8	-5.2'	59.1'	99°36.9	45°36.2	35°14.2	9°01.1	17°53.2	28°19.4	25°51.7	44°26.2
19	65°20.5	4.2'	27°13.6	-5.4'	59.1'	99°01.5	45°00.8	34°40.1	8°26.9	18°26.5	28°46.6	26°12.1	44°45.5
20	79°43.7	4.3'	27°08.2	-5.6'	59.1'	98°26.1	44°25.4	34°06.1	7°53.0	18°59.9	29°14.0	26°32.9	45°05.0
21	94°06.9	4.4'	27°02.6	-5.7'	59.0'	97°50.8	43°50.1	33°32.1	7°19.3	19°33.4	29°41.7	26°54.2	45°24.7
22	108°30.3	4.5'	26°56.9	-5.9'	59.0'	97°15.5	43°14.9	32°58.2	6°46.0	20°06.8	30°09.5	27°15.9	45°44.6
23	122°53.8	4.6'	26°51.0	-6.1'	58.9'	96°40.3	42°39.7	32°24.3	6°13.0	20°40.3	30°37.5	27°38.0	46°04.7
29 th	SD	= 16.3'	Mer. pas	s. 14:27									

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h Moon (30 th May)	Lunar Distance (objects with largest hourly LD delt	٠,

Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Mars	±Pollux	+Jupiter	+Betelgeuse	+Capella	+Sun
0	137°17.5	4.8'	N 26°45.0	-6.2'	58.9'	96°05.1	42°04.5	31°50.4	5°40.6	21°13.8	28°00.5	31°05.8	
1	151°41.2	4.9'	26°38.7	-6.4'	58.9'	95°29.9	41°29.4	31°16.7	5°08.8	21°47.3	28°23.3	31°34.2	
2	166°05.1	5.0'	26°32.3	-6.6'	58.8'	94°54.9	40°54.3	30°42.9	4°37.8	22°20.8	28°46.5	32°02.7	
3	180°29.1	5.1'	26°25.8	-6.7'	58.8'	94°19.8	40° 19.3	30°09.2		22°54.3	29°10.1	32°31.5	41°15.0
4	194°53.2	5.3'	$26^{\circ}19.0$	-6.9'	58.8'	93°44.8	39°44.3	29°35.6		23°27.8	29°33.9	33°00.3	41°47.3
5	209°17.5	5.4'	$26^{\circ}12.1$	-7.0'	58.7'	93°09.9	39°09.4	29°02.0		24°01.3	29°58.0	33°29.3	42°19.6
6	223°41.9	5.5'	$N26^{\circ}05.1$	-7.2'	58.7'	92°35.0	38°34.6	28°28.5		24°34.8	30°22.5	33°58.4	42°51.9
7	238°06.4	5.6'	25°57.9	-7.4'	58.6'	92°00.1	37°59.7	27°55.0		25°08.3	30°47.1	34°27.6	43°24.1
8	252°31.0	5.8'	25°50.5	-7.5'	58.6'	91°25.3	37°25.0	27°21.5		25°41.8	31°12.1	34°57.0	43°56.2
9	266°55.8	5.9'	25°43.0	-7.7'	58.6'	90°50.5	36° 50.2	26°48.1		26°15.2	31°37.3	35°26.4	44°28.3
10	281°20.7	6.0'	25°35.4	-7.8'	58.5'	90°15.8	36° 15.6	26°14.8		26°48.7	32°02.7	35°56.0	45°00.4
11	295°45.8	6.2'	25°27.6	-8.0'	58.5'	89°41.2	35°41.0	25°41.5		27°22.1	32°28.4	36°25.6	45°32.4
12	310°10.9	6.3'	N25°19.6	-8.1'	58.5'	89°06.6	35°06.4	25°08.2		27°55.5	32°54.2	36°55.3	46°04.4
13	324°36.2	6.4'	25°11.5	-8.2'	58.4'	88°32.0	34°31.9	24°35.1		28°28.8	33°20.3	37°25.1	46°36.4
14	339°01.7	6.6'	25°03.3	-8.4'	58.4'	87°57.5	33°57.4	24°01.9		29°02.2	33°46.5	37°55.0	47°08.3
15	353°27.3	6.7'	24°54.9	-8.5'	58.3'	87°23.0	33°23.0	23°28.8		29°35.5	34°12.9	38°24.9	47°40.1
16	7°53.0	6.9'	24°46.3	-8.7'	58.3'	86°48.6	32°48.6	22°55.8		30°08.8	34°39.5	38°54.9	48°11.9
17	22°18.8	7.0'	24°37.7	-8.8'	58.3'	86°14.2	32°14.3	22°22.8		30°42.0	35°06.3	39°25.0	48°43.7
18	36°44.8	7.1'	N24°28.9	-8.9'	58.2'	85°39.9	31°40.0	21°49.9	5°42.4	31°15.3	35°33.2	39°55.1	49°15.4
19	51°10.9	7.3'	24°20.0	-9.1'	58.2'	85°05.6	31°05.8	21°17.0	6°14.0	31°48.5	36°00.2	40°25.3	49°47.1
20	65°37.2	7.4'	24°10.9	-9.2'	58.1'	84°31.4	30°31.6	20°44.1	6°46.1	32°21.6	36°27.4	40°55.5	50°18.7
21	80°03.6	7.5'	24°01.7	-9.3'	58.1'	83°57.2	29°57.4	20°11.4	7°18.4	32°54.8	36°54.7	41°25.8	50°50.3
22	94°30.2	7.7'	23°52.4	-9.4'	58.1'	83°23.1	29°23.4	19°38.6	7°50.9	33°27.9	37°22.1	$41^{\circ}56.1$	51°21.8
23	108°56.8	7.8'	23°43.0	-9.6'	58.0'	82°49.0	28°49.3	19°05.9	8°23.6	34°00.9	37°49.7	42°26.4	51°53.3
30 th	SD :	= 16.1	Mer. pass	s. 15:27	'				Sun	SD = 15.8'			

Sat	GHA	ν	Dec	d	HP	-Antares	-Spica	-Regulus	-Mars	+Pollux	+Jupiter	+Capella	+Sun
0	123°23.6	8.0'	N23°33.4	-9.7'	58.0'		82°15.0	28° 15.4	18°33.3	8°56.4	34°34.0	42°56.8	52°24.8
1	137°50.6	8.1'	23°23.7	-9.8'	57.9'		81°41.0	27°41.4	18°00.7	9°29.3	35°07.0	43°27.1	52°56.2
2	152° 17.7	8.2'	23°13.9	-9.9'	57.9'		81°07.1	27°07.6	17°28.2	10°02.2	35°39.9	43°57.6	53°27.5
3	166°44.9	8.4'	23°04.0	-10.0'	57.9'		80°33.2	26°33.7	16°55.8	10°35.3	36°12.9	44°28.0	53°58.8
4	181°12.3	8.5'	22°53.9	-10.2'	57.8'		79°59.4	26°00.0	16°23.4	11°08.3	36°45.7	44°58.5	54°30.1
5	195°39.8	8.6'	22°43.8	-10.3'	57.8'		79°25.6	25°26.3	15°51.0	11°41.4	37°18.6	45°29.0	55°01.3
6	210°07.4	8.8'	N22°33.5	-10.4'	57.7'		78°51.8	24°52.6	15° 18.7	12°14.5	37°51.4	45°59.5	55°32.5
7	224°35.2	8.9'	22°23.1	-10.5'	57.7'		78° 18.1	24° 19.0	14°46.5	12°47.6	38°24.2	46°30.0	56°03.6
8	239°03.1	9.0'	22°12.7	-10.6'	57.7'		77°44.5	23°45.4	14° 14.3	13°20.8	38°56.9	47°00.5	56°34.7
9	253°31.1	9.2'	$22^{\circ}02.1$	-10.7'	57.6'		77°10.9	23°11.9	13°42.1	13°53.9	39°29.6	47°31.1	57°05.7
10	267°59.3	9.3'	21°51.4	-10.8'	57.6'		76°37.4	22°38.4	13° 10.1	14°27.0	40°02.2	48°01.6	57°36.7
11	282°27.6	9.4'	21°40.6	-10.9'	57.6'		76°03.8	22°05.0	12°38.0	15°00.1	40°34.9	48°32.2	58°07.6
12	296°56.1	9.6'	N21°29.7	-11.0'	57.5'		75°30.4	21°31.6	12°06.1	15°33.1	41°07.4	49°02.7	58°38.5
13	311°24.7	9.7'	$21^{\circ}18.7$	-11.1'	57.5'		74°57.0	20°58.3	11°34.2	16°06.2	41°40.0	49°33.3	59°09.4
14	325°53.4	9.8'	21°07.6	-11.2'	57.4'		74°23.6	20°25.1	11°02.4	16°39.2	42°12.5	50°03.9	59°40.2
15	340°22.2	10.0'	20°56.4	-11.3'	57.4'	119°44.7	73°50.3	19°51.8	10°30.6	17°12.2	42°44.9	50°34.4	60°10.9
16	354°51.2	10.1'	20°45.1	-11.4'	57.4'	119°11.4	73°17.0	19° 18.7	9°59.0	17°45.2	43°17.3	51°05.0	60°41.7
17	9°20.3	10.2'	20°33.7	-11.5'	57.3'	118°38.2	72°43.8	18°45.6	9°27.3	18°18.1	43°49.7	51°35.6	61°12.3
18	23°49.5	10.4'	N20°22.3	-11.6'	57.3'	118°05.1	72°10.7	18° 12.5	8°55.8	18°51.0	44°22.0	52°06.1	61°42.9
19	38° 18.9	10.5'	20°10.7	-11.6'	57.2'	117°31.9	71°37.5	17°39.5	8°24.4	19°23.9	44°54.3	52°36.7	62°13.5
20	52°48.4	10.6'	$19^{\circ}59.1$	-11.7'	57.2'	116°58.8	71°04.5	17°06.6	7°53.0	19°56.7	45°26.6	53°07.2	62°44.1
21	67° 18.0	10.7'	19°47.4	-11.8'	57.2'	116°25.8	70°31.4	16°33.7	7°21.8	20°29.6	45°58.8	53°37.8	63°14.6
22	81°47.8	10.9'	19°35.5	-11.9'	57.1'	115°52.8	69°58.4	16°00.9	6°50.6	21°02.3	46°31.0	54°08.3	63°45.0
23	96° 17.6	11.0'	19°23.7	-12.0'	57.1'	115°19.9	69°25.5	15°28.1	6° 19.6	21°35.1	47°03.1	54°38.8	64°15.4
31 st	SD	= 15.8	Mer. pas	s. 16:21					Sun SD	= 15.8'			

h Moon (1st Jun) Lunar Distance (objects with largest hourly LD delta)

			/11 (± Jui	• /					-			LD delta	
Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Regulus	±Mars	+Pollux	+Jupiter	+Capella	+Sun
0	110°47.6	11.1'	$N19^{\circ}11.7$	-12.0'	57.1'	114°47.0	68°52.6	14°55.4	5°48.8	22°07.8	47°35.2	55°09.3	64°45.8
1	125°17.8	11.2'	18°59.6	-12.1'	57.0'	114°14.1	68°19.7	14°22.7	5°18.1	22°40.5	48°07.2	55°39.8	65°16.1
2	139°48.0	11.4'	18°47.5	-12.2'	57.0'	113°41.3	67°46.9	13°50.1	4°47.7	23°13.1	48°39.2	56°10.3	65°46.3
3	154°18.4	11.5'	18°35.3	-12.3'	56.9'	113°08.6	67°14.2	13°17.6	4°17.5	23°45.7	49°11.2	56°40.8	66°16.6
4	168°48.8	11.6'	18°23.0	-12.3'	56.9'	112°35.8	66°41.4	12°45.1	3°47.8	24°18.3	49°43.1	57°11.2	66°46.8
5	183°19.5	11.7'	18°10.7	-12.4'	56.9'	112°03.2	66°08.8	12°12.7	3°18.6	24°50.8	50° 15.0	57°41.7	67°16.9
6	197°50.2	11.8'	N17°58.3	-12.5'	56.8'	111°30.5	65°36.1	11°40.4	2°50.1	25°23.3	50°46.9	58°12.1	67°47.0
7	212°21.0	12.0'	17°45.8	-12.6'	56.8'	110°58.0	65°03.6	11°08.1		25°55.7	51° 18.7	58°42.5	68°17.0
8	226°52.0	12.1'	17°33.2	-12.6'	56.8'	110°25.4	64°31.0	10°35.9		26°28.1	51°50.4	59°12.9	68°47.1
9	241°23.0	12.2'	17°20.6	-12.7'	56.7'	109°52.9	63°58.5	10°03.8		27°00.5	52°22.1	59°43.3	69°17.0
10	255°54.2	12.3'	17°07.9	-12.7'	56.7'	109°20.5	63°26.1	9°31.7		27°32.8	52°53.8	60°13.7	69°46.9
11	270°25.5	12.4'	16°55.2	-12.8'	56.6'	108°48.0	62°53.7	8°59.8		28°05.1	53°25.5	60°44.0	70°16.8
12	284°56.9	12.5'	N16°42.4	-12.9'	56.6'	108°15.7	62°21.3	8°28.0		28° 37.4	53°57.1	61°14.3	70°46.7
13	299°28.5	12.6'	$16^{\circ}29.5$	-12.9'	56.6'	107°43.3	61°49.0	7°56.2		29°09.6	54°28.6	61°44.6	71°16.5
14	314°00.1	12.7'	$16^{\circ}16.6$	-13.0'	56.5'	107°11.1	61°16.7	7°24.6		29°41.8	55°00.2	62°14.9	71°46.2
15	328°31.8	12.8'	16°03.6	-13.0'	56.5'	106°38.8	60°44.4	6°53.2		30° 13.9	55°31.7	62°45.2	72°15.9
16	343°03.7	12.9'	15°50.5	-13.1'	56.5'	106°06.6	60°12.2	6°21.9		30°46.0	56°03.1	63°15.4	72°45.6
17	357°35.6	13.1'	15°37.4	-13.2'	56.4'	105°34.5	59°40.1	5°50.8		31°18.1	56° 34.5	63°45.6	73°15.3
18	12°07.7	13.2'	N 15°24.3	-13.2'	56.4'	105°02.3	59°08.0	5°20.0	3°53.5	31°50.1	57°05.9	64°15.8	73°44.9
19	26°39.8	13.3'	$15^{\circ}11.1$	-13.3'	56.4'	104°30.3	58°35.9	4°49.5	4°22.7	32°22.1	57° 37.2	64°46.0	74°14.4
20	41°12.1	13.4'	14°57.8	-13.3'	56.3'	103°58.2	58°03.8	4°19.4	4°52.2	32°54.0	58°08.5	65°16.2	74°43.9
21	55°44.4	13.5'	14°44.5	-13.4'	56.3'	103°26.2	57°31.9	3°49.9	5°21.8	33°25.9	58° 39.8	65°46.3	75°13.4
22	70°16.9	13.6'	14°31.2	-13.4'	56.3'	102°54.3	56°59.9	3°21.2	5°51.7	33°57.8	59°11.0	66°16.4	75°42.8
23	84°49.4	13.7'	14°17.8	-13.4'	56.2'	102°22.4	56°28.0		6°21.6	34°29.7	59°42.2	66°46.5	76°12.2
1 st	SD	= 15.6'	Mer. pas	s. 17:10					Sun SD	0 = 15.8'			

Moon (2nd Jun) h Lunar Distance (objects with largest hourly LD delta) Mon GHA Dec d -Antares -Rigil Kent. -Arcturus -Spica +Regulus +Pollux +Jupiter +Capella ν 67°16.6 67°46.6 0 99°22.1 13.7' $\text{N}14^{\circ}04.3$ -13.5' 101°50.5 92°30.2 $60^{\circ}09.6$ $55^{\circ}56.1$ $35^{\circ}01.5$ $60^{\circ}13.3$ 113°548 101°186 92°05.1 55°243 60°444 1 13.8 13°50.8 -13.5 56.2 59°44 9 35°33.2 68°16.6 100°46.8 91°40.0 59°20 3 36°04.9 61°15.5 128°27 7 13°37.3 54°52 5 2 13.9 -13.6' 56.1 91°15.0 61°46.5 100°15.1 58°55.9 54°20.7 36°36.6 68°46.6 13°23.7 3 143°00.6 14.0 -13.6 56.1 99°43.4 $13^{\circ}\,10.1$ 90°50.0 58°31.5 53°49.0 37°08.3 62°17.5 69°16.6 157°33.6 14.1 -13.756.1 12°56.5 58°07.2 5 172°06.8 99°11.7 90°25.0 53°17.3 37°39.9 62°48.4 69°46.6 14.2 -13.7 56.0' 186°40.0 52°45 7 38°11.5 63°194 70°16.5 6 N12°42 8 98°40 0 90°00 1 57°43 1 14.3 -13.7 56.0 57°19.0 12°29.1 98°08.4 89°35.1 52°14.1 38°43.0 63°50.3 70°46.4 201°13.2 14.4 -13.856.0 12° 15.3 56°55.1 71°16.3 215°46.6 97°36.9 89°10.3 51°42.5 39°14.5 64°21.1 8 14.5 55.9 -13.8230°20.1 12°01.5 97°05.3 88°45.4 51°11.0 39°46.0 71°46.1 14.5 -13.8' 55.9' 56°31.3 64°51.9 72°15.9 244°53.6 96°33.8 56°07.6 50°39.5 40°17.4 10 14.6 11°47.7 -13.9' 55.9' 88°20.6 11 $259^{\circ}27.2$ 14.7 11°33.8 -13.9' 55.8' $96^{\circ}02.4$ $87^{\circ}55.8$ $55^{\circ}43.9$ $50^{\circ}08.0$ $4^{\circ}12.3$ 40°48.9 $65^{\circ}53.4$ $72^{\circ}45.7$ 274°01.0 N11°19.9 95°30.9 87°31.0 55°20.4 49°36.6 4°41.7 41°20.2 66°24.2 73°15.5 14.8 55.8 12 -13.994°59.5 87°06.3 54°57.1 41°51.6 73°45.3 288°34.7 11°06.0 49°05.2 $5^{\circ}11.5$ 66°54.8 13 14.9 -14.0 55.8 303°08.6 $10^{\circ}52.0$ 94°28.2 86°41.6 54°33.8 48°33.8 5°41.5 42°22.9 74°15.0 14 14.9 -14.0' 55.7 67°25.5 317°42.5 332°16.5 15 15.0' $10^{\circ}38.0$ -14.0' 55.7' 93°56.9 86°16.9 54°10.6 48°02.5 6°11.7 42°54.1 67°56.1 74°44.7 47°31.2 $6^{\circ}42.0$ $7^{\circ}12.5$ 68°26.7 75°14.4 75°44.0 16 15.1 $10^{\circ}24.0$ -14.0' 55.7 93°25.6 $85^{\circ}52.3$ $53^{\circ}47.6$ $43^{\circ}25.4$ 346°50.6 47°00.0 43°56.6 $10^{\circ}\,10.0$ 92°54.3 85°27.7 53°24.7 68°57.2 17 15.2 -14.1' 55.7

85°03.1

84°38.6

 $84^{\circ}14.1$

83°49.6

83°25.2

83°00.9

53°01.9

52°39.3

 $52^{\circ}16.7$

51°54.3

51°32.0

51°09.9

46°28.8

 $45^{\circ}57.6$

 $45^{\circ}26.4$

44°553

44°24.2

43°53.2

92°23.1

91°51.9

 $91^{\circ}20.8$

90°49.7

90°18.6

89°47.5

15.2

15.3'

15.4

15.4

15.5

15.6

SD = 15.3'

N09°55.9

 $09^{\circ}41.8$

09°27.7

09°136

08°59.4

08°45.2

Mer. pass. 17:54

-14.1

-14.1'

-14.1

-14.2

-14.2

-14.2

55.6'

55.6'

55.6'

55.5'

55.5

55.5

1°24.8

15°59.0

 $30^{\circ}33.3$

45°07.7

59°42.1

74°16.6

18

19

20

21

22

23

2nd

69°27.7

69°58.2

70°28.6

 $70^{\circ}59.0$

71°29.4

71°59.8

76°13.6

76°43.2

77°12.8 77°42.4

78°11.9

78°41.4

44°27.7

44°58.9

 $45^{\circ}30.0$

46°01.0

46°32.1

47°03.1

7°43.0

8°13.6

 $8^{\circ}44.2$

9°148

9°45.5

10°16.1

Moon (3rd Jun) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	88°51.2	15.6'	N 08°31.0	-14.2'	55.5'	89°16.5	82°36.5	78°51.0	43°22.1	10°46.8	18°48.7	47°34.1	72°30.1
1	103°25.8	15.7'	$08^{\circ}16.8$	-14.2'	55.4'	88°45.5	82° 12.2	78°27.5	42°51.2	11° 17.5	19°18.3	48°05.0	73°00.4
2	118°00.5	15.7'	08°02.6	-14.2'	55.4'	88°14.5	81°47.9	78°04.0	42°20.2	11°48.2	19°47.8	48°35.9	73°30.6
3	132°35.2	15.8'	07°48.3	-14.3'	55.4'	87°43.6	81°23.7	77°40.6	41°49.3	12° 18.8	20°17.4	49°06.8	74°00.9
4	147°10.1	15.9'	$07^{\circ}34.1$	-14.3'	55.3'	87°12.7	80° 59.5	77°17.2	41°18.4	12°49.5	20°46.9	49°37.7	74°31.1
5	161°44.9	15.9'	$07^{\circ}19.8$	-14.3'	55.3'	86°41.8	80°35.4	76°53.9	40°47.5	13°20.1	21°16.3	50°08.5	75°01.2
6	176°19.8	16.0'	N 07°05.5	-14.3'	55.3'	86°11.0	80°11.3	76°30.7	40°16.7	13°50.7	21°45.8	50°39.3	75°31.4
7	190°54.8	16.0'	$06^{\circ}51.2$	-14.3'	55.3'	85°40.2	79°47.2	76°07.5	39°45.9	14°21.4	22°15.2	51°10.1	76°01.5
8	205°29.8	16.1'	06°36.9	-14.3'	55.2'	85°09.4	79°23.2	75°44.3	39°15.1	14°52.0	22°44.6	51°40.8	76°31.6
9	220°04.9	16.1'	06°22.5	-14.3'	55.2'	84°38.7	78°59.2	75°21.2	38°44.3	15°22.5	23°13.9	52°11.5	77°01.6
10	234°40.1	16.2'	06°08.2	-14.4'	55.2'	84°07.9	78°35.3	74°58.1	38°13.6	15°53.1	23°43.3	52°42.2	77°31.7
11	249°15.2	16.2'	05°53.8	-14.4'	55.2'	83°37.3	78°11.4	74°35.1	37°42.9	16°23.6	24°12.6	53°12.8	78°01.7
12	263°50.5	16.3'	N 05°39.5	-14.4'	55.1'	83°06.6	77° 47.6	74°12.2	37°12.3	16°54.2	24°41.9	53°43.5	78°31.6
13	278°25.7	16.3'	$05^{\circ}25.1$	-14.4'	55.1'	82°35.9	77°23.8	73°49.3	36°41.6	17°24.7	25°11.1	54°14.1	79°01.6
14	293°01.1	16.4'	$05^{\circ}10.7$	-14.4'	55.1'	82°05.3	77°00.0	73°26.4	36°11.0	17°55.2	25°40.4	54°44.7	79°31.5
15	307°36.4	16.4'	04°56.3	-14.4'	55.1'	81°34.7	76°36.3	73°03.7	35°40.4	18°25.6	26°09.6	55°15.2	80°01.4
16	322°11.8	16.4'	04°42.0	-14.4'	55.0'	81°04.2	76° 12.7	72°40.9	35°09.9	18°56.1	26°38.7	55°45.7	80°31.3
17	336°47.3	16.5'	04°27.6	-14.4'	55.0'	80°33.7	75°49.0	72°18.3	34°39.3	19°26.5	27°07.9	56°16.2	81°01.1
18	351°22.8	16.5'	N 04° 13.2	-14.4'	55.0'	80°03.1	75° 25.5	71°55.6	34°08.8	19°56.9	27°37.0	56°46.7	81°30.9
19	5°58.3	16.6'	03°58.8	-14.4'	55.0'	79°32.7	75°02.0	71°33.1	33°38.4	20°27.3	28°06.1	57°17.2	82°00.7
20	20°33.9	16.6'	03°44.3	-14.4'	54.9'	79°02.2	74°38.5	71°10.6	33°07.9	20°57.7	28°35.2	57°47.6	82°30.5
21	35°09.5	16.6'	$03^{\circ}29.9$	-14.4'	54.9'	78°31.8	74°15.1	70°48.2	32°37.5	21°28.0	29°04.3	58°18.0	83°00.2
22	49°45.1	16.7'	$03^{\circ}15.5$	-14.4'	54.9'	78°01.4	73°51.7	70°25.8	32°07.1	21°58.3	29°33.3	58°48.4	83°29.9
23	64°20.8	16.7'	03°01.1	-14.4'	54.9'	77°31.0	73°28.4	70°03.5	31°36.7	22°28.7	30°02.3	59°18.7	83°59.6
3 rd	SD	= 15.1	Mer. pas	s. 18:35									

h Moon (4 th Jun)	Lunar Distance (objects with largest hourly LD delta)
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Wed	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	78°56.5	16.7'	N 02°46.7	-14.4'	54.9'		77°00.6	73°05.1	31°06.3	22°58.9	30°31.3	59°49.0	84°29.3
1	93°32.2	16.8'	02°32.3	-14.4'	54.8'		76°30.3	72°41.9	30°36.0	23° 29.2	31°00.3	60°19.4	84°59.0
2	108°08.0	16.8'	02°17.9	-14.4'	54.8'		76°00.0	72° 18.7	30°05.7	23°59.5	31°29.2	60°49.6	85°28.6
3	122°43.8	16.8'	02°03.5	-14.4'	54.8'		75°29.7	71°55.6	29°35.4	24°29.7	31°58.2	61°19.9	85°58.2
4	137°19.6	16.8'	$01^{\circ}49.1$	-14.4'	54.8'		74°59.4	71°32.5	29°05.1	24° 59.9	32°27.1	61°50.1	86°27.8
5	151°55.5	16.9'	01°34.7	-14.4'	54.8'		74°29.1	$71^{\circ}09.5$	28°34.9	25°30.1	32°55.9	62°20.4	86°57.4
6	166°31.3	16.9'	N01°20.3	-14.4'	54.7'		73°58.9	70°46.6	28°04.6	26°00.2	33°24.8	62°50.6	87°26.9
7	181°07.2	16.9'	$01^{\circ}05.9$	-14.4'	54.7'		73°28.7	70°23.7	27°34.4	26° 30.4	33°53.6	63°20.7	87°56.4
8	195°43.1	16.9'	00°51.5	-14.4'	54.7'		72°58.5	70°00.8	27°04.3	27°00.5	34° 22.5	63°50.9	88°25.9
9	210°19.1	17.0'	00°37.1	-14.4'	54.7'	119°45.1	72°28.4	69°38.1	26°34.1	27°30.6	34°51.3	64°21.0	88°55.4
10	224°55.0	17.0'	00°22.8	-14.4'	54.7'	119°21.7	71°58.2	69°15.3	26°04.0	28°00.7	35°20.0	64°51.2	89°24.9
11	239°31.0	17.0'	N 00°08.4	-14.4'	54.6'	118°58.2	71°28.1	68°52.7	25°33.8	28° 30.8	35°48.8	65°21.2	89°54.3
12	254°07.0	17.0'	S 00°05.9	-14.3'	54.6'	118°34.7	70°58.0	68°30.0	25°03.7	29°00.9	36° 17.5	65°51.3	90°23.7
13	268°43.0	17.0'	00°20.3	-14.3'	54.6'	118°11.2	70°27.9	68° 07.5	24°33.7	29°30.9	36°46.3	66°21.4	90°53.1
14	283°19.1	17.0'	00°34.6	-14.3'	54.6'	117°47.6	69°57.8	67°45.0	24°03.6	30°00.9	37° 15.0	66°51.4	91°22.5
15	297°55.1	17.1'	00°48.9	-14.3'	54.6'	117°23.9	69°27.8	67°22.6	23°33.5	30°31.0	37°43.7	67°21.5	91°51.9
16	312°31.1	17.1'	01°03.2	-14.3'	54.5'	117°00.3	68°57.7	67°00.2	23°03.5	31°00.9	38° 12.3	67°51.5	92°21.2
17	327°07.2	17.1'	$01^{\circ}17.5$	-14.3'	54.5'	116°36.6	68°27.7	66°37.9	22°33.5	31°30.9	38°41.0	68°21.5	92°50.6
18	341°43.3	17.1'	S 01°31.8	-14.3'	54.5'	116°12.9	67°57.7	66° 15.7	22°03.5	32°00.9	39°09.6	68°51.4	93°19.9
19	356°19.4	17.1'	$01^{\circ}46.1$	-14.3'	54.5'	115°49.1	67°27.7	65°53.5	21°33.5	32° 30.8	39°38.2	69°21.4	93°49.2
20	10°55.5	17.1'	02°00.3	-14.2'	54.5'	115°25.3	66°57.8	65°31.4	21°03.6	33°00.8	40°06.8	69°51.3	94°18.4
21	25°31.6	17.1'	$02^{\circ}14.6$	-14.2'	54.5'	115°01.4	66°27.8	65°09.3	20°33.6	33°30.7	40°35.4	70°21.2	94°47.7
22	40°07.7	17.1'	02°28.8	-14.2'	54.4'	114°37.6	65°57.9	64°47.3	20°03.7	34°00.6	41°04.0	70°51.2	95°17.0
23	54°43.8	17.1'	02°43.0	-14.2'	54.4'	114° 13.7	65°27.9	64°25.4	19°33.8	34°30.5	41°32.6	71°21.0	95°46.2
4 th	SD	= 15.0	' Mer. pas	s. 19:15									

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h	Moon (5 th lun)	Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	69°19.9	17.1'	S 02°57.2	-14.2'	54.4'	113°49.8	64°58.0	64°03.6	19°03.9	35°00.3	42°01.1	71°50.9	96° 15.4
1	83°56.0	17.1'	03°11.4	-14.2'	54.4'	113°25.8	64°28.2	63°41.8	18° 34.0	35°30.2	42°29.6	72°20.8	96°44.6
2	98°32.1	17.1'	03°25.5	-14.1'	54.4'	113°01.8	63°58.3	63°20.1	18°04.2	36°00.0	42°58.1	72°50.6	97° 13.8
3	113°08.2	17.1'	03°39.7	-14.1'	54.4'	112°37.8	63°28.4	62°58.5	17°34.3	36°29.9	43°26.6	73°20.5	97°43.0
4	127°44.3	17.1'	03°53.8	-14.1'	54.4'	112°13.8	62°58.6	62°36.9	17°04.5	36°59.7	43°55.1	73°50.3	98°12.1
5	142°20.4	17.1'	04°07.9	-14.1'	54.3'	111°49.7	62°28.7	62° 15.5	16°34.6	37°29.5	44°23.6	74°20.1	98°41.3
6	156°56.5	17.1'	S 04°22.0	-14.1'	54.3'	111°25.6	61°58.9	61°54.1	16°04.8	37°59.3	44°52.0	74°49.9	99°10.4
7	171°32.6	17.1'	04°36.0	-14.0'	54.3'	111°01.5	61°29.1	61°32.7	15°35.0	38°29.0	45°20.5	75°19.7	99°39.5
8	186°08.7	17.1'	$04^{\circ}50.1$	-14.0'	54.3'	110°37.3	60°59.3	61°11.5	15°05.3	38°58.8	45°48.9	75°49.5	100°08.6
9	200°44.8	17.1'	$05^{\circ}04.1$	-14.0'	54.3'	110°13.2	60°29.5	60°50.3	14°35.5	39°28.6	46°17.3	76°19.2	100°37.7
10	215°20.9	17.1'	$05^{\circ}18.1$	-14.0'	54.3'	109°49.0	59°59.8	60°29.2	14°05.7	39°58.3	46°45.8	76°49.0	101°06.8
11	229°56.9	17.1'	05°32.0	-13.9'	54.3'	109°24.8	59°30.0	60°08.2	13°36.0	40°28.1	47°14.2	77°18.7	101°35.9
12	244°33.0	17.0'	S 05°46.0	-13.9'	54.3'	109°00.5	59°00.3	59°47.3	13°06.3	40°57.8	47° 42.5	77°48.4	102°04.9
13	259°09.0	17.0'	05°59.9	-13.9'	54.2'	108°36.3	58°30.5	59°26.4	12°36.6	41°27.5	48° 10.9	78°18.1	102°34.0
14	273°45.1	17.0'	06°13.8	-13.9'	54.2'	108°12.0	58°00.8	59°05.7	12°06.8	41°57.2	48°39.3	78°47.8	103°03.0
15	288°21.1	17.0'	06°27.6	-13.8'	54.2'	107°47.7	57°31.1	58°45.0	11°37.2	42°26.9	49°07.6	79°17.5	103°32.0
16	302°57.1	17.0'	$06^{\circ}41.5$	-13.8'	54.2'	107°23.4	57°01.4	58°24.4	11°07.5	42°56.6	49°36.0	79°47.2	104°01.1
17	317°33.1	17.0'	06°55.3	-13.8'	54.2'	106°59.1	56°31.7	58°03.9	10°37.8	43°26.2	50°04.3	80°16.9	104°30.1
18	332°09.0	16.9'	S 07°09.0	-13.7'	54.2'	106°34.7	56°02.0	57°43.5	10°08.2	43°55.9	50°32.6	80°46.6	104°59.1
19	346°45.0	16.9'	07°22.8	-13.7'	54.2'	106°10.3	55°32.3	57°23.2	9°38.5	44°25.6	51°01.0	81°16.2	105°28.1
20	1°20.9	16.9'	$07^{\circ}36.5$	-13.7'	54.2'	105°46.0	55°02.6	57°03.0	9°08.9	44°55.2	51°29.3	81°45.9	105°57.0
21	15°56.8	16.9'	07°50.2	-13.7'	54.2'	105°21.6	54°33.0	56° 42.9	8°39.3	45°24.9	51°57.6	82°15.5	106°26.0
22	30°32.7	16.9'	$08^{\circ}03.8$	-13.6'	54.2'	104°57.1	54°03.3	56° 22.8	8°09.7	45°54.5	52°25.9	82°45.1	106°55.0
23	45°08.5	16.8'	08°17.5	-13.6'	54.1'	104°32.7	53°33.7	56°02.9	7°40.1	46°24.1	52°54.1	83°14.8	107°23.9
5 th	SD	= 14.8'	Mer. pas	s. 19:54									

Moon (6th Jun) Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	±Spica	+Regulus	+Mars	+Pollux	+Jupiter
0	59°44.4	16.8'	S 08°31.1	-13.6'	54.1'	104°08.2	55°43.1	53°04.0	7°10.5	46°53.7	53°22.4	83°44.4	107°52.9
1	74°20.2	16.8'	08°44.6	-13.5'	54.1'	103°43.8	55°23.3	52°34.4	6°40.9	47° 23.4	53°50.7	84°14.0	108°21.8
2	88°56.0	16.8'	08°58.1	-13.5'	54.1'	103°19.3	55°03.7	52°04.8	6°11.4	47°53.0	54°19.0	84°43.6	108°50.7
3	103°31.7	16.7'	$09^{\circ}11.6$	-13.4'	54.1'	102°54.8	54°44.2	51°35.1	5°41.9	48° 22.6	54°47.2	85°13.2	109°19.6
4	118°07.5	16.7'	09°25.1	-13.4'	54.1'	102°30.3	54°24.8	$51^{\circ}05.5$	5°12.4	48°52.2	55°15.5	85°42.8	109°48.6
5	132°43.1	16.7'	09°38.5	-13.4'	54.1'	102°05.8	54°05.5	50°35.9	4°42.9	49°21.8	55°43.7	86°12.4	110°17.5
6	147°18.8	16.6'	S 09°51.8	-13.3'	54.1'	101°41.3	53°46.3	50°06.3	4°13.5	49°51.3	56°12.0	86°41.9	110°46.4
7	161°54.5	16.6'	$10^{\circ}05.2$	-13.3'	54.1'	101°16.7	53°27.2	49°36.7	3°44.1	50°20.9	56°40.2	87°11.5	111°15.3
8	176°30.1	16.6'	$10^{\circ}18.5$	-13.3'	54.1'	100°52.1	53°08.2	$49^{\circ}07.1$	3°14.8	50°50.5	57°08.4	87°41.1	111°44.1
9	191°05.6	16.5'	$10^{\circ}31.7$	-13.2'	54.1'	100°27.6	52°49.4	48°37.5	2°45.6	51°20.1	57°36.6	88°10.6	112°13.0
10	205°41.2	16.5'	10°45.0	-13.2'	54.1'	100°03.0	52°30.6	48°08.0	2°16.6	51°49.6	58°04.9	88°40.2	112°41.9
11	220°16.7	16.5'	$10^{\circ}58.1$	-13.1'	54.1'	99°38.4	52°12.0	47°38.4	1°47.9	52° 19.2	58°33.1	89°09.8	113°10.8
12	234°52.1	16.4'	S 11°11.3	-13.1'	54.1'	99°13.8	51°53.5	47°08.8	1°19.8	52° 48.8	59°01.3	89°39.3	113°39.7
13	249°27.5	16.4'	11°24.4	-13.1'	54.1'	98°49.2	51°35.2	46°39.2		53° 18.3	59°29.5	90°08.9	114°08.5
14	264°02.9	16.3'	11°37.4	-13.0'	54.0'	98°24.6	51°16.9	46°09.7		53°47.9	59°57.7	90°38.4	114°37.4
15	278°38.3	16.3'	$11^{\circ}50.4$	-13.0'	54.0'	97°59.9	50°58.8	45°40.1		54° 17.4	60°25.9	91°08.0	115°06.2
16	293°13.6	16.3'	12°03.4	-12.9'	54.0'	97°35.3	50°40.8	45°10.5		54°47.0	60°54.1	91°37.5	115°35.1
17	307°48.8	16.2'	$12^{\circ}16.3$	-12.9'	54.0'	97°10.7	50°23.0	44°41.0		55° 16.5	61°22.3	92°07.0	116°03.9
18	322°24.1	16.2'	S 12°29.2	-12.8'	54.0'	96°46.0	50°05.3	$44^{\circ}11.4$		55° 46.0	61°50.5	92°36.6	116°32.8
19	336°59.2	16.1'	12°42.0	-12.8'	54.0'	96°21.3	49°47.7	43°41.9	2°15.9	56° 15.6	62°18.7	93°06.1	117°01.6
20	351°34.4	16.1'	12°54.8	-12.7'	54.0'	95°56.7	49°30.2	43°12.3	2°44.9	56°45.1	62°46.9	93°35.6	117°30.5
21	6°09.5	16.0'	13°07.5	-12.7'	54.0'	95°32.0	49°13.0	42°42.7	3°14.0	57° 14.7	63°15.1	94°05.2	117°59.3
22	20°44.5	16.0'	13°20.2	-12.6'	54.0'	95°07.3	48°55.8	42°13.2	3°43.3	57° 44.2	63°43.3	94°34.7	118°28.1
23	35° 19.5	15.9'	13°32.8	-12.6'	54.0'	94°42.6	48°38.8	41°43.6	4°12.6	58° 13.7	64°11.5	95°04.2	118°57.0
6 th	SD	= 14.8'	Mer. pas	s. 20:35									

Moon (7th Jun) h Lunar Distance (objects with largest hourly LD delta)

										. 8			
Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Regulus	+Mars	+Pollux
0	49°54.4	15.9'	S 13°45.4	-12.5'	54.0'		94°17.9	48°22.0	41°14.1	4°42.0	58°43.3	64°39.7	95°33.8
1	64°29.3	15.8'	13°58.0	-12.5'	54.0'		93°53.2	48° 05.3	40°44.5	5°11.4	59°12.8	65°07.8	96°03.3
2	79°04.2	15.8'	14°10.4	-12.4'	54.0'		93°28.5	47° 48.7	40°15.0	5°40.8	59°42.4	65°36.0	96°32.8
3	93°39.0	15.7'	14°22.9	-12.4'	54.0'		93°03.8	47° 32.4	39°45.4	6°10.3	60°11.9	66°04.2	97°02.3
4	108°13.7	15.7'	14°35.2	-12.3'	54.0'	119°36.1	92°39.1	47° 16.1	39°15.9	6°39.7	60°41.4	66°32.4	97°31.9
5	122°48.4	15.6'	14°47.5	-12.3'	54.0'	119°08.8	92°14.4	47°00.1	38°46.3	7°09.2	61°11.0	67°00.6	98°01.4
6	137°23.1	15.6'	S 14°59.8	-12.2'	54.0'	118°41.5	91°49.6	46° 44.2	38°16.8	7°38.7	61°40.5	67°28.8	98°30.9
7	151°57.6	15.5'	15°12.0	-12.1'	54.0'	118° 14.1	91°24.9	46°28.5	37°47.2	8°08.2	62°10.1	67°57.0	99°00.5
8	166°32.2	15.5'	15°24.2	-12.1'	54.0'	117°46.7	91°00.2	46°13.0	37°17.7	8°37.7	62°39.6	68°25.2	99°30.0
9	181°06.6	15.4'	15°36.3	-12.0'	54.0'	117° 19.3	90°35.4	45° 57.6	36°48.1	9°07.2	63°09.2	68°53.4	99°59.5
10	195°41.1	15.4'	15°48.3	-12.0'	54.0'	116°51.9	90°10.7	45° 42.4	36°18.5	9°36.8	63°38.7	69°21.6	100°29.1
11	210°15.4	15.3'	$16^{\circ}00.3$	-11.9'	54.0'	116°24.4	89°46.0	45° 27.4	35°49.0	10°06.3	64°08.3	69°49.8	100°58.6
12	224°49.7	15.2'	S 16°12.2	-11.9'	54.0'	115°56.9	89°21.2		35°19.4	10°35.8	64°37.8	70°18.0	101°28.1
13	239°23.9	15.2'	16°24.0	-11.8'	54.0'	115°29.4	88°56.5		34°49.8	11°05.4	65°07.4	70°46.2	101°57.7
14	253°58.1	15.1'	16°35.8	-11.7'	54.0'	115°01.9	88°31.7		34°20.3	11°34.9	65°36.9	71°14.4	102°27.2
15	268°32.2	15.1'	16°47.5	-11.7'	54.0'	114°34.4	88°07.0		33°50.7	12°04.5	66°06.5	71°42.6	102°56.8
16	283°06.3	15.0'	$16^{\circ}59.2$	-11.6'	54.0'	114°06.9	87°42.2		33°21.1	12°34.0	66°36.1	72°10.8	103°26.3
17	297°40.3	14.9'	$17^{\circ}10.8$	-11.5'	54.0'	113°39.3	87°17.5		32°51.5	13°03.6	67°05.6	72°39.0	103°55.9
18	312°14.2	14.9'	S 17°22.3	-11.5'	54.0'	113°11.7	86°52.7		32°21.9	13°33.1	67°35.2	73°07.2	104°25.5
19	326°48.1	14.8'	17°33.8	-11.4'	54.0'	112°44.1	86°28.0		31°52.4	14°02.7	68°04.8	73°35.5	104°55.0
20	341°21.9	14.7'	17°45.2	-11.3'	54.0'	112°16.5	86°03.2		31°22.8	14°32.3	68°34.4	74°03.7	105°24.6
21	355°55.6	14.7'	$17^{\circ}56.5$	-11.3'	54.0'	111°48.8	85°38.5		30°53.2	15°01.9	69°04.0	74°31.9	105°54.2
22	10°29.3	14.6'	18°07.8	-11.2'	54.0'	111°21.2	85°13.7		30°23.6	15°31.5	69°33.5	75°00.2	106°23.8
23	25°02.9	14.5'	18°19.0	-11.1'	54.0'	110°53.5	84°49.0		29°53.9	16°01.1	70°03.1	75°28.4	106°53.3
7 th	SD	= 14.7	Mer. pas	s. 21:17									

h		Моо	n (8 th Ju	n)		L	unar Dist	ance (ob	jects witl	n largest	hourly LE) delta)	
Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Achernar	-Altair	-Antares	+Spica	+Regulus	+Mars	+Pollux
0	39°36.4	14.5'	S 18°30.1	-11.0'	54.0'	110°25.8		84°24.3	29°24.3	16°30.7	70°32.8	75°56.7	107°22.9
1	54°09.9	14.4'	$18^{\circ}41.1$	-11.0'	54.0'	109°58.1		83°59.5	28°54.7	17°00.3	71°02.4	76°24.9	107°52.5
2	68°43.3	14.3'	$18^{\circ}52.1$	-10.9'	54.0'	109°30.4		83°34.8	28°25.1	17°29.9	71°32.0	76°53.2	108°22.1
3	83°16.6	14.3'	$19^{\circ}03.0$	-10.8'	54.0'	109°02.7		83°10.1	27°55.5	17°59.5	72°01.6	77°21.4	108°51.7
4	97°49.9	14.2'	$19^{\circ}13.9$	-10.8'	54.0'	108°34.9		82°45.3	27°25.8	18°29.1	72°31.2	77°49.7	109°21.3
5	112°23.1	14.1'	19°24.6	-10.7'	54.0'	108°07.1		82°20.6	26°56.2	18°58.8	73°00.9	78°18.0	109°51.0
6	126°56.2	14.0'	S 19°35.3	-10.6'	54.0'	107°39.3		81°55.9	26°26.5	19°28.4	73°30.5	78°46.3	110°20.6
7	141°29.2	14.0'	19°45.9	-10.5'	54.0'	107°11.5		81°31.2	25°56.9	19°58.1	74°00.2	79°14.6	110°50.2
8	156°02.2	13.9'	19°56.4	-10.4'	54.0'	106°43.7		81°06.5	25°27.2	20°27.7	74°29.8	79°42.9	111°19.9
9	170°35.1	13.8'	20°06.9	-10.4'	54.1'	106°15.9		80°41.8	24°57.5	20°57.4	74°59.5	80°11.2	111°49.5
10	185°07.9	13.8'	20°17.2	-10.3'	54.1'	105°48.0		80°17.1	24°27.9	21°27.1	75°29.1	80°39.5	112°19.1
11	199°40.7	13.7'	20°27.5	-10.2'	54.1'	105°20.2		79°52.4	23°58.2	21°56.7	75°58.8	81°07.8	112°48.8
12	214°13.4	13.6'	S 20°37.7	-10.1'	54.1'	104°52.3		79°27.7	23°28.5	22°26.4	76°28.5	81°36.1	113°18.5
13	228°46.0	13.5'	20°47.8	-10.0'	54.1'	104°24.4		79°03.1	22°58.8	22°56.1	76°58.2	82°04.5	113°48.2
14	243°18.5	13.5'	20°57.9	-9.9'	54.1'	103°56.5		78° 38.4	22°29.1	23°25.8	77°27.9	82°32.8	114°17.8
15	257°51.0	13.4'	$21^{\circ}07.8$	-9.9'	54.1'	103°28.5		78° 13.7	21°59.3	23°55.5	77°57.6	83°01.2	114°47.5
16	272°23.3	13.3'	21° 17.7	-9.8'	54.1'	103°00.6	_	77°49.1	21°29.6	24°25.3	78°27.3	83°29.5	115°17.2
17	286°55.6	13.2'	21°27.4	-9.7'	54.1'	102°32.6	99°31.8	77°24.5	20°59.9	24°55.0	78°57.0	83°57.9	115°46.9
18	301°27.9	13.2'	S 21°37.1	-9.6'	54.1'	102°04.7	99°16.8	76°59.8	20°30.1	25°24.7	79°26.8	84°26.3	116°16.6
19	316°00.0	13.1'	21°46.7	-9.5'	54.1'	101°36.7	99°01.7	76°35.2	20°00.4	25°54.5	79°56.5	84°54.7	116°46.4
20	330°32.1	13.0'	21°56.2	-9.4'	54.1'	101°08.7	98°46.6	76° 10.6	19°30.6	26°24.2	80°26.3	85°23.1	117°16.1
21	345°04.1	12.9'	22°05.7	-9.3'	54.1'	100°40.6	98°31.4	75°46.0	19°00.9	26°54.0	80°56.0	85°51.5	117°45.8
22	359°36.0	12.8'	22° 15.0	-9.2'	54.1'	100°12.6	98°16.2	75°21.5	18°31.1	27°23.8	81°25.8	86°19.9	118°15.6
23	14°07.9	12.8'	22°24.2	-9.1'	54.1'	99°44.6	98°01.0	74°56.9	18°01.3	27°53.6	81°55.6	86°48.3	118°45.4
8 th	SD	= 14.7'	Mer. pas	s. 22:02									

Moon (9th Jun) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	-Antares	+Spica	+Regulus	+Mars	+Procyon
0	28°39.6	12.7'	S 22°33.4	-9.0'	54.1'		99°16.5	74°32.4	17°31.5	28°23.4	82°25.4	87°16.7	113°56.2
1	43°11.3	12.6'	22°42.4	-9.0'	54.1'		98°48.4	74°07.8	17°01.7	28°53.2	82°55.2	87°45.2	114°23.7
2	57°42.9	12.5'	22°51.3	-8.9'	54.2'		98°20.3	73°43.3	16°31.9	29°23.0	83°25.0	88°13.6	114°51.3
3	72°14.4	12.5'	23°00.2	-8.8'	54.2'		97°52.2	73°18.8	16°02.0	29°52.8	83°54.8	88°42.1	115° 18.9
4	86°45.9	12.4'	23°09.0	-8.7'	54.2'		97°24.1	72°54.3	15°32.2	30°22.7	84°24.7	89°10.6	115°46.5
5	101°17.3	12.3'	23°17.6	-8.6'	54.2'		96°56.0	72°29.8	15°02.3	30°52.5	84°54.5	89°39.1	116°14.0
6	115°48.6	12.2'	S 23°26.2	-8.5'	54.2'		96°27.8	72°05.4	14°32.5	31°22.4	85°24.4	90°07.6	116°41.6
7	130°19.8	12.1'	23°34.6	-8.4'	54.2'		95°59.7	71°41.0	14°02.6	31°52.3	85°54.2	90°36.1	117°09.1
8	144°50.9	12.1'	23°43.0	-8.3'	54.2'		95°31.5	71°16.5	13°32.7	32°22.2	86°24.1	91°04.6	117°36.7
9	159°22.0	12.0'	23°51.2	-8.1'	54.2'		95°03.3	70°52.1	13°02.8	32°52.1	86°54.0	91°33.1	118°04.2
10	173°53.0	11.9'	23°59.4	-8.0'	54.2'		94°35.1	70°27.8	12°32.9	33°22.0	87°23.9	92°01.6	118°31.7
11	188°23.9	11.8'	24°07.4	-7.9'	54.2'		94°06.9	70°03.4	12°03.0	33°51.9	87°53.8	92°30.2	118°59.2
12	202°54.7	11.7'	S 24°15.4	-7.8'	54.2'		93°38.7	69°39.1	11°33.1	34°21.8	88°23.7	92°58.8	119°26.7
13	217°25.4	11.7'	24°23.2	-7.7'	54.3'		93°10.5	69°14.8	11°03.2	34°51.8	88°53.7	93°27.3	119°54.2
14	231°56.1	11.6'	24°30.9	-7.6'	54.3'		92°42.2	68° 50.5	10°33.2	35°21.7	89°23.6	93°55.9	
15	246°26.7	11.5'	24°38.5	-7.5'	54.3'		92°13.9	68°26.2	10°03.3	35°51.7	89°53.6	94°24.5	
16	260°57.2	11.4'	24°46.1	-7.4'	54.3'		91°45.7	68°02.0	9°33.3	36°21.7	90°23.6	94°53.1	
17	275°27.6	11.4'	24°53.4	-7.3'	54.3'	119°38.5	91°17.4	67°37.8	9°03.3	36°51.7	90°53.6	95°21.8	
18	289°58.0	11.3'	S 25°00.7	-7.2'	54.3'	119°08.7	90°49.1	67°13.6	8°33.3	37°21.7	91°23.5	95°50.4	
19	304°28.3	11.2'	25°07.9	-7.1'	54.3'	118°38.8	90°20.8	66°49.5	8°03.3	37°51.7	91°53.6	96°19.0	
20	318°58.5	11.1'	25°15.0	-6.9'	54.3'	118°09.0	89°52.4	66°25.3	7°33.3	38°21.7	92°23.6	96°47.7	
21	333°28.6	11.1'	25°21.9	-6.8'	54.3'	117°39.1	89°24.1	66°01.2	7°03.3	38°51.8	92°53.6	97°16.4	
22	347°58.6	11.0'	25°28.7	-6.7'	54.3'	117°09.2	88°55.7	65°37.2	6°33.2	39°21.8	93°23.7	97°45.1	
23	2°28.6	10.9'	25°35.5	-6.6'	54.4'	116°39.3	88°27.4	65°13.2	6°03.2	39°51.9	93°53.7	98°13.8	
9 th	SD	= 14.8'	Mer. pass	. 22:50									

h Moon (10th Jun) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	± Antares	+Spica	+Arcturus	+Regulus	+Mars
0	16°58.5	10.8'	S 25°42.0	-6.5'	54.4'	116°09.4	87°59.0	64°49.2	5°33.1	40°22.0	52°05.1	94°23.8	98°42.5
1	31°28.3	10.8'	25°48.5	-6.4'	54.4'	115°39.5	87°30.6	64°25.2	5°03.1	40°52.1	52°26.8	94°53.9	99°11.2
2	45°58.1	10.7'	25° 54.9	-6.2'	54.4'	115°09.5	87°02.2	64°01.3	4°33.0	41°22.2	52°48.6	95°24.0	99°40.0
3	60°27.8	10.6'	$26^{\circ}01.1$	-6.1'	54.4'	114°39.6	86°33.8	63°37.4	4°03.0	41°52.3	53° 10.5	95°54.1	100°08.7
4	74°57.4	10.5'	26°07.2	-6.0'	54.4'	114°09.6	86°05.4	63°13.5	3°32.9	42°22.4	53°32.5	96°24.3	100°37.5
5	89°26.9	10.5'	$26^{\circ}13.2$	-5.9'	54.4'	113°39.6	85°37.0	62°49.7	3°02.9	42°52.6	53°54.7	96°54.4	101°06.3
6	103°56.4	10.4'	S 26° 19.1	-5.7'	54.4'	113°09.6	85°08.5	62°25.9	2°32.9	43°22.8	54° 16.9	97°24.6	101°35.1
7	118°25.8	10.3'	26°24.8	-5.6'	54.4'	112°39.6	84°40.1	62°02.2	2°03.0	43°52.9	54°39.2	97°54.7	102°03.9
8	132°55.1	10.3'	26°30.5	-5.5'	54.5'	112°09.6	84°11.6	61°38.5	1°33.2	44°23.1	55°01.6	98°24.9	102°32.7
9	147°24.3	10.2'	26°36.0	-5.4'	54.5'	111°39.6	83°43.2	61°14.9	1°03.8	44°53.4	55°24.1	98°55.1	103°01.5
10	161°53.5	10.1'	26°41.3	-5.2'	54.5'	111°09.5	83°14.7	60°51.3		45°23.6	55° 46.7	99°25.4	103°30.4
11	176°22.6	10.0'	26°46.6	-5.1'	54.5'	110°39.4	82°46.2	60°27.7		45°53.8	56°09.4	99°55.6	103°59.3
12	190°51.7	10.0'	S 26°51.7	-5.0'	54.5'	110°09.3	82°17.7	60°04.2		46°24.1	56° 32.2	100°25.8	104°28.1
13	205°20.7	9.9'	26°56.7	-4.9'	54.5'	109°39.2	81°49.2	59°40.7		46°54.4	56°55.1	100°56.1	104°57.0
14	219°49.6	9.9'	$27^{\circ}01.5$	-4.7'	54.5'	109°09.1	81°20.6	59°17.3		47°24.6	57°18.0	101°26.4	105°26.0
15	234°18.4	9.8'	27°06.3	-4.6'	54.5'	108°39.0	80°52.1	58°54.0	2°01.6	47°54.9	57°41.1	101°56.7	105°54.9
16	248°47.2	9.7'	$27^{\circ}10.9$	-4.5'	54.6'	108°08.8	80°23.6	58°30.7	2°31.7	48° 25.3	58°04.2	102°27.0	106°23.8
17	263°15.9	9.7'	$27^{\circ}15.3$	-4.3'	54.6'	107°38.7	79°55.0	58°07.4	3°01.8	48°55.6	58°27.4	102°57.3	106°52.8
18	277°44.6	9.6'	S 27° 19.6	-4.2'	54.6'	107°08.5	79°26.4	57°44.2	3°32.1	49° 25.9	58° 50.7	103°27.6	107°21.8
19	292°13.2	9.5'	27°23.8	-4.1'	54.6'	106°38.3	78°57.9	57°21.1	4°02.3	49°56.3	59°14.0	103°58.0	107°50.7
20	306°41.7	9.5'	27°27.9	-3.9'	54.6'	106°08.1	78°29.3	56°58.0	4°32.6	50°26.7	59° 37.5	104°28.4	108°19.7
21	321°10.2	9.4'	27°31.8	-3.8'	54.6'	105°37.9	78°00.7	56°35.0	5°03.0	50°57.1	60°01.0	104°58.7	108°48.8
22	335°38.6	9.4'	27°35.6	-3.6'	54.6'	105°07.6	77°32.1	56°12.1	5°33.3	51°27.5	60°24.6	105°29.1	109°17.8
23	350°07.0	9.3'	27°39.3	-3.5'	54.7'	104°37.4	77°03.5	55°49.2	6°03.7	51°57.9	60°48.2	105°59.6	109°46.9
10 th	SD	= 14.8'	Mer. pass	. 23:41			-		-			-	

		(a a + b	
h	Moon	(11ui	lun l

h Moon (11th Jun) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Regulus	+Mars
0	4°35.3	9.3'	S 27°42.8	-3.4'	54.7'	104°07.1	85°12.3	76°34.9	55°26.4	6°34.1	52°28.3	106°30.0	110°15.9
1	19°03.6	9.2'	27°46.1	-3.2'	54.7'	103°36.8	84° 56.5	76°06.3	55°03.6	7°04.6	52°58.8	107°00.4	110°45.0
2	33°31.8	9.2'	27°49.4	-3.1'	54.7'	103°06.5	84°40.7	75°37.7	54°41.0	7°35.0	53°29.3	107°30.9	111°14.1
3	48°00.0	9.1'	27°52.5	-3.0'	54.7'	102°36.2	84°24.9	75°09.0	54°18.4	8°05.5	53° 59.8	108°01.4	111°43.2
4	62°28.1	9.1'	27°55.4	-2.8'	54.7'	102°05.8	84°09.1	74°40.4	53°55.8	8°36.0	54°30.3	108°31.9	112°12.4
5	76°56.1	9.0'	27°58.2	-2.7'	54.7'	101°35.5	83°53.3	74°11.8	53°33.4	9°06.5	55°00.8	109°02.4	112°41.5
6	91°24.1	9.0'	S 28°00.9	-2.5'	54.8'	101°05.1	83°37.6	73°43.1	53°11.0	9°37.0	55°31.3	109°32.9	113°10.7
7	105°52.1	8.9'	28°03.4	-2.4'	54.8'	100°34.7	83°21.8	73°14.5	52°48.7	10°07.6	56°01.9	110°03.5	113°39.8
8	120°20.0	8.9'	28°05.8	-2.2'	54.8'	100°04.3	83°06.1	72°45.8	52°26.6	10°38.1	56° 32.5	110°34.0	114°09.0
9	134°47.9	8.8'	28°08.1	-2.1'	54.8'	99°33.9	82°50.4	72°17.1	52°04.4	11°08.7	57°03.1	111°04.6	114°38.3
10	149°15.7	8.8'	28°10.2	-2.0'	54.8'	99°03.4	82°34.7	71°48.5	51°42.4	11°39.3	57°33.7	111°35.2	115°07.5
11	163°43.5	8.7'	28°12.1	-1.8'	54.8'	98°32.9	82°19.0	71°19.8	51°20.5	12°09.9	58°04.3	112°05.8	115°36.7
12	178°11.2	8.7'	S 28°13.9	-1.7'	54.9'	98°02.5	82°03.4	70°51.1	50°58.7	12°40.6	58° 34.9	112°36.5	116°06.0
13	192°38.9	8.7'	$28^{\circ}15.6$	-1.5'	54.9'	97°32.0	81°47.7	70°22.4	50°36.9	13°11.2	59°05.6	113°07.1	116°35.3
14	207°06.6	8.6'	$28^{\circ}17.1$	-1.4'	54.9'	97°01.5	81°32.1	69°53.7	50°15.3	13°41.9	59°36.3	113°37.8	117°04.6
15	221°34.3	8.6'	$28^{\circ}18.5$	-1.2'	54.9'	96°30.9	81° 16.5	69°25.0	49°53.7	14°12.6	60°07.0	114°08.5	117°33.9
16	236°01.9	8.6'	$28^{\circ}19.7$	-1.1'	54.9'	96°00.4	81°00.9	68°56.3	49°32.3	14°43.3	60°37.7	114°39.2	118°03.2
17	250°29.4	8.5'	28°20.8	-0.9'	54.9'	95°29.8	80°45.4	68°27.6	49°11.0	15°14.0	61°08.4	115°09.9	118°32.6
18	264°57.0	8.5'	S 28°21.7	-0.8'	54.9'	94°59.2	80° 29.8	67°58.9	48°49.8	15°44.7	61°39.1	115°40.6	119°01.9
19	279°24.5	8.5'	28°22.5	-0.6'	55.0'	94°28.6	80°14.3	67°30.2	48°28.7	16°15.5	62°09.9	116°11.4	119°31.3
20	293°52.0	8.5'	28°23.1	-0.5'	55.0'	93°58.0	79°58.9	67°01.5	48°07.7	16°46.3	62°40.7	116°42.1	
21	308°19.4	8.4'	28°23.6	-0.3'	55.0'	93°27.4	79°43.4	66°32.8	47°46.8	$17^{\circ}17.1$	63°11.5	117°12.9	
22	322°46.9	8.4'	28°23.9	-0.2'	55.0'	92°56.7	79°28.0	66°04.1	47°26.1	17°47.9	63°42.3	117°43.7	
23	337°14.3	8.4'	28°24.1	-0.0'	55.0'	92°26.1	79°12.6	65°35.4	47°05.5	18°18.7	64°13.1	118°14.5	
11 th	SD	= 14.9	9′ Mer. pa	iss:-									

Moon (12th Jun)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Regulus
0	351°41.7	8.4'	S 28°24.1	0.1'	55.0'		91°55.4	65°06.7	46°45.0	18°49.5	64°44.0	71°00.0	118°45.4
1	6°09.0	8.4'	28°24.0	0.3'	55.1'		91°24.7	64°38.0	46°24.7	19°20.4	65°14.9	71°25.2	119°16.2
2	20°36.4	8.3'	28°23.7	0.4'	55.1'		90°53.9	64°09.3	46°04.5	19°51.3	65°45.7	71°50.4	119°47.1
3	35°03.7	8.3'	28°23.3	0.6'	55.1'		90°23.2	63°40.6	45°44.4	20°22.2	66°16.6	72°15.6	
4	49°31.0	8.3'	28°22.7	0.7'	55.1'		89°52.4	63°11.9	45°24.5	20°53.1	66°47.6	72°40.9	
5	63°58.4	8.3'	28°22.0	0.9'	55.1'		89°21.7	62°43.2	45°04.8	21°24.1	67°18.5	73°06.3	
6	78°25.6	8.3'	S 28°21.1	1.0'	55.1'		88°50.9	62°14.5	44°45.1	21°55.0	67°49.5	73°31.7	
7	92°52.9	8.3'	$28^{\circ}20.1$	1.2'	55.2'		88°20.0	61°45.8	44°25.7	22°26.0	68°20.4	73°57.1	
8	107°20.2	8.3'	28°18.9	1.3'	55.2'		87°49.2	61° 17.1	44°06.4	22°57.0	68°51.4	74°22.6	
9	121°47.5	8.3'	28°17.6	1.5'	55.2'		87°18.3	60°48.5	43°47.3	23°28.0	69°22.5	74°48.1	
10	136°14.7	8.3'	$28^{\circ}16.1$	1.6'	55.2'		86°47.5	60° 19.8	43°28.3	23°59.0	69°53.5	75°13.6	
11	150°42.0	8.3'	$28^{\circ}14.5$	1.8'	55.2'		86°16.6	59°51.1	43°09.5	24°30.1	70°24.5	75°39.2	
12	165°09.2	8.3'	S 28°12.7	1.9'	55.3'		85°45.7	59°22.5	42°50.9	25°01.2	70°55.6	76°04.9	
13	179°36.5	8.3'	28°10.8	2.1'	55.3'		85°14.7	58° 53.8	42°32.5	25°32.3	71°26.7	76°30.5	
14	194°03.8	8.3'	28°08.7	2.2'	55.3'	119°46.2	84°43.8	58°25.2	42°14.3	26°03.4	71°57.8	76°56.2	
15	208°31.0	8.3'	28°06.5	2.4'	55.3'	119°17.9	84°12.8	57° 56.5	41°56.2	26°34.5	72°28.9	77°22.0	
16	222°58.3	8.3'	$28^{\circ}04.1$	2.5'	55.3'	118°49.5	83°41.8	57°27.9	41°38.4	27°05.6	73°00.1	77°47.7	
17	237°25.5	8.3'	$28^{\circ}01.5$	2.7'	55.3'	118°21.1	83°10.8	56°59.3	41°20.8	27°36.8	73°31.3	78°13.6	
18	251°52.8	8.3'	S 27°58.8	2.8'	55.4'	117°52.7	82°39.8	56°30.7	41°03.3	28°08.0	74°02.4	78°39.4	
19	266°20.1	8.3'	27°56.0	3.0'	55.4'	117°24.2	82°08.8	56°02.1	40°46.1	28°39.2	74°33.6	79°05.3	
20	280°47.4	8.3'	27°53.0	3.1'	55.4'	116°55.7	81°37.7	55° 33.5	40°29.1	29°10.4	75°04.9	79°31.2	
21	295°14.7	8.3'	27°49.8	3.3'	55.4'	116°27.3	81°06.6	55°05.0	40°12.4	29°41.7	75°36.1	79°57.1	
22	309°42.0	8.3'	27°46.6	3.4'	55.4'	115°58.8	80°35.5	54° 36.4	39°55.8	30°12.9	76°07.4	80°23.1	
23	324°09.3	8.3'	27°43.1	3.6'	55.5'	115°30.2	80°04.4	54°07.9	39°39.5	30°44.2	76°38.7	80°49.1	
12 th	SD =	= 15.0′	Mer. pass	s. 00:34	1								

h		Moon	(13 th Ju	n)			Lunar [Distance (ol	ojects wi	th largest	hourly L	.D delta)	
Fri	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus
0	338°36.7	8.4'	S 27°39.5	3.7'	55.5'	115°01.7	79°33.3	53°39.4	39°23.5	31°15.5	57°10.1	77° 10.0	81° 15.1
1	353°04.1	8.4'	27°35.8	3.9'	55.5'	114°33.1	79°02.1	53° 10.9	39°07.7	31°46.8	57°30.5	77°41.3	81°41.2
2	7°31.4	8.4'	27°31.9	4.0'	55.5'	114°04.5	78°30.9	52°42.4	38°52.1	32°18.2	57°51.0	78° 12.6	82°07.3
3	21°58.8	8.4'	27°27.8	4.2'	55.5'	113°35.9	77°59.7	52° 14.0	38°36.8	32°49.5	58°11.7	78°44.0	82°33.4
4	36°26.3	8.4'	27°23.6	4.3'	55.5'	113°07.3	77°28.5	51°45.5	38°21.8	33°20.9	58°32.4	79°15.4	82°59.6
5	50°53.7	8.5'	$27^{\circ}19.3$	4.5'	55.6'	112°38.7	76°57.3	51° 17.1		33°52.3	58°53.3	79°46.8	83°25.7
6	65°21.2	8.5'	S 27°14.8	4.6'	55.6'	112°10.0	76°26.0	50°48.7		34°23.7	59°14.2	80°18.2	83°51.9
7	79°48.7	8.5'	$27^{\circ}10.1$	4.8'	55.6'	111°41.3	75°54.7	50°20.4		34°55.2	59°35.3	80°49.6	84° 18.2
8	94°16.2	8.6'	27°05.3	4.9'	55.6'	111°12.6	75°23.4	49°52.0		35°26.6	59°56.5	81°21.1	84°44.4
9	108°43.8	8.6'	27°00.4	5.1'	55.6'	110°43.9	74°52.1	49°23.7		35°58.1	60°17.8	81°52.6	85° 10.7
10	123°11.4	8.6'	26°55.3	5.2'	55.7'	110°15.1	74°20.8	48° 55.5		36°29.6	60°39.2	82°24.1	85°37.0
11	137°39.0	8.6'	$26^{\circ}50.1$	5.4'	55.7'	109°46.4	73°49.4	48°27.2		37°01.1	61°00.7	82°55.6	86°03.3
12	152°06.6	8.7'	S 26°44.7	5.5'	55.7'	109°17.6	73°18.0	47°59.0		37°32.7	61°22.2	83°27.1	86°29.7
13	166°34.3	8.7'	26°39.2	5.7'	55.7'	108°48.8	72°46.6	47° 30.8		38°04.2	61°43.9	83°58.7	86°56.0
14	181°02.0	8.8'	26°33.5	5.8'	55.7'	108°19.9	72°15.2	47°02.7		38°35.8	62°05.7	84°30.3	87°22.4
15	195°29.8	8.8'	26°27.7	6.0'	55.8'	107°51.1	71°43.8	46°34.6		39°07.4	62°27.6	85°01.9	87°48.8
16	209°57.6	8.8'	$26^{\circ}21.7$	6.1'	55.8'	107°22.2	71°12.3	46°06.5		39°39.0	62°49.6	85°33.5	88° 15.3
17	224°25.4	8.9'	$26^{\circ}15.6$	6.2'	55.8'	106°53.3	70°40.9	45°38.5		40°10.7	63°11.6	86°05.1	88°41.7
18	238°53.3	8.9'	S 26°09.4	6.4'	55.8'	106°24.4	70°09.4	45° 10.6		40°42.3	63°33.8	86°36.8	89°08.2
19	253°21.2	8.9'	26°03.0	6.5'	55.8'	105°55.5	69°37.8	44° 42.6		41°14.0	63°56.0	87°08.5	89°34.7
20	267°49.1	9.0'	25°56.5	6.7'	55.9'	105°26.6	69°06.3	44°14.7		41°45.7	64°18.4	87°40.2	90°01.2
21	282°17.1	9.0'	25°49.8	6.8'	55.9'	104°57.6	68°34.7	43°46.9		42°17.4	64°40.8	88° 11.9	90°27.7
22	296°45.1	9.1'	25°43.0	6.9'	55.9'	104°28.6	68°03.2	43° 19.1		42°49.2	65°03.3	88°43.6	90°54.2
23	311°13.2	9.1'	25°36.1	7.1'	55.9'	103°59.6	67°31.6	42°51.4		43°20.9	65°25.8	89° 15.4	91°20.8
13 th	SD =	= 15.1′	Mer. pass	s. 01:29	9								

Moon (14th Jun) h

Sat	GHA	ν	Dec	d	HP	-Venus	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus
0	325°41.3	9.2'	S 25°29.0	7.2'	55.9'	103°30.6	66°59.9	42°23.8	43°52.7	61°25.4	65°48.5	89°47.2	91°47.4
1	340°09.5	9.2'	$25^{\circ}21.8$	7.4'	56.0'	103°01.5	66°28.3	41°56.2	44°24.5	61°48.1	66°11.3	90°19.0	92°14.0
2	354°37.7	9.3'	25° 14.4	7.5'	56.0'	102°32.4	65°56.6	41°28.6	44°56.4	62°10.9	66°34.1	90°50.8	92°40.6
3	9°05.9	9.3'	25°06.9	7.6'	56.0'	102°03.3	65°24.9	41°01.1	45°28.2	62°33.9	66°57.0	91°22.7	93°07.2
4	23°34.3	9.4'	24°59.3	7.8'	56.0'	101°34.2	64°53.2	40°33.7	46°00.1	62°56.9	67°20.0	91°54.5	93°33.8
5	38°02.6	9.4'	24°51.5	7.9'	56.0'	101°05.1	64°21.5	40°06.4	46°32.0	63°20.0	67°43.0	92°26.4	94°00.4
6	52°31.0	9.5'	S 24°43.6	8.0'	56.1'	100°35.9	63°49.8	39°39.2	47°03.9	63°43.2	68°06.1	92°58.4	94°27.1
7	66°59.5	9.5'	24°35.6	8.2'	56.1'	100°06.8	63°18.0	39°12.0	47°35.8	64°06.4	68°29.3	93°30.3	94°53.7
8	81°28.0	9.6'	24° 27.4	8.3'	56.1'	99°37.6	62°46.2	38°44.9	48°07.8	64°29.8	68°52.6	94°02.2	95°20.4
9	95°56.5	9.6'	$24^{\circ}19.1$	8.4'	56.1'	99°08.3	62°14.4	38°17.9	48° 39.8	64°53.2	69°15.9	94°34.2	95°47.1
10	110°25.1	9.7'	24° 10.7	8.6'	56.1'	98°39.1	61°42.6	37°51.0	49°11.8	65°16.7	69°39.3	95°06.2	96°13.8
11	124°53.8	9.7'	24°02.1	8.7'	56.2'	98°09.8	61°10.7	37°24.2	49°43.8	65°40.3	70°02.8	95°38.2	96°40.5
12	139°22.5	9.8'	S 23°53.4	8.8'	56.2'	97°40.6	60°38.8	36°57.5	50° 15.8	66°04.0	70°26.3	96°10.3	97°07.2
13	153°51.3	9.8'	23°44.6	9.0'	56.2'	97°11.3	60°06.9	36°30.8	50°47.9	66°27.8	70°49.9	96°42.4	97°33.9
14	168°20.1	9.9'	23°35.6	9.1'	56.2'	96°41.9	59°35.0	36°04.3	51°20.0	66°51.6	71°13.6	97°14.4	98°00.6
15	182°49.0	9.9'	23°26.6	9.2'	56.3'	96°12.6	59°03.1	35°38.0	51°52.1	67°15.5	71°37.3	97°46.5	98°27.3
16	197°17.9	10.0'	23° 17.3	9.3'	56.3'	95°43.2	58°31.1	35°11.7	52°24.2	67°39.5	72°01.1	98°18.7	98°54.0
17	211°46.9	10.0'	23°08.0	9.5'	56.3'	95°13.8	57°59.1	34°45.5	52°56.4	68°03.5	72°25.0	98°50.8	99°20.8
18	226°15.9	10.1'	S 22°58.6	9.6'	56.3'	94°44.4	57°27.1	34°19.5	53°28.6	68°27.6	72°48.9	99°23.0	99°47.5
19	240°45.0	10.1'	22°49.0	9.7'	56.3'	94°15.0	56°55.1	33°53.6	54°00.8	68°51.8	73°12.9	99°55.2	100°14.2
20	255°14.1	10.2'	22°39.3	9.8'	56.4'	93°45.5	56°23.1	33°27.9	54°33.0	69°16.1	73°36.9	100°27.4	100°41.0
21	269°43.3	10.3'	$22^{\circ}29.5$	9.9'	56.4'	93°16.1	55°51.0	33°02.3	55°05.2	69°40.4	74°01.0	100°59.7	101°07.7
22	284°12.6	10.3'	22° 19.5	10.1'	56.4'	92°46.6	55°18.9	32°36.9	55° 37.5	70°04.8	74°25.1	101°31.9	101°34.5
23	298°41.9	10.4'	22°09.5	10.2'	56.4'	92°17.0	54°46.8	32°11.6	56°09.8	70°29.2	74°49.3	102°04.2	102°01.2
14 th	SD	$=15.3^{\prime}$	Mer. pass	. 02:22									

Moon (15th Jun)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Venus	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	313°11.3	10.4'	S 21°59.3	10.3'	56.5'			91°47.5	54° 14.7	56°42.1	70°53.7	102°27.9	102°36.5
1	327°40.7	10.5'	$21^{\circ}49.0$	10.4'	56.5'			91° 17.9	53°42.5	57°14.4	71°18.3	102°54.7	103°08.9
2	342°10.2	10.5'	$21^{\circ}38.6$	10.5'	56.5'			90°48.4	53°10.3	57°46.8	71°42.9	103°21.4	103°41.2
3	356°39.7	10.6'	$21^{\circ}28.0$	10.6'	56.5'			90°18.7	52°38.1	58°19.2	72°07.6	103°48.1	104°13.6
4	11°09.3	10.7'	$21^{\circ}17.4$	10.8'	56.5'		119°42.7	89°49.1	52°05.9	58°51.6	72°32.4	104°14.8	104°46.0
5	25°39.0	10.7'	$21^{\circ}06.6$	10.9'	56.6'	119°52.8	119°18.8	89° 19.5	51°33.7	59°24.0	72°57.2	104°41.5	105°18.4
6	40°08.7	10.8'	S 20°55.8	11.0'	56.6'	119°21.1	118°54.9	88°49.8	51°01.4	59°56.4	73°22.0	105°08.2	105°50.9
7	54°38.5	10.8'	20°44.8	11.1'	56.6'	118°49.3	118°30.8	88°20.1	50°29.1	60°28.9	73°47.0	105°34.9	106°23.4
8	69°08.3	10.9'	20°33.7	11.2'	56.6'	118° 17.5	118°06.7	87°50.4	49°56.8	61°01.4	74°11.9	106°01.6	106°55.9
9	83°38.2	10.9'	$20^{\circ}22.5$	11.3'	56.7'	117° 45.7	117°42.5	87°20.7	49°24.5	61°33.9	74°37.0	106°28.3	107°28.4
10	98°08.1	11.0'	$20^{\circ}11.1$	11.4'	56.7'	117° 13.8	117°18.1	86°50.9	48°52.1	62°06.5	75°02.1	106°55.0	108°00.9
11	112°38.1	11.0'	$19^{\circ}59.7$	11.5'	56.7'	116°41.9	116°53.7	86°21.1	48° 19.7	62°39.0	75°27.2	107°21.6	108°33.5
12	127°08.1	11.1'	S 19°48.2	11.6'	56.7'	116° 10.0	116°29.3	85°51.3	47° 47.3	63°11.6	75°52.4	107°48.3	109°06.1
13	141°38.2	11.2'	$19^{\circ}36.6$	11.7'	56.7'	115°38.0	116°04.7	85°21.5	47°14.9	63°44.3	76°17.6	108°14.9	109°38.7
14	156°08.4	11.2'	$19^{\circ}24.8$	11.8'	56.8'	115°06.0	115°40.0	84°51.6	46°42.4	64°16.9	76°42.9	108°41.5	110°11.3
15	170°38.6	11.3'	$19^{\circ}13.0$	11.9'	56.8'	114°34.0	115°15.3	84°21.7	46°10.0	64°49.6	77°08.2	109°08.1	110°44.0
16	185°08.9	11.3'	$19^{\circ}01.0$	12.1'	56.8'	114°02.0	114°50.5	83°51.9	45°37.5	65°22.2	77°33.6	109°34.7	111°16.7
17	199°39.2	11.4'	18°49.0	12.2'	56.8'	113°29.9	114°25.6	83°21.9	45°05.0	65°54.9	77°59.0	110°01.3	111°49.4
18	214°09.6	11.4'	S 18°36.8	12.3'	56.9'	112°57.8	114°00.6	82°52.0	44°32.4	66°27.7	78°24.5	110°27.8	112°22.1
19	228°40.0	11.5'	$18^{\circ}24.6$	12.4'	56.9'	112°25.7	113°35.5	82°22.0	43°59.9	67°00.4	78°50.0	110°54.3	112°54.9
20	243°10.5	11.5'	$18^{\circ}12.2$	12.4'	56.9'	111°53.5	113°10.4	81°52.0	43°27.3	67°33.2	79°15.6	111°20.8	113°27.6
21	257°41.0	11.6'	$17^{\circ}59.8$	12.5'	56.9'	111°21.3	112°45.2	81°22.0	42°54.7	68°06.0	79°41.2	111°47.3	114°00.4
22	272°11.6	11.6'	17° 47.2	12.6'	57.0'	110°49.1	112°19.9	80°52.0	42°22.1	68°38.9	80°06.8	112°13.8	114°33.3
23	286°42.2	11.7'	17°34.6	12.7'	57.0'	110°16.9	111°54.6	80°21.9	41°49.4	69°11.7	80°32.5	112°40.2	115°06.1
15 th	SD	$=15.4^{\prime}$	Mer. pass	s. 03:14									

h		Moon	n (16 th Ju	n)			Lunar	Distance (objects	with large	st hourly LD	delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	301°12.9	11.7'	S 17°21.8	12.8'	57.0'			109°44.6	41°16.7	69°44.6	80°58.2	113°06.6	115°39.0
1	315°43.6	11.8'	$17^{\circ}09.0$	12.9'	57.0'			109°12.3	40°44.1	70° 17.5	81°24.0	113°33.0	116°11.9
2	330°14.4	11.8'	$16^{\circ}56.1$	13.0'	57.0'		119°33.2	108°40.0	40°11.3	70°50.4	81°49.8	113°59.3	116°44.9
3	344°45.2	11.9'	16°43.1	13.1'	57.1'		119°02.4	108°07.6	39°38.6	71°23.4	82°15.6	114°25.6	117°17.8
4	359°16.1	11.9'	16°30.0	13.2'	57.1'		118°31.5	107°35.2	39°05.8	71°56.4	82°41.5	114°51.9	117°50.8
5	13°47.0	12.0'	$16^{\circ}16.8$	13.3'	57.1'		118°00.5	107°02.8	38°33.0	72°29.4	83°07.4	115°18.2	118°23.8
6	28°18.0	12.0'	S 16°03.5	13.4'	57.1'		117°29.5	106°30.4	38°00.2	73°02.4	83°33.4	115°44.4	118°56.8
7	42°49.0	12.1'	$15^{\circ}50.1$	13.5'	57.2'		116°58.5	105°57.9	37°27.4	73°35.5	83°59.4	116°10.5	119°29.9
8	57°20.1	12.1'	15°36.7	13.5'	57.2'		116°27.4	105°25.4	36°54.6	74°08.6	84°25.4	116°36.7	
9	71°51.2	12.2'	15°23.2	13.6'	57.2'		115°56.3	104°52.9	36°21.7	74°41.7	84°51.4	117°02.8	
10	86°22.4	12.2'	$15^{\circ}09.5$	13.7'	57.2'	$119^{\circ}59.5$	115°25.1	104°20.3	35°48.8	75° 14.8	85°17.5	117°28.8	
11	100°53.6	12.2'	14°55.8	13.8'	57.3'	119°28.9	114°53.9	103°47.8	35°15.9	75°48.0	85°43.6	117°54.8	
12	115°24.8	12.3'	S 14°42.0	13.9'	57.3'	118°58.3	114°22.7	103°15.1	34°42.9	76°21.1	86°09.7	118°20.8	
13	129°56.1	12.3'	14°28.2	13.9'	57.3'	118°27.6	113°51.4	102°42.5	34°10.0	76°54.3	86°35.9	118°46.7	
14	144°27.4	12.4'	14°14.2	14.0'	57.3'	117°57.0	113°20.1	102°09.8	33°37.0	77° 27.6	87°02.1	119°12.6	
15	158°58.8	12.4'	14°00.2	14.1'	57.4'	117°26.2	112°48.7	101°37.1	33°04.0	78°00.8	87°28.3	119°38.4	
16	173°30.2	12.4'	13°46.1	14.2'	57.4'	116°55.5	112°17.3	101°04.4	32°30.9	78°34.1	87°54.5		
17	188°01.6	12.5'	13°31.9	14.3'	57.4'	116°24.7	111°45.9	100°31.7	31°57.9	79°07.4	88°20.8		
18	202°33.1	12.5'	S 13°17.7	14.3'	57.4'	115°53.9	111°14.4	99°58.9	31°24.8	79°40.8	88°47.1		
19	217°04.6	12.5'	13°03.4	14.4'	57.5'	115°23.1	110°42.9	99°26.1	30°51.7	80°14.2	89°13.4		
20	231°36.1	12.6'	12°49.0	14.5'	57.5'	114°52.3	110°11.3	98°53.3	30°18.6	80°47.5	89°39.8		
21	246°07.7	12.6'	12°34.5	14.5'	57.5'	114°21.4	109°39.7	98°20.4	29°45.5	81°21.0	90°06.1		
22	260°39.3	12.6'	$12^{\circ}20.0$	14.6'	57.5'	113°50.5	109°08.1	97°47.5	29°12.3	81°54.4	90°32.5		
23	275°11.0	12.7'	12°05.3	14.7'	57.6'	113°19.5	108°36.4	97°14.6	28°39.1	82°27.9	90°58.9		
16 th	SD	= 15.5'	Mer. pass	04:03					Sun S	5D = 15.7'			

Tue	GHA	ν	Dec	d	HP	-Sun	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	289°42.7	12.7'	S 11°50.7	14.7'	57.6'	112°48.6	108°04.7	96°41.7	28°06.0	42°55.4	83°01.4	91°25.3	95°21.8
1	304°14.4	12.7'	11°35.9	14.8'	57.6'	112°17.6	107°32.9	96°08.7	27°32.7	43°15.5	83°34.9	91°51.8	95°47.6
2	318°46.1	12.8'	$11^{\circ}21.1$	14.9'	57.6'	111°46.6	107°01.2	95°35.7	26°59.5	43°35.9	84°08.5	92°18.2	96°13.3
3	333°17.9	12.8'	$11^{\circ}06.2$	14.9'	57.7'	111°15.5	106°29.3	95°02.7	26°26.3	43°56.5	84°42.1	92°44.7	96°39.0
4	347°49.7	12.8'	10°51.3	15.0'	57.7'	110°44.4	105°57.5	94°29.6	25°53.0	44°17.3	85° 15.7	93°11.2	97°04.8
5	2°21.5	12.8'	10°36.3	15.1'	57.7'	110°13.3	105°25.6	93°56.5	25°19.7	44°38.4	85°49.3	93°37.7	97°30.5
6	16°53.4	12.9'	S 10°21.2	15.1'	57.7'	109°42.2	104°53.7	93°23.4	24°46.4	44°59.7	86°23.0	94°04.2	97°56.3
7	31°25.2	12.9'	$10^{\circ}06.1$	15.2'	57.8'	109°11.1	104°21.7	92°50.3	24°13.1	45°21.1	86° 56.6	94°30.7	98°22.0
8	45°57.1	12.9'	09°50.9	15.2'	57.8'	108°39.9	103°49.7	92°17.1	23°39.7	45°42.8	87°30.4	94°57.3	98°47.8
9	60°29.0	12.9'	09°35.7	15.3'	57.8'	108°08.7	103°17.7	91°43.9	23°06.4	46°04.7	88°04.1	95°23.8	99°13.5
10	75°01.0	13.0'	09°20.4	15.4'	57.8'	107°37.4	102°45.6	91°10.7	22°33.0	46°26.8	88°37.9	95°50.4	99°39.3
11	89°32.9	13.0'	$09^{\circ}05.0$	15.4'	57.9'	107°06.1	102°13.5	90°37.5	21°59.6	46°49.1	89°11.7	96°17.0	100°05.0
12	104°04.9	13.0'	S 08°49.6	15.5'	57.9'	106°34.8	101°41.4	90°04.2	21°26.2	47°11.6	89°45.5	96°43.5	100°30.8
13	118°36.9	13.0'	08°34.1	15.5'	57.9'	106°03.5	101°09.2	89°30.9	20°52.8	47°34.3	90°19.4	97°10.1	100°56.5
14	133°08.9	13.0'	08° 18.6	15.6'	57.9'	105°32.2	100°37.1	88°57.5	20°19.4	47°57.2	90°53.2	97°36.7	101°22.3
15	147°41.0	13.0'	$08^{\circ}03.1$	15.6'	58.0'	105°00.8	100°04.8	88°24.2	19°46.0	48°20.3	91°27.2	98°03.3	101°48.0
16	162°13.0	13.1'	07°47.4	15.7'	58.0'	104°29.4	99°32.6	87°50.8	19°12.6	48°43.5	92°01.1	98°29.9	102°13.7
17	176°45.1	13.1'	$07^{\circ}31.8$	15.7'	58.0'	103°57.9	99°00.3	87°17.4	18°39.2	49°06.9	92°35.1	98°56.5	102°39.4
18	191°17.1	13.1'	S 07°16.0	15.8'	58.0'	103°26.4	98°27.9	86°44.0	18°05.7	49°30.5	93°09.1	99°23.1	103°05.1
19	205°49.2	13.1'	$07^{\circ}00.3$	15.8'	58.1'	102°54.9	97°55.6	86°10.5	17°32.3	49°54.2	93°43.1	99°49.7	103°30.8
20	220°21.3	13.1'	$06^{\circ}44.5$	15.9'	58.1'	102°23.4	97°23.2	85°37.0	16°58.9	50°18.1	94°17.1	100°16.3	103°56.5
21	234°53.4	13.1'	$06^{\circ}28.6$	15.9'	58.1'	101°51.9	96°50.8	85°03.5	16°25.5	50°42.2	94°51.2	100°42.9	104°22.1
22	249°25.5	13.1'	$06^{\circ}12.7$	15.9'	58.1'	101°20.3	96°18.3	84°29.9	15°52.1	51°06.4	95°25.3	101°09.5	104°47.8
23	263°57.6	13.1'	05°56.8	16.0'	58.2'	100°48.7	95°45.9	83°56.4	15°18.7	51°30.8	95°59.5	101°36.1	105°13.4
17 th	SD	= 15.7'	Mer. pass	s. 04:50					Sun SI	0 = 15.7'			

h Moon (18^{th} Jun) Lunar Distance (objects with largest hourly LD delta) Ned GHA ν Dec d HP -Sun -Capella -Aldebaran -Saturn +Fomalhaut +Altair +Antares 0 278°29 7 13.1' \$05°40 8 16.0' 58.2' 100°17 0 95°13.3 83°22.8 14°45.3 23°59 9 51°55.3 96°33.6

Wed	GHA	ν	Dec	d	HP	-Sun	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	278°29.7	13.1'	S 05°40.8	16.0'	58.2'	100°17.0	95°13.3	83°22.8	14°45.3	23°59.9	51°55.3	96°33.6	102°02.7
1	293°01.8	13.1'	05°24.8	16.1'	58.2'	99°45.3	94°40.8	82°49.1	14°11.9	24°19.7	52°20.0	97°07.8	102°29.3
2	307°33.9	13.1'	05°08.7	16.1'	58.2'	99°13.6	94°08.2	82° 15.5	13°38.6	24°40.0	52°44.9	97°42.0	102°55.9
3	322°06.0	13.1'	04°52.6	16.1'	58.3'	98°41.9	93°35.6	81°41.8	13°05.3	25°00.8	53°09.8	98°16.3	103°22.4
4	336°38.1	13.1'	04°36.5	16.2'	58.3'	98°10.1	93°03.0	81°08.1	12°32.1	25°22.1	53°34.9	98°50.6	103°49.0
5	351°10.3	13.1'	04°20.3	16.2'	58.3'	97°38.4	92°30.3	80°34.4	11°59.0	25°43.8	54°00.2	99°24.9	104° 15.5
6	5°42.4	13.1'	S 04°04.1	16.2'	58.3'	97°06.5	91°57.7	80°00.6	11°25.9	26°05.9	54°25.6	99°59.2	104°42.1
7	20°14.5	13.1'	03°47.9	16.3'	58.4'	96°34.7	91°24.9	79°26.8	10°52.9	26°28.5	54°51.1	100°33.6	105°08.6
8	34°46.6	13.1'	03°31.6	16.3'	58.4'	96°02.8	90°52.2	78°53.0	10°20.0	26°51.5	55°16.7	101°08.0	105°35.1
9	49°18.6	13.1'	03°15.3	16.3'	58.4'	95°30.9	90°19.4	78° 19.2	9°47.2	27°14.9	55°42.5	101°42.4	106°01.6
10	63°50.7	13.1'	02°59.0	16.4'	58.4'	94°59.0	89°46.6	77°45.3	9°14.6	27°38.6	56°08.4	102°16.9	106°28.1
11	78°22.8	13.1'	02°42.7	16.4'	58.5'	94°27.0	89°13.8	$77^{\circ}11.4$	8°42.2	28°02.8	56°34.4	102°51.3	106°54.5
12	92°54.8	13.0'	S 02°26.3	16.4'	58.5'	93°55.0	88°40.9	76° 37.5	8°10.0	28°27.2	57°00.6	103°25.9	107°20.9
13	107°26.9	13.0'	02°09.9	16.4'	58.5'	93°23.0	88°08.1	76°03.6	7°38.1	28°52.0	57°26.8	104°00.4	107°47.3
14	121°58.9	13.0'	01°53.4	16.5'	58.5'	92°50.9	87°35.2	75°29.6	7°06.6	29°17.1	57°53.2	104°35.0	108° 13.7
15	136°30.9	13.0'	01°37.0	16.5'	58.6'	92°18.9	87°02.2	74°55.6	6°35.5	29°42.6	58°19.7	105°09.6	108°40.1
16	151°02.9	13.0'	$01^{\circ}20.5$	16.5'	58.6'	91°46.8	86°29.3	74°21.6	6°05.1	30°08.3	58°46.3	105°44.2	109°06.4
17	165°34.9	13.0'	$01^{\circ}04.0$	16.5'	58.6'	91°14.6	85°56.3	73°47.6	5°35.4	30°34.3	59°13.0	106°18.8	109°32.7
18	180°06.9	12.9'	S 00°47.5	16.5'	58.6'	90°42.5	85°23.3	73° 13.5		31°00.6	59°39.8	106°53.5	109°59.0
19	194°38.8	12.9'	00°31.0	16.5'	58.6'	90°10.3	84°50.2	72°39.4		31°27.2	60°06.7	107°28.2	110°25.2
20	209°10.7	12.9'	S 00°14.4	16.6'	58.7'	89°38.0	84°17.2	72°05.3		31°54.0	60°33.7	108°03.0	110°51.4
21	223°42.6	12.9'	$N00^{\circ}02.1$	16.6'	58.7'	89°05.8	83°44.1	71°31.1		32°21.1	61°00.9	108°37.8	111° 17.6
22	238°14.5	12.8'	00°18.7	16.6'	58.7'	88°33.5	83°11.0	70°57.0		32°48.4	61°28.1	109°12.6	111°43.7
23	252°46.3	12.8'	00°35.3	16.6'	58.7'	88°01.2	82°37.8	70°22.8		33°15.9	61°55.4	109°47.4	112°09.8
18 th	SD	$= 15.9^{\prime}$	Mer. pass	. 05:36					Sun	SD = 15.7'			

h Moon (19th Jun) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Sun	-Capella	-Aldebaran	-Venus	+Saturn	+Fomalhaut	+Altair	+Antares
0	267°18.1	12.8'	N00°51.9	16.6'	58.8'	87°28.8	82°04.7	69°48.6	42°44.1		33°43.7	62°22.8	110°22.3
1	281°49.9	12.7'	$01^{\circ}08.5$	16.6'	58.8'	86°56.5	81°31.5	69°14.3	42°12.3		34°11.6	62°50.3	110°57.1
2	296°21.6	12.7'	$01^{\circ}25.1$	16.6'	58.8'	86°24.1	80°58.3	68°40.1	41°40.6		34°39.8	63°17.9	111°32.1
3	310°53.3	12.7'	01°41.7	16.6'	58.8'	85°51.7	80°25.1	68°05.8	41°08.8		35°08.2	63°45.6	112°07.0
4	325°25.0	12.6'	01°58.3	16.6'	58.9'	85°19.2	79°51.8	67°31.5	40°37.0		35°36.8	64°13.4	112°42.0
5	339°56.6	12.6'	$02^{\circ}15.0$	16.6'	58.9'	84°46.7	79°18.6	66° 57.2	40°05.1		36°05.5	64°41.2	113°17.0
6	354°28.2	12.6'	N02°31.6	16.6'	58.9'	84°14.2	78°45.3	66°22.8	39°33.3		36°34.5	65°09.2	113°52.0
7	8°59.8	12.5'	02°48.2	16.6'	58.9'	83°41.7	78°12.0	65°48.4	39°01.4		37°03.6	65°37.2	114°27.1
8	23°31.3	12.5'	03°04.9	16.6'	59.0'	83°09.1	77°38.6	65°14.0	38°29.6		37°32.9	66°05.3	115°02.2
9	38°02.8	12.4'	03°21.5	16.6'	59.0'	82°36.5	77°05.3	64°39.6	37°57.7		38°02.3	66°33.5	115°37.3
10	52°34.3	12.4'	03°38.2	16.6'	59.0'	82°03.9	76°31.9	64°05.2	37°25.8		38°32.0	67°01.8	116°12.5
11	67°05.6	12.3'	03°54.8	16.6'	59.0'	81°31.2	75°58.5	63°30.7	36°53.9	6°26.7	39°01.7	67°30.1	116°47.6
12	81°37.0	12.3'	N 04°11.4	16.6'	59.1'	80°58.5	75°25.1	62°56.2	36°21.9	6°58.1	39°31.6	67°58.5	117°22.8
13	96°08.3	12.3'	04°28.0	16.6'	59.1'	80°25.8	74°51.7	62°21.7	35°50.0	7°30.1	40°01.7	68°27.0	117°58.1
14	110°39.6	12.2'	04°44.6	16.6'	59.1'	79°53.1	74°18.3	61°47.2	35°18.1	8°02.6	40°31.9	68°55.6	118°33.3
15	125°10.8	12.2'	$05^{\circ}01.2$	16.6'	59.1'	79°20.3	73°44.8	61°12.7	34°46.1	8°35.4	41°02.2	69°24.2	119°08.6
16	139°41.9	12.1'	05°17.8	16.6'	59.2'	78°47.5	73°11.3	60°38.1	34°14.1	9°08.6	41°32.7	69°52.9	119°43.9
17	154°13.0	12.0'	05°34.4	16.6'	59.2'	78°14.7	72°37.9	60°03.5	33°42.2	9°42.0	42°03.3	70°21.7	
18	168°44.0	12.0'	N05°50.9	16.5'	59.2'	77°41.8	72°04.3	59°28.9	33°10.2	10°15.7	42°34.0	70°50.5	
19	183°15.0	11.9'	06°07.5	16.5'	59.2'	77°08.9	71°30.8	58° 54.3	32°38.2	10°49.6	43°04.9	71°19.4	i i
20	197°46.0	11.9'	06°24.0	16.5'	59.2'	76°36.0	70°57.3	58° 19.7	32°06.2	11°23.6	43°35.8	71°48.4	
21	212°16.8	11.8'	06°40.5	16.5'	59.3'	76°03.1	70°23.8	57°45.0	31°34.2	11°57.8	44°06.9	72°17.4	
22	226°47.6	11.7'	$06^{\circ}57.0$	16.5'	59.3'	75°30.1	69°50.2	57° 10.4	31°02.3	12°32.1	44°38.1	72°46.5	
23	241°18.4	11.7'	07°13.5	16.4'	59.3'	74°57.2	69°16.6	56° 35.7	30°30.3	13°06.5	45°09.4	73°15.7	
19 th	SD	= 16.0'	Mer. pass	. 06:23					Sun S	D = 15.7'			

Moon (20th Jun) h Lunar Distance (objects with largest hourly LD delta) Fri +Saturn +Fomalhaut GHA ΗP -Betelgeuse -Capella -Aldebaran -Venus +Altair Dec -Sun ν d 255°49.1 45°40.8 0 11.6' $N07^{\circ}29.9$ 16.4 59.3 $74^{\circ}24.1$ $68^{\circ}43.0$ $56^{\circ}01.0$ $29^{\circ}58.3$ $13^{\circ}41.1$ $73^{\circ}44.9$ 46°12.3 46°43.9 74°14.2 74°43.5 270°19.7 $07^{\circ}46.3$ 73°51.1 68°09.5 55°26.3 29°26.3 14°15.7 11.6' 16.4 59.4' 08°02.7 54°51.5 $284^{\circ}50.3$ 11.5' 59.4' $73^{\circ}18.0$ $67^{\circ}35.9$ $28^{\circ}54.3$ $14^{\circ}50.5$ 72°44.9 72°11.8 3 299°20.7 11.4' $08^{\circ}19.1$ 16.3' 59.4 67°02.2 $54^{\circ}16.8$ $28^{\circ}22.4$ 15°25.3 $47^{\circ}15.6$ 75°12.9 75°42.3 47°47.4 313°51.2 08°35.4 53°42.0 66°28 6 16°00 2 4 11.3 16.3 59 4 27°50 4 71°38.7 65°55.0 27°18.5 48°19.2 76°11.8 328°21.5 08°517 53°072 16°35.2 5 11.3 16.3 59 4 65°21.4 17°10.2 342°51.8 11.2' N09°07.9 $71^{\circ}05.5$ 52°32.5 26°46.5 48°51.2 76°41.4 71°52.2 26°14.6 25°42.8 77° 10.9 357°22.0 51°57.7 17°45.3 11.1' $09^{\circ}24.2$ 16.2' 59.5 70°32.3 64°47.7 49°23.3 77°40.6 51°22.9 50°48.0 49°55.4 11°52.1 09°40.3 69°59.1 18°20.5 71°19.1 70°46.0 8 11.1' 16.2 59.5 64°14.1 69°25.8 63°40.4 25°10.9 09°56.5 18°55.7 50°27.7 78° 10.3 26°22 2 59 5 9 11 0 16 1 78°40.0 10 40°52.1 $10^{\circ}12.6$ $68^{\circ}52.5$ 70°12.9 63°06.8 50°13.2 24°39.0 19°31.0 51°00.0 10.9 16.1' 59.5 55°22.0 10°28.7 68°19.2 69°39.8 62°33.1 49°38.4 24°07.2 $20^{\circ}06.3$ 51°32.4 79°09.8 10.8 59.6 11 16.0 69°51.8 69°06.6 49°03.5 N10°44.7 67°45.9 23°35.5 20°41.7 52°04.8 79°39.6 12 10.7 16.0' 59.6 61°59.5 67°12.5 68° 33.5 48°28.7 21°17.1 52°37.4 80°09.5 84°21 6 10.7 11°00 7 61°25 8 23°03.7 13 159 59 6 98°51.2 11°16.6 66°39.2 68°00.4 60°52.2 47°53.8 22°32.1 21°52.6 53°10.0 80°39.4 10.6 15.9' 59.6 14 113°20.8 10.5 11°32.5 66°05.8 67°27.2 60° 18.5 47°19.0 22°00.4 22°28.1 53°42.7 81°09.3 15.8 59.6 15 127°50.3 142°19.7 $65^{\circ}32.4$ 66°54.1 46°44.1 $21^{\circ}28.8$ 23°03.6 $54^{\circ}15.5$ 81°39.3 16 10.4 $11^{\circ}48.3$ 15.8' 59.7 64°58.9 59°11.2 46°09.3 20°57.3 82°09.3 17 10.3' $12^{\circ}04.1$ 15.7' 59.7' $66^{\circ}21.0$ $23^{\circ}39.2$ 54°48.3 18 156°49.0 N12°19.8 64°25.4 65°47.8 58° 37.6 45°34.4 20°25.9 24°14.8 55°21.2 82°39.4 10.2 15.7 59 7 171°18.2 12°35.5 63°51.9 65° 14.7 58°04.0 44°59.5 19°54.5 24°50.5 55°54.2 83°09.5 10.1 15.6 59.7 19 63°18.4 62°44.9 20 $185^{\circ}47.3$ 10.0 $12^{\circ}51.1$ 15.5 59.7 $64^{\circ}41.6$ $57^{\circ}30.3$ 44°24.7 $19^{\circ}23.2$ $25^{\circ}26.2$ $56^{\circ}27.2$ $83^{\circ}39.6$ 57°00.3 57°33.4 56°56.7 84°09.8 200°16.4 64°08.5 43°49.8 $18^{\circ}52.0$ 26°02.0 21 9.9' 15.5' 59.8 62°11.3 56°23.1 214°45.3 84°40.0 22 9.9 $13^{\circ}22.1$ 15.4' 59.8 $63^{\circ}35.4$ 43°14.9 $18^{\circ}20.9$ 26°37.7 55° 49.5 61°37.7 58°06.6 229°14.2 $63^{\circ}02.3$ 17°49.9 $27^{\circ}13.6$ $85^{\circ}10.2$ 23 9.8 $13^{\circ}37.6$ 15.4' 59.8 42°40.1 20th Sun SD = 15.7'SD = 16.2Mer. pass. 07:11

Moon (21st Jun)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Sun	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Achernar	+Altair
0	243°42.9	9.7'	N 13°52.9	15.3'	59.8'	62°29.2	61°04.1	55°15.9	42°05.2	27°49.4	58°39.9	70°59.4	85°40.4
1	258° 11.6	9.6'	14°08.2	15.2'	59.8'	61°56.1	60°30.5	54°42.4	41°30.4	28°25.3	59°13.2	71° 15.1	86°10.7
2	272°40.1	9.5'	14°23.4	15.1'	59.8'	61°23.0	59°56.9	54°08.8	40°55.6	29°01.2	59°46.6	71°31.0	86°41.0
3	287°08.6	9.4'	14°38.6	15.1'	59.9'	60°50.0	59°23.2	53°35.3	40°20.8	29°37.1	60°20.0	71°46.9	87°11.3
4	301°37.0	9.3'	14°53.7	15.0'	59.9'	60°16.9	58°49.5	53°01.8	39°45.9	30°13.1	60°53.5	72°03.0	87°41.7
5	316°05.2	9.2'	$15^{\circ}08.7$	14.9'	59.9'	59°43.9	58°15.8	52°28.3	39°11.2	30°49.1	61°27.1	72° 19.2	88°12.1
6	330°33.4	9.1'	N 15°23.6	14.8'	59.9'	59° 10.9	57°42.1	51°54.9	38°36.4	31°25.1	62°00.7	72°35.5	88°42.5
7	345°01.5	9.0'	15°38.4	14.8'	59.9'	58° 37.9	57°08.3	51°21.4	38°01.6	32°01.2	62°34.3	72°51.9	89°12.9
8	359°29.4	8.9'	15°53.2	14.7'	59.9'	58°05.0	56°34.6	50°48.0	37°26.9	32°37.3	63°08.0	73°08.4	89°43.4
9	13°57.3	8.7'	$16^{\circ}07.9$	14.6'	60.0'	57°32.0	56°00.8	50°14.6	36°52.2	33°13.4	63°41.7	73°25.0	90°13.8
10	28°25.0	8.6'	$16^{\circ}22.5$	14.5'	60.0'	56°59.1	55°27.0	49°41.3	36°17.5	33°49.5	64°15.5	73°41.7	90°44.3
11	42°52.7	8.5'	16°37.0	14.4'	60.0'	56°26.2	54°53.2	49°08.0	35°42.9	34°25.7	64°49.3	73°58.5	91°14.8
12	57°20.2	8.4'	N 16°51.4	14.3'	60.0'	55° 53.4	54°19.3	48°34.7	35°08.2	35°01.8	65°23.2	74° 15.4	91°45.3
13	71°47.6	8.3'	17°05.7	14.2'	60.0'	55°20.5	53°45.5	48°01.5	34°33.7	35°38.0	65°57.1	74°32.3	92°15.8
14	86°14.9	8.2'	17°20.0	14.1'	60.0'	54° 47.7	53°11.6	47°28.3	33°59.1	36°14.3	66°31.0	74°49.4	92°46.4
15	100°42.1	8.1'	$17^{\circ}34.1$	14.0'	60.0'	54° 15.0	52°37.7	46°55.1	33°24.6	36°50.5	67°05.0	75°06.6	93°16.9
16	115°09.2	8.0'	$17^{\circ}48.1$	13.9'	60.1'	53°42.3	52°03.8	46°22.0	32°50.1	37°26.8	67°39.1	75°23.8	93°47.5
17	129°36.2	7.9'	$18^{\circ}02.1$	13.8'	60.1'	53°09.6	51°29.9	45°49.0	32°15.7	38°03.1	68°13.1	75°41.2	94°18.0
18	144°03.1	7.8'	N 18° 15.9	13.7'	60.1'	52° 37.0	50°55.9	45°15.9	31°41.4	38°39.4	68°47.2	75°58.6	94°48.6
19	158° 29.9	7.7'	18° 29.7	13.6'	60.1'	52°04.4	50°22.0	44°43.0	31°07.1	39°15.8	69°21.4	$76^{\circ}16.1$	95°19.2
20	172°56.5	7.5'	18°43.3	13.5'	60.1'	51°31.8	49°48.0	44°10.1	30°32.8	39°52.1	69°55.5	76°33.7	95°49.7
21	187°23.1	7.4'	18°56.8	13.4'	60.1'	50° 59.3	49°14.1	43°37.3	29°58.7	40°28.5	70°29.7	76°51.4	96°20.3
22	201°49.5	7.3'	19° 10.2	13.3'	60.1'	50°26.9	48°40.1	43°04.5	29°24.6	41°04.9	71°04.0	77°09.1	96°50.9
23	216° 15.8	7.2'	19°23.5	13.2'	60.1'	49°54.5	48°06.1	42°31.8	28°50.5	41°41.3	71°38.3	77°27.0	97°21.5
21 st	SD	= 16.3	′ Mer. pas	s. 08:02		Sun SD = 15.7'							

h		Мооі	n (22 nd Jι	ın)			Lunar D	istance (objects wi	th larges	t hourly l	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Sun	-Capella	-Aldebaran	+Venus	+Saturn	+Fomalhaut	+Altair
0	230°42.0	7.1'	N19°36.7	13.1'	60.1'	49°22.2	47°32.1	41°59.2	28°16.6		42°17.8	72°12.5	97°52.1
1	245°08.1	7.0'	19°49.8	13.0'	60.2'	48°49.9	46°58.0	41°26.7	27°42.8		42°54.2	72°46.9	98°22.6
2	259°34.1	6.9'	20°02.7	12.8'	60.2'	48°17.7	46°24.0	40°54.2	27°09.0		43°30.7	73°21.2	98°53.2
3	273°59.9	6.7'	20°15.6	12.7'	60.2'	47°45.6	45°50.0	40°21.9	26°35.4		44°07.2	73°55.6	99°23.8
4	288°25.7	6.6'	20°28.3	12.6'	60.2'	47°13.5	45°15.9	39°49.6	26°01.8		44°43.7	74°30.0	99°54.3
5	302°51.3	6.5'	20°40.9	12.5'	60.2'	46°41.5	44°41.8	39°17.4	25°28.4		45°20.3	75°04.5	100°24.9
6	317°16.8	6.4'	N20°53.3	12.3'	60.2'	46°09.6	44°07.8	38°45.3	24°55.2		45°56.8	75°39.0	100°55.4
7	331°42.2	6.3'	21°05.7	12.2'	60.2'	45°37.8	43°33.7	38°13.3	24°22.0		46°33.4	76°13.4	101°25.9
8	346°07.5	6.2'	21°17.9	12.1'	60.2'	45°06.0	42°59.6	37°41.5	23°49.0		47°09.9	76°48.0	101°56.4
9	0°32.6	6.1'	21°29.9	11.9'	60.2'	44°34.3	42°25.5	37°09.7	23°16.2		47°46.5	77°22.5	102°26.9
10	14°57.7	5.9'	21°41.9	11.8'	60.2'	44°02.8	41°51.4	36°38.1	22°43.6		48°23.1	77°57.1	102°57.4
11	29°22.6	5.8'	21°53.7	11.7'	60.2'	43°31.3	41°17.3	36°06.6	22°11.2		48°59.7	78°31.6	103°27.9
12	43°47.5	5.7'	$N22^{\circ}05.3$	11.5'	60.2'	43°00.0	40°43.2	35°35.2	21°38.9		49°36.3	79°06.2	103°58.3
13	58°12.2	5.6'	22°16.8	11.4'	60.3'	42°28.7	40°09.1	35°04.0	21°06.9		50°13.0	79°40.8	104°28.7
14	72°36.8	5.5'	22°28.2	11.2'	60.3'	41°57.6		34°33.0	20°35.2		50°49.6	80°15.5	104°59.1
15	87°01.2	5.4'	22°39.4	11.1'	60.3'	41°26.5		34°02.1	20°03.7		51°26.3	80°50.1	105°29.5
16	101°25.6	5.3'	22°50.5	10.9'	60.3'	40°55.6		33°31.3	19°32.5		52°03.0	81°24.8	105°59.8
17	115°49.9	5.1'	23°01.4	10.8'	60.3'	40°24.9		33°00.8	19°01.6		52°39.6	81°59.5	106°30.1
18	130°14.0	5.0'	N23°12.2	10.6'	60.3'	39°54.2		32°30.4	18°31.1	10°16.5	53°16.3	82°34.2	107°00.4
19	144°38.1	4.9'	23°22.8	10.5'	60.3'	39°23.7		32°00.2	18°00.9	10°42.6	53°53.0	83°08.9	107°30.6
20	159°02.0	4.8'	23°33.3	10.3'	60.3'	38°53.4		31°30.2	17°31.1	11°09.4	54°29.7	83°43.6	108°00.8
21	173°25.8	4.7'	23°43.6	10.2'	60.3'	38°23.2		31°00.5	17°01.8	11°36.8	55°06.5	84°18.3	108°31.0
22	187°49.5	4.6'	23°53.8	10.0'	60.3'	37°53.2		30°30.9	16°33.0	12°04.8	55°43.2	84°53.1	109°01.2
23	202°13.1	4.5'	24°03.8	9.8'	60.3'	37°23.3		$30^{\circ}01.7$	16°04.7	12°33.3	56°19.9	85°27.8	109°31.2
22 nd	SD	= 16.4	['] Mer. pas	s. 08:58		Sun SD = 15.7'							

h Moon (23rd Jun)

Mon	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	+Venus	+Saturn	+Achernar	+Fomalhaut	+Altair
0	216°36.6	4.4'	N 24°13.6	9.7'	60.3'	36°53.6	29°32.6	15°37.0	13°02.2	56°56.6	85°11.6	86°02.6	110°01.3
1	231°00.0	4.3'	24°23.3	9.5'	60.3'	36°24.1	29°03.9	15°09.9	13°31.6	57°33.4	85°30.8	86°37.3	110°31.3
2	245°23.3	4.2'	24°32.8	9.3'	60.3'	35°54.8	28°35.4	14°43.5	14°01.3	58°10.1	85°49.9	87°12.1	111°01.3
3	259°46.5	4.1'	24°42.1	9.2'	60.3'	35°25.7	28°07.2	14°17.8	14°31.4	58°46.9	86°09.1	87°46.9	111°31.2
4	274°09.6	4.0'	24°51.3	9.0'	60.3'	34°56.8	27°39.3	13°53.0	15°01.7	59°23.6	86°28.3	88°21.6	112°01.0
5	288°32.6	3.9'	$25^{\circ}00.3$	8.8'	60.3'	34°28.1	27°11.8	13°29.1	15°32.3	60°00.4	86°47.5	88°56.4	112°30.8
6	302°55.5	3.8'	$N25^{\circ}09.1$	8.6'	60.3'	33°59.7	26°44.5		16°03.2	60°37.2	87°06.7	89°31.2	113°00.6
7	$317^{\circ}18.2$	3.7'	$25^{\circ}17.7$	8.5'	60.3'	33°31.4	26°17.7		16°34.2	61°13.9	87°26.0	90°06.0	113°30.3
8	331°40.9	3.6'	25°26.2	8.3'	60.3'	33°03.5	25°51.2		17°05.5	61°50.7	87°45.3	90°40.8	113°59.9
9	346°03.6	3.5'	25°34.4	8.1'	60.3'	32°35.8	25°25.2		17°36.9	62°27.5	88°04.5	91°15.6	114°29.5
10	$0^{\circ}26.1$	3.4'	25°42.6	7.9'	60.3'	32°08.4	24°59.6		18°08.5	63°04.2	88°23.8	91°50.4	114°59.0
11	14°48.5	3.3'	25°50.5	7.7'	60.3'	31°41.2	24°34.4		18°40.3	63°41.0	88°43.1	92°25.2	115°28.4
12	29°10.8	3.3'	N25°58.2	7.5'	60.3'	31°14.4	24°09.7		19°12.1	64°17.8	89°02.4	92°59.9	115°57.8
13	43°33.1	3.2'	26°05.8	7.4'	60.3'	30°47.9	23°45.5		19°44.1	64°54.5	89°21.7	93°34.7	116°27.1
14	57°55.3	3.1'	26°13.1	7.2'	60.3'	30°21.7	23°21.8		20°16.3	65°31.3	89°41.0	94°09.5	116°56.3
15	$72^{\circ}17.3$	3.0'	26°20.3	7.0'	60.3'	29°55.8	22°58.6		20°48.5	66°08.1	90°00.3	94°44.3	117°25.5
16	86°39.4	2.9'	26°27.3	6.8'	60.3'	29°30.3	22°36.1		21°20.8	66°44.8	90°19.6	95°19.0	117°54.5
17	$101^{\circ}01.3$	2.9'	$26^{\circ}34.1$	6.6'	60.3'	29°05.2	22°14.1		21°53.2	67°21.6	90°38.9	95°53.8	118°23.5
18	115°23.2	2.8'	N26°40.7	6.4'	60.3'	28°40.5	21°52.8		22°25.7	67°58.3	90°58.2	96°28.5	118°52.4
19	129°44.9	2.7'	26°47.1	6.2'	60.3'	28°16.1	21°32.2		22°58.3	68°35.1	91°17.4	97°03.2	119°21.2
20	144°06.7	2.7'	26°53.3	6.0'	60.3'	27°52.2	21°12.2		23°30.9	69°11.8	91°36.7	97°38.0	119°49.9
21	158°28.3	2.6'	26°59.3	5.8'	60.2'	27°28.8	20°53.0		24°03.6	69°48.6	91°56.0	98°12.7	
22	172°49.9	2.5'	$27^{\circ}05.1$	5.6'	60.2'	27°05.8	20°34.6		24°36.3	70°25.3	92°15.2	98°47.4	
23	$187^{\circ}11.4$	2.5'	$27^{\circ}10.7$	5.4'	60.2'	26°43.2	20°17.0		25°09.1	71°02.0	92°34.4	99°22.1	
23 rd	SD =	= 16.4'	Mer. pass	. 09:58	3								

h Moon (24th Jun)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	+Aldebaran	+Venus	+Saturn	+Deneb	+Achernar	+Fomalhaut
0	201°32.9	2.4'	N27°16.2	5.2'	60.2'	26°21.2	20°00.2		25°42.0	71°38.8	89°21.4	92°53.6	99°56.7
1	215°54.3	2.4'	27°21.4	5.0'	60.2'	25° 59.7	19°44.3		26°14.8	72° 15.5	89°39.3	93°12.8	100°31.4
2	230°15.6	2.3'	27°26.4	4.8'	60.2'	25° 38.8	19°29.2		26°47.8	72°52.2	89°57.2	93°32.0	101°06.0
3	244°37.0	2.3'	27°31.2	4.6'	60.2'	25° 18.4			27°20.7	73°28.9	90°15.1	93°51.2	101°40.6
4	258°58.2	2.2'	27°35.8	4.4'	60.2'	24°58.6			27°53.7	74°05.6	90°33.0	94°10.3	102°15.2
5	273°19.4	2.2'	27°40.2	4.2'	60.2'	24°39.5			28°26.8	74°42.2	90°50.8	94°29.4	102°49.8
6	287°40.6	2.1'	N27°44.4	4.0'	60.2'	24°20.9			28°59.8	75° 18.9	91°08.7	94°48.5	103°24.4
7	302°01.7	2.1'	27°48.4	3.8'	60.2'	24°03.1			29°32.9	75°55.6	91°26.6	95°07.5	103°58.9
8	316°22.8	2.1'	27°52.2	3.6'	60.1'	23°45.9			30°06.0	76°32.2	91°44.4	95°26.5	104°33.4
9	330°43.9	2.0'	27°55.8	3.4'	60.1'	23°29.4			30°39.1	77°08.8	92°02.3	95°45.5	105°07.9
10	345°04.9	2.0'	$27^{\circ}59.1$	3.2'	60.1'	23°13.7			31°12.3	77°45.5	92°20.1	96°04.4	105°42.4
11	359°25.9	2.0'	28°02.3	3.0'	60.1'			14°12.7	31°45.4	78°22.1	92°37.9	96°23.3	106°16.8
12	13°46.9	2.0'	N 28°05.2	2.7'	60.1'			14°38.0	32°18.6	78° 58.7	92°55.6	96°42.2	106°51.3
13	28°07.9	1.9'	28°08.0	2.5'	60.1'			15°04.2	32°51.8	79°35.2	93°13.4	97°01.0	107°25.6
14	42°28.8	1.9'	28°10.5	2.3'	60.1'			15°31.0	33°25.0	80°11.8	93°31.1	97°19.7	108°00.0
15	56°49.7	1.9'	28°12.8	2.1'	60.1'			15°58.4	33°58.2	80°48.4	93°48.8	97°38.5	108°34.3
16	71°10.7	1.9'	$28^{\circ}15.0$	1.9'	60.0'			16°26.4	34°31.4	81°24.9	94°06.5	97°57.2	109°08.6
17	85°31.6	1.9'	$28^{\circ}16.9$	1.7'	60.0'			16°54.9	35°04.6	82°01.4	94°24.2	98°15.8	109°42.9
18	99°52.5	1.9'	N 28°18.5	1.5'	60.0'			17°23.9	35°37.8	82°37.9	94°41.8	98°34.4	110°17.1
19	114°13.4	1.9'	28°20.0	1.3'	60.0'			17°53.4	36°11.0	83°14.4	94°59.4	98°52.9	110°51.3
20	128°34.3	1.9'	$28^{\circ}21.3$	1.1'	60.0'			•		Moon ——	•	·	,
21	142°55.2	1.9'	28°22.3	0.8'	60.0'					Moon			
22	157°16.2	1.9'	28°23.2	0.6'	59.9'								
23	171°37.1	2.0'	28°23.8	0.4'	59.9'				New	Moon ——			
24 th	SD =	= 16.4′	Mer. pass	. 11:02	2			·					

h Moon (25th Jun)

		111001	1 (23 3u	,		
Wed	GHA	ν	Dec	d	HP	
0	185°58.1	2.0'	N28°24.3	0.2'	59.9'	New Moon
1	200°19.0	2.0'	28°24.5	0.0'	59.9'	New Moon
2	214°40.0	2.0'	28°24.5	-0.2'	59.9'	New Moon
3	229°01.1	2.1'	28°24.3	-0.4'	59.9'	New Moon
4	243°22.1	2.1'	28°23.9	-0.6'	59.8'	New Moon
5	257°43.2	2.1'	28°23.2	-0.8'	59.8'	New Moon
6	272°04.3	2.2'	N28°22.4	-1.0'	59.8'	New Moon
7	286°25.5	2.2'	28°21.4	-1.2'	59.8'	New Moon
8	300°46.7	2.3'	28°20.1	-1.5'	59.8'	New Moon
9	315°08.0	2.3'	28°18.7	-1.7'	59.7'	New Moon
10	329°29.3	2.4'	28°17.0	-1.9'	59.7'	New Moon
11	343°50.6	2.4'	$28^{\circ}15.2$	-2.1'	59.7'	New Moon
12	358°12.1	2.5'	$N28^{\circ}13.1$	-2.3'	59.7'	New Moon
13	12°33.5	2.5'	$28^{\circ}10.8$	-2.5'	59.7'	New Moon
14	26°55.1	2.6'	28°08.4	-2.7'	59.6'	New Moon
15	41°16.7	2.7'	28°05.7	-2.9'	59.6'	New Moon
16	55°38.3	2.7'	28°02.8	-3.1'	59.6'	New Moon
17	70°00.0	2.8'	$27^{\circ}59.7$	-3.3'	59.6'	New Moon
18	84°21.9	2.9'	$N27^{\circ}56.5$	-3.5'	59.5'	New Moon
19	98°43.7	3.0'	27°53.0	-3.7'	59.5'	New Moon
20	113°05.7	3.0'	27°49.4	-3.9'	59.5'	New Moon
21	127°27.7	3.1'	27°45.5	-4.0'	59.5'	New Moon
22	141°49.9	3.2'	27°41.5	-4.2'	59.4'	New Moon
23	156°12.1	3.3'	27°37.2	-4.4'	59.4'	New Moon
25 th	SD	= 16.3'	Mer. pass	s. 12:08		

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h	Moon (26 th lun)	Lunar Distance (objects with largest hourly LD delta)

			. (=0 04					ردد العداد				,	
Thu	GHA	ν	Dec	d	HP	-Hadar	-Rigil Kent.	-Acrux	-Spica	-Arcturus	-Mars	-Regulus	-Pollux
0	170°34.4	3.4'	N27°32.8	-4.6'	59.4'				— New Mo	on ———			
1	184°56.8	3.5'	27°28.2	-4.8'	59.4'				- New Mo	on ———			
2	199°19.2	3.6'	27°23.4	-5.0'	59.3'				- New Mo	on ———			
3	213°41.8	3.7'	27°18.4	-5.2'	59.3'			110°23.7	100°16.8	96°38.0	50°57.7	46°15.8	9°41.2
4	228°04.5	3.8'	27°13.2	-5.4'	59.3'			110°02.4	99°41.1	96°08.2	50°23.4	45°40.0	9°06.7
5	242°27.3	3.9'	27°07.9	-5.5'	59.2'			109°41.0	99°05.4	95°38.5	49°49.1	45°04.3	8°32.4
6	256°50.2	4.0'	N27°02.4	-5.7'	59.2'	119°56.1		109°19.6	98°29.7	95°08.7	49°14.9	44°28.7	7°58.3
7	271°13.1	4.1'	26°56.7	-5.9'	59.2'	119°31.9		108°58.1	97°54.1	94°39.0	48°40.7	43°53.1	7°24.5
8	285°36.2	4.2'	26°50.8	-6.1'	59.2'	119°07.7		108°36.5	97°18.5	94°09.3	48°06.5	43°17.5	6°51.0
9	299°59.4	4.3'	26°44.7	-6.2'	59.1'	118°43.3		108°14.9	96°42.9	93°39.6	47°32.3	42°41.9	6°18.0
10	314°22.7	4.4'	26°38.5	-6.4'	59.1'	118°18.9		107°53.2	96°07.4	93°10.0	46°58.2	42°06.4	5°45.5
11	328°46.1	4.5'	26°32.1	-6.6'	59.1'	117°54.4		107°31.5	95°31.9	92°40.3	46°24.2	41°30.9	5°13.7
12	343°09.7	4.6'	N 26°25.5	-6.7'	59.1'	117°29.8		107°09.7	94°56.4	92°10.7	45°50.1	40°55.5	4°42.8
13	357°33.3	4.8'	26°18.7	-6.9'	59.0'	117°05.1		106°47.9	94°21.0	91°41.2	45°16.1	40°20.1	
14	11°57.1	4.9'	26°11.8	-7.1'	59.0'	116°40.4		106°26.0	93°45.6	91°11.6	44°42.2	39°44.7	
15	26°21.0	5.0'	26°04.7	-7.2'	59.0'	116°15.6		106°04.1	93°10.2	90°42.1	44°08.3	39°09.4	
16	40°45.0	5.1'	25°57.5	-7.4'	58.9'	115°50.7		105°42.2	92°34.9	90°12.6	43°34.4	38°34.1	
17	55°09.1	5.2'	$25^{\circ}50.1$	-7.6'	58.9'	115°25.8	119°48.8	105°20.2	91°59.6	89°43.1	43°00.5	37°58.9	
18	69°33.3	5.4'	N25°42.5	-7.7'	58.9'	115°00.8	119°23.9	104°58.2	91°24.4	89°13.7	42°26.7	37°23.6	
19	83°57.7	5.5'	25°34.8	-7.9'	58.8'	114°35.7	118° 58.9	104°36.1	90°49.2	88°44.3	41°52.9	36°48.5	
20	98°22.2	5.6'	25°26.9	-8.0'	58.8'	114°10.6	118°33.8	104°14.0	90°14.0	88°15.0	41°19.2	36°13.3	
21	112°46.8	5.7'	25°18.9	-8.2'	58.8'	113°45.5	118°08.6	103°51.9	89°38.9	87°45.6	40°45.5	35°38.2	
22	127°11.6	5.9'	25°10.7	-8.3'	58.7'	113°20.3	117°43.4	103°29.7	89°03.8	87°16.3	40°11.9	35°03.2	
23	141°36.4	6.0'	25°02.3	-8.5'	58.7'	112°55.0	117° 18.2	103°07.5	88°28.8	86°47.1	39°38.2	34°28.2	
26 th	SD :	= 16.2	Mer. pass	s. 13:10)								

h Moon (27th Jun)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Rigil Kent.	-Hadar	-Spica	-Arcturus	-Mars	-Regulus	+Pollux	+Procyon
0	156°01.4	6.1'	N 24°53.9	-8.6'	58.7'	116°52.8	112°29.7	87°53.8	86° 17.9	39°04.7	33°53.2		
1	170°26.6	6.3'	24°45.2	-8.8'	58.6'	116°27.4	112°04.4	87°18.8	85° 48.7	38°31.1	33° 18.2		
2	184°51.8	6.4'	24°36.5	-8.9'	58.6'	116°02.0	111°39.0	86°43.9	85° 19.6	37°57.6	32°43.3		
3	199°17.2	6.5'	24°27.5	-9.1'	58.6'	115° 36.5	111°13.6	86°09.0	84° 50.5	37°24.2	32°08.5		
4	213°42.7	6.7'	24°18.5	-9.2'	58.6'	115° 10.9	110°48.2	85°34.2	84°21.5	36°50.8	31°33.7	5°51.5	
5	228°08.4	6.8'	24°09.3	-9.3'	58.5'	114°45.3	110°22.7	84°59.4	83°52.5	36°17.4	30°58.9	6°23.4	
6	242°34.2	6.9'	N 24°00.0	-9.5'	58.5'	114° 19.7	109°57.2	84°24.6	83°23.5	35°44.1	30°24.2	6°55.8	
7	257°00.1	7.0'	23°50.5	-9.6'	58.5'	113°54.0	109°31.7	83°49.9	82°54.6	35°10.8	29°49.5	7°28.4	
8	271°26.1	7.2'	23°40.9	-9.7'	58.4'	113°28.3	109°06.1	83°15.2	82°25.7	34°37.5	29° 14.9	8°01.4	
9	285°52.3	7.3'	23°31.2	-9.9'	58.4'	113°02.5	108°40.5	82°40.6	81°56.9	34°04.3	28°40.3	8°34.5	
10	300°18.6	7.4'	23°21.3	-10.0'	58.4'	112°36.8	108°14.9	82°06.0	81°28.2	33°31.1	28°05.7	9°07.7	
11	314°45.1	7.6'	23°11.3	-10.1'	58.3'	112° 10.9	107°49.3	81°31.4	80° 59.5	32°58.0	27°31.2	9°41.1	
12	329°11.6	7.7'	N23°01.2	-10.2'	58.3'	111°45.1	107°23.6	80°56.9	80°30.8	32°24.9	26°56.7	10°14.6	
13	343°38.4	7.8'	22°51.0	-10.3'	58.3'	111° 19.2	106°58.0	80°22.4	80°02.2	31°51.9	26°22.3	10°48.1	
14	358°05.2	8.0'	22°40.7	-10.5'	58.2'	110°53.3	106°32.3	79°48.0	79°33.7	31°18.9	25°47.9	11°21.7	
15	12°32.2	8.1'	22°30.2	-10.6'	58.2'	110°27.3	106°06.6	79°13.6	79°05.2	30°45.9	25° 13.6	11°55.3	
16	26°59.3	8.3'	$22^{\circ}19.6$	-10.7'	58.1'	110°01.4	105°40.9	78°39.2	78°36.8	30°13.0	24°39.3	12°29.0	
17	41°26.6	8.4'	22°08.9	-10.8'	58.1'	109°35.4	105°15.1	78°04.9	78°08.4	29°40.2	24°05.0	13°02.6	
18	55°53.9	8.5'	N 21°58.1	-10.9'	58.1'	109°09.4	104°49.4	77°30.7	77°40.1	29°07.3	23°30.8	13°36.3	
19	70°21.5	8.6'	21°47.2	-11.0'	58.0'	108°43.4	104°23.7	76°56.5	77° 11.8	28°34.5	22°56.6	14°10.0	
20	84°49.1	8.8'	21°36.2	-11.1'	58.0'	108° 17.3	103°57.9	76°22.3	76°43.6	28°01.8	22°22.5	14°43.7	22°44.1
21	99°16.9	8.9'	21°25.0	-11.2'	58.0'	107°51.3	103°32.2	75°48.2	76° 15.5	27°29.1	21°48.5	15°17.3	23°00.0
22	113°44.8	9.0'	21°13.8	-11.3'	57.9'	107°25.2	103°06.4	75°14.1	75° 47.4	26°56.5	21°14.4	15°51.0	23°16.4
23	128°12.8	9.2'	21°02.4	-11.4'	57.9'	106°59.1	102°40.7	74°40.0	75° 19.4	26°23.8	20°40.5	16°24.7	23°33.5
27 th	SD	= 16.0)' Mer. pas	s. 14:08									

h Moon (28th Jun)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Antares	-Spica	-Mars	-Regulus	+Pollux	+Procyon	+Sun	+Sirius
0	142°41.0	9.3'	N 20°51.0	-11.5'	57.9'		74°06.0	25°51.3	20°06.5	16°58.3	23°51.0		
1	157°09.3	9.4'	20°39.5	-11.6'	57.8'	119°26.5	73°32.1	25°18.7	19°32.7	17°31.9	24°09.1		
2	171°37.8	9.6'	20°27.8	-11.7'	57.8'	118°52.6	72°58.2	24°46.3	18°58.8	18°05.5	24°27.7		
3	186°06.3	9.7'	$20^{\circ}16.1$	-11.8'	57.8'	118°18.7	72°24.3	24°13.8	18°25.0	18°39.1	24°46.8		
4	200°35.0	9.8'	20°04.3	-11.9'	57.7'	117°44.9	71°50.5	23°41.4	17°51.3	19°12.6	25°06.4		
5	215°03.9	10.0'	19°52.3	-12.0'	57.7'	117°11.1	71°16.7	23°09.1	17°17.6	19°46.1	25°26.4		
6	229°32.8	10.1'	N 19°40.3	-12.1'	57.7'	116°37.4	70°42.9	22°36.8	16°44.0	20° 19.6	25°46.8		
7	244°01.9	10.2'	19°28.2	-12.2'	57.6'	116°03.7	70°09.2	22°04.5	16°10.4	20°53.1	26°07.6		
8	258°31.1	10.3'	$19^{\circ}16.1$	-12.3'	57.6'	115°30.0	69°35.6	21°32.3	15°36.9	21°26.5	26°28.8		
9	273°00.4	10.5'	19°03.8	-12.4'	57.6'	114°56.4	69°02.0	21°00.1	15°03.4	21°59.9	26°50.3		
10	287°29.9	10.6'	18°51.4	-12.4'	57.5'	114°22.8	68°28.4	20°28.0	14°30.0	22°33.2	27°12.3		51°24.0
11	301°59.5	10.7'	18°39.0	-12.5'	57.5'	113°49.3	67°54.9	19°55.9	13°56.6	23°06.6	27°34.5		51°39.2
12	316°29.2	10.8'	N 18°26.5	-12.6'	57.5'	113°15.8	67°21.4	19°23.8	13°23.3	23°39.9	27°57.1		51°54.7
13	330°59.0	10.9'	$18^{\circ}13.9$	-12.7'	57.4'	112°42.4	66°48.0	18°51.8	12°50.0	24°13.1	28°19.9		52°10.3
14	345°28.9	11.1'	$18^{\circ}01.2$	-12.7'	57.4'	112°09.0	66°14.6	18°19.9	12°16.8	24°46.3	28°43.1	41°03.4	52°26.1
15	359°59.0	11.2'	17°48.5	-12.8'	57.3'	111°35.6	65°41.2	17°48.0	11°43.7	25° 19.5	29°06.5	41°34.1	52°42.0
16	14°29.2	11.3'	17°35.7	-12.9'	57.3'	111°02.3	65°07.9	17°16.1	11°10.6	25°52.7	29°30.2	42°04.8	52°58.1
17	28°59.5	11.4'	17°22.8	-12.9'	57.3'	110°29.1	64°34.6	16°44.3	10°37.6	26°25.8	29°54.1	42°35.4	53°14.4
18	43°29.9	11.5'	$N17^{\circ}09.9$	-13.0'	57.2'	109°55.8	64°01.4	16°12.5	10°04.6	26°58.9	30°18.3	43°06.0	53°30.9
19	58°00.5	11.7'	16°56.8	-13.1'	57.2'	109°22.7	63°28.2	15°40.7	9°31.8	27°31.9	30°42.6	43°36.5	53°47.5
20	72°31.1	11.8'	16°43.8	-13.1'	57.2'	108°49.5	62°55.1	15°09.1	8°59.0	28°04.9	31°07.2	44°07.1	54°04.2
21	87°01.9	11.9'	16°30.6	-13.2'	57.1'	108°16.4	62°22.0	14°37.4	8°26.3	28° 37.9	31°32.1	44° 37.5	54°21.2
22	101°32.8	12.0'	16°17.4	-13.3'	57.1'	107°43.4	61°49.0	14°05.8	7°53.7	29°10.8	31°57.0	45°08.0	54°38.2
23	116°03.8	12.1'	16°04.1	-13.3'	57.1'	107°10.4	61°16.0	13°34.2	7°21.2	29°43.7	32°22.2	45°38.4	54°55.4
28 th	SD	= 15.8	Mer. pas	s. 15:00					Sun SD	= 15.7'			

h Moon (29th Jun) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Mars	±Regulus	+Pollux	+Procyon	+Sun	+Sirius
0	130°34.9	12.2'	N 15°50.8	-13.4'	57.0'	106°37.4	60°43.0	13°02.7	6°48.8	30°16.5	32°47.6	46°08.7	55°12.7
1	145°06.1	12.3'	15°37.4	-13.4'	57.0'	106°04.5	60°10.1	12°31.2	6° 16.6	30°49.3	33°13.1	46°39.0	55°30.2
2	159°37.4	12.4'	15°24.0	-13.5'	57.0'	105°31.6	59°37.2	11°59.8	5°44.5	31°22.1	33°38.8	47°09.3	55°47.8
3	174°08.8	12.5'	$15^{\circ}10.5$	-13.6'	56.9'	104°58.8	59°04.4	11°28.4	5°12.7	31°54.8	34°04.6	47°39.5	56°05.5
4	188°40.4	12.6'	14°56.9	-13.6'	56.9'	104°26.0	58°31.6	10°57.0	4°41.1	32°27.5	34°30.5	48°09.7	56°23.4
5	203°12.0	12.7'	14°43.3	-13.7'	56.9'	103°53.2	57°58.8	10°25.7	4°09.9	33°00.2	34°56.6	48°39.9	56°41.4
6	217°43.8	12.8'	$N14^{\circ}29.7$	-13.7'	56.8'	103°20.5	57°26.1	9°54.5	3°39.2	33°32.8	35°22.9	49°10.0	56°59.5
7	232°15.6	12.9'	14°16.0	-13.8'	56.8'	102°47.8	56°53.5	9°23.2	3°09.2	34°05.4	35°49.2	49°40.1	57°17.7
8	246°47.6	13.1'	14°02.2	-13.8'	56.8'	102°15.2	56°20.8	8°52.0		34°37.9	36°15.7	50°10.2	57°36.0
9	261°19.6	13.1'	13°48.4	-13.8'	56.7'	101°42.6	55°48.2	8°20.9		35°10.4	36°42.2	50°40.2	57°54.4
10	275°51.8	13.2'	13°34.6	-13.9'	56.7'	101°10.1	55°15.7	7°49.8		35°42.9	37°08.9	51°10.1	58°13.0
11	290°24.0	13.3'	13°20.7	-13.9'	56.7'	100°37.6	54°43.2	7°18.8		$36^{\circ}15.3$	37°35.7	51°40.1	58°31.6
12	304°56.4	13.4'	N 13°06.8	-14.0'	56.6'	100°05.1	54°10.8	6°47.8		36°47.7	38°02.5	52°10.0	58°50.4
13	319°28.8	13.5'	12°52.8	-14.0'	56.6'	99°32.7	53°38.3	6°16.8		37°20.0	38°29.5	52°39.8	59°09.2
14	334°01.3	13.6'	12°38.8	-14.0'	56.6'	99°00.3	53°06.0	5°45.9		37°52.3	38°56.5	53°09.6	59°28.2
15	348°34.0	13.7'	12°24.8	-14.1'	56.5'	98°28.0	52°33.6	5°15.0		38°24.6	39°23.6	53°39.4	59°47.2
16	3°06.7	13.8'	$12^{\circ}10.7$	-14.1'	56.5'	97°55.7	52°01.3	4°44.1		38°56.8	39°50.8	54°09.1	60°06.3
17	17°39.5	13.9'	$11^{\circ}56.6$	-14.2'	56.5'	97°23.4	51°29.1	4°13.4		39°29.0	40°18.1	54°38.8	60°25.6
18	32°12.4	14.0'	N11°42.4	-14.2'	56.4'	96°51.2	50°56.9	3°42.6		40°01.1	40°45.4	55°08.5	60°44.9
19	46°45.4	14.1'	11°28.2	-14.2'	56.4'	96°19.1	50°24.7	3°11.9	3°51.8	40°33.2	41°12.8	55°38.1	61°04.2
20	61°18.4	14.2'	$11^{\circ}14.0$	-14.2'	56.4'	95°46.9	49°52.6	2°41.3	4°22.2	41°05.3	41°40.2	56°07.7	61°23.7
21	75°51.6	14.2'	$10^{\circ}59.8$	-14.3'	56.3'	95°14.8	49°20.5	2°10.7	4°52.9	41°37.3	42°07.7	56°37.3	61°43.3
22	90°24.8	14.3'	10°45.5	-14.3'	56.3'	94°42.8	48°48.4	1°40.2	5°23.8	42°09.3	42°35.3	57°06.8	62°02.9
23	104°58.1	14.4'	10°31.2	-14.3'	56.3'	94°10.7	48°16.4	1°09.9	5°54.9	42°41.3	43°02.9	57°36.3	62°22.6
29 th	SD	= 15.6	Mer. pas	s. 15:47					Sun SD	= 15.7'			

h	Moon	(30 th	Jun))

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	±Mars	+Regulus	+Pollux	+Procyon	+Sun
0	119°31.5	14.5'	$N10^{\circ}16.9$	-14.4'	56.2'	93°38.8	85°53.6	47°44.4	0°40.1	6°26.2	43°13.2	43°30.5	58°05.7
1	134°05.0	14.6'	$10^{\circ}02.5$	-14.4'	56.2'	93°06.8	85°28.4	47°12.5		6°57.5	43°45.1	43°58.2	58°35.1
2	148°38.5	14.6'	09°48.1	-14.4'	56.2'	92°34.9	85°03.3	46°40.6		7°28.8	44°16.9	44°26.0	59°04.5
3	163°12.2	14.7'	09°33.7	-14.4'	56.1'	92°03.1	84°38.2	46°08.7		8°00.2	44°48.7	44°53.7	59°33.8
4	177°45.9	14.8'	$09^{\circ}19.3$	-14.4'	56.1'	91°31.2	84°13.1	45°36.9		8°31.6	45°20.5	45°21.6	60°03.1
5	192°19.7	14.9'	09°04.8	-14.5'	56.1'	90°59.4	83°48.1	45°05.1	1°54.2	9°03.0	45°52.2	45°49.4	60°32.3
6	206°53.5	14.9'	N 08°50.4	-14.5'	56.0'	90°27.7	83°23.1	44°33.4	2°24.3	9°34.4	46°23.9	46°17.3	61°01.6
7	221°27.4	15.0'	08°35.9	-14.5'	56.0'	89°56.0	82° 58.2	44°01.7	2°54.5	10°05.8	46°55.6	46°45.2	61°30.7
8	236°01.4	15.1'	$08^{\circ}21.4$	-14.5'	56.0'	89°24.3	82°33.3	43°30.0	3°24.7	10°37.2	47°27.2	47°13.2	61°59.9
9	250°35.5	15.1'	08°06.8	-14.5'	55.9'	88°52.7	82°08.5	42°58.4	3°54.9	11°08.6	47°58.8	47°41.1	62°29.0
10	265°09.6	15.2'	07°52.3	-14.6'	55.9'	88°21.1	81°43.7	42°26.8	4°25.0	11°40.0	48°30.4	48°09.1	62°58.1
11	279°43.8	15.3'	07°37.7	-14.6'	55.9'	87°49.5	81°18.9	41°55.2	4°55.1	12°11.4	49°01.9	48°37.1	63°27.1
12	294°18.1	15.3'	$N07^{\circ}23.2$	-14.6'	55.8'	87°18.0	80°54.2	41°23.7	5°25.2	12°42.7	49°33.4	49°05.2	63°56.1
13	308°52.4	15.4'	07°08.6	-14.6'	55.8'	86°46.5	80°29.6	40°52.2	5°55.2	13° 14.1	50°04.8	49°33.2	64°25.1
14	323°26.8	15.4'	06°54.0	-14.6'	55.8'	86°15.0	80°05.0	40°20.7	6°25.2	13°45.4	50°36.2	50°01.3	64°54.0
15	338°01.2	15.5'	06°39.4	-14.6'	55.8'	85°43.6	79°40.4	39°49.3	6°55.2	14° 16.6	51°07.6	50°29.4	65°22.9
16	352°35.7	15.6'	06°24.8	-14.6'	55.7'	85°12.2	79° 15.9	39°17.9	7°25.1	14°47.9	51°38.9	50°57.5	65°51.8
17	7°10.3	15.6'	$06^{\circ}10.2$	-14.6'	55.7'	84°40.8	78°51.4	38°46.6	7°55.0	15° 19.1	52°10.2	51°25.6	66°20.7
18	21°44.9	15.7'	N 05°55.5	-14.6'	55.7'	84°09.5	78° 27.0	38°15.3	8°24.9	15°50.3	52°41.5	51°53.8	66°49.5
19	36°19.6	15.7'	05°40.9	-14.6'	55.6'	83°38.2	78°02.6	37°44.0	8°54.7	16°21.5	53°12.8	52°21.9	67°18.2
20	50°54.3	15.8'	05°26.2	-14.7'	55.6'	83°07.0	77°38.3	37°12.7	9°24.5	16°52.6	53°44.0	52°50.1	67°47.0
21	65°29.1	15.8'	$05^{\circ}11.6$	-14.7'	55.6'	82°35.8	77°14.0	36°41.5	9°54.3	17°23.8	54°15.1	53°18.3	68°15.7
22	80°03.9	15.9'	04°56.9	-14.7'	55.6'	82°04.6	76°49.8	36°10.4	10°24.0	17°54.8	54°46.3	53°46.5	68°44.3
23	94°38.8	15.9'	04°42.3	-14.7'	55.5'	81°33.4	76°25.6	35°39.2	10°53.7	18°25.9	55°17.4	54°14.6	69°13.0
30 th	SD	= 15.3	Mer. pas	s. 16:30					Sun SD	= 15.7'			

h Moon (1st Jul) Lunar Distance (objects with largest hourly LD delta)

$\overline{}$			J (2 Ju					\ 3				40.00)	
Tue	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Mars	+Regulus	+Pollux	+Sun
0	109°13.7	16.0'	N 04°27.6	-14.7'	55.5'		81°02.3	76°01.5	35°08.1	11°23.4	18°57.0	55°48.5	69°41.6
1	123°48.7	16.0'	$04^{\circ}12.9$	-14.7'	55.5'		80°31.2	75°37.4	34°37.0	11°53.0	19°28.0	56°19.5	70°10.2
2	138°23.7	16.1'	03°58.3	-14.7'	55.4'		80°00.2	75°13.4	34°06.0	12°22.7	19°58.9	56°50.5	70°38.7
3	152°58.8	16.1'	03°43.6	-14.7'	55.4'		79°29.2	74°49.5	33°35.0	12°52.2	20°29.9	57°21.5	71°07.2
4	167°33.9	16.1'	03°29.0	-14.7'	55.4'		78°58.2	74°25.6	33°04.0	13°21.8	21°00.8	57°52.5	71°35.7
5	182°09.0	16.2'	03°14.3	-14.7'	55.4'		78°27.2	74°01.7	32°33.0	13°51.3	21°31.7	58°23.4	72°04.2
6	196°44.2	16.2'	N 02°59.6	-14.7'	55.3'		77°56.3	73°37.9	32°02.1	14°20.8	22°02.6	58°54.3	72°32.6
7	211°19.5	16.3'	02°45.0	-14.7'	55.3'		77°25.4	73°14.2	31°31.2	14°50.2	22°33.4	59°25.2	73°01.0
8	225°54.7	16.3'	02°30.3	-14.6'	55.3'		76°54.5	72°50.5	31°00.3	$15^{\circ}19.6$	23°04.2	59°56.0	73°29.4
9	240°30.0	16.3'	02° 15.7	-14.6'	55.3'		76°23.7	72°26.9	30°29.5	15°49.0	23°35.0	60°26.8	73°57.7
10	255°05.4	16.4'	02°01.0	-14.6'	55.2'		75°52.9	72°03.3	29°58.7	16° 18.4	24°05.8	60°57.6	74°26.0
11	269°40.7	16.4'	01°46.4	-14.6'	55.2'		75°22.1	71°39.8	29°27.9	16°47.7	24°36.5	61°28.3	74°54.3
12	284°16.1	16.4'	N 01°31.7	-14.6'	55.2'		74°51.3	71°16.4	28°57.2	17° 17.0	25°07.2	61°59.0	75°22.6
13	298°51.6	16.5'	$01^{\circ}17.1$	-14.6'	55.2'		74°20.6	70°53.0	28°26.5	17°46.3	25°37.9	62°29.7	75°50.8
14	313°27.1	16.5'	$01^{\circ}02.5$	-14.6'	55.1'		73°49.9	70°29.7	27°55.8	18° 15.5	26°08.5	63°00.4	76°19.0
15	328°02.5	16.5'	00°47.9	-14.6'	55.1'		73°19.3	70°06.5	27°25.2	18°44.8	26°39.2	63°31.0	76°47.1
16	342°38.1	16.5'	00°33.3	-14.6'	55.1'		72°48.6	69°43.3	26°54.5	19° 14.0	27°09.8	64°01.6	77°15.3
17	357°13.6	16.6'	00°18.7	-14.6'	55.1'	119°46.7	72°18.0	69°20.1	26°23.9	19°43.1	27°40.3	64°32.2	77°43.4
18	11°49.2	16.6'	N00°04.2	-14.6'	55.0'	119°22.9	71°47.4	68°57.1	25°53.4	20° 12.3	28°10.9	65°02.7	78°11.5
19	26°24.8	16.6'	S 00°10.4	-14.5'	55.0'	118°59.0	71°16.9	68°34.1	25°22.8	20°41.4	28°41.4	65°33.3	78°39.6
20	41°00.4	16.6'	00°25.0	-14.5'	55.0'	118°35.1	70°46.3	68°11.1	24°52.3	21° 10.5	29°11.9	66°03.8	79°07.6
21	55°36.1	16.7'	00°39.5	-14.5'	55.0'	118°11.2	70° 15.8	67°48.3	24°21.8	21°39.5	29°42.4	66°34.2	79°35.6
22	70°11.7	16.7'	00°54.0	-14.5'	55.0'	117°47.2	69°45.3	67°25.5	23°51.3	22°08.5	30°12.8	67°04.7	80°03.6
23	84°47.4	16.7'	01°08.5	-14.5'	54.9'	117°23.2	69°14.9	67°02.7	23°20.9	22°37.5	30°43.2	67°35.1	80°31.6
1 st	SD	= 15.1	Mer. pas	s. 17:11					Sun SD =	15.7'			

h		Моо	n (2 ^{na} Jul	l)			Lunar D	Distance (ob	jects wit	th larges	t hourly L	D delta)		
Wed	GΗΛ	1/	Dec	А	HP	- Altair	-Antares	-Rigil Kont	-Snica	⊥Mars	⊥Rogulus	⊥Procyon	⊥Polluy	

Wed	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Mars	+Regulus	+Procyon	+Pollux
0	99°23.1	16.7'	S 01°23.0	-14.5'	54.9'	116°59.2	68°44.5	66°40.1	22°50.5	23°06.5	31°13.6	65°59.8	68°05.5
1	113°58.8	16.7'	01°37.5	-14.5'	54.9'	116°35.1	$68^{\circ}14.1$	66°17.5	22°20.1	23°35.5	31°44.0	66°28.0	68°35.9
2	128°34.5	16.7'	$01^{\circ}51.9$	-14.4'	54.9'	116°11.0	67°43.7	65°55.0	21°49.7	24°04.4	32°14.4	66° 56.2	69°06.2
3	143°10.3	16.8'	02°06.4	-14.4'	54.9'	115°46.9	67°13.3	65°32.5	21°19.4	24°33.3	32°44.7	67°24.3	69°36.6
4	157°46.0	16.8'	02°20.8	-14.4'	54.8'	115°22.7	66°43.0	65°10.1	20°49.1	25°02.2	33°15.0	67° 52.5	70°06.9
5	172°21.8	16.8'	02°35.2	-14.4'	54.8'	114°58.5	66°12.7	64°47.8	20°18.8	25°31.1	33°45.3	68°20.6	70°37.2
6	186°57.6	16.8'	S 02°49.6	-14.4'	54.8'	114°34.3	65°42.4	64°25.6	19°48.5	25°59.9	34°15.6	68° 48.8	71°07.4
7	201°33.3	16.8'	03°03.9	-14.3'	54.8'	114°10.1	65°12.1	64°03.5	19°18.2	26°28.7	34°45.8	69° 16.9	71°37.7
8	216°09.1	16.8'	03°18.2	-14.3'	54.8'	113°45.8	64°41.9	63°41.4	18°48.0	26°57.5	35°16.0	69°45.0	72°07.9
9	230°44.9	16.8'	03°32.6	-14.3'	54.7'	113°21.5	64°11.6	63°19.4	18°17.8	27°26.3	35°46.2	70°13.1	72°38.1
10	245°20.7	16.8'	03°46.9	-14.3'	54.7'	112°57.2	63°41.4	62°57.5	17°47.6	27°55.1	36°16.4	70°41.3	73°08.2
11	259°56.5	16.8'	$04^{\circ}01.1$	-14.2'	54.7'	112°32.9	63°11.3	62°35.6	17°17.5	28°23.8	36°46.6	71°09.4	73°38.4
12	274°32.4	16.8'	S 04°15.4	-14.2'	54.7'	112°08.6	62°41.1	62°13.9	16°47.4	28°52.5	37°16.7	71°37.5	74°08.5
13	289°08.2	16.8'	04°29.6	-14.2'	54.7'	111°44.2	62°11.0	61°52.2	16°17.2	29°21.2	37°46.8	72°05.6	74°38.6
14	303°44.0	16.8'	04°43.8	-14.2'	54.6'	111°19.8	61°40.8	61°30.6	15°47.2	29°49.9	38°16.9	72°33.6	75°08.7
15	318° 19.8	16.8'	04°57.9	-14.1'	54.6'	110°55.4	$61^{\circ}10.7$	61°09.1	15°17.1	30°18.5	38°47.0	73°01.7	75°38.8
16	332°55.6	16.8'	$05^{\circ}12.1$	-14.1'	54.6'	110°30.9	60°40.7	60°47.6	14°47.0	30°47.1	39°17.0	73°29.8	76°08.9
17	347°31.4	16.8'	$05^{\circ}26.2$	-14.1'	54.6'	110°06.5	$60^{\circ}10.6$	60°26.3	14°17.0	31°15.8	39°47.1	73°57.8	76°38.9
18	2°07.2	16.8'	S 05°40.3	-14.1'	54.6'	109°42.0	59°40.6	60°05.1	13°47.0	31°44.4	40°17.1	74°25.9	77°08.9
19	16°43.0	16.8'	05°54.3	-14.0'	54.6'	109°17.5	59°10.5	59°43.9	13°17.0	32°12.9	40°47.1	74°53.9	77°38.9
20	31°18.8	16.8'	06°08.4	-14.0'	54.5'	108°53.0	58°40.5	59°22.8	12°47.1	32°41.5	41°17.1	75°22.0	78°08.9
21	45°54.6	16.8'	$06^{\circ}22.4$	-14.0'	54.5'	108°28.5	$58^{\circ}10.5$	59°01.8	12°17.1	33°10.0	41°47.1	75°50.0	78°38.8
22	60°30.3	16.8'	06°36.3	-13.9'	54.5'	108°04.0	57°40.6	58°40.9	11°47.2	33°38.6	42°17.0	76° 18.0	79°08.8
23	75°06.1	16.7'	06°50.3	-13.9'	54.5'	107°39.4	57°10.6	58°20.1	11°17.3	34°07.1	42°47.0	76°46.0	79°38.7
2 nd	SD	= 15.0	′ Mer. pas	s. 17:51									

Moon (3rd Jul)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	-Spica	+Mars	+Regulus	+Procyon	+Pollux
0	89°41.8	16.7'	S 07°04.2	-13.9'	54.5'	107°14.9	57°59.4	56°40.7	10°47.4	34°35.6	43° 16.9	77°14.1	80°08.6
1	104°17.6	16.7'	07°18.0	-13.8'	54.5'	106°50.3	57°38.8	56° 10.7	10° 17.6	35°04.0	43°46.8	77°42.1	80°38.5
2	118°53.3	16.7'	07°31.9	-13.8'	54.5'	106°25.7	57°18.3	55°40.8	9°47.7	35°32.5	44° 16.7	78°10.0	81°08.4
3	133°29.0	16.7'	07°45.7	-13.8'	54.4'	106°01.1	56°57.9	55° 10.9	9° 17.9	36°00.9	44° 46.6	78°38.0	81°38.3
4	148°04.7	16.7'	07°59.4	-13.7'	54.4'	105°36.5	56°37.6	54°41.1	8°48.1	36°29.4	45° 16.5	79°06.0	82°08.1
5	162°40.4	16.7'	08°13.2	-13.7'	54.4'	105°11.9	56°17.4	54°11.2	8°18.4	36°57.8	45°46.3	79°34.0	82°38.0
6	177°16.0	16.6'	S 08°26.9	-13.7'	54.4'	104°47.2	55°57.3	53°41.3	7°48.6	37°26.2	46° 16.1	80°01.9	83°07.8
7	191°51.7	16.6'	08°40.5	-13.6'	54.4'	104°22.6	55°37.3	53° 11.5	7° 18.9	37°54.6	46°46.0	80°29.9	83°37.6
8	206°27.3	16.6'	08°54.1	-13.6'	54.4'	103°57.9	55°17.4	52°41.7	6°49.3	38°22.9	47° 15.8	80°57.9	84°07.4
9	221°02.9	16.6'	09°07.7	-13.5'	54.4'	103°33.3	54°57.6	52°11.9	6° 19.6	38°51.3	47°45.6	81°25.8	84°37.2
10	235°38.4	16.5'	09°21.3	-13.5'	54.4'	103°08.6	54°37.9	51°42.1	5°50.0	39°19.6	48° 15.4	81°53.7	85°07.0
11	250°14.0	16.5'	09°34.8	-13.5'	54.3'	102°43.9	54°18.4	51°12.3	5°20.5	39°48.0	48°45.1	82°21.7	85°36.7
12	264°49.5	16.5'	S 09°48.2	-13.4'	54.3'	102°19.2	53°58.9	50°42.5	4°51.0	40°16.3	49°14.9	82°49.6	86°06.5
13	279°25.0	16.5'	$10^{\circ}01.7$	-13.4'	54.3'	101°54.5	53°39.6	50°12.7	4°21.6	40°44.6	49°44.6	83°17.5	86°36.2
14	294°00.5	16.4'	$10^{\circ}15.0$	-13.3'	54.3'	101°29.8	53°20.4	49°43.0	3°52.3	41°12.9	50° 14.4	83°45.4	87°06.0
15	308°35.9	16.4'	10°28.4	-13.3'	54.3'	101°05.1	53°01.3	49°13.2	3°23.2	41°41.2	50°44.1	84°13.3	87°35.7
16	323°11.3	16.4'	$10^{\circ}41.7$	-13.3'	54.3'	100°40.4	52°42.3	48°43.5	2°54.2	42°09.5	51° 13.8	84°41.2	88°05.4
17	337°46.7	16.3'	10°54.9	-13.2'	54.3'	100°15.6	52°23.4	48°13.8	2°25.6	42°37.8	51°43.5	85°09.1	88°35.1
18	352°22.1	16.3'	S 11°08.1	-13.2'	54.3'	99°50.9	52°04.7	47°44.1	1°57.6	43°06.0	52° 13.2	85°37.0	89°04.8
19	6°57.4	16.3'	$11^{\circ}21.3$	-13.1'	54.3'	99°26.2	51°46.1	47° 14.4		43°34.3	52°42.9	86°04.8	89°34.4
20	21°32.7	16.2'	11°34.4	-13.1'	54.3'	99°01.4	51°27.6	46° 44.7		44°02.5	53° 12.6	86°32.7	90°04.1
21	36°07.9	16.2'	11°47.5	-13.0'	54.2'	98°36.7	51°09.3	46° 15.0		44°30.7	53°42.3	87°00.6	90°33.8
22	50°43.1	16.2'	12°00.5	-13.0'	54.2'	98°11.9	50°51.1	45° 45.3		44°59.0	54° 12.0	87°28.4	91°03.4
23	65°18.3	16.1'	12°13.5	-12.9'	54.2'	97°47.2	50°33.0	45° 15.7		45°27.2	54°41.6	87°56.3	91°33.1
3 rd	SD	= 14.9'	Mer. pas	s. 18:31									

Moon (4th Jul)

h

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Mars	+Regulus	+Pollux
0	79°53.4	16.1'	S 12°26.5	-12.9'	54.2'		97°22.4	50°15.1	44°46.0		45°55.4	55°11.3	92°02.7
1	94°28.5	16.1'	12°39.3	-12.8'	54.2'		96°57.6	49°57.3	44°16.3		46°23.6	55°40.9	92°32.3
2	109°03.6	16.0'	12°52.2	-12.8'	54.2'		96°32.8	49°39.6	43°46.7		46°51.8	56°10.5	93°02.0
3	123°38.6	16.0'	13°05.0	-12.7'	54.2'		96°08.1	49°22.1	43°17.1	2°43.4	47°20.0	56°40.2	93°31.6
4	138°13.6	15.9'	13°17.7	-12.7'	54.2'		95°43.3	49°04.8	42°47.4	3°12.2	47°48.1	57°09.8	94°01.2
5	152°48.5	15.9'	13°30.4	-12.6'	54.2'		95°18.5	48°47.6	42°17.8	3°41.1	48°16.3	57°39.4	94°30.8
6	167°23.4	15.8'	S 13°43.0	-12.6'	54.2'		94°53.7	48°30.5	41°48.2	4°10.3	48°44.5	58°09.0	95°00.4
7	181°58.3	15.8'	13°55.6	-12.5'	54.2'		94°28.9	48°13.6	41°18.6	4°39.5	49°12.7	58°38.6	95°30.0
8	196°33.1	15.8'	14°08.1	-12.5'	54.2'		94°04.1	47°56.8	40°48.9	5°08.8	49°40.8	59°08.2	95°59.6
9	211°07.8	15.7'	14°20.6	-12.4'	54.2'		93°39.4	47°40.3	40°19.3	5°38.1	50°09.0	59°37.8	96°29.1
10	225°42.5	15.7'	14°33.0	-12.4'	54.2'		93°14.6	47°23.8	39°49.7	6°07.5	50°37.1	60°07.4	96°58.7
11	240°17.2	15.6'	14°45.3	-12.3'	54.2'	119°35.1	92°49.8	47°07.6	39°20.1	6°36.9	51°05.3	60°37.0	97°28.3
12	254°51.8	15.6'	S 14°57.6	-12.2'	54.1'	119°07.8	92°25.0	46°51.5	38°50.5	7°06.4	51°33.4	61°06.6	97°57.9
13	269°26.3	15.5'	$15^{\circ}09.9$	-12.2'	54.1'	118° 40.5	92°00.2	46°35.6	38°20.9	7°35.8	52°01.6	61°36.2	98°27.4
14	284°00.9	15.5'	15°22.0	-12.1'	54.1'	118° 13.1	91°35.4	46°19.8	37°51.3	8°05.3	52°29.7	62°05.8	98°57.0
15	298°35.3	15.4'	15°34.2	-12.1'	54.1'	117° 45.7	91°10.6	46°04.2	37°21.7	8°34.8	52°57.8	62°35.4	99°26.6
16	313°09.7	15.3'	15°46.2	-12.0'	54.1'	117° 18.4	90°45.8	45°48.8	36°52.2	9°04.2	53°26.0	63°05.0	99°56.1
17	327°44.1	15.3'	15°58.2	-11.9'	54.1'	116°50.9	90°21.0	45°33.6	36°22.6	9°33.7	53°54.1	63°34.5	100°25.7
18	342°18.3	15.2'	S 16°10.2	-11.9'	54.1'	116°23.5	89°56.2	45°18.6	35°53.0	10°03.3	54°22.2	64°04.1	100°55.3
19	356°52.6	15.2'	$16^{\circ}22.0$	-11.8'	54.1'	115°56.1	89°31.4		35°23.4	10°32.8	54°50.4	64°33.7	101°24.8
20	11°26.8	15.1'	16°33.8	-11.7'	54.1'	115°28.6	89°06.6		34°53.8	11°02.3	55°18.5	65°03.3	101°54.4
21	26°00.9	15.1'	16°45.6	-11.7'	54.1'	115°01.1	88°41.8		34°24.2	11°31.8	55°46.6	65°32.8	102°23.9
22	40°34.9	15.0'	16°57.3	-11.6'	54.1'	114°33.6	88°17.0		33°54.7	12°01.3	56°14.7	66°02.4	102°53.5
23	55°08.9	14.9'	17°08.9	-11.6'	54.1'	114°06.1	87°52.2		33°25.1	12°30.9	56°42.9	66°32.0	103°23.1
4 th	SD	$=14.8^{\prime}$	Mer. pas	s. 19:13									

L	Moon ((Eth	11
h	Moon (հա	Tril)

Moon (5th Jul) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	+Spica	+Mars	+Regulus	+Procyon	+Pollux
0	69°42.9	14.9'	S 17°20.4	-11.5'	54.1'	113°38.6	87°27.4	32°55.5	13°00.4	57°11.0	67°01.6	99°30.8	103°52.6
1	84°16.8	14.8'	$17^{\circ}31.9$	-11.4'	54.1'	113°11.1	87°02.6	32°25.9	13°30.0	57°39.1	67°31.1	99°58.6	104°22.2
2	98°50.6	14.8'	17°43.4	-11.3'	54.1'	112°43.5	86°37.9	31°56.3	13°59.5	58°07.3	68°00.7	100°26.3	104°51.7
3	113°24.4	14.7'	17°54.7	-11.3'	54.1'	112°15.9	86°13.1	31°26.7	14°29.1	58°35.4	68°30.3	100°54.0	105°21.3
4	127°58.1	14.6'	18°06.0	-11.2'	54.1'	111°48.4	85°48.3	30°57.1	14°58.6	59°03.5	68°59.9	101°21.7	105°50.9
5	142°31.7	14.6'	18°17.2	-11.1'	54.1'	111°20.8	85°23.5	30°27.5	15°28.2	59°31.7	69°29.5	101°49.4	106°20.4
6	157°05.3	14.5'	S 18°28.3	-11.1'	54.1'	110°53.1	84°58.8	29°57.9	15°57.7	59°59.8	69°59.1	102°17.1	106°50.0
7	171°38.8	14.4'	18°39.4	-11.0'	54.1'	110°25.5	84°34.0	29°28.3	16°27.3	60°27.9	70°28.7	102°44.8	107°19.6
8	186°12.2	14.4'	18°50.4	-10.9'	54.1'	109° 57.9	84°09.2	28° 58.7	16°56.9	60°56.1	70°58.3	103°12.5	107°49.1
9	200°45.6	14.3'	19°01.3	-10.8'	54.1'	109°30.2	83°44.5	28°29.1	17°26.5	61°24.2	71°27.9	103°40.2	108° 18.7
10	215°18.9	14.2'	$19^{\circ}12.1$	-10.8'	54.1'	109°02.5	83°19.7	27°59.5	17°56.1	61°52.4	71°57.5	104°07.9	108°48.3
11	229°52.1	14.2'	19°22.9	-10.7'	54.1'	108°34.8	82°55.0	27°29.9	18°25.7	62°20.6	72°27.1	104°35.6	109°17.9
12	244°25.3	14.1'	S 19°33.6	-10.6'	54.1'	108°07.1	82°30.2	27°00.3	18°55.3	62°48.7	72°56.7	105°03.3	109°47.5
13	258°58.3	14.0'	19°44.2	-10.5'	54.1'	107°39.4	82°05.5	26°30.7	19°24.9	63°16.9	73°26.3	105°30.9	110°17.1
14	273°31.4	14.0'	19°54.8	-10.5'	54.1'	107°11.6	81°40.8	26°01.0	19°54.5	63°45.1	73°55.9	105°58.6	110°46.7
15	288°04.3	13.9'	20°05.2	-10.4'	54.1'	106°43.9	81°16.0	25°31.4	20°24.1	64°13.2	74°25.5	106°26.3	111°16.3
16	302°37.2	13.8'	20°15.6	-10.3'	54.1'	106° 16.1	80°51.3	25°01.8	20°53.7	64°41.4	74°55.2	106°53.9	111°45.9
17	317°10.0	13.7'	20°25.9	-10.2'	54.1'	105°48.3	80°26.6	24°32.1	21°23.3	65°09.6	75°24.8	107°21.6	112°15.5
18	331°42.8	13.7'	S 20°36.1	-10.1'	54.2'	105°20.5	80°01.9	24°02.5	21°53.0	65°37.8	75°54.5	107°49.2	112°45.2
19	346°15.4	13.6'	20°46.2	-10.0'	54.2'	104°52.7	79°37.2	23°32.8	22°22.6	66°06.0	76°24.1	108°16.9	113°14.8
20	0°48.0	13.5'	20°56.3	-10.0'	54.2'	104°24.9	79°12.5	23°03.2	22°52.3	66°34.2	76°53.8	108°44.5	113°44.4
21	15°20.5	13.4'	$21^{\circ}06.2$	-9.9'	54.2'	103°57.1	78°47.9	22°33.5	23°21.9	67°02.4	77°23.5	109°12.2	114°14.1
22	29°53.0	13.4'	21°16.1	-9.8'	54.2'	103°29.2	78°23.2	22°03.8	23°51.6	67°30.7	77°53.1	109°39.8	114°43.7
23	44°25.3	13.3'	21°25.9	-9.7'	54.2'	103°01.3	77°58.5	21°34.1	24°21.3	67°58.9	78°22.8	110°07.4	115°13.4
5 th	SD	= 14.8'	Mer. pas	s. 19:57									

h Moon (6th Jul)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Achernar	-Altair	-Antares	+Spica	+Mars	+Regulus	+Pollux
0	58°57.6	13.2'	S 21°35.6	-9.6'	54.2'	102°33.4		77°33.9	21°04.4	24°51.0	68°27.1	78°52.5	115°43.0
1	73°29.8	13.1'	21°45.2	-9.5'	54.2'	102°05.5		77°09.3	20°34.7	25°20.7	68°55.4	79°22.2	116°12.7
2	88°02.0	13.1'	21°54.7	-9.4'	54.2'	101°37.6		76°44.6	20°05.0	25°50.4	69°23.6	79°51.9	116°42.4
3	102°34.0	13.0'	22°04.2	-9.3'	54.2'	101°09.7	98°40.5	76°20.0	19°35.3	26°20.1	69°51.9	80°21.6	117°12.1
4	117°06.0	12.9'	22°13.5	-9.3'	54.2'	100°41.7	98°25.4	75°55.4	19°05.6	26°49.8	70°20.2	80°51.4	117°41.8
5	131°37.9	12.8'	22°22.8	-9.2'	54.2'	100°13.8	98°10.4	75°30.8	18°35.8	27°19.6	70°48.5	81°21.1	118°11.5
6	146°09.8	12.8'	S 22°31.9	-9.1'	54.2'	99°45.8	97°55.3	75°06.2	18°06.1	27°49.3	71°16.8	81°50.9	118°41.2
7	160°41.5	12.7'	22°41.0	-9.0'	54.2'	99° 17.8	97°40.1	74°41.7	17°36.3	28°19.1	71°45.1	82°20.6	119°11.0
8	175°13.2	12.6'	22°50.0	-8.9'	54.2'	98°49.8	97°25.0	74°17.1	17°06.5	28°48.8	72°13.4	82°50.4	119°40.7
9	189°44.8	12.5'	22°58.9	-8.8'	54.2'	98°21.8	97°09.8	73°52.6	16°36.8	29°18.6	72°41.7	83°20.2	
10	204°16.3	12.4'	23°07.6	-8.7'	54.3'	97°53.8	96°54.5	73°28.1	16°07.0	29°48.4	73°10.1	83°50.0	
11	218°47.7	12.4'	$23^{\circ}16.3$	-8.6'	54.3'	97° 25.7	96°39.3	73°03.6	15°37.2	30°18.2	73°38.4	84°19.8	
12	233°19.1	12.3'	S 23°24.9	-8.5'	54.3'	96°57.7	96°24.0	72°39.1	15°07.4	30°48.0	74°06.8	84°49.6	
13	247°50.4	12.2'	23°33.4	-8.4'	54.3'	96° 29.6	96°08.7	72°14.6	14°37.5	31°17.8	74°35.1	85°19.4	
14	262°21.6	12.1'	23°41.8	-8.3'	54.3'	96°01.5	95°53.3	71°50.1	14°07.7	31°47.7	75°03.5	85°49.2	
15	276°52.7	12.0'	23°50.0	-8.2'	54.3'	95°33.4	95°38.0	71°25.7	13°37.9	32°17.5	75°31.9	86°19.1	
16	291°23.7	12.0'	23°58.2	-8.1'	54.3'	95°05.3	95°22.6	71°01.3	13°08.0	32°47.4	76°00.3	86°48.9	
17	305°54.7	11.9'	24°06.3	-8.0'	54.3'	94°37.1	95°07.2	70°36.9	12°38.1	33°17.3	76°28.7	87°18.8	
18	320°25.6	11.8'	S 24°14.2	-7.9'	54.3'	94°09.0	94°51.7	70°12.5	12°08.2	33°47.1	76°57.2	87°48.7	
19	334°56.4	11.7'	24°22.1	-7.8'	54.3'	93°40.8	94°36.3	69°48.1	11°38.4	34°17.0	77°25.6	88°18.6	
20	349°27.1	11.6'	24°29.9	-7.6'	54.3'	93°12.6	94°20.8	69°23.8	11°08.4	34°47.0	77°54.1	88°48.5	
21	3°57.7	11.6'	24°37.5	-7.5'	54.4'	92°44.4	94°05.3	68°59.5	10°38.5	35°16.9	78°22.6	89°18.5	
22	18°28.3	11.5'	24°45.1	-7.4'	54.4'	92°16.2	93°49.8	68°35.2	10°08.6	35°46.8	78°51.0	89°48.4	
23	32°58.8	11.4'	24°52.5	-7.3'	54.4'	91°48.0	93°34.2	68°10.9	9°38.7	36°16.8	79°19.5	90°18.4	
6 th	SD	= 14.8'	Mer. pass	. 20:44						-			

h Moon (7th Jul) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	±Antares	+Spica	+Arcturus	+Mars	+Regulus
0	47°29.2	11.3'	S 24°59.8	-7.2'	54.4'		91°19.8	67°46.7	9°08.7	36°46.8	49°38.4	79°48.1	90°48.3
1	61°59.5	11.2'	25°07.0	-7.1'	54.4'		90°51.5	67°22.5	8°38.7	37°16.8	49°59.2	80°16.6	91° 18.3
2	76°29.7	11.2'	$25^{\circ}14.1$	-7.0'	54.4'	119°35.5	90°23.2	66°58.3	8°08.8	37°46.8	50°20.1	80°45.1	91°48.3
3	90°59.9	11.1'	$25^{\circ}21.1$	-6.9'	54.4'	119°05.6	89°55.0	66°34.1	7°38.8	38°16.8	50°41.1	81°13.7	92°18.3
4	105°30.0	11.0'	25°28.0	-6.8'	54.4'	118°35.6	89°26.7	66°09.9	7°08.8	38°46.8	51°02.3	81°42.3	92°48.4
5	120°00.0	10.9'	25°34.7	-6.6'	54.4'	118°05.6	88°58.4	65°45.8	6°38.8	39°16.9	51°23.5	82°10.9	93°18.4
6	134°29.9	10.9'	S 25°41.3	-6.5'	54.5'	117°35.7	88°30.0	65°21.7	6°08.7	39°46.9	51°44.9	82°39.5	93°48.5
7	148°59.8	10.8'	25°47.9	-6.4'	54.5'	117°05.7	88°01.7	64°57.7	5°38.7	40°17.0	52°06.4	83°08.1	94°18.6
8	163°29.6	10.7'	25°54.3	-6.3'	54.5'	116°35.6	87°33.3	64°33.7	5°08.7	40°47.1	52°28.0	83°36.7	94°48.7
9	177°59.3	10.6'	26°00.5	-6.2'	54.5'	116°05.6	87°05.0	64°09.7	4°38.7	41°17.2	52°49.7	84°05.4	95°18.8
10	192°28.9	10.5'	26°06.7	-6.0'	54.5'	115°35.5	86°36.6	63°45.7	4°08.7	41°47.4	53°11.5	84°34.1	95°48.9
11	206°58.4	10.5'	$26^{\circ}12.7$	-5.9'	54.5'	115°05.5	86°08.2	63°21.8	3°38.7	42°17.5	53°33.4	85°02.8	96°19.0
12	221°27.9	10.4'	S 26°18.7	-5.8'	54.5'	114°35.4	85°39.8	62°57.9	3°08.7	42°47.7	53°55.5	85°31.5	96°49.2
13	235°57.3	10.3'	26°24.5	-5.7'	54.5'	114°05.3	85°11.4	62°34.1	2°38.8	43°17.9	54°17.6	86°00.2	97° 19.4
14	250°26.6	10.3'	26°30.1	-5.5'	54.6'	113°35.1	84°42.9	62°10.2	2°09.0	43°48.1	54°39.8	86°28.9	97°49.6
15	264°55.9	10.2'	26°35.7	-5.4'	54.6'	113°05.0	84°14.5	61°46.5	1°39.4	44°18.3	55°02.2	86°57.7	98° 19.8
16	279°25.1	10.1'	26°41.1	-5.3'	54.6'	112°34.8	83°46.0	61°22.7	1°10.4	44°48.5	55°24.6	87°26.5	98°50.0
17	293°54.2	10.0'	26°46.4	-5.2'	54.6'	112°04.6	83°17.5	60°59.0		45°18.8	55°47.1	87°55.3	99°20.3
18	308°23.2	10.0'	S 26°51.6	-5.0'	54.6'	111°34.4	82°49.0	60°35.4		45°49.1	56°09.7	88°24.1	99°50.6
19	322°52.2	9.9'	26°56.6	-4.9'	54.6'	111°04.2	82°20.5	60°11.8		46°19.3	56°32.4	88°52.9	100°20.9
20	337°21.0	9.8'	$27^{\circ}01.5$	-4.8'	54.6'	110°34.0	81°52.0	59°48.2		46°49.7	56°55.2	89°21.8	100°51.2
21	351°49.9	9.8'	27°06.3	-4.6'	54.7'	110°03.7	81°23.5	59°24.7	_	47°20.0	57°18.1	89°50.6	101°21.5
22	6°18.6	9.7'	27°10.9	-4.5'	54.7'	109°33.4	80°54.9	59°01.2	1°57.8	47°50.3	57°41.1	90°19.5	101°51.8
23	20°47.3	9.6'	27°15.4	-4.4'	54.7'	109°03.1	80°26.4	58°37.8	2°27.7	48°20.7	58°04.2	90°48.4	102°22.2
7 th	SD	= 14.8'	Mer. pass	. 21:34									

h		Mod	on (8 th Ju	l)			Lunar D	istance (ob	jects wit	h largest	hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Regulus
0	35°15.9	9.6'	S 27°19.8	-4.2'	54.7'	108°32.8	87°01.4	79°57.8	58° 14.5	2°57.8	48°51.1	91°17.4	102°52.6
1	49°44.5	9.5'	$27^{\circ}24.1$	-4.1'	54.7'	108°02.5	86°45.6	79°29.2	57°51.2	3°28.0	49°21.5	91°46.3	103°23.0
2	64°13.0	9.4'	27°28.2	-4.0'	54.7'	107°32.1	86°29.8	79°00.6	57°27.9	3°58.3	49°51.9	92°15.3	103°53.4
3	78°41.4	9.4'	27°32.2	-3.8'	54.8'	107°01.7	86°14.0	78°32.0	57°04.7	4°28.6	50°22.4	92°44.3	104°23.9
4	93°09.8	9.3'	27°36.0	-3.7'	54.8'	106°31.3	85°58.2	78°03.4	56°41.6	4°58.9	50°52.9	93°13.3	104°54.3
5	107°38.1	9.2'	$27^{\circ}39.7$	-3.6'	54.8'	106°00.9	85°42.4	77°34.7	56° 18.5	5°29.4	51°23.3	93°42.3	105°24.8
6	122°06.3	9.2'	S 27°43.3	-3.4'	54.8'	105°30.5	85°26.6	77°06.1	55°55.5	5°59.8	51°53.9	94°11.3	105°55.3
7	136°34.5	9.1'	27°46.7	-3.3'	54.8'	105°00.0	85°10.9	76°37.4	55°32.5	6°30.3	52°24.4	94°40.4	106°25.9
8	151°02.6	9.1'	27°50.0	-3.1'	54.8'	104°29.5	84°55.1	76°08.8	55°09.6	7°00.8	52°54.9	95°09.5	106°56.4
9	165°30.7	9.0'	$27^{\circ}53.1$	-3.0'	54.9'	103°59.0	84°39.3	75°40.1	54°46.8	7°31.3	53°25.5	95°38.6	107°27.0
10	179°58.7	9.0'	$27^{\circ}56.1$	-2.9'	54.9'	103°28.5	84°23.6	75°11.4	54°24.1	8°01.9	53°56.1	96°07.7	107°57.6
11	194°26.6	8.9'	$27^{\circ}59.0$	-2.7'	54.9'	102°58.0	84°07.8	74°42.7	54°01.4	8°32.4	54°26.7	96°36.9	108°28.2
12	208°54.5	8.8'	S 28°01.7	-2.6'	54.9'	102°27.4	83°52.1	74°14.0	53°38.8	9°03.1	54°57.4	97°06.1	108°58.8
13	223°22.4	8.8'	28°04.3	-2.4'	54.9'	101°56.8	83°36.4	73°45.3	53°16.2	9°33.7	55°28.0	97°35.2	109°29.4
14	237°50.2	8.7'	28°06.8	-2.3'	54.9'	101°26.2	83°20.7	73°16.5	52°53.8	10°04.3	55°58.7	98°04.5	110°00.1
15	252°17.9	8.7'	28°09.0	-2.1'	55.0'	100°55.6	83°05.0	72°47.8	52°31.4	10°35.0	56°29.4	98°33.7	110°30.8
16	266°45.6	8.6'	$28^{\circ}11.2$	-2.0'	55.0'	100°24.9	82°49.3	72°19.0	52°09.1	11°05.7	57°00.1	99°03.0	111°01.5
17	281°13.3	8.6'	28°13.2	-1.9'	55.0'	99°54.2	82°33.6	71°50.3	51°46.9	11°36.5	57°30.9	99°32.2	111°32.3
18	295°40.9	8.6'	S 28°15.1	-1.7'	55.0'	99°23.5	82°17.9	71°21.5	51°24.8	12°07.2	58°01.6	100°01.5	112°03.0
19	310°08.4	8.5'	$28^{\circ}16.8$	-1.6'	55.0'	98°52.8	82°02.3	70°52.7	51°02.8	12°38.0	58°32.4	100°30.9	112°33.8
20	324°35.9	8.5'	28°18.3	-1.4'	55.1'	98°22.0	81°46.7	70°23.9	50°40.9	13°08.8	59°03.2	101°00.2	113°04.6
21	339°03.4	8.4'	$28^{\circ}19.7$	-1.3'	55.1'	97°51.3	81°31.1	69°55.1	50° 19.0	13°39.6	59°34.1	101°29.6	113°35.4
22	353°30.8	8.4'	$28^{\circ}21.0$	-1.1'	55.1'	97° 20.5	81°15.5	69°26.3	49°57.3	14°10.5	60°04.9	101°59.0	114°06.3
23	7°58.2	8.4'	28°22.1	-1.0'	55.1'	96°49.7	80°59.9	68°57.5	49°35.6	14°41.3	60°35.8	102°28.4	114°37.2
8 th	SD =	= 14.9′	Mer. pas	s. 22:27	•								

h Moon (9th Jul)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Regulus
0	22°25.6	8.3'	S 28°23.1	-0.8'	55.1'	96° 18.8	80°44.4	68°28.7	49°14.1	15°12.2	61°06.7	102°57.8	115°08.1
1	36°52.9	8.3'	28°23.9	-0.7'	55.1'	95°48.0	80°28.9	67°59.8	48°52.7	15°43.1	61°37.6	103°27.3	115°39.0
2	51°20.2	8.3'	28°24.6	-0.5'	55.2'	95° 17.1	80°13.4	67°31.0	48°31.4	16°14.1	62°08.6	103°56.7	116°09.9
3	65°47.4	8.2'	28°25.1	-0.4'	55.2'	94°46.2	79°57.9	67°02.2	48° 10.2	16°45.1	62°39.5	104°26.3	116°40.9
4	80°14.7	8.2'	28°25.5	-0.2'	55.2'	94° 15.3	79°42.5	66°33.3	47°49.1	17°16.0	63°10.5	104°55.8	117°11.9
5	94°41.8	8.2'	28°25.7	-0.1'	55.2'	93°44.3	79°27.1	66°04.5	47°28.2	17°47.1	63°41.5	105°25.3	117°42.9
6	109°09.0	8.1'	S 28°25.8	0.1'	55.2'	93°13.3	79°11.7	65°35.6	47°07.3	18°18.1	64°12.6	105°54.9	118°13.9
7	123°36.1	8.1'	28°25.7	0.2'	55.3'	92°42.3	78°56.3	65°06.7	46°46.6	18°49.1	64°43.7	106°24.5	118°45.0
8	138°03.3	8.1'	28°25.4	0.4'	55.3'	92°11.3	78°41.0	64°37.9	46°26.0	19°20.2	65°14.7	106°54.1	119°16.1
9	152°30.3	8.1'	28°25.0	0.5'	55.3'	91°40.2	78°25.7	64°09.0	46°05.6	19°51.3	65°45.9	107°23.8	119°47.2
10	166°57.4	8.0'	28°24.5	0.7'	55.3'	91°09.2	78°10.4	63°40.1	45°45.3	20°22.5	66°17.0	107°53.4	
11	181°24.5	8.0'	28°23.8	0.9'	55.3'	90°38.1	77°55.2	63°11.3	45°25.2	20°53.6	66°48.1	108°23.1	
12	195°51.5	8.0'	S 28°22.9	1.0'	55.4'	90°07.0	77°40.0	62°42.4	45°05.1	21°24.8	67°19.3	108°52.8	
13	210°18.5	8.0'	28°21.9	1.2'	55.4'	89°35.8	77°24.9	62°13.5	44°45.3	21°56.0	67°50.5	109°22.6	i i
14	224°45.5	8.0'	28°20.8	1.3'	55.4'	89°04.6	77°09.7	61°44.6	44°25.6	22°27.2	68°21.8	109°52.3	
15	239°12.5	8.0'	$28^{\circ}19.4$	1.5'	55.4'	88° 33.5	76°54.6	61° 15.7	44°06.0	22°58.5	68°53.0	110°22.1	
16	253°39.5	8.0'	28°18.0	1.6'	55.4'	88°02.2	76°39.6	60°46.9	43°46.7	23°29.8	69°24.3	110°51.9	
17	268°06.4	8.0'	28°16.4	1.8'	55.5'	87°31.0	76°24.6	60° 18.0	43°27.5	24°01.1	69°55.6	111°21.8	
18	282°33.4	7.9'	S 28°14.6	1.9'	55.5'	86° 59.7		59°49.1	43°08.4	24°32.4	70°26.9	111°51.6	
19	297°00.3	7.9'	$28^{\circ}12.6$	2.1'	55.5'	86°28.4		59°20.3	42°49.6	25°03.7	70°58.3	112°21.5	i i
20	311°27.3	7.9'	$28^{\circ}10.5$	2.2'	55.5'	85°57.1		58°51.4	42°30.9	25°35.1	71°29.7	112°51.4	
21	325°54.2	7.9'	28°08.3	2.4'	55.5'	85°25.8		58° 22.5	42°12.4	26°06.5	72°01.1	113°21.3	
22	340°21.1	7.9'	28°05.9	2.6'	55.6'	84° 54.4		57° 53.7	41°54.1	26°37.9	72°32.5	113°51.3	
23	354°48.1	7.9'	28°03.3	2.7'	55.6'	84°23.0		57° 24.8	41°36.0	27°09.4	73°03.9	114°21.3	
9 th	SD =	= 15.0′	Mer. pass	. 23:22									

Moon (10th Jul)

h

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Mars
0	9°15.0	7.9'	S 28°00.6	2.9'	55.6'	83°51.6	56°56.0	41°18.2	27°40.9	54°53.8	73°35.4	78°16.7	114°51.3
1	23°41.9	7.9'	27°57.8	3.0'	55.6'	83°20.2	56°27.1	41°00.5	28° 12.4	55°13.7	74°06.9	78°42.8	115°21.3
2	38°08.9	7.9'	27°54.8	3.2'	55.6'	82°48.7	55°58.3	40°43.0	28°43.9	55°33.6	74°38.4	79°08.8	115°51.4
3	52°35.8	8.0'	$27^{\circ}51.6$	3.3'	55.7'	82°17.2	55°29.5	40°25.8	29°15.4	55°53.7	75°10.0	79°34.9	116°21.4
4	67°02.8	8.0'	27°48.3	3.5'	55.7'	81°45.7	55°00.7	40°08.8	29°47.0	56°14.0	75°41.5	80°01.1	116°51.5
5	81°29.8	8.0'	27°44.8	3.6'	55.7'	81°14.2	54°31.9	39°52.0	30° 18.6	56°34.3	76°13.1	80°27.3	117°21.7
6	95°56.7	8.0'	S 27°41.1	3.8'	55.7'	80°42.6	54°03.1	39°35.4	30°50.2	56°54.8	76°44.8	80°53.5	117°51.8
7	110°23.7	8.0'	27°37.3	3.9'	55.8'	80°11.1	53°34.4	39°19.1	31°21.9	57°15.4	77°16.4	81°19.8	118°22.0
8	124°50.7	8.0'	27°33.4	4.1'	55.8'	79°39.4	53°05.6	39°03.1	31°53.5	57°36.2	77°48.1	81°46.0	118°52.2
9	139°17.7	8.0'	27°29.3	4.3'	55.8'	79°07.8	52°36.9	38°47.3	32°25.2	57°57.0	78°19.8	82°12.4	119°22.4
10	153°44.8	8.1'	$27^{\circ}25.1$	4.4'	55.8'	78°36.2	52°08.2	38°31.8	32°57.0	58°18.0	78°51.5	82°38.7	119°52.7
11	168°11.8	8.1'	27°20.7	4.6'	55.8'	78°04.5	51°39.5	38°16.5	33°28.7	58°39.1	79°23.2	83°05.1	
12	182°38.9	8.1'	S 27°16.1	4.7'	55.9'	77°32.8	51°10.8		34°00.5	59°00.3	79°55.0	83°31.5	
13	197°06.0	8.1'	$27^{\circ}11.4$	4.9'	55.9'	77°01.0	50°42.1		34°32.3	59°21.7	80°26.8	83°58.0	
14	211°33.1	8.1'	$27^{\circ}06.5$	5.0'	55.9'	76°29.3	50°13.5		35°04.1	59°43.1	80°58.6	84°24.5	
15	226°00.3	8.2'	$27^{\circ}01.5$	5.2'	55.9'	75°57.5	49°44.9		35°35.9	60°04.7	81°30.5	84°51.0	
16	240°27.4	8.2'	26°56.4	5.3'	55.9'	75°25.7	49°16.3		36°07.8	60°26.3	82°02.3	85°17.5	
17	254°54.6	8.2'	$26^{\circ}51.0$	5.5'	56.0'	74°53.9	48°47.8		36°39.7	60°48.1	82°34.2	85°44.1	
18	269°21.9	8.3'	S 26°45.6	5.6'	56.0'	74°22.0	48°19.2		37°11.6	61°10.0	83°06.2	86°10.7	
19	283°49.1	8.3'	26°40.0	5.8'	56.0'	73°50.1	47°50.7		37°43.6	61°31.9	83°38.1	86°37.3	
20	298°16.4	8.3'	26°34.2	5.9'	56.0'	73°18.2	47°22.3		38° 15.5	61°54.0	84°10.1	87°04.0	
21	312°43.7	8.4'	26°28.3	6.1'	56.1'	72°46.3	46°53.9		38° 47.5	62°16.2	84°42.1	87°30.6	
22	327°11.1	8.4'	$26^{\circ}22.2$	6.2'	56.1'	72°14.3	46°25.5		39° 19.5	62°38.5	85°14.1	87°57.3	
23	341°38.5	8.4'	$26^{\circ}16.0$	6.4'	56.1'	71°42.3	45°57.1		39°51.6	63°00.8	85°46.1	88°24.0	
10 th	SD	= 15.2	. Mer. pa	ss:-								-	

h Moon (11th Jul)

Fri	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus
0	356°05.9	8.5'	S 26°09.7	6.5'	56.1'	71°10.3	45°28.8	40°23.7	59°00.5	63°23.3	73°37.5	86°18.2	88°50.8
1	10°33.4	8.5'	26°03.2	6.6'	56.1'	70°38.3	45°00.6	40°55.8	59°23.0	63°45.9	73°57.4	86°50.3	89°17.6
2	25°00.9	8.5'	25°56.5	6.8'	56.2'	70°06.3	44°32.4	41°27.9	59° 45.6	64°08.5	74°17.4	87°22.4	89°44.3
3	39°28.4	8.6'	25°49.7	6.9'	56.2'	69°34.2	44°04.2	42°00.0	60°08.3	64°31.3	74°37.5	87°54.5	90°11.1
4	53°56.0	8.6'	25°42.8	7.1'	56.2'	69°02.1	43°36.1	42°32.2	60°31.0	64°54.1	74°57.6	88°26.7	90°38.0
5	68°23.6	8.7'	25°35.7	7.2'	56.2'	68°30.0	43°08.0	43°04.4	60°53.9	65°17.1	75°17.9	88°58.9	91°04.8
6	82°51.3	8.7'	S 25°28.5	7.4'	56.3'	67°57.8	42°40.0	43°36.6	61°16.9	65°40.1	75°38.1	89°31.1	91°31.7
7	97°19.0	8.8'	25°21.1	7.5'	56.3'	67°25.6	42°12.1	44°08.8	61°40.0	66°03.2	75°58.5	90°03.4	91°58.6
8	111°46.7	8.8'	25°13.6	7.6'	56.3'	66°53.4	41°44.2	44°41.1	62°03.2	66°26.3	76°18.9	90°35.6	92°25.5
9	126°14.5	8.8'	25°06.0	7.8'	56.3'	66°21.2	41°16.4	45°13.4	62°26.5	66°49.6	76°39.3	91°07.9	92°52.4
10	140°42.4	8.9'	24°58.2	7.9'	56.3'	65°49.0	40°48.7	45°45.7	62°49.8	67°12.9	76°59.8	91°40.2	93°19.3
11	155°10.3	8.9'	24°50.2	8.1'	56.4'	65°16.7	40°21.0	46°18.1	63°13.3	67°36.4	77°20.4	92°12.6	93°46.3
12	169°38.2	9.0'	S 24°42.2	8.2'	56.4'	64°44.4	39°53.4	46°50.4	63°36.8	67°59.9	77°41.1	92°44.9	94°13.2
13	184°06.2	9.0'	24°34.0	8.3'	56.4'	64°12.1	39°25.9	47°22.8	64°00.5	68°23.4	78°01.7	93°17.3	94°40.2
14	198°34.3	9.1'	24°25.6	8.5'	56.4'	63°39.8	38°58.4	47°55.2	64°24.2	68°47.1	78°22.5	93°49.7	95°07.2
15	213°02.4	9.1'	$24^{\circ}17.1$	8.6'	56.5'	63°07.4	38°31.1	48°27.7	64°48.0	69°10.8	78°43.3	94°22.2	95°34.2
16	227°30.5	9.2'	24°08.5	8.7'	56.5'	62°35.0	38°03.9	49°00.1	65°11.9	69°34.6	79°04.1	94°54.6	96°01.2
17	241°58.7	9.2'	23°59.8	8.9'	56.5'	62°02.6	37°36.7	49°32.6	65°35.9	69°58.4	79°25.0	95°27.1	96°28.2
18	256°26.9	9.3'	S 23°50.9	9.0'	56.5'	61°30.1	37°09.7	50°05.1	66°00.0	70°22.4	79°46.0	95°59.6	96°55.3
19	270°55.3	9.4'	23°41.9	9.1'	56.5'	60°57.7	36°42.7	50°37.7	66°24.1	70°46.4	80°07.0	96°32.2	97°22.3
20	285°23.6	9.4'	23°32.7	9.3'	56.6'	60°25.2	36°15.9	51°10.2	66°48.3	71°10.5	80°28.0	97°04.7	97°49.3
21	299°52.0	9.5'	23°23.5	9.4'	56.6'	59°52.7	35°49.2	51°42.8	67°12.6	71°34.6	80°49.1	97°37.3	98°16.4
22	314°20.5	9.5'	23°14.0	9.5'	56.6'	59°20.2	35°22.6	52°15.4	67°37.0	71°58.8	81°10.2	98°09.9	98°43.4
23	328°49.0	9.6'	23°04.5	9.7'	56.6'	58°47.6	34°56.1	52°48.0	68°01.5	72°23.0	81°31.4	98°42.5	99°10.5
11 th	SD =	= 15.3′	Mer. pass	s. 00:16	5								

h Moon (12th Jul)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Aldebaran	-Venus	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Spica	+Arcturus
0	343°17.6	9.6'	S 22°54.8	9.8'	56.6'			58° 15.0	34°29.8	53°20.7	68°26.0	99°15.2	99°37.6
1	357°46.2	9.7'	22°45.0	9.9'	56.7'			57°42.4	34°03.6	53°53.4	68°50.6	99°47.9	100°04.6
2	12°14.9	9.7'	$22^{\circ}35.1$	10.0'	56.7'			57°09.8	33°37.5	54°26.1	69°15.3	100°20.6	100°31.7
3	26°43.7	9.8'	22°25.1	10.2'	56.7'			56°37.2	33°11.6	54°58.8	69°40.0	100°53.3	100°58.8
4	41°12.5	9.9'	$22^{\circ}14.9$	10.3'	56.7'			56°04.5	32°45.9	55°31.6	70°04.8	101°26.0	101°25.9
5	55°41.3	9.9'	22°04.6	10.4'	56.8'			55°31.8	32°20.4	56°04.3	70°29.7	101°58.8	101°52.9
6	70°10.3	10.0'	S 21°54.2	10.5'	56.8'			54°59.1	31°55.0	56°37.1	70°54.6	102°31.6	102°20.0
7	84°39.2	10.0'	21°43.7	10.7'	56.8'			54°26.4	31°29.8	57°09.9	71°19.6	103°04.4	102°47.1
8	99°08.3	10.1'	21°33.0	10.8'	56.8'			53°53.6	31°04.8	57°42.8	71°44.6	103°37.3	103°14.1
9	113°37.4	10.2'	$21^{\circ}22.3$	10.9'	56.8'		119°49.1	53°20.8	30°40.0	58°15.7	72°09.8	104°10.1	103°41.2
10	128°06.5	10.2'	$21^{\circ}11.4$	11.0'	56.9'		119°19.4	52°48.0	30°15.4	58°48.5	72°34.9	104°43.0	104°08.2
11	142°35.7	10.3'	$21^{\circ}00.4$	11.1'	56.9'	119°57.0	118°49.6	52° 15.2	29°51.1	59°21.5	73°00.2	105°15.9	104°35.3
12	157°05.0	10.3'	S 20°49.2	11.2'	56.9'	119°24.8	118°19.8	51°42.4	29°26.9	59°54.4	73°25.5	105°48.9	105°02.3
13	171°34.3	10.4'	20°38.0	11.3'	56.9'	118°52.5	117°50.0	51°09.5	29°03.1	60°27.4	73°50.8	106°21.8	105°29.4
14	186°03.7	10.5'	$20^{\circ}26.7$	11.5'	56.9'	118° 20.3	117°20.1	50°36.6	28°39.5	61°00.3	74°16.2	106°54.8	105°56.4
15	200°33.2	10.5'	$20^{\circ}15.2$	11.6'	57.0'	117°48.0	116°50.3	50°03.7	28°16.1	61°33.3	74°41.7	107°27.8	106°23.4
16	215°02.7	10.6'	20°03.6	11.7'	57.0'	117° 15.6	116°20.4	49°30.8	27°53.1	62°06.4	75°07.2	108°00.8	106°50.4
17	229°32.3	10.6'	$19^{\circ}51.9$	11.8'	57.0'	116°43.3	115°50.5	48°57.8	27°30.3	62°39.4	75°32.8	108°33.9	107°17.4
18	244°01.9	10.7'	S 19°40.1	11.9'	57.0'	116° 10.9	115°20.5	48° 24.8	27°07.8	63°12.5	75°58.4	109°07.0	107°44.3
19	258°31.6	10.7'	19°28.2	12.0'	57.1'	115°38.5	114°50.5	47°51.8	26°45.7	63°45.6	76°24.1	109°40.1	108°11.3
20	273°01.3	10.8'	$19^{\circ}16.2$	12.1'	57.1'	115°06.0	114°20.6	47° 18.8	26°23.9	64°18.7	76°49.8	110°13.2	108°38.2
21	287°31.1	10.9'	$19^{\circ}04.1$	12.2'	57.1'	114°33.5	113°50.5	46°45.8	26°02.5	64°51.9	77°15.5	110°46.3	109°05.1
22	302°01.0	10.9'	$18^{\circ}51.9$	12.3'	57.1'	114°01.0	113°20.5	46°12.7	25°41.4	65°25.0	77°41.3	111°19.5	109°32.0
23	316°30.9	11.0'	18°39.6	12.4'	57.1'	113°28.5	112°50.4	45°39.6	25°20.7	65°58.2	78°07.2	111°52.7	109°58.9
12 th	SD	$=15.4^{\prime}$	Mer. pass	s. 01:09									

Moon (13th Jul)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOOR	ı (13 Jt	11)			Lunar i	Distance (d	objects w	ith larges	t nourly LD	deita)	
Sun	GHA	ν	Dec	d	HP	-Capella	-Betelgeuse	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	331°00.9	11.0'	S 18°27.2	12.5'	57.2'			112°56.0	45°06.5	66°31.4	78°33.1	110°25.8	112°25.9
1	345°30.9	11.1'	$18^{\circ}14.6$	12.6'	57.2'			112°23.4	44°33.4	67°04.7	78°59.0	110°52.6	112°59.1
2	0°01.0	11.1'	18°02.0	12.7'	57.2'			111°50.8	44°00.3	67°37.9	79°25.0	111° 19.4	113°32.3
3	14°31.1	11.2'	$17^{\circ}49.3$	12.8'	57.2'			111°18.1	43°27.1	68°11.2	79°51.0	111°46.2	114°05.6
4	29°01.3	11.3'	17° 36.5	12.9'	57.2'			110°45.5	42°53.9	68°44.5	80°17.1	112°12.9	114°38.9
5	43°31.6	11.3'	17°23.6	13.0'	57.3'			110°12.8	42°20.8	69°17.8	80°43.2	112°39.6	115°12.2
6	58°01.9	11.4'	$$17^{\circ}10.6$	13.1'	57.3'			109°40.1	41°47.5	69°51.1	81°09.3	113°06.3	115°45.6
7	72°32.3	11.4'	$16^{\circ}57.5$	13.2'	57.3'	119°54.2		109°07.3	41°14.3	70°24.5	81°35.5	113°33.0	116°18.9
8	87°02.7	11.5'	16°44.3	13.3'	57.3'	119°22.9		108°34.6	40°41.0	70°57.9	82°01.7	113°59.6	116°52.3
9	101°33.2	11.5'	$16^{\circ}31.0$	13.4'	57.3'	118°51.6		108°01.8	40°07.8	71°31.3	82°28.0	114°26.2	117°25.7
10	116°03.7	11.6'	$16^{\circ}17.6$	13.5'	57.4'	118°20.3		107°29.0	39°34.5	72°04.7	82°54.3	114°52.7	117°59.1
11	130°34.3	11.6'	16°04.2	13.5'	57.4'	117°48.9		106°56.1	39°01.2	72°38.2	83°20.6	115° 19.2	118°32.6
12	145°04.9	11.7'	S 15°50.6	13.6'	57.4'	117°17.5		106°23.3	38°27.8	73°11.6	83°46.9	115°45.7	119°06.0
13	159°35.6	11.7'	15°37.0	13.7'	57.4'	116°46.0		105°50.4	37°54.5	73°45.1	84° 13.3	$116^{\circ}12.1$	119°39.5
14	174°06.3	11.8'	$15^{\circ}23.3$	13.8'	57.4'	116°14.5		105° 17.5	37°21.1	74°18.6	84°39.7	116°38.5	
15	188°37.1	11.8'	$15^{\circ}09.5$	13.9'	57.5'	115°43.0		104°44.5	36°47.8	74°52.2	85°06.1	117°04.8	
16	203°07.9	11.9'	14°55.6	14.0'	57.5'	115°11.4		104°11.6	36°14.4	75°25.7	85°32.6	$117^{\circ}31.1$	
17	217°38.8	11.9'	14°41.6	14.0'	57.5'	114°39.8		103°38.6	35°41.0	75°59.3	85°59.1	117°57.4	
18	232°09.8	12.0'	S 14°27.5	14.1'	57.5'	114°08.1		103°05.6	35°07.5	76°32.9	86°25.6	118°23.5	
19	246°40.7	12.0'	14° 13.4	14.2'	57.5'	113°36.4	119°45.3	102°32.6	34°34.1	77°06.5	86°52.1	118°49.7	
20	261°11.8	12.1'	13°59.2	14.3'	57.6'	113°04.7	119°14.6	101°59.5	34°00.6	77°40.2	87° 18.7	119° 15.7	
21	275°42.8	12.1'	13°44.9	14.4'	57.6'	112°33.0	118°44.0	101°26.5	33°27.2	78°13.8	87°45.2	119°41.8	
22	290°13.9	12.2'	13°30.6	14.4'	57.6'	112°01.2	118°13.2	100°53.4	32°53.7	78°47.5	88°11.8		
23	304°45.1	12.2'	13° 16.2	14.5'	57.6'	111°29.3	117°42.4	100°20.2	32°20.2	79°21.2	88°38.5		
13 th	SD	= 15.6'	Mer. pass	s. 02:00									

h Moon (14th Iul)

Mon	GHA	ν	Dec	d	HP	-Jupiter	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	319°16.3	12.2'	S 13°01.6	14.6'	57.6'		110°57.5	99°47.1	31°46.6	40°58.5	79°54.9	89°05.1	93°05.7
1	333°47.5	12.3'	12°47.1	14.6'	57.7'		110°25.6	99°13.9	31°13.1	41° 17.4	80°28.7	89°31.8	93°31.7
2	348°18.8	12.3'	12°32.4	14.7'	57.7'		109°53.7	98°40.8	30°39.6	41°36.6	81°02.4	89°58.5	93°57.7
3	2°50.2	12.4'	12°17.7	14.8'	57.7'		109°21.7	98°07.6	30°06.0	41°56.1	81°36.2	90°25.1	94°23.7
4	17°21.5	12.4'	12°02.9	14.8'	57.7'		108°49.7	97°34.3	29°32.4	42° 15.8	82°10.0	90°51.8	94°49.7
5	31°52.9	12.4'	11°48.1	14.9'	57.7'		108° 17.7	97°01.1	28°58.9	42°35.7	82°43.8	91°18.6	95° 15.7
6	46°24.4	12.5'	S 11°33.2	15.0'	57.8'		107°45.6	96°27.8	28°25.3	42°55.9	83°17.7	91°45.3	95°41.8
7	60°55.9	12.5'	11°18.2	15.0'	57.8'		107°13.6	95°54.5	27°51.7	43°16.4	83°51.5	92°12.1	96°07.8
8	75°27.4	12.6'	11°03.2	15.1'	57.8'		106°41.5	95°21.2	27°18.0	43°37.1	84°25.4	92°38.8	96°33.8
9	89°58.9	12.6'	10°48.1	15.2'	57.8'		106°09.3	94°47.9	26°44.4	43°58.0	84°59.3	93°05.6	96°59.8
10	104°30.5	12.6'	10°32.9	15.2'	57.8'		105°37.2	94°14.5	26°10.8	44° 19.1	85°33.2	93°32.4	97°25.9
11	119°02.1	12.7'	$10^{\circ}17.7$	15.3'	57.8'		105°05.0	93°41.2	25°37.2	44°40.5	86°07.1	93°59.1	97°51.9
12	133°33.8	12.7'	S 10°02.4	15.3'	57.9'		104°32.7	93°07.8	25°03.5	45°02.0	86°41.1	94°25.9	98°17.9
13	148°05.5	12.7'	09°47.1	15.4'	57.9'		104°00.5	92°34.4	24°29.9	45°23.8	87°15.1	94°52.7	98°43.9
14	162°37.2	12.7'	09°31.7	15.4'	57.9'	119°51.8	103°28.2	92°00.9	23°56.2	45°45.8	87°49.1	95°19.5	99°09.9
15	177°08.9	12.8'	09°16.3	15.5'	57.9'	$119^{\circ}18.5$	102°55.9	91°27.5	23°22.6	46°08.0	88°23.1	95°46.3	99°35.9
16	191°40.7	12.8'	09°00.8	15.5'	57.9'	118°45.2	102°23.6	90°54.0	22°48.9	46°30.4	88°57.1	96°13.1	100°01.9
17	206°12.5	12.8'	08°45.2	15.6'	58.0'	118°11.8	101°51.2	90°20.6	22°15.2	46°53.0	89°31.2	96°39.9	100°27.9
18	220°44.3	12.8'	S 08°29.6	15.6'	58.0'	117°38.5	101°18.9	89°47.1	21°41.6	47° 15.7	90°05.2	97°06.7	100°53.9
19	235°16.2	12.9'	$08^{\circ}14.0$	15.7'	58.0'	$117^{\circ}05.1$	100°46.5	89°13.5	21°07.9	47° 38.7	90°39.3	97°33.5	101°19.8
20	249°48.0	12.9'	07°58.3	15.7'	58.0'	116°31.7	100°14.0	88°40.0	20°34.3	48°01.8	91°13.4	98°00.4	101°45.8
21	264°19.9	12.9'	07°42.6	15.8'	58.0'	115°58.3	99°41.6	88°06.4	20°00.6	48°25.1	91°47.6	98°27.2	102°11.7
22	278°51.8	12.9'	07°26.8	15.8'	58.1'	115°24.9	99°09.1	87°32.9	19°27.0	48°48.6	92°21.7	98°53.9	102°37.6
23	293°23.8	13.0'	$07^{\circ}10.9$	15.9'	58.1'	114°51.4	98°36.6	86°59.3	18°53.4	49° 12.2	92°55.9	99°20.7	103°03.5
14 th	SD	= 15.7'	Mer. pass	o2:48									

Moon (15th Jul)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Jupiter	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	307°55.7	13.0'	S 06°55.1	15.9'	58.1'	114°18.0	98°04.1	86°25.7	18°19.8	22°34.1	49°36.1	93°30.1	99°47.5
1	322°27.7	13.0'	06°39.2	15.9'	58.1'	113°44.5	97°31.6	85°52.0	17°46.2	22°50.8	50°00.0	94°04.3	100°14.3
2	336°59.7	13.0'	06°23.2	16.0'	58.1'	113°11.0	96°59.0	85°18.4	17°12.6	23°08.1	50°24.2	94°38.5	100°41.1
3	351°31.7	13.0'	$06^{\circ}07.2$	16.0'	58.1'	112°37.4	96°26.4	84°44.7	16°39.1	23°26.0	50°48.4	95°12.7	101°07.8
4	6°03.7	13.0'	$05^{\circ}51.2$	16.1'	58.2'	112°03.9	95°53.8	84°11.0	16°05.6	23°44.5	51°12.9	95°47.0	101°34.6
5	20°35.8	13.0'	$05^{\circ}35.1$	16.1'	58.2'	111°30.3	95°21.2	83°37.4	15°32.1	24°03.5	51°37.5	96°21.3	102°01.3
6	35°07.8	13.1'	S 05° 19.0	16.1'	58.2'	110°56.7	94° 48.5	83°03.6	14°58.7	24°23.1	52°02.2	96°55.6	102°28.0
7	49°39.9	13.1'	$05^{\circ}02.9$	16.2'	58.2'	110°23.1	94° 15.9	82°29.9	14°25.3	24°43.2	52°27.0	97°29.9	102°54.7
8	64°11.9	13.1'	04° 46.8	16.2'	58.2'	109°49.5	93°43.2	81°56.2	13°51.9	25°03.7	52°52.1	98°04.2	103°21.4
9	78°44.0	13.1'	04°30.6	16.2'	58.2'	109°15.9	93° 10.5	81°22.4	13°18.7	25°24.8	53° 17.2	98°38.5	103°48.0
10	93°16.1	13.1'	$04^{\circ}14.3$	16.2'	58.3'	108°42.2	92°37.8	80°48.6	12°45.5	25°46.3	53°42.5	99°12.9	104°14.7
11	107°48.2	13.1'	$03^{\circ}58.1$	16.3'	58.3'	108°08.5	92°05.0	80°14.8	12°12.4	26°08.2	54°07.8	99°47.3	104°41.3
12	122°20.3	13.1'	S 03°41.8	16.3'	58.3'	107°34.8	91°32.3	79°41.0	11°39.4	26°30.6	54°33.4	100°21.7	105°07.9
13	136°52.3	13.1'	03°25.5	16.3'	58.3'	107°01.1	90°59.5	79°07.2	11°06.6	26°53.4	54°59.0	100°56.1	105°34.5
14	151°24.4	13.1'	$03^{\circ}09.2$	16.3'	58.3'	106°27.4	90°26.7	78°33.4	10°33.8	27°16.5	55°24.8	101°30.5	106°01.0
15	165°56.5	13.1'	02°52.8	16.4'	58.3'	105°53.6	89°53.9	77°59.5	10°01.3	27°40.0	55° 50.7	102°05.0	106°27.6
16	180°28.6	13.1'	02°36.5	16.4'	58.4'	105°19.9	89°21.1	77°25.7	9°29.0	28°03.9	56° 16.7	102°39.4	106°54.1
17	195°00.7	13.1'	$02^{\circ}20.1$	16.4'	58.4'	104°46.1	88°48.2	76°51.8	8°56.9	28°28.2	56°42.8	103°13.9	107°20.5
18	209°32.8	13.1'	S 02°03.7	16.4'	58.4'	104°12.3	88° 15.4	76°17.9	8°25.1	28°52.7	57°09.0	103°48.4	107°47.0
19	224°04.9	13.1'	$01^{\circ}47.2$	16.4'	58.4'	103°38.4	87° 42.5	75°44.0	7°53.7	29°17.6	57°35.3	104°23.0	108°13.4
20	238°37.0	13.1'	01°30.8	16.5'	58.4'	103°04.6	87°09.6	75°10.1	7°22.7	29°42.8	58°01.7	104°57.5	108°39.7
21	253°09.1	13.1'	$01^{\circ}14.3$	16.5'	58.4'	102°30.7	86°36.7	74°36.1	6°52.3	30°08.3	58°28.3	105°32.0	109°06.1
22	267°41.1	13.1'	00°57.9	16.5'	58.5'	101°56.9	86°03.8	74°02.2	6°22.5	30°34.0	58°54.9	106°06.6	109°32.4
23	282°13.2	13.0'	00°41.4	16.5'	58.5'	101°23.0	85°30.8	73°28.2	5°53.7	31°00.1	59°21.6	106°41.2	109°58.6
15 th	SD	$=15.8^{\prime}$	Mer. pass	. 03:35									

h		Moor	n (16 th Ju	I)			Lunar I	Distance	(objects w	ith larges	t hourly LD	delta)	
Wed	GHA	ν	Dec	d	HP	-Procyon	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Antares
0	296°45.2	13.0'	S 00°24.9	16.5'	58.5'	117°44.4	100°49.0	84°57.9	72°54.3		31° 26.4	59°48.4	107°15.8
1	311°17.3	13.0'	S 00°08.4	16.5'	58.5'	117° 12.5	100°15.1	84°24.9	72°20.3		31°52.9	60°15.4	107°50.4
2	325°49.3	13.0'	N00°08.2	16.5'	58.5'	116°40.5	99°41.2	83°52.0	71°46.3		32° 19.7	60°42.4	108°25.1
3	340°21.3	13.0'	00°24.7	16.5'	58.5'	116°08.5	99°07.2	83°19.0	71°12.3		32°46.7	61°09.5	108°59.7
4	354°53.3	13.0'	$00^{\circ}41.2$	16.5'	58.6'	115°36.5	98°33.2	82°46.0	70°38.3		33°14.0	61°36.6	109°34.4
5	9°25.2	12.9'	00°57.8	16.5'	58.6'	115°04.4	97°59.2	82°13.0	70°04.2		33°41.4	62°03.9	110°09.1
6	23°57.2	12.9'	$N01^{\circ}14.3$	16.5'	58.6'	114°32.3	97°25.2	81°40.0	69°30.2		34°09.1	62°31.3	110°43.8
7	38°29.1	12.9'	01°30.8	16.5'	58.6'	114°00.1	96°51.2	81°06.9	68°56.1		34°37.0	62°58.7	111°18.5
8	53°01.0	12.9'	01°47.4	16.5'	58.6'	113°28.0	96°17.1	80°33.9	68°22.1		35°05.0	63°26.2	111°53.2
9	67°32.9	12.9'	02°03.9	16.5'	58.6'	112°55.7	95°43.1	80°00.9	67°48.0		35° 33.3	63°53.8	112°28.0
10	82°04.8	12.8'	02°20.5	16.5'	58.6'	112°23.5	95°09.0	79°27.8	67° 13.9		36°01.7	64°21.5	113°02.8
11	96°36.6	12.8'	$02^{\circ}37.0$	16.5'	58.7'	111°51.2	94°34.9	78°54.7	66°39.8		36° 30.3	64°49.2	113°37.5
12	111°08.4	12.8'	$N02^{\circ}53.5$	16.5'	58.7'	111° 18.8	94°00.8	78°21.7	66°05.7		36°59.0	65°17.0	114°12.3
13	125°40.2	12.7'	$03^{\circ}10.1$	16.5'	58.7'	110°46.5	93°26.7	77°48.6	65°31.6		37°27.9	65°44.9	114°47.1
14	140°11.9	12.7'	03°26.6	16.5'	58.7'	110°14.1	92°52.5	77°15.5	64° 57.5		37°57.0	66°12.9	115°22.0
15	154°43.6	12.7'	03°43.1	16.5'	58.7'	109°41.6	92°18.4	76°42.4	64°23.3		38° 26.2	66°40.9	115°56.8
16	169°15.3	12.6'	03°59.6	16.5'	58.7'	109°09.2	91°44.2	76°09.3	63°49.2		38° 55.6	67°09.0	116°31.7
17	183°47.0	12.6'	$04^{\circ}16.1$	16.5'	58.7'	108°36.7	91°10.0	75°36.2	63°15.0		39°25.1	67°37.1	117°06.6
18	198°18.6	12.6'	N 04°32.5	16.5'	58.8'	108°04.2	90°35.8	75°03.1	62°40.9	7°01.8	39°54.8	68°05.4	117°41.5
19	212°50.2	12.5'	04°49.0	16.4'	58.8'	107°31.6	90°01.6	74°29.9	62°06.7	7°32.8	40°24.5	68°33.6	118°16.4
20	227°21.7	12.5'	05°05.4	16.4'	58.8'	106°59.0	89°27.3	73°56.8	61°32.6	8°04.3	40°54.4	69°02.0	118°51.3
21	241°53.2	12.5'	$05^{\circ}21.9$	16.4'	58.8'	106°26.4	88°53.1	73°23.7	60°58.4	8°36.2	41°24.4	69°30.4	119°26.2
22	256°24.6	12.4'	05°38.3	16.4'	58.8'	105°53.8	88°18.8	72°50.6	60°24.2	9°08.5	41°54.6	69°58.8	
23	270°56.0	12.4'	05°54.7	16.4'	58.8'	105°21.1	87°44.5	72°17.4	59°50.0	9°41.2	42°24.8	70°27.3	
16 th	SD	$= 16.0^{\prime}$	Mer. pass	. 04:21									

h Moon (17 th Jul)	Lunar Distance (objects with largest hourly LD delta
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		IVIOO	II (17 Ju	")		Edital Distance (objects with largest hourly ED delta)							
Thu	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair
0	285°27.4	12.3'	N 06°11.0	16.3'	58.8'	104°48.4	103°25.2	87° 10.2	71°44.3	59°15.8	10°14.1	42°55.2	70°55.9
1	299°58.7	12.3'	06°27.4	16.3'	58.9'	104°15.7	102°52.6	86°35.9	71°11.1	58°41.6	10°47.2	43°25.6	71°24.5
2	314°30.0	12.2'	06°43.7	16.3'	58.9'	103°43.0	102°20.1	86°01.6	70°38.0	58°07.4	11°20.6	43°56.2	71°53.2
3	329°01.2	12.2'	07°00.0	16.3'	58.9'	103°10.2	101°47.6	85°27.2	70°04.8	57°33.2	11°54.1	44°26.9	72°21.9
4	343°32.4	12.1'	$07^{\circ}16.2$	16.2'	58.9'	102°37.4	101°15.0	84°52.9	69°31.7	56°59.0	12°27.8	44°57.6	72°50.7
5	358°03.5	12.1'	07°32.5	16.2'	58.9'	102°04.6	100°42.4	84° 18.5	68°58.6	56°24.8	13°01.6	45°28.5	73°19.5
6	12°34.6	12.0'	N 07°48.7	16.2'	58.9'	101°31.7	100°09.8	83°44.1	68°25.4	55°50.6	13°35.5	45°59.4	73°48.4
7	27°05.6	12.0'	08°04.9	16.1'	58.9'	100°58.9	99°37.2	83°09.7	67°52.3	55°16.3	14°09.6	46°30.5	74°17.3
8	41°36.6	11.9'	$08^{\circ}21.0$	16.1'	58.9'	100°26.0	99°04.6	82°35.3	67° 19.1	54°42.1	14°43.7	47°01.6	74°46.2
9	56°07.5	11.9'	08°37.1	16.1'	59.0'	99°53.1	98°31.9	82°00.9	66°46.0	54°07.9	15°17.9	47°32.8	75°15.2
10	70°38.4	11.8'	08°53.2	16.0'	59.0'	99°20.2	97°59.3	81°26.4	66°12.9	53°33.7	15°52.2	48°04.1	75°44.3
11	85°09.2	11.7'	09°09.2	16.0'	59.0'	98°47.2	97°26.6	80°52.0	65°39.7	52°59.4	16°26.6	48°35.5	76°13.3
12	99°39.9	11.7'	N09°25.2	16.0'	59.0'	98°14.3	96°53.9	80° 17.5	65°06.6	52°25.2	17°01.0	49°06.9	76°42.5
13	114°10.6	11.6'	09°41.2	15.9'	59.0'	97°41.3	96°21.2	79°43.0	64°33.5	51°51.0	17°35.5	49°38.5	77°11.6
14	128°41.2	11.5'	09°57.1	15.9'	59.0'	97°08.3	95°48.5	79°08.5	64°00.4	51°16.8	18°10.1	50°10.1	77°40.8
15	143°11.7	11.5'	10°12.9	15.8'	59.0'	96°35.2	95° 15.8	78°34.0	63°27.3	50°42.5	18°44.7	50°41.7	78°10.1
16	157°42.2	11.4'	10°28.7	15.8'	59.0'	96°02.2	94°43.1	77°59.5	62°54.2	50°08.3	19°19.3	51°13.4	78°39.3
17	172°12.6	11.3'	10°44.5	15.7'	59.1'	95°29.1	94°10.3	77°24.9	62°21.1	49°34.1	19°54.0	51°45.2	79°08.6
18	186°43.0	11.3'	$N11^{\circ}00.2$	15.7'	59.1'	94°56.1	93°37.5	76°50.4	61°48.0	48°59.9	20°28.8	52°17.1	79°37.9
19	201°13.2	11.2'	$11^{\circ}15.9$	15.6'	59.1'	94°23.0	93°04.7	76° 15.8	61°14.9	48°25.7	21°03.6	52°49.0	80°07.3
20	215°43.4	11.1'	11°31.5	15.6'	59.1'	93°49.9	92°32.0	75°41.2	60°41.9	47°51.5	21°38.4	53°21.0	80°36.7
21	230°13.6	11.1'	$11^{\circ}47.1$	15.5'	59.1'	93°16.7	91°59.1	75°06.7	60°08.8	47°17.3	22°13.3	53°53.1	81°06.1
22	244°43.6	11.0'	12°02.6	15.5'	59.1'	92°43.6	91°26.3	74°32.1	59°35.8	46°43.1	22°48.2	54°25.2	81°35.6
23	259°13.6	10.9'	12°18.1	15.4'	59.1'	92°10.5	90°53.5	73°57.4	59°02.8	46°09.0	23°23.1	54°57.3	82°05.1
17 th	SD	= 16.0'	Mer. pass	. 05:08					Sun S	5D = 15.7'			

h	Moon	(18 th Jul)	

Lunar Distance (objects with largest hourly LD delta)
-Sun | -Jupiter | -Capella | -Aldebaran | +Saturn | +Fomalhauf

Fri	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair
0	273°43.5	10.8'	N12°33.5	15.3'	59.1'	91°37.3	90°20.6	73°22.8	58°29.8	45°34.8	23°58.1	55°29.6	82°34.6
1	288°13.4	10.8'	12°48.8	15.3'	59.1'	91°04.1	89°47.8	72°48.2	57°56.8	45°00.6	24°33.1	56°01.8	83°04.1
2	302°43.1	10.7'	13°04.1	15.2'	59.2'	90°30.9	89°14.9	72°13.5	57°23.8	44° 26.5	25°08.1	56°34.2	83°33.7
3	317°12.8	10.6'	13°19.3	15.1'	59.2'	89°57.7	88°42.0	71°38.9	56°50.9	43°52.4	25°43.1	57°06.5	84°03.2
4	331°42.4	10.5'	13°34.4	15.1'	59.2'	89°24.5	88°09.1	71°04.2	56°17.9	43°18.3	26°18.2	57°39.0	84°32.8
5	346°11.9	10.4'	13°49.5	15.0'	59.2'	88°51.3	87°36.2	70°29.5	55°45.0	42°44.1	26°53.3	58°11.4	85°02.4
6	0°41.3	10.3'	N 14°04.5	14.9'	59.2'	88°18.0	87°03.3	69°54.8	55°12.1	42° 10.1	27°28.5	58°43.9	85°32.1
7	15°10.7	10.3'	14°19.5	14.9'	59.2'	87°44.8	86°30.3	69°20.1	54°39.3	41°36.0	28°03.6	59°16.5	86°01.7
8	29°39.9	10.2'	14°34.3	14.8'	59.2'	87°11.5	85°57.4	68°45.4	54°06.4	41°02.0	28°38.8	59°49.1	86°31.4
9	44°09.1	10.1'	$14^{\circ}49.1$	14.7'	59.2'	86°38.2	85°24.4	68°10.6	53°33.6	40°27.9	29°14.0	60°21.8	87°01.1
10	58°38.2	10.0'	$15^{\circ}03.9$	14.6'	59.2'	86°05.0	84°51.4	67°35.9	53°00.8	39°53.9	29°49.2	60°54.5	87°30.8
11	73°07.2	9.9'	$15^{\circ}18.5$	14.6'	59.2'	85°31.7	84°18.4	67°01.1	52°28.1	39° 19.9	30°24.4	61°27.2	88°00.6
12	87°36.1	9.8'	N15°33.1	14.5'	59.3'	84°58.4	83°45.4	66°26.4	51°55.3	38°46.0	30°59.7	62°00.0	88°30.3
13	102°04.9	9.7'	15°47.6	14.4'	59.3'	84°25.1	83°12.4	65°51.6	51°22.6	38° 12.1	31°35.0	62°32.8	89°00.0
14	116°33.6	9.6'	$16^{\circ}02.0$	14.3'	59.3'	83°51.8	82°39.4	65°16.8	50°50.0	37°38.2	32°10.3	63°05.6	89°29.8
15	131°02.3	9.5'	$16^{\circ}16.3$	14.2'	59.3'	83°18.5	82°06.4	64°42.0	50°17.4	37°04.3	32°45.6	63°38.5	89°59.6
16	145°30.8	9.5'	16°30.5	14.2'	59.3'	82°45.1	81°33.3	64°07.2	49°44.8	36°30.5	33°20.9	64°11.5	90°29.4
17	159°59.3	9.4'	$16^{\circ}44.7$	14.1'	59.3'	82°11.8	81°00.3	63°32.4	49°12.2	35°56.7	33°56.3	64°44.4	90°59.2
18	174°27.6	9.3'	N 16°58.7	14.0'	59.3'	81°38.5	80°27.2	62°57.6	48°39.7	35°22.9	34°31.7	65°17.4	91°29.0
19	188°55.9	9.2'	$17^{\circ}12.7$	13.9'	59.3'	81°05.2	79°54.1	62°22.8	48°07.3	34°49.2	35°07.1	65°50.5	91°58.8
20	203°24.0	9.1'	$17^{\circ}26.6$	13.8'	59.3'	80°31.8	79°21.0	61°47.9	47°34.8	34° 15.5	35°42.5	66°23.5	92°28.6
21	217°52.1	9.0'	17°40.4	13.7'	59.3'	79°58.5	78°47.9	61°13.1	47°02.5	33°41.9	36°17.9	66°56.6	92°58.4
22	232°20.1	8.9'	17°54.1	13.6'	59.3'	79°25.2	78°14.8	60°38.2	46°30.1	33°08.3	36°53.3	67°29.7	93°28.2
23	246°48.0	8.8'	18°07.7	13.5'	59.4'	78°51.8	77°41.7	60°03.3	45°57.9	32°34.8	37°28.8	68°02.9	93°58.0
18 th	SD	$= 16.1^{\prime}$	Mer. pass	. 05:57					Sun	SD = 15.7'			

h Moon (19th Jul)

Lunar Distance (objects with largest hourly LD delta)

$\overline{}$						ID D			, J				
Sat	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Jupiter	-Aldebaran	+Saturn	+Fomalhaut	+Achernar	+Altair
0	261°15.7	8.7'	$N18^{\circ}21.1$	13.4'	59.4'	78° 18.5	77°08.6	59°28.5	32°01.3	38°04.2	68°36.1	76°01.5	94°27.8
1	275°43.4	8.6'	18°34.5	13.3'	59.4'	77°45.1	76°35.4	58°53.6	31°27.9	38°39.7	69°09.3	76° 18.5	94°57.7
2	290°11.0	8.5'	18°47.8	13.2'	59.4'	77°11.8	76°02.3	58°18.7	30°54.6	39° 15.2	69° 42.5	76° 35.5	95°27.5
3	304°38.4	8.4'	$19^{\circ}01.0$	13.1'	59.4'	76°38.5	75°29.1	57°43.8	30°21.3	39°50.7	70° 15.8	76°52.6	95°57.3
4	319°05.8	8.3'	$19^{\circ}14.1$	13.0'	59.4'	76°05.1	74°56.0	57°08.9	29°48.1	40°26.2	70°49.1	77°09.8	96°27.1
5	333°33.1	8.2'	$19^{\circ}27.1$	12.9'	59.4'	75°31.8	74°22.8	56°34.0	29° 15.0	41°01.8	71°22.4	77°27.0	96°56.9
6	348°00.2	8.1'	N 19°39.9	12.7'	59.4'	74°58.4	73°49.6	55°59.1	28°41.9	41°37.3	71°55.7	77°44.3	97°26.7
7	2°27.3	8.0'	19°52.7	12.6'	59.4'	74°25.1	73°16.4	55°24.1	28°09.0	42°12.9	72°29.1	78°01.7	97°56.5
8	16°54.2	7.9'	20°05.3	12.5'	59.4'	73°51.8	72°43.2	54°49.2	27°36.1	42°48.4	73°02.5	78° 19.2	98°26.3
9	31°21.1	7.7'	20°17.8	12.4'	59.4'	73° 18.5	72°10.0	54°14.3	27°03.4	43°24.0	73° 35.9	78° 36.7	98°56.1
10	45°47.8	7.6'	20°30.2	12.3'	59.4'	72°45.2	71°36.8	53°39.3	26°30.7	43°59.6	74°09.3	78°54.2	99°25.8
11	60°14.5	7.5'	20°42.5	12.2'	59.4'	72°11.9	71°03.5	53°04.4	25°58.2	44°35.2	74°42.8	79°11.8	99°55.6
12	74°41.0	7.4'	N 20°54.6	12.0'	59.4'	71°38.6	70°30.3	52°29.4	25°25.8	45°10.9	75°16.3	79° 29.5	100°25.3
13	89°07.5	7.3'	21°06.7	11.9'	59.4'	71°05.3	69°57.1	51°54.4	24°53.5	45°46.5	75°49.7	79°47.3	100°55.1
14	103°33.8	7.2'	21°18.6	11.8'	59.4'	70°32.0	69°23.8	51°19.5	24°21.4	46°22.1	76° 23.3	80°05.1	101°24.8
15	118°00.0	7.1'	21°30.4	11.7'	59.5'	69°58.7	68°50.6	50°44.5	23°49.4	46°57.8	76°56.8	80°22.9	101°54.5
16	132°26.1	7.0'	21°42.0	11.5'	59.5'	69°25.5	68°17.3	50°09.5	23°17.6	47°33.4	77° 30.3	80°40.8	102°24.2
17	146°52.1	6.9'	21°53.5	11.4'	59.5'	68°52.2	67°44.0	49°34.6	22°46.0	48°09.1	78°03.9	80°58.7	102°53.8
18	161°18.0	6.8'	N 22°04.9	11.3'	59.5'	68°19.0	67°10.7	48°59.6	22°14.6	48°44.8	78° 37.5	81°16.7	103°23.5
19	175°43.8	6.7'	22°16.2	11.1'	59.5'	67°45.8	66°37.5	48°24.6	21°43.3	49°20.5	79° 11.1	81°34.8	103°53.1
20	190°09.5	6.6'	22°27.3	11.0'	59.5'	67°12.6	66°04.2	47°49.6	21°12.3	49°56.2	79° 44.7	81°52.8	104°22.7
21	204°35.1	6.5'	22°38.3	10.8'	59.5'	66°39.4	65°30.9	47°14.6	20°41.5	50°31.9	80° 18.3	82°11.0	104°52.2
22	219°00.6	6.4'	22°49.2	10.7'	59.5'	66°06.2	64°57.6	46°39.6	20°11.0	51°07.6	80°51.9	82°29.1	105°21.8
23	233°26.0	6.3'	22°59.9	10.6'	59.5'	65°33.1	64°24.3	46°04.7	19°40.8	51°43.3	81°25.6	82°47.3	105°51.3
19 th	SD	= 16.2	′ Mer. pas	s. 06:50		$Sun\;SD=15.7'$							

h Moon (20th Jul)

Sun	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Jupiter	-Venus	+Saturn	+Fomalhaut	+Achernar	+Altair
0	247°51.3	6.2'	N23°10.4	10.4'	59.5'	64°59.9	63°50.9	45°29.7	24°18.9	52°19.0	81°59.2	83°05.6	106°20.8
1	262°16.5	6.1'	23°20.8	10.3'	59.5'	64°26.8	63°17.6	44°54.7	23°47.5	52°54.8	82°32.9	83°23.9	106°50.2
2	276°41.5	6.0'	23°31.1	10.1'	59.5'	63°53.7	62°44.3	44°19.7	23°16.2	53°30.5	83°06.6	83°42.2	107°19.7
3	291°06.5	5.9'	23°41.2	10.0'	59.5'	63°20.7	62°11.0	43°44.7	22°44.9	54°06.3	83°40.3	84°00.5	107°49.0
4	305°31.4	5.8'	23°51.2	9.8'	59.5'	62°47.6	61°37.7	43°09.7	22°13.7	54°42.0	84°14.0	84° 18.9	108°18.4
5	319°56.2	5.7'	24°01.0	9.7'	59.5'	62°14.6	61°04.3	42°34.7	21°42.6	55°17.8	84°47.7	84°37.3	108°47.7
6	334°20.8	5.6'	N24°10.7	9.5'	59.5'	61°41.6	60°31.0	41°59.7	21°11.6	55°53.5	85°21.4	84°55.7	109°17.0
7	348°45.4	5.5'	24°20.2	9.4'	59.5'	61°08.6	59°57.6	41°24.7	20°40.7	56°29.3	85°55.1	85° 14.2	109°46.2
8	3°09.9	5.4'	24°29.6	9.2'	59.5'	60°35.7	59°24.3	40°49.7	20°09.9	57°05.1	86°28.9	85°32.7	110°15.4
9	17°34.3	5.3'	24°38.8	9.0'	59.5'	60°02.8	58°50.9	40°14.8	19°39.2	57°40.9	87°02.6	85°51.2	110°44.6
10	31°58.5	5.2'	24°47.8	8.9'	59.5'	59°29.9	58°17.6	39°39.8	19°08.6	58°16.7	87°36.3	86°09.7	111°13.7
11	46°22.7	5.1'	24°56.7	8.7'	59.5'	58° 57.0	57°44.2	39°04.8	18°38.1	58°52.5	88°10.1	86°28.3	111°42.8
12	60°46.8	5.0'	N25°05.4	8.6'	59.5'	58°24.2	57°10.9	38°29.9	18°07.7	59°28.3	88°43.8	86°46.9	112°11.8
13	75°10.8	4.9'	25°14.0	8.4'	59.5'	57°51.4	56°37.5	37°54.9	17°37.6	60°04.1	89°17.6	87°05.4	112°40.7
14	89°34.7	4.8'	25°22.4	8.2'	59.5'	57° 18.7	56°04.2	37°19.9	17°07.5	60°39.9	89°51.4	87°24.0	113°09.7
15	103°58.5	4.7'	25°30.6	8.1'	59.5'	56°46.0	55°30.8	36°45.0	16°37.7	61°15.7	90°25.1	87° 42.7	113°38.5
16	118°22.2	4.6'	25°38.7	7.9'	59.5'	56°13.3	54°57.5	36°10.0	16°08.0	61°51.5	90°58.9	88°01.3	114°07.3
17	132°45.9	4.5'	25°46.5	7.7'	59.5'	55° 40.7	54°24.1	35°35.1	15°38.6	62°27.3	91°32.6	88° 19.9	114°36.1
18	147°09.4	4.5'	N25°54.3	7.5'	59.5'	55°08.1	53°50.8	35°00.2	15°09.4	63°03.1	92°06.4	88°38.6	115°04.7
19	161°32.9	4.4'	26°01.8	7.4'	59.5'	54° 35.5	53°17.4	34°25.3	14°40.5	63°38.9	92°40.2	88° 57.2	115°33.4
20	175°56.3	4.3'	26°09.2	7.2'	59.5'	54°03.0	52°44.0	33°50.4	14°11.8	64°14.8	93°13.9	89° 15.9	116°01.9
21	190°19.5	4.2'	$26^{\circ}16.3$	7.0'	59.5'	53°30.6	52°10.7	33°15.5	13°43.5	64°50.6	93°47.7	89° 34.5	116°30.4
22	204°42.8	4.1'	26°23.3	6.8'	59.5'	52°58.2	51°37.3	32°40.6	13°15.5	65°26.4	94°21.5	89°53.2	116°58.8
23	219°05.9	4.1'	26°30.2	6.6'	59.5'	52°25.9	51°04.0	32°05.8	12°47.9	66°02.2	94°55.2	90°11.9	117°27.2
20 th	SD	= 16.2	Mer. pas	s. 07:47					Sun	SD = 15.7			

Moon (21st Jul)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Jupiter	-Venus	+Aldebaran	+Saturn	+Fomalhaut	+Altair
0	233°29.0	4.0'	N 26°36.8	6.5'	59.5'	51°53.6	50°30.6	31°30.9	12°20.8		66°38.1	95°29.0	117°55.5
1	247°51.9	3.9'	26°43.3	6.3'	59.5'	51°21.3	49°57.3	30°56.1	11°54.1		67°13.9	96°02.7	118°23.7
2	262°14.9	3.8'	26°49.6	6.1'	59.5'	50°49.2	49°23.9	30°21.3	11°28.0		67°49.7	96°36.4	118°51.8
3	276°37.7	3.8'	26°55.7	5.9'	59.5'	50° 17.0	48°50.6	29°46.5	11°02.5		68°25.5	97° 10.2	119°19.8
4	291°00.5	3.7'	27°01.6	5.7'	59.5'	49°45.0	48°17.2	29°11.7	10°37.7		69°01.4	97°43.9	119°47.8
5	305°23.2	3.6'	27°07.3	5.5'	59.5'	49°13.0	47°43.9	28°36.9	10°13.6		69°37.2	98° 17.6	
6	319°45.8	3.6'	N27°12.9	5.4'	59.5'	48°41.1	47°10.6	28°02.2	9°50.4		70°13.0	98°51.3	
7	334°08.4	3.5'	27°18.2	5.2'	59.5'	48°09.2	46°37.2	27°27.5	9°28.1		70°48.8	99°25.0	
8	348°30.9	3.5'	27°23.4	5.0'	59.5'	47° 37.5	46°03.9	26°52.8			71°24.7	99°58.7	
9	2°53.4	3.4'	27°28.3	4.8'	59.5'	47°05.8	45°30.6	26°18.2			72°00.5	100°32.4	
10	17°15.8	3.3'	27°33.1	4.6'	59.5'	46°34.1	44°57.3	25°43.5			72°36.3	101°06.1	
11	31°38.1	3.3'	27°37.7	4.4'	59.5'	46°02.6	44°24.0	25°08.9			73°12.1	101°39.8	
12	46°00.4	3.3'	N 27°42.1	4.2'	59.4'	45°31.2	43°50.7	24°34.4			73°47.9	102°13.4	
13	60°22.7	3.2'	27°46.3	4.0'	59.4'	44°59.8	43°17.4	23°59.9			74°23.7	102°47.0	
14	74°44.9	3.2'	27°50.3	3.8'	59.4'	44°28.5	42°44.1	23°25.4			74°59.5	103°20.7	
15	89°07.0	3.1'	27°54.1	3.6'	59.4'	43°57.4	42°10.8	22°51.0			75°35.3	103°54.3	
16	103°29.2	3.1'	27°57.7	3.4'	59.4'	43°26.3	41°37.6	22°16.6			$76^{\circ}11.1$	104° 27.9	
17	117°51.2	3.0'	$28^{\circ}01.2$	3.2'	59.4'	42°55.3	41°04.3	21°42.2			76°46.9	105°01.4	
18	132°13.3	3.0'	N 28°04.4	3.0'	59.4'	42°24.4	40°31.0	21°07.9			77°22.7	105°35.0	
19	146°35.3	3.0'	28°07.4	2.8'	59.4'	41°53.7		20°33.7		14°09.7	77°58.5	106° 08.5	
20	160°57.3	3.0'	28°10.2	2.6'	59.4'	41°23.0		19°59.5		14°33.9	78°34.3	106° 42.0	
21	175°19.2	2.9'	28°12.8	2.4'	59.4'	40°52.5		19°25.4		14°58.9	79°10.0	107° 15.5	
22	189°41.2	2.9'	$28^{\circ}15.3$	2.2'	59.4'	40°22.1		18°51.4		15°24.6	79°45.8	107°49.0	
23	204°03.1	2.9'	28°17.5	2.0'	59.4'	39°51.9		18°17.5		15°51.0	80°21.5	108° 22.5	
21 st	SD =	= 16.2′	Mer. pass	. 08:48	3	Sun SD = 15.7'							

h		Моо	ո (22 nd Jւ	ul)		Lunar Distance (objects with largest hourly LD delta)							
Tue	GHA	ν	Dec	d	HP	-Procyon	-Jupiter	+Venus	+Aldebaran	+Capella	+Saturn	+Achernar	+Fomalhaut
0	218°25.0	2.9'	N 28°19.5	1.8'	59.4'	39°21.7	17°43.6		16°17.9		80°57.3	97°53.8	108°55.9
1	232°46.9	2.9'	28°21.3	1.6'	59.4'	38°51.7	17°09.9		16°45.3		81°33.0	98°11.9	109°29.3
2	247°08.7	2.9'	28°23.0	1.4'	59.3'	38°21.9	16°36.2		17°13.3		82°08.8	98°29.9	110°02.7
3	261°30.6	2.9'	28°24.4	1.2'	59.3'	37°52.2	16°02.7		17°41.7		82°44.5	98°47.9	110°36.0
4	275°52.4	2.8'	28°25.6	1.0'	59.3'	37°22.7	15°29.3		18° 10.5		83°20.2	99°05.9	111°09.4
5	290°14.3	2.8'	28°26.6	0.8'	59.3'	36°53.3	14°56.0		18°39.6		83°55.9	99°23.8	111°42.7
6	304°36.1	2.8'	N28°27.4	0.6'	59.3'	36°24.1	14°22.9		19°09.2		84°31.6	99°41.7	112°15.9
7	318°58.0	2.9'	28°28.0	0.4'	59.3'	35°55.1	13°49.9		19°39.0		85°07.3	99°59.5	112°49.2
8	333°19.8	2.9'	28°28.5	0.2'	59.3'	35°26.2	13°17.2	10°16.5	20°09.2		85°43.0	100°17.2	113°22.4
9	347°41.7	2.9'	28°28.7	0.0'	59.3'	34°57.6	12°44.7	10°40.6	20°39.6		86°18.6	100°34.9	113°55.6
10	2°03.6	2.9'	28°28.7	-0.2'	59.3'	34°29.1	12°12.4	11°05.3	21°10.2		86°54.3	100°52.5	114°28.7
11	16°25.5	2.9'	$28^{\circ}28.5$	-0.4'	59.3'	34°00.9	11°40.4	11°30.8	21°41.2		87°29.9	101°10.1	115°01.9
12	30°47.4	2.9'	N28°28.1	-0.6'	59.2'	33°32.8	11°08.7	11°56.8	22°12.3		88°05.6	101°27.6	115°34.9
13	45°09.3	2.9'	28°27.5	-0.8'	59.2'	33°05.0	10°37.4	12°23.3	22°43.6		88°41.2	101°45.1	116°08.0
14	59°31.2	3.0'	28°26.7	-1.0'	59.2'	32°37.5	10°06.5	12°50.3	23°15.1		89°16.8	102°02.5	116°41.0
15	73°53.2	3.0'	28°25.7	-1.2'	59.2'	32°10.1	9°36.1	13°17.7	23°46.8	20°00.1	89°52.4	102°19.8	117°14.0
16	88°15.2	3.0'	28°24.5	-1.4'	59.2'	31°43.1	9°06.3	13°45.5	24°18.6	20°16.6	90°28.0	102°37.1	117°46.9
17	102°37.3	3.1'	28°23.1	-1.6'	59.2'	31°16.3	8°37.1	14°13.6	24°50.6	20°33.9	91°03.5	102°54.2	118°19.8
18	116°59.3	3.1'	N28°21.5	-1.8'	59.2'	30°49.7	8°08.7	14°42.0	25°22.7	20°51.9	91°39.1	103°11.3	118°52.6
19	131°21.4	3.1'	$28^{\circ}19.8$	-2.0'	59.2'	30°23.5	7°41.2	15°10.7	25°55.0	21°10.7	92°14.6	103°28.4	119°25.4
20	145°43.6	3.2'	$28^{\circ}17.8$	-2.2'	59.1'	29°57.5		15°39.6	26°27.4	21°30.0	92°50.2	103°45.3	119°58.2
21	160°05.8	3.2'	$28^{\circ}15.6$	-2.4'	59.1'	29°31.9		16°08.7	26°59.8	21°50.1	93°25.7	104°02.2	
22	174°28.0	3.3'	28°13.2	-2.6'	59.1'	29°06.6		16°38.1	27°32.4	22°10.7	94°01.2	104°19.0	
23	188°50.3	3.3'	28°10.6	-2.8'	59.1'	28°41.6		17°07.6	28°05.1	22°31.9	94°36.6	104°35.8	
22 nd	SD	= 16.2'	Mer. pas	s. 09:51									

Wed	GHA	ν	Dec	d	HP	-Procyon	-Pollux	+Jupiter	+Venus	+Capella	+Betelgeuse	+Aldebaran	+Saturn
0	203°12.6	3.4'	N 28°07.9	-3.0'	59.1'	28°17.0			17°37.3	22°53.7		28°37.9	95°12.1
1	217°35.0	3.4'	28°04.9	-3.2'	59.1'	27°52.8			18°07.1	23°16.0		29° 10.7	95°47.6
2	231°57.5	3.5'	28°01.8	-3.3'	59.0'	27°28.9			18° 37.1	23°38.7		29°43.6	96°23.0
3	246°20.0	3.6'	27°58.4	-3.5'	59.0'	27°05.5			19°07.2	24°02.0		30° 16.6	96°58.4
4	260°42.5	3.6'	27°54.9	-3.7'	59.0'	26°42.4			19°37.3	24°25.7		30°49.7	97°33.8
5	275°05.2	3.7'	27°51.2	-3.9'	59.0'	26°19.8			20°07.6	24°49.8		31°22.8	98°09.2
6	289°27.9	3.8'	N 27°47.2	-4.1'	59.0'	25°57.7			20°38.0	25°14.4	23°37.4	31°56.0	98°44.6
7	303°50.6	3.8'	27°43.1	-4.3'	59.0'	25°36.0			21°08.5	25°39.3	23°53.4	32°29.2	99°19.9
8	318°13.5	3.9'	27°38.9	-4.5'	58.9'	25°14.8			21°39.0	26°04.5	24°10.0	33°02.5	99°55.2
9	332°36.4	4.0'	27°34.4	-4.7'	58.9'	24°54.1			22°09.7	26°30.2	24°27.3	33°35.8	100°30.5
10	346°59.4	4.1'	27°29.7	-4.8'	58.9'	24°34.0			22°40.3	26°56.1	24°45.1	34°09.2	101°05.8
11	1°22.5	4.2'	27°24.9	-5.0'	58.9'	24°14.4			23°11.1	27°22.4	25°03.5	34°42.6	101°41.1
12	15°45.6	4.2'	$N27^{\circ}19.9$	-5.2'	58.9'	23°55.3			23°41.9	27°48.9	25°22.4	35°16.0	102°16.3
13	30°08.8	4.3'	27° 14.7	-5.4'	58.9'	23°36.9			24°12.7	28°15.7	25°41.9	35°49.5	102°51.6
14	44°32.2	4.4'	27°09.3	-5.6'	58.8'	23°19.1			24°43.6	28°42.8	26°01.8	36°23.0	103°26.8
15	58°55.6	4.5'	27°03.7	-5.7'	58.8'	23°02.0			25°14.5	29°10.2	26°22.3	36° 56.5	104°02.0
16	73°19.1	4.6'	26°58.0	-5.9'	58.8'	22°45.4	7°30.5		25°45.4	29°37.7	26°43.2	37°30.1	104°37.1
17	87°42.6	4.7'	$26^{\circ}52.1$	-6.1'	58.8'	22°29.6	6°57.4	8°23.3	26°16.4	30°05.5	27°04.6	38°03.6	105°12.3
18	102°06.3	4.8'	N26°46.0	-6.3'	58.8'	22°14.5	6°24.7	8°51.8	26°47.4	30°33.6	27°26.4	38° 37.2	105°47.4
19	116°30.1	4.9'	26°39.7	-6.4'	58.7'		5°52.5	9°20.9	27°18.4	31°01.8	27°48.5	39° 10.8	106°22.5
20	130°54.0	5.0'	26°33.3	-6.6'	58.7'		5°21.0	9°50.6	27°49.5	31°30.2	28°11.1	39°44.5	106°57.6
21	145°17.9	5.1'	26°26.7	-6.8'	58.7'		4°50.2	10°20.8	28°20.6	31°58.8	28°34.1	40°18.1	107°32.6
22	159°42.0	5.2'	26°20.0	-6.9'	58.7'			10°51.3	28°51.6	32°27.5	28°57.4	40°51.7	108°07.6
23	174°06.2	5.3'	26°13.0	-7.1'	58.7'			11°22.3	29°22.7	32°56.4	29°21.0	41°25.4	108°42.6
23 rd	SD :	= 16.1	Mer. pas	s. 10:54									

h

h	Moon (24 th Jul)) L	unar Distanc	e (object	ts with la	gest hourly	LD delta	a)

Thu	GHA	ν	Dec	d	HP	+Jupiter	+Betelgeuse	+Venus	+Capella	+Aldebaran	+Rigel	+Saturn
0	188°30.5	5.4'	N 26°05.9	-7.3'	58.6'	11°53.5	29°45.0	29°53.8	33°25.5	41°59.0	47°56.7	109°17.6
1	202°54.8	5.5'	25°58.7	-7.4'	58.6'	12°25.0	30°09.3	30°24.9	33°54.7	42°32.7	48°18.0	109°52.6
2	217°19.3	5.6'	25°51.3	-7.6'	58.6'	12°56.7	30°33.8	30°56.1	34°24.1	43°06.4	48°39.5	110°27.5
3	231°43.9	5.7'	25°43.7	-7.7'	58.6'			<u>'</u>	New Moon -	<u>'</u>		'
4	246°08.6	5.8'	25°36.0	-7.9'	58.6'							
5	260°33.4	5.9'	25°28.1	-8.0'	58.5'				New Moon -			
6	274°58.3	6.0'	N 25°20.0	-8.2'	58.5'				New Moon -			
7	289°23.4	6.1'	$25^{\circ}11.8$	-8.3'	58.5'							
8	303°48.5	6.3'	25°03.5	-8.5'	58.5'				New Moon -			
9	318°13.8	6.4'	24°55.0	-8.6'	58.4'				New Moon -			
10	332°39.1	6.5'	24°46.4	-8.8'	58.4'							
11	347°04.6	6.6'	24°37.6	-8.9'	58.4'				New Moon -			
12	1°30.2	6.7'	N 24°28.7	-9.1'	58.4'							
13	15°56.0	6.8'	24°19.6	-9.2'	58.3'				New Moon -			
14	30°21.8	7.0'	24°10.4	-9.3'	58.3'				New Moon -			
15	44°47.8	7.1'	24°01.0	-9.5'	58.3'				New Moon -			
16	59°13.8	7.2'	$23^{\circ}51.5$	-9.6'	58.3'							
17	73°40.0	7.3'	23°41.9	-9.8'	58.3'				New Moon -			
18	88°06.3	7.4'	N23°32.2	-9.9'	58.2'				New Moon -			
19	102°32.8	7.6'	23°22.3	-10.0'	58.2'				New Moon -			
20	116°59.3	7.7'	23°12.3	-10.1'	58.2'				New Moon -			
21	131°26.0	7.8'	$23^{\circ}02.1$	-10.3'	58.2'				New Moon -			
22	145°52.8	7.9'	22°51.9	-10.4'	58.1'				New Moon -			
23	160°19.7	8.0'	22°41.5	-10.5'	58.1'				New Moon -			
24 th	SD	= 16.0)' Mer. pas	s. 11:54					-			

Moon (25 th Jul) Lunar Distance (objects with largest hourly LD d	lelta)
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Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Mars	-Regulus
0	174°46.8	8.2'	N 22°31.0	-10.6'	58.1'				— New M	oon ———			
1	189°14.0	8.3'	22°20.3	-10.7'	58.1'				— New M	oon ———			
2	203°41.2	8.4'	22°09.6	-10.9'	58.0'				— New M	oon ———			
3	218°08.6	8.5'	21°58.7	-11.0'	58.0'					oon ———			
4	232°36.2	8.7'	21°47.8	-11.1'	58.0'					oon ———			
5	247°03.8	8.8'	21°36.7	-11.2'	57.9'				— New M	oon ———			
6	261°31.6	8.9'	N 21°25.5	-11.3'	57.9'				— New M	oon ———			
7	275°59.5	9.0'	21°14.2	-11.4'	57.9'				— New M	oon ———			
8	290°27.5	9.1'	21°02.8	-11.5'	57.9'				— New M	oon ———			
9	304°55.7	9.3'	20°51.2	-11.6'	57.8'				— New M	oon ———			
10	319°23.9	9.4'	20°39.6	-11.7'	57.8'					oon ———			
11	333°52.3	9.5'	20°27.9	-11.8'	57.8'				— New M	oon ———			
12	348°20.8	9.6'	N20°16.1	-11.9'	57.8'				— New M	oon ———			
13	2°49.4	9.7'	20°04.2	-12.0'	57.7'				— New M	oon ———			
14	17°18.2	9.9'	19°52.2	-12.1'	57.7'	117°24.6	104°29.5	100°13.0	92°02.9	72°46.6	71°30.1	39°33.9	17°30.6
15	31°47.0	10.0'	19°40.0	-12.2'	57.7'	116°50.7	104°03.2	99°47.1	91°40.5	72°19.0	70°56.2	39°01.6	16°56.8
16	46°16.0	10.1'	19°27.8	-12.3'	57.6'	116°16.9	103°37.0	99°21.2	91°18.2	71°51.5	70°22.4	38°29.3	16°23.1
17	60°45.1	10.2'	19°15.6	-12.4'	57.6'	115°43.1	103°10.7	98°55.4	90°55.9	71°24.1	69°48.6	37°57.0	15°49.4
18	75°14.3	10.3'	N19°03.2	-12.5'	57.6'	115°09.3	102°44.4	98°29.5	90°33.6	70°56.7	69°14.9	37°24.8	15°15.7
19	89°43.6	10.4'	18°50.7	-12.5'	57.6'	114°35.6	102°18.1	98°03.6	90°11.3	70°29.3	68°41.1	36°52.6	14°42.1
20	104°13.1	10.6'	18°38.2	-12.6'	57.5'	114°01.9	101°51.9	97°37.8	89°49.1	70°02.1	68°07.4	36°20.4	14°08.5
21	118°42.6	10.7'	18°25.5	-12.7'	57.5'	113°28.2	101°25.6	97°11.9	89°26.9	69°34.9	67°33.8	35°48.3	13°35.0
22	133°12.3	10.8'	$18^{\circ}12.8$	-12.8'	57.5'	112°54.6	100°59.3	96°46.1	89°04.7	69°07.8	67°00.2	35°16.2	13°01.5
23	147°42.1	10.9'	18°00.0	-12.9'	57.4'	112°21.0	100°33.0	96°20.3	88°42.5	68°40.7	66°26.6	34°44.1	12°28.1
25 th	SD	= 15.8	Mer. pas	s. 12:48									

h Moon	(26 th Jul)	Lunar Distance (objects with la	rgest hourly LD	delta)
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		11100	11 (20 31	41 <i>)</i>			Lunai Dista	11100 (OD	Jeets Wit	ii laigest	ilourly Li	o acita)	
Sat	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Mars	-Regulus
0	$162^{\circ}12.0$	11.0'	$N17^{\circ}47.1$	-12.9'	57.4'	111°47.5	100°06.8	95°54.5	88°20.3	68°13.8	65°53.0	34° 12.1	11°54.7
1	176°42.0	11.1'	17°34.2	-13.0'	57.4'	111°13.9	99°40.5	95°28.7	87°58.2	67°46.9	65°19.5	33°40.1	11°21.3
2	191°12.1	11.2'	17°21.2	-13.1'	57.4'	110°40.5	99°14.2	95°02.9	87°36.1	67°20.1	64°46.0	33°08.2	10°48.0
3	205°42.3	11.3'	$17^{\circ}08.1$	-13.2'	57.3'	110°07.0	98°48.0	94°37.1	87°14.1	66°53.3	64°12.6	32°36.3	10°14.8
4	220°12.7	11.4'	16°54.9	-13.2'	57.3'	109°33.6	98°21.7	94°11.4	86°52.0	66°26.6	63°39.2	32°04.4	9°41.6
5	234°43.1	11.6'	$16^{\circ}41.7$	-13.3'	57.3'	109°00.2	97°55.5	93°45.6	86°30.0	66°00.1	63°05.8	31°32.5	9°08.5
6	249°13.7	11.7'	N 16°28.4	-13.4'	57.2'	108°26.9	97°29.3	93° 19.9	86°08.1	65°33.6	62°32.4	31°00.7	8°35.5
7	263°44.3	11.8'	$16^{\circ}15.0$	-13.4'	57.2'	107°53.5	97°03.0	92°54.2	85°46.1	65°07.1	61°59.1	30°29.0	8°02.5
8	278°15.1	11.9'	$16^{\circ}01.6$	-13.5'	57.2'	107°20.3	96°36.8	92°28.5	85°24.3	64°40.8	61°25.9	29°57.2	7°29.6
9	292°46.0	12.0'	$15^{\circ}48.1$	-13.6'	57.2'	106°47.0	96°10.6	92°02.9	85°02.4	64°14.6	60°52.6	29°25.5	6°56.9
10	$307^{\circ}17.0$	12.1'	15°34.5	-13.6'	57.1'	106°13.8	95°44.5	91°37.2	84°40.6	63°48.4	60°19.4	28°53.9	6°24.2
11	321°48.0	12.2'	15°20.9	-13.7'	57.1'	105°40.6	95°18.3	91°11.6	84°18.8	63°22.3	59°46.2	28°22.3	5°51.7
12	$336^{\circ}19.2$	12.3'	N 15°07.2	-13.7'	57.1'	105°07.5	94°52.2	90°46.0	83°57.1	62°56.3	59°13.1	27°50.7	5°19.3
13	350°50.5	12.4'	14°53.5	-13.8'	57.0'	104°34.4	94°26.0	90°20.5	83°35.4	62°30.4	58°40.0	27° 19.1	4°47.1
14	5°21.9	12.5'	14°39.7	-13.8'	57.0'	104°01.4	93°59.9	89°55.0	83°13.8	62°04.6	58°07.0	26°47.6	4°15.3
15	19°53.4	12.6'	14°25.8	-13.9'	57.0'	103°28.3	93°33.8	89°29.4	82°52.2	61°38.9	57°33.9	26° 16.1	3°43.8
16	34°25.0	12.7'	$14^{\circ}11.9$	-13.9'	57.0'	102°55.3	93°07.8	89°04.0	82°30.6	61°13.3	57°01.0	25°44.7	3°12.8
17	48°56.6	12.8'	13°58.0	-14.0'	56.9'	102°22.4	92°41.7	88° 38.5	82°09.1	60°47.8	56°28.0	25°13.3	2°42.7
18	63°28.4	12.9'	N13°44.0	-14.0'	56.9'	101°49.5	92°15.7	88°13.1	81°47.6	60°22.4	55°55.1	24°41.9	
19	78°00.3	13.0'	13°29.9	-14.1'	56.9'	101°16.6	91°49.7	87°47.7	81°26.2	59°57.1	55°22.2	24°10.6	
20	92°32.3	13.1'	13°15.8	-14.1'	56.8'	100°43.7	91°23.7	87°22.4	81°04.9	59°31.8	54°49.4	23°39.3	
21	107°04.3	13.1'	13°01.7	-14.2'	56.8'	100°10.9	90°57.8	86° 57.0	80°43.5	59°06.7	54°16.6	23°08.0	
22	121°36.5	13.2'	12°47.5	-14.2'	56.8'	99°38.1	90°31.9	86°31.8	80°22.3	58°41.7	53°43.8	22°36.8	
23	136°08.7	13.3'	12°33.3	-14.3'	56.7'	99°05.4	90°06.0	86°06.5	80°01.1	58°16.8	53°11.1	22°05.6	
26 th	SD	= 15.7'	Mer. pas	s. 13:38									

h

Moon (27th Jul) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Mars	+Regulus
0	150°41.0	13.4'	N 12°19.0	-14.3'	56.7'	98°32.7	89°40.1	85°41.3	79°39.9	57°52.0	52°38.3	21°34.5	
1	165°13.4	13.5'	12°04.7	-14.3'	56.7'	98°00.0	89°14.2	85°16.1	79°18.8	57°27.4	52°05.7	21°03.4	
2	179°45.9	13.6'	11°50.4	-14.4'	56.7'	97°27.4	88°48.4	84°51.0	78°57.8	57°02.8	51°33.1	20°32.3	
3	194°18.5	13.7'	11°36.0	-14.4'	56.6'	96°54.8	88°22.7	84°25.9	78°36.8	56°38.3	51°00.5	20°01.3	
4	208°51.2	13.8'	$11^{\circ}21.6$	-14.4'	56.6'	96°22.2	87°56.9	84°00.8	78°15.9	56°14.0	50°27.9	19°30.3	3°45.9
5	223°23.9	13.8'	$11^{\circ}07.1$	-14.5'	56.6'	95°49.7	87°31.2	83°35.8	77°55.1	55°49.8	49°55.4	18°59.4	4°16.9
6	237°56.8	13.9'	N 10°52.7	-14.5'	56.5'	95°17.2	87°05.5	83°10.8	77°34.3	55°25.7	49°22.9	18° 28.5	4°48.3
7	252°29.7	14.0'	10°38.1	-14.5'	56.5'	94°44.8	86°39.9	82°45.9	77°13.5	55°01.7	48°50.5	17°57.6	5°19.8
8	267°02.7	14.1'	10°23.6	-14.6'	56.5'	94°12.3	86°14.3	82°21.0	76°52.9	54°37.9	48°18.0	17°26.8	5°51.5
9	281°35.8	14.1'	$10^{\circ}09.0$	-14.6'	56.5'	93°40.0	85°48.7	81°56.1	76°32.3	54°14.1	47°45.7	16°56.0	6°23.2
10	296°08.9	14.2'	09°54.4	-14.6'	56.4'	93°07.6	85°23.1	81°31.3	76°11.7	53°50.6	47°13.3	16°25.2	6°55.0
11	310°42.1	14.3'	09°39.8	-14.7'	56.4'	92°35.3	84°57.6	81°06.6	75°51.2	53°27.1	46°41.0	15°54.5	7°26.9
12	325°15.4	14.4'	N09°25.1	-14.7'	56.4'	92°03.0	84°32.2	80°41.8	75°30.8	53°03.8	46°08.7	15°23.8	7°58.8
13	339°48.8	14.4'	09°10.5	-14.7'	56.3'	91°30.8	84°06.7	80°17.2	75°10.5	52°40.6	45°36.5	14°53.2	8°30.7
14	354°22.3	14.5'	08°55.8	-14.7'	56.3'	90°58.6	83°41.3	79°52.6	74°50.2	52°17.5	45°04.3	14°22.6	9°02.6
15	8°55.8	14.6'	08°41.0	-14.7'	56.3'	90°26.4	83°16.0	79°28.0	74°30.1	51°54.6	44°32.2	13°52.1	9°34.5
16	23°29.4	14.7'	08°26.3	-14.8'	56.3'	89°54.3	82°50.7	79°03.5	74°09.9	51°31.8	44°00.0	13°21.5	10°06.4
17	38°03.0	14.7'	$08^{\circ}11.5$	-14.8'	56.2'	89°22.2	82°25.4	78°39.0	73°49.9	51°09.2	43°27.9	12°51.1	10°38.2
18	52°36.7	14.8'	N 07°56.8	-14.8'	56.2'	88°50.1	82°00.2	78°14.6	73°29.9	50°46.7	42°55.9	12°20.7	11°10.1
19	67°10.5	14.9'	07°42.0	-14.8'	56.2'	88°18.1	81°35.0	77°50.2	73°10.0	50°24.3	42°23.8	11°50.3	11°42.0
20	81°44.4	14.9'	07°27.2	-14.8'	56.1'	87°46.1	81°09.9	77°25.9	72°50.2	50°02.2	41°51.9	11°20.0	12°13.8
21	96°18.3	15.0'	$07^{\circ}12.3$	-14.8'	56.1'	87°14.1	80°44.8	77°01.7	72°30.5	49°40.1	41°19.9	10°49.7	12°45.6
22	110°52.3	15.0'	06°57.5	-14.9'	56.1'	86°42.2	80°19.7	76°37.5	72°10.8	49°18.2	40°48.0	10°19.5	13°17.4
23	125°26.3	15.1'	06°42.6	-14.9'	56.1'	86°10.3	79°54.7	76°13.3	71°51.2	48°56.5	40°16.1	9°49.3	13°49.2
27 th	SD	= 15.5	Mer. pas	s. 14:23									

Moon (28 th Jul)	Lunar Distance	(objects with	largest hourly	v LD delta)

Mon	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Arcturus	-Spica	-Mars	+Regulus	+Sun
0	140°00.4	15.2'	N06°27.8	-14.9'	56.0'	85°38.4	79°29.8	75°49.2	48°35.0	39°44.2	9°19.2	14°20.9	
1	154°34.5	15.2'	$06^{\circ}12.9$	-14.9'	56.0'	85°06.6	79°04.9	75°25.2	48°13.6	39°12.4	8°49.1	14°52.6	
2	169°08.8	15.3'	05°58.0	-14.9'	56.0'	84°34.8	78°40.0	75°01.2	47°52.4	38°40.7	8°19.1	15°24.3	
3	183°43.0	15.3'	05°43.1	-14.9'	55.9'	84°03.1	78° 15.2	74°37.3	47°31.3	38°08.9	7°49.2	15°56.0	
4	198°17.4	15.4'	05°28.2	-14.9'	55.9'	83°31.3	77°50.5	74°13.5	47°10.4	37°37.2	7°19.3	16°27.6	41°17.0
5	212°51.7	15.4'	$05^{\circ}13.3$	-14.9'	55.9'	82°59.6	77°25.8	73°49.7	46°49.7	37°05.5	6°49.5	16°59.2	41°46.2
6	227°26.2	15.5'	N 04°58.4	-14.9'	55.9'	82°28.0	77°01.1	73°25.9	46°29.2	36°33.9	6°19.9	17°30.8	42°15.3
7	242°00.6	15.5'	04°43.5	-14.9'	55.8'	81°56.4	76°36.5	73°02.3	46°08.9	36°02.3	5°50.3	18°02.4	42°44.4
8	256°35.2	15.6'	04°28.6	-14.9'	55.8'	81°24.8	76°11.9	72°38.7	45°48.7	35°30.7	5°20.8	18°33.9	43°13.5
9	271°09.7	15.6'	$04^{\circ}13.7$	-14.9'	55.8'	80°53.2	75° 47.4	72°15.1	45°28.8	34°59.1	4°51.6	19°05.4	43°42.5
10	285°44.4	15.7'	03°58.7	-14.9'	55.8'	80°21.7	75°23.0	71°51.6	45°09.0	34°27.6	4°22.5	19°36.8	44°11.5
11	300°19.0	15.7'	03°43.8	-14.9'	55.7'	79°50.2	74°58.6	71°28.2	44°49.4	33°56.1	3°53.7	20°08.3	44°40.5
12	314°53.7	15.8'	N03°28.9	-14.9'	55.7'	79°18.7	74°34.3	71°04.9	44°30.0	33°24.7	3°25.2	20°39.7	45°09.5
13	329°28.5	15.8'	03°14.0	-14.9'	55.7'	78°47.3	74° 10.0	70°41.6	44°10.9	32°53.3	2°57.3	21°11.0	45°38.4
14	344°03.3	15.8'	$02^{\circ}59.1$	-14.9'	55.6'	78°15.9	73°45.8	70°18.4	43°51.9	32°21.9	2°30.1	21°42.4	46°07.3
15	358°38.1	15.9'	$02^{\circ}44.1$	-14.9'	55.6'	77°44.6	73°21.6	69°55.3	43°33.2	31°50.5		22°13.7	46°36.1
16	13°13.0	15.9'	02°29.2	-14.9'	55.6'	77°13.2	72°57.5	69°32.2	43°14.6	31°19.2		22°45.0	47°05.0
17	27°47.9	16.0'	02°14.3	-14.9'	55.6'	76°41.9	72°33.5	69°09.2	42°56.3	30°47.9		23°16.2	47°33.8
18	42°22.9	16.0'	N 01°59.4	-14.9'	55.5'	76°10.7	72°09.5	68°46.3	42°38.2	30°16.7		23°47.5	48°02.5
19	56°57.9	16.0'	$01^{\circ}44.5$	-14.9'	55.5'	75°39.4	71°45.6	68°23.5	42°20.3	29°45.5		24°18.7	48°31.3
20	71°32.9	16.1'	$01^{\circ}29.7$	-14.9'	55.5'	75°08.2	71°21.8	68°00.7	42°02.7	29°14.3		24°49.8	49°00.0
21	86°07.9	16.1'	$01^{\circ}14.8$	-14.9'	55.5'	74°37.1	70°58.0	67°38.0	41°45.2	28°43.1		25°21.0	49°28.7
22	100°43.0	16.1'	$00^{\circ}59.9$	-14.9'	55.4'	74°05.9	70°34.2	67°15.4	41°28.0	28°12.0		25°52.1	49°57.3
23	115°18.2	16.1'	00°45.1	-14.8'	55.4'	73°34.8	70°10.6	66°52.9	41°11.1	27°40.9		26°23.2	50°25.9
28 th	SD = 15.3' Mer. pass. 15:06 $Sun SD = 15.7'$												

h Moon (29	9 th Jul) l	Lunar Distance (o	bjects with larg	gest hourly LD delta	a)
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Tue	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Spica	+Mars	+Regulus	+Sun
0	129°53.3	16.2'	N 00°30.2	-14.8'	55.4'		73°03.7	69°47.0	66°30.4	27°09.8		26°54.2	50°54.5
1	144°28.5	16.2'	00°15.4	-14.8'	55.4'		72°32.6	69°23.4	66°08.0	26°38.8	3°24.2	27°25.2	51°23.1
2	159°03.7	16.2'	N 00°00.6	-14.8'	55.3'	119°41.3	72°01.6	69°00.0	65°45.7	26°07.8	3°52.2	27°56.2	51°51.7
3	173°38.9	16.3'	S 00°14.2	-14.8'	55.3'	119°17.1	71°30.6	68°36.6	65°23.5	25°36.8	4°20.5	28°27.2	52°20.2
4	188°14.2	16.3'	00°29.0	-14.8'	55.3'	118°52.9	70°59.7	68°13.2	65°01.4	25°05.9	4°49.0	28°58.1	52°48.7
5	202°49.5	16.3'	00°43.8	-14.8'	55.3'	118°28.7	70°28.7	67°50.0	64°39.3	24°34.9	5°17.7	29°29.0	53°17.1
6	217°24.8	16.3'	S 00°58.6	-14.7'	55.3'	118°04.4	69°57.8	67°26.8	64°17.4	24°04.1	5°46.5	29°59.9	53°45.5
7	232°00.1	16.3'	$01^{\circ}13.3$	-14.7'	55.2'	117°40.1	69°26.9	67°03.7	63°55.5	23°33.2	6° 15.3	30°30.8	54°13.9
8	246°35.4	16.4'	01°28.0	-14.7'	55.2'	117°15.7	68°56.1	66°40.7	63°33.7	23°02.4	6°44.2	31°01.6	54°42.3
9	261°10.8	16.4'	01°42.7	-14.7'	55.2'	116°51.3	68°25.3	66°17.7	63°12.0	22°31.6	$7^{\circ}13.1$	31°32.4	55°10.7
10	275°46.2	16.4'	01°57.4	-14.7'	55.2'	116°26.9	67°54.5	65°54.8	62°50.4	22°00.8	7°42.0	32°03.2	55°39.0
11	290°21.6	16.4'	$02^{\circ}12.1$	-14.6'	55.1'	116°02.5	67°23.7	65°32.0	62°28.9	21°30.1	8°10.9	32°33.9	56°07.3
12	304°57.0	16.4'	S 02°26.7	-14.6'	55.1'	115°38.0	66°52.9	65°09.2	62°07.4	20°59.3	8°39.9	33°04.7	56°35.6
13	319°32.4	16.4'	02°41.3	-14.6'	55.1'	115°13.5	66°22.2	64°46.6	61°46.1	20°28.7	9°08.8	33°35.3	57°03.8
14	334°07.8	16.4'	02°55.9	-14.6'	55.1'	114°49.0	65°51.5	64°24.0	61°24.9	19°58.0	9°37.8	34°06.0	57°32.0
15	348°43.3	16.5'	$03^{\circ}10.5$	-14.6'	55.1'	114°24.4	65°20.9	64°01.5	61°03.7	19°27.4	10°06.7	34°36.7	58°00.2
16	3°18.7	16.5'	03°25.1	-14.5'	55.0'	113°59.8	64°50.2	63°39.1	60°42.7	18°56.8	10°35.7	35°07.3	58°28.4
17	17°54.2	16.5'	03°39.6	-14.5'	55.0'	113°35.3	64°19.6	63°16.7	60°21.7	18°26.2	11°04.6	35°37.9	58°56.5
18	32°29.7	16.5'	S 03°54.1	-14.5'	55.0'	113°10.6	63°49.1	62°54.4	60°00.9	17°55.7	11°33.5	36°08.4	59°24.7
19	47°05.2	16.5'	04°08.6	-14.4'	55.0'	112°46.0	63°18.5	62°32.3	59°40.2	17°25.1	12°02.4	36°39.0	59°52.8
20	61°40.6	16.5'	04°23.0	-14.4'	54.9'	112°21.3	62°48.0	62°10.2	59°19.5	16°54.6	12°31.3	37°09.5	60°20.8
21	76°16.1	16.5'	04°37.4	-14.4'	54.9'	111°56.7	62°17.4	61°48.2	58°59.0	16°24.2	13°00.1	37°40.0	60°48.9
22	90°51.6	16.5'	04°51.8	-14.4'	54.9'	111°32.0	61°47.0	61°26.3	58°38.5	15°53.7	13°29.0	38° 10.5	61°16.9
23	105°27.1	16.5'	05°06.2	-14.3'	54.9'	111°07.3	61°16.5	61°04.4	58°18.2	15°23.3	13°57.8	38°40.9	61°44.9
29 th	SD	= 15.1'	Mer. pas	s. 15:46					Sun SD =	15.7			

Moon (30th Jul) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Spica	+Mars	+Regulus	+Sun
0	120°02.6	16.5'	S 05°20.5	-14.3'	54.9'	110°42.5	60°46.1	60°42.7	57°58.0	14°53.0	14°26.6	39°11.3	62°12.9
1	134°38.1	16.5'	05°34.8	-14.3'	54.8'	110°17.8	60°15.6	60°21.0	57°37.9	14°22.6	14°55.4	39°41.7	62°40.8
2	149°13.6	16.5'	$05^{\circ}49.1$	-14.2'	54.8'	109°53.1	59°45.3	59°59.5	57°17.9	13°52.3	15°24.2	40°12.1	63°08.8
3	163°49.1	16.5'	06°03.4	-14.2'	54.8'	109°28.3	59°14.9	59°38.0	56°58.0	13°22.0	15°53.0	40°42.5	63°36.7
4	178°24.6	16.5'	06°17.6	-14.2'	54.8'	109°03.5	58°44.5	59°16.6	56°38.2	12°51.7	16°21.7	41°12.8	64°04.6
5	193°00.1	16.5'	$06^{\circ}31.7$	-14.1'	54.8'	108°38.7	58°14.2	58°55.4	56°18.6	12°21.5	16°50.4	41°43.1	64°32.5
6	207°35.6	16.5'	S 06°45.9	-14.1'	54.8'	108°13.9	57°43.9	58°34.2	55°59.0	11°51.3	17° 19.1	42°13.4	65°00.3
7	222°11.1	16.5'	07°00.0	-14.1'	54.7'	107°49.1	57°13.6	58°13.1	55°39.6	11°21.1	17°47.8	42°43.7	65°28.1
8	236°46.5	16.5'	$07^{\circ}14.0$	-14.0'	54.7'	107°24.3	56°43.4	57°52.1	55°20.3	10°50.9	18° 16.5	43°13.9	65°55.9
9	251°22.0	16.4'	$07^{\circ}28.1$	-14.0'	54.7'	106°59.4	56°13.1	57°31.3	55°01.2	10°20.8	18°45.1	43°44.1	66°23.7
10	265°57.4	16.4'	$07^{\circ}42.1$	-14.0'	54.7'	106°34.6	55°42.9	57°10.5	54°42.1	9°50.7	19° 13.8	44°14.3	66°51.5
11	280°32.9	16.4'	$07^{\circ}56.0$	-13.9'	54.7'	106°09.7	55°12.7	56°49.8	54°23.2	9°20.7	19°42.4	44°44.5	67°19.2
12	295°08.3	16.4'	S 08°10.0	-13.9'	54.7'	105°44.9	54°42.6	56°29.3	54°04.4	8°50.6	20°11.0	45°14.7	67°46.9
13	309°43.7	16.4'	08°23.8	-13.8'	54.6'	105°20.0	54°12.4	56°08.8	53°45.8	8°20.7	20°39.6	45°44.8	68°14.7
14	324°19.1	16.4'	08°37.7	-13.8'	54.6'	104°55.1	53°42.3	55°48.5	53°27.2	7°50.7	21°08.1	46°14.9	68°42.3
15	338°54.5	16.4'	08°51.5	-13.8'	54.6'	104°30.2	53°12.1	55°28.2	53°08.8	7°20.8	21°36.7	46°45.1	69°10.0
16	353°29.8	16.3'	09°05.2	-13.7'	54.6'	104°05.3	52°42.0	55°08.1	52°50.6	6°51.0	22°05.2	47°15.1	69°37.7
17	8°05.2	16.3'	$09^{\circ}19.0$	-13.7'	54.6'	103°40.4	52°12.0	54°48.1	52°32.4	6°21.2	22°33.7	47°45.2	70°05.3
18	22°40.5	16.3'	S 09°32.6	-13.6'	54.6'	103°15.5	51°41.9	54°28.2	52°14.5	5°51.5	23°02.2	48°15.3	70°32.9
19	37°15.8	16.3'	09°46.3	-13.6'	54.5'	102°50.6	51°11.9	54°08.4	51°56.6	5°21.9	23°30.7	48°45.3	71°00.5
20	51°51.1	16.3'	09°59.9	-13.5'	54.5'	102°25.7	50°41.8	53°48.8	51°38.9	4°52.3	23°59.1	49°15.3	71°28.1
21	66°26.3	16.2'	10°13.4	-13.5'	54.5'	102°00.8	50°11.8	53°29.3	51°21.4	4°22.9	24°27.6	49°45.3	71°55.7
22	81°01.6	16.2'	$10^{\circ}26.9$	-13.5'	54.5'	101°35.9	49°41.8	53°09.9	51°04.0	3°53.7	24°56.0	50°15.3	72°23.2
23	95°36.8	16.2'	10°40.4	-13.4'	54.5'	101°11.0	49°11.9	52°50.6	50°46.7	3°24.7	25°24.4	50°45.3	72°50.7
30 th	SD	= 15.0'	Mer. pas	s. 16:27					Sun SD =	15.7'			

Moon (31st Jul) h Lunar Distance (objects with largest hourly LD delta)

- 11		IVIOO	11 (31)	41 <i>)</i>			Luliai Dis	tance (obje	CLS WILII	iaigesti	lourly LL	Juentaj	
Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	± Spica	+Mars	+Regulus	+Sun
0	110°12.0	16.2'	S 10°53.8	-13.4'	54.5'		100°46.0	52°31.4	48°41.9	2°56.1	25°52.8	51° 15.2	73°18.2
1	124°47.1	16.1'	$11^{\circ}07.1$	-13.3'	54.5'		100°21.1	52°12.4	48° 12.0	2°28.0	26°21.2	51°45.1	73°45.7
2	139°22.3	16.1'	11°20.5	-13.3'	54.5'		99°56.2	51°53.5	47°42.0	2°00.8	26°49.6	52° 15.1	74°13.2
3	153°57.4	16.1'	11°33.7	-13.2'	54.4'		99°31.3	51°34.7	47° 12.1		27°17.9	52°45.0	74°40.7
4	168°32.5	16.0'	11°46.9	-13.2'	54.4'		99°06.3	51°16.1	46° 42.2		27°46.3	53° 14.9	75°08.2
5	183°07.5	16.0'	$12^{\circ}00.1$	-13.1'	54.4'		98°41.4	50°57.6	46°12.3		28°14.6	53°44.7	75°35.6
6	197°42.5	16.0'	S 12°13.2	-13.1'	54.4'		98° 16.5	50°39.2	45°42.5		28°42.9	54° 14.6	76°03.0
7	212°17.5	15.9'	12°26.3	-13.0'	54.4'		97°51.6	50°21.0	45°12.6		29°11.2	54° 44.5	76°30.5
8	226°52.4	15.9'	12°39.3	-13.0'	54.4'		97°26.6	50°03.0	44°42.8		29°39.5	55° 14.3	76°57.9
9	241°27.4	15.9'	12°52.3	-12.9'	54.4'		97°01.7	49°45.0	44°12.9		30°07.8	55°44.1	77°25.2
10	256°02.2	15.8'	$13^{\circ}05.2$	-12.9'	54.4'		96°36.8	49°27.3	43°43.1		30°36.0	56°13.9	77°52.6
11	270°37.1	15.8'	13°18.0	-12.8'	54.4'		96°11.8	49°09.6	43°13.3		31°04.3	56°43.7	78°20.0
12	285°11.9	15.8'	S 13°30.8	-12.7'	54.3'		95°46.9	48°52.2	42°43.5	3°19.3	31°32.5	57° 13.5	78°47.3
13	299°46.6	15.7'	13°43.5	-12.7'	54.3'		95°22.0	48°34.8	42° 13.7	3°48.1	32°00.8	57°43.3	79°14.7
14	314°21.4	15.7'	13°56.2	-12.6'	54.3'		94°57.1	48°17.7	41°44.0	4°17.0	32°29.0	58° 13.0	79°42.0
15	328°56.1	15.6'	14°08.9	-12.6'	54.3'		94°32.2	48°00.7	41°14.2	4°46.2	32°57.2	58° 42.8	80°09.3
16	343°30.7	15.6'	14°21.4	-12.5'	54.3'		94°07.2	47°43.8	40°44.5	5°15.4	33°25.4	59° 12.5	80°36.6
17	358°05.3	15.6'	14°33.9	-12.5'	54.3'		93°42.3	47°27.2	40°14.7	5°44.7	33°53.6	59°42.3	81°04.0
18	12°39.9	15.5'	S 14°46.4	-12.4'	54.3'	119°53.2	93°17.4	47°10.7	39°45.0	6°14.1	34°21.7	60°12.0	81°31.2
19	27°14.4	15.5'	14°58.8	-12.3'	54.3'	119°25.8	92°52.5	46°54.3	39° 15.3	6°43.5	34°49.9	60°41.7	81°58.5
20	41°48.8	15.4'	$15^{\circ}11.1$	-12.3'	54.3'	118°58.4	92°27.6	46°38.2	38°45.6	7°12.9	35°18.1	61°11.4	82°25.8
21	56°23.3	15.4'	15°23.4	-12.2'	54.3'	118°31.0	92°02.7	46°22.2	38° 15.9	7°42.4	35°46.2	61°41.1	82°53.1
22	70°57.6	15.3'	15°35.6	-12.1'	54.3'	118°03.6	91°37.8	46°06.4	37°46.2	8°11.9	36°14.4	62° 10.8	83°20.3
23	85°31.9	15.3'	15°47.7	-12.1'	54.3'	117°36.2	91°12.9	45°50.8	37° 16.5	8°41.4	36°42.5	62°40.5	83°47.6
31 st	SD	= 14.9'	Mer. pas	s. 17:08				Sun SD =	15.7' at 0h	; 15.8′ at	23h		

h		Моо	n (1 st Au	g)		L	unar Di	stance (obje	ects with	largest h	nourly LI	O delta)	
Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Mars	+Regulus	+Sun
0	100°06.2	15.2'	S 15°59.8	-12.0'	54.2'	117°08.7	90°48.1	45°35.3	36°46.8	9° 10.9	37°10.6	63°10.1	84°14.8
1	114°40.5	15.2'	$16^{\circ}11.8$	-12.0'	54.2'	116°41.2	90°23.2	45°20.1	36°17.1	9°40.5	37°38.8	63°39.8	84°42.1
2	129°14.6	15.1'	16°23.8	-11.9'	54.2'	116°13.8	89°58.3	45°05.0	35°47.5	10° 10.0	38°06.9	64°09.5	85°09.3
3	143°48.8	15.1'	$16^{\circ}35.7$	-11.8'	54.2'	115°46.3	89°33.4		35°17.8	10°39.5	38°35.0	64°39.1	85°36.5
4	158°22.8	15.0'	16°47.5	-11.8'	54.2'	115°18.8	89°08.6		34°48.2	$11^{\circ}09.1$	39°03.1	65°08.8	86°03.7
5	172°56.8	15.0'	$16^{\circ}59.3$	-11.7'	54.2'	114°51.3	88°43.7		34°18.5	11°38.6	39°31.2	65°38.4	86°30.9
6	187°30.8	14.9'	S 17°10.9	-11.6'	54.2'	114°23.7	88°18.9		33°48.9	12°08.2	39°59.3	66°08.0	86°58.1
7	202°04.7	14.9'	17°22.6	-11.5'	54.2'	113°56.2	87°54.0		33°19.3	12°37.7	40°27.3	66° 37.7	87°25.3
8	216°38.6	14.8'	17°34.1	-11.5'	54.2'	113°28.7	87°29.2		32°49.6	13°07.3	40°55.4	67°07.3	87°52.5
9	231°12.4	14.7'	17°45.6	-11.4'	54.2'	113°01.1	87°04.4		32°20.0	13°36.8	41°23.5	67°36.9	88° 19.7
10	245°46.1	14.7'	17°57.0	-11.3'	54.2'	112°33.5	86°39.5		31°50.4	14°06.4	41°51.6	68°06.5	88°46.9
11	260°19.8	14.6'	18°08.3	-11.3'	54.2'	112°06.0	86°14.7		31°20.8	14°35.9	42°19.7	68°36.1	89°14.1
12	274°53.4	14.6'	S 18°19.6	-11.2'	54.2'	111°38.4	85°49.9		30°51.2	15°05.5	42°47.7	69°05.7	89°41.3
13	289°27.0	14.5'	18°30.8	-11.1'	54.2'	111°10.8	85°25.1		30°21.5	15°35.1	43°15.8	69°35.4	90°08.5
14	304°00.5	14.4'	18°41.9	-11.0'	54.2'	110°43.2	85°00.3		29°51.9	16°04.6	43°43.8	70°05.0	90°35.6
15	318°33.9	14.4'	18°52.9	-11.0'	54.2'	110°15.5	84°35.5		29°22.3	16°34.2	44°11.9	70°34.6	91°02.8
16	333°07.3	14.3'	19°03.9	-10.9'	54.2'	109°47.9	84°10.8		28°52.7	17°03.7	44°40.0	71°04.2	91°30.0
17	347°40.6	14.3'	19°14.8	-10.8'	54.2'	109°20.3	83°46.0		28°23.1	17°33.3	45°08.0	71°33.8	91°57.2
18	2°13.9	14.2'	S 19°25.6	-10.7'	54.2'	108°52.6	83°21.2		27°53.5	18°02.9	45°36.1	72°03.4	92°24.3
19	16°47.1	14.1'	19°36.3	-10.7'	54.2'	108°25.0	82°56.5		27°23.9	18°32.4	46°04.1	72°33.0	92°51.5
20	31°20.2	14.1'	19°47.0	-10.6'	54.2'	107°57.3	82°31.8		26°54.3	19°02.0	46°32.2	73°02.6	93°18.7
21	45°53.3	14.0'	19°57.5	-10.5'	54.2'	107°29.6	82°07.0		26°24.7	19°31.6	47°00.2	73°32.2	93°45.8
22	60°26.2	13.9'	20°08.0	-10.4'	54.2'	107°01.9	81°42.3		25°55.1	20°01.1	47°28.3	74°01.7	94°13.0
23	74°59.2	13.9'	20°18.4	-10.3'	54.2'	106°34.2	81°17.6		25°25.5	20°30.7	47°56.3	74°31.3	94°40.2
1 st													

h	Moon	(2 nd	Aug)
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Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Achernar	-Altair	-Antares	+Spica	+Mars	+Regulus	+Sun
0	89°32.0	13.8'	S 20°28.8	-10.2'	54.2'	106°06.5		80°52.9	24°55.9	21°00.3	48°24.4	75°01.0	95°07.4
1	104°04.8	13.7'	20°39.0	-10.2'	54.2'	105°38.8		80°28.2	24°26.3	21°29.9	48°52.5	75°30.6	95°34.5
2	118°37.6	13.7'	20°49.2	-10.1'	54.2'	105°11.0		80°03.6	23°56.7	21°59.5	49°20.5	76°00.2	96°01.7
3	133°10.2	13.6'	20°59.2	-10.0'	54.2'	104°43.3		79°38.9	23°27.1	22°29.0	49°48.6	76°29.8	96°28.9
4	147°42.8	13.5'	$21^{\circ}09.2$	-9.9'	54.2'	104° 15.5		79°14.2	22°57.5	22°58.6	50°16.7	76°59.4	96°56.1
5	162°15.3	13.4'	$21^{\circ}19.1$	-9.8'	54.2'	103°47.8		78°49.6	22°27.9	23°28.2	50°44.7	77°29.0	97°23.3
6	176°47.8	13.4'	S 21°29.0	-9.7'	54.2'	103°20.0		78°25.0	21°58.3	23°57.8	51°12.8	77°58.6	97°50.4
7	191°20.1	13.3'	21°38.7	-9.6'	54.2'	102°52.2		78°00.4	21°28.7	24°27.4	51°40.9	78°28.2	98° 17.6
8	205°52.4	13.2'	21°48.3	-9.5'	54.2'	102°24.4		77°35.8	20°59.1	24°57.0	52°08.9	78°57.8	98°44.8
9	220°24.7	13.2'	21°57.9	-9.5'	54.2'	101°56.6		77°11.2	20°29.4	25°26.7	52°37.0	79°27.5	99°12.0
10	234°56.8	13.1'	22°07.3	-9.4'	54.2'	101°28.8		76°46.6	19°59.8	25°56.3	53°05.1	79°57.1	99°39.2
11	249°28.9	13.0'	$22^{\circ}16.7$	-9.3'	54.2'	101°00.9		76°22.1	19°30.2	26°25.9	53°33.2	80°26.7	100°06.5
12	264°00.9	12.9'	S 22°26.0	-9.2'	54.2'	100°33.1		75°57.5	19°00.5	26°55.5	54°01.3	80°56.4	100°33.7
13	278°32.9	12.9'	22°35.1	-9.1'	54.2'	100°05.2		75°33.0	18°30.9	27°25.2	54°29.4	81°26.0	101°00.9
14	293°04.7	12.8'	22°44.2	-9.0'	54.2'	99°37.4	97°43.1	75°08.5	18°01.2	27°54.8	54°57.5	81°55.7	101°28.1
15	307°36.5	12.7'	22°53.2	-8.9'	54.2'	99°09.5	97°28.0	74°44.0	17°31.6	28°24.5	55°25.7	82°25.4	101°55.4
16	322°08.2	12.6'	23°02.1	-8.8'	54.2'	98°41.6	97°13.0	74°19.5	17°01.9	28°54.1	55°53.8	82°55.0	102°22.6
17	336°39.9	12.6'	23°10.9	-8.7'	54.2'	98° 13.7	96°57.9	73°55.1	16°32.3	29°23.8	56°21.9	83°24.7	102°49.9
18	351°11.4	12.5'	S 23°19.6	-8.6'	54.2'	97°45.8	96°42.7	73°30.6	16°02.6	29°53.5	56°50.1	83°54.4	103°17.1
19	5°42.9	12.4'	23°28.2	-8.5'	54.3'	97°17.8	96°27.6	73°06.2	15°32.9	30°23.1	57°18.2	84°24.1	103°44.4
20	20°14.3	12.3'	23°36.7	-8.4'	54.3'	96°49.9	96°12.4	72°41.8	15°03.2	30°52.8	57°46.4	84°53.8	104°11.7
21	34°45.7	12.3'	23°45.1	-8.3'	54.3'	96°22.0	95°57.2	72°17.4	14°33.5	31°22.5	58°14.5	85°23.5	104°38.9
22	49°16.9	12.2'	23°53.4	-8.2'	54.3'	95°54.0	95°42.0	71°53.0	14°03.8	31°52.2	58°42.7	85°53.2	105°06.2
23	63°48.1	12.1'	24°01.6	-8.1'	54.3'	95°26.0	95°26.7	71°28.7	13°34.1	32°22.0	59°10.9	86°22.9	105°33.5
2 nd	SD	= 14.8'	Mer. pass	s. 18:36					Sun SD =	15.8 [']			

h		Moor	າ (3 rd Au	g)			Lunar Dist	ance (ob	jects wit	h largest	hourly I	_D delta)	
Sun	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	-Antares	+Spica	+Mars	+Regulus	+Sun
0	78°19.2	12.0'	S 24°09.7	-8.0'	54.3'		94°58.0	71°04.4	13°04.4	32°51.7	59°39.1	86°52.7	106°00.8
1	92°50.3	12.0'	24°17.6	-7.9'	54.3'		94°30.1	70°40.1	12°34.7	33°21.4	60°07.3	87°22.4	106°28.2
2	107°21.2	11.9'	24°25.5	-7.8'	54.3'		94°02.0	70°15.8	12°04.9	33°51.2	60°35.5	87°52.2	106°55.5
3	121°52.1	11.8'	24°33.3	-7.7'	54.3'		93°34.0	69°51.5	11°35.2	34°21.0	61°03.7	88°21.9	107°22.8
4	136°22.9	11.7'	$24^{\circ}41.0$	-7.6'	54.3'		93°06.0	69°27.3	11°05.4	34°50.7	61°32.0	88°51.7	107°50.2
5	150°53.6	11.6'	24°48.5	-7.4'	54.3'		92°37.9	69°03.1	10°35.7	35°20.5	62°00.2	89°21.5	108° 17.6
6	165°24.3	11.6'	S 24°56.0	-7.3'	54.3'		92°09.9	68°38.9	10°05.9	35°50.3	62°28.5	89°51.3	108°44.9
7	179°54.8	11.5'	25°03.3	-7.2'	54.4'		91°41.8	68°14.7	9°36.1	36°20.1	62°56.7	90°21.1	109°12.3
8	194°25.3	11.4'	25°10.5	-7.1'	54.4'		91°13.7	67°50.5	9°06.3	36°50.0	63°25.0	90°51.0	109°39.7
9	208°55.7	11.3'	25°17.7	-7.0'	54.4'	119°40.8	90°45.6	67°26.4	8°36.5	37°19.8	63°53.3	91°20.8	110°07.1
10	223°26.1	11.3'	25°24.7	-6.9'	54.4'	119°10.9	90°17.5	67°02.3	8°06.7	37°49.7	64°21.6	91°50.7	110°34.6
11	237°56.4	11.2'	$25^{\circ}31.6$	-6.8'	54.4'	118°41.0	89°49.4	66°38.3	7°36.9	$38^{\circ}19.5$	64°49.9	92°20.5	111°02.0
12	252°26.5	11.1'	S 25°38.3	-6.7'	54.4'	$118^{\circ}11.1$	89°21.3	66°14.2	7°07.1	38°49.4	65°18.3	92°50.4	111°29.5
13	266°56.7	11.0'	25°45.0	-6.5'	54.4'	117°41.2	88°53.1	65°50.2	6°37.3	39°19.3	65°46.6	93°20.3	111°56.9
14	281°26.7	11.0'	25°51.5	-6.4'	54.4'	117°11.3	88°25.0	65°26.3	6°07.5	39°49.2	66°15.0	93°50.2	112°24.4
15	295°56.7	10.9'	25°58.0	-6.3'	54.4'	116°41.3	87°56.8	65°02.3	5°37.7	40°19.1	66°43.4	94°20.2	112°51.9
16	310°26.5	10.8'	26°04.3	-6.2'	54.5'	116°11.4	87°28.6	64°38.4	5°07.9	40°49.1	67°11.8	94°50.1	113° 19.4
17	324°56.4	10.7'	$26^{\circ}10.5$	-6.1'	54.5'	115°41.4	87°00.4	64°14.5	4°38.1	41°19.0	67°40.2	95°20.1	113°47.0
18	339°26.1	10.7'	S 26°16.5	-5.9'	54.5'	115°11.4	86°32.2	63°50.7	4°08.4	41°49.0	68°08.6	95°50.0	114° 14.5
19	353°55.8	10.6'	26°22.5	-5.8'	54.5'	114°41.4	86°04.0	63°26.9	3°38.7	42°19.0	68°37.1	96°20.0	114°42.1
20	8°25.3	10.5'	26°28.3	-5.7'	54.5'	114°11.3	85°35.7	63°03.1	3°09.1	42°49.0	69°05.5	96°50.0	115°09.6
21	22°54.9	10.4'	26°34.0	-5.6'	54.5'	113°41.3	85°07.5	62°39.3	2°39.6	43°19.0	69°34.0	97°20.0	115° 37.2
22	37°24.3	10.4'	26°39.6	-5.5'	54.5'	113°11.2	84°39.2	62°15.6	2°10.3	43°49.0	70°02.5	97°50.1	116°04.8
23	51°53.7	10.3'	$26^{\circ}45.1$	-5.3'	54.6'	112°41.1	84°10.9	61°52.0	1°41.5	44°19.1	70°31.0	98°20.1	116°32.5
3 rd	SD	= 14.8'	Mer. pass	. 19:25					Sun SD =	= 15.8′			

Lunar Distance	(objects with	largest hourl	y LD delta))
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Mon	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Regulus
0	66°23.0	10.2'	S 26°50.4	-5.2'	54.6'	112°11.0	88°59.6	83°42.6	61°28.4		44°49.2	70°59.5	98°50.2
1	80°52.2	10.2'	26°55.6	-5.1'	54.6'	111°40.9	88°44.0	83°14.3	61°04.8		45°19.3	71°28.1	99°20.3
2	95°21.3	10.1'	27°00.7	-5.0'	54.6'	111°10.7	88°28.3	82°46.0	60°41.2		45°49.4	71°56.6	99°50.4
3	109°50.4	10.0'	27°05.6	-4.8'	54.6'	110°40.6	88° 12.7	82° 17.7	60°17.7		46°19.5	72°25.2	100°20.6
4	124°19.4	9.9'	$27^{\circ}10.4$	-4.7'	54.6'	110°10.4	87°57.0	81°49.3	59°54.3		46°49.7	72°53.8	100°50.7
5	138°48.4	9.9'	$27^{\circ}15.1$	-4.6'	54.6'	109°40.2	87°41.4	81°21.0	59°30.9		47°19.8	73°22.4	101°20.9
6	153°17.3	9.8'	S 27°19.7	-4.4'	54.7'	109°10.0	87°25.7	80°52.6	59°07.5		47°50.0	73°51.1	101°51.1
7	$167^{\circ}46.1$	9.7'	$27^{\circ}24.1$	-4.3'	54.7'	108°39.7	87° 10.1	80°24.2	58°44.2	2°28.7	48°20.2	74° 19.7	102°21.3
8	182°14.8	9.7'	27°28.4	-4.2'	54.7'	108°09.5	86° 54.4	79°55.8	58°20.9	2°58.3	48°50.4	74°48.4	102°51.5
9	196°43.5	9.6'	27°32.6	-4.0'	54.7'	107°39.2	86°38.8	79°27.4	57°57.7	3°28.2	49°20.7	$75^{\circ}17.1$	103°21.7
10	$211^{\circ}12.1$	9.5'	27°36.6	-3.9'	54.7'	107°08.9	86°23.1	78°58.9	57°34.6	3°58.1	49°51.0	75°45.8	103°52.0
11	225°40.7	9.5'	$27^{\circ}40.5$	-3.8'	54.7'	106°38.6	86°07.5	78° 30.5	57°11.5	4°28.1	50°21.2	76° 14.6	104°22.3
12	240°09.1	9.4'	S 27°44.3	-3.6'	54.8'	106°08.2	85°51.8	78°02.0	56°48.4	4°58.3	50°51.6	76°43.4	104°52.6
13	254°37.6	9.4'	27°47.9	-3.5'	54.8'	105°37.8	85°36.2	77° 33.6	56°25.4	5°28.4	51°21.9	$77^{\circ}12.1$	105°22.9
14	269°05.9	9.3'	27°51.4	-3.4'	54.8'	105°07.5	85°20.5	77°05.1	56°02.5	5°58.7	51°52.2	77°40.9	105°53.3
15	283°34.2	9.2'	27°54.8	-3.2'	54.8'	104°37.0	85°04.9	76° 36.6	55°39.6	6°28.9	52°22.6	78°09.8	106°23.7
16	298°02.5	9.2'	27°58.0	-3.1'	54.8'	104°06.6	84°49.3	$76^{\circ}08.1$	55°16.8	6°59.2	52°53.0	78°38.6	106°54.1
17	312°30.6	9.1'	28°01.0	-2.9'	54.8'	103°36.1	84°33.6	75°39.6	54°54.1	7°29.6	53°23.4	79°07.5	107°24.5
18	326°58.8	9.1'	S 28°04.0	-2.8'	54.9'	103°05.7	84°18.0	75°11.0	54°31.4	7°59.9	53°53.9	79°36.4	107°54.9
19	341°26.8	9.0'	28°06.8	-2.7'	54.9'	102°35.1	84°02.4	74° 42.5	54°08.8	8°30.3	54°24.4	80°05.3	108°25.4
20	355°54.8	9.0'	28°09.4	-2.5'	54.9'	102°04.6	83°46.8	74° 13.9	53°46.2	9°00.8	54°54.9	80°34.3	108°55.9
21	10°22.8	8.9'	$28^{\circ}11.9$	-2.4'	54.9'	101°34.1	83°31.2	73°45.3	53°23.8	9°31.3	55°25.4	81°03.2	109°26.4
22	24°50.7	8.8'	28°14.3	-2.2'	54.9'	101°03.5	83° 15.6	73° 16.7	53°01.4	10°01.8	55°55.9	81°32.2	109°56.9
23	39°18.6	8.8'	28°16.5	-2.1'	55.0'	100°32.9	83°00.1	72°48.1	52°39.1	10°32.3	56°26.5	82°01.2	110°27.5
4 th	SD	= 14.9'	Mer. pass	. 20:17				-					

h Moon (5th Aug)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Regulus
0	53°46.4	8.7'	S 28°18.6	-1.9'	55.0'	100°02.2	82°44.5	72°19.5	52°16.9	11°02.8	56°57.1	82°30.3	110°58.1
1	68°14.1	8.7'	28°20.5	-1.8'	55.0'	99°31.6	82°29.0	71°50.9	51°54.7	11°33.4	57°27.7	82°59.3	111°28.7
2	82°41.8	8.7'	28°22.3	-1.6'	55.0'	99°00.9	82°13.4	71°22.3	51°32.6	12°04.0	57°58.3	83°28.4	111°59.3
3	97°09.5	8.6'	28°24.0	-1.5'	55.0'	98°30.2	81°57.9	70°53.6	51°10.7	12°34.7	58°29.0	83°57.5	112°30.0
4	111°37.1	8.6'	28°25.5	-1.4'	55.1'	97°59.5	81°42.4	70°25.0	50°48.8	13°05.3	58°59.7	84°26.7	113°00.7
5	126°04.6	8.5'	28°26.8	-1.2'	55.1'	97°28.7	81°27.0	69°56.3	50°27.0	13°36.0	59°30.4	84°55.8	113°31.4
6	140°32.1	8.5'	S 28°28.0	-1.1'	55.1'	96°57.9	81°11.5	69°27.6	50°05.3	14°06.8	60°01.1	85°25.0	114°02.1
7	154°59.6	8.4'	$28^{\circ}29.1$	-0.9'	55.1'	96°27.1	80°56.0	68°58.9	49°43.7	14°37.5	60°31.9	85°54.2	114°32.9
8	169°27.1	8.4'	28°30.0	-0.8'	55.1'	95°56.3	80°40.6	68°30.2	49°22.2	15°08.3	61°02.7	86°23.5	115°03.7
9	183°54.4	8.4'	28°30.7	-0.6'	55.2'	95°25.4	80°25.2	68°01.5	49°00.8	15°39.1	61°33.5	86°52.7	115°34.5
10	198°21.8	8.3'	28°31.3	-0.5'	55.2'	94°54.5	80°09.8	67°32.8	48°39.5	16°09.9	62°04.4	87°22.0	116°05.4
11	212°49.1	8.3'	$28^{\circ}31.8$	-0.3'	55.2'	94°23.6	79°54.5	67°04.0	48°18.3	16°40.8	62°35.2	87°51.4	116°36.2
12	227°16.4	8.3'	S 28°32.1	-0.2'	55.2'	93°52.7	79°39.1	66°35.3	47° 57.2	17°11.7	63°06.1	88°20.7	117°07.1
13	241°43.7	8.2'	28°32.3	-0.0'	55.3'	93°21.7	79°23.8	66°06.5	47°36.3	17°42.6	63°37.1	88°50.1	117°38.1
14	256°10.9	8.2'	28°32.3	0.1'	55.3'	92°50.7	79°08.5	65°37.8	47° 15.4	18°13.5	64°08.0	89°19.5	118°09.0
15	270°38.1	8.2'	$28^{\circ}32.1$	0.3'	55.3'	92° 19.7	78°53.3	65°09.0	46°54.7	18°44.5	64°39.0	89°48.9	118°40.0
16	285°05.2	8.1'	28°31.8	0.5'	55.3'	91°48.6	78°38.1	64°40.2	46°34.1	19°15.5	65°10.0	90°18.4	119°11.0
17	299°32.4	8.1'	28°31.4	0.6'	55.4'	91° 17.6	78°22.9	64°11.4	46° 13.7	19°46.6	65°41.1	90°47.9	119°42.0
18	313°59.5	8.1'	S 28°30.8	0.8'	55.4'	90°46.4	78°07.7	63°42.6	45°53.4	20°17.6	66°12.1	91°17.4	
19	328°26.5	8.1'	28°30.0	0.9'	55.4'	90°15.3	77°52.6	63°13.8	45°33.2	20°48.7	66°43.2	91°46.9	
20	342°53.6	8.0'	$28^{\circ}29.1$	1.1'	55.4'	89°44.1	77°37.4	62°45.0	45°13.1	21°19.8	67°14.4	92°16.5	
21	357°20.6	8.0'	28°28.0	1.2'	55.4'	89°12.9	77°22.4	62°16.2	44°53.2	21°51.0	67°45.5	92°46.1	
22	11°47.7	8.0'	28°26.8	1.4'	55.5'	88°41.7	77°07.3	61°47.4	44°33.5	22°22.2	68°16.7	93°15.7	
23	26°14.7	8.0'	28°25.4	1.5'	55.5'	88° 10.4	76°52.3	61°18.6	44°13.9	22°53.4	68°47.9	93°45.4	
5 th	SD =	= 15.0'	Mer. pas	s. 21:11									

n Moon (6th Aug)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOOI	ı (ö Au	g)			Lunar Dis	stance (c	objects wit	in largesi	nourly	LD deita)	
Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Mars
0	40°41.6	8.0'	S 28°23.9	1.7'	55.5'	87°39.2	60°49.8	43°54.5	23°24.6	52°12.8	69°19.2	74°48.8	94° 15.1
1	55°08.6	7.9'	28°22.2	1.8'	55.5'	87°07.8	60°20.9	43°35.2	23°55.9	52°31.5	69°50.4	75°14.5	94°44.8
2	69°35.5	7.9'	28°20.3	2.0'	55.6'	86°36.5	59°52.1	43°16.1	24°27.2	52°50.4	70°21.7	75°40.1	95° 14.5
3	84°02.5	7.9'	28°18.3	2.2'	55.6'	86°05.1	59°23.3	42°57.2	24°58.5	53°09.4	70°53.1	76°05.8	95°44.3
4	98°29.4	7.9'	28°16.2	2.3'	55.6'	85°33.7	58°54.4	42°38.4	25°29.9	53°28.6	71°24.4	76°31.6	96°14.1
5	112°56.3	7.9'	28°13.9	2.5'	55.6'	85°02.3	58°25.6	42°19.9	26°01.3	53°47.9	71°55.8	76°57.4	96°44.0
6	127°23.2	7.9'	S 28°11.4	2.6'	55.7'	84°30.8	57°56.7	42°01.5	26°32.7	54°07.4	72°27.3	77°23.3	97° 13.8
7	141°50.1	7.9'	28°08.8	2.8'	55.7'	83°59.3	57°27.9	41°43.3	27°04.2	54°27.0	72°58.7	77°49.2	97°43.7
8	156°17.0	7.9'	28°06.0	2.9'	55.7'	83°27.8	56°59.1	41°25.3	27°35.6	54°46.8	73°30.2	78°15.1	98° 13.7
9	170°43.9	7.9'	28°03.1	3.1'	55.7'	82°56.2	56°30.2	41°07.6	28°07.2	55°06.7	74°01.7	78°41.1	98°43.6
10	185°10.8	7.9'	28°00.0	3.2'	55.8'	82°24.6	56°01.4	40°50.0	28°38.7	55°26.7	74°33.3	79°07.2	99°13.6
11	199°37.7	7.9'	27°56.7	3.4'	55.8'	81°53.0	55°32.6	40°32.6	29°10.3	55°46.9	75°04.8	79°33.3	99°43.6
12	214°04.6	7.9'	S 27°53.3	3.6'	55.8'	81°21.3	55°03.8	40°15.5	29°41.9	56°07.2	75°36.5	79°59.4	100°13.7
13	228°31.5	7.9'	27°49.8	3.7'	55.8'	80°49.7	54°35.0	39°58.6	30°13.5	56°27.7	76°08.1	80°25.6	100°43.8
14	242°58.4	7.9'	$27^{\circ}46.1$	3.9'	55.9'	80°17.9	54°06.1	39°41.9	30°45.2	56°48.3	76°39.8	80°51.8	101°13.9
15	257°25.3	7.9'	27°42.2	4.0'	55.9'	79°46.2	53°37.3	39°25.5	31°16.9	57°09.0	77°11.5	81°18.0	101°44.0
16	271°52.2	7.9'	27°38.2	4.2'	55.9'	79°14.4	53°08.6	39°09.3	31°48.6	57°29.8	77°43.2	81°44.3	102°14.2
17	286°19.1	7.9'	27°34.0	4.3'	55.9'	78°42.6	52°39.8	38°53.4	32°20.4	57°50.8	78°15.0	82°10.6	102°44.4
18	300°46.1	7.9'	S 27°29.7	4.5'	56.0'	78° 10.8	52°11.0	38°37.7	32°52.2	58°11.9	78°46.8	82°37.0	103°14.7
19	315°13.0	8.0'	27°25.2	4.6'	56.0'	77°38.9	51°42.2	38°22.3	33°24.0	58°33.1	79°18.6	83°03.4	103°44.9
20	329°40.0	8.0'	$27^{\circ}20.5$	4.8'	56.0'	77°07.0	51°13.5	38°07.1	33°55.9	58°54.5	79°50.5	83°29.9	104°15.2
21	344°06.9	8.0'	27°15.7	5.0'	56.1'	76°35.1	50°44.8		34°27.8	59° 15.9	80°22.4	83°56.3	104°45.6
22	358°33.9	8.0'	27°10.8	5.1'	56.1'	76°03.1	50°16.1		34°59.7	59°37.5	80°54.3	84°22.9	105° 15.9
23	13°00.9	8.0'	27°05.7	5.3'	56.1'	75°31.1	49°47.4		35°31.7	59°59.2	81°26.3	84°49.4	105°46.3
6 th	SD =	= 15.1'	Mer. pass	s. 22:0	6								

h Moon (7th Aug)

Thu	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Mars
0	27°27.9	8.0'	S 27°00.4	5.4'	56.1'	74°59.0	49°18.7	36°03.7	55°59.7	60°21.0	81°58.3	85°16.0	106°16.8
1 1	41°55.0	8.1'	26°55.0	5.6'	56.2'	74°27.0	48°50.1	36°35.7	56°21.4	60°43.0	82°30.3	85°42.6	106°47.2
2	56°22.0	8.1'	26°49.4	5.7'	56.2'	73°54.9	48°21.4	37°07.8	56°43.2	61°05.0	83°02.4	86°09.3	107°17.7
3	70°49.1	8.1'	26°43.7	5.9'	56.2'	73°22.7	47°52.9	37°39.9	57°05.1	61°27.2	83°34.4	86°36.0	107°48.3
4	85°16.2	8.1'	26° 37.8	6.0'	56.2'	72°50.6	47°24.3	38°12.0	57°27.2	61°49.4	84°06.6	87°02.7	108°18.8
5	99°43.4	8.2'	26°31.8	6.2'	56.3'	72°18.4	46°55.7	38°44.2	57°49.4	62°11.8	84°38.7	87°29.5	108°49.4
6	114°10.5	8.2'	S 26°25.6	6.3'	56.3'	71°46.2	46°27.2	39° 16.3	58°11.7	62°34.2	85°10.9	87°56.2	109°20.0
7	128°37.7	8.2'	$26^{\circ}19.3$	6.5'	56.3'	71°13.9	45°58.8	39°48.6	58°34.2	62°56.8	85°43.1	88°23.1	109°50.7
8	143°05.0	8.3'	$26^{\circ}12.8$	6.6'	56.3'	70°41.6	45°30.3	40°20.8	58°56.7	63°19.5	86° 15.4	88°49.9	110°21.4
9	157°32.2	8.3'	26°06.2	6.8'	56.4'	70°09.3	45°01.9	40°53.1	59°19.4	63°42.3	86°47.7	89° 16.8	110°52.1
10	171°59.5	8.3'	25°59.4	6.9'	56.4'	69°36.9	44°33.6	41°25.4	59°42.2	64°05.1	87°20.0	89°43.7	111°22.9
11	186°26.8	8.3'	25°52.5	7.1'	56.4'	69°04.5	44°05.2	41°57.8	60°05.1	64°28.1	87°52.4	90°10.6	111°53.7
12	200°54.2	8.4'	S 25°45.4	7.2'	56.5'	68°32.1	43°37.0	42°30.2	60°28.1	64°51.2	88°24.7	90°37.6	112°24.5
13	215°21.5	8.4'	25°38.2	7.4'	56.5'	67°59.6	43°08.7	43°02.6	60°51.2	65°14.3	88° 57.2	91°04.6	112°55.4
14	229°49.0	8.5'	25°30.9	7.5'	56.5'	67°27.2	42°40.6	43°35.1	61°14.4	65°37.6	89° 29.6	91°31.6	113°26.2
15	244°16.4	8.5'	25°23.3	7.7'	56.5'	66°54.6	42°12.4	44°07.5	61°37.8	66°00.9	90°02.1	91°58.6	113°57.2
16	258°43.9	8.5'	$25^{\circ}15.7$	7.8'	56.6'	66°22.1	41°44.4	44°40.1	62°01.2	66°24.3	90°34.6	92°25.7	114°28.1
17	273°11.4	8.6'	25°07.9	8.0'	56.6'	65°49.5	41°16.4	45°12.6	62°24.7	66°47.9	91°07.2	92°52.8	114°59.1
18	287°39.0	8.6'	S 24°59.9	8.1'	56.6'	65°16.9	40°48.4	45°45.2	62°48.4	67°11.5	91°39.8	93°19.9	115°30.1
19	302°06.6	8.7'	24°51.8	8.2'	56.6'	64°44.2	40°20.6	46° 17.8	63°12.1	67°35.2	92°12.4	93°47.0	116°01.2
20	316°34.3	8.7'	24°43.6	8.4'	56.7'	64°11.5	39°52.8	46°50.5	63°35.9	67°58.9	92°45.0	94°14.1	116°32.3
21	331°02.0	8.7'	24°35.2	8.5'	56.7'	63°38.8	39°25.1	47°23.2	63°59.9	68°22.8	93°17.7	94°41.3	117°03.4
22	345°29.7	8.8'	24°26.7	8.7'	56.7'	63°06.1	38°57.4	47° 55.9	64°23.9	68°46.7	93°50.4	95°08.5	117°34.5
23	359°57.5	8.8'	24° 18.0	8.8'	56.8'	62°33.3	38°29.9	48°28.6	64°48.0	69°10.8	94°23.2	95°35.7	118°05.7
7 th	SD =	= 15.3′	Mer. pass	s. 23:00)								

h Moon (8th Aug)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Antares	+Spica	+Arcturus	+Mars
0	14°25.3	8.9'	S 24°09.2	8.9'	56.8'			62°00.5	38°02.4	49°01.4	94°56.0	96°02.9	118°36.9
1	28°53.2	8.9'	24°00.3	9.1'	56.8'			61°27.7	37°35.0	49°34.2	95°28.8	96°30.2	119°08.2
2	43°21.1	9.0'	23°51.2	9.2'	56.8'			60°54.8	37°07.7	50°07.1	96°01.6	96°57.4	119°39.4
3	57°49.1	9.0'	23°42.0	9.4'	56.9'			60°21.9	36°40.6	50°40.0	96°34.5	97°24.7	
4	72°17.1	9.1'	23°32.6	9.5'	56.9'			59°48.9	36° 13.5	51°12.9	97°07.4	97°52.0	
5	86°45.2	9.1'	23°23.2	9.6'	56.9'			59°16.0	35° 46.5	51°45.8	97°40.4	98°19.3	
6	101°13.3	9.2'	S 23°13.5	9.8'	56.9'			58°43.0	35° 19.7	52°18.8	98°13.4	98°46.6	
7	115°41.5	9.2'	23°03.8	9.9'	57.0'			58°09.9	34°53.0	52°51.8	98°46.4	99°13.9	
8	130°09.7	9.3'	22°53.9	10.0'	57.0'			57°36.9	34°26.4	53°24.9	99°19.4	99°41.2	
9	144°37.9	9.3'	22°43.9	10.2'	57.0'			57°03.8	34°00.0	53°58.0	99°52.5	100°08.6	
10	159°06.3	9.4'	22°33.7	10.3'	57.1'			56°30.6	33°33.7	54°31.1	100°25.6	100°35.9	
11	173°34.6	9.4'	22°23.4	10.4'	57.1'			55°57.5	33°07.6	55°04.2	100°58.7	101°03.3	
12	188°03.0	9.5'	S 22°13.0	10.5'	57.1'			55°24.3	32°41.6	55°37.4	101°31.9	101°30.7	
13	202°31.5	9.5'	22°02.5	10.7'	57.1'			54°51.1	32°15.8	56°10.6	102°05.1	101°58.0	
14	217°00.0	9.6'	21°51.8	10.8'	57.2'			54°17.8	31°50.2	56°43.8	102°38.3	102°25.4	
15	231°28.6	9.6'	21°41.0	10.9'	57.2'			53°44.5	31°24.8	57°17.1	103°11.6	102°52.8	
16	245°57.2	9.7'	21°30.1	11.0'	57.2'			53°11.2	30°59.5	57°50.4	103°44.9	103°20.2	
17	260°25.9	9.7'	$21^{\circ}19.0$	11.2'	57.2'			52°37.9	30°34.5	58°23.7	104°18.2	103°47.5	
18	274°54.6	9.8'	S 21°07.9	11.3'	57.3'		119°44.5	52°04.5	30°09.7	58°57.1	104°51.6	104°14.9	
19	289°23.4	9.8'	20°56.6	11.4'	57.3'	119°48.5	119°20.0	51°31.1	29°45.2	59°30.5	105°25.0	104°42.3	
20	303°52.3	9.9'	20°45.2	11.5'	57.3'	119° 15.9	118°55.4	50°57.7	29°20.8	60°03.9	105°58.4	105°09.7	
21	318°21.2	9.9'	20°33.6	11.6'	57.3'	118°43.2	118°30.7	50°24.2	28° 56.7	60°37.4	106°31.9	105°37.1	
22	332°50.1	10.0'	20°22.0	11.8'	57.4'	118° 10.4	118°06.0	49°50.7	28° 32.9	61°10.9	107°05.4	106°04.4	
23	347°19.1	10.1'	20°10.2	11.9'	57.4'	117°37.6	117°41.1	49°17.2	28°09.4	61°44.4	107°38.9	106°31.8	
8 th	SD	= 15.5'	Mer. pass	s. 23:53									

h Moon (9th Aug)

	CUA D / UD										,		
Sat	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	1°48.2	10.1'	S 19°58.3	12.0'	57.4'		117°16.1	117°04.8	48°43.7	62°17.9	75°17.0	106°59.1	108°12.4
1	16°17.3	10.2'	19°46.3	12.1'	57.4'		116°51.0	116°31.9	48°10.1	62°51.5	75°43.1	107° 26.5	108°46.0
2	30°46.4	10.2'	19°34.2	12.2'	57.5'		116°25.8	115°59.0	47°36.5	63°25.1	76°09.2	107°53.8	109°19.6
3	45°15.7	10.3'	19°22.0	12.3'	57.5'		116°00.6	115°26.1	47°02.8	63°58.8	76°35.4	108°21.1	109°53.3
4	59°44.9	10.3'	19°09.7	12.4'	57.5'		115°35.2	114°53.1	46°29.2	64°32.5	77°01.6	108°48.5	110°26.9
5	74°14.3	10.4'	18°57.2	12.6'	57.5'		115°09.7	114°20.1	45°55.5	65°06.2	77°27.8	109° 15.7	111°00.6
6	88°43.6	10.4'	S 18°44.7	12.7'	57.6'		114°44.2	113°47.1	45°21.8	65°39.9	77°54.2	109°43.0	111°34.4
7	103°13.1	10.5'	18°32.0	12.8'	57.6'		114°18.6	113°14.0	44°48.0	66°13.7	78° 20.5	110° 10.3	112°08.1
8	117°42.6	10.5'	18° 19.2	12.9'	57.6'		113°52.9	112°40.9	44°14.3	66°47.4	78°47.0	110°37.5	112°41.9
9	132°12.1	10.6'	18°06.4	13.0'	57.6'		113°27.1	112°07.8	43°40.5	67°21.3	79°13.4	111°04.8	113°15.7
10	146°41.7	10.6'	17°53.4	13.1'	57.7'		113°01.2	111°34.6	43°06.6	67°55.1	79°40.0	111°32.0	113°49.6
11	161°11.3	10.7'	17°40.3	13.2'	57.7'		112°35.2	111°01.4	42°32.8	68°29.0	80°06.5	111°59.1	114°23.4
12	175°41.0	10.7'	S 17°27.1	13.3'	57.7'		112°09.2	110°28.1	41°58.9	69°02.9	80°33.1	112°26.3	114°57.3
13	190°10.8	10.8'	17°13.8	13.4'	57.7'		111°43.0	109°54.8	41°25.0	69°36.8	80° 59.8	112°53.4	115°31.3
14	204°40.6	10.8'	17°00.4	13.5'	57.8'		111°16.8	109°21.5	40°51.1	70°10.8	81°26.5	113°20.5	116°05.2
15	219°10.4	10.9'	16°47.0	13.6'	57.8'	119°34.4	110°50.6	108°48.2	40°17.1	70°44.8	81°53.2	113°47.6	116°39.2
16	233°40.3	11.0'	16°33.4	13.7'	57.8'	119°02.5	110°24.2	108° 14.8	39°43.2	71°18.8	82°20.0	114° 14.6	117°13.2
17	248°10.3	11.0'	$16^{\circ}19.7$	13.8'	57.8'	118°30.6	109°57.8	107°41.4	39°09.2	71°52.9	82°46.8	114°41.6	117°47.3
18	262°40.3	11.0'	S 16°05.9	13.9'	57.9'	117°58.6	109°31.3	107°08.0	38°35.1	72°26.9	83°13.7	115°08.6	118°21.4
19	277°10.3	11.1'	$15^{\circ}52.1$	14.0'	57.9'	117°26.6	109°04.8	106°34.5	38°01.1	73°01.0	83°40.6	115°35.5	118°55.5
20	291°40.4	11.1'	$15^{\circ}38.1$	14.0'	57.9'	116°54.5	108°38.2	106°01.0	37°27.0	73°35.2	84°07.5	116°02.4	119°29.6
21	306°10.6	11.2'	15°24.1	14.1'	57.9'	116°22.3	108°11.5	105°27.5	36°52.9	74°09.3	84°34.5	116°29.2	
22	320°40.8	11.2'	15°09.9	14.2'	58.0'	115°50.2	107°44.7	104°53.9	36°18.8	74°43.5	85°01.5	116° 56.0	
23	335°11.0	11.3'	14°55.7	14.3'	58.0'	115°17.9	107°17.9	104°20.3	35°44.7	75°17.7	85°28.5	117°22.8	
9 th	SD	0 = 15.7	" Mer. pa	ss:-									

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L.	Moon (10th Aug)	Lunar Distance (objects with largest hourly LD delta)
n	MOON LIUM AUGI	I linar i listance i oniects with largest nollriv i i li delta i

			(20 / 10	0,					.,	600	, , ,		
Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	349°41.3	11.3'	S 14°41.4	14.4'	58.0'		114°45.7	103°46.7	35°10.5	75°52.0	85°55.6	90°00.7	117°49.5
1	4°11.6	11.4'	14°27.0	14.5'	58.0'		114°13.4	103° 13.1	34°36.4	76°26.2	86°22.6	90°27.2	118°16.1
2	18°42.0	11.4'	$14^{\circ}12.5$	14.6'	58.1'	119° 52.5	113°41.0	102°39.4	34°02.2	77°00.5	86°49.8	90°53.7	118°42.7
3	33°12.4	11.5'	13°58.0	14.6'	58.1'	119°21.3	113°08.6	102°05.7	33°27.9	77°34.8	87° 16.9	91°20.2	119°09.3
4	47°42.9	11.5'	13°43.3	14.7'	58.1'	118° 50.0	112°36.2	101°32.0	32°53.7	78°09.2	87°44.1	91°46.7	119°35.8
5	62°13.4	11.6'	$13^{\circ}28.6$	14.8'	58.1'	118° 18.6	112°03.8	100°58.2	32°19.5	78°43.6	88°11.3	92°13.3	
6	76°44.0	11.6'	S 13°13.8	14.9'	58.1'	117°47.2	111°31.3	100°24.4	31°45.2	79°17.9	88°38.5	92°39.9	
7	91°14.5	11.6'	$12^{\circ}59.0$	14.9'	58.2'	117° 15.8	110°58.7	99°50.6	31°10.9	79°52.4	89°05.8	93°06.5	
8	105°45.2	11.7'	12°44.0	15.0'	58.2'	116°44.3	110°26.1	99°16.8	30°36.6	80°26.8	89°33.0	93°33.1	
9	120°15.9	11.7'	12°29.0	15.1'	58.2'	116° 12.8	109°53.5	98°42.9	30°02.3	81°01.3	90°00.3	93°59.7	
10	134°46.6	11.8'	12° 13.9	15.2'	58.2'	115°41.2	109°20.9	98°09.0	29°28.0	81°35.8	90°27.6	94°26.3	
11	149°17.3	11.8'	$11^{\circ}58.7$	15.2'	58.2'	115°09.5	108°48.2	97°35.1	28°53.6	82°10.3	90°54.9	94°52.9	
12	163°48.1	11.8'	S 11°43.5	15.3'	58.3'	114°37.8	108°15.5	97°01.2	28°19.2	82°44.8	91°22.3	95°19.5	
13	178°19.0	11.9'	11°28.2	15.4'	58.3'	114°06.1	107°42.7	96°27.2	27°44.9	83°19.4	91°49.6	95°46.2	
14	192°49.8	11.9'	11° 12.8	15.4'	58.3'	113°34.3	107°09.9	95°53.2	27°10.5	83°53.9	92°17.0	96°12.8	
15	207°20.7	11.9'	10°57.4	15.5'	58.3'	113°02.5	106°37.1	95° 19.2	26°36.1	84°28.6	92°44.4	96°39.5	
16	221°51.7	12.0'	10°41.9	15.6'	58.4'	112° 30.6	106°04.2	94°45.2	26°01.7	85°03.2	93°11.8	97°06.1	
17	236°22.6	12.0'	$10^{\circ}26.3$	15.6'	58.4'	111°58.7	105°31.3	94°11.1	25°27.3	85°37.8	93°39.2	97°32.7	
18	250°53.6	12.0'	S 10°10.7	15.7'	58.4'	111°26.8	104°58.4	93°37.1	24°52.9	86°12.5	94°06.6	97°59.4	
19	265°24.7	12.1'	09°55.0	15.7'	58.4'	110°54.8	104°25.5	93°03.0	24°18.4	86°47.2	94°34.0	98°26.0	
20	279°55.7	12.1'	09°39.3	15.8'	58.4'	110°22.7	103°52.5	92°28.8	23°44.0	87°21.9	95°01.5	98°52.7	
21	294°26.8	12.1'	09°23.5	15.9'	58.4'	109° 50.7	103°19.5	91°54.7	23°09.6	87°56.7	95°28.9	99°19.3	
22	308°58.0	12.2'	09°07.6	15.9'	58.5'	109° 18.5	102°46.5	91°20.5	22°35.2	88°31.4	95°56.3	99°45.9	
23	323°29.1	12.2'	$08^{\circ}51.7$	16.0'	58.5'	108°46.4	102°13.4	90°46.3	22°00.7	89°06.2	96°23.8	100°12.5	
10 th	SD	= 15.8'	Mer. pass	s. 00:43									

Moon (11th Aug)

Lunar Distance (objects with largest hourly LD delta)

GHA

V Dec d HP - Juniter - Canella - Aldebaran - Saturn + Altair + Antares + Rigil Kent.

Mon	GHA	ν	Dec	d	HP	-Jupiter	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	338°00.3	12.2'	S 08°35.7	16.0'	58.5'		101°40.3	90°12.1	21°26.3	46°55.3	89°41.0	96°51.2	100°39.1
1	352°31.5	12.2'	$08^{\circ}19.7$	16.1'	58.5'		101°07.2	89°37.9	20°51.9	47° 18.6	90°15.8	97°18.7	101°05.7
2	7°02.7	12.3'	08°03.6	16.1'	58.5'		100°34.1	89°03.7	20°17.5	47°42.1	90°50.6	97°46.1	101°32.3
3	21°34.0	12.3'	07°47.5	16.2'	58.6'		100°00.9	88°29.4	19°43.1	48°05.7	91°25.5	98°13.5	101°58.8
4	36°05.3	12.3'	07°31.4	16.2'	58.6'		99°27.7	87°55.1	19°08.7	48°29.6	92°00.4	98°41.0	102°25.4
5	50°36.5	12.3'	$07^{\circ}15.1$	16.3'	58.6'		98°54.5	87°20.8	18°34.4	48°53.6	92°35.3	99°08.4	102°51.9
6	65°07.9	12.3'	S 06°58.9	16.3'	58.6'		98°21.3	86°46.5	18°00.0	49°17.8	93°10.2	99°35.8	103°18.4
7	79°39.2	12.4'	06°42.6	16.3'	58.6'	119°56.9	97°48.0	86°12.2	17°25.7	49°42.2	93°45.1	100°03.2	103°44.9
8	94°10.6	12.4'	06°26.3	16.4'	58.6'	119°22.6	97°14.8	85°37.8	16°51.4	50°06.7	94°20.1	100°30.7	104°11.3
9	108°41.9	12.4'	06°09.9	16.4'	58.7'	118°48.3	96°41.5	85°03.5	16°17.2	50°31.4	94°55.1	100°58.0	104°37.8
10	123°13.3	12.4'	05°53.5	16.5'	58.7'	118°14.0	96°08.1	84°29.1	15°43.0	50°56.3	95°30.0	101°25.4	105°04.2
11	137°44.7	12.4'	05°37.0	16.5'	58.7'	117°39.7	95°34.8	83°54.7	15°08.8	51°21.3	96°05.0	101°52.8	105°30.6
12	152°16.2	12.4'	S 05°20.5	16.5'	58.7'	117°05.3	95°01.4	83°20.3	14°34.7	51°46.5	96°40.1	102°20.1	105°56.9
13	166°47.6	12.4'	05°04.0	16.6'	58.7'	116°30.9	94°28.1	82°45.8	14°00.7	52°11.8	97°15.1	102°47.5	106°23.2
14	181°19.0	12.5'	04°47.5	16.6'	58.7'	115°56.5	93°54.7	82°11.4	13°26.7	52°37.2	97°50.2	103°14.8	106°49.5
15	195°50.5	12.5'	04°30.9	16.6'	58.8'	115°22.1	93°21.3	81°36.9	12°52.9	53°02.8	98°25.2	103°42.1	107°15.8
16	210°22.0	12.5'	04°14.3	16.6'	58.8'	114°47.7	92°47.8	81°02.4	12°19.1	53°28.6	99°00.3	104°09.4	107°42.0
17	224°53.4	12.5'	03°57.6	16.7'	58.8'	114°13.2	92°14.4	80°28.0	11°45.5	53°54.4	99°35.4	104°36.6	108°08.1
18	239°24.9	12.5'	S 03°40.9	16.7'	58.8'	113°38.8	91°40.9	79°53.5	11°12.0	54°20.4	100°10.5	105°03.8	108°34.3
19	253°56.4	12.5'	03°24.2	16.7'	58.8'	113°04.3	91°07.4	79°18.9	10°38.7	54°46.5	100°45.7	105°31.0	109°00.4
20	268°27.9	12.5'	03°07.5	16.7'	58.8'	112°29.8	90°33.9	78°44.4	10°05.6	55° 12.8	101°20.8	105°58.2	109°26.4
21	282°59.4	12.5'	02°50.8	16.8'	58.8'	111°55.3	90°00.4	78°09.9	9°32.7	55°39.2	101°56.0	106°25.3	109°52.4
22	297°30.9	12.5'	02°34.0	16.8'	58.9'	111°20.8	89°26.9	77°35.3	9°00.1	56°05.6	102°31.2	106°52.4	110°18.4
23	312°02.4	12.5'	02°17.2	16.8'	58.9'	110°46.2	88°53.4	77°00.8	8°27.9	56°32.2	103°06.4	107°19.5	110°44.3
11 th	SD	= 16.0'	Mer. pass	s. 01:31									

Moon (12th Aug) Lunar Distance (objects with largest hourly LD delta)

			(/	<u>U, </u>					\ 3			,	
Tue	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	326°33.9	12.5'	S 02°00.4	16.8'	58.9'	119°27.3	110°11.7	88°19.8	76°26.2	28°52.9	56°59.0	103°41.6	107°46.5
1	341°05.4	12.5'	01°43.6	16.8'	58.9'	118°52.2	109°37.1	87°46.2	75°51.6	29° 18.2	57°25.8	104°16.8	108°13.5
2	355°36.9	12.5'	$01^{\circ}26.8$	16.8'	58.9'	118° 17.0	109°02.5	87°12.7	75° 17.0	29°43.9	57°52.7	104°52.0	108°40.5
3	10°08.4	12.5'	$01^{\circ}09.9$	16.9'	58.9'	117°41.8	108°27.9	86°39.1	74°42.4	30°09.8	58° 19.7	105°27.3	109°07.4
4	24°39.9	12.5'	00°53.1	16.9'	58.9'	117°06.5	107°53.3	86°05.5	74°07.8	30°36.0	58°46.9	106°02.5	109°34.3
5	39°11.4	12.5'	00°36.2	16.9'	58.9'	116°31.3	107°18.6	85°31.9	73°33.2	31°02.5	59°14.1	106°37.8	110°01.1
6	53°42.8	12.5'	S 00°19.3	16.9'	59.0'	115°56.1	106°44.0	84°58.3	72°58.6	31°29.3	59°41.4	107°13.1	110°27.9
7	68°14.3	12.5'	S 00°02.5	16.9'	59.0'	115°20.8	106°09.4	84°24.7	72°24.0	31°56.3	60°08.9	107°48.4	110°54.7
8	82°45.8	12.4'	N00°14.4	16.9'	59.0'	114°45.5	105°34.7	83°51.0	71°49.3	32°23.5	60°36.4	108°23.7	111°21.4
9	97°17.2	12.4'	00°31.3	16.9'	59.0'	114°10.2	105°00.0	83°17.4	71° 14.7	32°51.1	61°04.0	108°59.0	111°48.0
10	111°48.6	12.4'	00°48.2	16.9'	59.0'	113°34.9	104°25.3	82°43.7	70°40.0	33° 18.8	61°31.7	109°34.3	112°14.6
11	126°20.0	12.4'	$01^{\circ}05.1$	16.9'	59.0'	112°59.6	103°50.6	82°10.1	70°05.4	33°46.7	61°59.4	110°09.7	112°41.1
12	140°51.5	12.4'	$N01^{\circ}22.0$	16.9'	59.0'	112°24.3	103°15.9	81°36.4	69°30.7	34°14.9	62°27.3	110°45.0	113°07.6
13	155°22.8	12.4'	01°38.9	16.9'	59.0'	111°49.0	102°41.2	81°02.8	68° 56.0	34°43.3	62°55.2	111°20.4	113°34.0
14	169°54.2	12.4'	$01^{\circ}55.8$	16.9'	59.1'	111°13.7	102°06.4	80°29.1	68°21.4	35°11.8	63°23.2	111°55.8	114°00.3
15	184°25.6	12.3'	$02^{\circ}12.7$	16.9'	59.1'	110°38.3	101°31.7	79°55.5	67°46.7	35°40.6	63°51.3	112°31.1	114°26.6
16	198°56.9	12.3'	02°29.6	16.9'	59.1'	110°03.0	100°56.9	79°21.8	67° 12.0	36°09.5	64° 19.5	113°06.5	114°52.8
17	213°28.2	12.3'	02°46.4	16.9'	59.1'	109°27.6	100°22.2	$78^{\circ}48.1$	66° 37.3	36°38.6	64°47.7	113°41.9	115°18.9
18	227°59.5	12.3'	N03°03.3	16.9'	59.1'	108°52.2	99°47.4	78°14.4	66°02.6	37°07.8	65°16.0	114°17.3	115°45.0
19	242°30.8	12.2'	03°20.2	16.8'	59.1'	108°16.8	99°12.6	77°40.8	65°28.0	37° 37.2	65°44.4	114°52.8	116°11.0
20	257°02.0	12.2'	03°37.0	16.8'	59.1'	107°41.4	98°37.8	77°07.1	64°53.3	38°06.8	66° 12.8	115°28.2	116°36.9
21	271°33.2	12.2'	03°53.8	16.8'	59.1'	107°06.0	98°03.0	76°33.4	64°18.6	38° 36.5	66°41.3	116°03.6	117°02.8
22	286°04.4	12.2'	$04^{\circ}10.6$	16.8'	59.1'	106°30.6	97°28.2	75°59.7	63°43.9	39°06.4	67°09.9	116°39.1	117°28.5
23	300°35.5	12.1'	04°27.4	16.8'	59.1'	105°55.2	96°53.4	75°26.1	63°09.2	39°36.4	67°38.5	117°14.5	117°54.2
12 th	SD	$= 16.1^{\prime}$	Mer. pass	. 02:18									

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Wed	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Antares
0	315°06.7	12.1'	N 04°44.2	16.8'	59.1'	105°19.8	96° 18.6	74°52.4	62°34.5	7°55.7	40°06.5	68°07.2	117°50.0
1 1	329°37.8	12.1'	05°01.0	16.7'	59.2'	104°44.3	95°43.7	74° 18.7	61°59.8	8°27.7	40°36.7	68°35.9	118°25.4
2	344°08.8	12.0'	05°17.7	16.7'	59.2'	104°08.9	95°08.9	73°45.1	61°25.2	9°00.2	41°07.1	69°04.7	119°00.9
3	358°39.8	12.0'	05°34.4	16.7'	59.2'	103°33.5	94°34.0	73°11.4	60°50.5	9°33.1	41°37.6	69°33.5	119°36.4
4	13°10.8	12.0'	05°51.1	16.7'	59.2'	102°58.0	93°59.2	72°37.8	60°15.8	10°06.3	42°08.2	70°02.4	
5	27°41.8	11.9'	06°07.8	16.6'	59.2'	102°22.5	93°24.3	72°04.1	59°41.1	10°39.7	42°38.9	70°31.3	
6	42°12.7	11.9'	N 06°24.4	16.6'	59.2'	101°47.1	92°49.5	71°30.5	59°06.4	11°13.4	43°09.7	71°00.3	
7	56°43.6	11.8'	06°41.0	16.6'	59.2'	101°11.6	92°14.6	70°56.8	58°31.8	11°47.2	43°40.6	71°29.4	
8	71°14.4	11.8'	06°57.6	16.5'	59.2'	100°36.1	91°39.7	70°23.2	57°57.1	12°21.2	44°11.6	71°58.5	
9	85°45.2	11.8'	07°14.1	16.5'	59.2'	100°00.6	91°04.8	69°49.6	57°22.5	12°55.4	44° 42.7	72°27.6	
10	100°16.0	11.7'	07°30.6	16.5'	59.2'	99°25.2	90°29.9	69° 16.0	56°47.8	13°29.7	45°13.9	72°56.7	
11	114°46.7	11.7'	$07^{\circ}47.1$	16.4'	59.2'	98°49.7	89°55.0	68°42.4	56°13.2	14°04.1	45°45.2	73°25.9	
12	129°17.3	11.6'	N 08°03.5	16.4'	59.2'	98°14.2	89°20.1	68°08.8	55°38.5	14°38.7	46°16.5	73°55.2	
13	143°47.9	11.6'	$08^{\circ}19.9$	16.4'	59.2'	97°38.7	88°45.2	67°35.2	55°03.9	15°13.3	46°48.0	74°24.5	
14	$158^{\circ}18.5$	11.5'	08°36.3	16.3'	59.2'	97°03.2	88°10.3	67°01.6	54°29.3	15°48.0	47°19.5	74°53.8	
15	172°49.0	11.5'	08°52.6	16.3'	59.2'	96°27.7	87°35.4	66°28.1	53°54.7	16°22.7	47°51.1	75°23.1	
16	187°19.5	11.4'	09°08.9	16.2'	59.2'	95°52.1	87°00.5	65°54.5	53°20.1	16°57.5	48°22.8	75°52.5	
17	201°49.9	11.4'	09°25.1	16.2'	59.3'	95°16.6	86°25.6	65°21.0	52°45.5	17°32.4	48°54.5	76°22.0	
18	216°20.3	11.3'	N 09°41.3	16.1'	59.3'	94°41.1	85°50.7	64°47.5	52°10.9	18°07.4	49°26.3	76°51.4	
19	230°50.6	11.3'	09°57.4	16.1'	59.3'	94°05.6	85° 15.7	64°14.0	51°36.4	18°42.4	49°58.2	77°20.9	
20	245°20.8	11.2'	10°13.5	16.0'	59.3'	93°30.1	84°40.8	63°40.6	51°01.8	19°17.4	50°30.1	77°50.4	
21	259°51.0	11.1'	10°29.5	16.0'	59.3'	92°54.5	84°05.9	63°07.1	50°27.3	19°52.4	51°02.1	78°19.9	
22	274°21.2	11.1'	10°45.5	15.9'	59.3'	92°19.0	83°30.9	62°33.7	49°52.8	20°27.6	51°34.2	78°49.5	
23	288°51.2	11.0'	11°01.4	15.9'	59.3'	91°43.5	82°56.0	62°00.2	49°18.3	21°02.7	52°06.3	79°19.1	
13 th	SD	= 16.1'	Mer. pass	. 03:06									

Moon (14th Aug)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair
0	303°21.3	11.0'	N11°17.3	15.8'	59.3'	94°41.4	91°07.9	82°21.1	61°26.9	48°43.8	21°37.9	52°38.4	79°48.7
1	317°51.2	10.9'	11°33.1	15.7'	59.3'	94°08.0	90°32.4	81°46.1	60°53.5	48°09.3	22°13.1	53°10.6	80°18.3
2	332°21.1	10.8'	11°48.8	15.7'	59.3'	93°34.6	89°56.9	81°11.2	60°20.1	47° 34.9	22°48.3	53°42.9	80°47.9
3	346°50.9	10.8'	12°04.5	15.6'	59.3'	93°01.2	89°21.3	80°36.3	59°46.8	47°00.4	23°23.5	54°15.2	81°17.6
4	1°20.7	10.7'	12°20.1	15.6'	59.3'	92°27.9	88°45.8	80°01.3	59°13.5	46°26.0	23°58.8	54°47.6	81°47.3
5	15°50.4	10.6'	12°35.7	15.5'	59.3'	91°54.5	88°10.2	79°26.4	58°40.2	45°51.6	24°34.1	55°20.0	82°17.0
6	30°20.0	10.6'	N 12°51.2	15.4'	59.3'	91°21.1	87°34.7	78°51.4	58°07.0	45° 17.3	25°09.4	55°52.4	82°46.7
7	44°49.6	10.5'	13°06.6	15.4'	59.3'	90°47.7	86°59.1	78°16.5	57°33.8	44°42.9	25°44.7	56°24.9	83°16.5
8	59°19.1	10.4'	13°21.9	15.3'	59.3'	90°14.3	86°23.6	77°41.5	57°00.6	44°08.6	26°20.1	56°57.5	83°46.2
9	73°48.5	10.4'	13°37.2	15.2'	59.3'	89°40.9	85°48.1	77°06.6	56°27.4	43°34.3	26°55.4	57°30.0	84°16.0
10	88°17.9	10.3'	13°52.4	15.1'	59.3'	89°07.5	85°12.5	76°31.7	55°54.3	43°00.1	27°30.8	58°02.6	84°45.7
11	102°47.2	10.2'	14°07.6	15.1'	59.3'	88°34.1	84°37.0	75°56.7	55°21.2	42°25.8	28°06.2	58°35.3	85°15.5
12	117°16.4	10.1'	N 14°22.6	15.0'	59.3'	88°00.7	84°01.4	75°21.8	54°48.2	41°51.6	28°41.6	59°08.0	85°45.3
13	131°45.5	10.1'	14°37.6	14.9'	59.3'	87°27.3	83°25.9	74°46.8	54°15.1	41° 17.5	29°17.0	59°40.7	86°15.1
14	146°14.6	10.0'	14°52.5	14.8'	59.3'	86°53.9	82°50.3	74°11.9	53°42.2	40°43.3	29°52.4	60°13.4	86°44.9
15	160°43.6	9.9'	15°07.3	14.7'	59.3'	86°20.5	82°14.8	73°37.0	53°09.2	40°09.2	30°27.8	60°46.2	87°14.7
16	175°12.5	9.8'	$15^{\circ}22.1$	14.7'	59.3'	85°47.1	81°39.3	73°02.0	52°36.3	39°35.2	31°03.3	61°19.0	87°44.5
17	189°41.3	9.8'	15°36.7	14.6'	59.3'	85°13.7	81°03.7	72°27.1	52°03.5	39°01.1	31°38.7	61°51.9	88°14.3
18	204°10.1	9.7'	N15°51.3	14.5'	59.3'	84°40.4	80°28.2	71°52.2	51°30.6	38°27.2	32°14.2	62°24.7	88°44.1
19	218°38.7	9.6'	$16^{\circ}05.8$	14.4'	59.3'	84°07.0	79°52.7	71°17.2	50°57.9	37°53.2	32°49.6	62°57.6	89°14.0
20	233°07.3	9.5'	$16^{\circ}20.2$	14.3'	59.3'	83°33.6	$79^{\circ}17.1$	70°42.3	50°25.1	37° 19.3	33°25.1	63°30.5	89°43.8
21	247°35.8	9.4'	16°34.5	14.2'	59.3'	83°00.3	78°41.6	70°07.4	49°52.5	36° 45.5	34°00.5	64°03.5	90°13.6
22	262°04.3	9.3'	16°48.7	14.1'	59.3'	82°26.9	78°06.1	69°32.5	49°19.8	36° 11.7	34°36.0	64°36.4	90°43.4
23	276°32.6	9.3'	17°02.8	14.0'	59.3'	81°53.6	77°30.5	68°57.6	48°47.3	35°37.9	35°11.5	65°09.4	91°13.2
14 th	SD	$= 16.2^{\prime}$	Mer. pass	. 03:54									

Moon (15th Aug) h

Lunar Distance (objects with largest hourly LD delta)

	CHA " Dos d HP												
Fri	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Jupiter	-Aldebaran	+Saturn	+Fomalhaut	+Achernar	+Altair
0	291°00.9	9.2'	$N17^{\circ}16.8$	13.9'	59.3'	81°20.3	76°55.0	68°22.7	35°04.2	35°47.0	65°42.4	74°40.7	91°43.0
1	305°29.1	9.1'	17°30.7	13.8'	59.3'	80°46.9	$76^{\circ}19.5$	67°47.7	34°30.6	36°22.5	66° 15.5	74°57.2	92°12.8
2	319°57.2	9.0'	17°44.5	13.7'	59.3'	80°13.6	75°44.0	67°12.8	33°57.0	36° 57.9	66° 48.5	75°13.8	92°42.6
3	334°25.2	8.9'	17°58.3	13.6'	59.3'	79°40.3	75°08.5	66°37.9	33°23.5	37°33.4	67°21.6	75°30.5	93°12.4
4	348°53.1	8.8'	$18^{\circ}11.9$	13.5'	59.3'	79°07.0	74°33.0	66°03.0	32°50.1	38°08.9	67° 54.7	75° 47.2	93°42.2
5	3°20.9	8.8'	18°25.4	13.4'	59.3'	78°33.8	73°57.5	65°28.1	32° 16.7	38°44.4	68°27.8	76°04.0	94°11.9
6	17°48.7	8.7'	N 18°38.8	13.3'	59.3'	78°00.5	73°21.9	64°53.3	31°43.4	39°19.9	69°00.9	76°20.9	94°41.7
7	32°16.3	8.6'	$18^{\circ}52.1$	13.2'	59.3'	77°27.2	72°46.4	64°18.4	31°10.1	39°55.4	69°34.0	76° 37.9	95°11.5
8	46°43.9	8.5'	19°05.3	13.1'	59.3'	76°54.0	$72^{\circ}10.9$	63°43.5	30°37.0	40°30.9	70°07.2	76°54.9	95°41.2
9	61°11.4	8.4'	19°18.4	13.0'	59.3'	76°20.8	71°35.5	63°08.6	30°03.9	41°06.4	70°40.3	77° 12.0	96°10.9
10	75°38.8	8.3'	19°31.3	12.9'	59.3'	75°47.6	71°00.0	62°33.7	29°30.9	41°41.9	71°13.5	77°29.1	96°40.6
11	90°06.1	8.2'	19°44.2	12.7'	59.3'	75°14.4	70°24.5	61°58.9	28°58.0	42°17.4	71°46.7	77°46.3	97°10.3
12	104°33.3	8.1'	N 19°56.9	12.6'	59.3'	74°41.2	69°49.0	61°24.0	28° 25.3	42°52.9	72°19.9	78°03.6	97°40.0
13	119°00.5	8.0'	20°09.5	12.5'	59.3'	74°08.0	69°13.5	60°49.2	27°52.6	43°28.4	72°53.1	78°20.9	98°09.6
14	133°27.5	7.9'	20°22.0	12.4'	59.3'	73°34.9	68°38.1	60°14.3	27°20.0	44°03.9	73°26.3	78°38.2	98°39.2
15	147°54.4	7.9'	20°34.4	12.3'	59.3'	73°01.7	68°02.6	59°39.5	26°47.6	44°39.4	73° 59.5	78°55.7	99°08.9
16	162°21.3	7.8'	20°46.6	12.1'	59.3'	72°28.6	67°27.1	59°04.7	26° 15.3	45°14.8	74°32.8	79°13.1	99°38.4
17	176°48.1	7.7'	20°58.8	12.0'	59.3'	71°55.5	66°51.7	58°29.8	25°43.1	45°50.3	75°06.0	79°30.7	100°08.0
18	191°14.7	7.6'	N 21°10.8	11.9'	59.3'	71°22.5	$66^{\circ}16.2$	57°55.0	25° 11.0	46°25.8	75°39.3	79°48.2	100°37.6
19	205°41.3	7.5'	21°22.7	11.7'	59.3'	70°49.4	65°40.8	57°20.2	24°39.1	47°01.3	76° 12.5	80°05.9	101°07.1
20	220°07.8	7.4'	21°34.4	11.6'	59.3'	70°16.4	65°05.3	56°45.4	24°07.4	47°36.8	76° 45.8	80°23.5	101°36.6
21	234°34.2	7.3'	21°46.0	11.5'	59.2'	69°43.4	64°29.9	56°10.6	23°35.9	48°12.3	77° 19.0	80°41.3	102°06.0
22	249°00.5	7.2'	$21^{\circ}57.5$	11.3'	59.2'	69°10.4	63°54.5	55°35.8	23°04.5	48°47.7	77°52.3	80°59.0	102°35.4
23	263°26.7	7.1'	22°08.9	11.2'	59.2'	68°37.5	63°19.1	55°01.0	22°33.3	49°23.2	78°25.6	81°16.8	103°04.9
15 th	SD	= 16.2	′ Mer. pas	s. 04:46									

Moon (16th Aug)

Lunar Distance	(objects with	largest hourly	LD delta
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Sat	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Jupiter	+Saturn	+Fomalhaut	+Achernar	+Altair
0	277°52.9	7.0'	$N22^{\circ}20.1$	11.1'	59.2'	92°51.8	68°04.5	62°43.6	54°26.3	49°58.7	78°58.9	81°34.6	103°34.2
1	292°18.9	6.9'	22°31.1	10.9'	59.2'	92°18.8	67°31.6	62°08.2	53°51.5	50°34.1	79°32.2	81°52.5	104°03.6
2	306°44.8	6.9'	22°42.1	10.8'	59.2'	91°45.8	66°58.7	61°32.8	53°16.7	51°09.6	80°05.5	82° 10.4	104°32.9
3	321°10.7	6.8'	22°52.9	10.7'	59.2'	91°12.7	66°25.9	60°57.4	52°42.0	51°45.1	80°38.7	82°28.4	105°02.1
4	335°36.5	6.7'	23°03.5	10.5'	59.2'	90°39.7	65°53.1	60°22.0	52°07.2	52°20.5	81°12.0	82°46.3	105°31.4
5	350°02.1	6.6'	23°14.0	10.4'	59.2'	90°06.7	65°20.3	59°46.7	51°32.5	52°56.0	81°45.3	83°04.3	106°00.6
6	4°27.7	6.5'	N23°24.4	10.2'	59.2'	89°33.7	64°47.5	59°11.3	50°57.8	53°31.4	82°18.6	83°22.4	106°29.7
7	18°53.2	6.4'	23°34.6	10.1'	59.2'	89°00.7	64°14.8	58°35.9	50°23.1	54°06.9	82°51.9	83°40.4	106°58.8
8	33°18.6	6.3'	23°44.7	9.9'	59.2'	88°27.8	63°42.1	58°00.5	49°48.4	54°42.3	83°25.2	83°58.5	107°27.9
9	47°43.9	6.2'	23°54.6	9.8'	59.2'	87°54.8	63°09.4	57°25.2	49°13.7	55°17.7	83°58.5	84° 16.6	107°56.9
10	62°09.2	6.1'	24°04.4	9.6'	59.2'	87°21.8	62°36.8	56°49.8	48°39.0	55°53.1	84°31.8	84°34.8	108°25.9
11	76°34.3	6.1'	24°14.0	9.5'	59.2'	86°48.8	62°04.2	56°14.5	48°04.3	56°28.6	85°05.1	84°52.9	108°54.9
12	90°59.4	6.0'	N24°23.5	9.3'	59.2'	86°15.9	61°31.6	55°39.2	47°29.7	57°04.0	85°38.3	85° 11.1	109°23.8
13	105°24.3	5.9'	24°32.8	9.2'	59.2'	85°42.9	60°59.1	55°03.8	46°55.0	57°39.4	86°11.6	85° 29.3	109°52.6
14	119°49.2	5.8'	24°42.0	9.0'	59.2'	85°10.0	60°26.6	54°28.5	46°20.4	58°14.8	86°44.9	85° 47.5	110°21.4
15	134°14.0	5.7'	24°51.0	8.8'	59.2'	84°37.1	59°54.2	53°53.2	45°45.8	58°50.2	87°18.2	86°05.8	110°50.2
16	148°38.8	5.6'	24°59.8	8.7'	59.1'	84°04.1	59°21.7	53°17.9	45°11.1	59°25.6	87°51.4	86°24.0	111°18.8
17	163°03.4	5.6'	25°08.5	8.5'	59.1'	83°31.2	58°49.4	52°42.6	44°36.5	60°00.9	88°24.7	86°42.3	111°47.5
18	177°28.0	5.5'	N25°17.0	8.3'	59.1'	82°58.3	58°17.0	52°07.3	44°01.9	60°36.3	88°57.9	87°00.6	112°16.1
19	191°52.4	5.4'	25°25.3	8.2'	59.1'	82°25.4	57°44.8	51°32.1	43°27.4	61°11.7	89°31.2	87° 18.8	112°44.6
20	206°16.9	5.3'	25°33.5	8.0'	59.1'	81°52.5	57°12.5	50°56.8	42°52.8	61°47.1	90°04.4	87°37.1	113°13.0
21	220°41.2	5.3'	$25^{\circ}41.5$	7.9'	59.1'	81°19.6	56°40.3	50°21.5	42°18.3	62°22.4	90°37.6	87° 55.4	113°41.4
22	235°05.4	5.2'	25°49.4	7.7'	59.1'	80°46.7	56°08.2	49°46.3	41°43.7	62°57.8	91°10.9	88° 13.7	114°09.8
23	249°29.6	5.1'	25°57.1	7.5'	59.1'	80°13.9	55°36.1	49°11.1	41°09.2	63°33.1	91°44.1	88°32.0	114°38.1
16 th	SD	= 16.2	Mer. pas	s. 05:41					Sun	SD = 15.8	,		

h	Moon	(17 th Aug)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Pollux	-Venus	-Jupiter	+Saturn	+Achernar	+Fomalhaut	+Altair
0	263°53.7	5.0'	N 26°04.6	7.3'	59.1'	79°41.0	48°35.8	45°16.6	40°34.7	64°08.4	88°50.3	92°17.3	115°06.3
1	278°17.7	5.0'	$26^{\circ}11.9$	7.2'	59.1'	79°08.1	48°00.6	44°44.6	40°00.2	64°43.8	89°08.6	92°50.5	115°34.4
2	292°41.7	4.9'	$26^{\circ}19.1$	7.0'	59.1'	78°35.3	47°25.4	44°12.5	39°25.7	65°19.1	89°27.0	93°23.7	116°02.5
3	307°05.6	4.8'	$26^{\circ}26.1$	6.8'	59.1'	78°02.4	46°50.2	43°40.4	38°51.3	65°54.4	89°45.3	93°56.8	116°30.5
4	321°29.4	4.8'	26°32.9	6.6'	59.1'	77°29.6	46°15.0	43°08.4	38°16.8	66°29.7	90°03.6	94°30.0	116°58.4
5	335°53.2	4.7'	26°39.5	6.5'	59.0'	76°56.8	45°39.8	42°36.4	37°42.4	67°05.0	90°21.9	95°03.1	117°26.2
6	350°16.9	4.6'	N 26°46.0	6.3'	59.0'	76°24.0	45°04.7	42°04.3	37°08.0	67°40.3	90°40.2	95°36.3	117°54.0
7	4°40.5	4.6'	26°52.3	6.1'	59.0'	75°51.2	44°29.5	41°32.3	36°33.6	68°15.6	90°58.4	96°09.4	118°21.7
8	19°04.1	4.5'	26°58.4	5.9'	59.0'	75°18.4	43°54.3	41°00.3	35°59.2	68°50.8	91°16.7	96° 42.5	118°49.3
9	33°27.6	4.5'	27°04.3	5.8'	59.0'	74°45.6	43°19.2	40°28.4	35°24.8	69°26.1	91°35.0	97° 15.6	119°16.8
10	47°51.0	4.4'	$27^{\circ}10.1$	5.6'	59.0'	74°12.8	42°44.1	39°56.4	34°50.5	70°01.3	91°53.2	97°48.7	119°44.3
11	62°14.4	4.3'	$27^{\circ}15.7$	5.4'	59.0'	73°40.1	42°09.0	39°24.5	34°16.2	70°36.6	92°11.5	98°21.8	
12	76°37.8	4.3'	$N27^{\circ}21.1$	5.2'	59.0'	73°07.3	41°33.9	38°52.5	33°41.9	71°11.8	92°29.7	98°54.8	
13	91°01.1	4.2'	27°26.3	5.0'	59.0'	72°34.6	40°58.8	38°20.6	33°07.6	71°47.0	92°47.9	99° 27.9	
14	105°24.3	4.2'	27°31.3	4.8'	59.0'	72°01.8	40°23.7	37°48.7	32°33.3	72°22.3	93°06.1	100°00.9	
15	119°47.5	4.2'	27°36.1	4.6'	59.0'	71°29.1	39°48.6	37°16.9	31°59.1	72°57.5	93°24.2	100°33.9	
16	134°10.7	4.1'	27°40.8	4.5'	58.9'	70°56.4	39°13.5	36°45.0	31°24.9	73°32.7	93°42.4	101°06.9	
17	148°33.8	4.1'	27°45.2	4.3'	58.9'	70°23.7	38°38.5	36°13.2	30°50.7	74°07.9	94°00.5	101°39.8	
18	162°56.8	4.0'	N 27°49.5	4.1'	58.9'	69°51.0	38°03.5	35°41.3	30°16.5	74°43.0	94°18.6	102°12.8	
19	177°19.9	4.0'	27°53.6	3.9'	58.9'	69°18.3	37°28.4	35°09.5	29°42.4	75°18.2	94°36.7	102°45.7	
20	191°42.9	4.0'	27°57.5	3.7'	58.9'	68°45.6	36°53.4	34°37.7	29°08.3	75°53.4	94°54.7	103° 18.6	
21	206°05.8	3.9'	28°01.2	3.5'	58.9'	68°13.0	$36^{\circ}18.4$	34°06.0	28°34.2	76°28.5	95°12.8	103°51.5	
22	220°28.7	3.9'	28°04.7	3.3'	58.9'	67°40.3	35°43.5	33°34.2	28°00.2	77°03.6	95°30.8	104° 24.4	
23	234°51.6 3.9' 28°08.0 3.1' 58.9					7 67°07.7 35°08.5 33°02.5 27°26.2 77°38.8 95°48.7 104°57.3							
17 th	SD =	= 16.1′	Mer. pass	. 06:41		SunSD = 15.8'							

h Moon (18th Aug)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Sun	-Pollux	-Venus	-Jupiter	+Aldebaran	+Saturn	+Achernar	+Fomalhaut
0	249°14.5	3.8'	N 28°11.2	2.9'	58.9'	66°35.0	34°33.5	32°30.8	26°52.2	13°46.8	78°13.9	96°06.6	105°30.1
1	263°37.3	3.8'	$28^{\circ}14.1$	2.8'	58.8'	66°02.4	33°58.6	31°59.1	26° 18.2	14°09.4	78°49.0	96°24.5	106°02.9
2	278°00.2	3.8'	28°16.9	2.6'	58.8'	65°29.8	33°23.7	31°27.5	25°44.3	14°32.7	79°24.1	96°42.4	106°35.7
3	292°23.0	3.8'	28°19.4	2.4'	58.8'	64°57.2	32°48.7	30°55.8	25° 10.4	14°56.8	79°59.2	97°00.2	107°08.4
4	306°45.7	3.8'	28°21.8	2.2'	58.8'	64°24.6	32°13.8	30°24.2	24°36.6	15°21.6	80°34.3	97°18.0	107°41.2
5	321°08.5	3.8'	28°24.0	2.0'	58.8'	63°52.1	31°39.0	29°52.6	24°02.8	15°47.0	81°09.3	97°35.8	108°13.9
6	335°31.3	3.7'	N 28°26.0	1.8'	58.8'	63°19.5	31°04.1	29°21.1	23°29.0	16°12.9	81°44.4	97°53.5	108°46.6
7	349°54.0	3.7'	28°27.8	1.6'	58.8'	62°46.9	30°29.2	28°49.5	22°55.3	16°39.4	82°19.4	98°11.1	109°19.2
8	4°16.7	3.7'	28°29.4	1.4'	58.8'	62°14.4	29°54.4	28° 18.0	22°21.6	17°06.4	82°54.4	98°28.7	109°51.8
9	18°39.5	3.7'	28°30.8	1.2'	58.8'	61°41.9	29°19.6	27°46.5	21°48.0	17°33.8	83°29.5	98°46.3	110°24.4
10	33°02.2	3.7'	28°32.0	1.0'	58.7'	61°09.4	28°44.8	27° 15.1	21°14.4	18°01.6	84°04.5	99°03.8	110°57.0
11	47°24.9	3.7'	28°33.0	0.8'	58.7'	60°36.9	28°10.0	26°43.7	20°40.9	18°29.8	84°39.5	99°21.3	111°29.6
12	61°47.7	3.7'	N 28°33.9	0.6'	58.7'	60°04.4	27°35.2	26°12.3	20°07.5	18°58.4	85°14.4	99°38.7	112°02.1
13	76°10.4	3.7'	28°34.5	0.4'	58.7'	59°31.9	27°00.5	25°40.9	19°34.1	19°27.3	85°49.4	99°56.1	112°34.6
14	90°33.1	3.8'	28°34.9	0.2'	58.7'	58°59.4	26°25.7	25°09.6	19°00.8	19°56.5	86°24.4	100°13.4	113°07.0
15	104°55.9	3.8'	28°35.2	0.1'	58.7'	58°27.0	25°51.0	24°38.3	18°27.5	20°25.9	86°59.3	100°30.7	113°39.4
16	119°18.6	3.8'	28°35.2	-0.1'	58.7'	57°54.5	25°16.3	24°07.1	17°54.4	20°55.6	87°34.2	100°47.9	114°11.8
17	133°41.4	3.8'	28°35.1	-0.3'	58.7'	57°22.1	24°41.6	23°35.9	17°21.3	21°25.6	88°09.2	101°05.0	114°44.2
18	148°04.2	3.8'	N 28°34.8	-0.5'	58.6'	56°49.7	24°07.0	23°04.7	16°48.4	21°55.7	88°44.1	101°22.1	115°16.5
19	162°27.0	3.8'	28°34.3	-0.7'	58.6'	56°17.3	23°32.3	22°33.6	16° 15.5	22°26.1	89°19.0	101°39.2	115°48.8
20	176°49.9	3.9'	28°33.5	-0.9'	58.6'	55°44.9	22°57.7	22°02.5	15°42.7	22°56.7	89°53.8	101°56.1	116°21.0
21	191°12.8	3.9'	28°32.6	-1.1'	58.6'	55°12.6	22°23.1	21°31.5	15° 10.1	23°27.4	90°28.7	102°13.0	116°53.2
22	205°35.6	3.9'	28°31.5	-1.3'	58.6'	54°40.2	21°48.6	21°00.5	14°37.6	23°58.3	91°03.6	102°29.9	117°25.4
23	219°58.6	4.0'	28°30.3	-1.5'	58.6'	54°07.8	21°14.0	20°29.6	14°05.3	24°29.3	91°38.4	102°46.7	117°57.5
18 th	SD :	= 16.1'	Mer. pas	s. 07:42					S	un $SD = 15.8'$			

h Moon (19th Aug)

Lunar Distance	(objects with	largest hourl	y LD delta)
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Tue	GHA	ν	Dec	d	HP	-Sun	-Pollux	-Venus	-Jupiter	+Capella	+Aldebaran	+Saturn	+Fomalhaut
0	234°21.5	4.0'	N28°28.8	-1.7'	58.6'	53°35.5	20°39.5	19°58.7	13°33.1	20°32.7	25°00.5	92°13.2	118°29.6
1	248°44.5	4.0'	$28^{\circ}27.1$	-1.9'	58.5'	53°03.2	20°05.0	19°27.9	13°01.1	20°50.6	25°31.8	92°48.0	119°01.7
2	263°07.6	4.1'	28°25.3	-2.0'	58.5'	52°30.9	19°30.6	18°57.2	12°29.4	21°09.1	26°03.3	93°22.8	119°33.7
3	277°30.6	4.1'	28°23.2	-2.2'	58.5'	51°58.6	18°56.1	18°26.5	11°57.8	21°28.3	26°34.8	93°57.6	
4	291°53.7	4.2'	28°21.0	-2.4'	58.5'	51°26.3	18°21.7	17°55.9	11°26.6	21°48.1	27°06.5	94°32.4	
5	306°16.9	4.2'	28°18.6	-2.6'	58.5'	50°54.1	17°47.4	17°25.4	10°55.6	22°08.4	27°38.2	95°07.2	
6	320°40.1	4.3'	N28°16.0	-2.8'	58.5'	50°21.8	17°13.1	16°55.0	10°25.0	22°29.3	28°10.1	95°41.9	
7	335°03.4	4.3'	28°13.2	-3.0'	58.5'	49°49.6	16°38.8	16°24.6	9°54.7	22°50.7	28°42.0	96°16.6	
8	349°26.7	4.4'	28°10.2	-3.2'	58.4'	49°17.4	16°04.5	15°54.4	9°25.0	23°12.6	29°14.0	96°51.3	
9	3°50.0	4.4'	28°07.0	-3.3'	58.4'	48°45.2	15°30.3	15°24.2	8°55.7	23°35.0	29°46.1	97°26.0	
10	18°13.4	4.5'	28°03.7	-3.5'	58.4'	48°13.0	14°56.1	14°54.2	8°27.1	23°57.8	30°18.3	98°00.7	
11	32°36.9	4.5'	28°00.2	-3.7'	58.4'	47°40.9	14°22.0	14°24.3	7°59.2	24°21.1	30°50.5	98°35.4	
12	47°00.5	4.6'	N 27°56.5	-3.9'	58.4'	47°08.7	13°47.9	13°54.6	7°32.1	24°44.8	31°22.8	99°10.0	
13	61°24.1	4.7'	27°52.6	-4.1'	58.4'	46°36.6	13°13.9	13°25.0		25°08.8	31°55.2	99°44.7	
14	75°47.7	4.7'	27°48.5	-4.2'	58.4'	46°04.5	12°40.0	12°55.6		25°33.2	32°27.6	100°19.3	
15	90°11.5	4.8'	27°44.3	-4.4'	58.3'	45°32.4	12°06.1	12°26.3		25°58.0	33°00.0	100°53.9	
16	104°35.3	4.9'	27°39.9	-4.6'	58.3'	45°00.3	11°32.3	11°57.3		26°23.0	33°32.5	101°28.5	
17	118°59.1	4.9'	27°35.3	-4.8'	58.3'	44°28.2	10°58.6	11°28.5		26°48.4	34°05.1	102°03.0	
18	133°23.1	5.0'	N27°30.5	-4.9'	58.3'	43°56.1	10°25.0	11°00.0		27°14.1	34°37.7	102°37.6	
19	147°47.1	5.1'	27°25.5	-5.1'	58.3'	43°24.1	9°51.6	10°31.7		27°40.1	35°10.3	103°12.1	
20	162°11.2	5.2'	27°20.4	-5.3'	58.3'	42°52.1	9°18.2	10°03.8		28°06.4	35°42.9	103°46.7	
21	176°35.4	5.3'	$27^{\circ}15.1$	-5.5'	58.2'	42°20.1	8°45.0	9°36.3		28°32.9	36°15.6	104°21.2	
22	190°59.7	5.3'	$27^{\circ}09.7$	-5.6'	58.2'	41°48.1	8°12.0	9°09.2		28°59.6	36°48.3	104°55.7	
23	205°24.0	5.4'	27°04.0	-5.8'	58.2'	41°16.1	7°39.2	8°42.6		29°26.6	37°21.1	105°30.1	
19 th	SD	= 16.0'	Mer. pas	s. 08:44					Sı	ın SD = 15.8	3′		

Moon (20th Aug) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Venus	±Pollux	+Jupiter	+Betelgeuse	+Capella	+Aldebaran	+Rigel	+Saturn
0	219°48.4	5.5'	N 26°58.2	-6.0'	58.2'	8°16.5	7°06.7		27°00.8	29°53.7	37°53.8	45°30.4	106°04.6
1	234°12.9	5.6'	26°52.2	-6.1'	58.2'	7°51.2	6°34.6		27°21.9	30°21.1	38° 26.6	45°49.7	106°39.0
2	248°37.5	5.7'	26°46.1	-6.3'	58.2'	7°26.6	6°02.8		27°43.4	30°48.7	38° 59.4	46°09.1	107°13.4
3	263°02.2	5.8'	26°39.8	-6.5'	58.1'	7°02.9	5°31.6		28°05.2	31°16.5	39°32.3	46°28.8	107°47.8
4	277°27.0	5.9'	26°33.4	-6.6'	58.1'		5°01.0		28° 27.4	31°44.5	40°05.1	46°48.6	108°22.2
5	291°51.8	6.0'	26°26.7	-6.8'	58.1'		4°31.4		28°50.0	32°12.6	40°38.0	47°08.7	108°56.6
6	306°16.8	6.1'	N 26°19.9	-6.9'	58.1'				29°12.8	32°40.9	41°10.9	47°29.0	109°30.9
7	320°41.9	6.1'	26°13.0	-7.1'	58.1'				29°36.1	33°09.3	41°43.8	47°49.4	110°05.3
8	335°07.0	6.2'	26°05.9	-7.3'	58.1'				29°59.6	33°37.9	42° 16.7	48°10.1	110°39.6
9	349°32.2	6.3'	25°58.7	-7.4'	58.0'				30°23.4	34°06.6	42°49.6	48°30.9	111°13.9
10	3°57.6	6.4'	25°51.2	-7.6'	58.0'			8°03.3	30°47.5	34°35.5	43°22.5	48°51.9	111°48.1
11	18°23.0	6.5'	25°43.7	-7.7'	58.0'			8°31.0	31°11.9	35°04.5	43°55.5	49°13.1	112°22.4
12	32°48.6	6.6'	N 25°36.0	-7.9'	58.0'			8°59.3	31°36.5	35°33.6	44°28.4	49°34.5	112°56.6
13	47°14.2	6.7'	25°28.1	-8.0'	58.0'			9°28.2	32°01.4	36°02.8	45°01.4	49°56.0	113°30.8
14	61°39.9	6.8'	25°20.1	-8.2'	58.0'			9°57.6	32°26.5	36°32.1	45°34.3	50° 17.6	114°05.0
15	76°05.8	6.9'	25°11.9	-8.3'	57.9'			10°27.4	32°51.8	37°01.5	46°07.3	50°39.5	114°39.2
16	90°31.7	7.0'	25°03.6	-8.4'	57.9'			10°57.5	33° 17.4	37°31.0	46°40.2	51°01.4	115°13.4
17	104°57.8	7.2'	24°55.2	-8.6'	57.9'			11°28.0	33°43.2	38°00.7	47° 13.2	51°23.6	115°47.5
18	119°23.9	7.3'	N24°46.6	-8.7'	57.9'			11°58.6	34°09.1	38°30.3	47°46.2	51°45.8	116°21.6
19	133°50.2	7.4'	24°37.9	-8.9'	57.9'			12°29.6	34°35.3	39°00.1	48° 19.1	52°08.2	116°55.7
20	148°16.6	7.5'	24°29.0	-9.0'	57.8'			13°00.7	35°01.6	39°30.0	48°52.1	52°30.8	117°29.8
21	162°43.0	7.6'	24°20.0	-9.1'	57.8'		5°46.9	13°32.0	35°28.1	39°59.9	49°25.0	52°53.4	118°03.8
22	177°09.6	7.7'	24°10.8	-9.3'	57.8'		6°18.1	14°03.4	35°54.8	40°29.9	49°58.0	53°16.2	118°37.9
23	191°36.3	7.8'	24°01.6	-9.4'	57.8'		6°49.7	14°35.0	36°21.7	41°00.0	50°30.9	53°39.1	119°11.9
20 th	SD :	= 15.9'	Mer. pas	s. 09:44									

h

Moon (21st Aug) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	+Pollux	+Venus	+Jupiter	+Procyon	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	206°03.1	7.9'	N23°52.1	-9.5'	57.8'	7°21.6		15°06.6		36°48.6	41°30.1	51°03.9	54°02.2
1	220°30.0	8.0'	23°42.6	-9.7'	57.7'	7°53.8	7°47.9	15°38.4		37°15.8	42°00.3	51°36.8	54°25.3
2	234°57.0	8.1'	23°32.9	-9.8'	57.7'	8°26.2	8° 12.8	16° 10.3		37°43.1	42°30.6	52°09.8	54°48.6
3	249°24.1	8.2'	23°23.1	-9.9'	57.7'	8°58.7	8°38.3	16°42.2		38°10.5	43°00.9	52°42.7	55°11.9
4	263°51.4	8.3'	23° 13.2	-10.0'	57.7'	9°31.4	9°04.3	17° 14.2		38°38.0	43°31.2	53°15.6	55°35.4
5	278°18.7	8.5'	23°03.2	-10.2'	57.7'	10°04.2	9°30.8	17°46.3		39°05.7	44°01.7	53°48.5	55°59.0
6	292°46.2	8.6'	N22°53.0	-10.3'	57.6'	10°37.1	9°57.7	18° 18.4		39°33.4	44°32.1	54°21.5	56°22.7
7	307°13.7	8.7'	22°42.7	-10.4'	57.6'	11°10.0	10°25.0	18°50.6		40°01.3	45°02.6	54°54.4	56°46.5
8	321°41.4	8.8'	22°32.3	-10.5'	57.6'	11°43.0	10°52.5	19°22.8		40°29.3	45°33.2	55°27.3	57°10.3
9	336°09.2	8.9'	22°21.8	-10.6'	57.6'	12°16.1	11°20.3	19°55.0		40°57.4	46°03.7	56°00.1	57°34.3
10	350°37.1	9.0'	22°11.1	-10.8'	57.6'	12°49.1	11°48.3	20°27.3		41°25.6	46°34.3	56°33.0	57°58.4
11	5°05.1	9.1'	22°00.4	-10.9'	57.5'	13°22.3	12°16.6	20°59.6		41°53.9	47°05.0	57°05.9	58°22.5
12	19°33.2	9.2'	N 21°49.5	-11.0'	57.5'	13°55.4	12°44.9	21°31.9		42°22.3	47°35.7	57°38.7	58°46.7
13	34°01.4	9.3'	21°38.5	-11.1'	57.5'	14°28.6	13° 13.5	22°04.3		42°50.7	48°06.4	58°11.6	59°11.0
14	48°29.8	9.4'	21°27.4	-11.2'	57.5'	15°01.7	13°42.1	22°36.6	22°49.5	43°19.3	48°37.1	58°44.4	59°35.4
15	62°58.2	9.6'	$21^{\circ}16.2$	-11.3'	57.5'	15°34.9	14° 10.9	23°09.0	23°05.3	43°47.9	49°07.9	59°17.2	59°59.8
16	77°26.8	9.7'	21°04.9	-11.4'	57.4'	16°08.1	14°39.8	23°41.4	23°21.7	44°16.6	49°38.7	59°50.0	60°24.4
17	91°55.4	9.8'	20°53.5	-11.5'	57.4'	16°41.3	15°08.8	24° 13.8	23°38.6	44°45.3	50°09.5	60°22.8	60°48.9
18	106°24.2	9.9'	N 20°42.0	-11.6'	57.4'	17°14.5	15° 37.8	24°46.2	23°56.1	45°14.2	50°40.3	60°55.5	61°13.6
19	120°53.1	10.0'	20°30.4	-11.7'	57.4'	17°47.7	16°06.9	25° 18.6	24°14.1	45°43.1	51°11.2	61°28.3	61°38.3
20	135°22.1	10.1'	20° 18.7	-11.8'	57.4'	18°20.8	16°36.1	25°51.0	24°32.5	46°12.0	51°42.1	62°01.0	62°03.1
21	149°51.2	10.2'	20°06.8	-11.9'	57.3'	18°54.0	17°05.3	26°23.4	24°51.5	46°41.0	52°13.0	62°33.8	62°28.0
22	164°20.4	10.3'	$19^{\circ}54.9$	-12.0'	57.3'	19°27.2	17°34.6	26°55.8	25°10.9	47°10.1	52°43.9	63°06.5	62°52.9
23	178°49.7	10.4'	19°42.9	-12.1'	57.3'	20°00.3	18°03.9	27°28.1	25°30.8	47°39.2	53°14.8	63°39.2	63°17.8
21 st	SD	= 15.8'	Mer. pas	s. 10:39									

ı	n Moon (22 nd Aug)	Lunar Distance (objects with largest hourly LI	7 401+2)
ı	1 IVIOON LZZ AUP I	Tilnar Distance Cobjects with Jargest hourly Li	Juenai

Fri	GHA	ν	Dec	d	HP	+Venus	+Pollux	+Procyon	+Jupiter	+Betelgeuse	+Capella	+Rigel	+Aldebaran
0	193°19.1	10.5'	N 19°30.8	-12.2'	57.3'	18°33.3	20°33.5	25°51.0	28°00.5	48°08.4	53°45.7	63°42.8	64°11.8
1	207°48.6	10.6'	19°18.7	-12.3'	57.2'	19°02.7	21°06.6	26°11.7	28°32.9	48°37.6	54° 16.7	64°07.9	64°44.5
2	222°18.3	10.7'	19°06.4	-12.4'	57.2'	19°32.1	21°39.8	26°32.8	29°05.3	49°06.9	54°47.6	64°33.0	65°17.1
3	236°48.0	10.8'	18°54.0	-12.4'	57.2'	20°01.5	22°12.9	26°54.2	29°37.7	49°36.2	$55^{\circ}18.6$	64°58.2	65°49.8
4	251°17.8	10.9'	18°41.6	-12.5'	57.2'	20°31.0	22°46.0	27°16.0	30° 10.0	50°05.5	55° 49.5	65°23.4	66°22.4
5	265°47.8	11.1'	18°29.0	-12.6'	57.2'	21°00.5	23°19.0	27°38.1	30°42.4	50°34.9	56°20.5	65°48.6	66°55.0
6	280°17.8	11.2'	N 18°16.4	-12.7'	57.1'	21°29.9	23°52.1	28°00.5	31° 14.7	51°04.3	$56^{\circ}51.5$	66° 13.9	67°27.5
7	294°48.0	11.3'	18°03.7	-12.8'	57.1'	21°59.4	24°25.2	28°23.3	31°47.1	51°33.8	57°22.5	66°39.3	68°00.1
8	309°18.2	11.4'	$17^{\circ}51.0$	-12.9'	57.1'	22°28.9	24°58.2	28°46.3	32° 19.4	52°03.2	57°53.5	67°04.7	68°32.6
9	323°48.6	11.5'	$17^{\circ}38.1$	-12.9'	57.1'	22°58.4	25°31.2	29°09.7	32°51.7	52°32.8	58°24.5	67°30.1	69°05.1
10	338°19.1	11.6'	17°25.2	-13.0'	57.0'	23°28.0	26°04.2	29°33.2	33°24.0	53°02.3	58°55.5	67°55.5	69°37.6
11	352°49.6	11.7'	$17^{\circ}12.2$	-13.1'	57.0'								
12	7°20.3	11.8'	$N16^{\circ}59.1$	-13.2'	57.0'		_			ew Moon ——			
13	21°51.0	11.9'	16°45.9	-13.2'	57.0'		_			ew Moon ———			
14	36°21.9	11.9'	16°32.7	-13.3'	57.0'		_			ew Moon ——			
15	50°52.8	12.0'	$16^{\circ}19.4$	-13.4'	56.9'		_			ew Moon ——			
16	65°23.9	12.1'	16°06.1	-13.4'	56.9'		_			ew Moon ——			
17	79°55.0	12.2'	15°52.6	-13.5'	56.9'		_		N	ew Moon ——			
18	94°26.2	12.3'	N 15°39.1	-13.6'	56.9'		_		N	ew Moon ——			
19	108°57.6	12.4'	15°25.6	-13.6'	56.8'		_			ew Moon ——			
20	123°29.0	12.5'	$15^{\circ}12.0$	-13.7'	56.8'		_			ew Moon ———			
21	138°00.5	12.6'	14°58.3	-13.7'	56.8'		_			ew Moon ——			
22	152°32.1	12.7'	14°44.6	-13.8'	56.8'		_			ew Moon ———			
23	167°03.8	12.8'	14°30.8	-13.8'	56.7'		_		N	ew Moon ——			
22 nd	SD	= 15.6	Mer. pas	s. 11:30									

h	Moon	(23rd Au	g)
11	IVIOOII	(ZJ Au	ואו

Sat	GHA	ν	Dec	d	HP	
0	181°35.6	12.9'	N 14°16.9	-13.9'	56.7'	New Moon
1	196°07.5	13.0'	14°03.0	-14.0'	56.7'	New Moon
2	210°39.4	13.0'	13°49.1	-14.0'	56.7'	New Moon
3	225°11.5	13.1'	$13^{\circ}35.1$	-14.1'	56.7'	New Moon
4	239°43.6	13.2'	$13^{\circ}21.0$	-14.1'	56.6'	New Moon
5	254°15.8	13.3'	$13^{\circ}06.9$	-14.1'	56.6'	New Moon
6	268°48.1	13.4'	$N12^{\circ}52.8$	-14.2'	56.6'	New Moon
7	283°20.5	13.5'	12°38.6	-14.2'	56.6'	New Moon
8	297°52.9	13.5'	12°24.3	-14.3'	56.5'	New Moon
9	312°25.4	13.6'	$12^{\circ}10.1$	-14.3'	56.5'	New Moon
10	326°58.1	13.7'	11°55.7	-14.4'	56.5'	New Moon
11	341°30.7	13.8'	$11^{\circ}41.4$	-14.4'	56.5'	New Moon
12	356°03.5	13.8'	$N11^{\circ}27.0$	-14.4'	56.4'	New Moon
13	10°36.4	13.9'	11° 12.5	-14.5'	56.4'	New Moon
14	25°09.3	14.0'	$10^{\circ}58.0$	-14.5'	56.4'	New Moon
15	39°42.3	14.1'	10°43.5	-14.5'	56.4'	New Moon
16	54°15.3	14.1'	$10^{\circ}29.0$	-14.6'	56.3'	New Moon
17	68°48.5	14.2'	$10^{\circ}14.4$	-14.6'	56.3'	New Moon
18	83°21.7	14.3'	N 09°59.8	-14.6'	56.3'	New Moon
19	97°54.9	14.3'	09°45.1	-14.7'	56.3'	New Moon
20	112°28.3	14.4'	09°30.5	-14.7'	56.3'	New Moon
21	127°01.7	14.5'	$09^{\circ}15.8$	-14.7'	56.2'	New Moon
22	141°35.2	14.5'	$09^{\circ}01.1$	-14.8'	56.2'	New Moon
23	156°08.7	14.6'	08°46.3	-14.8'	56.2'	New Moon
23 rd	SD	= 15.5'	Mer. pas	s. 12:16		

h Moon (24th Aug) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Mars
0	170°42.3	14.7'	N 08°31.5	-14.8'	56.2'			N	lew Moon -			
1	185°15.9	14.7'	$08^{\circ}16.7$	-14.8'	56.1'			N	lew Moon -			
2	199°49.7	14.8'	$08^{\circ}01.9$	-14.8'	56.1'				lew Moon -			
3	214°23.5	14.8'	$07^{\circ}47.1$	-14.9'	56.1'	88°34.8	81°46.3	78°01.0	73°18.0	50°38.1	42°40.7	29°14.2
4	228°57.3	14.9'	07°32.2	-14.9'	56.1'	88°02.8	81°21.1	77°36.6	72°58.1	50°15.9	42°08.7	28°43.9
5	243°31.2	15.0'	$07^{\circ}17.3$	-14.9'	56.0'	87°30.8	80°55.9	77°12.2	72°38.2	49°53.8	41°36.7	28°13.6
6	258°05.1	15.0'	N 07°02.4	-14.9'	56.0'	86°58.9	80°30.8	76°47.9	72°18.5	49°31.9	41°04.7	27°43.4
7	272°39.2	15.1'	06°47.5	-14.9'	56.0'	86°26.9	80°05.7	76°23.7	71°58.8	49°10.2	40°32.8	27°13.2
8	287°13.2	15.1'	06°32.6	-14.9'	56.0'	85°55.0	79°40.6	75°59.5	71°39.1	48°48.6	40°00.9	26°43.0
9	301°47.3	15.2'	06°17.7	-15.0'	56.0'	85°23.1	79°15.6	75°35.4	71°19.6	48°27.1	39°29.0	26°12.9
10	316°21.5	15.2'	06°02.7	-15.0'	55.9'	84°51.3	78°50.7	75°11.3	71°00.1	48°05.8	38°57.2	25°42.7
11	330°55.7	15.3'	05°47.8	-15.0'	55.9'	84°19.4	78°25.8	74°47.3	70°40.8	47°44.7	38°25.3	25°12.7
12	345°30.0	15.3'	N 05°32.8	-15.0'	55.9'	83°47.6	78°00.9	74°23.3	70°21.5	47°23.8	37°53.6	24°42.6
13	0°04.3	15.4'	05°17.8	-15.0'	55.9'	83°15.9	77°36.1	73°59.4	70°02.3	47°03.0	37°21.8	24°12.6
14	14°38.7	15.4'	05°02.8	-15.0'	55.8'	82°44.1	77°11.3	73°35.5	69°43.1	46°42.4	36°50.1	23°42.6
15	29°13.1	15.5'	04°47.8	-15.0'	55.8'	82°12.4	76°46.6	73°11.7	69°24.1	46°21.9	36°18.4	23°12.7
16	43°47.5	15.5'	04°32.8	-15.0'	55.8'	81°40.7	76°21.9	72°48.0	69°05.1	46°01.7	35°46.7	22°42.8
17	58°22.0	15.5'	04°17.8	-15.0'	55.8'	81°09.0	75°57.2	72°24.3	68°46.3	45°41.7	35°15.0	22°12.9
18	72°56.6	15.6'	N 04°02.8	-15.0'	55.7'	80°37.4	75°32.7	72°00.7	68°27.5	45°21.8	34°43.4	21°43.0
19	87°31.1	15.6'	03°47.8	-15.0'	55.7'	80°05.8	75°08.1	71°37.1	68°08.8	45°02.1	34°11.8	21°13.2
20	102°05.8	15.7'	03°32.7	-15.0'	55.7'	79°34.2	74°43.7	71°13.6	67°50.2	44°42.6	33°40.2	20°43.5
21	116°40.4	15.7'	$03^{\circ}17.7$	-15.0'	55.7'	79°02.7	74°19.2	70°50.2	67°31.7	44°23.3	33°08.7	20°13.7
22	131°15.1	15.7'	03°02.7	-15.0'	55.7'	78°31.1	73°54.9	70°26.8	67°13.3	44°04.3	32°37.2	19°44.1
23	145°49.9	15.8'	02°47.7	-15.0'	55.6'	77°59.6	73°30.5	70°03.5	66°55.0	43°45.4	32°05.7	19°14.4
24 th	SD	= 15.3	Mer. pas	s. 13:00								

h Moon (25 th Aug)	Lunar Distance (objects with largest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Mars
0	160°24.6	15.8'	N 02°32.7	-15.0'	55.6'		77°28.2	73°06.3	69°40.3	66°36.7	43°26.7	31°34.2	18°44.8
1	174°59.4	15.8'	$02^{\circ}17.7$	-15.0'	55.6'		76°56.7	72°42.1	69°17.1	66° 18.6	43°08.3	31°02.8	18°15.2
2	189°34.3	15.9'	02°02.6	-15.0'	55.6'		76°25.3	72°17.9	68°54.0	66°00.6	42°50.1	30°31.4	17°45.7
3	204°09.2	15.9'	$01^{\circ}47.6$	-15.0'	55.5'		75°53.9	71°53.8	68°31.0	65°42.7	42°32.0	30°00.0	17°16.2
4	218°44.1	15.9'	$01^{\circ}32.6$	-15.0'	55.5'		75°22.5	71°29.8	68°08.1	65°24.9	42°14.3	29°28.7	16°46.7
5	233°19.0	16.0'	$01^{\circ}17.7$	-15.0'	55.5'		74°51.2	71°05.8	67°45.2	65°07.2	41°56.7	28°57.4	16°17.3
6	247°54.0	16.0'	$N01^{\circ}02.7$	-15.0'	55.5'		74°19.9	70°41.9	67°22.4	64°49.6	41°39.4	28°26.1	15°48.0
7	262°28.9	16.0'	00°47.7	-15.0'	55.5'		73°48.6	70°18.0	66° 59.7	64°32.1	41°22.3	27°54.8	15°18.7
8	277°04.0	16.0'	00°32.7	-15.0'	55.4'		73°17.3	69°54.3	66°37.0	64°14.7	41°05.5	27°23.6	14°49.4
9	291°39.0	16.1'	00°17.8	-14.9'	55.4'		72°46.1	69°30.5	66°14.4	63°57.4	40°48.9	26°52.4	14°20.2
10	306°14.1	16.1'	N 00°02.8	-14.9'	55.4'	119°54.6	72°14.9	69°06.9	65°51.9	63°40.2	40°32.6	26°21.2	13°51.1
11	320°49.2	16.1'	S 00°12.1	-14.9'	55.4'	119°30.3	71°43.7	68°43.3	65°29.5	63°23.2	40°16.5	25°50.0	13°22.0
12	335°24.3	16.1'	S 00°27.0	-14.9'	55.3'	119°06.0	71°12.6	68°19.8	65°07.2	63°06.2	40°00.7	25°18.9	12°53.0
13	349°59.4	16.2'	$00^{\circ}41.9$	-14.9'	55.3'	118°41.6	70°41.4	67°56.3	64°44.9	62°49.4	39°45.1	24°47.8	12°24.0
14	4°34.6	16.2'	00°56.8	-14.9'	55.3'	118°17.2	70°10.3	67°32.9	64°22.8	62°32.7	39°29.8	24°16.7	11°55.2
15	19°09.7	16.2'	$01^{\circ}11.7$	-14.9'	55.3'	117°52.8	69°39.2	67°09.6	64°00.7	62°16.1	39°14.8	23°45.7	11°26.3
16	33°44.9	16.2'	$01^{\circ}26.6$	-14.8'	55.3'	117°28.3	69°08.2	66°46.3	63°38.7	61°59.6		23°14.6	10°57.6
17	48°20.1	16.2'	$01^{\circ}41.4$	-14.8'	55.2'	117°03.8	68°37.2	66°23.2	63°16.8	61°43.2		22°43.6	10°29.0
18	62°55.3	16.2'	S 01°56.2	-14.8'	55.2'	116°39.3	68°06.2	66°00.1	62°55.0	61°27.0		22°12.7	10°00.5
19	77°30.6	16.2'	$02^{\circ}11.0$	-14.8'	55.2'	116°14.7	67°35.2	65°37.0	62°33.2	61°10.9		21°41.7	9°32.0
20	92°05.8	16.3'	02°25.8	-14.8'	55.2'	115°50.1	67°04.2	65°14.1	62°11.6	60°54.9		21°10.8	9°03.7
21	106°41.1	16.3'	$02^{\circ}40.6$	-14.7'	55.2'	115°25.5	66°33.3	64°51.2	61°50.0	60°39.1		20°39.9	8°35.6
22	121°16.4	16.3'	02°55.3	-14.7'	55.1'	115°00.8	66°02.4	64°28.4	61°28.6	60°23.3		20°09.1	8°07.6
23	135°51.6	16.3'	03°10.0	-14.7'	55.1'	114°36.1	65°31.5	64°05.7	61°07.2	60°07.7		19°38.2	7°39.8
25 th	SD	= 15.2	′ Mer. pas	s. 13:41									

h Moon (26th Aug) Lunar Distance (objects with largest hourly LD delta)

			. (=0 / 11	0)				taee (02)0		- 6	· · · J	,	
Tue	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Spica	±Mars	+Sun
0	150°26.9	16.3'	S 03°24.7	-14.7'	55.1'	114°11.4	65°00.7	63°43.0	60°46.0	59°52.2	19°07.4	7° 12.2	
1	165°02.2	16.3'	03°39.4	-14.6'	55.1'	113°46.6	64°29.9	63°20.5	60°24.8	59°36.9	18°36.6	6°44.9	
2	179°37.5	16.3'	03°54.0	-14.6'	55.1'	113°21.9	63°59.1	62°58.0	60°03.7	59°21.7	18°05.9	6° 17.8	
3	194°12.8	16.3'	04°08.7	-14.6'	55.0'	112°57.1	63°28.3	62°35.6	59°42.8	59°06.6	17°35.2	5°51.2	
4	208°48.2	16.3'	04°23.3	-14.6'	55.0'	112°32.3	62°57.5	62°13.3	59°21.9		17°04.5	5°25.0	
5	223°23.5	16.3'	04°37.8	-14.5'	55.0'	112°07.5	62°26.8	61°51.1	59°01.2		16°33.8	4°59.3	
6	237°58.8	16.3'	S 04°52.4	-14.5'	55.0'	111°42.6	61°56.1	61°28.9	58°40.5		16°03.1	4°34.4	
7	252°34.1	16.3'	05°06.9	-14.5'	55.0'	111°17.7	61°25.4	61°06.9	58°20.0		15°32.5	4°10.3	
8	267°09.4	16.3'	$05^{\circ}21.3$	-14.4'	54.9'	110°52.9	60°54.8	60°44.9	57°59.5		15°01.9		
9	281°44.8	16.3'	05°35.8	-14.4'	54.9'	110°28.0	60°24.1	60°23.0	57°39.2		14°31.4		
10	296°20.1	16.3'	05°50.2	-14.4'	54.9'	110°03.0	59°53.5	60°01.3	57°19.0		14°00.8		
11	310°55.4	16.3'	06°04.6	-14.3'	54.9'	109°38.1	59°22.9	59°39.6	56°58.9		13°30.3		
12	325°30.7	16.3'	S 06°18.9	-14.3'	54.9'	109°13.2	58°52.4	59°18.0	56°38.9		12°59.9		
13	340°06.0	16.3'	06°33.2	-14.3'	54.9'	108°48.2	58°21.8	58°56.5	56°19.1		12°29.4		
14	354°41.3	16.3'	06°47.5	-14.2'	54.8'	108°23.2	57°51.3	58°35.1	55°59.3		11°59.0		
15	9°16.6	16.3'	$07^{\circ}01.8$	-14.2'	54.8'	107°58.3	57°20.8	58°13.8	55°39.7		11°28.6		
16	23°51.9	16.3'	$07^{\circ}16.0$	-14.2'	54.8'	107°33.3	56° 50.3	57°52.7	55°20.2		10°58.3		
17	38°27.2	16.3'	$07^{\circ}30.1$	-14.1'	54.8'	107°08.3	56° 19.9	57°31.6	55°00.8		10°28.0		
18	53°02.4	16.3'	S 07°44.3	-14.1'	54.8'	106°43.3	55°49.4	57°10.6	54°41.6		9°57.7		
19	67°37.7	16.2'	07°58.4	-14.1'	54.7'	106°18.2	55° 19.0	56°49.7	54°22.4		9°27.4		40°59.8
20	82°12.9	16.2'	$08^{\circ}12.4$	-14.0'	54.7'	105°53.2	54°48.6	56°29.0	54°03.5		8°57.2		41°27.8
21	96°48.2	16.2'	$08^{\circ}26.4$	-14.0'	54.7'	105°28.2	54° 18.2	56°08.3	53°44.6		8°27.1		41°55.7
22	111°23.4	16.2'	08°40.4	-13.9'	54.7'	105°03.1	53°47.9	55°47.8	53°25.9		7°57.0		42°23.6
23	125°58.6	16.2'	08°54.4	-13.9'	54.7'	104°38.1	53° 17.6	55°27.3	53°07.3		7°26.9	4°58.8	42°51.5
26 th	SD	= 15.0'	Mer. pas	s. 14:22			-	-	Sun SD =	15.8′	-		

h Woon (2/" Aug) Lunar Distance (objects with largest hourly 11) de	h	Moon (27 th Aug)	Lunar Distance (objects with largest hourly LD de	elta)
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	6114			,			D: 11.14 .					_ ´s
Wed	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Hadar	-Antares	±Spica	+Mars	+Sun
0	140°33.8	16.2'	S 09°08.2	-13.8'	54.7'	104°13.0	55°07.0	52°48.8	52°47.2	6°56.9	5°24.0	43°19.4
1	155°08.9	16.1'	09°22.1	-13.8'	54.7'	103°48.0	54°46.8	52°30.5	52°17.0	6°27.0	5°49.8	43°47.3
2	169°44.1	16.1'	09°35.9	-13.8'	54.6'	103°22.9	54°26.7	52° 12.4	51°46.7	5°57.1	6°16.0	44°15.1
3	184°19.2	16.1'	09°49.7	-13.7'	54.6'	102°57.8	54°06.8	51°54.3	51°16.4	5°27.4	6°42.5	44°43.0
4	198°54.3	16.1'	10°03.4	-13.7'	54.6'	102°32.8	53°46.9	51°36.5	50°46.2	4°57.8	7°09.2	45°10.8
5	213°29.4	16.1'	$10^{\circ}17.0$	-13.6'	54.6'	102°07.7	53°27.2	51°18.7	50°16.0	4°28.3	7°36.2	45°38.6
6	228°04.5	16.0'	S 10°30.7	-13.6'	54.6'	101°42.6	53°07.6	51°01.2	49°45.8	3°59.0	8°03.3	46°06.3
7	242°39.5	16.0'	10°44.2	-13.5'	54.6'	101°17.6	52°48.1	50°43.7	49°15.6	3°30.0	8°30.6	46°34.1
8	257°14.5	16.0'	10°57.8	-13.5'	54.5'	100°52.5	52°28.8	50°26.5	48°45.5	3°01.4	8°58.0	47°01.8
9	271°49.5	16.0'	11°11.2	-13.4'	54.5'	100°27.4	52°09.6	50°09.4	48°15.3	2°33.5	9°25.4	47°29.5
10	286°24.5	15.9'	11°24.7	-13.4'	54.5'	100°02.3	51°50.5	49°52.4	47°45.2		9°53.0	47°57.2
11	300°59.5	15.9'	11°38.0	-13.3'	54.5'	99°37.3	51°31.6	49°35.6	47°15.1		10°20.6	48°24.9
12	315°34.4	15.9'	S 11°51.4	-13.3'	54.5'	99°12.2	51°12.8	49° 19.0	46°45.0		10°48.3	48°52.6
13	330°09.2	15.9'	12°04.6	-13.2'	54.5'	98°47.1	50°54.2	49°02.5	46°15.0		11°16.1	49°20.2
14	344°44.1	15.8'	12°17.9	-13.2'	54.5'	98°22.0	50°35.6	48°46.3	45°44.9		11°43.8	49°47.9
15	359°18.9	15.8'	12°31.0	-13.1'	54.5'	97°57.0	50°17.3	48°30.1	45°14.9		12°11.6	50° 15.5
16	13°53.7	15.8'	12°44.1	-13.1'	54.4'	97°31.9	49°59.1	48° 14.2	44°44.9		12°39.5	50°43.1
17	28°28.5	15.7'	12°57.2	-13.0'	54.4'	97°06.8	49°41.0	47°58.4	44°14.9		13°07.3	51°10.7
18	43°03.2	15.7'	S 13°10.2	-12.9'	54.4'	96°41.8	49°23.1	47°42.9	43°44.9		13°35.2	51°38.2
19	57°37.9	15.7'	13°23.1	-12.9'	54.4'	96°16.7	49°05.3	47° 27.5	43°14.9		14°03.1	52°05.8
20	72°12.5	15.6'	13°36.0	-12.8'	54.4'	95°51.7	48°47.7	47° 12.2	42°45.0	3°19.9	14°31.0	52°33.3
21	86°47.2	15.6'	13°48.9	-12.8'	54.4'	95°26.6	48°30.2	46° 57.2	42°15.1	3°48.5	14°59.0	53°00.8
22	101°21.8	15.5'	$14^{\circ}01.6$	-12.7'	54.4'	95°01.6	48°13.0		41°45.1	4°17.5	15°26.9	53°28.3
23	115°56.3	15.5'	14°14.3	-12.7'	54.4'	94°36.6	47°55.8		41°15.2	4°46.6	15°54.8	53°55.8
27 th	SD	= 14.9	Mer. pas	s. 15:03				Sun :	SD = 15.8'			

	h N	Moon (28 th Aug)	Lunar Distance (objects with larg	est hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Mars	+Sun
0	130°30.8	15.5'	S 14°27.0	-12.6'	54.3'		94°11.5	47°38.9	40°45.3	5°15.8	16°22.8	54°23.3
1	145°05.3	15.4'	$14^{\circ}39.6$	-12.5'	54.3'		93°46.5	47°22.1	40°15.5	5°45.2	16°50.7	54°50.8
2	159°39.7	15.4'	$14^{\circ}52.1$	-12.5'	54.3'	119°51.3	93°21.5	47°05.5	39°45.6	6°14.6	17° 18.7	55°18.2
3	174°14.1	15.3'	$15^{\circ}04.6$	-12.4'	54.3'	119°23.8	92°56.5	46° 49.0	39°15.7	6°44.1	17°46.6	55°45.7
4	188°48.4	15.3'	$15^{\circ}17.0$	-12.3'	54.3'	118°56.3	92°31.5	46°32.8	38°45.9	7°13.6	18° 14.6	56°13.1
5	203°22.7	15.3'	15°29.3	-12.3'	54.3'	118°28.7	92°06.5	46°16.7	38°16.1	7°43.1	18°42.5	56°40.5
6	217°57.0	15.2'	S 15°41.6	-12.2'	54.3'	118°01.2	91°41.5	46°00.8	37°46.3	8°12.7	19° 10.5	57°07.9
7	232°31.2	15.2'	15°53.8	-12.1'	54.3'	117°33.7	91°16.5	45°45.1	37°16.5	8°42.3	19°38.5	57°35.3
8	247°05.3	15.1'	$16^{\circ}06.0$	-12.1'	54.3'	117°06.1	90°51.5	45° 29.5	36°46.7	$9^{\circ}11.9$	20°06.4	58°02.6
9	261°39.5	15.1'	$16^{\circ}18.0$	-12.0'	54.3'	116°38.6	90°26.6	45° 14.2	36°16.9	9°41.5	20°34.4	58°30.0
10	276°13.5	15.0'	16°30.0	-11.9'	54.3'	116°11.0	90°01.6	44°59.1	35°47.1	10°11.1	21°02.3	58°57.4
11	290°47.6	15.0'	16°42.0	-11.9'	54.2'	115°43.4	89°36.7		35°17.4	10°40.7	21°30.3	59°24.7
12	305°21.5	14.9'	S 16°53.8	-11.8'	54.2'	115°15.9	89°11.7		34°47.7	11°10.3	21°58.2	59°52.0
13	319°55.5	14.9'	$17^{\circ}05.6$	-11.7'	54.2'	114°48.3	88°46.8		34°17.9	11°39.9	22°26.1	60°19.3
14	334°29.3	14.8'	$17^{\circ}17.4$	-11.7'	54.2'	114°20.7	88°21.9		33°48.2	12°09.5	22°54.1	60°46.7
15	349°03.2	14.8'	$17^{\circ}29.0$	-11.6'	54.2'	113°53.1	87°57.0		33°18.5	12°39.1	23°22.0	61°14.0
16	3°36.9	14.7'	17° 40.6	-11.5'	54.2'	113°25.5	87°32.1		32°48.8	13°08.7	23°49.9	61°41.2
17	18°10.6	14.7'	$17^{\circ}52.1$	-11.4'	54.2'	112°57.8	87°07.2		32°19.1	13°38.3	24°17.9	62°08.5
18	32°44.3	14.6'	S 18°03.6	-11.4'	54.2'	112°30.2	86°42.4		31°49.4	14°07.9	24°45.8	62°35.8
19	47°17.9	14.6'	$18^{\circ}14.9$	-11.3'	54.2'	112°02.6	86°17.5		31°19.8	14°37.5	25° 13.7	63°03.1
20	61°51.5	14.5'	$18^{\circ}26.2$	-11.2'	54.2'	111°35.0	85°52.7		30°50.1	15°07.1	25°41.6	63°30.3
21	76°25.0	14.4'	18° 37.4	-11.1'	54.2'	111°07.3	85°27.8		30°20.4	15°36.7	26°09.5	63°57.6
22	90°58.4	14.4'	18°48.6	-11.1'	54.2'	110°39.7	85°03.0		29°50.8	16°06.3	26°37.4	64°24.8
23	105°31.8	14.3'	18°59.6	-11.0'	54.2'	110°12.0	84°38.2		29°21.2	16°35.9	27°05.3	64°52.0
28 th	SD	= 14.8'	Mer. pas	s. 15:45				Sun S	D = 15.8'			

Mer. pass. 16:30

29th

SD = 14.8'

h		Мооі	n (29 th Ai	ug)		Lunar	Distanc	e (object	s with la	rgest ho	urly LD de	lta)
Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	+Spica	+Mars	+Arcturus	+Sun
0	120°05.2	14.3'	S 19° 10.6	-10.9'	54.2'	109°44.4	84°13.4	28°51.5	17°05.5	27°33.3		65°19.3
1	134°38.4	14.2'	$19^{\circ}21.5$	-10.8'	54.2'	109°16.7	83°48.6	28°21.9	17°35.1	28°01.1		65°46.5
2	149°11.6	14.2'	19°32.4	-10.7'	54.2'	108°49.1	83°23.8	27°52.3	18°04.6	28°29.0		66°13.7
3	163°44.8	14.1'	19°43.1	-10.7'	54.2'	108°21.4	82°59.1	27°22.7	18°34.2	28°56.9		66°40.9
4	178°17.9	14.0'	19°53.8	-10.6'	54.1'	107°53.7	82°34.4	26°53.1	19°03.8	29°24.8		67°08.1
5	192°50.9	14.0'	20°04.3	-10.5'	54.1'	107°26.0	82°09.6	26°23.5	19°33.3	29°52.7		67°35.3
6	207°23.9	13.9'	S 20°14.8	-10.4'	54.1'	106°58.3	81°44.9	25°53.9	20°02.9	30°20.6		68°02.5
7	221°56.8	13.9'	20°25.2	-10.3'	54.1'	106°30.7	81°20.2	25°24.3	20°32.5	30°48.5		68°29.7
8	236°29.7	13.8'	20°35.6	-10.2'	54.1'	106°03.0	80°55.5	24°54.7	21°02.0	31°16.4	40°14.8	68°56.8
9	251°02.5	13.7'	20°45.8	-10.2'	54.1'	105°35.3	80°30.9	24°25.1	21°31.6	31°44.2	40°30.0	69°24.0
10	265°35.2	13.7'	20°56.0	-10.1'	54.1'	105°07.5	80°06.2	23°55.5	22°01.1	32°12.1	40°45.5	69°51.2
11	280°07.9	13.6'	$21^{\circ}06.0$	-10.0'	54.1'	104°39.8	79°41.6	23°26.0	22°30.7	32°40.0	41°01.1	70°18.4
12	294°40.5	13.5'	S 21°16.0	-9.9'	54.1'	104°12.1	79°17.0	22°56.4	23°00.2	33°07.9	41°17.0	70°45.5
13	309°13.0	13.5'	21°25.9	-9.8'	54.1'	103°44.4	78°52.4	22°26.8	23°29.8	33°35.8	41°33.1	71°12.7
14	323°45.5	13.4'	21°35.7	-9.7'	54.1'	103°16.7	78°27.8	21°57.3	23°59.3	34°03.6	41°49.3	71°39.8
15	338°17.9	13.3'	21°45.4	-9.6'	54.1'	102°48.9	78°03.2	21°27.7	24°28.9	34°31.5	42°05.8	72°07.0
16	352°50.2	13.3'	21°55.0	-9.5'	54.1'	102°21.2	77°38.7	20°58.2	24°58.4	34°59.4	42°22.5	72°34.2
17	7°22.5	13.2'	22°04.5	-9.4'	54.1'	101°53.4	77°14.2	20°28.6	25°27.9	35°27.3	42°39.3	73°01.3
18	21°54.7	13.1'	S 22°14.0	-9.3'	54.1'	101°25.7	76°49.7	19°59.0	25°57.5	35°55.1	42°56.3	73°28.5
19	36°26.8	13.1'	22°23.3	-9.2'	54.1'	100°57.9	76°25.2	19°29.5	26°27.0	36°23.0	43°13.6	73°55.6
20	50°58.9	13.0'	22°32.6	-9.2'	54.1'	100°30.2	76°00.7	18°59.9	26°56.6	36°50.9	43°30.9	74°22.8
21	65°30.9	12.9'	22°41.7	-9.1'	54.1'	100°02.4	75°36.3	18°30.4	27°26.1	37°18.8	43°48.5	74°49.9
22	80°02.8	12.9'	22°50.8	-9.0'	54.1'	99°34.6	75°11.8	18°00.8	27°55.7	37°46.6	44°06.2	75°17.1
23	94°34.7	12.8'	22°59.7	-8.9'	54.1'	99°06.8	74°47.4	17°31.3	28°25.2	38°14.5	44°24.1	75°44.3

h		Moon	(30 th Au	g)			Lunar Dist	ance (ob	jects wit	h largest	hourly I	_D delta)	
Sat	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	-Antares	+Spica	+Mars	+Arcturus	+Sun
0	109°06.5	12.7'	S 23°08.6	-8.8'	54.1'		98°39.1	74°23.0	17°01.7	28°54.8	38°42.4	44°42.2	76°11.4
1	123°38.2	12.7'	23° 17.3	-8.7'	54.1'		98°11.3	73°58.7	16°32.2	29°24.3	39°10.3	45°00.4	76°38.6
2	138°09.9	12.6'	23°26.0	-8.6'	54.1'		97°43.5	73°34.3	16°02.6	29°53.9	39°38.2	45°18.8	77°05.7
3	152°41.5	12.5'	23°34.6	-8.5'	54.1'		97°15.7	73°10.0	15°33.1	30°23.4	40°06.1	45°37.4	77°32.9
4	167°13.0	12.5'	23°43.0	-8.4'	54.2'		96°47.9	72°45.7	15°03.5	30°53.0	40°34.0	45°56.1	78°00.1
5	181°44.5	12.4'	23°51.4	-8.3'	54.2'		96°20.0	72°21.5	14°34.0	31°22.6	41°01.9	46°14.9	78°27.2
6	196°15.8	12.3'	S 23°59.6	-8.2'	54.2'		95°52.2	71°57.2	14°04.4	31°52.1	41°29.8	46°33.9	78°54.4
7	210°47.2	12.2'	24°07.8	-8.0'	54.2'		95°24.4	71°33.0	13°34.9	32°21.7	41°57.7	46°53.0	79°21.6
8	225°18.4	12.2'	$24^{\circ}15.8$	-7.9'	54.2'		94°56.6	71°08.8	13°05.3	32°51.3	42°25.6	47°12.3	79°48.8
9	239°49.6	12.1'	24°23.8	-7.8'	54.2'		94°28.7	70°44.6	12°35.8	33°20.9	42°53.6	47°31.7	80°15.9
10	254°20.7	12.0'	24°31.6	-7.7'	54.2'		94°00.9	70°20.5	12°06.2	33°50.4	43°21.5	47°51.3	80°43.1
11	268°51.7	12.0'	24°39.3	-7.6'	54.2'		93°33.0	69°56.3	11°36.6	34°20.0	43°49.4	48°10.9	81°10.3
12	283°22.7	11.9'	S 24°47.0	-7.5'	54.2'		93°05.1	69°32.2	11°07.1	34°49.6	44°17.4	48°30.8	81°37.5
13	297°53.6	11.8'	24°54.5	-7.4'	54.2'		92°37.3	69°08.2	10°37.5	35°19.2	44°45.3	48°50.7	82°04.7
14	312°24.4	11.8'	25°01.9	-7.3'	54.2'	119°45.0	92°09.4	68°44.1	10°07.9	35°48.8	45°13.3	49°10.8	82°31.9
15	326°55.1	11.7'	$25^{\circ}09.2$	-7.2'	54.2'	119°15.3	91°41.5	68°20.1	9°38.4	36°18.5	45°41.2	49°30.9	82°59.2
16	341°25.8	11.6'	$25^{\circ}16.4$	-7.1'	54.2'	118°45.6	91°13.6	67°56.1	9°08.8	36°48.1	46°09.2	49°51.3	83°26.4
17	355°56.4	11.5'	25°23.4	-7.0'	54.2'	118° 15.8	90°45.7	67°32.2	8°39.2	37°17.7	46°37.2	50°11.7	83°53.6
18	10°27.0	11.5'	S 25°30.4	-6.8'	54.2'	117°46.1	90°17.8	67°08.3	8°09.7	37°47.4	47°05.1	50°32.2	84°20.9
19	24°57.4	11.4'	25° 37.2	-6.7'	54.2'	117° 16.3	89°49.9	66°44.4	7°40.1	38°17.0	47°33.1	50°52.9	84°48.1
20	39°27.8	11.3'	25°44.0	-6.6'	54.2'	116°46.5	89°22.0	66°20.5	7°10.6	38°46.7	48°01.1	51°13.7	85° 15.4
21	53°58.2	11.3'	25°50.6	-6.5'	54.3'	116° 16.8	88°54.0	65°56.7	6°41.0	39°16.3	48°29.1	51°34.5	85°42.6
22	68°28.4	11.2'	$25^{\circ}57.1$	-6.4'	54.3'	115°47.0	88°26.1	65°32.9	6°11.5	39°46.0	48°57.2	51°55.5	86°09.9
23	82°58.6	11.1'	$26^{\circ}03.5$	-6.3'	54.3'	115°17.2	87°58.2	65°09.1	5°42.0	40°15.7	49°25.2	52°16.6	86°37.2
30 th	SD	= 14.8'	Mer. pass	. 17:17					Sun SD =	= 15.8′			

Sun SD = 15.8'

h		Moon	(31st Au	g)			Lunar Dist	:ance (ob	ojects with	ı largest	hourly L	.D delta)	
Sun	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	± Antares	+Spica	+Mars	+Arcturus	+Sun
0	97°28.8	11.1'	S 26°09.7	-6.1'	54.3'	114°47.4	87° 30.2	64°45.4	5°12.5	40°45.4	49°53.2	52°37.8	87°04.5
1	111°58.8	11.0'	$26^{\circ}15.9$	-6.0'	54.3'	114°17.6	87°02.2	64°21.7	4°43.0	$41^{\circ}15.1$	50°21.3	52°59.1	87°31.8
2	126°28.8	10.9'	$26^{\circ}21.9$	-5.9'	54.3'	113°47.7	86°34.3	63°58.1	4°13.6	41°44.8	50°49.4	53°20.5	87°59.1
3	140°58.7	10.9'	26°27.8	-5.8'	54.3'	113°17.9	86°06.3	63°34.5	3°44.2	$42^{\circ}14.5$	51°17.4	53°42.0	88° 26.4
4	155°28.6	10.8'	26°33.6	-5.7'	54.3'	112°48.0	85°38.3	63°10.9	3°15.0	42°44.3	51°45.5	54°03.6	88°53.8
5	169°58.3	10.7'	26°39.2	-5.5'	54.3'	112°18.2	85°10.3	62°47.3	2°46.0	43°14.0	52°13.6	54°25.4	89°21.1
6	184°28.1	10.7'	S 26°44.8	-5.4'	54.3'	111°48.3	84°42.3	62°23.8	2°17.2	43°43.8	52°41.7	54°47.1	89°48.5
7	198°57.7	10.6'	26°50.2	-5.3'	54.4'	111°18.4	84° 14.3	62°00.4	1°48.9	44°13.6	53°09.8	55°09.0	90°15.9
8	213°27.3	10.5'	26°55.5	-5.2'	54.4'	110°48.5	83°46.3	61°37.0		44°43.4	53°38.0	55°31.0	90°43.3
9	227°56.8	10.5'	27°00.7	-5.0'	54.4'	110°18.6	83° 18.2	61°13.6		$45^{\circ}13.2$	54°06.1	55°53.1	91°10.7
10	242°26.3	10.4'	27°05.7	-4.9'	54.4'	109°48.6	82°50.2	60°50.3		45°43.0	54°34.3	56°15.2	91°38.1
11	256°55.7	10.3'	$27^{\circ}10.6$	-4.8'	54.4'	109°18.7	82°22.1	60°27.0		$46^{\circ}12.8$	55°02.5	56°37.5	92°05.5
12	271°25.0	10.3'	S 27°15.4	-4.7'	54.4'	108°48.7	81°54.1	60°03.8		46°42.7	55°30.7	56°59.8	92°33.0
13	285°54.3	10.2'	$27^{\circ}20.1$	-4.5'	54.4'	108°18.7	81°26.0	59°40.6		$47^{\circ}12.5$	55°58.9	57°22.2	93°00.4
14	300°23.5	10.1'	27°24.6	-4.4'	54.4'	107°48.7	80°57.9	59°17.5		47°42.4	56°27.1	57°44.7	93°27.9
15	314°52.6	10.1'	27°29.0	-4.3'	54.5'	107°18.7	80°29.8	58°54.4		48°12.3	56°55.3	58°07.3	93°55.4
16	329°21.7	10.0'	27°33.3	-4.1'	54.5'	106°48.7	80°01.7	58°31.3	2°51.4	48°42.2	57°23.6	58°30.0	94°22.9
17	343°50.7	10.0'	27°37.4	-4.0'	54.5'	106°18.6	79°33.6	58°08.3	3°20.7	$49^{\circ}12.1$	57°51.9	58°52.7	94°50.4
18	358° 19.6	9.9'	S 27°41.4	-3.9'	54.5'	105°48.6	79°05.5	57°45.4	3°50.1	49°42.1	58°20.2	59°15.6	95°17.9
19	12°48.5	9.8'	27°45.3	-3.7'	54.5'	105°18.5	78° 37.3	57°22.5	4°19.7	$50^{\circ}12.0$	58°48.5	59°38.5	95°45.5
20	27° 17.4	9.8'	$27^{\circ}49.1$	-3.6'	54.5'	104°48.4	78°09.2	56°59.7	4°49.4	50°42.0	59°16.8	60°01.5	96°13.1
21	41°46.1	9.7'	$27^{\circ}52.7$	-3.5'	54.6'	104°18.3	77°41.1	56°37.0	5°19.2	$51^{\circ}12.0$	59°45.1	60°24.5	96°40.7
22	56° 14.9	9.7'	$27^{\circ}56.1$	-3.3'	54.6'	103°48.2	77°12.9	56°14.3	5°49.0	51°42.0	60°13.5	60°47.6	97°08.3
23	70°43.5	9.6'	27°59.5	-3.2'	54.6'	103°18.0	76° 44.7	55°51.6	6°18.8	52°12.0	60°41.9	61°10.8	97°35.9
31 st	SD	= 14.8'	Mer. pass	. 18:07					Sun SD =	15.8			

Lunar Distance (objects with largest hourly LD delta)

-Achernar -Fomalhaut -Altair +Antares +Spica +Mars

Mon	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Sun
0	85°12.1	9.6'	S 28°02.7	-3.1'	54.6'	102°47.9	84°50.0	76°16.5	55°29.1	6°48.7	52°42.1	61°10.3	98°03.5
1	99°40.7	9.5'	28°05.8	-2.9'	54.6'	102° 17.7	84°34.6	75°48.3	55°06.6	7°18.7	53°12.2	61°38.7	98°31.2
2	114°09.2	9.5'	28°08.7	-2.8'	54.6'	101°47.5	84°19.2	75°20.1	54°44.1	7°48.7	53°42.3	62°07.1	98°58.9
3	128°37.7	9.4'	$28^{\circ}11.5$	-2.7'	54.7'	101°17.2	84°03.7	74°51.9	54°21.7	8°18.7	54°12.4	62°35.6	99°26.6
4	143°06.1	9.3'	$28^{\circ}14.1$	-2.5'	54.7'	100°47.0	83°48.3	74°23.7	53°59.4	8°48.7	54°42.5	63°04.0	99°54.3
5	157°34.4	9.3'	$28^{\circ}16.6$	-2.4'	54.7'	100°16.7	83°32.9	73°55.5	53°37.2	9°18.8	55°12.6	63°32.5	100°22.1
6	172°02.7	9.2'	S 28°19.0	-2.2'	54.7'	99°46.4	83°17.6	73°27.2	53°15.1	9°48.9	55°42.8	64°01.1	100°49.8
7	186°31.0	9.2'	28°21.3	-2.1'	54.7'	99°16.1	83°02.2	72°59.0	52°53.0	10°19.1	56°13.0	64°29.6	101°17.6
8	200°59.2	9.2'	28°23.4	-2.0'	54.7'	98°45.8	82°46.8	72°30.7	52°31.0	10°49.2	56°43.2	64°58.2	101°45.4
9	215°27.3	9.1'	28°25.3	-1.8'	54.8'	98° 15.4	82°31.5	72°02.4	52°09.1	11°19.4	57°13.5	65°26.7	102°13.3
10	229°55.4	9.1'	$28^{\circ}27.1$	-1.7'	54.8'	97°45.0	82°16.2	71°34.2	51°47.2	11°49.6	57°43.7	65°55.4	102°41.1
11	244°23.5	9.0'	$28^{\circ}28.8$	-1.5'	54.8'	97° 14.6	82°00.9	71°05.9	51°25.5	12°19.9	58°14.0	66°24.0	103°09.0
12	258°51.5	9.0'	S 28°30.3	-1.4'	54.8'	96°44.2	81°45.6	70°37.6	51°03.8	12°50.1	58°44.3	66°52.6	103°36.9
13	273°19.5	8.9'	28°31.7	-1.2'	54.8'	96°13.8	81°30.3	70°09.3	50°42.2	13°20.4	59°14.6	67°21.3	104°04.8
14	287°47.4	8.9'	28°32.9	-1.1'	54.9'	95°43.3	81°15.0	69°40.9	50°20.7	13°50.8	59°45.0	67°50.0	104°32.7
15	302°15.3	8.9'	28°34.0	-0.9'	54.9'	95°12.8	80°59.8	69°12.6	49°59.3	14°21.1	60°15.3	68°18.7	105°00.7
16	316°43.2	8.8'	28°35.0	-0.8'	54.9'	94°42.3	80°44.6	68°44.3	49°38.0	14°51.5	60°45.7	68°47.5	105°28.7
17	331°11.0	8.8'	28°35.8	-0.7'	54.9'	94°11.7	80°29.4	68°15.9	49°16.9	15°21.9	61°16.2	69°16.2	105°56.7
18	345°38.8	8.7'	S 28°36.4	-0.5'	54.9'	93°41.1	80°14.2	67°47.6	48°55.8	15°52.3	61°46.6	69°45.0	106°24.8
19	0°06.5	8.7'	28°36.9	-0.4'	55.0'	93° 10.5	79°59.0	67°19.2	48°34.8	16°22.8	62°17.1	70°13.9	106°52.8
20	14°34.2	8.7'	28° 37.3	-0.2'	55.0'	92°39.9	79°43.9	66°50.8	48°13.9	16°53.3	62°47.6	70°42.7	107°20.9
21	29°01.9	8.6'	28° 37.5	-0.1'	55.0'	92°09.3	79°28.8	66°22.4	47°53.1	17°23.8	63°18.1	71°11.6	107°49.1
22	43°29.6	8.6'	28° 37.6	0.1'	55.0'	91°38.6	79°13.7	65°54.0	47°32.5	17°54.3	63°48.7	71°40.5	108°17.2
23	57°57.2	8.6'	28°37.5	0.2'	55.1'	91°07.9	78°58.6	65°25.6	47°12.0	18°24.9	64°19.3	72°09.4	108°45.4
1 st	SD =	= 14.9'	Mer. pas	s. 19:00)				Sun SD =	15.8′			

Moon (2nd Sep)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Mars	+Sun	
0	72°24.8	8.6'	S 28°37.2	0.4'	55.1'	90°37.2	64°57.2	46°51.5	18°55.5	64°49.9	71°12.3	72°38.4	109°13.6	
1	86°52.3	8.5'	28°36.9	0.5'	55.1'	90°06.4	64°28.8	46°31.3	19°26.1	65°20.5	71°37.2	73°07.3	109°41.8	
2	101°19.9	8.5'	28°36.3	0.7'	55.1'	89°35.6	64°00.4	46°11.1	19°56.7	65°51.2	72°02.0	73°36.4	110°10.1	
3	115°47.4	8.5'	28°35.6	0.8'	55.2'	89°04.8	63°31.9	45°51.1	20°27.4	66°21.8	72°27.0	74°05.4	110°38.3	
4	130°14.9	8.5'	28°34.8	1.0'	55.2'	88°34.0	63°03.5	45°31.2	20°58.1	66°52.6	72°52.0	74°34.5	111°06.7	
5	144°42.3	8.4'	28°33.8	1.1'	55.2'	88°03.1	62°35.1	45°11.4	21°28.9	67°23.3	73°17.0	75°03.6	111°35.0	
6	159°09.8	8.4'	S 28°32.7	1.3'	55.2'	87°32.2	62°06.6	44°51.8	21°59.6	67°54.1	73°42.1	75°32.7	112°03.4	
7	173°37.2	8.4'	28°31.4	1.4'	55.3'	87°01.3	61°38.2	44°32.3	22°30.4	68°24.9	74°07.2	76°01.8	112°31.8	
8	188°04.6	8.4'	28°30.0	1.6'	55.3'	86°30.3	61°09.7	44°13.0	23°01.3	68°55.7	74°32.4	76°31.0	113°00.2	
9	202°32.0	8.4'	28°28.4	1.7'	55.3'	85°59.3	60°41.2	43°53.9	23°32.1	69°26.6	74°57.7	77°00.2	113°28.7	
10	216°59.4	8.4'	28°26.7	1.9'	55.3'	85°28.3	60°12.8	43°34.9	24°03.0	69°57.5	75°23.0	77°29.5	113°57.2	
11	231°26.7	8.3'	28°24.8	2.0'	55.4'	84°57.3	59°44.3	43°16.0	24°33.9	70°28.4	75°48.3	77°58.7	114°25.7	
12	245°54.1	8.3'	S 28°22.7	2.2'	55.4'	84°26.2	59°15.8	42°57.4	25°04.9	70°59.4	76°13.7	78°28.0	114°54.2	
13	260°21.4	8.3'	28°20.5	2.3'	55.4'	83°55.1	58°47.3	42°38.9	25°35.9	71°30.4	76°39.1	78°57.4	115°22.8	
14	274°48.7	8.3'	28°18.2	2.5'	55.4'	83°23.9	58°18.8	42°20.6	26°06.9	72°01.4	77°04.6	79°26.7	115°51.4	
15	289°16.0	8.3'	$28^{\circ}15.7$	2.7'	55.5'	82°52.8	57°50.3	42°02.5	26°37.9	72°32.4	77°30.2	79°56.1	116°20.1	
16	303°43.3	8.3'	$28^{\circ}13.0$	2.8'	55.5'	82°21.5	57°21.9	41°44.5	27°09.0	73°03.5	77°55.7	80°25.6	116°48.7	
17	318°10.6	8.3'	28°10.2	3.0'	55.5'	81°50.3	56°53.4	41°26.8	27°40.1	73°34.6	78°21.4	80°55.0	117°17.5	
18	332°37.9	8.3'	S 28°07.3	3.1'	55.5'	81°19.0	56°24.9	41°09.2	28°11.3	74°05.8	78°47.0	81°24.5	117°46.2	
19	347°05.2	8.3'	28°04.2	3.3'	55.6'	80°47.7	55°56.4	40°51.9	28°42.4	74°37.0	79°12.7	81°54.0	118°15.0	
20	1°32.5	8.3'	28°00.9	3.4'	55.6'	80°16.4	55°27.9	40°34.7	29°13.6	75°08.2	79°38.5	82°23.6	118°43.8	
21	15°59.8	8.3'	27°57.5	3.6'	55.6'	79°45.0	54°59.4	40°17.8	29°44.9	75°39.4	80°04.3	82°53.2	119°12.6	
22	30°27.1	8.3'	$27^{\circ}53.9$	3.7'	55.7'	79°13.6	54°31.0	40°01.1	30°16.2	76°10.7	80°30.1	83°22.8	119°41.5	
23	44°54.3	8.3'	27°50.2	3.9'	.9' 55.7' 78°42.2 54°02.5 39°44.6 30°47.5 76°42.0 80°56.0 83°52.5									
2 nd	SD =	= 15.0′	Mer. pass	s. 19:5	4	Sun SD = 15.8'								

h Moon (3rd Sep)

			(1										
Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Mars
0	59°21.6	8.3'	S 27°46.3	4.0'	55.7'	78° 10.7	53°34.0	39°28.4	31°18.8	57°06.9	77°13.4	81°22.0	84°22.2
1	73°48.9	8.3'	27°42.3	4.2'	55.7'	77°39.2	53°05.5	39°12.4	31°50.2	57°27.6	77°44.8	81°48.0	84°51.9
2	88°16.2	8.3'	27°38.1	4.3'	55.8'	77°07.7	52°37.1	38°56.6	32°21.6	57°48.4	78°16.2	82°14.0	85°21.7
3	102°43.5	8.3'	27°33.8	4.5'	55.8'	76°36.1	52°08.6	$38^{\circ}41.1$	32°53.1	58°09.3	78°47.6	82°40.0	85°51.5
4	117°10.8	8.3'	27°29.3	4.6'	55.8'	76°04.5	51°40.2	38°25.8	33°24.6	58°30.4	79°19.1	83°06.1	86°21.3
5	131°38.2	8.3'	27°24.7	4.8'	55.9'	75°32.9	51°11.8		33°56.1	58°51.5	79°50.6	83°32.3	86°51.2
6	146°05.5	8.3'	S 27°19.9	4.9'	55.9'	75°01.2	50°43.4		34°27.7	59° 12.8	80°22.2	83°58.4	87°21.1
7	160°32.8	8.4'	$27^{\circ}14.9$	5.1'	55.9'	74°29.5	50°15.0		34°59.3	59°34.2	80°53.8	84°24.7	87°51.0
8	175°00.2	8.4'	27°09.8	5.2'	55.9'	73°57.7	49°46.6		35°30.9	59°55.7	81°25.4	84°50.9	88°21.0
9	189°27.6	8.4'	27°04.6	5.4'	56.0'	73°25.9	49°18.2		36°02.5	60°17.3	81°57.1	85°17.2	88°51.0
10	203°54.9	8.4'	26°59.2	5.5'	56.0'	72°54.1	48°49.8		36°34.3	60°39.1	82°28.8	85°43.5	89°21.0
11	218°22.3	8.4'	26°53.6	5.7'	56.0'	72°22.2	48°21.5		37°06.0	61°00.9	83°00.5	86°09.9	89°51.1
12	232°49.8	8.4'	S 26°47.9	5.8'	56.1'	71°50.4	47°53.2		37°37.8	61°22.9	83°32.3	86°36.3	90°21.2
13	247°17.2	8.5'	26°42.1	6.0'	56.1'	71°18.4	47°24.9		38°09.6	61°45.0	84°04.1	87°02.8	90°51.4
14	261°44.6	8.5'	$26^{\circ}36.1$	6.1'	56.1'	70°46.5	46°56.6		38°41.4	62°07.2	84°36.0	87°29.2	91°21.6
15	276°12.1	8.5'	26°29.9	6.3'	56.2'	70°14.4	46°28.4		39°13.3	62°29.5	85°07.9	87°55.8	91°51.8
16	290°39.6	8.5'	26°23.7	6.4'	56.2'	69°42.4	46°00.2		39°45.3	62°51.8	85°39.8	88°22.3	92°22.1
17	305°07.1	8.5'	26°17.2	6.6'	56.2'	69°10.3	45°32.0		40°17.2	63°14.3	86°11.8	88°48.9	92°52.4
18	319°34.7	8.6'	S 26°10.6	6.7'	56.2'	68°38.2	45°03.8		40°49.2	63°37.0	86°43.8	89°15.5	93°22.7
19	334°02.3	8.6'	26°03.9	6.9'	56.3'	68°06.0	44°35.7		41°21.3	63°59.7	87°15.8	89°42.2	93°53.1
20	348°29.9	8.6'	25°57.0	7.0'	56.3'	67°33.8	44°07.6		41°53.4	64°22.5	87°47.9	90°08.8	94°23.5
21	2°57.5	8.6'	25°49.9	7.2'	56.3'	67°01.6	43°39.6		42°25.5	64°45.4	88°20.0	90°35.6	94°54.0
22	17°25.1	8.7'	25°42.7	7.3'	56.4'	66°29.3	43°11.6		42°57.6	65°08.4	88°52.2	91°02.3	95°24.5
23	31°52.8	8.7'	25°35.4	7.5'	56.4'	65°57.0	42°43.6		43°29.8	65°31.5	89°24.4	91°29.1	95°55.0
3 rd	SD =	= 15.2′	Mer. pass	20:4	8								

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Mars
0	46°20.5	8.7'	S 25°27.9	7.6'	56.4'	65°24.7	42°15.7	44°02.1	61°31.5	65°54.6	89°56.6	91°55.9	96°25.6
1	60°48.2	8.8'	25°20.3	7.8'	56.5'	64°52.3	41°47.8	44°34.4	61°54.8	66° 17.9	90°28.9	92°22.7	96°56.2
2	75°16.0	8.8'	$25^{\circ}12.5$	7.9'	56.5'	64° 19.9	41°20.0	45°06.7	62°18.2	66°41.3	91°01.2	92°49.6	97°26.9
3	89°43.8	8.8'	25°04.6	8.1'	56.5'	63°47.4	40°52.3	45°39.0	62°41.7	67°04.8	91°33.6	93°16.5	97°57.6
4	104°11.6	8.9'	24°56.6	8.2'	56.6'	63°14.9	40°24.6	46°11.4	63°05.3	67°28.3	92°06.0	93°43.4	98°28.3
5	118°39.5	8.9'	24°48.4	8.3'	56.6'	62°42.4	39°56.9	46°43.9	63°29.0	67°52.0	92°38.4	94°10.4	98°59.1
6	133°07.4	8.9'	S 24°40.0	8.5'	56.6'	62°09.8	39°29.4	47°16.4	63°52.8	68° 15.7	93°10.9	94°37.3	99°29.9
7	147°35.3	9.0'	$24^{\circ}31.5$	8.6'	56.7'	61°37.2	39°01.9	47°48.9	64°16.7	68°39.5	93°43.4	95°04.3	100°00.7
8	162°03.3	9.0'	24°22.9	8.8'	56.7'	61°04.5	38°34.5	48°21.4	64°40.7	69°03.4	94°16.0	95°31.4	100°31.6
9	176°31.3	9.0'	$24^{\circ}14.1$	8.9'	56.7'	60°31.8	38°07.1	48°54.0	65°04.8	69°27.4	94°48.6	95°58.4	101°02.6
10	190°59.4	9.1'	24°05.2	9.0'	56.8'	59°59.0	37°39.9	49°26.7	65°29.0	69°51.5	95°21.2	96°25.5	101°33.5
11	205°27.5	9.1'	23°56.2	9.2'	56.8'	59°26.3	37°12.7	49°59.4	65°53.2	70° 15.7	95°53.9	96°52.6	102°04.5
12	219°55.6	9.2'	S 23°47.0	9.3'	56.8'	58°53.4	36° 45.7	50°32.1	66°17.6	70°39.9	96°26.6	97°19.7	102°35.6
13	234°23.7	9.2'	23°37.7	9.5'	56.9'	58°20.6	36° 18.7	51°04.8	66°42.1	71°04.2	96°59.4	97°46.8	103°06.7
14	248°51.9	9.2'	23°28.2	9.6'	56.9'	57° 47.7	35°51.8	51°37.6	67°06.6	71°28.6	97°32.2	98°14.0	103°37.8
15	263°20.2	9.3'	23° 18.6	9.7'	56.9'	57° 14.7	35°25.1	52°10.5	67°31.3	71°53.1	98°05.0	98°41.2	104°09.0
16	277°48.4	9.3'	23°08.9	9.9'	57.0'	56°41.8	34°58.4	52°43.4	67°56.0	72°17.6	98°37.9	99°08.4	104°40.2
17	292°16.8	9.4'	22°59.0	10.0'	57.0'	56°08.7	34°31.9	53°16.3	68°20.8	72°42.2	99°10.8	99°35.6	105°11.5
18	306°45.1	9.4'	S 22°49.0	10.1'	57.0'	55°35.7	34°05.6	53°49.3	68°45.8	73°06.9	99°43.8	100°02.8	105°42.8
19	321°13.5	9.4'	22°38.9	10.3'	57.1'	55°02.6	33°39.3	54°22.3	69°10.7	73°31.7	100°16.8	100°30.1	106°14.1
20	335°42.0	9.5'	22°28.6	10.4'	57.1'	54°29.4	33°13.2	54°55.3	69°35.8	73°56.5	100°49.8	100°57.4	106°45.5
21	350°10.4	9.5'	22° 18.2	10.5'	57.1'	53°56.3	32°47.3	55°28.4	70°01.0	74°21.4	101°22.9	101°24.6	107°16.9
22	4°39.0	9.6'	22°07.7	10.7'	57.2'	53°23.0	32°21.5	56°01.6	70°26.2	74°46.4	101°56.1	101°51.9	107°48.4
23	19°07.5	9.6'	21°57.0	10.8'	57.2'	52°49.8	31°55.9	56°34.7	70°51.5	75°11.5	102°29.2	102°19.2	108°19.9
4 th	SD :	= 15.4'	Mer. pas	s. 21:41	-								

Moon (5th Sep)

Lunar Distance (objects with largest hourly LD delta)

h		Moo	n (5 th Sep	o)			Lunar D	istance	(objects wit	th largest	hourly LD	delta)	
Fri	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Antares	+Arcturus	+Spica	+Mars
0	33°36.2	9.7'	S 21°46.2	10.9'	57.2'			52°16.5	31°30.4	57°08.0	102°46.6	103°02.5	108°51.4
1	48°04.8	9.7'	21°35.3	11.0'	57.3'			51°43.1	31°05.2	57°41.2	103°13.9	103°35.7	109°23.0
2	62°33.5	9.7'	21°24.2	11.2'	57.3'			51°09.8	30°40.1	58°14.5	103°41.2	104°09.0	109°54.6
3	77°02.2	9.8'	21°13.1	11.3'	57.3'		119°50.0	50°36.3	30° 15.3	58°47.9	104°08.6	104°42.3	110°26.3
4	91°31.0	9.8'	$21^{\circ}01.8$	11.4'	57.4'	119°57.5	119°25.6	50°02.9	29°50.7	59°21.2	104°35.9	105°15.7	110°58.0
5	105°59.9	9.9'	20°50.3	11.5'	57.4'	119°24.8	$119^{\circ}01.1$	49°29.4	29°26.3	59°54.7	105°03.3	105°49.1	111°29.7
6	120°28.7	9.9'	S 20°38.8	11.7'	57.4'	118°52.1	118°36.5	48°55.8	29°02.1	60°28.1	105°30.6	106°22.6	112°01.5
7	134°57.7	10.0'	$20^{\circ}27.1$	11.8'	57.5'	118° 19.4	118°11.8	48°22.3	28°38.3	61°01.6	105°58.0	106°56.1	112°33.3
8	149°26.6	10.0'	20°15.3	11.9'	57.5'	117°46.6	117°46.9	47°48.6	28° 14.6	61°35.2	106°25.4	107°29.7	113°05.2
9	163°55.6	10.0'	20°03.4	12.0'	57.5'	117° 13.7	117°22.0	47°15.0	27°51.3	62°08.8	106°52.7	108°03.2	113°37.1
10	178°24.7	10.1'	19°51.4	12.2'	57.6'	116°40.8	116°56.9	46°41.3	27°28.2	62°42.4	107°20.1	108°36.9	114°09.1
11	192°53.8	10.1'	19°39.2	12.3'	57.6'	116°07.9	116°31.7	46°07.5	27°05.5	63°16.1	107°47.5	109°10.5	114°41.1
12	207°22.9	10.2'	S 19°27.0	12.4'	57.6'	115°34.9	116°06.5	45°33.8	26°43.1	63°49.8	108°14.9	109°44.3	115°13.1
13	221°52.1	10.2'	19°14.6	12.5'	57.7'	115°01.8	115°41.1	45°00.0	26°21.1	64°23.5	108°42.2	110°18.0	115°45.2
14	236°21.3	10.3'	$19^{\circ}02.1$	12.6'	57.7'	114°28.7	115°15.6	44°26.1	25° 59.4	64°57.3	109°09.6	110°51.8	116°17.3
15	250°50.6	10.3'	18°49.5	12.7'	57.7'	113°55.6	114°50.0	43°52.2	25°38.0	65°31.2	109°36.9	111°25.6	116°49.4
16	265°19.9	10.4'	18°36.7	12.8'	57.8'	113°22.4	114°24.4	43°18.3	25° 17.1	66°05.1	110°04.3	111°59.5	117°21.6
17	279°49.2	10.4'	18°23.9	13.0'	57.8'	112°49.2	113°58.6	42°44.3	24°56.6	66°39.0	110°31.6	112°33.4	117°53.9
18	294°18.6	10.4'	S 18°10.9	13.1'	57.8'	112° 15.9	113°32.7	42°10.3	24°36.6	67°12.9	110°58.9	113°07.4	118°26.1
19	308°48.1	10.5'	17°57.9	13.2'	57.9'	111°42.6	113°06.8	41°36.3	24° 17.0	67°46.9	111°26.2	113°41.4	118°58.4
20	323°17.5	10.5'	17°44.7	13.3'	57.9'	111°09.3	112°40.7	41°02.2	23°57.9	68°21.0	111°53.5	114°15.4	119°30.8
21	337°47.1	10.6'	17°31.4	13.4'	57.9'	110°35.9	112°14.6	40°28.1	23°39.3	68°55.1	112°20.8	114°49.5	
22	352° 16.6	10.6'	$17^{\circ}18.1$	13.5'	58.0'	110°02.4	111°48.4	39°53.9	23°21.2	69°29.2	112°48.1	115°23.6	
23	6°46.2	10.6'	17°04.6	13.6'	58.0'	109°28.9	111°22.1	39°19.7	23°03.6	70°03.4	113°15.3	115°57.8	
5 th	SD	= 15.6'	Mer. pass	s. 22:32									

Moon (6th Sep) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	21°15.9	10.7'	S 16°51.0	13.7'	58.0'		119°41.9	108°55.4	38°45.5	70°37.6	81°46.8	113°42.5	116°32.0
1	35°45.6	10.7'	$16^{\circ}37.3$	13.8'	58.1'		119°09.8	108°21.8	38°11.3	71°11.8	82°13.8	114°09.7	117°06.2
2	50°15.3	10.8'	$16^{\circ}23.5$	13.9'	58.1'		118°37.6	107°48.2	37°37.0	71°46.1	82°40.8	114°36.9	117°40.5
3	64°45.1	10.8'	$16^{\circ}09.6$	14.0'	58.1'		118°05.4	107° 14.5	37°02.6	72°20.4	83°07.9	115°04.0	118°14.8
4	79°14.9	10.8'	15°55.6	14.1'	58.2'		117°33.1	106°40.8	36°28.3	72°54.8	83°35.0	115°31.2	118°49.2
5	93°44.7	10.9'	$15^{\circ}41.5$	14.2'	58.2'		117°00.7	106°07.0	35°53.9	73°29.2	84°02.2	115°58.2	119°23.6
6	108°14.6	10.9'	S 15°27.3	14.3'	58.2'		116°28.3	105°33.2	35°19.4	74°03.6	84°29.4	116°25.3	119°58.0
7	122°44.5	11.0'	$15^{\circ}13.0$	14.4'	58.3'		115°55.9	104°59.4	34°45.0	74°38.1	84°56.7	116°52.3	
8	137°14.5	11.0'	$14^{\circ}58.6$	14.5'	58.3'		115°23.3	104°25.5	34°10.5	75°12.6	85°24.0	117°19.3	
9	151°44.5	11.0'	14°44.2	14.6'	58.3'		114°50.8	103°51.6	33°35.9	75°47.2	85°51.3	117°46.2	
10	166°14.5	11.1'	14°29.6	14.7'	58.4'		114°18.1	103° 17.6	33°01.4	76°21.8	86°18.7	118°13.1	
11	180°44.6	11.1'	$14^{\circ}15.0$	14.7'	58.4'	119°56.2	113°45.5	102°43.6	32°26.8	76°56.4	86°46.1	118°40.0	
12	195°14.7	11.1'	S 14°00.2	14.8'	58.4'	119°24.7	113°12.7	102°09.6	31°52.1	77°31.1	87°13.6	119°06.8	
13	209°44.8	11.2'	13°45.4	14.9'	58.4'	118°53.1	112°39.9	101°35.5	31°17.5	78°05.8	87°41.1	119°33.5	
14	224°15.0	11.2'	13°30.5	15.0'	58.5'	118°21.5	112°07.1	101°01.4	30°42.8	78°40.5	88°08.6		
15	238°45.2	11.2'	13°15.5	15.1'	58.5'	117°49.7	111°34.2	100°27.2	30°08.1	79°15.3	88°36.2		
16	253°15.4	11.3'	13°00.4	15.2'	58.5'	117°17.9	111°01.3	99°53.0	29°33.3	79°50.1	89°03.8		
17	267°45.7	11.3'	12°45.2	15.2'	58.6'	116°46.1	110°28.3	99° 18.8	28°58.6	80°25.0	89°31.4		
18	282°16.0	11.3'	S 12°30.0	15.3'	58.6'	116°14.2	109°55.2	98° 44.5	28°23.8	80°59.9	89°59.0		
19	296°46.3	11.4'	12°14.6	15.4'	58.6'	115°42.2	109°22.1	98° 10.2	27°49.0	81°34.8	90°26.7		
20	311°16.7	11.4'	11°59.2	15.5'	58.7'	115° 10.1	108°49.0	97° 35.8	27°14.1	82°09.8	90°54.4		
21	325°47.0	11.4'	11°43.7	15.6'	58.7'	114°38.0	108°15.8	97°01.4	26°39.2	82°44.8	91°22.2		
22	340°17.5	11.4'	11°28.2	15.6'	58.7'	114°05.9	107°42.6	96°27.0	26°04.4	83°19.8	91°49.9		
23	354°47.9	11.5'	11°12.6	15.7'	58.7'	113°33.7	107°09.3	95°52.6	25°29.4	83°54.9	92°17.7		
6 th	SD	= 15.8'	Mer. pass	3. 23:22									

Moon (7th Sep) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	9°18.4	11.5'	S 10°56.9	15.8'	58.8'	113°01.4	106°36.0	95°18.1	24°54.5	43°36.1	84°30.0	92°45.5	96°40.6
1	23°48.8	11.5'	10°41.1	15.8'	58.8'	112°29.1	106°02.7	94°43.5	24°19.6	43°57.7	85°05.2	93°13.4	97°07.6
2	38°19.4	11.5'	10°25.2	15.9'	58.8'	111°56.7	105°29.3	94°09.0	23°44.6	44°19.6	85°40.3	93°41.2	97°34.7
3	52°49.9	11.6'	10°09.3	16.0'	58.9'	111°24.2	104°55.8	93°34.4	23°09.6	44°41.8	86° 15.6	94°09.1	98°01.8
4	67°20.4	11.6'	09°53.3	16.0'	58.9'	110°51.8	104°22.3	92°59.7	22°34.6	45°04.1	86°50.8	94°37.0	98°28.9
5	81°51.0	11.6'	09°37.3	16.1'	58.9'	110°19.2	103°48.8	92°25.1	21°59.6	45°26.7	87°26.1	95°04.9	98°56.0
6	96°21.6	11.6'	S 09°21.2	16.2'	58.9'	109°46.6	103°15.2	91°50.4	21°24.6	45°49.6	88°01.4	95°32.8	99°23.1
7	110°52.3	11.6'	09°05.0	16.2'	59.0'	109°14.0	102°41.6	91°15.6	20°49.6	46°12.6	88° 36.7	96°00.7	99°50.2
8	125°22.9	11.7'	08°48.8	16.3'	59.0'	108°41.3	102°08.0	90°40.9	20°14.6	46°35.9	89° 12.1	96°28.7	100°17.2
9	139°53.5	11.7'	08°32.5	16.3'	59.0'	108°08.6	101°34.3	90°06.1	19°39.6	46°59.4	89°47.5	96°56.6	100°44.3
10	154°24.2	11.7'	$08^{\circ}16.1$	16.4'	59.0'	107°35.8	101°00.6	89°31.2	19°04.5	47°23.1	90°23.0	97°24.6	101°11.4
11	168°54.9	11.7'	$07^{\circ}59.7$	16.5'	59.1'	107°02.9	100°26.8	88°56.4	18°29.5	47°47.0	90°58.4	97°52.5	101°38.5
12	183°25.6	11.7'	S 07°43.3	16.5'	59.1'	106°30.1	99°53.1	88°21.5	17°54.5	48°11.2	91°33.9	98°20.5	102°05.6
13	197°56.3	11.7'	07°26.8	16.6'	59.1'	105°57.1	99°19.2	87°46.6	17°19.5	48°35.5	92°09.5	98°48.5	102°32.6
14	212°27.1	11.7'	$07^{\circ}10.2$	16.6'	59.1'	105°24.2	98°45.4	87°11.6	16°44.6	49°00.0	92°45.0	99°16.4	102°59.7
15	226°57.8	11.8'	06°53.6	16.7'	59.2'	104°51.2	98°11.5	86°36.6	16°09.6	49°24.7	93°20.6	99°44.4	103°26.7
16	241°28.6	11.8'	06°36.9	16.7'	59.2'	104°18.1	97°37.5	86°01.6	15°34.7	49°49.5	93° 56.3	100°12.4	103°53.7
17	255°59.3	11.8'	$06^{\circ}20.2$	16.8'	59.2'	103°45.1	97°03.6	85°26.6	14°59.9	50°14.6	94°31.9	100°40.4	104°20.7
18	270°30.1	11.8'	S 06°03.5	16.8'	59.2'	103°11.9	96°29.6	84°51.6	14°25.1	50°39.8	95°07.6	101°08.3	104°47.7
19	285°00.9	11.8'	05°46.7	16.8'	59.3'	102°38.8	95°55.6	84°16.5	13°50.3	51°05.2	95°43.3	101°36.3	105°14.7
20	299°31.7	11.8'	05°29.8	16.9'	59.3'	102°05.6	95°21.5	83°41.4	13°15.6	51°30.8	96° 19.1	102°04.2	105°41.6
21	314°02.5	11.8'	$05^{\circ}12.9$	16.9'	59.3'	101°32.3	94°47.4	83°06.2	12°41.0	51°56.5	96° 54.8	102°32.2	106°08.6
22	328°33.3	11.8'	04°56.0	17.0'	59.3'	100°59.1	94°13.3	82°31.0	12°06.5	52°22.4	97°30.6	103°00.1	106°35.5
23	343°04.1	11.8'	04°39.0	17.0'	59.4'	100°25.8	93°39.2	81°55.9	11°32.2	52°48.5	98°06.4	103°28.0	107°02.3
7 th	SE	0 = 16.0) ['] Mer. pa	ss:-									

Moon (8th Sep) h

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Mon	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	357°34.9	11.8'	S 04°22.0	17.0'	59.4'			93°05.0	81°20.7	25°33.1	53°14.7	98°42.3	103°56.0
1	12°05.7	11.8'	04°05.0	17.1'	59.4'		119°39.1	92°30.8	80°45.4	25°55.6	53°41.0	99°18.2	104°23.8
2	26°36.5	11.8'	03°47.9	17.1'	59.4'		119°03.8	91°56.6	80°10.2	26°18.6	54°07.5	99°54.1	104°51.7
3	41°07.3	11.8'	03°30.9	17.1'	59.4'		118°28.5	91°22.4	79°34.9	26°42.0	54°34.1	100°30.0	105°19.6
4	55°38.1	11.8'	03°13.7	17.2'	59.5'		117°53.1	90°48.1	78°59.6	27°05.9	55°00.9	101°05.9	105°47.4
5	70°08.9	11.8'	$02^{\circ}56.6$	17.2'	59.5'		117° 17.7	90°13.8	78°24.3	27°30.2	55°27.8	101°41.9	106° 15.2
6	84°39.7	11.8'	S 02°39.4	17.2'	59.5'		116°42.2	89°39.5	77°48.9	27°54.9	55°54.9	102°17.9	106°43.0
7	99°10.5	11.8'	02°22.2	17.2'	59.5'		116°06.8	89°05.2	77°13.5	28°20.0	56°22.0	102°53.9	107° 10.7
8	113°41.2	11.8'	$02^{\circ}05.0$	17.2'	59.5'	119°39.1	115°31.3	88°30.8	76°38.2	28°45.4	56°49.3	103°29.9	107°38.4
9	128°12.0	11.8'	01°47.7	17.3'	59.6'	119°03.1	114°55.8	87°56.4	76°02.8	29°11.3	57°16.7	104°06.0	108°06.1
10	142°42.8	11.8'	01°30.4	17.3'	59.6'	118°27.1	114°20.2	87°22.0	75°27.3	29°37.4	57°44.3	104°42.1	108°33.8
11	157°13.5	11.7'	$01^{\circ}13.2$	17.3'	59.6'	117°51.0	113°44.7	86°47.6	74°51.9	30°03.9	58°11.9	105°18.2	109°01.4
12	171°44.3	11.7'	S 00°55.9	17.3'	59.6'	117°14.9	113°09.1	86°13.2	74°16.4	30°30.7	58°39.7	105°54.3	109°29.0
13	186°15.0	11.7'	00°38.5	17.3'	59.6'	116°38.8	112°33.5	85°38.7	73°41.0	30°57.8	59°07.5	106°30.5	109°56.5
14	200°45.7	11.7'	$00^{\circ}21.2$	17.3'	59.6'	116°02.7	111°57.9	85°04.3	73°05.5	31°25.2	59°35.5	107°06.6	110°24.0
15	215°16.4	11.7'	S 00°03.9	17.4'	59.7'	115°26.5	111°22.3	84°29.8	72°30.0	31°52.9	60°03.6	107°42.8	110°51.5
16	229°47.1	11.7'	N 00°13.5	17.4'	59.7'	114°50.3	110°46.6	83°55.3	71°54.5	32°20.8	60°31.8	108°19.0	111°18.9
17	244°17.8	11.6'	$00^{\circ}30.8$	17.4'	59.7'	114°14.1	110° 10.9	83°20.8	71°18.9	32°49.0	61°00.1	108°55.3	111°46.2
18	258°48.4	11.6'	N 00°48.2	17.4'	59.7'	113°37.9	109°35.2	82°46.2	70°43.4	33°17.5	61°28.4	109°31.5	112° 13.5
19	273°19.0	11.6'	$01^{\circ}05.6$	17.4'	59.7'	113°01.7	108° 59.5	82°11.7	70°07.8	33°46.1	61°56.9	110°07.8	112°40.8
20	287°49.6	11.6'	$01^{\circ}22.9$	17.4'	59.7'	112°25.5	108°23.8	81°37.2	69°32.3	34°15.0	62°25.5	110°44.0	113°08.0
21	302°20.2	11.6'	$01^{\circ}40.3$	17.4'	59.8'	111°49.2	107°48.0	81°02.6	68°56.7	34°44.1	62°54.1	111°20.3	113°35.1
22	316°50.8	11.5'	01°57.7	17.4'	59.8'	111°12.9	107° 12.2	80°28.0	68°21.1	35°13.5	63°22.9	111°56.7	114°02.2
23	331°21.3	11.5'	$02^{\circ}15.1$	17.4'	59.8'	110°36.6	106°36.5	79°53.4	67°45.5	35°43.0	63°51.7	112°33.0	114° 29.2
8 th	SD	= 16.2'	Mer. pass	. 00:10									

h Moon (9 th Sen) Lunar Distance (objects with largest hourl	D dolta)	

Tue	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Antares
0	345°51.8	11.5'	$N02^{\circ}32.4$	17.4'	59.8'	110°00.3	106°00.7	79°18.9	67°09.9		36°12.7	64°20.6	113°09.3
1	0°22.3	11.5'	02°49.8	17.4'	59.8'	109°24.0	105°24.8	78°44.3	66°34.3		36°42.6	64°49.6	113°45.7
2	14°52.7	11.4'	$03^{\circ}07.1$	17.3'	59.8'	108°47.7	104°49.0	78°09.7	65° 58.7		37°12.7	65°18.7	114°22.1
3	29°23.2	11.4'	03°24.5	17.3'	59.8'	108°11.3	104°13.1	77°35.1	65°23.1		37°42.9	65°47.8	114°58.4
4	43°53.6	11.4'	03°41.8	17.3'	59.8'	107°34.9	103°37.3	77°00.4	64°47.4	7°26.3	38°13.3	66°17.0	115°34.8
5	58°23.9	11.3'	$03^{\circ}59.1$	17.3'	59.9'	106°58.6	103°01.4	76°25.8	64°11.8	7°58.9	38°43.9	66°46.3	116°11.3
6	72°54.2	11.3'	$N04^{\circ}16.4$	17.3'	59.9'	106°22.2	102°25.5	75°51.2	63°36.2	8°32.0	39°14.6	67°15.6	116°47.7
7	87°24.5	11.3'	04°33.7	17.3'	59.9'	105°45.8	101°49.6	75°16.6	63°00.5	9°05.6	39°45.5	67°45.1	117°24.1
8	101°54.8	11.2'	04°51.0	17.2'	59.9'	105°09.3	101°13.7	74°42.0	62°24.9	9°39.6	40°16.5	68°14.5	118°00.6
9	116°25.0	11.2'	05°08.2	17.2'	59.9'	104°32.9	100°37.8	74°07.4	61°49.2	10°13.8	40°47.6	68°44.1	118°37.0
10	130°55.2	11.1'	05°25.4	17.2'	59.9'	103°56.5	100°01.8	73°32.7	61°13.6	10°48.4	41°18.9	69°13.7	119°13.5
11	145°25.3	11.1'	05°42.6	17.2'	59.9'	103°20.0	99°25.9	72°58.1	60°37.9	11°23.1	41°50.3	69°43.3	119°50.0
12	159°55.4	11.1'	N05°59.8	17.1'	59.9'	102°43.6	98°49.9	72°23.5	60°02.3	11°58.1	42°21.8	70°13.0	
13	174°25.5	11.0'	$06^{\circ}17.0$	17.1'	59.9'	102°07.1	98°14.0	71°48.9	59° 26.6	12°33.2	42°53.4	70°42.8	
14	188°55.5	11.0'	$06^{\circ}34.1$	17.1'	59.9'	101°30.6	97°38.0	71°14.3	58° 51.0	13°08.5	43°25.1	71°12.6	
15	203°25.5	10.9'	$06^{\circ}51.2$	17.1'	60.0'	100°54.1	97°02.0	70°39.7	58° 15.3	13°43.9	43°57.0	71°42.5	
16	217°55.4	10.9'	07°08.2	17.0'	60.0'	100°17.6	96°26.0	70°05.1	57° 39.7	14°19.5	44°28.9	72°12.4	
17	232°25.3	10.8'	$07^{\circ}25.2$	17.0'	60.0'	99°41.1	95°50.0	69°30.5	57°04.1	14°55.1	45°01.0	72°42.4	
18	246°55.1	10.8'	N07°42.2	16.9'	60.0'	99°04.6	95°14.0	68°55.9	56°28.4	15°30.8	45°33.1	73°12.4	
19	261°24.9	10.7'	07°59.2	16.9'	60.0'	98°28.1	94°38.0	68°21.4	55° 52.8	16°06.6	46°05.3	73°42.5	
20	275°54.6	10.7'	$08^{\circ}16.1$	16.9'	60.0'	97°51.6	94°02.0	67°46.8	55° 17.2	16°42.5	46°37.6	74°12.6	
21	290°24.3	10.6'	$08^{\circ}32.9$	16.8'	60.0'	97°15.1	93°25.9	67°12.3	54°41.6	17°18.4	47°10.0	74°42.7	
22	304°53.9	10.6'	08°49.7	16.8'	60.0'	96°38.6	92°49.9	66°37.7	54°06.0	17°54.4	47°42.5	75°12.9	
23	319°23.5	10.5'	09°06.5	16.7'	60.0'	96°02.0	92°13.9	66°03.2	53°30.4	18°30.4	48°15.1	75°43.1	
9 th	SD	$=16.3^{\prime}$	Mer. pass	. 00:58									

Moon (10th Sep) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair
0	333°53.0	10.5'	N09°23.2	16.7'	60.0'		95° 25.5	91°37.8	65°28.7	52°54.9	19°06.5	48°47.7	76°13.3
1	348°22.5	10.4'	09°39.9	16.6'	60.0'		94°49.0	91°01.8	64°54.3	52°19.3	19°42.6	49°20.4	76°43.6
2	2°51.9	10.3'	09°56.5	16.6'	60.0'		94°12.4	90°25.7	64° 19.8	51°43.8	20°18.8	49°53.2	77°13.9
3	17°21.2	10.3'	$10^{\circ}13.1$	16.5'	60.0'		93°35.9	89°49.7	63°45.3	51°08.2	20°55.0	50°26.0	77°44.2
4	31°50.5	10.2'	$10^{\circ}29.6$	16.5'	60.0'		92°59.3	89°13.6	63°10.9	50°32.7	21°31.2	50°58.9	78°14.6
5	46°19.7	10.2'	$10^{\circ}46.1$	16.4'	60.0'		92°22.8	88°37.6	62°36.5	49°57.2	22°07.5	51°31.8	78°45.0
6	60°48.9	10.1'	N 11°02.5	16.3'	60.0'		91°46.2	88°01.5	62°02.1	49°21.7	22°43.8	52°04.9	79°15.4
7	75°18.0	10.0'	11°18.8	16.3'	60.0'		91°09.7	87° 25.5	61°27.8	48°46.3	23°20.1	52°37.9	79°45.8
8	89°47.0	10.0'	11°35.1	16.2'	60.0'		90°33.2	86°49.4	60°53.4	48°10.8	23°56.4	53°11.1	80°16.3
9	104°16.0	9.9'	11°51.3	16.1'	60.0'		89°56.6	86°13.4	60°19.1	47°35.4	24°32.8	53°44.2	80°46.8
10	118°44.9	9.8'	$12^{\circ}07.5$	16.1'	60.0'		89°20.1	85°37.3	59°44.9	47°00.0	25°09.2	54°17.5	81°17.3
11	133°13.8	9.8'	12°23.5	16.0'	60.0'		88°43.5	85°01.3	59°10.6	46°24.7	25°45.6	54°50.8	81°47.8
12	147°42.6	9.7'	N 12°39.5	15.9'	60.0'		88°07.0	84°25.2	58° 36.4	45°49.3	26°22.0	55°24.1	82°18.3
13	162°11.3	9.6'	12°55.5	15.9'	60.0'		87°30.4	83°49.2	58°02.2	45°14.0	26°58.4	55°57.4	82°48.9
14	176°39.9	9.6'	13°11.3	15.8'	60.0'		86° 53.9	83° 13.1	57°28.0	44°38.7	27°34.8	56°30.8	83°19.4
15	191°08.5	9.5'	13°27.1	15.7'	60.0'		86° 17.4	82°37.1	56°53.9	44°03.5	28°11.3	57°04.3	83°50.0
16	205°37.0	9.4'	13°42.8	15.6'	60.0'		85°40.8	82°01.1	56° 19.8	43°28.3	28°47.7	57°37.8	84°20.6
17	220°05.4	9.4'	13°58.5	15.5'	60.0'		85°04.3	81°25.0	55° 45.8	42°53.1	29°24.1	58°11.3	84°51.1
18	234°33.8	9.3'	N 14°14.0	15.5'	60.0'		84°27.8	80°49.0	55° 11.8	42°17.9	30°00.6	58°44.8	85°21.7
19	249°02.0	9.2'	14°29.5	15.4'	60.0'		83°51.3	80°13.0	54° 37.8	41°42.8	30°37.1	59°18.4	85°52.3
20	263°30.3	9.1'	14°44.9	15.3'	60.0'		83° 14.8	79°37.0	54°03.9	41°07.7	31°13.5	59°52.0	86°22.9
21	277°58.4	9.1'	15°00.2	15.2'	60.0'	119°30.6	82°38.3	79°01.0	53°30.0	40°32.7	31°50.0	60°25.7	86°53.5
22	292°26.4	9.0'	15°15.4	15.1'	60.0'	118°54.1	82°01.8	78°25.0	52°56.2	39°57.7	32°26.5	60°59.4	87°24.1
23	306°54.4	8.9'	15°30.5	15.0'	60.0'	118°17.6	81°25.3	77°49.0	52°22.4	39°22.8	33°03.0	61°33.0	87°54.7
10 th	SD	$= 16.4^{\prime}$	Mer. pass	. 01:48									

Moon (11th Sep) h Lunar Distance (objects with largest hourly LD delta)

				<u> </u>									
Thu	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Jupiter	-Aldebaran	+Saturn	+Fomalhaut	+Achernar	+Altair
0	321°22.3	8.8'	N 15°45.5	14.9'	60.0'	117°41.1	80°48.8	77° 13.0	38°47.9	33°39.4	62°06.8	72°56.7	88°25.3
1	335°50.2	8.7'	16°00.4	14.8'	60.0'	117°04.6	80°12.3	76°37.0	38°13.0	34°15.9	62°40.5	73°13.1	88°55.9
2	350°17.9	8.7'	16°15.3	14.7'	60.0'	116°28.1	79°35.9	76°01.0	37°38.2	34°52.4	63°14.3	73°29.6	89°26.5
3	4°45.6	8.6'	16°30.0	14.6'	60.0'	115°51.6	78°59.4	75°25.1	37°03.5	35°28.9	63°48.1	73°46.2	89°57.1
4	19°13.2	8.5'	16°44.6	14.5'	60.0'	115°15.1	78°22.9	74°49.1	36°28.8	36°05.3	64°21.9	74°02.8	90°27.7
5	33°40.7	8.4'	$16^{\circ}59.2$	14.4'	60.0'	114°38.7	77°46.5	74° 13.2	35°54.2	36°41.8	64°55.7	74°19.6	90°58.3
6	48°08.1	8.3'	$N17^{\circ}13.6$	14.3'	60.0'	114°02.2	$77^{\circ}10.1$	73°37.2	35°19.6	37°18.3	65°29.5	74°36.4	91°28.8
7	62°35.4	8.3'	17°27.9	14.2'	60.0'	113°25.8	76°33.6	73°01.3	34°45.1	37°54.7	66°03.4	74°53.3	91°59.4
8	77°02.7	8.2'	17°42.2	14.1'	60.0'	112°49.3	75°57.2	72°25.4	34°10.7	38°31.2	66°37.3	75°10.3	92°29.9
9	91°29.9	8.1'	17°56.3	14.0'	60.0'	112°12.9	75°20.8	71°49.5	33°36.3	39°07.6	$67^{\circ}11.1$	75°27.4	93°00.5
10	105°57.0	8.0'	18°10.3	13.9'	60.0'	111°36.5	74°44.4	71°13.6	33°02.1	39°44.1	67°45.0	75°44.5	93°31.0
11	120°24.0	7.9'	18°24.2	13.8'	60.0'	111°00.1	74°08.1	70°37.7	32°27.9	40°20.5	68°18.9	76°01.7	94°01.5
12	134°50.9	7.8'	N 18°37.9	13.7'	59.9'	110°23.7	73°31.7	70°01.9	31°53.7	40°56.9	68°52.9	76°19.0	94°31.9
13	149°17.8	7.8'	18°51.6	13.5'	59.9'	109°47.3	72°55.3	69°26.0	31°19.7	41°33.4	69°26.8	76°36.3	95°02.4
14	163°44.5	7.7'	19°05.1	13.4'	59.9'	109°11.0	$72^{\circ}19.0$	68° 50.2	30°45.8	42°09.8	70°00.7	76°53.7	95°32.8
15	178°11.2	7.6'	19° 18.5	13.3'	59.9'	108°34.6	71°42.7	68° 14.3	30°11.9	42°46.2	70°34.6	77°11.2	96°03.2
16	192°37.8	7.5'	19°31.8	13.2'	59.9'	107°58.3	71°06.4	67°38.5	29°38.2	43°22.6	71°08.6	77°28.7	96°33.6
17	207°04.3	7.4'	19°45.0	13.1'	59.9'	107°21.9	70°30.1	67°02.7	29°04.6	43°58.9	71°42.5	77°46.3	97°04.0
18	221°30.8	7.3'	N 19°58.1	12.9'	59.9'	106°45.6	69°53.8	66°26.9	28°31.0	44°35.3	72°16.5	78°03.9	97°34.3
19	235°57.1	7.3'	20°11.0	12.8'	59.9'	106°09.3	69° 17.5	65°51.2	27°57.6	45°11.7	72°50.4	78°21.6	98°04.6
20	250°23.3	7.2'	20°23.8	12.7'	59.9'	105°33.0	68°41.2	65° 15.4	27°24.4	45°48.0	73°24.4	78°39.4	98°34.9
21	264°49.5	7.1'	20°36.5	12.5'	59.9'	104°56.8	68°05.0	64°39.7	26°51.2	46°24.4	73°58.3	78°57.2	99°05.2
22	279°15.6	7.0'	20°49.0	12.4'	59.9'	104°20.5	67°28.8	64°03.9	26°18.2	47°00.7	74°32.3	79°15.0	99°35.4
23	293°41.6	6.9'	21°01.4	12.3'	59.8'	103°44.3	66°52.6	63°28.2	25°45.4	47°37.0	75°06.2	79°32.9	100°05.6
11 th	SD	= 16.4	′ Mer. pas	s. 02:40									

h	Moon (12 th Sep)	Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Jupiter	+Saturn	+Fomalhaut	+Achernar	+Altair
0	308°07.5	6.8'	N21°13.7	12.1'	59.8'	103°08.1	71°23.9	66°16.4	62°52.5	48°13.3	75°40.2	79°50.9	100°35.8
1	322°33.3	6.7'	21°25.8	12.0'	59.8'	102°31.8	70°50.1	65°40.2	62°16.9	48°49.6	76° 14.1	80°08.9	101°05.9
2	336°59.1	6.7'	21°37.8	11.9'	59.8'	101°55.6	70°16.4	65°04.0	61°41.2	49°25.9	76°48.1	80°26.9	101°36.0
3	351°24.7	6.6'	21°49.6	11.7'	59.8'	101°19.5	69°42.8	64°27.9	61°05.6	50°02.1	77° 22.0	80°45.0	102°06.0
4	5°50.3	6.5'	22°01.3	11.6'	59.8'	100°43.3	69°09.1	63°51.7	60°30.0	50°38.4	77°56.0	81°03.1	102°36.0
5	20°15.8	6.4'	$22^{\circ}12.9$	11.4'	59.8'	100°07.2	68°35.6	63°15.6	59°54.4	51°14.6	78° 29.9	81°21.2	103°06.0
6	34°41.2	6.3'	N22°24.3	11.3'	59.8'	99°31.0	68°02.0	62°39.5	59° 18.8	51°50.8	79°03.8	81°39.4	103°35.9
7	49°06.5	6.2'	22°35.6	11.1'	59.7'	98°54.9	67°28.5	62°03.4	58°43.2	52°27.0	79° 37.7	81°57.6	104°05.8
8	63°31.8	6.2'	22°46.7	11.0'	59.7'	98°18.8	66°55.0	61°27.4	58°07.7	53°03.2	80°11.6	82°15.9	104°35.6
9	77°56.9	6.1'	22°57.7	10.8'	59.7'	97°42.8	66°21.6	60°51.3	57°32.1	53°39.4	80°45.5	82°34.1	105°05.4
10	92°22.0	6.0'	23°08.5	10.7'	59.7'	97°06.7	65°48.2	60°15.3	56° 56.6	54° 15.5	81° 19.4	82°52.4	105°35.2
11	106°47.0	5.9'	23°19.2	10.5'	59.7'	96°30.7	65°14.8	59°39.3	56°21.1	54°51.6	81°53.3	83°10.8	106°04.9
12	121°11.9	5.8'	N23°29.7	10.4'	59.7'	95°54.6	64°41.5	59°03.3	55° 45.7	55°27.8	82°27.1	83°29.1	106°34.5
13	135°36.8	5.8'	23°40.1	10.2'	59.7'	95°18.6	64°08.2	58°27.4	55° 10.2	56°03.9	83°01.0	83°47.5	107°04.1
14	150°01.5	5.7'	23°50.3	10.0'	59.7'	94°42.7	63°35.0	57°51.4	54°34.8	56°39.9	83°34.8	84°05.9	107°33.7
15	164°26.2	5.6'	24°00.3	9.9'	59.6'	94°06.7	63°01.8	57°15.5	53°59.4	$57^{\circ}16.0$	84°08.6	84°24.3	108°03.1
16	178°50.8	5.5'	24°10.2	9.7'	59.6'	93°30.8	62°28.7	56°39.6	53°24.0	57°52.1	84° 42.5	84°42.7	108°32.6
17	193°15.3	5.5'	24°19.9	9.6'	59.6'	92°54.8	61°55.6	56°03.7	52°48.7	58°28.1	85°16.3	85°01.2	109°01.9
18	207°39.8	5.4'	N 24°29.5	9.4'	59.6'	92°18.9	61°22.5	55°27.8	52°13.3	59°04.1	85°50.0	85°19.6	109°31.3
19	222°04.1	5.3'	24°38.9	9.2'	59.6'	91°43.0	60°49.5	54°52.0	51°38.0	59°40.1	86° 23.8	85°38.1	110°00.5
20	236°28.5	5.2'	24°48.1	9.1'	59.6'	91°07.2	60°16.6	54°16.2	51°02.7	$60^{\circ}16.1$	86° 57.6	85°56.6	110°29.7
21	250°52.7	5.2'	24°57.2	8.9'	59.5'	90°31.3	59°43.7	53°40.4	50°27.5	60°52.0	87°31.3	86°15.1	110°58.8
22	265°16.8	5.1'	$25^{\circ}06.1$	8.7'	59.5'	89°55.5	59°10.9	53°04.6	49°52.2	61°27.9	88°05.0	86°33.6	111°27.9
23	279°40.9	5.0'	25°14.8	8.6'	59.5'	89°19.7	58°38.1	52°28.8	49°17.0	62°03.8	88° 38.7	86°52.1	111°56.9
12 th	SD :	= 16.3	Mer. pas	s. 03:36									

h Moon (13th Sep)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP								+Altair
0	294°05.0	5.0'	N25°23.4	8.4'	59.5'	108°58.8	88°43.9	51°53.1	48°41.8	62°39.7	87° 10.6	89°12.4	112°25.8
1	308°28.9	4.9'	25°31.8	8.2'	59.5'	108°25.4	88°08.2	51°17.4	48°06.6	63°15.6	87°29.1	89°46.0	112°54.6
2	322°52.8	4.8'	25°40.0	8.0'	59.5'	107°52.1	87°32.4	50°41.7	47°31.5	63°51.5	87°47.6	90° 19.7	113°23.4
3	337°16.6	4.8'	25°48.0	7.9'	59.4'	107°18.8	86°56.7	50°06.0	46°56.4	64°27.3	88°06.1	90°53.3	113°52.1
4	351°40.4	4.7'	25°55.9	7.7'	59.4'	106°45.5	86°21.0	49°30.3	46°21.3	65°03.1	88°24.6	91°26.9	114°20.8
5	6°04.1	4.6'	26°03.6	7.5'	59.4'	106°12.3	85°45.4	48°54.7	45°46.2	65°38.9	88°43.1	92°00.5	114°49.3
6	20°27.7	4.6'	$N26^{\circ}11.1$	7.3'	59.4'	105°39.0	85°09.7	48°19.1	45°11.1	66°14.7	89°01.6	92°34.0	115°17.8
7	34°51.3	4.5'	26°18.4	7.2'	59.4'	105°05.8	84°34.1	47°43.5	44°36.1	66°50.4	89°20.1	93°07.6	115°46.2
8	49°14.8	4.5'	26°25.6	7.0'	59.4'	104°32.6	83°58.5	47°08.0	44°01.1	67°26.1	89°38.6	93°41.1	116°14.5
9	63°38.3	4.4'	26°32.5	6.8'	59.3'	103°59.5	83°22.9	46°32.4	43°26.2	68°01.8	89°57.1	94° 14.5	116°42.7
10	78°01.7	4.4'	26°39.3	6.6'	59.3'	103°26.3	82°47.3	45°56.9	42°51.2	68°37.5	90° 15.5	94°48.0	117°10.8
11	92°25.1	4.3'	26°45.9	6.4'	59.3'	102°53.2	82°11.8	45°21.4	42°16.3	69°13.2	90°34.0	95°21.4	117°38.9
12	106°48.4	4.3'	N26°52.4	6.2'	59.3'	102°20.1	81°36.3	44°46.0	41°41.4	69°48.8	90°52.4	95°54.8	118°06.9
13	121°11.7	4.2'	$26^{\circ}58.6$	6.1'	59.3'	101°47.0	81°00.8	44°10.5	41°06.6	70°24.4	91°10.8	96°28.2	118°34.7
14	135°34.9	4.2'	27°04.7	5.9'	59.3'	101°14.0	80°25.3	43°35.1	40°31.7	71°00.0	91°29.2	97°01.6	119°02.5
15	149°58.1	4.1'	27°10.5	5.7'	59.2'	100°40.9	79°49.9	42°59.7	39°56.9	71°35.6	91°47.6	97°34.9	119°30.2
16	164°21.2	4.1'	27°16.2	5.5'	59.2'	100°07.9	79°14.4	42°24.4	39°22.2	72°11.2	92°06.0	98°08.2	119°57.7
17	178°44.3	4.1'	$27^{\circ}21.7$	5.3'	59.2'	99°35.0	78°39.0	41°49.0	38°47.4	72°46.7	92°24.3	98°41.5	
18	193°07.4	4.0'	N27°27.0	5.1'	59.2'	99°02.0	78°03.7	41°13.7	38°12.7	73°22.2	92°42.6	99° 14.7	
19	207°30.4	4.0'	$27^{\circ}32.1$	4.9'	59.2'	98°29.1	77°28.3	40°38.4	37°38.0	73°57.7	93°00.9	99°48.0	
20	221°53.4	4.0'	$27^{\circ}37.1$	4.7'	59.1'	97°56.1	76°53.0	40°03.2	37°03.4	74°33.1	93° 19.2	100°21.1	
21	236°16.3	3.9'	27°41.8	4.6'	59.1'	97°23.3	76°17.7	39°27.9	36°28.8	75°08.6	93°37.4	100°54.3	
22	250°39.2	3.9'	27°46.4	4.4'	59.1'	96°50.4	75°42.4	38°52.7	35°54.2	75°44.0	93°55.6	101°27.4	
23	265°02.1	3.9'	27°50.7	4.2'	59.1'	96°17.5	75°07.1	38°17.5	35°19.6	76°19.4	94°13.8	102°00.5	
13 th	SD =	= 16.2'	Mer. pass	. 04:35	5				Sun	SD = 15.9'			

Moon (14th Sep)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Pollux	-Jupiter	+Aldebaran	+Saturn	+Achernar	+Fomalhaut
0	279°25.0	3.9'	N27°54.9	4.0'	59.1'	95°44.7	74°31.9	37°42.4	34°45.1		76°54.7	94°32.0	102°33.6
1	293°47.9	3.8'	27°58.9	3.8'	59.0'	95°11.9	73°56.7	37°07.2	34°10.6		77°30.1	94°50.1	102 33.0 103°06.6
2	308°10.7	3.8'	28°02.6	3.6'	59.0'	94°39.2	73°21.5	36°32.1	33°36.2		78° 05.4	95°08.2	103°39.6
3	322°33.5	3.8'	28°06.2	3.4'	59.0'	94°06.4	72°46.4	35°57.0	33°01.7		78°40.7	95°26.2	104°12.6
4	336°56.3	3.8'	28°09.6	3.2'	59.0'	93°33.7	72° 11.2	35°22.0	32°27.4		79° 15.9	95°44.2	104°45.5
5	351°19.1	3.8'	28°12.8	3.0'	59.0'	93°01.0	71°36.1	34°46.9	31°53.0		79°51.2	96°02.2	105° 18.4
6	5°41.9	3.8'	N28°15.9	2.8'	58.9'	92°28.3	71°01.0	34°11.9	31°18.7	14°02.7	80°26.4	96°20.1	105°51.3
7	20°04.6	3.8'	28°18.7	2.6'	58.9'	91°55.7	70°25.9	33°37.0	30°44.4	14°25.7	$81^{\circ}01.6$	96°38.0	106°24.1
8	34°27.4	3.8'	28°21.3	2.4'	58.9'	91°23.1	69°50.9	33°02.0	30°10.2	14°49.4	81°36.8	96°55.8	106°56.9
9	48°50.1	3.8'	28°23.7	2.2'	58.9'	90°50.5	69°15.9	32°27.1	29°36.0	15°13.9	82°11.9	97° 13.6	107°29.7
10	63°12.9	3.8'	28°26.0	2.0'	58.9'	90°17.9	68°40.9	31°52.2	29°01.8	15°39.0	82°47.1	97°31.4	108°02.4
11	77°35.6	3.8'	28°28.0	1.9'	58.8'	89°45.3	68°05.9	31°17.3	28°27.7	16°04.7	83°22.2	97°49.1	108°35.1
12	91°58.4	3.8'	N28°29.9	1.7'	58.8'	89°12.8	67°31.0	30°42.5	27°53.6	16°30.9	83°57.2	98°06.7	109°07.7
13	106°21.2	3.8'	28°31.6	1.5'	58.8'	88°40.3	66°56.1	30°07.7	27°19.6	16°57.6	84°32.3	98°24.3	109°40.3
14	120°43.9	3.8'	28°33.0	1.3'	58.8'	88°07.8	66°21.2	29°32.9	26°45.6	17°24.8	85°07.3	98°41.9	110°12.9
15	135°06.7	3.8'	28°34.3	1.1'	58.8'	87°35.4	65°46.3	28°58.1	26°11.6	17°52.3	85°42.3	98° 59.4	110°45.4
16	149°29.5	3.8'	28°35.4	0.9'	58.7'	87°02.9	65°11.5	28°23.4	25°37.7	18°20.3	86° 17.3	99° 16.8	111°17.9
17	163°52.3	3.8'	28°36.3	0.7'	58.7'	86°30.5	64°36.6	27°48.7	25°03.8	18°48.6	86°52.3	99°34.2	111°50.3
18	178°15.1	3.8'	N 28°37.0	0.5'	58.7'	85°58.2	64°01.8	27°14.0	24°30.0	19°17.2	87°27.2	99°51.5	112°22.7
19	192°38.0	3.9'	28°37.5	0.3'	58.7'	85°25.8	63°27.1	26°39.4	23°56.3	19°46.1	88°02.1	100°08.8	112°55.1
20	207°00.9	3.9'	28°37.8	0.1'	58.7'	84°53.5	62°52.3	26°04.8	23°22.6	20°15.3	88° 37.0	100°26.0	113°27.4
21	221°23.7	3.9'	28°37.9	-0.1'	58.6'	84°21.2	62°17.6	25°30.2	22°48.9	20°44.8	89°11.8	100°43.2	113°59.7
22	235°46.7	4.0'	28°37.8	-0.3	58.6'	83°48.9	61°42.9	24°55.7	22°15.3	21°14.5	89°46.7	101°00.3	114°31.9
23	250°09.6	4.0'	28°37.6	-0.5	58.6'	83°16.6	61°08.2	24°21.2	21°41.8	21°44.4	90°21.5	101°17.3	115°04.1
14 th	SD:	= 16.1	Mer. pas	s. 05:36	i				Sı	$In\;SD=15.9'$			

h Moon (15th Sen)

Mon	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Pollux	-Jupiter	+Capella	+Aldebaran	+Saturn	+Fomalhaut
0	264°32.6	4.0'	N 28°37.1	-0.6'	58.6'	82°44.4	60°33.6	23°46.7	21°08.3		22°14.5	90°56.3	115°36.2
1	278°55.6	4.1'	28°36.5	-0.8'	58.5'	82°12.2	59°59.0	23°12.3	20°34.9		22°44.8	91°31.0	116°08.3
2	293°18.7	4.1'	28°35.6	-1.0'	58.5'	81°40.0	59°24.4	22°37.8	20°01.6		23°15.2	92°05.8	116°40.4
3	307°41.8	4.1'	28°34.6	-1.2'	58.5'	81°07.9	58°49.8	22°03.5	19°28.3	19°49.8	23°45.8	92°40.5	117°12.4
4	322°04.9	4.2'	28°33.4	-1.4'	58.5'	80°35.7	58°15.3	21°29.1	18°55.1	20°05.9	24°16.6	93°15.2	117°44.3
5	$336^{\circ}28.1$	4.2'	28°32.0	-1.6'	58.5'	80°03.6	57°40.7	20°54.8	18°22.0	20°22.7	24°47.5	93°49.8	118°16.2
6	350°51.3	4.3'	N 28°30.4	-1.8'	58.4'	79°31.6	57°06.2	20°20.5	17°49.0	20°40.2	25°18.5	94°24.5	118°48.1
7	5°14.6	4.3'	28°28.6	-2.0'	58.4'	78°59.5	56°31.8	19°46.3	17°16.1	20°58.3	25°49.6	94°59.1	119°19.9
8	19°38.0	4.4'	28°26.7	-2.1'	58.4'	78°27.5	55°57.3	19°12.1	16°43.2	21°17.1	26°20.9	95°33.7	119°51.6
9	$34^{\circ}01.3$	4.4'	28°24.5	-2.3'	58.4'	77°55.5	55°22.9	18°38.0	16°10.5	21°36.5	26°52.2	96°08.2	
10	48°24.8	4.5'	28°22.2	-2.5'	58.4'	77°23.5	54°48.5	18°03.8	15°37.9	21°56.4	27°23.6	96°42.8	
11	62°48.3	4.6'	$28^{\circ}19.7$	-2.7'	58.3'	76°51.5	54°14.1	17°29.8	15°05.4	22°16.9	27°55.2	97°17.3	
12	$77^{\circ}11.8$	4.6'	N 28°17.0	-2.9'	58.3'	76°19.6	53°39.8	16°55.7	14°33.1	22°37.9	28°26.8	97°51.8	
13	91°35.5	4.7'	28°14.1	-3.1'	58.3'	75°47.7	53°05.4	16°21.8	14°00.9	22°59.4	28°58.4	98°26.2	
14	105°59.1	4.7'	28°11.1	-3.2'	58.3'	75°15.8	52°31.1	15°47.8	13°28.8	23°21.4	29°30.2	99°00.7	
15	120°22.9	4.8'	28°07.8	-3.4'	58.2'	74°43.9	51°56.9	15°14.0	12°57.0	23°43.8	30°02.0	99°35.1	
16	134°46.7	4.9'	28°04.4	-3.6'	58.2'	74°12.1	51°22.6	14°40.1	12°25.3	24°06.6	30°33.8	100°09.5	
17	149°10.6	5.0'	28°00.8	-3.8'	58.2'	73°40.3	50°48.4	14°06.4	11°53.9	24°29.9	31°05.8	100°43.8	
18	163°34.5	5.0'	$N27^{\circ}57.1$	-3.9'	58.2'	73°08.5	50°14.2	13°32.7	11°22.7	24°53.5	31°37.7	101°18.2	
19	177°58.6	5.1'	27°53.1	-4.1'	58.2'	72°36.7	49°40.0	12°59.0	10°51.8	25°17.5	32°09.7	101°52.5	
20	192°22.7	5.2'	27°49.0	-4.3'	58.1'	72°05.0	49°05.9	12°25.5	10°21.2	25°41.8	32°41.8	102°26.8	
21	206°46.8	5.3'	27°44.7	-4.5'	58.1'	71°33.3	48°31.7	11°52.0	9°51.0	26°06.5	33°13.9	103°01.0	
22	$221^{\circ}11.1$	5.3'	27°40.3	-4.6'	58.1'	71°01.6	47°57.6	11°18.6	9°21.2	26°31.4	33°46.0	103°35.3	
23	235°35.4	5.4'	27°35.6	-4.8'	58.1'	70°29.9	47°23.5	10°45.3	8°51.8	26°56.7	34°18.2	104°09.5	
15 th	SD :	= 16.0	Mer. pass	s. 06:38					Su	n SD = 15.9	,		

h Moon (16th Sep)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP									
0	249°59.9	5.5'	N 27°30.8	-5.0'	58.0'	69°58.3	46°49.5	42°19.8	10°12.1	25°12.4	27°22.2	34°50.4	104°43.7	
1	264°24.4	5.6'	27°25.9	-5.1'	58.0'	69°26.7	46° 15.5	41°48.8	9°39.1	25°30.6	27°48.0	35°22.6	105°17.9	
2	278°49.0	5.7'	27°20.7	-5.3'	58.0'	68°55.1	45°41.5	41°17.8	9°06.2	25°49.3	28°14.0	35°54.8	105°52.0	
3	293°13.6	5.8'	27°15.4	-5.5'	58.0'	68°23.5	45°07.5	40°46.9	8°33.4	26°08.5	28°40.3	36°27.1	106°26.1	
4	307°38.4	5.9'	27°09.9	-5.6'	58.0'	67°52.0	44°33.5	40°15.9	8°00.9	26°28.1	29°06.8	36°59.4	107°00.2	
5	322°03.2	5.9'	27°04.3	-5.8'	57.9'	67°20.5	43°59.6	39°45.0	7°28.6	26°48.1	29°33.5	37°31.7	107°34.3	
6	336°28.2	6.0'	$N26^{\circ}58.5$	-6.0'	57.9'	66°49.0	43°25.7	39°14.1	6°56.5	27°08.6	30°00.5	38°04.0	108°08.4	
7	350°53.2	6.1'	$26^{\circ}52.6$	-6.1'	57.9'	66°17.5	42°51.8	38°43.3	6°24.8	27°29.5	30°27.6	38°36.4	108°42.4	
8	5°18.4	6.2'	26°46.4	-6.3'	57.9'	65°46.1	42° 17.9	38°12.4	5°53.6	27°50.7	30°54.9	39°08.8	109°16.4	
9	19°43.6	6.3'	26°40.2	-6.4'	57.8'	65°14.6	41°44.1	37°41.6	5°22.8	28°12.3	31°22.4	39°41.1	109°50.4	
10	34°08.9	6.4'	26°33.7	-6.6'	57.8'	64°43.2	41°10.3	37°10.8	4°52.8	28°34.2	31°50.0	40°13.5	110°24.3	
11	48°34.3	6.5'	26°27.2	-6.7'	57.8'	64°11.9	40°36.5	36°40.0	4°23.8	28°56.5	32°17.8	40°45.9	110°58.2	
12	62°59.8	6.6'	N 26°20.4	-6.9'	57.8'	63°40.5	40°02.7	36°09.3		29°19.1	32°45.7	41°18.3	111°32.1	
13	77°25.4	6.7'	$26^{\circ}13.5$	-7.0'	57.8'	63°09.2	39°29.0	35°38.6		29°42.0	33°13.8	41°50.7	112°06.0	
14	91°51.1	6.8'	$26^{\circ}06.5$	-7.2'	57.7'	62°37.9	38° 55.3	35°07.9		30°05.2	33°42.0	42°23.1	112°39.9	
15	106°16.9	6.9'	25°59.3	-7.3'	57.7'	62°06.6	38°21.6	34°37.2		30°28.7	34°10.4	42°55.6	113°13.7	
16	120°42.8	7.0'	25°51.9	-7.5'	57.7'	61°35.3	37°47.9	34°06.6		30°52.5	34°38.8	43°28.0	113°47.5	
17	135°08.9	7.1'	25°44.4	-7.6'	57.7'	61°04.1	37° 14.3	33°35.9		31°16.5	35°07.4	44°00.4	114°21.3	
18	149°35.0	7.2'	N 25°36.8	-7.8'	57.7'	60°32.9	36°40.7	33°05.3		31°40.7	35°36.1	44°32.8	114°55.0	
19	164°01.2	7.3'	25°29.0	-7.9'	57.6'	60°01.7	36°07.1	32°34.7		32°05.2	36°04.9	45°05.3	115°28.8	
20	178°27.5	7.4'	$25^{\circ}21.1$	-8.1'	57.6'	59°30.6	35°33.5	32°04.2		32°29.9	36°33.8	45°37.7	116°02.5	
21	192°53.9	7.5'	25°13.0	-8.2'	57.6'	58°59.4	34°59.9	31°33.7		32°54.9	37°02.8	46°10.1	116°36.2	
22	207°20.5	7.6'	25°04.8	-8.3'	57.6'	58°28.3	34°26.4	31°03.1		33°20.0	37°31.8	46°42.6	117°09.8	
23	221°47.1	7.7'	24°56.5	-8.5'	57.5'	57°57.2	33°52.9	30°32.7		33°45.4	38°01.0	47°15.0	117°43.5	
16 th	SD :	= 15.8'	Mer. pas	s. 07:38					Su	n SD $= 15.9'$				

h Moon (17th Sep)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Venus	+Pollux	+Jupiter	+Capella	+Aldebaran	+Saturn
0	236°13.8	7.8'	N 24°48.0	-8.6'	57.5'	57°26.2	33°19.4	30°02.2		7°41.4	38°30.2	47° 47.4	118°17.1
1	250°40.7	8.0'	24°39.4	-8.7'	57.5'	56°55.1	32°46.0	29°31.8		8°08.7	38° 59.5	48° 19.8	118°50.7
2	265°07.6	8.1'	24°30.7	-8.9'	57.5'	56°24.1	32°12.6	29°01.3	5°15.3	8°36.6	39°28.9	48° 52.2	119°24.2
3	279°34.7	8.2'	24°21.8	-9.0'	57.5'	55°53.1	31°39.2	28°31.0	5°45.5	9°05.1	39°58.4	49°24.6	119°57.8
4	294°01.9	8.3'	24°12.8	-9.1'	57.4'	55°22.1	31°05.8	28°00.6	6°16.2	9°34.0	40°27.9	49°57.0	
5	308°29.2	8.4'	24°03.6	-9.3'	57.4'	54°51.2	30°32.4	27°30.2	6°47.3	10°03.3	40°57.5	50°29.4	
6	322°56.5	8.5'	N 23°54.4	-9.4'	57.4'	54°20.2	29°59.1	26°59.9	7°18.7	10°33.0	41°27.1	51°01.8	
7	337°24.0	8.6'	23°45.0	-9.5'	57.4'	53°49.3	29°25.8	26°29.6	7°50.4	11°03.0	41°56.8	51°34.2	
8	351°51.7	8.7'	23°35.5	-9.6'	57.3'	53°18.5	28°52.5	25°59.4	8°22.2	11°33.2	42°26.6	52°06.6	
9	6°19.4	8.8'	23°25.8	-9.8'	57.3'	52°47.6	28°19.2	25°29.1	8°54.2	12°03.6	42°56.4	52°38.9	
10	20°47.2	8.9'	$23^{\circ}16.1$	-9.9'	57.3'	52°16.8	27°46.0	24°58.9	9°26.4	12°34.2	43°26.2	53°11.3	
11	35°15.1	9.0'	23°06.2	-10.0'	57.3'	51°46.0	27°12.8	24°28.7	9°58.6	13°05.0	43°56.1	53°43.6	
12	49°43.2	9.1'	$N22^{\circ}56.2$	-10.1'	57.3'	51°15.2	26°39.6	23°58.5	10°30.9	13°35.9	44°26.0	54° 16.0	
13	64°11.3	9.3'	22°46.1	-10.2'	57.2'	50°44.4	26°06.4	23°28.3	11°03.3	14°06.9	44°56.0	54°48.3	
14	78°39.6	9.4'	22°35.9	-10.3'	57.2'	50°13.7	25°33.3	22°58.2	11°35.8	14°38.0	45°26.0	55°20.6	
15	93°07.9	9.5'	22°25.5	-10.5'	57.2'	49°42.9	25°00.2	22°28.1	12°08.2	15°09.3	45°56.1	55°52.9	
16	107°36.4	9.6'	22°15.1	-10.6'	57.2'	49°12.2	24°27.1	21°58.0	12°40.8	15°40.6	46°26.2	56°25.2	
17	122°05.0	9.7'	22°04.5	-10.7'	57.1'	48°41.6	23°54.0	21°27.9	13°13.3	16°12.0	46°56.3	56° 57.5	
18	136°33.7	9.8'	N21°53.8	-10.8'	57.1'	48°10.9	23°21.0	20°57.9	13°45.9	16°43.4	47°26.4	57° 29.8	
19	151°02.5	9.9'	21°43.1	-10.9'	57.1'	47°40.3	22°48.0	20°27.9	14°18.4	17°14.9	47°56.6	58° 02.0	
20	165°31.4	10.0'	21°32.2	-11.0'	57.1'	47°09.7	22°15.0	19°57.9	14°51.0	17°46.4	48°26.8	58° 34.3	
21	180°00.4	10.1'	21°21.2	-11.1'	57.1'	46°39.1	21°42.0	19°27.9	15°23.6	18°18.0	48°57.1	59°06.5	
22	194°29.5	10.2'	$21^{\circ}10.1$	-11.2'	57.0'	46°08.5	21°09.1	18°58.0	15°56.3	18°49.6	49°27.3	59° 38.7	
23	208°58.7	10.3'	20°58.9	-11.3'	57.0'	45°38.0	20°36.1	18°28.1	16°28.9	19°21.3	49°57.6	60°10.9	
17 th	SD	= 15.7	Mer. pas	s. 08:34					Sun	SD = 15.9'			

h Moon (18th Sen)

Thu	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Venus	+Pollux	+Jupiter	+Betelgeuse	+Capella	+Aldebaran
0	223°28.0	10.4'	N 20°47.6	-11.4'	57.0'	45°07.5	20°03.2	17°58.2	17°01.5	19°53.0	45°03.7	50°27.9	60°43.1
1	237°57.5	10.5'	20°36.2	-11.5'	57.0'	44°37.0	19°30.4	17°28.3	17°34.1	20°24.7	45°32.0	50°58.2	61°15.3
2	252°27.0	10.6'	20°24.7	-11.6'	57.0'	44°06.5	18°57.5	16°58.4	18°06.7	20°56.4	46°00.4	51°28.5	61°47.5
3	266°56.7	10.7'	20°13.2	-11.7'	56.9'	43°36.1	18°24.7	16°28.6	18°39.3	21°28.2	46°28.9	51°58.9	62°19.6
4	281°26.4	10.9'	$20^{\circ}01.5$	-11.8'	56.9'	43°05.6	17°51.9	15°58.8	19°11.9	21°59.9	46°57.4	52°29.2	62°51.8
5	295°56.3	11.0'	19°49.7	-11.9'	56.9'	42°35.2	17°19.2	15°29.0	19°44.5	22°31.7	47°26.0	52°59.6	63°23.9
6	310°26.2	11.1'	N 19°37.9	-11.9'	56.9'	42°04.9	16°46.4	14°59.3	20°17.1	23°03.5	47°54.6	53°30.0	63°56.0
7	324°56.3	11.2'	19°25.9	-12.0'	56.8'	41°34.5	16°13.7	14°29.5	20°49.6	23°35.3	48°23.3	54°00.4	64°28.1
8	339°26.4	11.3'	19°13.9	-12.1'	56.8'	41°04.2	15°41.0	13°59.8	21°22.2	24°07.0	48°52.0	54°30.8	65°00.2
9	353°56.7	11.4'	19°01.8	-12.2'	56.8'	40°33.9	15°08.4	13°30.2	21°54.7	24°38.8	49°20.7	55°01.3	65°32.2
10	8°27.0	11.5'	18°49.6	-12.3'	56.8'	40°03.6	14°35.8	13°00.5	22°27.3	25°10.6	49°49.5	55°31.7	66°04.3
11	22°57.5	11.6'	18°37.3	-12.4'	56.8'		14°03.2	12°30.9	22°59.8	25°42.4	50°18.4	56°02.1	66°36.3
12	37°28.1	11.7'	N 18°24.9	-12.4'	56.7'		13°30.6	12°01.3	23°32.3	26°14.2	50°47.2	56°32.6	67°08.3
13	51°58.7	11.8'	18°12.5	-12.5'	56.7'		12°58.1	11°31.7	24°04.8	26°46.0	51°16.2	57°03.1	67°40.3
14	66°29.5	11.8'	18°00.0	-12.6'	56.7'		12°25.6	11°02.2	24°37.3	27°17.8	51°45.1	57°33.5	68°12.3
15	81°00.3	11.9'	17°47.4	-12.7'	56.7'		11°53.1	10°32.6	25°09.7	27°49.6	52°14.1	58°04.0	68°44.3
16	95°31.2	12.0'	17°34.7	-12.8'	56.7'		11°20.7	10°03.1	25°42.2	28°21.4	52°43.1	58°34.5	69°16.2
17	110°02.3	12.1'	$17^{\circ}21.9$	-12.8'	56.6'		10°48.3	9°33.7	26°14.6	28°53.1	53°12.1	59°04.9	69°48.1
18	124°33.4	12.2'	$N17^{\circ}09.1$	-12.9'	56.6'		10°15.9	9°04.2	26°47.0	29°24.9	53°41.2	59°35.4	70°20.1
19	139°04.6	12.3'	16°56.2	-13.0'	56.6'		9°43.6	8°34.8	27°19.4	29°56.7	54°10.3	60°05.9	70°52.0
20	153°36.0	12.4'	16°43.2	-13.0'	56.6'		9°11.4	8°05.5	27°51.8	30°28.4	54°39.4	60°36.4	71°23.8
21	168°07.4	12.5'	16°30.2	-13.1'	56.5'		8°39.2	7°36.1	28°24.2	31°00.2	55°08.6	61°06.9	71°55.7
22	182°38.9	12.6'	$16^{\circ}17.1$	-13.2'	56.5'		8°07.0	7°06.8	28°56.5	31°31.9	55°37.7	61°37.3	72°27.5
23	197°10.5	12.7'	16°03.9	-13.2'	56.5'		7°35.0	6°37.6	29°28.8	32°03.6	56°06.9	62°07.8	72°59.4
18 th	SD	= 15.5	Mer. pas	s. 09:25					Su	n SD = 15.9	·		

Moon (19th Sep) Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	±Regulus	±Venus	+Pollux	+Procyon	+Jupiter	+Betelgeuse	+Capella	+Aldebaran
0	211°42.1	12.8'	N 15°50.7	-13.3'	56.5'	7°03.0	6°08.4	30°01.2	32°30.6	32°35.3	56° 36.1	62°38.3	73°31.2
1	226°13.9	12.9'	15°37.4	-13.4'	56.5'	6°31.1	5°39.3	30°33.4	32°55.6	33°07.0	57°05.3	63°08.8	74°03.0
2	240°45.8	12.9'	15°24.0	-13.4'	56.4'	5°59.3	5°10.2	31°05.7	33°20.7	33°38.7	57° 34.6	63°39.2	74°34.7
3	255°17.7	13.0'	15°10.6	-13.5'	56.4'	5°27.6	4°41.2	31°38.0	33°46.0	34°10.4	58°03.8	64°09.7	75°06.5
4	269°49.7	13.1'	14°57.1	-13.5'	56.4'	4°56.1	4°12.3	32°10.2	34°11.5	34°42.0	58°33.1	64°40.2	75°38.2
5	284°21.8	13.2'	14°43.6	-13.6'	56.4'	4°24.9	3°43.5	32°42.4	34°37.1	35°13.7	59°02.4	65°10.6	76°10.0
6	298°54.0	13.3'	N 14°30.0	-13.6'	56.4'	3°53.9	3°14.9	33°14.6	35°02.8	35°45.3	59°31.7	65°41.1	76°41.7
7	313°26.3	13.4'	14°16.4	-13.7'	56.3'	3°23.4	2°46.5	33°46.8	35°28.7	36°16.9	60°01.0	66°11.6	77°13.3
8	327°58.6	13.4'	14°02.7	-13.8'	56.3'	2°53.5	2°18.5	34°19.0	35°54.7	36°48.6	60°30.3	66°42.0	77°45.0
9	342°31.1	13.5'	13°48.9	-13.8'	56.3'		1°51.2	34°51.1	36°20.9	37°20.1	60°59.6	67°12.4	78°16.6
10	357°03.6	13.6'	13°35.1	-13.9'	56.3'			35°23.3	36°47.1	37°51.7	61°29.0	67°42.9	78°48.3
11	11°36.2	13.7'	13°21.2	-13.9'	56.3'			35°55.4	37°13.5	38°23.3	61°58.3	68°13.3	79°19.9
12	26°08.9	13.7'	N 13°07.3	-14.0'	56.2'			36°27.4	37°40.0	38°54.8	62°27.7	68°43.7	79°51.5
13	40°41.6	13.8'	12°53.4	-14.0'	56.2'			36°59.5	38°06.6	39°26.4	62°57.0	69°14.1	80°23.0
14	55°14.4	13.9'	12°39.4	-14.0'	56.2'			37°31.6	38°33.3	39°57.9	63°26.4	69°44.5	80°54.6
15	69°47.3	14.0'	12°25.3	-14.1'	56.2'			38°03.6	39°00.1	40°29.4	63°55.8	70°14.9	81°26.1
16	84°20.3	14.0'	$12^{\circ}11.2$	-14.1'	56.1'			38°35.6	39°27.0	41°00.9	64°25.1	70°45.3	81°57.6
17	98°53.3	14.1'	$11^{\circ}57.1$	-14.2'	56.1'			39°07.6	39°54.0	41°32.3	64°54.5	71°15.7	82°29.1
18	113°26.4	14.2'	N11°42.9	-14.2'	56.1'		2°45.4	39°39.6	40°21.0	42°03.8	65°23.9	71°46.1	83°00.6
19	127°59.6	14.2'	11°28.7	-14.3'	56.1'	3°27.4	3°13.5	40°11.5	40°48.2	42°35.2	65°53.3	72°16.4	83°32.0
20	142°32.9	14.3'	$11^{\circ}14.5$	-14.3'	56.1'	3°57.7	3°41.9	40°43.4	41°15.4	43°06.6	66°22.7	72°46.8	84°03.5
21	157°06.2	14.4'	11°00.2	-14.3'	56.0'	4°28.4	4°10.3	41°15.3	41°42.7	43°38.0	66°52.0	73°17.1	84°34.9
22	171°39.5	14.4'	10°45.9	-14.4'	56.0'	4°59.3	4°38.8	41°47.2	42°10.1	44°09.4	67°21.4	73°47.4	85°06.3
23	186°13.0	14.5'	10°31.5	-14.4'	56.0'	5°30.5	5°07.4	42°19.1	42°37.5	44°40.8	67°50.8	74°17.7	85°37.6
19 th	SD	= 15.4'	Mer. pass	s. 10:12			-						

Moon (20th Sep) h Lunar Distance (objects with largest hourly LD delta)

			(77)					. ()		=======================================	,	
Sat	GHA	ν	Dec	d	HP	+Venus	+Regulus	+Pollux	+Procyon	+Jupiter	+Betelgeuse	+Capella	+Aldebaran
0	200°46.5	14.6'	$N10^{\circ}17.1$	-14.4'	56.0'	5°36.0	6°01.7	42°50.9	43°05.0	45° 12.1	68°20.2	74°48.0	86°09.0
1	215°20.1	14.6'	10°02.7	-14.5'	56.0'	6°04.6	6°33.0	43°22.8	43°32.6	45°43.5	68°49.6	75°18.3	86°40.3
2	229°53.7	14.7'	09°48.2	-14.5'	55.9'	6°33.3	7°04.4	43°54.6	44°00.2	46° 14.8	69° 19.0	75°48.6	87°11.6
3	244°27.4	14.8'	09°33.7	-14.5'	55.9'	7°01.9	7° 35.8	44°26.4	44°27.9	46°46.1	69°48.3	76°18.8	87° 42.9
4	259°01.2	14.8'	09°19.2	-14.6'	55.9'	7°30.6	8°07.3	44°58.1	44°55.7	47° 17.4	70° 17.7	76°49.1	88° 14.2
5	273°35.0	14.9'	09°04.6	-14.6'	55.9'	7°59.2	8°38.7	45°29.9	45°23.4	47°48.6	70°47.1	77°19.3	88° 45.5
6	288°08.9	14.9'	N 08°50.1	-14.6'	55.9'	8°27.8	9° 10.2	46°01.6	45°51.3	48° 19.9	71°16.4	77°49.5	89°16.7
7	302°42.8	15.0'	08°35.5	-14.6'	55.8'	8°56.5	9°41.8	46°33.3	46° 19.2	48°51.1	71°45.8	78°19.7	89°47.9
8	317°16.8	15.0'	08°20.8	-14.7'	55.8'	9°25.1	10° 13.3	47°05.0	46°47.1	49°22.3	72° 15.2	78°49.9	90°19.1
9	331°50.8	15.1'	08°06.2	-14.7'	55.8'	9°53.7	10°44.8	47°36.7	47° 15.1	49°53.5	72°44.5	79°20.1	90°50.3
10	346°24.9	15.1'	$07^{\circ}51.5$	-14.7'	55.8'	10°22.3	11° 16.3	48°08.3	47°43.1	50°24.7	73°13.8	79°50.3	91°21.4
11	0°59.1	15.2'	07°36.8	-14.7'	55.8'	10°50.8	11°47.8	48°40.0	48°11.2	50°55.8	73°43.2	80°20.4	91°52.5
12	15°33.3	15.2'	$N07^{\circ}22.1$	-14.7'	55.7'	11°19.4	12° 19.3	49°11.6	48°39.2	51°27.0	74°12.5	80°50.6	92°23.6
13	30°07.5	15.3'	07°07.3	-14.8'	55.7'	11°48.0	12°50.8	49°43.2	49°07.4	51°58.1	74°41.8	81°20.7	92°54.7
14	44°41.8	15.3'	06°52.6	-14.8'	55.7'	12°16.5	13°22.3	50°14.7	49°35.5	52°29.2	75° 11.1	81°50.8	93°25.8
15	59°16.1	15.4'	06°37.8	-14.8'	55.7'	12°45.0	13°53.7	50°46.3	50°03.7	53°00.3	75°40.5	82°20.9	93°56.8
16	73°50.5	15.4'	06°23.0	-14.8'	55.7'	13°13.5	14°25.2	51°17.8	50°32.0	53°31.3	76°09.7	82°50.9	94°27.8
17	88°25.0	15.5'	$06^{\circ}08.2$	-14.8'	55.6'	13°42.0	14°56.7	51°49.3	51°00.2	54°02.4	76°39.0	83°21.0	94°58.8
18	102°59.4	15.5'	N 05°53.4	-14.8'	55.6'	14°10.4	15°28.1	52°20.8	51°28.5	54°33.4	77°08.3	83°51.0	95°29.8
19	117°34.0	15.6'	05°38.6	-14.8'	55.6'	14°38.9	15° 59.5	52°52.3	51°56.8	55°04.4	77°37.6	84°21.0	96°00.8
20	132°08.5	15.6'	05°23.7	-14.9'	55.6'	15°07.3	16° 30.9	53°23.7	52°25.1	55°35.4	78°06.8	84°51.0	96°31.7
21	146°43.1	15.6'	05°08.9	-14.9'	55.6'	15°35.7	17°02.3	53°55.1	52°53.5	56°06.4	78°36.1	85°21.0	97°02.6
22	161°17.8	15.7'	04°54.0	-14.9'	55.6'	16°04.1	17° 33.7	54°26.5	53°21.9	56° 37.3	79°05.3	85°51.0	97°33.5
23	175°52.5	15.7'	04°39.1	-14.9'	55.5'				N	ew Moon —		·	
20 th	SD	= 15.3	Mer. pas	s. 10:56									

Moon (21st Sep)

Sun	GHA	ν	Dec	d	HP	
0	190°27.2	15.8'	N04°24.2	-14.9'	55.5'	New Moon
1	205°02.0	15.8'	04°09.3	-14.9'	55.5'	New Moon
2	219°36.8	15.8'	03°54.4	-14.9'	55.5'	New Moon
3	234°11.6	15.9'	03°39.5	-14.9'	55.5'	New Moon
4	248° 46.5	15.9'	03°24.6	-14.9'	55.4'	New Moon
5	263°21.3	15.9'	03°09.7	-14.9'	55.4'	New Moon
6	277°56.3	16.0'	N02°54.8	-14.9'	55.4'	New Moon
7	292°31.2	16.0'	02°39.9	-14.9'	55.4'	New Moon
8	307°06.2	16.0'	02°25.0	-14.9'	55.4'	New Moon
9	321°41.2	16.0'	$02^{\circ}10.0$	-14.9'	55.3'	New Moon
10	336°16.3	16.1'	$01^{\circ}55.1$	-14.9'	55.3'	New Moon
11	350°51.3	16.1'	$01^{\circ}40.2$	-14.9'	55.3'	New Moon
12	5°26.4	16.1'	N01°25.3	-14.9'	55.3'	New Moon
13	20°01.6	16.1'	$01^{\circ}10.4$	-14.9'	55.3'	New Moon
14	34°36.7	16.2'	00°55.5	-14.9'	55.3'	New Moon
15	49°11.8	16.2'	00°40.6	-14.9'	55.2'	New Moon
16	63°47.0	16.2'	00°25.7	-14.9'	55.2'	New Moon
17	78°22.2	16.2'	N 00°10.9	-14.9'	55.2'	New Moon
18	92°57.4	16.2'	S 00°04.0	-14.9'	55.2'	New Moon
19	107°32.7	16.3'	00°18.9	-14.8'	55.2'	New Moon
20	122°07.9	16.3'	00°33.7	-14.8'	55.1'	New Moon
21	136°43.2	16.3'	00°48.6	-14.8'	55.1'	New Moon
22	151°18.5	16.3'	$01^{\circ}03.4$	-14.8'	55.1'	New Moon
23	165°53.8	16.3'	01°18.2	-14.8'	55.1'	New Moon
21 st	SD	= 15.1'	Mer. pas	s. 11:38	·	

h		Moor	n (22 nd Se	ep)		Lunar D	istance (ob	jects with	n largest	hourly L	.D delta)
Mon	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	-Hadar	-Mars	-Spica
0	180°29.1	16.3'	S 01°33.0	-14.8'	55.1'			New M	oon ——		_
1	195°04.4	16.3'	01°47.8	-14.8'	55.1'			New M	oon ——		_
2	209°39.7	16.3'	02°02.5	-14.7'	55.0'				oon ——		_
3	224°15.1	16.3'	02°17.3	-14.7'	55.0'			— New M	oon ——		-
4	238°50.4	16.3'	$02^{\circ}32.0$	-14.7'	55.0'			— New M	oon ——		-
5	253°25.7	16.4'	02°46.7	-14.7'	55.0'			— New M	oon ——		_
6	268°01.1	16.4'	S 03°01.4	-14.7'	55.0'			New M	oon ——		_
7	282°36.5	16.4'	$03^{\circ}16.1$	-14.6'	55.0'			New M	oon ——		_
8	297°11.8	16.4'	03°30.7	-14.6'	54.9'			New M	oon ——		_
9	311°47.2	16.4'	03°45.3	-14.6'	54.9'			— New M	oon ——		_
10	326°22.6	16.4'	03°59.9	-14.6'	54.9'			— New M	oon ——		-
11	340°57.9	16.4'	$04^{\circ}14.5$	-14.6'	54.9'			New M	oon ——		_
12	355°33.3	16.4'	S 04°29.1	-14.5'	54.9'			New M	oon ——		_
13	10°08.7	16.4'	04°43.6	-14.5'	54.9'				oon ——		_
14	24°44.0	16.4'	04°58.1	-14.5'	54.8'			— New M	oon ——		_
15	39°19.4	16.4'	$05^{\circ}12.6$	-14.4'	54.8'				oon ——		_
16	53°54.7	16.4'	$05^{\circ}27.0$	-14.4'	54.8'				oon ——		-
17	68°30.1	16.3'	$05^{\circ}41.4$	-14.4'	54.8'	110°17.7	60°14.2	60°11.6	57°31.0	20°28.2	14° 18.9
18	83°05.4	16.3'	S 05°55.8	-14.4'	54.8'	109°52.8	59°52.5	59°41.0	57° 10.9	19°59.8	13°48.4
19	97°40.8	16.3'	$06^{\circ}10.2$	-14.3'	54.8'	109°27.8	59°30.9	59° 10.5	56° 50.9	19°31.5	13° 18.0
20	112°16.1	16.3'	$06^{\circ}24.5$	-14.3'	54.7'	109°02.9	59°09.4	58°39.9	56°31.0	19°03.1	12°47.5
21	126°51.4	16.3'	06°38.8	-14.3'	54.7'	108°38.0	58°47.9	58°09.4	56°11.1	18°34.8	$12^{\circ}17.1$
22	141°26.7	16.3'	$06^{\circ}53.1$	-14.2'	54.7'	108°13.0	58°26.6	57°38.9	55°51.5	18°06.6	11°46.7
23	156°02.0	16.3'	07°07.3	-14.2'	54.7'	107°48.0	58°05.4	57°08.4	55°31.9	17°38.4	11° 16.4
22 nd	SD	= 15.0'	Mer. pas	s. 12:18							

h		Moor	n (23 rd Se	ep)		Lunar D	istance (ob	jects with	n largest	hourly L	.D delta)
Tue	GHA	ν	Dec	d	HP	-Altair	-Rigil Kent.	-Antares	-Hadar	-Mars	-Spica
0	170°37.3	16.3'	S 07°21.5	-14.2'	54.7'	107°23.0	57°44.2	56°38.0	55°12.4	17°10.2	10°46.0
1	185°12.6	16.3'	07°35.6	-14.1'	54.7'	106°58.0	57°23.2	56°07.5	54°53.1	16°42.1	10° 15.7
2	199°47.9	16.2'	07°49.8	-14.1'	54.7'	106°33.0	57°02.2	55°37.1	54°33.9	16°14.1	9°45.5
3	214°23.1	16.2'	08°03.8	-14.0'	54.6'	106°08.0	56°41.4	55°06.7	54° 14.9	15°46.1	9° 15.2
4	228°58.3	16.2'	$08^{\circ}17.9$	-14.0'	54.6'	105°42.9	56°20.7	54°36.3	53° 55.9	15°18.2	8°45.0
5	243°33.5	16.2'	08°31.9	-14.0'	54.6'	105°17.9	56°00.1	54°05.9	53°37.1	14°50.3	8° 14.9
6	258°08.7	16.2'	S 08°45.8	-13.9'	54.6'	104°52.8	55°39.6	53°35.5	53° 18.4	14°22.5	7°44.8
7	272°43.9	16.2'	08°59.8	-13.9'	54.6'	104°27.8	55°19.2	53°05.2	52°59.9	13°54.8	7° 14.7
8	287°19.1	16.1'	09°13.6	-13.8'	54.6'	104°02.7	54°58.9	52°34.9	52°41.5	13°27.2	6°44.7
9	301°54.2	16.1'	09°27.5	-13.8'	54.6'	103°37.6	54°38.7	52°04.6	52°23.2	12°59.7	6° 14.8
10	316°29.3	16.1'	09°41.3	-13.8'	54.5'	103°12.5	54°18.7	51°34.3	52°05.1	12°32.2	5°45.0
11	331°04.4	16.1'	09°55.0	-13.7'	54.5'	102°47.4	53°58.7	51°04.0	51°47.1	12°04.9	5°15.2
12	345°39.5	16.0'	S 10°08.7	-13.7'	54.5'	102°22.3	53°38.9	50°33.7	51°29.3	11°37.7	4°45.6
13	0°14.5	16.0'	10°22.4	-13.6'	54.5'	101°57.2	53°19.2	50°03.5	$51^{\circ}11.6$	11°10.6	4° 16.2
14	14°49.5	16.0'	10°36.0	-13.6'	54.5'	101°32.1	52°59.7	49°33.3	50°54.1	10°43.6	3°46.9
15	29°24.5	16.0'	10°49.6	-13.5'	54.5'	101°07.0	52°40.2	49°03.1	50°36.7	10°16.8	3°18.0
16	43°59.5	15.9'	$11^{\circ}03.1$	-13.5'	54.5'	100°41.9	52°20.9	48°32.9	$50^{\circ}19.5$	9°50.2	2°49.6
17	58°34.4	15.9'	$11^{\circ}16.6$	-13.4'	54.4'	100°16.8	52°01.8	48°02.7	50°02.4	9°23.8	2°21.9
18	73°09.4	15.9'	S 11°30.0	-13.4'	54.4'	99°51.7	51°42.7	47°32.6	49°45.5	8°57.6	
19	87°44.2	15.9'	11°43.4	-13.3'	54.4'	99°26.5	51°23.8	47°02.4	49°28.8	8°31.7	
20	102°19.1	15.8'	$11^{\circ}56.7$	-13.3'	54.4'	99°01.4	51°05.1	46°32.3	49°12.2	8°06.0	
21	116°53.9	15.8'	$12^{\circ}10.0$	-13.2'	54.4'	98°36.3	50°46.4	46°02.2	48°55.8	7°40.7	
22	131°28.7	15.8'	12°23.2	-13.2'	54.4'	98°11.2	50°28.0	45°32.1	48°39.5	7°15.8	
23	146°03.5	15.7'	12°36.4	-13.1'	54.4'	97°46.1	50°09.6	45°02.0	48°23.5	6°51.4	
23 rd	SD	= 14.9'	Mer. pas	s. 12:59							

h		Moor	า (24 th Se	ep)		Lunar	Distance	e (objects v	vith large	est hourly	LD del	ta)
Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Hadar	-Antares	±Mars	+Spica
0	160°38.2	15.7'	S 12°49.5	-13.1'	54.4'		97°20.9	49°51.4	48°07.6	44°31.9	6°27.5	
1	175°12.9	15.7'	$13^{\circ}02.5$	-13.0'	54.4'		96°55.8	49°33.4	47°51.9	44°01.9	6°04.2	
2	189°47.5	15.6'	13°15.5	-12.9'	54.3'		96°30.7	49°15.5	47°36.3	43°31.8	5°41.8	
3	204°22.1	15.6'	13°28.5	-12.9'	54.3'		96°05.6	48°57.8	47°21.0	43°01.8	5°20.2	3°03.8
4	218°56.7	15.5'	13°41.3	-12.8'	54.3'		95°40.5	48°40.2	47°05.8	42°31.8		3°32.3
5	233°31.3	15.5'	13°54.2	-12.8'	54.3'		95° 15.4	48°22.8		42°01.8		4°01.2
6	248°05.8	15.5'	S 14°06.9	-12.7'	54.3'		94°50.3	48°05.6		41°31.8		4°30.3
7	262°40.2	15.4'	14°19.6	-12.6'	54.3'		94°25.2	47°48.5		41°01.9		4°59.5
8	277°14.6	15.4'	14°32.3	-12.6'	54.3'		94°00.1	47°31.6		40°31.9		5°28.9
9	291°49.0	15.3'	14°44.9	-12.5'	54.3'		93°35.1	47°14.8		40°02.0		5°58.3
10	306°23.4	15.3'	14°57.4	-12.5'	54.3'	119°39.1	93°10.0	46°58.2		39°32.1		6°27.8
11	320°57.7	15.3'	$15^{\circ}09.9$	-12.4'	54.2'	119°11.5	92°44.9	46°41.9		39°02.2		6°57.4
12	335°31.9	15.2'	S 15°22.3	-12.3'	54.2'	118°43.9	92°19.9	46°25.6		38°32.3		7°27.0
13	350°06.1	15.2'	15°34.6	-12.3'	54.2'	118° 16.3	91°54.8	46°09.6		38°02.4		7°56.6
14	4°40.3	15.1'	15°46.9	-12.2'	54.2'	117°48.7	91°29.8	45°53.8		37°32.5		8°26.2
15	19°14.4	15.1'	15°59.0	-12.1'	54.2'	117°21.1	91°04.7	45°38.1		37°02.6		8°55.9
16	33°48.5	15.0'	$16^{\circ}11.2$	-12.1'	54.2'	116°53.5	90°39.7	45°22.7		36°32.8		9°25.5
17	48°22.6	15.0'	16°23.2	-12.0'	54.2'	116°25.9	90°14.7	45°07.4		36°03.0		9°55.2
18	62°56.5	14.9'	S 16°35.2	-11.9'	54.2'	115°58.3	89°49.7	44°52.3		35°33.1		10°24.9
19	77°30.5	14.9'	16°47.2	-11.9'	54.2'	115°30.7	89°24.7			35°03.3		10°54.6
20	92°04.4	14.8'	$16^{\circ}59.0$	-11.8'	54.2'	115°03.0	88° 59.7			34°33.5		11°24.2
21	106°38.2	14.8'	$17^{\circ}10.8$	-11.7'	54.2'	114°35.4	88°34.7			34°03.8		11°53.9
22	121°12.0	14.7'	$17^{\circ}22.5$	-11.6'	54.1'	114°07.7	88°09.8			33°34.0	6°07.7	12°23.6
23	135°45.7	14.7'	17°34.2	-11.6'	54.1'	113°40.1	87°44.8			33°04.2	6°30.8	12°53.2
24 th	SD	= 14.8'	Mer. pas	s. 13:41								

1.	Moon (25th Sen)	

h		Moor	າ (25 th Se	ep)		Lunar	Distance	e (objects	s with la	rgest ho	urly LD de	lta)
Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	+Mars	+Spica	+Arcturus	+Sun
0	150°19.4	14.6'	S 17°45.7	-11.5'	54.1'	113°12.4	87°19.9	32° 34.5	6°54.5	13°22.9		
1	164°53.1	14.6'	17°57.2	-11.4'	54.1'	112°44.7	86°55.0	32°04.7	7°18.7	13°52.6		
2	179°26.7	14.5'	$18^{\circ}08.6$	-11.3'	54.1'	112°17.1	86°30.0	31°35.0	7°43.4	14°22.2		
3	194°00.2	14.5'	$18^{\circ}20.0$	-11.3'	54.1'	111°49.4	86°05.1	31°05.3	8°08.4	14°51.9		
4	208°33.7	14.4'	18°31.2	-11.2'	54.1'	111°21.7	85°40.3	30°35.6	8°33.7	15°21.5		
5	223°07.1	14.4'	18°42.4	-11.1'	54.1'	110°54.0	85°15.4	30°05.9	8°59.2	15°51.2		
6	237°40.5	14.3'	S 18°53.5	-11.0'	54.1'	110°26.3	84°50.5	29°36.2	9°25.0	16°20.8		
7	252°13.8	14.3'	$19^{\circ}04.6$	-10.9'	54.1'	109°58.7	84°25.7	29°06.5	9°51.0	16°50.4		
8	266°47.0	14.2'	$19^{\circ}15.5$	-10.9'	54.1'	109°31.0	84°00.9	28°36.8	10°17.1	17°20.0		
9	281°20.2	14.1'	$19^{\circ}26.4$	-10.8'	54.1'	109°03.3	83°36.0	28° 07.2	10°43.4	17°49.7		
10	295°53.4	14.1'	19° 37.2	-10.7'	54.1'	108°35.6	83°11.2	27°37.5	11°09.8	18°19.3		
11	$310^{\circ}26.5$	14.0'	$19^{\circ}47.9$	-10.6'	54.1'	108°07.9	82°46.5	27°07.9	11°36.3	18°48.9		
12	324°59.5	14.0'	S 19°58.5	-10.5'	54.1'	107°40.2	82°21.7	26°38.2	12°02.9	19°18.5		40°54.6
13	339°32.5	13.9'	$20^{\circ}09.0$	-10.5'	54.0'	107°12.5	81°57.0	26°08.6	12°29.6	19°48.1		41°21.8
14	354°05.4	13.9'	$20^{\circ}19.5$	-10.4'	54.0'	106°44.7	81°32.2	25°39.0	12°56.4	20°17.6		41°49.0
15	8°38.3	13.8'	$20^{\circ}29.8$	-10.3'	54.0'	106°17.0	81°07.5	25°09.4	13°23.3	20°47.2		42°16.1
16	23°11.1	13.7'	$20^{\circ}40.1$	-10.2'	54.0'	105°49.3	80°42.8	24°39.8	13°50.2	21°16.8	40°21.8	42°43.3
17	37°43.8	13.7'	$20^{\circ}50.3$	-10.1'	54.0'	105°21.6	80°18.1	24°10.2	14°17.2	21°46.4	40°37.2	43°10.5
18	$52^{\circ}16.5$	13.6'	S 21°00.4	-10.0'	54.0'	104°53.9	79°53.5	23°40.6	14°44.2	22°15.9	40°52.7	43°37.6
19	66°49.1	13.6'	$21^{\circ}10.4$	-9.9'	54.0'	104°26.2	79°28.9	23°11.0	15°11.2	22°45.5	41°08.5	44°04.7
20	81°21.7	13.5'	21°20.4	-9.8'	54.0'	103°58.4	79°04.2	22°41.5	15°38.4	23°15.0	41°24.5	44°31.9
21	95°54.2	13.4'	21°30.2	-9.7'	54.0'	103°30.7	78°39.6	22°11.9	16°05.5	23°44.6	41°40.6	44°59.0
22	110°26.6	13.4'	$21^{\circ}39.9$	-9.7'	54.0'	103°03.0	78°15.1	21°42.3	16°32.7	24°14.1	41°57.0	45°26.1
23	124°59.0	13.3'	$21^{\circ}49.6$	-9.6'	54.0'	102°35.3	77°50.5	21°12.8	16°59.9	24°43.7	42°13.5	45°53.2
25 th		= 14.8'		s. 14:24					SD = 15.			

Moon (26th Sep)

h

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	-Antares	+Mars	+Spica	+Arcturus	+Sun
0	139°31.3	13.3'	S 21°59.2	-9.5'	54.0'		102°07.5	77°26.0	20°43.2	17°27.1	25°13.2	42°30.3	46°20.3
1	154°03.6	13.2'	$22^{\circ}08.6$	-9.4'	54.0'		101°39.8	77°01.5	20°13.7	17°54.4	25°42.7	42°47.2	46°47.4
2	168°35.8	13.1'	$22^{\circ}18.0$	-9.3'	54.0'		101°12.1	76°37.0	19°44.2	18°21.7	26°12.3	43°04.3	47°14.5
3	183°07.9	13.1'	22°27.3	-9.2'	54.0'		100°44.3	76°12.5	19°14.6	18°49.0	26°41.8	43°21.6	47°41.6
4	197°39.9	13.0'	22°36.4	-9.1'	54.0'		100°16.6	75°48.1	18°45.1	19°16.3	27°11.3	43°39.1	48°08.7
5	212°11.9	12.9'	22°45.5	-9.0'	54.0'		99°48.8	75°23.7	18°15.6	19°43.7	27°40.8	43°56.7	48°35.8
6	226°43.9	12.9'	S 22°54.5	-8.9'	54.0'		99°21.1	74°59.3	17°46.1	20°11.1	28°10.3	44°14.5	49°02.9
7	241°15.8	12.8'	23°03.4	-8.8'	54.0'		98°53.4	74°34.9	17°16.6	20°38.4	28°39.8	44°32.4	49°30.0
8	255°47.6	12.7'	$23^{\circ}12.2$	-8.7'	54.0'		98°25.6	74°10.5	16°47.0	21°05.8	29°09.3	44°50.6	49°57.0
9	270°19.3	12.7'	23°20.9	-8.6'	54.0'		97°57.9	73°46.2	16°17.5	21°33.3	29°38.8	45°08.8	50°24.1
10	284°51.0	12.6'	23° 29.5	-8.5'	54.0'		97°30.1	73°21.9	15°48.0	22°00.7	30°08.3	45°27.3	50°51.2
11	299°22.6	12.6'	23°37.9	-8.4'	54.0'		97°02.4	72°57.7	15°18.6	22°28.1	30°37.8	45°45.8	51°18.3
12	313°54.2	12.5'	S 23°46.3	-8.3'	54.0'		96°34.6	72°33.4	14°49.1	22°55.6	31°07.3	46°04.6	51°45.3
13	328°25.7	12.4'	23°54.6	-8.2'	54.0'		96°06.9	72°09.2	14°19.6	23°23.1	31°36.8	46°23.4	52°12.4
14	342°57.1	12.4'	24°02.8	-8.1'	54.0'		95°39.1	71°45.0	13°50.1	23°50.5	32°06.3	46°42.4	52°39.4
15	357°28.5	12.3'	24° 10.8	-8.0'	54.0'		95°11.4	71°20.9	13°20.6	24°18.0	32°35.8	47°01.6	53°06.5
16	11°59.8	12.2'	$24^{\circ}18.8$	-7.9'	54.0'		94°43.6	70°56.8	12°51.1	24°45.5	33°05.3	47°20.9	53°33.6
17	26°31.0	12.2'	24° 26.7	-7.7'	54.0'	119°57.6	94°15.9	70°32.7	12°21.7	25°13.0	33°34.8	47°40.3	54°00.6
18	41°02.2	12.1'	S 24°34.4	-7.6'	54.0'	119°27.9	93°48.1	70°08.6	11°52.2	25°40.5	34°04.3	47°59.8	54°27.7
19	55°33.3	12.0'	$24^{\circ}42.1$	-7.5'	54.0'	118°58.3	93°20.3	69°44.6	11°22.7	26°08.1	34°33.8	48°19.5	54°54.7
20	70°04.3	12.0'	24°49.6	-7.4'	54.0'	118°28.7	92°52.6	69°20.6	10°53.3	26°35.6	35°03.3	48°39.3	55°21.8
21	84°35.3	11.9'	24°57.0	-7.3'	54.0'	117°59.0	92°24.8	68°56.6	10°23.8	27°03.2	35°32.8	48°59.2	55°48.8
22	99°06.2	11.9'	25°04.3	-7.2'	54.0'	117°29.4	91°57.1	68°32.6	9°54.4	27°30.7	36°02.3	49°19.2	56° 15.9
23	113°37.1	11.8'	25°11.5	-7.1'	54.0'	116°59.8	91°29.3	68°08.7	9°24.9	27°58.3	36°31.8	49°39.4	56°43.0
26 th	SD	= 14.7'	Mer. pass	. 15:10			·		Sun SD =	= 15.9			

Moon (27th Sep) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	±A ntares	+Mars	+Spica	+Arcturus	+Sun
0	128°07.9	11.7'	S 25°18.6	-7.0'	54.0'	116°30.1	91°01.5	67°44.9	8°55.5	28°25.8	37°01.3	49°59.6	57°10.0
1	142°38.6	11.7'	25°25.6	-6.9'	54.0'	116°00.5	90°33.7	67°21.0	8°26.0	28°53.4	37°30.8	50°20.0	57°37.1
2	157°09.2	11.6'	25°32.5	-6.7'	54.0'	115°30.9	90°06.0	66°57.2	7°56.6	29°21.0	38°00.3	50°40.5	58°04.1
3	171°39.8	11.5'	25°39.2	-6.6'	54.0'	115°01.2	89°38.2	66°33.5	7°27.2	29°48.6	38°29.8	51°01.1	58°31.2
4	186°10.4	11.5'	25°45.8	-6.5'	54.0'	114°31.6	89°10.4	66°09.7	6°57.8	30°16.2	38°59.3	51°21.8	58°58.3
5	200°40.9	11.4'	25°52.4	-6.4'	54.0'	114°01.9	88°42.6	65°46.0	6°28.4	30°43.8	39°28.8	51°42.6	59°25.3
6	215°11.3	11.4'	S 25°58.8	-6.3'	54.0'	113°32.3	88°14.9	65°22.4	5°59.0	31°11.5	39°58.3	52°03.5	59°52.4
7	229°41.6	11.3'	$26^{\circ}05.0$	-6.2'	54.1'	113°02.6	87°47.1	64°58.8	5°29.7	31°39.1	40°27.8	52°24.6	60°19.5
8	244°11.9	11.2'	$26^{\circ}11.2$	-6.0'	54.1'	112°32.9	87°19.3	64°35.2	5°00.4	32°06.7	40°57.4	52°45.7	60°46.6
9	258°42.2	11.2'	26° 17.3	-5.9'	54.1'	112°03.3	86°51.5	64°11.7	4°31.1	32°34.4	41°26.9	53°06.9	61°13.7
10	273°12.3	11.1'	26°23.2	-5.8'	54.1'	111°33.6	86°23.7	63°48.2	4°01.9	33°02.0	41°56.4	53°28.2	61°40.8
11	287°42.4	11.1'	26°29.0	-5.7'	54.1'	111°03.9	85°55.9	63°24.7	3°32.7	33°29.7	42°26.0	53°49.6	62°07.8
12	302°12.5	11.0'	S 26°34.7	-5.6'	54.1'	110°34.2	85°28.1	63°01.3	3°03.7	33°57.4	42°55.5	54°11.1	62°34.9
13	316°42.5	10.9'	26°40.2	-5.4'	54.1'	110°04.5	85°00.3	62°37.9	2°34.9	34°25.1	43°25.0	54°32.7	63°02.0
14	331°12.4	10.9'	26°45.7	-5.3'	54.1'	109°34.9	84°32.5	62°14.6	2°06.5	34°52.8	43°54.6	54°54.3	63°29.2
15	345°42.3	10.8'	$26^{\circ}51.0$	-5.2'	54.1'	109°05.2	84°04.7	61°51.4	1°38.6	35°20.5	44°24.2	$55^{\circ}16.1$	63°56.3
16	0°12.1	10.8'	26° 56.2	-5.1'	54.1'	108°35.4	83°36.9	61°28.1		35°48.2	44°53.7	55°37.9	64°23.4
17	14°41.9	10.7'	27°01.3	-4.9'	54.1'	108°05.7	83°09.1	61°05.0		36° 15.9	45°23.3	55°59.8	64°50.5
18	29°11.6	10.6'	S 27°06.2	-4.8'	54.1'	107°36.0	82°41.3	60°41.8		36°43.6	45°52.9	56°21.8	65°17.7
19	43°41.2	10.6'	$27^{\circ}11.0$	-4.7'	54.1'	107°06.3	82°13.5	60°18.7		37° 11.4	46°22.5	56°43.9	65°44.8
20	58°10.8	10.5'	$27^{\circ}15.7$	-4.6'	54.1'	106°36.5	81°45.6	59°55.7		37°39.1	46°52.0	57°06.1	66°11.9
21	72°40.4	10.5'	27°20.3	-4.4'	54.2'	106°06.8	81°17.8	59°32.7		38°06.9	47°21.7	57°28.3	66°39.1
22	87°09.9	10.4'	27°24.8	-4.3'	54.2'	105°37.0	80°50.0	59°09.8		38°34.7	47°51.3	57°50.7	67°06.3
23	101°39.3	10.4'	27°29.1	-4.2'	54.2'	105°07.3	80°22.2	58°47.0	2°30.5	39°02.5	48°20.9	58°13.0	67°33.4
27 th	SD = 14.7' Mer. pass. 15:59					Sun SD = $15.9'$ at 0h; $16.0'$ at 23h							

Moon (28th Sep)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Mars	+Spica	+Sun
0	116°08.7	10.3'	S 27°33.3	-4.1'	54.2'	104°37.5	86°50.4	79°54.3	58°24.1	2°59.3	39°30.3	48°50.5	68°00.6
1	130°38.0	10.3'	27°37.3	-3.9'	54.2'	104°07.7	86°35.1	79°26.5	58°01.4	3°28.4	39°58.1	49°20.2	68°27.8
2	145°07.3	10.2'	$27^{\circ}41.2$	-3.8'	54.2'	103°37.9	86°19.8	78° 58.7	57°38.7	3°57.6	40°25.9	49°49.8	68°55.0
3	159°36.5	10.2'	27°45.0	-3.7'	54.2'	103°08.1	86°04.5	78°30.8	57° 16.1	4°27.0	40°53.8	$50^{\circ}19.5$	69°22.2
4	174°05.7	10.1'	27°48.7	-3.5'	54.2'	102°38.3	85°49.2	78°03.0	56°53.5	4°56.4	41°21.6	50°49.1	69°49.5
5	188°34.8	10.1'	27°52.2	-3.4'	54.2'	102°08.5	85°33.9	77°35.1	56°31.0	5°25.9	41°49.5	51°18.8	70°16.7
6	203°03.9	10.0'	S 27°55.6	-3.3'	54.3'	101°38.7	85°18.6	77°07.3	56°08.5	5°55.4	42°17.4	51°48.5	70°43.9
7	217°32.9	10.0'	27°58.9	-3.1'	54.3'	101°08.8	85°03.4	76°39.4	55°46.1	6°24.9	42°45.2	52°18.2	71°11.2
8	232°01.9	9.9'	28°02.0	-3.0'	54.3'	100°39.0	84°48.1	$76^{\circ}11.5$	55°23.8	6°54.5	43°13.1	52°47.9	71°38.5
9	246°30.8	9.9'	28°05.0	-2.9'	54.3'	100°09.1	84°32.9	75°43.7	55°01.6	7°24.1	43°41.1	53°17.6	72°05.7
10	260°59.7	9.9'	28°07.9	-2.7'	54.3'	99°39.2	84°17.7	75° 15.8	54°39.4	7°53.8	44°09.0	53°47.4	72°33.0
11	275°28.6	9.8'	$28^{\circ}10.6$	-2.6'	54.3'	99°09.3	84°02.4	74°47.9	54° 17.3	8°23.4	44°36.9	54°17.1	73°00.3
12	289°57.4	9.8'	S 28°13.2	-2.5'	54.3'	98°39.4	83°47.2	74°20.1	53°55.3	8°53.1	45°04.9	54°46.9	73°27.7
13	304°26.2	9.7'	28° 15.6	-2.3'	54.3'	98°09.5	83°32.0	73°52.2	53°33.3	9°22.9	45°32.9	55°16.7	73°55.0
14	318°54.9	9.7'	$28^{\circ}18.0$	-2.2'	54.4'	97°39.5	83°16.9	73°24.3	53°11.4	9°52.6	46°00.9	55°46.5	74°22.3
15	333°23.6	9.6'	$28^{\circ}20.1$	-2.0'	54.4'	97°09.6	83°01.7	72°56.4	52°49.6	10°22.3	46°28.9	56°16.3	74°49.7
16	347°52.2	9.6'	28°22.2	-1.9'	54.4'	96°39.6	82°46.6	72°28.5	52°27.9	10°52.1	46°56.9	56°46.1	75°17.1
17	2°20.8	9.6'	28°24.1	-1.8'	54.4'	96°09.6	82°31.4	72°00.6	52°06.3	11°21.9	47°24.9	57°15.9	75°44.5
18	16°49.4	9.5'	S 28°25.9	-1.6'	54.4'	95°39.6	82°16.3	71°32.7	51°44.7	11°51.7	47°53.0	57°45.8	76°11.9
19	31°18.0	9.5'	28° 27.5	-1.5'	54.4'	95°09.6	82°01.2	71°04.8	51°23.3	12°21.6	48°21.1	58°15.7	76°39.3
20	45°46.5	9.5'	28°29.0	-1.3'	54.4'	94°39.6	81°46.2	70°36.9	51°01.9	12°51.4	48°49.2	58°45.5	77°06.7
21	60°14.9	9.4'	28°30.3	-1.2'	54.5'	94°09.5	81°31.1	70°09.0	50°40.6	13°21.3	49°17.3	59°15.4	77°34.2
22	74°43.4	9.4'	28°31.5	-1.1'	54.5'	93°39.5	81°16.1	69°41.1	50° 19.4	13°51.2	49°45.4	59°45.4	78°01.6
23	89°11.8	9.4'	28°32.6	-0.9'	54.5'	93°09.4	81°01.1	69°13.2	49°58.3	14°21.1	50°13.6	60°15.3	78°29.1
28 th	SD	SD = 14.8' Mer. pass. 16:50					Sun SD = 16.0'						

h		Моог	n (29 th Se	ep)		Lunar Distance (objects with largest hourly LD delta)							
Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Mars	+Spica	+Arcturus	+Sun
0	103°40.1	9.3'	S 28°33.5	-0.8'	54.5'	92°39.3	68° 45.2	49°37.3	14°51.0	50°41.7	60°45.3	67°54.4	78°56.6
1	118°08.5	9.3'	28°34.3	-0.6'	54.5'	92°09.2	68° 17.3	49°16.4	15°21.0	51°09.9	61°15.2	68° 18.5	79°24.1
2	132°36.8	9.3'	28°34.9	-0.5'	54.6'	91°39.1	67°49.4	48°55.6	15°51.0	51°38.1	61°45.2	68° 42.5	79°51.7
3	147°05.1	9.3'	28°35.4	-0.4'	54.6'	91°08.9	67°21.5	48°35.0	16°21.0	52°06.3	62° 15.2	69°06.6	80°19.2
4	161°33.3	9.2'	28°35.8	-0.2'	54.6'	90°38.7	66°53.5	48°14.4	16°51.0	52°34.6	62°45.3	69°30.8	80°46.8
5	$176^{\circ}01.6$	9.2'	28°36.0	-0.1'	54.6'	90°08.5	66°25.6	47°53.9	17°21.0	53°02.8	63°15.3	69°55.0	81°14.4
6	190°29.8	9.2'	S 28°36.1	0.1'	54.6'	89°38.3	65°57.7	47°33.6	17°51.0	53°31.1	63°45.4	70° 19.3	81°42.0
7	204°58.0	9.2'	28°36.0	0.2'	54.6'	89°08.1	65°29.7	47°13.4	18°21.1	53°59.4	64° 15.5	70°43.6	82°09.7
8	$219^{\circ}26.1$	9.1'	28°35.8	0.4'	54.7'	88°37.9	65°01.8	46°53.2	18°51.2	54°27.7	64°45.6	71°08.0	82°37.3
9	233°54.3	9.1'	28°35.4	0.5'	54.7'	88°07.6	64°33.8	46°33.3	19°21.3	54°56.1	65° 15.7	71°32.4	83°05.0
10	248°22.4	9.1'	28°34.9	0.7'	54.7'	87°37.3	64°05.9	46°13.4	19°51.5	55°24.5	65°45.8	71°56.8	83°32.7
11	262°50.5	9.1'	28°34.3	0.8'	54.7'	87°07.0	63°37.9	45°53.7	20°21.6	55°52.8	66°16.0	72°21.4	84°00.4
12	$277^{\circ}18.6$	9.1'	S 28°33.5	0.9'	54.7'	86°36.6	63°10.0	45°34.1	20°51.8	56°21.3	66°46.2	72°45.9	84°28.2
13	291°46.7	9.1'	28° 32.5	1.1'	54.8'	86°06.3	62°42.0	45°14.6	21°22.0	56°49.7	67° 16.4	73° 10.5	84°55.9
14	306°14.8	9.0'	28°31.4	1.2'	54.8'	85°35.9	62°14.1	44°55.3	21°52.3	57°18.2	67°46.7	73°35.1	85°23.7
15	320°42.8	9.0'	28°30.2	1.4'	54.8'	85°05.5	61°46.1	44°36.1	22°22.5	57°46.6	68° 16.9	73°59.8	85°51.5
16	$335^{\circ}10.8$	9.0'	28°28.8	1.5'	54.8'	84°35.1	61°18.2	44°17.1	22°52.8	58°15.1	68°47.2	74°24.6	86°19.3
17	349°38.9	9.0'	28°27.3	1.7'	54.9'	84°04.6	60°50.2	43°58.2	23°23.1	58°43.7	69°17.5	74°49.4	86°47.2
18	4°06.9	9.0'	S 28°25.6	1.8'	54.9'	83°34.1	60°22.3	43°39.5	23°53.4	59°12.2	69°47.8	75° 14.2	87°15.1
19	18°34.9	9.0'	28°23.8	2.0'	54.9'	83°03.6	59°54.3	43°21.0	24°23.8	59°40.8	70°18.2	75°39.0	87°43.0
20	33°02.9	9.0'	$28^{\circ}21.9$	2.1'	54.9'	82°33.1	59°26.4	43°02.6	24°54.1	60°09.4	70°48.6	76°03.9	88°10.9
21	47°30.9	9.0'	$28^{\circ}19.8$	2.3'	54.9'	82°02.6	58° 58.4	42°44.4	25°24.6	60°38.1	71°19.0	76°28.9	88°38.9
22	61°58.8	9.0'	$28^{\circ}17.5$	2.4'	55.0'	81°32.0	58° 30.5	42°26.3	25°55.0	61°06.7	71°49.4	76° 53.9	89°06.8
23	76°26.8	9.0'	28° 15.1	2.5'	55.0'	81°01.4	58°02.5	42°08.4	26°25.4	61°35.4	72° 19.9	77° 18.9	89°34.9
29 th	SD =	= 14.9'	Mer. pas	s. 17:43	1				Sun SD =	= 16.0′			

Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Mars	+Spica	+Arcturus	+Sun
0	90°54.8	9.0'	S 28°12.6	2.7'	55.0'	80°30.8	57°34.6	41°50.7	26°55.9	62°04.1	72°50.4	77°44.0	90°02.9
1	105°22.8	9.0'	28°09.9	2.8'	55.0'	80°00.1	57°06.6	41°33.2	27°26.4	62°32.9	73°20.9	78°09.1	90°30.9
2	119°50.8	9.0'	28°07.0	3.0'	55.1'	79°29.4	56°38.7	41°15.9	27°57.0	63°01.6	73°51.4	78°34.3	90°59.0
3	134°18.7	9.0'	28°04.0	3.1'	55.1'	78°58.7	56°10.7	40°58.8	28°27.5	63°30.4	74°22.0	78°59.5	91°27.1
4	148°46.7	9.0'	28°00.9	3.3'	55.1'	78°28.0	55°42.8	40°41.9	28°58.1	63°59.2	74°52.6	79°24.7	91°55.3
5	163°14.7	9.0'	27°57.6	3.4'	55.1'	77°57.2	55°14.9	40°25.2	29°28.7	64°28.1	75°23.2	79°50.0	92°23.4
6	177°42.7	9.0'	S 27°54.2	3.6'	55.2'	77°26.5	54°47.0	40°08.7	29°59.4	64°57.0	75°53.9	80°15.3	92°51.6
7	192°10.7	9.0'	27°50.6	3.7'	55.2'	76°55.6	54°19.1	39°52.4	30°30.1	65°25.9	76°24.5	80°40.7	93°19.9
8	206°38.6	9.0'	27°46.9	3.9'	55.2'	76°24.8	53°51.2	39°36.3	31°00.8	65°54.8	76°55.3	81°06.1	93°48.1
9	221°06.6	9.0'	27°43.1	4.0'	55.2'	75°53.9	53°23.3	39°20.5	31°31.5	66°23.8	77°26.0	81°31.5	94°16.4
10	235°34.6	9.0'	27°39.0	4.2'	55.3'	75°23.0	52°55.4	39°04.9	32°02.3	66°52.8	77°56.8	81°57.0	94°44.7
11	250°02.7	9.0'	27°34.9	4.3'	55.3'	74°52.1	52°27.5	38°49.5	32°33.1	67°21.8	78°27.6	82°22.5	95°13.1
12	264°30.7	9.0'	S 27°30.6	4.4'	55.3'	74°21.1	51°59.6	38°34.4	33°03.9	67°50.9	78°58.4	82°48.0	95°41.4
13	278°58.7	9.0'	$27^{\circ}26.1$	4.6'	55.3'	73°50.1	51°31.8		33°34.8	68°20.0	79°29.3	83°13.6	96°09.8
14	293°26.8	9.1'	$27^{\circ}21.6$	4.7'	55.4'	73°19.1	51°04.0		34°05.7	68°49.1	80°00.1	83°39.2	96°38.3
15	307°54.8	9.1'	$27^{\circ}16.8$	4.9'	55.4'	72°48.0	50°36.1		34°36.6	69°18.2	80°31.1	84°04.9	97°06.7
16	322°22.9	9.1'	$27^{\circ}11.9$	5.0'	55.4'	72°16.9	50°08.3		35°07.5	69°47.4	81°02.0	84°30.6	97°35.2
17	336°51.0	9.1'	27°06.9	5.2'	55.5'	71°45.8	49°40.5		35°38.5	70°16.7	81°33.0	84°56.3	98°03.8
18	351°19.1	9.1'	S 27°01.7	5.3'	55.5'	71°14.6	49°12.7		36°09.6	70°45.9	82°04.0	85°22.0	98°32.3
19	5°47.2	9.1'	26°56.4	5.5'	55.5'	70°43.5	48°45.0		36°40.6	71°15.2	82°35.1	85°47.8	99°00.9
20	20°15.4	9.2'	$26^{\circ}51.0$	5.6'	55.5'	70°12.2	48°17.3		37°11.7	71°44.5	83°06.2	86°13.7	99°29.6
21	34°43.5	9.2'	26°45.3	5.7'	55.6'	69°41.0	47°49.5		37°42.8	72°13.9	83°37.3	86°39.5	99°58.2
22	49°11.7	9.2'	26°39.6	5.9'	55.6'	69°09.7	47°21.8		38°14.0	72°43.3	84°08.5	87°05.4	100°26.9
23	63°39.9	9.2'	26°33.7	6.0'	55.6'	68°38.4	46°54.2		38°45.2	73°12.7	84°39.6	87°31.4	100°55.6
30 th	SD = 15.0' Mer. pass. 18:36					. 18:36 Sun SD = 16.0'							

h Moon (1st Oct)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Mars	+Spica	+Arcturus	+Sun
0	78°08.1	9.2'	S 26°27.7	6.2'	55.7'	68°07.0	46°26.5	39°16.4	58°10.3	73°42.1	85°10.9	87°57.3	101°24.4
1	92°36.4	9.3'	26°21.5	6.3'	55.7'	67°35.6	45°58.9	39°47.7	58°32.1	74°11.6	85°42.1	88°23.3	101°53.2
2	107°04.6	9.3'	$26^{\circ}15.2$	6.5'	55.7'	67°04.2	45°31.3	40°19.0	58°54.1	74°41.2	86°13.4	88°49.3	102°22.0
3	121°32.9	9.3'	26°08.7	6.6'	55.8'	66°32.7	45°03.8	40°50.3	59°16.1	75° 10.7	86°44.8	89°15.4	102°50.9
4	136°01.2	9.3'	$26^{\circ}02.1$	6.7'	55.8'	66°01.2	44°36.3	41°21.7	59°38.2	75°40.3	87°16.1	89°41.5	103°19.8
5	150°29.6	9.4'	25°55.4	6.9'	55.8'	65°29.7	44°08.8	41°53.1	60°00.5	76° 10.0	87°47.5	90°07.6	103°48.8
6	164°58.0	9.4'	S 25°48.5	7.0'	55.9'	64°58.1	43°41.3	42°24.5	60°22.8	76°39.6	88°19.0	90°33.8	104°17.7
7	179°26.3	9.4'	25°41.4	7.2'	55.9'	64°26.5	43°13.9	42°56.0	60°45.3	77°09.3	88°50.5	90°59.9	104°46.8
8	193°54.8	9.4'	25°34.3	7.3'	55.9'	63°54.9	42°46.6	43°27.5	61°07.9	77°39.1	89°22.0	91°26.1	105°15.8
9	208°23.2	9.5'	25°27.0	7.4'	56.0'	63°23.2	42°19.2	43°59.1	61°30.5	78°08.9	89°53.5	91°52.4	105°44.9
10	222°51.7	9.5'	$25^{\circ}19.5$	7.6'	56.0'	62°51.5	41°52.0	44°30.7	61°53.3	78°38.7	90°25.1	92°18.6	106°14.0
11	237°20.2	9.5'	$25^{\circ}11.9$	7.7'	56.0'	62°19.7	41°24.7	45°02.3	62°16.2	79°08.6	90°56.7	92°44.9	106°43.2
12	251°48.7	9.6'	S 25°04.2	7.9'	56.0'	61°47.9	40°57.6	45°34.0	62°39.2	79°38.5	91°28.4	93°11.3	107°12.4
13	266°17.3	9.6'	24°56.4	8.0'	56.1'	61°16.1	40°30.5	46°05.7	63°02.3	80°08.4	92°00.1	93°37.6	107°41.7
14	280°45.9	9.6'	24°48.4	8.1'	56.1'	60°44.2	40°03.4	46°37.4	63°25.4	80°38.4	92°31.9	94°04.0	108°10.9
15	295°14.5	9.7'	24°40.2	8.3'	56.1'	60°12.3	39°36.4	47°09.2	63°48.7	81°08.4	93°03.7	94°30.4	108°40.3
16	309°43.2	9.7'	24°31.9	8.4'	56.2'	59°40.4	39°09.5	47°41.0	64°12.1	81°38.5	93°35.5	94°56.8	109°09.6
17	324°11.9	9.7'	24°23.5	8.5'	56.2'	59°08.4	38°42.7	48°12.9	64°35.6	82°08.5	94°07.4	95°23.3	109°39.0
18	338°40.6	9.8'	S 24°15.0	8.7'	56.3'	58° 36.4	38°15.9	48°44.8	64°59.1	82°38.7	94°39.3	95°49.8	110°08.5
19	353°09.3	9.8'	24°06.3	8.8'	56.3'	58°04.3	37°49.2	49°16.8	65°22.8	83°08.9	95°11.2	96°16.3	110°37.9
20	7°38.1	9.8'	23°57.5	8.9'	56.3'	57° 32.2	37°22.6	49°48.7	65°46.5	83°39.1	95°43.2	96°42.8	111°07.5
21	22°06.9	9.9'	23°48.6	9.1'	56.4'	57°00.1	36°56.0	50°20.8	66°10.4	84°09.3	96°15.2	97°09.3	111°37.0
22	36°35.8	9.9'	23°39.5	9.2'	56.4'	56°27.9	36°29.6	50°52.8	66°34.3	84°39.6	96°47.3	97°35.9	112°06.6
23	51°04.7	9.9'	23°30.3	9.3'	56.4'	55°55.7	36°03.3	51°25.0	66°58.3	85° 10.0	97°19.4	98°02.5	112°36.3
1 st	SD =	= 15.2′	Mer. pass	s. 19:28	3	SunSD=16.0'							

h Moon (2nd Oct) Lunar Distance (objects with largest hourly LD delta)

	Linear (2 data)												
Thu	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Antares	+Mars	+Spica	+Sun
0	65°33.6	10.0'	S 23°20.9	9.5'	56.5'			55°23.4	35°37.0	51°57.1	85°40.4	97°51.6	113°06.0
1	80°02.6	10.0'	23°11.4	9.6'	56.5'			54°51.1	35°10.9	52°29.3	86° 10.8	98°23.8	113°35.7
2	94°31.6	10.0'	23°01.8	9.7'	56.5'			54°18.7	34°44.9	53°01.6	86°41.3	98°56.0	114°05.5
3	109°00.6	10.1'	22°52.1	9.9'	56.6'			53°46.4	34°19.0	53°33.8	87°11.8	99°28.3	114°35.3
4	123°29.7	10.1'	22°42.2	10.0'	56.6'			53°13.9	33°53.2	54°06.2	87°42.3	100°00.6	115°05.1
5	137°58.8	10.1'	22°32.2	10.1'	56.6'			52°41.4	33°27.6	54°38.5	88° 12.9	100°33.0	115°35.0
6	152°27.9	10.2'	S 22°22.1	10.2'	56.7'			52°08.9	33°02.1	55°11.0	88°43.6	101°05.4	116°05.0
7	166°57.1	10.2'	22°11.9	10.4'	56.7'			51°36.4	32°36.7	55°43.4	89°14.3	101°37.8	116°35.0
8	181°26.3	10.3'	22°01.5	10.5'	56.7'			51°03.8	32°11.5	56°15.9	89°45.0	102°10.3	117°05.0
9	195°55.6	10.3'	21°51.0	10.6'	56.8'			50°31.1	31°46.5	56°48.5	90° 15.8	102°42.9	117°35.1
10	210°24.9	10.3'	21°40.4	10.8'	56.8'			49°58.4	31°21.6	57°21.1	90°46.6	103°15.5	118°05.2
11	224°54.2	10.4'	$21^{\circ}29.6$	10.9'	56.9'			49°25.7	30°56.9	57°53.7	91°17.4	103°48.1	118°35.4
12	239°23.5	10.4'	S 21°18.7	11.0'	56.9'			48°52.9	30°32.4	58°26.4	91°48.3	104°20.8	119°05.6
13	253°52.9	10.4'	21°07.7	11.1'	56.9'		119°43.2	48°20.1	30°08.2	58°59.1	92°19.3	104°53.5	119°35.8
14	268°22.4	10.5'	20°56.6	11.2'	57.0'	119°47.7	119° 19.2	47°47.3	29°44.1	59°31.9	92°50.3	105°26.3	
15	282°51.8	10.5'	20°45.4	11.4'	57.0'	119°15.6	118°55.1	47°14.4	29°20.2	60°04.7	93°21.3	105°59.1	
16	297°21.4	10.5'	20°34.0	11.5'	57.0'	118°43.5	118°30.9	46°41.4	28°56.6	60°37.5	93°52.4	106°31.9	
17	311°50.9	10.6'	20°22.5	11.6'	57.1'	118°11.3	118°06.5	46°08.4	28°33.2	61°10.5	94°23.5	107°04.8	
18	326°20.5	10.6'	S 20°10.9	11.7'	57.1'	117°39.1	117°42.1	45°35.4	28°10.1	61°43.4	94°54.7	107°37.8	
19	340°50.1	10.6'	19°59.2	11.8'	57.2'	117°06.8	117° 17.6	45°02.3	27°47.3	62°16.4	95°25.9	108°10.8	
20	355°19.7	10.7'	19°47.4	12.0'	57.2'	116°34.5	116°52.9	44°29.2	27°24.7	62°49.5	95°57.2	108°43.8	
21	9°49.4	10.7'	19°35.4	12.1'	57.2'	116°02.1	116°28.2	43°56.0	27°02.4	63°22.5	96°28.5	109°16.9	
22	24°19.1	10.8'	19°23.4	12.2'	57.3'	115°29.7	116°03.3	43°22.8	26°40.5	63°55.7	96° 59.9	109°50.1	
23	38°48.9	10.8'	19°11.2	12.3'	57.3'	114°57.2	115°38.3	42°49.6	26°18.9	64°28.9	97°31.3	110°23.2	
2 nd	SD	SD = 15.4' Mer. pass. 20:19					Sun SD = 16.0'						

h Moon (3 rd	d Oct)	Lunar Distance (objects with lar	gest hourly LD del	ta)
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Fri	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Mars	+Spica
0	53°18.7	10.8'	S 18°58.9	12.4'	57.4'		115°13.3	114°24.7	42°16.3	65°02.1	77°24.7	98°02.7	110°56.5
1	67°48.5	10.9'	18° 46.5	12.5'	57.4'		114°48.1	113°52.1	41°42.9	65°35.4	77° 50.7	98°34.2	111°29.7
2	82°18.4	10.9'	18°34.0	12.6'	57.4'		114°22.8	113°19.4	41°09.6	66°08.7	78° 16.7	99°05.8	112°03.1
3	96°48.3	10.9'	$18^{\circ}21.3$	12.7'	57.5'		113°57.5	112°46.7	40°36.1	66°42.1	78°42.8	99°37.4	112°36.4
4	111°18.2	11.0'	$18^{\circ}08.6$	12.8'	57.5'		113°32.0	112°14.0	40°02.6	67°15.5	79°09.0	100°09.0	113°09.9
5	125°48.1	11.0'	$17^{\circ}55.8$	13.0'	57.5'		113°06.4	111°41.2	39°29.1	67°49.0	79°35.3	100°40.7	113°43.3
6	140°18.1	11.0'	S 17°42.8	13.1'	57.6'		112°40.8	111°08.4	38°55.6	68°22.5	80°01.6	101°12.4	114°16.8
7	154°48.2	11.1'	$17^{\circ}29.7$	13.2'	57.6'		112°15.0	110°35.4	38°22.0	68°56.1	80°27.9	101°44.2	114°50.4
8	169°18.2	11.1'	$17^{\circ}16.6$	13.3'	57.7'		111°49.2	110°02.5	37°48.3	69°29.7	80°54.3	102°16.0	115°24.0
9	183°48.3	11.1'	17°03.3	13.4'	57.7'		111°23.3	109°29.5	37°14.6	70°03.3	81°20.8	102°47.9	115°57.7
10	198°18.4	11.1'	$16^{\circ}49.9$	13.5'	57.7'	119°42.2	110°57.2	108°56.4	36°40.9	70°37.0	81°47.3	103°19.8	116°31.4
11	212°48.6	11.2'	16°36.4	13.6'	57.8'	119°10.5	110°31.1	108°23.3	36°07.1	71°10.8	82°13.9	103°51.8	117°05.1
12	227°18.8	11.2'	S 16°22.8	13.7'	57.8'	118°38.8	110°04.9	107°50.2	35°33.3	71°44.6	82°40.6	104°23.8	117°38.9
13	241°49.0	11.2'	$16^{\circ}09.2$	13.8'	57.9'	118°07.0	109°38.7	107°16.9	34°59.4	72°18.5	83°07.3	104°55.9	118° 12.8
14	256°19.2	11.3'	15°55.4	13.9'	57.9'	117°35.2	109°12.3	106°43.7	34°25.5	72°52.4	83°34.0	105°28.0	118°46.7
15	270°49.5	11.3'	$15^{\circ}41.5$	14.0'	57.9'	117°03.3	108°45.9	106°10.4	33°51.5	73°26.3	84°00.8	106°00.2	119°20.6
16	285°19.8	11.3'	$15^{\circ}27.5$	14.1'	58.0'	116°31.3	108°19.3	105°37.0	33°17.6	74°00.3	84°27.7	106°32.4	119°54.6
17	299°50.1	11.3'	$15^{\circ}13.4$	14.2'	58.0'	115°59.2	107°52.7	105°03.6	32°43.5	74°34.4	84°54.6	107°04.6	
18	314°20.4	11.4'	S 14°59.2	14.3'	58.1'	115°27.1	107°26.0	104°30.1	32°09.4	75°08.4	85°21.5	107°36.9	
19	328°50.8	11.4'	14°45.0	14.4'	58.1'	114°54.9	106°59.2	103°56.6	31°35.3	75°42.6	85°48.5	108°09.3	
20	343°21.2	11.4'	14°30.6	14.5'	58.1'	114°22.7	106°32.4	103°23.0	31°01.2	76°16.8	86° 15.6	108°41.7	
21	357°51.6	11.4'	$14^{\circ}16.1$	14.6'	58.2'	113°50.4	106°05.5	102°49.4	30°26.9	76°51.0	86°42.7	109°14.1	
22	12°22.0	11.5'	$14^{\circ}01.6$	14.6'	58.2'	113°18.0	105°38.5	102°15.8	29°52.7	77°25.3	87°09.8	109°46.6	
23	26°52.5	11.5'	13°46.9	14.7'	58.2'	112°45.6	105°11.4	101°42.0	29°18.4	77°59.6	87°37.0	$110^{\circ}19.1$	
3 rd	SD	= 15.6'	Mer. pass	s. 21:09									

Moon (4th Oct)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Mars
0	41°23.0	11.5'	S 13°32.2	14.8'	58.3'	118°28.2	112°13.1	101°08.3	28°44.1	78°34.0	88°04.2	92°06.4	110°51.7
1	55°53.5	11.5'	13°17.4	14.9'	58.3'	117° 56.8	111°40.6	100°34.5	28°09.7	79°08.5	88°31.5	92°33.0	111°24.4
2	70°24.0	11.6'	$13^{\circ}02.5$	15.0'	58.4'	117°25.3	111°08.0	100°00.6	27°35.3	79°42.9	88°58.8	92°59.7	111°57.0
3	84°54.6	11.6'	12°47.5	15.1'	58.4'	116°53.7	110°35.3	99°26.7	27°00.9	80°17.5	89°26.2	93°26.4	112°29.8
4	99°25.2	11.6'	12°32.4	15.2'	58.4'	116°22.1	110°02.6	98°52.7	26°26.4	80°52.1	89°53.5	93°53.1	113°02.5
5	113°55.8	11.6'	$12^{\circ}17.3$	15.2'	58.5'	115°50.4	109°29.8	98° 18.7	25°51.9	81°26.7	90°21.0	94°19.8	113°35.4
6	128°26.4	11.6'	S 12°02.0	15.3'	58.5'	115° 18.6	108°57.0	97°44.6	25°17.4	82°01.3	90°48.4	94°46.6	114°08.2
7	142°57.0	11.6'	11°46.7	15.4'	58.6'	114°46.8	108°24.1	97° 10.5	24°42.8	82°36.1	91°15.9	95°13.4	114°41.1
8	157°27.6	11.7'	11°31.3	15.5'	58.6'	114° 14.8	107°51.1	96°36.3	24°08.2	83°10.8	91°43.5	95°40.2	115°14.1
9	171°58.3	11.7'	$11^{\circ}15.8$	15.6'	58.6'	113°42.9	107°18.1	96°02.1	23°33.6	83°45.7	92°11.0	96°07.1	115°47.1
10	186°28.9	11.7'	$11^{\circ}00.3$	15.6'	58.7'	113° 10.8	106°45.0	95°27.9	22°58.9	84°20.5	92°38.7	96°33.9	116°20.2
11	200°59.6	11.7'	$10^{\circ}44.6$	15.7'	58.7'	112°38.7	106°11.9	94°53.6	22°24.2	84°55.4	93°06.3	97°00.8	116°53.3
12	215°30.3	11.7'	S 10°28.9	15.8'	58.7'	112°06.5	105°38.7	94°19.2	21°49.5	85°30.4	93°34.0	97°27.7	117°26.4
13	230°01.0	11.7'	$10^{\circ}13.1$	15.9'	58.8'	111°34.3	105°05.5	93°44.8	21°14.7	86°05.4	94°01.6	97°54.6	117°59.6
14	244°31.7	11.7'	09°57.3	15.9'	58.8'	111°01.9	104°32.2	93°10.4	20°40.0	86°40.4	94°29.4	98°21.5	118°32.8
15	259°02.4	11.7'	09°41.3	16.0'	58.9'	110°29.6	103°58.8	92°35.9	20°05.2	87°15.5	94°57.1	98°48.5	119°06.1
16	273°33.2	11.7'	09°25.3	16.1'	58.9'	109°57.1	103°25.4	92°01.3	19°30.4	87°50.7	95°24.9	99°15.4	119°39.5
17	288°03.9	11.7'	$09^{\circ}09.3$	16.1'	58.9'	109°24.6	102°52.0	91°26.8	18°55.5	88°25.9	95°52.7	99°42.4	
18	302°34.6	11.7'	S 08°53.2	16.2'	59.0'	108° 52.1	102°18.5	90°52.1	18°20.7	89°01.1	96°20.5	100°09.4	
19	317°05.4	11.8'	08°37.0	16.3'	59.0'	108° 19.4	101°45.0	90°17.5	17°45.9	89°36.4	96°48.3	100°36.4	
20	331°36.1	11.8'	08°20.7	16.3'	59.0'	107°46.8	101°11.3	89°42.7	17°11.0	90°11.7	97°16.2	101°03.4	
21	346°06.9	11.8'	08°04.4	16.4'	59.1'	107° 14.0	100°37.7	89°08.0	16°36.2	90°47.1	97°44.1	101°30.4	
22	0°37.6	11.8'	07°48.0	16.4'	59.1'	106°41.2	100°04.0	88°33.1	16°01.4	91°22.5	98°12.0	101°57.4	
23	15°08.4 11.8' 07°31.5 16.5' 59.1					106°08.4	99°30.2	87°58.3	15°26.5	91°58.0	98°39.9	102°24.4	
4 th	SD	$=15.9^{\prime}$	Mer. pass	s. 21:57									

Moon (5th Oct) h

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Sun	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	29°39.2	11.8'	$$07^{\circ}15.0$	16.6'	59.2'			87°23.4	14°51.7	48°51.5	92°33.5	99°07.8	102°51.4
1	44°09.9	11.8'	06°58.5	16.6'	59.2'			86°48.5	14°16.9	49°16.2	93°09.1	99°35.8	103°18.4
2	58°40.7	11.8'	06°41.8	16.7'	59.2'			86°13.5	13°42.2	49°41.0	93°44.7	100°03.7	103°45.4
3	73°11.4	11.7'	06°25.2	16.7'	59.3'			85°38.4	13°07.5	50°06.0	94°20.3	100°31.7	104°12.4
4	87°42.2	11.7'	06°08.5	16.8'	59.3'			85°03.4	12°32.9	50°31.2	94°56.0	100°59.6	104°39.4
5	102°12.9	11.7'	$05^{\circ}51.7$	16.8'	59.4'			84°28.3	11°58.4	50°56.6	95°31.7	101°27.6	105°06.3
6	116°43.6	11.7'	S 05°34.8	16.9'	59.4'			83°53.1	11°23.9	51°22.2	96°07.5	101°55.6	105°33.3
7	131°14.4	11.7'	05°18.0	16.9'	59.4'			83°17.9	10°49.6	51°47.9	96°43.3	102°23.5	106°00.3
8	145°45.1	11.7'	$05^{\circ}01.1$	17.0'	59.5'			82°42.7	10°15.4	52°13.8	97° 19.2	102°51.5	106°27.2
9	160°15.8	11.7'	04°44.1	17.0'	59.5'			82°07.4	9°41.4	52°39.9	97°55.1	103°19.5	106°54.1
10	174°46.5	11.7'	$04^{\circ}27.1$	17.1'	59.5'			81°32.1	9°07.6	53°06.2	98°31.0	103°47.5	107°21.0
11	189°17.2	11.7'	$04^{\circ}10.0$	17.1'	59.6'			80°56.7	8°34.1	53°32.6	99°07.0	104°15.5	107°47.9
12	203°47.8	11.7'	S 03°52.9	17.1'	59.6'			80°21.3	8°01.0	53°59.2	99°43.0	104°43.4	108°14.8
13	218°18.5	11.6'	03°35.8	17.2'	59.6'			79°45.9	7°28.3	54°25.9	100° 19.1	105°11.4	108°41.6
14	232°49.1	11.6'	03°18.6	17.2'	59.6'			79°10.4	6°56.1	54°52.8	100°55.2	105°39.3	109°08.4
15	247°19.7	11.6'	03°01.4	17.2'	59.7'			78°34.9	6°24.7	55°19.8	101°31.4	106°07.3	109°35.2
16	261°50.4	11.6'	02°44.2	17.3'	59.7'			77°59.4	5°54.1	55°46.9	102°07.5	106°35.2	110°01.9
17	276°20.9	11.6'	02°26.9	17.3'	59.7'			77°23.8		56°14.3	102°43.8	107°03.1	110°28.7
18	290°51.5	11.5'	S 02°09.6	17.3'	59.8'	119°49.3	119°33.3	76°48.2		56°41.7	103°20.0	107°31.0	110°55.3
19	305°22.0	11.5'	$01^{\circ}52.3$	17.4'	59.8'	119°13.1	118°57.4	76°12.6		57°09.3	103°56.3	107°58.8	111°22.0
20	319°52.6	11.5'	$01^{\circ}34.9$	17.4'	59.8'	118°36.7	118°21.5	75°36.9		57°37.0	104°32.7	108°26.7	111°48.6
21	334°23.1	11.5'	$01^{\circ}17.5$	17.4'	59.9'	118°00.4	117° 45.5	75°01.2		58°04.9	105°09.1	108°54.5	112°15.1
22	348°53.5	11.4'	$01^{\circ}00.1$	17.4'	59.9'	117°24.0	117°09.5	74°25.4		58°32.9	105°45.5	109°22.3	112°41.6
23	3°24.0	11.4'	00°42.7	17.5'	59.9'	116°47.6	116°33.5	73°49.6		59°01.0	106°21.9	109°50.1	113°08.1
5 th	SD	= 16.1'	Mer. pass	s. 22:46									

	 	(<i>_</i>	ш	ъ. п		6 "	ALL				
h	Moon ((6 th Oct)			l unar f	Distance	(objects w	ith larges	t hourly LD	delta)	

		IVIOU	11 (0. OC	١)			Luliai i	Distance	(Objects W	itii laiges	t hourly LD	ueitaj	
Mon	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Antares
0	17°54.4	11.4'	S 00°25.2	17.5'	60.0'	116°11.2	115°57.4	85°12.4	73°13.8		31°18.9	59°29.2	106°58.4
1	32°24.8	11.4'	S 00°07.7	17.5'	60.0'	115°34.7	115°21.2	84°37.6	72°38.0		31°46.8	59°57.5	107°35.0
2	46°55.1	11.3'	N 00°09.8	17.5'	60.0'	114°58.1	114°45.1	84°02.8	72°02.1		32°14.9	60°26.0	108° 11.5
3	61°25.4	11.3'	00°27.3	17.5'	60.0'	114°21.6	114°08.9	83°27.9	71°26.2		32°43.3	60°54.6	108°48.1
4	75°55.7	11.3'	00°44.8	17.5'	60.1'	113°45.0	113°32.6	82°53.0	70°50.3		33°12.0	61°23.3	109°24.8
5	90°26.0	11.2'	$01^{\circ}02.3$	17.5'	60.1'	113°08.3	112°56.3	82°18.1	70°14.3		33°41.0	61°52.1	110°01.4
6	104°56.2	11.2'	N01°19.9	17.6'	60.1'	112°31.7	112°20.0	81°43.2	69°38.3		34°10.1	62°21.0	110°38.1
7	119°26.4	11.1'	01°37.4	17.6'	60.1'	111°55.0	111°43.7	81°08.2	69°02.3		34°39.6	62°50.0	111°14.9
8	133°56.5	11.1'	$01^{\circ}55.0$	17.6'	60.2'	111°18.2	111°07.3	80°33.2	68°26.3		35°09.2	63°19.1	111°51.6
9	148°26.6	11.1'	$02^{\circ}12.6$	17.6'	60.2'	110°41.5	110°30.9	79°58.2	67°50.2		35°39.1	63°48.3	112°28.4
10	162°56.7	11.0'	02°30.1	17.6'	60.2'	110°04.7	109°54.4	79°23.1	67°14.1		$36^{\circ}09.1$	64°17.6	113°05.3
11	177°26.7	11.0'	02°47.7	17.6'	60.2'	109°27.9	109°18.0	78°48.1	66°38.0	7°31.8	36°39.4	64°47.0	113°42.1
12	191°56.7	10.9'	N03°05.3	17.6'	60.3'	108°51.0	108°41.4	78°13.0	66°01.9	8°05.3	37°09.9	65°16.5	114° 19.0
13	206°26.6	10.9'	03°22.8	17.6'	60.3'	108°14.1	108°04.9	77°37.9	65°25.7	8°39.4	37°40.5	65°46.1	114°55.9
14	220°56.5	10.8'	03°40.4	17.6'	60.3'	107°37.2	107°28.3	77°02.7	64°49.5	9°13.8	38°11.4	66°15.7	115°32.9
15	235°26.3	10.8'	03°58.0	17.5'	60.3'	107°00.2	106°51.7	76°27.6	64°13.3	9°48.6	38°42.4	66°45.5	116°09.9
16	249°56.1	10.7'	04°15.5	17.5'	60.4'	106°23.3	106° 15.1	75°52.4	63°37.1	10°23.7	39°13.6	67°15.3	116°46.9
17	264°25.9	10.7'	04°33.0	17.5'	60.4'	105°46.3	105°38.4	75°17.3	63°00.9	10°59.0	39°45.0	67°45.3	117°23.9
18	278°55.6	10.6'	N 04°50.6	17.5'	60.4'	105°09.2	105°01.8	74°42.1	62°24.6	11°34.6	40°16.5	68°15.2	118°01.0
19	293°25.2	10.6'	$05^{\circ}08.1$	17.5'	60.4'	104°32.2	104°25.0	74°06.9	61°48.3	12°10.4	40°48.1	68°45.3	118°38.1
20	307°54.8	10.5'	05°25.6	17.5'	60.4'	103°55.1	103°48.3	73°31.6	61°12.1	12°46.3	41°19.9	69°15.5	119° 15.2
21	322°24.3	10.5'	$05^{\circ}43.1$	17.5'	60.5'	103°18.0	103°11.5	72°56.4	60°35.8	13°22.4	41°51.9	69°45.7	119°52.3
22	336°53.8	10.4'	06°00.5	17.4'	60.5'	102°40.9	102°34.7	72°21.2	59°59.4	13°58.6	42°24.0	70°16.0	
23	351°23.2	10.4'	06°18.0	17.4'	60.5'	102°03.7	101°57.9	71°45.9	59°23.1	14°34.9	42°56.2	70°46.3	
6 th	SD	$= 16.4^{\prime}$	Mer. pass	. 23:36									

h	Moon	(7 th	Oct)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Vega
0	5°52.6	10.3'	N 06°35.4	17.4'	60.5'	101°26.5	101°21.1	71°10.7	58°46.8	15°11.3	43°28.5	71°16.8	
1	20°21.9	10.2'	$06^{\circ}52.8$	17.4'	60.5'	100°49.3	100°44.2	70°35.4	58° 10.4	15°47.8	44°01.0	71°47.2	
2	34°51.2	10.2'	$07^{\circ}10.1$	17.3'	60.6'	100°12.1	100°07.3	70°00.1	57°34.0	16°24.4	44°33.6	72°17.8	
3	49°20.3	10.1'	07°27.4	17.3'	60.6'	99°34.8	99°30.4	69°24.8	56° 57.7	17°01.1	45°06.3	72°48.4	i i
4	63°49.5	10.1'	07°44.7	17.3'	60.6'	98°57.6	98°53.5	68°49.5	56°21.3	17°37.9	45°39.1	73°19.1	
5	78°18.5	10.0'	$08^{\circ}02.0$	17.2'	60.6'	98°20.3	98°16.5	68°14.3	55°44.9	18°14.7	46°12.0	73°49.8	
6	92°47.5	9.9'	N 08°19.2	17.2'	60.6'	97°43.0	97°39.6	67°39.0	55°08.5	18°51.6	46°45.0	74°20.6	
7	107°16.4	9.9'	08°36.4	17.1'	60.6'	97°05.6	97°02.6	67°03.7	54°32.1	19°28.6	47°18.2	74°51.4	
8	121°45.3	9.8'	08°53.6	17.1'	60.7'	96°28.3	96°25.6	66°28.4	53°55.7	20°05.6	47°51.4	75°22.3	88°18.4
9	136°14.1	9.7'	$09^{\circ}10.7$	17.1'	60.7'	95°50.9	95°48.5	65°53.1	53° 19.3	20°42.6	48°24.7	75°53.2	88°33.4
10	150°42.8	9.6'	09°27.7	17.0'	60.7'	95°13.6	95°11.5	65°17.8	52°42.9	21°19.7	48°58.1	76°24.2	88°48.4
11	165°11.4	9.6'	09°44.7	17.0'	60.7'	94°36.2	94°34.4	64°42.6	52°06.5	21°56.9	49°31.6	76°55.2	89°03.5
12	179°40.0	9.5'	N 10°01.7	16.9'	60.7'	93°58.7	93°57.3	64°07.3	51°30.1	22°34.1	50°05.1	77°26.3	89°18.6
13	194°08.5	9.4'	$10^{\circ}18.6$	16.9'	60.7'	93°21.3	93°20.3	63°32.0	50°53.7	23°11.3	50°38.8	77°57.4	89°33.6
14	208°37.0	9.4'	10°35.5	16.8'	60.7'	92°43.9	92°43.1	62°56.8	50° 17.3	23°48.5	51°12.5	78°28.5	89°48.7
15	223°05.3	9.3'	$10^{\circ}52.3$	16.8'	60.7'	92°06.4	92°06.0	62°21.5	49°40.9	24°25.8	51°46.3	78°59.7	90°03.8
16	237°33.6	9.2'	$11^{\circ}09.1$	16.7'	60.8'	91°28.9	91°28.9	61°46.3	49°04.5	25°03.1	52°20.2	79°30.9	90°18.9
17	252°01.8	9.1'	$11^{\circ}25.7$	16.6'	60.8'	90°51.5	90°51.7	61°11.1	48°28.2	25°40.5	52°54.1	80°02.2	90°34.0
18	266°29.9	9.0'	N 11°42.4	16.6'	60.8'	90°14.0	90°14.6	60°35.9	47°51.8	26°17.9	53°28.1	80°33.4	90°49.1
19	280°58.0	9.0'	$11^{\circ}58.9$	16.5'	60.8'	89°36.5	89°37.4	60°00.7	47° 15.5	26°55.3	54°02.2	81°04.8	91°04.2
20	295°25.9	8.9'	12° 15.4	16.4'	60.8'	88°58.9	89°00.2	59°25.6	46°39.1	27°32.7	54°36.3	81°36.1	91°19.3
21	309°53.8	8.8'	12°31.9	16.4'	60.8'	88°21.4	88°23.0	58°50.4	46°02.8	28°10.1	55°10.5	82°07.5	91°34.4
22	324°21.6	8.7'	12°48.2	16.3'	60.8'	87°43.9	87°45.8	58°15.3	45° 26.5	28°47.6	55°44.8	82°38.9	91°49.5
23	338°49.3	8.6'	13°04.5	16.2'	60.8'	87°06.3	87°08.6	57°40.2	44°50.2	29°25.1	56°19.1	83°10.3	92°04.6
7 th	SI	0 = 16.5	o' Mer. pa:	ss:-			-						

Moon (8th Oct)

Lunar Distance (objects with largest hourly LD delta)

									(02)0000		<i>yeeay = 2</i>		
Wed	GHA	ν	Dec	d	HP	-Regulus	-Jupiter	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	353°17.0	8.6'	N13°20.7	16.1'	60.8'		86°31.4	86°28.8	44°14.0	30°02.6	56°53.4		83°41.7
1	7°44.5	8.5'	13°36.9	16.1'	60.8'		85°54.2	85°51.2	43°37.7	30°40.1	57°27.8		84°13.2
2	22°12.0	8.4'	13°52.9	16.0'	60.8'		85°16.9	85°13.7	43°01.5	31°17.6	58°02.3		84°44.6
3	36°39.4	8.3'	14°08.9	15.9'	60.8'		84°39.7	84°36.1	42°25.3	31°55.2	58°36.8		85°16.1
4	51°06.7	8.2'	14°24.8	15.8'	60.8'		84°02.4	83°58.5	41°49.2	32°32.7	59°11.3		85°47.6
5	65°33.9	8.1'	14°40.6	15.7'	60.8'		83°25.2	83°20.9	41°13.1	33°10.3	59°45.9		86°19.1
6	80°01.0	8.0'	N14°56.4	15.6'	60.9'	119°35.5	82°47.9	82°43.4	40°37.0	33°47.9	60°20.5		86°50.7
7	94°28.0	7.9'	15° 12.0	15.5'	60.9'	118°57.9	82°10.7	82°05.8	40°00.9	34°25.5	60°55.2		87°22.2
8	108°55.0	7.8'	15° 27.5	15.4'	60.9'	118°20.3	81°33.4	81°28.2	39°24.9	35°03.1	61°29.9		87°53.7
9	123°21.8	7.8'	15°43.0	15.4'	60.9'	117°42.7	80°56.2	80°50.6	38°48.9	35°40.7	62°04.6		88°25.3
10	137°48.6	7.7'	15°58.3	15.3'	60.9'	117°05.1	80°18.9	80°13.0	38°13.0	36°18.3	62°39.4		88°56.8
11	152°15.2	7.6'	$16^{\circ}13.6$	15.2'	60.9'	116°27.5	79°41.6	79°35.4	37°37.1	36°55.9	63°14.2		89°28.4
12	166°41.8	7.5'	$N16^{\circ}28.7$	15.0'	60.9'	115°49.9	79°04.4	78°57.8	37°01.3	37°33.6	63°49.0		90°00.0
13	181°08.3	7.4'	16°43.8	14.9'	60.9'	115°12.2	78°27.1	78°20.3	36°25.5	38°11.2	64°23.8		90°31.5
14	195°34.7	7.3'	$16^{\circ}58.7$	14.8'	60.9'	114°34.6	77°49.9	77°42.7	35°49.7	38°48.8	64°58.7		91°03.1
15	210°01.0	7.2'	$17^{\circ}13.6$	14.7'	60.9'	113°57.0	77°12.6	77°05.1	35°14.1	39°26.5	65°33.6	72° 13.5	91°34.6
16	224°27.2	7.1'	17°28.3	14.6'	60.9'	113°19.4	76°35.4	76°27.5	34°38.5	40°04.1	66°08.5	72°28.7	92°06.2
17	238°53.3	7.0'	17°42.9	14.5'	60.9'	112°41.8	75°58.1	75°49.9	34°02.9	40°41.7	66°43.5	72°44.0	92°37.7
18	253°19.3	6.9'	$N17^{\circ}57.4$	14.4'	60.9'	112°04.2	75°20.9	75°12.4	33°27.4	41°19.4	67°18.5	72°59.4	93°09.2
19	267°45.2	6.8'	$18^{\circ}11.8$	14.3'	60.9'	111°26.6	74°43.6	74°34.8	32°52.0	41°57.0	67°53.4	73° 15.0	93°40.7
20	282°11.1	6.7'	18°26.1	14.1'	60.9'	110°49.0	74°06.4	73°57.2	32°16.7	42°34.6	68°28.4	73°30.6	94°12.2
21	296°36.8	6.6'	18°40.2	14.0'	60.8'	110°11.5	73°29.2	73°19.7	31°41.5	43°12.3	69°03.5	73°46.3	94°43.7
22	311°02.4	6.5'	18°54.2	13.9'	60.8'	109°33.9	72°52.0	72°42.1	31°06.3	43°49.9	69°38.5	74°02.1	95°15.2
23	325°28.0	6.4'	19°08.1	13.8'	60.8'	108°56.3	72°14.8	72°04.6	30°31.3	44°27.5	70°13.5	74°18.1	95°46.7
8 th	SD	= 16.6	′ Mer. pas	s. 00:28									

h Moon (9th Oct)

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Jupiter	-Pollux	+Saturn	+Fomalhaut	+Achernar	+Altair
0	339°53.4	6.4'	$N19^{\circ}21.9$	13.6'	60.8'	108° 18.8	76°13.1	71°37.6	71°27.1	45°05.1	70°48.6	77°16.6	96°18.1
1	354°18.8	6.3'	19°35.6	13.5'	60.8'	107°41.2	75°38.0	71°00.4	70°49.6	45°42.7	71°23.7	77°34.7	96° 49.5
2	8°44.0	6.2'	19°49.1	13.4'	60.8'	107°03.7	75°02.9	70°23.2	70°12.1	46°20.3	71°58.7	77°52.9	97° 20.9
3	23°09.2	6.1'	20°02.5	13.2'	60.8'	106°26.2	74°27.8	69°46.1	69°34.6	46°57.9	72°33.8	78°11.1	97°52.3
4	37°34.2	6.0'	$20^{\circ}15.7$	13.1'	60.8'	105°48.7	73°52.8	69°08.9	68°57.1	47°35.5	73°08.9	78°29.4	98°23.6
5	51°59.2	5.9'	20°28.8	13.0'	60.8'	105°11.1	73° 17.7	68°31.8	68°19.6	48°13.1	73°44.0	78°47.8	98°54.9
6	66°24.1	5.8'	N20°41.8	12.8'	60.8'	104°33.7	72°42.7	67°54.6	67°42.2	48°50.6	74°19.1	79°06.2	99°26.2
7	80°48.9	5.7'	20°54.6	12.7'	60.8'	103°56.2	72°07.8	67° 17.5	67°04.7	49°28.2	74°54.2	79°24.6	99° 57.5
8	95°13.6	5.6'	21°07.3	12.5'	60.8'	103°18.7	71°32.8	66°40.4	66°27.3	50°05.7	75°29.3	79°43.2	100°28.7
9	109°38.2	5.5'	$21^{\circ}19.9$	12.4'	60.8'	102°41.3	70°57.9	66°03.3	65°49.8	50°43.3	76°04.4	80°01.7	100°59.9
10	124°02.7	5.4'	21°32.3	12.2'	60.8'	102°03.8	70°23.1	65°26.2	65°12.4	51°20.8	76°39.5	80°20.3	101°31.0
11	138°27.1	5.3'	$21^{\circ}44.5$	12.1'	60.7'	101°26.4	69°48.2	64°49.2	64°35.1	51°58.3	77°14.6	80°39.0	102°02.1
12	152°51.4	5.2'	N21°56.6	11.9'	60.7'	100°49.0	69°13.4	64°12.1	63°57.7	52°35.8	77°49.7	80°57.7	102°33.2
13	167°15.6	5.1'	22°08.6	11.8'	60.7'	100°11.6	68°38.6	63°35.1	63°20.3	53°13.2	78°24.7	81°16.4	103°04.2
14	181°39.8	5.1'	22°20.3	11.6'	60.7'	99°34.2	68°03.9	62°58.1	62°43.0	53°50.7	78°59.8	81°35.2	103°35.2
15	196°03.8	5.0'	22°32.0	11.5'	60.7'	98°56.9	67°29.2	62°21.1	62°05.7	54°28.2	79°34.9	81°54.0	104°06.1
16	210°27.8	4.9'	22°43.5	11.3'	60.7'	98° 19.5	66°54.6	61°44.2	61°28.4	55°05.6	80°10.0	82°12.8	104°37.0
17	224°51.7	4.8'	22°54.8	11.2'	60.7'	97°42.2	66° 19.9	61°07.2	60°51.1	55°43.0	80°45.0	82°31.7	105°07.9
18	239°15.5	4.7'	N 23°05.9	11.0'	60.7'	97°04.9	65°45.4	60°30.3	60°13.8	56°20.4	81°20.0	82°50.6	105°38.7
19	253°39.2	4.6'	23°16.9	10.8'	60.6'	96°27.6	65° 10.8	59°53.4	59°36.6	56°57.8	81°55.1	83°09.5	106°09.4
20	268°02.8	4.5'	23°27.8	10.7'	60.6'	95°50.4	64°36.4	59° 16.5	58°59.3	57°35.1	82°30.1	83°28.5	106°40.1
21	282°26.3	4.4'	23°38.4	10.5'	60.6'	95°13.1	64°01.9	58°39.6	58°22.1	58°12.4	83°05.1	83°47.5	107° 10.7
22	296°49.8	4.4'	23°48.9	10.3'	60.6'	94°35.9	63°27.5	58°02.8	57°45.0	58°49.8	83°40.1	84°06.5	107°41.3
23	311°13.1	4.3'	23°59.2	10.2'	60.6'	93°58.7	62°53.2	57°26.0	57°07.8	59°27.1	84°15.1	84°25.5	108°11.8
9 th	SD	= 16.6'	Mer. pas	s. 01:24									

h Moon (10th Oct)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Jupiter	-Pollux	+Saturn	+Achernar	+Fomalhaut	+Altair
0	325°36.4	4.2'	N 24°09.4	10.0'	60.6'	93°21.5	62°18.9	56°49.2	56°30.7	60°04.3	84°44.6	84°50.0	108°42.3
1	339°59.6	4.1'	24°19.4	9.8'	60.5'	92°44.4	61°44.7	56°12.4	55°53.6	60°41.6	85°03.6	85°25.0	109°12.6
2	354°22.7	4.1'	24°29.2	9.6'	60.5'	92°07.3	61°10.5	55°35.7	55°16.5	61°18.8	85°22.7	85°59.9	109°43.0
3	8°45.8	4.0'	24°38.8	9.4'	60.5'	91°30.2	60°36.4	54°59.0	54°39.4	61°56.0	85°41.8	86°34.8	110°13.2
4	23°08.8	3.9'	24°48.2	9.3'	60.5'	90°53.1	60°02.3	54°22.3	54°02.4	62°33.2	86°00.9	87°09.7	110°43.4
5	37°31.7	3.8'	24°57.5	9.1'	60.5'	90°16.0	59°28.3	53°45.6	53°25.4	63°10.4	86°19.9	87°44.6	111°13.5
6	51°54.5	3.8'	N 25°06.6	8.9'	60.5'	89°39.0	58°54.4	53°09.0	52°48.4	63°47.5	86°39.1	88°19.4	111°43.6
7	66°17.3	3.7'	25°15.5	8.7'	60.4'	89°02.0	58° 20.5	52°32.4	52°11.4	64°24.6	86°58.2	88°54.2	112°13.5
8	80°40.0	3.6'	25°24.2	8.5'	60.4'	88°25.0	57°46.7	51°55.8	51°34.5	65°01.7	87°17.3	89°29.0	112°43.4
9	95°02.6	3.6'	25°32.8	8.4'	60.4'	87°48.0	57° 12.9	51°19.2	50°57.6	65°38.8	87°36.4	90°03.8	113°13.2
10	109°25.2	3.5'	25°41.1	8.2'	60.4'	87°11.1	56°39.2	50°42.7	50°20.7	66°15.8	87°55.5	90°38.6	113°43.0
11	123°47.7	3.4'	25°49.3	8.0'	60.4'	86°34.2	56°05.6	50°06.2	49°43.9	66°52.8	88°14.6	91°13.3	114°12.6
12	138°10.1	3.4'	N 25°57.2	7.8'	60.3'	85°57.3	55°32.1	49°29.7	49°07.0	67°29.8	88°33.7	91°48.0	114°42.2
13	152°32.5	3.3'	26°05.0	7.6'	60.3'	85°20.5	54°58.6	48°53.3	48°30.2	68°06.7	88°52.8	92°22.6	115°11.6
14	166°54.8	3.3'	$26^{\circ}12.6$	7.4'	60.3'	84°43.7	54°25.2	48°16.9	47°53.5	68°43.7	89°11.9	92°57.3	115°41.0
15	181°17.1	3.2'	26°20.0	7.2'	60.3'	84°06.9	53°51.9	47°40.5	47°16.7	69°20.5	89°30.9	93°31.9	116°10.3
16	195°39.3	3.2'	26°27.2	7.0'	60.3'	83°30.1	53°18.6	47°04.2	46°40.0	69°57.4	89°50.0	94°06.5	116°39.5
17	210°01.5	3.1'	26°34.3	6.8'	60.2'	82°53.4	52°45.5	46°27.9	46°03.4	70°34.3	90°09.0	94°41.0	117°08.6
18	224°23.6	3.1'	N 26°41.1	6.6'	60.2'	82°16.7	52°12.4	45°51.6	45°26.7	71°11.1	90°28.1	95°15.5	117°37.6
19	238°45.7	3.0'	26°47.7	6.4'	60.2'	81°40.0	51°39.4	45° 15.4	44°50.1	71°47.8	90°47.1	95°50.0	118°06.5
20	253°07.7	3.0'	$26^{\circ}54.1$	6.2'	60.2'	81°03.4	51°06.5	44°39.1	44°13.5	72°24.6	91°06.0	96°24.5	118°35.3
21	267°29.7	2.9'	27°00.4	6.0'	60.1'	80°26.8	50°33.6	44°03.0	43°37.0	73°01.3	91°25.0	96°58.9	119°04.0
22	281°51.6	2.9'	27°06.4	5.8'	60.1'	79°50.2	50°00.9	43°26.8	43°00.5	73°38.0	91°44.0	97°33.2	119°32.6
23	296°13.5	2.9'	27°12.2	5.6'	60.1'	79°13.7	49°28.3	42°50.7	42°24.0	74°14.7	92°02.9	98°07.6	
10 th	SD	= 16.5	Mer. pas	s. 02:23								·	

Moon (11th Oct)

h

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Jupiter	-Pollux	+Aldebaran	+Saturn	+Achernar	+Fomalhaut
0	310°35.4	2.8'	N27°17.8	5.4'	60.1'		78°37.2	42°14.7	41°47.6		74°51.3	92°21.8	98°41.9
1	324°57.3	2.8'	27°23.3	5.2'	60.0'		78°00.7	41°38.7	41°11.2		75°27.9	92°40.6	99°16.2
2	339°19.1	2.8'	27°28.5	5.0'	60.0'		77°24.3	41°02.7	40°34.8		76°04.4	92°59.5	99°50.4
3	353°40.9	2.8'	27°33.5	4.8'	60.0'		76°47.8	40°26.7	39°58.4		76°41.0	93° 18.3	100°24.6
4	8°02.6	2.7'	27°38.4	4.6'	60.0'		76°11.5	39°50.8	39°22.1		77° 17.5	93°37.0	100°58.7
5	22°24.4	2.7'	27°43.0	4.4'	59.9'		75°35.1	39°14.9	38°45.9		77°53.9	93°55.8	101°32.9
6	36°46.1	2.7'	N27°47.4	4.2'	59.9'		74°58.8	38°39.1	38°09.6		78°30.4	94°14.5	102°06.9
7	51°07.8	2.7'	27°51.6	4.0'	59.9'		74°22.5	38°03.3	37°33.4		79°06.7	94°33.1	102°41.0
8	65°29.5	2.7'	27°55.6	3.8'	59.9'		73°46.3	37°27.5	36°57.3		79°43.1	94°51.7	103° 15.0
9	79°51.2	2.7'	$27^{\circ}59.5$	3.6'	59.8'		73°10.1	36°51.8	36°21.1		80° 19.4	95°10.3	103°48.9
10	94°12.9	2.7'	28°03.1	3.4'	59.8'		72°33.9	36°16.1	35°45.1		80°55.7	95°28.8	104°22.8
11	108°34.6	2.7'	28°06.5	3.2'	59.8'	119°59.7	71°57.8	35°40.5	35°09.0		81°32.0	95°47.3	104°56.7
12	122°56.2	2.7'	N 28°09.7	3.0'	59.8'	119°26.1	71°21.6	35°04.9	34°33.0		82°08.2	96°05.8	105°30.5
13	137°17.9	2.7'	$28^{\circ}12.7$	2.8'	59.7'	118°52.5	70°45.6	34°29.4	33°57.0	14°09.2	82°44.4	96°24.2	106°04.2
14	151°39.6	2.7'	$28^{\circ}15.4$	2.6'	59.7'	118°19.0	70°09.5	33°53.9	33°21.1	14°33.3	83°20.6	96°42.5	106°37.9
15	166°01.3	2.7'	28°18.0	2.4'	59.7'	117°45.5	69°33.5	33°18.4	32°45.2	14°58.1	83°56.7	97°00.8	107° 11.6
16	180°23.0	2.7'	28°20.4	2.2'	59.6'	117°12.0	68°57.6	32°43.0	32°09.3	15°23.7	84°32.8	97° 19.0	107°45.2
17	194°44.7	2.7'	28°22.6	2.0'	59.6'	116°38.6	68°21.7	32°07.6	31°33.5	15°49.9	85°08.8	97°37.2	108° 18.8
18	209°06.4	2.7'	N 28°24.6	1.8'	59.6'	116°05.2	67°45.8	31°32.3	30°57.7	16°16.6	85°44.8	97°55.3	108°52.3
19	223°28.1	2.8'	28°26.3	1.6'	59.6'	115°31.8	67°09.9	30°57.0	30°22.0	16°43.9	86°20.8	98°13.4	109°25.8
20	237°49.9	2.8'	28°27.9	1.4'	59.5'	114°58.5	66°34.1	30°21.8	29°46.3	17°11.6	86°56.7	98°31.4	109°59.2
21	252°11.7	2.8'	28°29.2	1.2'	59.5'	114°25.2	65°58.3	29°46.7	29°10.7	17°39.8	87°32.6	98°49.4	110°32.6
22	266°33.5	2.8'	28°30.4	1.0'	59.5'	113°52.0	65°22.6	29°11.5	28°35.0	18°08.4	88°08.5	99°07.3	111°05.9
23	280°55.3	2.9'	28°31.4	0.8'	59.4'	113°18.8	64°46.9	28°36.5	27°59.5	18°37.4	88°44.3	99°25.1	111°39.2
11 th	SD =	= 16.4'	Mer. pass	. 03:26	õ				Su	n SD $= 16.0'$			

h Moon (12th Oct)

Sun	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Jupiter	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	295°17.2	2.9'	$N28^{\circ}32.1$	0.5'	59.4'	112°45.6	64°11.2	28°01.4	27°24.0	19°06.7		89°20.1	112°12.4
1	309°39.1	2.9'	28°32.7	0.3'	59.4'	112°12.5	63°35.6	27°26.5	26°48.5	19° 36.3		89°55.8	112°45.5
2	324°01.0	3.0'	28°33.0	0.1'	59.4'	111°39.4	63°00.0	26°51.5	26°13.0	20°06.2		90°31.6	113°18.6
3	338°23.0	3.0'	28°33.2	-0.1'	59.3'	111°06.3	62°24.4	26°16.7	25°37.6	20°36.4		91°07.2	113°51.7
4	352°45.0	3.1'	28°33.1	-0.3'	59.3'	110°33.3	61°48.9	25°41.9	25°02.3	21°06.8		91°42.9	114°24.7
5	$7^{\circ}07.1$	3.1'	28°32.9	-0.5'	59.3'	110°00.3	61°13.4	25°07.1	24°27.0	21°37.4		92°18.5	114°57.6
6	21°29.2	3.2'	N28°32.4	-0.6'	59.2'	109°27.4	60°38.0	24°32.5	23°51.7	22°08.2		92°54.0	115°30.5
7	35°51.3	3.2'	28°31.8	-0.8'	59.2'	108°54.5	60°02.6	23°57.8	23°16.5	22°39.2		93°29.6	116°03.3
8	50°13.5	3.3'	28°30.9	-1.0'	59.2'	108°21.6	59°27.2	23°23.3	22°41.3	23° 10.3		94°05.1	116°36.0
9	64°35.8	3.3'	28°29.9	-1.2'	59.1'	107°48.8	58°51.9	22°48.8	22°06.2	23°41.6	19°53.1	94°40.5	117°08.7
10	78°58.1	3.4'	28°28.6	-1.4'	59.1'	107°16.0	58°16.6	22°14.3	21°31.2	24°13.1	20°09.4	95°15.9	117°41.3
11	93°20.5	3.4'	28°27.2	-1.6'	59.1'	106°43.2	57°41.3	21°40.0	20°56.1	24°44.7	20°26.5	95°51.3	118°13.9
12	107°43.0	3.5'	N 28°25.6	-1.8'	59.1'	106°10.5	57°06.1	21°05.7	20°21.2	25° 16.4	20°44.3	96°26.6	118°46.4
13	122°05.5	3.6'	28°23.7	-2.0'	59.0'	105°37.8	56°30.9	20°31.5	19°46.3	25°48.2	21°02.8	97°01.9	119°18.8
14	136°28.1	3.6'	28°21.7	-2.2'	59.0'	105°05.2	55°55.8	19°57.3	19°11.4	26°20.1	21°21.9	97°37.2	119°51.2
15	150°50.7	3.7'	$28^{\circ}19.5$	-2.4'	59.0'	104°32.6	55°20.7	19°23.3	18° 36.6	26°52.1	21°41.6	98°12.4	
16	165°13.4	3.8'	$28^{\circ}17.1$	-2.6'	58.9'	104°00.0	54°45.6	18°49.3	18°01.8	27°24.2	22°01.9	98°47.6	
17	179°36.2	3.9'	28°14.6	-2.8'	58.9'	103°27.5	54°10.6	18°15.4	17°27.2	27°56.3	22°22.8	99°22.7	
18	193°59.1	4.0'	$N28^{\circ}11.8$	-3.0'	58.9'	102°55.0	53°35.6	17°41.7	16°52.5	28° 28.5	22°44.2	99°57.8	
19	208°22.0	4.0'	28°08.8	-3.1'	58.8'	102°22.5	53°00.7	17°08.0	16° 18.0	29°00.8	23°06.1	100°32.9	
20	222°45.1	4.1'	28°05.7	-3.3'	58.8'	101°50.1	52°25.8	16°34.4	15°43.5	29°33.2	23°28.5	101°07.9	
21	237°08.2	4.2'	28°02.4	-3.5'	58.8'	101°17.7	51°50.9	16°00.9	15°09.0	30°05.5	23°51.3	101°42.9	
22	251°31.4 4.3' 27°58.9 -3.7' 58.7					100°45.4	51°16.1	15°27.6	14°34.7	30° 38.0	24°14.6	102°17.9	
23	265°54.7	4.4'	27°55.2	-3.9'	58.7'	100°13.1	50°41.3	14°54.4	14°00.4	31°10.5	24°38.2	102°52.8	
12 th	SD :	= 16.2'	Mer. pass	s. 04:30					Sur	SD = 16.0'			

Moon (13th Oct) Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Jupiter	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	280°18.1	4.5'	N27°51.3	-4.0'	58.7'	99°40.8	50°06.5	14°21.3	13°26.2		25°02.3	31°43.0	103°27.7
1	294°41.5	4.6'	27°47.3	-4.2'	58.6'	99°08.6	49°31.8	13°48.4	12°52.1	23°48.4	25°26.7	32°15.5	104°02.5
2	309°05.1	4.7'	27°43.0	-4.4'	58.6'	98°36.4	48°57.1	13°15.6	12°18.1	24°04.4	25°51.4	32°48.1	104°37.3
3	323°28.7	4.7'	27°38.6	-4.6'	58.6'	98°04.3	48°22.5	12°43.1	11°44.2	24°20.9	26°16.4	33°20.7	105°12.0
4	337°52.5	4.8'	27°34.1	-4.7'	58.6'	97°32.2	47°47.9	12°10.7	11°10.4	24°38.0	26°41.8	33°53.4	105°46.8
5	352°16.3	4.9'	27°29.3	-4.9'	58.5'	97°00.1	47°13.3	11°38.5	10°36.7	24°55.6	27°07.5	34°26.0	106°21.4
6	6°40.3	5.0'	N 27°24.4	-5.1'	58.5'	96°28.1	46°38.8	11°06.6	10°03.1	25°13.8	27°33.4	34°58.7	106°56.1
7	21°04.3	5.1'	$27^{\circ}19.3$	-5.3'	58.5'	95°56.1	46°04.3	10°35.0	9°29.7	25° 32.4	27°59.6	35°31.4	107°30.7
8	35°28.4	5.2'	$27^{\circ}14.0$	-5.4'	58.4'	95°24.1	45°29.9	10°03.8	8°56.5	25°51.6	28°26.0	36°04.1	108°05.3
9	49°52.7	5.4'	27°08.6	-5.6'	58.4'	94°52.2	44°55.5	9°32.8	8°23.5	26°11.2	28°52.6	36°36.8	108°39.8
10	64°17.0	5.5'	27°03.0	-5.8'	58.4'	94°20.4	44°21.1	9°02.3	7°50.7	26°31.3	29°19.5	37°09.5	109°14.3
11	78°41.5	5.6'	26°57.3	-5.9'	58.3'	93°48.5	43°46.7	8°32.3	7°18.2	26°51.8	29°46.6	37°42.3	109°48.7
12	93°06.1	5.7'	N 26°51.3	-6.1'	58.3'	93°16.7	43°12.4	8°02.9	6°46.1	27° 12.7	30°13.9	38°15.0	110°23.2
13	107°30.7	5.8'	26°45.2	-6.2'	58.3'	92°44.9	42°38.2	7°34.2	6°14.3	27°33.9	30°41.3	38°47.7	110°57.5
14	121°55.5	5.9'	26°39.0	-6.4'	58.2'	92°13.2	42°04.0	7°06.2	5°43.1	27° 55.6	31°08.9	39°20.5	111°31.9
15	136°20.4	6.0'	26°32.6	-6.6'	58.2'	91°41.5	41°29.8		5°12.5	28° 17.6	31°36.7	39°53.2	112°06.2
16	150°45.4	6.1'	26°26.0	-6.7'	58.2'	91°09.9	40°55.6		4°42.8	28°40.0	32°04.7	40°26.0	112°40.4
17	165°10.5	6.2'	26°19.3	-6.9'	58.1'	90°38.3	40°21.5			29°02.7	32°32.8	40°58.7	113°14.7
18	179°35.8	6.3'	$N26^{\circ}12.5$	-7.0'	58.1'	90°06.7	39°47.5			29°25.7	33°01.0	41°31.4	113°48.8
19	194°01.1	6.5'	26°05.4	-7.2'	58.1'	89°35.1	39°13.4			29°49.0	33°29.3	42°04.1	114°23.0
20	208°26.6	6.6'	25°58.3	-7.3'	58.1'	89°03.6	38°39.4			30°12.5	33°57.8	42°36.8	114°57.1
21	222°52.2	6.7'	25°51.0	-7.5'	58.0'	88°32.2	38°05.5			30°36.4	34°26.4	43°09.6	115°31.2
22	237°17.8	6.8'	25°43.5	-7.6'	58.0'	88°00.7	37°31.5			31°00.5	$34^{\circ}55.1$	43°42.2	116°05.2
23	251°43.7	6.9'	25°35.9	-7.8'	58.0'	87°29.3	36°57.7			31°24.9	35°24.0	44°14.9	116°39.2
13 th	SD :	= 16.0	Mer. pas	s. 05:32	!				Su	n SD $= 16.0'$			

Moon (14th Oct) h

Lunar Distance (objects with largest hourly LD delta)

			(= . •	,					(,	
Tue	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Venus	-Regulus	+Pollux	+Jupiter	+Aldebaran	+Saturn
0	266°09.6	7.0'	N 25°28.1	-7.9'	57.9'	104°19.3	86°58.0	66°09.1	36°23.8			44°47.6	117°13.2
1	280°35.6	7.2'	25°20.2	-8.0'	57.9'	103°57.8	86° 26.7	65°38.4	35°50.0			45°20.3	117°47.1
2	295°01.8	7.3'	25°12.2	-8.2'	57.9'	103°36.3	85°55.4	65°07.7	35°16.2			45° 52.9	118°21.0
3	309°28.1	7.4'	25°04.0	-8.3'	57.8'	103°14.8	85°24.1	64°37.1	34°42.5			46°25.6	118°54.9
4	323°54.5	7.5'	24°55.7	-8.4'	57.8'	102°53.3	84°52.9	64°06.5	34°08.8			46°58.2	119°28.7
5	338°21.0	7.6'	24°47.3	-8.6'	57.8'	102°31.7	84°21.7	63°35.9	33°35.1			47° 30.8	
6	352°47.6	7.8'	N 24°38.7	-8.7'	57.7'	102°10.1	83°50.6	63°05.4	33°01.5			48°03.4	
7	7°14.4	7.9'	24°30.0	-8.8'	57.7'	101°48.5	83° 19.5	62°34.9	32°27.9			48° 36.0	
8	21°41.3	8.0'	24°21.2	-9.0'	57.7'	101°26.9	82°48.4	62°04.5	31°54.3	5°33.6		49°08.5	
9	36°08.3	8.1'	24°12.2	-9.1'	57.6'	101°05.3	82°17.4	61°34.1	31°20.8	6°04.0		49°41.1	
10	50°35.4	8.2'	24°03.1	-9.2'	57.6'	100°43.6	81°46.4	61°03.7	30°47.3	6°34.9		50° 13.6	
11	65°02.6	8.4'	23°53.9	-9.3'	57.6'	100°22.0	81°15.4	60°33.4	30°13.9	7°06.2		50°46.1	
12	79°30.0	8.5'	N 23°44.5	-9.5'	57.6'	100°00.3	80°44.5	60°03.1	29°40.4	7°37.7	7°46.3	51° 18.6	
13	93°57.5	8.6'	23°35.1	-9.6'	57.5'	99°38.6	80°13.6	59°32.8	29°07.1	8°09.5	8°14.6	51°51.1	
14	108°25.1	8.7'	23°25.5	-9.7'	57.5'	99°16.9	79°42.7	59°02.6	28°33.7	8°41.4	8°43.4	52°23.5	
15	122°52.8	8.8'	23°15.8	-9.8'	57.5'	98°55.2	79°11.9	58°32.4	28°00.4	9°13.5	9°12.7	52° 55.9	
16	137°20.7	9.0'	23°05.9	-9.9'	57.4'	98°33.5	78°41.1	58°02.2	27°27.1	9°45.6	9°42.4	53°28.3	
17	151°48.6	9.1'	22°56.0	-10.1'	57.4'	98°11.8	78°10.4	57°32.1	26°53.9	10°17.9	10°12.3	54°00.7	
18	166°16.7	9.2'	N 22°45.9	-10.2'	57.4'	97°50.1	77°39.6	57°02.0	26°20.7	10°50.2	10°42.6	54°33.1	
19	180°44.9	9.3'	22°35.8	-10.3'	57.3'	97°28.4	77°09.0	56°32.0	25°47.5	11°22.6	11°13.1	55°05.5	
20	195°13.2	9.4'	22°25.5	-10.4'	57.3'	97°06.6	76°38.3	56°01.9	25°14.4	11°55.0	11°43.8	55° 37.8	
21	209°41.7	9.6'	$22^{\circ}15.1$	-10.5'	57.3'	96°44.9	76°07.7	55°31.9	24°41.3	12°27.5	12°14.6	56° 10.1	
22	224°10.2	9.7'	22°04.6	-10.6'	57.3'	96°23.2	75°37.1	55°02.0	24°08.2	12°59.9	12°45.6	56° 42.4	
23	238°38.9	9.8'	21°54.0	-10.7'	57.2'	96°01.5	75°06.5	54°32.1	23°35.2	13°32.4	13°16.7	57° 14.6	
14 th	SD	= 15.8	Mer. pas	ss. 06:30					Sun S	5D = 16.0'			

Moon (15th Oct) h

lunar Distance	/ . l	1.1	La contrata	1 1	1 0	1. h \
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Wed	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Venus	-Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran
0	253°07.7	9.9'	N21°43.3	-10.8'	57.2'	95°39.7	74°36.0	54°02.2	23°02.2	13°47.9	14°04.9	47° 45.3	57°46.9
1	267°36.6	10.0'	$21^{\circ}32.5$	-10.9'	57.2'	95°18.0	74°05.5	53°32.3	22°29.2	14° 19.2	14°37.5	48° 15.4	58°19.1
2	282°05.6	10.1'	$21^{\circ}21.6$	-11.0'	57.1'	94°56.3	73°35.1	53°02.5	21°56.3	14°50.5	15°10.0	48° 45.5	58°51.3
3	296°34.8	10.3'	$21^{\circ}10.6$	-11.1'	57.1'	94°34.6	73°04.6	52°32.7	21°23.4	15°21.9	15°42.5	49° 15.7	59°23.5
4	311°04.0	10.4'	20°59.5	-11.2'	57.1'	94°12.9	72°34.2	52°03.0	20°50.5	15°53.4	16°15.0	49°45.9	59°55.6
5	325°33.4	10.5'	20°48.3	-11.3'	57.1'	93°51.2	72°03.9	51°33.2	20° 17.7	16°25.0	16°47.5	50°16.1	60°27.7
6	340°02.9	10.6'	$N20^{\circ}37.1$	-11.4'	57.0'	93°29.5	71°33.6	51°03.6	19°44.9	16°56.5	17°20.0	50°46.3	60°59.9
7	354°32.5	10.7'	20°25.7	-11.5'	57.0'	93°07.9	71°03.3	50°33.9	19° 12.1	17°28.1	17°52.5	51°16.5	61°31.9
8	9°02.2	10.8'	20°14.2	-11.6'	57.0'	92°46.2	70°33.0	50°04.3	18°39.4	17°59.8	18°25.0	51°46.7	62°04.0
9	23°32.0	10.9'	20°02.6	-11.7'	56.9'	92°24.5	70°02.8	49°34.7	18°06.7	18°31.4	18°57.4	52°16.9	62°36.0
10	38°02.0	11.0'	$19^{\circ}51.0$	-11.7'	56.9'	92°02.9	69°32.6	49°05.1	17°34.0	19°03.1	19°29.9	52°47.2	63°08.0
11	52°32.0	11.2'	19°39.2	-11.8'	56.9'	91°41.3	69°02.4	48°35.6	17°01.4	19°34.8	20°02.3	53°17.4	63°40.0
12	67°02.2	11.3'	N19°27.4	-11.9'	56.9'	91°19.7	68°32.3	48°06.1	16°28.8	20°06.5	20°34.7	53°47.7	64°12.0
13	81°32.4	11.4'	$19^{\circ}15.5$	-12.0'	56.8'	90°58.1	68°02.2	47°36.6	15°56.3	20°38.2	21°07.1	54° 17.9	64°43.9
14	96°02.8	11.5'	19°03.5	-12.1'	56.8'	90°36.5	67°32.1	47°07.2	15°23.8	21°09.9	21°39.5	54°48.2	65°15.9
15	110°33.3	11.6'	18°51.4	-12.2'	56.8'	90°14.9	67°02.0	46°37.8	14°51.3	21°41.6	22°11.9	55° 18.4	65°47.8
16	125°03.9	11.7'	18°39.3	-12.2'	56.7'	89°53.4	66°32.0	46°08.4	14° 18.8	22°13.3	22°44.2	55°48.7	66°19.6
17	139°34.5	11.8'	$18^{\circ}27.1$	-12.3'	56.7'	89°31.9	66°02.0	45°39.1	13°46.4	22°45.0	23°16.5	56°19.0	66°51.5
18	154°05.3	11.9'	N 18°14.8	-12.4'	56.7'	89°10.4	65°32.1	45°09.8	13° 14.1	23°16.7	23°48.8	56°49.2	67°23.3
19	168°36.2	12.0'	18°02.4	-12.5'	56.7'	88°48.9	65°02.1	44°40.5	12°41.7	23°48.5	24°21.1	57° 19.5	67°55.1
20	183°07.2	12.1'	17°49.9	-12.5'	56.6'	88°27.5	64°32.2	44°11.3	12°09.4	24°20.2	24°53.4	57°49.7	68°26.9
21	197°38.3	12.2'	17°37.4	-12.6'	56.6'	88°06.0	64°02.4	43°42.1	11°37.2	24°51.8	25°25.6	58°20.0	68°58.7
22	212°09.5	12.3'	17°24.8	-12.7'	56.6'	87°44.6	63°32.5	43°12.9	11°05.0	25°23.5	25°57.8	58°50.2	69°30.4
23	226°40.8	12.4'	$17^{\circ}12.1$	-12.7'	56.6'	87°23.3	63°02.7	42°43.7	10°32.8	25°55.2	26°30.0	59°20.5	70°02.1
15 th	SD	= 15.6	Mer. pas	s. 07:23					Sun S	SD = 16.0'			

h	Moon (16 th Oct)	Lunar [Distance	(objects	with large	est hourl	y LD	delta	a)

Thu	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Venus	-Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran
0	241°12.2	12.5'	N 16°59.4	-12.8'	56.5'	87°01.9	62°33.0	42°14.6	10°00.7	26°26.9	27°02.2	59°50.7	70°33.8
1	255°43.7	12.6'	$16^{\circ}46.6$	-12.9'	56.5'	86°40.6	62°03.2	41°45.5	9°28.6	26° 58.5	27°34.3	60°21.0	71°05.4
2	270°15.3	12.7'	16°33.7	-12.9'	56.5'	86° 19.3	61°33.5	41°16.4	8°56.6	27°30.2	28°06.4	60°51.2	71°37.1
3	284°47.0	12.8'	16°20.8	-13.0'	56.4'	85°58.0	61°03.8	40°47.4	8°24.7	28°01.8	28°38.5	61°21.4	72°08.7
4	299°18.8	12.9'	$16^{\circ}07.8$	-13.1'	56.4'	85°36.8	60°34.1	40°18.4	7°52.8	28°33.4	29°10.6	61°51.6	72°40.3
5	313°50.6	13.0'	15°54.7	-13.1'	56.4'	85° 15.6	60°04.5	39°49.4	7°21.0	29°05.0	29°42.6	62°21.9	73°11.9
6	328°22.6	13.1'	N 15°41.6	-13.2'	56.4'	84°54.4	59°34.9	39°20.5	6°49.2	29°36.6	30°14.7	62°52.1	73°43.4
7	342°54.7	13.1'	15°28.4	-13.2'	56.3'	84°33.3	59°05.3	38°51.6	6°17.6	30°08.2	30°46.7	63°22.3	74°14.9
8	357°26.8	13.2'	$15^{\circ}15.2$	-13.3'	56.3'	84°12.2	58°35.7	38°22.7	5°46.1	30°39.7	31°18.7	63°52.5	74°46.4
9	11°59.0	13.3'	$15^{\circ}01.9$	-13.3'	56.3'	83°51.1	58°06.2	37°53.8	5°14.7	31°11.3	31°50.6	64°22.6	75°17.9
10	26°31.4	13.4'	14°48.5	-13.4'	56.3'	83°30.1	57°36.7	37°25.0	4°43.5	31°42.8	32°22.5	64°52.8	75°49.4
11	41°03.8	13.5'	$14^{\circ}35.1$	-13.5'	56.2'	83°09.1	57°07.2	36°56.2	4°12.5	32° 14.3	32°54.5	65°23.0	76°20.8
12	55°36.3	13.6'	N 14°21.7	-13.5'	56.2'	82°48.1	56° 37.8	36°27.4	3°41.8	32°45.8	33°26.3	65°53.2	76°52.2
13	70°08.8	13.7'	14°08.2	-13.6'	56.2'	82°27.2	56°08.4	35°58.7	3°11.6	33° 17.3	33°58.2	66°23.3	77°23.6
14	84°41.5	13.7'	13°54.6	-13.6'	56.2'	82°06.3	55°39.0	35°30.0	2°42.1	33°48.7	34°30.1	66°53.4	77°54.9
15	99°14.2	13.8'	13°41.0	-13.7'	56.1'	81°45.4	55°09.6	35°01.3		34°20.1	35°01.9	67°23.6	78°26.3
16	113°47.1	13.9'	13°27.4	-13.7'	56.1'	81°24.6	54°40.3	34°32.7		34°51.6	35°33.7	67°53.7	78°57.6
17	128°20.0	14.0'	$13^{\circ}13.7$	-13.7'	56.1'	81°03.9	54°11.0	34°04.0		35°23.0	36°05.4	68°23.8	79°28.9
18	142°53.0	14.1'	N 12°59.9	-13.8'	56.1'	80°43.2	53°41.7	33°35.4		35°54.4	36°37.2	68°53.9	80°00.2
19	157°26.0	14.1'	12°46.1	-13.8'	56.0'	80°22.5	53°12.4	33°06.9		36°25.7	37°08.9	69°24.0	80°31.4
20	171°59.2	14.2'	12°32.3	-13.9'	56.0'	80°01.9	52°43.2	32°38.3		36°57.1	37°40.6	69°54.0	81°02.6
21	186°32.4	14.3'	12°18.4	-13.9'	56.0'	79°41.3	52°14.0	32°09.8		37°28.4	38°12.3	70°24.1	81°33.8
22	201°05.6	14.4'	$12^{\circ}04.5$	-14.0'	56.0'	79°20.8	51°44.8	31°41.3		37° 59.7	38°44.0	70°54.1	82°05.0
23	215°39.0	14.4'	11°50.5	-14.0'	56.0'	79°00.3	51°15.6	31°12.9		38°31.0	39°15.6	71°24.2	82°36.2
16 th	SD	= 15.4	Mer. pas	s. 08:11					Sun S	SD = 16.0'			

h Moon (17th Oct) Lunar Distance (objects with largest hourly LD delta)

			(,					(/
Fri	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Venus	+Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran
0	230°12.4	14.5'	N 11°36.5	-14.0'	55.9'	78°39.8	50°46.5	30°44.5		39°02.3	39°47.2	71°54.2	83°07.3
1	244°45.9	14.6'	$11^{\circ}22.5$	-14.1'	55.9'	78° 19.4	50°17.4	30°16.1	3°33.1	39°33.5	40°18.8	72°24.2	83°38.4
2	259°19.5	14.6'	11°08.4	-14.1'	55.9'	77°59.1	49°48.3	29°47.7	4°03.3	40°04.8	40°50.4	72°54.2	84°09.5
3	273°53.1	14.7'	10°54.3	-14.1'	55.9'	77°38.8	49°19.2	29°19.4	4°33.8	40°36.0	41°21.9	73°24.2	84°40.6
4	288°26.8	14.8'	10°40.2	-14.2'	55.8'	77°18.6	48°50.2	28°51.0	5°04.5	41°07.2	41°53.5	73°54.2	85°11.6
5	303°00.6	14.8'	$10^{\circ}26.0$	-14.2'	55.8'	76°58.4	48°21.2	28°22.8	5°35.4	41°38.4	42°25.0	74°24.1	85°42.7
6	317°34.4	14.9'	N 10°11.8	-14.2'	55.8'	76°38.3	47°52.2	27°54.5	6°06.4	42°09.5	42°56.5	74°54.1	86°13.7
7	332°08.3	15.0'	09°57.6	-14.3'	55.8'	76°18.2	47°23.2	27°26.3	6°37.4	42°40.7	43°27.9	75°24.0	86°44.7
8	346°42.3	15.0'	09°43.3	-14.3'	55.7'	75°58.2	46°54.3	26°58.1	7°08.5	43°11.8	43°59.4	75°53.9	87°15.6
9	1°16.3	15.1'	09°29.0	-14.3'	55.7'	75°38.2	46°25.4	26°29.9	7°39.6	43°42.9	44°30.8	76°23.8	87°46.6
10	15°50.4	15.1'	09°14.7	-14.3'	55.7'	75°18.3	45°56.5	26°01.8	8° 10.7	44°14.0	45°02.2	76°53.7	88°17.5
11	30°24.5	15.2'	09°00.3	-14.4'	55.7'	74°58.5	45°27.6	25°33.7	8°41.9	44°45.1	45°33.6	77°23.6	88°48.4
12	44°58.7	15.2'	N 08°46.0	-14.4'	55.7'	74°38.7	44°58.8	25°05.6	9°13.0	45°16.1	46°04.9	77°53.4	89°19.3
13	59°33.0	15.3'	08°31.6	-14.4'	55.6'	74°19.0	44°30.0	24°37.6	9°44.2	45° 47.2	46°36.3	78°23.3	89°50.1
14	74°07.3	15.4'	$08^{\circ}17.1$	-14.4'	55.6'	73°59.4	44°01.2	24°09.6	10° 15.4	46°18.2	47°07.6	78°53.1	90°20.9
15	88°41.6	15.4'	08°02.7	-14.5'	55.6'	73°39.8	43°32.4	23°41.6	10°46.6	46°49.2	47°38.9	79°22.9	90°51.8
16	103°16.0	15.5'	07°48.2	-14.5'	55.6'	73°20.2	43°03.6	23°13.6	11° 17.7	47° 20.2	48°10.2	79°52.7	91°22.5
17	117°50.5	15.5'	07°33.7	-14.5'	55.6'	73°00.8	42°34.9	22°45.7	11°48.9	47°51.1	48°41.4	80°22.5	91°53.3
18	132°25.0	15.6'	$N07^{\circ}19.2$	-14.5'	55.5'	72°41.4	42°06.2	22°17.8	12° 20.0	48°22.1	49°12.6	80°52.2	92°24.1
19	146°59.6	15.6'	07°04.7	-14.5'	55.5'	72°22.1	41°37.5	21°50.0	12°51.2	48°53.0	49°43.9	81°22.0	92°54.8
20	161°34.2	15.7'	06°50.2	-14.6'	55.5'	72°02.8	41°08.9	21°22.2	13°22.3	49°23.9	50°15.1	81°51.7	93°25.5
21	176°08.8	15.7'	06°35.6	-14.6'	55.5'	71°43.6	40°40.2	20°54.4	13°53.4	49°54.8	50°46.2	82°21.4	93°56.2
22	190°43.5	15.7'	$06^{\circ}21.0$	-14.6'	55.4'	71°24.5	40°11.6	20°26.6	14° 24.5	50°25.7	51°17.4	82°51.2	94°26.9
23	205°18.3	15.8'	06°06.4	-14.6'	55.4'	71°05.5		19°58.9	14°55.6	50°56.5	51°48.5	83°20.8	94°57.5
17 th	SD	= 15.3	Mer. pas	s. 08:55					Sun S	5D = 16.0'			

h Moon (18th Oct) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Acrux	-Venus	+Regulus	+Jupiter	+Pollux	+Betelgeuse	+Capella	+Aldebaran
0	219°53.0	15.8'	N 05°51.8	-14.6'	55.4'	70°46.5	19°31.3	15°26.7	51°27.3	52°19.6	77°06.2	83°50.5	95°28.1
1	234°27.9	15.9'	05°37.2	-14.6'	55.4'	70°27.6	19°03.6	15°57.7	51°58.2	52°50.7	77°35.2	84°20.2	95° 58.7
2	249°02.7	15.9'	05°22.6	-14.6'	55.4'	70°08.8	18°36.0	16°28.8	52°29.0	53°21.8	78°04.1	84°49.8	96°29.3
3	263°37.6	15.9'	05°07.9	-14.7'	55.3'	69°50.0	18°08.5	16°59.8	52°59.7	53°52.9	78°33.0	85° 19.4	96° 59.9
4	278°12.6	16.0'	04°53.3	-14.7'	55.3'	69°31.4	17°41.0	17°30.8	53°30.5	54°23.9	79°01.9	85°49.0	97°30.4
5	292°47.6	16.0'	04°38.6	-14.7'	55.3'	69° 12.8	17° 13.5	18°01.8	54°01.3	54°54.9	79°30.8	86° 18.6	98°01.0
6	307°22.6	16.1'	N 04°23.9	-14.7'	55.3'	68°54.3	16°46.1	18°32.8	54°32.0	55°25.9	79°59.7	86°48.2	98°31.5
7	321°57.6	16.1'	04°09.3	-14.7'	55.3'	68°35.8	16° 18.7	19°03.8	55°02.7	55°56.9	80°28.6	87° 17.7	99°01.9
8	336°32.7	16.1'	03°54.6	-14.7'	55.3'	68° 17.5	15°51.4	19°34.7	55°33.4	56°27.9	80°57.5	87°47.3	99°32.4
9	351°07.9	16.2'	03°39.9	-14.7'	55.2'	67°59.2	15°24.1	20°05.7	56°04.1	56°58.8	81°26.3	88° 16.8	100°02.9
10	5°43.0	16.2'	03°25.2	-14.7'	55.2'	67°41.1	14° 56.9	20°36.6	56°34.7	57°29.8	81°55.2	88°46.3	100°33.3
11	20°18.2	16.2'	$03^{\circ}10.5$	-14.7'	55.2'	67°23.0	14°29.7	21°07.5	57°05.4	58°00.7	82°24.0	89° 15.8	101°03.7
12	34°53.4	16.2'	N 02°55.8	-14.7'	55.2'	67°05.0	14°02.6	21°38.4	57°36.0	58°31.6	82°52.8	89°45.3	101°34.1
13	49°28.6	16.3'	02°41.1	-14.7'	55.2'	66°47.1	13°35.6	22°09.3	58°06.6	59°02.4	83°21.6	90°14.7	102°04.4
14	64°03.9	16.3'	02°26.4	-14.7'	55.1'	66°29.2	13°08.6	22°40.1	58°37.2	59°33.3	83°50.4	90°44.2	102°34.8
15	78°39.2	16.3'	$02^{\circ}11.7$	-14.7'	55.1'	66°11.5	12°41.8	23°11.0	59°07.8	60°04.1	84°19.2	91°13.6	103°05.1
16	93°14.5	16.3'	01°57.0	-14.7'	55.1'	65°53.9	12°15.0	23°41.8	59°38.4	60°35.0	84°48.0	91°43.0	103°35.4
17	107°49.8	16.4'	01°42.2	-14.7'	55.1'	65°36.3	11°48.3	24°12.6	60°08.9	61°05.8	85°16.8	92°12.4	104°05.7
18	122°25.2	16.4'	N 01°27.5	-14.7'	55.1'	65° 18.9	11°21.7	24°43.4	60°39.5	61°36.6	85°45.5	92°41.7	104°36.0
19	137°00.6	16.4'	$01^{\circ}12.8$	-14.7'	55.1'	65°01.5	10°55.2	25°14.2	61°10.0	62°07.3	86°14.2	93°11.1	105°06.2
20	151°36.0	16.4'	00°58.2	-14.7'	55.0'	64°44.3	10°28.8	25°44.9	61°40.5	62°38.1	86°43.0	93°40.4	105°36.4
21	166°11.4	16.4'	00°43.5	-14.7'	55.0'	64°27.1	10°02.5	26°15.7	62°11.0	63°08.8	87°11.7	94°09.7	106°06.6
22	180°46.8	16.5'	00°28.8	-14.7'	55.0'	64° 10.1	9°36.4	26°46.4	62°41.4	63°39.6	87°40.3	94°39.0	106° 36.8
23	195°22.3	16.5'	$00^{\circ}14.1$	-14.7'	55.0'	63°53.1	9° 10.5	27°17.1	63°11.9	64°10.3	88°09.0	95°08.3	107°07.0
18 th	SD	= 15.1'	Mer. pas	s. 09:36									-

h Moon (19th Oct)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Acrux	-Venus	+Regulus	+Jupiter	+Pollux	+Betelgeuse	+Capella	+Aldebaran
0	209°57.8	16.5'	S 00°00.6	-14.7'	55.0'	63°36.3	8°44.8	27°47.8	63°42.3	64°40.9	88°37.7	95°37.5	107°37.1
1	224°33.2	16.5'	$00^{\circ}15.2$	-14.7'	54.9'	63° 19.5	8°19.2	28°18.5	64°12.7	65°11.6	89°06.3	96°06.8	108°07.3
2	239°08.7	16.5'	00°29.9	-14.6'	54.9'	63°02.9	7°53.9	28°49.1	64°43.1	65°42.3	89°35.0	96°36.0	108°37.4
3	253°44.3	16.5'	00°44.5	-14.6'	54.9'	62°46.3	$7^{\circ}29.0$	29°19.8	65°13.5	66°12.9	90°03.6	97°05.2	109°07.5
4	268°19.8	16.5'	00°59.2	-14.6'	54.9'	62°29.9	7°04.3	29°50.4	65°43.9	66°43.5	90°32.2	97°34.4	109°37.5
5	282°55.3	16.5'	$01^{\circ}13.8$	-14.6'	54.9'	62°13.6	6°40.0	30°21.0	66°14.3	67°14.1	91°00.8	98°03.5	110°07.6
6	297°30.8	16.5'	S 01°28.4	-14.6'	54.9'	61°57.4	6°16.2	30°51.6	66°44.6	67°44.7	91°29.3	98°32.7	110°37.6
7	312°06.4	16.6'	01°43.0	-14.6'	54.8'	61°41.3	5°53.0	31°22.2	67°14.9	68° 15.3	91°57.9	99°01.8	111°07.6
8	326°42.0	16.6'	01°57.6	-14.6'	54.8'	61°25.4	5°30.4	31°52.8	67°45.3	68°45.9	92°26.4	99°30.9	111°37.6
9	341°17.5	16.6'	$02^{\circ}12.1$	-14.6'	54.8'	61°09.5	5°08.6	32°23.4	68°15.6	69°16.4	92°55.0	100°00.0	112°07.6
10	355°53.1	16.6'	02°26.7	-14.5'	54.8'	60°53.8		32°53.9	68°45.9	69°46.9	93°23.5	100°29.1	112°37.5
11	10°28.7	16.6'	02°41.2	-14.5'	54.8'	60°38.2		33°24.4	69°16.1	70° 17.5	93°51.9	$100^{\circ}58.1$	113°07.5
12	25°04.2	16.6'	S 02°55.7	-14.5'	54.8'	60°22.7		33°54.9	69°46.4	70°48.0	94°20.4	$101^{\circ}27.1$	113°37.4
13	39°39.8	16.6'	03°10.2	-14.5'	54.8'	60°07.3		34°25.4	70°16.6	71°18.4	94°48.9	101°56.1	114°07.3
14	54°15.4	16.6'	03°24.7	-14.5'	54.7'	59°52.0		34°55.9	70°46.9	71°48.9	95°17.3	102°25.1	114°37.1
15	68°50.9	16.6'	03°39.2	-14.4'	54.7'	59°36.9		35°26.4	71°17.1	72°19.4	95°45.7	102°54.1	115°07.0
16	83°26.5	16.6'	03°53.6	-14.4'	54.7'			35°56.8	71°47.3	72°49.8	96°14.1	103°23.0	115°36.8
17	98°02.1	16.6'	04°08.0	-14.4'	54.7'			36°27.3	72°17.5	73°20.2	96°42.5	103°52.0	116°06.6
18	112°37.7	16.6'	S 04°22.4	-14.4'	54.7'			36°57.7	72°47.6	73°50.6	97°10.9	104°20.9	116°36.4
19	127°13.2	16.6'	04°36.8	-14.3'	54.7'			37°28.1	73°17.8	74°21.0	97°39.3	104°49.8	117°06.2
20	141°48.8	16.6'	04°51.2	-14.3'	54.7'			37°58.5	73°47.9	74°51.4	98°07.6	105°18.6	117°36.0
21	156°24.3	16.5'	$05^{\circ}05.5$	-14.3'	54.6'			38°28.9	74°18.1	75°21.8	98°35.9	105°47.5	118°05.7
22	170°59.9	16.5'	$05^{\circ}19.8$	-14.3'	54.6'			38°59.3	74°48.2	75°52.1	99°04.2	106° 16.3	118°35.4
23	185°35.4	16.5'	05°34.0	-14.2'	54.6'			39°29.6	75°18.3	76°22.5	99°32.5	106°45.1	119°05.1
19 th	SD	= 15.0'	Mer. pas	s. 10:17									

h Moon (20th Oct)

Lunar Distance (objects with largest hourly LD delta)

		IVIOOI	1 (20 0	<i>ct)</i>			Lunai	Distance	(ODJCC13	with laig	cst nounty L	D ucita)	
Mon	GHA	ν	Dec	d	HP	+Venus	+Regulus	+Procyon	+Jupiter	+Pollux	+Betelgeuse	+Capella	+Aldebaran
0	$200^{\circ}10.9$	16.5'	S 05°48.3	-14.2'	54.6'		39°59.9	74°03.7	75°48.4	76°52.8	100°00.7	107°13.9	119°34.8
1	214°46.5	16.5'	$06^{\circ}02.5$	-14.2'	54.6'		40°30.3	74°32.1	76° 18.5	77°23.1	100°29.0	107°42.6	
2	229°22.0	16.5'	$06^{\circ}16.7$	-14.2'	54.6'		41°00.6	75°00.4	76°48.5	77°53.4	100°57.2	108°11.3	
3	243°57.5	16.5'	06°30.9	-14.1'	54.6'		41°30.9	75°28.8	77° 18.6	78°23.7	101°25.4	108°40.1	
4	258°32.9	16.5'	06°45.0	-14.1'	54.5'	5°40.1	42°01.2	75°57.1	77°48.6	78°53.9	101°53.6	109°08.8	
5	273°08.4	16.4'	$06^{\circ}59.1$	-14.1'	54.5'	6°02.7	42°31.4	76°25.5	78° 18.7	79°24.2	102°21.7	109°37.4	
6	287°43.8	16.4'	S 07°13.1	-14.0'	54.5'	6°25.9	43°01.7	76°53.8	78°48.7	79°54.4	102°49.9	110°06.1	
7	$302^{\circ}19.3$	16.4'	07°27.2	-14.0'	54.5'	6°49.6	43°32.0	77°22.1	79° 18.7	80°24.7	103°18.0	110°34.7	
8	316°54.7	16.4'	07°41.2	-14.0'	54.5'	7°13.7	44°02.2	77°50.4	79°48.7	80°54.9	103°46.1	111°03.3	
9	331°30.1	16.4'	$07^{\circ}55.1$	-13.9'	54.5'	7°38.1	44°32.4	78° 18.8	80°18.6	81°25.1	104°14.2	111°31.9	
10	346°05.5	16.4'	$08^{\circ}09.1$	-13.9'	54.5'	8°02.8	45°02.6	78°47.1	80°48.6	81°55.3	104°42.2	112°00.4	
11	0°40.8	16.3'	08°22.9	-13.9'	54.4'	8°27.7	45°32.8	79° 15.4	81°18.6	82°25.5	105°10.3	112°28.9	
12	$15^{\circ}16.2$	16.3'	S 08°36.8	-13.8'	54.4'	8°52.8	46°03.0	79°43.7	81°48.5	82°55.6	105°38.3	112°57.4	
13	29°51.5	16.3'	08°50.6	-13.8'	54.4'	9°18.1	46°33.2	80°12.0	82°18.4	83°25.8	106°06.3	113°25.9	
14	44°26.8	16.3'	09°04.4	-13.7'	54.4'	9°43.5	47°03.3	80°40.2	82°48.3	83°55.9	106°34.2	113°54.4	
15	$59^{\circ}02.1$	16.2'	$09^{\circ}18.1$	-13.7'	54.4'	10°09.1	47°33.5	81°08.5	83°18.2		107°02.2	114°22.8	
16	73°37.3	16.2'	09°31.8	-13.7'	54.4'					w Moon —			
17	88°12.5	16.2'	09°45.5	-13.6'	54.4'		_						
18	102°47.7	16.2'	S 09°59.1	-13.6'	54.4'								
19	$117^{\circ}22.9$	16.1'	$10^{\circ}12.7$	-13.5'	54.4'		_						
20	131°58.0	16.1'	10°26.2	-13.5'	54.3'								
21	146°33.1	16.1'	10°39.7	-13.4'	54.3'								
22	161°08.2	16.0'	10°53.1	-13.4'	54.3'								
23	175°43.3	16.0'	11°06.5	-13.3'	54.3'				Ne	w Moon —			
20 th	SD	= 14.9'	Mer. pas	s. 10:57									

h Moon (21st Oct)

1 204°53.3 2 219°28.2	16.0' 15.9'	11°19.9 11°33.2 11°46.4	-13.3' -13.2'	54.3' 54.3'	New Moon
2 219°28.2	15.9'		-13.2'	54 3'	
		11°46 4		JT.J	New Moon
	1 - 0'		-13.2'	54.3'	New Moon
3 234°03.1	15.9	$11^{\circ}59.6$	-13.2'	54.3'	New Moon
	15.8'	12°12.8	-13.1'	54.3'	New Moon
5 263°12.9	15.8'	12°25.9	-13.0'	54.2'	New Moon
		12°38.9	-13.0'	54.2'	New Moon
7 292°22.5	15.7'	12°51.9	-12.9'	54.2'	New Moon
8 306°57.2	15.7'	13°04.8	-12.9'	54.2'	New Moon
9 321°31.9	15.7'	13°17.7	-12.8'	54.2'	New Moon
10 336°06.6	15.6'	13°30.6	-12.8'	54.2'	New Moon
11 350°41.2	15.6'	13°43.3	-12.7'	54.2'	New Moon
12 5°15.7	15.5' S	13°56.1	-12.7'	54.2'	New Moon
		14°08.7	-12.6'	54.2'	New Moon
14 34°24.8	15.5'	14°21.3	-12.5'	54.2'	New Moon
15 48°59.2	15.4'	14°33.9	-12.5'	54.1'	New Moon
		14°46.3	-12.4'	54.1'	New Moon
17 78°08.0	15.3'	14°58.8	-12.4'	54.1'	New Moon
18 92°42.3	15.3' S	$15^{\circ}11.1$	-12.3'	54.1'	New Moon
		15°23.4	-12.2'	54.1'	New Moon
20 121°50.8	15.2'	15°35.7	-12.2'	54.1'	New Moon
		15°47.8	-12.1'	54.1'	New Moon
22 150°59.1	15.1'	$15^{\circ}59.9$	-12.0'	54.1'	New Moon
23 165°33.2	15.0'	16°12.0	-12.0'	54.1'	New Moon
21 st SD =	= 14.8′	Mer. pass	11:38		

Mer. pass. 12:21

SD = 14.7'

h		Moor	(22 nd O	ct)		Lunar Dis	tance (o	bjects wi	th larges	t hourly LD delta)				
Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	-Mars	+Arcturus				
0	180°07.2	15.0'	S 16°24.0	-11.9'	54.1'			New I	Moon ——					
1	194°41.2	14.9'	16°35.9	-11.8'	54.1'			New I	Moon ——					
2	209°15.1	14.9'	16°47.7	-11.8'	54.1'			New I	Moon					
3	223°49.0	14.8'	$16^{\circ}59.5$	-11.7'	54.0'			New I	Moon					
4	238°22.9	14.8'	$17^{\circ}11.2$	-11.6'	54.0'									
5	252°56.6	14.7'	17°22.8	-11.6'	54.0'									
6	267°30.4	14.7'	S 17°34.3	-11.5'	54.0'			New I	Moon ——					
7	282°04.0	14.6'	17°45.8	-11.4'	54.0'			New I	Moon ——					
8	296°37.6	14.6'	17°57.2	-11.3'	54.0'			New I	Moon					
9	311°11.2	14.5'	18°08.6	-11.3'	54.0'	112° 10.6	86°21.1	31°26.6	12°36.4					
10	325°44.7	14.5'	$18^{\circ}19.8$	-11.2'	54.0'	111°42.9	85° 56.2	30°56.9	12°10.2					
11	340°18.2	14.4'	18°31.0	-11.1'	54.0'	111°15.3	85°31.3	30°27.2	11°44.1					
12	354°51.6	14.3'	S 18°42.1	-11.0'	54.0'	110°47.6	85°06.4	29°57.5	11°18.2					
13	9°24.9	14.3'	18°53.1	-10.9'	54.0'	110° 19.9	84°41.5	29°27.8	10°52.5					
14	23°58.2	14.2'	$19^{\circ}04.1$	-10.9'	54.0'	109°52.3	84° 16.6	28°58.1	10°27.0					
15	38°31.4	14.2'	$19^{\circ}15.0$	-10.8'	54.0'	109°24.6	83°51.8	28°28.4	10°01.7					
16	53°04.6	14.1'	19°25.7	-10.7'	54.0'	108° 56.9	83°26.9	27°58.8	9°36.6					
17	67°37.7	14.1'	19°36.5	-10.6'	54.0'	108°29.2	83°02.1	27°29.1	9°11.8					
18	82°10.8	14.0'	S 19°47.1	-10.5'	54.0'	108°01.5	82°37.3	26°59.5	8°47.3					
19	96°43.8	13.9'	19°57.6	-10.5'	54.0'	107°33.8	82° 12.5	26°29.8	8°23.2					
20	111°16.7	13.9'	$20^{\circ}08.1$	-10.4'	53.9'	107°06.1	81°47.7	26°00.2	7°59.5					
21	125°49.6	13.8'	$20^{\circ}18.5$	-10.3'	53.9'	106°38.4	81°22.9	25°30.5	7°36.3					
22	140°22.4	13.8'	20°28.7	-10.2'	53.9'	106° 10.7	80°58.1	25°00.9	7°13.6					
23	154°55.1	13.7'	20°38.9	-10.1'	53.9'	105°43.0	80°33.4	24°31.3	6°51.5	40°22.3				
22 nd	SD	= 14.7'	Mer. pas	s. 12:21					-					

h		Moor	n (23 rd Oc	ct)		Lur	nar Distance	e (objects	with larg	gest hour	ly LD d	elta)
Thu	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Achernar	-Altair	-Antares	±Mars	+Arcturus
0	169°27.8	13.6'	S 20°49.1	-10.0'	53.9'		105° 15.3		80°08.7	24°01.7	6°30.2	40°37.7
1	184°00.5	13.6'	20°59.1	-9.9'	53.9'		104°47.5		79°44.0	23°32.1	6°09.8	40°53.3
2	198°33.1	13.5'	21°09.0	-9.8'	53.9'		104° 19.8		79°19.3	23°02.5		41°09.1
3	213°05.6	13.5'	$21^{\circ}18.9$	-9.8'	53.9'		103°52.1		78°54.6	22°32.9		41°25.1
4	227°38.0	13.4'	21°28.6	-9.7'	53.9'		103°24.4		78°30.0	22°03.3		41°41.3
5	242°10.4	13.3'	21°38.3	-9.6'	53.9'		102°56.6		78°05.4	21°33.7		41°57.7
6	256°42.7	13.3'	S 21°47.9	-9.5'	53.9'		102°28.9		77°40.8	21°04.1		42°14.3
7	271°15.0	13.2'	21°57.3	-9.4'	53.9'		102°01.2		77°16.2	20°34.6		42°31.1
8	285°47.2	13.1'	22°06.7	-9.3'	53.9'		101°33.4		76°51.6	20°05.0		42°48.1
9	300°19.4	13.1'	$22^{\circ}16.0$	-9.2'	53.9'		101°05.7		76°27.1	19°35.4		43°05.2
10	314°51.4	13.0'	22°25.2	-9.1'	53.9'		100°38.0		76°02.6	19°05.9		43°22.5
11	329°23.5	13.0'	22°34.3	-9.0'	53.9'		100°10.2		75°38.1	18°36.3		43°40.0
12	343°55.4	12.9'	S 22°43.3	-8.9'	53.9'		99°42.5		75°13.6	18°06.8		43°57.7
13	358°27.3	12.8'	22°52.2	-8.8'	53.9'		99°14.7		74°49.2	17°37.2		44°15.5
14	12°59.1	12.8'	23°01.0	-8.7'	53.9'		98°47.0		74°24.8	17°07.7		44°33.5
15	27°30.9	12.7'	23°09.7	-8.6'	53.9'		98° 19.2		74°00.4	16°38.2		44°51.7
16	42°02.6	12.6'	23°18.3	-8.5'	53.9'		97°51.5		73°36.0	16°08.6		45°10.0
17	56°34.3	12.6'	23°26.8	-8.4'	53.9'		97°23.8	96°30.3	73°11.7	15°39.1		45°28.5
18	71°05.9	12.5'	S 23°35.2	-8.3'	53.9'		96°56.0	96°15.3	72°47.4	15°09.6		45°47.1
19	85°37.4	12.5'	23°43.5	-8.2'	53.9'		96° 28.3	96°00.3	72°23.1	14°40.1		46°05.8
20	100°08.8	12.4'	23°51.7	-8.1'	53.9'	119°55.8	96°00.5	95°45.2	71°58.8	14°10.6		46°24.7
21	114°40.2	12.3'	23°59.8	-8.0'	53.9'	119°26.2	95°32.8	95°30.1	71°34.6	13°41.1		46°43.8
22	129°11.6	12.3'	24°07.8	-7.9'	53.9'	118°56.6	95°05.0	95°15.1	71°10.4	13°11.6	6°49.4	47°02.9
23	143°42.8	12.2'	24°15.7	-7.8'	53.9'	118°27.0	94°37.3	94°59.9	70°46.2	12°42.1	7°11.3	47°22.2
23 rd	SD	= 14.7'	Mer. pass	s. 13:06								

h		Moon	(24 th Oc	t)		Lui	nar Distan	ce (objects	with lar	gest houi	rly LD de	elta)
Fri	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	-Antares	+Mars	+Arcturus
0	158°14.0	12.1'	S 24°23.4	-7.7'	53.9'	117°57.4	94°44.8	94°09.5	70°22.1	12°12.6	7°33.8	47°41.7
1	172°45.2	12.1'	24°31.1	-7.6'	53.9'	117°27.8	94°29.7	93°41.8	69°58.0	11°43.1	7°56.9	48°01.2
2	187°16.3	12.0'	24°38.7	-7.4'	53.9'	116°58.3	94°14.5	93°14.0	69°33.9	11°13.6	8°20.4	48°20.9
3	201°47.3	12.0'	24°46.1	-7.3'	53.9'	116°28.7	93°59.4	92°46.3	69°09.9	10°44.1	8°44.4	48°40.8
4	216°18.3	11.9'	24°53.4	-7.2'	53.9'	115°59.1	93°44.2	92°18.5	68°45.9	10°14.6	9°08.7	49°00.7
5	230°49.2	11.8'	25°00.7	-7.1'	53.9'	115°29.5	93°29.0	91°50.8	68°21.9	9°45.2	9°33.3	49°20.7
6	245°20.0	11.8'	S 25°07.8	-7.0'	53.9'	114°59.9	93°13.8	91°23.0	67°58.0	9°15.7	9°58.2	49°40.9
7	259°50.8	11.7'	$25^{\circ}14.8$	-6.9'	53.9'	114°30.3	92°58.6	90°55.3	67°34.1	8°46.2	10°23.3	50°01.2
8	274°21.5	11.7'	$25^{\circ}21.6$	-6.8'	53.9'	114°00.7	92°43.4	90°27.5	67° 10.2	8°16.8	10°48.6	50°21.6
9	288°52.2	11.6'	25°28.4	-6.7'	53.9'	113°31.1	92°28.2	89°59.8	66°46.4	7°47.3	11°14.2	50°42.1
10	303°22.8	11.5'	$25^{\circ}35.1$	-6.5'	53.9'	113°01.5	92°12.9	89°32.0	66°22.6	7°17.9	11°39.8	51°02.7
11	317°53.3	11.5'	$25^{\circ}41.6$	-6.4'	53.9'	112°31.9	91°57.7	89°04.3	65°58.8	6°48.5	12°05.7	51°23.4
12	332°23.8	11.4'	S 25°48.0	-6.3'	53.9'	112°02.4	91°42.4	88°36.5	65°35.1	6°19.1	12°31.6	51°44.2
13	346°54.3	11.4'	25°54.3	-6.2'	53.9'	111°32.8	91°27.2	88°08.8	65°11.5	5°49.7	12°57.7	52°05.2
14	1°24.6	11.3'	$26^{\circ}00.5$	-6.1'	53.9'	111°03.2	91°11.9	87°41.0	64°47.8	5°20.3	13°23.9	52°26.2
15	15°55.0	11.3'	26°06.6	-6.0'	53.9'	110°33.6	90°56.7	87°13.3	64°24.2	4°50.9	13°50.2	52°47.3
16	30°25.2	11.2'	$26^{\circ}12.5$	-5.8'	53.9'	110°04.0	90°41.4	86°45.5	64°00.7	4°21.6	14°16.6	53°08.5
17	44°55.4	11.2'	26°18.4	-5.7'	53.9'	109°34.4	90°26.2	86°17.8	63°37.2	3°52.3	14°43.1	53°29.8
18	59°25.6	11.1'	S 26°24.1	-5.6'	53.9'	109°04.8	90°10.9	85°50.1	63°13.8	3°23.1	15°09.6	53°51.2
19	73°55.7	11.0'	26° 29.7	-5.5'	53.9'	108°35.2	89°55.6	85°22.3	62°50.3	2°54.0	15°36.2	54° 12.6
20	88°25.7	11.0'	26°35.2	-5.3'	53.9'	108°05.6	89°40.4	84°54.6	62°27.0	2°25.0	16°02.9	54° 34.2
21	102°55.7	10.9'	26°40.5	-5.2'	53.9'	107°36.0	89°25.1	84°26.8	62°03.7	1°56.3	16°29.6	54°55.8
22	117°25.7	10.9'	26°45.7	-5.1'	53.9'	107°06.4	89°09.8	83°59.1	61°40.4	1°28.2	16°56.4	55° 17.6
23	131°55.5	10.8'	26°50.8	-5.0'	53.9'	106°36.8	88°54.6	83°31.4	61°17.2		17°23.3	55°39.4
24 th	SD	= 14.7'	Mer. pass	. 13:54								

Moon (25th Oct)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Antares	+Mars	+Sun	+Arcturus
0	146°25.4	10.8'	S 26°55.8	-4.8'	53.9'	106°07.2	88°39.3	83°03.6	60°54.0		17°50.2		56°01.3
1	160°55.2	10.7'	$27^{\circ}00.6$	-4.7'	53.9'	105°37.6	88°24.0	82°35.9	60°30.9		18°17.1		56°23.2
2	175°24.9	10.7'	27°05.4	-4.6'	53.9'	105°08.0	88°08.8	82°08.2	60°07.9		18°44.1		56°45.3
3	189°54.6	10.6'	$27^{\circ}10.0$	-4.5'	54.0'	104°38.4	87°53.5	81°40.4	59°44.9		19°11.1		57°07.4
4	204°24.2	10.6'	$27^{\circ}14.4$	-4.3'	54.0'	104°08.7	87°38.3	81°12.7	59°21.9		19°38.1		57°29.6
5	218°53.8	10.5'	$27^{\circ}18.8$	-4.2'	54.0'	103°39.1	87°23.0	80°45.0	58°59.0	2°07.8	20°05.2		57°51.8
6	233°23.4	10.5'	S 27°23.0	-4.1'	54.0'	103°09.5	87°07.8	80°17.2	58° 36.2	2°36.6	20°32.3		58°14.2
7	247°52.9	10.5'	$27^{\circ}27.1$	-4.0'	54.0'	102°39.8	86°52.6	79°49.5	58° 13.4	3°05.7	20°59.5	41°18.9	58°36.6
8	262°22.3	10.4'	27°31.0	-3.8'	54.0'	102°10.2	86°37.4	79°21.8	57°50.7	3°34.9	21°26.6	41°45.8	58°59.1
9	276°51.7	10.4'	27°34.9	-3.7'	54.0'	101°40.6	86°22.2	78°54.1	57°28.1	4°04.1	21°53.8	42°12.8	59°21.6
10	291°21.1	10.3'	27°38.6	-3.6'	54.0'	101°10.9	86°07.0	78°26.3	57°05.5	4°33.5	22°21.1	42°39.7	59°44.2
11	305°50.4	10.3'	$27^{\circ}42.1$	-3.4'	54.0'	100°41.3	85°51.8	77°58.6	56°43.0	5°02.9	22°48.3	43°06.7	60°06.9
12	320°19.7	10.2'	S 27°45.6	-3.3'	54.0'	100°11.6	85°36.6	77°30.9	56°20.5	5°32.3	23°15.6	43°33.7	60°29.6
13	334°48.9	10.2'	27°48.9	-3.2'	54.0'	99°42.0	85°21.4	77°03.2	55°58.1	6°01.8	23°42.9	44°00.6	60°52.4
14	349°18.1	10.2'	$27^{\circ}52.0$	-3.0'	54.0'	99°12.3	85°06.3	76° 35.5	55°35.8	6°31.3	24°10.3	44°27.6	61°15.3
15	3°47.3	10.1'	$27^{\circ}55.1$	-2.9'	54.0'	98°42.6	84°51.2	76°07.8	55° 13.5	7°00.8	24°37.6	44°54.6	61°38.2
16	18°16.4	10.1'	27°58.0	-2.8'	54.0'	98°12.9	84°36.0	75°40.0	54°51.4	7°30.3	25°05.0	45°21.6	62°01.2
17	32°45.5	10.1'	28°00.8	-2.6'	54.1'	97°43.3	84°20.9	75°12.3	54°29.3	7°59.8	25°32.4	45°48.6	62°24.2
18	47°14.6	10.0'	S 28°03.4	-2.5'	54.1'	97°13.6	84°05.8	74°44.6	54°07.2	8°29.4	25°59.8	46°15.7	62°47.3
19	61°43.6	10.0'	28°05.9	-2.4'	54.1'	96°43.9	83°50.7	74°16.9	53°45.3	8°58.9	26°27.2	46°42.7	63°10.5
20	76°12.6	10.0'	28°08.3	-2.2'	54.1'	96°14.2	83°35.7	73°49.2	53°23.4	9°28.5	26°54.7	47°09.7	63°33.7
21	90°41.5	9.9'	$28^{\circ}10.5$	-2.1'	54.1'	95°44.4	83°20.6	73°21.5	53°01.6	9°58.1	27°22.2	47°36.8	63°57.0
22	105°10.5	9.9'	28° 12.6	-2.0'	54.1'	95° 14.7	83°05.6	72°53.8	52°39.9	10°27.7	27°49.7	48°03.8	64°20.3
23	119°39.3	9.9'	28° 14.5	-1.8'	54.1'	94°45.0	82°50.6	72°26.1	52°18.3	10°57.3	28°17.2	48°30.9	64°43.7
25 th	SD	= 14.7'	Mer. pass	s. 14:44					Sun SD =	= 16.1′			

Moon (26th Oct)

h

Sun	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Mars	+Hadar	+Sun	+Arcturus
0	134°08.2	9.8'	S 28°16.4	-1.7'	54.1'	94°15.2	71°58.4	51°56.8	11°26.9	28°44.7		48°58.0	65°07.1
1	148°37.0	9.8'	28°18.1	-1.6'	54.1'	93°45.5	71°30.7	51°35.3	11°56.6	29°12.3		49°25.0	65°30.6
2	163°05.8	9.8'	28°19.6	-1.4'	54.1'	93°15.7	71°03.0	51°14.0	12°26.2	29°39.8		49°52.1	65°54.1
3	177°34.6	9.8'	28°21.0	-1.3'	54.1'	92°46.0	70°35.4	50°52.7	12°55.9	30°07.4		50°19.2	66° 17.7
4	192°03.4	9.7'	28°22.3	-1.1'	54.2'	92°16.2	70°07.7	50°31.5	13°25.5	30°35.0		50°46.3	66°41.3
5	206°32.1	9.7'	28°23.4	-1.0'	54.2'	91°46.4	69°40.0	50° 10.5	13°55.2	31°02.7		51°13.5	67°05.0
6	221°00.8	9.7'	S 28°24.4	-0.9'	54.2'	91°16.6	69°12.3	49°49.5	14°24.9	31°30.3		51°40.6	67°28.7
7	235°29.5	9.7'	28°25.3	-0.7'	54.2'	90°46.8	68°44.7	49°28.6	14°54.6	31°58.0	47°33.7	52°07.7	67°52.5
8	249°58.2	9.6'	28°26.0	-0.6'	54.2'	90°17.0	68°17.0	49°07.9	15°24.3	32°25.6	47°48.9	52°34.9	68° 16.3
9	264°26.8	9.6'	28°26.6	-0.4'	54.2'	89°47.2	67°49.3	48°47.2	15°54.0	32°53.3	48°04.4	53°02.1	68°40.1
10	278°55.5	9.6'	28°27.0	-0.3'	54.2'	89°17.3	67°21.7	48°26.7	16°23.8	33°21.0	48°20.0	53°29.2	69°04.0
11	293°24.1	9.6'	28°27.3	-0.2'	54.2'	88°47.5	66°54.0	48°06.2	16°53.5	33°48.8	48°35.8	53°56.4	69°28.0
12	307°52.7	9.6'	S 28°27.5	-0.0'	54.3'	88°17.6	66°26.4	47°45.9	17°23.3	34°16.5	48°51.7	54°23.6	69°52.0
13	322°21.2	9.6'	28°27.5	0.1'	54.3'	87°47.8	65°58.7	47° 25.7	17°53.1	34°44.3	49°07.8	54°50.8	70°16.0
14	336°49.8	9.6'	28°27.4	0.3'	54.3'	87°17.9	65°31.1	47°05.6	18°22.9	35°12.1	49°24.1	55°18.1	70°40.1
15	351°18.4	9.5'	28°27.2	0.4'	54.3'	86°48.0	65°03.4	46°45.7	18°52.7	35°39.9	49°40.6	55°45.3	71°04.2
16	5°46.9	9.5'	28°26.8	0.5'	54.3'	86°18.1	64°35.8	46°25.8	19°22.5	36°07.7	49°57.2	56°12.6	71°28.3
17	20°15.5	9.5'	28°26.2	0.7'	54.3'	85°48.2	64°08.2	46°06.1	19°52.3	36°35.5	50°13.9	56°39.8	71°52.5
18	34°44.0	9.5'	S 28°25.5	0.8'	54.3'	85°18.2	63°40.5	45°46.6	20°22.1	37°03.4	50°30.8	57°07.1	72°16.8
19	49°12.5	9.5'	28°24.7	1.0'	54.4'	84°48.3	63°12.9	45°27.1	20°52.0	37°31.3	50°47.9	57°34.4	72°41.1
20	63°41.0	9.5'	28°23.8	1.1'	54.4'	84°18.3	62°45.3	45°07.8	21°21.9	37°59.1		58°01.7	73°05.4
21	78°09.5	9.5'	28°22.7	1.2'	54.4'	83°48.3	62°17.7	44°48.7	21°51.7	38°27.1		58°29.1	73°29.7
22	92°38.0	9.5'	28°21.4	1.4'	54.4'	83°18.3	61°50.1	44°29.7	22°21.6	38°55.0		58°56.4	73°54.1
23	107°06.5	9.5'	28°20.0	1.5'	54.4'	82°48.3	61°22.5	44°10.8	22°51.6	39°22.9		59°23.8	74° 18.5
26 th	SD :	= 14.8'	Mer. pass	. 15:36	i				Sun SD =	= 16.1′			

Lunar Distance	(objects with	largest hourl	y LD delta))
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Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Antares	+Mars	+Rigil Kent.	+Sun	+Arcturus
0	121°35.0	9.5'	S 28°18.5	1.7'	54.4'	82°18.3	60°54.9	43°52.1	23°21.5	39°50.9	48°06.5	59°51.1	74°43.0
1	136°03.5	9.5'	$28^{\circ}16.8$	1.8'	54.5'	81°48.3	60°27.4	43°33.6	23°51.4	40°18.9	48°23.7	60° 18.5	75°07.5
2	150°32.0	9.5'	$28^{\circ}15.0$	1.9'	54.5'	81°18.2	59°59.8	43° 15.2	24°21.4	40°46.9	48°41.0	60°45.9	75°32.0
3	165°00.5	9.5'	$28^{\circ}13.1$	2.1'	54.5'	80°48.2	59°32.2	42°56.9	24°51.4	41°14.9	48°58.5	61°13.3	75°56.6
4	179°29.0	9.5'	$28^{\circ}11.0$	2.2'	54.5'	80°18.1	59°04.7	42°38.9	25°21.4	41°43.0	49°16.2	61°40.8	76°21.2
5	193°57.5	9.5'	28°08.8	2.4'	54.5'	79°48.0	58°37.2	42°21.0	25°51.4	42°11.0	49°34.0	62°08.2	76°45.9
6	208°26.0	9.5'	S 28°06.4	2.5'	54.5'	79°17.9	58°09.6	42°03.3	26°21.4	42°39.1	49°51.9	62°35.7	77° 10.5
7	222°54.6	9.5'	28°03.9	2.7'	54.6'	78°47.7	57°42.1	41°45.8	26°51.5	43°07.2	50°10.1	63°03.2	77° 35.2
8	237°23.1	9.5'	28°01.2	2.8'	54.6'	78°17.6	57°14.6	41°28.4	27°21.5	43°35.3	50°28.3	63°30.7	78°00.0
9	251°51.6	9.5'	27°58.4	2.9'	54.6'	77°47.4	56°47.1	41°11.3	27°51.6	44°03.5	50°46.7	63°58.2	78°24.8
10	266°20.2	9.6'	27°55.5	3.1'	54.6'	77°17.2	56°19.6	40°54.3	28°21.7	44°31.7	51°05.3	64°25.8	78°49.6
11	280°48.7	9.6'	27°52.4	3.2'	54.6'	76°47.0	55°52.1	40°37.5	28°51.9	44°59.8	51°24.0	64°53.3	79°14.4
12	295°17.3	9.6'	S 27°49.2	3.4'	54.6'	76°16.8	55°24.7	40°21.0	29°22.0	45°28.0	51°42.8	65°20.9	79°39.3
13	309°45.8	9.6'	27°45.8	3.5'	54.7'	75°46.6	54°57.2	40°04.6	29°52.2	45°56.3	52°01.8	65°48.5	80°04.2
14	324°14.4	9.6'	27°42.3	3.6'	54.7'	75°16.3	54°29.8	39°48.5	30°22.3	46°24.5	52°20.9	66°16.1	80°29.1
15	338°43.0	9.6'	27°38.7	3.8'	54.7'	74°46.0	54°02.4	39°32.6	30°52.5	46°52.8	52°40.2	66°43.8	80°54.1
16	353°11.7	9.6'	27°34.9	3.9'	54.7'	74°15.7	53°35.0	39° 16.9	31°22.8	47°21.1	52°59.6	67°11.5	81°19.1
17	7°40.3	9.7'	27°31.0	4.1'	54.7'	73°45.4	53°07.6	39°01.4	31°53.0	47°49.4	53°19.1	67°39.1	81°44.1
18	22°08.9	9.7'	S 27°27.0	4.2'	54.8'	73°15.1	52°40.2	38°46.2	32°23.3	48°17.8	53°38.7	68°06.8	82°09.1
19	36°37.6	9.7'	27°22.8	4.3'	54.8'	72°44.7	52°12.9		32°53.6	48°46.1	53°58.5	68°34.6	82°34.2
20	51°06.3	9.7'	$27^{\circ}18.4$	4.5'	54.8'	72°14.3	51°45.5		33°23.9	49°14.5	54°18.4	69°02.3	82°59.3
21	65°35.0	9.7'	27° 14.0	4.6'	54.8'	71°43.9	51°18.2		33°54.2	49°42.9	54°38.4	69°30.1	83°24.5
22	80°03.7	9.8'	27°09.4	4.7'	54.9'	71°13.5	50°50.9		34°24.5	50°11.4	54°58.5	69°57.9	83°49.7
23	94°32.5	9.8'	27°04.6	4.9'	54.9'	70°43.0	50°23.7		34°54.9	50°39.8	55°18.8	70°25.7	84°14.9
27 th	SD =	= 14.8′	Mer. pass	s. 16:28	3				Sun SE	0 = 16.1'			

h Moon (28th Oct) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Mars	+Rigil Kent.	+Sun	+Arcturus
0	109°01.3	9.8'	S 26°59.7	5.0'	54.9'	70°12.5	49°56.4	35°25.3	51°08.3	55°39.2	70°53.5	84°40.1
1	123°30.1	9.8'	26°54.7	5.2'	54.9'	69°42.1	49°29.2	35°55.7	51°36.8	55°59.7	71°21.4	85°05.3
2	137°58.9	9.8'	26°49.5	5.3'	54.9'	69°11.5	49°02.0	36°26.2	52°05.4	56°20.3	71°49.3	85°30.6
3	152°27.7	9.9'	26°44.2	5.4'	55.0'	68°41.0	48°34.8	36° 56.7	52°33.9	56°41.0	72°17.2	85°55.9
4	166°56.6	9.9'	26°38.8	5.6'	55.0'	68°10.4	48°07.7	37°27.1	53°02.5	57°01.9	72°45.1	86°21.2
5	181°25.5	9.9'	26°33.2	5.7'	55.0'	67°39.8	47°40.6	37° 57.7	53°31.1	57°22.8	73°13.1	86°46.6
6	195°54.5	10.0'	S 26°27.5	5.8'	55.0'	67°09.2	47°13.5	38°28.2	53°59.8	57°43.9	73°41.1	87°12.0
7	210°23.4	10.0'	$26^{\circ}21.7$	6.0'	55.1'	66°38.6	46°46.4	38° 58.8	54°28.5	58°05.0	74°09.1	87°37.4
8	224°52.4	10.0'	$26^{\circ}15.7$	6.1'	55.1'	66°07.9	46°19.4	39°29.4	54°57.1	58°26.3	74°37.1	88°02.8
9	239°21.4	10.0'	$26^{\circ}09.6$	6.2'	55.1'	65°37.2	45°52.4	40°00.0	55°25.9	58°47.7	75°05.2	88°28.3
10	253°50.5	10.1'	26°03.4	6.4'	55.1'	65°06.5	45°25.5	40°30.6	55°54.6	59°09.2	75°33.3	88°53.8
11	268°19.5	10.1'	25°57.0	6.5'	55.2'	64°35.8	44°58.6	41°01.3	56°23.4	59°30.7	76°01.4	89°19.3
12	282°48.6	10.1'	S 25°50.5	6.6'	55.2'	64°05.0	44°31.7	41°32.0	56°52.2	59°52.4	76°29.5	89°44.8
13	297°17.8	10.2'	25°43.9	6.8'	55.2'	63°34.2	44°04.9	42°02.7	57°21.0	60°14.2	76°57.7	90°10.3
14	311°47.0	10.2'	25°37.1	6.9'	55.2'	63°03.4	43°38.1	42°33.5	57°49.9	60°36.1	77°25.9	90°35.9
15	326°16.2	10.2'	25°30.2	7.0'	55.3'	62°32.5	43°11.4	43°04.3	58°18.8	60°58.0	77°54.1	91°01.5
16	340°45.4	10.3'	25°23.1	7.2'	55.3'	62°01.6	42°44.7	43°35.1	58°47.7	61°20.1	78°22.4	91°27.1
17	355°14.7	10.3'	$25^{\circ}16.0$	7.3'	55.3'	61°30.7	42°18.0	44°05.9	59°16.7	61°42.3	78°50.7	91°52.8
18	9°44.0	10.3'	S 25°08.7	7.4'	55.4'	60°59.8	41°51.5	44°36.8	59°45.7	62°04.5	79°19.0	92°18.4
19	24°13.3	10.4'	25°01.2	7.6'	55.4'	60°28.8	41°24.9	45°07.7	60°14.7	62°26.9	79°47.3	92°44.1
20	38°42.7	10.4'	24°53.7	7.7'	55.4'	59°57.9	40°58.5	45°38.6	60°43.7	62°49.3	80°15.7	93°09.8
21	53°12.1	10.4'	24°46.0	7.8'	55.4'	59°26.8	40°32.0	46°09.6	61°12.8	63°11.8	80°44.1	93°35.5
22	67°41.6	10.5'	24°38.2	7.9'	55.5'	58°55.8	40°05.7	46°40.6	61°41.9	63°34.4	81°12.5	94°01.3
23	82°11.1	10.5'	24°30.2	8.1'	55.5'	58°24.7	39°39.4	47°11.6	62°11.0	63°57.2	81°41.0	94°27.0
28 th												

h Moon (29th Oct) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Mars	+Rigil Kent.	+Sun	+Arcturus
0	96°40.6	10.6'	S 24°22.2	8.2'	55.5'	57°53.6	39°13.2	47°42.7	62°40.2	64°19.9	82°09.5	94°52.8
1	111°10.1	10.6'	24°14.0	8.3'	55.5'	57°22.4	38°47.1	48°13.8	63°09.4	64°42.8	82°38.0	95° 18.6
2	125°39.7	10.6'	24°05.6	8.5'	55.6'	56°51.3	38°21.0	48°44.9	63°38.6	65°05.8	83°06.6	95°44.4
3	140°09.4	10.7'	23°57.2	8.6'	55.6'	56°20.1	37°55.0	49°16.0	64°07.9	65°28.8	83°35.2	96°10.3
4	154°39.0	10.7'	23°48.6	8.7'	55.6'	55°48.8	37°29.1	49°47.2	64°37.2	65°51.9	84°03.8	96°36.1
5	169°08.8	10.7'	23°39.9	8.8'	55.7'	55°17.6	37°03.3	50°18.4	65°06.5	66°15.2	84°32.4	97°02.0
6	183°38.5	10.8'	S 23°31.1	8.9'	55.7'	54°46.3	36°37.6	50°49.7	65°35.9	66°38.4	85°01.1	97°27.9
7	198°08.3	10.8'	23°22.1	9.1'	55.7'	54°14.9	36°12.0	51°21.0	66°05.3	67°01.8	85°29.9	97°53.8
8	212°38.1	10.9'	23°13.1	9.2'	55.8'	53°43.6	35°46.5	51°52.3	66°34.7	67°25.3	85°58.6	98° 19.7
9	227°08.0	10.9'	23°03.9	9.3'	55.8'	53°12.2	35°21.1	52°23.6	67°04.2	67°48.8	86°27.4	98°45.7
10	241°37.9	10.9'	22°54.6	9.4'	55.8'	52°40.7	34°55.8	52°55.0	67°33.7	68°12.4	86°56.2	99°11.6
11	256°07.8	11.0'	22°45.1	9.6'	55.9'	52°09.3	34°30.6	53°26.5	68°03.2	68°36.0	87°25.1	99°37.6
12	270°37.8	11.0'	S 22°35.6	9.7'	55.9'	51°37.8	34°05.5	53°57.9	68°32.8	68°59.8	87°54.0	100°03.6
13	285°07.8	11.1'	22°25.9	9.8'	55.9'	51°06.2	33°40.6	54°29.4	69°02.4	69°23.6	88°22.9	100°29.6
14	299°37.9	11.1'	$22^{\circ}16.1$	9.9'	55.9'	50°34.7	33° 15.8	55°00.9	69°32.1	69°47.5	88°51.9	100°55.6
15	314°08.0	11.1'	22°06.2	10.0'	56.0'	50°03.1	32°51.2	55°32.5	70°01.8	70°11.5	89°20.9	101°21.6
16	328°38.1	11.2'	21°56.2	10.1'	56.0'	49°31.4	32°26.7	56°04.1	70°31.5	70°35.5	89°49.9	101°47.6
17	343°08.3	11.2'	21°46.0	10.3'	56.0'	48°59.8	32°02.3	56°35.7	71°01.3	70°59.7	90°19.0	102°13.6
18	357°38.5	11.3'	S 21°35.8	10.4'	56.1'	48°28.1	31°38.1	57°07.4	71°31.1	71°23.8	90°48.1	
19	12°08.8	11.3'	21°25.4	10.5'	56.1'	47°56.3	31°14.1	57°39.1	72°00.9	71°48.1	91°17.2	İ
20	26°39.0	11.3'	21°14.9	10.6'	56.1'	47°24.5	30°50.3	58°10.9	72°30.8	72°12.4	91°46.4	
21	41°09.4	11.4'	21°04.3	10.7'	56.2'	46°52.7	30°26.7	58°42.7	73°00.7	72°36.8	92°15.7	
22	55°39.7	11.4'	20°53.6	10.8'	56.2'	46°20.9	30°03.2	59°14.5	73°30.6	73°01.3	92°44.9	
23	70°10.1	11.4'	20°42.7	10.9'	56.2'	45°49.0	29°40.0	59°46.4	74°00.6	73°25.8	93°14.2	
29 th	SD	= 15.1'	Mer. pass	s. 18:10				S	un $SD = 1$	6.1'		

h Moon (30th Oct) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Capella	-Aldebaran	-Rigel	-Saturn	+Antares	+Rigil Kent.	+Mars	+Sun
0	84°40.6	11.5'	S 20°31.8	11.1'	56.3'		119°04.5	118°51.6	45°17.0	60°18.3	73°50.4	74°30.7	93°43.6
1 1	99°11.1	11.5'	20°20.7	11.2'	56.3'		118°33.2	118°28.0	44°45.1	60°50.2	74° 15.1	75°00.7	94°12.9
2	113°41.6	11.6'	20°09.6	11.3'	56.4'		118°02.0	118°04.3	44°13.1	61°22.2	74°39.8	75°30.8	94°42.4
3	128°12.1	11.6'	19°58.3	11.4'	56.4'		117°30.6	117°40.5	43°41.0	61°54.2	75°04.6	76°01.0	95°11.8
4	142°42.7	11.6'	19°46.9	11.5'	56.4'		116°59.2	117°16.6	43°08.9	62°26.3	75°29.4	76°31.2	95°41.3
5	157°13.3	11.7'	19°35.4	11.6'	56.5'		116°27.8	116°52.6	42°36.8	62°58.4	75°54.3	77°01.4	96°10.9
6	171°44.0	11.7'	S 19°23.8	11.7'	56.5'		115°56.3	116°28.5	42°04.7	63°30.6	76° 19.3	77°31.7	96°40.4
7	186°14.7	11.7'	19° 12.1	11.8'	56.5'		115°24.8	116°04.3	41°32.5	64°02.7	76°44.3	78°02.0	97°10.1
8	200°45.4	11.8'	19°00.3	11.9'	56.6'		114°53.3	115°40.0	41°00.2	64°35.0	77°09.4	78°32.4	97°39.7
9	215°16.2	11.8'	18°48.3	12.0'	56.6'		114°21.7	115°15.6	40°28.0	65°07.3	77°34.6	79°02.8	98°09.4
10	229°47.0	11.8'	18°36.3	12.1'	56.6'		113°50.0	114°51.1	39°55.7	65°39.6	77°59.8	79°33.2	98°39.2
11	244°17.8	11.9'	$18^{\circ}24.2$	12.2'	56.7'		113°18.3	114°26.5	39°23.3	66°11.9	78°25.1	80°03.7	99°08.9
12	258°48.7	11.9'	S 18°11.9	12.3'	56.7'		112°46.5	114°01.9	38°50.9	66°44.3	78°50.4	80°34.2	99°38.8
13	273°19.5	11.9'	$17^{\circ}59.6$	12.4'	56.7'		112°14.7	113°37.1	38°18.5	67°16.8	79° 15.8	81°04.8	100°08.6
14	287°50.5	12.0'	17°47.2	12.5'	56.8'		111°42.9	113°12.3	37°46.0	67°49.3	79°41.2	81°35.4	100°38.6
15	302°21.4	12.0'	17°34.6	12.6'	56.8'		111°11.0	112°47.3	37°13.5	68°21.8	80°06.7	82°06.0	101°08.5
16	316°52.4	12.0'	$17^{\circ}22.0$	12.7'	56.9'		110°39.0	112°22.3	36°41.0	68°54.4	80°32.3	82°36.7	101°38.5
17	331°23.4	12.0'	$17^{\circ}09.2$	12.8'	56.9'		110°07.0	111°57.2	36°08.4	69°27.0	80°57.9	83°07.5	102°08.6
18	345°54.5	12.1'	S 16°56.4	12.9'	56.9'		109°35.0	111°32.0	35°35.7	69°59.7	81°23.6	83°38.3	102°38.7
19	0°25.5	12.1'	16°43.5	13.0'	57.0'	119°43.6	109°02.9	111°06.7	35°03.1	70°32.4	81°49.3	84°09.1	103°08.8
20	14°56.7	12.1'	$16^{\circ}30.4$	13.1'	57.0'	119°12.9	108°30.8	110°41.4	34°30.3	71°05.1	82°15.1	84°40.0	103°39.0
21	29°27.8	12.2'	$16^{\circ}17.3$	13.2'	57.1'	118°42.1	107°58.6	110°15.9	33°57.6	71°37.9	82°40.9	85°10.9	104°09.2
22	43°58.9	12.2'	16°04.1	13.3'	57.1'	118°11.3	107°26.4	109°50.4	33°24.8	72°10.8	83°06.8	85°41.9	104°39.5
23	58°30.1	12.2'	15°50.8	13.4'	57.1'	117°40.4	106°54.1	109°24.8	32°52.0	72°43.7	83°32.7	86°12.9	105°09.8
30 th	SD	= 15.3'	Mer. pass	s. 18:58					Sun SI	O = 16.1'	·		

h Moon (31st Oct)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Mars	+Sun
0	73°01.3	12.2'	S 15°37.4	13.5'	57.2'		117°09.5	106°21.8	32° 19.1	73°16.6	83°58.7	86°44.0	105°40.1
1	87°32.6	12.3'	15°23.9	13.6'	57.2'		116°38.5	105°49.4	31°46.2	73°49.6	84°24.7	87°15.1	106°10.5
2	102°03.8	12.3'	$15^{\circ}10.3$	13.7'	57.2'		116°07.5	105°16.9	31° 13.2	74°22.6	84°50.7	87°46.2	106°41.0
3	116°35.1	12.3'	14°56.6	13.8'	57.3'		115°36.3	104°44.5	30°40.2	74°55.7	85°16.9	88°17.4	107°11.5
4	131°06.4	12.3'	14°42.8	13.9'	57.3'		115°05.2	104°11.9	30°07.2	75°28.8	85°43.0	88°48.7	107°42.0
5	145°37.7	12.3'	14°28.9	14.0'	57.4'		114°33.9	103°39.4	29°34.1	76°02.0	86°09.2	89°20.0	108°12.6
6	160°09.1	12.4'	S 14°15.0	14.0'	57.4'		114°02.6	103°06.7	29°01.0	76°35.2	86°35.5	89°51.3	108°43.2
7	174°40.4	12.4'	14°00.9	14.1'	57.4'	119°49.8	113°31.2	102°34.1	28° 27.9	77°08.5	87°01.8	90°22.7	109°13.9
8	189°11.8	12.4'	13°46.8	14.2'	57.5'	119°19.5	112°59.8	102°01.3	27°54.7	77°41.8	87°28.1	90°54.1	109°44.6
9	203°43.2	12.4'	13°32.6	14.3'	57.5'	118°49.0	112°28.3	101°28.6	27°21.4	78° 15.1	87°54.5	91°25.6	110°15.4
10	218°14.6	12.4'	13°18.3	14.4'	57.6'	118° 18.5	111°56.8	100°55.7	26°48.2	78°48.6	88°21.0	91°57.1	110°46.2
11	232°46.1	12.4'	13°03.9	14.5'	57.6'	117°48.0	111°25.2	100°22.9	26°14.9	79°22.0	88°47.4	92°28.7	111°17.1
12	247°17.5	12.5'	S 12°49.5	14.5'	57.6'	117° 17.3	110°53.5	99°49.9	25°41.5	79°55.5	89°13.9	93°00.3	111°48.0
13	261°49.0	12.5'	12°34.9	14.6'	57.7'	116°46.6	110°21.8	99°17.0	25°08.1	80°29.1	89°40.5	93°32.0	112°19.0
14	276°20.4	12.5'	12°20.3	14.7'	57.7'	116°15.8	109°50.0	98°44.0	24°34.7	81°02.7	90°07.1	94°03.7	112°50.0
15	290°51.9	12.5'	$12^{\circ}05.6$	14.8'	57.8'	115°45.0	109°18.2	98°10.9	24°01.3	81°36.3	90°33.7	94°35.5	113°21.0
16	305°23.4	12.5'	$11^{\circ}50.8$	14.9'	57.8'	115°14.1	108°46.3	97°37.8	23°27.8	82°10.0	91°00.4	95°07.3	113°52.1
17	319°54.9	12.5'	11°36.0	14.9'	57.8'	114°43.1	108°14.3	97°04.6	22°54.3	82°43.8	91°27.1	95°39.2	114°23.3
18	334°26.5	12.5'	S 11°21.0	15.0'	57.9'	114°12.0	107°42.3	96°31.4	22°20.7	83° 17.6	91°53.8	96°11.1	114°54.5
19	348°58.0	12.5'	$11^{\circ}06.0$	15.1'	57.9'	113°40.9	107°10.2	95°58.1	21°47.1	83°51.4	92°20.6	96°43.1	115°25.8
20	3°29.5	12.5'	$10^{\circ}51.0$	15.2'	58.0'	113°09.7	106°38.1	95°24.8	21° 13.5	84°25.3	92°47.4	97°15.1	115°57.1
21	18°01.1	12.5'	10°35.8	15.2'	58.0'	112°38.4	106°05.9	94°51.4	20°39.9	84°59.3	93°14.3	97°47.2	116°28.4
22	32°32.6	12.6'	10°20.6	15.3'	58.0'	112°07.1	105°33.6	94°18.0	20°06.2	85°33.3	93°41.1	98°19.3	116°59.8
23	47°04.2	12.6'	10°05.3	15.4'	58.1'	111°35.7	105°01.3	93°44.5	19°32.5	86°07.3	94°08.0	98°51.5	117°31.2
31 st	SD	= 15.6'	Mer. pass	s. 19:46					Sun SD	= 16.1'			

h Moon (1st Nov) Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Mars	+Sun
0	61°35.7	12.6'	S 09°49.9	15.4'	58.1'	111°04.2	104°29.0	93°11.0	18°58.8	86°41.4	94°35.0	99°23.7	118°02.7
1	76°07.3	12.6'	09°34.4	15.5'	58.2'	110°32.7	103°56.6	92°37.4	18°25.1	87°15.6	95°02.0	99°55.9	118°34.3
2	90°38.9	12.6'	$09^{\circ}18.9$	15.6'	58.2'	110°01.1	103°24.1	92°03.8	17°51.3	87°49.8	95°28.9	100°28.3	119°05.9
3	105°10.4	12.6'	09°03.4	15.6'	58.3'	109°29.4	102°51.5	91°30.1	17°17.6	88°24.0	95°56.0	101°00.6	119°37.5
4	119°42.0	12.6'	08°47.7	15.7'	58.3'	108° 57.7	102°19.0	90°56.4	16°43.8	88°58.3	96°23.0	101°33.0	
5	134°13.5	12.6'	08°32.0	15.8'	58.3'	108°25.9	101°46.3	90°22.6	16°10.0	89°32.7	96°50.1	102°05.5	
6	148°45.1	12.6'	S 08°16.2	15.8'	58.4'	107°54.0	101°13.6	89°48.8	15°36.2	90°07.1	97°17.2	102°38.0	
7	163°16.6	12.5'	08°00.4	15.9'	58.4'	107°22.1	100°40.9	89°14.9	15°02.5	90°41.6	97°44.3	103°10.6	
8	177°48.2	12.5'	07°44.5	16.0'	58.5'	106° 50.1	100°08.1	88°41.0	14°28.7	91°16.1	98°11.5	103°43.2	
9	192°19.7	12.5'	07°28.6	16.0'	58.5'	106° 18.1	99°35.2	88°07.0	13°54.9	91°50.6	98°38.6	104°15.9	
10	206°51.3	12.5'	$07^{\circ}12.5$	16.1'	58.5'	105°46.0	99°02.3	87°33.0	13°21.2	92°25.2	99°05.8	104°48.6	
11	221°22.8	12.5'	06°56.5	16.1'	58.6'	105° 13.8	98°29.3	86°58.9	12°47.6	92°59.9	99°33.0	105°21.3	
12	235°54.3	12.5'	S 06°40.3	16.2'	58.6'	104°41.6	97°56.3	86°24.8	12°13.9	93°34.6	100°00.2	105°54.2	
13	250°25.8	12.5'	06°24.2	16.2'	58.7'	104°09.3	97°23.2	85°50.6	11°40.4	94°09.3	100°27.5	106°27.0	
14	264°57.3	12.5'	06°07.9	16.3'	58.7'	103°36.9	96°50.1	85° 16.4	11°06.9	94°44.2	100°54.7	106°59.9	
15	279°28.7	12.5'	$05^{\circ}51.6$	16.3'	58.7'	103°04.5	96°16.9	84°42.1	10°33.5	95°19.0	101°22.0	107°32.9	
16	294°00.2	12.4'	05°35.3	16.4'	58.8'	102°32.1	95°43.7	84°07.8	10°00.3	95°53.9	101°49.2	108°05.9	
17	308°31.6	12.4'	$05^{\circ}18.9$	16.4'	58.8'	101°59.5	95°10.4	83°33.5	9°27.2	96°28.9	102°16.5	108°39.0	
18	323°03.1	12.4'	S 05°02.4	16.5'	58.9'	101°27.0	94°37.1	82°59.0	8°54.3	97°03.9	102°43.8	109°12.1	
19	337°34.5	12.4'	04°45.9	16.5'	58.9'	100°54.3	94°03.7	82°24.6	8°21.7	97°39.0	103°11.1	109°45.3	
20	352°05.9	12.4'	04°29.4	16.6'	58.9'	100°21.6	93°30.3	81°50.1	7°49.4	98°14.1	103°38.4	110°18.5	
21	6°37.2	12.3'	04°12.8	16.6'	59.0'	99°48.9	92°56.8	81° 15.5	7°17.5	98°49.3	104°05.8	110°51.7	
22	21°08.6	12.3'	03°56.2	16.7'	59.0'	99° 16.1	92°23.2	80°40.9	6°46.2	99°24.5	104°33.1	111°25.0	
23	35°39.9	12.3'	03°39.5	16.7'	59.1'	98°43.2	91°49.7	80°06.2	6°15.5	99°59.7	105°00.4	111°58.4	
1 st	SD	= 15.9'	Mer. pass	s. 20:33					Sun SD	= 16.1'			

h		Moor	n (2 nd Nov	v)			Lunar	Distance	(objects w	ith largest h	ourly LE	delta)	
Sun	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Fomalhaut	+Altair	+Antares	+Mars
0	50°11.2	12.3'	S 03°22.8	16.8'	59.1'			91°16.0	79°31.5	26° 50.3	54°33.8	100°35.1	112°31.8
1	64°42.4	12.2'	$03^{\circ}06.0$	16.8'	59.1'			90°42.4	78° 56.8	27° 13.7	55°00.2	101°10.4	113°05.3
2	79°13.7	12.2'	02°49.2	16.8'	59.2'			90°08.6	78°22.0	27° 37.5	55°26.8	101°45.8	113°38.8
3	93°44.9	12.2'	02°32.4	16.9'	59.2'			89°34.8	77° 47.2	28°01.8	55°53.5	102°21.3	114°12.3
4	108°16.1	12.1'	02°15.5	16.9'	59.3'			89°01.0	77° 12.3	28°26.4	56°20.4	102°56.8	114°45.9
5	122°47.2	12.1'	01°58.6	16.9'	59.3'	119°36.9		88°27.2	76°37.3	28°51.4	56°47.5	103°32.4	115° 19.6
6	137°18.3	12.1'	S 01°41.7	17.0'	59.3'	119°01.3		87°53.2	76°02.3	29° 16.8	57°14.6	104°08.0	115°53.3
7	151°49.4	12.0'	01°24.7	17.0'	59.4'	118°25.7		87°19.3	75°27.3	29° 42.5	57°41.9	104°43.7	116°27.1
8	166°20.4	12.0'	01°07.7	17.0'	59.4	117°50.0	119°34.3	86°45.3	74°52.3	30°08.6	58°09.4	105°19.4	117°00.9
9	180°51.5	12.0'	00°50.7	17.1'	59.5'	117°14.3	118°58.8	86°11.2	74° 17.1	30°35.0	58°37.0	105°55.2	117°34.7
10	195°22.4	11.9'	00°33.7	17.1'	59.5	116°38.5	118°23.1	85°37.1	73°42.0	31°01.8	59°04.7	106°31.0	118°08.6
11	209°53.3	11.9'	S 00°16.6	17.1'	59.5'	116°02.7	117°47.5	85°03.0	73°06.8	31°28.8	59°32.5	107°06.8	118° 42.5
12	224°24.2	11.8'	N 00°00.5	17.1'	59.6'	115°26.9	117°11.7	84°28.8	72°31.5	31°56.2	60°00.5	107°42.8	119° 16.5
13	238°55.1	11.8'	00°17.7	17.1'	59.6'	114°50.9	116°35.9	83°54.6	71°56.2	32°23.8	60°28.5	108°18.7	119°50.6
14	253°25.9	11.8'	00°34.8	17.2'	59.6'	114°15.0	116°00.1	83°20.3	71°20.9	32°51.7	60°56.7	108°54.7	
15	267°56.6	11.7'	00°52.0	17.2'	59.7'	113°39.0	115°24.2	82°46.0	70°45.5	33° 19.9	61°25.1	109°30.8	
16 17	282°27.3 296°58.0	11.7' 11.6'	01°09.2 01°26.4	17.2' 17.2'	59.7' 59.8'	113°02.9 112°26.8	114°48.3 114°12.3	82°11.6 81°37.2	70°10.1 69°34.6	33°48.3 34°17.0	61°53.5 62°22.0	110°06.9 110°43.0	
	1												
18	311°28.6	11.6'	N01°43.6	17.2'	59.8'	111°50.6	113°36.3	81°02.8	68°59.1	34°45.9	62°50.7	111°19.2	
19 20	325°59.2 340°29.7	11.5' 11.5'	02°00.8 02°18.0	17.2' 17.3'	59.8' 59.9'	111°14.4 110°38.2	113°00.2 112°24.1	80°28.3 79°53.8	68°23.6 67°48.0	35°15.0 35°44.4	63°19.5 63°48.3	111°55.5 112°31.8	
20	340 29.7 355°00.1	11.5 11.4'	02 18.0 02°35.3	17.3	59.9'	110 38.2 110°01.9	112 24.1 111°48.0	79 53.8 79°19.3	67°48.0	35 44.4 36°14.0	64°17.3	112 31.8 113°08.1	
21 22	9°30.5	11.4 11.3'	02 35.3 02°52.6	17.3	59.9'	110 01.9 109°25.5	111 48.0 111°11.7	79 19.3 78°44.7	66°36.7	36°43.8	64°46.4	113 08.1 113°44.5	
23	24°00.9	11.3'	02 32.0 03°09.8	17.3'	60.0'	109°25.5 108°49.2	110°35.5	78°10.1	66°01.0	37°13.9	65°15.6	113 44.5 114°20.9	
2 nd		= 16.1'	Mer. pass		30.0	100 15.2	110 00.0	.0 10.1	00 01.0	3, 13.9	00 10.0	1 11 20.9	1

h Moon (3rd Nov)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Jupiter	-Pollux	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Antares
0	38°31.1	11.2'	N03°27.1	17.3'	60.0'	109°59.2	108° 12.7	77°35.4	65°25.3	10°09.5	37°44.1	65°44.9	114°57.4
1	53°01.4	11.2'	03°44.4	17.3'	60.0'	109°22.8	107°36.2	77°00.8	64°49.5	10°44.4	38°14.5	66°14.3	115°33.9
2	67°31.5	11.1'	04°01.6	17.3'	60.1'	108°46.4	106°59.7	76°26.0	64°13.7	11°19.4	38°45.1	66°43.8	116° 10.5
3	82°01.6	11.0'	04°18.9	17.3'	60.1'	108°10.0	106°23.2	75°51.3	63°37.9	11°54.7	39°15.9	67°13.4	116°47.1
4	96°31.7	11.0'	04°36.2	17.3'	60.1'	107°33.5	105°46.5	75°16.5	63°02.0	12°30.1	39°46.8	67°43.0	117°23.7
5	111°01.6	10.9'	04°53.4	17.3'	60.2'	106°57.0	105°09.9	74°41.7	62°26.1	13°05.7	40°17.9	68°12.8	118°00.4
6	125°31.5	10.8'	N05° 10.7	17.3'	60.2'	106°20.4	104°33.2	74°06.9	61°50.2	13°41.4	40°49.2	68°42.6	118°37.2
7	140°01.4	10.8'	05°27.9	17.2'	60.2'	105°43.8	103°56.4	73°32.0	61°14.2	14°17.3	41°20.7	69°12.6	119° 13.9
8	154°31.1	10.7'	05°45.2	17.2'	60.3'	105°07.1	103°19.7	72°57.1	60°38.2	14°53.3	41°52.3	69°42.6	119°50.8
9	169°00.8	10.6'	06°02.4	17.2'	60.3'	104°30.4	102°42.8	72°22.1	60°02.1	15°29.4	42°24.0	70°12.7	
10	183°30.5	10.6'	$06^{\circ}19.6$	17.2'	60.3'	103°53.7	102°06.0	71°47.2	59°26.1	16°05.6	42°55.9	70°42.9	1
11	198°00.0	10.5'	06°36.8	17.2'	60.4'	103°16.9	101°29.1	71°12.2	58°50.0	16°41.9	43°27.9	71°13.2	
12	212°29.5	10.4'	N 06°54.0	17.2'	60.4'	102°40.0	100°52.1	70°37.2	58°13.8	17°18.3	44°00.1	71°43.5	
13	226°58.9	10.3'	$07^{\circ}11.2$	17.1'	60.4'	102°03.2	100°15.1	70°02.2	57°37.7	17°54.8	44°32.4	72°13.9	
14	241°28.2	10.2'	07°28.3	17.1'	60.5'	101°26.3	99°38.1	69°27.1	57°01.5	18°31.4	45°04.9	72°44.4	
15	255°57.5	10.2'	07°45.4	17.1'	60.5'	100°49.3	99°01.0	68°52.1	56°25.3	19°08.0	45°37.4	73°15.0	
16	270°26.7	10.1'	08°02.5	17.1'	60.5'	100°12.3	98°23.9	68°17.0	55°49.0	19°44.7	46°10.1	73°45.6	
17	284°55.8	10.0'	$08^{\circ}19.6$	17.0'	60.6'	99°35.3	97°46.8	67°41.9	55°12.8	20°21.5	46°42.9	74°16.3	
18	299°24.8	9.9'	N08°36.6	17.0'	60.6'	98°58.2	97°09.6	67°06.8	54°36.5	20°58.3	47°15.9	74°47.1	
19	313°53.7	9.8'	08°53.6	17.0'	60.6'	98°21.1	96°32.4	66°31.6	54°00.2	21°35.2	47°48.9	75°17.9	
20	328°22.5	9.8'	09° 10.6	16.9'	60.6'	97°44.0	95°55.1	65°56.5	53°23.9	22°12.2	48°22.1	75°48.8	
21	342°51.3	9.7'	09°27.5	16.9'	60.7'	97°06.8	95° 17.8	65°21.3	52°47.5	22°49.2	48°55.3	76°19.8	
22	357°19.9	9.6'	09°44.4	16.9'	60.7'	96°29.6	94° 40.5	64°46.1	52°11.2	23°26.3	49°28.7	76°50.8	
23	11°48.5	9.5'	10°01.3	16.8'	60.7'	95°52.3	94°03.1	64°10.9	51°34.8	24°03.4	50°02.1	77°21.9	
3 rd	SD	= 16.4'	Mer. pass	. 22:11									

h

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Jupiter	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Vega
0	26°17.0	9.4'	N 10°18.1	16.8'	60.7'		95° 15.1	93°25.8	50°58.4	24°40.6	50°35.7	77°53.0	89°30.6
1	40°45.4	9.3'	$10^{\circ}34.9$	16.7'	60.8'		94°37.7	92°48.3	50°22.0	25°17.9	51°09.4	78°24.2	89°45.8
2	55°13.7	9.2'	10°51.6	16.7'	60.8'		94°00.4	92°10.9	49°45.6	25°55.1	51°43.1	78°55.5	90°01.0
3	69°41.9	9.1'	11°08.3	16.6'	60.8'		93°23.0	91°33.4	49°09.2	26°32.5	52° 16.9	79°26.8	90°16.2
4	84°10.0	9.0'	11°24.9	16.6'	60.8'		92°45.6	90°55.8	48°32.7	27°09.8	52° 50.9	79°58.1	90°31.4
5	98°38.0	8.9'	$11^{\circ}41.4$	16.5'	60.9'		92°08.2	90°18.3	47°56.3	27°47.3	53°24.9	80°29.5	90°46.7
6	113°06.0	8.8'	$N11^{\circ}58.0$	16.5'	60.9'		91°30.7	89°40.7	47°19.8	28°24.7	53°59.0	81°01.0	91°01.9
7	127°33.8	8.7'	12°14.4	16.4'	60.9'		90°53.2	89°03.1	46°43.3	29°02.2	54°33.1	81°32.5	91°17.2
8	142°01.5	8.6'	12°30.8	16.3'	60.9'		90° 15.6	88°25.4	46°06.9	29°39.7	55°07.4	82°04.0	91°32.4
9	156°29.1	8.5'	12°47.1	16.3'	61.0'		89°38.1	87°47.8	45°30.4	30°17.3	55°41.7	82°35.6	91°47.7
10	170°56.7	8.4'	13°03.4	16.2'	61.0'		89°00.5	87°10.1	44°53.9	30°54.9	56° 16.1	83°07.2	92°02.9
11	185°24.1	8.3'	13°19.6	16.1'	61.0'		88°22.9	86°32.3	44°17.5	31°32.6	56° 50.6	83°38.8	92°18.2
12	199°51.4	8.2'	N13°35.7	16.1'	61.0'		87°45.2	85°54.6	43°41.0	32°10.2	57°25.1	84°10.5	92°33.4
13	214°18.6	8.1'	13°51.8	16.0'	61.0'		87°07.5	85°16.8	43°04.5	32°48.0	57° 59.7	84°42.2	92°48.7
14	228°45.7	8.0'	14°07.8	15.9'	61.1'		86° 29.8	84°39.0	42°28.1	33°25.7	58° 34.4	85°14.0	93°03.9
15	243°12.7	7.9'	14°23.7	15.8'	61.1'		85°52.1	84°01.2	41°51.6	34°03.5	59°09.1	85°45.8	93°19.2
16	257°39.6	7.8'	14°39.5	15.7'	61.1'	_	85° 14.4	83°23.3	41°15.2	34°41.3	59°43.9	86° 17.6	93°34.4
17	272°06.4	7.7'	14°55.3	15.7'	61.1'	119°37.5	84°36.6	82°45.4	40°38.8	35°19.1	60° 18.8	86°49.4	93°49.6
18	286°33.1	7.6'	N 15°10.9	15.6'	61.1'	118°59.6	83°58.8	82°07.5	40°02.4	35°57.0	60°53.7	87°21.3	94°04.8
19	300°59.7	7.5'	15°26.5	15.5'	61.1'	118°21.7	83°21.0	81°29.6	39°26.0	36°34.9	61°28.6	87°53.2	94°20.0
20	315°26.1	7.4'	15°42.0	15.4'	61.2'	117°43.7	82°43.1	80°51.7	38°49.6	37°12.8	62°03.7	88°25.1	94°35.1
21	329°52.5	7.2'	15°57.4	15.3'	61.2'	117°05.7	82°05.3	80°13.7	38°13.3	37°50.7	62°38.7	88° 57.0	94°50.3
22	344°18.7	7.1'	16°12.7	15.2'	61.2'	116°27.7	81°27.4	79°35.7	37°37.0	38°28.7	63° 13.9	89°29.0	95°05.4
23	358°44.9	7.0'	16°27.9	15.1'	61.2'	115°49.6	80°49.5	78°57.7	37°00.7	39°06.7	63°49.0	90°01.0	95°20.5
4 th	SD	= 16.6	Mer. pas	s. 23:05									

h Moon (5th Nov)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Jupiter	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Achernar	+Altair
0	13°10.9	6.9'	N 16°43.0	15.0'	61.2'	115°11.6	80°11.6	78°19.7	36°24.5	39°44.7	64°24.3	74°01.8	90°32.9
1	27°36.8	6.8'	$16^{\circ}58.1$	14.9'	61.2'	114°33.5	79°33.7	77°41.7	35°48.3	40°22.7	64°59.5	74°19.1	91°04.9
2	42°02.6	6.7'	$17^{\circ}13.0$	14.8'	61.2'	113°55.4	78°55.7	77°03.6	35°12.1	41°00.7	65°34.8	74°36.6	91°37.0
3	56°28.2	6.6'	$17^{\circ}27.8$	14.7'	61.3'	113°17.3	78°17.7	76°25.5	34°36.0	41°38.8	66°10.2	74°54.2	92°09.0
4	70°53.8	6.4'	17° 42.5	14.6'	61.3'	112°39.2	77°39.8	75°47.5	33°59.9	42°16.9	66°45.5	75°11.8	92°41.0
5	85°19.3	6.3'	$17^{\circ}57.1$	14.5'	61.3'	112°01.1	77°01.8	75°09.4	33°23.9	42°55.0	67°21.0	75°29.6	93°13.0
6	99°44.6	6.2'	$N18^{\circ}11.5$	14.4'	61.3'	111°22.9	76°23.8	74°31.3	32°48.0	43°33.1	67°56.4	75°47.4	93°45.1
7	114°09.8	6.1'	18°25.9	14.2'	61.3'	110°44.8	75°45.8	73°53.1	32°12.1	44°11.2	68°31.9	76°05.3	94°17.1
8	128°34.9	6.0'	18°40.1	14.1'	61.3'	110°06.6	75°07.7	73°15.0	31°36.2	44°49.4	69°07.5	76°23.4	94°49.2
9	142°59.9	5.9'	18°54.3	14.0'	61.3'	109°28.4	74°29.7	72°36.9	31°00.5	45°27.6	69°43.0	76°41.5	95°21.2
10	157°24.8	5.8'	19°08.3	13.9'	61.3'	108°50.3	73°51.6	71°58.7	30°24.8	46°05.7	70°18.6	76°59.6	95°53.2
11	171°49.5	5.6'	$19^{\circ}22.1$	13.8'	61.3'	108°12.1	73°13.6	71°20.6	29°49.2	46°43.9	70°54.2	77°17.9	96°25.3
12	186°14.2	5.5'	N19°35.9	13.6'	61.3'	107°33.8	72°35.5	70°42.4	29°13.7	47°22.1	71°29.9	77°36.2	96°57.3
13	200°38.7	5.4'	19°49.5	13.5'	61.3'	106°55.6	71°57.4	70°04.2	28°38.3	48°00.3	72°05.5	77°54.7	97°29.3
14	215°03.1	5.3'	20°03.0	13.4'	61.4'	106°17.4	71°19.4	69°26.0	28°03.0	48°38.5	72°41.2	78°13.1	98°01.3
15	229°27.4	5.2'	20°16.4	13.2'	61.4'	105°39.2	70°41.3	68°47.8	27°27.8	49°16.8	73°16.9	78°31.7	98°33.3
16	243°51.6	5.1'	20°29.6	13.1'	61.4'	105°00.9	70°03.2	68°09.6	26°52.8	49°55.0	73°52.7	78°50.3	99°05.3
17	258°15.7	5.0'	20°42.7	12.9'	61.4'	104°22.7	69°25.1	67°31.4	26°17.9	50°33.2	74°28.4	79°09.0	99°37.3
18	272°39.6	4.8'	N 20°55.6	12.8'	61.4'	103°44.5	68°47.0	66°53.2	25°43.1	51°11.5	75°04.2	79°27.8	100°09.2
19	287°03.5	4.7'	21°08.4	12.6'	61.4'	103°06.2	68°08.9	66°15.0	25°08.4	51°49.7	75°40.0	79°46.6	100°41.1
20	301°27.2	4.6'	$21^{\circ}21.0$	12.5'	61.4'	102°28.0	67°30.8	65°36.8	24°34.0	52°28.0	76°15.8	80°05.5	101°13.1
21	315°50.8	4.5'	21°33.5	12.3'	61.4'	101°49.7	66°52.7	64°58.6	23°59.7	53°06.2	76°51.6	80°24.4	101°44.9
22	330°14.3	4.4'	21°45.9	12.2'	61.4'	101°11.5	66°14.6	64°20.4	23°25.6	53°44.5	77°27.5	80°43.4	102° 16.8
23	344°37.7	4.3'	21°58.1	12.0'	61.4'	100°33.2	65°36.5	63°42.2	22°51.7	54°22.7	78°03.3	81°02.4	102°48.6
5 th	SD	= 16.	7' Mer. pa	ss:-									

h

Moon (6th Nov) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Jupiter	-Pollux	+Saturn	+Fomalhaut	+Achernar	+Altair
0	359°01.0	4.2'	N22°10.1	11.9'	61.4'	99°55.0	68°21.8	64°58.3	63°04.0	55°01.0	78°39.2	81°21.5	103°20.4
1	13°24.2	4.1'	22°22.0	11.7'	61.4'	99°16.7	67°46.3	64°20.2	62°25.8	55°39.2	79°15.1	81°40.7	103°52.2
2	27°47.2	4.0'	22°33.7	11.6'	61.4'	98°38.5	67°10.7	63°42.2	61°47.6	56°17.5	79°50.9	81°59.9	104°23.9
3	42°10.2	3.8'	22°45.3	11.4'	61.4'	98°00.2	66°35.2	63°04.1	61°09.4	56°55.8	80°26.8	82°19.1	104°55.6
4	56°33.0	3.7'	22°56.7	11.2'	61.4'	97°22.0	65°59.7	62°26.0	60°31.2	57°34.0	81°02.7	82°38.3	105°27.2
5	70°55.8	3.6'	23°07.9	11.1'	61.4'	96°43.8	65°24.2	61°47.9	59°53.0	58°12.3	81°38.6	82°57.7	105°58.8
6	85°18.4	3.5'	N23°19.0	10.9'	61.4'	96°05.5	64°48.8	61°09.8	59°14.8	58°50.5	82°14.5	83° 17.0	106°30.4
7	99°40.9	3.4'	23°29.9	10.7'	61.4'	95°27.3	64°13.4	60°31.7	58°36.7	59°28.7	82°50.3	83°36.4	107°01.9
8	114°03.4	3.3'	23°40.6	10.5'	61.3'	94°49.1	63°38.0	59°53.7	57°58.5	60°07.0	83°26.2	83°55.8	107°33.4
9	128°25.7	3.2'	23°51.1	10.4'	61.3'	94°10.9	63°02.7	59°15.6	57°20.3	60°45.2	84°02.1	84° 15.2	108°04.8
10	142°47.9	3.1'	24°01.5	10.2'	61.3'	93°32.7	62°27.4	58°37.6	56°42.2	61°23.4	84°38.0	84°34.7	108°36.2
11	157°10.1	3.0'	24°11.7	10.0'	61.3'	92°54.5	61°52.1	57°59.6	56°04.1	62°01.6	85°13.9	84°54.1	109°07.5
12	171°32.1	2.9'	N24°21.7	9.8'	61.3'	92°16.3	61°16.9	57°21.5	55°25.9	62°39.8	85°49.8	85° 13.7	109°38.8
13	185°54.1	2.9'	24°31.5	9.6'	61.3'	91°38.2	60°41.8	56°43.5	54°47.8	63°18.0	86°25.6	85°33.2	110°10.0
14	200°15.9	2.8'	24°41.2	9.5'	61.3'	91°00.0	60°06.7	56°05.5	54°09.7	63°56.2	87°01.5	85°52.7	110°41.1
15	214°37.7	2.7'	24°50.6	9.3'	61.3'	90°21.9	59°31.6	55°27.6	53°31.6	64°34.3	87°37.3	86° 12.3	111°12.2
16	228°59.4	2.6'	24°59.9	9.1'	61.3'	89°43.7	58°56.6	54°49.6	52°53.6	65°12.5	88°13.2	86°31.9	111°43.2
17	243°21.0	2.5'	25°09.0	8.9'	61.3'	89°05.6	58°21.6	54°11.7	52°15.5	65°50.6	88°49.0	86°51.4	112°14.2
18	257°42.5	2.4'	N25°17.9	8.7'	61.3'	88°27.5	57°46.7	53°33.7	51°37.5	66°28.7	89°24.8	87°11.0	112°45.0
19	272°03.9	2.3'	25°26.6	8.5'	61.2'	87°49.4	57°11.9	52°55.8	50°59.5	67°06.8	90°00.6	87° 30.6	113°15.8
20	286°25.2	2.3'	25°35.1	8.3'	61.2'	87°11.4	56°37.1	52°17.9	50°21.5	67°44.9	90°36.4	87°50.2	113°46.5
21	300°46.5	2.2'	25°43.4	8.1'	61.2'	86°33.3	56°02.4	51°40.0	49°43.5	68°23.0	91°12.1	88°09.8	114°17.2
22	315°07.7	2.1'	25°51.5	7.9'	61.2'	85°55.3	55°27.7	51°02.2	49°05.5	69°01.1	91°47.9	88° 29.5	114°47.8
23	329°28.8	2.0'	25°59.4	7.7'	61.2'	85°17.3	54°53.1	50°24.4	48°27.6	69°39.1	92°23.6	88°49.1	115°18.2
6 th	SD	= 16.7	Mer. pas	s. 00:04									

Moon (7th Nov) Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Jupiter	-Pollux	+Saturn	+Achernar	+Fomalhaut	+Altair
0	343°49.9	2.0'	N 26°07.1	7.5'	61.2'	84°39.3	54°18.6	49°46.5	47°49.6	70°17.1	89°08.7	92° 59.3	115°48.6
1	358°10.8	1.9'	$26^{\circ}14.6$	7.3'	61.2'	84°01.3	53°44.2	49°08.8	47°11.7	70°55.1	89°28.3	93°35.0	116°18.9
2	12°31.8	1.9'	$26^{\circ}21.9$	7.1'	61.2'	83°23.4	53°09.8	48°31.0	46°33.9	71°33.1	89°47.9	94° 10.7	116°49.1
3	26°52.6	1.8'	26°29.0	6.9'	61.1'	82°45.5	52°35.5	47°53.2	45°56.0	72°11.1	90°07.4	94° 46.3	117°19.3
4	41°13.4	1.7'	26°35.9	6.7'	61.1'	82°07.5	52°01.2	47°15.5	45°18.2	72°49.0	90°27.0	95°21.9	117°49.3
5	55°34.1	1.7'	26°42.6	6.5'	61.1'	81°29.7	51°27.1	46°37.8	44°40.3	73°26.9	90°46.5	95°57.5	118°19.2
6	69°54.8	1.6'	N26°49.1	6.3'	61.1'	80°51.8	50°53.0	46°00.2	44°02.6	74°04.8	91°06.1	96°33.1	118°49.0
7	84°15.4	1.6'	26°55.4	6.1'	61.1'	80°14.0	$50^{\circ}19.1$	45°22.5	43°24.8	74°42.7	91°25.6	97°08.6	119°18.7
8	98°36.0	1.5'	27°01.4	5.8'	61.0'	79°36.1	49°45.2	44°44.9	42°47.1	75°20.5	91°45.1	97°44.1	119°48.3
9	112°56.6	1.5'	27°07.3	5.6'	61.0'	78°58.4	49°11.4	44°07.3	42°09.4	75°58.3	92°04.6	98° 19.6	
10	127°17.0	1.5'	$27^{\circ}12.9$	5.4'	61.0'	78°20.6	48°37.7	43°29.8	41°31.7	76°36.1	92°24.0	98°55.0	
11	141°37.5	1.4'	27°18.3	5.2'	61.0'	77°42.9	48°04.1	42°52.3	40°54.0	77°13.9	92°43.4	99°30.4	
12	155°57.9	1.4'	$N27^{\circ}23.5$	5.0'	61.0'	77°05.2	47°30.6	42°14.8	40°16.4	77°51.6	93°02.8	100°05.8	
13	170°18.3	1.4'	27°28.5	4.8'	60.9'	76°27.5	46°57.2	41°37.3	39°38.8	78°29.3	93°22.2	100°41.1	
14	184°38.6	1.3'	27°33.3	4.6'	60.9'	75°49.8	46°23.9	40°59.9	39°01.3	79°07.0	93°41.5	101° 16.4	
15	198°59.0	1.3'	27°37.9	4.3'	60.9'	75°12.2	45°50.8	40°22.5	38°23.8	79°44.7	94°00.8	101°51.7	
16	213°19.3	1.3'	27° 42.2	4.1'	60.9'	74°34.6	45° 17.7	39°45.1	37°46.3	80°22.3	94°20.1	102° 26.9	
17	227°39.5	1.3'	27°46.3	3.9'	60.9'	73°57.1	44°44.8	39°07.8	37°08.8	80°59.9	94°39.3	103°02.1	
18	241°59.8	1.2'	$N27^{\circ}50.3$	3.7'	60.8'	73°19.5	44°12.0	38°30.5	36°31.4	81°37.4	94° 58.5	103°37.2	
19	256° 20.0	1.2'	27°53.9	3.5'	60.8'	72°42.0	43°39.3	37°53.3	35°54.0	82°15.0	95° 17.6	104° 12.3	
20	270°40.3	1.2'	27°57.4	3.3'	60.8'	72°04.6	43°06.8	37°16.1	35°16.6	82°52.5	95°36.7	104°47.4	
21	285°00.5	1.2'	28°00.7	3.0'	60.8'	71°27.1	42°34.3	36°38.9	34°39.3	83°29.9	95° 55.7	105°22.4	
22	299°20.7	1.2'	28°03.7	2.8'	60.7'	70°49.7	42°02.1	36°01.8	34°02.0	84°07.3	96° 14.7	105° 57.4	
23	313°41.0	313°41.0 1.2' 28°06.5 2.6' 60.7				70°12.4	41°30.0	35°24.7	33°24.8	84°44.7	96°33.7	106°32.3	
7 th	SD =	= 16.7 [']	Mer. pass	. 01:08	3								

h Moon (8 th Nov)	Lunar Distance (objects with largest hourly LD delta)
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Sat	GHA ν Dec 328°01 2 1 2' N28°09 2		d	HP	-Spica	-Regulus	-Jupiter	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut	
0	328°01.2	1.2'	N 28°09.2	2.4'	60.7'		69°35.1	34°47.6	32°47.6	14°50.7		85°22.1	107°07.2
1	342°21.4	1.2'	28°11.5	2.2'	60.7'		68°57.8	34°10.6	32°10.4	15° 17.3		85°59.4	107°42.0
2	356°41.7	1.3'	28°13.7	1.9'	60.6'		68°20.5	33°33.6	31°33.3	15° 44.6		86°36.7	108°16.8
3	11°01.9	1.3'	28°15.7	1.7'	60.6'		67°43.3	32°56.7	30°56.2	16° 12.5		87°14.0	108°51.5
4	25°22.2	1.3'	28°17.4	1.5'	60.6'		67°06.1	32°19.8	30°19.2	16°40.9		87°51.2	109°26.2
5	39°42.5	1.3'	28°18.9	1.3'	60.5'		66°28.9	31°43.0	29°42.2	17°09.9		88°28.4	110°00.8
6	54°02.8	1.3'	N28°20.2	1.1'	60.5'	119°52.7	65°51.8	31°06.2	29°05.2	17°39.3		89°05.5	110°35.4
7	68°23.2	1.4'	28°21.3	0.9'	60.5'	119°15.6	65°14.7	30°29.5	28°28.3	18°09.2		89°42.6	111°09.9
8	82°43.6	1.4'	28°22.1	0.6'	60.5'	118°38.6	64°37.7	29°52.8	27°51.5	18° 39.4		90°19.7	111°44.3
9	97°04.0	1.4'	28°22.8	0.4'	60.4'	118°01.6	64°00.7	29°16.2	27°14.6	19° 10.0		90°56.7	112°18.7
10	111°24.4	1.5'	28°23.2	0.2'	60.4'	117°24.7	63°23.7	28°39.6	26°37.9	19°40.9		91°33.7	112°53.1
11	125°44.9	1.5'	28°23.4	-0.0'	60.4'	116°47.7	62°46.8	28°03.1	26°01.1	20° 12.1		92°10.7	113°27.3
12	140°05.4	1.6'	N28°23.4	-0.2'	60.3'	116°10.9	62°09.9	27°26.6	25°24.4	20°43.6		92°47.6	114°01.6
13	154°26.0	1.6'	28°23.2	-0.4'	60.3'	115°34.0	61°33.1	26°50.2	24°47.8	21° 15.3		93°24.5	114°35.7
14	168°46.7	1.7'	28°22.8	-0.6'	60.3'	114°57.2	60°56.3	26°13.8	24°11.2	21°47.2		94°01.3	115°09.8
15	183°07.3	1.7'	28°22.1	-0.9'	60.3'	114°20.5	60°19.5	25°37.5	23°34.7	22° 19.4		94°38.1	115°43.8
16	197°28.1	1.8'	28°21.3	-1.1'	60.2'	113°43.7	59°42.8	25°01.2	22°58.2	22°51.7		95°14.8	116°17.8
17	211°48.9	1.9'	28°20.2	-1.3'	60.2'	113°07.1	59°06.2	24°25.1	22°21.8	23°24.2	19°55.7	95°51.5	116°51.7
18	226°09.7	1.9'	$N28^{\circ}19.0$	-1.5'	60.2'	112°30.4	58°29.5	23°48.9	21°45.5	23° 56.8	20°12.3	96°28.2	117°25.5
19	240°30.7	2.0'	28°17.5	-1.7'	60.1'	111°53.8	57°52.9	23°12.9	21°09.1	24°29.6	20°29.6	97°04.8	117°59.3
20	254°51.7	2.1'	28°15.8	-1.9'	60.1'	111°17.3	57°16.4	22°36.9	20°32.9	25°02.5	20°47.8	97°41.4	118°33.0
21	269°12.7	2.1'	$28^{\circ}13.9$	-2.1'	60.1'	110°40.8	56°39.9	22°01.0	19°56.7	25° 35.5	21°06.7	98°17.9	119°06.6
22	283°33.9	2.2'	$28^{\circ}11.8$	-2.3'	60.0'	110°04.3	56°03.4	21°25.1	19°20.6	26°08.7	21°26.3	98°54.4	119°40.1
23	297°55.1	2.3'	28°09.5	-2.5'	60.0'	109°27.9	55°27.0	20°49.4	18°44.5	26°41.9	21°46.6	99°30.9	
8 th	SD = 16.6' Mer. pass. 02:14												

Moon (9th Nov)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Jupiter	-Pollux	+Capella	+Betelgeuse	+Aldebaran	+Saturn
0	312°16.4	2.4'	N 28°07.0	-2.7'	60.0'	108°51.5	54°50.6	20°13.7	18°08.5	22°07.5		27° 15.2	100°07.3
1	326°37.8	2.5'	28°04.3	-2.9'	59.9'	108°15.2	54°14.3	19°38.1	17°32.6	22°28.9		27°48.6	100°43.7
2	340°59.3	2.6'	28°01.4	-3.1'	59.9'	107°38.9	53°38.0	19°02.5	16° 56.8	22°51.0		28° 22.1	101°20.0
3	355°20.8	2.7'	27°58.3	-3.3'	59.9'	107°02.7	53°01.8	18°27.1	16°21.0	23°13.6		28° 55.6	101°56.2
4	9°42.5	2.7'	27°55.0	-3.5'	59.8'	106°26.5	52°25.6	17°51.8	15°45.3	23°36.7		29°29.2	102°32.5
5	24°04.2	2.8'	$27^{\circ}51.5$	-3.7'	59.8'	105°50.3	51°49.4	$17^{\circ}16.5$	15°09.7	24°00.3		30°02.8	103°08.6
6	38°26.1	2.9'	N27°47.8	-3.9'	59.7'	105°14.2	51°13.3	16°41.4	14°34.1	24°24.3		30°36.5	103°44.8
7	52°48.0	3.0'	27°43.9	-4.1'	59.7'	104°38.1	50°37.2	16°06.4	13°58.7	24°48.8		31° 10.2	104°20.9
8	67°10.1	3.1'	27°39.8	-4.3'	59.7'	104°02.1	50°01.2	15°31.5	13°23.4	25°13.7	23°25.5	31°43.9	104°56.9
9	81°32.2	3.2'	27°35.5	-4.5'	59.6'	103°26.2	49°25.3	14°56.7	12°48.2	25°38.9	23°41.5	32° 17.7	105°32.9
10	95°54.4	3.4'	$27^{\circ}31.1$	-4.6'	59.6'	102°50.2	48°49.3	14°22.1	12°13.0	26°04.5	23°58.2	32°51.5	106°08.9
11	110°16.8	3.5'	27°26.4	-4.8'	59.6'	102°14.4	48°13.5	13°47.6	11°38.1	26°30.5	24°15.5	33°25.3	106°44.8
12	124°39.3	3.6'	$N27^{\circ}21.6$	-5.0'	59.5'	101°38.5	47°37.6	13°13.3	11°03.2	26°56.8	24°33.4	33° 59.2	107°20.6
13	139°01.8	3.7'	$27^{\circ}16.6$	-5.2'	59.5'	101°02.7	47°01.9	12°39.2	10°28.5	27°23.3	24°51.9	34°33.0	107°56.4
14	153°24.5	3.8'	$27^{\circ}11.4$	-5.4'	59.5'	100°27.0	46°26.1	12°05.2	9°54.0	27°50.2	25°11.0	35°06.9	108°32.2
15	167°47.3	3.9'	27°06.0	-5.6'	59.4'	99°51.3	45°50.4	11°31.5	9° 19.7	28°17.3	25°30.5	35°40.8	109°07.9
16	182°10.3	4.0'	27°00.5	-5.7'	59.4'	99°15.7	45°14.8	10°58.0	8°45.6	28°44.7	25°50.6	36° 14.7	109°43.6
17	196°33.3	4.2'	26°54.7	-5.9'	59.3'	98°40.1	44°39.2	10°24.9	8° 11.8	29°12.3	26°11.2	36°48.6	110°19.2
18	210°56.5	4.3'	N 26°48.8	-6.1'	59.3'	98°04.5	44°03.6	9°52.0	7°38.3	29°40.1	26°32.3	37° 22.5	110°54.8
19	225°19.7	4.4'	26°42.8	-6.2'	59.3'	97°29.0	43°28.1	$9^{\circ}19.5$	7°05.2	30°08.1	26°53.8	37°56.4	111°30.3
20	239°43.1	4.5'	$26^{\circ}36.5$	-6.4'	59.2'	96°53.6	42°52.7	8°47.4	6°32.5	30°36.4	27°15.7	38° 30.2	112°05.8
21	254°06.7	4.7'	26°30.1	-6.6'	59.2'	96°18.2	42°17.3	8°15.8	6°00.4	31°04.8	27°38.0	39°04.1	112°41.2
22	268°30.3	4.8'	26°23.5	-6.7'	59.2'	95°42.8 95°07.5	41°41.9	7°44.8	5°29.0	31°33.4	28°00.7	39°38.0	113°16.6
23	282°54.1	282°54.1 4.9' 26°16.8 -6.9' 59.1					41°06.6	7°14.6	4°58.6	32°02.1	28°23.8	40°11.9	113°51.9
9 th	SD :	= 16.4'	Mer. pas	s. 03:19									

h		Моо	n (10 th N	ov)			Lunar D	istance	objects v	vith large	est hourly	LD delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Venus	-Spica	-Regulus	+Pollux	+Capella	+Aldebaran	+Saturn
0	297°18.0	5.0'	N 26°09.9	-7.1'	59.1'	117°57.6	103°53.2	94°32.2	40°31.4		32°31.0	40°45.7	114°27.2
1	311°42.0	5.2'	26°02.8	-7.2'	59.0'	117°25.0	103°21.2	93°57.0	39°56.2		33°00.1	41°19.5	115°02.4
2	326°06.2	5.3'	25°55.6	-7.4'	59.0'	116°52.5	102°49.3	93°21.8	39°21.0		33°29.3	41°53.4	115°37.6
3	340°30.5	5.4'	25°48.2	-7.5'	59.0'	116°20.0	102°17.4	92°46.7	38°45.9		33°58.6	42°27.2	116°12.7
4	354°54.9	5.6'	25°40.6	-7.7'	58.9'	115°47.5	101°45.6	92°11.6	38° 10.8		34°28.0	43°01.0	116°47.8
5	9°19.5	5.7'	25°32.9	-7.8'	58.9'	115°15.1	101°13.9	91°36.6	37°35.8		34°57.6	43°34.7	117°22.9
6	23°44.2	5.8'	$N25^{\circ}25.1$	-8.0'	58.9'	114°42.8	100°42.2	91°01.6	37°00.8		35°27.2	44°08.5	117°57.8
7	38°09.0	6.0'	25°17.1	-8.1'	58.8'	114°10.5	100°10.5	90°26.7	36°25.9		35°57.0	44°42.2	118°32.8
8	52°34.0	6.1'	25°08.9	-8.3'	58.8'	113°38.2	99°38.9	89°51.8	35°51.0		36°26.8	45°15.9	119°07.7
9	66°59.1	6.2'	25°00.7	-8.4'	58.7'	113°06.0	99°07.3	89°17.0	35°16.2		36°56.8	45°49.6	119°42.5
10	81°24.3	6.4'	24°52.2	-8.6'	58.7'	112°33.8	98°35.8	88°42.2	34°41.4		37°26.8	46°23.3	
11	95°49.7	6.5'	24°43.6	-8.7'	58.7'	112°01.7	98°04.3	88°07.4	34°06.7		37°56.9	46°56.9	
12	110°15.2	6.6'	N24°34.9	-8.9'	58.6'	111°29.6	97°32.9	87°32.8	33°32.0		38°27.0	47°30.5	
13	124°40.9	6.8'	24°26.1	-9.0'	58.6'	110°57.6	97°01.5	86°58.1	32°57.4		38° 57.2	48°04.1	
14	139°06.6	6.9'	24°17.1	-9.1'	58.5'	110°25.6	96°30.1	86°23.5	32°22.8		39°27.5	48°37.6	
15	153°32.6	7.1'	24°08.0	-9.3'	58.5'	109°53.7	95°58.9	85°49.0	31°48.2	5°44.1	39°57.9	49°11.2	
16	167°58.6	7.2'	23°58.7	-9.4'	58.5'	109°21.8	95°27.6	85°14.5	31°13.7	6°15.1	40°28.2	49°44.7	
17	182°24.8	7.3'	23°49.3	-9.5'	58.4'	108°50.0	94°56.4	84°40.0	30°39.3	6°46.5	40°58.7	50°18.1	
18	196°51.2	7.5'	N23°39.8	-9.6'	58.4'	108°18.2	94°25.3	84°05.6	30°04.9	7°18.4	41°29.2	50°51.6	
19	211°17.6	7.6'	23°30.2	-9.8'	58.3'	107°46.5	93°54.2	83°31.2	29°30.5	7°50.6	41°59.7	51°25.0	
20	225°44.2	7.7'	23°20.4	-9.9'	58.3'	107°14.8	93°23.1	82°56.9	28° 56.2	8°23.1	42°30.3	51°58.4	
21	240°11.0	7.9'	23°10.5	-10.0'	58.3'	106°43.1	92°52.1	82°22.7	28°22.0	8°55.7	43°00.8	52°31.7	
22	254°37.9	8.0'	23°00.5	-10.1'	58.2'	106°11.5	92°21.2	81°48.4	27°47.8	9°28.4	43°31.5	53°05.0	
23	269°04.9	8.2'	22°50.4	-10.2'	58.2'	2' 105°40.0 91°50.2 81°14.3 27°13.6 10°01.3 44°02.1 53°38.3							
10 th	SD	= 16.1	.' Mer. pas	s. 04:21		SunSD = 16.1'							

Tue	GHA	ν	Dec	d	HP	-Sun	-Venus	-Spica	-Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran	
0	283°32.0	8.3'	N 22°40.1	-10.4'	58.2'	105°08.5	91°19.4	80°40.1	26°39.5	9°08.8	10°34.3	44°32.8	54° 11.5	
1	297°59.3	8.4'	22°29.8	-10.5'	58.1'	104°37.0	90°48.6	80°06.1	26°05.5	9°39.9	11°07.4	45°03.5	54° 44.8	
2	312°26.8	8.6'	22°19.3	-10.6'	58.1'	104°05.6	90°17.8	79°32.0	25°31.5	10°11.2	11°40.5	45°34.2	55° 17.9	
3	326°54.3	8.7'	22°08.7	-10.7'	58.0'	103°34.2	89°47.1	78°58.1	24°57.5	10°42.8	12°13.6	46°05.0	55°51.1	
4	341°22.0	8.8'	21°58.0	-10.8'	58.0'	103°02.9	89°16.4	78°24.1	24°23.6	11°14.6	12°46.8	46°35.8	56°24.2	
5	355°49.9	9.0'	21°47.3	-10.9'	58.0'	102°31.6	88°45.8	77°50.2	23°49.7	11°46.5	13° 19.9	47°06.5	56° 57.3	
6	10°17.8	9.1'	N 21°36.4	-11.0'	57.9'	102°00.4	88°15.2	77°16.4	23°15.9	12°18.6	13°53.1	47°37.3	57°30.3	
7	24°45.9	9.2'	21°25.3	-11.1'	57.9'	101°29.2	87°44.6	76°42.6	22°42.1	12°50.8	14°26.3	48°08.1	58°03.3	
8	39°14.2	9.4'	21°14.2	-11.2'	57.8'	100°58.0	87°14.1	76°08.8	22°08.4	13°23.0	14°59.5	48°38.9	58° 36.3	
9	53°42.5	9.5'	21°03.0	-11.3'	57.8'	100°26.9	86°43.7	75°35.1	21°34.7	13°55.3	15°32.7	49°09.7	59°09.3	
10	68°11.0	9.6'	20°51.7	-11.4'	57.8'	99°55.9	86°13.3	75°01.4	21°01.0	14°27.7	16°05.9	49°40.6	59° 42.2	
11	82°39.7	9.8'	20°40.3	-11.5'	57.7'	99°24.9	85°42.9	74°27.8	20°27.4	15°00.2	16°39.1	50°11.4	60°15.0	
12	97°08.4	9.9'	N 20°28.8	-11.6'	57.7'	98°53.9	85°12.6	73°54.2	19°53.9	15°32.6	17° 12.3	50°42.2	60°47.9	
13	111°37.3	10.0'	20°17.3	-11.7'	57.7'	98°23.0	84°42.3	73°20.7	19°20.4	16°05.2	17°45.4	51°13.0	61°20.7	
14	126°06.3	10.1'	20°05.6	-11.8'	57.6'	97°52.1	84°12.1	72°47.2	18°47.0	16°37.7	18° 18.5	51°43.9	61°53.4	
15	140°35.5	10.3'	19°53.8	-11.9'	57.6'	97°21.3	83°41.9	72°13.8	18°13.5	17°10.2	18°51.6	52°14.7	62°26.2	
16	155°04.8	10.4'	19°42.0	-11.9'	57.5'	96°50.5	83°11.8	71°40.4	17°40.2	17°42.8	19°24.7	52°45.5	62°58.9	
17	169°34.2	10.5'	19°30.0	-12.0'	57.5'	96°19.7	82°41.7	71°07.0	17°06.9	18°15.4	19°57.7	53°16.3	63°31.5	
18	184°03.7	10.6'	N 19°18.0	-12.1'	57.5'	95°49.0	82°11.7	70°33.7	16°33.6	18°47.9	20°30.8	53°47.2	64°04.1	
19	198°33.3	10.8'	19°05.9	-12.2'	57.4'	95°18.4	81°41.7	70°00.5	16°00.4	19°20.5	21°03.7	54°18.0	64°36.7	
20	213°03.1	10.9'	18°53.7	-12.3'	57.4'	94°47.8	81°11.7	69°27.2	15°27.2	19°53.1	21°36.7	54°48.8	65°09.3	
21	227°33.0	11.0'	18°41.4	-12.3'	57.4'	94°17.2	80°41.8	68°54.1	14°54.1	20°25.6	22°09.6	55°19.6	65°41.8	
22	242°03.0	11.1'	$18^{\circ}29.1$	-12.4'	57.3'	93°46.7	80°11.9	68°20.9	14°21.0	20°58.2	22°42.5	55°50.3	66° 14.2	
23	256°33.1	11.2'	18°16.7	-12.5'	57.3'	93°16.2	79°42.1	67°47.8	13°48.0	21°30.7	23° 15.4	56°21.1	66°46.7	
11 th	SD	= 15.9'	Mer. pas	s. 05:17		SunSD = 16.1'								

h		Moon	ı (12 th No	ov)			Lunar [Distance	(objects	with large	est hourl	y LD delta	<u>a)</u>
Wed	GHA	ν	Dec	d	HP	-Sun	-Venus	-Spica	-Regulus	+Jupiter	+Pollux	+Capella	+
0	271°03.4	11.4'	N 18°04.2	-12.6'	57.3'	92°45.8	79°12.3	67° 14.8	13° 15.0	22°03.2	23°48.2	56°51.9	

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Wed	GHA	ν	Dec	d	HP	-Sun	-Venus	-Spica	-Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran	
0	271°03.4	11.4'	N 18°04.2	-12.6'	57.3'	92°45.8	79°12.3	67°14.8	13° 15.0	22°03.2	23°48.2	56°51.9	67°19.1	
1	285°33.7	11.5'	17°51.6	-12.6'	57.2'	92°15.4	78°42.6	66°41.8	12°42.1	22°35.7	24°21.0	57°22.6	67°51.4	
2	300°04.2	11.6'	17°39.0	-12.7'	57.2'	91°45.0	78° 12.9	66°08.8	12°09.2	23°08.2	24°53.8	57°53.4	68°23.8	
3	314°34.8	11.7'	17°26.3	-12.8'	57.1'	91°14.7	77°43.2	65°35.9	11°36.4	23°40.7	25°26.6	58°24.1	68°56.1	
4	329°05.5	11.8'	$17^{\circ}13.5$	-12.8'	57.1'	90°44.4	77°13.6	65°03.0	11°03.6	24°13.1	25°59.3	58° 54.8	69°28.3	
5	343°36.4	11.9'	$17^{\circ}00.7$	-12.9'	57.1'	90°14.2	76°44.0	64°30.1	10°30.9	24° 45.5	26°31.9	59°25.5	70°00.6	
6	358°07.3	12.0'	N 16°47.8	-13.0'	57.0'	89°44.0	76°14.5	63°57.3	9°58.2	25° 17.9	27°04.6	59° 56.2	70°32.7	
7	12°38.3	12.2'	16°34.8	-13.0'	57.0'	89°13.8	75°45.0	63°24.6	9°25.6	25°50.3	27°37.2	60°26.8	71°04.9	
8	27°09.5	12.3'	$16^{\circ}21.8$	-13.1'	57.0'	88°43.7	75° 15.5	62°51.9	8°53.0	26°22.7	28°09.7	60°57.5	71°37.0	
9	41°40.8	12.4'	$16^{\circ}08.7$	-13.2'	56.9'	88°13.6	74°46.1	62°19.2	8°20.5	26°55.0	28°42.3	61°28.1	72°09.1	
10	56°12.1	12.5'	15°55.5	-13.2'	56.9'	87°43.6	74° 16.8	61°46.5	7°48.1	27°27.3	29°14.8	61°58.7	72°41.1	
11	70°43.6	12.6'	15°42.3	-13.3'	56.9'	87°13.6	73°47.4	$61^{\circ}13.9$	7° 15.8	27°59.6	29°47.2	62°29.3	73°13.1	
12	85°15.2	12.7'	$N15^{\circ}29.0$	-13.3'	56.8'	86°43.7	73°18.1	60°41.4	6°43.5	28°31.8	30°19.7	62°59.9	73°45.1	
13	99°46.9	12.8'	$15^{\circ}15.7$	-13.4'	56.8'	86°13.8	72°48.9	60°08.9	6°11.3	29°04.0	30°52.1	63°30.5	74°17.0	
14	114°18.7	12.9'	15°02.3	-13.4'	56.8'	85°43.9	72° 19.7	59°36.4	5°39.2	29°36.2	31°24.4	64°01.0	74°48.9	
15	128°50.6	13.0'	14°48.9	-13.5'	56.7'	85°14.0	71°50.5	59°03.9	5°07.2	30°08.4	31°56.8	64°31.5	75°20.8	
16	143°22.5	13.1'	14°35.4	-13.5'	56.7'	84°44.3	71°21.4	58°31.5	4°35.4	30°40.5	32°29.1	65°02.0	75°52.6	
17	157°54.6	13.2'	$14^{\circ}21.9$	-13.6'	56.7'	84°14.5	70°52.3	57°59.1	4°03.8	31°12.6	33°01.3	65°32.5	76°24.4	
18	172°26.8	13.3'	$N14^{\circ}08.3$	-13.6'	56.6'	83°44.8	70°23.2	57°26.8	3°32.5	31°44.7	33°33.5	66°03.0	76°56.2	
19	186°59.1	13.4'	13°54.7	-13.7'	56.6'	83°15.1	69°54.2	56° 54.5	3°01.5	32°16.8	34°05.7	66°33.4	77°27.9	
20	201°31.5	13.5'	13°41.0	-13.7'	56.6'	82°45.4	69°25.3	56°22.3	2°31.1	32°48.8	34°37.9	67°03.9	77°59.6	
21	216°03.9	13.6'	13°27.3	-13.8'	56.5'	82°15.8	68° 56.3	55°50.1		33°20.8	35°10.0	67°34.3	78°31.3	
22	230°36.5	13.6'	13°13.6	-13.8'	56.5'	81°46.3	68° 27.4	55° 17.9		33°52.7	35°42.1	68°04.7	79°02.9	
23	245°09.1	13.7'	12°59.8	-13.8'	56.5'	81°16.7	67°58.6	54°45.7		34°24.7	36°14.1	68°35.0	79°34.5	
12 th	SD	= 15.6	Mer. pas	s. 06:08		Sun SD = $16.1'$ at 0h; $16.2'$ at 23h								

Moon (13th Nov) h Lunar Distance (objects with largest hourly LD delta)

			. (20			zanar zistanes (szjeste min iaigest nearly zz denta)							
Thu	GHA	ν	Dec	d	HP	-Rigil Kent.	-Sun	-Venus	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran
0	259°41.9	13.8'	N 12°45.9	-13.9'	56.4'	90°45.1	80°47.2	67°29.7	54°13.6		34°56.6	36°46.2	80°06.1
1	274°14.7	13.9'	12°32.1	-13.9'	56.4'	90°19.8	80°17.8	67°00.9	53°41.6		35°28.5	37°18.1	80°37.6
2	288°47.6	14.0'	$12^{\circ}18.1$	-14.0'	56.4'	89°54.4	79°48.4	66°32.2	53°09.5		36°00.3	37°50.1	81°09.1
3	303°20.6	14.1'	12°04.2	-14.0'	56.3'	89°29.1	79°19.0	66°03.5	52°37.5		36°32.1	38°22.0	81°40.5
4	317°53.7	14.2'	11°50.2	-14.0'	56.3'	89°03.8	78°49.6	65°34.8	52°05.6		37°03.9	38°53.9	82°12.0
5	332°26.8	14.2'	11°36.2	-14.1'	56.3'	88°38.5	78°20.3	65°06.1	51°33.6		37°35.7	39°25.8	82°43.4
6	347°00.1	14.3'	N11°22.1	-14.1'	56.2'	88°13.3	77°51.0	64°37.5	51°01.7	3°08.6	38°07.4	39°57.6	83°14.7
7	1°33.4	14.4'	$11^{\circ}08.0$	-14.1'	56.2'	87°48.1	77°21.8	64°09.0	50°29.9	3°39.3	38°39.1	40°29.4	83°46.1
8	16°06.8	14.5'	10°53.9	-14.2'	56.2'	87°22.9	76°52.6	63°40.4	49°58.0	4°10.2	39°10.8	41°01.1	84°17.4
9	30°40.2	14.5'	10°39.7	-14.2'	56.1'	86°57.8	76°23.4	63°11.9	49°26.2	4°41.3	39°42.4	41°32.9	84°48.6
10	45°13.8	14.6'	10°25.5	-14.2'	56.1'	86°32.7	75°54.2	62°43.5	48°54.5	5°12.5	40°14.0	42°04.5	85° 19.9
11	59°47.4	14.7'	10°11.3	-14.2'	56.1'	86°07.6	75°25.1	62°15.0	48°22.8	5°43.8	40°45.6	42°36.2	85°51.1
12	74°21.1	14.8'	N 09°57.1	-14.3'	56.1'	85°42.6	74°56.0	61°46.6	47°51.1	6°15.1	41°17.2	43°07.8	86°22.2
13	88°54.9	14.8'	09°42.8	-14.3'	56.0'	85°17.6	74°27.0	61°18.3	47° 19.4	6°46.4	41°48.7	43°39.4	86°53.4
14	103°28.7	14.9'	09°28.5	-14.3'	56.0'	84°52.6	73°58.0	60°49.9	46°47.8	7°17.8	42°20.2	44°11.0	87°24.5
15	118°02.6	15.0'	09°14.2	-14.3'	56.0'	84°27.6	73°29.0	60°21.6	46°16.2	7°49.1	42°51.6	44°42.6	87°55.5
16	132°36.6	15.0'	08°59.9	-14.4'	55.9'	84°02.7	73°00.1	59°53.4	45° 44.6	8°20.5	43°23.1	45°14.1	88°26.6
17	147°10.6	15.1'	08°45.5	-14.4'	55.9'	83°37.9	72°31.1	59°25.1	45°13.1	8°51.9	43°54.5	45°45.5	88°57.6
18	161°44.7	15.2'	N08°31.1	-14.4'	55.9'	83°13.0	72°02.3	58°56.9	44°41.6	9°23.2	44°25.9	46°17.0	89°28.6
19	176°18.9	15.2'	$08^{\circ}16.7$	-14.4'	55.8'	82°48.2	71°33.4	58°28.8	44°10.1	9°54.6	44°57.2	46°48.4	89°59.5
20	190°53.1	15.3'	08°02.3	-14.4'	55.8'	82°23.5	71°04.6	58°00.6	43°38.7	10°25.9	45°28.6	47° 19.8	90°30.5
21	205°27.4	15.3'	07°47.9	-14.5'	55.8'	81°58.8	70°35.8	57°32.5	43°07.2	10°57.2	45°59.9	47°51.2	91°01.4
22	220°01.8	15.4'	07°33.4	-14.5'	55.8'	81°34.1	70°07.0	57°04.5	42°35.9	11°28.5	46°31.2	48°22.5	91°32.2
23	234°36.2	15.5'	07°18.9	-14.5'	55.7'	81°09.5	69°38.3	56°36.4	42°04.5	11°59.7	47°02.4	48°53.8	92°03.1
13 th	SD	= 15.4	Mer. pas	s. 06:54		$Sun\;SD=16.2'$							

h	·	Моог	n (14 th No	ov)		Lunar Distance (objects with largest hourly LD delta)							
Fri	GHA	ν	Dec	d	HP	-Rigil Kent.	-Sun	-Venus	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran
0	249°10.6	15.5'	N 07°04.5	-14.5'	55.7'	80°44.9	69°09.6	56°08.4	41°33.2	12°31.0	47°33.6	49°25.1	92°33.9
1	263°45.1	15.6'	06°49.9	-14.5'	55.7'	80°20.3	68°40.9	55°40.4	41°01.9	13°02.2	48°04.8	49°56.3	93°04.6
2	278°19.7	15.6'	06°35.4	-14.5'	55.7'	79°55.8	68°12.3	55°12.5	40°30.6	13°33.4	48°36.0	50°27.5	93°35.4
3	292°54.3	15.7'	06°20.9	-14.5'	55.6'	79°31.3	67°43.7	54°44.6	39°59.4	14°04.6	49°07.1	50°58.7	94°06.1
4	307°29.0	15.7'	06°06.4	-14.5'	55.6'	79°06.9	67°15.1	54°16.7	39°28.2	14°35.7	49°38.3	51°29.9	94°36.8
5	322°03.7	15.8'	05°51.8	-14.6'	55.6'	78°42.5	66°46.5	53°48.8	38°57.0	15°06.8	50°09.4	52°01.0	95°07.5
6	336°38.5	15.8'	N05°37.3	-14.6'	55.5'	78°18.2	66°18.0	53°21.0	38°25.9	15°37.9	50°40.4	52°32.1	95°38.1
7	351°13.3	15.9'	05°22.7	-14.6'	55.5'	77°53.9	65°49.5	52°53.2	37°54.7	16°09.0	51°11.5	53°03.2	96°08.7
8	5°48.2	15.9'	$05^{\circ}08.1$	-14.6'	55.5'	77°29.6	65°21.0	52°25.4	37°23.6	16°40.1	51°42.5	53°34.3	96°39.3
9	20°23.1	16.0'	04°53.5	-14.6'	55.5'	77°05.4	64°52.6	51°57.7	36°52.6	17°11.1	52°13.5	54°05.3	97°09.9
10	34°58.0	16.0'	04°38.9	-14.6'	55.4'	76°41.2	64°24.2	51°30.0	36°21.5	17°42.1	52°44.5	54°36.3	97°40.4
11	49°33.0	16.0'	04°24.3	-14.6'	55.4'	76°17.1	63°55.8	51°02.3	35°50.5	18°13.1	53°15.4	55°07.3	98° 10.9
12	64°08.1	16.1'	N 04°09.7	-14.6'	55.4'	75°53.0	63°27.4	50°34.7	35°19.5	18°44.1	53°46.3	55°38.3	98°41.4
13	78°43.1	16.1'	03°55.1	-14.6'	55.4'	75°29.0	62°59.1	50°07.0	34°48.6	19°15.0	54°17.2	56°09.2	99°11.8
14	93°18.2	16.1'	03°40.5	-14.6'	55.3'	75°05.0	62°30.8	49°39.4	34°17.6	19°45.9	54°48.1	56°40.1	99°42.2
15	107°53.4	16.2'	03°25.9	-14.6'	55.3'	74°41.1	62°02.5	49°11.9	33°46.7	20°16.8	55°19.0	57°11.0	100°12.6
16	122°28.6	16.2'	03°11.3	-14.6'	55.3'	74°17.2	61°34.2	48°44.3	33° 15.8	20°47.7	55°49.8	57°41.8	100°43.0
17	137°03.8	16.3'	02°56.7	-14.6'	55.3'	73°53.4	61°06.0	48°16.8	32°45.0	21°18.6	56°20.6	58°12.7	101°13.3
18	151°39.0	16.3'	N 02°42.1	-14.6'	55.3'	73°29.6	60°37.8	47°49.3	32°14.1	21°49.4	56°51.4	58°43.5	101°43.6
19	166°14.3	16.3'	02°27.5	-14.6'	55.2'	73°05.9	60°09.6	47°21.9	31°43.3	22°20.2	57°22.1	59°14.3	102°13.9
	1 4000 40 6	4 6 01			01	700 40 0	E00 44 E		040405		0-0	E00 4E 0	

59°41.5 59°13.3 58°45.2

 $58^{\circ}17.1$

46°54.4

46°27.0 45°59.7 45°32.3

31°12.5 30°41.8

30°11.0 29°40.3

 $22^{\circ}51.0$

23°21.7

23°52.5 24°23.2

Sun SD = 16.2'

57°52.9 58°23.6

58°54.3

59°25.0

16.3'

16.4'

16.4'

16.4'

SD = 15.2'

02°12.9 01°58.3

 $01^{\circ}43.7$

 $01^{\circ}29.1$

Mer. pass. 07:36

-14.6'

-14.6'

-14.6'

-14.6'

55.2'

55.2'

55.2'

55.1'

72°42.3 72°18.6 71°55.1

71°31.6

20

22

23

14th

 $180^{\circ}49.6$

195°25.0

 $210^{\circ}00.4$

 $224^{\circ}35.8$

 $102^{\circ}44.2$

103°14.4 103°44.7 104°14.9

59°45.0

60°15.8 60°46.5 61°17.2

73°27.9

 $71^{\circ}35.4$

 $116^{\circ}12.5$

Lunar Distance (objects with largest hourly LD delta)

-14.2'

 $04^{\circ}17.8$

Mer. pass. 08:17

 $214^{\circ}50.3$

16.7' 16.7'

 $\mathsf{SD} = 15.0'$

23

15th

54.7' 54.7' 54.7'

Moon (15th Nov)

			(-	,				(,
Sat	GHA	ν	Dec	d	HP	-Rigil Kent.	-Sun	-Venus	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran
0	239°11.2	16.4'	N 01°14.5	-14.6'	55.1'	71°08.1	57°49.1	45°05.0	29°09.6	24°53.9	59°55.6	61°47.9	104°45.0
1	253°46.6	16.5'	00°59.9	-14.6'	55.1'	70°44.7	57°21.1	44°37.7	28°38.9	25°24.5	60°26.2	62°18.5	105° 15.2
2	268°22.1	16.5'	00°45.3	-14.6'	55.1'	70°21.4	56°53.0	44°10.4	28°08.3	25°55.2	60°56.9	62°49.2	105°45.3
3	282°57.6	16.5'	00°30.8	-14.6'	55.0'	69°58.1	56°25.0	43°43.2	27°37.7	26°25.8	61°27.4	63°19.8	106° 15.4
4	297°33.1	16.5'	$00^{\circ}16.2$	-14.5'	55.0'	69°34.9	55°57.1	43°15.9	27°07.1	26°56.4	61°58.0	63°50.4	106°45.5
5	312°08.6	16.6'	N 00°01.7	-14.5'	55.0'	69°11.7	55°29.1	42°48.7	26°36.5	27°27.0	62°28.6	64°20.9	107° 15.5
6	326°44.2	16.6'	S 00°12.9	-14.5'	55.0'	68°48.6	55°01.2	42°21.6	26°05.9	27°57.6	62°59.1	64°51.5	107°45.5
7	341°19.8	16.6'	00°27.4	-14.5'	55.0'	68°25.6	54°33.3	41°54.4	25°35.4	28°28.1	63°29.6	65°22.0	108° 15.5
8	355°55.3	16.6'	00°41.9	-14.5'	54.9'	68°02.6	54°05.4	41°27.3	25°04.9	28°58.7	64°00.1	65°52.5	108°45.5
9	10°30.9	16.6'	00°56.4	-14.5'	54.9'	67°39.7	53°37.6	41°00.2	24°34.4	29°29.2	64°30.6	66°23.0	109° 15.5
10	25°06.6	16.6'	$01^{\circ}10.9$	-14.5'	54.9'	67°16.8	53°09.8	40°33.1	24°03.9	29°59.7	65°01.0	66°53.5	109°45.4
11	39°42.2	16.6'	01°25.4	-14.5'	54.9'	66°54.1	52°41.9	40°06.1	23°33.4	30°30.1	65°31.5	67°23.9	110° 15.3
12	54°17.8	16.6'	S 01°39.9	-14.4'	54.9'	66°31.3	52°14.2	39°39.1	23°03.0	31°00.6	66°01.9	67°54.3	110°45.2
13	68°53.5	16.7'	$01^{\circ}54.3$	-14.4'	54.8'	66°08.7	51°46.4	39°12.1	22°32.6	31°31.0	66°32.3	68°24.7	111°15.0
14	83°29.1	16.7'	02°08.7	-14.4'	54.8'	65°46.1	51°18.6	38°45.1	22°02.2	32°01.5	67°02.7	68°55.1	111°44.9
15	98°04.8	16.7'	$02^{\circ}23.1$	-14.4'	54.8'	65°23.6	50°50.9	38°18.1	21°31.8	32°31.8	67°33.0	69°25.5	112° 14.7
16	112°40.5	16.7'	02°37.5	-14.4'	54.8'	65°01.1	50°23.2	37°51.2	21°01.5	33°02.2	68°03.4	69°55.9	112°44.5
17	127°16.1	16.7'	02°51.9	-14.4'	54.8'	64°38.7	49°55.5	37°24.3	20°31.1	33°32.6	68°33.7	70°26.2	113° 14.3
18	141°51.8	16.7'	S 03°06.3	-14.3'	54.8'	64°16.4	49°27.9	36°57.5	20°00.8	34°02.9	69°04.0	70°56.5	113°44.0
19	156°27.5	16.7'	03°20.6	-14.3'	54.7'	63°54.2	49°00.2	36°30.6	19°30.5	34°33.3	69°34.3	71°26.8	114° 13.8
20	171°03.2	16.7'	03°34.9	-14.3'	54.7'	63°32.0	48°32.6	36°03.8	19°00.2	35°03.6	70°04.6	71°57.1	114°43.5
21	185°38.9	16.7'	03°49.2	-14.3'	54.7'	63°10.0	48°05.0	35°37.0	18° 30.0	35°33.9	70°34.9	72°27.4	115° 13.2
22	200°14.6	16.7'	04°03.5	-14.3'	54.7'	62°47.9	47°37.4	35°10.2	17°59.8	36°04.1	71°05.1	72°57.6	115°42.8
1 22	1 214°E0 2	16 7'	040170	140'	E 4 7'	600060	470000	24042 5	1 1 7 O O O	1 260244	71°2F 4	720270	116010 F

 $47^{\circ}09.8$

34°43.5

17°29.5

 $36^{\circ}34.4$

 $\overline{\text{Sun SD} = 16.2'}$

62°26.0

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Sun	GHA	ν	Dec	d	HP	-Rigil Kent.	-Sun	-Venus	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran	
0	229°25.9	16.7'	S 04°32.0	-14.2'	54.6'	62°04.2	46°42.3	34°16.7	16°59.3	37°04.6	72°05.6	73°58.1	116°42.1	
1	244°01.6	16.7'	04°46.2	-14.2'	54.6'	61°42.4	46°14.7	33°50.0	16°29.2	37°34.9	72°35.8	74°28.3	117°11.7	
2	258°37.3	16.7'	05°00.4	-14.2'	54.6'	61°20.7	45°47.2	33°23.3	15°59.0	38°05.1	73°06.0	74°58.5	117°41.3	
3	273°13.0	16.7'	$05^{\circ}14.5$	-14.1'	54.6'	60°59.1	45°19.7	32°56.7	15°28.9	38°35.3	73°36.1	75°28.7	118°10.8	
4	287°48.6	16.7'	05°28.7	-14.1'	54.6'	60°37.6	44°52.3	32°30.1	14°58.8	39°05.5	74°06.3	75°58.8	118°40.4	
5	302°24.3	16.6'	05°42.8	-14.1'	54.6'	60°16.1	44°24.8	32°03.5	14°28.7	39°35.6	74°36.5	76°29.0	119°09.9	
6	316°59.9	16.6'	S 05°56.8	-14.0'	54.5'	59°54.8	43°57.4	31°36.9	13°58.6	40°05.8	75°06.6	76°59.1	119°39.4	
7	331°35.6	16.6'	$06^{\circ}10.9$	-14.0'	54.5'	59°33.5	43°29.9	31°10.3	13°28.5	40°35.9	75°36.7	77°29.2		
8	346°11.2	16.6'	06°24.9	-14.0'	54.5'	59°12.3	43°02.5	30°43.8	12°58.5	41°06.1	76°06.8	77°59.3		
9	0°46.8	16.6'	06°38.9	-14.0'	54.5'	58°51.2	42°35.2	30° 17.3	12°28.5	41°36.2	76°36.9	78°29.4		
10	15°22.4	16.6'	$06^{\circ}52.8$	-13.9'	54.5'	58°30.2	42°07.8	29°50.8	11°58.5	42°06.3	77°07.0	78°59.5		
11	29°58.0	16.6'	07°06.8	-13.9'	54.5'	58°09.3	41°40.4	29°24.4	11°28.5	42°36.3	77°37.0	79°29.5		
12	44°33.6	16.6'	S 07°20.7	-13.9'	54.5'	57°48.5	41°13.1	28°58.0	10°58.6	43°06.4	78°07.1	79°59.6		
13	59°09.1	16.5'	$07^{\circ}34.5$	-13.8'	54.4'	57°27.8	40°45.8	28°31.6	10°28.7	43°36.5	78°37.1	80°29.6		
14	73°44.7	16.5'	07°48.3	-13.8'	54.4'	57°07.2	40°18.5	28°05.2	9°58.8	44°06.5	79°07.1	80°59.6		
15	88°20.2	16.5'	$08^{\circ}02.1$	-13.8'	54.4'	56°46.6		27°38.9	9°28.9	44°36.5	79°37.1	81°29.6		
16	102°55.7	16.5'	$08^{\circ}15.9$	-13.7'	54.4'	56°26.2		27° 12.6	8°59.1	45°06.6	80°07.1	81°59.6		
17	117°31.2	16.5'	08°29.6	-13.7'	54.4'	56°05.9		26°46.3	8°29.3	45°36.6	80°37.1	82°29.6		
18	132°06.6	16.4'	S 08°43.3	-13.6'	54.4'	55°45.7		26°20.1	7°59.6	46°06.6	81°07.1	82°59.6		
19	146°42.1	16.4'	$08^{\circ}56.9$	-13.6'	54.4'	55°25.6		25°53.9	7°29.9	46°36.5	81°37.1	83°29.5		
20	161°17.5	16.4'	$09^{\circ}10.5$	-13.6'	54.3'	55°05.6		25°27.7	7°00.2	47°06.5	82°07.0	83°59.4		
21	175°52.9	16.4'	$09^{\circ}24.1$	-13.5'	54.3'	54°45.7		25°01.6	6°30.6	47°36.5	82°37.0	84°29.4		
22	190°28.2	16.3'	09°37.6	-13.5'	54.3'	54°25.9		24°35.4	6°01.1	48°06.4	83°06.9	84°59.3		
23	205°03.6	16.3'	09°51.1	-13.4'	54.3'	54°06.3 24°09.4 5°31.7 48°36.3 83°36.8 85°29.2								
16 th	SD	= 14.9'	Mer. pas	s. 08:57		Sun SD = 16.2'								

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I.	Moon (17 th Nov)	Lunar Distance (objects with largest hourly ID delta)
n	1/100h 1 1 / *** 1/10// 1	I linar i listance i oniects with largest nollriv i i li delta i

Mon	GHA	ν	Dec	d	HP	-Rigil Kent.	-Hadar	-Venus	±Spica	+Regulus	+Jupiter	+Pollux	+Capella
0	219°38.9	16.3'	S 10°04.5	-13.4'	54.3'	53°46.7	51°35.8	23°43.3	5°02.4	49°06.3	84°06.7	85°59.1	115°52.0
1	234°14.2	16.3'	$10^{\circ}17.9$	-13.4'	54.3'	53°27.3	51°18.4	23°17.3	4°33.2	49°36.2	84°36.6	86°29.0	116°20.1
2	248°49.4	16.2'	10°31.3	-13.3'	54.3'	53°08.0	51°01.1	22°51.3	4°04.2	50°06.1	85°06.5	86°58.9	116°48.2
3	263°24.7	16.2'	10°44.6	-13.3'	54.3'	52°48.8	50°43.9	22°25.4	3°35.5	50°36.0	85°36.4	87°28.7	117° 16.2
4	277°59.8	16.2'	$10^{\circ}57.9$	-13.2'	54.2'	52°29.7	50°26.9	21°59.5	3°07.2	51°05.8	86°06.2	87°58.6	117°44.3
5	292°35.0	16.1'	$11^{\circ}11.1$	-13.2'	54.2'	52°10.8	50° 10.0	21°33.7	2°39.4	51°35.7	86°36.1	88°28.4	118° 12.3
6	$307^{\circ}10.1$	16.1'	S 11°24.3	-13.1'	54.2'	51°52.0	49°53.3	21°07.9	2°12.6	52°05.6	87°06.0	88°58.3	118°40.3
7	321°45.2	16.1'	11°37.4	-13.1'	54.2'	51°33.3	49°36.8	20°42.1		52°35.4	87°35.8	89°28.1	119°08.3
8	336°20.3	16.0'	11°50.5	-13.0'	54.2'	51°14.7	49°20.4	20°16.4		53°05.3	88°05.6	89°57.9	119°36.2
9	350°55.3	16.0'	$12^{\circ}03.5$	-13.0'	54.2'	50°56.3	49°04.1	19°50.8		53°35.1	88°35.4	90°27.7	
10	5°30.3	16.0'	$12^{\circ}16.5$	-12.9'	54.2'	50°38.0	48°48.1	19°25.2		54°04.9	89°05.3	90°57.5	
11	20°05.3	15.9'	$12^{\circ}29.4$	-12.9'	54.2'	50°19.9	48°32.2	18°59.6		54°34.7	89°35.1	91°27.3	
12	34°40.2	15.9'	S 12°42.3	-12.8'	54.2'	50°01.9	48° 16.4	18°34.2		55°04.5	90°04.9	91°57.1	
13	$49^{\circ}15.1$	15.8'	12°55.1	-12.8'	54.1'	49°44.0	48°00.9	18°08.7		55°34.3	90°34.6	92°26.8	
14	63°49.9	15.8'	13°07.9	-12.7'	54.1'	49°26.3	47° 45.5	17°43.4		56°04.1	91°04.4	92°56.6	
15	78°24.7	15.8'	13°20.7	-12.7'	54.1'	49°08.8	47°30.3	17°18.1		56°33.9	91°34.2	93°26.4	
16	92°59.5	15.7'	13°33.3	-12.6'	54.1'	48°51.4	47° 15.3	16°52.9	3°12.8	57°03.7	92°04.0	93°56.1	
17	107°34.2	15.7'	13°45.9	-12.6'	54.1'	48°34.1		16°27.7	3°41.1	57°33.5	92°33.7	94°25.8	
18	122°08.9	15.6'	S 13°58.5	-12.5'	54.1'	48°17.0		16°02.7	4°09.7	58°03.2	93°03.5	94°55.6	
19	136°43.5	15.6'	$14^{\circ}11.0$	-12.4'	54.1'	48°00.1		15°37.7	4°38.6	58° 33.0	93°33.2	95°25.3	
20	151°18.1	15.5'	14°23.5	-12.4'	54.1'	47°43.3		15°12.9	5°07.6	59°02.7	94°02.9	95°55.0	
21	165°52.6	15.5'	14°35.9	-12.3'	54.1'	47°26.7		14°48.1	5°36.8	59°32.4	94°32.7	96°24.7	
22	$180^{\circ}27.1$	15.4'	14°48.2	-12.3'	54.1'	47°10.2		14°23.5	6°06.0	60°02.2	95°02.4	96°54.4	
23	195°01.6	15.4'	15°00.5	-12.2'	54.1'	46°54.0		13°59.0	6°35.3	60°31.9	95°32.1	97°24.1	
17 th	SD	= 14.8'	Mer. pas	s. 09:37									

h	Moon (18 th Nov)		Lunar Di	stance (objects wi	th largest	hourly L[O delta)	
				_	1				П

Tue	GHA	ν	Dec	d	HP	-Rigil Kent.	-Venus	+Spica	+Regulus	+Procyon	+Jupiter	+Pollux	+Sirius
0	209°36.0	15.4'	S 15° 12.7	-12.2'	54.0'	46°37.9	13°34.6	7°04.6	61°01.6	93°46.9	96°01.8	97°53.8	100°25.3
1	224°10.3	15.3'	15°24.8	-12.1'	54.0'	46°21.9	13°10.3	7°34.0	61°31.3	94°14.8	96°31.5	98°23.4	100°46.3
2	238°44.6	15.3'	15°36.9	-12.0'	54.0'	46°06.2	12°46.3	8°03.5	62°01.0	94°42.8	97°01.2	98°53.1	101°07.3
3	253°18.9	15.2'	15°48.9	-12.0'	54.0'	45°50.6	12°22.3	8°32.9	62°30.7	95° 10.7	97°30.9	99°22.8	101°28.3
4	267°53.1	15.2'	$16^{\circ}00.9$	-11.9'	54.0'	45°35.2	11°58.6	9°02.4	63°00.4	95°38.6	98°00.6	99°52.4	101°49.2
5	282°27.2	15.1'	$16^{\circ}12.8$	-11.8'	54.0'	45°20.0	11°35.1	9°31.9	63°30.1	96°06.5	98°30.2	100°22.1	102°10.1
6	297°01.3	15.1'	S 16°24.6	-11.8'	54.0'	45°05.0	11°11.8	10°01.4	63°59.7	96°34.4	98°59.9	100°51.7	102°31.0
7	311°35.4	15.0'	16°36.4	-11.7'	54.0'		10°48.8	10°30.9	64°29.4	97°02.3	99°29.6	101°21.4	102°51.9
8	326°09.4	14.9'	$16^{\circ}48.1$	-11.6'	54.0'		10°26.0	11°00.4	64°59.1	97°30.2	99°59.2	101°51.0	103°12.7
9	340°43.3	14.9'	$16^{\circ}59.7$	-11.6'	54.0'		10°03.5	11°29.9	65°28.7	97°58.0	100°28.9	102°20.6	103°33.5
10	355°17.2	14.8'	$17^{\circ}11.3$	-11.5'	54.0'		9°41.4	11°59.5	65°58.4	98°25.9	100°58.5	102°50.3	103°54.2
11	9°51.1	14.8'	17°22.8	-11.4'	54.0'		9°19.7	12°29.0	66°28.0	98°53.8	101°28.2	103°19.9	104°14.9
12	24°24.9	14.7'	S 17°34.2	-11.4'	54.0'		8°58.4	12°58.6	66°57.7	99°21.6	101°57.8	103°49.5	104°35.6
13	38°58.6	14.7'	17°45.6	-11.3'	54.0'		8°37.5	13°28.1	67°27.3	99°49.4	102°27.4	104°19.1	104°56.2
14	53°32.2	14.6'	$17^{\circ}56.9$	-11.2'	54.0'		8°17.2	13°57.6	67°56.9	100° 17.3	102°57.1	104°48.7	105°16.8
15	68°05.9	14.6'	18°08.1	-11.1'	53.9'		7°57.5	14°27.2	68°26.6	100°45.1	103°26.7	105°18.3	105°37.4
16	82°39.4	14.5'	$18^{\circ}19.2$	-11.1'	53.9'		7°38.5	14°56.7	68°56.2	101°12.9	103°56.3	105°47.9	105°57.9
17	97°12.9	14.4'	18°30.2	-11.0'	53.9'		7°20.3	15°26.3	69°25.8	101°40.7	104°25.9	106°17.5	106°18.3
18	111°46.4	14.4'	S 18°41.2	-10.9'	53.9'		7°02.9	15°55.8	69°55.4	102°08.5	104°55.5	106°47.1	106°38.8
19	126°19.7	14.3'	$18^{\circ}52.1$	-10.8'	53.9'			16°25.4	70°25.0	102°36.2	105°25.1	107°16.7	106°59.2
20	140°53.1	14.3'	19°03.0	-10.8'	53.9'			16°54.9	70°54.7	103°04.0	105°54.8	107°46.2	107°19.5
21	155°26.3	14.2'	$19^{\circ}13.7$	-10.7'	53.9'			17°24.5	71°24.3	103°31.8	106°24.4	108°15.8	107°39.8
22	169°59.5	14.1'	19°24.4	-10.6'	53.9'			17°54.0	71°53.9	103°59.5	106°54.0	108°45.4	108°00.1
23	184°32.7	14.1'	19°35.0	-10.5'	53.9'			18°23.6	72°23.5	104°27.2	107°23.5	109°14.9	108°20.3
18 th	SD	= 14.7'	Mer. pas	s. 10:19	-								

h Moon (19th Nov) Lunar Distance (objects with largest hourly LD delta)

			. (=5	<u> </u>					enjects man largest meanly 12 dental					
Wed	GHA	ν	Dec	d	HP	+Spica	+Arcturus	+Regulus	+Adhara	+Procyon	+Jupiter	+Sirius	+Pollux	
0	199°05.7	14.0'	S 19°45.5	-10.4'	53.9'	18°53.1		72°53.0	100°02.6	104°54.9	107°53.1	108°40.5	109°44.5	
1	213°38.8	14.0'	19°55.9	-10.3'	53.9'	19°22.7		73°22.6	100°18.8	105°22.7	108°22.7	109°00.6	110°14.0	
2	228°11.7	13.9'	20°06.3	-10.3'	53.9'	19°52.2		73°52.2	100°35.0	105°50.4	108°52.3	109°20.6	110°43.6	
3	242°44.6	13.8'	$20^{\circ}16.5$	-10.2'	53.9'	20°21.8		74°21.8	100°51.2	106°18.0	109°21.9	109°40.7	111°13.2	
4	257°17.4	13.8'	20°26.7	-10.1'	53.9'	20°51.3		74°51.4	101°07.4	106°45.7	109°51.5	110°00.6	111°42.7	
5	271°50.2	13.7'	20°36.8	-10.0'	53.9'	21°20.9	40° 19.5	75°21.0	101°23.5	107°13.4	110°21.0	110°20.5	112°12.2	
6	286°22.9	13.6'	S 20°46.8	-9.9'	53.9'	21°50.4	40°34.7	75°50.6	101°39.6	107°41.0	110°50.6	110°40.4	112°41.8	
7	300°55.6	13.6'	20°56.7	-9.8'	53.9'	22°20.0	40°50.2	76°20.1 76°49.7	101°55.6 102°11.6	108°08.7 108°36.3	111°20.2	111°00.2	113°11.3	
8	315°28.1	13.5'	$21^{\circ}06.6$	-9.7'	53.9'	22°49.5	41°05.9	111°49.7	111°20.0	113°40.9				
9	330°00.7	13.5'	21°16.3	-9.7'	53.9'	23°19.0 41°21.8 77°19.3 102°27.6 109°03.9 112°19.3 111°3							114° 10.4	
10	344°33.1	13.4'	$21^{\circ}26.0$	-9.6'	53.9'	23°48.6 41°37.8 77°48.8 102°43.5 109°31.5 112°48.9 111°59.3						114°39.9		
11	359°05.5	13.3'	$21^{\circ}35.5$	-9.5'	53.9'				New	Moon ———	·	·	.	
12	13°37.8	13.3'	S 21°45.0	-9.4'	53.9'				New	Moon ———				
13	28°10.1	13.2'	21°54.4	-9.3'	53.9'					Moon ———				
14	42°42.3	13.1'	22°03.7	-9.2'	53.9'				New	Moon ———				
15	57°14.4	13.1'	22°12.9	-9.1'	53.9'					Moon ———				
16	71°46.5	13.0'	22°22.0	-9.0'	53.9'					Moon ———				
17	86°18.5	12.9'	22°31.0	-8.9'	53.9'				New	Moon ———				
18	100°50.4	12.9'	S 22°39.9	-8.8'	53.9'					Moon ———				
19	115°22.3	12.8'	22°48.7	-8.7'	53.9'					Moon ———				
20	129°54.1	12.7'	22°57.4	-8.6'	53.9'									
21	144°25.8	12.7'	23°06.0	-8.5'	53.9'					Moon ———				
22	158°57.5	12.6'	23°14.6	-8.4'	53.9'				New	Moon ———				
23	173°29.1	12.5'	23°23.0	-8.3'	53.9'				New	Moon ———				
19 th	SD	= 14.7'	Mer. pas	s. 11:04										

h Moon (20th Nov)

Thu	GHA	ν	Dec	d	HP	
0	188°00.7	12.5'	S 23°31.3	-8.2'	53.9'	New Moon
1	202°32.1	12.4'	23°39.5	-8.1'	53.8'	New Moon
2	217°03.5	12.4'	23°47.6	-8.0'	53.8'	New Moon
3	231°34.9	12.3'	23°55.6	-7.9'	53.8'	New Moon
4	246°06.2	12.2'	24°03.5	-7.8'	53.8'	New Moon
5	260°37.4	12.2'	$24^{\circ}11.3$	-7.7'	53.8'	New Moon
6	275°08.6	12.1'	S 24°19.0	-7.6'	53.9'	New Moon
7	289°39.7	12.0'	24° 26.5	-7.5'	53.9'	New Moon
8	304°10.7	12.0'	24°34.0	-7.4'	53.9'	New Moon
9	318°41.7	11.9'	24°41.4	-7.2'	53.9'	New Moon
10	333°12.6	11.8'	24°48.6	-7.1'	53.9'	New Moon
11	347°43.4	11.8'	24°55.8	-7.0'	53.9'	New Moon
12	2°14.2	11.7'	S 25°02.8	-6.9'	53.9'	New Moon
13	16°44.9	11.7'	$25^{\circ}09.7$	-6.8'	53.9'	New Moon
14	31°15.6	11.6'	$25^{\circ}16.5$	-6.7'	53.9'	New Moon
15	45°46.2	11.5'	25°23.2	-6.6'	53.9'	New Moon
16	60°16.7	11.5'	25°29.8	-6.5'	53.9'	New Moon
17	74°47.2	11.4'	25°36.2	-6.3'	53.9'	New Moon
18	89°17.6	11.4'	S 25°42.6	-6.2'	53.9'	New Moon
19	103°48.0	11.3'	25°48.8	-6.1'	53.9'	New Moon
20	118°18.3	11.2'	25°54.9	-6.0'	53.9'	New Moon
21	132°48.5	11.2'	$26^{\circ}00.9$	-5.9'	53.9'	New Moon
22	147°18.7	11.1'	26°06.8	-5.7'	53.9'	New Moon
23	161°48.9	11.1'	$26^{\circ}12.5$	-5.6'	53.9'	New Moon
20 th	SD	= 14.7'	Mer. pass	i. 11:51		

h		Moon	(21 st No	v)		Lunar D	istance (o	bjects with	largest	hourly LD	delta)
Fri	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	± Antares	+Mars
0	176° 18.9	11.0'	S 26°18.1	-5.5'	53.9'			New Mo	on ———		
1	190°49.0	11.0'	26°23.6	-5.4'	53.9'			New Mo	on ———		
2	205°18.9	10.9'	26°29.0	-5.3'	53.9'			New Mo			
3	219°48.8	10.9'	26°34.3	-5.1'	53.9'	106°42.5	89°31.3	84°31.1	62°02.0	1°57.4	
4	234° 18.7	10.8'	26°39.4	-5.0'	53.9'	106°12.9	89°16.1	84°03.3	61°38.6	1°28.7	
5	248°48.5	10.8'	26°44.4	-4.9'	53.9'	105°43.3	89°00.8	83°35.5	61°15.2	1°00.8	
6	263°18.3	10.7'	S 26°49.3	-4.8'	53.9'	105°13.8	88°45.6	83°07.8	60°51.9		
7	277°48.0	10.7'	26°54.1	-4.6'	53.9'	104°44.2	88°30.4	82°40.0	60°28.6		
8	292°17.6	10.6'	26°58.7	-4.5'	53.9'	104°14.6	88° 15.2	82°12.2	60°05.4		
9	306°47.2	10.6'	27°03.2	-4.4'	53.9'	103°45.0	88°00.0	81°44.4	59°42.3		
10	321°16.8	10.5'	27°07.6	-4.3'	53.9'	103°15.4	87°44.8	81°16.7	59°19.2		
11	335°46.3	10.5'	$27^{\circ}11.9$	-4.1'	53.9'	102°45.8	87°29.6	80°48.9	58°56.1	2°04.5	
12	350° 15.8	10.4'	S 27°16.0	-4.0'	53.9'	102°16.2	87° 14.4	80°21.1	58°33.2	2°33.7	
13	4°45.2	10.4'	27°20.0	-3.9'	53.9'	101°46.6	86°59.2	79°53.4	58°10.2	3°03.0	
14	19°14.6	10.3'	27°23.9	-3.7'	53.9'	101°17.0	86°44.1	79°25.6	57°47.4	3°32.4	
15	33°43.9	10.3'	27°27.6	-3.6'	53.9'	100°47.3	86°28.9	78°57.8	57°24.6	4°01.9	
16	48° 13.2	10.3'	27°31.2	-3.5'	54.0'	100°17.7	86°13.8	78°30.1	57°01.8	4°31.4	
17	62°42.5	10.2'	27°34.7	-3.3'	54.0'	99°48.1	85°58.6	78°02.3	56°39.1	5°00.9	
18	77° 11.7	10.2'	S 27°38.1	-3.2'	54.0'	99°18.4	85°43.5	77°34.6	56°16.5	5°30.5	
19	91°40.9	10.1'	27°41.3	-3.1'	54.0'	98°48.8	85°28.4	77°06.8	55°54.0	6°00.1	
20	106° 10.0	10.1'	27°44.4	-2.9'	54.0'	98°19.2	85°13.3	76°39.1	55°31.5	6°29.7	
21	120°39.1	10.1'	27°47.3	-2.8'	54.0'	97°49.5	84°58.2	76°11.3	55°09.1	6°59.3	
22	135°08.2	10.0'	$27^{\circ}50.1$	-2.7'	54.0'	97°19.9	84°43.1	75°43.6	54°46.8	7°28.9	
23	149°37.2	10.0'	27°52.8	-2.5'	54.0'	96°50.2	84°28.0	75°15.8	54°24.5	7°58.5	7°01.9

23	149-37.2	10.0	27-52.8	-2.5	54.0	96-50.2	84 28.0	75-15.8	54 24.5	7 58.	5 7 01.9
21 st	SD	= 14.7'	Mer. pass	. 12:40							
h		Moon	(22 nd No	ov)		Lunar [Distance (objects with	largest	hourly L	.D delta)
Sat	GHA	ν	Dec	d	HP	-Saturn	-Achernar	-Fomalhaut	-Altair	+Mars	+Antares
0	164°06.2	10.0'	S 27°55.4	-2.4'	54.0'	96°20.5	84°13.0	74°48.1	54°02.4	7°23.9	8°28.2
1	178°35.1	9.9'	27°57.8	-2.3'	54.0'	95°50.9	83°57.9	74°20.3	53°40.3	7°46.5	8°57.8
2	193°04.1	9.9'	28°00.0	-2.1'	54.0'	95°21.2	83°42.9	73°52.6	53°18.2	8°09.7	9°27.5
3	207°33.0	9.9'	28°02.2	-2.0'	54.0'	94°51.5		73°24.9	52°56.3	8°33.3	9°57.2
4	222°01.9	9.8'	28°04.2	-1.9'	54.0'	94°21.8		72°57.1	52°34.5	8°57.4	10°26.9
5	236°30.7	9.8'	$28^{\circ}06.1$	-1.7'	54.0'	93°52.1		72°29.4	52°12.7	9°21.8	10°56.6
6	250°59.5	9.8'	S 28°07.8	-1.6'	54.0'	93°22.4		72°01.7	51°51.0	9°46.5	11°26.3
7	265°28.3	9.8'	28°09.4	-1.5'	54.1'	92°52.7		71°34.0	51°29.4	10°11.5	11°56.0
8	279°57.1	9.7'	$28^{\circ}10.8$	-1.3'	54.1'	92°23.0		71°06.3	51°07.9	10°36.7	12°25.7
9	294°25.8	9.7'	28°12.2	-1.2'	54.1'	91°53.3		70°38.6	50°46.5	11°02.1	12°55.4
10	308°54.6	9.7'	28°13.3	-1.0'	54.1'	91°23.6		70°10.9	50°25.2	11°27.8	13°25.2
11	323°23.3	9.7'	28°14.4	-0.9'	54.1'	90°53.8		69°43.2	50°04.0	11°53.6	13°54.9
12	337°52.0	9.7'	S 28°15.3	-0.8'	54.1'	90°24.1		69°15.5	49°42.9	12°19.6	14°24.7
13	352°20.6	9.7'	$28^{\circ}16.1$	-0.6'	54.1'	89°54.3		68°47.8	49°21.9	12°45.7	14°54.4
14	6°49.3	9.6'	28°16.7	-0.5'	54.1'	89°24.6		68°20.2	49°01.0	13°12.0	15°24.2
15	21°17.9	9.6'	28°17.2	-0.3'	54.1'	88°54.8		67°52.5	48°40.2	13°38.3	15°54.0
16	35°46.6	9.6'	$28^{\circ}17.5$	-0.2'	54.1'	88°25.0		67°24.8	$48^{\circ}19.5$	14°04.8	16°23.8
17	50°15.2	9.6'	28°17.7	-0.1'	54.1'	87°55.2		66°57.2	47°58.9	14°31.4	16°53.6
18	64°43.8	9.6'	S 28°17.8	0.1'	54.2'	87°25.5		66°29.5	47°38.5	14°58.0	17°23.4
19	79°12.4	9.6'	$28^{\circ}17.7$	0.2'	54.2'	86°55.7		66°01.9	47°18.2	15°24.8	17°53.2
20	93°40.9	9.6'	$28^{\circ}17.5$	0.3'	54.2'	86°25.8		65°34.3	46°57.9	15°51.6	18°23.0
21	108°09.5	9.6'	28°17.2	0.5'	54.2'	85°56.0		65°06.7	46°37.9	16°18.5	18°52.9
22	122°38.1	9.6'	28°16.7	0.6'	54.2'	85°26.2		64°39.1	46°17.9	16°45.5	19°22.7
23	137°06.7	9.6'	28°16.0	0.8'	54.2'	84°56.4		64°11.5	45°58.1	17°12.5	19°52.6
22 nd	SD	= 14.7'	Mer. pass	s. 13:32							

h	I	Moon	(23 rd No	v)		Lunar [Distance (o	bjects wi	ith larges	st hourly LD delta)
Sun	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair	+Mars	+Antares
0	151°35.2	9.6'	S 28°15.3	0.9'	54.2'	84°26.5	63°43.9	45°38.4	17°39.6	20°22.4
1	166°03.8	9.6'	$28^{\circ}14.4$	1.0'	54.2'	83°56.7	63°16.3	45°18.8	18°06.7	20°52.3
2	180°32.3	9.6'	28°13.3	1.2'	54.2'	83°26.8	62°48.7	44°59.4	18° 33.9	21°22.2
3	195°00.9	9.6'	$28^{\circ}12.1$	1.3'	54.2'	82°56.9	62°21.2	44°40.2	19°01.2	21°52.1
4	209°29.5	9.6'	$28^{\circ}10.8$	1.5'	54.3'	82°27.1	61°53.6	44°21.1	19°28.5	22°22.0
5	223°58.0	9.6'	28°09.3	1.6'	54.3'	81°57.2	61°26.1	44°02.1	19°55.8	22°51.9
6	238°26.6	9.6'	S 28°07.7	1.7'	54.3'	81°27.3	60°58.6	43°43.3	20°23.2	23°21.8
7	252°55.2	9.6'	28°06.0	1.9'	54.3'	80°57.4	60°31.0	43°24.6	20°50.6	
8	267°23.8	9.6'	$28^{\circ}04.1$	2.0'	54.3'	80°27.4	60°03.6	43°06.1	21°18.0	
9	281°52.4	9.6'	$28^{\circ}02.1$	2.2'	54.3'	79°57.5	59°36.1	42°47.8	21°45.5	
10	296°21.0	9.6'	$27^{\circ}59.9$	2.3'	54.3'	79°27.6	59°08.6	42°29.7	22°13.1	
11	310°49.6	9.6'	27°57.6	2.4'	54.3'	78°57.6	58°41.1	42°11.7	22°40.6	
12	325°18.2	9.6'	S 27°55.1	2.6'	54.4'	78°27.6	58°13.7	41°53.9	23°08.2	
13	339°46.8	9.6'	$27^{\circ}52.5$	2.7'	54.4'	77°57.7	57°46.3	41°36.3	23°35.9	
14	354°15.5	9.7'	27°49.8	2.9'	54.4'	77°27.7	57°18.9	41°18.8	24°03.5	
15	8°44.1	9.7'	27°47.0	3.0'	54.4'	76°57.7	56°51.5	41°01.6	24°31.2	
16	23°12.8	9.7'	27°43.9	3.1'	54.4'	76°27.7	56°24.1	40°44.6	24°58.9	
17	37°41.5	9.7'	27°40.8	3.3'	54.4'	75°57.6	55°56.8	40°27.7	25°26.7	
18	52°10.2	9.7'	S 27°37.5	3.4'	54.4'	75°27.6	55°29.4	40°11.1	25°54.4	
19	66°39.0	9.8'	$27^{\circ}34.1$	3.6'	54.5'	74°57.6	55°02.1	39°54.7	26°22.3	
20	81°07.7	9.8'	27°30.6	3.7'	54.5'	74°27.5	54°34.8	39°38.5	26°50.1	
21	95°36.5	9.8'	$27^{\circ}26.9$	3.8'	54.5'	73°57.4	54°07.6	39°22.5	27° 17.9	
22	110°05.3	9.8'	27°23.0	4.0'	54.5'	73°27.3	53°40.3	39°06.7	27°45.8	
23	124°34.1	9.9'	$27^{\circ}19.1$	4.1'	54.5'	72°57.2	53°13.1	38°51.2	28° 13.7	
23 rd	SD =	= 14.8′	Mer. pass	. 14:24	1					

SD = 14.9' Mer. pass. 15:15

24th

h		Moon	(24 th No	v)			Lunar Di	stance	
Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Mars	+Sun
0	139°03.0	9.9'	S 27°15.0	4.2'	54.5'	72°27.1	52° 45.9	28°41.7	40°50.5
1	153°31.9	9.9'	$27^{\circ}10.7$	4.4'	54.5'	71°57.0	52° 18.7	29°09.6	41°17.9
2	168°00.8	9.9'	27°06.4	4.5'	54.6'	71°26.8	51°51.6	29°37.6	41°45.3
3	182°29.7	10.0'	27°01.8	4.6'	54.6'	70°56.7	51°24.4	30°05.6	42°12.7
4	196°58.7	10.0'	26°57.2	4.8'	54.6'	70°26.5	50° 57.4	30°33.7	42°40.2
5	211°27.7	10.0'	26°52.4	4.9'	54.6'	69°56.3	50°30.3	31°01.7	43°07.7
6	225°56.7	10.1'	S 26°47.5	5.0'	54.6'	69°26.1	50°03.3	31°29.8	43°35.2
7	240°25.8	10.1'	26°42.5	5.2'	54.6'	68°55.9	49° 36.2	31°57.9	44°02.7
8	254°54.8	10.1'	26°37.3	5.3'	54.7'	68°25.7	49°09.3	32°26.0	44°30.2
9	269°24.0	10.2'	26°32.0	5.4'	54.7'	67°55.4	48° 42.3	32°54.2	44°57.7
10	283°53.1	10.2'	26°26.5	5.6'	54.7'	67°25.2	48° 15.4	33°22.3	45°25.3
11	298°22.3	10.2'	$26^{\circ}21.0$	5.7'	54.7'	66°54.9	47°48.6	33°50.5	45°52.9
12	312°51.6	10.3'	S 26°15.2	5.8'	54.7'	66°24.6	47°21.7	34°18.8	46°20.5
13	327°20.8	10.3'	26°09.4	6.0'	54.7'	65°54.3	46°55.0	34°47.0	46°48.1
14	341°50.1	10.3'	26°03.4	6.1'	54.8'	65°24.0	46°28.2	35°15.3	47°15.8
15	356°19.5	10.4'	25°57.3	6.2'	54.8'	64°53.6	46°01.5	35°43.6	47°43.4
16	10°48.8	10.4'	25°51.1	6.4'	54.8'	64°23.3	45°34.8	36°11.9	48°11.1
17	25°18.3	10.5'	25°44.8	6.5'	54.8'	63°52.9	45°08.2	36°40.2	48°38.8
18	39°47.7	10.5'	S 25°38.3	6.6'	54.8'	63°22.5	44°41.7	37°08.6	49°06.6
19	54°17.2	10.5'	25°31.7	6.7'	54.8'	62°52.1	44°15.2	37°36.9	49°34.3
20	68°46.8	10.6'	25°24.9	6.9'	54.9'	62°21.7	43°48.7	38°05.4	50°02.1
21	83°16.3	10.6'	$25^{\circ}18.1$	7.0'	54.9'	61°51.2	43°22.3	38°33.8	50°29.9
22	97°46.0	10.7'	25°11.1	7.1'	54.9'	61°20.8	42°55.9	39°02.2	50°57.7
23	112°15.6	10.7'	25°03.9	7.2'	54.9'	60°50.3	42° 29.6	39°30.7	51°25.5

Sun SD = 16.2'

h		Moon	(25 th No	ov)			Lunar Di	stance	
Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Mars	+Sun
0	126°45.3	10.8'	S 24°56.7	7.4'	54.9'	60°19.8	42°03.4	39°59.2	51°53.4
1	141°15.1	10.8'	24°49.3	7.5'	55.0'	59°49.3	41°37.2	40°27.7	52°21.2
2	155°44.9	10.8'	24°41.8	7.6'	55.0'	59° 18.7	41°11.1	40°56.3	52°49.1
3	170°14.7	10.9'	24°34.2	7.7'	55.0'	58°48.2	40°45.1	41°24.8	53°17.0
4	184°44.6	10.9'	$24^{\circ}26.5$	7.9'	55.0'	58° 17.6	40°19.1	41°53.4	53°45.0
5	199°14.6	11.0'	$24^{\circ}18.6$	8.0'	55.1'	57°47.0	39°53.2	42°22.0	54°12.9
6	213°44.5	11.0'	S 24°10.7	8.1'	55.1'	57°16.4	39°27.4	42°50.7	54°40.9
7	228°14.6	11.1'	24°02.6	8.2'	55.1'	56° 45.7	39°01.6	43°19.4	55°08.9
8	242°44.6	11.1'	23°54.4	8.3'	55.1'	56° 15.1	38°36.0	43°48.0	55°37.0
9	257°14.8	11.2'	23°46.0	8.5'	55.1'	55°44.4	38°10.4	44°16.8	56°05.0
10	271°44.9	11.2'	23°37.6	8.6'	55.2'	55° 13.7	37°45.0	44°45.5	56°33.1
11	286°15.1	11.3'	$23^{\circ}29.0$	8.7'	55.2'	54°43.0	37°19.6	45°14.3	57°01.2
12	300°45.4	11.3'	S 23°20.3	8.8'	55.2'	54° 12.2	36°54.3	45°43.0	57°29.3
13	315°15.7	11.4'	23°11.5	8.9'	55.2'	53°41.5	36°29.1	46°11.9	57°57.5
14	329°46.0	11.4'	$23^{\circ}02.6$	9.0'	55.2'	53° 10.7	36°04.0	46°40.7	58°25.6
15	344°16.4	11.4'	22°53.5	9.2'	55.3'	52°39.9	35°39.1	47°09.6	58°53.8
16	358°46.9	11.5'	22°44.4	9.3'	55.3'	52°09.1	35°14.2	47°38.5	59°22.0
17	13°17.4	11.5'	$22^{\circ}35.1$	9.4'	55.3'	51°38.2	34°49.5	48°07.4	59°50.3
18	27°47.9	11.6'	S 22°25.7	9.5'	55.3'	51°07.3	34°24.9	48°36.3	60°18.6
19	42°18.5	11.6'	$22^{\circ}16.3$	9.6'	55.4'	50°36.4	34°00.5	49°05.3	60°46.9
20	56°49.1	11.7'	22°06.7	9.7'	55.4'	50°05.5	33°36.1	49°34.3	61°15.2
21	71°19.8	11.7'	$21^{\circ}56.9$	9.8'	55.4'	49°34.6	33°12.0	50°03.3	61°43.5
22	85°50.5	11.8'	$21^{\circ}47.1$	9.9'	55.4'	49°03.6	32°47.9	50°32.4	62°11.9
23	100°21.3	11.8'	21°37.2	10.0'	55.5'	48°32.6	32°24.1	51°01.4	62°40.3
25 th	SD	= 15.0'	Mer. pass	s. 16:05			Sun SD =	= 16.2 [']	

h		Moon	(26 th No	ov)	Lunar Distance (objects with largest hourly LD delta						
Wed	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Mars	+Sun
0	114°52.1	11.9'	S 21°27.2	10.1'	55.5'			48°01.6	32°00.3	51°30.5	63°08.7
1	129°23.0	11.9'	21°17.0	10.3'	55.5'			47°30.6	31°36.8	51°59.7	63°37.2
2	143°53.9	12.0'	21°06.8	10.4'	55.5'			46°59.5	31°13.4	52°28.8	64°05.7
3	158°24.9	12.0'	20°56.4	10.5'	55.6'			46°28.4	30°50.3	52°58.0	64°34.2
4	172°55.9	12.1'	20°45.9	10.6'	55.6'			45°57.3	30°27.3	53°27.2	65°02.7
5	187°27.0	12.1'	20°35.4	10.7'	55.6'	119°58.2	119°39.8	45°26.2	30°04.5	53° 56.5	65°31.3
6	201°58.1	12.1'	S 20°24.7	10.8'	55.6'	119°27.7	119°16.9	44°55.0	29°42.0	54°25.8	65°59.9
7	216°29.2	12.2'	20°13.9	10.9'	55.7'	118°57.1	118°53.8	44°23.8	29° 19.6	54°55.1	66°28.5
8	231°00.4	12.2'	20°03.0	11.0'	55.7'	118° 26.4	118°30.6	43°52.6	28° 57.5	55°24.4	66°57.1
9	245°31.6	12.3'	$19^{\circ}52.1$	11.1'	55.7'	117°55.8	118°07.3	43°21.4	28° 35.6	55° 53.8	67°25.8
10	260°02.9	12.3'	19°41.0	11.2'	55.8'	117°25.1	117°44.0	42°50.1	28°14.0	56°23.2	67°54.5
11	274°34.2	12.4'	$19^{\circ}29.8$	11.3'	55.8'	116°54.3	117°20.5	42°18.8	27°52.7	56° 52.6	68°23.2
12	289°05.6	12.4'	S 19°18.5	11.4'	55.8'	116°23.6	116°57.0	41°47.5	27°31.6	57°22.0	68°52.0
13	303°37.0	12.4'	$19^{\circ}07.1$	11.5'	55.8'	115°52.8	116°33.4	41°16.2	27° 10.8	57°51.5	69°20.8
14	318°08.4	12.5'	18°55.7	11.6'	55.9'	115°21.9	116°09.7	40°44.8	26°50.3	58°21.0	69°49.6
15	332°39.9	12.5'	18°44.1	11.7'	55.9'	114°51.1	115°45.9	40°13.4	26° 30.2	58° 50.6	70°18.5
16	347°11.5	12.6'	18°32.4	11.8'	55.9'	114°20.2	115°22.0	39°42.0	26° 10.3	59°20.2	70°47.4
17	1°43.0	12.6'	$18^{\circ}20.7$	11.9'	55.9'	113°49.2	114°58.1	39°10.5	25°50.8	59°49.8	71°16.3
18	16°14.7	12.7'	S 18°08.8	12.0'	56.0'	113° 18.2	114°34.0	38°39.0	25°31.7	60°19.4	71°45.2
19	30°46.3	12.7'	$17^{\circ}56.9$	12.0'	56.0'	112°47.2	114°09.9	38°07.5	25° 12.9	60°49.1	72°14.2
20	45°18.0	12.7'	17°44.8	12.1'	56.0'	112° 16.2	113°45.7	37°36.0	24°54.5	61° 18.8	72°43.2
21	59°49.7	12.8'	$17^{\circ}32.7$	12.2'	56.1'	111°45.1	113°21.5	37°04.4	24° 36.5	61°48.5	73°12.3
22	74°21.5	12.8'	17°20.4	12.3'	56.1'	111°14.0	112°57.1	36°32.8	24°19.0	62°18.3	73°41.3
23	88°53.3	12.8'	17°08.1	12.4'	56.1'	6.1' 110°42.8 112°32.7 36°01.2 24°01.9 62°48.1 74°10.4					
26 th	SD	= 15.1'	Mer. pass	s. 16:53				Sun SD	= 16.2		

Moon (27th Nov) Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Capella	-Betelgeuse	-Rigel	-Aldebaran	-Saturn	+Altair	+Mars	+Sun
0	103°25.2	12.9'	S 16°55.7	12.5'	56.2'			112°08.2	110°11.6	35°29.6		63°17.9	74°39.6
1	117°57.0	12.9'	16°43.2	12.6'	56.2'			111°43.7	109°40.4	34°57.9		63°47.8	75°08.8
2	132°29.0	13.0'	$16^{\circ}30.6$	12.7'	56.2'	119°41.3		111°19.0	109°09.1	34°26.2		64°17.7	75°38.0
3	147°00.9	13.0'	$16^{\circ}18.0$	12.8'	56.2'	119°11.4		110°54.3	108°37.8	33°54.5		64°47.6	76°07.2
4	161°32.9	13.0'	$16^{\circ}05.2$	12.8'	56.3'	118°41.5		110°29.5	108°06.5	33°22.7		65°17.6	76°36.5
5	176°04.9	13.0'	$15^{\circ}52.4$	12.9'	56.3'	118°11.6		110°04.7	107°35.1	32°50.9		65°47.6	77°05.8
6	190°37.0	13.1'	S 15°39.4	13.0'	56.3'	117°41.6		109°39.7	107°03.7	32°19.1		66°17.6	77°35.1
7	205°09.0	13.1'	$15^{\circ}26.4$	13.1'	56.4'	117°11.5		109°14.8	106°32.3	31°47.3		66°47.7	78°04.5
8	219°41.1	13.1'	$15^{\circ}13.3$	13.2'	56.4'	116°41.4		108°49.7	106°00.8	31°15.4		67°17.8	78°33.9
9	234°13.3	13.2'	$15^{\circ}00.2$	13.3'	56.4'	116°11.2		108°24.6	105°29.2	30°43.5		67°48.0	79°03.4
10	248°45.5	13.2'	14°46.9	13.3'	56.5'	115°41.0		107°59.4	104°57.7	30°11.6	37°53.6	68°18.1	79°32.9
11	263°17.7	13.2'	14°33.6	13.4'	56.5'	115°10.8		107°34.1	104°26.1	29°39.6	38°09.2	68°48.4	80°02.4
12	277°49.9	13.3'	S 14°20.1	13.5'	56.5'	114°40.5		107°08.8	103°54.5	29°07.6	38°25.1	69°18.6	80°31.9
13	292°22.1	13.3'	$14^{\circ}06.6$	13.6'	56.6'	114°10.1		106°43.4	103°22.8	28°35.6	38°41.3	69°48.9	81°01.5
14	306°54.4	13.3'	$13^{\circ}53.1$	13.7'	56.6'	113°39.7		106°18.0	102°51.1	28°03.5	38° 57.8	70°19.2	81°31.1
15	321°26.7	13.3'	13°39.4	13.7'	56.6'	113°09.3	119°39.8	105°52.5	102°19.3	27°31.5	39° 14.6	70°49.6	82°00.8
16	335°59.1	13.4'	$13^{\circ}25.7$	13.8'	56.7'	112°38.7	119°10.3	105°26.9	101°47.5	26°59.4	39°31.6	71°20.0	82°30.5
17	350°31.4	13.4'	$13^{\circ}11.9$	13.9'	56.7'	112°08.2	118°40.7	105°01.3	101°15.7	26°27.3	39°49.0	71°50.4	83°00.2
18	5°03.8	13.4'	S 12°58.0	14.0'	56.7'	111°37.6	118°11.1	104°35.6	100°43.8	25°55.1	40°06.6	72°20.9	83°30.0
19	19°36.2	13.4'	12°44.0	14.0'	56.8'	111°06.9	117°41.4	104°09.8	100°11.9	25°22.9	40°24.5	72°51.4	83°59.8
20	34°08.6	13.4'	$12^{\circ}30.0$	14.1'	56.8'	110°36.2	117°11.6	103°44.0	99°40.0	24°50.7	40°42.7	73°22.0	84°29.7
21	48°41.0	13.5'	$12^{\circ}15.9$	14.2'	56.8'	110°05.5	116°41.8	103°18.1	99°08.0	24°18.5	41°01.2	73°52.6	84°59.6
22	63°13.5	13.5'	12°01.8	14.2'	56.9'	109°34.7	116°11.9	102°52.2	98°36.0	23°46.2	41°19.9	74°23.2	85°29.5
23	77°46.0	13.5'	11°47.5	14.3'	56.9'	109°03.8	115°42.0	102°26.2	98°03.9	23°14.0	41°38.8	74°53.9	85°59.5
27 th	SD	= 15.3'	Mer. pass	s. 17:39					$Sun\;SD=16$	5.2'			

Moon (28th Nov) Lunar Distance (objects with largest hourly LD delta)

n		ivioon	(28" NC)V)			Lunar Di	stance (obj	ects witi	i iargest noi	iriy LD (ieita)	
Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Mars	+Sun
0	92°18.4	13.5'	S 11°33.2	14.4'	56.9'	115°12.0	108°32.9	97°31.8	22°41.7		41°58.1	75°24.6	86°29.5
1	106°50.9	13.5'	11° 18.8	14.4'	57.0'	114°41.9	108°02.0	96°59.7	22°09.3		42°17.5	75°55.3	86°59.5
2	121°23.5	13.5'	11°04.4	14.5'	57.0'	114° 11.8	107°31.0	96°27.5	21°37.0		42°37.2	76°26.1	87°29.6
3	135°56.0	13.5'	$10^{\circ}49.9$	14.6'	57.0'	113°41.6	107°00.0	95°55.3	21°04.6		42°57.2	76°56.9	87°59.7
4	150°28.5	13.6'	10°35.3	14.6'	57.1'	113°11.3	106°28.9	95°23.0	20°32.3		43°17.4	77°27.8	88°29.9
5	165°01.1	13.6'	$10^{\circ}20.6$	14.7'	57.1'	112°41.1	105°57.8	94°50.7	19°59.9		43°37.8	77°58.7	89°00.1
6	179°33.6	13.6'	S 10°05.9	14.8'	57.1'	112° 10.7	105°26.6	94° 18.4	19°27.5		43°58.4	78°29.7	89°30.3
7	194°06.2	13.6'	$09^{\circ}51.2$	14.8'	57.2'	111°40.3	104°55.3	93°46.0	18°55.0		44°19.3	79°00.7	90°00.6
8	208°38.8	13.6'	09°36.3	14.9'	57.2'	111°09.8	104°24.1	93°13.5	18°22.6		44°40.4	79°31.7	90°30.9
9	223°11.4	13.6'	$09^{\circ}21.4$	15.0'	57.2'	110°39.3	103°52.7	92°41.1	17°50.1		45°01.7	80°02.8	91°01.3
10	237°44.0	13.6'	09°06.5	15.0'	57.3'	110°08.7	103°21.4	92°08.6	17°17.7		45°23.2	80°33.9	91°31.7
11	252°16.6	13.6'	$08^{\circ}51.5$	15.1'	57.3'	109°38.1	102°50.0	91°36.0	16°45.2		45°44.9	81°05.0	92°02.1
12	266°49.2	13.6'	S 08°36.4	15.1'	57.4'	109°07.4	102°18.5	91°03.4	16°12.8		46°06.8	81°36.2	92°32.6
13	281°21.8	13.6'	$08^{\circ}21.3$	15.2'	57.4'	108°36.7	101°47.0	90°30.8	15°40.4		46°28.9	82°07.5	93°03.2
14	295°54.4	13.6'	$08^{\circ}06.1$	15.2'	57.4'	108°05.9	101°15.4	89°58.1	15°07.9		46°51.2	82°38.8	93°33.7
15	310°27.0	13.6'	07°50.9	15.3'	57.5'	107°35.0	100°43.8	89°25.4	14°35.5		47°13.7	83°10.1	94°04.4
16	324°59.6	13.6'	07°35.6	15.3'	57.5'	107°04.1	100°12.2	88°52.6	14°03.1		47°36.4	83°41.4	94°35.0
17	339°32.1	13.6'	$07^{\circ}20.2$	15.4'	57.5'	106°33.2	99°40.5	88° 19.8	13°30.7		47°59.3	84°12.9	95°05.7
18	354°04.7	13.6'	S 07°04.8	15.5'	57.6'	106°02.2	99°08.7	87°47.0	12°58.4		48°22.4	84°44.3	95°36.4
19	8°37.3	13.6'	06°49.4	15.5'	57.6'	105°31.1	98°36.9	87° 14.1	12°26.2		48°45.6	85°15.8	96°07.2
20	23°09.9	13.6'	06°33.9	15.6'	57.6'	105°00.0	98°05.1	86°41.2	11°54.0	22°55.3	49°09.0	85°47.3	96°38.1
21	37°42.5	13.6'	$06^{\circ}18.3$	15.6'	57.7'	104°28.8	97°33.2	86°08.2	11°21.8	23°11.2	49°32.6	86°18.9	97°08.9
22	52°15.0	13.6'	$06^{\circ}02.7$	15.7'	57.7'	103°57.6	97°01.3	85°35.2	10°49.8	23°27.7	49°56.4	86°50.6	97°39.8
23	66°47.6	13.5'	05°47.0	15.7'	57.8'	103°26.3	96°29.3	85°02.2	10°17.9	23°44.8	50°20.3	87°22.2	98°10.8
28 th	SD	= 15.5'	Mer. pass	. 18:24				-	Sun SD =	16.2'		-	

0 81°20.1 13.5' \$\scrip\$50°51.3 15.7' 57.8' 95°57.3 84°29.1 24°02.4 50°44.5 87°53.9 98°4 1 95°52.6 13.5' 05°15.6 15.8' 57.8' 95°25.2 83°55.9 24°20.6 51°08.7 88°25.7 99°1 2 110°25.2 13.5' 04°59.8 15.8' 57.9' 94°53.1 83°22.7 24°39.4 51°33.1 88°57.5 99°4 3 124°57.7 13.5' 04°44.0 15.9' 57.9' 94°21.0 82°49.5 24°58.6 51°57.7 89°29.4 100°1 4 139°30.1 13.5' 04°28.1 15.9' 57.9' 93°48.8 82°16.2 25°18.4 52°22.5 90°01.3 100°4													
Sat	GHA	ν	Dec	d	HP	-Jupiter	-Pollux	-Capella	-Aldebaran	+Fomalhaut	+Altair	+Mars	+Sun
0	81°20.1	13.5'	S 05°31.3	15.7'	57.8'			95°57.3	84°29.1	24°02.4	50°44.5	87°53.9	98°41.8
1	95°52.6	13.5'	05°15.6	15.8'	57.8'			95°25.2	83°55.9	24°20.6	51°08.7	88°25.7	99°12.9
2	110°25.2	13.5'	04°59.8	15.8'	57.9'			94°53.1	83°22.7	24°39.4	51°33.1	88°57.5	99°43.9
3	124°57.7	13.5'	04°44.0	15.9'	57.9'			94°21.0	82°49.5		51°57.7	89°29.4	100°15.1
4	139°30.1	13.5'	04°28.1	15.9'	57.9'				82°16.2	25° 18.4	52°22.5	90°01.3	100°46.3
5	154°02.6	13.4'	04°12.2	16.0'	58.0'			93°16.5	81°42.9	25°38.6	52°47.4	90°33.2	101°17.5
6	168°35.0	13.4'	S 03°56.2	16.0'	58.0'			92°44.2	81°09.6	25°59.4	53°12.4	91°05.2	101°48.7
7	183°07.5	13.4'	03°40.2	16.0'	58.1'			92°11.9	80°36.2	26° 20.5	53°37.6	91°37.2	102°20.1
8	197°39.8	13.4'	03°24.2	16.1'	58.1'			91°39.5	80°02.7	26°42.1	54°02.9	92°09.3	102°51.4
9	212°12.2	13.3'	$03^{\circ}08.1$	16.1'	58.1'			91°07.1	79°29.3	27°04.2	54°28.4	92°41.4	103°22.8
10	226°44.6	13.3'	$02^{\circ}52.0$	16.1'	58.2'			90°34.6	78°55.7	27° 26.6	54°54.0	93°13.6	103°54.3
11	241°16.9	13.3'	02°35.9	16.2'	58.2'			90°02.1	78°22.2	27°49.5	55° 19.8	93°45.8	104°25.8
12	255°49.2	13.3'	S 02°19.7	16.2'	58.2'			89°29.6	77°48.6	28° 12.7	55°45.6	94°18.0	104°57.3
13	270°21.4	13.2'	02°03.5	16.2'	58.3'			88°57.0	77° 14.9	28° 36.3	56°11.7	94°50.3	105°28.9
14	284°53.7	13.2'	01°47.3	16.3'	58.3'		119°37.6	88°24.3	76°41.2	29°00.2	56° 37.8	95°22.7	106°00.5
15	299°25.9	13.2'	01°31.0	16.3'	58.4'		119°03.3	87°51.6	76°07.5	29° 24.5	57°04.1	95°55.1	106°32.2
16	313°58.1	13.1'	$01^{\circ}14.7$	16.3'	58.4'	119°51.2	118°29.0	87°18.9	75°33.7	29°49.1	57°30.5	96°27.5	107°03.9
17	328°30.2	13.1'	00°58.4	16.4'	58.4'	119° 16.7	117°54.6	86°46.1	74°59.9	30°14.1	57°57.0	97°00.0	107°35.7
18	343°02.3	13.1'	S 00°42.0	16.4'	58.5'	118°42.1	117°20.2	86°13.3	74°26.0	30°39.4	58°23.7	97°32.5	108°07.5
19	357°34.3	13.0'	00°25.7	16.4'	58.5'	118°07.5	116°45.7	85°40.5	73°52.1	31°04.9	58° 50.5	98°05.1	108°39.3
20	12°06.4	13.0'	S 00°09.3	16.4'	58.6'	117°32.9	116°11.2	85°07.6	73° 18.1	31°30.8	59° 17.4	98°37.8	109°11.2
21	26°38.3	12.9'	N 00°07.2									109°43.2	
22	41°10.3	12.9'	00°23.6	16.5'	58.6'	116°23.5	115°02.0	84°01.6	72°10.1	32°23.3	60°11.5	99°43.2	110°15.2
23	55°42.2	12.8'	00°40.1	16.5'	58.7'	115°48.7	114°27.3	83°28.6	71°36.0	32°50.0	60°38.8	100°15.9	110°47.2
29 th	SD	= 15.8'	Mer. pass	19:10					Sun SD	= 16.2'			

Moon (30th Nov) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Jupiter	-Pollux	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Mars	+Sun
0	70°14.0	12.8'	N 00°56.6	16.5'	58.7'	115° 13.9	113°52.6	82°55.6	71°01.9		33°16.9	100°48.7	111°19.3
1	84°45.8	12.8'	$01^{\circ}13.1$	16.5'	58.7'	114°39.0	113°17.8	82°22.4	70°27.7		33°44.1	101°21.6	111°51.4
2	99°17.6	12.7'	$01^{\circ}29.6$	16.5'	58.8'	114°04.1	112°43.0	81°49.3	69°53.5		34°11.5	101°54.5	112°23.6
3	113°49.3	12.7'	$01^{\circ}46.1$	16.5'	58.8'	113°29.1	112°08.1	81°16.1	69° 19.3	7°03.4	34°39.2	102°27.4	112°55.8
4	128°20.9	12.6'	02°02.7	16.6'	58.9'	112°54.1	111°33.2	80°42.9	68°45.0	7°34.5	35°07.1	103°00.4	113°28.1
5	142°52.5	12.5'	$02^{\circ}19.2$	16.6'	58.9'	112° 19.0	110°58.3	80°09.6	68° 10.7	8°06.2	35°35.2	103°33.5	114°00.4
6	157°24.1	12.5'	N 02°35.8	16.6'	58.9'	111°43.9	110°23.3	79°36.3	67°36.3	8°38.4	36°03.5	104°06.6	114°32.8
7	171°55.6	12.4'	02°52.4	16.6'	59.0'	111°08.7	109°48.2	79°03.0	67°01.9	9° 10.9	36°32.0	104°39.7	115°05.2
8	186°27.0	12.4'	03°09.0	16.6'	59.0'	110°33.5	109°13.1	78°29.6	66°27.5	9°43.8	37°00.8	105°12.9	115°37.6
9	200°58.4	12.3'	03°25.5	16.6'	59.0'	109°58.2	108°38.0	77°56.2	65°53.0	10°17.0	37°29.7	105°46.1	116°10.1
10	215°29.7	12.3'	03°42.1	16.6'	59.1'	109°22.9	108°02.8	77°22.7	65° 18.4	10°50.5	37°58.8	106°19.4	116°42.6
11	230°01.0	12.2'	03°58.8	16.6'	59.1'	108°47.6	107°27.5	76°49.2	64°43.9	11°24.1	38°28.1	106°52.7	117°15.2
12	244°32.2	12.1'	N 04°15.4	16.6'	59.2'	108° 12.1	106°52.2	76°15.7	64°09.3	11°58.0	38° 57.5	$107^{\circ}26.1$	117°47.9
13	259°03.3	12.1'	04°32.0	16.6'	59.2'	107°36.7	106°16.9	75°42.2	63°34.6	12°32.0	39°27.2	107°59.5	118°20.5
14	273°34.4	12.0'	04°48.6	16.6'	59.2'	107°01.2	105°41.5	75°08.6	62°59.9	13°06.2	39°57.0	108°33.0	118°53.3
15	288°05.4	11.9'	05°05.2	16.6'	59.3'	106°25.6	105°06.1	74°34.9	62°25.2	13°40.5	40°27.0	109°06.5	119°26.0
16	302°36.3	11.9'	$05^{\circ}21.8$	16.6'	59.3'	105°50.0	104°30.6	74°01.3	61°50.4	14°15.0	40°57.1	109°40.1	119°58.8
17	317°07.2	11.8'	05°38.4	16.6'	59.3'	105°14.4	103°55.1	73°27.6	61° 15.6	14°49.6	41°27.4	110°13.7	
18	331°37.9	11.7'	N 05°55.0	16.6'	59.4'	104°38.7	103°19.5	72°53.8	60°40.8	15°24.3	41°57.9	110°47.3	
19	346°08.7	11.6'	$06^{\circ}11.5$	16.6'	59.4'	104°03.0	102°43.9	72°20.1	60°05.9	15°59.2	42°28.5	111°21.0	
20	0°39.3	11.6'	06°28.1	16.6'	59.5'	103°27.2	102°08.2	71°46.3	59°31.0	16°34.1	42°59.2	111°54.7	
21	15°09.9	11.5'	06°44.7	16.5'	59.5'	102°51.3	101°32.5	71°12.5	58° 56.1	17°09.1	43°30.1	112°28.5	
22	29°40.4	11.4'	$07^{\circ}01.2$	16.5'	59.5'	102° 15.5	100°56.8	70°38.6	58°21.1	17°44.2	44°01.2	113°02.3	
23	44°10.8	11.3'	07°17.7	16.5'	59.6'	101°39.5	100°21.0	70°04.7	57°46.1	18° 19.4	44°32.3	113°36.2	
30 th	SD	$=16.0^{\prime}$	Mer. pass	. 19:57					Sun SD	0 = 16.2'			

h		Мооі	n (1 st Dec	c)			Lunar [Distance	(objects w	ith larges	t hourly LD	delta)	
Mon	GHA	ν	Dec	d	HP	-Procyon	-Jupiter	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Mars
0	58°41.1	11.2'	N07°34.2	16.5'	59.6'	102°52.3	101°03.6	99°45.1	57°11.0	18° 54.7	45°03.6	72°32.5	114°10.1
1	73°11.3	11.2'	07°50.7	16.5'	59.6'	102°18.6	100°27.6	99°09.2	56°36.0	19°30.1	45°35.0	73°02.2	114°44.1
2	87°41.5	11.1'	08°07.2	16.5'	59.7'	101°44.8	99°51.5	98°33.3	56°00.9	20°05.5	46°06.6	73°31.9	115°18.1
3	102°11.6	11.0'	08°23.7	16.4'	59.7'	101°11.0	99°15.4	97°57.3	55°25.7	20°41.1	46°38.3	74°01.8	115°52.2
4	116°41.6	10.9'	08°40.1	16.4'	59.7'	100°37.1	98°39.2	97°21.3	54°50.5	21°16.6	47°10.1	74°31.7	116°26.2
5	131°11.5	10.8'	$08^{\circ}56.5$	16.4'	59.8'	100°03.2	98°03.0	96°45.2	54° 15.3	21°52.3	47° 42.0	75°01.6	117°00.4
6	145°41.3	10.7'	$N09^{\circ}12.9$	16.3'	59.8'	99°29.2	97°26.8	96°09.1	53°40.1	22°28.0	48° 14.0	75°31.6	117°34.6
7	160°11.0	10.6'	09°29.2	16.3'	59.8'	98°55.2	96°50.5	95°32.9	53°04.8	23°03.8	48°46.1	76°01.7	118°08.8
8	174°40.6	10.5'	09°45.5	16.3'	59.9'	98°21.1	96°14.1	94°56.7	52°29.5	23°39.7	49° 18.4	76°31.9	118°43.1
9	189°10.1	10.4'	$10^{\circ}01.8$	16.2'	59.9'	97°47.0	95°37.8	94°20.5	51°54.2	24°15.6	49°50.7	77°02.1	119°17.4
10	203°39.6	10.3'	$10^{\circ}18.0$	16.2'	59.9'	97°12.8	95°01.3	93°44.2	51° 18.9	24°51.5	50°23.2	77°32.4	119°51.7
11	218°08.9	10.2'	10°34.3	16.2'	60.0'	96°38.6	94°24.9	93°07.8	50°43.5	25°27.6	50°55.7	78°02.8	
12	232°38.2	10.1'	$N10^{\circ}50.4$	16.1'	60.0'	96°04.4	93°48.4	92°31.5	50°08.1	26°03.7	51°28.4	78°33.2	
13	247°07.3	10.0'	$11^{\circ}06.5$	16.1'	60.0'	95°30.1	93°11.8	91°55.0	49°32.7	26°39.8	52°01.2	79°03.7	
14	261°36.4	9.9'	11°22.6	16.0'	60.1'	94°55.7	92°35.2	91°18.6	48° 57.2	27° 16.0	52°34.0	79°34.2	
15	276°05.3	9.8'	11°38.7	16.0'	60.1'	94°21.3	91°58.6	90°42.1	48°21.7	27°52.3	53°07.0	80°04.8	
16	290°34.1	9.7'	$11^{\circ}54.7$	15.9'	60.1'	93°46.9	91°21.9	90°05.5	47°46.3	28°28.6	53°40.0	80°35.5	
17	305°02.9	9.6'	$12^{\circ}10.6$	15.9'	60.2'	93°12.4	90°45.1	89°28.9	47°10.8	29°04.9	54°13.1	81°06.2	
18	319°31.5	9.5'	$N12^{\circ}26.5$	15.8'	60.2'	92°37.9	90°08.4	88°52.3	46°35.2	29°41.3	54°46.4	81°36.9	
19	334°00.0	9.4'	12°42.4	15.8'	60.2'	92°03.3	89°31.6	88°15.6	45°59.7	30° 17.8	55° 19.7	82°07.7	
20	348°28.4	9.3'	12°58.1	15.7'	60.3'	91°28.7	88°54.7	87°38.9	45°24.1	30°54.3	55°53.1	82°38.6	
21	2°56.8	9.2'	13° 13.9	15.7'	60.3'	90°54.1	88°17.8	87°02.1	44°48.6	31°30.8	56° 26.5	83°09.5	
22	17°24.9	9.1'	$13^{\circ}29.5$	15.6'	60.3'	90°19.4	87°40.9	86°25.3	44°13.0	32°07.4	57°00.1	83°40.5	
23	31°53.0	9.0'	13°45.2	15.5'	60.4'	89°44.7	87°03.9	85°48.5	43°37.4	32°44.1	57°33.7	84°11.5	
1 st	SD	= 16.3'	Mer pass	20.48									

h	Moon (2 nd Dec)	Lunar Distance (objects with largest hourly LD delta)
n	IVIOON LZ LIECT	Tilliar Distance Conjects with Jargest hourly LD deliat

Tue	GHA	ν	Dec	d	HP	-Regulus	-Jupiter	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Achernar	+Altair
0	46°21.0	8.9'	N 14°00.7	15.5'	60.4'		86°26.9	85°11.6	43°01.8	33°20.8	58° 07.5	71°07.2	84°42.5
1	60°48.9	8.7'	$14^{\circ}16.2$	15.4'	60.4'		85°49.9	84°34.7	42°26.2	33°57.5	58°41.2	71°22.8	85°13.6
2	75°16.6	8.6'	$14^{\circ}31.6$	15.3'	60.5'		85° 12.8	83°57.7	41°50.5	34°34.3	59° 15.1	71°38.5	85°44.7
3	89°44.2	8.5'	14°46.9	15.3'	60.5'		84°35.6	83°20.7	41°14.9	35°11.1	59°49.0	71°54.3	86°15.9
4	104°11.7	8.4'	15°02.2	15.2'	60.5'	119°36.3	83°58.5	82°43.7	40°39.3	35°48.0	60°23.1	72°10.3	86°47.1
5	118°39.1	8.3'	$15^{\circ}17.4$	15.1'	60.5'	118°59.2	83°21.3	82°06.7	40°03.7	36°24.9	60°57.1	72°26.4	87°18.4
6	133°06.4	8.1'	$N15^{\circ}32.5$	15.0'	60.6'	118°22.1	82°44.0	81°29.5	39°28.1	37°01.9	61°31.3	72°42.6	87°49.7
7	147°33.5	8.0'	15°47.6	15.0'	60.6'	117°44.9	82°06.8	80°52.4	38°52.5	37°38.9	62°05.5	72°58.9	88°21.0
8	162°00.5	7.9'	$16^{\circ}02.5$	14.9'	60.6'	117°07.7	81°29.5	80°15.2	38°16.8	38° 15.9	62°39.8	73° 15.4	88°52.3
9	176°27.4	7.8'	$16^{\circ}17.4$	14.8'	60.6'	116°30.4	80°52.1	79°38.0	37°41.2	38°53.0	63°14.1	73°31.9	89°23.7
10	190°54.2	7.7'	16°32.2	14.7'	60.7'	115°53.1	80°14.7	79°00.8	37°05.7	39°30.1	63°48.5	73°48.6	89°55.1
11	205°20.9	7.5'	16°46.9	14.6'	60.7'	115°15.8	79°37.3	78°23.5	36°30.1	40°07.3	64°23.0	74°05.4	90°26.6
12	219°47.4	7.4'	$N17^{\circ}01.5$	14.5'	60.7'	114°38.5	78°59.9	77°46.2	35°54.5	40°44.5	64°57.5	74°22.2	90°58.1
13	234°13.8	7.3'	$17^{\circ}16.0$	14.4'	60.7'	114°01.1	78°22.4	77°08.8	35°19.0	41°21.7	65°32.1	74°39.2	91°29.6
14	248°40.1	7.1'	$17^{\circ}30.5$	14.3'	60.8'	113°23.6	77°44.9	76°31.5	34°43.5	41°58.9	66°06.7	74°56.3	92°01.1
15	263°06.2	7.0'	17°44.8	14.2'	60.8'	112°46.2	77°07.3	75°54.1	34°08.0	42°36.2	66°41.4	75° 13.5	92°32.7
16	277°32.2	6.9'	$17^{\circ}59.0$	14.1'	60.8'	112°08.7	76°29.7	75°16.6	33°32.6	43°13.6	67° 16.2	75°30.8	93°04.2
17	291°58.1	6.8'	18°13.1	14.0'	60.8'	111°31.2	75°52.1	74°39.1	32°57.2	43°50.9	67°51.0	75°48.2	93°35.8
18	306°23.9	6.6'	$N18^{\circ}27.1$	13.9'	60.9'	110°53.6	75° 14.5	74°01.6	32°21.8	44°28.3	68°25.8	76°05.7	94°07.4
19	320°49.5	6.5'	$18^{\circ}41.1$	13.8'	60.9'	110°16.1	74°36.8	73°24.1	31°46.5	45°05.8	69°00.7	76°23.3	94°39.1
20	335°15.0	6.4'	$18^{\circ}54.9$	13.7'	60.9'	109°38.5	$73^{\circ}59.1$	72°46.6	31°11.3	45°43.2	69°35.7	76°40.9	95°10.7
21	349°40.4	6.2'	$19^{\circ}08.5$	13.6'	60.9'	109°00.8	73°21.4	72°09.0	30°36.1	46°20.7	70° 10.7	76°58.7	95°42.4
22	4°05.7	6.1'	19°22.1	13.5'	61.0'	108°23.2	72°43.6	71°31.3	30°00.9	46°58.3	70° 45.7	77° 16.5	96°14.0
23	18°30.8	6.0'	19°35.6	13.3'	61.0'	107°45.5	72°05.9	70°53.7	29°25.8	47°35.8	71°20.8	77°34.4	96°45.7
2 nd	SD	= 16.5'	Mer. pas	s. 21:43									

h	Moon	(3 rd	Dec))
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Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Jupiter	-Pollux	+Saturn	+Fomalhaut	+Achernar	+Altair
0	32°55.8	5.9'	N 19°48.9	13.2'	61.0'	107°07.8	75°07.1	71°28.0	70°16.0	48°13.4	71°56.0	77° 52.5	97°17.4
1	47°20.6	5.7'	20°02.1	13.1'	61.0'	106°30.0	74°31.7	70°50.2	69°38.3	48°51.0	72°31.2	78° 10.6	97°49.1
2	61°45.3	5.6'	20° 15.2	13.0'	61.0'	105°52.2	73°56.4	70°12.3	69°00.6	49°28.7	73°06.4	78°28.7	98°20.8
3	76°09.9	5.5'	20°28.2	12.8'	61.0'	105°14.4	73°21.0	69°34.5	68°22.9	50°06.3	73°41.6	78°47.0	98°52.5
4	90°34.4	5.3'	20°41.0	12.7'	61.1'	104°36.6	72°45.6	68°56.5	67°45.1	50°44.0	74° 16.9	79°05.3	99°24.2
5	104°58.7	5.2'	20°53.7	12.6'	61.1'	103°58.8	72°10.2	68°18.6	67°07.3	51°21.7	74°52.3	79°23.7	99°55.9
6	119°22.9	5.1'	N21°06.3	12.4'	61.1'	103°20.9	71°34.8	67°40.7	66°29.5	51°59.5	75° 27.6	79°42.2	100°27.6
7	133°47.0	4.9'	21°18.7	12.3'	61.1'	102°43.0	70°59.3	67°02.7	65°51.6	52°37.3	76°03.1	80°00.7	100°59.3
8	148°10.9	4.8'	21°31.0	12.2'	61.1'	102°05.1	70°23.9	66°24.7	65°13.8	53°15.0	76° 38.5	80° 19.3	101°31.0
9	162°34.7	4.7'	21°43.2	12.0'	61.1'	101°27.2	69°48.5	65°46.7	64°35.9	53°52.9	77° 14.0	80°38.0	102°02.7
10	176°58.4	4.5'	21°55.2	11.9'	61.2'	100°49.2	69°13.1	65°08.6	63°58.0	54°30.7	77° 49.5	80°56.7	102°34.4
11	191°22.0	4.4'	$22^{\circ}07.1$	11.7'	61.2'	100°11.2	68°37.7	64°30.6	63°20.1	55°08.6	78°25.0	81° 15.5	103°06.0
12	205°45.4	4.3'	N 22°18.8	11.6'	61.2'	99°33.2	68°02.3	63°52.5	62°42.1	55°46.4	79°00.6	81°34.3	103°37.7
13	220°08.7	4.2'	22°30.3	11.4'	61.2'	98°55.2	67°26.9	63°14.4	62°04.2	56°24.3	79°36.1	81°53.2	104°09.3
14	234°31.8	4.0'	22°41.8	11.3'	61.2'	98°17.2	66°51.5	62°36.3	61°26.2	57°02.2	80°11.8	82°12.2	104°40.9
15	248°54.9	3.9'	22°53.0	11.1'	61.2'	97°39.2	66°16.1	61°58.1	60°48.2	57°40.2	80°47.4	82°31.2	105°12.5
16	263°17.8	3.8'	23°04.1	10.9'	61.2'	97°01.1	65°40.7	61°20.0	60°10.2	58° 18.1	81°23.1	82°50.2	105°44.1
17	277°40.6	3.7'	23°15.0	10.8'	61.3'	96°23.0	65°05.3	60°41.8	59°32.2	58°56.1	81°58.7	83°09.3	106°15.7
18	292°03.2	3.5'	N23°25.8	10.6'	61.3'	95°44.9	64°30.0	60°03.7	58°54.2	59°34.1	82°34.5	83°28.5	106°47.2
19	306°25.8	3.4'	23°36.4	10.4'	61.3'	95°06.8	63°54.7	59°25.5	58°16.1	60°12.1	83°10.2	83°47.7	107°18.7
20	320°48.2	3.3'	23°46.9	10.3'	61.3'	94°28.7	63°19.3	58°47.3	57°38.1	60°50.1	83°45.9	84°06.9	107°50.2
21	335°10.5	3.2'	23°57.1	10.1'	61.3'	93°50.6	62°44.0	58°09.1	57°00.0	61°28.1	84°21.7	84°26.2	108°21.6
22	349°32.7	3.1'	24°07.2	9.9'	61.3'	93°12.4	62°08.7	57°30.8	56°21.9	62°06.2	84° 57.5	84° 45.5	108°53.0
23	3°54.8	3.0'	24° 17.2	9.7'	61.3'	92°34.3	61°33.5	56°52.6	55°43.8	62°44.2	85°33.2	85°04.8	109°24.3
3 rd	SD	= 16.6	' Mer. pas	s. 22:44									

Moon (4th Dec)

Lunar Distance (objects with largest hourly LD delta)

h		Моо	n (4 th Dec	c)		Lunar Distance (objects with largest hourly LD delta)							
Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Jupiter	-Pollux	+Saturn	+Achernar	+Fomalhaut	+Altair
0	18°16.7	2.8'	N 24°26.9	9.6'	61.3'	91°56.1	60°58.2	56°14.4	55°05.7	63°22.3	85°24.2	86°09.1	109°55.7
1	32°38.6	2.7'	24°36.5	9.4'	61.3'	91°17.9	60°23.0	55°36.1	54°27.6	64°00.3	85°43.6	86°44.9	110°26.9
2	47°00.3	2.6'	24°45.9	9.2'	61.3'	90°39.7	59°47.9	54°57.9	53°49.5	64°38.4	86°03.0	87°20.7	110°58.2
3	61°21.9	2.5'	24°55.1	9.0'	61.3'	90°01.5	59° 12.7	54° 19.6	53°11.4	65°16.5	86°22.5	87°56.5	111°29.4
4	75°43.4	2.4'	25°04.1	8.8'	61.3'	89°23.3	58° 37.6	53°41.3	52°33.2	65°54.6	86°41.9	88°32.4	112°00.5
5	90°04.8	2.3'	$25^{\circ}12.9$	8.6'	61.3'	88°45.1	58°02.5	53°03.1	51°55.1	66°32.7	87°01.4	89°08.2	112°31.6
6	104°26.1	2.2'	N 25°21.6	8.5'	61.3'	88°06.9	57°27.4	52°24.8	51°17.0	67°10.8	87°20.9	89°44.1	113°02.6
7	118°47.3	2.1'	25°30.0	8.3'	61.3'	87°28.7	56°52.4	51°46.5	50°38.8	67°48.9	87°40.5	90°20.0	113°33.6
8	133°08.4	2.0'	25°38.3	8.1'	61.3'	86° 50.5	56° 17.5	51°08.2	50°00.7	68°27.1	88°00.0	90°55.8	114°04.5
9	147°29.4	1.9'	25°46.4	7.9'	61.3'	86° 12.3	55° 42.5	50°30.0	49°22.5	69°05.2	88°19.6	91°31.7	114°35.3
10	161°50.3	1.8'	25°54.3	7.7'	61.3'	85°34.0	55°07.6	49°51.7	48°44.4	69°43.3	88°39.1	92°07.6	115°06.1
11	176°11.1	1.7'	$26^{\circ}01.9$	7.5'	61.3'	84°55.8	54°32.8	49°13.4	48°06.2	70°21.4	88°58.7	92°43.4	115°36.8
12	190°31.8	1.6'	N26°09.4	7.3'	61.3'	84°17.6	53°58.0	48°35.1	47°28.1	70°59.6	89°18.3	93°19.3	116°07.5
13	204°52.4	1.5'	$26^{\circ}16.7$	7.1'	61.3'	83°39.4	53°23.3	47°56.8	46°50.0	71°37.7	89°37.9	93°55.2	116°38.0
14	219°13.0	1.5'	26°23.7	6.9'	61.3'	83°01.1	52°48.6	47° 18.6	46°11.8	72°15.8	89°57.5	94°31.0	117°08.5
15	233°33.4	1.4'	26°30.6	6.7'	61.3'	82°22.9	52°14.0	46°40.3	45°33.7	72°54.0	90°17.1	95°06.9	117°38.9
16	247°53.8	1.3'	26°37.3	6.5'	61.3'	81°44.7	51°39.5	46°02.0	44°55.5	73°32.1	90°36.6	95°42.7	118°09.3
17	262°14.1	1.2'	26°43.7	6.2'	61.3'	81°06.5	51°05.0	45°23.8	44°17.4	74°10.2	90°56.2	96°18.6	118°39.5
18	276°34.3	1.2'	N26°50.0	6.0'	61.3'	80°28.3	50°30.6	44°45.5	43°39.3	74°48.3	91°15.8	96°54.4	119°09.6
19	290°54.5	1.1'	26°56.0	5.8'	61.3'	79°50.0	49°56.2	44°07.3	43°01.2	75°26.4	91°35.3	97°30.2	119°39.7
20	305°14.6	1.0'	27°01.8	5.6'	61.3'	79°11.8	49°21.9	43°29.1	42°23.1	76°04.5	91°54.9	98°06.0	
21	319°34.6	1.0'	27°07.4	5.4'	61.3'	78°33.6	48°47.7	42°50.8	41°45.0	76°42.6	92°14.4	98°41.8	
22	333°54.6	0.9'	$27^{\circ}12.8$	5.2'	61.3'	77°55.4	48°13.6	42° 12.6	41°06.9	77°20.7	92°33.9	99°17.6	
23	348°14.5	0.8'	$27^{\circ}18.0$	5.0'	61.3'	77° 17.3	47°39.6	41°34.4	40°28.8	77°58.8	92°53.4	99°53.3	
4 th	SD =	= 16.7′	Mer. pass	. 23:49)								

Moon (5th Dec)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Jupiter	-Pollux	+Aldebaran	+Saturn	+Achernar	+Fomalhaut
0	2°34.3	0.8'	N 27°23.0	4.7'	61.3'		76°39.1	40°56.2	39°50.8		78°36.9	93°12.9	100°29.1
1	16°54.1	0.7'	27°27.7	4.5'	61.3'		76°00.9	40°18.1	39°12.7		79°15.0	93°32.4	101°04.8
2	31°13.9	0.7'	27° 32.2	4.3'	61.3'		75°22.8	39°39.9	38°34.7		79°53.0	93°51.8	101°40.5
3	45°33.6	0.7'	27°36.5	4.1'	61.3'		74°44.6	39°01.7	37°56.6		80°31.1	94°11.2	102°16.2
4	59°53.2	0.6'	27°40.6	3.9'	61.3'		74°06.5	38°23.6	37°18.6		81°09.1	94°30.6	102°51.8
5	74°12.9	0.6'	27° 44.5	3.6'	61.3'		73°28.4	37°45.5	36°40.6		81°47.1	94°49.9	103°27.5
6	88°32.5	0.6'	$N27^{\circ}48.1$	3.4'	61.2'		72°50.3	37°07.4	36°02.7		82°25.2	95°09.2	104°03.1
7	102°52.0	0.5'	$27^{\circ}51.5$	3.2'	61.2'		$72^{\circ}12.2$	36°29.3	35°24.7		83°03.2	95°28.5	104°38.7
8	117°11.6	0.5'	27°54.7	3.0'	61.2'		71°34.1	35°51.3	34°46.8		83°41.1	95°47.7	105° 14.2
9	131°31.1	0.5'	27°57.7	2.7'	61.2'		70°56.0	35°13.3	34°08.9		84°19.1	96°06.9	105°49.7
10	145°50.6	0.5'	28°00.4	2.5'	61.2'		$70^{\circ}18.0$	34°35.3	33°31.0		84°57.0	96°26.1	106°25.2
11	160°10.0	0.5'	28°03.0	2.3'	61.2'		69°40.0	33°57.3	32°53.1	14°43.1	85°35.0	96°45.2	107°00.7
12	174°29.5	0.5'	$N28^{\circ}05.3$	2.1'	61.2'		69°02.0	33°19.3	32°15.2	15°10.1	86°12.9	97°04.2	107°36.1
13	188°49.0	0.5'	28°07.3	1.8'	61.2'		68°24.0	32°41.4	31°37.4	15°37.9	86°50.8	97°23.3	108° 11.5
14	203°08.4	0.5'	28°09.2	1.6'	61.1'		67°46.0	32°03.5	30°59.6	16°06.3	87°28.7	97°42.2	108°46.9
15	217°27.9	0.5'	28° 10.8	1.4'	61.1'		$67^{\circ}08.1$	31°25.6	30°21.8	16°35.3	88°06.5	98°01.1	109°22.2
16	231°47.3	0.5'	28° 12.2	1.2'	61.1'		$66^{\circ}30.1$	30°47.8	29°44.1	17°04.9	88°44.3	98°20.0	109°57.5
17	246°06.8	0.5'	28° 13.4	0.9'	61.1'	119°53.3	65°52.2	30°10.0	29°06.4	17°34.9	89°22.2	98°38.8	110°32.7
18	260°26.3	0.5'	N 28°14.3	0.7'	61.1'	119°15.4	65°14.3	29°32.2	28°28.7	18°05.4	89°59.9	98°57.5	111°07.9
19	274°45.7	0.5'	$28^{\circ}15.1$	0.5'	61.1'	118°37.6	64°36.5	28°54.5	27°51.0	18°36.4	90°37.7	99°16.2	111°43.0
20	289°05.3	0.5'	$28^{\circ}15.6$	0.3'	61.0'	117°59.8	63°58.6	$28^{\circ}16.8$	27°13.4	19°07.7	91°15.4	99°34.8	112° 18.2
21	303°24.8	0.6'	$28^{\circ}15.8$	0.0'	61.0'	117°22.0	63°20.8	27°39.1	26°35.8	19°39.4	91°53.2	99°53.3	112°53.2
22	317°44.3	0.6'	$28^{\circ}15.9$	-0.2'	61.0'	116°44.2	62°43.0	27°01.5	25°58.3	20°11.4	92°30.9	100°11.8	113°28.2
23	332°03.9	0.6'	28° 15.7	-0.4'	61.0'	116°06.4	62°05.3	26°23.9	25°20.8	20°43.6	93°08.5	100°30.2	114°03.2
5 th	SD	= 16.	7' Mer. pa	ss:-									

Moon (6th Dec)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Jupiter	-Pollux	+Capella	+Aldebaran	+Saturn	+Fomalhaut
0	346°23.6	0.7'	N 28°15.3	-0.6'	61.0'	115°28.7	61°27.6	25°46.4	24°43.3		21°16.2	93°46.2	114°38.1
1	0°43.2	0.7'	28°14.7	-0.8'	60.9'	114°51.0	60°49.9	25°08.9	24°05.9		21°49.0	94°23.8	115° 12.9
2	15°02.9	0.7'	28°13.8	-1.1'	60.9'	114°13.3	60°12.2	24°31.4	23°28.5		22°22.0	95°01.3	115° 47.7
3	29°22.7	0.8'	28°12.8	-1.3'	60.9'	113°35.7	59°34.5	23°54.0	22°51.1		22°55.2	95°38.9	116°22.5
4	43°42.5	0.9'	$28^{\circ}11.5$	-1.5'	60.9'	112°58.1	58°56.9	23°16.7	22°13.8	20°07.4	23°28.6	96°16.4	116°57.2
5	58°02.3	0.9'	28°10.0	-1.7'	60.8'	112°20.5	58°19.3	22°39.4	21°36.6	20°24.6	24°02.1	96°53.9	117°31.8
6	72°22.2	1.0'	N28°08.3	-1.9'	60.8'	111°42.9	57°41.8	22°02.2	20°59.4	20°42.7	24°35.8	97°31.4	118°06.4
7	86°42.2	1.0'	28°06.3	-2.2'	60.8'	111°05.4	57°04.2	21°25.0	20°22.2	21°01.6	25°09.7	98°08.8	118°40.9
8	101°02.2	1.1'	28°04.2	-2.4'	60.8'	110°27.9	56°26.7	20°47.9	19°45.1	21°21.3	25°43.7	98°46.2	119° 15.3
9	115°22.3	1.2'	28°01.8	-2.6'	60.7'	109°50.5	55°49.3	20°10.8	19°08.1	21°41.7	26°17.8	99°23.6	119°49.7
10	129°42.5	1.2'	27°59.2	-2.8'	60.7'	109°13.0	55°11.8	19°33.9	18°31.1	22°02.8	26°52.0	100°00.9	
11	144°02.7	1.3'	27°56.4	-3.0'	60.7'	108°35.7	54°34.4	18°57.0	17°54.1	22°24.5	27°26.3	100°38.2	
12	158°23.0	1.4'	N27°53.4	-3.2'	60.7'	107°58.3	53°57.1	18°20.1	17°17.3	22°46.9	28°00.7	101°15.4	
13	172°43.4	1.5'	27°50.2	-3.4'	60.6'	107°21.0	53°19.8	17°43.4	16°40.5	23°09.9	28°35.2	101°52.7	
14	187°03.9	1.6'	27°46.7	-3.6'	60.6'	106°43.7	52°42.5	17°06.7	16°03.8	23°33.4	29°09.8	102°29.9	
15	201°24.5	1.7'	27°43.1	-3.8'	60.6'	106°06.4	52°05.2	16°30.2	15°27.2	23°57.5	29°44.4	103°07.0	
16	215°45.1	1.7'	27°39.3	-4.1'	60.6'	105°29.2	51°28.0	15°53.7	14°50.6	24°22.0	30°19.1	103°44.1	
17	230°05.9	1.8'	27°35.2	-4.3'	60.5'	104°52.1	50°50.8	15°17.4	14°14.2	24°47.0	30°53.8	104°21.2	
18	244°26.7	1.9'	N27°30.9	-4.5'	60.5'	104°14.9	50°13.7	14°41.2	13°37.8	25°12.5	31°28.6	104°58.2	
19	258°47.7	2.0'	27°26.5	-4.7'	60.5'	103°37.8	49°36.6	14°05.1	13°01.6	25°38.4	32°03.4	105°35.3	
20	273°08.7	2.1'	27°21.8	-4.9'	60.4'	103°00.7	48°59.5	13°29.1	12°25.5	26°04.6	32°38.3	106°12.2	
21	287°29.8	2.2'	$27^{\circ}17.0$	-5.1'	60.4'	102°23.7	48°22.5	12°53.4	11°49.5	26°31.3	33°13.2	106°49.1	
22	301°51.1	2.4'	$27^{\circ}11.9$	-5.2'	60.4'	101°46.7	47°45.5	12°17.7	11°13.7	26°58.3	33°48.2	107°26.0	
23	316°12.4	2.5'	27°06.7	-5.4'	60.3'	101°09.8	47°08.5	11°42.3	10°38.0	27°25.6	34°23.1	108°02.9	
6 th	SD	= 16.6'	Mer. pas	s. 00:57				-					

h		Моо	n (7 th De	c)			Lunar Distance (objects with largest hourly LD delta)							
Sun	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Jupiter	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn	
0	330°33.9	2.6'	$N27^{\circ}01.2$	-5.6'	60.3'	100°32.9	46°31.6	11°07.2	10°02.6	24°58.6	27°53.2	34°58.1	108°39.7	
1	344°55.5	2.7'	26°55.6	-5.8'	60.3'	99°56.0	45°54.8	10°32.2	9°27.4	25° 18.8	28°21.2	35°33.1	109°16.4	
2	359°17.2	2.8'	26°49.8	-6.0'	60.3'	99°19.2	45°17.9	9°57.6	8°52.4	25°39.5	28°49.4	36°08.1	109°53.1	
3	13°39.0	2.9'	26°43.8	-6.2'	60.2'	98°42.4	44°41.2	9°23.3	8° 17.7	26°00.7	29°17.9	36°43.1	110°29.8	
4	28°00.9	3.1'	26°37.6	-6.4'	60.2'	98°05.7	44°04.4	8°49.5	7°43.4	26°22.5	29°46.6	37° 18.2	111°06.4	
5	42°23.0	3.2'	26°31.2	-6.6'	60.2'	97°29.0	43°27.7	8°16.0	7°09.5	26° 44.7	30°15.5	37°53.2	111°43.0	
6	56°45.1	3.3'	N 26°24.6	-6.7'	60.1'	96°52.4	42°51.1	7°43.2	6°36.2	27°07.4	30°44.7	38°28.2	112°19.6	
7	71°07.4	3.4'	$26^{\circ}17.9$	-6.9'	60.1'	96°15.8	42°14.5	7°11.0	6°03.5	27°30.6	31°14.0	39°03.3	112°56.1	
8	85°29.9	3.6'	$26^{\circ}11.0$	-7.1'	60.1'	95°39.2	41°37.9	6°39.7	5°31.7	27°54.1	31°43.6	39°38.3	113°32.5	
9	99°52.4	3.7'	26°03.9	-7.3'	60.0'	95°02.7	41°01.4			28° 18.1	32°13.3	40° 13.4	114°08.9	
10	114°15.1	3.8'	25°56.6	-7.4'	60.0'	94°26.2	40°24.9			28° 42.4	32°43.2	40°48.4	114°45.3	
11	128°37.9	4.0'	$25^{\circ}49.1$	-7.6'	59.9'	93°49.8	39°48.5			29°07.1	33°13.3	41°23.4	115°21.6	
12	143°00.9	4.1'	N 25°41.5	-7.8'	59.9'	93°13.4	39°12.1			29°32.1	33°43.5	41°58.4	115°57.9	
13	157°24.0	4.2'	25°33.8	-7.9'	59.9'	92°37.0	38°35.7			29° 57.4	34°13.8	42° 33.4	116°34.1	
14	171°47.2	4.4'	25°25.8	-8.1'	59.8'	92°00.8	37°59.4			30°23.1	34°44.3	43°08.4	117°10.3	
15	186°10.6	4.5'	25°17.7	-8.3'	59.8'	91°24.5	37°23.2			30°49.0	35°14.9	43°43.4	117°46.4	
16	200°34.0	4.6'	25°09.4	-8.4'	59.8'	90°48.3	36°47.0			31° 15.2	35°45.6	44°18.3	118°22.5	
17	214°57.7	4.8'	$25^{\circ}01.0$	-8.6'	59.7'	90°12.2	36°10.8			31°41.7	36°16.4	44°53.2	118°58.6	
18	229°21.5	4.9'	N 24°52.4	-8.7'	59.7'	89°36.1	35°34.7			32°08.4	36°47.3	45°28.1	119°34.5	
19	243°45.4	5.1'	24°43.7	-8.9'	59.7'	89°00.0	34°58.7			32° 35.3	37°18.3	46°03.0		
20	258°09.4	5.2'	24°34.8	-9.0'	59.6'	88°24.0	34°22.7			33°02.5	37°49.4	46°37.9		
21	272°33.6	5.3'	24°25.7	-9.2'	59.6'	87°48.0	33°46.7			33°29.9	38°20.6	47° 12.7		
22	286°58.0	5.5'	24°16.6	-9.3'	59.5'	87°12.1	33°10.8			33° 57.5	38°51.9	47° 47.5		
23	301°22.5	5.6'	24°07.2	-9.5'	59.5'	86°36.3	32°34.9			34°25.2	39°23.2	48°22.3		
7 th	SD	= 16.4'	Mer. pas	s. 02:03	3		-				-	-		

h Moon	(8 th Dec)
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Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Rigil Kent.	-Spica	-Arcturus	-Regulus	+Pollux	+Jupiter	+Capella	+Aldebaran
0	315°47.1	5.8'	N23°57.7	-9.6'	59.5'	115° 10.3	86°00.4	84°58.8	31°59.1			39°54.6	48°57.1
1	330°11.9	5.9'	23°48.1	-9.8'	59.4'	114°43.9	85°24.7	84°29.1	31°23.4	6° 12.2		40°26.0	49°31.8
2	344°36.8	6.1'	23°38.4	-9.9'	59.4'	114° 17.4	84°49.0	83°59.6	30°47.6	6°44.2		40°57.5	50°06.5
3	359°01.9	6.2'	23°28.5	-10.0'	59.4'	113° 50.9	84°13.3	83°30.1	30°12.0	7°16.8		41°29.1	50°41.2
4	13°27.1	6.4'	23°18.4	-10.2'	59.3'	113°24.4	83°37.7	83°00.6	29°36.4	7°49.8	7° 25.9	42°00.7	51° 15.8
5	27°52.5	6.5'	23°08.3	-10.3'	59.3'	112° 57.9	83°02.1	82°31.2	29°00.8	8°23.0	7° 57.5	42°32.3	51°50.4
6	42°18.0	6.7'	N22°58.0	-10.4'	59.2'	112°31.3	82°26.6	82°01.9	28°25.3	8°56.6	8° 29.6	43°04.0	52°25.0
7	56°43.6	6.8'	22°47.6	-10.5'	59.2'	112°04.7	81°51.1	81°32.6	27°49.8	9°30.3	9°02.0	43°35.7	52°59.5
8	71°09.5	6.9'	22°37.0	-10.7'	59.2'	111°38.0	81°15.7	81°03.3	27°14.4	10°04.2	9°34.9	44°07.5	53°34.0
9	85°35.4	7.1'	22°26.4	-10.8'	59.1'	111° 11.4	80°40.3	80°34.2	26°39.0	10°38.1	10°07.9	44°39.2	54°08.5
10	100°01.5	7.2'	$22^{\circ}15.6$	-10.9'	59.1'	110°44.7	80°05.0	80°05.1	26°03.7	11° 12.2	10°41.2	45°11.0	54° 42.9
11	114°27.7	7.4'	22°04.7	-11.0'	59.0'	110° 18.0	79°29.8	79°36.0	25°28.5	11°46.4	11° 14.7	45°42.9	55° 17.3
12	128°54.1	7.5'	N21°53.6	-11.1'	59.0'	109°51.2	78°54.5	79°07.0	24°53.3	12°20.6	11°48.3	46°14.7	55°51.7
13	143°20.7	7.7'	21°42.5	-11.3'	59.0'	109°24.5	78°19.4	78°38.1	24°18.1	12°54.8	12°22.1	46°46.6	56°26.0
14	157°47.3	7.8'	21°31.2	-11.4'	58.9'	108° 57.7	77°44.3	78°09.3	23°43.0	13°29.1	12°55.9	47°18.4	57°00.3
15	172°14.2	8.0'	$21^{\circ}19.9$	-11.5'	58.9'	108° 30.9	77°09.2	77°40.5	23°07.9	14°03.4	13° 29.8	47°50.3	57° 34.5
16	186°41.1	8.1'	21°08.4	-11.6'	58.8'	108°04.2	76°34.2	77°11.8	22°32.9	14°37.7	14°03.8	48°22.2	58°08.7
17	201°08.2	8.3'	20°56.8	-11.7'	58.8'	107°37.4	75°59.2	76°43.1	21°58.0	15° 12.0	14°37.8	48°54.1	58°42.9
18	215°35.5	8.4'	N20°45.1	-11.8'	58.8'	107° 10.6	75°24.3	76°14.5	21°23.1	15°46.3	15° 11.9	49°26.0	59°17.0
19	230°02.9	8.5'	20°33.3	-11.9'	58.7'	106°43.8	74°49.5	75°46.0	20°48.2	16°20.6	15°46.0	49°57.9	59°51.1
20	244°30.4	8.7'	20°21.5	-12.0'	58.7'	106° 16.9	74°14.6	75°17.6	20°13.4	16°54.9	16°20.1	50°29.8	60°25.1
21	258°58.1	8.8'	20°09.5	-12.1'	58.6'	105°50.1	73°39.9	74°49.2	19°38.7	17°29.2	16°54.2	51°01.8	60°59.1
22	273°25.9	9.0'	19°57.4	-12.2'	58.6'	105°23.3	73°05.2	74°20.9	19°04.0	18°03.4	17°28.3	51°33.7	61°33.1
23	287°53.9	9.1'	19°45.2	-12.3'	58.5'	104°56.5	72°30.5	73°52.7	18°29.3	18° 37.6	18°02.5	52°05.6	62°07.0
8 th	SD	= 16.2	2' Mer. pas	ss. 03:04									

h	Moon (9 th Dec)	Lunar D

h		Моо	n (9 th De	c)		Lunar Distance (objects with largest hourly LD delta)								
Tue	GHA	ν	Dec	d	HP	-Sun	-Arcturus	-Spica	-Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran	
0	302°22.0	9.2'	N 19°33.0	-12.4'	58.5'		73°24.6	71°55.9	17°54.8	18°36.6	19°11.8	52°37.5	62°40.9	
1	316°50.2	9.4'	19°20.6	-12.4'	58.5'		72°56.5	71°21.4	17°20.2	19°10.7	19°46.0	53°09.4	63°14.7	
2	331°18.6	9.5'	19°08.2	-12.5'	58.4'		72°28.5	70°46.9	16°45.7	19°44.8	20°20.2	53°41.2	63°48.5	
3	345°47.1	9.6'	18° 55.6	-12.6'	58.4'		72°00.6	70°12.4	16°11.3	20°18.9	20°54.3	54°13.1	64°22.3	
4	0°15.7	9.8'	18°43.0	-12.7'	58.3'		71°32.8	69°38.0	15°36.9	20°52.9	21°28.3	54°45.0	64°56.0	
5	14°44.5	9.9'	18°30.3	-12.8'	58.3'		71°05.1	69°03.7	15°02.6	21°27.0	22°02.4	55° 16.8	65°29.6	
6	29°13.4	10.0'	$N18^{\circ}17.5$	-12.9'	58.3'		70°37.4	68°29.4	14°28.3	22°01.0	22°36.4	55°48.6	66°03.2	
7	43°42.5	10.2'	18°04.7	-12.9'	58.2'		70°09.8	67°55.1	13°54.1	22°35.0	23°10.4	56°20.5	66°36.8	
8	58°11.6	10.3'	17°51.8	-13.0'	58.2'		69°42.3	67° 20.9	13°20.0	23°09.0	23°44.3	56° 52.3	67°10.3	
9	72°40.9	10.4'	17°38.7	-13.1'	58.1'	119°58.3	69°14.9	66°46.8	12°45.8	23°42.9	24°18.2	57°24.1	67°43.8	
10	87°10.4	10.6'	17°25.7	-13.1'	58.1'	119°26.9	68°47.6	66° 12.7	12°11.8	24°16.8	24°52.1	57°55.8	68°17.3	
11	101°39.9	10.7'	$17^{\circ}12.5$	-13.2'	58.1'	118°55.5	68°20.3	65°38.7	11°37.8	24°50.7	25°25.9	58°27.6	68°50.7	
12	116°09.6	10.8'	N 16°59.3	-13.3'	58.0'	118°24.2	67°53.2	65°04.7	11°03.8	25°24.5	25°59.7	58°59.3	69°24.0	
13	130°39.4	10.9'	16°46.0	-13.4'	58.0'	117°53.0	67°26.1	64°30.7	10°30.0	25°58.3	26°33.4	59°31.0	69°57.3	
14	145°09.4	11.1'	16°32.7	-13.4'	57.9'	117°21.8	66°59.2	63°56.8	9°56.1	26°32.1	27°07.1	60°02.7	70°30.6	
15	159°39.4	11.2'	$16^{\circ}19.2$	-13.5'	57.9'	116°50.7	66°32.3	63°23.0	9°22.4	27°05.8	27°40.7	60°34.3	71°03.8	
16	174°09.6	11.3'	$16^{\circ}05.8$	-13.5'	57.8'	116°19.6	66°05.5	62°49.2	8°48.7	27°39.5	28°14.3	61°06.0	71°37.0	
17	188°39.9	11.4'	15°52.2	-13.6'	57.8'	115°48.5	65°38.8	62°15.5	8°15.0	28°13.2	28°47.9	61°37.6	72°10.1	
18	203°10.3	11.5'	N 15°38.6	-13.7'	57.8'	115°17.5	65°12.3	61°41.8	7°41.4	28°46.8	29°21.4	62°09.2	72°43.2	
19	217°40.9	11.7'	15°25.0	-13.7'	57.7'	114°46.5	64°45.8	61°08.1	7°07.9	29°20.4	29°54.9	62°40.8	73°16.2	
20	232°11.5	11.8'	$15^{\circ}11.3$	-13.8'	57.7'	114°15.6	64°19.4	60°34.6	6°34.5	29°53.9	30°28.4	63°12.3	73°49.2	
21	246°42.3	11.9'	14°57.5	-13.8'	57.6'	113°44.8	63°53.1	60°01.0	6°01.1	30°27.5	31°01.8	63°43.8	74°22.1	
22	261°13.2	12.0'	14°43.7	-13.9'	57.6'	113°14.0	63°26.9	59°27.5	5°27.8	31°00.9	31°35.1	64°15.3	74°55.0	
23	275°44.2	12.1'	14°29.8	-13.9'	57.6'	112°43.2	63°00.8	58°54.1	4°54.6	31°34.3	32°08.4	64°46.7	75°27.9	
9 th	SD	= 16.0'	Mer. pas	s. 03:59					Sun S	D = 16.2'				

h M.	oon (10 th Dec)	Lunar Distance (objects with	largest hourly	I D 401+2)

Wed	GHA	ν	Dec	d	HP	-Sun	-Antares	-Spica	±Regulus	+Jupiter	+Pollux	+Capella	+Aldebaran
0	290°15.3	12.2'	N 14°15.9	-14.0'	57.5'	112° 12.5		58°20.7	4°21.6	32°07.7	32°41.7	65°18.2	76°00.7
1	304°46.6	12.3'	$14^{\circ}01.9$	-14.0'	57.5'	111°41.8		57°47.3	3°48.6	32°41.1	33°14.9	65°49.6	76°33.5
2	319°17.9	12.4'	13°47.9	-14.1'	57.4'	111°11.2		57°14.0	3°15.9	33°14.4	33°48.1	66°20.9	77°06.2
3	333°49.3	12.5'	13°33.9	-14.1'	57.4'	110°40.6		56°40.8	2°43.5	33°47.6	34°21.2	66°52.3	77°38.9
4	348°20.9	12.7'	13°19.8	-14.1'	57.4'	110°10.1		56°07.6	2°11.5	34°20.9	34°54.3	67°23.6	78°11.5
5	2°52.5	12.8'	13°05.6	-14.2'	57.3'	109°39.6		55°34.4	1°40.3	34°54.1	35°27.3	67°54.9	78°44.1
6	17°24.3	12.9'	$N12^{\circ}51.4$	-14.2'	57.3'	109°09.2		55°01.3		35°27.2	36°00.3	68°26.1	79°16.6
7	31°56.1	13.0'	12°37.2	-14.3'	57.2'	108°38.8		54°28.3		36°00.3	36°33.3	68°57.3	79°49.1
8	46°28.1	13.1'	12°22.9	-14.3'	57.2'	108°08.4		53°55.3		36°33.4	37°06.2	69°28.5	80°21.6
9	61°00.1	13.2'	12°08.6	-14.3'	57.2'	107°38.1		53°22.3		37°06.4	37°39.0	69°59.7	80°54.0
10	75°32.3	13.2'	11°54.3	-14.4'	57.1'	107°07.9		52°49.4		37°39.3	38°11.9	70°30.8	81°26.4
11	90°04.5	13.3'	11°39.9	-14.4'	57.1'	106°37.7		52°16.5		38°12.3	38°44.6	71°01.9	81°58.7
12	104°36.9	13.4'	N 11°25.5	-14.4'	57.1'	106°07.5		51°43.7		38°45.2	39°17.4	71°33.0	82°31.0
13	119°09.3	13.5'	$11^{\circ}11.1$	-14.5'	57.0'	105°37.4		51°10.9	2°55.8	39°18.0	39°50.1	72°04.0	83°03.2
14	133°41.8	13.6'	$10^{\circ}56.7$	-14.5'	57.0'	105°07.3		50°38.2	3°27.9	39°50.8	40°22.7	72°35.0	83°35.4
15	148°14.5	13.7'	10°42.2	-14.5'	56.9'	104°37.3		50°05.5	4°00.1	40°23.6	40°55.3	73°06.0	84°07.5
16	162°47.2	13.8'	10°27.7	-14.5'	56.9'	104°07.3		49°32.9	4°32.3	40°56.3	41°27.9	73°36.9	84°39.6
17	177°20.0	13.9'	10°13.1	-14.6'	56.9'	103°37.4		49°00.3	5°04.6	41°29.0	42°00.4	74°07.8	85°11.7
18	191°52.8	14.0'	N 09°58.5	-14.6'	56.8'	103°07.5		48°27.7	5°36.9	42°01.7	42°32.9	74°38.7	85°43.7
19	206°25.8	14.0'	09°44.0	-14.6'	56.8'	102°37.6		47°55.2	6°09.2	42°34.3	43°05.3	75°09.5	86°15.7
20	220°58.9	14.1'	09°29.3	-14.6'	56.7'	102°07.8		47°22.7	6°41.6	43°06.8	43°37.7	75°40.3	86°47.6
21	235°32.0	14.2'	09°14.7	-14.7'	56.7'	101°38.1	92°43.6	46°50.3	7°13.8	43°39.3	44°10.0	76°11.0	87°19.5
22	250°05.2	14.3'	09°00.1	-14.7'	56.7'	101°08.3	92°11.2	46°17.9	7°46.1	44°11.8	44°42.3	76°41.8	87°51.3
23	264°38.5	14.4'	08°45.4	-14.7'	56.6'	100°38.7	91°38.9	45°45.6	8°18.3	44°44.3	45°14.6	77°12.5	88°23.1
10 th	SD	= 15.7	Mer. pas	s. 04:48					Sun SI	D = 16.2'			

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	Moon (11 th Dec)	Lunar Distance (objects with largest hourly LD delta)
h	Moon (III'' Dec)	Lunar Distance (chiects with largest hourly LL) deltal

Thu	GHA	ν	Dec	d	HP	-Sun	-Antares	-Rigil Kent.	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran
0	279°11.9	14.4'	N 08°30.7	-14.7'	56.6'	100°09.0	91°06.6	83°27.5	45°13.3	8°50.5	45°16.7	45°46.8	88°54.9
1	293°45.3	14.5'	$08^{\circ}16.0$	-14.7'	56.6'	99°39.4	90°34.3	83°02.1	44°41.1	9°22.7	45°49.0	46°19.0	89°26.6
2	308°18.8	14.6'	08°01.3	-14.7'	56.5'	99°09.9	90°02.1	82°36.7	44°08.9	9°54.9	46°21.4	46°51.2	89° 58.3
3	322°52.4	14.7'	07°46.5	-14.7'	56.5'	98°40.4	89°30.0	82°11.4	43°36.7	10°27.0	46°53.6	47°23.3	90°29.9
4	337°26.1	14.7'	07°31.8	-14.8'	56.5'	98°10.9	88°57.8	81°46.1	43°04.6	10°59.0	47° 25.9	47°55.3	91°01.5
5	351°59.8	14.8'	$07^{\circ}17.0$	-14.8'	56.4'	97°41.5	88°25.7	81°20.9	42°32.5	11°31.1	47°58.1	48°27.3	91°33.1
6	6°33.6	14.9'	N07°02.3	-14.8'	56.4'	97°12.1	87°53.7	80°55.7	42°00.5	12°03.1	48°30.2	48°59.3	92°04.6
7	21°07.4	14.9'	06°47.5	-14.8'	56.3'	96°42.8	87°21.7	80°30.6	41°28.5	12°35.0	49°02.4	49°31.3	92°36.1
8	35°41.4	15.0'	06°32.7	-14.8'	56.3'	96°13.5	86°49.7	80°05.5	40°56.6	13°07.0	49°34.5	50°03.2	93°07.5
9	50°15.4	15.1'	06°17.9	-14.8'	56.3'	95°44.2	86°17.8	79°40.5	40°24.7	13°38.9	50°06.5	50°35.0	93°38.9
10	64°49.4	15.1'	$06^{\circ}03.1$	-14.8'	56.2'	95°15.0	85°45.9	79°15.5	39°52.8	14°10.7	50°38.5	51°06.8	94°10.3
11	79°23.5	15.2'	05°48.3	-14.8'	56.2'	94°45.8	85°14.0	78°50.6	39°21.0	14°42.5	51°10.5	51°38.6	94°41.6
12	93°57.7	15.2'	N05°33.4	-14.8'	56.2'	94°16.6	84°42.2	78°25.7	38°49.2	15°14.3	51°42.4	52°10.4	95° 12.8
13	108°32.0	15.3'	05°18.6	-14.8'	56.1'	93°47.5	84°10.5	78°00.9	38°17.4	15°46.0	52° 14.3	52°42.1	95°44.1
14	123°06.2	15.3'	05°03.8	-14.8'	56.1'	93°18.5	83°38.7	77°36.1	37°45.7	16°17.7	52°46.2	53°13.8	96° 15.3
15	137°40.6	15.4'	04°49.0	-14.8'	56.1'	92°49.4	83°07.0	$77^{\circ}11.4$	37°14.0	16°49.4	53° 18.0	53°45.4	96°46.4
16	152°15.0	15.5'	04°34.1	-14.8'	56.0'	92°20.4	82°35.4	76°46.8	36°42.4	17°21.0	53°49.8	54°17.0	97° 17.5
17	166°49.5	15.5'	04°19.3	-14.8'	56.0'	91°51.5	82°03.8	76°22.2	36°10.8	17°52.6	54°21.6	54°48.5	97°48.6
18	181°24.0	15.6'	N 04°04.5	-14.8'	56.0'	91°22.6	81°32.2	75°57.7	35°39.2	18°24.2	54°53.3	55°20.1	98° 19.7
19	195°58.5	15.6'	03°49.7	-14.8'	55.9'	90°53.7	81°00.6	75°33.2	35°07.7	18°55.7	55° 25.0	55°51.6	98° 50.7
20	210°33.1	15.7'	03°34.8	-14.8'	55.9'	90°24.8	80°29.1	75°08.8	34°36.2	19°27.2	55° 56.6	56°23.0	99°21.6
21	225°07.8	15.7'	03°20.0	-14.8'	55.9'	89°56.0	79°57.7	74°44.4	34°04.8	19°58.7	56°28.2	56°54.4	99° 52.6
22	239°42.5	15.7'	03°05.2	-14.8'	55.8'	89°27.2	79°26.2	74°20.1	33°33.4	20°30.1	56° 59.8	57°25.8	100°23.5
23	254°17.2	15.8'	02°50.4	-14.8'	55.8'	88°58.5	78°54.8	73°55.9	33°02.0	21°01.5	57°31.4	57°57.1	100°54.3
11 th	SD	= 15.4'	Mer. pas	s. 05:33					Sun SD	0 = 16.2'			

 $\mathsf{Sun}\;\mathsf{SD} = \overline{16.2'}$

Moon (12th Dec)

SD = 15.2′ Mer. pass. 06:15

23 12th

h		Моог	n (12 th De	ec)			Lunar	Distance (objects v	ith larges	t hourly L	D delta	
Fri	GHA	ν	Dec	d	HP	-Sun	-Antares	-Rigil Kent.	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran
0	268°52.0	15.8'	N 02°35.6	-14.8'	55.8'	88°29.8	78°23.5	73°31.7	32°30.7	21°32.8	58°02.9	58°28.5	101°25.1
1	283°26.8	15.9'	02°20.8	-14.8'	55.8'	88°01.1	77°52.2	73°07.6	31°59.4	22°04.1	58°34.4	58°59.7	101°55.9
2	298°01.7	15.9'	02°06.0	-14.8'	55.7'	87°32.5	77°20.9	72°43.5	31°28.1	22°35.4	59°05.8	59°31.0	102°26.7
3	312°36.6	15.9'	$01^{\circ}51.2$	-14.8'	55.7'	87°03.9	76°49.6	72° 19.5	30°56.9	23°06.6	59°37.2	60°02.2	102°57.4
4	327°11.5	16.0'	01°36.4	-14.8'	55.7'	86°35.3	76°18.4	71°55.6	30°25.7	23°37.9	60°08.6	60°33.4	103°28.0
5	341°46.5	16.0'	$01^{\circ}21.6$	-14.8'	55.6'	86°06.8	75°47.2	71°31.7	29°54.5	24°09.0	60°39.9	61°04.5	103°58.7
6	356°21.5	16.0'	N 01°06.9	-14.7'	55.6'	85°38.3	75°16.0	71°07.9	29°23.4	24°40.2	61°11.3	61°35.6	104°29.3
7	10°56.6	16.1'	$00^{\circ}52.1$	-14.7'	55.6'	85°09.8	74°44.9	70°44.2	28°52.3	25°11.3	61°42.5	62°06.7	104°59.8
8	25°31.7	16.1'	00°37.4	-14.7'	55.5'	84°41.4	74°13.8	70°20.5	28°21.2	25°42.4	62°13.8	62°37.7	105°30.4
9	40°06.8	16.1'	00°22.7	-14.7'	55.5'	84°13.0	73°42.7	69° 56.9	27°50.2	26° 13.4	62°45.0	63°08.7	106°00.9
10	54°41.9	16.2'	N 00°08.0	-14.7'	55.5'	83°44.6	73°11.7	69°33.4	27°19.2	26°44.4	63°16.2	63°39.7	106°31.3
11	69°17.1	16.2'	S 00°06.7	-14.7'	55.5'	83°16.3	72°40.7	69°09.9	26°48.2	27° 15.4	63°47.4	64°10.7	107°01.8
12	83°52.3	16.2'	S 00°21.4	-14.7'	55.4'	82°48.0	72°09.8	68°46.5	26°17.3	27°46.4	64°18.5	64°41.6	107°32.2
13	98°27.5	16.2'	00°36.1	-14.6'	55.4'	82° 19.7	71°38.8	68° 23.2	25°46.4	28° 17.3	64°49.6	65°12.5	108°02.5
14	113°02.8	16.3'	00°50.7	-14.6'	55.4'	81°51.5	71°07.9	67° 59.9	25°15.6	28° 48.2	65°20.7	65°43.3	108°32.9
15	127°38.0	16.3'	$01^{\circ}05.3$	-14.6'	55.3'	81°23.3	70°37.0	67° 36.7	24°44.7	29° 19.1	65°51.7	66°14.2	109°03.2
16	142°13.3	16.3'	$01^{\circ}19.9$	-14.6'	55.3'	80°55.1	70°06.2	67° 13.6	24°13.9	29°49.9	66°22.7	66°45.0	109°33.4
17	156°48.6	16.3'	01°34.5	-14.6'	55.3'	80°26.9	69°35.4	66° 50.6	23°43.1	30°20.7	66°53.7	67°15.7	110°03.7
18	171°24.0	16.3'	S 01°49.1	-14.5'	55.3'	79°58.8	69°04.6	66°27.6	23°12.4	30°51.5	67°24.6	67°46.5	110°33.9
19	185°59.3	16.4'	02°03.7	-14.5'	55.2'	79°30.7	68°33.8	66°04.7	22°41.7	31°22.3	67°55.6	68°17.2	111°04.0
20	200°34.7	16.4'	$02^{\circ}18.2$	-14.5'	55.2'	79°02.6	68°03.1	65°41.9	22°11.0	31°53.0	68°26.5	68°47.9	111°34.2
21	215°10.1	16.4'	02°32.7	-14.5'	55.2'	78°34.6	67°32.4	65° 19.2	21°40.4	32°23.7	68°57.3	69°18.5	112°04.3
22	229°45.5	16.4'	02°47.2	-14.5'	55.2'	78°06.6	67°01.7	64° 56.5	21°09.8	32°54.3	69°28.2	69°49.2	112°34.3
23	244°20.9	16.4'	03°01.6	-14.4'	55.1'	77°38.6	66°31.1	64°33.9	20°39.2	33°25.0	69°59.0	70°19.8	113°04.4

h		Moor	n (13 th De	ec)			Lunar	Distance (d	objects w	vith larges	t hourly l	_D delta))
Sat	GHA	ν	Dec	d	HP	-Sun	-Antares	-Rigil Kent.	-Spica	+Regulus	+Jupiter	+Pollux	+Aldebaran
0	258°56.3	16.4'	S 03°16.1	-14.4'	55.1'	77° 10.6	66°00.5	64°11.4	20°08.6	33°55.6	70°29.8	70°50.3	113°34.4
1	273°31.7	16.4'	03°30.5	-14.4'	55.1'	76°42.7	65°29.9	63°49.0	19°38.1	34°26.2	71°00.6	71°20.9	114°04.4
2	288°07.2	16.4'	03°44.9	-14.4'	55.1'	76°14.8	64°59.3	63°26.7	19°07.6	34° 56.7	71°31.3	71°51.4	114°34.3
3	302°42.6	16.5'	03°59.2	-14.3'	55.0'	75°46.9	64°28.8	63°04.4	18°37.1	35°27.3	72°02.0	72°21.9	115°04.3
4	317°18.1	16.5'	04°13.6	-14.3'	55.0'	75°19.1	63°58.3	62°42.2	18°06.7	35°57.8	72°32.7	72°52.4	115°34.1
5	331°53.5	16.5'	04°27.9	-14.3'	55.0'	74°51.2	63°27.8	62°20.1	17°36.3	36°28.3	73°03.4	73°22.8	116°04.0
6	346°29.0	16.5'	S 04°42.1	-14.2'	55.0'	74°23.4	62°57.3	61°58.1	17°05.9	36°58.7	73°34.0	73°53.3	116°33.8
7	1°04.5	16.5'	04°56.4	-14.2'	54.9'	73°55.7	62°26.9	61°36.2	16°35.5	37°29.2	74°04.6	74°23.7	117°03.6
8	15°39.9	16.5'	$05^{\circ}10.6$	-14.2'	54.9'	73°27.9	61°56.5	61°14.4	16°05.2	37°59.6	74°35.2	74°54.0	117°33.4
9	30°15.4	16.5'	05°24.8	-14.2'	54.9'	73°00.2	61°26.1	60°52.6	15°34.9	38° 30.0	75°05.8	75°24.4	118°03.1
10	44°50.9	16.5'	$05^{\circ}39.0$	-14.1'	54.9'	72°32.5	60°55.7	60°31.0	15°04.6	39°00.3	75°36.4	75°54.7	118°32.9
11	59°26.3	16.5'	$05^{\circ}53.1$	-14.1'	54.8'	72°04.8	60°25.4	60°09.4	14°34.4	39°30.7	76°06.9	76°25.0	119°02.5
12	74°01.8	16.5'	S 06°07.2	-14.1'	54.8'	71°37.1	59°55.0	59°47.9	14°04.2	40°01.0	76°37.4	76°55.3	119°32.2
13	88°37.3	16.5'	$06^{\circ}21.2$	-14.0'	54.8'	71°09.5	59°24.7	59°26.6	13°34.0	40°31.3	77° 07.9	77°25.6	
14	103°12.7	16.5'	06°35.3	-14.0'	54.8'	70°41.9	58°54.5	59°05.3	13°03.9	41°01.6	77°38.3	77°55.8	
15	117°48.2	16.4'	06°49.3	-14.0'	54.8'	70°14.3	58°24.2	58°44.1	12°33.8	41°31.8	78°08.8	78°26.0	
16	132°23.6	16.4'	$07^{\circ}03.2$	-13.9'	54.7'	69°46.7	57°54.0	58°23.0	12°03.7	42°02.0	78°39.2	78°56.2	
17	146°59.1	16.4'	$07^{\circ}17.1$	-13.9'	54.7'	69°19.2	57°23.7	58°02.0	11°33.7	42°32.2	79°09.6	79°26.4	
18	161°34.5	16.4'	S 07°31.0	-13.8'	54.7'	68°51.7	56°53.6	57°41.1	11°03.7	43°02.4	79°40.0	79°56.6	
19	176°09.9	16.4'	07°44.9	-13.8'	54.7'	68°24.2	56°23.4	57°20.4	10°33.7	43°32.6	80°10.3	80°26.7	
20	190°45.3	16.4'	07°58.7	-13.8'	54.7'	67°56.7	55°53.2	56°59.7	10°03.8	44°02.8	80°40.7	80°56.8	
21	205°20.7	16.4'	$08^{\circ}12.5$	-13.7'	54.6'	67°29.2	55°23.1	56°39.1	9°33.9	44°32.9	81°11.0	81°26.9	
22	219°56.1	16.4'	08°26.2	-13.7'	54.6'	67°01.8	54°53.0	56°18.6	9°04.0	45°03.0	81°41.3	81°57.0	
23	234°31.4	16.3'	$08^{\circ}39.9$	-13.7'	54.6'	.6' 66°34.3 54°22.9 55°58.3 8°34.3 45°33.1 82°11.6 82°27.1							
13 th	SD	= 15.0'	Mer. pas	s. 06:56		$Sun\;SD=16.2'$							

h		Moor	n (14 th De	ec)			Lunar Dis	tance (ol	ojects w	th largest	hourly L	D delta)	
Sun	GHA	ν	Dec	d	HP	-Sun	-Rigil Kent.	-Antares	±Spica	+Regulus	+Jupiter	+Pollux	+Capella
0	249°06.8	16.3'	S 08°53.5	-13.6'	54.6'	66°06.9	55°38.0	53°52.8	8°04.5	46°03.2	82°41.8	82°57.1	113°04.2
1	263°42.1	16.3'	$09^{\circ}07.2$	-13.6'	54.6'	65°39.6	55°17.9	53°22.8	7°34.9	46°33.2	83°12.1	83°27.1	113°32.5
2	278°17.4	16.3'	09°20.7	-13.5'	54.5'	65°12.2	54°57.8	52°52.7	7°05.3	47°03.3	83°42.3	83°57.1	114°00.8
3	292°52.7	16.3'	09°34.3	-13.5'	54.5'	64°44.8	54°37.9	52°22.7	6°35.8	47°33.3	84°12.5	84°27.1	114°29.1
4	307°28.0	16.2'	09°47.7	-13.4'	54.5'	64°17.5	54°18.1	51°52.7	6°06.3	48°03.3	84°42.7	84°57.1	114°57.3
5	322°03.2	16.2'	$10^{\circ}01.2$	-13.4'	54.5'	63°50.2	53°58.4	51°22.7	5°37.1	48°33.3	85°12.9	85°27.0	115°25.5
6	336°38.5	16.2'	S 10°14.6	-13.4'	54.5'	63°22.9	53°38.9	50°52.7	5°07.9	49°03.2	85°43.1	85°57.0	115°53.7
7	351°13.7	16.2'	10°27.9	-13.3'	54.5'	62°55.6	53°19.4	50°22.8	4°39.0	49°33.2	86°13.2	86°26.9	116°21.8
8	5°48.8	16.2'	10°41.2	-13.3'	54.4'	62°28.4	53°00.1	49°52.8	4°10.3	50°03.1	86°43.3	86°56.8	116°50.0
9	20°24.0	16.1'	10°54.5	-13.2'	54.4'	62°01.1	52°40.9	49°22.9	3°41.9	50°33.0	87° 13.5	87°26.7	117° 18.0
10	34°59.1	16.1'	$11^{\circ}07.7$	-13.2'	54.4'	61°33.9	52°21.9	48°53.0	3°14.1	51°03.0	87°43.6	87°56.5	117°46.1
11	49°34.2	16.1'	11°20.9	-13.1'	54.4'	61°06.7	52°02.9	48°23.1	2°46.9	51°32.8	88°13.6	88°26.4	118°14.1
12	64°09.3	16.0'	S 11°34.0	-13.1'	54.4'	60°39.5	51°44.1	47°53.2		52°02.7	88°43.7	88°56.2	118°42.1
13	78°44.3	16.0'	11°47.0	-13.0'	54.4'	60°12.3	51°25.5	47°23.4		52°32.6	89°13.8	89°26.1	119°10.1
14	93°19.3	16.0'	$12^{\circ}00.1$	-13.0'	54.4'	59°45.1	51°06.9	46°53.5		53°02.4	89°43.8	89°55.9	119°38.0
15	107°54.3	15.9'	12° 13.0	-12.9'	54.3'	59° 18.0	50°48.5	46°23.7		53°32.3	90°13.8	90°25.7	
16	122°29.3	15.9'	12°25.9	-12.9'	54.3'	58° 50.9	50°30.3	45°53.9		54°02.1	90°43.9	90°55.5	
17	137°04.2	15.9'	$12^{\circ}38.8$	-12.8'	54.3'	58°23.7	50°12.2	45°24.1		54°31.9	91°13.9	91°25.2	
18	151°39.1	15.8'	S 12°51.6	-12.8'	54.3'	57° 56.6	49°54.2	44°54.3		55°01.7	91°43.8	91°55.0	
19	166°13.9	15.8'	13°04.3	-12.7'	54.3'	57°29.5	49°36.4	44°24.5		55°31.5	92°13.8	92°24.7	
20	180°48.7	15.8'	$13^{\circ}17.0$	-12.6'	54.3'	57°02.5	49°18.7	43°54.7		56°01.2	92°43.8	92°54.5	
21	195°23.5	15.7'	$13^{\circ}29.7$	-12.6'	54.3'	56° 35.4	49°01.2	43°24.9		56°31.0	93°13.7	93°24.2	
22	209°58.2	15.7'	13°42.3	-12.5'	54.2'	56°08.3	48°43.8	42°55.2		57°00.7	93°43.7	93°53.9	
23	224°32.9	15.7'	13°54.8	-12.5'	54.2'	2' 55°41.3							
14 th	SD	= 14.9'	Mer. pas	s. 07:36		SunSD=16.2'							

Moon (15th Dec)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA						-Rigil Kent.	-Antares	+Spica	+Regulus	+Procyon	+Jupiter	+Pollux
0	239°07.5	15.6'	S 14°07.3	-12.4'	54.2'	55°14.3	48°09.6	41°55.7	4°10.1	58°00.2	90°52.8	94°43.5	94°53.3
1	253°42.2	15.6'	14°19.7	-12.4'	54.2'	54°47.3	47° 52.7	41°26.0	4°38.5	58°29.9	91°20.7	95°13.5	95°23.0
2	268°16.7	15.5'	14°32.1	-12.3'	54.2'	54°20.3	47° 35.9	40°56.3	5°07.2	58°59.6	91°48.7	95°43.4	95°52.6
3	282°51.3	15.5'	14°44.4	-12.2'	54.2'	53°53.3	47° 19.4	40°26.6	5°36.1	59°29.3	92°16.7	96°13.2	96°22.3
4	297°25.7	15.4'	14°56.6	-12.2'	54.2'	53°26.3	47°03.0	39°56.9	6°05.1	59°59.0	92°44.6	96°43.1	96°52.0
5	312°00.2	15.4'	$15^{\circ}08.8$	-12.1'	54.2'	52°59.3	46°46.8	39°27.3	6°34.2	60°28.7	93°12.6	97°13.0	97°21.6
6	326°34.6	15.3'	S 15°20.9	-12.1'	54.1'	52°32.4	46°30.7	38°57.6	7°03.3	60°58.3	93°40.5	97°42.9	97°51.2
7	341°08.9	15.3'	15°32.9	-12.0'	54.1'	52°05.4	46°14.9	38°28.0	7°32.5	61°28.0	94°08.4	98°12.7	98° 20.8
8	355°43.2	15.3'	15°44.9	-11.9'	54.1'	51°38.5	45° 59.2	37°58.3	8°01.8	61°57.6	94°36.3	98°42.6	98°50.5
9	10°17.5	15.2'	15°56.8	-11.9'	54.1'	51°11.5	45° 43.7	37°28.7	8°31.1	62°27.3	95°04.2	99°12.4	99°20.1
10	24°51.7 15.2' 16°08.7 -11.8' 54.					50°44.6	45°28.3	36°59.0	9°00.4	62°56.9	95°32.1	99°42.2	99°49.6
11					54.1'	50°17.7	45°13.2	36°29.4	9°29.7	63°26.5	96°00.0	100°12.0	100°19.2
12	54°00.0	15.1'	S 16°32.2	-11.7'	54.1'	49°50.8		35°59.8	9°59.1	63°56.1	96°27.9	100°41.9	100°48.8
13	68°34.0	15.0'	16°43.9	-11.6'	54.1'	49°23.9		35°30.2	10°28.5	64°25.7	96°55.8	101°11.7	101°18.4
14	83°08.0	15.0'	16°55.5	-11.5'	54.1'	48°57.1		35°00.6	10°57.9	64°55.3	97°23.6	101°41.5	101°47.9
15	97°42.0	14.9'	17°07.0	-11.5'	54.1'	48°30.2		34°31.0	11°27.3	65°24.9	97°51.4	102°11.3	102°17.5
16	112°15.9	14.8'	$17^{\circ}18.5$	-11.4'	54.1'	48°03.3		34°01.4	11°56.7	65°54.5	98°19.3	102°41.0	102°47.1
17	126°49.7	14.8'	17°29.8	-11.3'	54.0'	47°36.5		33°31.8	12°26.1	66°24.1	98°47.1	103°10.8	103°16.6
18	141°23.5	14.7'	S 17°41.1	-11.2'	54.0'	47°09.6		33°02.3	12°55.6	66°53.7	99°14.9	103°40.6	103°46.1
19	155°57.3	14.7'	17°52.4	-11.2'	54.0'	46°42.8		32°32.7	13°25.0	67°23.2	99°42.7	104°10.4	104°15.7
20					54.0'	46°16.0		32°03.1	13°54.4	67°52.8	100° 10.5	104°40.1	104°45.2
21	185°04.6 14.6' 18°14.7 -11.0' 54.0'					45°49.2		31°33.6	14°23.9	68°22.4	100°38.3	105°09.9	105°14.7
22	199°38.2 14.5' 18°25.7 -10.9' 54.0'					45°22.3		31°04.0	14°53.3	68°51.9	101°06.1	105°39.6	105°44.2
23	23 214°11.7 14.5' 18°36.6 -10.9' 54.0'					0' 44°55.5 30°34.5 15°22.8 69°21.5 101°33.8 106°09.4 106°13.7							106°13.7
15 th	5 th SD = 14.8' Mer. pass. 08:18								Sun SE	0 = 16.2'			

Moon (16th Dec) h

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Sun	-Antares	+Spica	+Regulus	+Procyon	+Sirius	+Jupiter	+Pollux
_									_		_	-	-
0	228°45.1	14.4'	S 18°47.5	-10.8'	54.0'	44°28.7	30°04.9	15°52.2	69°51.0	102°01.6	106°29.8	106°39.1	106°43.2
1	243°18.5	14.3'	18°58.3	-10.7'	54.0'	44°02.0	29°35.4	16°21.7	70°20.5	102°29.3	106°50.2	107°08.9	107°12.7
2	257°51.9	14.3'	19°09.0	-10.6'	54.0'	43°35.2	29°05.9	16°51.1	70°50.1	102°57.0	107°10.6	107°38.6	107°42.2
3	272°25.2	14.2'	19° 19.6	-10.6'	54.0'	43°08.4	28°36.3	17°20.6	71°19.6	103°24.8	107°30.9	108°08.3	108°11.7
4	286°58.4	14.2'	19°30.2	-10.5'	54.0'	42°41.6	28°06.8	17°50.0	71°49.1	103°52.5	107°51.2	108°38.0	108°41.2
5	301°31.5	14.1'	19°40.7	-10.4'	54.0'	42°14.9	27°37.3	18° 19.5	72°18.7	104°20.2	108°11.4	109°07.8	109°10.7
6	316°04.6	14.0'	S 19°51.1	-10.3'	54.0'	41°48.1	27°07.8	18°48.9	72°48.2	104°47.8	108°31.6	109°37.5	109°40.2
7	330°37.7	14.0'	20°01.4	-10.2'	54.0'	41°21.4	26°38.2	19° 18.4	73°17.7	105°15.5	108°51.7	110°07.2	110°09.7
8	345°10.7	13.9'	$20^{\circ}11.6$	-10.2'	54.0'	40°54.6	26°08.7	19°47.8	73°47.2	105°43.2	109°11.8	110°36.9	110°39.1
9	359°43.6	13.9'	20°21.8	-10.1'	53.9'	40°27.9	25°39.2	20° 17.3	74°16.7	106°10.8	109°31.9	111°06.6	111°08.6
10	14°16.4	13.8'	20°31.8	-10.0'	53.9'	40°01.2	25°09.7	20°46.7	74°46.3	106°38.5	109°51.9	111°36.3	111°38.1
11	28°49.2	13.7'	20°41.8	-9.9'	53.9'		24°40.2	21°16.2	75°15.8	107°06.1	110°11.8	112°06.1	112°07.6
12	43°21.9	13.7'	S 20°51.7	-9.8'	53.9'		24°10.7	21°45.7	75°45.3	107°33.8	110°31.7	112°35.8	112°37.0
13	57°54.6	13.6'	$21^{\circ}01.5$	-9.7'	53.9'		23°41.2	22°15.1	76°14.8	108°01.4	110°51.6	113°05.5	113°06.5
14	72°27.2	13.5'	21°11.3	-9.6'	53.9'		23°11.7	22°44.6	76°44.3	108°29.0	111°11.4	113°35.2	113°36.0
15	86°59.7	13.5'	21°20.9	-9.5'	53.9'		22°42.2	23° 14.0	77°13.8	108°56.6	111°31.1	114°04.9	114°05.4
16	101°32.2	13.4'	21°30.4	-9.5'	53.9'		22°12.7	23°43.5	77°43.3	109°24.1	111°50.8	114°34.6	114°34.9
17	116°04.6	13.3'	$21^{\circ}39.9$	-9.4'	53.9'		21°43.2	24°13.0	78°12.8	109°51.7	112°10.4	115°04.3	115°04.4
18	130°36.9	13.3'	S 21°49.2	-9.3'	53.9'		21°13.7	24°42.4	78°42.3	110° 19.3	112°30.0	115°34.0	115°33.8
19	145°09.2	13.2'	21°58.5	-9.2'	53.9'		20°44.2	25°11.9	79°11.8	110°46.8	112°49.5	116°03.7	116°03.3
20	159°41.4	13.1'	22°07.7	-9.1'	53.9'		20°14.7	25°41.4	79°41.3	111°14.3	113°09.0	116°33.4	116°32.7
21	174°13.6						19°45.2	26° 10.8	80°10.8	111°41.9	113°28.3	117°03.1	117°02.2
22	188°45.6 13.0' 22°25.8 -8.9' 53.9'						19°15.7	26°40.3	80°40.4	112°09.4	113°47.7	117°32.8	117°31.7
23	203°17.7 12.9' 22°34.7 -8.8' 53.9'					.9' 18°46.2 27°09.8 81°09.9 112°36.9 114°06.9 118°02.5 118°01.:						118°01.1	
16 th	SD	= 14.7'	Mer. pas	s. 09:01					Sun SI	D = 16.2'			

Moon (17th Dec) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Antares	+Spica	+Arcturus	+Regulus	+Procyon	+Sirius	+Pollux	+Jupiter
0	217°49.6	12.9'	S 22°43.5	-8.7'	53.9'	18° 16.7	27°39.3	43°54.2	81°39.4	113°04.3	114°26.1	118°30.6	118°32.2
1	232°21.5	12.8'	22°52.2	-8.6'	53.9'	17°47.1	28°08.7	44°11.8	82°08.9	113°31.8	114°45.3	119°00.0	119°01.9
2	246°53.3	12.7'	23°00.8	-8.5'	53.9'	17° 17.6	28°38.2	44°29.5	82°38.4	113°59.3	115°04.3	119°29.5	119°31.6
3	261°25.0	12.7'	23°09.3	-8.4'	53.9'	16°48.1	29°07.7	44° 47.4	83°07.9	114°26.7	115°23.3	119°59.0	
4	275°56.7	12.6'	23°17.7	-8.3'	53.9'	16°18.6	29°37.2	45°05.4	83°37.4	$114^{\circ}54.1$	115°42.3		
5	290°28.3	12.5'	23°26.0	-8.2'	53.9'	15°49.1	30°06.7	45°23.6	84°06.9	$115^{\circ}21.5$	116°01.1		
6	304°59.8	12.5'	S 23°34.2	-8.1'	53.9'	15° 19.6	30°36.2	45°42.0	84°36.4	115°48.9	116°19.9		
7	319°31.3	12.4'	23°42.3	-8.0'	53.9'	14°50.1	31°05.7	46°00.5	85°06.0	$116^{\circ}16.3$	116°38.6		
8	334°02.7	12.3'	23°50.3	-7.9'	53.9'	14°20.6	31°35.2	46° 19.1	85°35.5	116°43.7	116°57.3		
9	348°34.1	12.3'	23°58.2	-7.8'	53.9'	13°51.1	32°04.7	46°37.9	86°05.0	$117^{\circ}11.1$	117°15.8		
10	3°05.3	12.2'	24°06.0	-7.7'	53.9'	13°21.6	32°34.2	46°56.9	86°34.6	117°38.4	117°34.3		
11	17°36.6	12.1'	24°13.7	-7.6'	53.9'	12°52.0	33°03.7	47°16.0	87°04.1	118°05.7	117°52.7		
12	32°07.7	12.1'	S 24°21.3	-7.5'	53.9'	12°22.5	33°33.2	47°35.2	87°33.6	118°33.0	118°11.1		
13	46°38.8	12.0'	24°28.8	-7.4'	53.9'	11°53.0	34°02.7	47°54.6	88°03.2	119°00.3	118°29.3		
14	61°09.8	11.9'	24°36.1	-7.3'	53.9'	11°23.5	34°32.2	48°14.1	88°32.7	119°27.6	118°47.5		
15	75°40.7	11.9'	24°43.4	-7.2'	53.9'	10°53.9	$35^{\circ}01.8$	48°33.7	89°02.3	119°54.8	119°05.6		
16	90°11.6	11.8'	24°50.6	-7.0'	53.9'	10°24.4	35°31.3	48°53.4	89°31.8		119°23.6		
17	104°42.4	11.8'	24°57.6	-6.9'	53.9'	9°54.9	36°00.8	49°13.3	90°01.4		119°41.5		
18	119°13.2	11.7'	S 25°04.5	-6.8'	53.9'	9°25.3	36°30.4	49°33.3	90°30.9		119°59.3		
19	133°43.9	11.6'	25°11.3	-6.7'	53.9'	8°55.8	36° 59.9	49°53.4	91°00.5				
20	148°14.5	11.6'	$25^{\circ}18.1$	-6.6'	53.9'	8°26.3	37°29.5	50°13.7	91°30.1				
21	162°45.0	11.5'	25°24.6	-6.5'	53.9'	7°56.7	37°59.0	50°34.0	91°59.6				
22	177°15.5	11.4'	25°31.1	-6.4'	53.9'	7°27.2	38°28.6	50° 54.5	92°29.2				
23	191°46.0	11.4'	25°37.5	-6.2'	53.9'	6°57.7	38°58.2	51°15.1	92°58.8				
17 th	SD	= 14.7'	Mer. pass	. 09:47									

h		Moon	(18 th De	ec)			Lunar	Distance	
Thu	GHA	ν	Dec	d	HP	± Antares	+Spica	+Arcturus	+Regulus
0	206°16.3	11.3'	S 25°43.7	-6.1'	53.9'	6°28.1	39°27.7	51°35.7	93°28.4
1	220°46.7	11.2'	$25^{\circ}49.9$	-6.0'	53.9'	5°58.6	39°57.3	51°56.5	93°58.0
2	235°16.9	11.2'	25°55.9	-5.9'	53.9'	5°29.1	40°26.9	52° 17.4	94°27.6
3	249°47.1	11.1'	$26^{\circ}01.8$	-5.8'	53.9'	4°59.6	40°56.5	52°38.4	94°57.2
4	264°17.2	11.1'	$26^{\circ}07.5$	-5.7'	53.9'	4°30.1	41°26.1	52° 59.5	95°26.8
5	278°47.3	11.0'	$26^{\circ}13.2$	-5.5'	53.9'	4°00.6	41°55.7	53°20.7	95°56.4
6	293°17.3	10.9'	S 26°18.7	-5.4'	54.0'	3°31.2	42°25.3	53°42.0	96°26.0
7	307°47.2	10.9'	$26^{\circ}24.1$	-5.3'	54.0'	3°01.8	42°54.9	54°03.4	96°55.7
8	322°17.1	10.8'	$26^{\circ}29.4$	-5.2'	54.0'	2°32.5	43°24.5	54°24.8	97°25.3
9	336°47.0	10.8'	26°34.6	-5.0'	54.0'	2°03.4	43°54.2	54°46.4	97°55.0
10	351°16.7	10.7'	26°39.7	-4.9'	54.0'	1°34.5	44°23.8	55°08.1	98°24.6
11	5°46.5	10.7'	26°44.6	-4.8'	54.0'	1°06.4	44°53.5	55°29.8	98°54.3
12	20°16.1	10.6'	S 26°49.4	-4.7'	54.0'		45°23.1	55°51.7	99°23.9
13	34°45.7	10.6'	26°54.0	-4.5'	54.0'		45°52.8	56° 13.6	99°53.6
14	49°15.3	10.5'	26°58.6	-4.4'	54.0'		46°22.4	56° 35.6	100°23.3
15	63°44.8	10.5'	$27^{\circ}03.0$	-4.3'	54.0'		46°52.1	56° 57.6	100°53.0
16	78°14.3	10.4'	27°07.3	-4.2'	54.0'		47°21.8	57° 19.8	101°22.7
17	92°43.7	10.4'	$27^{\circ}11.5$	-4.0'	54.0'	1°59.4	47°51.5	57°42.0	101°52.4
18	107°13.0	10.3'	S 27° 15.5	-3.9'	54.0'	2°28.6	48°21.2	58°04.4	102°22.1
19	121°42.3	10.3'	$27^{\circ}19.4$	-3.8'	54.0'	2°57.9	48°50.9	58°26.7	102°51.8
20	136°11.6	10.2'	27°23.2	-3.6'	54.0'	3°27.4	49°20.6	58° 49.2	103°21.5
21	150°40.8	10.2'	27°26.8	-3.5'	54.0'	3°57.0	49°50.3	59° 11.7	103°51.3
22	165°10.0	10.1'	27°30.3	-3.4'	54.0'	4°26.6	50°20.1	59°34.4	104°21.0
23	179°39.1	10.1'	27°33.7	-3.2'	54.0'	4°56.2	50°49.8	59° 57.0	104°50.8
18 th	SD	= 14.7'	Mer. pass. 10:36					•	

h		Moon	(19 th De	ec)			Lunar	Distance	
Fri	GHA	ν	Dec	d	HP	+Antares	+Spica	+Arcturus	+Regulus
0	194°08.2	10.0'	S 27°37.0	-3.1'	54.1'	5°25.9	51°19.6	60° 19.8	105°20.5
1	208°37.2	10.0'	$27^{\circ}40.1$	-3.0'	54.1'	5°55.5	51°49.3	60°42.6	105°50.3
2	223°06.2	10.0'	27°43.1	-2.8'	54.1'	6°25.3	52° 19.1	61°05.5	106°20.1
3	237°35.2	9.9'	27°45.9	-2.7'	54.1'	6°55.0	52°48.9	61°28.4	106°49.9
4	252°04.1	9.9'	27°48.6	-2.6'	54.1'	7°24.7	53° 18.7	61°51.4	107°19.7
5	266°33.0	9.8'	$27^{\circ}51.2$	-2.4'	54.1'	7°54.5	53°48.5	62°14.5	107°49.5
6	281°01.9	9.8'	S 27°53.6	-2.3'	54.1'	8°24.3	54°18.3	62°37.6	108°19.3
7	295°30.7	9.8'	27°55.9	-2.2'	54.1'			Moon ——	<u> </u>
8	309°59.4	9.7'	$27^{\circ}58.1$	-2.0'	54.1'		New	Moon	
9	324°28.2	9.7'	28°00.2	-1.9'	54.1'		New	Moon	
10	338°56.9	9.7'	$28^{\circ}02.1$	-1.8'	54.1'		New	Moon	
11	353°25.6	9.7'	28°03.8	-1.6'	54.1'		New	Moon ——	
12	7°54.2	9.6'	S 28°05.4	-1.5'	54.1'		New	Moon ——	
13	22°22.9	9.6'	28°06.9	-1.3'	54.2'		New	Moon	
14	36°51.4	9.6'	28°08.3	-1.2'	54.2'		New	Moon	
15	51°20.0	9.5'	$28^{\circ}09.5$	-1.1'	54.2'		New	Moon	
16	65°48.6	9.5'	$28^{\circ}10.5$	-0.9'	54.2'		New	/ Moon ———	
17	80°17.1	9.5'	$28^{\circ}11.5$	-0.8'	54.2'		New	Moon ——	
18	94°45.6	9.5'	S 28°12.3	-0.6'	54.2'		New	Moon ——	
19	109°14.1	9.5'	$28^{\circ}12.9$	-0.5'	54.2'		New	Moon	
20	123°42.6	9.4'	28°13.4	-0.4'	54.2'		New	Moon	 -
21	138°11.0	9.4'	$28^{\circ}13.8$	-0.2'	54.2'		New	Moon	
22	152°39.4	9.4'	$28^{\circ}14.0$	-0.1'	54.2'		New	Moon ——	
23	167°07.9	9.4'	28° 14.1	0.1'	54.2'			Moon ——	
19 th	SD	$= 14.7^{\prime}$	Mer. pass	s. 11:27					

h		Moon	(20th De	ec)		Lunar Distance	
Sat	GHA	ν	Dec	d	HP	-Saturn -Fomalhaut -	Altair
0	181°36.3	9.4'	S 28°14.1	0.2'	54.3'	New Moon	
1	196°04.7	9.4'	$28^{\circ}13.9$	0.3'	54.3'	New Moon	
2	210°33.0	9.4'	28°13.5	0.5'	54.3'	New Moon	
3	225°01.4	9.4'	28°13.0	0.6'	54.3'	New Moon	
4	239°29.8	9.4'	28°12.4	0.8'	54.3'	New Moon	
5	253°58.1	9.4'	$28^{\circ}11.7$	0.9'	54.3'	New Moon	
6	268°26.5	9.4'	S 28°10.8	1.0'	54.3'	New Moon	
7	282°54.9	9.4'	28°09.7	1.2'	54.3'	New Moon	
8	297°23.2	9.4'	28°08.5	1.3'	54.3'	New Moon	
9	311°51.6	9.4'	28°07.2	1.5'	54.4'	New Moon	
10	326°19.9	9.4'	28°05.7	1.6'	54.4'	New Moon	
11	340°48.3	9.4'	28°04.1	1.8'	54.4'	New Moon	
12	355°16.6	9.4'	S 28°02.4	1.9'	54.4'	New Moon	
13	9°45.0	9.4'	28°00.5	2.0'	54.4'	New Moon	
14	24°13.4	9.4'	27°58.4	2.2'	54.4'	New Moon	
15	38°41.7	9.4'	27°56.3	2.3'	54.4'	New Moon	
16	53°10.1	9.4'	27°53.9	2.5'	54.4'	New Moon	
17	67°38.5	9.4'	$27^{\circ}51.5$	2.6'	54.4'	New Moon	
18	82°06.9	9.4'	S 27°48.9	2.7'	54.5'	New Moon	
19	96°35.4	9.4'	$27^{\circ}46.1$	2.9'	54.5'	New Moon	
20	111°03.8	9.5'	27°43.3	3.0'	54.5'	New Moon	
21	125°32.3	9.5'	27°40.2	3.2'	54.5'	New Moon	
22	140°00.7	9.5'	$27^{\circ}37.1$	3.3'	54.5'		ე°36.9
23	154°29.2	9.5'	27°33.8	3.4'	54.5'	76°21.0 55°55.7 40	0°19.8
20 th	SD =	= 14.8′	Mer. pass	s. 12:20)		

h		Moon	(21st De	c)		Lı	ınar Distan	ce
Sun	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	-Altair
0	168° 57.7	9.5'	S 27°30.3	3.6'	54.5'	75°50.8	55°28.2	40°03.0
1	183°26.3	9.6'	27°26.7	3.7'	54.6'	75°20.7	55°00.8	39°46.3
2	197°54.8	9.6'	27°23.0	3.9'	54.6'	74°50.5	54°33.3	39°29.9
3	212°23.4	9.6'	27°19.2	4.0'	54.6'	74°20.3	54°05.9	39°13.7
4	226°52.0	9.6'	$27^{\circ}15.2$	4.1'	54.6'	73°50.1	53°38.5	38°57.7
5	241°20.6	9.7'	$27^{\circ}11.0$	4.3'	54.6'	73°19.9	53°11.2	38°41.9
6	255°49.3	9.7'	S 27°06.8	4.4'	54.6'	72°49.7	52°43.8	38°26.4
7	270° 18.0	9.7'	27°02.3	4.5'	54.6'	72° 19.5	52°16.5	38°11.1
8	284°46.7	9.7'	26°57.8	4.7'	54.6'	71°49.2	51°49.3	37°56.1
9	299°15.4	9.8'	$26^{\circ}53.1$	4.8'	54.7'	71°18.9	51°22.0	
10	313°44.2	9.8'	26°48.3	5.0'	54.7'	70°48.7	50°54.8	
11	328°13.0	9.8'	26°43.3	5.1'	54.7'	70°18.4	50°27.6	
12	342°41.8	9.9'	S 26°38.2	5.2'	54.7'	69°48.1	50°00.4	
13	357°10.7	9.9'	26°33.0	5.4'	54.7'	69° 17.7	49°33.3	
14	11°39.6	9.9'	26°27.7	5.5'	54.7'	68°47.4	49°06.2	
15	26°08.6	10.0'	26°22.2	5.6'	54.7'	68° 17.1	48°39.2	
16	40°37.5	10.0'	$26^{\circ}16.5$	5.8'	54.8'	67°46.7	48°12.2	
17	55°06.6	10.1'	$26^{\circ}10.8$	5.9'	54.8'	67°16.3	47°45.2	
18	69°35.6	10.1'	S 26°04.9	6.0'	54.8'	66°45.9	47°18.3	
19	84°04.7	10.1'	25°58.9	6.2'	54.8'	66° 15.5	46°51.4	
20	98°33.9	10.2'	25°52.7	6.3'	54.8'	65°45.1	46°24.5	
21	113°03.0	10.2'	25°46.4	6.4'	54.8'	65° 14.7	45°57.8	
22	127°32.3	10.3'	25°40.0	6.5'	54.9'	64°44.2	45°31.0	
23	142°01.5	10.3'	25°33.5	6.7'	54.9'	64°13.8	45°04.3	
21 st	SD	= 14.9'	Mer. pass	. 13:12	1			

h		Moon	(22 nd De		Lunar	Distance	
Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut
0	156°30.8	10.4'	S 25°26.8	6.8'	54.9'	63°43.3	44°37.7
1	171°00.2	10.4'	25°20.0	6.9'	54.9'	63°12.8	44°11.1
2	185°29.6	10.4'	$25^{\circ}13.1$	7.1'	54.9'	62°42.3	43°44.6
3	199°59.1	10.5'	25°06.0	7.2'	54.9'	62°11.8	43° 18.1
4	214°28.6	10.5'	24°58.9	7.3'	54.9'	61°41.2	42°51.7
5	228°58.1	10.6'	24°51.6	7.4'	55.0'	61°10.7	42°25.3
6	243°27.7	10.6'	S 24°44.1	7.5'	55.0'	60°40.1	41°59.0
7	257°57.3	10.7'	24°36.6	7.7'	55.0'	60°09.5	41°32.8
8	272°27.0	10.7'	24°28.9	7.8'	55.0'	59°38.9	41°06.7
9	286°56.8	10.8'	24°21.1	7.9'	55.0'	59°08.3	40°40.6
10	301°26.5	10.8'	24°13.2	8.0'	55.0'	58°37.7	40°14.7
11	315°56.4	10.9'	24°05.2	8.2'	55.1'	58°07.0	39°48.8
12	330°26.3	10.9'	S 23°57.0	8.3'	55.1'	57°36.3	39°22.9
13	344°56.2	11.0'	23°48.7	8.4'	55.1'	57°05.7	38°57.2
14	359°26.2	11.0'	23°40.3	8.5'	55.1'	56°35.0	38°31.6
15	13°56.3	11.1'	23°31.8	8.6'	55.1'	56°04.3	38°06.0
16	28°26.4	11.2'	23°23.2	8.7'	55.2'	55°33.5	37°40.6
17	42°56.5	11.2'	23°14.4	8.9'	55.2'	55°02.8	37° 15.3
18	57°26.7	11.3'	S 23°05.6	9.0'	55.2'	54°32.0	36° 50.0
19	71°57.0	11.3'	22°56.6	9.1'	55.2'	54°01.3	36°24.9
20	86°27.3	11.4'	22°47.5	9.2'	55.2'	53°30.5	35° 59.9
21	100°57.6	11.4'	22°38.3	9.3'	55.2'	52°59.7	35°35.0
22	115°28.1	11.5'	22°29.0	9.4'	55.3'	52°28.8	35°10.3
23	129°58.5	11.5'	22°19.6	9.5'	55.3'	51°58.0	34°45.6
22 nd	SD	= 15.0'	Mer. pass.	14:02			

h		Moor	ı (23 rd De	ec)		Lunar Dis	stance (ol	jects wi	th largest h	ourly LD delta)
Tue	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Sun
0	144°29.0	11.6'	S 22°10.0	9.6'	55.3'			51°27.1	34°21.2	
1	158°59.6	11.6'	22°00.4	9.8'	55.3'			50°56.3	33°56.8	
2	173°30.3	11.7'	21°50.6	9.9'	55.3'			50°25.4	33°32.6	
3	188°00.9	11.7'	21°40.8	10.0'	55.4'			49°54.5	33°08.6	
4	202°31.7	11.8'	21°30.8	10.1'	55.4'			49°23.5	32°44.7	
5	217°02.5	11.8'	21°20.7	10.2'	55.4'			48°52.6	32°21.0	
6	231°33.3	11.9'	S 21°10.6	10.3'	55.4'			48°21.6	31°57.5	
7	246°04.2	12.0'	21°00.3	10.4'	55.4'			47°50.7	31°34.1	
8	260°35.2	12.0'	20°49.9	10.5'	55.4'			47°19.7	31°11.0	
9	275°06.2	12.1'	20°39.4	10.6'	55.5'			46°48.7	30°48.0	
10	289°37.2	12.1'	20°28.8	10.7'	55.5'			46°17.6	30°25.3	
11	304°08.4	12.2'	20°18.1	10.8'	55.5'	119°46.5	119°37.8	45°46.6	30°02.7	
12	318°39.5	12.2'	S 20°07.3	10.9'	55.5'	119°15.9	119°14.7	45°15.5	29°40.4	
13	333°10.7	12.3'	19°56.4	11.0'	55.5'	118°45.3	118°51.6	44°44.4	29°18.3	
14	347°42.0	12.3'	19°45.4	11.1'	55.6'	118°14.6	118°28.4	44°13.3	28°56.5	
15	2°13.3	12.4'	19°34.3	11.2'	55.6'	117°44.0	118°05.2	43°42.2	28°34.9	
16	16°44.7	12.4'	19°23.2	11.3'	55.6'	117°13.3	117°41.8	43°11.1	28°13.6	
17	31°16.1	12.5'	$19^{\circ}11.9$	11.4'	55.6'	116°42.5	117°18.3	42°39.9	27°52.6	40°58.4
18	45°47.6	12.5'	S 19°00.5	11.5'	55.6'	116°11.8	116°54.8	42°08.8	27°31.9	41°27.0
19	60°19.1	12.6'	18°49.0	11.6'	55.7'	115°41.0	116°31.2	41°37.6	27°11.4	41°55.7
20	74°50.7	12.6'	18°37.5	11.7'	55.7'	115°10.2	116°07.5	41°06.4	26°51.3	42°24.3
21	89°22.3	12.7'	$18^{\circ}25.8$	11.7'	55.7'	114°39.4	115°43.7	40°35.2	26°31.5	42°53.0
22	103°54.0	12.7'	18°14.1	11.8'	55.7'	114°08.5	115° 19.9	40°03.9	26°12.0	43°21.8
23	118°25.8	12.8'	18°02.2	11.9'	55.8'	55.8' 113°37.6 114°56.0 39°32.7 25°52.9 43°50.5				
23 rd	SD	= 15.1'	Mer. pass	s. 14:51				Sun SD	= 16.3'	

Moon (24th Dec) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Capella	-Betelgeuse	-Rigel	-Aldebaran	-Saturn	-Fomalhaut	+Altair	+Sun
0	132°57.5	12.8'	S 17°50.3	12.0'	55.8'			114°32.0	113°06.7	39°01.4	25°34.2		44°19.3
1	147°29.4	12.9'	17°38.3	12.1'	55.8'			114°08.0	112°35.8	38°30.1	25° 15.8		44°48.1
2	162°01.2	12.9'	17°26.2	12.2'	55.8'			113°43.8	112°04.8	37°58.8	24°57.9		45°16.9
3	176°33.1	13.0'	$17^{\circ}14.0$	12.3'	55.8'			113° 19.6	111°33.8	37°27.5	24°40.3		45°45.8
4	191°05.1	13.0'	$17^{\circ}01.7$	12.4'	55.9'			112°55.4	111°02.8	36°56.1	24°23.2		46°14.6
5	205°37.1	13.1'	16°49.4	12.4'	55.9'			112°31.0	110°31.8	36°24.7	24°06.6		46°43.5
6	220°09.2	13.1'	S 16°36.9	12.5'	55.9'			112°06.6	110°00.7	35°53.4	23°50.4		47°12.5
7	234°41.3	13.1'	16°24.4	12.6'	55.9'	119°53.0		111°42.2	109°29.6	35°22.0	23°34.7		47°41.4
8	249°13.4	13.2'	$16^{\circ}11.8$	12.7'	55.9'	119°23.4		111° 17.6	108°58.5	34°50.6	23°19.4		48°10.4
9	263°45.6	13.2'	$15^{\circ}59.1$	12.8'	56.0'	118°53.7		110°53.1	108°27.4	34°19.1			48°39.4
10	278°17.8	13.3'	15°46.4	12.8'	56.0'	118°23.9		110°28.4	107°56.2	33°47.7			49°08.4
11	292°50.1	13.3'	15°33.5	12.9'	56.0'	117°54.1		110°03.7	107°25.0	33°16.2			49°37.5
12	307°22.4	13.4'	S 15°20.6	13.0'	56.0'	117°24.3		109°38.9	106°53.8	32°44.7			50°06.5
13	321°54.8	13.4'	15°07.6	13.1'	56.1'	116°54.4		109°14.1	106°22.6	32°13.2			50°35.6
14	336°27.1	13.4'	14°54.5	13.1'	56.1'	116°24.5		108°49.2	105°51.3	31°41.7			51°04.8
15	350°59.6	13.5'	14°41.4	13.2'	56.1'	115°54.6		108°24.2	105°20.0	31°10.2			51°33.9
16	5°32.0	13.5'	14°28.2	13.3'	56.1'	115°24.6		107°59.2	104°48.7	30°38.6		37°46.3	52°03.1
17	20°04.6	13.5'	$14^{\circ}14.9$	13.4'	56.2'	114°54.6		107°34.2	104°17.3	30°07.0		38°01.9	52°32.3
18	34°37.1	13.6'	S 14°01.5	13.4'	56.2'	114°24.5		107°09.1	103°45.9	29°35.5		38° 17.8	53°01.5
19	49°09.7	13.6'	$13^{\circ}48.1$	13.5'	56.2'	113°54.4		106°43.9	103°14.5	29°03.9		38°33.9	53°30.8
20	63°42.3	13.6'	13°34.5	13.6'	56.2'	113°24.2		106° 18.7	102°43.1	28°32.2		38°50.4	54°00.1
21	78°14.9	13.7'	13°21.0	13.7'	56.2'	112°54.1	119°36.4	105°53.4	102°11.7	28°00.6		39°07.2	54°29.4
22	92°47.6	13.7'	13°07.3	13.7'	56.3'	112°23.8	119°07.1	105°28.1	101°40.2	27°29.0		39°24.2	54°58.7
23	107°20.3	13.7'	12°53.6	13.8'	56.3'	111°53.6	118°37.8	105°02.7	101°08.7	26°57.3		39°41.5	55°28.1
24 th	SD	= 15.2'	Mer. pass	s. 15:37					$Sun\;SD =$	16.3'			

Moon (25th Dec) h Lunar Distance (objects with largest hourly LD delta)

$\overline{}$						Tana Distance (expesse man langues nearly 12 denta)							
Thu	GHA	ν	Dec	d	HP	-Sirius	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Altair	+Sun
0	121°53.1	13.8'	S 12°39.8	13.9'	56.3'		118°08.5	111°23.3	104°37.3	100°37.1	26°25.6	39°59.1	55°57.5
1	136°25.8	13.8'	$12^{\circ}26.0$	13.9'	56.3'		117°39.1	110°53.0	104°11.8	100°05.6	25°53.9	40°16.9	56°26.9
2	150°58.7	13.8'	$12^{\circ}12.0$	14.0'	56.4'		117°09.6	110°22.6	103°46.3	99°34.0	25°22.2	40°35.0	56°56.4
3	165°31.5	13.9'	$11^{\circ}58.1$	14.0'	56.4'		116°40.1	109°52.2	103°20.7	99°02.4	24°50.5	40°53.3	57°25.8
4	180°04.3	13.9'	11°44.0	14.1'	56.4'		116°10.6	109°21.8	102°55.1	98°30.7	24°18.8	41°11.9	57°55.3
5	194°37.2	13.9'	$11^{\circ}29.9$	14.2'	56.4'		115°41.0	108°51.3	102°29.4	97°59.0	23°47.1	41°30.8	58°24.9
6	209°10.1	13.9'	S 11°15.7	14.2'	56.5'		115°11.3	108°20.8	102°03.7	97°27.4	23°15.3	41°49.9	58°54.4
7	223°43.1	14.0'	$11^{\circ}01.5$	14.3'	56.5'		114°41.6	107°50.2	101°38.0	96°55.6	22°43.6	42°09.2	59°24.0
8	238°16.0	14.0'	10°47.2	14.3'	56.5'	119°43.0	114°11.9	107°19.7	101°12.2	96°23.9	22°11.8	42°28.7	59°53.6
9	252°49.0	14.0'	$10^{\circ}32.9$	14.4'	56.5'	119°23.4	113°42.1	106°49.1	100°46.3	95°52.1	21°40.1	42°48.5	60°23.2
10	267°22.0	14.0'	$10^{\circ}18.5$	14.5'	56.6'	119°03.7	113°12.3	106°18.4	100°20.4	95°20.3	21°08.3	43°08.4	60°52.9
11	281°55.1	14.0'	$10^{\circ}04.0$	14.5'	56.6'	118°43.9	112°42.4	105°47.7	99°54.5	94°48.5	20°36.5	43°28.6	61°22.6
12	296°28.1	14.1'	S 09°49.5	14.6'	56.6'	118°23.9	112°12.5	105°17.0	99°28.6	94°16.6	20°04.8	43°49.1	61°52.3
13	311°01.2	14.1'	09°34.9	14.6'	56.6'	118°03.8	111°42.6	104°46.3	99°02.6	93°44.7	19°33.0	44°09.7	62°22.1
14	325°34.2	14.1'	09°20.3	14.7'	56.7'	117°43.6	111°12.6	104°15.5	98°36.5	93°12.8	19°01.2	44°30.5	62°51.9
15	340°07.3	14.1'	$09^{\circ}05.6$	14.7'	56.7'	117°23.3	110°42.5	103°44.6	98°10.4	92°40.9	18°29.4	44°51.5	63°21.7
16	354°40.5	14.1'	08°50.9	14.8'	56.7'	117°02.9	110°12.4	103°13.8	97°44.3	92°08.9	17°57.7	45°12.8	63°51.5
17	9°13.6	14.1'	$08^{\circ}36.1$	14.8'	56.8'	116°42.4	109°42.3	102°42.9	97°18.2	91°36.9	17°25.9	45°34.2	64°21.4
18	23°46.7	14.2'	S 08°21.3	14.9'	56.8'	116°21.7	109°12.1	102°12.0	96°52.0	91°04.9	16°54.2	45°55.8	64°51.3
19	38°19.9	14.2'	08°06.4	14.9'	56.8'	116°01.0	108°41.9	101°41.0	96°25.7	90°32.8	16°22.5	46°17.6	65°21.2
20	52°53.0	14.2'	$07^{\circ}51.5$	15.0'	56.8'	115°40.1	108°11.7	101°10.0	95°59.5	90°00.7	15°50.8	46°39.5	65°51.1
21	67°26.2	14.2'	$07^{\circ}36.5$	15.0'	56.9'	115°19.1	107°41.4	100°39.0	95°33.2	89°28.6	15°19.1	47°01.7	66°21.1
22	81°59.4	14.2'	$07^{\circ}21.5$	15.1'	56.9'	114°58.1	107°11.1	100°08.0	95°06.9	88°56.5	14°47.5	47°24.0	66°51.1
23	96°32.6	14.2'	07°06.4	15.1'	56.9'	114°36.9	106°40.7	99°36.9	94°40.5	88°24.3	14°15.9	47°46.5	67°21.2
25 th	SD	= 15.4'	Mer. pass	s. 16:22					Sun SD =	16.3'			

h	Moon (26 th Dec)	Lunar D	istance (objects wi	th larges	t hourly LD	delta)	

Fri	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	111°05.8	14.2'	S 06°51.3	15.2'	56.9'			99°05.8	87°52.1	13°44.4		48°09.2	67°51.3
1	125°39.0	14.2'	$06^{\circ}36.2$	15.2'	57.0'			98°34.6	87°19.9	13°12.9		48°32.0	68°21.4
2	140°12.2	14.2'	$06^{\circ}21.0$	15.2'	57.0'			98°03.4	86°47.6	12°41.5		48°55.0	68°51.5
3	154°45.4	14.2'	$06^{\circ}05.7$	15.3'	57.0'			97°32.2	86°15.4	12°10.1	23°23.6	49°18.1	69°21.7
4	169°18.6	14.2'	05°50.5	15.3'	57.0'			97°00.9	85°43.1	11°38.9	23°39.5	49°41.4	69°51.9
5	183°51.8	14.2'	$05^{\circ}35.1$	15.4'	57.1'			96°29.7	85°10.7	11°07.8	23°56.0	50°04.9	70°22.1
6	198°25.0	14.2'	S 05°19.8	15.4'	57.1'			95°58.3	84°38.3	10°36.8	24°13.0	50°28.5	70°52.3
7	212°58.2	14.2'	05°04.4	15.4'	57.1'			95°27.0	84°06.0	10°06.0	24°30.6	50°52.2	71°22.6
8	227°31.4	14.2'	04°49.0	15.5'	57.2'			94°55.6	83°33.5	9°35.3	24°48.6	51°16.1	71°52.9
9	242°04.6	14.2'	04°33.5	15.5'	57.2'			94°24.2	83°01.1	9°04.9	25°07.2	51°40.2	72°23.3
10	256°37.8	14.2'	$04^{\circ}18.0$	15.5'	57.2'			93°52.8	82°28.6	8°34.8	25°26.2	52°04.4	72°53.7
11	271°11.0	14.2'	$04^{\circ}02.5$	15.6'	57.2'			93°21.3	81°56.1	8°05.0	25°45.7	52°28.7	73°24.1
12	285°44.1	14.2'	S 03°46.9	15.6'	57.3'			92°49.8	81°23.5	7°35.6	26°05.6	52°53.1	73°54.5
13	300°17.3	14.1'	03°31.3	15.6'	57.3'			92°18.2	80°51.0	7°06.7	26°26.0	53°17.7	74°25.0
14	314°50.4	14.1'	$03^{\circ}15.7$	15.7'	57.3'			91°46.7	80°18.4	6°38.4	26°46.8	53°42.4	74°55.5
15	329°23.6	14.1'	$03^{\circ}00.0$	15.7'	57.4'			91°15.1	79°45.8	6°10.9	27°07.9	54°07.3	75°26.1
16	343°56.7	14.1'	02°44.4	15.7'	57.4'			90°43.5	79°13.1	5°44.4	27°29.5	54°32.3	75°56.6
17	358°29.8	14.1'	02°28.7	15.7'	57.4'			90°11.8	78°40.4		27°51.4	54°57.3	76°27.2
18	13°02.9	14.1'	S 02°12.9	15.8'	57.4'		119°50.2	89°40.1	78°07.7		28°13.7	55°22.6	76°57.9
19	27°36.0	14.1'	$01^{\circ}57.2$	15.8'	57.5'		119°16.7	89°08.4	77°35.0		28°36.4	55°47.9	77°28.5
20	42°09.0	14.0'	$01^{\circ}41.4$	15.8'	57.5'	119°55.0	118°43.1	88°36.6	77°02.2		28°59.4	56°13.3	77°59.3
21	56°42.1	14.0'	$01^{\circ}25.6$	15.8'	57.5'	119°21.6	118°09.4	88°04.8	76°29.4		29°22.7	56°38.9	78°30.0
22	71°15.1	14.0'	01°09.7	15.8'	57.6'	118°48.3	117°35.8	87°33.0	75°56.5		29°46.3	57°04.6	79°00.8
23	85°48.1	14.0'	00°53.9	15.9'	57.6'	118°14.8	117°02.1	87°01.2	75°23.7		30°10.2	57°30.4	79°31.6
26 th	SD	= 15.5'	Mer. pass	. 17:06					Sun SD	= 16.3'			

h Moon (27th Dec)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Pollux	-Jupiter	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Sun
0	100°21.0	13.9'	S 00°38.0	15.9'	57.6'	117°41.4	116°28.4	86°29.3	74°50.8		30°34.5	57°56.3	80°02.4
1	114°54.0	13.9'	00°22.1	15.9'	57.6'	117°07.9	115°54.6	85°57.4	74° 17.9		30°59.0	58°22.3	80°33.3
2	129°26.9	13.9'	S 00°06.2	15.9'	57.7'	116°34.4	115°20.8	85°25.5	73°44.9		31°23.8	58°48.4	81°04.2
3	143°59.7	13.8'	N 00°09.7	15.9'	57.7'	116°00.9	114°47.0	84°53.5	73°11.9		31°48.8	59°14.6	81°35.1
4	158°32.6	13.8'	$00^{\circ}25.6$	16.0'	57.7'	115°27.3	114°13.1	84°21.5	72°38.9		32°14.1	59°40.9	82°06.1
5	173°05.4	13.8'	00°41.6	16.0'	57.8'	114°53.7	113°39.2	83°49.5	72°05.9		32°39.7	60°07.4	82°37.1
6	187°38.2	13.7'	N 00°57.5	16.0'	57.8'	114°20.0	113°05.3	83°17.4	71°32.8		33°05.5	60°33.9	83°08.1
7	202°10.9	13.7'	$01^{\circ}13.5$	16.0'	57.8'	113°46.4	112°31.3	82°45.4	70°59.7		33°31.5	61°00.5	83°39.2
8	216°43.7	13.7'	$01^{\circ}29.5$	16.0'	57.9'	113° 12.7	111°57.3	82°13.3	70°26.6		33°57.8	61°27.2	84°10.3
9	231°16.3	13.6'	01°45.5	16.0'	57.9'	112°38.9	111°23.3	81°41.1	69°53.4		34°24.3	61°54.0	84°41.5
10	245°49.0	13.6'	$02^{\circ}01.5$	16.0'	57.9'	112°05.1	110°49.2	81°09.0	69°20.3		34°51.0	62°20.9	85°12.6
11	260°21.6	13.6'	02°17.5	16.0'	57.9'	111°31.3	110°15.1	80°36.8	68°47.0	7°01.9	35°17.9	62°47.9	85°43.9
12	274°54.1	13.5'	N02°33.5	16.0'	58.0'	110°57.4	109°41.0	80°04.6	68° 13.8	7°31.4	35°45.0	63°15.0	86°15.1
13	289°26.6	13.5'	02°49.6	16.0'	58.0'	110°23.6	109°06.8	79°32.3	67°40.5	8°01.4	36°12.3	63°42.1	86°46.4
14	303°59.1	13.4'	03°05.6	16.0'	58.0'	109°49.6	108°32.6	79°00.0	67°07.2	8°32.0	36° 39.7	64°09.4	87°17.7
15	318°31.5	13.4'	03°21.6	16.0'	58.1'	109°15.7	107°58.3	78°27.7	66°33.9	9°03.0	37°07.4	64°36.7	87°49.1
16	333°03.9	13.3'	03°37.6	16.0'	58.1'	108°41.7	107°24.1	77°55.4	66°00.5	9°34.3	37°35.3	65°04.2	88°20.4
17	347°36.2	13.3'	03°53.7	16.0'	58.1'	108°07.7	106°49.7	77°23.1	65°27.2	10°06.0	38°03.3	65°31.7	88°51.9
18	2°08.5	13.2'	N 04°09.7	16.0'	58.2'	107°33.6	106°15.4	76°50.7	64°53.7	10°37.9	38°31.5	65°59.3	89°23.3
19	16°40.7	13.2'	04°25.7	16.0'	58.2'	106°59.5	105°41.0	76°18.3	64°20.3	11°10.0	38° 59.8	66°26.9	89°54.8
20	31°12.9	13.1'	04°41.8	16.0'	58.2'	106°25.3	105°06.6	75°45.8	63°46.8	11°42.4	39° 28.3	66°54.7	90°26.4
21	45°45.0	13.1'	04°57.8	16.0'	58.2'	105°51.2	104°32.1	75°13.4	63°13.3	12°14.9	39°57.0	67°22.5	90°57.9
22	60°17.1	13.0'	05°13.8	16.0'	58.3'	105°17.0	103°57.6	74°40.9	62°39.8	12°47.6	40°25.8	67°50.4	91°29.5
23	74°49.1	12.9'	05°29.8	16.0'	58.3'	104°42.7	103°23.1	74°08.4	62°06.2	13°20.5	40°54.7	68°18.4	92°01.2
27 th	SD	$= 15.7^{\prime}$	Mer. pass	. 17:51					Sun SD	= 16.3'			

h Moon (28th Dec) Lunar Distance (objects with largest hourly LD delta)

			(-	- /					(esjects trial algest nearly 12 denta)				
Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Jupiter	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Sun
0	89°21.0	12.9'	N 05°45.8	16.0'	58.3'	107°05.6	104°08.4	102°48.5	61°32.7	13°53.5	41°23.8	68°46.5	92°32.8
1	103°52.9	12.8'	$06^{\circ}01.8$	16.0'	58.4'	106°33.4	103°34.1	102°13.9	60°59.1	14°26.6	41°53.1	69°14.6	93°04.5
2	118°24.7	12.8'	06°17.7	16.0'	58.4'	106°01.2	102°59.8	101°39.2	60°25.4	14°59.8	42°22.5	69°42.8	93°36.3
3	132°56.5	12.7'	06°33.7	15.9'	58.4'	105°28.9	102°25.4	101°04.6	59°51.8	15°33.2	42°52.0	70°11.1	94°08.1
4	147°28.1	12.6'	06°49.6	15.9'	58.5'	104°56.6	101°50.9	100°29.8	59° 18.1	16°06.6	43°21.6	70°39.4	94°39.9
5	161°59.8	12.6'	07°05.6	15.9'	58.5'	104°24.2	101°16.5	99°55.1	58° 44.3	16°40.2	43°51.4	71°07.9	95°11.7
6	176°31.3	12.5'	$N07^{\circ}21.5$	15.9'	58.5'	103°51.8	100°42.0	99°20.3	58° 10.6	17° 13.8	44°21.2	71°36.3	95°43.6
7	191°02.8	12.4'	07°37.4	15.9'	58.6'	103°19.3	100°07.4	98°45.5	57° 36.8	17° 47.5	44°51.2	72°04.9	96°15.6
8	205°34.2	12.3'	07°53.2	15.9'	58.6'	102°46.8	99°32.9	98°10.6	57°03.0	18°21.3	45°21.4	72°33.5	96°47.5
9	220°05.6	12.3'	$08^{\circ}09.1$	15.8'	58.6'	102°14.3	98°58.3	97°35.7	56°29.2	18°55.2	45°51.6	73°02.2	97° 19.5
10	234°36.8	12.2'	08°24.9	15.8'	58.6'	101°41.7	98°23.6	97°00.8	55°55.4	19°29.1	46°22.0	73°30.9	97°51.6
11	249°08.0	12.1'	08°40.7	15.8'	58.7'	101°09.1	97°48.9	96°25.8	55°21.5	20°03.1	46°52.4	73°59.8	98°23.6
12	263°39.1	12.0'	N 08°56.5	15.8'	58.7'	100°36.4	97°14.2	95°50.8	54°47.6	20°37.2	47°23.0	74°28.6	98°55.7
13	278°10.2	12.0'	09°12.3	15.7'	58.7'	100°03.7	96°39.5	95°15.7	54° 13.7	21°11.4	47°53.7	74°57.6	99°27.9
14	292°41.1	11.9'	09°28.0	15.7'	58.8'	99°30.9	96°04.7	94°40.6	53°39.8	21°45.6	48° 24.4	75°26.5	100°00.1
15	307°12.0	11.8'	09°43.7	15.7'	58.8'	98°58.1	95°29.8	94°05.5	53°05.8	22°19.8	48°55.3	75°55.6	100°32.3
16	321°42.8	11.7'	09°59.3	15.6'	58.8'	98°25.2	94°55.0	93°30.3	52°31.8	22°54.2	49°26.3	76°24.7	101°04.5
17	336°13.5	11.6'	$10^{\circ}15.0$	15.6'	58.9'	97°52.4	94°20.1	92°55.2	51°57.8	23°28.5	49°57.4	76°53.9	101°36.8
18	350°44.1	11.5'	N 10°30.5	15.6'	58.9'	97°19.4	93°45.1	92°19.9	51°23.8	24°03.0	50°28.5	77°23.1	102°09.2
19	5°14.7	11.4'	10°46.1	15.5'	58.9'	96°46.5	93°10.1	91°44.6	50°49.8	24°37.5	50° 59.8	77°52.4	102°41.5
20	19°45.1	11.4'	$11^{\circ}01.6$	15.5'	58.9'	96°13.5	92°35.1	91°09.3	50° 15.7	25°12.0	51°31.1	78°21.7	103°13.9
21	34°15.5	11.3'	$11^{\circ}17.1$	15.4'	59.0'	95°40.4	92°00.1	90°34.0	49°41.6	25°46.6	52°02.6	78°51.1	103°46.4
22	48°45.7	11.2'	11°32.5	15.4'	59.0'	95°07.3	91°25.0	89°58.6	49°07.5	26°21.3	52°34.1	79°20.5	104°18.8
23	63°15.9	11.1'	11°47.9	15.3'	59.0'	94°34.2	90°49.9	89°23.2	48° 33.4	26°56.0	53°05.7	79°50.0	104°51.3
28 th	SD	$=15.9^{\prime}$	Mer. pass	. 18:38					Sun SD	= 16.3'			

h Moon (29 th Dec)	Lunar Distance (o	objects with larg	est hourly LD delta)	,
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Mon	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Jupiter	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Sun
0	77°46.0	11.0'	N12°03.3	15.3'	59.1'		90°14.7	88°47.7	47°59.3	27°30.7	53°37.4	80°19.5	105°23.9
1	92°16.0	10.9'	$12^{\circ}18.6$	15.2'	59.1'		89°39.5	88°12.2	47°25.1	28°05.5	54°09.2	80°49.1	105°56.5
2	106°45.8	10.8'	12°33.8	15.2'	59.1'		89°04.3	87°36.7	46°51.0	28°40.4	54°41.1	81°18.7	106°29.1
3	121°15.6	10.7'	12°49.0	15.1'	59.2'		88°29.0	87°01.2	46°16.8	29°15.3	55°13.0	81°48.4	107°01.7
4	135°45.3	10.6'	13°04.2	15.1'	59.2'		87°53.7	86°25.6	45°42.6	29°50.2	55°45.0	82°18.1	107°34.4
5	150°14.9	10.5'	$13^{\circ}19.2$	15.0'	59.2'		87°18.4	85°49.9	45°08.4	30°25.2	56°17.1	82°47.9	108°07.2
6	164°44.4	10.4'	N13°34.3	15.0'	59.2'		86°43.0	85°14.2	44°34.2	31°00.2	56°49.3	83°17.7	108°39.9
7	179°13.8	10.3'	13°49.3	14.9'	59.3'		86°07.6	84°38.5	44°00.0	31°35.3	57°21.5	83°47.6	109°12.7
8	193°43.0	10.2'	14°04.2	14.9'	59.3'		85°32.1	84°02.8	43°25.7	32°10.4	57°53.9	84°17.5	109°45.5
9	208°12.2	10.1'	$14^{\circ}19.1$	14.8'	59.3'		84°56.6	83°27.0	42°51.5	32°45.6	58°26.3	84°47.4	110°18.4
10	222°41.3	10.0'	14°33.9	14.7'	59.4'		84°21.1	82°51.2	42°17.2	33°20.8	58°58.7	85°17.4	110°51.3
11	$237^{\circ}10.2$	9.8'	14°48.6	14.7'	59.4'		83°45.5	82°15.3	41°43.0	33°56.0	59°31.3	85°47.4	111°24.2
12	251°39.1	9.7'	$N15^{\circ}03.3$	14.6'	59.4'		83°10.0	81°39.4	41°08.7	34°31.3	60°03.9	86°17.5	111°57.2
13	266°07.8	9.6'	15° 17.9	14.5'	59.4'	119°27.8	82°34.3	81°03.5	40°34.5	35°06.6	60°36.5	86°47.6	112°30.2
14	280°36.4	9.5'	15°32.4	14.5'	59.5'	118°52.1	81°58.7	80°27.6	40°00.2	35°42.0	61°09.3	87°17.7	113°03.3
15	295°04.9	9.4'	15°46.8	14.4'	59.5'	118°16.3	81°23.0	79°51.6	39°26.0	36°17.4	61°42.1	87°47.9	113°36.3
16	309°33.3	9.3'	$16^{\circ}01.2$	14.3'	59.5'	117°40.6	80°47.2	79°15.5	38°51.7	36°52.9	62°14.9	88°18.1	114°09.5
17	324°01.6	9.2'	$16^{\circ}15.5$	14.2'	59.5'	117°04.7	80°11.4	78°39.5	38°17.5	37°28.4	62°47.9	88°48.3	114°42.6
18	338°29.8	9.0'	$N16^{\circ}29.8$	14.2'	59.6'	116°28.9	79°35.6	78°03.4	37°43.2	38°03.9	63°20.8	89°18.6	115°15.8
19	352°57.8	8.9'	16°43.9	14.1'	59.6'	115°53.0	78°59.8	77°27.2	37°09.0	38°39.5	63°53.9	89°48.9	115°49.0
20	7°25.8	8.8'	$16^{\circ}58.0$	14.0'	59.6'	115°17.1	78°23.9	76°51.1	36°34.8	39°15.1	64°27.0	90°19.2	116°22.2
21	21°53.6	8.7'	$17^{\circ}12.0$	13.9'	59.7'	114°41.1	77°48.0	76°14.9	36°00.6	39°50.8	65°00.2	90°49.5	116°55.5
22	36°21.3	8.6'	17°25.9	13.8'	59.7'	114°05.1	77°12.1	75°38.6	35°26.4	40°26.4	65°33.4	91°19.9	117°28.8
23	50°48.8	8.4'	17°39.7	13.7'	59.7'	113°29.1	76°36.1	75°02.4	34°52.3	41°02.2	66°06.7	91°50.3	118°02.2
29 th	SD	= 16.1'	Mer. pass	. 19:29					Sun SE	0 = 16.3'			

Moon (30th Dec) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Jupiter	+Saturn	+Fomalhaut	+Altair	+Sun
0	65°16.3	8.3'	N17°53.4	13.6'	59.7'	112°53.1	80°35.1	76°00.1	74°26.0	41°37.9	66°40.0	92°20.8	118°35.6
1	79°43.6	8.2'	18°07.0	13.5'	59.8'	112°17.0	80°01.2	75°24.0	73°49.7	42°13.7	67° 13.4	92°51.2	119°09.0
2	94°10.8	8.1'	18°20.6	13.4'	59.8'	111°40.8	79°27.2	74°48.0	73°13.3	42°49.6	67°46.9	93°21.7	119°42.4
3	108°37.8	7.9'	18°34.0	13.3'	59.8'	111°04.7	78°53.2	74°11.8	72°36.9	43°25.4	68°20.4	93°52.2	
4	123°04.8	7.8'	18°47.3	13.2'	59.8'	110°28.5	78°19.2	73°35.7	72°00.5	44°01.4	68°53.9	94°22.7	
5	137°31.6	7.7'	19°00.6	13.1'	59.9'	109°52.3	77°45.2	72°59.5	71°24.0	44°37.3	69°27.5	94°53.3	
6	151°58.3	7.6'	N19°13.7	13.0'	59.9'	109°16.0	$77^{\circ}11.1$	72°23.3	70°47.5	45°13.3	70°01.2	95°23.8	i i
7	166°24.9	7.4'	19°26.8	12.9'	59.9'	108°39.7	76°37.0	71°47.1	70°11.0	45°49.3	70°34.9	95°54.4	
8	180°51.3	7.3'	19°39.7	12.8'	59.9'	108°03.4	76°02.9	71°10.8	69°34.4	46°25.4	71°08.6	96°25.0	
9	195°17.6	7.2'	19°52.5	12.7'	60.0'	107°27.0	75°28.8	70°34.5	68°57.8	47°01.4	71°42.4	96°55.6	
10	209°43.8	7.1'	20°05.2	12.6'	60.0'	106°50.6	74°54.7	69°58.2	68°21.2	47°37.6	72° 16.3	97°26.2	
11	224°09.9	6.9'	20°17.8	12.5'	60.0'	106°14.2	74°20.5	69°21.8	67°44.5	48°13.7	72°50.2	97°56.9	
12	238°35.8	6.8'	N 20°30.3	12.4'	60.0'	105°37.8	73°46.4	68°45.4	67°07.9	48°49.9	73°24.1	98°27.5	
13	253°01.6	6.7'	20°42.6	12.2'	60.1'	105°01.3	73°12.2	68°09.0	66°31.1	49°26.1	73°58.1	98°58.2	i i
14	267°27.2	6.5'	20°54.9	12.1'	60.1'	104°24.8	72°38.0	67°32.5	65°54.4	50°02.4	74°32.1	99°28.8	
15	281°52.8	6.4'	$21^{\circ}07.0$	12.0'	60.1'	103°48.2	72°03.8	66°56.0	65°17.6	50°38.7	75°06.2	99°59.5	
16	296°18.2	6.3'	$21^{\circ}19.0$	11.9'	60.1'	103°11.7	71°29.5	66°19.5	64°40.8	51°15.0	75°40.3	100°30.2	
17	310°43.4	6.1'	21°30.9	11.7'	60.1'	102°35.1	70°55.3	65°43.0	64°04.0	51°51.3	76° 14.4	101°00.8	
18	325°08.6	6.0'	N 21°42.6	11.6'	60.2'	101°58.4	70°21.1	65°06.4	63°27.1	52°27.7	76°48.6	101°31.5	
19	339°33.6	5.9'	21°54.2	11.5'	60.2'	101°21.8	69°46.8	64°29.8	62°50.2	53°04.1	77° 22.8	102°02.2	i i
20	353°58.5	5.7'	22°05.7	11.3'	60.2'	100°45.1	69°12.5	63°53.2	62°13.3	53°40.6	77°57.1	102°32.9	
21	8°23.2	5.6'	$22^{\circ}17.0$	11.2'	60.2'	100°08.4	68°38.3	63°16.5	61°36.3	54°17.0	78°31.4	103°03.6	
22	22°47.8	5.5'	22°28.2	11.1'	60.3'	99°31.6	68°04.0	62°39.8	60°59.4	54°53.5	79°05.7	103°34.2	
23	37°12.3	5.4'	22°39.3	10.9'	60.3'	98°54.8	67°29.7	62°03.1	60°22.4	55°30.0	79°40.1	104°04.9	
30 th	SD	= 16.3	Mer. pas	s. 20:25					Sun S	5D = 16.3'			

h Moon (31st Dec) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Jupiter	+Saturn	+Fomalhaut	+Achernar	+Altair
0	51°36.7	5.2'	N 22°50.2	10.8'	60.3'	98°18.1	66°55.4	61°26.4	59°45.3	56°06.6	80°14.5	82°19.8	104°35.6
1	66°00.9	5.1'	23°01.0	10.6'	60.3'	97°41.2	66°21.1	60°49.6	59°08.3	56°43.2	80°49.0	82°38.1	105°06.2
2	80°25.0	5.0'	23°11.6	10.5'	60.3'	97°04.4	65°46.8	60°12.8	58° 31.2	57°19.8	81°23.4	82°56.4	105°36.8
3	94°49.0	4.8'	23°22.1	10.3'	60.3'	96°27.5	65°12.6	59°36.0	57°54.1	57°56.4	81°57.9	83°14.8	106°07.5
4	109°12.8	4.7'	23°32.4	10.2'	60.4'	95°50.6	64°38.3	58°59.2	57° 17.0	58°33.1	82°32.5	83°33.2	106°38.1
5	123°36.5	4.6'	23°42.6	10.0'	60.4'	95°13.7	64°04.0	58°22.3	56° 39.8	59°09.8	83°07.0	83°51.7	107°08.7
6	138°00.1	4.5'	N23°52.6	9.9'	60.4'	94°36.7	63°29.7	57°45.4	56°02.7	59°46.5	83°41.6	84°10.2	107°39.2
7	152°23.6	4.3'	24°02.5	9.7'	60.4'	93°59.7	62°55.4	57°08.5	55° 25.5	60°23.2	84°16.2	84°28.7	108°09.8
8	166°46.9	4.2'	24°12.2	9.5'	60.4'	93°22.7	62°21.1	56°31.6	54°48.3	61°00.0	84°50.9	84°47.3	108°40.3
9	181°10.2	4.1'	24°21.8	9.4'	60.5'	92°45.7	61°46.9	55°54.6	54°11.0	61°36.8	85°25.6	85°05.9	109° 10.8
10	195°33.2	4.0'	24°31.1	9.2'	60.5'	92°08.7	61°12.6	55° 17.6	53°33.8	62°13.6	86°00.3	85°24.6	109°41.3
11	209°56.2	3.9'	24°40.4	9.1'	60.5'	91°31.6	60°38.4	54°40.7	52°56.5	62°50.4	86°35.0	85°43.3	110°11.8
12	224°19.1	3.7'	N24°49.4	8.9'	60.5'	90°54.5	60°04.2	54°03.6	52° 19.2	63°27.3	87°09.7	86°02.0	110°42.2
13	238°41.8	3.6'	24°58.3	8.7'	60.5'	90°17.4	59°29.9	53°26.6	51°41.9	64°04.2	87°44.5	86°20.8	111°12.6
14	253°04.4	3.5'	25°07.0	8.5'	60.5'	89°40.3	58°55.7	52°49.5	51°04.5	64°41.1	88°19.3	86°39.6	111°43.0
15	267°26.9	3.4'	25° 15.5	8.4'	60.5'	89°03.1	58°21.6	52° 12.5	50°27.2	65°18.0	88°54.1	86°58.4	112°13.3
16	281°49.3	3.3'	25°23.9	8.2'	60.6'	88°25.9	57°47.4	51°35.4	49°49.8	65°55.0	89°28.9	87°17.2	112°43.6
17	296°11.6	3.2'	25°32.1	8.0'	60.6'	87°48.7	57°13.3	50°58.2	49° 12.4	66°31.9	90°03.8	87°36.1	113°13.8
18	310°33.8	3.1'	N25°40.1	7.8'	60.6'	87°11.5	56°39.1	50°21.1	48° 35.0	67°08.9	90°38.7	87°55.0	113°44.0
19	324°55.8	2.9'	25°47.9	7.6'	60.6'	86°34.3	56°05.1	49°44.0	47° 57.6	67°45.9	91°13.5	88°13.9	114°14.2
20	339°17.8	2.8'	25°55.5	7.5'	60.6'	85°57.0	55°31.0	49°06.8	47°20.1	68°22.9	91°48.4	88°32.8	114°44.3
21	353°39.6	2.7'	26°03.0	7.3'	60.6'	85°19.8	54°57.0	48° 29.6	46°42.7	69°00.0	92°23.3	88°51.8	115°14.4
22	8°01.3	2.6'	$26^{\circ}10.3$	7.1'	60.6'	84°42.5	54°23.0	47°52.4	46°05.2	69°37.0	92°58.3	89°10.7	115°44.4
23	22°23.0	2.5'	26°17.3	6.9'	60.6'	84°05.2	53°49.0	47° 15.2	45°27.7	70°14.1	93°33.2	89°29.7	116°14.3
31 st	SD	= 16.4	′ Mer. pas	s. 21:26									