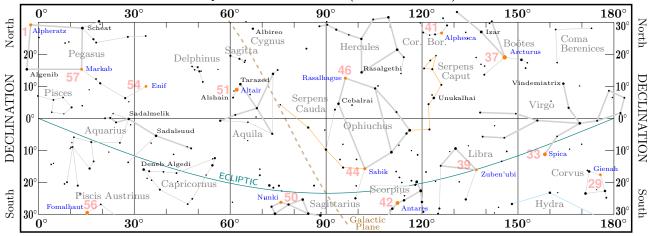
GENERATED USING SKYFIELD

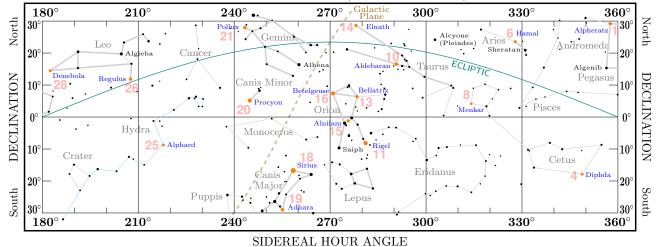
http://rhodesmill.org/skyfield/

EQUATORIAL STARS (SHA 0° to 180°)



SIDEREAL HOUR ANGLE

EQUATORIAL STARS (SHA 180° to 360°)



Lunar Distance

2029

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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 Moon (1st Jan)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	355°02.5	6.9'	N22°34.2	-7.0'	58.2'	100°18.6	99°35.6	79°40.0	45°35.8	22°05.4	31°36.6	34°48.6	70°13.7
1	9°28.4	6.9'	22°27.2	-7.1'	58.2'	99°44.7	99°01.2	79°06.8	45°01.5	22°26.8	32°02.1	35°22.0	70°47.9
2	23°54.4	7.0'	22°20.1	-7.2'	58.2'	99°10.7	98°26.7	78°33.6	44°27.2	22°48.6	32°27.8	35°55.4	71°22.1
3	38°20.3	7.0'	22°12.8	-7.4'	58.2'	98°36.7	97°52.3	78°00.3	43°52.8	23°11.0	32°53.8	36°28.9	71°56.3
4	52°46.4	7.1'	22°05.5	-7.5'	58.3'	98°02.6	97°17.8	77°27.0	43°18.5	23°33.9	33°20.0	37°02.4	72°30.6
5	67°12.4	7.1'	$21^{\circ}57.9$	-7.7'	58.3'	97°28.6	96°43.2	76°53.7	42°44.1	23°57.2	33°46.5	37°35.9	73°04.9
6	81°38.5	7.1'	N 21°50.3	-7.8'	58.3'	96°54.5	96°08.7	76°20.4	42°09.7	24°21.0	34°13.2	38°09.6	73°39.2
7	96°04.6	7.2'	21°42.5	-7.9'	58.3'	96°20.3	95°34.1	75°47.0	41°35.3	24°45.1	34°40.1	38°43.2	74°13.5
8	110°30.8	7.2'	21°34.5	-8.1'	58.4'	95°46.2	94°59.5	75°13.6	41°00.9	25°09.7	35°07.3	39°16.9	74°47.9
9	124°57.0	7.3'	21°26.4	-8.2'	58.4'	95°12.0	94°24.9	74°40.2	40°26.4	25°34.7	35°34.6	39°50.7	75°22.3
10	139°23.3	7.3'	21°18.2	-8.4'	58.4'	94°37.8	93°50.2	74°06.8	39°51.9	26°00.0	36°02.2	40°24.5	75°56.7
11	153°49.6	7.3'	$21^{\circ}09.9$	-8.5'	58.4'	94°03.6	93°15.5	73°33.3	39°17.4	26°25.7	36°30.0	40°58.4	76°31.1
12	168°15.9	7.4'	N 21°01.4	-8.6'	58.4'	93°29.3	92°40.8	72°59.9	38°42.9	26°51.7	36°57.9	41°32.3	77°05.6
13	182°42.3	7.4'	20°52.8	-8.8'	58.5'	92°55.1	92°06.1	72°26.4	38°08.4	27°18.0	37°26.0	42°06.2	77°40.1
14	197°08.7	7.5'	20°44.0	-8.9'	58.5'	92°20.8	91°31.3	71°52.8	37°33.8	27°44.6	37°54.4	42°40.2	78°14.6
15	211°35.2	7.5'	20°35.1	-9.0'	58.5'	91°46.4	90°56.5	71°19.3	36°59.3	28°11.6	38°22.8	43°14.2	78°49.1
16	226°01.7	7.6'	20°26.1	-9.1'	58.5'	91°12.1	90°21.7	70°45.7	36°24.7	28°38.8	38°51.5	43°48.3	79°23.7
17	240°28.2	7.6'	$20^{\circ}17.0$	-9.3'	58.5'	90°37.7	89°46.9	70°12.1	35°50.1	29°06.3	39°20.3	44°22.4	79°58.3
18	254°54.9	7.7'	N 20°07.7	-9.4'	58.6'	90°03.3	89°12.1	69°38.5	35°15.5	29°34.0	39°49.3	44°56.5	80°32.9
19	269°21.5	7.7'	19°58.3	-9.5'	58.6'	89°28.9	88°37.2	69°04.9	34°40.9	30°02.0	40°18.4	45°30.7	81°07.5
20	283°48.2	7.8'	19°48.8	-9.6'	58.6'	88°54.5	88°02.3	68°31.3	34°06.2	30°30.2	40°47.6	46°04.9	81°42.2
21	298°15.0	7.8'	$19^{\circ}39.1$	-9.8'	58.6'	88°20.0	87°27.4	67°57.6	33°31.6	30°58.6	41°17.0	46°39.2	82°16.9
22	312°41.8	7.9'	19°29.4	-9.9'	58.6'	87°45.5	86°52.5	67°23.9	32°56.9	31°27.3	41°46.6	47°13.5	82°51.6
23	327°08.6	7.9'	19°19.5	-10.0'	58.7'	87°11.0	86°17.5	66°50.2	32°22.2	31°56.1	42°16.2	47°47.8	83°26.3
1 st	SD	= 15.9	' Mer. pas	s. 00:21									

Moon (2nd Jan)

h

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	341°35.5	8.0'	N 19°09.5	-10.1'	58.7'		86°36.5	85°42.5	31°47.6		32°25.2	48°22.1	84°01.1
1	356°02.5	8.0'	18°59.3	-10.2'	58.7'		86°02.0	85°07.5	31°12.9		32°54.4	48°56.5	84°35.8
2	10°29.5	8.1'	18°49.1	-10.4'	58.7'		85°27.4	84°32.5	30°38.2		33°23.8	49°30.9	85°10.6
3	24°56.6	8.1'	18°38.7	-10.5'	58.7'		84°52.8	83°57.5	30°03.5		33°53.4	50°05.4	85°45.4
4	39°23.7	8.2'	18°28.2	-10.6'	58.8'		84°18.2	83°22.4	29°28.8		34°23.2	50°39.8	86°20.3
5	53°50.9	8.2'	18°17.6	-10.7'	58.8'		83°43.6	82°47.4	28°54.0	11°21.0	34°53.1	51°14.3	86°55.1
6	68°18.1	8.3'	N 18°06.9	-10.8'	58.8'		83°08.9	82°12.3	28°19.3	11°47.6	35°23.2	51°48.9	87°30.0
7	82°45.4	8.3'	$17^{\circ}56.1$	-10.9'	58.8'		82°34.3	81°37.1	27°44.6	12°14.9	35°53.5	52°23.4	88°04.9
8	97°12.7	8.4'	17°45.2	-11.0'	58.8'		81°59.6	81°02.0	27°09.9	12°42.8	36°23.8	52°58.0	88°39.8
9	111°40.1	8.4'	17°34.1	-11.2'	58.8'		81°24.9	80°26.9	26°35.2	13°11.3	36°54.4	53°32.6	89°14.7
10	126°07.5	8.5'	17°23.0	-11.3'	58.9'		80°50.2	79°51.7	26°00.4	13°40.4	37°25.0	54°07.3	89°49.6
11	140°35.0	8.5'	$17^{\circ}11.7$	-11.4'	58.9'		80°15.5	79°16.5	25°25.7	14°09.9	37°55.8	54°42.0	90°24.6
12	155°02.6	8.6'	$N17^{\circ}00.3$	-11.5'	58.9'		79°40.7	78°41.3	24°51.0	14°39.9	38° 26.7	55°16.6	90°59.5
13	169°30.2	8.7'	16°48.9	-11.6'	58.9'		79°06.0	78°06.1	24°16.3	15° 10.2	38° 57.7	55°51.4	91°34.5
14	183°57.8	8.7'	16°37.3	-11.7'	58.9'		78°31.2	77°30.9	23°41.6	15°40.9	39°28.9	56°26.1	92°09.5
15	198°25.6	8.8'	16°25.6	-11.8'	58.9'		77°56.4	76°55.6	23°07.0	16°11.9	40°00.1	57°00.9	92°44.6
16	212°53.3	8.8'	16°13.8	-11.9'	58.9'		77°21.6	76°20.4	22°32.3	16°43.2	40°31.5	57°35.6	93°19.6
17	227°21.1	8.9'	16°02.0	-12.0'	59.0'		76°46.8	75°45.1	21°57.7	17° 14.7	41°02.9	58°10.4	93°54.6
18	241°49.0	8.9'	$N15^{\circ}50.0$	-12.1'	59.0'		76°12.0	75°09.8	21°23.0	17°46.6	41°34.5	58°45.3	94°29.7
19	256°16.9	9.0'	15°37.9	-12.2'	59.0'		75°37.1	74°34.5	20°48.5	18° 18.6	42°06.1	59°20.1	95°04.8
20	270°44.9	9.0'	15°25.8	-12.3'	59.0'	119°37.2	75°02.3	73°59.2	20°13.9	18°50.8	42°37.9	59°55.0	95°39.9
21	285°13.0	9.1'	15°13.5	-12.3'	59.0'	119°01.8	74°27.4	73°23.8	19°39.4	19°23.2	43°09.7	60°29.9	96°15.0
22	299°41.1	9.1'	15°01.2	-12.4'	59.0'	118°26.4	73°52.5	72°48.5	19°04.9	19°55.8	43°41.6	61°04.8	96°50.1
23	314°09.2	9.2'	14°48.7	-12.5'	59.0'	117°51.0	73°17.6	72°13.1	18°30.4	20°28.6	44°13.6	61°39.7	97°25.2
2 nd	SD	= 16.0	Mer. pas	ss. 01:16									

h Moon (3rd Jan)

Wed	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	328°37.4	9.3'	N 14°36.2	-12.6'	59.1'	117° 15.6	72°42.7	71°37.8	17°56.0	21°01.5	44° 45.7	62°14.7	98°00.3
1	343°05.7	9.3'	14°23.6	-12.7'	59.1'	116°40.2	72°07.8	71°02.4	17°21.7	21°34.6	45° 17.9	62°49.6	98°35.5
2	357°34.0	9.4'	$14^{\circ}10.9$	-12.8'	59.1'	116°04.7	71°32.9	70°27.0	16°47.4	22°07.7	45°50.1	63°24.6	99°10.7
3	12°02.3	9.4'	$13^{\circ}58.1$	-12.9'	59.1'	115°29.3	70°57.9	69°51.6	$16^{\circ}13.1$	22°41.0	46°22.4	63°59.6	99°45.8
4	26°30.7	9.5'	13°45.2	-13.0'	59.1'	114°53.8	70°23.0	69°16.2	15°39.0	23°14.4	46°54.8	64°34.6	100°21.0
5	40°59.2	9.5'	13°32.3	-13.0'	59.1'	114°18.3	69°48.0	68°40.7	15°04.9	23°48.0	47°27.2	65°09.6	100°56.2
6	55°27.7	9.6'	$N13^{\circ}19.2$	-13.1'	59.1'	113°42.9	69°13.0	68°05.3	14°31.0	24°21.6	47°59.7	65°44.7	101°31.4
7	69°56.3	9.6'	$13^{\circ}06.1$	-13.2'	59.1'	113°07.4	68°38.1	67°29.8	13°57.2	24°55.3	48° 32.3	66°19.7	102°06.6
8	84°24.9	9.7'	12°52.9	-13.3'	59.1'	112°31.9	68°03.1	66°54.4	13°23.5	25°29.1	49°04.9	66°54.8	102°41.8
9	98°53.5	9.7'	12°39.7	-13.3'	59.2'	111°56.3	67°28.1	66°18.9	12°49.9	26°02.9	49°37.6	67°29.9	103°17.1
10	113°22.3	9.8'	12°26.3	-13.4'	59.2'	111°20.8	66°53.1	65°43.4	12°16.5	26°36.9	50°10.3	68°05.0	103°52.3
11	127°51.0	9.8'	$12^{\circ}12.9$	-13.5'	59.2'	110°45.3	66°18.1	65°07.9	11°43.3	27°10.9	50°43.1	68°40.1	104°27.5
12	142°19.8	9.9'	N 11°59.4	-13.6'	59.2'	110°09.7	65°43.1	64°32.5	11°10.4	27°45.0	51°16.0	69°15.2	105°02.8
13	156°48.7	9.9'	11°45.9	-13.6'	59.2'	109°34.2	65°08.0	63°57.0	10°37.7	28° 19.1	51°48.9	69°50.4	105°38.0
14	171°17.6	10.0'	11°32.3	-13.7'	59.2'	108°58.6	64°33.0	63°21.4	10°05.4	28°53.4	52°21.8	70°25.5	106°13.3
15	185°46.6	10.0'	$11^{\circ}18.6$	-13.8'	59.2'	108°23.1	63°58.0	62°45.9	9°33.4	29°27.6	52°54.8	71°00.7	106°48.6
16	200°15.6	10.0'	$11^{\circ}04.8$	-13.8'	59.2'	107°47.5	63°22.9	62°10.4	9°01.8	30°02.0	53°27.9	71°35.8	107°23.8
17	214°44.6	10.1'	$10^{\circ}51.0$	-13.9'	59.2'	107°11.9	62°47.9	61°34.9	8°30.8	30°36.3	54°01.0	72°11.0	107°59.1
18	229°13.7	10.1'	$N10^{\circ}37.1$	-13.9'	59.2'	106°36.3	62°12.8	60°59.3	8°00.4	31°10.8	54°34.1	72°46.2	108°34.4
19	243°42.8	10.2'	10°23.2	-14.0'	59.2'	106°00.7	61°37.8	60°23.8	7°30.7	31°45.2	55°07.3	73°21.4	109°09.7
20	258°12.0	10.2'	$10^{\circ}09.2$	-14.1'	59.3'	105°25.1	61°02.7	59°48.2	7°01.9	32° 19.7	55° 40.5	73°56.6	109°45.0
21	272°41.2	10.3'	09°55.1	-14.1'	59.3'	104°49.5	60°27.7	59°12.7		32°54.3	56°13.7	74°31.8	110°20.3
22	287°10.5	10.3'	$09^{\circ}41.0$	-14.2'	59.3'	104°13.9	59°52.6	58°37.1		33°28.9	56°47.0	75°07.0	110°55.6
23	301°39.8	10.3'	09°26.8	-14.2'	59.3'	103°38.3	59°17.6	58°01.6		34°03.5	57°20.4	75°42.3	111°30.9
3 rd	SD	= 16.1	Mer. pas	s. 02:10									

h	Moon	(4 th	Jan)

Thu	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	316°09.1	10.4'	N 09°12.6	-14.3'	59.3'	103°02.6	58°42.5	57°26.0	39°07.0	34°38.2	57°53.7	76° 17.5	112°06.2
1	330°38.5	10.4'	08°58.3	-14.3'	59.3'	102°27.0	58°07.4	56°50.4	38°33.1	35°12.9	58°27.1	76°52.7	112°41.5
2	345°08.0	10.5'	08°44.0	-14.4'	59.3'	101°51.4	57°32.4	56° 14.9	37°59.2	35°47.6	59°00.5	77°28.0	113°16.8
3	359°37.4	10.5'	08°29.6	-14.4'	59.3'	101°15.7	56°57.3	55°39.3	37°25.3	36°22.4	59°34.0	78°03.3	113°52.1
4	14°06.9	10.5'	08° 15.2	-14.5'	59.3'	100°40.1	56°22.2	55°03.7	36°51.4	36°57.1	60°07.5	78°38.5	114°27.4
5	28°36.5	10.6'	08°00.7	-14.5'	59.3'	100°04.4	55°47.2	54°28.1	36°17.6	37°32.0	60°41.0	79° 13.8	115°02.7
6	43°06.0	10.6'	N07°46.2	-14.6'	59.3'	99°28.8	55°12.1	53°52.5	35°43.8	38°06.8	61°14.5	79°49.1	115°38.0
7	57°35.6	10.6'	07°31.6	-14.6'	59.3'	98°53.1	54°37.1	53°16.9	35°10.0	38°41.7	61°48.1	80°24.3	116°13.3
8	72°05.3	10.7'	$07^{\circ}17.0$	-14.6'	59.3'	98°17.5	54°02.0	52°41.4	34°36.2	39°16.6	62°21.7	80° 59.6	116°48.6
9	86°35.0	10.7'	07°02.4	-14.7'	59.3'	97°41.8	53°26.9	52°05.8	34°02.5	39°51.5	62°55.3	81°34.9	117°23.9
10	101°04.7	10.7'	06°47.7	-14.7'	59.3'	97°06.1	52°51.9	51°30.2	33°28.7	40°26.4	63°28.9	82° 10.2	117°59.2
11	115°34.4	10.8'	06°33.0	-14.8'	59.3'	96°30.5	52°16.8	50°54.6	32°55.0	41°01.3	64°02.6	82°45.5	118°34.5
12	130°04.2	10.8'	$N06^{\circ}18.2$	-14.8'	59.3'	95°54.8	51°41.8	50° 19.0	32°21.4	41°36.3	64°36.3	83°20.8	119°09.8
13	144°34.0	10.8'	06°03.4	-14.8'	59.3'	95°19.1	51°06.7	49°43.4	31°47.8	42°11.3	65°10.0	83°56.1	119°45.1
14	159°03.8	10.9'	05°48.6	-14.9'	59.3'	94°43.5	50°31.7	49°07.8	31°14.2	42°46.3	65°43.7	84°31.4	
15	173°33.7	10.9'	05°33.7	-14.9'	59.3'	94°07.8	49°56.7	48° 32.2	30°40.6	43°21.3	66° 17.4	85°06.7	
16	188°03.6	10.9'	05° 18.9	-14.9'	59.4'	93°32.1	49°21.6	47°56.6	30°07.1	43°56.4	66°51.2	85°42.0	
17	202°33.5	10.9'	05°03.9	-14.9'	59.4'	92°56.4	48°46.6	47°21.0	29°33.7	44°31.4	67°25.0	86° 17.3	
18	217°03.4	11.0'	N04°49.0	-15.0'	59.4'	92°20.8	48°11.6	46°45.4	29°00.2	45°06.5	67°58.8	86°52.6	
19	231°33.4	11.0'	04°34.0	-15.0'	59.4'	91°45.1	47°36.6	46°09.9	28°26.9	45°41.6	68°32.6	87°27.9	
20	246°03.3	11.0'	04°19.0	-15.0'	59.4'	91°09.4	47°01.6	45°34.3	27°53.6	46°16.6	69°06.4	88°03.2	
21	260°33.3	11.0'	04°04.0	-15.0'	59.4'	90°33.7	46°26.6	44°58.7	27°20.3	46°51.7	69°40.2	88° 38.5	
22	275°03.4	11.0'	03°49.0	-15.1'	59.4'	89°58.1	45°51.6	44°23.1	26°47.1	47°26.8	70°14.1	89° 13.8	
23	289°33.4	11.1'	03°33.9	-15.1'	59.4'	89°22.4	45°16.6	43°47.5	26°14.0	48°02.0	70°47.9	89°49.1	
4 th	SD	= 16.2'	Mer. pass	s. 03:02									

h		Моо	n (5 th Jai	n)		Lunar Distance (objects with largest hourly LD delta)									
Fri	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Pollux	+Betelgeuse	+Aldebaran		
0	304°03.5	11.1'	N 03°18.9	-15.1'	59.4'		88°46.7	44°41.7	43°12.0	11°51.1	48°37.1	71°21.8	90°24.4		
1	318°33.5	11.1'	03°03.8	-15.1'	59.4'		88°11.1	44°06.7	42°36.4	12°24.5	49° 12.2	71°55.7	90°59.7		
2	333°03.6	11.1'	02°48.7	-15.1'	59.4'		87°35.4	43°31.8	42°00.9	12°58.0	49°47.4	72°29.6	91°35.0		
3	347°33.8	11.1'	02°33.5	-15.1'	59.4'		86°59.7	42°56.8	41°25.3	13°31.7	50°22.5	73°03.5	92°10.3		
4	2°03.9	11.1'	02°18.4	-15.1'	59.4'		86°24.1	42°21.9	40°49.7	14°05.6	50°57.7	73°37.4	92°45.6		
5	16°34.0	11.2'	$02^{\circ}03.3$	-15.2'	59.4'		85°48.4	41°47.0	40°14.2	14°39.6	51°32.9	74°11.3	93°20.9		
6	31°04.2	11.2'	N 01°48.1	-15.2'	59.4'		85°12.8	41°12.1	39°38.7	15°13.8	52°08.0	74°45.3	93°56.2		
7	45°34.3	11.2'	01°32.9	-15.2'	59.4'	119°54.4	84°37.1	40°37.2	39°03.1	15°48.0	52°43.2	75°19.2	94°31.5		
8	60°04.5	11.2'	$01^{\circ}17.8$	-15.2'	59.4'	119°21.2	84°01.5	40°02.4	38°27.6	16°22.4	53° 18.4	75°53.1	95°06.8		
9	74°34.7	11.2'	$01^{\circ}02.6$	-15.2'	59.4'	118°48.1	83°25.8	39°27.5	37°52.1	16°56.8	53°53.6	76°27.1	95°42.0		
10	89°04.9	11.2'	00°47.4	-15.2'	59.4'	118°15.0	82°50.2	38°52.7	37°16.6	17°31.3	54°28.7	77°01.0	96°17.3		
11	103°35.1	11.2'	00°32.2	-15.2'	59.4'	117°41.9	82°14.5	38°17.9	36°41.1	18°05.9	55°03.9	77°35.0	96°52.6		
12	118°05.3	11.2'	$N00^{\circ}17.1$	-15.2'	59.4'	117°08.8	81°38.9	37°43.1	36°05.6	18°40.5	55°39.1	78°08.9	97°27.8		
13	132°35.5	11.2'	N 00°01.9	-15.2'	59.4'	116°35.6	81°03.3	37°08.3	35°30.1	19°15.2	56° 14.3	78°42.9	98°03.1		
14	147°05.7	11.2'	S 00°13.3	-15.2'	59.4'	116°02.5	80°27.6	36°33.6	34°54.6	19°50.0	56° 49.5	79°16.9	98°38.3		
15	161°36.0	11.2'	00°28.5	-15.2'	59.4'	115°29.4	79°52.0	35°58.9	34°19.1	20°24.8	57°24.7	79°50.8	99°13.6		
16	176°06.2	11.2'	00°43.7	-15.2'	59.4'	114°56.3	79°16.4	35°24.2	33°43.7	20°59.6	57° 59.9	80°24.8	99°48.8		
17	190°36.4	11.2'	00°58.8	-15.2'	59.4'	114°23.3	78°40.8	34°49.5	33°08.2	21°34.5	58°35.1	80°58.8	100°24.1		
18	205°06.6	11.2'	S 01°14.0	-15.2'	59.3'	113°50.2	78°05.2	34°14.8	32°32.8	22°09.4	59° 10.3	81°32.8	100°59.3		
19	219°36.8	11.2'	$01^{\circ}29.1$	-15.1'	59.3'	113° 17.1	77°29.6	33°40.2	31°57.3	22°44.3	59°45.5	82°06.7	101°34.5		
20	234°07.1	11.2'	01°44.3	-15.1'	59.3'	112°44.0	76°54.0	33°05.6	31°21.9	23°19.2	60°20.7	82°40.7	102°09.7		
21	248°37.3	11.2'	$01^{\circ}59.4$	-15.1'	59.3'	112°10.9	76°18.4	32°31.0	30°46.5	23°54.2	60°55.9	83°14.7	102°44.9		
22	263°07.5	11.2'	$02^{\circ}14.5$	-15.1'	59.3'	111°37.9	75°42.8	31°56.5	30°11.1	24°29.2	61°31.1	83°48.6	103°20.1		
23	277°37.7	11.2'	02°29.6	-15.1'	59.3'	111°04.8	75°07.2	31°22.0	29°35.7	25°04.3	62°06.3	84°22.6	103°55.3		
5 th	SD	= 16.2'	Mer. pas	s. 03:51					Sur	SD = 16.3'					

h Moon ((6 th Jan)	Lunar Distance	(objects with	largest hourly	LD delta)
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Sat	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	292°07.9	11.2'	S 02°44.7	-15.1'	59.3'	110°31.8	74°31.6	30° 47.5	29°00.4	25°39.3	58°59.1	62°41.5	104°30.5
1	306°38.1	11.2'	02°59.8	-15.1'	59.3'	109°58.7	73°56.1	30° 13.0	28°25.0	26° 14.4	59°33.1	63°16.7	105°05.7
2	321°08.3	11.2'	03°14.8	-15.0'	59.3'	109°25.7	73°20.5	29°38.6	27°49.7	26°49.4	60°07.1	63°51.9	105°40.9
3	335°38.4	11.2'	03°29.9	-15.0'	59.3'	108°52.6	72°45.0	29°04.3	27°14.4	27°24.5	60°41.1	64°27.1	106°16.0
4	350°08.6	11.1'	03°44.9	-15.0'	59.3'	108°19.6	72°09.4	28° 29.9	26°39.1	27° 59.6	61°15.1	65°02.3	106°51.2
5	4°38.7	11.1'	03°59.9	-15.0'	59.3'	107°46.6	71°33.9	27°55.7	26°03.8	28°34.7	61°49.1	65°37.5	107°26.3
6	19°08.9	11.1'	S 04°14.8	-14.9'	59.3'	107°13.6	70°58.3	27°21.4	25°28.5	29°09.9	62°23.1	66°12.7	108°01.4
7	33°39.0	11.1'	04°29.8	-14.9'	59.3'	106°40.6	70°22.8	26° 47.2	24°53.3	29°45.0	62°57.2	66°47.8	108°36.6
8	48°09.1	11.1'	04°44.7	-14.9'	59.3'	106°07.6	69°47.3	26° 13.1	24°18.1	30°20.1	63°31.2	67°23.0	109°11.7
9	62°39.2	11.1'	04°59.6	-14.9'	59.3'	105°34.6	69°11.8	25°39.0	23°42.9	30°55.3	64°05.2	67°58.2	109°46.8
10	77°09.2	11.1'	05°14.4	-14.8'	59.3'	105°01.6	68°36.3	25°05.0	23°07.7	31°30.4	64°39.3	68°33.3	110°21.9
11	91°39.3	11.0'	$05^{\circ}29.2$	-14.8'	59.3'	104°28.6	68°00.8	24°31.0	22°32.5	32°05.6	65°13.4	69°08.5	110°56.9
12	106°09.3	11.0'	S 05°44.0	-14.8'	59.3'	103°55.7	67°25.3	23°57.1	21°57.4	32°40.7	65°47.4	69°43.6	111°32.0
13	120°39.3	11.0'	05°58.8	-14.7'	59.3'	103°22.7	66°49.8	23°23.3	21°22.3	33° 15.9	66°21.5	70°18.8	112°07.1
14	135°09.3	11.0'	$06^{\circ}13.5$	-14.7'	59.3'	102°49.8	66° 14.3	22°49.6	20°47.2	33°51.1	66°55.6	70°53.9	112°42.1
15	149°39.3	10.9'	06°28.2	-14.6'	59.3'	102°16.8	65°38.9	22°15.9	20°12.2	34°26.2	67°29.7	71°29.1	113°17.1
16	164°09.2	10.9'	06°42.8	-14.6'	59.3'	101°43.9	65°03.4	21°42.3	19°37.2	35°01.4	68°03.7	72°04.2	113°52.2
17	178°39.2	10.9'	06°57.4	-14.6'	59.2'	101°11.0	64°28.0	21°08.8	19°02.2	35°36.6	68°37.8	72°39.3	114°27.2
18	193°09.0	10.9'	S 07°12.0	-14.5'	59.2'	100°38.0	63°52.5	20°35.4	18°27.3	36°11.7	69°11.9	73°14.4	115°02.2
19	207°38.9	10.8'	07°26.5	-14.5'	59.2'	100°05.1	63° 17.1	20°02.1	17°52.4	36°46.9	69°46.0	73°49.6	115°37.1
20	222°08.7	10.8'	07°41.0	-14.4'	59.2'	99°32.2	62°41.7	19°29.0	17°17.5	37°22.1	70°20.1	74°24.7	116°12.1
21	236°38.6	10.8'	07°55.4	-14.4'	59.2'	98°59.3	62°06.3	18°55.9	16°42.7	37°57.2	70°54.2	74°59.8	116°47.1
22	251°08.3	10.7'	$08^{\circ}09.8$	-14.3'	59.2'	98°26.5	61°30.9	18°23.0	16°08.0	38°32.4	71°28.3	75°34.9	117°22.0
23	265°38.1	10.7'	08°24.2	-14.3'	59.2'	97°53.6	60°55.5	17°50.2	15°33.3	39°07.5	72°02.4	76°09.9	117°56.9
6 th	SD	SD = 16.2' Mer. pass. 04:41 Sun SD = 16.3'											

h Moon (7th Jan)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	280°07.8	10.7'	S 08°38.5	-14.2'	59.2'	97°20.7	60°20.1	17° 17.6	14°58.7	39°42.7	72°36.5	76°45.0	118°31.8
1	294°37.5	10.7'	08°52.7	-14.2'	59.2'	96°47.9	59°44.8	$16^{\circ}45.2$	14°24.1	40° 17.8	73°10.6	77°20.1	119°06.7
2	309°07.1	10.6'	09°06.9	-14.1'	59.2'	96°15.0	59°09.4	$16^{\circ}12.9$	13°49.6	40°53.0	73°44.7	77°55.1	119°41.6
3	323°36.8	10.6'	09°21.0	-14.1'	59.2'	95°42.2	58°34.0	15°40.9	13°15.3	41°28.1	74°18.8	78°30.2	
4	338°06.3	10.5'	09°35.1	-14.0'	59.2'	95°09.4	57°58.7	$15^{\circ}09.1$	12°41.0	42°03.3	74°52.9	79°05.2	
5	352°35.9	10.5'	09°49.2	-14.0'	59.2'	94°36.5	57°23.4	14°37.5	12°06.8	42°38.4	75°27.0	79°40.3	
6	7°05.4	10.5'	S 10°03.1	-13.9'	59.2'	94°03.7	56°48.0	14°06.3	11°32.7	43° 13.5	76°01.1	80° 15.3	
7	21°34.9	10.4'	10°17.0	-13.9'	59.1'	93°30.9	56°12.7	13°35.3	10°58.8	43°48.7	76°35.1	80°50.3	İ
8	36°04.3	10.4'	10°30.9	-13.8'	59.1'	92°58.2	55°37.4	13°04.7	10°25.1	44°23.8	77°09.2	81°25.3	
9	50°33.7	10.3'	10°44.7	-13.7'	59.1'	92°25.4	55°02.1	12°34.5	9°51.5	44°58.9	77°43.3	82°00.3	
10	65°03.0	10.3'	10°58.4	-13.7'	59.1'	91°52.6	54°26.9	12°04.7	9°18.2	45°34.0	78°17.4	82°35.3	
11	79°32.3	10.3'	$11^{\circ}12.1$	-13.6'	59.1'	91°19.9	53°51.6	11°35.4	8°45.1	46°09.1	78°51.4	83°10.3	
12	94°01.6	10.2'	S 11°25.7	-13.5'	59.1'	90°47.1	53°16.3	11°06.7	8°12.4	46°44.2	79°25.5	83°45.3	
13	108°30.8	10.2'	11°39.2	-13.5'	59.1'	90°14.4	52°41.1	10°38.6	7°40.0	47° 19.3	79°59.5	84°20.2	İ
14	123°00.0	10.1'	11°52.7	-13.4'	59.1'	89°41.7	52°05.8	10°11.2	7°08.1	47°54.3	80°33.6	84°55.2	
15	137°29.1	10.1'	$12^{\circ}06.1$	-13.3'	59.1'	89°09.0	51°30.6	9°44.6	6°36.8	48° 29.4	81°07.6	85°30.1	
16	151°58.2	10.0'	12°19.4	-13.3'	59.1'	88°36.3	50°55.4	$9^{\circ}19.0$	6°06.2	49°04.5	81°41.7	86°05.1	
17	166°27.3	10.0'	12°32.7	-13.2'	59.1'	88°03.6	50°20.2		5°36.5	49°39.5	82°15.7	86°40.0	
18	180°56.3	9.9'	S 12°45.9	-13.1'	59.0'	87°30.9	49°45.0			50° 14.6	82°49.7	87° 14.9	
19	195°25.2	9.9'	12°59.0	-13.0'	59.0'	86°58.2	49°09.8			50°49.6	83°23.7	87°49.8	İ
20	209°54.1	9.9'	13°12.0	-13.0'	59.0'	86°25.6	48°34.7			51°24.7	83°57.7	88° 24.7	
21	224°23.0	9.8'	13°25.0	-12.9'	59.0'	85°52.9	47°59.5			51°59.7	84°31.7	88° 59.6	
22	238°51.8	9.8'	13°37.8	-12.8'	59.0'	85°20.3	47°24.4			52°34.7	85°05.7	89°34.4	
23	253°20.5	9.7'	13°50.6	-12.7'	59.0'	0' 84°47.7 46°49.2 53°09.7 85°39.7 90°09.3							
7 th	SD	= 16.1'	Mer. pas	s. 05:31		Sun SD = 16.3'							

Moon (8th Jan)

h

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Sun	-Venus	-Rigil Kent.	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	267°49.2	9.6'	S 14°03.4	-12.6'	59.0'	84° 15.1	66°14.0	49°10.1	46°14.1		53°44.7	86°13.7	90°44.1
1	282°17.9	9.6'	$14^{\circ}16.0$	-12.6'	59.0'	83°42.5	65°42.0	48°50.6	45°39.0		54°19.7	86°47.6	91°19.0
2	296°46.4	9.5'	$14^{\circ}28.5$	-12.5'	59.0'	83°09.9	65°10.0	48°31.2	45°03.9		54°54.7	87°21.6	91°53.8
3	311°15.0	9.5'	14°41.0	-12.4'	59.0'	82°37.3	64°38.0	48°12.1	44°28.8		55°29.6	87°55.5	92°28.6
4	325°43.5	9.4'	14°53.4	-12.3'	58.9'	82°04.7	64°06.0	47°53.2	43°53.7		56°04.6	88°29.5	93°03.4
5	340°11.9	9.4'	$15^{\circ}05.7$	-12.2'	58.9'	81°32.2	63°34.1	47°34.6	43°18.7		56°39.5	89°03.4	93°38.2
6	354°40.3	9.3'	S 15°17.9	-12.1'	58.9'	80°59.6	63°02.1	47°16.2	42°43.6		57°14.5	89°37.3	94°13.0
7	9°08.6	9.3'	15°30.0	-12.0'	58.9'	80°27.1	62°30.2	46°58.0	42°08.6		57°49.4	90°11.2	94°47.7
8	23°36.9	9.2'	15°42.0	-11.9'	58.9'	79°54.6	61°58.2	46°40.1	41°33.6		58°24.3	90°45.1	95°22.5
9	38°05.1	9.2'	15°53.9	-11.8'	58.9'	79°22.1	61°26.3	46°22.4	40°58.5		58°59.2	91°18.9	95°57.2
10	52°33.3	9.1'	$16^{\circ}05.8$	-11.7'	58.9'	78°49.6	60°54.4	46°05.0	40°23.5		59°34.1	91°52.8	96°31.9
11	67°01.4	9.1'	$16^{\circ}17.5$	-11.6'	58.9'	78° 17.1	60°22.5	45°47.9	39°48.6	6°40.4	60°09.0	92°26.7	97°06.6
12	81°29.5	9.0'	S 16°29.2	-11.5'	58.9'	77°44.6	59°50.6	45°31.1	39°13.6	7°11.6	60°43.9	93°00.5	97°41.3
13	95°57.4	8.9'	16°40.7	-11.4'	58.8'	77° 12.2	59°18.7	45°14.5	38°38.6	7°43.3	61°18.8	93°34.3	98°16.0
14	110°25.4	8.9'	16°52.2	-11.3'	58.8'	76°39.7	58°46.9	44°58.2	38°03.7	8°15.4	61°53.6	94°08.1	98°50.7
15	124°53.3	8.8'	$17^{\circ}03.5$	-11.2'	58.8'	76°07.3	58°15.0	44°42.2	37°28.7	8°47.9	62°28.5	94°41.9	99°25.4
16	139°21.1	8.8'	17° 14.7	-11.1'	58.8'	75°34.9	57°43.2	44°26.5	36°53.8	9°20.7	63°03.3	95° 15.7	100°00.0
17	153°48.8	8.7'	17°25.9	-11.0'	58.8'	75°02.5	57°11.4	44°11.0	36°18.9	9°53.7	63°38.1	95°49.5	100°34.6
18	168°16.6	8.6'	S 17°36.9	-10.9'	58.8'	74°30.1	56°39.6	43°55.9	35°44.0	10°26.9	64°13.0	96°23.2	101°09.3
19	182°44.2	8.6'	$17^{\circ}47.9$	-10.8'	58.8'	73°57.7	56°07.8		35°09.1	11°00.3	64°47.8	96°57.0	101°43.9
20	197°11.8	8.5'	$17^{\circ}58.7$	-10.7'	58.8'	73°25.3	55°36.0		34°34.3	11°33.8	65°22.5	97°30.7	102°18.5
21	211°39.3	8.5'	$18^{\circ}09.4$	-10.6'	58.8'	72°53.0	55°04.2		33°59.4	12°07.4	65°57.3	98°04.4	102°53.0
22	226°06.8	8.4'	$18^{\circ}20.0$	-10.5'	58.7'	72°20.6	54°32.4		33°24.6	12°41.1	66°32.1	98°38.1	103°27.6
23	240°34.2	8.4'	18°30.5	-10.4'	58.7'	71°48.3	54°00.7		32°49.8	13°14.9	67°06.8	99°11.8	104°02.1
8 th	SD	= 16.1	' Mer. pas	s. 06:22		$Sun\;SD=16.3'$							

h Moon (9th Jan)

Tue	GHA	ν	Dec	d	HP	-Vega	-Sun	-Venus	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	255°01.6	8.3'	S 18°40.9	-10.3'	58.7'	84°04.5	71°16.0	53°29.0	32°15.0	13°48.8	67°41.6	99°45.4	104°36.7
1	269°28.9	8.2'	18°51.1	-10.2'	58.7'	83°48.0	70°43.7	52°57.2	31°40.2	14°22.8	68°16.3	100°19.1	105°11.2
2	283°56.1	8.2'	19°01.3	-10.0'	58.7'	83°31.5	70°11.4	52°25.5	31°05.4	14°56.8	68°51.0	100°52.7	105°45.7
3	298°23.3	8.1'	19°11.4	-9.9'	58.7'	83°15.1	69°39.1	51°53.8	30°30.6	15°30.8	69°25.7	101°26.3	106°20.2
4	312°50.4	8.1'	19°21.3	-9.8'	58.7'	82°58.7	69°06.8	51°22.1	29°55.9	16°04.9	70°00.4	101°59.9	106°54.7
5	327°17.5	8.0'	19°31.1	-9.7'	58.7'	82°42.3	68°34.6	50°50.5	29°21.1	16°39.0	70°35.1	102°33.5	107°29.1
6	341°44.5	8.0'	S 19°40.8	-9.6'	58.6'	82°26.0	68°02.3	50°18.8	28°46.4	17°13.2	71°09.8	103°07.0	108°03.6
7	356°11.5	7.9'	19°50.3	-9.4'	58.6'	82°09.7	67°30.1	49°47.2	28° 11.7	17°47.4	71°44.4	103°40.6	108°38.0
8	10°38.3	7.8'	19°59.8	-9.3'	58.6'	81°53.5	66°57.9	49°15.5	27°37.0	18°21.6	72°19.1	104°14.1	109°12.4
9	25°05.2	7.8'	20°09.1	-9.2'	58.6'	81°37.3	66°25.7	48°43.9	27°02.4	18°55.8	72°53.7	104°47.6	109°46.8
10	39°32.0	7.7'	20°18.3	-9.1'	58.6'	81°21.2	65°53.5	48°12.3	26°27.7	19°30.0	73°28.3	105°21.1	110°21.2
11	53°58.7	7.7'	$20^{\circ}27.4$	-9.0'	58.6'	81°05.1	65°21.4	47°40.7	25°53.1	20°04.3	74°02.9	105°54.5	110°55.6
12	68°25.4	7.6'	S 20°36.4	-8.8'	58.6'	80°49.1	64°49.2	47°09.2	25° 18.5	20°38.5	74°37.5	106°28.0	111°29.9
13	82°52.0	7.6'	20°45.2	-8.7'	58.5'	80°33.1	64°17.1	46°37.6	24°43.8	21°12.8	75°12.1	107°01.4	112°04.3
14	97°18.5	7.5'	20°53.9	-8.6'	58.5'	80° 17.1	63°44.9	46°06.1	24°09.3	21°47.1	75°46.7	107°34.8	112°38.6
15	111°45.0	7.5'	$21^{\circ}02.5$	-8.4'	58.5'	80°01.2	63°12.8	45°34.5	23°34.7	22°21.4	76°21.2	108°08.2	113°12.9
16	126°11.5	7.4'	$21^{\circ}10.9$	-8.3'	58.5'	79°45.4	62°40.7	45°03.0	23°00.1	22°55.7	76°55.8	108°41.5	113°47.2
17	140°37.9	7.3'	$21^{\circ}19.2$	-8.2'	58.5'	79°29.6	62°08.6	44°31.5	22°25.6	23°30.0	77°30.3	109°14.8	114°21.4
18	155°04.2	7.3'	S 21°27.4	-8.0'	58.5'	79°13.9	61°36.5	44°00.0	21°51.1	24°04.2	78°04.8	109°48.2	114°55.7
19	169°30.5	7.2'	21°35.4	-7.9'	58.5'	78°58.3	61°04.5	43°28.5	21°16.6	24°38.5	78°39.3	110°21.4	115°29.9
20	183°56.8	7.2'	21°43.4	-7.8'	58.5'	78°42.7	60°32.4	42°57.1	20°42.1	25°12.8	79°13.8	110°54.7	116°04.1
21	198°22.9	7.1'	$21^{\circ}51.1$	-7.6'	58.4'	78°27.1	60°00.4	42°25.6	20°07.7	25°47.1	79°48.3	111°27.9	116°38.3
22	212°49.1	7.1'	$21^{\circ}58.8$	-7.5'	58.4'	78°11.7	59°28.4	41°54.2	19°33.2	26°21.4	80°22.7	112°01.2	117°12.5
23	227°15.2	7.0'	22°06.3	-7.4'	58.4'	77°56.3	58°56.4	41°22.8	18°58.8	26°55.7	80°57.2	112°34.4	117°46.7
9 th	SD	= 16.0	Mer. pas	s. 07:16					Sun S	5D = 16.3'			

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

Wed GHA // Dec d HP -Vega -Sun -Vegus -Antares + Juniter + Spica + Regulus

Wed	GHA	ν	Dec	d	HP	-Vega	-Sun	-Venus	-Antares	+Jupiter	+Spica	+Regulus	+Pollux
0	241°41.2	7.0'	S 22°13.7	-7.2'	58.4'	77°40.9	58°24.4	40°51.4	18°24.4	26°21.9	27°30.0	81°31.6	118°20.8
1	256°07.2	6.9'	22°20.9	-7.1'	58.4'	77°25.6	57°52.4	40°20.0	17°50.0	26°55.1	28°04.2	82°06.0	118°54.9
2	270°33.2	6.9'	22°28.0	-7.0'	58.4'	77° 10.4	57°20.5	39°48.6	17° 15.7	27°28.3	28°38.5	82°40.4	119°29.0
3	284°59.1	6.9'	22°34.9	-6.8'	58.4'	76°55.3	56°48.5	39°17.2	16°41.4	28°01.5	29°12.8	83° 14.8	
4	299°24.9	6.8'	22°41.7	-6.7'	58.3'	76°40.2	56°16.6	38°45.9	16°07.1	28°34.8	29°47.0	83°49.1	
5	313°50.7	6.8'	22°48.4	-6.5'	58.3'		55°44.7	38°14.5	15°32.8	29°08.0	30°21.3	84°23.5	
6	$328^{\circ}16.5$	6.7'	S 22°54.9	-6.4'	58.3'		55°12.8	37°43.2	14°58.6	29°41.3	30°55.5	84°57.8	
7	342°42.2	6.7'	23°01.3	-6.2'	58.3'		54°40.9	37°11.9	14°24.4	30° 14.6	31°29.7	85°32.2	
8	357°07.9	6.6'	23°07.6	-6.1'	58.3'		54°09.1	36°40.6	13°50.2	30°48.0	32°03.9	86°06.5	
9	11°33.5	6.6'	23°13.6	-5.9'	58.3'		53°37.2	36°09.4	13° 16.1	31°21.3	32°38.2	86°40.8	
10	$25^{\circ}59.1$	6.6'	23°19.6	-5.8'	58.2'		53°05.4	35°38.1	12°42.0	31°54.6	33°12.4	87° 15.1	
11	40°24.7	6.5'	23°25.4	-5.7'	58.2'		52°33.6	35°06.9	12°07.9	32°28.0	33°46.5	87°49.3	
12	54°50.2	6.5'	S 23°31.1	-5.5'	58.2'		52°01.8	34°35.7	11°33.9	33°01.4	34°20.7	88°23.6	
13	69°15.7	6.5'	23°36.6	-5.4'	58.2'		51°30.0	34°04.4	10°59.9	33°34.7	34°54.9	88° 57.8	
14	83°41.2	6.4'	23°41.9	-5.2'	58.2'		50°58.2	33°33.3	10°26.0	34°08.1	35°29.1	89°32.0	
15	98°06.6	6.4'	23°47.1	-5.1'	58.2'		50°26.4	33°02.1	9°52.1	34°41.5	36°03.2	90°06.2	
16	112°32.0	6.4'	23°52.2	-4.9'	58.2'		49°54.7	32°30.9	9°18.4	35° 14.9	36°37.3	90°40.4	
17	126°57.4	6.3'	23°57.1	-4.8'	58.1'		49°23.0	31°59.8	8°44.7	35°48.3	37°11.5	91°14.6	
18	141°22.7	6.3'	S 24°01.9	-4.6'	58.1'		48°51.3	31°28.7	8°11.0	36°21.7	37°45.6	91°48.7	
19	155°48.0	6.3'	24°06.5	-4.5'	58.1'		48°19.6	30°57.5	7°37.5	$36^{\circ}55.1$	38°19.7	92°22.9	
20	170°13.3	6.3'	24°10.9	-4.3'	58.1'		47°47.9	30°26.4	7°04.2	37°28.5	38°53.8	92°57.0	
21	184°38.6	6.2'	24°15.2	-4.1'	58.1'		47°16.2	29°55.4	6°31.0	38°01.9	39°27.8	93°31.1	
22	199°03.8	6.2'	24°19.4	-4.0'	58.1'		46°44.6	29°24.3	5°58.0	38°35.3	40°01.9	94°05.2	
23	213°29.0	6.2'	24°23.4	-3.8'	58.0'		46°13.0	28°53.3	5°25.2	39°08.7	40°35.9	94°39.3	
10 th	O^{th} SD = 15.9' Mer. pass. 08:12								Sun SI	D = 16.3'			

Moon (11th Jan)

Lunar Distance (objects with largest hourly LD delta)

h		Мооі	n (11 th Ja	n)		Lunar Distance (objects with largest hourly LD delta)							
Thu	GHA	ν	Dec	d	HP	-Sun	-Venus	± Antares	+Jupiter	+Spica	+Arcturus	+Mars	+Regulus
0	227°54.2	6.2'	S 24°27.2	-3.7'	58.0'	45°41.4	28°22.2	4°52.8	39°42.0	41°10.0	51°39.6	57°54.6	95°13.3
1	242°19.4	6.2'	24°30.9	-3.5'	58.0'	45°09.8	27°51.2	4°20.9	40°15.4	41°44.0	52°02.4	58° 27.5	95°47.4
2	256°44.6	6.1'	24°34.4	-3.4'	58.0'	44°38.2	27°20.2	3°49.6	40°48.8	42°18.0	52°25.3	59°00.4	96°21.4
3	271°09.7	6.1'	24°37.8	-3.2'	58.0'	44°06.6	26°49.3	3°19.2	41°22.2	42°52.0	52°48.3	59°33.2	96°55.4
4	285°34.8	6.1'	24°41.0	-3.1'	58.0'	43°35.1	26°18.3		41°55.5	43°26.0	53°11.4	60°06.1	97°29.4
5	299°59.9	6.1'	$24^{\circ}44.1$	-2.9'	57.9'	43°03.6	25°47.4		42°28.9	43°59.9	53°34.7	60°38.9	98°03.4
6	314°25.0	6.1'	S 24°47.0	-2.8'	57.9'	42°32.1	25°16.4		43°02.3	44°33.9	53°58.1	61°11.8	98°37.3
7	328°50.1	6.1'	24°49.8	-2.6'	57.9'	42°00.6	24°45.5		43°35.6	45°07.8	54°21.6	61°44.6	99°11.3
8	343°15.2	6.1'	24°52.4	-2.4'	57.9'	41°29.1	24°14.6		44°09.0	45°41.7	54° 45.2	62° 17.4	99°45.2
9	357°40.3	6.1'	24°54.8	-2.3'	57.9'	40°57.6	23°43.8		44°42.3	46° 15.6	55°08.9	62°50.2	100°19.1
10	12°05.4	6.1'	24°57.1	-2.1'	57.9'	40°26.2	23°12.9		45°15.6	46°49.5	55°32.7	63°23.0	100°53.0
11	26°30.4	6.1'	24°59.2	-2.0'	57.8'		22°42.1		45°48.9	47°23.4	55°56.7	63°55.8	101°26.8
12	40°55.5	6.1'	S 25°01.2	-1.8'	57.8'		22°11.3		46°22.2	47°57.2	56°20.7	64°28.5	102°00.7
13	55°20.6	6.1'	25°03.0	-1.7'	57.8'		21°40.5		46°55.5	48°31.1	56°44.8	65°01.3	102°34.5
14	69°45.7	6.1'	25°04.7	-1.5'	57.8'		21°09.7		47°28.8	49°04.9	57°09.1	65°34.0	103°08.3
15	84°10.7	6.1'	25°06.2	-1.3'	57.8'		20°38.9		48°02.1	49°38.7	57° 33.4	66°06.7	103°42.1
16	98°35.8	6.1'	25°07.5	-1.2'	57.7'		20°08.2	4°45.0	48°35.4	50° 12.5	57°57.8	66°39.4	104°15.9
17	113°00.9	6.1'	25°08.7	-1.0'	57.7'		19°37.5	5°17.0	49°08.6	50°46.2	58°22.3	67°12.1	104°49.6
18	127°26.0	6.1'	S 25°09.7	-0.9'	57.7'		19°06.8	5°49.4	49°41.9	51°20.0	58°46.9	67°44.8	105°23.4
19	141°51.1	6.1'	25°10.6	-0.7'	57.7'		18°36.1	6°22.0	50°15.1	51°53.7	59°11.6	68° 17.5	105°57.1
20	156°16.2	6.1'	25°11.3	-0.6'	57.7'		18°05.5	6°54.7	50°48.3	52°27.4	59°36.3	68°50.1	106°30.8
21	170°41.4	6.2'	$25^{\circ}11.9$	-0.4'	57.7'		17°34.8	7°27.6	51°21.5	53°01.1	60°01.1	69°22.7	107°04.5
22	185°06.5	6.2'	$25^{\circ}12.3$	-0.3'	57.6'		17°04.2	8°00.6	51°54.7	53°34.8	60°26.0	69°55.4	107°38.1
23	199°31.7	6.2'	25°12.6	-0.1'	57.6'		16°33.6	8°33.7	52°27.9	54°08.5	60°51.0	70°28.0	108°11.8
11 th	SD = 15.8' Mer. pass. 09:10								Sun SE	0 = 16.3'			

Fri	GHA	ν	Dec	d	HP	-Venus	+Antares	+Hadar	+Jupiter	+Spica	+Arcturus	+Mars	+Regulus
0	213°56.9	6.2'	S 25°12.7	0.1'	57.6'	16°03.0	9°06.9	47°17.8	53°01.0	54°42.1	61°16.0	71°00.5	108°45.4
1	228°22.1	6.2'	25°12.6	0.2'	57.6'	15°32.5	9°40.1	47°34.3	53°34.2	55° 15.8	61°41.1	71°33.1	109°19.0
2	242°47.3	6.3'	25°12.4	0.4'	57.6'	15°01.9	10°13.3	47°50.9	54°07.3	55°49.4	62°06.3	72°05.6	109°52.6
3	257°12.6	6.3'	25°12.0	0.5'	57.5'	14°31.4	10°46.5	48°07.8	54°40.5	56°23.0	62°31.5	72°38.2	110°26.1
4	271°37.9	6.3'	$25^{\circ}11.5$	0.7'	57.5'	14°00.9	11°19.8	48°24.9	55°13.6	56°56.5	62°56.8	73°10.7	110°59.6
5	286°03.2	6.3'	25°10.8	0.8'	57.5'	13°30.5	11°53.1	48°42.2	55°46.7	57°30.1	63°22.1	73°43.2	111°33.2
6	300°28.5	6.4'	S 25°10.0	1.0'	57.5'	13°00.0	12°26.4	48°59.7	56°19.7	58°03.6	63°47.5	74°15.7	112°06.7
7	314°53.9	6.4'	25°09.0	1.1'	57.5'	12°29.6	12°59.7	49°17.4	56°52.8	58°37.1	64°13.0	74°48.1	112°40.1
8	329°19.3	6.4'	25°07.8	1.3'	57.4'	11°59.2	13°33.0	49°35.2	57°25.8	59°10.6	64°38.5	75°20.6	113°13.6
9	343°44.8	6.5'	25°06.5	1.4'	57.4'	11°28.9	14°06.3	49°53.3	57°58.9	59°44.1	65°04.1	75°53.0	113°47.0
10	358°10.2	6.5'	25°05.1	1.6'	57.4'	10°58.5	14°39.6	50°11.5	58°31.9	60° 17.6	65° 29.7	76°25.4	114°20.4
11	12°35.8	6.6'	25°03.5	1.7'	57.4'	10°28.2	15°13.0	50°30.0	59°04.9	60°51.0	65°55.3	76°57.8	114°53.8
12	27°01.3	6.6'	S 25°01.7	1.9'	57.4'	9°57.9	15°46.2	50°48.6	59°37.9	61°24.4	66°21.0	77°30.2	115°27.2
13	41°26.9	6.6'	24°59.9	2.0'	57.3'	9°27.7	16°19.5	51°07.4	60°10.8	61°57.8	66°46.7	78°02.6	116°00.6
14	55°52.5	6.7'	24°57.8	2.2'	57.3'	8°57.4	16°52.8	51°26.3	60°43.8	62°31.2	67° 12.5	78°34.9	116°33.9
15	70°18.2	6.7'	24°55.6	2.3'	57.3'	8°27.3	17°26.1	51°45.4	61°16.7	63°04.6	67°38.3	79°07.2	117°07.2
16	84°44.0	6.8'	24°53.3	2.5'	57.3'	$7^{\circ}57.1$	17°59.3	52°04.7	61°49.6	63°37.9	68°04.2	79°39.5	117°40.5
17	99°09.7	6.8'	24°50.8	2.6'	57.3'	7°27.0	18°32.6	52°24.1	62°22.5	64°11.2	68°30.1	80°11.8	118°13.7
18	113°35.5	6.9'	S 24°48.1	2.8'	57.3'	6°56.9	19°05.8	52°43.7	62°55.4	64°44.5	68°56.0	80°44.1	118°47.0
19	128°01.4	6.9'	24°45.3	2.9'	57.2'	6°26.9	19°39.0	53°03.4	63°28.2	65° 17.8	69°22.0	81°16.3	119°20.2
20	142°27.3	7.0'	24°42.4	3.1'	57.2'	5°56.9	20°12.2	53°23.3	64°01.1	65°51.1	69°48.0	81°48.5	119°53.4
21	156°53.3	7.0'	24°39.3	3.2'	57.2'	5°27.0	20°45.4	53°43.3	64°33.9	66°24.3	70°14.0	82°20.7	
22	171°19.4	7.1'	24°36.1	3.4'	57.2'	4°57.2	21°18.6	54°03.4	65°06.7	66°57.5	70°40.1	82°52.9	
23	185°45.4	7.1'	24°32.7	3.5'	57.1'	4°27.5	21°51.8	54°23.7	65°39.5	67°30.7	71°06.1	83°25.1	
12 th	th $SD = 15.7'$ Mer. pass. 10:08												

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

Sat	GHA	ν	Dec	d	HP	±Venus	+Antares	+Rigil Kent.	+Hadar	+Jupiter	+Spica	+Arcturus	+Mars
0	200°11.6	7.2'	S 24°29.2	3.7'	57.1'	3°57.9	22°24.9	50°42.0	54°44.1	66°12.3	68°03.9	71°32.2	83°57.2
1	214°37.8	7.3'	24°25.6	3.8'	57.1'	3°28.5	22°58.0	51°01.6	55°04.6	66°45.0	68°37.0	71°58.3	84°29.3
2	229°04.1	7.3'	$24^{\circ}21.8$	3.9'	57.1'	2°59.3	23°31.1	51°21.3	55°25.3	67°17.7	69°10.2	72°24.5	85°01.4
3	243°30.4	7.4'	24°17.8	4.1'	57.1'	2°30.5	24°04.2	51°41.1	55°46.1	67°50.4	69°43.3	72°50.7	85°33.5
4	257°56.8	7.4'	24°13.7	4.2'	57.0'	2°02.3	24°37.3	52°01.1	56°07.0	68°23.1	70°16.4	73°16.8	86°05.6
5	272°23.2	7.5'	24°09.5	4.4'	57.0'		25°10.3	52°21.3	56°28.0	68°55.8	70°49.4	73°43.1	86°37.6
6	286°49.7	7.6'	S 24°05.2	4.5'	57.0'		25°43.3	52°41.6	56°49.1	69°28.4	71°22.5	74°09.3	87°09.6
7	301°16.3	7.6'	24°00.7	4.6'	57.0'		26°16.3	53°02.0	57°10.4	70°01.0	71°55.5	74°35.5	87°41.6
8	315°43.0	7.7'	$23^{\circ}56.1$	4.8'	57.0'		26°49.3	53°22.6	57°31.7	70°33.7	72°28.5	75°01.8	88°13.6
9	330°09.7	7.8'	23°51.3	4.9'	56.9'		27°22.3	53°43.3	57°53.1	71°06.2	73°01.5	75°28.0	88°45.5
10	344°36.5	7.9'	23°46.4	5.0'	56.9'		27°55.2	54°04.1	58°14.7	71°38.8	73°34.4	75°54.3	89°17.5
11	359°03.3	7.9'	23°41.4	5.2'	56.9'		28°28.2	54°25.1	58°36.3	72°11.3	74°07.3	76°20.6	89°49.4
12	13°30.2	8.0'	S 23°36.2	5.3'	56.9'		29°01.1	54°46.1	58°58.1	72°43.9	74°40.2	76°46.9	90°21.3
13	27°57.2	8.1'	23°31.0	5.4'	56.9'	2°43.2	29°33.9	55°07.3	59°19.9	73°16.4	75°13.1	77°13.2	90°53.1
14	42°24.3	8.1'	23°25.5	5.5'	56.8'	3°11.9	30°06.8	55°28.6	59°41.8	73°48.8	75°46.0	77°39.5	91°25.0
15	56°51.4	8.2'	23°20.0	5.7'	56.8'	3°40.9	30°39.6	55° 50.0	60°03.8	74°21.3	76°18.8	78°05.8	91°56.8
16	71°18.7	8.3'	23°14.3	5.8'	56.8'	4°10.1	31°12.5	56° 11.5	60°25.9	74°53.7	76°51.6	78°32.2	92°28.6
17	85°46.0	8.4'	23°08.5	5.9'	56.8'	4°39.3	31°45.2	56°33.1	60°48.0	75°26.1	77°24.4	78°58.5	93°00.4
18	100°13.3	8.4'	S 23°02.6	6.0'	56.7'	5°08.7	32°18.0	56° 54.9	61°10.3	75°58.5	77°57.2	79°24.8	93°32.1
19	114°40.8	8.5'	22°56.5	6.2'	56.7'	5°38.0	32°50.8	57° 16.7	61°32.6	76°30.9	78°30.0	79°51.2	94°03.8
20	129°08.3	8.6'	22°50.4	6.3'	56.7'	6°07.4	33°23.5	57°38.6	61°55.0	77°03.2	79°02.7	80°17.5	94°35.5
21	143°35.9	8.7'	22°44.1	6.4'	56.7'	6°36.9	33°56.2	58°00.6	62°17.5	77°35.6	79°35.4	80°43.8	95°07.2
22	158°03.6	8.8'	22°37.7	6.5'	56.7'				New M				
23	172°31.4	8.8'	22°31.1	6.7'	56.6'				— New M	oon ——			
13 th	SD =	= 15.6′	Mer. pass	s. 11:04	4								

Moon (14th Jan)

<u>n</u>		ivioon	(14" Jar	1)		
Sun	GHA	ν	Dec	d	HP	
0	186°59.2	8.9'	S 22°24.5	6.8'	56.6'	New Moon
1	201°27.1	9.0'	$22^{\circ}17.7$	6.9'	56.6'	New Moon
2	215°55.1	9.1'	$22^{\circ}10.8$	7.0'	56.6'	New Moon
3	230°23.2	9.2'	22°03.8	7.1'	56.6'	New Moon
4	244°51.4	9.3'	$21^{\circ}56.7$	7.2'	56.5'	New Moon
5	259°19.7	9.3'	21°49.5	7.3'	56.5'	New Moon
6	273°48.0	9.4'	S 21°42.1	7.5'	56.5'	New Moon
7	288°16.4	9.5'	21°34.7	7.6'	56.5'	New Moon
8	302°44.9	9.6'	$21^{\circ}27.1$	7.7'	56.4'	New Moon
9	317°13.5	9.7'	$21^{\circ}19.4$	7.8'	56.4'	New Moon
10	331°42.2	9.8'	$21^{\circ}11.7$	7.9'	56.4'	New Moon
11	346°11.0	9.9'	21°03.8	8.0'	56.4'	New Moon
12	0°39.8	9.9'	S 20°55.8	8.1'	56.4'	New Moon
13	15°08.8	10.0'	20°47.7	8.2'	56.3'	New Moon
14	29°37.8	10.1'	20°39.5	8.3'	56.3'	New Moon
15	44°06.9	10.2'	20°31.2	8.4'	56.3'	New Moon
16	58°36.1	10.3'	20°22.8	8.5'	56.3'	New Moon
17	73°05.4	10.4'	20°14.3	8.6'	56.2'	New Moon
18	87°34.8	10.5'	S 20°05.8	8.7'	56.2'	New Moon
19	102°04.2	10.5'	$19^{\circ}57.1$	8.8'	56.2'	New Moon
20	116°33.8	10.6'	19°48.3	8.9'	56.2'	New Moon
21	131°03.4	10.7'	19°39.4	9.0'	56.2'	New Moon
22	145°33.1	10.8'	19°30.5	9.1'	56.1'	New Moon
23	160°02.9	10.9'	19°21.4	9.1'	56.1'	New Moon
14 th	SD:	= 15.4'	Mer. pass.	11:57		

h Moon (15 th Jan)	Lunar Distance
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Mon	GHA	ν	Dec	d	HP	-Aldebaran	-Saturn	-Fomalhaut
0	174°32.8	11.0'	S 19°12.3	9.2'	56.1'		New Moon	ı ————
1	189°02.8	11.1'	19°03.0	9.3'	56.1'		New Moon	ı ———
2	203°32.9	11.2'	18°53.7	9.4'	56.0'		New Moon	· ———
3	218°03.0	11.2'	18°44.3	9.5'	56.0'		New Moon	ı ———
4	232°33.2	11.3'	18°34.8	9.6'	56.0'		New Moon	ı ———
5	247°03.6	11.4'	18°25.3	9.7'	56.0'		New Moon	ı ———
6	261°34.0	11.5'	S 18°15.6	9.7'	56.0'		New Moon	. ———
7	276°04.5	11.6'	$18^{\circ}05.9$	9.8'	55.9'		New Moon	ı ———
8	290°35.0	11.7'	$17^{\circ}56.1$	9.9'	55.9'		New Moon	· ———
9	305°05.7	11.7'	17°46.2	10.0'	55.9'		New Moon	ı ———
10	319°36.5	11.8'	17°36.2	10.0'	55.9'		New Moon	ı ————
11	334°07.3	11.9'	17°26.2	10.1'	55.8'		New Moon	ı ———
12	348°38.2	12.0'	$$17^{\circ}16.1$	10.2'	55.8'		New Moon	. ———
13	3°09.2	12.1'	17°05.9	10.3'	55.8'		New Moon	ı ————
14	17°40.3	12.2'	$16^{\circ}55.6$	10.3'	55.8'		88°49.5	36° 12.5
15	32°11.4	12.2'	16°45.3	10.4'	55.8'		88°18.2	35°50.6
16	46°42.7	12.3'	16°34.9	10.5'	55.7'		87°46.8	35°28.9
17	61°14.0	12.4'	16°24.4	10.5'	55.7'		87°15.5	35°07.5
18	75°45.4	12.5'	S 16°13.9	10.6'	55.7'		86°44.2	34°46.3
19	90°16.9	12.6'	16°03.3	10.7'	55.7'		86°12.9	34°25.3
20	104°48.5	12.7'	15°52.6	10.7'	55.6'		85°41.6	34°04.6
21	119°20.1	12.7'	15°41.8	10.8'	55.6'		85°10.4	33°44.2
22	133°51.9	12.8'	15°31.0	10.9'	55.6'		84°39.2	33°24.0
23	148°23.7	12.9'	15°20.2	10.9'	55.6'	119°47.4	84°08.0	33°04.2
15 th	SD	= 15.3'	Mer. pass	s. 12:47				

h Moon	(16 th Jan)	Lunar Distance	(objects with	largest hourly	LD delta)
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Tue	GHA	ν	Dec	d	HP	-Rigel	-Capella	-Aldebaran	-Saturn	-Fomalhaut
0	162°55.6	13.0'	S 15°09.3	11.0'	55.6'			119°16.4	83°36.9	32°44.6
1	177°27.5	13.0'	$14^{\circ}58.3$	11.0'	55.5'			118°45.4	83°05.8	32°25.3
2	191°59.6	13.1'	14°47.2	11.1'	55.5'			118°14.5	82°34.7	32°06.3
3	206°31.7	13.2'	$14^{\circ}36.1$	11.2'	55.5'			117°43.5	82°03.6	31°47.6
4	221°03.9	13.3'	$14^{\circ}25.0$	11.2'	55.5'			117°12.6	81°32.6	31°29.2
5	235°36.2	13.3'	$14^{\circ}13.8$	11.3'	55.5'	119°48.2		116°41.7	81°01.6	31°11.1
6	250°08.5	13.4'	S 14°02.5	11.3'	55.4'	119°23.9		116°10.8	80°30.6	30°53.4
7	264°40.9	13.5'	13°51.2	11.4'	55.4'	118°59.6		115°39.9	79°59.6	30°36.0
8	279°13.4	13.6'	13°39.8	11.4'	55.4'	118°35.3		115°09.1	79°28.7	30°19.0
9	293°46.0	13.6'	13°28.4	11.5'	55.4'	118°10.9		114°38.2	78°57.7	30°02.3
10	308°18.6	13.7'	13° 17.0	11.5'	55.4'	117°46.5		114°07.4	78°26.9	29°46.0
11	322°51.3	13.8'	13°05.4	11.6'	55.3'	117°22.1		113°36.7	77°56.0	29°30.1
12	337°24.1	13.8'	S 12°53.9	11.6'	55.3'	116°57.6		113°05.9	77°25.2	29°14.5
13	351°56.9	13.9'	12°42.3	11.7'	55.3'	116°33.0		112°35.2	76°54.4	28°59.4
14	6°29.8	14.0'	$12^{\circ}30.6$	11.7'	55.3'	116°08.5	119°36.4	112°04.5	76°23.6	
15	21°02.8	14.0'	12° 18.9	11.7'	55.3'	115°43.9	119°08.1	111°33.8	75°52.8	
16	35°35.9	14.1'	12°07.2	11.8'	55.2'	115°19.3	118°39.7	111°03.1	75°22.1	
17	50°09.0	14.2'	$11^{\circ}55.4$	11.8'	55.2'	114°54.6	118°11.3	110°32.4	74°51.4	
18	64°42.2	14.2'	S 11°43.6	11.9'	55.2'	114°30.0	117°42.9	110°01.8	74°20.7	
19	79°15.4	14.3'	$11^{\circ}31.7$	11.9'	55.2'	114°05.3	117°14.5	109°31.2	73°50.1	
20	93°48.7	14.4'	$11^{\circ}19.8$	11.9'	55.2'	113°40.5	116°46.2	109°00.6	73°19.4	
21	108°22.1	14.4'	11°07.9	12.0'	55.1'	113°15.8	116°17.8	108°30.0	72°48.8	
22	122°55.5	14.5'	10°55.9	12.0'	55.1'	112°51.0	115°49.4	107°59.5	72°18.2	
23	137°29.0	14.6'	10°43.9	12.0'	55.1'	112°26.2	115°21.0	107°29.0	71°47.7	
16 th	SD	$=15.2^{\prime}$	Mer. pass	s. 13:33						

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

Wed	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn
0	152°02.6	14.6'	S 10°31.8	12.1'	55.1'		114°52.6	112°01.4	106°58.5	71°17.2
1	166°36.2	14.7'	$10^{\circ}19.8$	12.1'	55.1'		114°24.3	111°36.5	106°28.0	70°46.7
2	181°09.9	14.7'	$10^{\circ}07.6$	12.1'	55.0'		113°55.9	111°11.7	105°57.5	70°16.2
3	195°43.6	14.8'	09°55.5	12.2'	55.0'		113°27.5	110°46.8	105°27.1	69°45.7
4	210°17.4	14.8'	09°43.3	12.2'	55.0'		112°59.1	110°21.9	104°56.7	69°15.3
5	224°51.3	14.9'	$09^{\circ}31.1$	12.2'	55.0'		112°30.8	109°57.0	104°26.3	68°44.9
6	239°25.2	15.0'	S 09°18.9	12.3'	55.0'		112°02.4	109°32.0	103°55.9	68°14.6
7	253°59.1	15.0'	09°06.6	12.3'	54.9'		111°34.1	109°07.1	103°25.6	67°44.2
8	268°33.1	15.1'	08°54.3	12.3'	54.9'		111°05.7	108°42.1	102°55.3	67°13.9
9	283°07.2	15.1'	08°42.0	12.3'	54.9'		110°37.4	108°17.2	102°25.0	66°43.6
10	297°41.3	15.2'	08°29.6	12.4'	54.9'		110°09.0	107°52.2	101°54.7	66°13.3
11	312°15.5	15.2'	$08^{\circ}17.3$	12.4'	54.9'	119°55.1	109°40.7	107°27.2	101°24.4	65°43.1
12	326°49.7	15.3'	S 08°04.9	12.4'	54.8'	119°26.4	109°12.4	107°02.2	100°54.2	65°12.8
13	341°24.0	15.3'	07°52.4	12.4'	54.8'	118°57.7	108°44.1	106°37.2	100°23.9	64°42.6
14	355°58.3	15.4'	07°40.0	12.5'	54.8'	118°28.9	108°15.8	106°12.2	99°53.7	64°12.5
15	10°32.6	15.4'	07°27.5	12.5'	54.8'	118°00.2	107°47.5	105°47.1	99°23.5	63°42.3
16	25°07.1	15.5'	$07^{\circ}15.0$	12.5'	54.8'	117°31.5	107°19.2	105°22.1	98°53.4	63°12.2
17	39°41.5	15.5'	07°02.5	12.5'	54.8'	117°02.8	106°50.9	104°57.0	98°23.2	62°42.1
18	54°16.0	15.5'	S 06°50.0	12.5'	54.7'	116°34.1	106°22.6	104°32.0	97°53.1	62°12.0
19	68°50.6	15.6'	06°37.5	12.6'	54.7'	116°05.4	105°54.3	104°06.9	97°23.0	61°41.9
20	83°25.2	15.6'	06°24.9	12.6'	54.7'	115°36.7	105°26.1	103°41.9	96°52.9	61°11.9
21	97°59.8	15.7'	$06^{\circ}12.3$	12.6'	54.7'	115°08.0	104°57.8	103°16.8	96°22.9	60°41.9
22	112°34.5	15.7'	05°59.7	12.6'	54.7'	114°39.3	104°29.6	102°51.8	95°52.8	60°11.9
23	127°09.2	15.8'	05°47.1	12.6'	54.7'	114°10.6	104°01.4	102°26.7	95°22.8	59°42.0
17 th	SD	= 15.0'	Mer. pass	s. 14:17						

h Moon (18 th Jan)	Lunar Distance (ob	bjects with larg	gest hourly LD delt	a)
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Thu	GHA	ν	Dec	d	HP	-Sirius	-Adhara	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Sun
0	141°43.9	15.8'	S 05°34.5	12.6'	54.6'			113°41.9	103°33.1	102°01.6	94°52.8	59°12.0	
1	156°18.7	15.8'	05°21.9	12.6'	54.6'			113°13.2	103°04.9	101°36.5	94°22.8	58°42.1	
2	170°53.5	15.9'	$05^{\circ}09.2$	12.7'	54.6'			112°44.6	102°36.7	101°11.5	93°52.9	58° 12.2	
3	185°28.4	15.9'	04°56.6	12.7'	54.6'			$112^{\circ}15.9$	102°08.6	100°46.4	93°22.9	57°42.4	
4	200°03.3	15.9'	04°43.9	12.7'	54.6'			111°47.3	101°40.4	100°21.3	92°53.0	57° 12.5	
5	214°38.2	16.0'	04°31.3	12.7'	54.6'			111°18.6	101°12.2	99°56.3	92°23.1	56°42.7	
6	229°13.2	16.0'	S 04°18.6	12.7'	54.6'	119°47.9		110°50.0	100°44.1	99°31.2	91°53.2	56° 12.9	
7	243°48.2	16.0'	04°05.9	12.7'	54.5'	119°27.3		110°21.4	100°15.9	99°06.1	91°23.3	55°43.2	40°56.2
8	258°23.2	16.1'	03°53.2	12.7'	54.5'	119°06.6		109°52.7	99°47.8	98°41.1	90°53.5	55° 13.4	41°23.8
9	272°58.3	16.1'	03°40.5	12.7'	54.5'	118°45.8		109°24.1	99°19.7	98°16.0	90°23.7	54°43.7	41°51.5
10	287°33.4	16.1'	03°27.7	12.7'	54.5'	118°24.9		108°55.5	98°51.5	97°50.9	89°53.8	54°14.0	42°19.0
11	302°08.5	16.1'	03° 15.0	12.7'	54.5'	118°04.0		108°26.9	98°23.4	97°25.9	89°24.0	53°44.3	42°46.6
12	316°43.6	16.2'	S 03°02.3	12.7'	54.5'	117°43.1	117°08.6	107°58.4	97°55.4	97°00.8	88°54.3	53° 14.6	43°14.2
13	331°18.8	16.2'	02°49.6	12.7'	54.5'	117°22.1	116°53.5	107°29.8	97°27.3	96°35.8	88°24.5	52°45.0	43°41.7
14	345°54.0	16.2'	02°36.8	12.7'	54.4'	117°01.0	116°38.3	$107^{\circ}01.2$	96°59.2	96°10.7	87°54.8	52° 15.4	44°09.2
15	0°29.2	16.2'	02°24.1	12.7'	54.4'	116°39.8	116°23.0	106°32.6	96°31.2	95°45.7	87°25.0	51°45.8	44°36.7
16	15°04.5	16.3'	02°11.4	12.7'	54.4'	116°18.6	116°07.7	106°04.1	96°03.1	95°20.7	86°55.3	51°16.2	45°04.2
17	29°39.8	16.3'	01°58.6	12.7'	54.4'	115°57.4	115°52.2	105°35.6	95°35.1	94°55.6	86°25.6	50°46.7	45°31.7
18	44°15.0	16.3'	S 01°45.9	12.7'	54.4'	115°36.1	115°36.7	105°07.0	95°07.1	94°30.6	85°56.0	50° 17.2	45°59.1
19	58°50.4	16.3'	01°33.2	12.7'	54.4'	115°14.8	115°21.1	104°38.5	94°39.1	94°05.6	85°26.3	49° 47.7	46°26.5
20	73°25.7	16.4'	01°20.4	12.7'	54.4'	114°53.4	115°05.4	104°10.0	94°11.1	93°40.6	84°56.7	49° 18.2	46°54.0
21	88°01.0	16.4'	01°07.7	12.7'	54.4'	114°31.9	114°49.6	103°41.5	93°43.1	93°15.6	84°27.0	48°48.7	47°21.4
22	102°36.4	16.4'	00°55.0	12.7'	54.3'	114°10.4	114°33.7	103°13.0	93°15.2	92°50.6	83°57.4	48° 19.3	47°48.7
23	117°11.8	16.4'	00°42.2	12.7'	54.3'	113°48.9	114°17.8	102°44.5	92°47.2	92°25.7	83°27.8	47°49.9	48°16.1
18 th	SD	= 14.9'	Mer. pass	. 14:58					Sun SD =	= 16.2 [']			

h Moon (19th Jan)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Pollux	-Procyon	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Sun
0	131°47.2	16.4'	S 00°29.5	12.7'	54.3'			102°16.0	92°19.3	82°58.3	47° 20.5		48° 43.5
1	146°22.6	16.4'	$00^{\circ}16.8$	12.7'	54.3'			101°47.5	91°51.3	82°28.7	46°51.1		49° 10.8
2	160°58.1	16.4'	S 00°04.1	12.7'	54.3'			101°19.1	91°23.4	81°59.1	46°21.8		49°38.1
3	175°33.5	16.5'	N 00°08.6	12.7'	54.3'			100°50.6	90°55.5	81°29.6	45°52.5	29° 47.6	50°05.5
4	190°09.0	16.5'	$00^{\circ}21.3$	12.7'	54.3'			100°22.2	90°27.6	81°00.1	45°23.2	30°03.2	50°32.8
5	204°44.4	16.5'	00°34.0	12.7'	54.3'			99°53.7	89°59.7	80°30.6	44°53.9	30°19.1	51°00.0
6	219°19.9	16.5'	N 00°46.7	12.7'	54.3'			99°25.3	89°31.9	80°01.1	44°24.6	30°35.4	51°27.3
7	233°55.4	16.5'	00°59.4	12.7'	54.3'			98°56.9	89°04.0	79°31.6	43°55.4	30°51.9	51°54.6
8	248°30.9	16.5'	$01^{\circ}12.1$	12.7'	54.2'			98°28.5	88°36.2	79°02.2	43°26.2	31°08.8	52°21.8
9	263°06.4	16.5'	01°24.7	12.6'	54.2'	_		98°00.1	88°08.4	78°32.7	42°57.0	31°25.9	52°49.0
10	277°41.9	16.5'	01°37.4	12.6'	54.2'	119°52.7		97°31.7	87°40.5	78°03.3	42°27.8	31°43.3	53°16.3
11	292°17.4	16.5'	$01^{\circ}50.0$	12.6'	54.2'	119°23.3		97°03.3	87°12.7	77°33.9	41°58.6	32°00.9	53°43.5
12	306°52.9	16.5'	N 02°02.6	12.6'	54.2'	118°53.9		96°34.9	86°45.0	77°04.4	41°29.5	32° 18.8	54° 10.7
13	321°28.5	16.5'	$02^{\circ}15.2$	12.6'	54.2'	118°24.5		96°06.5	86°17.2	76°35.0	41°00.4	32°37.0	54°37.9
14	336°04.0	16.5'	02°27.8	12.6'	54.2'	117°55.1		95°38.2	85°49.4	76°05.7	40°31.3	32°55.4	55°05.0
15	350°39.5	16.5'	02°40.4	12.6'	54.2'	117°25.8		95°09.8	85°21.7	75°36.3	40°02.3	33° 14.0	55° 32.2
16	5°15.0	16.5'	02°53.0	12.6'	54.2'	116°56.4		94°41.5	84°53.9	75°06.9	39°33.2	33°32.9	55°59.3
17	19°50.6	16.5'	03°05.6	12.5'	54.2'	116°27.0		94°13.1	84°26.2	74°37.6	39°04.2	33°52.0	56°26.5
18	34°26.1	16.5'	N 03°18.1	12.5'	54.2'	115°57.7	119°42.2	93°44.8	83°58.5	74°08.2	38°35.2	34°11.3	56°53.6
19	49°01.6	16.5'	03°30.6	12.5'	54.2'	115°28.3	119°13.9	93°16.5	83°30.8	73°38.9	38°06.2	34°30.8	57°20.7
20	63°37.1	16.5'	03°43.1	12.5'	54.2'	114°59.0	118° 45.5	92°48.2	83°03.1	73°09.6	37° 37.3	34° 50.5	57° 47.9
21	78°12.7	16.5'	03°55.6	12.5'	54.1'	114°29.6	118° 17.2	92°19.9	82°35.4	72°40.3	37°08.4	35° 10.5	58° 15.0
22	92°48.2	16.5'	04°08.1	12.5'	54.1'	114°00.3	117°48.8	91°51.6	82°07.8	72°11.0	36°39.5	35°30.6	58°42.1
23	107°23.7	16.5'	04°20.6	12.4'	54.1'	113°31.0	117°20.4	91°23.3	81°40.1	71°41.7	36°10.6	35°50.9	59°09.1
19 th	SD	= 14.8'	Mer. pass	. 15:38					Sun SD	= 16.2'			

Moon (20th Jan)

h

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Sun
0	121°59.2	16.5'	N 04°33.0	12.4'	54.1'	116°52.1	113°01.7	90°55.0	81°12.5	71°12.5	35°41.7	36°11.3	59°36.2
1	136°34.7	16.5'	04°45.4	12.4'	54.1'	116°23.7	112°32.3	90°26.7	80°44.8	70°43.2	35° 12.9	36°32.0	60°03.3
2	151°10.1	16.5'	04°57.8	12.4'	54.1'	115°55.3	112°03.0	89°58.4	80°17.2	70°13.9	34°44.1	36°52.8	60°30.3
3	165°45.6	16.5'	$05^{\circ}10.2$	12.3'	54.1'	115°26.9	111°33.7	89°30.2	79°49.6	69°44.7	34° 15.3	37° 13.8	60°57.4
4	180°21.1	16.4'	05°22.5	12.3'	54.1'	114°58.5	111°04.4	89°01.9	79°22.0	69°15.5	33°46.6	37°34.9	61°24.5
5	194°56.5	16.4'	05°34.8	12.3'	54.1'	114°30.2	110°35.1	88°33.7	78°54.5	68°46.2	33°17.9	37°56.2	61°51.5
6	209°31.9	16.4'	N 05°47.1	12.3'	54.1'	114°01.8	110°05.9	88°05.4	78°26.9	68°17.0	32°49.2	38° 17.7	62°18.5
7	224°07.4	16.4'	05°59.4	12.3'	54.1'	113°33.4	109°36.6	87°37.2	77°59.4	67°47.8	32°20.5	38°39.3	62°45.6
8	238°42.8	16.4'	$06^{\circ}11.7$	12.2'	54.1'	113°05.0	109°07.3	87°09.0	77°31.8	67°18.6	31°51.9	39°01.0	63°12.6
9	253°18.1	16.4'	06°23.9	12.2'	54.1'	112°36.6	108°38.0	86°40.7	77°04.3	66°49.4	31°23.3	39°22.9	63°39.6
10	267°53.5	16.4'	06°36.1	12.2'	54.1'	112°08.2	108°08.7	86°12.5	76°36.8	66°20.2	30°54.7	39°44.9	64°06.6
11	282°28.9	16.3'	06°48.3	12.2'	54.1'	111°39.8	107°39.5	85°44.3	76°09.3	65°51.1	30°26.1	40°07.1	64°33.6
12	297°04.2	16.3'	N07°00.4	12.1'	54.1'	111°11.4	107° 10.2	85°16.1	75°41.8	65°21.9	29°57.6	40° 29.3	65°00.6
13	311°39.5	16.3'	$07^{\circ}12.6$	12.1'	54.1'	110°43.0	106°40.9	84°47.9	75°14.3	64°52.7	29°29.1	40°51.7	65°27.6
14	326°14.8	16.3'	07°24.7	12.1'	54.1'	110°14.5	106°11.7	84°19.7	74°46.9	64°23.6	29°00.7	41°14.2	65°54.6
15	340°50.1	16.2'	07°36.7	12.0'	54.1'	109°46.1	105°42.4	83°51.5	74°19.4	63°54.4	28°32.2	41°36.9	66°21.6
16	355°25.3	16.2'	07°48.8	12.0'	54.1'	109°17.7	105°13.2	83°23.3	73°52.0	63°25.3	28°03.9	41°59.6	66°48.6
17	10°00.5	16.2'	8.00°80	12.0'	54.1'	108°49.3	104°43.9	82°55.2	73°24.5	62°56.1	27°35.5	42°22.5	67°15.6
18	24°35.7	16.2'	N08°12.7	11.9'	54.1'	108°20.8	104° 14.7	82°27.0	72°57.1	62°27.0	27°07.2	42°45.5	67°42.6
19	39°10.9	16.1'	08°24.7	11.9'	54.1'	107°52.4	103°45.4	81°58.8	72°29.7	61°57.9	26°38.9	43°08.5	68°09.6
20	53°46.1	16.1'	08°36.6	11.9'	54.1'	107°24.0	103°16.1	81°30.7	72°02.3	61°28.8	26° 10.7	43°31.7	68°36.5
21	68°21.2	16.1'	08°48.5	11.8'	54.1'	106°55.5	102°46.9	81°02.5	71°35.0	60°59.6	25° 42.5	43°55.0	69°03.5
22	82°56.3	16.1'	09°00.3	11.8'	54.1'	106°27.1	102° 17.6	80°34.4	71°07.6	60°30.5	25°14.4	44°18.4	69°30.5
23	97°31.3	16.0'	$09^{\circ}12.1$	11.8'	54.1'	105°58.6	101°48.4	80°06.2	70°40.3	60°01.4	24°46.3	44°41.9	69°57.5
20 th	SD	= 14.8'	Mer. pass	. 16:19					Sun SD	= 16.2'			

h Moon (21st Jan)

C	CIIA				LID	D	D-II	,	C		C-4	. FII	
Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Sun
0	112°06.4	16.0'	N09°23.9	11.7'	54.1'	105°30.2	101°19.1	79°38.1	70°12.9	59°32.3	24°18.3	45°05.4	70°24.5
1	126°41.4	16.0'	09°35.6	11.7'	54.1'	105°01.7	100°49.9	79°09.9	69°45.6	59°03.2	23°50.3	45°29.1	70°51.4
2	141°16.3	15.9'	09°47.4	11.7'	54.1'	104°33.2	100°20.6	78°41.8	69°18.3	58°34.1	23°22.4	45°52.9	71°18.4
3	155°51.3	15.9'	09°59.0	11.6'	54.1'	104°04.7	99°51.3	78° 13.6	68°51.0	58°05.0	22°54.5	46°16.7	71°45.4
4	170°26.2	15.9'	$10^{\circ}10.7$	11.6'	54.1'	103°36.3	99°22.1	77° 45.5	68°23.7	57°35.9	22°26.7	46°40.6	72°12.4
5	185°01.0	15.8'	10°22.2	11.6'	54.1'	103°07.8	98°52.8	77° 17.4	67°56.4	57°06.9	21°59.0	47°04.6	72°39.4
6	199°35.9	15.8'	N10°33.8	11.5'	54.1'	102°39.3	98°23.6	76°49.3	67°29.2	56°37.8	21°31.3	47°28.7	73°06.3
7	214° 10.7	15.8'	10°45.3	11.5'	54.1'	102°10.8	97°54.3	76°21.1	67°01.9	56°08.7	21°03.7	47°52.9	73°33.3
8	228° 45.4	15.7'	10°56.8	11.4'	54.1'	101°42.3	97°25.0	75°53.0	66°34.7	55°39.6	20°36.2	48°17.1	74°00.3
9	243°20.1	15.7'	11°08.2	11.4'	54.1'	101°13.8	96°55.7	75°24.9	66°07.5	55°10.6	20°08.8	48°41.4	74°27.3
10	257°54.8	15.6'	$11^{\circ}19.6$	11.4'	54.1'	100°45.3	96°26.5	74°56.8	65°40.3	54°41.5	19°41.5	49°05.8	74°54.3
11	272°29.4	15.6'	11°31.0	11.3'	54.1'	100°16.7	95°57.2	74°28.7	65°13.1	54°12.4	19°14.2	49°30.3	75°21.3
12	287°04.0	15.6'	N11°42.3	11.3'	54.1'	99°48.2	95°27.9	74°00.6	64°45.9	53°43.4	18°47.1	49°54.8	75°48.3
13	301°38.6	15.5'	11°53.6	11.2'	54.1'	99°19.7	94°58.6	73°32.5	64°18.8	53°14.3	18°20.1	50°19.4	76°15.3
14	316° 13.1	15.5'	12°04.8	11.2'	54.1'	98°51.1	94°29.3	73°04.4	63°51.6	52°45.2	17°53.2	50°44.1	76°42.3
15	330°47.6	15.4'	12°16.0	11.1'	54.1'	98°22.6	94°00.0	72°36.3	63°24.5	52°16.2	17°26.4	51°08.8	77°09.3
16	345°22.0	15.4'	12°27.1	11.1'	54.2'	97°54.0	93°30.7	72°08.2	62°57.4	51°47.1	16°59.8	51°33.6	77°36.4
17	359°56.4	15.3'	12°38.2	11.0'	54.2'	97°25.4	93°01.4	71°40.1	62°30.3	51°18.0	16°33.3	51°58.5	78°03.4
18	14°30.7	15.3'	N12°49.2	11.0'	54.2'	96°56.9	92°32.0	71°12.0	62°03.2	50°49.0	16°07.0	52°23.4	78°30.4
19	29°05.0	15.2'	13°00.2	10.9'	54.2'	96°28.3	92°02.7	70°43.9	61°36.1	50°19.9	15°40.8	52°48.4	78°57.5
20	43°39.2	15.2'	$13^{\circ}11.1$	10.9'	54.2'	95°59.7	91°33.4	70° 15.9	61°09.1	49°50.9	15°14.9	53°13.5	79°24.5
21	58° 13.4	15.1'	13°22.0	10.8'	54.2'	95°31.1	91°04.0	69°47.8	60°42.0	49°21.8	14°49.2	53°38.6	79°51.6
22	72°47.5	15.1'	13°32.9	10.8'	54.2'	95°02.5	90°34.7	69° 19.7	60°15.0	48°52.8	14°23.7	54°03.8	80°18.6
23	87°21.6	15.0'	13°43.7	10.7'	54.2'	94°33.8	90°05.3	68°51.6	59°48.0	48°23.7	13°58.4	54°29.0	80°45.7
21 st	SD	= 14.8'	Mer. pass	. 17:00					Sun SD	= 16.2'			

Moon (22nd Jan)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Fomalhaut	+Sun
0	101°55.7	15.0'	N13°54.4	10.7'	54.2'		94°05.2	89°35.9	68°23.5	59°21.0	47°54.6	54°54.3	81°12.8
1	116°29.6	14.9'	$14^{\circ}05.1$	10.6'	54.2'		93°36.6	89°06.6	67°55.5	58°54.1	47°25.6	55° 19.7	81°39.9
2	131°03.6	14.9'	14° 15.8	10.6'	54.2'		93°07.9	88°37.2	67°27.4	58°27.1	46°56.5	55°45.1	82°07.0
3	145°37.4	14.8'	14°26.3	10.5'	54.2'		92°39.2	88°07.8	66°59.3	58°00.2	46°27.5	56° 10.5	82°34.1
4	160°11.3	14.8'	14°36.9	10.5'	54.3'		92°10.6	87°38.4	66°31.2	57°33.3	45°58.4	56°36.0	83°01.2
5	174°45.0	14.7'	14°47.4	10.4'	54.3'		91°41.9	87°09.0	66°03.2	57°06.4	45°29.4	57°01.6	83°28.3
6	189°18.7	14.6'	N 14°57.8	10.4'	54.3'		91°13.2	86°39.5	65°35.1	56°39.5	45°00.3	57°27.2	83°55.5
7	203°52.4	14.6'	$15^{\circ}08.1$	10.3'	54.3'		90°44.5	86°10.1	65°07.0	56°12.7	44°31.2	57° 52.9	84°22.6
8	218°26.0	14.5'	$15^{\circ}18.5$	10.3'	54.3'		90°15.8	85°40.7	64°39.0	55°45.9	44°02.2	58° 18.6	84°49.8
9	232°59.5	14.5'	15°28.7	10.2'	54.3'		89°47.0	85°11.2	64°10.9	55°19.0	43°33.1	58° 44.3	85°16.9
10	247°33.0	14.4'	15°38.9	10.1'	54.3'		89°18.3	84°41.7	63°42.9	54°52.3	43°04.1	59° 10.2	85°44.1
11	262°06.4	14.3'	$15^{\circ}49.0$	10.1'	54.3'		88°49.5	84°12.2	63°14.8	54°25.5	42°35.0	59°36.0	86°11.3
12	276°39.7	14.3'	$N15^{\circ}59.1$	10.0'	54.3'		88°20.8	83°42.7	62°46.7	53°58.8	42°06.0	60°01.9	86°38.5
13	291°13.0	14.2'	$16^{\circ}09.1$	10.0'	54.4'		87°52.0	83°13.2	62°18.7	53°32.0	41°36.9	60°27.9	87°05.8
14	305°46.2	14.2'	$16^{\circ}19.1$	9.9'	54.4'	119°41.2	87°23.2	82°43.7	61°50.6	53°05.4	41°07.8	60°53.9	87°33.0
15	320°19.4	14.1'	16°29.0	9.8'	54.4'	119°11.5	86°54.4	82°14.2	61°22.6	52°38.7	40°38.8	61°20.0	88°00.3
16	334°52.5	14.0'	16°38.8	9.8'	54.4'	118°41.8	86°25.6	81°44.6	60°54.6	52°12.1	40°09.7	61°46.0	88°27.5
17	349°25.5	14.0'	16°48.5	9.7'	54.4'	118°12.1	85°56.8	81°15.1	60°26.5	51°45.4	39°40.7	62°12.2	88°54.8
18	3°58.5	13.9'	N 16°58.2	9.6'	54.4'	117°42.4	85°27.9	80°45.5	59°58.5	51°18.9	39°11.6	62°38.4	89°22.1
19	18°31.4	13.8'	$17^{\circ}07.9$	9.6'	54.4'	117°12.6	84°59.1	80°15.9	59°30.4	50°52.3	38°42.6	63°04.6	89°49.4
20	33°04.2	13.8'	17° 17.4	9.5'	54.5'	116°42.8	84°30.2	79°46.3	59°02.4	50°25.8	38°13.5	63°30.9	90°16.7
21	47°37.0	13.7'	17°26.9	9.4'	54.5'	116°13.1	84°01.3	79°16.7	58°34.4	49°59.3	37°44.5	63°57.2	90°44.1
22	62°09.7	13.6'	17°36.4	9.4'	54.5'	115°43.3	83°32.4	78°47.0	58°06.3	49°32.8	37°15.4	64°23.6	91°11.4
23	76°42.3	13.6'	17°45.7	9.3'	54.5'	115°13.4	83°03.5	78°17.4	57°38.3	49°06.4	36°46.4	64°50.0	91°38.8
22 nd	SD	= 14.8'	Mer. pass	. 17:44					Sun SD	0 = 16.2'			

h		Moon	(23 rd Jar	1)			Lunar [Distance	(objects w	ith larges	t hourly LD	delta)	
Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Sun
0	91°14.9	13.5'	$N17^{\circ}55.0$	9.2'	54.5'	114°43.6	82°34.5	77°47.7	36°17.4		65°16.4		92°06.2
1	105°47.4	13.4'	18°04.2	9.1'	54.5'	114°13.7	82°05.6	77° 18.0	35°48.3		65°42.9		92°33.6
2	120°19.8	13.3'	18° 13.4	9.1'	54.6'	113°43.8	81°36.6	76°48.3	35°19.3		66°09.5		93°01.1
3	134°52.1	13.3'	18° 22.5	9.0'	54.6'	113°13.9	81°07.7	76°18.6	34°50.3		66°36.0		93°28.5
4	149°24.4	13.2'	18°31.5	8.9'	54.6'	112°44.0	80°38.7	75°48.8	34°21.2		67°02.7		93°56.0
5	163°56.6	13.1'	18°40.4	8.9'	54.6'	112°14.1	80°09.7	75° 19.1	33°52.2		67°29.3		94°23.5
6	178°28.7	13.1'	N18°49.2	8.8'	54.6'	111°44.1	79°40.6	74°49.3	33°23.2		67°56.0	72°26.8	94°51.0
7	193°00.8	13.0'	18°58.0	8.7'	54.6'	111°14.1	79°11.6	74°19.5	32°54.2		68°22.8	72°41.8	95°18.5
8	207°32.8	12.9'	19°06.7	8.6'	54.7'	110°44.1	78°42.5	73°49.7	32°25.2		68°49.5	72°57.0	95°46.1
9	222°04.7	12.8'	19° 15.3	8.5'	54.7'	110°14.1	78° 13.5	73°19.8	31°56.3		69°16.4	73°12.2	96°13.6
10	236°36.5	12.8'	19°23.9	8.5'	54.7'	109°44.1	77°44.4	72°50.0	31°27.3		69°43.2	73°27.5	96°41.2
11	251°08.3	12.7'	19°32.3	8.4'	54.7'	109°14.0	77°15.3	72°20.1	30°58.3		70°10.1	73°42.9	97°08.9
12	265°39.9	12.6'	N 19°40.7	8.3'	54.7'	108°43.9	76°46.1	71°50.2	30°29.4		70°37.1	73°58.3	97°36.5
13	280°11.6	12.5'	19°49.0	8.2'	54.8'	108°13.8	76°17.0	71°20.3	30°00.5	10°03.4	71°04.0	74°13.8	98°04.2
14	294°43.1	12.4'	19°57.2	8.1'	54.8'	107°43.6	75°47.8	70°50.4	29°31.6	10°24.4	71°31.0	74°29.4	98°31.8
15	309°14.5	12.4'	20°05.4	8.1'	54.8'	107°13.5	75° 18.7	70°20.4	29°02.7	10°46.2	71°58.1	74°45.0	98°59.5
16	323°45.9	12.3'	20° 13.4	8.0'	54.8'	106°43.3	74°49.5	69°50.4	28°33.8	11°08.6	72°25.2	75°00.7	99°27.3
17	338°17.2	12.2'	20°21.4	7.9'	54.8'	106°13.1	74°20.3	69°20.4	28°05.0	11°31.7	72°52.3	75°16.5	99°55.0
18	352°48.4	12.1'	N20°29.3	7.8'	54.9'	105°42.9	73°51.0	68°50.4	27°36.2	11°55.2	73°19.5	75°32.3	100°22.8
19	7°19.5	12.1'	20°37.1	7.7'	54.9'	105°12.6	73°21.8	68°20.3	27°07.4	12°19.3	73°46.7	75°48.2	100°50.6
20	21°50.6	12.0'	20°44.8	7.6'	54.9'	104°42.3	72°52.5	67°50.3	26°38.6	12°43.9	74°14.0	76°04.2	101°18.4
21	36°21.6	11.9'	20°52.4	7.5'	54.9'	104°12.0	72°23.2	67°20.2	26°09.9	13°08.8	74°41.2	76°20.2	101°46.3
22	50°52.5	11.8'	20°59.9	7.4'	54.9'	103°41.7	71°53.9	66°50.1	25°41.2	13°34.1	75°08.6	76°36.3	102°14.2
23	65°23.3	11.7'	21°07.4	7.3'	55.0'	103°11.3	71°24.6	66°19.9	25°12.5	13°59.8	75°35.9	76°52.4	102°42.1
23 rd	SD	= 14.9'	Mer. pass.	18:30					Sun SD	0 = 16.2'			

h Moon (24th Jan)

			(()			,	
Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Sun
0	79°54.0	11.7'	N 21°14.7	7.3'	55.0'	102°40.9	70°55.2	65°49.8	24°43.9	14°25.8	76°03.3	77°08.6	103°10.0
1	94°24.7	11.6'	21°22.0	7.2'	55.0'	102°10.5	70°25.9	65°19.6	24° 15.3	14°52.1	76°30.7	77°24.9	103°37.9
2	108°55.3	11.5'	21°29.1	7.1'	55.0'	101°40.0	69°56.5	64°49.4	23°46.8	15° 18.7	76°58.2	77°41.2	104°05.9
3	123°25.8	11.4'	21°36.2	7.0'	55.1'	101°09.6	69°27.1	64°19.1	23° 18.3	15°45.5	77°25.7	77°57.6	104°33.9
4	137°56.2	11.3'	21°43.1	6.9'	55.1'	100°39.1	68°57.7	63°48.9	22°49.9	16° 12.5	77°53.3	78°14.0	105°02.0
5	152°26.5	11.3'	21°50.0	6.8'	55.1'	100°08.5	68°28.2	63°18.6	22°21.6	16°39.8	78°20.8	78°30.5	105°30.0
6	166°56.8	11.2'	N 21°56.8	6.7'	55.1'	99°38.0	67°58.8	62°48.3	21°53.3	17°07.3	78°48.5	78°47.0	105°58.1
7	181°26.9	11.1'	22°03.5	6.6'	55.2'	99°07.4	67°29.3	62°17.9	21°25.1	17°34.9	79°16.1	79°03.6	106°26.3
8	195°57.0	11.0'	22°10.0	6.5'	55.2'	98°36.8	66°59.8	61°47.6	20°57.0	18°02.8	79°43.8	79°20.3	106°54.4
9	210°27.0	10.9'	$22^{\circ}16.5$	6.4'	55.2'	98°06.1	66°30.3	61°17.2	20°29.0	18° 30.8	80°11.5	79°37.0	107°22.6
10	224°57.0	10.8'	22°22.9	6.3'	55.2'	97°35.4	66°00.7	60°46.8	20°01.1	18°59.0	80°39.3	79°53.7	107°50.8
11	239°26.8	10.8'	22°29.2	6.2'	55.3'	97°04.7	65°31.2	60°16.3	19°33.2	19°27.3	81°07.1	80°10.5	108°19.0
12	253°56.6	10.7'	N22°35.3	6.1'	55.3'	96°34.0	65°01.6	59°45.8	19°05.5	19°55.8	81°34.9	80°27.4	108°47.3
13	268°26.3	10.6'	22°41.4	6.0'	55.3'	96°03.2	64°32.0	59°15.3	18° 38.0	20°24.4	82°02.8	80°44.3	109°15.6
14	282°55.9	10.5'	22°47.4	5.9'	55.3'	95°32.4	64°02.4	58°44.8	18° 10.6	20°53.1	82°30.7	81°01.2	109°44.0
15	297°25.4	10.4'	22°53.2	5.7'	55.4'	95°01.6	63°32.8	58°14.3	17°43.3	21°21.9	82°58.6	81°18.2	110°12.3
16	311°54.8	10.4'	22°59.0	5.6'	55.4'	94°30.7	63°03.1	57°43.7	17° 16.2	21°50.9	83°26.6	81°35.2	110°40.7
17	326°24.2	10.3'	23°04.6	5.5'	55.4'	93°59.8	62°33.4	57°13.1	16°49.3	22°20.0	83°54.6	81°52.3	111°09.2
18	340°53.5	10.2'	N23°10.1	5.4'	55.5'	93°28.9	62°03.8	56°42.5	16°22.6	22°49.1	84°22.6	82°09.5	111°37.6
19	355°22.7	10.1'	23°15.5	5.3'	55.5'	92°57.9	61°34.0	56°11.8	15° 56.1	23°18.4	84°50.7	82°26.6	112°06.1
20	9°51.8	10.0'	23°20.8	5.2'	55.5'	92°26.9	61°04.3	55°41.1	15° 29.9	23°47.8	85° 18.8	82°43.9	112°34.6
21	24°20.8	10.0'	23°26.0	5.1'	55.5'	91°55.9	60°34.6	55°10.4	15°03.9	24°17.3	85°47.0	83°01.1	113°03.2
22	38°49.8	9.9'	23°31.1	5.0'	55.6'	91°24.8	60°04.8	54°39.6	14°38.3	24°46.9	86°15.2	83°18.5	113°31.8
23	53°18.6	9.8'	23°36.1	4.9'	55.6'	90°53.8	59°35.0	54°08.9	14°13.0	25°16.5	86°43.4	83°35.8	114°00.4
24 th	SD	= 15.0'	Mer. pass.	19:19					Sun SD	0 = 16.2'			

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

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Saturn	+Deneb	+Fomalhaut	+Sun
0	67°47.4	9.7'	N 23°40.9	4.7'	55.6'	90°22.6	59°05.2	53°38.1	35°03.3	25°46.3	83°53.2	87°11.6	114°29.1
1	82°16.2	9.6'	23°45.7	4.6'	55.7'	89°51.5	58°35.4	53°07.2	34°36.6	26°16.1	84°10.6	87°39.9	114°57.8
2	96°44.8	9.6'	23°50.3	4.5'	55.7'	89°20.3	58°05.5	52°36.4	34°10.0	26°46.0	84°28.1	88°08.2	115°26.5
3	111°13.4	9.5'	23°54.8	4.4'	55.7'	88°49.0	57°35.7	52°05.5	33°43.5	27°16.0	84°45.6	88°36.6	115°55.3
4	125°41.9	9.4'	23°59.2	4.3'	55.7'	88°17.7	57°05.8	51°34.6	33°17.1	27°46.0	85°03.2	89°05.0	116°24.1
5	140°10.3	9.3'	24°03.4	4.1'	55.8'	87°46.4	56°35.9	51°03.6	32°50.7	28°16.2	85°20.8	89°33.4	116°52.9
6	154°38.6	9.3'	N 24°07.6	4.0'	55.8'	87°15.1	56°06.0	50°32.6	32°24.5	28°46.4	85°38.4	90°01.8	117°21.8
7	169°06.9	9.2'	24°11.6	3.9'	55.8'	86°43.7	55°36.1	50°01.6	31°58.4	29°16.7	85°56.0	90°30.3	117°50.7
8	183°35.0	9.1'	24°15.5	3.8'	55.9'	86°12.3	55°06.2	49°30.6	31°32.4	29°47.0	86°13.7	90°58.8	118°19.6
9	198°03.1	9.0'	24°19.3	3.6'	55.9'	85°40.8	54°36.2	48°59.5	31°06.5	30°17.4	86°31.5	91°27.4	118°48.6
10	212°31.2	9.0'	24°22.9	3.5'	55.9'	85°09.3	54°06.2	48°28.4	30°40.8	30°47.9	86°49.2	91°56.0	119°17.6
11	226°59.1	8.9'	24°26.4	3.4'	56.0'	84°37.8	53°36.2	47°57.3	30°15.2	31°18.5	87°07.0	92°24.6	119°46.7
12	241°27.0	8.8'	N 24°29.8	3.3'	56.0'	84°06.3	53°06.2	47°26.2	29°49.7	31°49.1	87°24.8	92°53.2	
13	255°54.8	8.7'	24°33.1	3.1'	56.0'	83°34.6	52°36.2	46°55.0	29°24.4	32°19.8	87°42.7	93°21.9	
14	270°22.6	8.7'	24°36.2	3.0'	56.0'	83°03.0	52°06.2	46°23.8	28°59.2	32°50.5	88°00.6	93°50.6	
15	284°50.3	8.6'	24°39.2	2.9'	56.1'	82°31.3	51°36.2	45°52.5	28°34.2	33°21.3	88°18.5	94°19.4	
16	299°17.9	8.5'	24°42.1	2.7'	56.1'	81°59.6	51°06.1	45°21.3	28°09.4	33°52.2	88°36.4	94°48.1	
17	313°45.4	8.5'	24°44.9	2.6'	56.1'	81°27.9	50°36.1	44°50.0	27°44.8	34°23.1	88°54.4	95°17.0	
18	328°12.9	8.4'	N 24°47.5	2.5'	56.2'	80°56.1	50°06.0	44°18.7	27°20.3	34°54.1	89°12.4	95°45.8	
19	342°40.3	8.3'	24°50.0	2.4'	56.2'	80°24.2	49°35.9	43°47.3	26°56.1	35°25.1	89°30.4	96°14.7	
20	357°07.6	8.3'	24°52.3	2.2'	56.2'	79°52.3	49°05.8	43°15.9	26°32.1	35°56.2	89°48.5	96°43.5	
21	11°34.9	8.2'	24°54.5	2.1'	56.3'	79°20.4	48°35.7	42°44.5	26°08.4	36°27.4	90°06.5	97°12.5	
22	26°02.1	8.1'	24°56.6	1.9'	56.3'	78°48.5	48°05.6	42°13.1	25°44.8	36°58.6	90°24.6	97°41.4	
23	40°29.2	8.1'	24°58.6	1.8'	56.3'	78°16.5	47°35.5	41°41.6	25°21.6	37°29.9	90°42.7	98°10.4	
25 th	SD =	= 15.2′	Mer. pass	. 20:12	2				Sun SD	= 16.2'			

Moon (26th Jan)

h

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	54°56.3	8.0'	N25°00.4	1.7'	56.4'	119°04.7	77°44.5	47°05.4	41°10.1		38°01.2	91°00.8	98°39.4
1	69°23.3	8.0'	25°02.0	1.5'	56.4	118°33.5	77°12.4	46°35.3	40°38.6		38°32.6	91°19.0	99°08.5
2	83°50.2	7.9'	25°03.6	1.4'	56.4'	118°02.2	76°40.3	46°05.2	40°07.1		39°04.1	91°37.2	99°37.5
3	98°17.1	7.8'	25°05.0	1.3'	56.5'	117°30.9	76°08.1	45°35.0	39°35.5		39°35.6	91°55.3	100°06.6
4	112°44.0	7.8'	25°06.2	1.1'	56.5'	116°59.5	75°35.9	45°04.9	39°03.9		40°07.1	92°13.5	100°35.8
5	127°10.7	7.7'	25°07.3	1.0'	56.5'	116°28.1	75°03.7	44°34.8	38°32.3		40°38.8	92°31.8	101°04.9
6	141°37.5	7.7'	N25°08.3	0.8'	56.6'	115°56.7	74°31.4	44°04.7	38°00.7		41°10.4	92°50.0	101°34.1
7	156°04.1	7.6'	25°09.1	0.7'	56.6'	115°25.2	73°59.1	43°34.5	37°29.0		41°42.1	93°08.2	102°03.3
8	170°30.7	7.6'	25°09.8	0.5'	56.6'	114°53.6	73°26.7	43°04.4	36°57.3		42°13.9	93°26.5	102°32.5
9	184°57.3	7.5'	$25^{\circ}10.4$	0.4'	56.7'	114°22.0	72°54.3	42°34.3	36°25.6		42°45.7	93°44.7	103°01.8
10	199°23.8	7.5'	25°10.8	0.3'	56.7'	113°50.4	72°21.9	42°04.2	35°53.9		43°17.6	94°03.0	103°31.0
11	213°50.3	7.4'	25°11.0	0.1'	56.8'	113°18.7	71°49.4	41°34.1	35°22.2		43°49.5	94°21.3	104°00.3
12	228°16.7	7.4'	$N25^{\circ}11.1$	-0.0'	56.8'	112°46.9	71°16.9	41°04.1	34°50.4	11°38.4	44°21.5	94°39.6	104°29.7
13	242°43.0	7.3'	$25^{\circ}11.1$	-0.2'	56.8'	112°15.1	70°44.3	40°34.0	34°18.6	12°01.4	44°53.6	94°57.9	104°59.0
14	257°09.3	7.3'	25°10.9	-0.3'	56.9'	111°43.3	70°11.7	40°04.0	33°46.8	12°25.2	45°25.7	95°16.2	105°28.4
15	271°35.6	7.2'	25°10.6	-0.5'	56.9'	111°11.4	69°39.0	39°34.0	33°15.0	12°49.7	45° 57.8	95°34.5	105°57.8
16	286°01.8	7.2'	25°10.1	-0.6'	56.9'	110°39.5	69°06.3	39°04.0	32°43.2	13°14.7	46°30.0	95°52.8	106°27.2
17	300°28.0	7.1'	25°09.5	-0.8'	57.0'	110°07.6	68°33.6	38°34.0	32°11.3	13°40.4	47°02.2	96°11.1	106°56.6
18	314°54.2	7.1'	N 25°08.7	-0.9'	57.0'	109°35.5	68°00.8	38°04.0	31°39.5	14°06.6	47°34.5	96°29.4	107°26.1
19	329°20.3	7.1'	25°07.8	-1.1'	57.0'	109°03.5	67°28.0	37°34.1	31°07.6	14°33.2	48°06.9	96°47.8	107°55.6
20	343°46.3	7.0'	25°06.8	-1.2'	57.1'	108°31.4	66°55.1	37°04.2	30°35.7	15°00.3	48°39.3	97°06.1	108°25.1
21	358°12.4	7.0'	25°05.5	-1.4'	57.1'	107°59.2	66°22.2	36°34.4	30°03.8	15°27.8	49°11.7	97°24.4	108°54.6
22	12°38.4	7.0'	25°04.2	-1.5'	57.1'	107°27.0	65°49.3	36°04.6	29°32.0	15°55.7	49°44.2	97°42.7	109°24.1
23	27°04.3	6.9'	25°02.7	-1.7'	57.2'	106°54.8	65°16.3	35°34.8	29°00.1	16°23.9	50°16.8	98°01.0	109°53.6
26 th	SD :	= 15.4'	Mer. pas	s. 21:07									

Moon (27th Jan)

Sat	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	41°30.2	6.9'	N 25°01.0	-1.8'	57.2'		118°46.0	106°22.5	64°43.2	16°52.5		50°49.4	110°23.2
1	55°56.1	6.9'	24°59.2	-2.0'	57.2'		118°12.9	105°50.2	64°10.2	17°21.4		51°22.0	110°52.8
2	70°22.0	6.8'	24°57.2	-2.1'	57.3'		117°39.7	105°17.8	63°37.0	17°50.5		51°54.7	111°22.4
3	84°47.8	6.8'	24°55.1	-2.3'	57.3'	119°51.5	117°06.5	104°45.3	63°03.9	18°19.9		52°27.5	111°52.0
4	99°13.7	6.8'	24°52.8	-2.4'	57.4'	119°18.6	116°33.3	104°12.9	62°30.7	18°49.6		53°00.3	112°21.6
5	113°39.4	6.8'	24°50.4	-2.6'	57.4'	118°45.6	116°00.0	103°40.4	61°57.4	19°19.5		53°33.1	112°51.2
6	128°05.2	6.7'	N24°47.8	-2.7'	57.4'	118°12.6	115°26.6	103°07.8	61°24.1	19°49.6		54°06.0	113°20.8
7	142°30.9	6.7'	24°45.1	-2.9'	57.5'	117°39.5	114°53.2	102°35.2	60°50.8	20°19.9		54°39.0	113°50.5
8	156°56.7	6.7'	24°42.2	-3.0'	57.5'	117°06.4	114°19.8	102°02.5	60°17.4	20°50.4		55°12.0	114°20.1
9	171°22.4	6.7'	24°39.1	-3.2'	57.5'	116°33.2	113°46.3	101°29.8	59°44.0	21°21.1		55°45.0	114°49.8
10	185°48.0	6.7'	24°35.9	-3.3'	57.6'	116°00.0	113°12.7	100°57.1	59°10.5	21°51.9		56°18.1	115°19.5
11	200°13.7	6.6'	24°32.6	-3.5'	57.6'	115°26.7	112°39.2	100°24.3	58°37.0	22°23.0	23°34.2	56°51.2	115°49.1
12	214°39.4	6.6'	N24°29.1	-3.7'	57.6'	114°53.4	112°05.6	99°51.4	58°03.5	22°54.2	23°49.8	57°24.4	116°18.8
13	229°05.0	6.6'	24°25.5	-3.8'	57.7'	114°20.1	111°31.9	99°18.5	57°29.9	23°25.5	24°06.0	57°57.7	116°48.5
14	243°30.6	6.6'	24°21.7	-4.0'	57.7'	113°46.7	110°58.2	98°45.6	56°56.2	23°57.0	24°22.9	58°31.0	117°18.2
15	257°56.2	6.6'	24°17.7	-4.1'	57.7'	113°13.2	110°24.4	98°12.6	56°22.6	24°28.6	24°40.3	59°04.3	117°47.8
16	272°21.8	6.6'	24°13.6	-4.3'	57.8'	112°39.7	109°50.6	97°39.6	55°48.8	25°00.3	24°58.2	59°37.7	118°17.5
17	286°47.4	6.6'	24°09.3	-4.4'	57.8'	112°06.2	109°16.8	97°06.5	55°15.1	25°32.2	25°16.7	60°11.1	118°47.2
18	301°13.0	6.6'	N 24°04.9	-4.6'	57.8'	111°32.6	108°42.9	96°33.4	54°41.3	26°04.2	25°35.7	60°44.6	119°16.9
19	315°38.6	6.6'	24°00.3	-4.7'	57.9'	110°59.0	108°09.0	96°00.2	54°07.4	26°36.3	25°55.2	61°18.1	119°46.5
20	330°04.2	6.6'	23°55.6	-4.9'	57.9'	110°25.3	107°35.0	95°27.0	53°33.5	27°08.5	26°15.2	61°51.7	
21	344°29.8	6.6'	23°50.7	-5.0'	58.0'	109°51.6	107°01.0	94°53.8	52°59.6	27°40.9	26°35.6	62°25.3	
22	358°55.4	6.6'	23°45.7	-5.2'	58.0'	109°17.8	106°26.9	94°20.5	52°25.6	28°13.3	26°56.5	62°59.0	
23	13°20.9	6.6'	23°40.5	-5.3'	58.0'	108°44.0	105°52.8	93°47.1	51°51.6	28°45.8	27°17.9	63°32.7	
27 th	SD	= 15.6	Mer pas	s 22·04	ı					-			

h Moon (28th Jan)

Sun	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	27°46.5	6.6'	N23°35.2	-5.5'	58.1'	108°10.1	105°18.7	93°13.8	51°17.6		27°39.6	29° 18.5	64°06.5
1	42°12.1	6.6'	23°29.7	-5.6'	58.1'	107°36.2	104°44.5	92°40.3	50°43.5		28°01.8	29°51.2	64°40.3
2	56°37.7	6.6'	23°24.1	-5.8'	58.1'	107°02.3	104°10.2	92°06.9	50°09.4	19°36.0	28° 24.4	30°24.0	65°14.1
3	71°03.3	6.6'	23°18.3	-5.9'	58.2'	106°28.3	103°35.9	91°33.3	49°35.2	19°52.3	28°47.3	30°57.0	65°48.0
4	85°28.9	6.6'	23°12.4	-6.1'	58.2'	105°54.3	103°01.6	90°59.8	49°01.0	20°09.4	29° 10.6	31°30.0	66°22.0
5	99°54.5	6.6'	23°06.3	-6.2'	58.2'	105°20.2	102°27.2	90°26.2	48°26.7	20°27.2	29°34.3	32°03.0	66°55.9
6	114°20.2	6.6'	N 23°00.0	-6.4'	58.3'	104°46.1	101°52.8	89°52.5	47°52.4	20°45.6	29°58.4	32°36.2	67°30.0
7	128°45.8	6.7'	22°53.6	-6.5'	58.3'	104°11.9	101°18.4	89°18.8	47°18.1	21°04.7	30°22.7	33°09.5	68°04.1
8	143°11.5	6.7'	22°47.1	-6.7'	58.3'	103°37.7	100°43.9	88°45.1	46°43.7	21°24.5	30°47.4	33°42.8	68°38.2
9	157°37.1	6.7'	22°40.4	-6.8'	58.4'	103°03.4	100°09.4	88°11.3	46°09.3	21°44.9	31°12.4	34°16.2	69°12.3
10	172°02.8	6.7'	22°33.6	-7.0'	58.4'	102°29.1	99°34.8	87°37.5	45°34.9	22°05.8	31°37.7	34°49.7	69°46.6
11	186°28.5	6.7'	22°26.6	-7.1'	58.4'	101°54.8	99°00.1	87°03.7	45°00.4	22°27.3	32°03.3	35°23.2	70°20.8
12	200°54.2	6.7'	$N22^{\circ}19.5$	-7.3'	58.5'	101°20.4	98° 25.5	86°29.8	44°25.9	22°49.4	32°29.2	35°56.8	70°55.1
13	215°20.0	6.8'	22°12.2	-7.4'	58.5'	100°46.0	97°50.8	85°55.8	43°51.3	23°12.0	32°55.3	36°30.5	71°29.5
14	229°45.7	6.8'	22°04.8	-7.6'	58.5'	100°11.5	97°16.0	85°21.8	43°16.7	23°35.0	33°21.7	37°04.3	72°03.8
15	244°11.5	6.8'	21°57.2	-7.7'	58.6'	99°37.0	96°41.2	84°47.8	42°42.1	23°58.6	33°48.4	37°38.1	72°38.3
16	258°37.3	6.8'	21°49.5	-7.9'	58.6'	99°02.4	96°06.4	84°13.7	42°07.4	24°22.6	34° 15.3	38°12.0	73°12.7
17	273°03.1	6.9'	21°41.7	-8.0'	58.6'	98°27.8	95°31.5	83°39.6	41°32.7	24°47.0	34°42.5	38°46.0	73°47.2
18	287°29.0	6.9'	N 21°33.7	-8.1'	58.7'	97°53.2	94°56.6	83°05.5	40°58.0	25°11.9	35°09.8	39°20.0	74°21.8
19	301°54.9	6.9'	21°25.5	-8.3'	58.7'	97°18.5	94°21.7	82°31.3	40°23.2	25°37.1	35°37.5	39°54.1	74°56.4
20	316°20.8	6.9'	$21^{\circ}17.3$	-8.4'	58.7'	96°43.8	93°46.7	81°57.1	39°48.4	26°02.7	36°05.3	40°28.2	75°31.0
21	330°46.7	7.0'	21°08.8	-8.6'	58.8'	96°09.1	93°11.7	81°22.8	39°13.5	26°28.7	36°33.3	41°02.4	76°05.7
22	345°12.7	7.0'	21°00.3	-8.7'	58.8'	95°34.3	92°36.6	80°48.5	38°38.7	26°55.1	37°01.6	41°36.7	76°40.4
23	359°38.6	7.0'	20°51.6	-8.8'	58.8'	94°59.4	92°01.5	80°14.2	38°03.7	27°21.7	37°30.0	42°11.0	77°15.2
28 th	SD	= 15.8'	Mer. pas	s. 23:01	-								

h Moon (29 th Jan) Lunar Distance (objects with largest hourly LD of

Mon	GHA	ν	Dec	ď	HP	-Jupiter	-Spica	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	14°04.7	7.1'	N 20°42.7	-9.0'	58.9'	94°24.6	91°26.3	79°39.8	37°28.8	27°48.7	37°58.6	42°45.4	77°50.0
1	28°30.7	7.1'	20°33.8	-9.1'	58.9'	93°49.6	90°51.2	79°05.4	36° 53.8	28°16.0	38° 27.5	43° 19.8	78°24.8
2	42°56.8	7.1'	20°24.7	-9.2'	58.9'	93°14.7	90° 15.9	78°30.9	36° 18.8	28°43.6	38°56.5	43°54.3	78°59.7
3	57°22.9	7.2'	20°15.4	-9.4'	58.9'	92°39.7	89°40.7	77°56.4	35°43.8	29°11.5	39°25.6	44°28.8	79°34.6
4	71°49.1	7.2'	20°06.0	-9.5'	59.0'	92°04.7	89°05.4	77°21.9	35°08.7	29°39.7	39°55.0	45°03.4	80°09.5
5	86°15.3	7.2'	19°56.5	-9.6'	59.0'	91°29.6	88°30.0	76°47.3	34°33.7	30°08.1	40°24.5	45°38.1	80°44.5
6	100°41.5	7.3'	N 19°46.9	-9.8'	59.0'	90°54.5	87°54.7	76°12.7	33°58.5	30°36.7	40°54.1	46°12.7	81°19.6
7	115°07.7	7.3'	19°37.1	-9.9'	59.1'	90°19.4	87° 19.2	75°38.1	33°23.4	31°05.6	41°24.0	46°47.5	81°54.6
8	129°34.0	7.3'	19°27.2	-10.0'	59.1'	89°44.2	86°43.8	75°03.4	32°48.2	31°34.8	41°53.9	47°22.3	82°29.7
9	144°00.4	7.4'	$19^{\circ}17.2$	-10.2'	59.1'	89°09.0	86°08.3	74°28.7	32°13.0	32°04.1	42°24.1	47°57.1	83°04.9
10	158°26.7	7.4'	19°07.0	-10.3'	59.2'	88°33.7	85°32.8	73°54.0	31°37.8	32°33.7	42°54.3	48°32.0	83°40.0
11	172°53.1	7.4'	18°56.7	-10.4'	59.2'	87°58.4	84° 57.2	73°19.2	31°02.6	33°03.5	43°24.7	49°07.0	84°15.2
12	187°19.6	7.5'	N18°46.3	-10.5'	59.2'	87°23.1	84°21.7	72°44.4	30°27.3	33°33.4	43°55.3	49°41.9	84°50.5
13	201°46.1	7.5'	18°35.7	-10.7'	59.2'	86°47.8	83°46.0	72°09.6	29°52.0	34°03.6	44°25.9	50° 17.0	85°25.8
14	216°12.6	7.6'	18°25.1	-10.8'	59.3'	86°12.4	83°10.4	71°34.7	29° 16.7	34°33.9	44°56.7	50°52.0	86°01.1
15	230°39.2	7.6'	18°14.3	-10.9'	59.3'	85°36.9	82°34.7	70°59.8	28°41.4	35°04.5	45°27.6	51°27.2	86°36.4
16	245°05.8	7.7'	18°03.4	-11.0'	59.3'	85°01.5	81°59.0	70°24.9	28°06.0	35°35.2	45°58.7	52°02.3	87°11.8
17	259°32.4	7.7'	17°52.3	-11.1'	59.3'	84°26.0	81°23.2	69°49.9	27°30.7	36°06.0	46°29.8	52° 37.5	87°47.2
18	273°59.1	7.7'	$N17^{\circ}41.2$	-11.3'	59.4'	83°50.5	80°47.4	69°14.9	26°55.3	36°37.0	47°01.1	53°12.8	88°22.7
19	288°25.8	7.8'	$17^{\circ}29.9$	-11.4'	59.4'	83°14.9	80°11.6	68°39.9	26° 19.9	37°08.2	47°32.5	53°48.0	88°58.1
20	302°52.6	7.8'	$17^{\circ}18.5$	-11.5'	59.4'	82°39.4	79°35.8	68°04.9	25°44.5	37°39.5	48°04.0	54°23.4	89°33.7
21	317°19.4	7.9'	17°07.0	-11.6'	59.4'	82°03.7	78° 59.9	67°29.8	25°09.1	38°11.0	48°35.6	54° 58.7	90°09.2
22	331°46.3	7.9'	16°55.4	-11.7'	59.5'	81°28.1	78°24.0	66°54.7	24°33.7	38°42.6	49°07.3	55°34.1	90°44.8
23	346°13.2	7.9'	16°43.7	-11.8'	59.5'	80°52.4	77°48.0	66°19.5	23°58.3	39°14.3	49°39.1	56°09.6	91°20.4
29 th	SD	= 16.1	L' Mer. pas	s. 23:57									

h Moon ((30 th Jan)	Lunar Distance (d	objects with larg	est hourly LD delta)
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Tue	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	0°40.2	8.0'	N 16°31.9	-11.9'	59.5'		80°16.7	77°12.0	65°44.4	15°57.1	39°46.2	56°45.1	91°56.0
1	15°07.2	8.0'	$16^{\circ}19.9$	-12.1'	59.5'		79°41.0	76°36.0	65°09.2	16°28.9	40°18.1	57°20.6	92°31.7
2	29°34.2	8.1'	16°07.9	-12.2'	59.6'		79°05.2	76°00.0	64°34.0	17°01.0	40°50.2	57°56.1	93°07.3
3	44°01.3	8.1'	15°55.7	-12.3'	59.6'		78° 29.4	75°23.9	63°58.8	17°33.4	41°22.5	58°31.7	93°43.1
4	58°28.4	8.2'	15°43.5	-12.4'	59.6'		77°53.6	74°47.9	63°23.5	18°06.1	41°54.8	59°07.3	94°18.8
5	72°55.6	8.2'	15°31.1	-12.5'	59.6'	119°49.8	77° 17.8	74°11.7	62°48.2	18°39.0	42°27.2	59°43.0	94°54.6
6	87°22.8	8.3'	$N15^{\circ}18.6$	-12.6'	59.7'	119° 13.6	76°41.9	73°35.6	62°12.9	19° 12.1	42°59.8	60°18.7	95°30.4
7	101°50.0	8.3'	15°06.0	-12.7'	59.7'	118° 37.4	76°06.0	72°59.4	61°37.6	19°45.4	43°32.4	60°54.4	96°06.2
8	116°17.3	8.3'	14°53.4	-12.8'	59.7'	118°01.2	75°30.1	72°23.2	61°02.2	20° 18.9	44°05.2	61°30.1	96°42.0
9	130°44.7	8.4'	14°40.6	-12.9'	59.7'	117°24.9	74°54.2	71°47.0	60°26.9	20°52.5	44°38.0	62°05.9	97° 17.9
10	145°12.1	8.4'	14°27.7	-13.0'	59.7'	116°48.6	74° 18.2	71°10.8	59°51.5	21°26.3	45°10.9	62°41.7	97°53.8
11	159°39.5	8.5'	$14^{\circ}14.8$	-13.1'	59.8'	116° 12.3	73°42.2	70°34.5	59°16.1	22°00.3	45°44.0	63°17.6	98°29.7
12	174°07.0	8.5'	$N14^{\circ}01.7$	-13.1'	59.8'	115°36.0	73°06.2	69°58.2	58°40.6	22°34.4	46°17.1	63°53.5	99°05.7
13	188°34.5	8.6'	13°48.6	-13.2'	59.8'	114°59.6	72°30.1	69°21.9	58°05.2	23°08.6	46°50.3	64°29.4	99°41.6
14	203°02.1	8.6'	13°35.4	-13.3'	59.8'	114°23.3	71°54.1	68°45.6	57°29.7	23°43.0	47°23.5	65°05.3	100°17.6
15	217°29.7	8.7'	13°22.0	-13.4'	59.8'	113°46.9	71°18.0	68°09.2	56°54.2	24° 17.5	47°56.9	65°41.2	100°53.6
16	231°57.3	8.7'	13°08.6	-13.5'	59.9'	113° 10.4	70°41.9	67°32.8	56°18.7	24°52.0	48°30.3	66°17.2	101°29.7
17	246°25.0	8.7'	12°55.1	-13.6'	59.9'	112°34.0	70°05.8	66°56.4	55°43.2	25°26.7	49°03.8	66°53.2	102°05.7
18	260°52.8	8.8'	$N12^{\circ}41.5$	-13.7'	59.9'	111°57.5	69°29.6	66°20.0	55°07.7	26°01.5	49°37.4	67°29.3	102°41.8
19	275°20.5	8.8'	12°27.9	-13.7'	59.9'	111°21.0	68°53.5	65°43.5	54°32.2	26°36.4	50°11.0	68°05.3	103°17.9
20	289°48.3	8.9'	12°14.1	-13.8'	59.9'	110°44.5	68° 17.3	65°07.1	53°56.6	27°11.3	50°44.7	68°41.4	103°54.0
21	304°16.2	8.9'	12°00.3	-13.9'	60.0'	110°08.0	67°41.1	64°30.6	53°21.1	27°46.4	51°18.5	69°17.5	104°30.1
22	318°44.1	8.9'	11°46.4	-14.0'	60.0'	109°31.4	67°04.9	63°54.1	52°45.5	28°21.5	51°52.4	69°53.6	105°06.2
23	333°12.1	9.0'	11°32.4	-14.1'	60.0'	108°54.9	66°28.7	63°17.6	52°09.9	28°56.7	52°26.3	70°29.8	105°42.4
30 th	SE) = 16	.2' Mer. pa	ass:-									

h	Moon	(31st Jan))

Lunar Distance (objects with largest hourly LD delta)

-Jupiter -Spica -Mars +Pollux +Betelgeuse +Aldebaran

Wed	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	347°40.0	9.0'	N 11°18.4	-14.1'	60.0'	108°18.3	65°52.4	62°41.0	51°34.3	29°31.9	53°00.2	71°06.0	106°18.6
1	2°08.1	9.1'	11°04.2	-14.2'	60.0'	107°41.7	65°16.2	62°04.5	50°58.7	30°07.2	53°34.2	71°42.1	106°54.8
2	16°36.1	9.1'	10°50.0	-14.3'	60.0'	107°05.1	64°39.9	61°27.9	50°23.1	30°42.6	54°08.3	72° 18.4	107°31.0
3	31°04.2	9.1'	10°35.8	-14.3'	60.0'	106°28.4	64°03.6	60°51.3	49°47.5	31°18.1	54° 42.4	72°54.6	108°07.2
4	45°32.4	9.2'	10°21.4	-14.4'	60.1'	105°51.8	63°27.3	60°14.7	49°11.9	31°53.6	55° 16.6	73°30.8	108°43.4
5	60°00.5	9.2'	10°07.0	-14.5'	60.1'	105°15.1	62°51.0	59°38.1	48°36.3	32°29.1	55° 50.8	74°07.1	109°19.7
6	74°28.8	9.3'	N 09°52.6	-14.5'	60.1'	104°38.4	62°14.7	59°01.5	48°00.6	33°04.7	56°25.1	74°43.4	109°55.9
7	88°57.0	9.3'	09°38.0	-14.6'	60.1'	104°01.7	61°38.3	58° 24.8	47°25.0	33°40.4	56° 59.4	75° 19.7	110°32.2
8	103°25.3	9.3'	09°23.4	-14.7'	60.1'	103°25.0	61°02.0	57°48.2	46°49.4	34°16.1	57°33.8	75°56.0	111°08.5
9	117°53.6	9.4'	09°08.8	-14.7'	60.1'	102°48.3	60°25.6	57°11.5	46°13.8	34°51.8	58°08.2	76°32.3	111°44.7
10	132°22.0	9.4'	08°54.1	-14.8'	60.1'	102°11.5	59°49.3	56°34.8	45°38.1	35°27.6	58° 42.6	77°08.7	112°21.0
11	146°50.4	9.4'	08°39.3	-14.8'	60.1'	101°34.8	59°12.9	55°58.2	45°02.5	36°03.4	59° 17.1	77°45.0	112°57.4
12	161°18.8	9.5'	N 08°24.5	-14.9'	60.2'	100°58.0	58°36.5	55°21.5	44°26.9	36°39.3	59°51.6	78°21.4	113°33.7
13	175°47.3	9.5'	08°09.6	-14.9'	60.2'	100°21.3	58°00.1	54°44.7	43°51.3	37°15.2	60°26.2	78° 57.8	114°10.0
14	190°15.8	9.5'	07°54.7	-15.0'	60.2'	99°44.5	57°23.8	54°08.0	43°15.7	37°51.1	61°00.8	79°34.2	114°46.3
15	204°44.3	9.6'	07°39.7	-15.0'	60.2'	99°07.7	56°47.4	53°31.3	42°40.1	38°27.1	61°35.4	80° 10.6	115°22.7
16	219°12.8	9.6'	07°24.7	-15.1'	60.2'	98°30.9	56°10.9	52°54.6	42°04.5	39°03.1	62°10.1	80°47.0	115°59.0
17	233°41.4	9.6'	07°09.6	-15.1'	60.2'	97°54.1	55°34.5	52° 17.8	41°28.9	39°39.1	62°44.8	81°23.4	116°35.3
18	248°10.0	9.6'	N 06°54.5	-15.2'	60.2'	97°17.3	54°58.1	51°41.1	40°53.3	40°15.2	63° 19.5	81°59.9	117°11.7
19	262°38.7	9.7'	06°39.4	-15.2'	60.2'	96°40.4	54°21.7	51°04.3	40°17.8	40°51.3	63°54.3	82°36.3	117°48.1
20	277°07.4	9.7'	06°24.2	-15.2'	60.2'	96°03.6	53°45.3	50° 27.6	39°42.2	41°27.4	64°29.1	83°12.8	118°24.4
21	291°36.1	9.7'	06°08.9	-15.3'	60.2'	95°26.8	53°08.9	49°50.8	39°06.7	42°03.5	65°03.9	83°49.2	119°00.8
22	306°04.8	9.8'	05°53.7	-15.3'	60.2'	94°49.9	52°32.5	49°14.0	38°31.2	42°39.7	65°38.7	84°25.7	119°37.1
23	320°33.6	9.8'	05°38.4	-15.3'	60.2'	94°13.1	51°56.0	48° 37.2	37°55.7	43°15.8	66°13.6	85°02.2	
31 st	SD	= 16.4	' Mer. pas	ss. 00:51			-		-				

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

		IVIOC	лі (т геі	رد			Lunar	Distance	e (object	S WILII Iar	gest noui	ly LD delta	1
Thu	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Regulus	+Pollux	+Betelgeuse	+Aldebaran
0	335°02.3	9.8'	N05°23.0	-15.4'	60.2'	93°36.2	51°19.6	48°00.5	37°20.3		43°52.0	66°48.5	85°38.7
1	349°31.1	9.8'	05°07.6	-15.4'	60.3'	92°59.4	50°43.2	47°23.7	36°44.8	8°02.9	44°28.2	67°23.4	86°15.1
2	4°00.0	9.9'	04°52.2	-15.4'	60.3'	92°22.5	50°06.8	46°46.9	36°09.4	8°34.6	45°04.5	67°58.3	86°51.6
3	18°28.8	9.9'	04°36.8	-15.5'	60.3'	91°45.6	49°30.4	46° 10.1	35°34.0	9°06.9	45°40.7	68°33.3	87°28.1
4	32°57.7	9.9'	04°21.3	-15.5'	60.3'	91°08.8	48°54.0	45°33.4	34°58.7	9°39.8	46°17.0	69°08.3	88°04.6
5	47°26.6	9.9'	04°05.9	-15.5'	60.3'	90°31.9	48°17.6	44°56.6	34°23.3	10°13.1	46°53.3	69°43.2	88°41.1
6	61°55.5	9.9'	N03°50.4	-15.5'	60.3'	89°55.0	47°41.2	44° 19.8	33°48.0	10°46.8	47°29.5	70°18.2	89°17.6
7	76°24.4	10.0'	03°34.8	-15.6'	60.3'	89°18.1	47°04.8	43°43.0	33°12.8	11°20.9	48°05.9	70°53.2	89°54.1
8	90°53.4	10.0'	$03^{\circ}19.3$	-15.6'	60.3'	88°41.3	46°28.4	43°06.2	32°37.6	11°55.2	48°42.2	71°28.3	90°30.6
9	105°22.4	10.0'	03°03.7	-15.6'	60.3'	88°04.4	45°52.1	42°29.5	32°02.4	12°29.8	49°18.5	72°03.3	91°07.1
10	119°51.3	10.0'	02°48.1	-15.6'	60.3'	87°27.5	45°15.7	41°52.7	31°27.3	13°04.5	49°54.8	72°38.4	91°43.6
11	134°20.3	10.0'	02°32.5	-15.6'	60.3'	86°50.7	44°39.4	41°15.9	30°52.2	13°39.5	50°31.2	73°13.4	92°20.1
12	148°49.4	10.0'	$N02^{\circ}16.9$	-15.6'	60.3'	86°13.8	44°03.0	40°39.2	30°17.2	14°14.6	51°07.5	73°48.5	92°56.6
13	163°18.4	10.0'	$02^{\circ}01.3$	-15.6'	60.3'	85°36.9	43°26.7	40°02.4	29°42.2	14°49.8	51°43.9	74°23.6	93°33.1
14	177°47.4	10.1'	01°45.6	-15.6'	60.3'	85°00.0	42°50.4	39°25.6	29°07.3	15°25.2	52°20.2	74°58.7	94°09.6
15	192°16.5	10.1'	01°30.0	-15.7'	60.3'	84°23.2	42°14.1	38°48.9	28°32.4	16°00.7	52°56.6	75°33.8	94°46.1
16	206°45.6	10.1'	01°14.3	-15.7'	60.3'	83°46.3	41°37.8	38° 12.2	27°57.7	16°36.2	53°33.0	76°08.9	95°22.6
17	221°14.6	10.1'	00°58.7	-15.7'	60.3'	83°09.5	41°01.6	37°35.4	27°23.0	17°11.9	54°09.4	76°44.0	95°59.0
18	235°43.7	10.1'	N 00°43.0	-15.7'	60.3'	82°32.6	40°25.3	36°58.7	26°48.3	17°47.6	54°45.7	77°19.1	96°35.5
19	250°12.8	10.1'	00°27.3	-15.7'	60.3'	81°55.8	39°49.1	36°22.0	26°13.8	18°23.4	55°22.1	77°54.2	97°12.0
20	264°41.9	10.1'	N 00°11.7	-15.7'	60.3'	81°18.9	39°12.9	35°45.3	25°39.3	18°59.3	55°58.5	78°29.3	97°48.4
21	279°11.0	10.1'	S 00°04.0	-15.7'	60.3'	80°42.1	38°36.7	35°08.6	25°04.9	19°35.2	56°34.9	79°04.5	98°24.9
22	293°40.2	10.1'	00° 19.6	-15.7'	60.3'	80°05.3	38°00.6	34°31.9	24°30.7	20°11.1	57°11.3	79°39.6	99°01.3
23	308°09.3	10.1'	00°35.3	-15.6'	60.3'	79°28.5	37°24.4	33°55.3	23°56.5	20°47.1	57°47.7	80°14.7	99°37.8
1 st	SD	= 16.4	Mer. pas:	s. 01:43									

L	Moon (2 nd Feb)	Lucas Distance (abicate with Jamest bound ID dalta)
n	Moon (2" Feb)	Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Regulus	+Procyon	+Pollux	+Aldebaran
0	322°38.4	10.1'	S 00°50.9	-15.6'	60.3'	78°51.7	36°48.3	33°18.6	23°22.5	21°23.2	54°52.9	58°24.0	100°14.2
1	337°07.5	10.1'	$01^{\circ}06.6$	-15.6'	60.2'	78°14.9	36° 12.2	32°42.0	22°48.6	21°59.3	55°27.9	59°00.4	100°50.6
2	351°36.7	10.1'	01°22.2	-15.6'	60.2'	77°38.1	35°36.1	32°05.4	22°14.8	22°35.4	56°02.8	59°36.8	101°27.0
3	6°05.8	10.1'	01°37.8	-15.6'	60.2'	77°01.3	35°00.1	31°28.7	21°41.1	23°11.5	56°37.9	60°13.2	102°03.4
4	20°34.9	10.1'	01°53.4	-15.6'	60.2'	76°24.5	34°24.1	30°52.1	21°07.7	23°47.6	57°12.9	60°49.5	102°39.8
5	35°04.1	10.1'	$02^{\circ}09.0$	-15.6'	60.2'	75°47.8	33°48.1	30°15.6	20°34.3	24°23.8	57°47.9	61°25.9	103°16.2
6	49°33.2	10.1'	S 02°24.6	-15.6'	60.2'	75°11.0	33°12.2	29°39.0	20°01.2	25°00.0	58°23.0	62°02.3	103°52.5
7	64°02.3	10.1'	$02^{\circ}40.1$	-15.5'	60.2'	74°34.3	32°36.3	29°02.5	19°28.3	25°36.2	58°58.1	62°38.6	104°28.9
8	78°31.4	10.1'	02°55.7	-15.5'	60.2'	73°57.5	32°00.5	28°26.0	18°55.6	26°12.4	59°33.1	63°14.9	105°05.2
9	93°00.6	10.1'	03°11.2	-15.5'	60.2'	73°20.8	31°24.6	27°49.5	18°23.1	26°48.6	60°08.2	63°51.3	105°41.5
10	107°29.7	10.1'	03°26.7	-15.5'	60.2'	72°44.1	30°48.9	27°13.0	17°50.8	27°24.9	60°43.3	64°27.6	106°17.8
11	121°58.8	10.1'	03°42.1	-15.4'	60.2'	72°07.4	30°13.1	26°36.5	17°18.9	28°01.1	61°18.4	65°03.9	106°54.1
12	136°27.9	10.1'	S 03°57.6	-15.4'	60.2'	71°30.8	29°37.4	26°00.1	16°47.2	28°37.3	61°53.5	65°40.2	107°30.4
13	150°57.0	10.1'	04°13.0	-15.4'	60.2'	70°54.1	29°01.8	25°23.7	16°15.9	29°13.6	62°28.6	66°16.5	108°06.6
14	165°26.0	10.1'	04°28.3	-15.3'	60.2'	70°17.4	28° 26.2	24°47.3	15°44.9	29°49.9	63°03.8	66°52.8	108°42.9
15	179°55.1	10.1'	04°43.7	-15.3'	60.1'	69°40.8	27°50.7	24°11.0	15°14.3	30°26.1	63°38.9	67°29.1	109°19.1
16	194°24.2	10.0'	04°59.0	-15.3'	60.1'	69°04.2	27° 15.2	23°34.7	14°44.1	31°02.4	64°14.0	68°05.4	109°55.3
17	208°53.2	10.0'	$05^{\circ}14.3$	-15.2'	60.1'	68°27.6	26°39.8	22°58.4	14°14.5	31°38.6	64°49.1	68°41.6	110°31.5
18	223°22.3	10.0'	S 05°29.5	-15.2'	60.1'	67°51.0	26°04.4	22°22.1	13°45.3	32°14.9	65°24.2	69°17.9	111°07.7
19	237°51.3	10.0'	05°44.7	-15.2'	60.1'	67°14.4	25°29.1	21°45.9	13°16.8	32°51.1	65°59.4	69°54.1	111°43.8
20	252°20.3	10.0'	05°59.9	-15.1'	60.1'	66°37.9	24°53.9	21°09.7	12°48.9	33°27.3	66°34.5	70°30.3	112°19.9
21	266°49.3	10.0'	$06^{\circ}15.0$	-15.1'	60.1'	66°01.3	24° 18.7	20°33.6	12°21.7	34°03.6	67°09.6	71°06.5	112°56.0
22	281°18.2	10.0'	$06^{\circ}30.1$	-15.0'	60.1'	65°24.8	23°43.7	19°57.5	11°55.3	34°39.8	67°44.7	71°42.7	113°32.1
23	295°47.2	9.9'	06°45.1	-15.0'	60.1'	64°48.3	23°08.7	19°21.4	11°29.8	35°16.0	68°19.8	72°18.9	114°08.2
2 nd	SD	= 16.4'	Mer. pas	s. 02:35			·	·	·			·	

Moon (3rd Feb)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	310°16.1	9.9'	S 07°00.1	-14.9'	60.0'		64°11.8	22°33.8	18° 45.4	35°52.2	68°54.9	72°55.0	114°44.2
1	324°45.1	9.9'	$07^{\circ}15.1$	-14.9'	60.0'		63°35.4	21°59.0	18°09.4	36°28.4	69°30.0	73°31.2	115°20.3
2	339°13.9	9.9'	07°30.0	-14.8'	60.0'		62°58.9	21°24.3	17°33.5	37°04.6	70°05.1	74°07.3	115°56.3
3	353°42.8	9.9'	07°44.8	-14.8'	60.0'		62°22.5	20°49.8	16°57.7	37°40.8	70°40.2	74°43.4	116°32.2
4	8°11.7	9.8'	07°59.6	-14.7'	60.0'		$61^{\circ}46.1$	20°15.3	16°21.9	38°16.9	71°15.2	75°19.5	117°08.2
5	22°40.5	9.8'	08°14.3	-14.7'	60.0'		$61^{\circ}09.7$	19°41.0	15°46.1	38°53.1	71°50.3	75°55.6	117°44.1
6	37°09.3	9.8'	S 08°29.0	-14.6'	60.0'		60°33.3	19°06.8	15° 10.5	39°29.2	72°25.3	76°31.6	118°20.0
7	51°38.1	9.8'	08°43.7	-14.6'	59.9'		59°57.0	18°32.7	14°34.9	40°05.4	73°00.4	77°07.7	118°55.9
8	66°06.9	9.7'	08°58.2	-14.5'	59.9'		59°20.6	17°58.9	13°59.4	40°41.5	73°35.4	77°43.7	119°31.7
9	80°35.6	9.7'	09°12.7	-14.5'	59.9'		58°44.3	17°25.2	13°24.0	41°17.6	74°10.4	78°19.7	
10	95°04.3	9.7'	09°27.2	-14.4'	59.9'		58°08.0	16°51.6	12°48.7	41°53.7	74°45.4	78°55.7	
11	109°33.0	9.7'	09°41.6	-14.3'	59.9'		57°31.8	16°18.3	12°13.6	42°29.7	75°20.4	79°31.6	
12	124°01.6	9.6'	S 09°55.9	-14.3'	59.9'		56°55.5	15°45.3	11°38.5	43°05.8	75°55.4	80°07.6	
13	138°30.3	9.6'	10°10.2	-14.2'	59.8'		$56^{\circ}19.3$	15°12.4	11°03.6	43°41.8	76°30.4	80°43.5	
14	152°58.9	9.6'	10°24.4	-14.1'	59.8'		55°43.1	14°39.9	10°28.9	44°17.8	77°05.3	81°19.4	
15	167°27.4	9.5'	10°38.5	-14.1'	59.8'		55°06.9	14°07.6	9°54.4	44°53.8	77°40.2	81°55.2	
16	181°56.0	9.5'	$10^{\circ}52.5$	-14.0'	59.8'	119°31.9	54°30.8	13°35.7	9°20.1	45°29.8	78°15.2	82°31.1	
17	196°24.5	9.5'	$11^{\circ}06.5$	-13.9'	59.8'	118°58.3	53°54.6	13°04.2	8°46.1	46°05.8	78°50.1	83°06.9	
18	210°52.9	9.4'	S 11°20.4	-13.8'	59.8'	118°24.8	53°18.5	12°33.1	8° 12.4	46°41.7	79°24.9	83°42.7	
19	225°21.4	9.4'	11°34.3	-13.8'	59.7'	117°51.2	52°42.5	12°02.5	7°39.1	47°17.6	79°59.8	84°18.5	
20	239°49.8	9.4'	11°48.0	-13.7'	59.7'	117° 17.7	52°06.4	11°32.4	7°06.3	47°53.5	80°34.7	84°54.3	
21	254°18.1	9.3'	$12^{\circ}01.7$	-13.6'	59.7'	116°44.2	51°30.4	11°02.9	6°34.1	48°29.4	81°09.5	85°30.0	
22	268°46.5	9.3'	$12^{\circ}15.3$	-13.5'	59.7'	116° 10.8	50°54.4	10°34.1	6°02.6	49°05.3	81°44.3	86°05.8	
23	283°14.8	9.3'	12°28.8	-13.4'	59.7'	115°37.4	50°18.4	10°06.0	5°32.1	49°41.1	82°19.1	86°41.5	
3 rd	SD	= 16.4	′ Mer. pa:	ss. 03:26					Sun	SD = 16.2'			

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

n		IVIO	on (4" Fe	eD)			Lunar	Distance	(objects	with large	est nourly	LD deita)	
Sun	GHA	ν	Dec	d	HP	-Sun	-Venus	-Altair	-Antares	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	297°43.0	9.2'	S 12°42.3	-13.4'	59.7'	115°03.9	103°18.1	102°54.3	49°42.4	50°16.9	82°53.8	87°17.1	108°39.1
1	312°11.3	9.2'	12°55.7	-13.3'	59.6'	114°30.5	102°45.3	102°22.7	49°06.5	50°52.7	83°28.6	87°52.8	109°13.2
2	326°39.4	9.2'	13°08.9	-13.2'	59.6'	113°57.2	102°12.5	101°51.0	48°30.6	51°28.5	84°03.3	88°28.4	109°47.3
3	341°07.6	9.1'	13°22.1	-13.1'	59.6'	113°23.8	101°39.8	101°19.3	47°54.7	52°04.2	84°38.0	89°04.0	110°21.4
4	355°35.7	9.1'	13°35.2	-13.0'	59.6'	112°50.5	101°07.0	100°47.7	47° 18.8	52°40.0	85°12.7	89°39.6	110°55.4
5	10°03.8	9.0'	13°48.3	-12.9'	59.6'	112°17.2	100°34.3	100°16.0	46°43.0	53°15.7	85°47.4	90°15.1	111°29.4
6	24°31.8	9.0'	S 14°01.2	-12.8'	59.5'	111°44.0	100°01.6	99°44.4	46°07.2	53°51.3	86°22.0	90°50.6	112°03.4
7	38°59.8	9.0'	14°14.0	-12.7'	59.5'	111°10.7	99°29.0	99°12.7	45°31.4	54°27.0	86°56.6	91°26.1	112°37.3
8	53°27.8	8.9'	14°26.8	-12.7'	59.5'	110°37.5	98°56.3	98°41.1	44°55.7	55°02.6	87°31.2	92°01.6	113° 11.2
9	67°55.7	8.9'	14°39.4	-12.6'	59.5'	110°04.3	98°23.7	98°09.5	44°20.0	55°38.3	88°05.8	92°37.1	113°45.0
10	82°23.5	8.8'	14°52.0	-12.5'	59.5'	109°31.2	97°51.1	97°37.9	43°44.3	56°13.8	88°40.3	93°12.5	114° 18.8
11	96°51.4	8.8'	$15^{\circ}04.5$	-12.4'	59.4'	108°58.1	97°18.6	97°06.3	43°08.6	56°49.4	89°14.8	93°47.9	114°52.6
12	111°19.2	8.7'	S 15°16.8	-12.3'	59.4'	108°25.0	96°46.1	96°34.7	42°32.9	57°24.9	89°49.3	94°23.2	115°26.3
13	125°46.9	8.7'	$15^{\circ}29.1$	-12.2'	59.4'	107°51.9	96°13.6	96°03.2	41°57.3	58°00.5	90°23.8	94°58.6	115°59.9
14	140°14.6	8.7'	15°41.3	-12.1'	59.4'	107°18.8	95°41.1	95°31.6	41°21.7	58°35.9	90°58.2	95°33.9	116°33.5
15	154°42.3	8.6'	15°53.3	-12.0'	59.4'	106°45.8	95°08.7	95°00.1	40°46.2	59°11.4	91°32.6	96°09.2	117°07.1
16	169°09.9	8.6'	$16^{\circ}05.3$	-11.9'	59.3'	106°12.8	94°36.2	94°28.6	40°10.6	59°46.8	92°07.0	96°44.4	117° 40.6
17	183°37.5	8.5'	$16^{\circ}17.2$	-11.8'	59.3'	105°39.8	94°03.8	93°57.1	39°35.1	60°22.2	92°41.4	97°19.6	118° 14.1
18	198°05.0	8.5'	S 16°28.9	-11.7'	59.3'	105°06.9	93°31.5	93°25.6	38°59.7	60°57.6	93°15.7	97°54.8	118°47.6
19	212°32.5	8.4'	16°40.6	-11.5'	59.3'	104°34.0	92°59.1	92°54.1	38°24.2	61°33.0	93°50.0	98°30.0	119°20.9
20	227°00.0	8.4'	$16^{\circ}52.1$	-11.4'	59.2'	104°01.1	92°26.8	92°22.7	37°48.8	62°08.3	94°24.3	99°05.1	119°54.3
21	241°27.4	8.4'	$17^{\circ}03.6$	-11.3'	59.2'	103°28.2	91°54.6	91°51.3	37°13.4	62°43.6	94°58.5	99°40.3	
22	255°54.7	8.3'	$17^{\circ}14.9$	-11.2'	59.2'	102°55.4	91°22.3	91°19.9	36°38.1	63°18.9	95°32.7	100°15.3	
23	270°22.0	8.3'	$17^{\circ}26.1$	-11.1'	59.2'	102°22.6	90°50.1	90°48.5	36°02.7	63°54.2	96°06.9	100°50.4	
4 th	SD	= 16.3	/ Mer. pa	ss. 04:18					Sun	SD = 16.2'			

h		Мос	on (5 th Fe	eb)	'		Lunar D	istance (objects v	vith large	est hourly	LD delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Venus	-Altair	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	284°49.3	8.2'	S 17°37.2	-11.0'	59.2'	101°49.8	90°17.9	90°17.2	35°27.4	10°41.4	64°29.4	96°41.1	101°25.4
1	299°16.5	8.2'	17°48.2	-10.9'	59.1'	101°17.0	89°45.7	89°45.9	34°52.2	11°15.3	65°04.6	97° 15.2	102°00.4
2	313°43.7	8.1'	$17^{\circ}59.1$	-10.8'	59.1'	100°44.3	89°13.6	89°14.6	34°16.9	11°49.3	65°39.8	97°49.3	102°35.4
3	328°10.9	8.1'	18°09.8	-10.6'	59.1'	100°11.6	88°41.5	88°43.3	33°41.7	12°23.4	66°14.9	98°23.4	103°10.3
4	342°38.0	8.1'	18° 20.5	-10.5'	59.1'	99°39.0	88°09.4	88°12.0	33°06.5	12°57.6	66°50.0	98°57.4	103°45.3
5	357°05.0	8.0'	$18^{\circ}31.0$	-10.4'	59.0'	99°06.3	87°37.3	87°40.8	32°31.4	13°31.8	67°25.1	99°31.4	104°20.1
6	11°32.0	8.0'	S 18°41.4	-10.3'	59.0'	98°33.7	87°05.3	87°09.6	31°56.2	14°06.1	68°00.2	100°05.4	104°55.0
7	25°59.0	7.9'	18°51.7	-10.2'	59.0'	98°01.1	86°33.3	86°38.5	31°21.1	14°40.5	68°35.2	100°39.3	105°29.8
8	40°25.9	7.9'	19°01.9	-10.1'	59.0'	97°28.6	86°01.3	86°07.3	30°46.1	15°14.8	69°10.2	101°13.2	106°04.6
9	54°52.8	7.8'	$19^{\circ}11.9$	-9.9'	59.0'	96°56.1	85°29.4	85°36.2	30°11.0	15°49.2	69°45.2	101°47.1	106°39.4
10	69°19.6	7.8'	19°21.9	-9.8'	58.9'	96°23.6	84°57.5	85°05.2	29°36.0	16°23.6	70°20.2	102°20.9	107°14.1
11	83°46.4	7.7'	$19^{\circ}31.7$	-9.7'	58.9'	95°51.1	84°25.6	84°34.1	29°01.1	16°58.1	70°55.1	102°54.8	107°48.8
12	98°13.2	7.7'	S 19°41.4	-9.6'	58.9'	95°18.7	83°53.8	84°03.1	28°26.1	17°32.5	71°30.0	103°28.5	108°23.5
13	112°39.9	7.7'	19°50.9	-9.4'	58.9'	94°46.2	83°21.9	83°32.2	27°51.2	18°06.9	72°04.9	104°02.3	108°58.1
14	127°06.5	7.6'	20°00.3	-9.3'	58.8'	94°13.9	82°50.2	83°01.2	27°16.3	18°41.4	72°39.7	104°36.0	109°32.7
15	141°33.2	7.6'	20°09.6	-9.2'	58.8'	93°41.5	82°18.4	82°30.3	26°41.5	19°15.8	73°14.6	105°09.7	110°07.3
16	155°59.7	7.5'	20° 18.8	-9.0'	58.8'	93°09.2	81°46.6	81°59.4	26°06.7	19°50.3	73°49.3	105°43.3	110°41.8
17	170°26.3	7.5'	$20^{\circ}27.8$	-8.9'	58.8'	92°36.9	81°14.9	81°28.6	25°31.9	20°24.7	74°24.1	106°16.9	111°16.4
18	184°52.8	7.5'	S 20°36.8	-8.8'	58.7'	92°04.6	80°43.3	80°57.8	24°57.1	20°59.2	74°58.8	106°50.5	111°50.8
19	199°19.2	7.4'	20°45.5	-8.6'	58.7'	91°32.4	80°11.6	80°27.1	24°22.4	21°33.6	75°33.5	107°24.0	112°25.3
20	213°45.7	7.4'	20°54.2	-8.5'	58.7'	91°00.2	79°40.0	79°56.3	23°47.7	22°08.0	76°08.2	107°57.5	112°59.7
21	228°12.0	7.3'	21°02.7	-8.4'	58.7'	90°28.0	79°08.4	79°25.7	23°13.1	22°42.4	76°42.9	108°31.0	113°34.1
22	242°38.4	7.3'	$21^{\circ}11.1$	-8.2'	58.6'	89°55.8	78°36.8	78°55.0	22°38.4	23°16.8	77°17.5	109°04.4	114°08.5
23	257°04.7	7.3'	21°19.3	-8.1'	58.6'	89°23.7	78°05.3	78°24.4	22°03.9	23°51.2	77°52.1	109°37.8	114°42.8
44-													

SD = 16.1'

Mer. pass. 05:12

Sun SD = 16.2'

h		Мос	on (6 th Fe	b)			Lunar D	istance	(objects v	with larg	est hourly	LD delta)	ı
Tue	GHA	ν	Dec	d	HP	-Sun	-Altair	-Venus	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	271°30.9	7.2'	S 21°27.4	-8.0'	58.6'	88°51.6	77°53.9	77°33.8	21°29.3	24°25.6	78°26.7	110°11.2	115°17.1
1	285°57.2	7.2'	21°35.4	-7.8'	58.6'	88°19.6	77°23.3	77°02.3	20°54.8	24°59.9	79°01.2	110°44.5	115°51.4
2	300°23.4	7.2'	21°43.2	-7.7'	58.5'	87°47.5	76°52.9	76°30.9	20°20.3	25°34.3	79°35.7	111° 17.8	116°25.6
3	314°49.5	7.1'	21°50.9	-7.6'	58.5'	87°15.5	76°22.4	75°59.5	19°45.9	26°08.6	80°10.2	111°51.0	116°59.8
4	329°15.6	7.1'	21°58.5	-7.4'	58.5'	86°43.5	75°52.0	75°28.1	19°11.4	26°42.9	80°44.6	112°24.3	117°34.0
5	343°41.7	7.1'	22°05.9	-7.3'	58.5'	86°11.6	75°21.7	74°56.7	18°37.1	27°17.2	81°19.1	112°57.4	118°08.1
6	358°07.8	7.0'	S 22°13.2	-7.1'	58.4'	85°39.6	74°51.4	74°25.4	18°02.7	27°51.4	81°53.5	113°30.6	118°42.2
7	12°33.8	7.0'	22°20.3	-7.0'	58.4'	85°07.8	74°21.2	73°54.1	17°28.4	28°25.7	82°27.8	114°03.6	119°16.3
8	26°59.8	7.0'	22°27.3	-6.9'	58.4'	84°35.9	73°51.0	73°22.8	16°54.1	28°59.9	83°02.2	114°36.7	119°50.3
9	41°25.8	6.9'	22°34.2	-6.7'	58.4'	84°04.0	73°20.8	72°51.6	16°19.9	29°34.1	83°36.5	115°09.7	
10	55°51.7	6.9'	22°40.9	-6.6'	58.4'	83°32.2	72°50.7	72°20.4	15°45.7	30°08.3	84°10.8	115° 42.7	
11	70°17.6	6.9'	22°47.5	-6.4'	58.3'	83°00.5	72°20.6	71°49.2	15°11.6	30°42.5	84°45.0	116° 15.6	
12	84°43.5	6.8'	S 22°53.9	-6.3'	58.3'	82°28.7	71°50.6	71°18.0	14°37.5	31°16.6	85°19.3	116°48.5	
13	99°09.3	6.8'	23°00.2	-6.1'	58.3'	81°57.0	71°20.7	70°46.9	14°03.4	31°50.7	85°53.5	117°21.4	
14	113°35.1	6.8'	23°06.3	-6.0'	58.3'	81°25.3	70°50.8	70°15.8	13°29.4	32°24.8	86°27.7	117°54.2	
15	128°00.9	6.8'	23°12.3	-5.8'	58.2'	80°53.6	70°20.9	69°44.7	12°55.5	32°58.9	87°01.8	118°27.0	
16	142°26.7	6.7'	23°18.1	-5.7'	58.2'	80°22.0	69°51.1	69°13.7	12°21.6	33°33.0	87°35.9	118°59.7	
17	156°52.5	6.7'	23°23.8	-5.5'	58.2'	79°50.4	69°21.4	68°42.6	11°47.8	34°07.0	88°10.0	119°32.4	
18	171°18.2	6.7'	S 23°29.4	-5.4'	58.2'	79°18.8	68°51.7	68°11.7	11°14.0	34°41.0	88°44.1		
19	185°43.9	6.7'	23°34.8	-5.2'	58.1'	78°47.2	68°22.0	67°40.7	10°40.3	35° 15.0	89°18.1		
20	200°09.6	6.7'	23°40.0	-5.1'	58.1'	78°15.7	67°52.5	67°09.8	10°06.6	35°48.9	89°52.1		
21	214°35.2	6.6'	23°45.1	-5.0'	58.1'	77°44.2	67°23.0	66°38.9	9°33.1	36°22.9	90°26.1		
22	229°00.9	6.6'	23°50.1	-4.8'	58.1'	77°12.7	66°53.5	66°08.0	8°59.6	36°56.8	91°00.1		
23	243°26.5	6.6'	23°54.9	-4.7'	58.0'	76°41.3	66°24.1	65°37.1	8°26.2	37°30.7	91°34.0		

	210 20.0	0.0	25 51.5	1	50.0	70 11.5	00 21.1	05 57.1	0 20.2	31 30.1	31 31.0		
6 th	SD =	= 16.0′	Mer. pass	. 06:08					Sun SD	= 16.2'			
h		Моо	n (7 th Fe	b)			Lunar D	istance (objects w	ith larges	t hourly	LD delta	1)
Wed	GHA	ν	Dec	d	HP	-Sun	-Altair	-Venus	± Antares	+Jupiter	+Spica	+Mars	+Regulus
0	257°52.1	6.6'	S 23°59.5	-4.5'	58.0'	76°09.9	65°54.8	65°06.3	7°53.0	35°15.9	38°04.5	49° 10.1	92°07.9
1	272°17.7	6.6'	24°04.0	-4.3'	58.0'	75°38.5	65°25.5	64°35.5	7°19.9	35°49.2	38°38.4	49°43.2	92°41.8
2	286°43.3	6.6'	24°08.4	-4.2'	58.0'	75°07.1	64°56.3	64°04.8	6°47.0	36°22.5	39° 12.2	50°16.3	93°15.6
3	301°08.9	6.6'	24°12.6	-4.0'	57.9'	74°35.8	64°27.1	63°34.0	6°14.2	36°55.8	39°46.0	50°49.4	93°49.4
4	315°34.5	6.6'	24°16.6	-3.9'	57.9'	74°04.5	63°58.0	63°03.3	5°41.8	37°29.0	40° 19.8	51°22.5	94°23.2
5	330°00.0	6.6'	24°20.5	-3.7'	57.9'	73°33.2	63°29.0	62°32.7	5°09.6	38°02.3	40°53.5	51°55.6	94°57.0
6	344°25.6	6.5'	S 24°24.2	-3.6'	57.9'	73°01.9	63°00.1	62°02.0	4°37.9	38°35.6	41°27.2	52°28.6	95°30.7
7	358°51.1	6.5'	24°27.8	-3.4'	57.8'	72°30.7	62°31.2	61°31.4	4°06.8	39°08.8	42°00.9	53°01.6	96°04.4
8	13°16.7	6.5'	24°31.3	-3.3'	57.8'	71°59.5	62°02.4	61°00.8	3°36.5	39°42.0	42°34.6	53°34.7	96°38.1
9	27°42.2	6.5'	24°34.6	-3.1'	57.8'	71°28.3	61°33.6	60°30.2		40°15.2	43°08.2	54°07.7	97°11.8
10	42°07.7	6.5'	24°37.7	-3.0'	57.8'	70°57.2	61°05.0	59°59.7		40°48.4	43°41.9	54°40.6	97°45.4
11	56°33.3	6.5'	24°40.7	-2.8'	57.7'	70°26.1	60°36.4	59°29.2		41°21.6	44°15.5	55° 13.6	98°19.0
12	70°58.8	6.5'	S 24°43.5	-2.7'	57.7'	69°55.0	60°07.9	58°58.7		41°54.7	44°49.0	55°46.6	98°52.6
13	85°24.3	6.5'	24°46.2	-2.5'	57.7'	69°23.9	59°39.4	58°28.2		42°27.9	45°22.6	56° 19.5	99°26.1
14	99°49.9	6.5'	24°48.7	-2.4'	57.7'	68°52.9	59°11.1	57°57.8		43°01.0	45°56.1	56°52.4	99°59.7
15	114°15.4	6.5'	24°51.1	-2.2'	57.6'	68°21.9	58°42.8	57°27.4		43°34.1	46°29.6	57°25.3	100°33.2
16	128°40.9	6.6'	24°53.3	-2.1'	57.6'	67°50.9	58°14.6	56°57.0		44°07.2	47°03.1	57°58.2	101°06.6
17	143°06.5	6.6'	24°55.4	-1.9'	57.6'	67°19.9	57°46.4	56°26.7		44°40.3	47°36.5	58°31.0	101°40.1
18	157°32.1	6.6'	S 24°57.3	-1.8'	57.6'	66°49.0	57°18.4	55°56.4		45°13.4	48° 10.0	59°03.9	102°13.5
19	171°57.6	6.6'	24°59.0	-1.6'	57.6'	66° 18.1	56°50.4	55°26.1		45°46.4	48°43.4	59°36.7	102°46.9
20	186°23.2	6.6'	25°00.6	-1.5'	57.5'	65°47.2	56°22.6	54°55.8		46°19.5	49°16.8	60°09.5	103°20.3
21	200°48.8	6.6'	$25^{\circ}02.1$	-1.3'	57.5'	65°16.4	55°54.8	54°25.6	4°26.1	46°52.5	49°50.1	60°42.3	103°53.6
22	215°14.4	6.6'	25°03.4	-1.2'	57.5'	64°45.5	55°27.1	53°55.3	4°57.2	47°25.5	50°23.4	61°15.0	104°26.9
23	229°40.1	6.6'	25°04.6	-1.0'	57.5'	64°14.7	54°59.5	53°25.2	5°28.8	47°58.5	50°56.7	61°47.8	105°00.2
7 th	SD	= 15.8'	Mer. pas	s. 07:0	5		-		Sun SD	= 16.2'		-	

h		Moo	n (8 th Fe	b)			Lunar D	istance (objects	with larges	st hourly	LD delta)
Thu	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	-Venus	+Antares	+Jupiter	+Spica	+Regulus
0	244°05.7	6.7'	S 25°05.6	-0.8'	57.4'	87°04.7	63°44.0	54°32.0	52°55.0	6°00.6	48°31.4	51°30.0	105°33.5
1	258°31.4	6.7'	25°06.4	-0.7'	57.4'	86°45.9	63°13.2	54°04.6	52°24.9	6°32.7	49°04.4	52°03.3	106°06.7
2	272°57.0	6.7'	$25^{\circ}07.1$	-0.5'	57.4'	86°27.2	62°42.5	53° 37.3	51°54.8	7°04.9	49°37.3	52°36.5	106°39.9
3	287°22.7	6.7'	25°07.6	-0.4'	57.4'	86°08.5	62°11.8	53° 10.0	51°24.7	7°37.3	50°10.2	53°09.7	107°13.1
4	301°48.5	6.8'	25°08.0	-0.2'	57.3'	85°49.9	61°41.1	52°42.9	50°54.6	8°09.8	50°43.1	53°42.9	107°46.3
5	316°14.2	6.8'	$25^{\circ}08.3$	-0.1'	57.3'	85°31.2	61°10.5	52° 15.9	50°24.6	8°42.3	51°16.0	54°16.1	108°19.4
6	330°40.0	6.8'	S 25°08.4	0.1'	57.3'	85°12.6	60°39.9	51°49.0	49°54.6	9°14.9	51°48.8	54°49.2	108°52.5
7	345°05.8	6.8'	25°08.3	0.2'	57.3'	84°54.1	60°09.3	51°22.2	49°24.6	9°47.6	52°21.6	55°22.3	109°25.6
8	359°31.6	6.9'	$25^{\circ}08.1$	0.4'	57.2'	84°35.5	59°38.7	50°55.5	48°54.7	10°20.3	52°54.4	55°55.4	109°58.7
9	13°57.5	6.9'	25°07.7	0.5'	57.2'	84°17.0	59°08.2	50°28.9	48°24.8	10°53.0	53°27.2	56°28.5	110°31.7
10	28°23.4	6.9'	$25^{\circ}07.2$	0.7'	57.2'	83°58.6	58° 37.6	50°02.5	47°54.9	11°25.7	54°00.0	57°01.6	111°04.7
11	42°49.3	7.0'	$25^{\circ}06.6$	0.8'	57.2'	83°40.1	58°07.1	49°36.1	47°25.0	11°58.4	54°32.8	57°34.6	111°37.7
12	57°15.3	7.0'	S 25°05.8	1.0'	57.2'	83°21.8	57°36.7	49°09.9	46°55.1	12°31.2	55°05.5	58°07.6	112°10.6
13	71°41.3	7.0'	25°04.8	1.1'	57.1'	83°03.4	57°06.2	48°43.8	46°25.3	13°03.9	55°38.2	58°40.6	112°43.6
14	86°07.3	7.1'	25°03.7	1.2'	57.1'	82°45.1	56°35.8	48° 17.8	45°55.5	13°36.7	56°10.9	59°13.5	113°16.5
15	100°33.4	7.1'	25°02.4	1.4'	57.1'	82°26.8	56°05.4	47°51.9	45°25.8	14°09.4	56°43.6	59°46.4	113°49.4
16	114°59.5	7.2'	$25^{\circ}01.1$	1.5'	57.1'	82°08.6	55°35.1	47°26.2	44°56.0	14°42.1	57°16.2	60°19.3	114°22.2
17	129°25.7	7.2'	24°59.5	1.7'	57.0'	81°50.4	55°04.7	47°00.6	44°26.3	15°14.9	57°48.9	60°52.2	114°55.1
18	143°51.9	7.2'	S 24°57.8	1.8'	57.0'	81°32.3	54°34.4	46°35.2	43°56.6	15°47.6	58°21.5	61°25.1	115°27.9
19	158°18.1	7.3'	24°56.0	2.0'	57.0'	81°14.2	54°04.1	46°09.8	43°27.0	16°20.3	58°54.1	61°57.9	116°00.7
20	172°44.4	7.3'	24°54.0	2.1'	57.0'	80°56.1	53°33.8	45°44.7	42°57.3	16°53.0	59°26.7	62°30.7	116°33.4
21	187°10.7	7.4'	24°51.9	2.3'	56.9'	80°38.2	53°03.6	45° 19.6	42°27.7	17°25.7	59°59.2	63°03.5	117°06.2
22	201°37.1	7.4'	24°49.6	2.4'	56.9'	80°20.2	52°33.4	44°54.7	41°58.1	17°58.3	60°31.8	63°36.3	117°38.9
23	216°03.5	7.5'	24°47.2	2.5'	56.9'	80°02.3	52°03.2	44°30.0	41°28.6	18°31.0	61°04.3	64°09.0	118°11.6
8 th	SD :	= 15.7′	Mer. pas	s. 08:02					Sun S	D = 16.2'			

h Moon (9 th Feb)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	-Venus	+Antares	+Jupiter	+Spica	+Regulus
0	230°30.0	7.5'	S 24°44.7	2.7'	56.9'	79°44.5	51°33.0	44°05.4	40°59.1	19°03.6	61°36.8	64°41.8	118°44.2
1	244°56.5	7.6'	24°42.0	2.8'	56.9'	79°26.7	51°02.8	43°41.0	40°29.6	19°36.2	62°09.3	65° 14.5	119°16.9
2	259°23.1	7.6'	24°39.2	3.0'	56.8'	79°08.9	50°32.7	43°16.8	40°00.1	20°08.8	62°41.7	65°47.1	119°49.5
3	273°49.7	7.7'	24°36.2	3.1'	56.8'	78°51.2	50°02.6	42°52.7	39°30.6	20°41.4	63°14.2	66° 19.8	
4	288°16.4	7.7'	24°33.1	3.2'	56.8'	78°33.6	49°32.6	42°28.8	39°01.2	21°14.0	63°46.6	66°52.4	
5	302°43.1	7.8'	24°29.9	3.4'	56.8'	78°16.0	49°02.5	42°05.0	38°31.8	21°46.6	64°19.0	67°25.0	
6	317°09.9	7.9'	S 24°26.5	3.5'	56.7'	77°58.5	48° 32.5	41°41.5	38°02.4	22°19.1	64°51.4	67°57.6	
7	331°36.8	7.9'	24°23.0	3.7'	56.7'	77°41.1	48°02.5	41°18.1	37°33.1	22°51.6	65°23.7	68° 30.2	
8	346°03.7	8.0'	24°19.3	3.8'	56.7'	77°23.7	47°32.5	40°54.9	37°03.8	23°24.1	65°56.0	69°02.7	
9	0°30.6	8.0'	$24^{\circ}15.5$	3.9'	56.7'	77°06.4	47°02.6	40°32.0	36°34.5	23°56.6	66°28.4	69°35.3	
10	14°57.7	8.1'	24°11.6	4.1'	56.7'	76°49.1	46°32.6	40°09.2	36°05.2	24°29.1	67°00.7	70°07.8	
11	29°24.8	8.2'	24°07.5	4.2'	56.6'	76°31.9	46°02.7	39°46.6	35°35.9	25°01.5	67°32.9	70°40.2	
12	43°51.9	8.2'	S 24°03.3	4.3'	56.6'	76° 14.7	45°32.8	39°24.2	35°06.7	25°34.0	68°05.2	71° 12.7	
13	58° 19.1	8.3'	23°59.0	4.5'	56.6'	75°57.7	45°03.0	39°02.0	34°37.5	26°06.4	68°37.4	71°45.1	
14	72°46.4	8.3'	23°54.6	4.6'	56.6'	75°40.7	44°33.1	38°40.1	34°08.4	26°38.8	69°09.7	72° 17.5	
15	87°13.7	8.4'	23°50.0	4.7'	56.5'	75°23.7	44°03.3	38°18.4	33°39.2	27°11.1	69°41.9	72°49.9	
16	101°41.2	8.5'	23°45.3	4.8'	56.5'	75°06.9	43°33.6	37°56.9	33°10.1	27°43.5	70°14.0	73°22.3	
17	116°08.6	8.5'	23°40.4	5.0'	56.5'	74°50.1	43°03.8	37°35.6	32°41.1	28°15.8	70°46.2	73°54.6	
18	130°36.2	8.6'	S 23°35.5	5.1'	56.5'	74°33.3	42°34.1	37°14.6	32°12.0	28°48.1	71°18.3	74°27.0	
19	145°03.8	8.7'	23°30.4	5.2'	56.5'	74° 16.7	42°04.3	36°53.8	31°43.0	29°20.4	71°50.5	74°59.3	
20	159°31.5	8.7'	23°25.2	5.3'	56.4'	74°00.1	41°34.7	36°33.3	31°14.0	29°52.7	72°22.6	75°31.6	
21	173°59.2	8.8'	$23^{\circ}19.8$	5.5'	56.4'	73°43.6	41°05.0	$36^{\circ}13.1$	30°45.0	30°24.9	72°54.6	76°03.8	
22	188°27.0	8.9'	23°14.4	5.6'	56.4'	73°27.2	40°35.3	35°53.1	30°16.1	30°57.2	73°26.7	76°36.1	
23	202°54.9	9.0'	23°08.8	5.7'	56.4'	73°10.8	40°05.7	35°33.4	29°47.1	31°29.4	73°58.7	77°08.3	
9 th	SD =	= 15.5′	Mer. pass	s. 08:58	8				Sun S	5D = 16.2'			

Moon (10th Feb)

h

Lunar Distance	(nhiects	with	largest	hourly	ΙD	delta)	
Lunar Distance	LODIECES	WILII	iargest	HOULIV	ᄔ	uertai	

Sat	GHA	ν	Dec	d	HP	-Deneb	-Altair	-Venus	+Antares	+Jupiter	+Spica	+Arcturus	+Mars
0	217°22.9	9.0'	S 23°03.1	5.8'	56.4'	72°54.6	35°14.0	29°18.3	32°01.6	74°30.8	77°40.5	79°09.9	88°07.9
1	231°50.9	9.1'	22°57.2	5.9'	56.3'	72°38.4	34°54.8	28°49.4	32°33.8	75°02.8	78°12.6	79°35.8	88°39.6
2	246°19.0	9.2'	22°51.3	6.1'	56.3'	72°22.3	34°36.0	28°20.6	33°05.9	75°34.7	78°44.8	80°01.7	89°11.3
3	260°47.2	9.3'	22°45.2	6.2'	56.3'	72°06.2	34°17.4	27°51.8	33°38.0	76°06.7	79°16.9	80°27.6	89°43.0
4	275°15.5	9.3'	22°39.0	6.3'	56.3'	71°50.3	33°59.2	27°23.0	34°10.2	76°38.6	79°49.0	80°53.5	90°14.7
5	289°43.8	9.4'	22°32.7	6.4'	56.2'	71°34.4	33°41.3	26°54.3	34°42.3	77°10.6	80°21.1	81°19.4	90°46.4
6	304°12.2	9.5'	S 22°26.3	6.5'	56.2'	71°18.7	33°23.7	26°25.6	35°14.3	77°42.5	80°53.2	81°45.3	91°18.1
7	318°40.7	9.6'	$22^{\circ}19.8$	6.6'	56.2'	71°03.0	33°06.4	25°56.9	35°46.4	78°14.3	81°25.3	82°11.2	91°49.7
8	333°09.2	9.6'	$22^{\circ}13.2$	6.8'	56.2'	70°47.4	32°49.5	25°28.2	36°18.4	78°46.2	81°57.3	82°37.1	92°21.3
9	347°37.9	9.7'	22°06.4	6.9'	56.2'	70°31.9	32°32.9	24°59.6	36°50.4	79°18.0	82°29.3	83°03.0	92°52.9
10	2°06.6	9.8'	21°59.5	7.0'	56.1'	70°16.5	32°16.7	24°31.1	37°22.4	79°49.9	83°01.3	83°28.9	93°24.5
11	16°35.3	9.9'	21°52.6	7.1'	56.1'	70°01.2	32°00.9	24°02.5	37°54.4	80°21.7	83°33.3	83°54.8	93°56.0
12	31°04.2	9.9'	S 21°45.5	7.2'	56.1'	69°46.0	31°45.4	23°34.0	38°26.4	80°53.5	84°05.2	84°20.7	94°27.5
13	45°33.1	10.0'	21°38.3	7.3'	56.1'	69°30.8	31°30.3	23°05.5	38°58.3	81°25.2	84°37.1	84°46.6	94°59.0
14	60°02.2	10.1'	21°31.0	7.4'	56.1'	69°15.8		22°37.1	39°30.2	81°57.0	85°09.0	85°12.4	95°30.5
15	74°31.2	10.2'	21°23.6	7.5'	56.0'			22°08.7	40°02.1	82°28.7	85°40.9	85°38.3	96°02.0
16	89°00.4	10.2'	21°16.1	7.6'	56.0'			21°40.3	40°34.0	83°00.4	86°12.8	86°04.1	96°33.5
17	103°29.7	10.3'	21°08.4	7.7'	56.0'			21°12.0	41°05.8	83°32.1	86°44.6	86°30.0	97°04.9
18	117°59.0	10.4'	S 21°00.7	7.8'	56.0'			20°43.7	41°37.7	84°03.7	87°16.4	86°55.8	97°36.3
19	132°28.4	10.5'	20°52.9	7.9'	56.0'			20°15.4	42°09.5	84°35.4	87°48.3	87°21.6	98°07.7
20	146°57.9	10.6'	20°45.0	8.0'	55.9'			19°47.2	42°41.3	85°07.0	88°20.0	87°47.4	98°39.1
21	161°27.4	10.6'	20°37.0	8.1'	55.9'			19°19.1	43°13.1	85°38.6	88°51.8	88°13.2	99°10.4
22	175°57.1	10.7'	20° 28.8	8.2'	55.9'			18°51.0	43°44.8	86°10.2	89°23.5	88°39.0	99°41.8
23	190°26.8	10.8'	20°20.6	8.3'	55.9'			18°22.9	44°16.6	86°41.8	89°55.3	89°04.8	100°13.1
10 th	SD:	= 15.4'	Mer. pass	. 09:51									

h	Moon	(11th	Feh)

Sun	GHA	ν	Dec	d	HP	-Venus	+Antares	+Rigil Kent.	+Hadar	+Jupiter	+Arcturus	+Spica	+Mars
0	204°56.6	10.9'	S 20°12.3	8.4'	55.9'	17°54.9	44°48.3	65°39.3	70°01.7	87°13.3	89°30.5	90°27.0	100°44.4
1	219°26.5	11.0'	20°03.9	8.5'	55.8'	17°26.9	45°20.0	66°02.3	70°24.8	87°44.9	89°56.2	90°58.6	101°15.6
2	233°56.4	11.0'	19°55.4	8.6'	55.8'	16°59.0	45°51.6	66°25.4	70°47.9	88°16.4	90°22.0	91°30.3	101°46.9
3	248°26.5	11.1'	$19^{\circ}46.8$	8.7'	55.8'	16°31.1	46°23.3	66°48.5	71°11.1	88°47.9	90°47.7	92°02.0	102°18.1
4	262°56.6	11.2'	19°38.2	8.8'	55.8'	16°03.3	46°54.9	67°11.6	71°34.3	89°19.3	91°13.4	92°33.6	102°49.3
5	277°26.8	11.3'	19°29.4	8.9'	55.8'	15°35.6	47°26.6	67°34.8	71°57.6	89°50.8	91°39.0	93°05.2	103°20.5
6	291°57.1	11.4'	S 19°20.5	8.9'	55.7'	15°07.9	47°58.2	67°58.0	72°20.9	90°22.2	92°04.7	93°36.8	103°51.7
7	306°27.4	11.4'	$19^{\circ}11.6$	9.0'	55.7'	14°40.3	48°29.8	68°21.3	72°44.2	90°53.6	92°30.3	94°08.3	104°22.9
8	320°57.8	11.5'	$19^{\circ}02.5$	9.1'	55.7'	14° 12.8	49°01.3	68°44.6	73°07.5	91°25.0	92°55.9	94°39.9	104°54.0
9	335°28.3	11.6'	18°53.4	9.2'	55.7'	13°45.4	49°32.9	69°07.9	73°30.9	91°56.4	93°21.5	95°11.4	105°25.1
10	349°58.9	11.7'	18° 44.2	9.3'	55.7'	13° 18.0	50°04.4	69°31.3	73°54.2	92°27.8	93°47.1	95°42.9	105°56.2
11	4°29.6	11.7'	$18^{\circ}34.9$	9.4'	55.7'	12°50.8	50°35.9	69°54.7	74°17.6	92°59.1	94°12.6	96°14.4	106°27.3
12	19°00.3	11.8'	S 18°25.5	9.5'	55.6'		51°07.4	70°18.2	74°41.1	93°30.4	94°38.1	96°45.8	106°58.3
13	33°31.2	11.9'	$18^{\circ}16.1$	9.5'	55.6'		51°38.8	70°41.6	75°04.5	94°01.7	95°03.6	97°17.3	107°29.4
14	48°02.1	12.0'	$18^{\circ}06.5$	9.6'	55.6'		52°10.3	71°05.1	75°28.0	94°33.0	95°29.1	97°48.7	108°00.4
15	62°33.0	12.0'	$17^{\circ}56.9$	9.7'	55.6'		52°41.7	71°28.7	75°51.5	95°04.3	95°54.6	98°20.1	108°31.4
16	77°04.1	12.1'	$17^{\circ}47.2$	9.8'	55.6'		53°13.1	71°52.2	76°15.0	95°35.5	96°20.0	98°51.5	109°02.3
17	91°35.2	12.2'	17° 37.5	9.8'	55.5'		53°44.5	72°15.8	76°38.5	96°06.7	96°45.4	99°22.9	109°33.3
18	106°06.4	12.3'	S 17°27.6	9.9'	55.5'		54°15.9	72°39.4	77°02.0	96°37.9	97°10.8	99°54.2	110°04.2
19	120°37.7	12.4'	$17^{\circ}17.7$	10.0'	55.5'		54°47.2	73°03.1	77°25.6	97°09.1	97°36.1	100°25.6	110°35.1
20	135°09.0	12.4'	17°07.7	10.1'	55.5'		55°18.6	73°26.7	77°49.1	97°40.3	98°01.4	100°56.9	111°06.0
21	149°40.5	12.5'	16°57.6	10.1'	55.5'		55°49.9	73°50.4	78°12.7	98°11.4	98°26.7	101°28.2	111°36.9
22	164°12.0	12.6'	$16^{\circ}47.5$	10.2'	55.4'		56°21.2	74°14.1	78°36.3	98°42.5	98°51.9	101°59.4	112°07.7
23	178°43.5	12.6'	16°37.3	10.3'	55.4'		56°52.5	74°37.8	78°59.9	99°13.6	99°17.2	102°30.7	112°38.6
11 th	SD	$= 15.2^{\prime}$	Mer. pass	s. 10:41				·					

h Moon (12th Feb)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Jupiter	+Spica	+Mars	
0	193°15.2	12.7'	S 16°27.0	10.3'	55.4'	57°23.7	75°01.6	79°23.5	88°36.9	99°42.4	99°44.7	103°01.9	113°09.4	
1	207°46.9	12.8'	$16^{\circ}16.7$	10.4'	55.4'	57°55.0	75°25.3	79°47.1	88°57.7	100°07.5	100°15.8	103°33.1	113°40.2	
2	222°18.7	12.9'	$16^{\circ}06.2$	10.5'	55.4'	58°26.2	75°49.1	80° 10.7	89° 18.5	100°32.6	100°46.9	104°04.3	114°10.9	
3	236°50.6	12.9'	15°55.8	10.5'	55.4'	58°57.4	76°12.9	80°34.3	89°39.2	100°57.7	101°17.9	104°35.5	114°41.7	
4	251°22.5	13.0'	15°45.2	10.6'	55.3'	59°28.6	76°36.7	80°57.9	90°00.0	101°22.8	101°48.9	105°06.7	115°12.4	
5	265°54.5	13.1'	15°34.6	10.7'	55.3'	59°59.7	77°00.5	81°21.6	90°20.7	101°47.8	102°19.9	105°37.8	115°43.1	
6	280°26.6	13.1'	S 15°23.9	10.7'	55.3'	60°30.9	77°24.3	81°45.2	90°41.5	102° 12.8	102°50.9	106°08.9	116°13.8	
7	294°58.7	13.2'	15°13.2	10.8'	55.3'	61°02.0	77°48.2	82°08.9	91°02.2	102°37.8	103°21.8	106°40.0	116°44.5	
8	309°30.9	13.3'	15°02.4	10.9'	55.3'	61°33.1	78°12.0	82°32.5	91°22.9	103°02.7	103°52.7	107°11.1	117°15.1	
9	324°03.2	13.4'	14°51.6	10.9'	55.2'	62°04.2 78°35.9 82°56.2 91°43.6 103°27.5 104°23.7 107°42.2 117°45.7 62°35.3 78°59.8 83°19.8 92°04.3 103°52.4 104°54.6 108°13.2 118°16.3								
10	338°35.6	13.4'	14°40.6	11.0'	55.2'	62°35.3 78°59.8 83°19.8 92°04.3 103°52.4 104°54.6 108°13.2 118°16.3								
11	353°08.0	13.5'	$14^{\circ}29.7$	11.0'	55.2'	63°06.3 79°23.7 83°43.4 92°24.9 104°17.2 105°25.4 108°44.2 118°46.9								
12	7°40.5	13.6'	S 14°18.6	11.1'	55.2'	63°37.4	79°47.5	84°07.1	92°45.6	104°41.9	105°56.3	109°15.2	119°17.5	
13	22°13.1	13.6'	14°07.6	11.1'	55.2'	64°08.4	80°11.4	84°30.7	93°06.2	105°06.7	106°27.1	109°46.2	119°48.0	
14	36°45.7	13.7'	13°56.4	11.2'	55.2'	64°39.4	80°35.3	84°54.4	93°26.8	105°31.3	106°57.9	110°17.2		
15	51°18.4	13.8'	13°45.2	11.2'	55.1'					Moon ———		·		
16	65°51.1	13.8'	13°34.0	11.3'	55.1'					Moon				
17	80°24.0	13.9'	13°22.7	11.3'	55.1'				New I	Moon				
18	94°56.8	13.9'	S 13°11.3	11.4'	55.1'				New I	Moon				
19	109°29.8	14.0'	13°00.0	11.4'	55.1'				New I	Moon				
20	124°02.8	14.1'	12°48.5	11.5'	55.1'				New I	Moon				
21	138°35.9	14.1'	12°37.0	11.5'	55.0'				New I	Moon				
22	153°09.0	14.2'	12°25.5	11.6'	55.0'									
23	167°42.2	14.3'	12°13.9	11.6'	55.0'	5.0' New Moon ———								
12 th	SD	= 15.1'	Mer. pass	s. 11:28				-						

h Moon (13th Feb)

Tue	GHA	ν	Dec	d	HP	
0	182°15.5	14.3'	S 12°02.3	11.7'	55.0'	New Moon
1	196°48.8	14.4'	$11^{\circ}50.6$	11.7'	55.0'	New Moon
2	211°22.1	14.4'	11°38.9	11.8'	55.0'	New Moon
3	225°55.6	14.5'	$11^{\circ}27.1$	11.8'	54.9'	New Moon
4	240°29.0	14.5'	$11^{\circ}15.3$	11.8'	54.9'	New Moon
5	255°02.6	14.6'	$11^{\circ}03.5$	11.9'	54.9'	New Moon
6	269°36.2	14.6'	S 10°51.6	11.9'	54.9'	New Moon
7	284°09.8	14.7'	10°39.7	11.9'	54.9'	New Moon
8	298°43.5	14.8'	10°27.8	12.0'	54.9'	New Moon
9	313°17.3	14.8'	$10^{\circ}15.8$	12.0'	54.9'	New Moon
10	327°51.1	14.9'	10°03.8	12.1'	54.8'	New Moon
11	342°25.0	14.9'	09°51.7	12.1'	54.8'	New Moon
12	356°58.9	15.0'	S 09°39.6	12.1'	54.8'	New Moon
13	11°32.8	15.0'	09°27.5	12.1'	54.8'	New Moon
14	26°06.8	15.1'	$09^{\circ}15.4$	12.2'	54.8'	New Moon
15	40°40.9	15.1'	09°03.2	12.2'	54.8'	New Moon
16	55°15.0	15.2'	$08^{\circ}51.0$	12.2'	54.7'	New Moon
17	69°49.2	15.2'	08°38.7	12.3'	54.7'	New Moon
18	84°23.4	15.2'	S 08°26.5	12.3'	54.7'	New Moon
19	98°57.6	15.3'	08° 14.2	12.3'	54.7'	New Moon
20	113°31.9	15.3'	$08^{\circ}01.9$	12.3'	54.7'	New Moon
21	128°06.2	15.4'	07°49.5	12.4'	54.7'	New Moon
22	142°40.6	15.4'	07°37.2	12.4'	54.7'	New Moon
23	157°15.0	15.5'	07°24.8	12.4'	54.6'	New Moon
13 th	SD	$=15.0^{\prime}$	Mer. pass	s. 12:12		

I.	Moon (14 th Feb)	Lunar Distance (objects with largest hourly ID delta)
n	MICON LIA HENI	I linar i listance i oniects with largest nollriv i i li delta i

Wed	GHA	ν	Dec	d	HP	-Sirius	-Adhara	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn
0	171°49.5	15.5'	S 07°12.3	12.4'	54.6'				New Moon -		<u>-</u>	
1	186°24.0	15.5'	$06^{\circ}59.9$	12.5'	54.6'				New Moon -			
2	200°58.5	15.6'	06°47.5	12.5'	54.6'							
3	215°33.1	15.6'	06°35.0	12.5'	54.6'							
4	230°07.7	15.7'	06°22.5	12.5'	54.6'							
5	244°42.4	15.7'	$06^{\circ}10.0$	12.5'	54.6'				New Moon -			
6	259°17.0	15.7'	S 05°57.5	12.5'	54.5'				New Moon -			
7	273°51.8	15.8'	05°44.9	12.6'	54.5'			113°56.6	103°50.1	102°13.4	95°08.9	60°44.1
8	288°26.5	15.8'	05°32.4	12.6'	54.5'			113°27.9	103°21.9	101°48.3	94°38.9	60°14.3
9	303°01.3	15.8'	$05^{\circ}19.8$	12.6'	54.5'			112°59.3	102°53.8	101°23.2	94°08.9	59°44.5
10	317°36.1	15.9'	05°07.2	12.6'	54.5'			112°30.6	102°25.6	100°58.1	93°39.0	59°14.7
11	332°11.0	15.9'	04°54.6	12.6'	54.5'			112°01.9	101°57.5	100°33.0	93°09.0	58°44.9
12	346°45.9	15.9'	S 04°42.0	12.6'	54.5'			111°33.3	101°29.3	100°07.9	92°39.1	58°15.2
13	1°20.8	15.9'	04°29.4	12.6'	54.5'	119°56.4		111°04.6	101°01.2	99°42.8	92°09.2	57°45.5
14	15°55.8	16.0'	$04^{\circ}16.7$	12.6'	54.4'	119°35.7		110°36.0	100°33.0	99° 17.7	91°39.3	57°15.7
15	30°30.7	16.0'	$04^{\circ}04.1$	12.7'	54.4'	119°15.0		110°07.3	100°04.9	98°52.6	91°09.4	56°46.0
16	45°05.7	16.0'	03°51.4	12.7'	54.4'	118°54.2		109°38.7	99°36.8	98°27.5	90°39.6	56°16.4
17	59°40.8	16.1'	03°38.8	12.7'	54.4'	118°33.4		109° 10.0	99°08.7	98°02.4	90°09.7	55°46.7
18	74°15.8	16.1'	S 03°26.1	12.7'	54.4'	118°12.4		108°41.4	98°40.6	97°37.3	89°39.9	55°17.1
19	88°50.9	16.1'	03°13.4	12.7'	54.4'	117°51.5	117°13.0	108° 12.8	98°12.5	97°12.2	89°10.1	54°47.5
20	103°26.0	16.1'	03°00.7	12.7'	54.4'	117°30.4	116°57.9	107°44.2	97°44.4	96°47.1	88°40.3	54°17.9
21	118°01.1	16.2'	$02^{\circ}48.1$	12.7'	54.4'	117°09.3	116°42.7	107° 15.5	97°16.3	96°22.0	88°10.5	53°48.3
22	132°36.3	16.2'	02°35.4	12.7'	54.3'	116°48.2	116°27.4	106°46.9	96°48.3	95°56.9	87°40.7	53°18.7
23	147°11.5	16.2'	02°22.7	12.7'	54.3'	116°26.9	116°12.0	106° 18.3	96°20.2	95°31.8	87°10.9	52°49.2
14 th	SD	= 14.9'	Mer. pass	12:54								

h Moon (15th Feb)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Pollux	-Sirius	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Fomalhaut
0	161°46.7	16.2'	S 02°10.0	12.7'	54.3'		116°05.7	105°49.7	95°52.1	95°06.7	86°41.2	52°19.6	
1	176°21.9	16.2'	01°57.3	12.7'	54.3'		115°44.3	105°21.1	95°24.1	94°41.6	86°11.5	51°50.1	
2	190°57.1	16.3'	01°44.6	12.7'	54.3'		115°23.0	104° 52.5	94°56.1	94° 16.5	85°41.7	51°20.6	
3	205°32.4	16.3'	$01^{\circ}31.9$	12.7'	54.3'		115°01.5	104°24.0	94°28.1	93°51.4	85°12.0	50°51.2	
4	220°07.7	16.3'	$01^{\circ}19.2$	12.7'	54.3'		114°40.0	103°55.4	94°00.0	93°26.4	84°42.3	50°21.7	
5	234°42.9	16.3'	$01^{\circ}06.5$	12.7'	54.3'		114°18.5	103°26.8	93°32.0	93°01.3	84°12.7	49°52.3	
6	249°18.2	16.3'	S 00°53.8	12.7'	54.3'		113°56.9	102° 58.2	93°04.1	92°36.2	83°43.0	49°22.8	
7	263°53.6	16.3'	00°41.1	12.7'	54.2'		113°35.3	102° 29.7	92°36.1	92°11.2	83°13.3	48°53.5	
8	278°28.9	16.3'	00°28.4	12.7'	54.2'		113°13.6	102°01.1	92°08.1	91°46.2	82°43.7	48°24.1	
9	293°04.2	16.4'	00°15.7	12.7'	54.2'		112°51.9	101°32.6	91°40.2	91°21.1	82°14.1	47°54.7	
10	307°39.6	16.4'	S 00°03.0	12.7'	54.2'		112°30.1	101°04.1	91°12.2	90°56.1	81°44.5	47°25.4	29°34.7
11	322°15.0	16.4'	N 00°09.7	12.7'	54.2'		112°08.3	100°35.5	90°44.3	90°31.1	81°14.9	46°56.0	29°50.2
12	336°50.3	16.4'	N00°22.3	12.7'	54.2'		111°46.5	100°07.0	90°16.4	90°06.1	80°45.3	46°26.7	30°06.0
13	351°25.7	16.4'	00°35.0	12.7'	54.2'		111°24.6	99°38.5	89°48.4	89°41.1	80°15.7	45°57.5	30°22.1
14	6°01.1	16.4'	00°47.7	12.6'	54.2'		111°02.7	99° 10.0	89°20.5	89°16.1	79°46.1	45°28.2	30°38.5
15	20°36.5	16.4'	01°00.3	12.6'	54.2'		110°40.7	98°41.5	88°52.6	88°51.1	79°16.6	44°58.9	30°55.2
16	35°11.9	16.4'	01°13.0	12.6'	54.2'		110°18.8	98°13.0	88°24.8	88°26.1	78°47.1	44°29.7	31°12.2
17	49°47.4	16.4'	$01^{\circ}25.6$	12.6'	54.2'		109°56.7	97°44.5	87°56.9	88°01.2	78°17.5	44°00.5	31°29.5
18	64°22.8	16.4'	N 01°38.2	12.6'	54.1'	119°39.3	109°34.7	97° 16.1	87°29.1	87°36.2	77°48.0	43°31.3	31°47.1
19	78°58.2	16.4'	01°50.8	12.6'	54.1'	119°09.9	109°12.6	96°47.6	87°01.2	87°11.3	77°18.5	43°02.2	32°04.9
20	93°33.7	16.4'	02°03.4	12.6'	54.1'	118°40.4	108°50.4	96°19.1	86°33.4	86°46.4	76°49.0	42°33.0	32°23.0
21	108°09.1	16.4'	02°16.0	12.6'	54.1'	118°10.9	108°28.3	95°50.7	86°05.6	86°21.5	76°19.6	42°03.9	32°41.3
22	122°44.5	16.4'	02°28.6	12.6'	54.1'	117°41.5	108°06.1	95°22.2	85°37.8	85°56.6	75°50.1	41°34.8	32°59.8
23	137°20.0	16.4'	02°41.1	12.5'	54.1'	117°12.0	107°43.9	94°53.8	85°10.0	85°31.7	75°20.7	41°05.7	33°18.6
15 th	SD	= 14.8'	Mer. pass	. 13:35									

h Moon (16th Feb)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Rigel	-Capella	-Aldebaran	-Saturn	+Fomalhaut
0	151°55.4	16.4'	N02°53.7	12.5'	54.1'		116°42.6	94°25.4	85°06.9	84°42.2	74°51.2	40°36.6	33°37.7
1	166°30.8	16.4'	03°06.2	12.5'	54.1'	119°54.5	116° 13.2	93°57.0	84°42.0	84°14.4	74°21.8	40°07.6	33° 56.9
2	181°06.3	16.4'	03°18.7	12.5'	54.1'	119°26.0	115°43.7	93°28.6	84°17.2	83°46.7	73°52.4	39°38.5	34°16.4
3	195°41.7	16.4'	03°31.2	12.5'	54.1'	118°57.6	115° 14.3	93°00.2	83°52.4	83°18.9	73°23.0	39°09.5	34°36.0
4	210°17.1	16.4'	03°43.7	12.5'	54.1'	118°29.2	114°44.9	92°31.8	83°27.6	82°51.2	72°53.6	38°40.6	34°55.9
5	224°52.6	16.4'	03°56.1	12.4'	54.1'	118°00.7	$114^{\circ}15.5$	92°03.4	83°02.8	82°23.5	72°24.2	38°11.6	35° 15.9
6	239°28.0	16.4'	N 04°08.6	12.4'	54.1'	117°32.3	113°46.1	91°35.0	82°38.0	81°55.8	71°54.8	37°42.6	35°36.2
7	254°03.4	16.4'	$04^{\circ}21.0$	12.4'	54.1'	117°03.9	113° 16.7	91°06.6	82°13.3	81°28.1	71°25.5	37° 13.7	35°56.6
8	268°38.8	16.4'	04°33.4	12.4'	54.0'	116°35.4	112°47.4	90°38.3	81°48.6	81°00.4	70°56.1	36°44.8	36° 17.2
9	283°14.2	16.4'	04°45.8	12.4'	54.0'	116°07.0	112° 18.0	90°09.9	81°23.9	80°32.8	70°26.8	36°16.0	36°38.0
10	297°49.6	16.4'	04°58.1	12.3'	54.0'	115°38.5	111°48.6	89°41.6	80°59.2	80°05.1	69° 57.5	35°47.1	36°59.0
11	312°25.0	16.4'	$05^{\circ}10.5$	12.3'	54.0'	115°10.1	111° 19.3	89°13.2	80°34.5	79°37.5	69°28.2	35°18.3	37°20.1
12	327°00.4	16.4'	N05°22.8	12.3'	54.0'	114°41.6	110°49.9	88°44.9	80°09.8	79°09.9	68°58.9	34°49.5	37°41.4
13	341°35.7	16.4'	05°35.1	12.3'	54.0'	114°13.1	110°20.6	88°16.6	79°45.2	78°42.3	68° 29.6	34° 20.7	38°02.8
14	356°11.1	16.3'	05°47.4	12.2'	54.0'	113°44.7	109°51.2	87°48.3	79°20.6	78°14.7	68°00.3	33°51.9	38°24.4
15	10°46.4	16.3'	05°59.6	12.2'	54.0'	113°16.2	109°21.9	87°20.0	78°56.0	77°47.1	67°31.0	33°23.2	38°46.1
16	25°21.7	16.3'	$06^{\circ}11.8$	12.2'	54.0'	112°47.8	108°52.6	86°51.7	78°31.4	77°19.5	67°01.7	32°54.5	39°08.0
17	39°57.1	16.3'	06°24.0	12.2'	54.0'	112°19.3	108°23.2	86°23.4	78°06.9	76°52.0	66° 32.5	32°25.8	39°30.0
18	54°32.3	16.3'	N06°36.2	12.1'	54.0'	111°50.9	107°53.9	85°55.1	77°42.4	76°24.5	66°03.2	31°57.2	39°52.1
19	69°07.6	16.3'	06°48.3	12.1'	54.0'	111°22.4	107°24.6	85°26.8	77°17.9	75°57.0	65°34.0	31°28.6	40° 14.3
20	83°42.9	16.2'	07°00.4	12.1'	54.0'	110°53.9	106°55.3	84°58.6	76°53.4	75°29.5	65°04.8	31°00.0	40°36.7
21	98°18.1	16.2'	$07^{\circ}12.5$	12.0'	54.0'	110°25.5	106°26.0	84°30.3	76°29.0	75°02.0	64°35.6	30°31.4	40° 59.2
22	112°53.4	16.2'	07°24.5	12.0'	54.0'	109°57.0	105°56.7	84°02.1	76°04.5	74°34.5	64°06.4	30°02.9	41°21.8
23	127°28.6	16.2'	07°36.5	12.0'	54.0'	109°28.5	105°27.4	83°33.8	75°40.1	74°07.0	63°37.2	29°34.4	41°44.6
16 th	SD	= 14.8'	Mer. pass	. 14:16									

h Moon (17th Feb)

Sat	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Sun	+Fomalhaut
0	142°03.8	16.2'	N 07°48.5	12.0'	54.0'	109°00.1	104°58.1	83°05.6	73°39.6	63°08.0	29°05.9		42°07.4
1	156°38.9	16.1'	08°00.5	11.9'	54.0'	108°31.6	104°28.8	82°37.4	73°12.2	62°38.8	28° 37.5		42°30.4
2	171°14.1	16.1'	08°12.4	11.9'	54.0'	108°03.1	103°59.5	82°09.1	72°44.8	62°09.6	28°09.1		42°53.4
3	185°49.2	16.1'	08°24.3	11.9'	54.0'	107°34.7	103°30.3	81°40.9	72°17.4	61°40.5	27°40.7		43° 16.6
4	200°24.3	16.1'	08°36.1	11.8'	54.0'	107°06.2	103°01.0	81°12.7	71°50.0	61°11.3	27° 12.4	41°20.1	43°39.9
5	214°59.4	16.0'	08°48.0	11.8'	54.0'	106°37.7	102°31.7	80°44.5	71°22.6	60°42.2	26°44.1	41°47.0	44°03.2
6	229°34.4	16.0'	N 08°59.8	11.8'	54.0'	106°09.2	102°02.5	80°16.4	70°55.3	60°13.0	26° 15.9	42°13.9	44° 26.7
7	244°09.4	16.0'	09°11.5	11.7'	54.0'	105°40.8	101°33.2	79°48.2	70°28.0	59°43.9	25°47.7	42°40.8	44°50.2
8	258°44.4	16.0'	09°23.2	11.7'	54.0'	105°12.3	101°03.9	79°20.0	70°00.7	59°14.8	25° 19.5	43°07.7	45° 13.8
9	273°19.4	15.9'	09°34.9	11.6'	54.0'	104°43.8	100°34.7	78°51.9	69°33.4	58°45.7	24°51.4	43°34.6	45° 37.6
10	287°54.3	15.9'	09°46.5	11.6'	54.0'	104°15.3	100°05.4	78°23.7	$69^{\circ}06.1$	58°16.5	24°23.3	44°01.5	46°01.4
11	302°29.2	15.9'	$09^{\circ}58.1$	11.6'	54.0'	103°46.8	99°36.2	77°55.6	68°38.8	57°47.4	23°55.3	44°28.4	46° 25.2
12	317°04.1	15.8'	N 10°09.7	11.5'	54.0'	103°18.4	99°06.9	77°27.4	$68^{\circ}11.6$	57°18.4	23°27.4	44°55.3	46°49.2
13	331°39.0	15.8'	10°21.2	11.5'	54.0'	102°49.9	98° 37.7	76°59.3	67°44.4	56°49.3	22°59.5	45°22.1	47° 13.3
14	346°13.8	15.8'	10°32.7	11.4'	54.0'	102°21.4	98°08.4	76°31.2	67°17.2	56°20.2	22°31.6	45°49.0	47° 37.4
15	0°48.6	15.8'	10°44.1	11.4'	54.0'	101°52.9	97°39.2	76°03.1	66°50.0	55°51.1	22°03.8	46° 15.9	48°01.6
16	15°23.3	15.7'	10°55.5	11.4'	54.0'	101°24.4	97°09.9	75°34.9	66°22.8	55°22.1	21°36.1	46°42.8	48° 25.8
17	29°58.0	15.7'	$11^{\circ}06.9$	11.3'	54.0'	100°55.9	96°40.7	75°06.8	65°55.7	54°53.0	21°08.5	47°09.7	48° 50.2
18	44°32.7	15.6'	N 11°18.2	11.3'	54.0'	100°27.4	96°11.5	74°38.8	65°28.5	54°24.0	20°40.9	47°36.6	49° 14.6
19	59°07.4	15.6'	11°29.5	11.2'	54.0'	99°58.9	95°42.2	74°10.7	65°01.4	53°54.9	20°13.4	48°03.5	49°39.0
20	73°42.0	15.6'	11°40.7	11.2'	54.0'	99°30.4	95°13.0	73°42.6	64°34.3	53°25.9	19°46.0	48°30.4	50°03.6
21	88°16.6	15.5'	$11^{\circ}51.9$	11.1'	54.0'	99°01.9	94°43.7	73°14.5	64°07.3	52°56.8	19° 18.7	48° 57.2	50°28.2
22	102°51.1	15.5'	12°03.0	11.1'	54.0'	98°33.4	94° 14.5	72°46.5	63°40.2	52°27.8	18°51.5	49°24.1	50° 52.9
23	117°25.6	15.5'	$12^{\circ}14.1$	11.0'	54.0'	98°04.9	93°45.3	72°18.4	63°13.2	51°58.8	18°24.4	49°51.0	51° 17.6
17 th	SD	= 14.7'	Mer. pass	14:57					Sun SD	= 16.2'			

Moon (18th Feb)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP -Regulus -Procyon -Pollux -Betelgeuse -Capella -Aldebaran +Sun +Fomalhaut								+Fomalhaut
0	132°00.1	15.4'	N12°25.1	11.0'	54.0'		97°36.4	93°16.0	71°50.4	62°46.2	51°29.8	50°17.9	51°42.4
1	146°34.5	15.4'	12°36.1	10.9'	54.0'		97°07.9	92°46.8	71°22.3	62°19.2	51°00.8	50°44.8	52° 07.2
2	161°08.9	15.3'	12°47.1	10.9'	54.0'		96°39.4	92°17.5	70°54.3	61°52.2	50°31.8	51°11.7	52° 32.1
3	175°43.2	15.3'	12°58.0	10.8'	54.0'		96° 10.9	91°48.3	70°26.3	61°25.2	50°02.8	51°38.6	52° 57.1
4	190°17.5	15.3'	13°08.8	10.8'	54.0'		95°42.4	91°19.0	69°58.3	60°58.3	49°33.8	52°05.5	53°22.1
5	204°51.7	15.2'	$13^{\circ}19.6$	10.7'	54.0'		95°13.8	90°49.8	69°30.2	60°31.4	49°04.8	52°32.4	53°47.2
6	219°26.0	15.2'	N13°30.3	10.7'	54.0'		94°45.3	90°20.6	69°02.2	60°04.5	48°35.9	52°59.3	54°12.3
7	234°00.1	15.1'	13°41.0	10.6'	54.0'		94°16.8	89°51.3	68°34.2	59°37.7	48°06.9	53°26.2	54° 37.5
8	248°34.2	15.1'	13°51.7	10.6'	54.0'		93°48.3	89°22.1	68°06.3	59°10.8	47° 37.9	53°53.1	55°02.7
9	263°08.3	15.0'	14°02.2	10.5'	54.0'		93° 19.7	88°52.8	67°38.3	58°44.0	47°09.0	54°20.0	55°28.0
10	277°42.3	15.0'	14°12.8	10.5'	54.0'								
11	292°16.3	14.9'	$14^{\circ}23.2$	10.4'	54.0'	.0' 92°22.6 87°54.3 66°42.3 57°50.5 46°11.1 55°13.8 56°18.7							
12	306°50.2	14.9'	$N14^{\circ}33.7$	10.4'	54.0'		91°54.1	87°25.0	66°14.4	57°23.7	45°42.1	55°40.8	56°44.1
13	321°24.1	14.8'	14°44.0	10.3'	54.0'		91°25.5	86°55.7	65°46.4	56°57.0	45° 13.2	56°07.7	57°09.5
14	335°58.0	14.8'	14°54.3	10.2'	54.0'		90°57.0	86°26.5	65°18.5	56°30.3	44°44.3	56°34.6	57°35.0
15	350°31.7	14.7'	15°04.6	10.2'	54.1'		90°28.4	85°57.2	64°50.6	56°03.7	44° 15.4	57°01.6	58°00.6
16	5°05.5	14.7'	$15^{\circ}14.7$	10.1'	54.1'		89°59.8	85°27.9	64°22.7	55°37.0	43°46.5	57°28.5	58°26.2
17	19°39.2	14.6'	$15^{\circ}24.9$	10.1'	54.1'		89°31.3	84°58.6	63°54.7	55°10.4	43° 17.5	57°55.5	58°51.8
18	34°12.8	14.6'	$N15^{\circ}34.9$	10.0'	54.1'		89°02.7	84°29.3	63°26.8	54°43.9	42°48.6	58° 22.4	59° 17.5
19	48°46.4	14.5'	15°44.9	9.9'	54.1'		88°34.1	84°00.0	62°58.9	54°17.3	42° 19.7	58°49.4	59°43.2
20	63°19.9	14.5'	15°54.9	9.9'	54.1'		88°05.5	83°30.7	62°31.0	53°50.8	41°50.9	59° 16.3	60°09.0
21	77°53.4	14.4'	$16^{\circ}04.8$	9.8'	54.1'	119°58.7	87°36.9	83°01.4	62°03.2	53°24.3	41°22.0	59°43.3	60°34.8
22	92°26.8	14.4'	16°14.6	9.8'	54.1'	119°29.2	87°08.3	82°32.1	61°35.3	52°57.9	40°53.1	60°10.3	61°00.7
23	107°00.1	14.3'	16°24.3	9.7'	54.1'	54.1' 118°59.8 86°39.7 82°02.8 61°07.4 52°31.5 40°24.2 60°37.3 61°26.5							
18 th	SD	$= 14.7^{\prime}$	Mer. pass	. 15:39		SunSD=16.2'							

h		Moon	(19th Fel	o)			Lunar	Distance	(objects w	ith large	st hourly L	D delta)	
Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Sun	+Fomalhaut
0	121°33.4	14.2'	N 16°34.0	9.6'	54.1'	118°30.3	$86^{\circ}11.1$	81°33.5	60°39.6	52°05.1	39°55.4	61°04.3	61°52.5
1	136°06.7	14.2'	16°43.7	9.6'	54.1'	118°00.8	85°42.5	81°04.1	60°11.7	51°38.7	39°26.5	61°31.3	62° 18.4
2	150°39.9	14.1'	16°53.2	9.5'	54.1'	117°31.3	85°13.9	80°34.8	59°43.9	51°12.4	38°57.7	61°58.3	62°44.4
3	165°13.0	14.1'	17°02.7	9.4'	54.1'	117°01.8	84°45.2	80°05.5	59°16.1	50°46.1	38°28.8	62°25.3	63° 10.5
4	179°46.1	14.0'	$17^{\circ}12.1$	9.4'	54.2'	116°32.2	84°16.6	79°36.1	58°48.2	50°19.9	38°00.0	62°52.4	63°36.5
5	$194^{\circ}19.1$	14.0'	$17^{\circ}21.5$	9.3'	54.2'	116°02.7	83°48.0	79°06.7	58°20.4	49°53.7	37°31.2	63° 19.4	64°02.6
6	208°52.0	13.9'	N17°30.8	9.2'	54.2'	115°33.2	83°19.3	78°37.4	57°52.6	49°27.5	37°02.4	63°46.5	64°28.8
7	223°24.9	13.8'	17°40.0	9.1'	54.2'	115°03.6	82°50.6	78°08.0	57°24.8	49°01.4	36°33.6	64° 13.5	64°55.0
8	237°57.8	13.8'	$17^{\circ}49.1$	9.1'	54.2'								
9	252°30.5	13.7'	17°58.2	9.0'	54.2'								
10	267°03.3	13.7'	18°07.2	8.9'	54.2'	113°34.9	81°24.6	76°39.8	56°01.6	47°43.3	35°07.2	65°34.8	66°13.7
11	281°35.9	13.6'	$18^{\circ}16.1$	8.9'	54.2'	113°05.3	80°55.9	76°10.4	55°33.8	47°17.3	34°38.5	66°01.9	66°40.0
12	296°08.5	13.5'	N 18°25.0	8.8'	54.3'	112°35.7	80°27.2	75°41.0	55°06.1	46°51.4	34°09.7	66°29.0	67°06.4
13	310°41.0	13.5'	18°33.8	8.7'	54.3'	112°06.0	79°58.5	75° 11.5	54°38.4	46°25.6	33°41.0	66°56.1	67°32.8
14	325°13.5	13.4'	18°42.5	8.6'	54.3'	111°36.4	79°29.8	74°42.1	54°10.7	45°59.7	33°12.3	67°23.3	67° 59.2
15	339°45.9	13.3'	$18^{\circ}51.1$	8.6'	54.3'	111°06.8	79°01.1	74° 12.6	53°43.0	45°34.0	32°43.6	67°50.4	68°25.7
16	354°18.2	13.3'	18° 59.6	8.5'	54.3'	110°37.1	78°32.3	73°43.1	53°15.3	45°08.3	32°14.9	68° 17.6	68°52.1
17	8°50.5	13.2'	$19^{\circ}08.1$	8.4'	54.3'	110°07.4	78°03.6	73°13.7	52°47.6	44°42.6	31°46.2	68°44.8	69°18.7
18	23°22.7	13.1'	$N19^{\circ}16.5$	8.3'	54.3'	109°37.7	77°34.9	72°44.2	52°20.0	44°17.0	31°17.6	69°11.9	69°45.2
19	37°54.8	13.1'	19°24.8	8.2'	54.3'	109°08.0	$77^{\circ}06.1$	72°14.7	51°52.3	43°51.5	30°48.9	69°39.2	70°11.8
20	52°26.9	13.0'	19°33.1	8.2'	54.4'								70°38.4
21	66°58.9	12.9'	19°41.2	8.1'	54.4'	54.4' 108°08.6 76°08.5 71°15.6 50°57.1 43°00.6 29°51.7 70°33.6 71°05.0							71°05.0
22	81°30.9	12.9'	19°49.3	8.0'	54.4'								
23	96°02.7	12.8'	19°57.3	7.9'	54.4'	54.4' 107°09.1 75°10.9 70°16.5 50°01.9 42°10.0 28°54.6 71°28.1 71°58.4							
19 th	SD	= 14.8′	Mer. pass.	16:24	Sun SD = $16.2'$								

h Moon (20 th Feb) Lunar [Distance (objects with largest hourly LD delta)
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Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Saturn	+Sun	+Fomalhaut
0	110°34.6	12.7'	N 20°05.2	7.8'	54.4'	106°39.3	74°42.1	69°47.0	49°34.4	28°26.1	9°50.3	71°55.4	72°25.1
1	125°06.3	12.7'	20°13.0	7.7'	54.4'	106°09.5	74°13.3	69°17.4	49°06.9	27°57.6	10°11.5	72°22.7	72°51.9
2	139°38.0	12.6'	20°20.7	7.6'	54.5'	105°39.7	73°44.5	68°47.8	48°39.3	27°29.1	10°33.5	72°50.0	73° 18.7
3	154°09.6	12.5'	20°28.4	7.6'	54.5'	105°09.9	73°15.6	68°18.2	48°11.8	27°00.7	10°56.0	73°17.3	73°45.5
4	168°41.1	12.5'	20°35.9	7.5'	54.5'	104°40.0	72°46.8	67°48.5	47°44.4	26°32.3	11°19.1	73°44.7	74°12.4
5	183°12.6	12.4'	20°43.4	7.4'	54.5'	104°10.1	72°17.9	67°18.9	47°16.9	26°03.9	11°42.8	74°12.1	74°39.3
6	197°44.0	12.3'	N 20°50.8	7.3'	54.5'	103°40.3	71°49.0	66°49.2	46°49.5	25°35.6	12°06.8	74°39.4	75°06.2
7	212°15.3	12.3'	20°58.1	7.2'	54.5'	103°10.4	71°20.2	66°19.6	46°22.1	25°07.3	12°31.3	75°06.8	75°33.1
8	226°46.6	12.2'	21°05.3	7.1'	54.6'	102°40.4	70°51.3	65°49.9	45°54.7	24°39.1	12°56.2	75°34.3	76°00.1
9	241°17.7	12.1'	21°12.4	7.0'	54.6'	102°10.5	70°22.4	65°20.2	45°27.3	24°10.9	13°21.4	76°01.7	76°27.1
10	255°48.9	12.0'	$21^{\circ}19.5$	6.9'	54.6'	101°40.5	69°53.4	64°50.5	45°00.0	23°42.8	13°47.0	76°29.2	76°54.1
11	270°19.9	12.0'	21°26.4	6.8'	54.6'	101°10.6	69°24.5	64°20.7	44°32.7	23°14.7	14°12.8	76°56.6	77°21.2
12	284°50.9	11.9'	N21°33.2	6.7'	54.6'	100°40.6	68°55.6	63°51.0	44°05.4	22°46.7	14°38.9	77°24.1	77°48.3
13	299°21.8	11.8'	21°40.0	6.6'	54.7'	100°10.6	68°26.6	63°21.2	43°38.2	22°18.8	15°05.3	77°51.6	78° 15.4
14	313°52.6	11.8'	21°46.6	6.6'	54.7'	99°40.5	67°57.6	62°51.4	43°11.0	21°50.9	15°31.8	78° 19.2	78° 42.6
15	328°23.4	11.7'	21°53.2	6.5'	54.7'	99°10.5	67°28.7	62°21.6	42°43.8	21°23.1	15°58.6	78°46.7	79°09.7
16	342°54.1	11.6'	$21^{\circ}59.6$	6.4'	54.7'	98°40.4	66°59.7	61°51.8	42°16.7	20°55.4	16°25.6	79°14.3	79°36.9
17	357°24.7	11.6'	22°06.0	6.3'	54.7'	98°10.3	66°30.7	61°22.0	41°49.6	20°27.8	16°52.8	79°41.9	80°04.2
18	11°55.3	11.5'	N22°12.2	6.2'	54.8'	97°40.2	66°01.7	60°52.1	41°22.5	20°00.2	17°20.1	80°09.5	80°31.4
19	26°25.8	11.4'	22°18.4	6.1'	54.8'	97°10.0	65°32.6	60°22.2	40°55.5	19°32.8	17°47.6	80°37.2	80°58.7
20	40°56.2	11.3'	22°24.5	6.0'	54.8'	96°39.8	65°03.6	59°52.3	40°28.5	19°05.5	18°15.3	81°04.9	81°26.0
21	55°26.5	11.3'	22°30.4	5.9'	54.8'	96°09.6	64°34.5	59°22.4	40°01.6	18°38.4	18°43.1	81°32.6	81°53.4
22	69°56.8	11.2'	22°36.3	5.8'	54.8'	95°39.4	64°05.5	58°52.5	39°34.7	18°11.3	19°11.0	82°00.3	82°20.8
23	84°27.0	11.1'	22°42.0	5.7'	54.9'	95°09.2	63°36.4	58°22.5	39°07.8	17°44.4	19°39.0	82°28.0	82°48.2
20 th	SD	= 14.8′	Mer. pass.	17:11		$Sun\;SD=16.2'$							

h	Moon	(21 st	Feb))

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP -Regulus -Procyon -Pollux -Betelgeuse -Aldebaran +Saturn +Sun +Fomalhaut								
0	98°57.1	11.1'	N22°47.7	5.5'	54.9'	94°38.9	63°07.3	57°52.5	38°41.0	17°17.7	20°07.2	82°55.8	83° 15.6
1	113°27.2	11.0'	22°53.2	5.4'	54.9'	94°08.6	62°38.2	57° 22.5	38°14.3	16°51.1	20°35.5	83°23.6	83°43.1
2	127°57.2	10.9'	22°58.7	5.3'	54.9'	93°38.3	62°09.1	56° 52.5	37°47.6	16°24.8	21°03.8	83°51.4	84° 10.5
3	142°27.1	10.9'	23°04.0	5.2'	55.0'	93°08.0	61°39.9	56°22.5	37°21.0	15°58.6	21°32.3	84° 19.2	84°38.1
4	156°57.0	10.8'	23°09.3	5.1'	55.0'	92°37.6	61°10.8	55°52.4	36°54.4	15°32.7	22°00.9	84°47.1	85°05.6
5	171°26.7	10.7'	23°14.4	5.0'	55.0'	92°07.2	60°41.7	55°22.4	36°27.9	15°07.0	22°29.6	85° 15.0	85°33.2
6	185°56.4	10.6'	N23°19.4	4.9'	55.0'	91°36.8	60°12.5	54°52.3	36°01.5	14°41.7	22°58.4	85°42.9	86°00.8
7	200°26.1	10.6'	23°24.3	4.8'	55.0'	91°06.4	59°43.3	54°22.1	35°35.1	14°16.6	23°27.2	86° 10.8	86°28.4
8	214°55.7	10.5'	23°29.1	4.7'	55.1'	90°35.9	59°14.1	53°52.0	35°08.8	13°51.8	23°56.2	86°38.8	86°56.0
9	229°25.2	10.4'	23°33.8	4.6'	55.1'	90°05.4	58°44.9	53°21.8	34°42.6	13°27.4	24°25.2	87°06.8	87°23.7
10	243°54.6	10.4'	23°38.3	4.5'	55.1'	89°34.9	58°15.7	52°51.7	34°16.5	13°03.5	24°54.3	87°34.8	87°51.4
11	258°24.0	10.3'	23°42.8	4.3'	55.2'	2' 89°04.3 57°46.5 52°21.5 33°50.4 12°39.9 25°23.4 88°02.8 88°19.2							
12	272°53.3	10.2'	N23°47.1	4.2'	55.2'	88°33.7	57°17.3	51°51.2	33°24.4	12°16.9	25°52.7	88° 30.9	88°46.9
13	287°22.5	10.2'	23°51.4	4.1'	55.2'	88°03.1	56°48.0	51°21.0	32°58.6	11°54.4	26°22.0	88° 59.0	89°14.7
14	301°51.7	10.1'	23°55.5	4.0'	55.2'	87°32.5	56°18.8	50°50.7	32°32.8	11°32.5	26°51.4	89°27.2	89°42.5
15	316°20.7	10.0'	23°59.5	3.9'	55.3'	87°01.8	55°49.5	50°20.4	32°07.2	11°11.3	27°20.8	89°55.3	90°10.4
16	330°49.8	10.0'	24°03.4	3.8'	55.3'	86°31.1	55°20.2	49°50.1	31°41.6	10°50.8	27°50.4	90°23.5	90°38.3
17	345°18.7	9.9'	24°07.1	3.6'	55.3'	86°00.4	54°50.9	49° 19.7	31°16.2	10°31.1	28° 19.9	90°51.8	91°06.2
18	359°47.6	9.8'	N 24°10.8	3.5'	55.3'	85°29.6	54°21.6	48°49.4	30°50.9	10°12.3	28°49.6	91°20.0	91°34.1
19	14°16.5	9.8'	24°14.3	3.4'	55.4'	84°58.8	53°52.3	48° 19.0	30°25.7		29°19.3	91°48.3	92°02.0
20	28°45.2	9.7'	24°17.7	3.3'	55.4'	84°28.0	53°23.0	47°48.6	30°00.6		29°49.0	92°16.6	92°30.0
21	43°13.9	9.6'	24°21.0	3.2'	55.4'	83°57.2	52°53.6	47° 18.2	29°35.7		30°18.9	92°45.0	92°58.0
22	57°42.6	9.6'	24°24.2	3.0'	55.5'	83°26.3	52°24.3	46°47.7	29°11.0		30°48.7	93°13.4	93°26.0
23	72°11.1	9.5'	24°27.2	2.9'	55.5'	55.5' 82°55.4 51°55.0 46°17.2 28°46.4 31°18.7 93°41.8 93°54.1							
21 st	SD	= 15.0'	Mer. pass.	18:01		Sun SD = 16.2'							

h		Moor	n (22 nd Fe	eb)			Lunar	Distance	(objects	with larges	t hourly	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Sun	+Fomalhaut
0	86°39.7	9.4'	N24°30.1	2.8'	55.5'		82°24.4	51°25.6	45°46.7		31°48.7	94°10.2	94°22.2
1	101°08.1	9.4'	24°32.9	2.7'	55.5'		81°53.4	50°56.2	45°16.2		32°18.7	94°38.7	94°50.3
2	115°36.5	9.3'	24°35.6	2.5'	55.6'		81°22.4	50°26.9	44°45.6		32°48.8	95°07.2	95°18.4
3	130°04.8	9.3'	24°38.1	2.4'	55.6'		80°51.3	49°57.5	44°15.1		33°19.0	95°35.8	95°46.6
4	144°33.1	9.2'	24°40.6	2.3'	55.6'		80°20.3	49°28.1	43°44.5		33°49.2	96°04.4	96°14.8
5	159°01.3	9.1'	24°42.9	2.2'	55.7'		79°49.1	48°58.7	43°13.8		34°19.5	96°33.0	96°43.0
6	173°29.4	9.1'	N 24°45.0	2.0'	55.7'		79°18.0	48° 29.3	42°43.2		34°49.8	97°01.6	97°11.2
7	187°57.5	9.0'	24°47.1	1.9'	55.7'		78°46.8	47°59.9	42°12.5		35°20.2	97°30.3	97°39.5
8	202°25.6	9.0'	24°49.0	1.8'	55.8'		78°15.6	47°30.5	41°41.8		35°50.6	97°59.0	98°07.8
9	216°53.5	8.9'	24°50.8	1.7'	55.8'		77°44.3	47°01.1	41°11.1		36°21.1	98°27.8	98°36.1
10	231°21.5	8.9'	24°52.4	1.5'	55.8'		77°13.0	46°31.7	40°40.4		36°51.6	98°56.6	99°04.5
11	245°49.3	8.8'	24°53.9	1.4'	55.8'	119°42.3	76°41.7	46°02.3	40°09.7		37°22.2	99°25.4	99°32.8
12	260°17.1	8.8'	N 24°55.3	1.3'	55.9'	119°11.1	76°10.3	45°32.9	39°38.9		37°52.8	99°54.3	100°01.2
13	274°44.9	8.7'	24°56.6	1.1'	55.9'	118°39.8	75°38.9	45°03.5	39°08.1		38°23.5	100°23.2	100°29.6
14	289°12.6	8.7'	24°57.7	1.0'	55.9'	118°08.4	75°07.5	44°34.1	38°37.3		38°54.3	100°52.1	100°58.1
15	303°40.3	8.6'	24°58.7	0.9'	56.0'	117°37.0	74°36.0	44°04.7	38°06.4		39°25.0	101°21.1	101°26.5
16	318°07.9	8.6'	24°59.5	0.7'	56.0'	117°05.6	74°04.5	43°35.3	37°35.6		39°55.9	101°50.1	101°55.0
17	332°35.4	8.5'	25°00.3	0.6'	56.0'	116°34.1	73°32.9	43°05.9	37°04.7		40°26.8	102°19.2	102°23.5
18	347°02.9	8.5'	$N25^{\circ}00.9$	0.5'	56.1'	116°02.6	73°01.3	42°36.5	36°33.8		40°57.7	102°48.3	102°52.0
19	1°30.4	8.4'	25°01.3	0.3'	56.1'	115°31.1	72°29.7	42°07.2	36°02.9		41°28.7	103°17.4	103°20.6
20	15°57.8	8.4'	25°01.6	0.2'	56.1'	114°59.4	71°58.0	41°37.8	35°31.9	11°04.0	41°59.7	103°46.6	103°49.2
21	30°25.1	8.3'	25°01.8	0.0'	56.2'	114°27.8	71°26.3	41°08.4	35°01.0	11°25.7	42°30.8	104°15.8	104°17.8
22	44°52.5	8.3'	25°01.8	-0.1'	56.2'	113°56.1	70°54.6	40°39.1	34°30.0	11°48.2	43°01.9	104°45.0	104°46.4
23	59°19.7	8.2'	25°01.7	-0.2'	56.2'	113°24.3	70°22.8	40°09.8	33°59.0	12°11.4	43°33.1	105°14.3	105°15.0
22 nd	SD = 15.1' Mer. pass. 18:54								Sun	SD = 16.2'			

h	Moon	(23rd	Feh)

	Moon ((23 rd Feb))		Lunar	Distance	(objects	with largest	t hourly L	_D delta)
CHV		Dee	4 UD	Lumiton	Cuian	Мана	Dogulus	Aldohouse	I Caturus	ı C	

Fri	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Aldebaran	+Saturn	+Sun	+Fomalhaut
0	73°47.0	8.2'	N 25°01.5	-0.4'	56.3'			112°52.6	69°51.0	12°35.3	44°04.4	105°43.6	105°43.7
1	88°14.1	8.1'	$25^{\circ}01.1$	-0.5'	56.3'			112°20.7	69°19.1	12°59.8	44°35.6	106°13.0	106°12.4
2	102°41.3	8.1'	25°00.6	-0.7'	56.4'			111°48.9	68°47.2	13°24.8	45°07.0	106°42.4	106°41.1
3	117°08.4	8.1'	25°00.0	-0.8'	56.4'			111°16.9	68° 15.2	13° 50.3	45°38.4	107°11.9	107°09.8
4	131°35.4	8.0'	24°59.2	-0.9'	56.4'			110°45.0	67°43.2	14° 16.3	46°09.8	107°41.3	107°38.5
5	146°02.5	8.0'	24°58.2	-1.1'	56.5'			110°12.9	67°11.2	14° 42.7	46°41.3	108°10.9	108°07.3
6	160°29.5	8.0'	N 24°57.2	-1.2'	56.5'			109°40.9	66°39.1	15°09.5	47°12.8	108°40.5	108°36.1
7	174°56.4	7.9'	24°56.0	-1.4'	56.5'			109°08.8	66°07.0	15° 36.7	47°44.4	109°10.1	109°04.9
8	189°23.3	7.9'	24°54.6	-1.5'	56.6'		119°37.7	108°36.6	65°34.8	16°04.2	48°16.0	109°39.7	109°33.7
9	203°50.2	7.8'	24°53.1	-1.6'	56.6'		119°05.4	108°04.4	65°02.6	16°32.0	48°47.7	110°09.4	110°02.5
10	218°17.1	7.8'	24°51.4	-1.8'	56.6'		118°33.1	107°32.2	64°30.4	17°00.1	49°19.4	110°39.2	110°31.4
11	232°43.9	7.8'	24°49.7	-1.9'	56.7'		118°00.8	106°59.9	63°58.1	17°28.5	49°51.2	111°09.0	111°00.3
12	247°10.7	7.8'	N 24°47.7	-2.1'	56.7'		117°28.4	106°27.5	63°25.8	17° 57.2	50°23.0	111°38.8	111°29.1
13	261°37.4	7.7'	24°45.7	-2.2'	56.8'	119°44.7	116°56.0	105°55.2	62°53.4	18° 26.1	50°54.9	112°08.7	111°58.0
14	276°04.2	7.7'	24°43.4	-2.4'	56.8'	119°12.3	116°23.5	105°22.7	62°21.0	18° 55.2	51°26.9	112°38.6	112°26.9
15	290°30.9	7.7'	$24^{\circ}41.1$	-2.5'	56.8'	118°39.9	115°51.0	104°50.2	61°48.5	19°24.6	51°58.8	113°08.6	112°55.9
16	304°57.5	7.7'	24°38.6	-2.7'	56.9'	118°07.5	115°18.4	104° 17.7	$61^{\circ}16.0$	19°54.1	52°30.9	113°38.6	113°24.8
17	319°24.2	7.6'	24°35.9	-2.8'	56.9'	117°34.9	114°45.8	103°45.1	60°43.5	20°23.9	53°02.9	114°08.6	113°53.7
18	333°50.8	7.6'	$N24^{\circ}33.1$	-2.9'	56.9'	117°02.4	114°13.1	103° 12.5	60°10.9	20°53.8	53°35.1	114°38.7	114°22.7
19	348°17.4	7.6'	24°30.2	-3.1'	57.0'	116°29.8	113°40.4	102°39.8	59°38.2	21°23.9	54°07.3	115°08.9	114°51.7
20	2°44.0	7.6'	$24^{\circ}27.1$	-3.2'	57.0'	115°57.1	113°07.7	102°07.1	59°05.6	21°54.1	54°39.5	115°39.0	115°20.6
21	17°10.6	7.5'	24°23.9	-3.4'	57.1'	115°24.4	112°34.9	101°34.3	58° 32.8	22°24.5	55°11.8	116°09.3	115°49.6
22	31°37.1	7.5'	24°20.5	-3.5'	57.1'	114°51.7	112°02.0	101°01.5	58°00.1	22°55.1	55°44.1	116°39.6	116°18.6
23	46°03.6	7.5'	24°17.0	-3.7'	57.1'	114°18.9	111°29.1	100°28.6	57°27.3	23°25.8	56°16.5	117°09.9	116°47.6
23 rd	SD :	= 15.4'	Mer. pass	s. 19:49					Sun	SD = 16.2'			

h Moon (24th Feb)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Aldebaran	+Saturn	+Fomalhaut	+Sun
0	60°30.1	7.5'	N 24°13.3	-3.8'	57.2'	113°46.1	110°56.2	99°55.7	56°54.4	23°56.7	56°48.9	117°16.6	117°40.2
1	74°56.6	7.5'	24°09.5	-4.0'	57.2'	113°13.2	110°23.2	99°22.7	56°21.5	24°27.6	57°21.4	117°45.6	118° 10.7
2	89°23.1	7.5'	24°05.5	-4.1'	57.3'	112°40.2	109°50.2	98°49.7	55°48.5	24°58.7	57°53.9	118°14.6	118°41.1
3	103°49.6	7.4'	24°01.4	-4.3'	57.3'	112°07.2	109°17.1	98°16.7	55°15.5	25°30.0	58°26.5	118°43.6	119°11.6
4	118°16.0	7.4'	23°57.1	-4.4'	57.3'	111°34.2	108°44.0	97°43.5	54°42.5	26°01.3	58°59.2	119°12.6	119°42.2
5	132°42.4	7.4'	23°52.7	-4.5'	57.4'	111°01.1	108°10.8	97°10.4	54°09.4	26°32.8	59°31.9	119°41.6	
6	147°08.9	7.4'	N 23°48.2	-4.7'	57.4'	110°27.9	107°37.6	96°37.2	53°36.3	27°04.3	60°04.6		
7	161°35.3	7.4'	23°43.5	-4.8'	57.4'	109°54.7	107°04.3	96°03.9	53°03.1	27°36.0	60°37.4		
8	176°01.7	7.4'	23°38.7	-5.0'	57.5'	109°21.5	106°31.0	95°30.6	52°29.9	28°07.8	61°10.2		
9	190°28.1	7.4'	23°33.7	-5.1'	57.5'	108°48.2	105°57.6	94°57.2	51°56.6	28°39.7	61°43.1		
10	204°54.5	7.4'	23°28.6	-5.3'	57.6'	108°14.9	105°24.2	94°23.8	51°23.3	29°11.7	62°16.1		
11	219°20.9	7.4'	23°23.3	-5.4'	57.6'	107°41.5	104°50.7	93°50.3	50°49.9	29°43.7	62°49.1		
12	233°47.3	7.4'	N 23°17.9	-5.6'	57.6'	107°08.0	104°17.2	93°16.8	50°16.5	30°15.9	63°22.1		
13	248°13.6	7.4'	23°12.3	-5.7'	57.7'	106°34.5	103°43.6	92°43.2	49°43.0	30°48.2	63°55.2		
14	262°40.0	7.4'	23°06.6	-5.9'	57.7'	106°01.0	103°10.0	92°09.6	49°09.5	31°20.5	64°28.4		
15	277°06.4	7.4'	23°00.7	-6.0'	57.8'	105°27.4	102°36.3	91°36.0	48°36.0	31°53.0	65°01.6		
16	291°32.8	7.4'	22°54.7	-6.1'	57.8'	104°53.8	102°02.6	91°02.2	48°02.4	32°25.5	65°34.8		
17	305°59.2	7.4'	22°48.6	-6.3'	57.8'	104°20.1	101°28.9	90°28.5	47°28.8	32°58.1	66°08.1		
18	320°25.6	7.4'	N22°42.3	-6.4'	57.9'	103°46.3	100°55.1	89°54.7	46°55.1	33°30.8	66°41.5		
19	334°51.9	7.4'	22°35.9	-6.6'	57.9'	103°12.5	100°21.2	89°20.8	46°21.3	34°03.6	67°14.9		
20	349°18.3	7.4'	22°29.3	-6.7'	58.0'	102°38.7	99°47.3	88°46.9	45°47.6	34°36.5	67°48.3		
21	3°44.7	7.4'	22°22.6	-6.9'	58.0'	102°04.8	99°13.3	88°12.9	45°13.7	35°09.4	68°21.9		
22	18°11.1	7.4'	$22^{\circ}15.7$	-7.0'	58.0'	101°30.8	98°39.3	87°38.9	44°39.9	35°42.4	68°55.4		
23	32°37.5	7.4'	22°08.7	-7.1'	58.1'	100°56.8	98°05.2	87°04.8	44°05.9	36°15.5	69°29.0		
24 th	SD	= 15.6	Mer. pas	s. 20:44					Sun	SD = 16.2'			

h Moon (25th Feb)

									_ \	,	,		
Sun	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	47°04.0	7.4'	$N22^{\circ}01.5$	-7.3'	58.1'	100°22.8	97°31.1	86°30.7	43°32.0	23°20.5	33° 15.0	36°48.7	70°02.7
1	61°30.4	7.4'	21°54.3	-7.4'	58.2'	99°48.7	96°57.0	85°56.5	42°58.0	23°43.6	33°41.0	37°21.9	70°36.4
2	75°56.8	7.4'	21°46.8	-7.6'	58.2'	99° 14.5	96°22.8	85°22.3	42°23.9	24°07.1	34°07.2	37° 55.2	71°10.2
3	90°23.3	7.5'	21°39.3	-7.7'	58.2'	98°40.3	95°48.5	84°48.1	41°49.8	24°31.1	34°33.7	38° 28.6	71°44.0
4	104°49.7	7.5'	21°31.5	-7.9'	58.3'	98°06.1	95°14.2	84°13.7	41°15.7	24°55.4	35°00.4	39°02.1	72°17.9
5	119°16.2	7.5'	$21^{\circ}23.7$	-8.0'	58.3'	97°31.8	94°39.8	83°39.4	40°41.5	25°20.2	35°27.4	39°35.6	72°51.8
6	133°42.7	7.5'	N 21°15.7	-8.1'	58.4'	96°57.4	94°05.4	83°05.0	40°07.3	25°45.3	35°54.6	40°09.2	73°25.8
7	148°09.2	7.5'	21°07.6	-8.3'	58.4'	96°23.0	93°31.0	82°30.5	39°33.0	26°10.8	36°22.0	40°42.9	73°59.8
8	162°35.7	7.5'	20°59.3	-8.4'	58.4'	95°48.6	92°56.4	81°56.0	38°58.7	26°36.7	36° 49.6	41° 16.6	74°33.9
9	177°02.2	7.5'	20°50.9	-8.5'	58.5'	95°14.1	92°21.9	81°21.4	38°24.3	27°02.9	37° 17.4	41°50.4	75°08.0
10	191°28.7	7.6'	20°42.4	-8.7'	58.5'	94°39.5	91°47.3	80°46.8	37°49.9	27°29.4	37°45.4	42°24.3	75°42.2
11	205°55.3	7.6'	20°33.7	-8.8'	58.6'	94°04.9	91°12.6	80°12.1	37°15.4	27°56.3	38° 13.6	42°58.2	76°16.4
12	220°21.9	7.6'	N 20°24.9	-8.9'	58.6'	93°30.3	90°37.9	79°37.4	36°40.9	28°23.4	38°42.0	43°32.2	76°50.7
13	234°48.5	7.6'	$20^{\circ}15.9$	-9.1'	58.6'	92°55.6	90°03.1	79°02.7	36°06.4	28°50.8	39° 10.6	44°06.2	77°25.0
14	249°15.1	7.6'	20°06.8	-9.2'	58.7'	92°20.8	89°28.3	78°27.9	35°31.8	29°18.5	39°39.4	44°40.4	77°59.4
15	263°41.7	7.6'	19°57.6	-9.3'	58.7'	91°46.0	88°53.5	77°53.0	34°57.2	29°46.5	40°08.3	45° 14.6	78°33.8
16	278°08.4	7.7'	19°48.3	-9.5'	58.8'	91°11.2	88° 18.6	77°18.1	34°22.6	30°14.8	40°37.4	45°48.8	79°08.3
17	292°35.0	7.7'	19°38.8	-9.6'	58.8'	90°36.3	87°43.6	76°43.1	33°47.9	30°43.2	41°06.7	46°23.1	79°42.8
18	307°01.7	7.7'	N 19°29.2	-9.7'	58.8'	90°01.3	87°08.6	76°08.1	33°13.1	31°12.0	41°36.1	46° 57.5	80°17.4
19	321°28.4	7.7'	$19^{\circ}19.5$	-9.9'	58.9'	89°26.3	86°33.6	75°33.1	32°38.4	31°40.9	42°05.7	47°31.9	80°52.0
20	335°55.2	7.8'	19°09.6	-10.0'	58.9'	88°51.3	85°58.5	74°58.0	32°03.5	32°10.1	42°35.5	48°06.4	81°26.7
21	350°21.9	7.8'	18°59.6	-10.1'	59.0'	88°16.2	85°23.3	74°22.8	31°28.7	32°39.5	43°05.4	48°41.0	82°01.4
22	4°48.7	7.8'	$18^{\circ}49.5$	-10.3'	59.0'	87°41.0	84°48.1	73°47.7	30°53.8	33°09.1	43°35.4	49° 15.6	82°36.2
23	19°15.5	7.8'	18°39.2	-10.4'	59.0'	87°05.8	84°12.9	73°12.4	30°18.9	33°38.9	44°05.6	49°50.3	83°11.0
25 th	SD	= 15.9	Mer. pas	ss. 21:40									

h Moon (26	5 th Feb)	Lunar Distance (o	objects with large	est hourly LD delta
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Mon	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	33°42.3	7.8'	N 18°28.8	-10.5'	59.1'		86°30.6	83°37.6	72°37.1		34°08.9	50°25.0	83°45.8
1	48°09.2	7.9'	18°18.3	-10.6'	59.1'		85°55.3	83°02.2	72°01.8		34°39.1	50°59.8	84°20.8
2	62°36.0	7.9'	18°07.7	-10.8'	59.1'		85°20.0	82°26.8	71°26.4	11°39.3	35°09.5	51°34.6	84°55.7
3	77°02.9	7.9'	17°56.9	-10.9'	59.2'		84°44.6	81°51.4	70°51.0	12°06.4	35°40.0	52°09.5	85°30.7
4	91°29.9	7.9'	$17^{\circ}46.1$	-11.0'	59.2'		84°09.1	81°15.9	70°15.5	12°34.2	36°10.7	52°44.5	86°05.8
5	105°56.8	8.0'	$17^{\circ}35.1$	-11.1'	59.3'		83°33.7	80°40.4	69°40.0	13°02.7	36°41.6	53°19.5	86°40.9
6	120°23.8	8.0'	$N17^{\circ}24.0$	-11.2'	59.3'		82°58.1	80°04.8	69°04.5	13°31.8	37°12.7	53°54.6	87°16.1
7	134°50.8	8.0'	$17^{\circ}12.7$	-11.3'	59.3'		82°22.6	79°29.2	68°28.9	14°01.4	37°43.9	54°29.7	87°51.3
8	149°17.8	8.1'	17°01.4	-11.5'	59.4'		81°47.0	78°53.5	67°53.2	14°31.5	38°15.3	55°04.9	88°26.5
9	163°44.9	8.1'	$16^{\circ}49.9$	-11.6'	59.4'		81°11.3	78°17.8	67°17.6	15°02.0	38°46.8	55°40.1	89°01.8
10	178°11.9	8.1'	16°38.3	-11.7'	59.4'		80°35.6	77°42.0	66°41.8	15°32.9	39°18.4	56°15.4	89°37.2
11	192°39.0	8.1'	16°26.6	-11.8'	59.5'		79°59.8	77°06.2	66°06.1	16°04.2	39°50.2	56°50.7	90°12.5
12	207°06.2	8.2'	$N16^{\circ}14.8$	-11.9'	59.5'		79°24.1	76°30.3	65°30.2	16°35.9	40°22.1	57°26.1	90°48.0
13	221°33.3	8.2'	$16^{\circ}02.9$	-12.0'	59.5'		78°48.2	75°54.4	64°54.4	17°07.8	40°54.2	58°01.5	91°23.4
14	236°00.5	8.2'	15°50.9	-12.1'	59.6'		78°12.3	75°18.5	64°18.5	17°40.0	41°26.4	58°37.0	91°59.0
15	250°27.7	8.2'	15°38.7	-12.3'	59.6'		77°36.4	74°42.5	63°42.6	18°12.6	41°58.7	59°12.6	92°34.5
16	264°54.9	8.3'	$15^{\circ}26.5$	-12.4'	59.7'	119°44.3	77°00.4	74°06.5	63°06.6	18°45.3	42°31.1	59°48.1	93°10.1
17	279°22.2	8.3'	$15^{\circ}14.1$	-12.5'	59.7'	119°08.2	76°24.4	73°30.4	62°30.6	19°18.3	43°03.7	60°23.8	93°45.8
18	293°49.5	8.3'	$N15^{\circ}01.7$	-12.6'	59.7'	118°32.0	75°48.4	72°54.3	61°54.5	19°51.5	43°36.3	60°59.5	94°21.5
19	308°16.8	8.3'	$14^{\circ}49.1$	-12.7'	59.8'	117°55.9	75°12.3	72°18.1	61°18.5	20°24.9	44°09.1	61°35.2	94°57.2
20	322°44.2	8.4'	14°36.4	-12.8'	59.8'	117°19.6	74°36.1	71°41.9	60°42.3	20°58.5	44°42.0	62°11.0	95°33.0
21	337°11.5	8.4'	14°23.7	-12.9'	59.8'	116°43.3	73°59.9	71°05.7	60°06.2	21°32.3	45°15.0	62°46.8	96°08.8
22	351°38.9	8.4'	$14^{\circ}10.8$	-13.0'	59.9'	116°07.0	73°23.7	70°29.4	59°30.0	22°06.2	45°48.1	63°22.7	96°44.7
23	6°06.3	8.4'	13°57.8	-13.1'	59.9'	115°30.7	72°47.5	69°53.1	58°53.7	22°40.3	46°21.3	63°58.6	97°20.6
26 th	SD	= 16.1	l' Mer. pas	ss. 22:35							-		

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

Tue	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	20°33.8	8.5'	N 13°44.7	-13.2'	59.9'	114°54.3	72°11.2	69°16.7	58°17.5	23°14.5	46°54.6	64°34.6	97°56.5
1	35°01.3	8.5'	13°31.6	-13.3'	60.0'	114° 17.8	71°34.8	68°40.3	57°41.2	23°48.9	47°28.0	65°10.6	98°32.5
2	49°28.8	8.5'	13°18.3	-13.4'	60.0'	113°41.4	70°58.5	68°03.8	57°04.8	24°23.4	48°01.5	65°46.7	99°08.5
3	63°56.3	8.6'	13°04.9	-13.4'	60.0'	113°04.8	70°22.0	67°27.4	56°28.5	24°58.1	48°35.0	66°22.8	99°44.6
4	78°23.8	8.6'	$12^{\circ}51.5$	-13.5'	60.0'	112°28.3	69°45.6	66°50.8	55°52.1	25°32.8	49°08.7	66°58.9	100°20.6
5	92°51.4	8.6'	12°38.0	-13.6'	60.1'	111°51.7	69°09.1	66°14.3	55°15.6	26°07.7	49°42.5	67°35.1	100°56.8
6	107°19.0	8.6'	$N12^{\circ}24.3$	-13.7'	60.1'	111°15.0	68°32.6	65°37.7	54°39.2	26°42.7	50°16.3	68°11.3	101°33.0
7	121°46.6	8.6'	$12^{\circ}10.6$	-13.8'	60.1'	110°38.4	67°56.0	65°01.0	54°02.7	27° 17.8	50°50.2	68°47.6	102°09.2
8	136°14.3	8.7'	$11^{\circ}56.8$	-13.9'	60.2'	110°01.6	67° 19.4	64°24.3	53°26.2	27°53.0	51°24.2	69°23.9	102°45.4
9	150°42.0	8.7'	11°42.9	-14.0'	60.2'	109°24.9	66°42.8	63°47.6	52°49.6	28°28.3	51°58.3	70°00.2	103°21.7
10	165°09.7	8.7'	$11^{\circ}28.9$	-14.1'	60.2'	108°48.1	66°06.1	63°10.9	52°13.0	29°03.6	52°32.5	70°36.6	103°58.0
11	179°37.4	8.7'	$11^{\circ}14.9$	-14.1'	60.2'	108°11.3	65°29.4	62°34.1	51°36.4	29°39.1	53°06.7	71°13.1	104°34.3
12	194°05.1	8.8'	$N11^{\circ}00.8$	-14.2'	60.3'	107°34.4	64°52.7	61°57.3	50°59.8	30°14.7	53°41.0	71°49.5	105°10.7
13	208°32.9	8.8'	10°46.5	-14.3'	60.3'	106°57.5	64° 15.9	61°20.4	50°23.2	30°50.3	54°15.4	72°26.0	105°47.1
14	223°00.7	8.8'	10°32.2	-14.4'	60.3'	106°20.6	63°39.1	60°43.5	49°46.5	31°26.0	54°49.9	73°02.6	106°23.6
15	237°28.5	8.8'	$10^{\circ}17.9$	-14.4'	60.4'	105°43.6	63°02.3	60°06.6	49°09.8	32°01.8	55°24.4	73°39.2	107°00.1
16	251°56.3	8.9'	10°03.4	-14.5'	60.4'	105°06.6	62°25.4	59°29.6	48°33.1	32°37.7	55°59.0	74°15.8	107°36.6
17	266°24.2	8.9'	09°48.9	-14.6'	60.4'	104°29.6	61°48.5	58°52.6	47°56.4	33°13.6	56°33.6	74°52.4	108°13.1
18	280°52.0	8.9'	N09°34.3	-14.7'	60.4'	103°52.5	61°11.6	58°15.6	47°19.6	33°49.6	57°08.3	75°29.1	108°49.7
19	295°19.9	8.9'	$09^{\circ}19.7$	-14.7'	60.5'	103°15.4	60°34.7	57°38.6	46°42.8	34°25.6	57°43.1	76°05.8	109°26.3
20	309°47.9	8.9'	09°05.0	-14.8'	60.5'	102°38.3	59° 57.7	57°01.5	46°06.1	35°01.8	58°18.0	76°42.6	110°02.9
21	324°15.8	8.9'	08°50.2	-14.9'	60.5'	102°01.1	59°20.7	56°24.4	45°29.3	35°37.9	58°52.8	77°19.4	110°39.6
22	338°43.7	9.0'	08°35.3	-14.9'	60.5'	101°23.9	58°43.6	55°47.2	44°52.4	36°14.2	59°27.8	77°56.2	111°16.3
23	353°11.7	9.0'	08°20.4	-15.0'	60.6'	100°46.7	58°06.6	55°10.1	44°15.6	36°50.5	60°02.8	78°33.0	111°53.0
27 th	SD	= 16.3	Mer. pas	ss. 23:28									

Moon (28th Feb) h

		IVIOC	/// (20 I	(0)			Luliai L	ristance	(Objects	with large	st noung	LD delta)	
Wed	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Regulus	+Pollux	+Aldebaran	+Saturn
0	7°39.7	9.0'	N 08°05.4	-15.0'	60.6'	100°09.5	57°29.5	54°32.9	43°38.8		37°26.8	79°09.9	112°29.7
1	22°07.7	9.0'	07°50.4	-15.1'	60.6'	99°32.2	56°52.4	53°55.6	43°01.9		38°03.2	79°46.8	113°06.5
2	36°35.7	9.0'	07°35.3	-15.1'	60.6'	98°54.9	56°15.3	53° 18.4	42°25.1		38°39.7	80°23.8	113°43.3
3	51°03.7	9.0'	07°20.2	-15.2'	60.6'	98°17.5	55°38.1	52°41.1	41°48.2		39°16.2	81°00.7	114°20.1
4	65°31.8	9.1'	$07^{\circ}05.0$	-15.3'	60.7'	97°40.2	55°01.0	52°03.8	41°11.4		39°52.8	81°37.7	114°56.9
5	79°59.8	9.1'	06°49.7	-15.3'	60.7'	97°02.8	54°23.8	51°26.5	40°34.5		40°29.4	82°14.7	115°33.8
6	94°27.9	9.1'	N 06°34.4	-15.4'	60.7'	96°25.4	53°46.6	50°49.1	39°57.6		41°06.0	82°51.8	116°10.7
7	108°56.0	9.1'	$06^{\circ}19.0$	-15.4'	60.7'	95°48.0	53°09.3	50°11.8	39°20.8		41°42.7	83°28.9	116°47.6
8	123°24.1	9.1'	06°03.6	-15.4'	60.7'	95°10.5	52°32.1	49°34.4	38°43.9		42°19.4	84°06.0	117°24.5
9	137°52.2	9.1'	05°48.2	-15.5'	60.8'	94°33.0	51°54.8	48°56.9	38°07.1		42°56.2	84°43.1	118°01.4
10	152°20.3	9.1'	05°32.7	-15.5'	60.8'	93°55.5	51°17.5	48° 19.5	37°30.2		43°33.0	85°20.2	118°38.4
11	166°48.4	9.1'	05° 17.2	-15.6'	60.8'	93°18.0	50°40.3	47°42.0	36°53.4		44°09.9	85°57.4	119°15.4
12	181°16.5	9.1'	N 05°01.6	-15.6'	60.8'	92°40.4	50°02.9	47°04.6	36°16.6	8° 18.2	44°46.7	86°34.6	119°52.4
13	195°44.7	9.2'	04°46.0	-15.6'	60.8'	92°02.9	49°25.6	46°27.1	35°39.7	8°50.8	45°23.7	87°11.8	
14	210°12.8	9.2'	04°30.3	-15.7'	60.8'	91°25.3	48°48.3	45°49.6	35°03.0	9°24.1	46°00.6	87°49.0	
15	224°41.0	9.2'	04°14.7	-15.7'	60.9'	90°47.7	48°10.9	45°12.0	34°26.2	9°58.0	46°37.6	88°26.3	
16	239°09.2	9.2'	03°59.0	-15.7'	60.9'	90°10.0	47°33.6	44°34.5	33°49.4	10°32.2	47°14.6	89°03.5	
17	253°37.3	9.2'	03°43.2	-15.8'	60.9'	89°32.4	46°56.2	43°56.9	33°12.7	11°06.9	47°51.7	89°40.8	
18	268°05.5	9.2'	N03°27.4	-15.8'	60.9'	88°54.7	46°18.8	43°19.3	32°36.0	11°41.8	48°28.7	90°18.1	
19	282°33.7	9.2'	$03^{\circ}11.6$	-15.8'	60.9'	88°17.0	45°41.5	42°41.7	31°59.4	12° 17.1	49°05.8	90°55.4	
20	297°01.9	9.2'	02°55.8	-15.8'	60.9'	87°39.4	45°04.1	42°04.1	31°22.7	12°52.5	49°43.0	91°32.8	
21	311°30.1	9.2'	02°40.0	-15.9'	60.9'	87°01.6	44°26.7	41°26.5	30°46.2	13°28.2	50°20.1	92°10.1	
22	325°58.2	9.2'	$02^{\circ}24.1$	-15.9'	61.0'	86°23.9	43°49.3	40°48.9	30°09.6	14°04.1	50°57.3	92°47.5	
23	340°26.4	9.2'	02°08.2	-15.9'	61.0'	85°46.2	43°11.9	40°11.2	29°33.1	14°40.2	51°34.5	93°24.8	
28 th	SI) — 16	5' Mer n	ass –.–						·			

- 1	h Moon (1 st Mar)	Lunar Distance (objects with largest hourly LD delta)	
- 1	n ivioon i i iviari	Lunar Distance Cobjects with largest hourly LD deltal	

Thu	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Regulus	+Procyon	+Pollux	+Aldebaran
0	354°54.6	9.2'	N01°52.3	-15.9'	61.0'	85°08.4	42°34.5	39°33.6	28°56.7	15°16.4	48°58.1	52°11.7	94°02.2
1	9°22.8	9.2'	01°36.4	-15.9'	61.0'	84°30.7	41°57.1	38°55.9	28°20.3	15°52.7	49°33.6	52°49.0	94°39.6
2	23°51.0	9.2'	01°20.4	-15.9'	61.0'	83°52.9	41°19.7	38°18.3	27°44.0	16°29.1	50°09.3	53°26.2	95°17.0
3	38°19.2	9.2'	$01^{\circ}04.5$	-16.0'	61.0'	83°15.1	40°42.3	37°40.6	27°07.8	17°05.7	50°45.0	54°03.5	95°54.5
4	52°47.3	9.2'	00°48.5	-16.0'	61.0'	82°37.3	40°04.9	37°02.9	26°31.6	17°42.3	51°20.7	54°40.8	96°31.9
5	67°15.5	9.2'	00°32.6	-16.0'	61.0'	81°59.5	39°27.5	36°25.2	25°55.6	18°19.1	51°56.5	55°18.1	97°09.3
6	81°43.7	9.2'	N 00°16.6	-16.0'	61.0'	81°21.7	38°50.1	35°47.5	25°19.6	18°55.9	52°32.3	55°55.5	97°46.8
7	96°11.9	9.2'	N 00°00.6	-16.0'	61.0'	80°43.9	38°12.8	35°09.8	24°43.7	19°32.8	53°08.1	56°32.8	98°24.2
8	110°40.0	9.1'	S 00°15.4	-16.0'	61.0'	80°06.1	37°35.4	34°32.1	24°07.9	20°09.7	53°44.0	57°10.2	99°01.7
9	125°08.2	9.1'	00°31.4	-16.0'	61.0'	79°28.2	36°58.0	33°54.4	23°32.3	20°46.7	54°20.0	57°47.6	99°39.1
10	139°36.3	9.1'	00°47.3	-16.0'	61.0'	78°50.4	36°20.7	33°16.7	22°56.7	21°23.8	54°55.9	58°25.0	100°16.6
11	154°04.4	9.1'	01°03.3	-16.0'	61.1'	78°12.6	35°43.4	32°39.0	22°21.4	22°00.9	55°31.9	59°02.4	100°54.1
12	168°32.6	9.1'	S 01°19.3	-16.0'	61.1'	77°34.7	35°06.1	32°01.3	21°46.1	22°38.0	56°08.0	59°39.8	101°31.5
13	183°00.7	9.1'	01°35.3	-16.0'	61.1'	76°56.9	34°28.8	31°23.6	21°11.1	23°15.2	56° 44.0	60°17.2	102°09.0
14	197°28.8	9.1'	$01^{\circ}51.2$	-15.9'	61.1'	76°19.0	33°51.5	30°45.9	20°36.2	23°52.4	57°20.1	60°54.6	102°46.5
15	211°56.9	9.1'	02°07.2	-15.9'	61.1'	75°41.2	33°14.3	30°08.3	20°01.5	24°29.7	57° 56.2	61°32.0	103°24.0
16	226°24.9	9.1'	02°23.1	-15.9'	61.1'	75°03.3	32°37.1	29°30.6	19°27.0	25°07.0	58°32.4	62°09.5	104°01.4
17	240°53.0	9.0'	02°39.0	-15.9'	61.1'	74°25.4	31°59.9	28°52.9	18°52.8	25°44.3	59°08.5	62°46.9	104°38.9
18	255°21.0	9.0'	S 02°54.9	-15.9'	61.1'	73°47.6	31°22.7	28°15.2	18°18.9	26°21.6	59°44.7	63°24.4	105°16.4
19	269°49.1	9.0'	03°10.8	-15.9'	61.1'	73°09.7	30°45.6	27°37.6	17°45.2	26°59.0	60°20.9	64°01.8	105°53.8
20	284°17.1	9.0'	03°26.7	-15.8'	61.1'	72°31.9	30°08.5	26°59.9	17°11.8	27°36.3	60°57.2	64°39.3	106°31.3
21	298°45.1	9.0'	03°42.5	-15.8'	61.1'	71°54.0	29°31.5	26°22.3	16°38.8	28°13.7	61°33.4	65°16.8	107°08.8
22	313°13.1	9.0'	03°58.3	-15.8'	61.1'	71°16.2	28°54.4	25°44.7	16°06.2	28°51.2	62°09.7	65°54.2	107°46.2
23	327°41.0	8.9'	$04^{\circ}14.1$	-15.8'	61.1'	70°38.4	28°17.5	25°07.1	15°34.0	29°28.6	62°45.9	66°31.7	108°23.7
1 st	SD	= 16.6	′ Mer. pas	s. 00:21									

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

Fri	GHA	ν	Dec	d	HP	-Altair	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	342°09.0	8.9'	S 04°29.9	-15.7'	61.1'		70°00.5	27°40.6	24°29.5	30°06.0	63°22.2	67°09.1	109°01.1
1	356° 36.9	8.9'	04°45.6	-15.7'	61.1'	119°53.8	69°22.7	27°03.7	23°51.9	30°43.5	63°58.5	67°46.6	109°38.5
2	11°04.8	8.9'	05°01.3	-15.7'	61.1'	119°21.7	68°44.9	26°26.9	23°14.4	31°20.9	64°34.8	68°24.0	110°15.9
3	25°32.7	8.9'	$05^{\circ}17.0$	-15.6'	61.0'	118°49.6	68°07.0	25°50.1	22°36.9	31°58.4	65°11.1	69°01.5	110°53.4
4	40°00.5	8.8'	05°32.6	-15.6'	61.0'	118°17.4	67°29.2	25°13.4	21°59.4	32°35.9	65°47.5	69°38.9	111°30.8
5	54°28.4	8.8'	05°48.2	-15.6'	61.0'	117°45.1	66°51.4	24°36.8	21°21.9	33°13.3	66°23.8	70°16.4	112°08.1
6	68°56.2	8.8'	S 06°03.8	-15.5'	61.0'	117°12.8	66° 13.6	24°00.2	20°44.5	33°50.8	67°00.1	70°53.8	112°45.5
7	83°24.0	8.8'	$06^{\circ}19.3$	-15.5'	61.0'	116°40.4	65°35.9	23°23.8	20°07.1	34°28.3	67°36.5	71°31.3	113°22.9
8	97°51.7	8.7'	06°34.8	-15.4'	61.0'	116°08.0	64°58.1	22°47.4	19°29.7	35°05.8	68°12.8	72°08.7	114°00.2
9	112° 19.5	8.7'	$06^{\circ}50.2$	-15.4'	61.0'	115°35.6	64°20.3	22°11.1	18°52.4	35°43.3	68°49.2	72°46.1	114°37.5
10	126°47.2	8.7'	07°05.6	-15.3'	61.0'	115°03.1	63°42.6	21°34.9	18°15.1	36°20.7	69°25.5	73°23.5	115°14.9
11	141°14.8	8.7'	$07^{\circ}20.9$	-15.3'	61.0'	114°30.5	63°04.8	20°58.8	17°37.8	36°58.2	70°01.9	74°00.9	115°52.2
12	155° 42.5	8.6'	S 07°36.2	-15.2'	61.0'	113°58.0	62°27.1	20°22.8	17°00.6	37°35.7	70°38.2	74°38.3	116°29.4
13	170°10.1	8.6'	$07^{\circ}51.5$	-15.2'	61.0'	113°25.4	61°49.4	19°47.0	16°23.5	38°13.1	71°14.6	75°15.7	117°06.7
14	184°37.7	8.6'	$08^{\circ}06.6$	-15.1'	61.0'	112°52.7	61°11.7	19°11.3	15°46.4	38°50.6	71°50.9	75°53.0	117°43.9
15	199°05.3	8.5'	08°21.8	-15.1'	61.0'	112°20.1	60°34.0	18°35.7	15°09.3	39°28.0	72°27.3	76°30.4	118°21.2
16	213°32.8	8.5'	08°36.8	-15.0'	60.9'	111°47.4	59°56.4	18°00.4	14°32.4	40°05.5	73°03.6	77°07.7	118°58.4
17	228°00.3	8.5'	08°51.8	-14.9'	60.9'	111°14.6	59° 18.7	17°25.2	13°55.5	40°42.9	73°39.9	77°45.0	119°35.5
18	242°27.8	8.4'	S 09°06.8	-14.9'	60.9'	110°41.9	58°41.1	16°50.2	13°18.7	41°20.3	74°16.2	78°22.3	
19	256°55.2	8.4'	09°21.7	-14.8'	60.9'	110°09.1	58°03.5	16°15.4	12°42.0	41°57.7	74°52.5	78°59.6	
20	271°22.6	8.4'	09°36.5	-14.8'	60.9'	109°36.3	57°25.9	15°40.8	12°05.5	42°35.1	75°28.8	79°36.9	
21	285°50.0	8.3'	$09^{\circ}51.2$	-14.7'	60.9'	109°03.5	56°48.3	15°06.6	11°29.0	43°12.5	76°05.1	80°14.1	
22	300°17.3	8.3'	$10^{\circ}05.9$	-14.6'	60.9'	108°30.7	56° 10.7	14°32.6	10°52.8	43°49.9	76°41.4	80°51.4	
23	314°44.6	8.3'	10°20.5	-14.5'	60.9'	107°57.8	55°33.2	13°58.9	10°16.6	44°27.2	77°17.7	81°28.6	
2 nd	SD	= 16.7	Mer. pa	ss. 01:14									

Moon (3rd Mar)

Lunar Distance (objects with largest hourly LD delta)

h		Mod	on (3 rd M	ar)			Lunar D	istance	(objects	with larg	est hourly	LD delta	a)
Sat	GHA	ν	Dec	d	HP	-Altair	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	329°11.9	8.2'	S 10°35.1	-14.5'	60.8'	107°25.0	54°55.7	13°25.7	9°40.7	45°04.6	77°53.9	82°05.8	103°44.1
1	343°39.1	8.2'	$10^{\circ}49.5$	-14.4'	60.8'	106°52.1	54°18.2	12°52.8	9°05.1	45°41.9	78°30.2	82°43.0	104°19.9
2	358°06.3	8.2'	11°03.9	-14.3'	60.8'	106° 19.2	53°40.7	12°20.4	8°29.7	46°19.2	79°06.4	83°20.1	104°55.6
3	12°33.5	8.1'	11°18.2	-14.2'	60.8'	105°46.3	53°03.3	11°48.6	7°54.6	46°56.5	79°42.6	83°57.3	105°31.3
4	27°00.6	8.1'	$11^{\circ}32.5$	-14.2'	60.8'	105°13.4	52°25.9	11°17.3	7°20.0	47°33.7	80°18.8	84°34.4	106°07.0
5	41°27.6	8.0'	$11^{\circ}46.6$	-14.1'	60.8'	104°40.5	51°48.5	10°46.7	6°45.9	48°11.0	80°54.9	85°11.5	106°42.6
6	55°54.7	8.0'	S 12°00.7	-14.0'	60.7'	104°07.6	51°11.1	10°17.0	6°12.4	48°48.2	81°31.1	85°48.6	107°18.2
7	70°21.7	8.0'	$12^{\circ}14.7$	-13.9'	60.7'	103°34.7	50°33.7	9°48.1	5°39.8	49°25.4	82°07.2	86°25.6	107°53.8
8	84°48.7	7.9'	12°28.6	-13.8'	60.7'	103°01.8	49°56.4			50°02.6	82°43.3	87°02.6	108°29.3
9	99°15.6	7.9'	12°42.4	-13.7'	60.7'	102°28.9	49°19.1			50°39.8	83°19.4	87°39.6	109°04.8
10	113°42.5	7.8'	$12^{\circ}56.1$	-13.6'	60.7'	101°56.0	48°41.8			51°16.9	83°55.5	88°16.6	109°40.3
11	128°09.3	7.8'	13°09.8	-13.5'	60.6'	101°23.1	48°04.6			51°54.0	84°31.5	88°53.6	110°15.7
12	142°36.1	7.8'	S 13°23.3	-13.5'	60.6'	100°50.2	47°27.4			52°31.1	85°07.6	89°30.5	110°51.1
13	157°02.9	7.7'	13°36.8	-13.4'	60.6'	100°17.3	46°50.2			53°08.2	85°43.6	90°07.4	111°26.4
14	171°29.6	7.7'	13°50.1	-13.3'	60.6'	99°44.5	46°13.0			53°45.2	86° 19.5	90°44.2	112°01.7
15	185°56.3	7.6'	14°03.4	-13.2'	60.6'	99°11.6	45°35.9			54°22.2	86°55.5	91°21.1	112°36.9
16	200°22.9	7.6'	$14^{\circ}16.5$	-13.1'	60.5'	98°38.7	44°58.8			54°59.2	87°31.4	91°57.9	113°12.1
17	214°49.5	7.6'	14°29.6	-13.0'	60.5'	98°05.9	44°21.7			55°36.2	88°07.3	92°34.7	113°47.3
18	229°16.1	7.5'	S 14°42.6	-12.9'	60.5'	97°33.1	43°44.7			56°13.1	88°43.2	93°11.4	114°22.4
19	243°42.6	7.5'	14°55.4	-12.8'	60.5	97°00.3	43°07.7			56°50.0	89° 19.0	93°48.1	114°57.5
20	258°09.1	7.4'	15°08.2	-12.6'	60.5	96° 27.5	42°30.7			57°26.9	89°54.8	94°24.8	115°32.5
21	272°35.5	7.4'	15°20.8	-12.5'	60.4	95°54.7	41°53.8			58°03.7	90°30.6	95°01.5	116°07.4
22	287°01.9	7.4'	15°33.4	-12.4'	60.4	95°21.9	41°16.8			58°40.6	91°06.3	95°38.1	116°42.4
23	301°28.3	7.3'	15°45.8	-12.3'	60.4'	94°49.2	40°40.0			59°17.3	91°42.0	96°14.7	117°17.2
3 rd	SD	= 16.6	′ Mer. pa:	ss. 02:08									

Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	315°54.6	7.3'	S 15°58.1	-12.2'	60.4'	119°33.4	111°22.7	94°16.5	40°03.1	6°20.8	59°54.1	92°17.7	96°51.2
1	330°20.9	7.2'	$16^{\circ}10.3$	-12.1'	60.3'	119°01.2	111°05.6	93°43.8	39°26.3	6°53.9	60° 30.8	92°53.4	97°27.8
2	344°47.1	7.2'	$16^{\circ}22.4$	-12.0'	60.3'	118°29.0	110°48.5	93°11.1	38°49.5	7°27.6	61°07.5	93°29.0	98°04.2
3	359°13.3	7.1'	16°34.4	-11.9'	60.3'	117° 56.8	110°31.2	92°38.5	38°12.8	8°01.7	61°44.2	94°04.6	98°40.7
4	13°39.4	7.1'	16°46.2	-11.7'	60.3'	117°24.5	110°13.8	92°05.9	37°36.1	8°36.1	62°20.8	94°40.1	99°17.1
5	28°05.5	7.1'	$16^{\circ}58.0$	-11.6'	60.2'	116°52.2	109°56.3	91°33.3	36°59.4	9°10.8	62°57.4	95°15.6	99°53.5
6	42°31.6	7.0'	S 17°09.6	-11.5'	60.2'	116° 19.9	109°38.7	91°00.7	36°22.8	9°45.8	63°34.0	95°51.1	100°29.9
7	56°57.6	7.0'	$17^{\circ}21.1$	-11.4'	60.2'	115° 47.6	109°21.1	90°28.2	35°46.2	10°20.9	64° 10.5	96°26.5	101°06.2
8	71°23.6	6.9'	$17^{\circ}32.5$	-11.3'	60.1'	115° 15.3	109°03.3	89°55.7	35°09.6	10°56.1	64°47.0	97°01.9	101°42.4
9	85°49.5	6.9'	17°43.8	-11.1'	60.1'	114°43.0	108°45.5	89°23.2	34°33.1	11°31.4	65°23.5	97°37.3	102°18.7
10	100°15.4	6.9'	$17^{\circ}54.9$	-11.0'	60.1'	114° 10.7	108°27.6	88°50.8	33°56.6	12°06.8	65°59.9	98°12.6	102°54.9
11	114°41.3	6.8'	$18^{\circ}05.9$	-10.9'	60.1'	113°38.3	108°09.6	88°18.4	33°20.2	12°42.3	66°36.3	98°47.9	103°31.0
12	129°07.1	6.8'	S 18°16.8	-10.8'	60.0'	113°06.0	107°51.5	87°46.0	32°43.8	13°17.9	67° 12.6	99°23.2	104°07.2
13	143°32.9	6.7'	18°27.6	-10.6'	60.0'	112°33.7	107°33.4	87°13.6	32°07.4	13°53.5	67°49.0	99°58.4	104°43.3
14	157°58.6	6.7'	18°38.2	-10.5'	60.0'	112°01.3	107°15.1	86°41.3	31°31.1	14°29.1	68° 25.2	100°33.6	105°19.3
15	172°24.3	6.7'	18°48.7	-10.4'	60.0'	111°29.0	106°56.8	86°09.1	30°54.8	15°04.7	69°01.5	101°08.7	105°55.3
16	186°50.0	6.6'	$18^{\circ}59.1$	-10.2'	59.9'	110°56.6	106°38.5	85°36.9	30°18.5	15°40.4	69°37.7	101°43.8	106°31.3
17	201°15.6	6.6'	19°09.3	-10.1'	59.9'	110°24.3	106°20.0	85°04.7	29°42.3	16°16.1	70° 13.9	102°18.8	107°07.2
18	215°41.2	6.6'	S 19°19.4	-10.0'	59.9'	109°52.0	106°01.5	84°32.5	29°06.2	16°51.7	70°50.0	102°53.8	107°43.1
19	230°06.8	6.5'	19°29.4	-9.8'	59.8'	109° 19.7	105°43.0	84°00.5	28°30.0	17°27.4	71°26.1	103°28.8	108°19.0
20	244°32.3	6.5'	19°39.2	-9.7'	59.8'	108°47.3	105°24.4	83°28.4	27°54.0	18°03.1	72°02.2	104°03.7	108°54.8
21	258°57.8	6.4'	19°48.9	-9.6'	59.8'	108° 15.0	105°05.7	82°56.4	27°17.9	18°38.7	72°38.2	104°38.6	109°30.5
22	273°23.2	6.4'	19°58.4	-9.4'	59.7'	107° 42.7	104°47.0	82°24.4	26°41.9	19°14.4	73° 14.2	105°13.4	110°06.3
23	287°48.6	6.4'	20°07.9	-9.3'	59.7'	107° 10.4	104°28.2	81°52.5	26°06.0	19°50.0	73°50.1	105°48.2	110°41.9
4 th	SD	= 16.5	′ Mer. pas	ss. 03:03									

Moon (5th Mar)

22°52.1

22°58.3

23°04.3

 $23^{\circ}10.2$

Mer. pass. 04:00

-6.2

-6.0'

-5.9'

-5.7'

59.0

59.0

58.9

h

230°35.9

245°00.8

259°25.7

 $273^{\circ}50.6$

20 21

23

5th

5.9

5.9'

5.9'

SD = 16.3'

Mon -Altair **GHA** Dec d HP -Sun -Fomalhaut -Antares +Spica +Mars +Regulus +Pollux 302°14.0 **S**20°17.1 106°38.2 81°20.6 25°30.1 33°45.9 74°26.0 111°17.6 6.3 -9.159.7 20°25.7 0 316°39.4 80°48.8 24°54.2 75°01.9 111°53.2 6.3 $20^{\circ}26.3$ -9.0 59.7 119°27.0 106°05.9 21°01.3 $34^{\circ}21.1$ 1 24°18.4 23°42.6 331°04.7 20°35.3 $118^{\circ}53.7$ $105^{\circ}33.7$ $80^{\circ}17.0$ $21^{\circ}36.9$ $34^{\circ}56.4$ 75°37.7 $112^{\circ}28.8$ 6.3' -8.9' 59.6 22°12.4 345°30.0 $20^{\circ}44.1$ -8.7 $118^{\circ}20.4$ $105^{\circ}01.4$ $79^{\circ}45.3$ $35^{\circ}31.7$ $76^{\circ}13.5$ $113^{\circ}04.3$ 59.6 79°13.6 22°48.0 4 359°55.2 6.2 20°52.9 -8.6 59.6 117°47.2 104°29.2 23°06.9 36°06.9 76°49.3 113°39.7 117°14.0 14°20.5 103°57.0 78°42.0 23°23.5 77°25.0 5 6.2 21°01.4 -8.4' 59.5 22°31.2 36°42.2 114°15.2 6 $28^{\circ}45.7$ 6.2 $\textbf{S}21^{\circ}09.8$ -8.3 59.5 $116^{\circ}40.9$ $103^{\circ}24.8$ $78^{\circ}10.4$ $21^{\circ}55.6$ $23^{\circ}59.0$ $37^{\circ}17.4$ $78^{\circ}00.7$ 114°50.5 77°38.9 77°07.4 37°52.7 43°10.8 $21^{\circ}\,18.1$ $116^{\circ}07.8$ $102^{\circ}52.7$ $21^{\circ}20.0$ 24°34.4 78°36.3 115°25.9 6.1' -8.1' 59.5' 21°26.3 21°34.2 102°20.6 101°48.4 8 $57^{\circ}36.0$ -8.0' 59.4' $115^{\circ}34.7$ 20°44.4 $25^{\circ}09.9$ $38^{\circ}27.9$ 79°11.9 $116^{\circ}01.2$ 76°36.0 79°47.4 72°01.1 25°45.3 115°01.7 20°08.9 39°03.1 9 6.1' -7.8' 59 4 116°36.4 21°42.1 114°28.7 76°04.6 19°33.5 26°20.7 39°38.3 80°23.0 117°11.6 86°26.2 101°16.3 10 6.1 -7.7 59.4 100°51.2 21°49.8 113°55.8 100°44.3 75°33.3 18°58.1 26°56.0 40°13.5 80°58.4 117°46.8 6.0' 59.3 11 -7.5 **S**21°57.3 100°12.2 27°31.3 81°33.8 12 $115^{\circ}16.3$ 6.0' -7.4' 59.3' $113^{\circ}22.9$ $75^{\circ}02.1$ $18^{\circ}22.8$ $40^{\circ}48.7$ $118^{\circ}21.9$ 129°41.3 99°40.2 28°06.6 41°23.9 22°04.7 112°50.0 74°30.9 17°47.5 82°09.2 118°57.0 13 6.0' -7.2 59 3 17° 12.3 112°17.2 73°59.8 144°06.3 22°11.9 99°08.2 28°41.8 82°44 6 14 6.0' -7 1 59 2 41°59.0 119°32.0 16°37.1 158°31.3 22°19.0 111°44.4 98°36.3 73°28.7 29°17.0 83°19.9 6.0' 59.2 42°34.2 15 -6.9'172°56.3 22°25.9 111°11.7 72°57.7 16°02.0 29°52.2 43°09.3 83°55.2 5.9' -6.8 59.2 98°04.3 16 17 $187^{\circ}21.2$ 5.9' $22^{\circ}32.7$ -6.6' $110^{\circ}39.0$ $97^{\circ}32.4$ $72^{\circ}26.8$ $15^{\circ}26.9$ $30^{\circ}27.4$ 43°44.4 $84^{\circ}30.4$ 59.1 71°55.9 **S**22°39.3 97°00.5 14°51 9 31°02 5 44°194 85°05.6 201°46.1 110°06.4 18 5 9 -6.5 59.1 22°45.8 96°28.7 14°17.0 44°54.5 216°11.0 109°33.7 $71^{\circ}25.1$ 31°37.6 85°40.7 19 5.9 -6.3'59.1

95°56.8

95°25.0

94°53.3

 $94^{\circ}21.6$

70°54.3

70°23.6

69°53.0

 $69^{\circ}22.5$

13°42.1

13°07.3

 $12^{\circ}32.6$

 $11^{\circ}58.0$

Sun SD = 16.1'

32°12.6

32°47.6

33°22.6

33°57.5

45°29.5

46°04.5

46°39.5

 $47^{\circ}14.4$

86°15.8

86°50.9

87°25.9

 $88^{\circ}00.9$

109°01.2

108°28.6

107°56.1

 $107^{\circ}23.7$

h		Моо	n (6 th Ma	ar)			Lunar Dist	ance (ob	jects wit	h largest	hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	-Antares	+Jupiter	+Spica	+Mars	+Regulus
0	288°15.4	5.8'	S 23°15.9	-5.5'	58.9'	106°51.3	93°49.9	68°52.0	11°23.4	32°36.4	34°32.4	47°49.4	88°35.8
1	302°40.3	5.8'	23°21.4	-5.4'	58.9'	106° 18.9	93°18.2	68°21.6	10°49.0	33°10.9	35°07.2	48°24.3	89° 10.7
2	317°05.1	5.8'	23°26.8	-5.2'	58.8'	105°46.6	92°46.6	67°51.2	10° 14.6	33°45.3	35°42.0	48°59.1	89°45.5
3	331°29.9	5.8'	23°32.0	-5.1'	58.8'	105° 14.3	92°15.0	67°21.0	9°40.4	34° 19.7	36°16.8	49°34.0	90°20.3
4	345°54.8	5.8'	23°37.1	-4.9'	58.8'	104°42.0	91°43.4	66°50.8	9°06.2	34°54.0	36°51.5	50°08.8	90°55.1
5	0°19.6	5.8'	23°42.0	-4.8'	58.7'	104°09.8	91°11.9	66°20.6	8°32.2	35°28.4	37°26.2	50°43.6	91°29.8
6	14°44.4	5.8'	S 23°46.8	-4.6'	58.7'	103°37.7	90°40.4	65°50.6	7°58.4	36°02.7	38°00.9	51°18.4	92°04.5
7	29°09.2	5.8'	23°51.4	-4.4'	58.7'	103°05.5	90°09.0	65°20.6	7°24.8	36°37.0	38°35.5	51°53.1	92°39.2
8	43°34.1	5.8'	23°55.8	-4.3'	58.6'	102°33.5	89°37.5	64°50.7	6°51.3	37°11.2	39°10.1	52°27.8	93° 13.8
9	57°58.9	5.8'	24°00.1	-4.1'	58.6'	102°01.4	89°06.2	64°20.9	6°18.2	37° 45.5	39°44.7	53°02.5	93°48.3
10	72°23.7	5.8'	24°04.2	-4.0'	58.6'	101°29.4	88°34.8	63°51.2	5°45.4	38° 19.7	40°19.2	53°37.1	94°22.8
11	86°48.6	5.8'	24°08.2	-3.8'	58.5'	100°57.5	88°03.5	63°21.5	5°13.0	38°53.9	40°53.6	54°11.7	94°57.3
12	101°13.4	5.9'	S 24°12.0	-3.7'	58.5'	100°25.5	87°32.3	62°51.9	4°41.1	39°28.1	41°28.1	54°46.3	95°31.8
13	115°38.3	5.9'	24°15.6	-3.5'	58.5'	99°53.7	87°01.1	62°22.5	4°10.0	40°02.2	42°02.5	55°20.8	96°06.1
14	130°03.1	5.9'	24°19.1	-3.3'	58.4'	99°21.8	86°29.9	61°53.0		40°36.3	42°36.8	55°55.4	96°40.5
15	144°28.0	5.9'	24°22.5	-3.2'	58.4'	98°50.0	85°58.8	61°23.7		41°10.4	43°11.1	56°29.9	97°14.8
16	158°52.9	5.9'	24°25.6	-3.0'	58.4'	98° 18.3	85°27.7	60°54.5		41°44.5	43°45.4	57°04.3	97°49.1
17	173°17.8	5.9'	24°28.7	-2.9'	58.3'	97°46.6	84°56.6	60°25.3		42°18.5	44°19.6	57°38.7	98°23.3
18	187°42.7	5.9'	S 24°31.5	-2.7'	58.3'	97° 14.9	84°25.6	59°56.3		42°52.5	44°53.8	58°13.1	98° 57.5
19	202°07.6	6.0'	24°34.2	-2.5'	58.3'	96°43.2	83°54.6	59°27.3		43°26.5	45°28.0	58°47.5	99°31.6
20	216°32.6	6.0'	24°36.8	-2.4'	58.2'	96°11.7	83°23.7	58°58.4		44°00.4	46°02.1	59°21.8	100°05.7
21	230°57.6	6.0'	24°39.1	-2.2'	58.2'	95°40.1	82°52.8	58°29.7		44°34.3	46°36.2	59°56.1	100°39.8
22	245°22.6	6.0'	24°41.4	-2.1'	58.1'	95°08.6	82°22.0	58°01.0		45°08.2	47°10.2	60°30.4	101°13.8
23	259°47.6	6.0'	24°43.4	-1.9'	58.1'	94°37.1	81°51.2	57°32.4		45°42.0	47°44.2	61°04.6	101°47.8
6 th	SD =	= 16.1'	Mer. pas	s. 04:59)				Sun SD =	= 16.1'			

h		Моо	n (7 th Ma	ar)			Lunar D	Distance (ob	ojects wi	th largest	hourly I	LD delta)
Wed	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Jupiter	+Spica	+Mars	+Regulus
0	274°12.6	6.1'	S 24°45.4	-1.8'	58.1'	94°05.7	88°42.1	81°20.5	57°03.9	46°15.8	48° 18.2	61°38.8	102°21.8
1	288°37.7	6.1'	24°47.1	-1.6'	58.0'	93°34.3	88°23.0	80°49.8	56°35.5	46°49.6	48°52.1	62°13.0	102°55.7
2	303°02.8	6.1'	24°48.7	-1.4'	58.0'	93°02.9	88°03.8	80°19.1	56°07.2	47°23.4	49°26.0	62°47.1	103°29.5
3	317°27.9	6.2'	24°50.1	-1.3'	58.0'	92°31.6	87°44.7	79°48.5	55°39.0	47°57.1	49°59.8	63°21.2	104°03.4
4	331°53.1	6.2'	24°51.4	-1.1'	57.9'	92°00.4	87°25.7	79°18.0	55° 10.9	48°30.8	50°33.6	63°55.2	104°37.1
5	346°18.2	6.2'	24°52.6	-1.0'	57.9'	91°29.1	87°06.6	78°47.5	54°42.9	49°04.4	51°07.4	64°29.3	105°10.9
6	0°43.5	6.3'	S 24°53.5	-0.8'	57.9'	90°57.9	86°47.6	78°17.0	54° 15.1	49°38.0	51°41.2	65°03.3	105°44.6
7	15°08.7	6.3'	24°54.4	-0.7'	57.8'	90°26.8	86°28.7	77°46.6	53°47.3	50°11.6	52°14.8	65°37.2	106° 18.2
8	29°34.0	6.3'	24°55.0	-0.5'	57.8'	89°55.7	86°09.7	77°16.2	53° 19.6	50°45.2	52°48.5	66°11.2	106°51.9
9	43°59.3	6.4'	24°55.5	-0.4'	57.8'	89°24.6	85°50.8	76°45.9	52°52.1	51°18.7	53°22.1	66°45.1	107°25.4
10	58°24.7	6.4'	24°55.9	-0.2'	57.7'	88°53.5	85°32.0	76°15.6	52°24.7	51°52.2	53°55.7	67°18.9	107°59.0
11	72°50.1	6.4'	$24^{\circ}56.1$	-0.1'	57.7'	88°22.5	85°13.2	75°45.4	51°57.4	52°25.7	54°29.2	67°52.8	108°32.5
12	87°15.5	6.5'	S 24°56.1	0.1'	57.7'	87°51.6	84°54.4	75°15.3	51°30.2	52°59.1	55°02.7	68°26.6	109°06.0
13	101°41.0	6.5'	24°56.0	0.3'	57.6'	87° 20.7	84°35.7	74°45.1	51°03.1	53°32.5	55° 36.2	69°00.3	109°39.4
14	116°06.5	6.6'	24°55.8	0.4'	57.6'	86°49.8	84°17.0	74°15.1	50°36.1	54°05.8	56°09.6	69°34.1	110°12.8
15	130°32.1	6.6'	24°55.4	0.6'	57.6'	86° 18.9	83°58.3	73°45.1	50°09.3	54°39.2	56°43.0	70°07.8	110°46.1
16	144°57.7	6.7'	24°54.8	0.7'	57.5'	85°48.1	83°39.7	73°15.1	49°42.6	55°12.5	57° 16.4	70°41.4	111°19.4
17	159°23.4	6.7'	24°54.1	0.9'	57.5'	85° 17.4	83°21.1	72°45.2	49° 16.1	55°45.7	57°49.7	71°15.0	111°52.7
18	173°49.1	6.8'	S 24°53.3	1.0'	57.5'	84°46.6	83°02.6	72°15.3	48°49.6	56°18.9	58°23.0	71°48.6	112°25.9
19	188°14.9	6.8'	24°52.3	1.2'	57.4'	84° 15.9	82°44.2	71°45.5	48°23.3	56°52.1	58° 56.2	72°22.2	112°59.1
20	202°40.7	6.9'	24°51.1	1.3'	57.4'	83°45.3	82°25.8	71°15.8	47°57.2	57°25.3	59° 29.5	72°55.7	113°32.3
21	217°06.6	6.9'	24°49.8	1.4'	57.4'	83°14.6	82°07.4	70°46.1	47°31.2	57°58.4	60°02.6	73°29.2	114°05.4
22	231°32.5	7.0'	24°48.4	1.6'	57.4'	82°44.1	81°49.1	70°16.5	47°05.3	58°31.5	60°35.8	74°02.7	114°38.5
23	245°58.5	7.0'	24°46.8	1.7'	57.3'	82° 13.5	81°30.8	69°46.9	46°39.6	59°04.6	61°08.9	74°36.1	115°11.5
7 th	SD :	= 15.8'	Mer. pas	s. 05:57	•				Sun SD	= 16.1'			

h	Moon (8 th Mar)	Lunar Distance ((objects with	largest hou

h		Moor	n (8 th Ma	r)			Lunar [Distance (ob	jects wi	th largest	hourly I	_D delta)
Thu	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Jupiter	+Spica	+Mars	+Regulus
0	260°24.5	7.1'	S 24°45.1	1.9'	57.3'	81°43.0	81°12.6	69° 17.4	46°14.0	59°37.6	61°41.9	75°09.6	115°44.6
1	274°50.6	7.2'	24°43.2	2.0'	57.3'	81°12.5	80°54.5	68°47.9	45°48.6	60°10.6	62°15.0	75°42.9	116°17.5
2	289°16.8	7.2'	24°41.1	2.2'	57.2'	80°42.1	80°36.4	68° 18.5	45°23.3	60°43.6	62°48.0	76°16.3	116°50.5
3	303°43.0	7.3'	24°39.0	2.3'	57.2'	80°11.7	80°18.3	67°49.2	44°58.2	61°16.5	63°20.9	76°49.6	117°23.4
4	318°09.3	7.3'	24°36.7	2.5'	57.2'	79°41.3	80°00.3	67° 19.9	44°33.2	61°49.4	63°53.8	77°22.8	117°56.2
5	332°35.6	7.4'	24°34.2	2.6'	57.1'	79°11.0	79°42.4	66° 50.6	44°08.4	62°22.3	64°26.7	77°56.1	118°29.0
6	347°02.0	7.5'	S 24°31.6	2.7'	57.1'	78°40.7	79°24.5	66°21.5	43°43.8	62°55.1	64°59.6	78°29.3	119°01.8
7	1°28.5	7.5'	24°28.9	2.9'	57.1'	78°10.4	79°06.7	65°52.4	43°19.4	63°27.9	65°32.4	79°02.5	119°34.6
8	15°55.0	7.6'	24°26.0	3.0'	57.0'	77°40.2	78°49.0	65°23.3	42°55.1	64°00.7	66°05.2	79°35.6	
9	30°21.6	7.7'	24°23.0	3.1'	57.0'	77°10.0	78°31.3	64°54.3	42°31.0	64°33.5	66°38.0	80°08.7	
10	44°48.3	7.7'	$24^{\circ}19.9$	3.3'	57.0'	76°39.9	78°13.7	64°25.4	42°07.1	65°06.2	67°10.7	80°41.8	
11	59°15.0	7.8'	$24^{\circ}16.6$	3.4'	56.9'	76°09.8	77°56.1	63°56.5	41°43.4	65°38.8	67°43.4	81°14.9	
12	73°41.8	7.9'	S 24°13.2	3.6'	56.9'	75°39.7	77°38.6	63°27.7	41°19.9	66°11.5	68°16.0	81°47.9	
13	88°08.6	7.9'	$24^{\circ}09.6$	3.7'	56.9'	75°09.6	77°21.2	62°59.0	40°56.5	66°44.1	68°48.6	82°20.9	
14	102°35.6	8.0'	24°05.9	3.8'	56.9'	74°39.6	77°03.9	62°30.3	40°33.4	67° 16.7	69°21.2	82°53.8	
15	117°02.6	8.1'	$24^{\circ}02.1$	3.9'	56.8'	74°09.6	76°46.6	62°01.7	40°10.5	67°49.3	69°53.8	83°26.8	
16	131°29.7	8.1'	23°58.2	4.1'	56.8'	73°39.7	76°29.4	61°33.2	39°47.8	68°21.8	70°26.3	83°59.6	
17	145°56.8	8.2'	$23^{\circ}54.1$	4.2'	56.8'	73°09.7	76°12.2	61°04.7	39°25.3	68°54.3	70°58.8	84°32.5	
18	160°24.0	8.3'	S 23°49.9	4.3'	56.7'	72°39.9	75°55.2	60°36.3	39°03.0	69°26.7	71°31.2	85°05.3	
19	174°51.3	8.4'	23°45.6	4.5'	56.7'	72°10.0	75°38.2	60°08.0	38°40.9	69°59.2	72°03.7	85°38.2	
20	189°18.7	8.4'	23°41.1	4.6'	56.7'	71°40.2	75°21.2	59°39.8	38°19.1	70°31.6	72°36.0	86°10.9	
21	203°46.1	8.5'	$23^{\circ}36.5$	4.7'	56.6'	71°10.4	75°04.4	59°11.6	37°57.5	71°04.0	73°08.4	86°43.7	
22	218°13.7	8.6'	23°31.8	4.8'	56.6'	70°40.7	74°47.6	58° 43.5	37°36.1	71°36.3	73°40.7	87°16.4	
23	232°41.3	8.7'	23°26.9	5.0'	56.6'	70°10.9	74°30.9	58° 15.4	37°15.0	72°08.6	74°13.0	87°49.1	
8 th	SD =	= 15.6′	Mer. pass	s. 06:54	4		-		Sun SD	= 16.1'	-		

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

			. (5							iai 800t			
Fri	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Fomalhaut	-Altair	+Antares	+Jupiter	+Spica	+Mars
0	247°08.9	8.8'	S 23°22.0	5.1'	56.6'	74°14.3	69°41.2	57°47.4	36°54.2	29°07.7	72°40.9	74°45.3	88°21.7
1	261°36.7	8.8'	23°16.9	5.2'	56.5'	73°57.8	69°11.6	57°19.6	36°33.6	29°39.9	73° 13.2	75°17.5	88°54.4
2	276°04.5	8.9'	23°11.7	5.3'	56.5'	73°41.3	68°42.0	56°51.7	$36^{\circ}13.2$	30°12.1	73°45.4	75°49.7	89°27.0
3	290°32.4	9.0'	23°06.3	5.5'	56.5'	73°24.9	68°12.4	56°24.0	35°53.2	30°44.2	74° 17.6	76°21.9	89°59.5
4	305°00.4	9.1'	23°00.9	5.6'	56.4'	73°08.6	67°42.8	55°56.3	35°33.4	31°16.3	74°49.7	76°54.1	90°32.1
5	319°28.5	9.1'	22°55.3	5.7'	56.4'	72°52.4	67°13.3	55°28.7	35° 13.9	31°48.4	75°21.9	77°26.2	91°04.6
6	333°56.6	9.2'	S 22°49.6	5.8'	56.4'	72°36.3	66°43.8	55°01.2	34°54.7	32°20.5	75°54.0	77°58.3	91°37.1
7	348°24.8	9.3'	22°43.8	5.9'	56.4'	72°20.2	66°14.3	54°33.8	34°35.7	32°52.5	76°26.1	78°30.3	92°09.5
8	2°53.1	9.4'	22°37.9	6.0'	56.3'	72°04.3	65°44.9	54°06.5	34°17.1	33°24.5	76°58.1	79°02.3	92°41.9
9	17°21.5	9.5'	22°31.8	6.2'	56.3'	71°48.4	65°15.4	53°39.2	33°58.8	33°56.5	77°30.2	79°34.3	93°14.3
10	31°50.0	9.5'	22°25.7	6.3'	56.3'	71°32.6	64°46.1	53°12.1	33°40.8	34°28.5	78°02.2	80°06.3	93°46.7
11	46°18.6	9.6'	22°19.4	6.4'	56.3'	71°16.9	64°16.7	52°45.0	33°23.2	35°00.4	78°34.1	80°38.2	94°19.0
12	60°47.2	9.7'	S 22°13.1	6.5'	56.2'	71°01.3	63°47.4	52°18.0	$33^{\circ}05.8$	35°32.3	79°06.1	81°10.1	94°51.4
13	75° 15.9	9.8'	22°06.6	6.6'	56.2'	70°45.8	63°18.1	51°51.1	32°48.8	36°04.2	79°38.0	81°42.0	95°23.7
14	89°44.7	9.9'	22°00.0	6.7'	56.2'	70°30.4	62°48.8	51°24.3	32°32.2	36°36.0	80°09.9	82°13.9	95°55.9
15	104°13.6	10.0'	21°53.3	6.8'	56.1'	70°15.1	62°19.6	50°57.6	$32^{\circ}15.9$	37°07.8	80°41.8	82°45.7	96°28.1
16	118°42.5	10.0'	21°46.5	6.9'	56.1'	69°59.9	61°50.4	50°30.9	32°00.0	37°39.6	81° 13.6	83°17.5	97°00.3
17	133°11.6	10.1'	21°39.6	7.0'	56.1'	69°44.7	61°21.2	50°04.4	31°44.4	38°11.4	81°45.4	83°49.3	97°32.5
18	147°40.7	10.2'	S 21°32.5	7.1'	56.1'	69°29.7	60°52.1	49°38.0	$31^{\circ}29.2$	38°43.1	82° 17.2	84°21.0	98°04.7
19	162°09.9	10.3'	21°25.4	7.2'	56.0'		60°22.9	49°11.7		39°14.8	82°49.0	84°52.7	98°36.8
20	176°39.2	10.4'	$21^{\circ}18.2$	7.3'	56.0'		59°53.9	48°45.4		39°46.5	83°20.7	85°24.4	99°08.9
21	191°08.5	10.5'	$21^{\circ}10.9$	7.4'	56.0'		59°24.8	48°19.3		40°18.2	83°52.4	85°56.1	99°41.0
22	205°38.0	10.5'	21°03.4	7.5'	56.0'		58°55.8	47°53.3		40°49.8	84°24.1	86°27.7	100°13.0
23	220°07.5	10.6'	20°55.9	7.6'	55.9'		58°26.7	47°27.4		41°21.4	84°55.7	86°59.4	100°45.0
9 th	SD :	= 15.4'	Mer. pass	. 07:48					Sun SD	$=16.1^{\prime}$			

I_	Moon (10 th Mar)	Lunar Distance (objects with largest hourly LD delta)
n	MOOD LIUS MARI	I linar i listance i oniects with largest nollriv i i li delta i

Sat	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Jupiter	+Arcturus	+Spica	+Mars
0	234°37.1	10.7'	S 20°48.3	7.7'	55.9'	57°57.8	47°01.6	41°53.0	63°39.3	85°27.4	87°02.6	87°30.9	101°17.0
1	249°06.8	10.8'	20°40.5	7.8'	55.9'	57°28.8	46°35.9	42°24.6	64°01.8	85°59.0	87°28.3	88°02.5	101°49.0
2	263°36.6	10.9'	20°32.7	7.9'	55.9'	56°59.9	46°10.3	42°56.1	64°24.3	86°30.6	87°53.9	88°34.0	102°20.9
3	278°06.5	10.9'	20°24.8	8.0'	55.8'	56°31.0	45°44.9	43°27.6	64°46.9	87°02.1	88°19.6	89°05.5	102°52.9
4	292°36.4	11.0'	$20^{\circ}16.8$	8.1'	55.8'	56°02.1	45°19.5	43°59.1	65°09.5	87°33.6	88°45.2	89°37.0	103°24.8
5	307°06.5	11.1'	20°08.7	8.2'	55.8'	55°33.3	44°54.3	44°30.6	65°32.2	88°05.1	89°10.8	90°08.5	103°56.6
6	321°36.6	11.2'	S 20°00.5	8.3'	55.8'	55°04.4	44°29.2	45°02.0	65°54.9	88°36.6	89°36.4	90°39.9	104°28.5
7	336°06.8	11.3'	19°52.2	8.4'	55.7'	54°35.7	44°04.2	45°33.4	66°17.6	89°08.1	90°01.9	91°11.3	105°00.3
8	350°37.0	11.4'	19°43.8	8.5'	55.7'	54°06.9	43°39.4	46°04.8	66°40.4	89°39.5	90°27.5	91°42.7	105°32.1
9	5°07.4	11.4'	19°35.4	8.6'	55.7'	53°38.1	43°14.7	46°36.2	67°03.3	90°10.9	90°53.0	92°14.1	106°03.8
10	19°37.8	11.5'	$19^{\circ}26.8$	8.6'	55.7'	53°09.4	42°50.1	47°07.5	67°26.2	90°42.3	91°18.5	92°45.4	106°35.6
11	34°08.3	11.6'	$19^{\circ}18.2$	8.7'	55.6'	52°40.7	42°25.7	47°38.9	67°49.1	91°13.7	91°44.0	93°16.7	107°07.3
12	48°38.9	11.7'	S 19°09.4	8.8'	55.6'	52°12.1	42°01.4	48°10.2	68°12.0	91°45.0	92°09.4	93°48.0	107°39.0
13	63°09.6	11.8'	$19^{\circ}00.6$	8.9'	55.6'	51°43.4	41°37.3	48°41.4	68°35.0	92°16.4	92°34.9	94°19.3	108°10.7
14	77°40.4	11.8'	$18^{\circ}51.7$	9.0'	55.6'	51°14.8	41°13.3	49° 12.7	68°58.1	92°47.6	93°00.3	94°50.5	108°42.3
15	92°11.2	11.9'	18°42.8	9.1'	55.6'	50°46.2	40°49.5	49°43.9	69°21.1	93°18.9	93°25.6	95°21.8	109°13.9
16	106°42.1	12.0'	18°33.7	9.1'	55.5'	50°17.7	40°25.8	50° 15.1	69°44.2	93°50.2	93°51.0	95°53.0	109°45.5
17	121°13.1	12.1'	18°24.6	9.2'	55.5'	49°49.1	40°02.2	50°46.3	70°07.3	94°21.4	94°16.4	96°24.1	110°17.1
18	135°44.2	12.1'	S 18° 15.3	9.3'	55.5'	49°20.6	39°38.9	51°17.5	70°30.5	94°52.6	94°41.7	96°55.3	110°48.7
19	150°15.3	12.2'	$18^{\circ}06.0$	9.4'	55.5'	48°52.1	39°15.7	51°48.6	70°53.7	95°23.8	95°07.0	97°26.4	111°20.2
20	164°46.5	12.3'	$17^{\circ}56.7$	9.4'	55.4'	48°23.6	38°52.7	52° 19.7	71°16.9	95°55.0	95°32.2	97°57.5	111°51.7
21	179°17.8	12.4'	17° 47.2	9.5'	55.4'	47°55.2	38°29.8	52°50.8	71°40.1	96°26.1	95°57.4	98°28.6	112°23.2
22	193°49.2	12.5'	17° 37.7	9.6'	55.4'	47°26.8	38°07.1	53°21.9	72°03.4	96°57.2	96°22.7	98°59.7	112°54.6
23	208°20.7	12.5'	$17^{\circ}28.1$	9.7'	55.4'	46°58.4	37°44.7	53°53.0	72°26.7	97°28.3	96°47.8	99°30.7	113°26.1
10 th	SD :	= 15.2'	Mer. pass	. 08:39					Sun SD =	16.1'			

Moon (11th Mar)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Jupiter	+Spica	+Mars
0	222°52.2	12.6'	$$17^{\circ}18.4$	9.7'	55.4'	46°30.0	37°22.4	54°24.0	72°50.0	97°13.0	97°59.4	100°01.8	113°57.5
1	237°23.8	12.7'	$17^{\circ}08.7$	9.8'	55.3'	46°01.7	37°00.3	54°55.0	73°13.3	97°38.1	98°30.4	100°32.8	114°28.9
2	251°55.5	12.8'	$16^{\circ}58.9$	9.9'	55.3'	45°33.3	36°38.4	55°26.0	73°36.6	98°03.2	99°01.5	101°03.7	115°00.2
3	266°27.2	12.8'	$16^{\circ}49.0$	10.0'	55.3'	45°05.0	36°16.7	55°57.0	74°00.0	98°28.3	99°32.5	101°34.7	115°31.6
4	280°59.1	12.9'	$16^{\circ}39.0$	10.0'	55.3'	44°36.8	35°55.2	56°28.0	74°23.4	98°53.3	100°03.5	102°05.6	116°02.9
5	295°31.0	13.0'	$16^{\circ}29.0$	10.1'	55.3'	44°08.5	35°33.9	56°58.9	74°46.8	99°18.3	100°34.5	102°36.6	116°34.2
6	310°02.9	13.0'	$$16^{\circ}18.9$	10.2'	55.2'	43°40.3	35°12.9	57°29.8	75°10.2	99°43.3	101°05.4	103°07.5	117°05.5
7	324°35.0	13.1'	$16^{\circ}08.8$	10.2'	55.2'	43°12.1	34°52.1	58°00.7	75°33.6	100°08.2	101°36.4	103°38.3	117°36.7
8	339°07.1	13.2'	$15^{\circ}58.5$	10.3'	55.2'	42°43.9	34°31.5	58°31.6	75°57.1	100°33.1	102°07.3	104°09.2	118°07.9
9	353°39.3	13.3'	$15^{\circ}48.3$	10.3'	55.2'	42° 15.7	34°11.1	59°02.5	76°20.6	100°58.0	102°38.2	104°40.1	118°39.2
10	8°11.5	13.3'	15° 37.9	10.4'	55.2'	41°47.6	33°51.0	59°33.3	76°44.0	101°22.8	103°09.0	105°10.9	119°10.3
11	22°43.9	13.4'	$15^{\circ}27.5$	10.5'	55.1'	41°19.5	33°31.2	60°04.1	77°07.5	101°47.6	103°39.9	105°41.7	119°41.5
12	37°16.3	13.5'	S 15°17.0	10.5'	55.1'	40°51.4	33°11.6	60°34.9	77°31.0	102°12.4	104°10.7	106° 12.5	
13	51°48.7	13.5'	$15^{\circ}06.5$	10.6'	55.1'	40°23.3	32°52.2	61°05.7	77°54.6	102°37.1	104°41.5	106°43.2	
14	66°21.2	13.6'	$14^{\circ}55.9$	10.6'	55.1'		32°33.2	61°36.5	78°18.1	103°01.8	105°12.3	107°14.0	
15	80°53.8	13.7'	14° 45.3	10.7'	55.1'		32°14.4	62°07.2	78°41.6	103°26.4	105°43.1	107° 44.7	
16	95°26.5	13.7'	14° 34.6	10.8'	55.0'		31°55.9	62°38.0	79°05.2	103°51.1	106°13.9	108° 15.4	
17	109°59.2	13.8'	14°23.8	10.8'	55.0'		31°37.7	63°08.7	79°28.7	104°15.6	106°44.6	108°46.1	
18	124°32.0	13.9'	S 14°13.0	10.9'	55.0'		31°19.8	63°39.4	79°52.3	104°40.2	107°15.3	109°16.8	
19	139°04.9	13.9'	$14^{\circ}02.1$	10.9'	55.0'		31°02.3	64°10.0	80°15.9	105°04.7	107°46.0	109°47.4	
20	153°37.8	14.0'	$13^{\circ}51.2$	11.0'	55.0'		30°45.0	64°40.7	80°39.4	105°29.1	108°16.7	110°18.1	
21	168°10.8	14.0'	13°40.2	11.0'	55.0'		30°28.1	65°11.3	81°03.0	105°53.6	108°47.4	110°48.7	
22	182°43.8	14.1'	13°29.2	11.1'	54.9'		30°11.5	65°42.0	81°26.6	106°17.9	109°18.0	111°19.3	
23	197°16.9	14.2'	13° 18.1	11.1'	54.9'		29°55.2	66°12.6	81°50.2	106°42.3	109°48.7	111°49.9	
11 th	SD	= 15.1'	Mer. pass	s. 09:26					$Sun\;SD =$	16.1'			

Moon (12th Mar) h

Lunar Distance (objects with largest hourly LD delta)

		1410011	(12 1010	<u> </u>				istance (obj		6000 .	==		
Mon	GHA	ν	Dec	d	HP	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Jupiter	+Spica
0	211°50.1	14.2'	S 13°07.0	11.2'	54.9'	29°39.3	66°43.2	82°13.8	86°31.7	94°52.2	107°06.6	110°19.3	112°20.5
1	226°23.3	14.3'	12°55.8	11.2'	54.9'	29°23.7	67°13.7	82°37.3	86°55.0	95°12.4	107°30.8	110°49.9	112°51.0
2	240°56.6	14.3'	12°44.6	11.3'	54.9'	29°08.6	67°44.3	83°00.9	87° 18.3	95°32.6	107°55.0	111°20.5	113°21.5
3	255°30.0	14.4'	12°33.3	11.3'	54.8'		68°14.8	83°24.5	87°41.6	95°52.7	108°19.2	111°51.0	113°52.1
4	270°03.4	14.5'	12°22.0	11.4'	54.8'		68°45.4	83°48.1	88°04.9	96°12.8	108°43.3	112°21.6	114°22.6
5	284°36.9	14.5'	$12^{\circ}10.6$	11.4'	54.8'		69°15.9	84°11.7	88°28.1	96°32.9	109°07.3	112°52.1	114°53.0
6	299°10.4	14.6'	S 11°59.2	11.4'	54.8'		69°46.4	84°35.3	88°51.4	96°52.9	109°31.3	113°22.6	115°23.5
7	313°43.9	14.6'	11°47.8	11.5'	54.8'		70°16.9	84°58.9	89°14.6	97°13.0	109°55.3	113°53.1	115°54.0
8	328°17.6	14.7'	11°36.3	11.5'	54.8'		70°47.3	85°22.5	89°37.8	97°32.9	110°19.2	114°23.6	116°24.4
9	342°51.3	14.7'	11°24.8	11.6'	54.8'		71°17.8	85°46.1	90°01.1	97°52.9	110°43.1	114°54.0	116°54.8
10	357°25.0	14.8'	11°13.2	11.6'	54.7'		71°48.2	86°09.6	90°24.3	98°12.8	111°06.9	115°24.5	117°25.2
11	$11^{\circ}58.8$	14.8'	$11^{\circ}01.6$	11.7'	54.7'		72°18.6	86°33.2	90°47.5	98°32.7	111°30.7	115°54.9	117°55.6
12	$26^{\circ}32.6$	14.9'	S 10°49.9	11.7'	54.7'		72°49.0	86°56.8	91°10.7	98°52.6	111°54.4	116°25.3	118°26.0
13	41°06.5	14.9'	10°38.2	11.7'	54.7'		73°19.4	87°20.3	91°33.8	99°12.4	112°18.0	116°55.7	118°56.4
14	55°40.5	15.0'	10°26.5	11.8'	54.7'		73°49.8	87°43.9	91°57.0	99°32.2	112°41.6	$117^{\circ}26.1$	119°26.7
15	70°14.4	15.0'	10°14.8	11.8'	54.7'		74°20.2	88°07.4	92°20.1	99°52.0	113°05.2	117°56.4	119°57.0
16	84°48.5	15.1'	10°03.0	11.8'	54.6'		74°50.5	88°31.0	92°43.3	100°11.7	113°28.6	118°26.8	
17	99°22.6	15.1'	$09^{\circ}51.1$	11.9'	54.6'		75°20.8	88°54.5	93°06.4	100°31.4	113°52.1	118°57.1	
18	113°56.7	15.2'	S 09°39.3	11.9'	54.6'		75°51.1	89°18.0	93°29.5	100°51.0	114°15.4	119°27.4	
19	128°30.9	15.2'	09°27.4	11.9'	54.6'		76°21.4	89°41.5	93°52.5	101°10.6	114°38.8	119°57.7	
20	143°05.1	15.3'	09°15.4	12.0'	54.6'		76°51.7	90°05.0	94°15.6	101°30.2	115°02.0		
21	157°39.4	15.3'	09°03.5	12.0'	54.6'		77°22.0	90°28.5	94°38.6	101°49.7	115°25.2		
22	172°13.7	15.4'	08°51.5	12.0'	54.6'		77°52.3	90°52.0	95°01.6	102°09.2	115°48.3		
23	186°48.1	15.4'	08°39.5	12.0'	54.5'		78°22.5	91°15.5	95°24.6	102°28.6	116°11.4		
12 th	SD	$= 15.0^{\prime}$	Mer. pass	s. 10:11									

h	Moon	/12th	1122

Tue	GHA	ν	Dec	d	HP	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus
0	201°22.5	15.4'	S 08°27.4	12.1'	54.5'	35°52.2	78°52.8	91°38.9	95°47.6	102°48.0	116°34.4
1	215°56.9	15.5'	$08^{\circ}15.3$	12.1'	54.5'	36°11.0	79°23.0	92°02.4	96° 10.5	103°07.4	116°57.3
2	230°31.4	15.5'	08°03.2	12.1'	54.5'	36°30.1	79°53.2	92°25.8	96°33.5	103°26.7	117°20.2
3	245°05.9	15.6'	$07^{\circ}51.1$	12.2'	54.5'	36°49.3	80°23.4	92°49.2	96°56.4	103°45.9	117°43.0
4	259°40.5	15.6'	07°39.0	12.2'	54.5'	37°08.7	80°53.6	93°12.6	97° 19.3	104°05.1	118°05.7
5	274°15.1	15.6'	$07^{\circ}26.8$	12.2'	54.5'	37°28.4	81°23.7	93°36.0	97°42.1	104°24.3	118°28.3
6	288°49.7	15.7'	S 07°14.6	12.2'	54.4'	37°48.2	81°53.9	93°59.3	98°05.0	104°43.4	118°50.9
7	303°24.4	15.7'	$07^{\circ}02.3$	12.2'	54.4'	38°08.2	82°24.1	94°22.7	98° 27.8	105°02.5	119°13.4
8	317°59.1	15.7'	$06^{\circ}50.1$	12.3'	54.4'	38° 28.4	82°54.2	94°46.0	98°50.6	105°21.5	119°35.9
9	332°33.8	15.8'	06°37.8	12.3'	54.4'	38°48.8	83°24.3	95°09.3	99°13.3	105°40.4	119°58.2
10	347°08.6	15.8'	06°25.5	12.3'	54.4'	39°09.3	83°54.4	95°32.6	99°36.0	105°59.4	
11	1°43.4	15.8'	$06^{\circ}13.2$	12.3'	54.4'	39°30.0	84°24.5	95°55.9	99°58.7	106°18.2	
12	16°18.2	15.9'	S 06°00.9	12.3'	54.4'	39°50.9	84°54.6	96°19.1	100°21.4	106°37.0	
13	30°53.1	15.9'	05°48.6	12.4'	54.4'	40°11.9	85°24.7	96°42.4	100°44.0	106°55.8	
14	45°28.0	15.9'	05°36.2	12.4'	54.4'	40°33.0	85°54.7	97°05.6	101°06.7	107°14.5	
15	60°02.9	16.0'	05°23.8	12.4'	54.3'	40°54.4	86°24.8	97°28.8	101°29.2	107°33.1	
16	74°37.9	16.0'	05°11.4	12.4'	54.3'	41°15.8	86°54.8	97°51.9	101°51.8	107°51.7	
17	89°12.9	16.0'	04°59.0	12.4'	54.3'	41°37.4	87°24.9	98°15.0	102°14.3	108°10.2	
18	103°47.9	16.0'	S 04°46.6	12.4'	54.3'	41°59.1	87°54.9	98°38.2	102°36.8	108°28.6	
19	118°23.0	16.1'	04°34.2	12.4'	54.3'	42°21.0	88°24.9	99°01.3	102°59.2	108°47.0	
20	132°58.0	16.1'	$04^{\circ}21.7$	12.5'	54.3'	42°43.0	88°54.9	99°24.3	103°21.6	109°05.3	
21	147°33.1	16.1'	$04^{\circ}09.3$	12.5'	54.3'	43°05.1	89°24.9	99°47.4	103°44.0	109°23.6	
22	162°08.2	16.1'	03°56.8	12.5'	54.3'	43°27.3	89°54.9	100°10.4	104°06.3	109°41.8	
23	176°43.4	16.2'	03°44.3	12.5'	54.3'	43°49.6	90°24.8	100°33.3	104°28.6	109°59.9	
13 th	SD	$= 14.9^{\prime}$	Mer. pass	. 10:53							

h		Moor	n (14 th Ma	ar)		Lunar [Distance (objects with	largest h	ourly LD delta)
Wed	GHA	ν	Dec	d	HP	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	191°18.5	16.2'	S 03°31.8	12.5'	54.2'	44°12.1	90°54.8	100° 56.3	104°50.9	110°18.0
1	205°53.7	16.2'	03°19.3	12.5'	54.2'	44°34.6	91°24.7	101°19.2	105°13.1	110°36.0
2	220°28.9	16.2'	03°06.8	12.5'	54.2'	44°57.3	91°54.7	101°42.1	105°35.3	110°53.9
3	235°04.2	16.2'	02°54.3	12.5'	54.2'	45°20.1	92°24.6	102°05.0	105°57.4	111°11.8
4	249°39.4	16.3'	02°41.8	12.5'	54.2'	45°43.0	92°54.5	102°27.8	106°19.5	111°29.6
5	264°14.7	16.3'	02°29.3	12.5'	54.2'	46°05.9	93°24.4	102°50.6	106°41.6	111° 47.3
6	278°49.9	16.3'	S 02°16.7	12.5'	54.2'	46°29.0	93°54.3	103°13.4	107°03.6	112°04.9
7	293°25.2	16.3'	02°04.2	12.5'	54.2'	46°52.2	94°24.2	103°36.1	107°25.6	112°22.5
8	308°00.5	16.3'	$01^{\circ}51.6$	12.5'	54.2'	47°15.4	94°54.1	103°58.8	107°47.5	112°40.0
9	322°35.9	16.3'	$01^{\circ}39.1$	12.5'	54.2'			New Mo	on ———	<u> </u>
10	337°11.2	16.4'	$01^{\circ}26.6$	12.5'	54.1'			New Mo	on ———	
11	351°46.5	16.4'	$01^{\circ}14.0$	12.5'	54.1'			New Mo	on ———	
12	6°21.9	16.4'	S 01°01.5	12.5'	54.1'			New Mo	on ———	
13	20°57.3	16.4'	00°48.9	12.5'	54.1'			New Mo	on ———	
14	35°32.7	16.4'	00°36.4	12.5'	54.1'			New Mo	on ———	
15	50°08.1	16.4'	00°23.8	12.5'	54.1'			New Mo	on ———	
16	64°43.5	16.4'	S 00°11.3	12.5'	54.1'	İ		New Mo	on ———	
17	79°18.9	16.4'	N00°01.2	12.5'	54.1'			New Mo	on	
18	93°54.3	16.4'	N00°13.8	12.5'	54.1'			New Mo	on ———	
19	108°29.7	16.4'	00°26.3	12.5'	54.1'	İ		New Mo	on ———	
20	123°05.2	16.4'	00°38.8	12.5'	54.1'			New Mo	on ———	
21	137°40.6	16.4'	00°51.3	12.5'	54.1'			New Mo	on	
22	152°16.0	16.4'	01°03.8	12.5'	54.0'				on	
23	166°51.5	16.4'	01°16.3	12.5'	54.0'			New Mo	on ———	

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h	Moon	(Thui	1\/lar1

 $\mathsf{SD} = \mathsf{14.8'} \quad \mathsf{Mer. pass. 11:34}$

14th

Thu	GHA	ν	Dec	d	HP	
0	181°26.9	16.4'	N 01°28.8	12.5'	54.0'	New Moon
1	196°02.4	16.4'	$01^{\circ}41.3$	12.5'	54.0'	New Moon
2	210°37.8	16.4'	$01^{\circ}53.8$	12.5'	54.0'	New Moon
3	225°13.3	16.4'	02°06.2	12.5'	54.0'	New Moon
4	239°48.7	16.4'	$02^{\circ}18.7$	12.4'	54.0'	New Moon
5	254°24.2	16.4'	02°31.1	12.4'	54.0'	New Moon
6	268°59.6	16.4'	N02°43.6	12.4'	54.0'	New Moon
7	283°35.0	16.4'	02°56.0	12.4'	54.0'	New Moon
8	298°10.5	16.4'	03°08.4	12.4'	54.0'	New Moon
9	312°45.9	16.4'	03°20.8	12.4'	54.0'	New Moon
10	327°21.3	16.4'	03°33.1	12.4'	54.0'	New Moon
11	341°56.7	16.4'	03°45.5	12.3'	54.0'	New Moon
12	356°32.2	16.4'	N 03°57.8	12.3'	54.0'	New Moon
13	11°07.6	16.4'	$04^{\circ}10.2$	12.3'	54.0'	New Moon
14	25°43.0	16.4'	04°22.5	12.3'	54.0'	New Moon
15	40°18.3	16.4'	04°34.7	12.3'	53.9'	New Moon
16	54°53.7	16.4'	04°47.0	12.2'	53.9'	New Moon
17	69°29.1	16.4'	04°59.2	12.2'	53.9'	New Moon
18	84°04.4	16.3'	N 05°11.5	12.2'	53.9'	New Moon
19	98°39.8	16.3'	05°23.7	12.2'	53.9'	New Moon
20	113°15.1	16.3'	05°35.8	12.2'	53.9'	New Moon
21	127°50.4	16.3'	05°48.0	12.1'	53.9'	New Moon
22	142°25.7	16.3'	$06^{\circ}00.1$	12.1'	53.9'	New Moon
23	157°01.0	16.3'	06°12.2	12.1'	53.9'	New Moon
15 th	SD	$=14.7^{\prime}$	Mer. pass	. 12:14		

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h	Moon (16 th Mar)	Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Sirius	-Betelgeuse	-Rigel	-Capella	-Aldebaran	-Saturn
0	171°36.2	16.2'	N 06°24.3	12.1'	53.9'	112°04.6	108° 10.6	100°45.6	86°08.6	77°52.3	76°41.4	66°18.1	34°34.6
1	186°11.5	16.2'	06°36.4	12.0'	53.9'	111°36.1	107°41.2	100°22.9	85°40.3	77°27.8	76°13.9	65°48.8	34°05.9
2	200°46.7	16.2'	06°48.4	12.0'	53.9'	111°07.6	107°11.9	100°00.1	85°12.0	77°03.2	75°46.5	65°19.6	33°37.2
3	215°21.9	16.2'	07°00.4	12.0'	53.9'	110°39.2	106°42.6	99°37.4	84°43.7	76°38.7	75° 19.0	64°50.3	33°08.5
4	229°57.1	16.2'	$07^{\circ}12.3$	11.9'	53.9'	110°10.7	106° 13.3	99°14.6	84° 15.4	76° 14.1	74°51.6	64°21.1	32°39.8
5	244°32.3	16.1'	07°24.3	11.9'	53.9'	109°42.2	105°44.0	98°51.9	83°47.1	75°49.7	74°24.1	63°51.8	32°11.2
6	259°07.4	16.1'	N07°36.2	11.9'	53.9'	109°13.6	105° 14.7	98°29.1	83° 18.8	75°25.2	73°56.7	63°22.6	31°42.6
7	273°42.5	16.1'	07°48.1	11.8'	53.9'	108°45.1	104°45.5	98°06.3	82°50.6	75°00.7	73°29.3	62°53.4	31°14.0
8	288°17.6	16.1'	07°59.9	11.8'	53.9'	108°16.6	104° 16.2	97°43.5	82°22.3	74°36.3	73°01.9	62°24.2	30°45.4
9	302°52.7	16.1'	$08^{\circ}11.7$	11.8'	53.9'	107°48.1	103°46.9	97°20.7	81°54.0	74°11.9	72°34.5	61°55.0	30°16.8
10	317°27.8	16.0'	08°23.5	11.8'	53.9'	107°19.6	103° 17.6	96°57.8	81°25.8	73°47.6	72°07.2	61°25.8	29°48.3
11	332°02.8	16.0'	08°35.3	11.7'	53.9'	106°51.1	102°48.3	96°35.0	80°57.5	73°23.2	71°39.8	60°56.6	29°19.8
12	346°37.8	16.0'	N 08°47.0	11.7'	53.9'	106°22.6	102° 19.0	96°12.2	80°29.3	72°58.9	71°12.5	60°27.4	28°51.3
13	1°12.8	16.0'	08°58.7	11.6'	53.9'	105°54.0	101°49.8	95°49.3	80°01.0	72°34.6	70°45.2	59°58.2	28°22.9
14	15°47.7	15.9'	09°10.3	11.6'	53.9'	105°25.5	101°20.5	95°26.4	79°32.8	72°10.4	70°17.9	59°29.0	27°54.5
15	30°22.6	15.9'	09°21.9	11.6'	53.9'	104°57.0	100°51.2	95°03.6	79°04.6	71°46.1	69°50.6	58°59.9	27°26.1
16	44°57.5	15.9'	09°33.5	11.5'	53.9'	104°28.5	100°21.9	94°40.7	78°36.4	71°21.9	69°23.4	58°30.7	26°57.7
17	59°32.4	15.8'	09°45.1	11.5'	53.9'	103°59.9	99°52.7	94°17.8	78°08.1	70°57.8	68°56.1	58°01.5	26°29.4
18	74°07.2	15.8'	N 09°56.6	11.5'	53.9'	103°31.4	99°23.4	93°54.9	77°39.9	70°33.6	68° 28.9	57°32.4	26°01.1
19	88°42.0	15.8'	$10^{\circ}08.0$	11.4'	53.9'	103°02.9	98°54.1	93°32.0	77° 11.7	70°09.5	68°01.7	57°03.2	25°32.9
20	103°16.8	15.7'	$10^{\circ}19.4$	11.4'	53.9'	102°34.3	98°24.8	93°09.1	76°43.5	69°45.4	67°34.5	56°34.1	25°04.7
21	117°51.6	15.7'	10°30.8	11.3'	53.9'	102°05.8	97°55.6	92°46.2	76° 15.4	69°21.4	67°07.3	56°05.0	24°36.5
22	132°26.3	15.7'	10°42.1	11.3'	53.9'	101°37.2	97°26.3	92°23.3	75°47.2	68°57.4	66°40.1	55°35.9	24°08.4
23	147°00.9	15.6'	10°53.4	11.3'	53.9'	101°08.7	96°57.1	92°00.4	75°19.0	68°33.4	66°13.0	55°06.7	23°40.3
16 th	SD	= 14.7'	Mer. pass	12:55									

h

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

Sat	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Sirius	-Betelgeuse	-Rigel	-Capella	-Aldebaran	-Saturn
0	161°35.6	15.6'	$N11^{\circ}04.7$	11.2'	53.9'	100°40.1	96°27.8	91°37.4	74°50.8	68°09.4	65°45.9	54°37.6	23°12.3
1	176°10.2	15.6'	11°15.9	11.2'	53.9'	100°11.6	95°58.5	91°14.5	74°22.7	67°45.5	65°18.7	54°08.5	22°44.3
2	190°44.8	15.5'	$11^{\circ}27.1$	11.1'	53.9'	99°43.0	95°29.3	90°51.6	73°54.5	67°21.7	64°51.7	53°39.4	22°16.4
3	205°19.3	15.5'	11°38.2	11.1'	53.9'	99°14.5	95°00.0	90°28.7	73°26.4	66°57.8	64°24.6	53°10.3	21°48.5
4	219°53.8	15.5'	11°49.3	11.0'	53.9'	98°45.9	94°30.7	90°05.7	72°58.3	66°34.0	63°57.6	52°41.2	21°20.7
5	234°28.3	15.4'	12°00.3	11.0'	53.9'	98°17.4	94°01.5	89°42.8	72°30.1	66°10.3	63°30.5	52°12.2	20°53.0
6	249°02.7	15.4'	$N12^{\circ}11.3$	10.9'	53.9'	97°48.8	93°32.2	89°19.9	72°02.0	65°46.6	63°03.5	51°43.1	20°25.3
7	263°37.1	15.3'	12°22.2	10.9'	53.9'	97°20.2	93°03.0	88°57.0	71°33.9	65°22.9	62°36.6	51°14.0	19°57.7
8	278°11.4	15.3'	12°33.1	10.8'	53.9'	96°51.7	92°33.7	88°34.1	71°05.8	64°59.3	62°09.6	50°45.0	19°30.2
9	292°45.7	15.3'	12°43.9	10.8'	53.9'	96°23.1	92°04.4	88°11.1	70°37.7	64°35.7	61°42.7	50°15.9	19°02.7
10	307°20.0	15.2'	12°54.7	10.7'	53.9'	95°54.6	91°35.2	87°48.2	70°09.6	64°12.1	61°15.8	49°46.9	18°35.4
11	321°54.2	15.2'	13°05.5	10.7'	53.9'	95°26.0	91°05.9	87°25.3	69°41.6	63°48.6	60°48.9	49°17.8	18°08.1
12	336°28.4	15.1'	$N13^{\circ}16.1$	10.6'	53.9'	94°57.4	90°36.7	87°02.4	69°13.5	63°25.2	60°22.0	48°48.8	17°40.9
13	351°02.5	15.1'	13°26.8	10.6'	53.9'	94°28.8	90°07.4	86°39.5	68°45.4	63°01.8	59°55.2	48°19.8	17°13.9
14	5°36.6	15.1'	13°37.4	10.5'	53.9'	94°00.3	89°38.1	86°16.6	68°17.4	62°38.4	59°28.3	47°50.7	16°47.0
15	20°10.7	15.0'	13°47.9	10.5'	53.9'	93°31.7	89°08.9	85°53.7	67°49.3	62°15.1	59°01.6	47°21.7	16°20.2
16	34°44.7	15.0'	13°58.4	10.4'	53.9'	93°03.1	88°39.6	85°30.8	67°21.3	61°51.8	58°34.8	46°52.7	15°53.5
17	49°18.7	14.9'	14°08.8	10.4'	53.9'	92°34.5	88°10.3	85°07.9	66°53.3	61°28.6	58°08.1	46°23.7	15°27.0
18	63°52.6	14.9'	$N14^{\circ}19.1$	10.3'	53.9'	92°05.9	87°41.1	84°45.1	66°25.3	61°05.4	57°41.4	45°54.7	15°00.6
19	78°26.5	14.8'	14°29.4	10.2'	53.9'	91°37.3	87°11.8	84°22.2	65°57.3	60°42.3	57°14.7	45°25.7	14°34.5
20	93°00.3	14.8'	14°39.7	10.2'	53.9'	91°08.8	86°42.5	83°59.3	65°29.3	60°19.3	56°48.0	44°56.8	14°08.5
21	107°34.1	14.7'	14°49.9	10.1'	53.9'	90°40.2	86°13.2	83°36.5	65°01.3	59°56.2	56°21.4	44°27.8	13°42.8
22	122°07.8	14.7'	$15^{\circ}00.0$	10.1'	53.9'	90°11.6	85°44.0	83°13.7	64°33.3	59°33.3	55°54.8	43°58.8	13°17.3
23	136°41.5	14.6'	$15^{\circ}10.1$	10.0'	53.9'	89°43.0	85°14.7	82°50.8	64°05.3	59°10.4	55°28.2	43°29.9	12°52.0
17 th	SD	= 14.7'	Mer. pass	. 13:37									

Moon (18 th Mar) Lunar Distance (objects with largest hourly LD of

Sun	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Sun
0	151°15.2	14.6'	N 15°20.1	9.9'	53.9'		89°14.4	84°45.4	63°37.4	55°01.7	43°00.9	12°27.0	
1	165°48.8	14.5'	15°30.0	9.9'	53.9'		88°45.8	84°16.1	63°09.4	54°35.2	42°32.0	12°02.4	
2	180°22.3	14.5'	15°39.9	9.8'	53.9'		88°17.2	83°46.8	62°41.5	54°08.8	42°03.1	11°38.1	
3	194°55.8	14.4'	15°49.7	9.8'	53.9'		87°48.5	83°17.6	62°13.6	53°42.3	41°34.1	11°14.2	
4	209°29.2	14.4'	15°59.5	9.7'	54.0'	119°45.0	87°19.9	82°48.3	61°45.6	53° 15.9	41°05.2	10°50.7	
5	224°02.6	14.3'	$16^{\circ}09.2$	9.6'	54.0'	119°15.6	86°51.3	82°19.0	61°17.7	52°49.6	40°36.3	10°27.7	
6	238°36.0	14.3'	$N16^{\circ}18.8$	9.6'	54.0'	118°46.1	86°22.7	81°49.7	60°49.9	52°23.2	40°07.4	10°05.2	
7	253°09.2	14.2'	16°28.4	9.5'	54.0'	118°16.6	85°54.1	81°20.4	60°22.0	51°57.0	39°38.6	9°43.4	
8	267°42.5	14.2'	16°37.9	9.4'	54.0'	117°47.1	85°25.5	80°51.1	59°54.1	51°30.7	39°09.7	9°22.2	
9	282°15.7	14.1'	16°47.3	9.4'	54.0'	117°17.7	84°56.8	80°21.8	59°26.3	51°04.5	38°40.8	9°01.7	
10	296°48.8	14.1'	16°56.7	9.3'	54.0'	116°48.2	84°28.2	79°52.5	58°58.4	50°38.3	38°12.0	8°42.1	
11	311°21.9	14.0'	$17^{\circ}06.0$	9.2'	54.0'	116°18.7	83°59.6	79°23.2	58°30.6	50°12.2	37°43.1	8°23.4	
12	325°54.9	14.0'	$N17^{\circ}15.2$	9.2'	54.0'	115°49.2	83°30.9	78°53.8	58°02.8	49°46.1	37°14.3		
13	340°27.9	13.9'	17°24.4	9.1'	54.0'	115°19.7	83°02.3	78°24.5	57°35.0	49°20.1	36°45.5		
14	355°00.8	13.9'	17°33.4	9.0'	54.0'	114°50.2	82°33.7	77°55.2	57°07.2	48°54.1	36°16.7		
15	9°33.6	13.8'	17°42.5	8.9'	54.0'	114°20.6	82°05.0	77°25.9	56°39.4	48°28.2	35°47.9		
16	24°06.4	13.7'	$17^{\circ}51.4$	8.9'	54.0'	113°51.1	81°36.4	76°56.5	56°11.7	48°02.3	35°19.1		
17	38°39.2	13.7'	18°00.3	8.8'	54.0'	113°21.6	81°07.7	76°27.2	55°43.9	47°36.4	34°50.4		
18	53°11.9	13.6'	N18°09.1	8.7'	54.0'	112°52.0	80°39.1	75°57.8	55°16.2	47°10.6	34°21.6		
19	67°44.5	13.6'	18°17.8	8.6'	54.1'	112°22.5	80°10.4	75°28.5	54°48.5	46°44.9	33°52.9		
20	82°17.1	13.5'	18°26.4	8.6'	54.1'	111°52.9	79°41.7	74°59.1	54°20.8	46°19.2	33°24.2		
21	96°49.6	13.5'	18°35.0	8.5'	54.1'	111°23.4	79°13.1	74°29.8	53°53.1	45°53.5	32°55.5		40°24.0
22	111°22.1	13.4'	18°43.5	8.4'	54.1'	110°53.8	78°44.4	74°00.4	53°25.4	45°28.0	32°26.8		40°51.0
23	125°54.5	13.3'	18°51.9	8.3'	54.1'	110°24.2	78°15.7	73°31.0	52°57.8	45°02.4	31°58.2		41°17.9
18 th	SD	= 14.7'	Mer. pass.	14:21					Sun SD =	= 16.1′			

h Moon (19 th	th Mar) L	∟unar Distance (ob	bjects with larg	gest hourly LD	delta)
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Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Saturn	+Sun
0	140°26.8	13.3'	N 19°00.2	8.3'	54.1'	109°54.7	77°47.0	73°01.7	52°30.2	44°37.0	31°29.5		41°44.9
1	154°59.1	13.2'	19°08.5	8.2'	54.1'	109°25.1	77° 18.3	72°32.3	52°02.6	44°11.6	31°00.9		42°11.9
2	169°31.3	13.2'	$19^{\circ}16.6$	8.1'	54.1'	108°55.5	76°49.7	72°02.9	51°35.0	43°46.2	30°32.3		42°38.9
3	184°03.5	13.1'	19°24.7	8.0'	54.1'	108°25.8	76°21.0	71°33.5	51°07.4	43°21.0	30°03.8		43°05.9
4	198°35.6	13.1'	19°32.7	7.9'	54.1'	107°56.2	75°52.3	71°04.1	50°39.9	42°55.8	29°35.2		43°32.9
5	213°07.7	13.0'	19°40.7	7.8'	54.2'	107°26.6	75°23.6	70°34.7	50°12.3	42°30.7	29°06.7		43°59.9
6	227°39.7	12.9'	N 19°48.5	7.8'	54.2'	106°57.0	74°54.9	70°05.2	49°44.8	42°05.6	28°38.2		44°26.9
7	242°11.6	12.9'	19°56.3	7.7'	54.2'	106°27.3	74°26.1	69°35.8	49°17.4	41°40.6	28°09.8		44°54.0
8	256°43.5	12.8'	20°03.9	7.6'	54.2'	105°57.6	73°57.4	69°06.4	48°49.9	41°15.7	27°41.3		45°21.0
9	271°15.3	12.8'	$20^{\circ}11.5$	7.5'	54.2'	105°28.0	73°28.7	68°36.9	48°22.5	40°50.9	27°12.9		45°48.1
10	285°47.1	12.7'	$20^{\circ}19.0$	7.4'	54.2'	104°58.3	73°00.0	68°07.5	47°55.1	40°26.2	26°44.6		46°15.2
11	300°18.8	12.6'	20°26.4	7.3'	54.2'	104°28.6	72°31.3	67°38.0	47°27.7	40°01.5	26°16.3	9°15.8	46°42.3
12	314°50.4	12.6'	N20°33.8	7.2'	54.2'	103°58.9	72°02.5	67°08.6	47°00.3	39°37.0	25°48.0	9°36.9	47°09.4
13	329°22.0	12.5'	20°41.0	7.1'	54.2'	103°29.2	71°33.8	66°39.1	46°33.0	39°12.5	25°19.8	9°58.7	47°36.5
14	343°53.5	12.5'	20°48.2	7.1'	54.3'	102°59.5	71°05.0	66°09.6	46°05.7	38°48.1	24°51.6	10°21.2	48°03.6
15	358°24.9	12.4'	20°55.2	7.0'	54.3'	102°29.7	70°36.3	65°40.1	45°38.4	38°23.8	24°23.5	10°44.2	48°30.8
16	12°56.3	12.3'	21°02.2	6.9'	54.3'	102°00.0	70°07.6	65° 10.6	45°11.2	37°59.7	23°55.4	11°07.8	48°58.0
17	27°27.7	12.3'	21°09.1	6.8'	54.3'	101°30.2	69°38.8	64°41.1	44°44.0	37°35.6	23°27.3	11°31.8	49°25.1
18	41°58.9	12.2'	N 21°15.8	6.7'	54.3'	101°00.4	69°10.0	64°11.6	44°16.8	$37^{\circ}11.6$	22°59.4	11°56.3	49°52.3
19	56°30.1	12.1'	21°22.5	6.6'	54.3'	100°30.7	68°41.3	63°42.1	43°49.7	36°47.8	22°31.5	12°21.1	50°19.6
20	$71^{\circ}01.3$	12.1'	21°29.1	6.5'	54.3'	100°00.9	68° 12.5	63°12.5	43°22.6	36°24.1	22°03.6	12°46.3	50°46.8
21	85°32.4	12.0'	21°35.6	6.4'	54.4'	99°31.1	67°43.7	62°43.0	42°55.5	36°00.5	21°35.9	13°11.8	51°14.0
22	100°03.4	12.0'	21°42.0	6.3'	54.4'	99°01.2	67° 14.9	62°13.4	42°28.5	35°37.0	21°08.2	13°37.6	51°41.3
23	114°34.4	11.9'	21°48.3	6.2'	54.4'	98°31.4	66°46.1	61°43.9	42°01.5	35°13.6	20°40.6	14°03.6	52°08.5
19 th	SD	= 14.8'	Mer. pass.	15:07					Sun SD =	= 16.1'			

h	Moon	(20 th	Mar)	ı

Lunar Distance (objects with largest hourly LD delta)
-Procyon -Pollux -Betelgeuse -Capella -Aldebaran +Saturr

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Saturn	+Sun
0	129°05.3	11.8'	N 21°54.5	6.1'	54.4'	98°01.5	66° 17.4	61°14.3	41°34.6	34°50.4	20°13.1	14°29.9	52°35.8
1	143°36.1	11.8'	22°00.7	6.0'	54.4'	97°31.7	65°48.6	60°44.7	41°07.7	34°27.3	19°45.7	14°56.3	53°03.1
2	158°06.9	11.7'	22°06.7	5.9'	54.4'	97°01.8	$65^{\circ}19.8$	60° 15.1	40°40.9	34°04.4	19° 18.4	15°23.0	53°30.4
3	172°37.6	11.7'	22°12.6	5.8'	54.4'	96°31.9	64°50.9	59°45.5	40°14.1	33°41.6	18°51.3	15°49.9	53°57.8
4	187°08.3	11.6'	22°18.4	5.7'	54.5'	96°02.0	64°22.1	59° 15.9	39°47.3	33°19.0	18°24.2	16°17.0	54°25.1
5	201°38.9	11.5'	22°24.1	5.6'	54.5'	95°32.0	63°53.3	58°46.2	39°20.6	32°56.5	17°57.3	16°44.2	54°52.5
6	216°09.5	11.5'	N22°29.7	5.5'	54.5'	95°02.1	63°24.5	58° 16.6	38°53.9	32°34.3	17°30.6	17° 11.6	55°19.9
7	230°39.9	11.4'	22°35.2	5.4'	54.5'	94°32.1	62°55.7	57°46.9	38°27.4	32°12.1	17°04.0	17°39.1	55°47.3
8	245°10.4	11.4'	22°40.7	5.3'	54.5'	94°02.2	62°26.8	57° 17.3	38°00.8	31°50.2	16° 37.5	18°06.7	56°14.7
9	259°40.7	11.3'	22°46.0	5.2'	54.5'	93°32.2	61°58.0	56°47.6	37°34.3	31°28.5	16°11.3	18°34.5	56°42.1
10	274°11.0	11.2'	22°51.2	5.1'	54.6'	93°02.2	61°29.2	56° 17.9	37°07.9	31°06.9	15°45.3	19°02.3	57°09.6
11	288°41.3	11.2'	22°56.3	5.0'	54.6'	92°32.2	$61^{\circ}00.3$	55°48.2	36°41.6	30°45.6	15° 19.5	19°30.3	57°37.1
12	303°11.5	11.1'	$N23^{\circ}01.2$	4.9'	54.6'	92°02.1	$60^{\circ}31.5$	55° 18.5	36°15.3	30°24.4	14°54.0	19°58.4	58°04.6
13	317°41.6	11.1'	23°06.1	4.8'	54.6'	91°32.1	60°02.6	54°48.8	35°49.1	30°03.5	14°28.7	20°26.6	58°32.1
14	332°11.7	11.0'	23°10.9	4.7'	54.6'	91°02.0	59°33.8	54° 19.0	35°23.0	29°42.8	14°03.7	20°54.8	58°59.6
15	346°41.7	11.0'	23°15.6	4.6'	54.7'	90°31.9	59°04.9	53°49.3	34°56.9	29°22.4	13°39.1	21°23.2	59°27.2
16	1°11.7	10.9'	23°20.1	4.4'	54.7'	90°01.8	58°36.0	53° 19.5	34°31.0	29°02.1	13°14.8	21°51.6	59°54.7
17	15°41.6	10.8'	23°24.6	4.3'	54.7'	89°31.6	58°07.2	52°49.8	34°05.1	28°42.2	12°50.9	22°20.2	60°22.3
18	30°11.4	10.8'	N23°28.9	4.2'	54.7'	89°01.5	57°38.3	52°20.0	33°39.3	28°22.5	12°27.4	22°48.8	60°49.9
19	44°41.2	10.7'	23°33.1	4.1'	54.7'	88°31.3	57°09.4	51°50.2	33°13.6	28°03.1	12°04.4	23° 17.4	61°17.5
20	59°10.9	10.7'	23°37.3	4.0'	54.7'	88°01.1	56° 40.5	51°20.4	32°48.0	27°43.9	11°42.0	23°46.2	61°45.2
21	73°40.6	10.6'	23°41.3	3.9'	54.8'	87°30.9	$56^{\circ}11.7$	50°50.5	32°22.5	27°25.1	11°20.1	24°15.0	62°12.9
22	88°10.2	10.6'	23°45.2	3.8'	54.8'	87°00.7	55° 42.8	50°20.7	31°57.1	27°06.6	10°58.9	24°43.8	62°40.6
23	102°39.8	10.5'	23°48.9	3.7'	54.8'	86°30.4	55° 13.9	49°50.8	31°31.8	26°48.4	10°38.4	25°12.8	63°08.3
20 th	SD	= 14.8'	Mer. pass.	. 15:55				Sun	SD = 16.1' at	0h; 16.0' a	t 23h		

h Moon (21st Mar)

Wed	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Sirius	-Procyon	-Pollux	-Betelgeuse	+Saturn	+Sun
0	117°09.3	10.5'	N23°52.6	3.5'	54.8'		86°00.2	56°20.2	54°45.0	49°21.0	31°06.6	25°41.8	63°36.0
1	131°38.8	10.4'	23°56.1	3.4'	54.9'		85°29.9	56°00.4	54°16.1	48°51.1	30°41.6	26°10.8	64°03.8
2	146°08.2	10.4'	23°59.6	3.3'	54.9'		84°59.6	55°40.7	53°47.2	48°21.2	30° 16.7	26°39.9	64°31.5
3	160°37.6	10.3'	24°02.9	3.2'	54.9'		84°29.2	55°21.1	53°18.3	47°51.3	29°51.9	27°09.1	64°59.4
4	175°06.9	10.3'	24°06.1	3.1'	54.9'	_	83°58.9	55°01.6	52°49.4	47°21.4	29°27.3	27°38.3	65°27.2
5	189°36.1	10.2'	24°09.2	3.0'	54.9'	119°30.0	83°28.5	54°42.1	52°20.5	46°51.5	29°02.8	28°07.6	65°55.0
6	204°05.3	10.2'	N 24°12.1	2.8'	55.0'	118°59.0	82°58.1	54°22.8	51°51.6	46°21.5	28°38.4	28°36.9	66°22.9
7	218°34.5	10.1'	24°15.0	2.7'	55.0'	118°27.9	82°27.7	54°03.6	51°22.7	45°51.5	28° 14.3	29°06.3	66°50.8
8	233°03.6	10.1'	24°17.7	2.6'	55.0'	117°56.9	81°57.2	53°44.4	50°53.8	45°21.6	27°50.3	29°35.7	67°18.7
9	247°32.6	10.0'	24°20.3	2.5'	55.0'	117°25.8	81°26.8	53°25.4	50°24.9	44°51.6	27° 26.5	30°05.2	67°46.7
10	262°01.6	10.0'	24°22.8	2.4'	55.1'	116°54.7	80°56.3	53°06.5	49°56.0	44°21.6	27°02.8	30°34.7	68°14.6
11	276°30.6	9.9'	24°25.2	2.2'	55.1'	116°23.6	80°25.7	52°47.7	49°27.1	43°51.6	26°39.4	31°04.2	68°42.6
12	290°59.5	9.9'	N24°27.4	2.1'	55.1'	115°52.4	79°55.2	52°29.0	48°58.2	43°21.6	26° 16.2	31°33.8	69°10.6
13	305°28.4	9.8'	24°29.5	2.0'	55.1'	115°21.2	79°24.6	52°10.4	48°29.3	42°51.5	25°53.2	32°03.5	69°38.7
14	319°57.2	9.8'	24°31.6	1.9'	55.1'	114°50.0	78°54.0	51°52.0	48°00.4	42°21.5	25° 30.4	32°33.2	70°06.8
15	334°25.9	9.7'	24°33.4	1.8'	55.2'	114°18.7	78°23.4	51°33.7	47°31.5	41°51.4	25°07.9	33°02.9	70°34.9
16	348°54.7	9.7'	24°35.2	1.6'	55.2'	113°47.5	77°52.8	51°15.5	47°02.7	41°21.3	24° 45.7	33°32.7	71°03.0
17	3°23.3	9.6'	24°36.8	1.5'	55.2'	113°16.1	77°22.1	50°57.4	46°33.8	40°51.2	24°23.7	34°02.6	71°31.1
18	17°52.0	9.6'	N 24°38.3	1.4'	55.2'	112°44.8	76°51.4	50°39.4	46°04.9	40°21.1	24°01.9	34°32.4	71°59.3
19	32°20.6	9.6'	24°39.7	1.3'	55.3'	112°13.4	76°20.7	50°21.6	45°36.1	39°51.0	23° 40.5	35°02.3	72°27.5
20	46°49.1	9.5'	24°41.0	1.1'	55.3'	111°42.0	75°50.0	50°04.0	45°07.2	39°20.9	23° 19.4	35°32.3	72°55.7
21	61°17.6	9.5'	24°42.1	1.0'	55.3'	111°10.6	75°19.2	49°46.4	44°38.4	38°50.8	22°58.6	36°02.3	73°24.0
22	75°46.1	9.4'	24°43.1	0.9'	55.4'	110°39.1	74°48.4	49°29.0	44°09.5	38°20.6	22°38.2	36°32.3	73°52.3
23	90°14.5	9.4'	24°44.0	0.7'	55.4'	110°07.6	74°17.6	49°11.8	43°40.7	37°50.5	22°18.1	37°02.4	74°20.6
21 st	SD	= 15.0'	Mer. pass.	16:46					Sun SD	0 = 16.0'			

h	Moon	(22nd	Mar)
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Lunar Distance (objects w	ith largest	hourly LE	O delta)
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			. (<u> </u>	Land Distance (especis with largest hearly LD delta)								
Thu	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	-Pollux	+Aldebaran	+Saturn	+Sun
0	104°42.9	9.4'	N 24°44.7	0.6'	55.4'			109°36.1	73°46.7	37°20.3		37°32.5	74°49.0
1	119°11.3	9.3'	24°45.3	0.5'	55.4'			109°04.6	73°15.8	36°50.1		38°02.7	75°17.3
2	133°39.6	9.3'	24°45.8	0.4'	55.5'			108°33.0	72°44.9	36°19.9		38°32.9	75°45.7
3	148°07.9	9.2'	24°46.2	0.2'	55.5'			108°01.3	72°14.0	35°49.7	10°42.8	39°03.1	76°14.2
4	162°36.1	9.2'	24°46.4	0.1'	55.5'			107°29.7	71°43.0	35°19.5	11°04.0	39°33.4	76°42.6
5	177°04.4	9.2'	24°46.5	-0.0'	55.5'			106°58.0	71°12.0	34°49.3	11°26.0	40°03.7	77°11.1
6	191°32.5	9.1'	N 24°46.5	-0.2'	55.6'			106°26.3	70°40.9	34°19.1	11°48.6	40°34.1	77°39.7
7	206°00.7	9.1'	24°46.3	-0.3'	55.6'			105°54.5	70°09.9	33°48.9	12°11.9	41°04.5	78°08.2
8	220°28.8	9.1'	24°46.0	-0.4'	55.6'			105°22.8	69°38.8	33°18.7	12°35.8	41°35.0	78°36.8
9	234°56.9	9.1'	24°45.6	-0.6'	55.7'			104°50.9	69°07.7	32°48.5	13°00.2	42°05.4	79°05.4
10	249°24.9	9.0'	24°45.1	-0.7'	55.7'			104°19.1	68°36.5	32°18.2	13°25.1	42°36.0	79°34.1
11	263°52.9	9.0'	24°44.4	-0.8'	55.7'			103°47.2	68°05.3	31°48.0	13°50.4	43°06.5	80°02.8
12	278°20.9	9.0'	N24°43.6	-0.9'	55.7'			103°15.3	67°34.1	31°17.8	14°16.2	43°37.1	80°31.5
13	292°48.9	8.9'	24°42.6	-1.1'	55.8'			102°43.3	67°02.9	30°47.5	14°42.3	44°07.8	81°00.2
14	307°16.8	8.9'	24°41.5	-1.2'	55.8'			102°11.3	66°31.6	30°17.3	15°08.8	44°38.5	81°29.0
15	321°44.7	8.9'	24°40.3	-1.3'	55.8'			101°39.3	66°00.3	29°47.1	15°35.6	45°09.2	81°57.8
16	336°12.6	8.9'	24°39.0	-1.5'	55.9'		119°31.5	101°07.3	65°28.9	29°16.8	16°02.7	45°40.0	82°26.7
17	350°40.5	8.8'	24°37.5	-1.6'	55.9'	119°41.6	119°00.1	100°35.2	64°57.6	28°46.6	16°30.1	46°10.8	82°55.6
18	5°08.3	8.8'	N 24°35.9	-1.7'	55.9'	119°10.1	118°28.6	100°03.0	64°26.1	28°16.4	16°57.8	46°41.6	83°24.5
19	19°36.1	8.8'	24°34.1	-1.9'	56.0'	118°38.5	117°57.1	99°30.9	63°54.7	27°46.2	17°25.6	47° 12.5	83°53.5
20	34°03.9	8.8'	24°32.3	-2.0'	56.0'	118°06.9	117°25.6	98°58.7	63°23.2	27°16.1	17°53.8	47°43.5	84°22.4
21	48°31.7	8.8'	24°30.3	-2.2'	56.0'	117°35.3	116°54.0	98°26.4	62°51.7	26°45.9	18°22.1	48° 14.4	84°51.5
22	62°59.5	8.7'	$24^{\circ}28.1$	-2.3'	56.1'	117°03.6	116°22.4	97°54.2	62°20.2	26°15.8	18°50.6	48°45.4	85°20.5
23	77°27.2	8.7'	24°25.8	-2.4'	56.1'	116°31.9	115°50.7	97°21.8	61°48.6	25°45.6	19°19.4	49° 16.5	85°49.6
22 nd	SD :	= 15.1	Mer. pass	s. 17:39					Sun SD	$=16.0^{\prime}$			

h		Moor	า (23 rd M	ar)			Lunar D	istance (objects w	vith largest	hourly LD	delta
Fri	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Aldebaran	+Capella	+Satu
>	010540	0.7'	NO49024	26'	F6 1'	116000 1	1150100	06040 5	61017.0	100403		400 47

Fri	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Aldebaran	+Capella	+Saturn	+Sun
0	91°54.9	8.7'	N24°23.4	-2.6'	56.1'	116°00.1	115°19.0	96°49.5	61°17.0	19°48.3		49°47.6	86°18.8
1	106°22.6	8.7'	24°20.8	-2.7'	56.2'	115°28.3	114°47.3	96°17.1	60°45.3	20°17.4		50°18.7	86°47.9
2	120°50.3	8.7'	24°18.1	-2.8'	56.2'	114°56.5	114°15.5	95°44.7	60°13.6	20°46.6		50°49.9	87°17.1
3	135°17.9	8.7'	24°15.3	-3.0'	56.2'	114°24.6	113°43.7	95°12.2	59°41.9	21°16.0		51°21.1	87°46.4
4	149°45.6	8.6'	24°12.4	-3.1'	56.3'	113°52.7	113°11.9	94°39.7	59°10.1	21°45.5		51°52.4	88°15.7
5	164°13.2	8.6'	24°09.3	-3.2'	56.3'	113°20.7	112°40.0	94°07.2	58°38.3	22°15.2		52°23.7	88°45.0
6	178°40.9	8.6'	N 24°06.0	-3.4'	56.3'	112°48.7	112°08.1	93°34.6	58°06.5	22°45.0		52°55.1	89°14.3
7	193°08.5	8.6'	24°02.7	-3.5'	56.4'	112°16.7	111°36.2	93°02.0	57°34.6	23°14.9	24°25.2	53°26.4	89°43.7
8	207°36.1	8.6'	23°59.2	-3.6'	56.4'	111°44.6	111°04.2	92°29.3	57°02.7	23°45.0	24°40.8	53°57.9	90°13.2
9	222°03.7	8.6'	23°55.5	-3.8'	56.4'	111°12.5	110°32.1	91°56.6	56°30.8	24°15.1	24°57.0	54°29.4	90°42.7
10	236°31.2	8.6'	23°51.7	-3.9'	56.5'	110°40.3	$110^{\circ}00.1$	91°23.9	55°58.8	24°45.4	25°13.6	55°00.9	91°12.2
11	250°58.8	8.6'	23°47.8	-4.0'	56.5'	110°08.1	109°28.0	90°51.1	55°26.8	25°15.8	25°30.8	55°32.4	91°41.7
12	265°26.4	8.6'	N 23°43.8	-4.2'	56.5'	109°35.9	108°55.8	90°18.3	54°54.7	25°46.3	25°48.4	56°04.0	92°11.3
13	279°53.9	8.6'	23°39.6	-4.3'	56.6'	109°03.6	108°23.6	89°45.5	54°22.6	26°16.9	26°06.4	56°35.7	92°40.9
14	294°21.5	8.5'	23°35.3	-4.5'	56.6'	108°31.2	107°51.4	89°12.6	53°50.5	26°47.6	26°24.9	57°07.4	93°10.6
15	308°49.0	8.5'	23°30.8	-4.6'	56.6'	107°58.9	$107^{\circ}19.1$	88°39.6	53°18.3	27°18.4	26°43.8	57°39.1	93°40.3
16	323°16.6	8.5'	23°26.2	-4.7'	56.7'	107°26.5	106°46.8	88°06.6	52°46.1	27°49.3	27°03.2	58°10.9	94°10.1
17	337°44.1	8.5'	23°21.5	-4.9'	56.7'	106°54.0	106°14.4	87°33.6	52°13.9	28°20.2	27°22.9	58°42.7	94°39.9
18	352°11.7	8.5'	N23°16.7	-5.0'	56.7'	106°21.5	105°42.0	87°00.6	51°41.6	28°51.3	27°43.1	59°14.6	95°09.7
19	6°39.2	8.5'	23°11.7	-5.1'	56.8'	105°49.0	105°09.6	86°27.5	51°09.2	29°22.4	28°03.6	59°46.5	95°39.6
20	21°06.7	8.5'	23°06.5	-5.3'	56.8'	105°16.4	104°37.1	85°54.3	50°36.9	29°53.7	28°24.5	60°18.5	96°09.5
21	35°34.3	8.5'	23°01.3	-5.4'	56.9'	104°43.8	104°04.6	85°21.1	50°04.5	30°25.0	28°45.7	60°50.5	96°39.5
22	50°01.8	8.5'	22°55.9	-5.5'	56.9'	104°11.1	103°32.0	84°47.9	49°32.0	30°56.4	29°07.3	61°22.5	97°09.5
23	64°29.3	8.5'	22°50.3	-5.7'	56.9'	103°38.4	102°59.4	84°14.6	48°59.5	31°27.8	29°29.2	61°54.6	97°39.5
23 rd	SD :	= 15.3'	Mer. pass	s. 18:32					Sun SI	D = 16.0'			

h Moon (24 th Mar) Lun	ar Distance (objects with largest hourly LD delta)
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Sat	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Capella	+Aldebaran	+Saturn	+Sun
0	78°56.9	8.5'	N 22°44.7	-5.8'	57.0'	103°05.6	102° 26.8	83°41.3	48°27.0	29°51.5	31°59.4	62°26.8	98°09.6
1	93°24.4	8.5'	22°38.9	-5.9'	57.0'	102°32.8	101°54.1	83°08.0	47°54.4	30° 14.1	32°31.0	62°59.0	98°39.8
2	107°51.9	8.5'	22°32.9	-6.1'	57.0'	102°00.0	101°21.3	82°34.6	47°21.8	30°37.0	33°02.7	63°31.2	99°09.9
3	122°19.5	8.5'	22°26.9	-6.2'	57.1'	101°27.1	100°48.5	82°01.1	46°49.2	31°00.1	33°34.5	64°03.5	99°40.2
4	136°47.0	8.6'	22°20.7	-6.3'	57.1'	100°54.1	100°15.7	81°27.7	46°16.5	31°23.6	34°06.3	64°35.8	100°10.4
5	151°14.6	8.6'	22°14.3	-6.5'	57.2'	100°21.1	99°42.8	80°54.1	45°43.7	31°47.4	34°38.2	65°08.2	100°40.7
6	165°42.1	8.6'	N22°07.9	-6.6'	57.2'	99°48.1	99°09.9	80°20.6	45°11.0	32°11.4	35° 10.2	65°40.6	101°11.1
7	180°09.7	8.6'	22°01.3	-6.7'	57.2'	99°15.0	98°36.9	79°46.9	44°38.1	32°35.7	35°42.3	66°13.1	101°41.5
8	194°37.3	8.6'	21°54.5	-6.9'	57.3'	98°41.9	98°03.9	79°13.3	44°05.3	33°00.3	36° 14.4	66°45.6	102°11.9
9	209°04.9	8.6'	21°47.7	-7.0'	57.3'	98°08.8	97°30.9	78°39.6	43°32.4	33°25.1	36°46.6	67°18.1	102°42.4
10	223°32.5	8.6'	21°40.7	-7.1'	57.3'	97°35.5	96°57.8	78°05.8	42°59.4	33°50.1	37° 18.9	67°50.8	103°12.9
11	238°00.0	8.6'	21°33.5	-7.3'	57.4'	97°02.3	96°24.6	77°32.0	42°26.5	34° 15.4	37°51.2	68°23.4	103°43.5
12	252°27.7	8.6'	N21°26.3	-7.4'	57.4'	96°29.0	95°51.4	76°58.2	41°53.4	34°40.9	38°23.6	68°56.1	104°14.1
13	266°55.3	8.6'	21°18.9	-7.5'	57.5'	95°55.6	95°18.2	76°24.3	41°20.4	35°06.7	38° 56.0	69°28.9	104°44.8
14	281°22.9	8.6'	21°11.4	-7.6'	57.5'	95°22.2	94°44.9	75°50.4	40°47.3	35°32.6	39° 28.6	70°01.7	105°15.5
15	295°50.5	8.6'	21°03.7	-7.8'	57.5'	94°48.8	94°11.6	75°16.4	40°14.1	35° 58.8	40°01.1	70°34.5	105°46.3
16	310°18.2	8.7'	20°55.9	-7.9'	57.6'	94°15.3	93°38.2	74°42.4	39°40.9	36°25.2	40°33.8	71°07.4	106°17.1
17	324°45.8	8.7'	20°48.0	-8.0'	57.6'	93°41.7	93°04.7	74°08.4	39°07.7	36°51.8	41°06.5	71°40.4	106°47.9
18	339°13.5	8.7'	N 20°40.0	-8.2'	57.7'	93°08.2	92°31.3	73°34.3	38°34.4	37° 18.5	41°39.3	72°13.4	107°18.8
19	353°41.2	8.7'	20°31.8	-8.3'	57.7'	92°34.5	91°57.7	73°00.1	38°01.1	37° 45.5	42° 12.1	72°46.4	107°49.8
20	8°08.9	8.7'	20°23.5	-8.4'	57.7'	92°00.8	91°24.2	72°25.9	37°27.7	38° 12.7	42°45.0	73°19.5	108°20.8
21	22°36.6	8.7'	20°15.1	-8.5'	57.8'	91°27.1	90°50.6	71°51.7	36°54.4	38°40.0	43° 18.0	73°52.6	108°51.8
22	37°04.3	8.7'	20°06.6	-8.7'	57.8'	90°53.3	90°16.9	71°17.4	36°20.9	39°07.5	43°51.0	74°25.8	109°22.9
23	51°32.1	8.8'	19°57.9	-8.8'	57.9'	90°19.5	89°43.2	70°43.1	35°47.4	39°35.2	44°24.1	74°59.1	109°54.0
24 th	SD	$= 15.5^{\circ}$	Mer. pas	s. 19:26					Sun S	D = 16.0'			

h Moon	(25 th Mar)	Lunar Distance (objects with larg	gest hourly LD delta)
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Sun	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Betelgeuse	+Aldebaran	+Saturn	+Sun
0	65°59.8	8.8'	$N19^{\circ}49.1$	-8.9'	57.9'	89°45.6	89°09.4	70°08.7	35° 13.9	29°26.7	44°57.3	75°32.3	110°25.2
1	80°27.6	8.8'	19°40.2	-9.0'	57.9'	89°11.7	88°35.6	69°34.3	34°40.4	29°54.1	45°30.5	76°05.7	110°56.5
2	94°55.3	8.8'	19°31.2	-9.2'	58.0'	88°37.7	88°01.7	68° 59.8	34°06.8	30°21.8	46°03.7	76°39.1	111°27.7
3	109°23.1	8.8'	$19^{\circ}22.0$	-9.3'	58.0'	88°03.7	87°27.8	68°25.3	33°33.1	30°49.7	46°37.1	77°12.5	111°59.1
4	123°51.0	8.8'	$19^{\circ}12.7$	-9.4'	58.1'	87°29.6	86°53.9	67°50.7	32°59.5	31°17.8	47°10.4	77°46.0	112°30.4
5	138°18.8	8.8'	19°03.3	-9.5'	58.1'	86°55.5	86°19.9	67°16.1	32°25.7	31°46.1	47°43.9	78°19.5	113°01.9
6	152°46.6	8.9'	$N18^{\circ}53.8$	-9.6'	58.1'	86°21.3	85°45.8	66°41.5	31°52.0	32°14.6	48°17.4	78°53.1	113°33.3
7	167°14.5	8.9'	18°44.1	-9.8'	58.2'	85°47.1	85°11.7	66°06.8	31° 18.2	32°43.3	48°51.0	79°26.7	114°04.8
8	181°42.4	8.9'	18°34.4	-9.9'	58.2'	85°12.8	84°37.5	65°32.1	30°44.4	33°12.2	49°24.6	80°00.4	114°36.4
9	196°10.2	8.9'	$18^{\circ}24.5$	-10.0'	58.3'	84°38.5	84°03.3	64°57.3	30° 10.5	33°41.3	49°58.3	80°34.2	115°08.0
10	210°38.2	8.9'	$18^{\circ}14.5$	-10.1'	58.3'	84°04.2	83°29.1	64°22.5	29°36.6	34°10.6	50°32.0	81°07.9	115°39.7
11	225°06.1	8.9'	18°04.4	-10.2'	58.3'	83°29.8	82°54.8	63°47.6	29°02.7	34°40.0	51°05.8	81°41.8	116°11.4
12	239°34.0	9.0'	$N17^{\circ}54.1$	-10.4'	58.4'	82°55.3	82°20.4	63°12.7	28°28.7	35°09.7	51°39.6	82°15.7	116°43.1
13	254°02.0	9.0'	17°43.8	-10.5'	58.4'	82°20.8	81°46.0	62°37.7	27° 54.7	35°39.5	52°13.6	82°49.6	117°14.9
14	268°30.0	9.0'	17°33.3	-10.6'	58.5'	81°46.2	81°11.6	62°02.7	27°20.7	36°09.4	52°47.5	83°23.6	117°46.8
15	282°57.9	9.0'	$17^{\circ}22.7$	-10.7'	58.5'	81°11.6	80°37.1	61°27.6	26°46.6	36°39.5	53°21.6	83°57.6	118°18.7
16	297°25.9	9.0'	17°12.0	-10.8'	58.5'	80°37.0	80°02.5	60°52.6	26° 12.5	37°09.8	53°55.6	84°31.7	118°50.6
17	311°54.0	9.0'	$17^{\circ}01.2$	-10.9'	58.6'	80°02.2	79°27.9	60°17.4	25°38.4	37°40.2	54°29.8	85°05.8	119°22.6
18	326°22.0	9.1'	$N16^{\circ}50.3$	-11.0'	58.6'	79°27.5	78°53.3	59°42.2	25°04.2	38° 10.8	55°04.0	85°40.0	119°54.7
19	340°50.1	9.1'	16°39.2	-11.1'	58.7'	78°52.7	78°18.5	59°07.0	24°30.1	38°41.5	55°38.2	86°14.3	
20	355°18.1	9.1'	$16^{\circ}28.1$	-11.3'	58.7'	78°17.8	77°43.8	58°31.7	23°55.9	39°12.4	56°12.5	86°48.5	
21	9°46.2	9.1'	$16^{\circ}16.8$	-11.4'	58.7'	77°42.9	77°09.0	57° 56.4	23°21.6	39°43.4	56°46.9	87°22.9	
22	24°14.3	9.1'	16°05.5	-11.5'	58.8'	77°08.0	76°34.1	57°21.1	22°47.4	40° 14.5	57°21.3	87°57.3	
23	38°42.5	9.1'	15°54.0	-11.6'	58.8'	76°33.0	75°59.2	56°45.7	22°13.1	40°45.8	57°55.8	88°31.7	
25 th	SD	= 15.8	Mer. pas	s. 20:19					Su	n SD $= 16.0'$			

h Moon (26th Mar)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	53°10.6	9.2'	N 15°42.4	-11.7'	58.9'		75°57.9	75°24.3	56°10.2	17°40.4	41°17.1	58°30.3	89°06.2
1	67°38.8	9.2'	15°30.7	-11.8'	58.9'		75°22.8	74°49.3	55°34.7	18°11.8	41°48.6	59°04.9	89°40.7
2	82°06.9	9.2'	$15^{\circ}18.9$	-11.9'	58.9'	119°51.2	74°47.7	74°14.2	54°59.2	18°43.4	42°20.3	59°39.6	90°15.3
3	96°35.1	9.2'	$15^{\circ}07.1$	-12.0'	59.0'	119°16.0	74°12.5	73°39.1	54°23.7	19°15.3	42°52.0	60°14.3	90°49.9
4	111°03.3	9.2'	$14^{\circ}55.1$	-12.1'	59.0'	118°40.9	73°37.2	73°04.0	53°48.0	19°47.4	43°23.9	60°49.0	91°24.6
5	125°31.6	9.2'	14°43.0	-12.2'	59.1'	118°05.7	73°01.9	72°28.8	53°12.4	20°19.7	43°55.8	61°23.8	91°59.4
6	139°59.8	9.2'	N 14°30.8	-12.3'	59.1'	117°30.4	72°26.6	71°53.5	52°36.7	20°52.3	44°27.9	61°58.7	92°34.1
7	154°28.0	9.3'	14°18.5	-12.4'	59.1'	116°55.1	71°51.2	71°18.2	52°01.0	21°25.0	45°00.1	62°33.6	93°09.0
8	168°56.3	9.3'	$14^{\circ}06.1$	-12.5'	59.2'	116°19.7	71°15.8	70°42.9	51°25.2	21°57.8	45°32.4	63°08.6	93°43.9
9	183°24.6	9.3'	13°53.6	-12.6'	59.2'	115°44.3	70°40.3	70°07.5	50°49.4	22°30.9	46°04.8	63°43.6	94°18.8
10	197°52.9	9.3'	13°41.0	-12.7'	59.3'	115°08.8	70°04.7	69°32.1	50°13.6	23°04.1	46°37.3	64°18.7	94°53.8
11	212°21.2	9.3'	13°28.3	-12.8'	59.3'	114°33.3	69°29.2	68°56.6	49°37.7	23°37.5	47°09.9	64°53.8	95°28.8
12	226°49.5	9.3'	$N13^{\circ}15.5$	-12.9'	59.3'	113°57.7	68°53.5	68°21.0	49°01.8	24°11.0	47°42.6	65°29.0	96°03.9
13	241°17.8	9.3'	13°02.7	-13.0'	59.4'	113°22.1	68°17.9	67°45.4	48°25.8	24°44.6	48°15.4	66°04.2	96°39.0
14	255°46.2	9.4'	12°49.7	-13.1'	59.4'	112°46.5	67°42.1	67°09.8	47°49.8	25°18.4	48°48.3	66°39.5	97°14.2
15	270°14.5	9.4'	12°36.6	-13.1'	59.5'	112°10.8	67°06.4	66°34.1	47°13.8	25°52.3	49°21.3	67°14.8	97°49.4
16	284°42.9	9.4'	12°23.5	-13.2'	59.5'	111°35.0	66°30.6	65°58.4	46°37.7	26°26.3	49°54.4	67°50.2	98°24.7
17	299°11.3	9.4'	12°10.3	-13.3'	59.5'	110°59.2	65°54.7	65°22.6	46°01.6	27°00.4	50°27.6	68°25.6	99°00.0
18	313°39.7	9.4'	N 11°56.9	-13.4'	59.6'	110°23.3	65°18.8	64°46.7	45°25.5	27°34.7	51°00.9	69°01.1	99°35.3
19	328°08.1	9.4'	11°43.5	-13.5'	59.6'	109°47.4	64°42.9	64°10.9	44°49.4	28°09.1	51°34.2	69°36.7	100°10.7
20	342°36.5	9.4'	11°30.0	-13.6'	59.6'	109°11.5	64°06.9	63°34.9	44°13.2	28°43.5	52°07.6	70°12.3	100°46.2
21	357°04.9	9.4'	$11^{\circ}16.5$	-13.7'	59.7'	108°35.5	63°30.8	62°59.0	43°37.0	29°18.1	52°41.2	70°47.9	101°21.7
22	11°33.3	9.4'	11°02.8	-13.7'	59.7'	107°59.4	62°54.7	62°22.9	43°00.7	29°52.8	53°14.8	71°23.6	101°57.3
23	26°01.8	9.4'	10°49.1	-13.8'	59.8'	107°23.3	62°18.6	61°46.9	42°24.4	30°27.5	53°48.5	71°59.3	102°32.8
26 th	SD	= 16.1	.' Mer. pas	ss. 21:12									

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

			(=,								8000		
Tue	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	40°30.2	9.5'	N 10°35.3	-13.9'	59.8'	106°47.2	61°42.5	61°10.8	41°48.1	31°02.4	54°22.2	72°35.1	103°08.5
1	54°58.7	9.5'	10°21.4	-14.0'	59.8'	106°11.0	61°06.2	60°34.6	41°11.8	31°37.3	54°56.1	73°11.0	103°44.2
2	69°27.1	9.5'	10°07.4	-14.0'	59.9'	105°34.8	60°30.0	59°58.4	40°35.5	32°12.3	55°30.0	73°46.8	104°19.9
3	83°55.6	9.5'	09°53.3	-14.1'	59.9'	104°58.5	59°53.7	59°22.1	39°59.1	32°47.4	56°04.0	74°22.8	104°55.7
4	98°24.1	9.5'	09°39.2	-14.2'	59.9'	104°22.1	59° 17.3	58°45.8	39°22.7	33°22.6	56°38.1	74°58.8	105°31.5
5	112°52.5	9.5'	09°25.0	-14.3'	60.0'	103°45.8	58°41.0	58°09.5	38°46.3	33°57.9	57°12.2	75°34.8	106°07.4
6	127°21.0	9.5'	N 09°10.8	-14.3'	60.0'	103°09.3	58°04.5	57°33.1	38°09.9	34°33.3	57°46.4	76°10.9	106°43.3
7	141°49.5	9.5'	08°56.4	-14.4'	60.0'	102°32.9	57°28.1	56°56.7	37°33.4	35°08.7	58°20.7	76°47.0	107°19.2
8	156°18.0	9.5'	08°42.0	-14.5'	60.1'	101°56.4	56°51.6	56°20.2	36°57.0	35°44.2	58°55.1	77°23.2	107°55.2
9	170°46.5	9.5'	08°27.5	-14.5'	60.1'	101°19.8	56° 15.0	55°43.7	36°20.5	36° 19.8	59°29.5	77°59.4	108°31.2
10	185°15.0	9.5'	$08^{\circ}13.0$	-14.6'	60.1'	100°43.2	55°38.5	55°07.1	35°44.0	36°55.4	60°04.0	78°35.6	109°07.3
11	199°43.5	9.5'	07°58.4	-14.7'	60.2'	100°06.6	55°01.8	54°30.5	35°07.5	37°31.1	60°38.5	79°11.9	109°43.4
12	214°12.0	9.5'	N 07°43.7	-14.7'	60.2'	99°29.9	54°25.2	53°53.9	34°31.0	38°06.9	61°13.2	79°48.3	110° 19.6
13	228°40.5	9.5'	$07^{\circ}29.0$	-14.8'	60.2'	98°53.2	53°48.5	53°17.2	33°54.5	38°42.8	61°47.8	80°24.7	110°55.8
14	243°08.9	9.5'	$07^{\circ}14.2$	-14.8'	60.3'	98° 16.4	53°11.8	52°40.5	33°18.0	39° 18.7	62°22.6	81°01.1	111°32.0
15	257°37.4	9.5'	06°59.4	-14.9'	60.3'	97°39.6	52°35.0	52°03.7	32°41.5	39°54.7	62°57.4	81°37.6	112°08.3
16	272°05.9	9.5'	06°44.5	-15.0'	60.3'	97°02.7	51°58.2	51°26.9	32°05.0	40°30.7	63°32.3	82°14.1	112°44.6
17	286°34.4	9.5'	06°29.5	-15.0'	60.4'	96°25.8	51°21.3	50°50.1	31°28.5	41°06.8	64°07.2	82°50.7	113°21.0
18	301°02.9	9.5'	N 06°14.5	-15.1'	60.4'	95°48.9	50°44.5	50°13.2	30°52.0	41°43.0	64°42.2	83°27.3	113°57.4
19	315°31.4	9.5'	05°59.4	-15.1'	60.4'	95°11.9	50°07.6	49°36.2	30°15.6	42° 19.2	65°17.3	84°03.9	114°33.8
20	329°59.8	9.5'	05°44.3	-15.2'	60.5'	94°34.9	49°30.6	48°59.3	29°39.1	42°55.5	65°52.4	84°40.6	115°10.3
21	344°28.3	9.5'	$05^{\circ}29.1$	-15.2'	60.5'	93°57.8	48°53.7	48°22.3	29°02.7	43°31.8	66°27.5	85°17.3	115°46.8
22	358°56.7	9.4'	05°13.9	-15.3'	60.5'	93°20.8	48° 16.7	47°45.2	28°26.3	44°08.2	67°02.8	85°54.1	116°23.3
23	13°25.2	9.4'	04°58.7	-15.3'	60.6'	92°43.6	47°39.6	47°08.2	27°50.0	44°44.6	67°38.0	86°30.9	116°59.9
27 th	SD	= 16.3	B' Mer. pas	ss. 22:04									

h		Моо	n (28 th M	lar)			Lunar E	Distance	(objects	with large	est hourly	y LD delta)	
Wed	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Mars	+Regulus	+Pollux	+Aldebaran	+Saturn
0	27°53.6	9.4'	N 04°43.4	-15.3'	60.6'	92°06.5	47°02.6	46°31.0	27°13.6	8°49.9	45°21.1	87°07.8	117°36.5
1	42°22.1	9.4'	04°28.0	-15.4'	60.6'	91°29.2	46° 25.5	45°53.9	26°37.4	9°22.6	45°57.7	87°44.6	118°13.1
2	56°50.5	9.4'	04°12.6	-15.4'	60.6'	90°52.0	45°48.4	45°16.7	26°01.1	9°55.9	46°34.3	88°21.5	118°49.8
3	71°18.9	9.4'	03°57.2	-15.5'	60.7'	90°14.7	45°11.2	44°39.5	25°25.0	10°29.7	47°10.9	88°58.5	119°26.5
4	85°47.3	9.4'	03°41.8	-15.5'	60.7'	89°37.4	44°34.1	44°02.2	24°48.9	11°03.8	47°47.6	89°35.5	
5	100°15.7	9.4'	03°26.3	-15.5'	60.7'	89°00.0	43°56.9	43°25.0	24°12.8	11°38.3	48°24.3	90°12.5	
6	114°44.0	9.4'	N03°10.7	-15.6'	60.7'	88°22.7	43° 19.7	42°47.6	23°36.9	12° 13.1	49°01.1	90°49.6	
7	129°12.4	9.3'	$02^{\circ}55.1$	-15.6'	60.8'	87°45.2	42°42.4	42°10.3	23°01.0	12°48.2	49°38.0	91°26.7	
8	143°40.7	9.3'	02°39.6	-15.6'	60.8'	87°07.8	42°05.2	41°32.9	22°25.3	13°23.6	50°14.8	92°03.8	
9	158°09.1	9.3'	02°23.9	-15.7'	60.8'	86°30.3	41°27.9	40°55.5	21°49.6	13°59.1	50°51.8	92°40.9	
10	172°37.4	9.3'	02°08.3	-15.7'	60.8'	85°52.8	40°50.6	40°18.0	21°14.1	14°34.9	51°28.7	93°18.1	
11	187°05.7	9.3'	$01^{\circ}52.6$	-15.7'	60.9'	85°15.2	40°13.3	39°40.6	20°38.7	15° 10.8	52°05.7	93°55.4	
12	201°33.9	9.3'	N01°36.9	-15.7'	60.9'	84°37.6	39°36.0	39°03.1	20°03.5	15°46.8	52°42.8	94°32.6	
13	216°02.2	9.2'	$01^{\circ}21.2$	-15.7'	60.9'	84°00.0	38° 58.6	38°25.6	19°28.5	16°23.1	53°19.8	95°09.9	
14	230°30.4	9.2'	$01^{\circ}05.4$	-15.8'	60.9'	83°22.4	38°21.2	37°48.0	18°53.6	16°59.4	53°57.0	95°47.2	
15	244°58.6	9.2'	00°49.6	-15.8'	61.0'	82°44.7	37°43.9	37°10.4	18°19.0	17° 35.9	54°34.1	96°24.5	
16	259°26.8	9.2'	00°33.9	-15.8'	61.0'	82°07.0	37°06.5	36°32.8	17°44.6	18° 12.4	55°11.3	97°01.9	
17	273°55.0	9.1'	$00^{\circ}18.1$	-15.8'	61.0'	81°29.3	36°29.1	35°55.2	$17^{\circ}10.5$	18°49.1	55°48.6	97°39.3	
18	288°23.1	9.1'	N00°02.3	-15.8'	61.0'	80°51.5	35°51.7	35° 17.5	16°36.7	19°25.9	56°25.8	98°16.7	
19	302°51.3	9.1'	S 00°13.6	-15.8'	61.0'	80°13.7	35° 14.3	34°39.8	16°03.2	20°02.7	57°03.1	98°54.2	
20	317°19.4	9.1'	00°29.4	-15.8'	61.1'	79°35.9	34°36.9	34°02.2	15°30.2	20°39.7	57°40.5	99°31.6	
21	331°47.4	9.0'	00°45.2	-15.8'	61.1'	78°58.1	33°59.5	33°24.4	14°57.5	21° 16.7	58°17.8	100°09.1	
22	346°15.5	9.0'	$01^{\circ}01.1$	-15.8'	61.1'	78°20.2	33°22.1	32°46.7	14°25.3	21°53.7	58°55.2	100°46.6	
23	0°43.5	9.0'	$01^{\circ}16.9$	-15.8'	61.1'	77°42.3	32°44.7	32°08.9	13°53.7	22°30.9	59°32.6	101°24.2	

SD = 16.5'

Mer. pass. 22:57

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

Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	15°11.5	9.0'	S 01°32.8	-15.8'	61.1'		77°04.4	32°07.3	31°31.2	23°08.1	56°36.9	60°10.1	102°01.7
1	29°39.4	8.9'	01°48.6	-15.8'	61.2'		76°26.5	31°29.9	30°53.4	23°45.4	57°13.1	60°47.6	102°39.3
2	44°07.4	8.9'	02°04.4	-15.8'	61.2'		75°48.5	30°52.5	30° 15.6	24°22.7	57°49.4	61°25.1	103°16.9
3	58°35.2	8.9'	02°20.3	-15.8'	61.2'		75°10.6	30° 15.1	29°37.7	25°00.1	58°25.7	62°02.6	103°54.6
4	73°03.1	8.8'	02°36.1	-15.8'	61.2'		74°32.6	29°37.8	28°59.9	25°37.5	59°02.0	62°40.2	104°32.2
5	87°30.9	8.8'	02°52.0	-15.8'	61.2'		73°54.5	29°00.4	28°22.1	26°15.0	59°38.4	63°17.8	105°09.9
6	101°58.7	8.8'	S 03°07.8	-15.8'	61.2'		73°16.5	28°23.1	27°44.2	26°52.5	60°14.9	63°55.4	105°47.5
7	116°26.5	8.7'	03°23.6	-15.8'	61.2'		72°38.5	27°45.8	27°06.3	27°30.0	60°51.3	64°33.0	106°25.2
8	130°54.2	8.7'	03°39.4	-15.8'	61.3'		72°00.4	27°08.6	26°28.4	28°07.6	61°27.8	65°10.7	107°02.9
9	145°21.9	8.7'	03°55.1	-15.8'	61.3'		71°22.3	26°31.3	25°50.6	28°45.3	62°04.4	65°48.4	107°40.6
10	159°49.6	8.6'	04°10.9	-15.7'	61.3'		70°44.2	25°54.1	25°12.7	29°22.9	62°40.9	66°26.1	108° 18.4
11	174°17.2	8.6'	04°26.6	-15.7'	61.3'		70°06.1	25° 17.0	24°34.8	30°00.6	63°17.5	67°03.8	108°56.1
12	188°44.8	8.5'	S 04°42.4	-15.7'	61.3'	119°57.5	69°27.9	24°39.9	23°56.9	30°38.4	63°54.2	67°41.5	109°33.9
13	203°12.3	8.5'	04°58.0	-15.7'	61.3'	119°25.1	68°49.8	24°02.8	23° 19.0	31°16.1	64°30.8	68° 19.3	110°11.6
14	217°39.8	8.5'	05°13.7	-15.6'	61.3'	118°52.6	68°11.6	23°25.9	22°41.1	31°53.9	65°07.5	68°57.1	110°49.4
15	232°07.3	8.4'	05°29.4	-15.6'	61.3'	118°20.0	67°33.5	22°48.9	22°03.2	32°31.7	65°44.3	69°34.9	111°27.2
16	246°34.7	8.4'	05°45.0	-15.6'	61.3'	117°47.3	66°55.3	22°12.1	21°25.3	33°09.6	66°21.0	70°12.7	112°05.0
17	261°02.0	8.3'	06°00.5	-15.5'	61.4'	117°14.6	66°17.1	21°35.3	20°47.4	33°47.4	66°57.8	70°50.5	112°42.8
18	275°29.4	8.3'	S 06°16.1	-15.5'	61.4'	116°41.8	65°38.9	20°58.6	20°09.6	34°25.3	67°34.6	71°28.3	113°20.6
19	289°56.7	8.2'	06°31.6	-15.5'	61.4'	116°08.9	65°00.7	20°22.1	19°31.7	35°03.2	68°11.4	72°06.1	113°58.4
20	304°23.9	8.2'	06°47.1	-15.4'	61.4'	115°36.0	64°22.5	19°45.6	18°53.9	35°41.1	68°48.2	72°44.0	114°36.2
21	318°51.1	8.2'	$07^{\circ}02.5$	-15.4'	61.4'	115°03.0	63°44.2	19°09.3	18° 16.1	36°19.1	69°25.1	73°21.9	115° 14.1
22	333°18.3	8.1'	07°17.9	-15.3'	61.4'	114°30.0	63°06.0	18°33.1	17°38.3	36°57.0	70°01.9	73°59.7	115°51.9
23	347°45.4	8.1'	07°33.2	-15.3'	61.4'	113°56.9	62°27.8	17°57.0	17°00.5	37°35.0	70°38.8	74°37.6	116°29.7
29 th	SD	= 16.7	' Mer. pas	ss. 23:51									

Moon (30th Mar) h

Lunar Distance (objects with largest hourly LD delta)

		IVIOO	11 (30° IV	iar)			Lunar L	ristance	(objects	with large	est nourly	LD della)
Fri	GHA	ν	Dec	d	HP	-Altair	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	2°12.4	8.0'	S 07°48.5	-15.3'	61.4'	113°23.7	61°49.5	17°21.1	16°22.8	38°13.0	71°15.7	75° 15.5	117°07.5
1	16°39.4	8.0'	08°03.8	-15.2'	61.4'	112°50.5	61°11.3	16°45.4	15°45.1	38°51.0	71°52.7	75°53.4	117°45.3
2	31°06.4	7.9'	$08^{\circ}19.0$	-15.2'	61.4'	112°17.3	60°33.0	16°09.9	15°07.5	39°29.0	72°29.6	76°31.3	118°23.2
3	45°33.3	7.9'	08°34.1	-15.1'	61.4'	111°44.0	59°54.8	15° 34.7	14°29.9	40°07.0	73°06.6	77°09.2	119°01.0
4	60°00.2	7.8'	08°49.2	-15.0'	61.4'	111°10.7	59°16.5	14°59.7	13°52.3	40°45.0	73°43.5	77°47.1	119°38.8
5	74°27.0	7.8'	09°04.3	-15.0'	61.4'	110°37.3	58°38.3	14°25.0	13°14.9	41°23.1	74°20.5	78°25.0	
6	88°53.8	7.7'	S 09°19.3	-14.9'	61.4'	110°03.9	58°00.0	13°50.7	12°37.5	42°01.1	74°57.4	79°02.9	
7	103°20.5	7.7'	09°34.2	-14.9'	61.4'	109°30.4	57°21.8	13° 16.7	12°00.2	42°39.1	75°34.4	79°40.8	
8	117°47.2	7.6'	09°49.0	-14.8'	61.4'	108°56.9	56°43.5	12°43.2	11°23.0	43°17.2	76°11.4	80°18.8	
9	132°13.8	7.6'	10°03.8	-14.7'	61.4'	108°23.4	56°05.3	12°10.1	10°45.9	43°55.3	76°48.4	80°56.7	
10	146°40.3	7.5'	10°18.6	-14.7'	61.4'	107°49.9	55°27.0	11°37.7	10°09.0	44°33.3	77°25.4	81°34.6	
11	161°06.8	7.5'	10°33.2	-14.6'	61.4'	107°16.3	54°48.8	11°05.8	9°32.3	45°11.4	78°02.4	82°12.5	
12	175°33.3	7.4'	S 10°47.8	-14.5'	61.4'	106°42.7	54°10.5	10°34.8	8°55.8	45°49.4	78°39.4	82°50.4	
13	189°59.7	7.3'	11°02.3	-14.4'	61.4'	106°09.0	53°32.3	10°04.5	8° 19.6	46°27.5	79°16.4	83°28.3	
14	204°26.0	7.3'	$11^{\circ}16.8$	-14.4'	61.4'	105°35.4	52°54.1		7°43.7	47°05.5	79°53.4	84°06.2	
15	218°52.3	7.2'	11°31.2	-14.3'	61.4'	105°01.7	52°15.9		7°08.2	47°43.6	80°30.4	84°44.1	
16	233°18.6	7.2'	11°45.5	-14.2'	61.4'	104°28.0	51°37.7		6°33.3	48°21.7	81°07.4	85°22.0	
17	247°44.8	7.1'	$11^{\circ}59.7$	-14.1'	61.4'	103°54.3	50°59.5		5°59.0	48°59.7	81°44.4	85°59.8	
18	262°10.9	7.1'	S 12°13.8	-14.0'	61.4'	103°20.6	50°21.3		5°25.6	49°37.7	82°21.4	86°37.7	
19	276°37.0	7.0'	12°27.9	-14.0'	61.3'	102°46.9	49°43.1			50°15.8	82°58.4	87°15.6	
20	291°03.0	7.0'	12°41.8	-13.9'	61.3'	102°13.1	49°04.9			50°53.8	83°35.4	87°53.4	
21	305°29.0	6.9'	$12^{\circ}55.7$	-13.8'	61.3'	101°39.3	48°26.8			51°31.8	84°12.3	88°31.3	
22	319°54.9	6.9'	13°09.5	-13.7'	61.3'	101°05.6	47°48.6			52°09.8	84°49.3	89°09.1	
23	334°20.7	6.8'	13°23.2	-13.6'	61.3'	100°31.8	47°10.5			52°47.8	85°26.2	89°46.9	
30 th	SE	0 = 16	7' Mer. p.	ass:-							-		

Moon (31st Mar)

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Mars	+Regulus	+Procyon	+Pollux
0	348° 46.5	6.7'	S 13°36.8	-13.5'	61.3'		99°58.0	49°38.2	46°32.4	22°11.6	53°25.8	86°03.2	90°24.7
1	3°12.3	6.7'	13°50.3	-13.4'	61.3'		99°24.2	49° 17.2	45°54.3	22°48.0	54°03.8	86°40.1	91°02.5
2	17°37.9	6.6'	14°03.7	-13.3'	61.3'		98°50.4	48° 56.4	45°16.2	23°24.4	54°41.8	87°17.0	91°40.2
3	32°03.6	6.6'	$14^{\circ}17.0$	-13.2'	61.3'		98°16.7	48° 35.9	44°38.2	24°01.0	55°19.7	87°53.9	92°18.0
4	46°29.1	6.5'	14°30.2	-13.1'	61.3'		97°42.9	48° 15.6	44°00.1	24°37.6	55°57.6	88°30.8	92°55.7
5	60°54.7	6.5'	14°43.3	-13.0'	61.2'		97°09.1	47°55.7	43°22.1	25° 14.4	56°35.6	89°07.7	93°33.4
6	75°20.1	6.4'	S 14°56.3	-12.9'	61.2'		96°35.3	47°36.0	42°44.1	25°51.2	57°13.5	89°44.5	94°11.1
7	89°45.5	6.3'	$15^{\circ}09.2$	-12.8'	61.2'		96°01.5	47° 16.6	42°06.1	26°28.1	57°51.4	90°21.3	94°48.8
8	104°10.9	6.3'	15°22.0	-12.7'	61.2'		95°27.8	46° 57.5	41°28.2	27°05.1	58°29.2	90°58.2	95°26.5
9	118° 36.2	6.2'	$15^{\circ}34.7$	-12.6'	61.2'		94°54.0	46°38.7	40°50.2	27° 42.2	59°07.1	91°35.0	96°04.1
10	133°01.4	6.2'	15°47.2	-12.5'	61.2'	119°45.2	94°20.3	46°20.3	40°12.3	28° 19.3	59°44.9	92°11.7	96°41.7
11	147°26.6	6.1'	15°59.7	-12.3'	61.1'	119°12.1	93°46.6	46°02.1	39°34.4	28°56.5	60°22.7	92°48.5	97°19.3
12	161°51.7	6.1'	S 16°12.0	-12.2'	61.1'	118°38.9	93°12.8	45°44.3	38°56.5	29°33.7	61°00.5	93°25.2	97°56.9
13	176° 16.8	6.0'	16°24.2	-12.1'	61.1'	118°05.7	92°39.1	45°26.8	38°18.7	30°11.0	61°38.3	94°01.9	98°34.4
14	190°41.8	6.0'	$16^{\circ}36.3$	-12.0'	61.1'	117°32.5	92°05.5	45°09.6	37°40.9	30°48.2	62°16.0	94°38.6	99°11.9
15	205°06.7	5.9'	16°48.3	-11.9'	61.1'	116°59.3	91°31.8	44°52.8	37°03.1	31°25.6	62°53.8	95°15.2	99°49.4
16	219°31.7	5.9'	17°00.2	-11.7'	61.1'	116°26.1	90°58.2	44°36.4	36°25.3	32°02.9	63°31.5	95°51.8	100°26.9
17	233°56.5	5.8'	$17^{\circ}11.9$	-11.6'	61.0'	115°52.8	90°24.5	44°20.3	35°47.6	32°40.3	64°09.1	96°28.4	101°04.3
18	248°21.3	5.8'	S 17°23.5	-11.5'	61.0'	115°19.5	89°50.9	44°04.5	35°09.9	33° 17.7	64°46.8	97°05.0	101°41.7
19	262°46.1	5.7'	$17^{\circ}35.0$	-11.4'	61.0'	114°46.2	89°17.4	43°49.1	34°32.2	33°55.1	65°24.4	97°41.5	102°19.1
20	277°10.8	5.6'	17°46.4	-11.2'	61.0'	114°12.8	88°43.8	43°34.1	33°54.6	34°32.6	66°02.0	98°18.0	102°56.5
21	291°35.4	5.6'	$17^{\circ}57.6$	-11.1'	61.0'	113°39.5	88°10.3		33°16.9	35° 10.0	66°39.6	98°54.5	103°33.8
22	306°00.0	5.5'	$18^{\circ}08.7$	-11.0'	60.9'	113°06.1	87°36.8		32°39.4	35°47.5	67°17.1	99°31.0	104°11.1
23	320°24.6	5.5'	18° 19.7	-10.8'	60.9'	112°32.7	87°03.3		32°01.8	36°24.9	67°54.6	100°07.4	104°48.3
31 st	SD	= 16.7	Mer. pa:	ss. 00:47									

Mer. pass. 01:45

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

		IVIO		<i>)</i>			uliai Dist	ance (or	Jects wit	ii laigesi	. Hourry i	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Mars	+Regulus	+Pollux
0	334°49.1	5.5'	S 18°30.5	-10.7'	60.9'	111°59.3	107°02.4	86°29.9	31°24.3	14°34.5	37°02.4	68°32.1	105°25.6
1	349°13.5	5.4'	18°41.2	-10.6'	60.9'	111°26.0	106°43.4	85°56.5	30°46.8	15°11.4	37°39.9	69°09.6	106°02.8
2	3°37.9	5.4'	18°51.7	-10.4'	60.8'	110°52.6	106°24.3	85°23.2	30°09.4	15°48.3	38°17.3	69°47.0	106°39.9
3	18°02.3	5.3'	19°02.2	-10.3'	60.8'	110° 19.2	106°05.1	84°49.8	29°32.0	16°25.2	38°54.8	70°24.4	107° 17.1
4	32°26.6	5.3'	19°12.4	-10.1'	60.8'	109°45.7	105°45.9	84°16.5	28°54.6	17°02.2	39°32.2	71°01.8	107°54.1
5	46°50.9	5.2'	19°22.6	-10.0'	60.8'	109° 12.3	105°26.6	83°43.3	28°17.3	17°39.2	40°09.7	71°39.1	108°31.2
6	61°15.1	5.2'	S 19°32.6	-9.9'	60.7'	108°38.9	105°07.2	83°10.1	27°40.0	18°16.1	40°47.1	72°16.4	109°08.2
7	75°39.3	5.1'	19°42.4	-9.7'	60.7'	108°05.5	104°47.8	82°36.9	27°02.7	18°53.1	41°24.6	72°53.6	109°45.2
8	90°03.4	5.1'	19°52.1	-9.6'	60.7'	107°32.1	104°28.3	82°03.8	26°25.5	19°30.0	42°02.0	73°30.9	110°22.1
9	104°27.5	5.1'	20°01.7	-9.4'	60.7'	106°58.8	104°08.7	81°30.7	25°48.3	20°06.9	42°39.4	74°08.1	110°59.0
10	118°51.5	5.0'	$20^{\circ}11.1$	-9.3'	60.6'	106°25.4	103°49.1	80°57.6	25°11.2	20°43.8	43°16.8	74°45.2	111°35.9
11	133°15.6	5.0'	20°20.4	-9.1'	60.6'	105°52.0	103°29.4	80°24.6	24°34.1	21°20.7	43°54.1	75°22.3	112°12.7
12	147°39.5	4.9'	S 20°29.5	-9.0'	60.6'	105° 18.6	103°09.7	79°51.7	23°57.0	21°57.6	44°31.5	75°59.4	112°49.5
13	162°03.5	4.9'	20°38.4	-8.8'	60.5'	104° 45.3	102°49.9	79°18.8	23°20.0	22°34.5	45°08.8	76°36.5	113°26.3
14	176°27.4	4.9'	20°47.2	-8.7'	60.5'	104° 12.0	102°30.1	78°45.9	22°43.1	23°11.3	45°46.1	77°13.5	114°03.0
15	190°51.3	4.8'	20°55.9	-8.5'	60.5'	103°38.7	102°10.3	78°13.1	22°06.2	23°48.1	46°23.4	77°50.5	114°39.6
16	205°15.1	4.8'	21°04.4	-8.3'	60.5'	103°05.3	101°50.4	77°40.4	21°29.3	24°24.9	47°00.7	78°27.4	115° 16.2
17	219°38.9	4.8'	$21^{\circ}12.7$	-8.2'	60.4'	102°32.1	101°30.5	77°07.7	20°52.5	25°01.7	47°37.9	79°04.3	115°52.8
18	234°02.7	4.7'	S 21°20.9	-8.0'	60.4'	101°58.8	101°10.5	76°35.0	20°15.8	25°38.4	48°15.2	79°41.2	116°29.3
19	248°26.4	4.7'	21°29.0	-7.9'	60.4'	101°25.6	100°50.5	76°02.5	19°39.1	26°15.1	48°52.4	80°18.0	117°05.8
20	262°50.1	4.7'	21°36.8	-7.7'	60.3'	100°52.3	100°30.5	75°29.9	19°02.4	26°51.8	49°29.5	80°54.7	117°42.3
21	277°13.8	4.7'	21°44.6	-7.6'	60.3'	100° 19.1	100°10.4	74°57.5	18°25.8	27°28.4	50°06.7	81°31.5	118° 18.6
22	291°37.5	4.6'	21°52.1	-7.4'	60.3'	99°46.0	99°50.3	74°25.1	17°49.3	28°05.0	50°43.8	82°08.2	118°55.0
23	306°01.1	4.6'	21°59.5	-7.2'	60.2'	99°12.8	99°30.2	73°52.7	17°12.8	28°41.6	51°20.9	82°44.8	119°31.3

h	Moon (2 nd Apr)	Lunar Distanc	e (ol	ojects wit	h larges	t hourly L	D delta)

Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Mars	+Regulus
0	320°24.8	4.6'	S 22°06.8	-7.1'	60.2'	99°10.1	98°39.7	73°20.4	16°36.4	29°18.1	30°09.3	51°57.9	83°21.5
1	334°48.4	4.6'	22°13.8	-6.9'	60.2'	98°49.9	98°06.6	72°48.2	16°00.0	29°54.6	30°45.4	52°34.9	83°58.0
2	349°11.9	4.6'	22°20.8	-6.8'	60.1'	98°29.7	97°33.5	72°16.1	15°23.8	30°31.1	31°21.4	53°11.9	84°34.6
3	3°35.5	4.5'	22°27.5	-6.6'	60.1'	98°09.5	97°00.5	71°44.0	14°47.6	31°07.5	31°57.5	53°48.8	85°11.0
4	17°59.1	4.5'	22°34.1	-6.4'	60.1'	97°49.3	96°27.5	71°12.0	14°11.4	31°43.9	32°33.5	54°25.8	85°47.5
5	32°22.6	4.5'	22°40.5	-6.3'	60.0'	97°29.1	95°54.5	70°40.0	13°35.4	32°20.3	33°09.6	55°02.6	86°23.9
6	46°46.1	4.5'	S 22°46.8	-6.1'	60.0'	97°08.8	95°21.5	70°08.1	12°59.4	32°56.6	33°45.6	55°39.5	87°00.2
7	61°09.6	4.5'	22°52.9	-5.9'	60.0'	96°48.6	94°48.6	69°36.3	12°23.5	33°32.9	34°21.6	56° 16.3	87°36.5
8	75°33.1	4.5'	22°58.8	-5.8'	59.9'	96°28.3	94°15.8	69°04.6	11°47.7	34°09.1	34° 57.5	56°53.1	88°12.8
9	89°56.6	4.5'	23°04.5	-5.6'	59.9'	96°08.1	93°42.9	68°32.9	11°12.1	34°45.3	35°33.5	57°29.8	88°49.0
10	104°20.1	4.5'	23°10.1	-5.4'	59.9'	95°47.8	93°10.1	68°01.3	10°36.5	35°21.4	36°09.4	58°06.5	89°25.2
11	118°43.6	4.5'	23°15.6	-5.3'	59.8'	95°27.6	92°37.4	67°29.8	10°01.1	35°57.5	36°45.3	58°43.2	90°01.3
12	133°07.1	4.5'	S 23°20.8	-5.1'	59.8'	95°07.3	92°04.6	66°58.4	9°25.8	36°33.6	37°21.2	59° 19.8	90°37.4
13	147°30.5	4.5'	23°25.9	-4.9'	59.8'	94°47.1	91°31.9	66°27.1	8°50.7	37°09.6	37°57.0	59°56.4	91°13.5
14	161°54.0	4.5'	23°30.8	-4.8'	59.7'	94°26.8	90°59.3	65°55.8	8°15.8	37°45.6	38° 32.8	60°32.9	91°49.4
15	176°17.5	4.5'	23°35.6	-4.6'	59.7'	94°06.5	90°26.7	65°24.6	7°41.1	38°21.6	39°08.6	61°09.4	92°25.4
16	190°41.0	4.5'	23°40.2	-4.4'	59.6'	93°46.3	89°54.1	64°53.5	7°06.7	38°57.5	39°44.4	61°45.9	93°01.3
17	205°04.5	4.5'	23°44.6	-4.2'	59.6'	93°26.1	89°21.6	64°22.5	6°32.6	39°33.3	40°20.1	62°22.3	93°37.1
18	219°28.0	4.5'	S 23°48.8	-4.1'	59.6'	93°05.9	88°49.1	63°51.6	5°58.9	40°09.1	40°55.8	62°58.7	94°12.9
19	233°51.5	4.5'	23°52.9	-3.9'	59.5'	92°45.6	88°16.7	63°20.7	5°25.7	40°44.9	41°31.4	63°35.0	94°48.7
20	248°15.0	4.5'	23°56.8	-3.7'	59.5'	92°25.4	87°44.3	62°50.0	4°53.2	41°20.6	42°07.0	64°11.3	95°24.4
21	262°38.5	4.5'	24°00.6	-3.6'	59.5'	92°05.3	87°12.0	62°19.3	4°21.6	41°56.3	42°42.6	64°47.6	96°00.1
22	277°02.1	4.6'	24°04.1	-3.4'	59.4'	91°45.1	86°39.7	61°48.7		42°31.9	43°18.2	65°23.8	96°35.7
23	291°25.6	4.6'	24°07.5	-3.2'	59.4'	91°25.0	86°07.4	61°18.3		43°07.5	43°53.7	65°59.9	97°11.2
2 nd	SD :	= 16.4'	Mer. pas	s. 02:45	5								

	h Moon ((3 rd Apr)	Lunar Distance (objects with	largest hourly	LD delta
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Tue	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Spica	+Jupiter	+Mars	+Regulus
0	305°49.2	4.6'	S 24°10.8	-3.1'	59.3'		91°04.8	85°35.2	60°47.9	43°43.0	44°29.2	66°36.0	97°46.8
1	320°12.8	4.6'	24°13.8	-2.9'	59.3'		90°44.8	85°03.1	60°17.6	44° 18.5	45°04.6	67°12.1	98°22.2
2	334°36.5	4.7'	24°16.7	-2.7'	59.3'		90°24.7	84°31.0	59°47.4	44°53.9	45°40.0	67°48.2	98°57.7
3	349°00.1	4.7'	24°19.5	-2.6'	59.2'		90°04.6	83°58.9	59°17.4	45°29.3	46°15.3	68°24.1	99°33.0
4	3°23.8	4.7'	24°22.0	-2.4'	59.2'		89°44.6	83°26.9	58°47.4	46°04.7	46°50.7	69°00.1	100°08.3
5	17°47.5	4.7'	24°24.4	-2.2'	59.2'		89°24.6	82°55.0	58°17.5	46°40.0	47°25.9	69°36.0	100°43.6
6	32°11.2	4.8'	S 24°26.6	-2.1'	59.1'		89°04.6	82°23.1	57°47.7	47° 15.2	48°01.2	70°11.8	101°18.8
7	46°35.0	4.8'	24°28.7	-1.9'	59.1'		88°44.7	81°51.2	57°18.1	47°50.4	48°36.4	70°47.6	101°54.0
8	60°58.8	4.8'	24°30.6	-1.7'	59.0'		88°24.8	81°19.4	56°48.5	48° 25.6	49°11.5	71°23.4	102°29.1
9	75°22.6	4.9'	24°32.3	-1.6'	59.0'		88°04.9	80°47.7	56°19.1	49°00.7	49°46.6	71°59.1	103°04.2
10	89°46.5	4.9'	24°33.9	-1.4'	59.0'		87°45.1	80°16.0	55°49.8	49°35.8	50°21.7	72°34.8	103°39.2
11	104°10.4	5.0'	24°35.3	-1.2'	58.9'	119°28.8	87°25.3	79°44.4	55°20.6	50° 10.8	50°56.7	73°10.4	104°14.2
12	118°34.4	5.0'	S 24°36.5	-1.1'	58.9'	118°56.4	87°05.6	79°12.8	54°51.5	50°45.8	51°31.7	73°46.0	104°49.2
13	132°58.4	5.0'	24°37.5	-0.9'	58.8'	118°24.0	86°45.9	78°41.3	54°22.5	51°20.7	52°06.7	74°21.5	105°24.0
14	147°22.4	5.1'	24°38.4	-0.7'	58.8'	117°51.7	86°26.2	78°09.9	53°53.6	51°55.5	52°41.6	74°57.0	105°58.9
15	161°46.5	5.1'	24°39.2	-0.6'	58.8'	117° 19.4	86°06.5	77°38.5	53°24.9	52°30.4	53°16.4	75°32.4	106°33.6
16	176°10.6	5.2'	24°39.7	-0.4'	58.7'	116°47.2	85°47.0	77°07.1	52°56.3	53°05.1	53°51.3	76°07.8	107°08.4
17	190°34.8	5.2'	24°40.2	-0.2'	58.7'	116° 15.1	85°27.4	76°35.9	52°27.8	53°39.9	54°26.0	76°43.2	107°43.0
18	204°59.0	5.3'	S 24°40.4	-0.1'	58.6'	115°42.9	85°07.9	76°04.6	51°59.5	54° 14.6	55°00.8	77° 18.5	108°17.7
19	219°23.3	5.3'	24°40.5	0.1'	58.6'	115°10.9	84°48.5	75°33.5	51°31.3	54°49.2	55°35.4	77°53.7	108°52.3
20	233°47.6	5.4'	24°40.4	0.2'	58.6'	114°38.8	84°29.1	75°02.4	51°03.2	55°23.8	56°10.1	78°28.9	109°26.8
21	248°12.0	5.4'	24°40.2	0.4'	58.5'	114°06.9	84°09.7	74°31.4	50°35.2	55° 58.3	56°44.7	79°04.1	110°01.3
22	262°36.5	5.5'	24°39.8	0.6'	58.5'	113°34.9	83°50.4	74°00.4	50°07.4	56°32.8	57°19.2	79°39.2	110°35.7
23	277°01.0	5.6'	24°39.2	0.7'	58.4'	113°03.1	83°31.2	73°29.5	49°39.8	57°07.2	57°53.7	80°14.2	111°10.1
3 rd	SD =	= 16.2'	Mer. pas	s. 03:46	j				Sun SD :	= 16.0'			

1st

SD = 16.6'

h		Моо	n (4 th Ap	r)			Lunar D	istance (ob	jects wit	:h largest	: hourly L	.D delta)	
Wed	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Spica	+Jupiter	+Mars	
0	291°25.6	5.6'	S 24°38.5			_					58°28.2		Ī

Wed	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Spica	+Jupiter	+Mars	+Regulus
0	291°25.6	5.6'	S 24°38.5	0.9'	58.4'	112°31.2	83°12.0	72°58.7	49°12.2	57°41.6	58°28.2	80°49.2	111°44.4
1	305°50.2	5.7'	24°37.6	1.0'	58.4'	111°59.4	82°52.9	72°27.9	48°44.9	58°16.0	59°02.6	81°24.2	112° 18.7
2	320°14.9	5.8'	24°36.6	1.2'	58.3'	111°27.7	82°33.8	71°57.2	48° 17.7	58°50.3	59°37.0	81°59.1	112°52.9
3	334°39.6	5.8'	24°35.4	1.3'	58.3'	110°56.0	82°14.8	71°26.5	47°50.6	59°24.5	60°11.3	82°34.0	113°27.1
4	349°04.5	5.9'	24°34.1	1.5'	58.2'	110°24.4	81°55.8	70°56.0	47°23.7	59°58.7	60°45.6	83°08.8	114°01.3
5	3°29.4	6.0'	24°32.6	1.6'	58.2'	109°52.8	81°36.9	70°25.4	46°56.9	60°32.9	61°19.8	83°43.6	114°35.3
6	17°54.3	6.0'	S 24°30.9	1.8'	58.2'	109°21.2	81°18.1	69°55.0	46°30.3	61°07.0	61°54.0	84°18.3	115°09.4
7	$32^{\circ}19.3$	6.1'	$24^{\circ}29.1$	1.9'	58.1'	108°49.7	80°59.3	69°24.6	46°03.9	61°41.0	62°28.2	84°53.0	115°43.4
8	46°44.4	6.2'	24°27.2	2.1'	58.1'	108°18.3	80°40.6	68°54.3	45°37.6	62°15.1	63°02.3	85°27.6	116° 17.3
9	$61^{\circ}09.6$	6.2'	$24^{\circ}25.1$	2.2'	58.0'	107°46.8	80°21.9	68°24.1	45°11.5	62°49.0	63°36.4	86°02.2	116°51.2
10	75°34.9	6.3'	24°22.8	2.4'	58.0'	107°15.5	80°03.3	67°53.9	44°45.6	63°22.9	64°10.4	86°36.8	117°25.0
11	90°00.2	6.4'	24°20.5	2.5'	58.0'	106°44.2	79°44.8	67°23.8	44°19.9	63°56.8	64°44.3	87°11.2	117°58.8
12	104°25.6	6.5'	S 24°17.9	2.7'	57.9'	106°12.9	79°26.4	66°53.8	43°54.3	64°30.6	65° 18.3	87°45.7	118°32.6
13	118°51.1	6.6'	$24^{\circ}15.2$	2.8'	57.9'	105°41.7	79°08.0	66°23.9	43°29.0	65°04.4	65°52.1	88°20.1	119°06.3
14	133°16.6	6.6'	24°12.4	3.0'	57.9'	105°10.5	78°49.7	65°54.0	43°03.8	65°38.1	66°26.0	88°54.4	119°39.9
15	147°42.2	6.7'	24°09.4	3.1'	57.8'	104°39.4	78°31.5	65°24.2	42°38.8	66°11.8	66°59.8	89°28.7	
16	$162^{\circ}08.0$	6.8'	24°06.3	3.3'	57.8'	104°08.3	78°13.3	64°54.5	42°14.0	66°45.5	67°33.5	90°03.0	
17	176°33.7	6.9'	24°03.0	3.4'	57.7'	103°37.2	77°55.2	64°24.8	41°49.4	67°19.1	68°07.2	90°37.2	
18	190°59.6	7.0'	S 23°59.6	3.5'	57.7'	103°06.2	77°37.2	63°55.2	41°25.1	67°52.6	68°40.9	91°11.4	
19	205°25.6	7.0'	$23^{\circ}56.1$	3.7'	57.7'	102°35.3	77°19.2	63°25.7	41°00.9	68°26.1	69° 14.5	91°45.5	
20	219°51.6	7.1'	23°52.4	3.8'	57.6'	102°04.4	77°01.4	62°56.3	40°36.9	68°59.5	69°48.1	92°19.6	
21	234°17.8	7.2'	23°48.6	4.0'	57.6'	101°33.5	76°43.6	62°27.0	40°13.2	69°33.0	70°21.6	92°53.6	
22	248°44.0	7.3'	23°44.6	4.1'	57.5'	101°02.7	76°25.9	61°57.7	39°49.7	70°06.3	70°55.1	93°27.6	
23	263°10.3	7.4'	23°40.5	4.2'	57.5'	100°32.0	76°08.3	61°28.5	39°26.4	70°39.6	71°28.5	94°01.5	
4 th	SD =	= 15.9′	Mer. pass	s. 04:4!	5				Sun SD :	= 16.0'			

h Moon (5 th Apr) Lunar Distance (objects with largest hourly L
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Thu	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Mars
0	277°36.7	7.5'	S 23°36.3	4.4'	57.5'	100°01.2	75°50.7	60°59.4	39°03.4	25°37.6	71°12.9	72°01.9	94°35.4
1	292°03.1	7.6'	23°32.0	4.5'	57.4'	99°30.5	75°33.3	60°30.4	38°40.6	26°10.8	71°46.1	72°35.3	95°09.2
2	306°29.7	7.7'	23°27.5	4.6'	57.4'	98°59.9	75° 15.9	60°01.5	38°18.0	26°43.9	72°19.3	73°08.6	95°43.0
3	320°56.4	7.7'	23°22.9	4.7'	57.4'	98° 29.3	74°58.6	59°32.6	37°55.7	27°16.9	72°52.5	73°41.9	96°16.8
4	335°23.1	7.8'	23° 18.1	4.9'	57.3'	97°58.8	74°41.4	59°03.9	37°33.7	27°50.0	73° 25.5	74° 15.1	96°50.5
5	349°49.9	7.9'	23°13.2	5.0'	57.3'	97°28.3	74°24.3	58°35.2	37°11.9	28°23.0	73°58.6	74°48.3	97°24.1
6	4°16.9	8.0'	S 23°08.2	5.1'	57.2'	96°57.8	74°07.2	58°06.6	36°50.4	28°55.9	74°31.6	75°21.4	97°57.8
7	18°43.9	8.1'	23°03.1	5.3'	57.2'	96°27.4	73°50.3	57°38.1	36°29.1	29°28.8	75°04.6	75° 54.5	98°31.3
8	33°11.0	8.2'	22°57.9	5.4'	57.2'	95°57.0	73°33.5	57°09.7	36°08.1	30°01.7	75°37.5	76°27.6	99°04.9
9	47°38.2	8.3'	22°52.5	5.5'	57.1'	95°26.7	73°16.7	56°41.3	35°47.5	30°34.5	76°10.4	77°00.6	99°38.3
10	62°05.5	8.4'	22°47.0	5.6'	57.1'	94°56.4	73°00.0	56°13.1	35°27.1	31°07.3	76°43.2	77° 33.6	100°11.8
11	76°32.9	8.5'	22°41.4	5.7'	57.1'	94°26.2	72°43.4	55°45.0	35°07.0	31°40.0	77°16.0	78°06.5	100°45.2
12	91°00.4	8.6'	S 22°35.6	5.9'	57.0'	93°56.0	72°27.0	55°16.9	34°47.2	32°12.7	77°48.7	78°39.4	101°18.5
13	105°28.0	8.7'	$22^{\circ}29.8$	6.0'	57.0'	93°25.8	72°10.6	54°48.9	34°27.8	32°45.4	78°21.4	79°12.2	101°51.8
14	119°55.6	8.8'	22°23.8	6.1'	56.9'	92°55.7	71°54.3	54°21.1	34°08.6	33°18.0	78°54.1	79°45.0	102°25.1
15	134°23.4	8.9'	$22^{\circ}17.7$	6.2'	56.9'	92°25.6	71°38.1	53°53.3	33°49.8	33°50.6	79°26.7	80° 17.8	102°58.3
16	148°51.3	9.0'	22°11.5	6.3'	56.9'	91°55.6	71°22.0	53°25.7	33°31.3	34°23.2	79°59.3	80° 50.5	103°31.5
17	163°19.2	9.1'	22°05.2	6.4'	56.8'	91°25.6	71°06.0	52°58.1	33°13.2	34°55.7	80°31.8	81°23.2	104°04.6
18	177°47.3	9.1'	S 21°58.7	6.5'	56.8'	90°55.6	70°50.1	52°30.6	32°55.4	35°28.1	81°04.3	81°55.9	104°37.7
19	192°15.4	9.2'	$21^{\circ}52.2$	6.7'	56.8'	90°25.7	70°34.3	52°03.3	32°38.0	36°00.6	81°36.8	82°28.5	105°10.8
20	206°43.7	9.3'	$21^{\circ}45.5$	6.8'	56.7'	89°55.8	70°18.6	51°36.0	32°20.9	36°33.0	82°09.2	83°01.0	105°43.8
21	221°12.0	9.4'	21°38.8	6.9'	56.7'	89°26.0	70°03.0	51°08.9	32°04.2	37°05.3	82°41.6	83°33.6	106°16.7
22	235°40.4	9.5'	21°31.9	7.0'	56.7'	88°56.2	69°47.5	50°41.8	31°47.9	37°37.6	83°13.9	84°06.0	106°49.7
23	250°09.0	9.6'	21°24.9	7.1'	56.6'	88°26.4	69°32.2	50°14.9	31°32.0	38°09.9	83°46.2	84°38.5	107°22.5
5 th	SD =	SD = 15.7' Mer. pass. $05:42$ Sun $SD = 16.0'$											

I_	Moon (6th Apr)	Lunar Distance (objects with largest hourly LD delta)
n	MOOD IN ADEL	I linar i listance i oniects with largest nollriv i i l'ideita i

Fri	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	+Antares	+Arcturus	+Spica	+Jupiter	+Mars
0	264°37.6	9.7'	S 21°17.9	7.2'	56.6'	87°56.7	69°16.9	49°48.1	38°42.1	84° 17.9	84°18.5	85°10.9	107°55.4
1	279°06.3	9.8'	$21^{\circ}10.7$	7.3'	56.6'	87°27.1	69°01.7	49°21.3	39° 14.3	84°44.1	84°50.7	85°43.3	108°28.2
2	293°35.1	9.9'	21°03.4	7.4'	56.5'	86°57.4	68°46.7	48°54.7	39°46.5	85° 10.2	85°22.9	86°15.6	109°00.9
3	308°04.1	10.0'	20°56.0	7.5'	56.5'	86°27.8		48°28.3	40° 18.6	85°36.4	85°55.0	86°47.9	109°33.6
4	322°33.1	10.1'	20°48.5	7.6'	56.5'	85°58.3		48°01.9	40°50.7	86°02.5	86°27.1	87°20.2	110°06.3
5	337°02.2	10.2'	20°40.9	7.7'	56.4'	85°28.7		47°35.7	41°22.8	86°28.6	86°59.2	87°52.4	110°38.9
6	351°31.4	10.3'	S 20°33.3	7.8'	56.4'	84°59.2		47°09.5	41°54.8	86°54.6	87°31.2	88°24.6	111°11.5
7	6°00.7	10.4'	20°25.5	7.9'	56.4'	84°29.8		46°43.5	42°26.8	87°20.7	88°03.2	88°56.7	111°44.1
8	20°30.1	10.5'	20°17.6	8.0'	56.3'	84°00.4		46°17.7	42°58.7	87°46.7	88°35.2	89°28.8	112°16.6
9	34°59.5	10.6'	$20^{\circ}09.6$	8.1'	56.3'	83°31.0		45°51.9	43°30.6	88° 12.7	89°07.1	90°00.9	112°49.1
10	49°29.1	10.7'	$20^{\circ}01.6$	8.2'	56.3'	83°01.7		45°26.3	44°02.5	88°38.7	89°39.0	90°32.9	113°21.5
11	63°58.8	10.8'	19°53.4	8.2'	56.2'	82°32.4		45°00.8	44°34.3	89°04.6	90°10.8	91°04.9	113°53.9
12	78°28.6	10.9'	S 19°45.2	8.3'	56.2'	82°03.1		44°35.5	45°06.1	89° 30.5	90°42.6	91°36.9	114°26.3
13	92°58.4	11.0'	19°36.8	8.4'	56.2'	81°33.9		44°10.3	45° 37.9	89° 56.4	91°14.4	92°08.8	114°58.6
14	107°28.4	11.0'	19°28.4	8.5'	56.1'	81°04.7		43°45.2	46°09.6	90°22.2	91°46.2	92°40.7	115°30.9
15	121°58.4	11.1'	$19^{\circ}19.9$	8.6'	56.1'	80°35.5		43°20.3	46°41.3	90°48.1	92°17.9	93°12.6	116°03.1
16	136°28.5	11.2'	$19^{\circ}11.3$	8.7'	56.1'	80°06.4		42°55.5	47° 13.0	91°13.9	92°49.5	93°44.4	116°35.3
17	150°58.8	11.3'	19°02.6	8.8'	56.0'	79°37.3		42°30.9	47° 44.6	91°39.6	93°21.2	94°16.2	117°07.5
18	165°29.1	11.4'	S 18°53.9	8.8'	56.0'	79°08.3		42°06.5	48° 16.2	92°05.4	93°52.8	94°47.9	117°39.6
19	179°59.5	11.5'	18°45.0	8.9'	56.0'	78°39.2		41°42.2	48° 47.8	92°31.1	94°24.3	95°19.6	118°11.7
20	194°30.0	11.6'	$18^{\circ}36.1$	9.0'	55.9'	78°10.2		41°18.0	49° 19.3	92°56.7	94°55.9	95°51.3	118°43.7
21	209°00.6	11.7'	$18^{\circ}27.1$	9.1'	55.9'	77°41.3		40°54.0	49° 50.8	93°22.4	95°27.4	96°23.0	119°15.7
22	223°31.3	11.8'	$18^{\circ}18.0$	9.2'	55.9'	77°12.4		40°30.2	50°22.3	93°48.0	95°58.8	96°54.6	119°47.7
23	238°02.0	11.9'	18°08.8	9.2'	55.9'	76°43.5		40°06.5	50°53.7	94°13.6	96°30.3	97°26.2	
6 th	SD	SD = 15.4' Mer. pass. 06:35 $Sun SD = 16.0'$											

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

Sat	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica	+Jupiter
0	252°32.9	11.9'	S 17°59.6	9.3'	55.8'	76°14.6	39°43.1	51°25.1	70°45.3	75°08.2	94°39.1	97°01.7	97°57.8
1	267°03.8	12.0'	17°50.3	9.4'	55.8'	75°45.8	39° 19.8	51°56.5	71°08.6	75°31.4	95°04.6	97°33.0	98°29.3
2	281°34.8	12.1'	17°40.9	9.5'	55.8'	75°17.0	38° 56.7	52°27.8	71°31.9	75°54.7	95°30.1	98°04.4	99°00.8
3	296°06.0	12.2'	17°31.4	9.5'	55.7'	74°48.2	38°33.7	52°59.2	71°55.2	76° 18.0	95°55.5	98°35.7	99°32.2
4	310°37.2	12.3'	$17^{\circ}21.9$	9.6'	55.7'	74°19.5	38°11.0	53°30.4	72°18.6	76°41.3	96°20.9	99°07.0	100°03.7
5	325°08.4	12.4'	$17^{\circ}12.3$	9.7'	55.7'	73°50.8	37°48.4	54°01.7	72°41.9	77°04.6	96°46.3	99°38.2	100°35.0
6	339°39.8	12.5'	S 17°02.6	9.7'	55.6'	73°22.1	37°26.1	54°32.9	73°05.3	77°27.9	97°11.6	100°09.4	101°06.4
7	354°11.3	12.5'	$16^{\circ}52.9$	9.8'	55.6'	72°53.5	37°04.0	55°04.1	73°28.7	77°51.2	97°36.9	100°40.6	101°37.8
8	8°42.8	12.6'	$16^{\circ}43.1$	9.9'	55.6'	72°24.9	36°42.0	55°35.2	73°52.2	78° 14.6	98°02.2	101°11.8	102°09.1
9	23°14.4	12.7'	16°33.2	9.9'	55.6'	71°56.3	36°20.3	56°06.4	74°15.6	78° 37.9	98° 27.4	101°42.9	102°40.3
10	37°46.1	12.8'	16°23.2	10.0'	55.5'	71°27.8	35°58.8	56°37.5	74°39.1	79°01.2	98°52.6	102°14.0	103°11.6
11	52°17.9	12.9'	$16^{\circ}13.2$	10.1'	55.5'	70°59.3	35°37.5	57°08.6	75°02.5	79°24.6	99° 17.7	102°45.0	103°42.8
12	66°49.8	12.9'	S 16°03.1	10.1'	55.5'	70°30.8	35° 16.5	57°39.6	75°26.0	79°47.9	99°42.8	103°16.1	104°14.0
13	81°21.7	13.0'	15°53.0	10.2'	55.5'	70°02.3	34°55.7	58°10.6	75°49.5	80°11.2	100°07.9	103°47.1	104°45.1
14	95°53.7	13.1'	15°42.8	10.3'	55.4'	69°33.9	34°35.1	58°41.6	76°12.9	80°34.6	100°32.9	104°18.1	105°16.3
15	110°25.8	13.2'	15°32.5	10.3'	55.4'	69°05.5	34°14.8	59°12.6	76°36.4	80°57.9	100°57.9	104°49.0	105°47.4
16	124°58.0	13.3'	$15^{\circ}22.2$	10.4'	55.4'	68°37.1	33°54.7	59°43.5	76°59.9	81°21.2	101°22.8	105°20.0	106°18.4
17	139°30.2	13.3'	$15^{\circ}11.8$	10.4'	55.4'	68°08.8	33°34.9	60°14.4	77°23.5	81°44.6	101°47.7	105°50.8	106°49.5
18	154°02.6	13.4'	S 15°01.4	10.5'	55.3'	67°40.4	33° 15.4	60°45.3	77°47.0	82°07.9	102°12.6	106°21.7	107°20.5
19	168°35.0	13.5'	14°50.9	10.6'	55.3'	67°12.1	32°56.1	61°16.2	78°10.5	82°31.2	102°37.4	106°52.6	107°51.5
20	183°07.4	13.5'	14°40.4	10.6'	55.3'	66°43.9	32°37.1	61°47.0	78°34.0	82°54.5	103°02.2	107°23.4	108°22.4
21	197°40.0	13.6'	14°29.8	10.7'	55.3'	66°15.6	32°18.4	62°17.8	78°57.5	83°17.8	103°26.9	107°54.2	108°53.4
22	212°12.6	13.7'	$14^{\circ}19.1$	10.7'	55.2'	65°47.4	32°00.0	62°48.6	79°21.1	83°41.2	103°51.6	108°24.9	109°24.3
23	226°45.3	13.8'	14°08.4	10.8'	55.2'	65°19.2	31°41.9	63°19.3	79°44.6	84°04.5	104°16.3	108°55.7	109°55.2
7 th	SD = 15.2' Mer. pass. 07:24 Sun SD = $16.0'$												

Moon (8th Apr)

Lunar Distance (objects with largest hourly LD delta)

h		Moor	n (8 th Ap	r)		Lunar Distance (objects with largest hourly LD delta)								
Sun	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica	+Jupiter	
0	241°18.1	13.8'	S 13°57.6	10.8'	55.2'	64°51.1	31°24.1	63°50.0	80°08.1	84°27.8	104°40.9	109°26.4	110°26.0	
1	255°50.9	13.9'	13°46.8	10.9'	55.2'	64°22.9	31°06.7	64°20.7	80°31.7	84°51.0	105°05.4	109°57.1	110°56.8	
2	270°23.8	14.0'	13°35.9	10.9'	55.1'	63°54.8	30°49.5	64°51.4	80°55.2	85°14.3	105°29.9	110°27.8	111°27.7	
3	284°56.8	14.0'	13°25.0	11.0'	55.1'	63°26.7	30°32.7	65°22.1	81°18.8	85°37.6	105°54.4	110°58.4	111°58.4	
4	299°29.8	14.1'	$13^{\circ}14.1$	11.0'	55.1'	62°58.7	30°16.2	65°52.7	81°42.3	86°00.9	106°18.8	111°29.0	112°29.2	
5	314°02.9	14.2'	13°03.1	11.1'	55.1'	62°30.6	30°00.1	66°23.3	82°05.8	86°24.1	106°43.1	111°59.6	112°59.9	
6	328°36.1	14.2'	S 12°52.0	11.1'	55.0'	62°02.6	29°44.3	66°53.9	82°29.4	86°47.3	107°07.5	112°30.2	113°30.6	
7	343°09.3	14.3'	12°40.9	11.1'	55.0'	61°34.6	29°28.9	67°24.5	82°52.9	87°10.6	107°31.7	113°00.7	114°01.3	
8	357°42.6	14.4'	12°29.7	11.2'	55.0'	61°06.7	29°13.8	67°55.0	83°16.4	87°33.8	107°55.9	113°31.3	114°31.9	
9	12°16.0	14.4'	$12^{\circ}18.6$	11.2'	55.0'	60°38.7		68°25.5	83°39.9	87°57.0	108°20.1	114°01.8	115°02.6	
10	26°49.4	14.5'	12°07.3	11.3'	55.0'	60°10.8		68°56.0	84°03.4	88°20.2	108°44.2	114°32.2	115°33.2	
11	41°22.9	14.5'	$11^{\circ}56.0$	11.3'	54.9'	59°42.9		69°26.5	84°26.9	88°43.4	109°08.3	115°02.7	116°03.8	
12	55°56.4	14.6'	S 11°44.7	11.4'	54.9'	59° 15.0		69°57.0	84°50.4	89°06.6	109°32.3	115°33.1	116°34.3	
13	70°30.1	14.7'	11°33.4	11.4'	54.9'	58° 47.2		70°27.4	85°13.9	89°29.7	109°56.3	116°03.5	117°04.9	
14	85°03.7	14.7'	11°22.0	11.4'	54.9'	58° 19.3		70°57.8	85°37.4	89°52.8	110°20.2	116°33.9	117°35.4	
15	99°37.4	14.8'	$11^{\circ}10.5$	11.5'	54.8'	57°51.5		71°28.2	86°00.9	90°16.0	110°44.0	117°04.3	118°05.9	
16	114°11.2	14.8'	$10^{\circ}59.1$	11.5'	54.8'	57°23.7		71°58.6	86°24.4	90°39.1	111°07.8	117°34.7	118°36.3	
17	128°45.1	14.9'	10°47.6	11.5'	54.8'	56°56.0		72°28.9	86°47.9	91°02.2	111°31.5	118°05.0	119°06.8	
18	143°18.9	14.9'	S 10°36.0	11.6'	54.8'	56°28.2		72°59.3	87°11.3	91°25.2	111°55.2	118°35.3	119°37.2	
19	157°52.9	15.0'	10°24.4	11.6'	54.8'	56°00.5		73°29.6	87°34.8	91°48.3	112°18.9	119°05.6		
20	172°26.9	15.1'	$10^{\circ}12.8$	11.6'	54.7'	55°32.8		73°59.9	87°58.2	92°11.3	112°42.4	119°35.9		
21	187°00.9	15.1'	10°01.2	11.7'	54.7'	55°05.1		74°30.2	88°21.6	92°34.3	113°05.9			
22	201°35.0	15.2'	09°49.5	11.7'	54.7'	54°37.4		75°00.4	88°45.0	92°57.3	113°29.4			
23	216°09.2	15.2'	09°37.8	11.7'	54.7'	54°09.8		75°30.7	89°08.4	93°20.3	113°52.8			
8 th	SD	= 15.0'	Mer. pass	. 08:09					Sun SD =	16.0'				

Moon (9th Apr)

Mon	GHA	ν	Dec	d	HP	-Sun	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus
0	230°43.4	15.3'	S 09°26.0	11.8'	54.7'	53°42.2	34°01.0	76°00.9	89°31.8	93°43.3	101°04.9	114° 16.1
1	245°17.6	15.3'	$09^{\circ}14.2$	11.8'	54.7'	53°14.6	34°18.6	76°31.1	89°55.2	94°06.2	101°24.4	114°39.4
2	259°51.9	15.3'	09°02.4	11.8'	54.6'	52°47.0	34°36.4	77°01.3	90°18.5	94°29.1	101°43.8	115°02.6
3	274°26.3	15.4'	08°50.6	11.9'	54.6'	52°19.4	34°54.4	77°31.4	90°41.9	94°52.0	102°03.2	115°25.7
4	289°00.7	15.4'	08°38.7	11.9'	54.6'	51°51.9	35°12.7	78°01.6	91°05.2	95°14.9	102°22.5	115°48.8
5	303°35.1	15.5'	08°26.9	11.9'	54.6'	51°24.3	35°31.3	78°31.7	91°28.5	95°37.7	102°41.8	116°11.8
6	318°09.6	15.5'	S 08°14.9	11.9'	54.6'	50°56.8	35°50.0	79°01.9	91°51.8	96°00.6	103°01.1	116°34.7
7	332°44.1	15.6'	$08^{\circ}03.0$	12.0'	54.5'	50°29.3	36°08.9	79°32.0	92°15.1	96°23.4	103°20.2	116°57.6
8	347°18.7	15.6'	$07^{\circ}51.0$	12.0'	54.5'	50°01.9	36°28.1	80°02.0	92°38.4	96°46.1	103°39.4	117°20.4
9	1°53.3	15.6'	07°39.0	12.0'	54.5'	49°34.4	36°47.4	80°32.1	93°01.7	97°08.9	103°58.5	117°43.1
10	16°27.9	15.7'	07°27.0	12.0'	54.5'	49°07.0	37°07.0	81°02.2	93°24.9	97°31.6	104°17.6	118°05.8
11	31°02.6	15.7'	$07^{\circ}15.0$	12.1'	54.5'	48°39.5	37°26.7	81°32.2	93°48.1	97°54.3	104°36.6	118°28.4
12	45°37.3	15.8'	S 07°02.9	12.1'	54.5'	48° 12.1	37°46.7	82°02.2	94°11.3	98°17.0	104°55.5	118°50.9
13	60°12.1	15.8'	06°50.9	12.1'	54.5'	47°44.7	38°06.8	82°32.3	94°34.5	98°39.6	105°14.4	119°13.3
14	74°46.9	15.8'	06°38.8	12.1'	54.4'	47° 17.4	38°27.0	83°02.3	94° 57.6	99°02.2	105°33.2	119°35.7
15	89°21.7	15.9'	06°26.6	12.1'	54.4'	46°50.0	38°47.5	83°32.2	95°20.8	99°24.8	105°52.0	119°58.0
16	103°56.6	15.9'	06°14.5	12.2'	54.4'	46°22.7	39°08.1	84°02.2	95°43.9	99°47.4	106°10.8	
17	118°31.5	15.9'	06°02.3	12.2'	54.4'	45°55.3	39°28.9	84°32.2	96°07.0	100°09.9	106°29.5	
18	133°06.4	16.0'	S 05°50.2	12.2'	54.4'	45°28.0	39°49.8	85°02.1	96°30.1	100°32.4	106°48.1	
19	147°41.4	16.0'	05°38.0	12.2'	54.4'	45°00.8	40°10.9	85°32.0	96°53.1	100°54.8	107°06.7	
20	162°16.4	16.0'	05°25.8	12.2'	54.3'	44°33.5	40°32.1	86°02.0	97°16.1	101°17.3	107°25.2	
21	176°51.4	16.1'	05°13.6	12.2'	54.3'	44°06.2	40°53.5	86°31.9	97°39.1	101°39.7	107°43.6	
22	191°26.5	16.1'	05°01.3	12.2'	54.3'	43°39.0	41°15.0	87°01.8	98°02.1	102°02.0	108°02.0	
23	206°01.6	16.1'	04°49.1	12.3'	54.3'	43°11.7	41°36.6	87°31.6	98°25.1	102°24.4	108°20.4	
9 th	SD = 14.9' Mer. pass. $08:52$ Sun $SD = 16.0'$											

h		Moon	n (10 th Ap	r)		Lunar	Distance	(objects	with largest	hourly LE) delta)
Tue	GHA	ν	Dec	d	HP	-Sun	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	220°36.7	16.1'	S 04°36.8	12.3'	54.3'	42°44.5	41°58.3	88°01.5	98°48.0	102°46.7	108°38.6
1	235°11.8	16.2'	04°24.5	12.3'	54.3'	42°17.3	42°20.2	88°31.4	99°10.9	103°08.9	108°56.8
2	249°47.0	16.2'	04°12.2	12.3'	54.3'	41°50.2	42°42.2	89°01.2	99°33.8	103°31.1	109°15.0
3	264°22.2	16.2'	04°00.0	12.3'	54.3'	41°23.0	43°04.4	89°31.0	99°56.6	103°53.3	109°33.1
4	278°57.4	16.2'	03°47.6	12.3'	54.2'	40°55.8	43°26.6	90°00.9	100°19.5	104°15.5	109°51.1
5	293°32.6	16.3'	03°35.3	12.3'	54.2'	40°28.7	43°49.0	90°30.7	100°42.3	104°37.6	110°09.0
6	308°07.9	16.3'	S 03°23.0	12.3'	54.2'	40°01.6	44°11.5	91°00.5	101°05.0	104°59.7	110°26.9
7	322°43.2	16.3'	03°10.7	12.3'	54.2'		44°34.0	91°30.3	101°27.8	105°21.7	110°44.7
8	337°18.5	16.3'	02°58.3	12.3'	54.2'		44°56.7	92°00.0	101°50.5	105°43.7	111°02.5
9	351°53.8	16.3'	02°46.0	12.4'	54.2'		45° 19.5	92°29.8	102°13.2	106°05.7	111°20.2
10	6°29.1	16.4'	02°33.6	12.4'	54.2'		45°42.4	92° 59.6	102°35.8	106°27.6	111°37.8
11	21°04.5	16.4'	02°21.3	12.4'	54.2'		46°05.4	93°29.3	102°58.4	106°49.5	111°55.3
12	35°39.8	16.4'	S 02°08.9	12.4'	54.2'		46°28.4	93°59.1	103°21.0	107°11.3	112°12.8
13	50°15.2	16.4'	$01^{\circ}56.5$	12.4'	54.1'		46°51.6	94°28.8	103°43.5	107°33.1	112°30.1
14	64°50.6	16.4'	$01^{\circ}44.2$	12.4'	54.1'		47° 14.8	94°58.5	104°06.1	107°54.8	112°47.4
15	79°26.0	16.4'	01°31.8	12.4'	54.1'		47°38.2	95°28.2	104°28.5	108°16.5	113°04.7
16	94°01.5	16.4'	$01^{\circ}19.4$	12.4'	54.1'		48°01.6	95° 57.9	104°51.0	108°38.2	113°21.8
17	108°36.9	16.4'	$01^{\circ}07.0$	12.4'	54.1'		48°25.1	96°27.6	105°13.4	108°59.8	113°38.9
18	123°12.3	16.5'	S 00°54.7	12.4'	54.1'		48°48.6	96° 57.3	105°35.8	109°21.3	113°55.9
19	137°47.8	16.5'	00°42.3	12.4'	54.1'		49°12.3	97°27.0	105°58.1	109°42.8	114°12.8
20	152°23.3	16.5'	$00^{\circ}29.9$	12.4'	54.1'		49°36.0	97°56.7	106°20.4	110°04.3	114°29.6
21	166°58.7	16.5'	$00^{\circ}17.5$	12.4'	54.1'		49°59.8	98° 26.4	106°42.7	110°25.7	114°46.4
22	181°34.2	16.5'	S 00°05.2	12.4'	54.1'		50°23.7	98° 56.0	107°04.9	110°47.0	115°03.0
23	196°09.7	16.5'	N 00°07.2	12.4'	54.0'		50°47.6	99°25.7	107°27.1	111°08.3	115°19.6
10 th	SD	= 14.8'	Mer. pass	. 09:33				Sun S	SD = 16.0'		

h		Moor	n (11 th Ap	or)		Lunar Distance (objects with largest hourly LD delta)					
Wed	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	210°45.2	16.5'	N 00°19.6	12.4'	54.0'	30°01.6	51°11.6	99°55.3	107°49.2	111°29.6	115°36.1
1	225°20.7	16.5'	00°31.9	12.4'	54.0'	30°17.2	51°35.7	100°25.0	108°11.3	111°50.8	115°52.5
2	239°56.2	16.5'	00°44.3	12.3'	54.0'	30°33.2	51°59.8	100°54.6	108°33.4	112°11.9	116°08.8
3	254°31.7	16.5'	00°56.6	12.3'	54.0'	30°49.4	52°24.0	101°24.2	108°55.4	112°33.0	116°25.0
4	269°07.2	16.5'	$01^{\circ}09.0$	12.3'	54.0'	31°06.0	52°48.3	101°53.8	109° 17.3	112°54.0	116°41.1
5	283°42.7	16.5'	$01^{\circ}21.3$	12.3'	54.0'	31°22.8	53°12.6	102°23.5	109°39.3	113°15.0	116°57.1
6	298°18.2	16.5'	N01°33.6	12.3'	54.0'	31°40.0	53°37.0	102°53.1	110°01.1	113°35.9	117°13.1
7	312°53.7	16.5'	01°45.9	12.3'	54.0'	31°57.3	54°01.4	103°22.7	110°23.0	113°56.7	117°28.9
8	327°29.3	16.5'	01°58.3	12.3'	54.0'	32°15.0	54°25.9	103°52.3	110°44.7	114°17.5	117°44.6
9	342°04.8	16.5'	$02^{\circ}10.6$	12.3'	54.0'	32°32.9	54°50.4	104°21.9	111°06.5	114°38.2	118°00.3
10	356°40.3	16.5'	02°22.9	12.3'	54.0'	32°51.1	55°15.0	104°51.4	111°28.2	114°58.9	118° 15.8
11	11°15.8	16.5'	02°35.1	12.3'	54.0'	33°09.4	55°39.7	105°21.0	111°49.8	115°19.5	118°31.3
12	25°51.3	16.5'	N02°47.4	12.3'	54.0'	33°28.1	56°04.4	105°50.6	112°11.4	115°40.0	118°46.6
13	40°26.7	16.5'	02°59.7	12.2'	54.0'	33°46.9	56°29.1	106°20.2	112°32.9	116°00.5	119°01.8
14	55°02.2	16.5'	03°11.9	12.2'	53.9'	34°06.0	56°53.9	106°49.7	112°54.4	116°20.9	119° 16.9
15	69°37.7	16.5'	03°24.1	12.2'	53.9'	34°25.3	57°18.7	107°19.3	113° 15.8	116°41.2	119°31.9
16	84°13.2	16.5'	03°36.3	12.2'	53.9'	34°44.8	57°43.6	107°48.9	113°37.2	117°01.5	
17	98°48.6	16.4'	03°48.5	12.2'	53.9'	35°04.5	58°08.5	108°18.4	113°58.5	117°21.6	
18	113°24.1	16.4'	N 04°00.7	12.2'	53.9'	35°24.4	58°33.5	108°48.0	114° 19.7	117°41.7	
19	127°59.5	16.4'	04°12.9	12.1'	53.9'	35°44.5	58°58.5	109°17.5	114°40.9	118°01.8	
20	142°34.9	16.4'	04°25.0	12.1'	53.9'	36°04.8	59°23.6	109°47.1	115°02.1	118°21.7	
21	157°10.4	16.4'	04°37.2	12.1'	53.9'	36°25.2	59°48.6	110°16.6	115°23.1	118°41.6	
22	171°45.8	16.4'	04°49.3	12.1'	53.9'	36°45.9	60°13.8	110°46.1	115°44.1	119°01.4	
23	186°21.2	16.4'	05°01.4	12.1'	53.9'	37°06.7	60°38.9	111°15.7	116°05.1	119°21.1	
11 th	SD	= 14.7'	Mer. pass	. 10:14							

h		Moor	ı (12 th Ap	or)		Lunar Distance					
Thu	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair	+Antares	+Rigil Kent.		
0	200°56.5	16.4'	N 05°13.4	12.1'	53.9'	37°27.7	61°04.1	111°45.2	116°26.0		
1	215°31.9	16.3'	05°25.5	12.0'	53.9'	37°48.8	61°29.4	112° 14.7	116°46.8		
2	230°07.2	16.3'	05°37.5	12.0'	53.9'	38°10.1	61°54.6	112°44.3	117°07.5		
3	244°42.6	16.3'	05°49.5	12.0'	53.9'	38°31.5	62°20.0	113° 13.8	117°28.2		
4	259°17.9	16.3'	$06^{\circ}01.5$	12.0'	53.9'	38°53.1	62°45.3	113°43.3	117°48.8		
5	273°53.2	16.3'	$06^{\circ}13.5$	11.9'	53.9'	39°14.9	63°10.7	114° 12.8	118°09.4		
6	288°28.4	16.3'	N 06°25.4	11.9'	53.9'	39°36.7	63°36.1	114°42.4	118°29.9		
7	303°03.7	16.2'	06°37.3	11.9'	53.9'	39°58.8	64°01.5	115° 11.9	118°50.3		
8	317°38.9	16.2'	06°49.2	11.9'	53.9'	40°20.9	64°27.0	115°41.4	119°10.6		
9	332°14.1	16.2'	$07^{\circ}01.1$	11.8'	53.9'	40°43.2	64°52.5	116° 10.9	119°30.8		
10	346°49.3	16.2'	$07^{\circ}12.9$	11.8'	53.9'	41°05.6	65°18.0	116°40.4	119°51.0		
11	1°24.5	16.1'	07°24.7	11.8'	53.9'	41°28.1	65°43.6	117°09.9			
12	15°59.6	16.1'	N07°36.5	11.7'	53.9'	41°50.7	66°09.2	117°39.5			
13	30°34.7	16.1'	07°48.2	11.7'	53.9'	42°13.5	66°34.8	118°09.0			
14	45°09.8	16.1'	0.00°80	11.7'	53.9'	42°36.4	67°00.4	118°38.5			
15	59°44.9	16.0'	$08^{\circ}11.6$	11.7'	53.9'	42°59.3	67°26.1	119°08.0			
16	74°19.9	16.0'	08°23.3	11.6'	53.9'	43°22.4	67°51.8	119°37.5			
17	88°54.9	16.0'	08°34.9	11.6'	53.9'	43°45.6	68°17.5				
18	103°29.9	16.0'	N 08°46.5	11.6'	53.9'	44°08.9	68°43.3				
19	118°04.8	15.9'	$08^{\circ}58.1$	11.5'	53.9'	44°32.3	69°09.0				
20	132°39.8	15.9'	09°09.6	11.5'	53.9'	44°55.8	69°34.8				
21	147°14.7	15.9'	$09^{\circ}21.1$	11.5'	53.9'	45°19.3	70°00.6				
22	161°49.5	15.8'	09°32.5	11.4'	53.9'	45°43.0	70°26.5				
23	176°24.3	15.8'	09°44.0	11.4'	53.9'	46°06.7	70°52.3				
12 th	SD	= 14.7'	Mer. pass	. 10:54							

h		Moon	(13 th Ap		Lunar Distance					
Fri	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair			
0	190°59.1	15.8'	N09°55.3	11.3'	53.9'	46°30.6	71°18.2			
1	205°33.9	15.7'	10°06.7	11.3'	53.9'	46°54.5	71°44.1			
2	220°08.6	15.7'	10°18.0	11.3'	53.9'	47°18.5	72°10.0			
3	234°43.3	15.7'	10°29.3	11.2'	53.9'	New Mo	on			
4	249°18.0	15.6'	10°40.5	11.2'	53.9'	New Mo	oon			
5	263°52.6	15.6'	$10^{\circ}51.7$	11.1'	53.9'	New Mo	oon			
6	278°27.2	15.5'	$N11^{\circ}02.8$	11.1'	53.9'	New Moon				
7	293°01.8	15.5'	11°13.9	11.1'	53.9'	New Mo	oon			
8	307°36.3	15.5'	11°25.0	11.0'	53.9'	New Mo	oon			
9	322°10.7	15.4'	11°36.0 11.0' 53.9			New Moon				
10	336°45.2	15.4'	11°46.9	10.9'	53.9'	New Mo	oon			
11	351°19.6	15.4'	11°57.9	10.9'	53.9'	New Mo	on			
12	5°53.9	15.3'	$N12^{\circ}08.7$	10.8'	53.9'	New Mo	on			
13	20°28.2	15.3'	12°19.6	10.8'	53.9'	New Mo	oon			
14	35°02.5	15.2'	12°30.4	10.7'	53.9'	New Mo	oon			
15	49°36.7	15.2'	12°41.1	10.7'	53.9'	New Mo	oon			
16	64°10.9	15.1'	12°51.8	10.6'	53.9'	New Mo	oon			
17	78°45.1	15.1'	13°02.4	10.6'	53.9'	New Mo	on			
18	93°19.2	15.1'	N13°13.0	10.5'	53.9'	New Mo	oon			
19	107°53.2	15.0'	13°23.5	10.5'	53.9'	New Mo	oon			
20	122°27.2	15.0'	13°34.0	10.4'	53.9'	New Mo	oon			
21	137°01.2	14.9'	13°44.4	10.4'	53.9'	New Mo	oon			
22	151°35.1	14.9'	13°54.8	10.3'	53.9'	New Mo	oon			
23	166°09.0	14.8'	14°05.1	10.3'	53.9'	New Mo	on			
13 th	SD	$= 14.7^{\prime}$	Mer. pass	. 11:36						

h		Moor	n (14 th Ap	r)			Lunar D	istance (objects	with largest	hourly L	D delta)					
Sat	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Sirius	-Betelgeuse	-Capella	-Aldebaran	-Saturn				
0	180°42.8	14.8'	N 14°15.4	10.2'	53.9'				Ne	w Moon ——							
1	$195^{\circ}16.6$	14.7'	14°25.6	10.2'	53.9'				Ne	w Moon ——							
2	209°50.3	14.7'	14°35.8	10.1'	53.9'				Ne	w Moon ——							
3	224°24.0	14.6'	14°45.9	10.0'	53.9'					w Moon ——							
4	238°57.7	14.6'	14°55.9	10.0'	53.9'				Ne	w Moon ——							
5	253°31.2	14.5'	15°05.9	9.9'	53.9'				Ne	w Moon ——							
6	268°04.8	14.5'	N15°15.8	9.9'	53.9'				Ne	w Moon ——							
7	282°38.3	14.4'	15°25.6	9.8'	53.9'					w Moon ——							
8	297°11.7	14.4'	15°35.4	9.7'	53.9'		New Moon										
9	311°45.1	14.3'	15°45.2	9.7'	53.9'												
10	326°18.4	14.3'	15°54.8	9.6'	53.9'		-			w Moon ——							
11	340°51.7	14.2'	16°04.4	9.5'	54.0'		-		Ne	w Moon ——							
12	355°24.9	14.2'	N 16°14.0	9.5'	54.0'					w Moon ——							
13	9°58.1	14.1'	16°23.5	9.4'	54.0'				Ne	w Moon ——							
14	24°31.2	14.1'	16°32.9	9.3'	54.0'					w Moon ——							
15	39°04.3	14.0'	16°42.2	9.3'	54.0'				Ne	w Moon ——							
16	53°37.3	14.0'	$16^{\circ}51.5$	9.2'	54.0'					w Moon ——							
17	68°10.2	13.9'	$17^{\circ}00.7$	9.1'	54.0'				Ne	w Moon ——							
18	82°43.1	13.8'	N17°09.8	9.1'	54.0'	115°48.3	83°28.0	78°53.3	77°50.2	57°59.3	49°47.8	37°11.6	10°05.8				
19	97°16.0	13.8'	17°18.9	9.0'	54.0'	115°18.7	82°59.3	78°23.9	77°27.4	57°31.4	49°21.7	36°42.6	9°43.1				
20	111°48.8	13.7'	17°27.9	8.9'	54.0'	114°49.1	82°30.5	77°54.5	77°04.6	57°03.5	48°55.7	36°13.7	9°20.9				
21	$126^{\circ}21.5$	13.7'	17°36.8	8.9'	54.0'	114° 19.5	82°01.7	77°25.1	76°41.9	56°35.6	48°29.8	35°44.8	8°59.4				
22	140°54.2	13.6'	17°45.7	8.8'	54.0'	113°49.9	81°32.9	76°55.7	76°19.2	56°07.7	48°03.9	35° 15.8	8°38.7				
23	155°26.8	13.6'	17°54.4	8.7'	54.0'	113°20.3	81°04.2	76°26.2	75°56.5	55°39.8	47°38.0	34°46.9	8°18.8				
14 th	SD	= 14.7'	Mer. pass	. 12:19													

h		Moon	(15 th Ap	r)		Lunar Distance (objects with largest hourly LD delta)								
Sun	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Sirius	-Betelgeuse	-Rigel	-Capella	-Aldebaran	
0	169°59.4	13.5'	N 18°03.1	8.6'	54.0'	112°50.6	80°35.4	75°56.8	75°33.8	55°11.9	52°02.1	47°12.2	34° 18.1	
1	184°31.9	13.5'	$18^{\circ}11.8$	8.6'	54.0'	112°21.0	80°06.6	75°27.4	75°11.1	54°44.0	51°40.5	46°46.5	33°49.2	
2	199°04.4	13.4'	18°20.3	8.5'	54.0'	111°51.4	79°37.8	74°57.9	74°48.5	54°16.2	51°19.0	46°20.8	33°20.3	
3	213°36.8	13.3'	18°28.8	8.4'	54.1'	111°21.7	79°09.0	74°28.5	74°25.9	53°48.4	50°57.6	45°55.1	32°51.5	
4	228°09.1	13.3'	18°37.2	8.3'	54.1'	110°52.0	78°40.2	73°59.1	74°03.3	53°20.6	50°36.3	45°29.6	32°22.7	
5	242°41.4	13.2'	18°45.5	8.2'	54.1'	110°22.4	78°11.4	73°29.6	73°40.7	52°52.8	50°15.0	45°04.0	31°53.9	
6	257°13.6	13.2'	N 18°53.8	8.2'	54.1'	109°52.7	77°42.6	73°00.1	73°18.2	52°25.0	49°53.9	44°38.6	31°25.1	
7	271°45.8	13.1'	$19^{\circ}01.9$	8.1'	54.1'	109°23.0	77°13.8	72°30.7	72°55.7	51°57.3	49°32.9	44°13.2	30°56.3	
8	286°17.9	13.1'	$19^{\circ}10.0$	8.0'	54.1'	108°53.3	76°45.0	72°01.2	72°33.2	51°29.5	49°12.0	43°47.9	30°27.6	
9	300°49.9	13.0'	19°18.0	7.9'	54.1'	108°23.6	76°16.1	71°31.7	72°10.8	51°01.8	48°51.2	43°22.6	29°58.8	
10	315°21.9	12.9'	19°25.9	7.8'	54.1'	107°53.9	75°47.3	71°02.2	71°48.3	50°34.1	48°30.5	42°57.4	29°30.2	
11	329°53.9	12.9'	19°33.7	7.7'	54.1'	107°24.2	75°18.5	70°32.7	71°25.9	50°06.4	48°09.9	42°32.3	29°01.5	
12	344°25.8	12.8'	N 19°41.5	7.7'	54.1'	106°54.4	74°49.6	70°03.2	71°03.6	49°38.8	47°49.4	42°07.3	28°32.8	
13	358°57.6	12.8'	19°49.2	7.6'	54.1'	106°24.7	74°20.8	69°33.7	70°41.3	49°11.1	47°29.1	41°42.3	28°04.2	
14	13°29.3	12.7'	19°56.7	7.5'	54.2'	105°54.9	73°52.0	69°04.2	70° 19.0	48°43.5	47°08.8	41°17.5	27°35.6	
15	28°01.0	12.6'	20°04.2	7.4'	54.2'	105°25.2	73°23.1	68°34.7	69°56.7	48°16.0	46°48.7	40°52.7	27°07.1	
16	42°32.7	12.6'	20°11.6	7.3'	54.2'	104°55.4	72°54.3	68°05.2	69°34.5	47°48.4	46°28.8	40°28.0	26°38.6	
17	57°04.3	12.5'	20°18.9	7.2'	54.2'	104°25.6	72°25.4	67°35.7	69°12.3	47°20.9	46°08.9	40°03.3	26°10.1	
18	71°35.8	12.5'	N 20°26.2	7.1'	54.2'	103°55.9	71°56.6	67°06.1	68°50.1	46°53.4	45°49.2	39°38.8	25°41.7	
19	86°07.3	12.4'	20°33.3	7.1'	54.2'	103°26.1	71°27.7	66°36.6	68°28.0	46°25.9	45°29.6	39°14.4	25°13.3	
20	100°38.7	12.4'	20°40.4	7.0'	54.2'	102°56.2	70°58.8	66°07.0	68°05.9	45°58.5	45°10.2	38°50.1	24°44.9	
21	115°10.1	12.3'	20°47.3	6.9'	54.2'	102°26.4	70°30.0	65°37.5	67°43.9	45°31.1	44°50.9	38°25.8	24°16.6	
22	129°41.4	12.2'	20°54.2	6.8'	54.2'	101°56.6	70°01.1	65°07.9	67°21.9	45°03.7	44°31.8	38°01.7	23°48.4	
23	144°12.6	12.2'	$21^{\circ}01.0$	6.7'	54.2'	101°26.8	69°32.2	64°38.3	66°59.9	44°36.3	44°12.8	37°37.7	23° 20.2	
15 th	SD	= 14.7'	Mer. pass.	13:04										

Moon (16th Apr)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Saturn
0	158°43.8	12.1'	N 21°07.7	6.6'	54.3'		100°56.9	69°03.3	64°08.7	44°09.0	37°13.8	22°52.1	9°12.8
1	173°14.9	12.1'	21°14.2	6.5'	54.3'		100°27.0	68°34.5	63°39.2	43°41.7	36°50.0	22°24.0	9°34.9
2	187°46.0	12.0'	21°20.7	6.4'	54.3'		99°57.2	68°05.6	63°09.6	43° 14.5	36°26.4	21°56.0	9°57.7
3	202°17.0	12.0'	$21^{\circ}27.1$	6.3'	54.3'		99°27.3	67°36.7	62°40.0	42°47.3	36°02.8	21°28.1	10°21.1
4	216°47.9	11.9'	21°33.4	6.2'	54.3'		98°57.4	67°07.8	62°10.4	42°20.1	35°39.4	21°00.2	10°44.9
5	231°18.8	11.8'	21°39.6	6.1'	54.3'		98°27.5	66°38.9	61°40.7	41°53.0	35°16.2	20°32.5	11°09.3
6	245°49.7	11.8'	N 21°45.7	6.0'	54.3'		97°57.6	66°10.0	61°11.1	41°25.9	34°53.0	20°04.8	11°34.1
7	260°20.4	11.7'	21°51.8	5.9'	54.3'		97°27.6	65°41.1	60°41.5	40°58.9	34°30.1	19°37.2	11°59.2
8	274°51.2	11.7'	21°57.7	5.8'	54.4'		96°57.7	65°12.2	60°11.9	40°31.9	34°07.2	19°09.8	12°24.7
9	289°21.8	11.6'	22°03.5	5.7'	54.4'		96°27.8	64°43.3	59°42.2	40°05.0	33°44.6	18°42.4	12°50.5
10	303°52.4	11.6'	22°09.2	5.6'	54.4'		95°57.8	64°14.4	59°12.6	39°38.1	33°22.1	18°15.2	13°16.5
11	318°23.0	11.5'	$22^{\circ}14.8$	5.5'	54.4'		95°27.8	63°45.5	58°42.9	39°11.3	32°59.7	17°48.1	13°42.9
12	332°53.5	11.4'	N 22°20.3	5.4'	54.4'		94°57.8	63°16.6	58°13.2	38° 44.5	32°37.6	17°21.2	14°09.4
13	347°24.0	11.4'	22°25.7	5.3'	54.4'		94°27.8	62°47.7	57°43.6	38° 17.8	32°15.6	16°54.4	14°36.2
14	1°54.3	11.3'	22°31.0	5.2'	54.4'		93°57.8	62°18.8	57°13.9	37°51.1	31°53.8	16°27.8	15°03.2
15	16°24.7	11.3'	22°36.2	5.1'	54.4'		93°27.8	61°49.9	56°44.2	37°24.5	31°32.2	16°01.4	15°30.3
16	30°55.0	11.2'	22°41.3	5.0'	54.5'	119°47.7	92°57.7	61°21.0	56°14.5	36°58.0	31°10.8	15°35.2	15°57.6
17	45°25.2	11.2'	22°46.3	4.9'	54.5'	119°17.3	92°27.7	60°52.0	55°44.8	36°31.6	30°49.6	15°09.2	16°25.1
18	59°55.4	11.1'	$N22^{\circ}51.1$	4.8'	54.5'	118°46.9	91°57.6	60°23.1	55°15.1	36°05.2	30°28.6	14°43.5	16°52.7
19	74°25.5	11.1'	22°55.9	4.7'	54.5'	118°16.4	91°27.6	59°54.2	54°45.3	35°38.9	30°07.9	14°18.0	17°20.5
20	88°55.6	11.0'	23°00.6	4.6'	54.5'	117°46.0	90°57.5	59°25.3	54°15.6	35°12.6	29°47.4	13°52.9	17°48.3
21	103°25.6	11.0'	$23^{\circ}05.1$	4.4'	54.5'	117° 15.5	90°27.4	58°56.4	53°45.9	34°46.5	29°27.1	13°28.0	18°16.3
22	117°55.6	10.9'	23°09.6	4.3'	54.5'	116°45.0	89°57.2	58°27.5	53°16.1	34°20.4	29°07.1	13°03.5	18°44.4
23	132°25.5	10.9'	23°13.9	4.2'	54.6'	116°14.5	89°27.1	57°58.5	52°46.4	33°54.4	28°47.3	12°39.5	19°12.6
16 th	SD	= 14.8'	Mer. pass	13:52									

h

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

Tue	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Saturn	+Sun	
0	146°55.4	10.8'	N23°18.1	4.1'	54.6'	115°44.0	88°57.0	57°29.6	52°16.6	33°28.5	12°15.8	19°40.9		
1	161°25.2	10.8'	23°22.3	4.0'	54.6'	115°13.5	88°26.8	57°00.7	51°46.8	33°02.7	11°52.6	20°09.2		
2	175°55.0	10.7'	23°26.3	3.9'	54.6'	114°42.9	87°56.6	56°31.8	51°17.1	32°37.0	11°30.0	20°37.7		
3	190°24.7	10.7'	23°30.2	3.8'	54.6'	114°12.3	87°26.4	56°02.9	50°47.3	32°11.4	11°07.9	21°06.2		
4	204°54.4	10.6'	23°33.9	3.7'	54.6'	113°41.8	86°56.2	55°34.0	50°17.5	31°46.0	10°46.5	21°34.8		
5	219°24.0	10.6'	23°37.6	3.6'	54.6'	113°11.2	86°26.0	55°05.0	49°47.7	31°20.6	10°25.8	22°03.5		
6	233°53.6	10.5'	N23°41.2	3.4'	54.7'	112°40.5	85°55.8	54°36.1	49°17.9	30°55.4	10°05.9	22°32.3		
7	248°23.1	10.5'	23°44.6	3.3'	54.7'	112°09.9	85°25.5	54°07.2	48°48.1	30°30.2	9°46.9	23°01.1		
8	262°52.6	10.4'	23°47.9	3.2'	54.7'	111°39.3	84°55.3	53°38.3	48°18.3	30°05.3		23°30.0		
9	277°22.0	10.4'	23°51.1	3.1'	54.7'	111°08.6	84°25.0	53°09.4	47°48.4	29°40.4		23°58.9		
10	291°51.4	10.4'	23°54.2	3.0'	54.7'	110°37.9	83°54.7	52°40.5	47°18.6	29° 15.7		24°27.9		
11	306°20.8	10.3'	23°57.2	2.9'	54.7'	110°07.2	83°24.4	52°11.6	46°48.8	28°51.2		24°57.0		
12	320°50.1	10.3'	N 24°00.0	2.7'	54.8'	109°36.5	82°54.0	51°42.8	46°18.9	28° 26.8		25°26.1		
13	335°19.4	10.2'	24°02.8	2.6'	54.8'	109°05.8	82°23.7	51°13.9	45°49.1	28°02.5		25°55.2		
14	349°48.6	10.2'	24°05.4	2.5'	54.8'	108°35.0	81°53.3	50°45.0	45°19.2	27° 38.5		26°24.5		
15	4°17.8	10.1'	24°07.9	2.4'	54.8'	108°04.3	81°23.0	$50^{\circ}16.1$	44°49.4	27° 14.6		26°53.7	41°01.3	
16	18°46.9	10.1'	24°10.3	2.3'	54.8'	107°33.5	80°52.6	49°47.3	44°19.5	26° 50.9		27°23.0	41°29.1	
17	33°16.1	10.1'	24°12.6	2.1'	54.9'	107°02.7	80°22.1	49°18.4	43°49.6	26°27.5		27°52.4	41°57.0	
18	47°45.1	10.0'	N24°14.7	2.0'	54.9'	106°31.8	79°51.7	48°49.6	43°19.7	26°04.2		28°21.8	42°24.8	
19	62°14.2	10.0'	24°16.7	1.9'	54.9'	106°01.0	79°21.3	48°20.7	42°49.8	25°41.2		28°51.2	42°52.7	
20	76°43.2	10.0'	24°18.6	1.8'	54.9'	105°30.1	78°50.8	47°51.9	42°19.9	25° 18.4		29°20.7	43°20.6	
21	91°12.1	9.9'	24°20.4	1.7'	54.9'	104°59.3	78°20.3	47°23.1	41°50.1	24°55.8		29°50.2	43°48.5	
22	105°41.1	9.9'	24°22.1	1.5'	54.9'	104°28.4	77°49.8	46°54.3	41°20.2	24°33.5		30°19.8	44°16.5	
23	120°09.9	9.9'	24°23.6	1.4'	55.0'	103°57.5	77°19.3	46°25.5	40°50.3	24°11.4		30°49.4	44°44.4	
17 th	SD	= 14.9'	Mer. pass.	14:42		Sun SD = 15.9'								

h Moon (18 th Apr)

Wed	GHA	ν	Dec	d	HP	-Jupiter	-Mars	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Sun	
0	134°38.8	9.8'	N 24°25.0	1.3'	55.0'		103°26.5	76°48.8	45°56.7	40°20.3		31°19.0	45°12.4	
1	149°07.6	9.8'	24°26.3	1.2'	55.0'		102°55.6	76°18.2	45°27.9	39°50.4		31°48.7	45°40.4	
2	163°36.4	9.8'	24°27.5	1.0'	55.0'		102°24.6	75°47.6	44°59.2	39° 20.5		32°18.4	46°08.4	
3	178°05.2	9.7'	24°28.5	0.9'	55.0'		101°53.6	75°17.1	44°30.4	38°50.6		32°48.1	46°36.5	
4	192°33.9	9.7'	24°29.4	0.8'	55.1'		101°22.6	74°46.4	44°01.7	38°20.7		33°17.9	47°04.6	
5	207°02.6	9.7'	24°30.2	0.7'	55.1'		100°51.6	74°15.8	43°33.0	37°50.8		33°47.7	47°32.7	
6	221°31.3	9.6'	N24°30.9	0.5'	55.1'		100°20.5	73°45.2	43°04.3	37°20.8		34°17.6	48°00.8	
7	235°59.9	9.6'	24°31.4	0.4'	55.1'		99°49.5	73°14.5	42°35.7	36°50.9		34°47.5	48°28.9	
8	250°28.6	9.6'	24°31.8	0.3'	55.1'		99°18.4	72°43.8	42°07.0	36°21.0		35°17.4	48°57.1	
9	264°57.2	9.6'	24°32.1	0.2'	55.2'		98°47.3	72°13.1	41°38.4	35°51.1	10°33.8	35°47.4	49°25.3	
10	279°25.7	9.5'	24°32.3	0.0'	55.2'		98°16.1	71°42.4	41°09.8	35°21.2	10°55.2	36°17.4	49°53.5	
11	293°54.3	9.5'	24°32.3	-0.1'	55.2'		97°45.0	71°11.6	40°41.2	34°51.3	11° 17.3	36°47.4	50°21.7	
12	308°22.8	9.5'	N24°32.2	-0.2'	55.2'		97°13.8	70°40.9	40°12.7	34°21.4	11°40.0	37°17.4	50°50.0	
13	322°51.3	9.5'	24°32.0	-0.3'	55.2'		96°42.6	70°10.1	39°44.1	33°51.5	12°03.4	37°47.5	51°18.3	
14	337°19.8	9.5'	24°31.7	-0.5'	55.3'		96°11.4	69°39.2	39°15.7	33°21.6	12°27.3	38°17.7	51°46.6	
15	351°48.2	9.4'	24°31.2	-0.6'	55.3'		95°40.2	69°08.4	38°47.2	32°51.7	12°51.8	38°47.8	52°14.9	
16	6°16.7	9.4'	24°30.6	-0.7'	55.3'		95°08.9	68°37.6	38°18.8	32°21.8	13° 16.7	39°18.0	52°43.3	
17	20°45.1	9.4'	24°29.9	-0.9'	55.3'	119°31.0	94°37.6	68°06.7	37°50.4	31°51.9	13°42.0	39°48.2	53°11.7	
18	35°13.5	9.4'	N24°29.0	-1.0'	55.4'	118°59.9	94°06.3	67°35.8	37°22.0	31°22.0	14°07.7	40°18.5	53°40.1	
19	49°41.9	9.4'	24°28.1	-1.1'	55.4'	118°28.8	93°35.0	67°04.9	36°53.7	30°52.2	14°33.8	40°48.8	54°08.5	
20	64°10.2	9.4'	24°26.9	-1.2'	55.4'	117°57.7	93°03.7	66°33.9	36°25.4	30°22.3	15°00.2	41°19.1	54°37.0	
21	78°38.6	9.3'	24°25.7	-1.4'	55.4'	117°26.6	92°32.3	66°03.0	35°57.2	29°52.5	15°26.9	41°49.4	55°05.4	
22	93°06.9	9.3'	24°24.3	-1.5'	55.5'	116°55.4	92°00.9	65°32.0	35°29.0	29°22.7	15°53.9	42°19.8	55°33.9	
23	107°35.2	9.3'	24°22.8	-1.6'	55.5'	116°24.2	91°29.5	65°01.0	35°00.9	28°52.9	16°21.1	42°50.2	56°02.5	
18 th	SD :	= 15.0	Mer. pass	s. 15:34		$Sun\;SD=15.9'$								

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

Thu	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Aldebaran	+Capella	+Saturn	+Sun	
0	122°03.6	9.3'	$N24^{\circ}21.2$	-1.8'	55.5'	118°32.1	115°53.0	90°58.1	64°29.9	16°48.6		43°20.6	56°31.0	
1	136°31.9	9.3'	24°19.5	-1.9'	55.5'	118°01.0	115°21.7	90°26.6	63°58.9	17°16.3		43°51.1	56°59.6	
2	151°00.2	9.3'	24°17.6	-2.0'	55.5'	117°29.8	114°50.5	89°55.1	63°27.8	17°44.2		44°21.6	57°28.2	
3	165°28.4	9.3'	24°15.6	-2.1'	55.6'	116°58.6	114° 19.2	89°23.6	62°56.7	18°12.3		44°52.2	57°56.9	
4	179°56.7	9.3'	24°13.4	-2.3'	55.6'	116°27.4	113°47.8	88°52.1	62°25.6	18°40.6		45°22.7	58°25.5	
5	194°25.0	9.3'	$24^{\circ}11.1$	-2.4'	55.6'	115°56.2	113° 16.5	88°20.6	61°54.4	19°09.0		45°53.3	58°54.2	
6	208°53.2	9.3'	N 24°08.7	-2.5'	55.6'	115°24.9	112°45.1	87°49.0	61°23.2	19°37.7		46°23.9	59°22.9	
7	223°21.5	9.2'	24°06.2	-2.7'	55.7'	114°53.7	112° 13.7	87°17.4	60°52.0	20°06.4		46°54.6	59°51.7	
8	237°49.7	9.2'	24°03.5	-2.8'	55.7'	114°22.4	111°42.3	86°45.8	60°20.8	20°35.3		47°25.3	60°20.5	
9	252°18.0	9.2'	24°00.8	-2.9'	55.7'	113°51.0	111° 10.8	86°14.1	59°49.6	21°04.4		47°56.0	60°49.3	
10	266°46.2	9.2'	23°57.8	-3.0'	55.7'	113°19.7	110°39.3	85°42.4	59°18.3	21°33.6		48°26.8	61°18.1	
11	281°14.4	9.2'	23°54.8	-3.2'	55.8'	112°48.3	110°07.8	85°10.7	58°47.0	22°02.9		48°57.6	61°46.9	
12	295°42.7	9.2'	$N23^{\circ}51.6$	-3.3'	55.8'	112°16.9	109°36.2	84°39.0	58°15.7	22°32.3		49°28.4	62°15.8	
13	310°10.9	9.2'	23°48.3	-3.4'	55.8'	111°45.4	109°04.7	84°07.3	57°44.3	23°01.8		49°59.2	62°44.7	
14	324°39.1	9.2'	23°44.9	-3.6'	55.9'	111°13.9	108°33.1	83°35.5	57°13.0	23°31.4	24°49.8	50°30.1	63°13.7	
15	339°07.4	9.2'	23°41.3	-3.7'	55.9'	110°42.4	108°01.4	83°03.7	56°41.6	24°01.2	25°05.5	51°01.0	63°42.6	
16	353°35.6	9.2'	23°37.6	-3.8'	55.9'	110°10.9	107°29.8	82°31.9	56°10.1	24°31.0	25°21.6	51°32.0	64°11.6	
17	8°03.9	9.2'	23°33.8	-4.0'	55.9'	109°39.4	106°58.1	82°00.0	55°38.7	25°00.9	25°38.2	52°03.0	64°40.7	
18	22°32.1	9.2'	N23°29.8	-4.1'	56.0'	109°07.8	106° 26.3	81°28.1	55°07.2	25°30.9	25°55.2	52°34.0	65°09.7	
19	37°00.3	9.2'	23°25.8	-4.2'	56.0'	108°36.2	105°54.6	80°56.2	54°35.7	26°01.0	26°12.7	53°05.0	65°38.8	
20	51°28.6	9.3'	$23^{\circ}21.6$	-4.3'	56.0'	108°04.5	105°22.8	80°24.3	54°04.2	26°31.2	26°30.6	53°36.1	66°07.9	
21	65°56.8	9.3'	23°17.2	-4.5'	56.0'	107°32.9	104°51.0	79°52.3	53°32.6	27°01.5	26°48.9	54°07.2	66°37.1	
22	80°25.1	9.3'	23°12.8	-4.6'	56.1'	107°01.2	104° 19.2	79°20.3	53°01.0	27°31.8	27°07.6	54°38.3	67°06.2	
23	94°53.4	9.3'	23°08.2	-4.7'	56.1'	106°29.4	103°47.3	78°48.3	52°29.4	28°02.3	27°26.7	55°09.5	67°35.4	
19 th	SD :	= 15.1'	Mer. pass	s. 16:27		$Sun\;SD=15.9'$								

Fri	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Capella	+Aldebaran	+Saturn	+Sun
0	109°21.6	9.3'	N23°03.5	-4.8'	56.1'	105°57.7	103°15.4	78°16.3	51°57.7	27°46.1	28°32.8	55°40.7	68°04.7
1	123°49.9	9.3'	22°58.6	-5.0'	56.2'	105°25.9	102°43.5	77°44.2	51°26.1	28°06.0	29°03.3	56°12.0	68°33.9
2	138°18.2	9.3'	22°53.6	-5.1'	56.2'	104°54.0	102°11.5	77°12.1	50°54.4	28°26.1	29°34.0	56°43.2	69°03.2
3	152°46.5	9.3'	22°48.5	-5.2'	56.2'	104°22.2	101°39.5	76°40.0	50°22.6	28° 46.7	30°04.7	57°14.5	69°32.6
4	167°14.8	9.3'	22°43.3	-5.4'	56.2'	103°50.3	101°07.5	76°07.8	49°50.9	29°07.5	30°35.4	57°45.9	70°01.9
5	181°43.1	9.3'	22°38.0	-5.5'	56.3'	103°18.4	100°35.4	75°35.6	49°19.1	29°28.7	31°06.3	58°17.3	70°31.3
6	196°11.5	9.3'	N22°32.5	-5.6'	56.3'	102°46.4	100°03.3	75°03.4	48°47.3	29°50.2	31°37.2	58°48.7	71°00.8
7	210°39.8	9.4'	22°26.9	-5.7'	56.3'	102°14.5	99°31.2	74°31.2	48°15.5	30°12.0	32°08.1	59°20.1	71°30.2
8	225°08.2	9.4'	22°21.1	-5.9'	56.4'	101°42.5	98°59.0	73°58.9	47°43.6	30°34.1	32°39.2	59°51.6	71°59.7
9	239°36.5	9.4'	22°15.3	-6.0'	56.4'	101°10.4	98° 26.9	73°26.6	47°11.7	30°56.5	33° 10.2	60°23.1	72°29.2
10	254°04.9	9.4'	22°09.3	-6.1'	56.4'	100°38.3	97°54.6	72°54.3	46°39.8	31° 19.1	33°41.4	60°54.7	72°58.8
11	268°33.3	9.4'	22°03.2	-6.2'	56.4'	100°06.2	97°22.4	72°21.9	46°07.8	31°42.1	34° 12.6	61°26.2	73°28.4
12	283°01.7	9.4'	N21°57.0	-6.3'	56.5'	99°34.1	96°50.1	71°49.6	45°35.8	32°05.2	34°43.8	61°57.9	73°58.0
13	297°30.2	9.4'	21°50.6	-6.5'	56.5'	99°01.9	96°17.8	71°17.1	45°03.8	32°28.7	35° 15.2	62°29.5	74°27.7
14	311°58.6	9.5'	21°44.2	-6.6'	56.5'	98°29.7	95°45.4	70°44.7	44°31.8	32°52.4	35°46.5	63°01.2	74°57.4
15	326°27.1	9.5'	21°37.6	-6.7'	56.6'	97°57.5	95°13.0	70°12.2	43°59.7	33° 16.3	36° 18.0	63°32.9	75°27.1
16	340°55.5	9.5'	21°30.9	-6.8'	56.6'	97°25.2	94°40.6	69°39.7	43°27.6	33°40.4	36°49.4	64°04.7	75°56.9
17	355°24.0	9.5'	21°24.0	-7.0'	56.6'	96°52.9	94°08.2	69°07.2	42°55.5	34°04.8	37°21.0	64°36.5	76°26.7
18	9°52.5	9.5'	$N21^{\circ}17.1$	-7.1'	56.7'	96°20.5	93°35.7	68°34.6	42°23.3	34°29.4	37°52.6	65°08.3	76°56.5
19	24°21.1	9.5'	21°10.0	-7.2'	56.7'	95°48.2	93°03.1	68°02.0	41°51.1	34°54.2	38° 24.2	65°40.2	77°26.4
20	38°49.6	9.6'	21°02.8	-7.3'	56.7'	95°15.7	92°30.6	67°29.4	41°18.9	35° 19.2	38° 55.9	66°12.1	77°56.3
21	53°18.2	9.6'	20°55.5	-7.4'	56.8'	94°43.3	91°58.0	66°56.7	40°46.6	35° 44.5	39°27.6	66°44.0	78°26.2
22	67°46.8	9.6'	20°48.0	-7.6'	56.8'	94°10.8	91°25.4	66°24.0	40°14.4	36°09.9	39° 59.4	67°16.0	78°56.2
23	82°15.4	9.6'	20°40.4	-7.7'	56.8'	93°38.3	90°52.7	65°51.3	39°42.0	36°35.5	40°31.3	67°48.0	79°26.2
20 th	SD = 15.3' Mer. pass. 17:19								Sun SI	D = 15.9'			

h	Moon (21 st Apr)	Lunar	Distance	(objects	wi+h	largest	hourly	ID	dol+a	١
- 1	IVIOON LZIA ADDI	i iimar	LUSTANCE	contects	WILLI	largest	nouriv	111	dena	1

Sat	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Betelgeuse	+Aldebaran	+Saturn	+Sun
0	96°44.0	9.6'	N 20°32.8	-7.8'	56.8'	93°05.7	90°20.0	65° 18.5	39°09.7	26° 12.0	41°03.2	68°20.1	79°56.2
1	$111^{\circ}12.6$	9.7'	20°25.0	-7.9'	56.9'	92°33.1	89°47.3	64°45.7	38°37.3	26° 37.0	41°35.1	68°52.2	80°26.3
2	125°41.3	9.7'	20°17.1	-8.0'	56.9'	92°00.5	89°14.5	64°12.9	38°04.9	27°02.2	42°07.1	69°24.3	80°56.4
3	$140^{\circ}10.0$	9.7'	20°09.0	-8.1'	56.9'	91°27.8	88°41.7	63°40.0	37°32.5	27°27.7	42° 39.2	69°56.5	81°26.6
4	154°38.7	9.7'	20°00.9	-8.3'	57.0'	90°55.1	88°08.8	63°07.2	37°00.0	27°53.5	43°11.3	70°28.7	81°56.8
5	169°07.4	9.7'	19°52.6	-8.4'	57.0'	90°22.4	87°36.0	62°34.2	36°27.5	28° 19.5	43°43.4	71°00.9	82°27.0
6	183°36.1	9.8'	N 19°44.2	-8.5'	57.0'	89°49.6	87°03.1	62°01.3	35°55.0	28°45.8	44°15.6	71°33.2	82°57.3
7	198°04.9	9.8'	19°35.7	-8.6'	57.1'	89°16.8	86°30.1	61°28.3	35°22.5	29° 12.3	44°47.8	72°05.5	83°27.6
8	212°33.7	9.8'	19°27.1	-8.7'	57.1'	88°44.0	85°57.1	60°55.3	34°49.9	29°39.0	45°20.1	72°37.9	83°57.9
9	227°02.5	9.8'	19°18.4	-8.8'	57.1'	88°11.1	85°24.1	60°22.2	34°17.3	30°05.9	45° 52.5	73°10.3	84°28.3
10	241°31.3	9.8'	19°09.6	-8.9'	57.2'	87°38.2	84°51.0	59°49.1	33°44.7	30°33.1	46°24.9	73°42.7	84°58.7
11	$256^{\circ}00.1$	9.9'	$19^{\circ}00.6$	-9.1'	57.2'	87°05.2	84°17.9	59°16.0	33°12.0	31°00.4	46°57.3	74°15.2	85°29.2
12	270°29.0	9.9'	$N18^{\circ}51.6$	-9.2'	57.2'	86°32.2	83°44.8	58°42.9	32°39.3	31°28.0	47°29.8	74°47.7	85°59.7
13	284° 57.9	9.9'	18°42.4	-9.3'	57.3'	85°59.1	83°11.6	58°09.7	32°06.6	31°55.7	48°02.3	75°20.3	86°30.2
14	299°26.8	9.9'	18°33.1	-9.4'	57.3'	85°26.1	82°38.4	57°36.5	31°33.8	32°23.6	48° 34.9	75°52.9	87°00.8
15	313°55.8	10.0'	18°23.7	-9.5'	57.3'	84°52.9	82°05.1	57°03.2	31°01.1	32°51.7	49°07.5	76°25.5	87°31.4
16	328°24.7	10.0'	18°14.2	-9.6'	57.4'	84°19.8	81°31.8	56°30.0	30°28.3	33°20.0	49°40.2	76°58.2	88°02.0
17	342°53.7	10.0'	18°04.6	-9.7'	57.4'	83°46.6	80°58.5	55°56.7	29°55.4	33°48.4	50°12.9	77°30.9	88°32.7
18	357°22.7	10.0'	$N17^{\circ}54.9$	-9.8'	57.5'	83°13.4	80°25.1	55°23.3	29°22.6	34°17.0	50°45.7	78°03.7	89°03.5
19	$11^{\circ}51.7$	10.0'	17°45.1	-9.9'	57.5'	82°40.1	79°51.7	54°49.9	28°49.7	34°45.7	51° 18.5	78°36.4	89°34.2
20	26°20.8	10.1'	17°35.2	-10.0'	57.5'	82°06.8	79°18.3	54° 16.5	28°16.8	35° 14.6	51°51.3	79°09.3	90°05.1
21	40°49.8	10.1'	$17^{\circ}25.1$	-10.1'	57.6'	81°33.4	78°44.8	53°43.1	27°43.9	35°43.7	52°24.3	79°42.2	90°35.9
22	55° 18.9	10.1'	$17^{\circ}15.0$	-10.2'	57.6'	81°00.0	78°11.2	53°09.6	27°11.0	36° 12.9	52° 57.2	80°15.1	91°06.8
23	69°48.0	10.1'	$17^{\circ}04.7$	-10.3'	57.6'	80°26.6	77°37.7	52°36.1	26°38.0	36°42.2	53°30.2	80°48.0	91°37.7
21 st	SD	= 15.5'	Mer. pas	s. 18:11					Sun	SD = 15.9'			

Moon (22nd Apr)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Pollux	+Aldebaran	+Saturn	+Sun
0	84°17.1	10.1'	N 16°54.4	-10.4'	57.7'		79°53.1	77°04.1	52°02.5	13°58.2	54°03.3	81°21.0	92°08.7
1	98°46.3	10.2'	16°43.9	-10.6'	57.7'		79°19.6	76°30.4	51°29.0	14°25.7	54°36.4	81°54.1	92°39.7
2	113°15.4	10.2'	16°33.4	-10.7'	57.7'		78°46.0	75°56.7	50°55.4	14°53.5	55°09.5	82°27.2	93°10.8
3	127°44.6	10.2'	16°22.7	-10.8'	57.8'		78°12.4	75°23.0	50°21.7	15°21.8	55°42.7	83°00.3	93°41.9
4	142°13.8	10.2'	$16^{\circ}12.0$	-10.9'	57.8'		77°38.8	74°49.3	49°48.0	15°50.5	56°15.9	83°33.5	94°13.0
5	156°43.1	10.2'	$16^{\circ}01.1$	-11.0'	57.8'		77°05.1	74°15.4	49°14.3	16° 19.5	56°49.2	84°06.7	94°44.2
6	171°12.3	10.3'	N15°50.2	-11.0'	57.9'		76°31.3	73°41.6	48°40.6	16°48.8	57°22.6	84°39.9	95° 15.4
7	185°41.6	10.3'	15°39.1	-11.1'	57.9'		75°57.6	73°07.7	48°06.8	17° 18.5	57°55.9	85°13.2	95°46.7
8	200°10.8	10.3'	15°28.0	-11.2'	57.9'		75°23.8	72°33.8	47°33.0	17°48.4	58°29.4	85°46.6	96°18.0
9	214°40.1	10.3'	$15^{\circ}16.7$	-11.3'	58.0'		74°49.9	71°59.8	46°59.2	18° 18.6	59°02.8	86°19.9	96°49.4
10	229°09.5	10.3'	15°05.4	-11.4'	58.0'	119°51.7	74°16.0	71°25.8	46°25.3	18°49.0	59°36.4	86°53.3	97°20.8
11	243°38.8	10.4'	14°54.0	-11.5'	58.1'	119° 17.7	73°42.1	70°51.8	45°51.4	19°19.6	60°09.9	87°26.8	97°52.2
12	258°08.2	10.4'	N 14°42.5	-11.6'	58.1'	118°43.7	73°08.1	70°17.7	45°17.5	19°50.5	60°43.5	88°00.3	98°23.7
13	272°37.5	10.4'	14°30.8	-11.7'	58.1'	118°09.7	72°34.1	69°43.6	44°43.5	20°21.5	61°17.2	88°33.9	98°55.2
14	287°06.9	10.4'	$14^{\circ}19.1$	-11.8'	58.2'	117°35.6	72°00.0	69°09.4	44°09.5	20°52.8	61°50.9	89°07.5	99°26.8
15	301°36.3	10.4'	14°07.3	-11.9'	58.2'	117°01.5	71°25.9	68°35.2	43°35.5	21°24.2	62°24.7	89°41.1	99°58.4
16	316°05.7	10.4'	13°55.4	-12.0'	58.2'	116°27.3	70°51.8	68°00.9	43°01.5	21°55.8	62°58.5	90°14.8	100°30.0
17	330°35.2	10.4'	13°43.5	-12.1'	58.3'	115°53.1	70°17.6	67°26.6	42°27.4	22°27.6	63°32.3	90°48.5	101°01.7
18	345°04.6	10.5'	N13°31.4	-12.2'	58.3'	115°18.9	69°43.3	66°52.3	41°53.3	22°59.5	64°06.2	91°22.3	101°33.4
19	359°34.1	10.5'	13°19.2	-12.2'	58.3'	114°44.6	69°09.0	66°17.9	41°19.2	23°31.5	64°40.1	91°56.1	102°05.2
20	14°03.5	10.5'	13°07.0	-12.3'	58.4'	114°10.2	68°34.7	65°43.5	40°45.0	24°03.7	65°14.1	92°29.9	102°37.0
21	28°33.0	10.5'	12°54.7	-12.4'	58.4'	113°35.9	68°00.4	65°09.1	40°10.8	24°36.0	65°48.2	93°03.8	103°08.9
22	43°02.5	10.5'	12°42.2	-12.5'	58.4'	113°01.4	67°26.0	64°34.6	39°36.6	25°08.5	66°22.3	93°37.7	103°40.8
23	57°32.0	10.5'	12°29.7	-12.6'	58.5'	112°27.0	66°51.5	64°00.0	39°02.3	25°41.1	66°56.4	94°11.7	104°12.8
22 nd	SD	= 15.7	Mer. pas	s. 19:02					Sun S	5D = 15.9'			

h		Моог	ո (23 rd Aբ	or)			Lunar	Distance	(objects	with lar	gest hourly	LD delta)	
Mon	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	72°01.6	10.5'	N 12°17.2	-12.7'	58.5'	111°52.5	66°17.0	63°25.4	38°28.1	26°13.8	49°32.7	67°30.6	94°45.7
1	86°31.1	10.5'	12°04.5	-12.7'	58.6'	111°17.9	65°42.5	62°50.8	37°53.8	26°46.6	50°04.8	68°04.8	95°19.8
2	101°00.6	10.6'	11°51.8	-12.8'	58.6'	110°43.3	65°07.9	62°16.2	$37^{\circ}19.5$	27°19.5	50°37.0	68°39.1	95°53.9
3	115°30.2	10.6'	11°39.0	-12.9'	58.6'	110°08.7	64°33.3	61°41.5	$36^{\circ}45.1$	27°52.5	51°09.2	69° 13.4	
4	129°59.8	10.6'	$11^{\circ}26.1$	-13.0'	58.7'	109°34.0	63°58.6	61°06.7	36° 10.8	28°25.7	51°41.5	69°47.7	
5	144°29.3	10.6'	$11^{\circ}13.1$	-13.1'	58.7'	108°59.2	63°23.9	60°31.9	35°36.4	28°58.9	52°13.9	70°22.1	
6	158°58.9	10.6'	$N11^{\circ}00.0$	-13.1'	58.7'	108°24.5	62°49.1	59°57.1	35°02.0	29°32.2	52°46.3	70°56.6	
7	173°28.5	10.6'	10°46.9	-13.2'	58.8'	107°49.6	62°14.3	59°22.3	34°27.6	30°05.6	53°18.9	71°31.1	
8	187°58.1	10.6'	10°33.7	-13.3'	58.8'	107°14.8	61°39.5	58°47.4	33°53.2	30°39.1	53°51.5	72°05.6	
9	202°27.7	10.6'	10°20.4	-13.3'	58.8'	106°39.9	61°04.6	58°12.4	33° 18.7	31°12.7	54°24.2	72°40.2	
10	216°57.3	10.6'	$10^{\circ}07.1$	-13.4'	58.9'	106°04.9	60°29.6	57° 37.4	32°44.3	31°46.4	54°56.9	73° 14.9	
11	231°26.9	10.6'	09°53.6	-13.5'	58.9'	105°29.9	59°54.7	57°02.4	32°09.8	32°20.2	55°29.8	73°49.5	
12	245°56.5	10.6'	N09°40.2	-13.6'	59.0'	104°54.9	59°19.7	56°27.4	31°35.3	32°54.0	56°02.7	74°24.3	
13	260°26.1	10.6'	09°26.6	-13.6'	59.0'	104°19.8	58°44.6	55°52.3	31°00.8	33°28.0	56°35.6	74°59.1	
14	274°55.7	10.6'	09°13.0	-13.7'	59.0'	103°44.6	58°09.5	55°17.1	30°26.3	34°02.0	57°08.7	75°33.9	
15	289°25.3	10.6'	08°59.3	-13.8'	59.1'	103°09.5	57°34.3	54°41.9	29°51.8	34°36.1	57°41.8	76°08.7	
16	303°55.0	10.6'	08°45.5	-13.8'	59.1'	102°34.2	56°59.1	54°06.7	29° 17.3	35°10.2	58°15.0	76°43.7	
17	318°24.6	10.6'	$08^{\circ}31.7$	-13.9'	59.1'	101°59.0	56°23.9	53°31.5	28°42.8	35°44.4	58°48.2	77° 18.6	
18	332°54.2	10.6'	N 08°17.8	-13.9'	59.2'	101°23.7	55°48.6	52° 56.2	28°08.3	36°18.8	59°21.5	77°53.6	
19	347°23.8	10.6'	08°03.9	-14.0'	59.2'	100°48.3	55°13.3	52°20.8	27°33.8	36°53.1	59°54.9	78°28.7	
20	1°53.4	10.6'	$07^{\circ}49.9$	-14.1'	59.2'	100°12.9	54°37.9	51°45.5	26°59.3	37°27.6	60°28.4	79°03.8	
21	16°23.0	10.6'	07°35.8	-14.1'	59.3'	99°37.5	54°02.5	51°10.1	26°24.9	38°02.1	61°01.9	79°38.9	
22	30°52.6	10.6'	$07^{\circ}21.7$	-14.2'	59.3'	99°02.0	53°27.1	50°34.6	25°50.4	38°36.7	61°35.4	80°14.1	
23	45°22.2	10.6'	$07^{\circ}07.5$	-14.2'	59.3'	98°26.4	52°51.6	49°59.1	$25^{\circ}16.0$	39°11.3	62°09.1	80°49.3	
23 rd	SD	= 16.0	Mer. pass	s. 19:52									

h Moon (24 th Apr)	Lunar Distance (objects with largest	hourly LD delta)
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Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Pollux	+Betelgeuse	+Aldebaran
0	59°51.8	10.6'	N 06°53.2	-14.3'	59.4'	97°50.9	52°16.0	49°23.6	24°41.6		39°46.0	62°42.8	81°24.6
1	74°21.4	10.6'	06°39.0	-14.3'	59.4'	97°15.2	51°40.5	48°48.1	24°07.2		40°20.8	63°16.5	81°59.9
2	88°50.9	10.6'	06°24.6	-14.4'	59.4'	96°39.6	51°04.8	48°12.5	23°32.9		40°55.7	63°50.3	82°35.3
3	103°20.5	10.6'	$06^{\circ}10.2$	-14.5'	59.5'	96°03.9	50°29.2	47°36.9	22°58.6		41°30.6	64°24.2	83°10.7
4	$117^{\circ}50.1$	10.5'	05°55.8	-14.5'	59.5'	95°28.1	49°53.5	47°01.2	22°24.3		42°05.5	64°58.1	83°46.1
5	132°19.6	10.5'	05°41.3	-14.5'	59.5'	94°52.3	49°17.7	46°25.5	21°50.1		42°40.5	65°32.1	84°21.6
6	146°49.1	10.5'	N05°26.7	-14.6'	59.6'	94°16.5	48°41.9	45°49.8	21°16.0		43° 15.6	66°06.2	84°57.1
7	161°18.6	10.5'	05°12.1	-14.6'	59.6'	93°40.6	48°06.1	45°14.0	20°42.0		43°50.8	66°40.3	85°32.7
8	175°48.1	10.5'	04°57.5	-14.7'	59.6'	93°04.7	47°30.2	44°38.2	20°08.0		44°26.0	67°14.4	86°08.3
9	190°17.6	10.5'	04°42.8	-14.7'	59.7'	92°28.8	46°54.3	44°02.4	19°34.2	8°36.1	45°01.2	67°48.7	86°44.0
10	204°47.1	10.5'	04°28.1	-14.8'	59.7'	91°52.8	46°18.4	43°26.6	19°00.4	9°07.0	45°36.5	68°22.9	87°19.7
11	$219^{\circ}16.6$	10.4'	04°13.3	-14.8'	59.7'	91°16.7	45°42.4	42°50.7	18°26.8	9°38.6	46°11.9	68°57.3	87°55.5
12	233°46.0	10.4'	N03°58.5	-14.8'	59.8'	90°40.6	45°06.4	42°14.8	17°53.3	10°10.6	46°47.3	69°31.6	88°31.2
13	248°15.4	10.4'	03°43.6	-14.9'	59.8'	90°04.5	44°30.3	41°38.8	17°20.0	10°43.2	47°22.8	70°06.1	89°07.1
14	262°44.8	10.4'	03°28.7	-14.9'	59.8'	89°28.3	43°54.2	41°02.9	16°46.8	11°16.1	47°58.3	70°40.6	89°42.9
15	277°14.2	10.4'	03°13.8	-15.0'	59.9'	88°52.1	43°18.0	40°26.9	16°13.9	11°49.4	48° 33.9	71°15.1	90°18.9
16	291°43.6	10.3'	02°58.9	-15.0'	59.9'	88°15.9	42°41.8	39°50.8	15°41.1	12°23.0	49°09.6	71°49.7	90°54.8
17	306°12.9	10.3'	02°43.9	-15.0'	59.9'	87°39.6	42°05.6	39°14.8	15°08.7	12°56.9	49°45.2	72°24.3	91°30.8
18	320°42.2	10.3'	N02°28.9	-15.1'	60.0'	87°03.2	41°29.3	38°38.7	14°36.5	13°31.0	50°21.0	72°59.0	92°06.8
19	335°11.5	10.3'	02°13.8	-15.1'	60.0'	86°26.9	40°53.0	38°02.6	14°04.7	14°05.3	50° 56.8	73°33.8	92°42.9
20	349°40.8	10.2'	01°58.7	-15.1'	60.0'	85°50.4	40°16.7	37°26.5	13°33.2	14°39.9	51°32.6	74°08.5	93°19.0
21	4°10.0	10.2'	01°43.6	-15.1'	60.1'	85°14.0	39°40.3	36°50.4	13°02.1	15°14.6	52°08.5	74°43.4	93°55.2
22	18°39.2	10.2'	01°28.5	-15.2'	60.1'	84°37.5	39°03.9	36°14.2	12°31.6	15°49.5	52°44.4	75°18.3	94°31.4
23	33°08.4	10.2'	01°13.3	-15.2'	60.1'	84°01.0	38°27.5	35°38.0	12°01.6	16°24.5	53°20.4	75°53.2	95°07.6
24 th	SD	= 16.2	Mer. pass	s. 20:43									

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

Wed	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Procyon	+Pollux	+Aldebaran
0	47°37.6	10.1'	N00°58.1	-15.2'	60.1'	83°24.4	37°51.0	35°01.8	11°32.2	16°59.7	50°32.7	53°56.5	95°43.8
1	62°06.7	10.1'	00°42.9	-15.2'	60.2'	82°47.8	37°14.5	34°25.6	11°03.5	17°35.0	51°07.4	54°32.5	96°20.1
2	76°35.8	10.1'	00°27.7	-15.2'	60.2'	82°11.2	36°37.9	33°49.4	10°35.6	18° 10.5	51°42.2	55°08.7	96°56.5
3	91°04.9	10.0'	N 00°12.5	-15.3'	60.2'	81°34.5	36°01.3	33°13.1	10°08.7	18°46.0	52°17.1	55°44.8	97°32.9
4	105°33.9	10.0'	S 00°02.8	-15.3'	60.3'	80°57.7	35°24.7	32°36.9		19°21.7	52°52.0	56°21.0	98°09.3
5	120°02.9	10.0'	00°18.0	-15.3'	60.3'	80°21.0	34°48.0	32°00.6		19°57.4	53°27.0	56°57.3	98°45.7
6	134°31.8	9.9'	S 00°33.3	-15.3'	60.3'	79°44.2	34°11.3	31°24.4		20°33.3	54°02.1	57°33.6	99°22.2
7	149°00.8	9.9'	00°48.6	-15.3'	60.3'	79°07.4	33°34.6	30°48.1		21°09.2	54° 37.2	58°09.9	99°58.7
8	163°29.7	9.8'	$01^{\circ}03.9$	-15.3'	60.4'	78°30.5	32°57.9	30°11.8		21°45.3	55° 12.4	58°46.3	100°35.3
9	177°58.5	9.8'	$01^{\circ}19.2$	-15.3'	60.4'	77°53.6	32°21.1	29°35.5		22°21.4	55°47.6	59°22.7	101°11.9
10	192°27.3	9.8'	01°34.6	-15.3'	60.4'	77° 16.7	31°44.3	28°59.3		22°57.5	56°22.9	59°59.2	101°48.5
11	206°56.1	9.7'	$01^{\circ}49.9$	-15.3'	60.5'	76°39.7	31°07.4	28°23.0		23°33.8	56°58.3	60°35.7	102°25.1
12	221°24.8	9.7'	S 02°05.2	-15.3'	60.5'	76°02.7	30°30.6	27°46.8		24°10.1	57°33.7	61°12.3	103°01.8
13	235°53.5	9.6'	02°20.6	-15.3'	60.5'	75°25.7	29°53.7	27°10.5		24°46.5	58°09.1	61°48.8	103°38.5
14	250°22.1	9.6'	02°35.9	-15.3'	60.5'	74°48.6	29°16.7	26°34.3		25°22.9	58°44.6	62°25.5	104°15.3
15	264°50.7	9.6'	02°51.2	-15.3'	60.6'	74° 11.5	28°39.8	25°58.1		25°59.5	59°20.2	63°02.1	104°52.1
16	279°19.3	9.5'	03°06.5	-15.3'	60.6'	73°34.3	28°02.8	25°21.9		26°36.0	59°55.8	63°38.8	105°28.9
17	293°47.8	9.5'	03°21.9	-15.3'	60.6'	72°57.2	27°25.8	24°45.7		27°12.7	60°31.5	64°15.6	106°05.7
18	308°16.3	9.4'	S 03°37.2	-15.3'	60.6'	72°20.0	26°48.8	24°09.6		27°49.3	61°07.2	64°52.3	106°42.6
19	322°44.7	9.4'	03°52.5	-15.3'	60.7'	71°42.7	26°11.7	23°33.5		28°26.1	61°43.0	65°29.2	107°19.5
20	337°13.1	9.3'	04°07.8	-15.3'	60.7'	71°05.5	25°34.7	22°57.5		29°02.9	62°18.8	66°06.0	107°56.4
21	351°41.4	9.3'	04°23.0	-15.3'	60.7'	70°28.2	24°57.6	22°21.5		29°39.7	62°54.6	66°42.9	108°33.3
22	6°09.6	9.2'	04°38.3	-15.3'	60.7'	69°50.9	24°20.5	21°45.6		30°16.6	63°30.5	67°19.8	109°10.3
23	20°37.9	9.2'	04°53.6	-15.2'	60.7'	69° 13.5	23°43.4	21°09.7		30°53.5	64°06.5	67°56.7	109°47.3
25 th	SD	= 16.4	Mer. pas	s. 21:34									

h Moon (26 th Apr)	Lunar Distance (objects with largest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Spica	-Jupiter	+Regulus	+Procyon	+Pollux	+Aldebaran
0	35°06.0	9.1'	S 05°08.8	-15.2'	60.8'	119°16.7	68°36.1	23°06.2	20°34.0	31°30.5	64°42.5	68° 33.7	110°24.3
1	49°34.1	9.1'	05°24.0	-15.2'	60.8	119 10.7 118°44.7	67°58.7	22°29.1	19°58.3	32°07.5	65°18.5	69°10.7	110 24.3 111°01.4
2	64°02.2	9.0'	05°39.2	-15.2'	60.8'	118° 12.6	67°21.3	21°51.9	19° 30.3	32°44.5	65°54.6	69°47.7	111°38.5
3	78°30.2	8.9'	05°54.4	-15.1'	60.8	117°40.4	66°43.9	21°14.8	18°47.2	33°21.6	66°30.7	70°24.8	112°15.6
4	92°58.1	8.9'	06°09.5	-15.1'	60.8'	117°08.2	66°06.4	20° 37.6	18° 11.8	33°58.8	67°06.8	71°01.9	112°52.7
5	107°26.0	8.8'	06°24.6	-15.1'	60.9'	116°35.9	65°28.9	20°00.4	17°36.6	34°36.0	67°43.0	71°39.0	113°29.8
6	121°53.9	8.8'	S 06°39.7	-15.1'	60.9'	116°03.5	64°51.3	19°23.2	17°01.5	35°13.2	68°19.2	72°16.2	114°07.0
7	136°21.6	8.7'	06°54.8	-15.0'	60.9'	115°31.0	64°13.8	18°46.1	16°26.7	35°50.4	68°55.5	72°53.4	114°44.2
8	150°49.3	8.7'	07°09.8	-15.0'	60.9'	114°58.5	63°36.2	18°08.9	15°52.0	36°27.7	69°31.7	73°30.6	115°21.4
9	165°17.0	8.6'	07°24.8	-15.0'	60.9'	114°25.9	62°58.6	17°31.7	15° 17.5	37°05.0	70°08.1	74°07.8	115°58.6
10	179°44.6	8.5'	07°39.8	-14.9'	60.9'	113°53.2	62°21.0	16°54.6	14°43.3	37°42.3	70°44.4	74°45.1	116°35.9
11	194°12.1	8.5'	07°54.7	-14.9'	61.0'	113° 20.5	61°43.3	16° 17.4	14°09.4	38°19.7	71°20.8	75°22.3	117°13.1
12	208°39.6	8.4'	S 08°09.6	-14.8'	61.0'	112°47.7	61°05.6	15°40.3	13°35.9	38°57.1	71°57.2	75°59.6	117°50.4
13	223°07.0	8.3'	08°24.4	-14.8'	61.0'	112°14.9	60°27.9	15°03.2	13°02.7	39°34.6	72°33.7	76°37.0	118° 27.7
14	237°34.3	8.3'	08°39.2	-14.7'	61.0'	111°42.0	59°50.2	14°26.1	12°29.9	40°12.0	73°10.1	77°14.3	119°05.0
15	252°01.6	8.2'	08°53.9	-14.7'	61.0'	111°09.0	59°12.5	13°49.1	11°57.7	40°49.5	73°46.6	77°51.7	119°42.3
16	266°28.8	8.1'	09°08.6	-14.6'	61.0'	110°36.0	58°34.8	13° 12.1	11°26.0	41°27.0	74°23.2	78°29.1	
17	280°56.0	8.1'	09°23.3	-14.6'	61.0'	110°02.9	57°57.0	12°35.2	10°55.0	42°04.6	74°59.7	79°06.5	
18	295°23.1	8.0'	S 09°37.9	-14.5'	61.1'	109°29.7	57°19.2	11°58.4	10°24.7	42°42.1	75°36.3	79°43.9	
19	309°50.1	7.9'	09°52.4	-14.5'	61.1'	108°56.6	56°41.4	11°21.6	9°55.3	43°19.7	76°12.9	80°21.4	
20	324°17.0	7.9'	$10^{\circ}06.9$	-14.4'	61.1'	108°23.3	56°03.6	10°45.0		43°57.3	76°49.5	80°58.8	
21	338°43.9	7.8'	$10^{\circ}21.3$	-14.4'	61.1'	107°50.1	55°25.8	10°08.5		44°35.0	77°26.2	81°36.3	
22	353°10.7	7.7'	10°35.7	-14.3'	61.1'	107° 16.8	54°47.9	9°32.2		45°12.6	78°02.8	82°13.8	
23	7°37.4	7.7'	10°50.0	-14.2'	61.1'	106°43.4	54°10.1	8°56.0		45°50.3	78°39.5	82°51.3	
26 th	SD	= 16.6	' Mer. pas	ss. 22:28									

L .	Moon (27 th Apr)	Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	±Spica	+Mars	+Regulus	+Procyon	+Pollux
0	22°04.1	7.6'	S 11°04.2	-14.2'	61.1'		106°10.0	53°32.2	8°20.1	22°09.4	46°28.0	79°16.2	83°28.9
1	36°30.7	7.5'	11°18.4	-14.1'	61.1'		105°36.6	52°54.3	7°44.5	22°45.5	47° 05.7	79°52.9	84°06.4
2	50°57.2	7.5'	11°32.5	-14.0'	61.1'		105°03.1	52°16.4	7°09.3	23°21.8	47° 43.4	80°29.7	84°44.0
3	65°23.7	7.4'	11°46.5	-14.0'	61.1'		104°29.6	51°38.5	6°34.6	23°58.2	48°21.1	81°06.4	85°21.5
4	79°50.1	7.3'	12°00.5	-13.9'	61.2'		103°56.0	51°00.6	6°00.6	24°34.7	48° 58.9	81°43.2	85°59.1
5	94°16.4	7.2'	$12^{\circ}14.4$	-13.8'	61.2'		103°22.5	50°22.7	5°27.3	25°11.2	49°36.7	82°20.0	86°36.7
6	108°42.6	7.2'	S 12°28.2	-13.7'	61.2'		102°48.9	49°44.7		25°47.9	50° 14.4	82°56.8	87°14.3
7	123°08.8	7.1'	12°41.9	-13.7'	61.2'		102°15.2	49°06.8		26°24.6	50° 52.2	83°33.6	87°51.9
8	137°34.9	7.0'	$12^{\circ}55.6$	-13.6'	61.2'		101°41.6	48°28.8		27°01.4	51°30.0	84°10.4	88°29.5
9	152°00.9	6.9'	13°09.2	-13.5'	61.2'		101°07.9	47°50.9		27°38.3	52°07.8	84°47.2	89°07.2
10	166°26.9	6.9'	13°22.7	-13.4'	61.2'		100°34.2	47°12.9		28°15.2	52°45.7	85°24.1	89°44.8
11	180°52.7	6.8'	$13^{\circ}36.1$	-13.3'	61.2'		100°00.4	46°35.0		28°52.2	53°23.5	86°00.9	90°22.4
12	195°18.5	6.7'	S 13°49.4	-13.2'	61.2'		99°26.7	45°57.0		29°29.2	54°01.3	86°37.8	91°00.1
13	209°44.3	6.7'	14°02.6	-13.1'	61.2'		98°52.9	45°19.0		30°06.3	54°39.2	87°14.6	91°37.7
14	224°09.9	6.6'	14°15.8	-13.0'	61.2'		98°19.1	44°41.1		30°43.5	55° 17.1	87°51.5	92°15.4
15	238°35.5	6.5'	14°28.8	-12.9'	61.2'		97°45.3	44°03.1		31°20.7	55° 54.9	88°28.3	92°53.0
16	253°01.0	6.4'	14°41.7	-12.8'	61.2'		97°11.5	43°25.1		31°57.9	56° 32.8	89°05.2	93°30.7
17	267°26.4	6.4'	14°54.6	-12.8'	61.2'		96°37.7	42°47.1		32°35.1	57° 10.6	89°42.1	94°08.3
18	281°51.8	6.3'	S 15°07.3	-12.6'	61.2'		96°03.8	42°09.2		33°12.4	57° 48.5	90°18.9	94°46.0
19	296°17.1	6.2'	$15^{\circ}20.0$	-12.5'	61.2'		95°30.0	41°31.2		33°49.8	58° 26.4	90°55.8	95°23.6
20	310°42.3	6.1'	15°32.5	-12.4'	61.2'		94°56.1	40°53.2		34°27.1	59°04.3	91°32.7	96°01.3
21	325°07.4	6.1'	15°45.0	-12.3'	61.2'	119°48.4	94°22.3	40°15.3		35°04.5	59°42.1	92°09.5	96°38.9
22	339°32.5	6.0'	15°57.3	-12.2'	61.2'	119° 15.3	93°48.4	39°37.3	6°40.3	35°41.9	60°20.0	92°46.4	97°16.6
23	353°57.5	5.9'	16°09.5	-12.1'	61.2'	118°42.2	93°14.5	38°59.4	7°15.2	36°19.4	60°57.9	93°23.3	97°54.2
27 th	SD	= 16.7	Mer. pas	ss. 23:25									

h Moon (28th Apr)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Mars	+Regulus	+Pollux
0	8°22.4	5.8'	S 16°21.6	-12.0'	61.2'	118°09.0	110°25.5	92°40.6	38°21.4	7°50.5	36°56.8	61°35.8	98°31.9
1	22°47.2	5.8'	16°33.6	-11.9'	61.2'	117°35.7	110°07.3	92°06.8	37°43.5	8°26.3	37°34.3	62°13.6	99°09.5
2	37°12.0	5.7'	16°45.5	-11.8'	61.2'	117°02.4	109°49.0	91°32.9	37°05.5	9°02.3	38°11.8	62°51.5	99°47.1
3	51°36.7	5.6'	16°57.3	-11.6'	61.2'	116°29.1	109°30.6	90°59.0	36°27.6	9°38.6	38°49.3	63°29.4	100°24.7
4	66°01.3	5.6'	17°09.0	-11.5'	61.2'	115°55.7	109°12.1	90°25.2	35°49.7	10°15.1	39°26.8	64°07.2	101°02.3
5	80°25.9	5.5'	17°20.5	-11.4'	61.2'	115°22.3	108°53.4	89°51.3	35°11.8	10°51.7	40°04.3	64°45.1	101°39.9
6	94°50.3	5.4'	S 17°31.9	-11.3'	61.1'	114°48.9	108°34.7	89°17.5	34°33.9	11°28.5	40°41.8	65°22.9	102°17.5
7	109°14.8	5.3'	17°43.2	-11.2'	61.1'	114° 15.4	108°15.8	88°43.6	33°56.0	12°05.4	41°19.4	66°00.7	102°55.1
8	123°39.1	5.3'	17°54.3	-11.0'	61.1'	113°41.9	107°56.8	88°09.8	33°18.2	12°42.4	41°56.9	66°38.6	103°32.6
9	138°03.4	5.2'	18°05.4	-10.9'	61.1'	113°08.3	107°37.8	87°36.0	32°40.3	13°19.5	42°34.5	67°16.4	104°10.2
10	152°27.6	5.1'	18°16.3	-10.8'	61.1'	112°34.7	107°18.7	87°02.2	32°02.5	13°56.6	43°12.0	67°54.2	104°47.7
11	166°51.7	5.1'	18°27.0	-10.6'	61.1'	112°01.1	106°59.4	86°28.4	31°24.6	14°33.8	43°49.6	68°32.0	105°25.2
12	181°15.8	5.0'	S 18°37.7	-10.5'	61.1'	111°27.5	106°40.1	85°54.6	30°46.8	15°11.0	44°27.1	69°09.8	106°02.8
13	195°39.8	4.9'	18°48.2	-10.4'	61.1'	110°53.8	106°20.7	85°20.9	30°09.1	15°48.3	45°04.7	69°47.5	106°40.2
14	210°03.8	4.9'	18°58.5	-10.2'	61.1'	110°20.2	106°01.2	84°47.1	29°31.3	16°25.6	45°42.2	70°25.3	107°17.7
15	224°27.6	4.8'	19°08.8	-10.1'	61.1'	109°46.5	105°41.6	84°13.4	28°53.5	17°03.0	46°19.8	71°03.0	107°55.2
16	238°51.4	4.8'	$19^{\circ}18.9$	-10.0'	61.0'	109°12.8	105°22.0	83°39.7	28°15.8	17°40.3	46°57.3	71°40.8	108°32.6
17	253°15.2	4.7'	19°28.8	-9.8'	61.0'	108°39.0	105°02.2	83°06.0	27°38.1	18°17.7	47°34.9	72°18.5	109°10.0
18	267°38.9	4.6'	S 19°38.6	-9.7'	61.0'	108°05.3	104°42.4	82°32.4	27°00.4	18°55.1	48°12.4	72°56.2	109°47.4
19	282°02.5	4.6'	19°48.3	-9.5'	61.0'	107°31.5	104°22.6	81°58.8	26°22.8	19°32.5	48°49.9	73°33.8	110°24.8
20	296°26.1	4.5'	19°57.8	-9.4'	61.0'	106°57.8	104°02.6	81°25.2	25°45.2	20°09.9	49°27.4	74°11.5	111°02.1
21	310°49.6	4.5'	20°07.2	-9.2'	61.0'	106°24.0	103°42.6	80°51.7	25°07.6	20°47.3	50°04.9	74°49.1	111°39.5
22	325°13.1	4.4'	20°16.4	-9.1'	61.0'	105°50.2	103°22.6	80°18.1	24°30.0	21°24.7	50°42.4	75°26.8	112°16.8
23	339°36.5	4.4'	20°25.5	-8.9'	60.9'	105° 16.5	103°02.4	79°44.7	23°52.4	22°02.1	51°19.9	76°04.4	112°54.0
28 th	SE	0 = 16	7' Mer. p	ass:-									

Moon (29th Apr)

h

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Mars	+Regulus	+Pollux
	353°59.8	4.3'	S 20°34.4	-8.8'	60.9'	104°42.7	102°42.3	79°11.2	23°14.9	22°39.5	51°57.3	76°42.0	113°31.3
0			20°43.2			104 42.7 104°08.9	102 42.3 102°22.0	79 11.2 78°37.8		22 39.5 23°16.9	51 57.3 52°34.8	70 42.0 77°19.5	113 31.3 114°08.5
1	8°23.1 22°46.4	4.2'	20°43.2 20°51.8	-8.6'	60.9'	104 08.9 103°35.1	102 22.0 102°01.8	78°04.4	22°37.4 22°00.0	23°54.3	52 34.8 53°12.2	77° 19.5	114 08.5 114°45.7
2 3	22 46.4 37°09.6	4.2' 4.1'	20°51.8 21°00.2	-8.5' -8.3'	60.9' 60.9'	103 35.1 103°01.4	102 01.8 101°41.4	78 04.4 77°31.1	22 00.0 21°22.6	23 54.3 24°31.7	53°49.6	77 57.0 78°34.6	114 45.7 115°22.9
	51°32.7	4.1'	21°08.6	-0.3 -8.2'	60.8	103 01.4 102°27.6	101 41.4 101°21.0	76°57.8	21° 22.0° 20° 45.2	25°09.1	54°27.0	76 34.0 79°12.1	115 22.9 116°00.0
4						102 27.0 101°53.8				25°46.4			116 00.0 116°37.2
5	65°55.8	4.1'	21°16.7	-8.0'	60.8'		101°00.6	76°24.5	20°07.9		55°04.4	79°49.5	
6	80°18.9	4.0'	S 21°24.7	-7.8'	60.8'	101°20.0	100°40.1	75°51.3	19°30.6	26°23.7	55°41.7	80°27.0	117°14.2
7	94°41.9	4.0'	21°32.5	-7.7'	60.8'	100°46.3	100° 19.6	75°18.1	18°53.3	27°01.1	56°19.1	81°04.4	117°51.3
8	109°04.9	3.9'	21°40.2	-7.5'	60.8'	100°12.5	99°59.1	74°45.0	18° 16.1	27°38.4	56°56.4	81°41.8	118°28.3
9	123°27.8	3.9'	21°47.7	-7.3'	60.7'	99°38.8	99°38.5	74°12.0	17°39.0	28° 15.6	57°33.7	82° 19.1	119°05.3
10	137°50.7	3.9'	21°55.1	-7.2'	60.7'	99°05.1	99° 17.9	73°38.9	17°01.9	28°52.9	58°10.9	82°56.5	119°42.2
11	152°13.5	3.8'	22°02.2	-7.0'	60.7'	98°31.4	98°57.2	73°06.0	16°24.8	29°30.1	58°48.2	83°33.8	
12	166°36.4	3.8'	S 22°09.3	-6.9'	60.7'	97°57.7	98° 36.5	72°33.1	15°47.8	30°07.4	59°25.4	84°11.0	
13	180°59.2	3.8'	$22^{\circ}16.1$	-6.7'	60.7'	97°24.0	98° 15.8	72°00.2	$15^{\circ}10.9$	30°44.6	60°02.6	84° 48.3	
14	195°21.9	3.7'	22°22.8	-6.5'	60.6'	96°50.3	97°55.1	71°27.4	14°34.0	31°21.7	60°39.7	85°25.5	
15	209°44.6	3.7'	22°29.3	-6.3'	60.6'	96°16.7	97°34.3	70°54.6	13°57.3	31°58.9	61°16.9	86°02.7	
16	224°07.3	3.7'	22°35.7	-6.2'	60.6'	95°43.1	97°13.6	70°22.0	13°20.5	32°36.0	61°54.0	86° 39.8	
17	238°30.0	3.6'	22°41.8	-6.0'	60.6'	95°09.5	96°52.8	69°49.3	12°43.9	33°13.1	62°31.0	87° 17.0	
18	252°52.7	3.6'	S 22°47.9	-5.8'	60.5'	94°35.9	96°32.0	69°16.8	$12^{\circ}07.4$	33°50.1	63°08.1	87° 54.0	
19	267°15.3	3.6'	22°53.7	-5.7'	60.5'	94°02.4	96°11.2	68°44.3	11°30.9	34°27.2	63°45.1	88°31.1	
20	281°37.9	3.6'	22°59.4	-5.5'	60.5'	93°28.8	95°50.3	68°11.9	10°54.6	35°04.2	64°22.1	89°08.1	
21	296°00.5	3.6'	23°04.9	-5.3'	60.4'	92°55.3	95° 29.5	67°39.5	10°18.4	35°41.2	64°59.0	89°45.1	
22	310°23.1	3.6'	23°10.2	-5.2'	60.4'	92°21.9	95°08.7	67°07.2	9°42.4	36° 18.1	65°36.0	90°22.1	
23	324°45.6	3.5'	23°15.3	-5.0'	60.4'	91°48.4	94°47.8	66°35.0	$9^{\circ}06.5$	36°55.0	66°12.9	90°59.0	
29 th	SD =	= 16.6'	Mer. pas	s. 00:25	5								

h Moon (30th Apr)

Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	± Antares	+Spica	+Jupiter	+Mars	+Regulus
0	339°08.2	3.5'	S 23°20.3	-4.8'	60.4'	94°27.0	91° 15.0	66°02.9	8°30.9	37°31.9	41°42.4	66°49.7	91°35.9
1	353°30.7	3.5'	23°25.1	-4.6'	60.3'	94°06.1	90°41.6	65°30.8	7°55.4	38°08.7	42°19.1	67°26.5	92°12.7
2	7°53.2	3.5'	23°29.8	-4.5'	60.3'	93°45.3	90°08.3	64°58.8	7°20.3	38°45.6	42°55.8	68°03.3	92°49.5
3	22°15.8	3.5'	23°34.2	-4.3'	60.3'	93°24.4	89°35.0	64°26.9	6°45.5	39°22.3	43°32.5	68°40.1	93°26.3
4	36°38.3	3.5'	23°38.5	-4.1'	60.2'	93°03.6	89°01.7	63°55.1	6°11.1	39°59.1	44°09.1	69°16.8	94°03.0
5	51°00.8	3.5'	23°42.6	-3.9'	60.2'	92°42.7	88°28.5	63°23.3	5°37.4	40°35.8	44°45.8	69°53.4	94°39.7
6	65°23.3	3.5'	S 23°46.5	-3.8'	60.2'	92°21.9	87°55.3	62°51.6	5°04.3	41°12.4	45°22.3	70°30.1	95°16.3
7	79°45.9	3.5'	23°50.3	-3.6'	60.2'	92°01.1	87°22.1	62°20.1		41°49.1	45°58.9	71°06.7	95°53.0
8	94°08.4	3.5'	23°53.9	-3.4'	60.1'	91°40.3	86°49.0	61°48.6		42°25.7	46°35.4	71°43.2	96°29.5
9	108°30.9	3.6'	23°57.3	-3.2'	60.1'	91°19.5	86° 15.9	61°17.2		43°02.2	47°11.9	72°19.8	97°06.1
10	122°53.5	3.6'	24°00.5	-3.1'	60.1'	90°58.7	85°42.9	60°45.9		43°38.7	47°48.4	72°56.2	97°42.5
11	$137^{\circ}16.0$	3.6'	24°03.5	-2.9'	60.0'	90°38.0	85°09.9	60°14.7		44°15.2	48°24.8	73°32.7	98°19.0
12	151°38.6	3.6'	S 24°06.4	-2.7'	60.0'	90°17.3	84°36.9	59°43.5		44°51.7	49°01.2	74°09.1	98°55.4
13	166°01.2	3.6'	24°09.1	-2.5'	60.0'	89°56.5	84°04.0	59°12.5		45°28.1	49°37.6	74°45.5	99°31.8
14	180°23.8	3.6'	24°11.6	-2.3'	59.9'	89°35.9	83°31.1	58°41.6		46°04.4	50°13.9	75°21.8	100°08.1
15	194°46.5	3.7'	24°14.0	-2.2'	59.9'	89°15.2	82°58.3	58°10.8		46°40.7	50°50.2	75°58.0	100°44.4
16	209°09.1	3.7'	24°16.2	-2.0'	59.9'	88°54.6	82°25.5	57°40.1		47°17.0	51°26.4	76°34.3	101°20.6
17	223°31.8	3.7'	24°18.2	-1.8'	59.8'	88°34.0	81°52.8	57°09.5		47°53.2	52°02.7	77°10.5	101°56.8
18	237°54.5	3.7'	S 24°20.0	-1.6'	59.8'	88°13.4	81°20.2	56°39.0		48°29.4	52°38.8	77°46.6	102°32.9
19	252°17.3	3.8'	24°21.6	-1.5'	59.8'	87°52.9	80°47.5	56°08.6		49°05.6	53°15.0	78°22.7	103°09.0
20	266°40.1	3.8'	$24^{\circ}23.1$	-1.3'	59.7'	87°32.4	80°15.0	55°38.3		49°41.7	53°51.1	78°58.8	103°45.1
21	281°02.9	3.8'	24°24.4	-1.1'	59.7'	87°11.9	79°42.5	55°08.1		50°17.7	54°27.1	79°34.8	104°21.1
22	295°25.7	3.9'	24°25.5	-1.0'	59.7'	86°51.5	79° 10.0	54°38.1	5°42.3	50°53.8	55°03.2	80°10.8	104°57.1
23	309°48.6	3.9'	24°26.5	-0.8'	59.6'	86°31.1	78° 37.6	54°08.2	6°15.4	51°29.7	55°39.2	80°46.7	105°33.0
30 th	SD =	= 16.5 [']	Mer. pas	s. 01:27	7								

Tue	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Spica	+Jupiter	+Mars	+Regulus
0	324°11.5	4.0'	S 24°27.2	-0.6'	59.6'	88°10.9	86° 10.7	78°05.2	53°38.4	52°05.7	56°15.1	81°22.6	106°08.9
1	338°34.5	4.0'	24°27.9	-0.4'	59.5'	87°55.2	85°50.4	77°33.0	53°08.7	52°41.6	56°51.0	81°58.4	106°44.7
2	352°57.5	4.1'	24°28.3	-0.3'	59.5'	87°39.6	85°30.2	77°00.7	52°39.2	53°17.4	57°26.9	82°34.2	107°20.5
3	7°20.6	4.1'	24°28.6	-0.1'	59.5'	87°24.0	85° 10.0	76°28.5	52°09.8	53°53.2	58°02.7	83°09.9	107°56.2
4	21°43.7	4.2'	24°28.6	0.1'	59.4'	87°08.4	84°49.8	75°56.4	51°40.5	54°28.9	58°38.5	83°45.6	108°31.9
5	36°06.9	4.2'	24°28.6	0.2'	59.4'	86°52.9	84°29.7	75°24.4	51°11.3	55°04.6	59°14.2	84°21.3	109°07.5
6	50°30.1	4.3'	S 24°28.3	0.4'	59.4'	86°37.4	84°09.6	74°52.4	50°42.3	55°40.3	59°49.9	84°56.9	109°43.1
7	64°53.4	4.3'	24°27.9	0.6'	59.3'	86°22.0	83°49.6	74°20.4	50°13.5	56°15.9	60°25.5	85°32.4	110°18.6
8	79°16.7	4.4'	24°27.3	0.8'	59.3'	86°06.5	83°29.6	73°48.6	49°44.8	56°51.5	61°01.1	86°07.9	110°54.1
9	93°40.1	4.5'	24°26.6	0.9'	59.2'	85°51.2	83°09.7	73°16.8	49°16.2	57°27.0	61°36.7	86°43.4	111°29.6
10	108°03.6	4.5'	24°25.7	1.1'	59.2'	85°35.8	82°49.9	72°45.0	48°47.8	58°02.4	62°12.2	87° 18.8	112°05.0
11	122°27.1	4.6'	24°24.6	1.2'	59.2'	85°20.6	82°30.1	72°13.4	48°19.5	58°37.9	62°47.7	87°54.2	112°40.3
12	136°50.7	4.7'	S 24°23.3	1.4'	59.1'	85°05.3	82°10.4	71°41.8	47°51.4	59°13.2	63°23.1	88°29.5	113°15.6
13	151°14.3	4.7'	24°21.9	1.6'	59.1'	84°50.1	81°50.7	71°10.2	47°23.5	59°48.6	63°58.5	89°04.7	113°50.9
14	165°38.0	4.8'	24°20.3	1.7'	59.1'	84°35.0	81°31.1	70°38.8	46°55.7	60°23.8	64°33.8	89°39.9	114°26.1
15	180°01.8	4.9'	24°18.6	1.9'	59.0'	84° 19.9	81°11.6	70°07.4	46°28.1	60°59.1	65°09.1	90° 15.1	115°01.2
16	194°25.7	4.9'	24°16.7	2.1'	59.0'	84°04.8	80°52.1	69°36.0	46°00.7	61°34.2	65°44.3	90°50.2	115°36.3
17	208°49.6	5.0'	24°14.7	2.2'	58.9'		80°32.7	69°04.8	45°33.4	62°09.4	66°19.5	91°25.3	116°11.3
18	223°13.6	5.1'	S 24°12.4	2.4'	58.9'		80°13.3	68°33.6	45°06.4	62°44.4	66°54.7	92°00.3	116°46.3
19	237°37.7	5.2'	$24^{\circ}10.1$	2.5'	58.9'		79°54.1	68°02.5	44°39.5	63°19.5	67°29.8	92°35.2	117°21.3
20	252°01.9	5.2'	24°07.5	2.7'	58.8'		79°34.9	67°31.5	44°12.8	63°54.5	68°04.8	93°10.1	117°56.2
21	266°26.2	5.3'	24°04.9	2.8'	58.8'		79° 15.8	67°00.5	43°46.2	64°29.4	68°39.8	93°45.0	118°31.0
22	280°50.5	5.4'	24°02.0	3.0'	58.7'		78° 56.7	66°29.6	43°19.9	65°04.3	69°14.8	94° 19.8	119°05.8
23	295°14.9	5.5'	23°59.0	3.1'	58.7'		78° 37.7	65°58.8	42°53.8	65°39.1	69°49.7	94°54.6	119°40.5
1 st	SD =	= 16.2'	Mer. pass	s. 02:29)								

Moon (2 nd May)	Lunar Distance (objects with largest hourly LD delta)
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h		Moor	n (2 nd Ma	y)			Lunar Di	stance (d	objects wi	th larges	t hourly LI	D delta)	
Wed	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Mars
0	309°39.4	5.6'	S 23°55.9	3.3'	58.7'	78° 18.8	65°28.1	42°27.9	20°41.7	66°13.9	69° 40.3	70°24.6	95°29.3
1	324°04.0	5.7'	23°52.6	3.4'	58.6'	78°00.0	64°57.5	42°02.2	21°16.2	66°48.6	70°07.6	70°59.4	96°03.9
2	338°28.6	5.8'	23°49.2	3.6'	58.6'	77°41.3	64°26.9	41°36.7	21°50.8	67°23.3	70°34.9	71°34.2	96°38.5
3	352°53.4	5.8'	23°45.6	3.7'	58.5'	77°22.6	63°56.4	$41^{\circ}11.5$	22°25.2	67°58.0	71°02.2	72°08.9	97°13.1
4	7°18.3	5.9'	23°41.8	3.9'	58.5'	77°04.0	63°26.0	40°46.4	22°59.7	68°32.6	71°29.6	72°43.5	97°47.6
5	21°43.2	6.0'	23°38.0	4.0'	58.5'	76°45.6	62°55.7	40°21.6	23°34.1	69°07.1	71°56.9	73°18.2	98°22.0
6	36°08.2	6.1'	S 23°33.9	4.2'	58.4'	76°27.1	62°25.5	39°57.1	24°08.5	69°41.6	72°24.3	73°52.7	98°56.4
7	50°33.4	6.2'	23°29.8	4.3'	58.4'	76°08.8	61°55.4	39°32.7	24°42.8	70°16.0	72°51.6	74°27.3	99°30.8
8	64°58.6	6.3'	23°25.4	4.5'	58.3'	75°50.6	61°25.3	39°08.6	25°17.1	70°50.4	73°19.0	75°01.8	100°05.1
9	79°23.9	6.4'	$23^{\circ}21.0$	4.6'	58.3'	75°32.4	60°55.3	38°44.8	25°51.3	71°24.8	73°46.3	75°36.2	100°39.3
10	93°49.3	6.5'	23°16.4	4.7'	58.3'	75° 14.4	60°25.5	$38^{\circ}21.2$	26°25.5	71°59.1	74°13.7	76° 10.6	101°13.5
11	108°14.8	6.6'	$23^{\circ}11.7$	4.9'	58.2'	74°56.4	59°55.7	37°57.9	26°59.6	72°33.3	74°41.0	76°44.9	101°47.6
12	122°40.4	6.7'	S 23°06.8	5.0'	58.2'	74°38.6	59°26.0	37°34.9	27°33.7	73°07.5	75°08.3	77° 19.2	102°21.7
13	137°06.1	6.8'	23°01.8	5.1'	58.1'	74°20.8	58°56.4	$37^{\circ}12.2$	28°07.8	73°41.6	75°35.7	77°53.4	102°55.8
14	151°31.9	6.9'	22°56.7	5.3'	58.1'	74°03.1	58°26.9	36°49.7	28°41.8	74° 15.7	76°03.0	78° 27.6	103°29.7
15	165°57.8	7.0'	22°51.4	5.4'	58.1'	73°45.5	57°57.5	36°27.5	29°15.8	74°49.8	76°30.3	79°01.7	104°03.7
16	180°23.8	7.1'	22°46.0	5.5'	58.0'	73°28.0	57°28.2	36°05.6	29°49.7	75°23.8	76°57.6	79°35.8	104°37.6
17	194°49.9	7.2'	22°40.5	5.7'	58.0'	73° 10.6	56°59.0	35°44.0	30°23.6	75°57.7	77°24.9	80°09.9	105°11.4
18	209°16.1	7.3'	S 22°34.8	5.8'	57.9'	72°53.4	56°29.9	35°22.8	30°57.4	76°31.6	77°52.2	80°43.9	105°45.2
19	223°42.5	7.4'	22°29.0	5.9'	57.9'	72°36.2	56°00.9	$35^{\circ}01.8$	31°31.2	77°05.5	78° 19.4	81°17.8	106°18.9
20	238°08.9	7.5'	22°23.1	6.0'	57.9'	72° 19.1	55°32.0	$34^{\circ}41.2$	32°04.9	77°39.3	78°46.7	81°51.7	106°52.6
21	252°35.4	7.6'	$22^{\circ}17.1$	6.2'	57.8'	72°02.1	55°03.2	34°20.9	32°38.6	78° 13.0	79°13.9	82°25.5	107°26.2
22	267°02.0	7.7'	$22^{\circ}10.9$	6.3'	57.8'	71°45.2	54°34.5	34°01.0	33°12.3	78°46.7	79°41.1	82°59.3	107°59.8
23	281°28.7	7.8'	22°04.6	6.4'	57.7'	71°28.5	54°05.9	33°41.4	33°45.9	79°20.4	80°08.3	83°33.1	108°33.3
2 nd	SD =	= 16.0′	Mer. pass	s. 03:30	0								

h Moon (3 rd May) Lunar Distance (objects with largest hourly LD	Distance (objects with largest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Mars
0	295°55.6	7.9'	S 21°58.2	6.5'	57.7'	118°43.5	71°11.8	53°37.4	33°22.1	34°19.4	79°54.0	84°06.8	109°06.8
1	310°22.5	8.0'	$21^{\circ}51.7$	6.6'	57.7'	118°12.5	70°55.3	53°09.0	33°03.3	34°52.9	80°27.5	84°40.4	109°40.2
2	324°49.6	8.2'	$21^{\circ}45.1$	6.8'	57.6'	117°41.5	70°38.8	52°40.8	32°44.8	35°26.4	81°01.0	85°14.0	110°13.5
3	339°16.7	8.3'	21°38.3	6.9'	57.6'	117°10.5	70°22.5	52°12.6	32°26.6	35°59.8	81°34.5	85°47.6	110°46.9
4	353°44.0	8.4'	21°31.4	7.0'	57.5'	116°39.6	70°06.3	51°44.6	32°08.9	36°33.2	82°07.9	86°21.1	111°20.1
5	8°11.3	8.5'	21°24.5	7.1'	57.5'	116°08.7	69°50.1	51°16.7	31°51.6	37°06.5	82°41.2	86°54.6	111°53.3
6	22°38.8	8.6'	S 21°17.4	7.2'	57.5'	115°37.9	69°34.2	50°48.9	31°34.7	37°39.8	83°14.6	87°28.0	112°26.5
7	37°06.4	8.7'	$21^{\circ}10.2$	7.3'	57.4'	115°07.1	69°18.3	50°21.2	31°18.2	38°13.0	83°47.8	88°01.3	112°59.6
8	51°34.1	8.8'	$21^{\circ}02.9$	7.4'	57.4'	114°36.4	69°02.5	49°53.7	31°02.1	38°46.2	84°21.0	88°34.7	113°32.7
9	66°01.9	8.9'	20°55.5	7.5'	57.3'	114°05.7	68°46.9	49°26.2	30°46.5	39°19.4	84°54.2	89°07.9	114°05.7
10	80°29.8	9.0'	20°47.9	7.6'	57.3'	113°35.0	68°31.4	48°58.9	30°31.3	39°52.4	85°27.3	89°41.1	114°38.6
11	94°57.8	9.1'	20°40.3	7.7'	57.3'	113°04.4	68°15.9	48°31.8		40°25.5	86°00.4	90°14.3	115°11.5
12	109°25.9	9.2'	S 20°32.6	7.8'	57.2'	112°33.9	68°00.7	48°04.7		40°58.5	86°33.4	90°47.5	115°44.4
13	123°54.1	9.3'	20°24.7	7.9'	57.2'	112°03.4	67°45.5	47°37.8		41°31.5	87°06.4	91°20.5	116° 17.2
14	138°22.4	9.4'	$20^{\circ}16.8$	8.0'	57.1'	111°32.9	67°30.5	$47^{\circ}11.1$		42°04.4	87°39.4	91°53.6	116°50.0
15	152°50.9	9.5'	20°08.8	8.1'	57.1'	111°02.5		46°44.4		42°37.3	88°12.3	92°26.6	117°22.7
16	167°19.4	9.6'	20°00.7	8.2'	57.1'	110°32.2		46°17.9		43°10.1	88°45.1	92°59.5	117°55.4
17	181°48.0	9.7'	19°52.4	8.3'	57.0'	110°01.8		45°51.6		43°42.9	89°17.9	93°32.4	118°28.0
18	196°16.8	9.9'	S 19°44.1	8.4'	57.0'	109°31.6		45°25.4		44°15.6	89°50.7	94°05.3	119°00.5
19	210°45.6	10.0'	19°35.7	8.5'	57.0'	109°01.3		44°59.4		44°48.3	90°23.4	94°38.1	119°33.0
20	225°14.6	10.1'	19°27.2	8.6'	56.9'	108°31.1		44°33.5		45°20.9	90°56.0	95°10.8	
21	239°43.7	10.2'	$19^{\circ}18.6$	8.7'	56.9'	108°01.0		44°07.7		45°53.5	91°28.6	95°43.5	
22	254°12.8	10.3'	$19^{\circ}09.9$	8.8'	56.8'	107°30.9		43°42.1		46°26.1	92°01.2	96°16.2	
23	268°42.1	10.4'	19°01.2	8.9'	56.8'	107°00.8		43°16.7		46°58.6	92°33.7	96°48.8	
3 rd	SD :	= 15.7'	Mer. pass	. 04:26	i				Sun SD	= 15.9'			

h Moon (4 th May)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica	+Jupiter
0	283°11.5	10.5'	S 18°52.3	8.9'	56.8'	106°30.8	42°51.4	47°31.1	68°02.5	72°25.2	91° 19.4	93°06.2	97°21.4
1	297°41.0	10.6'	18°43.4	9.0'	56.7'	106°00.9	42°26.3	48°03.5	68°26.2	72°49.0	91°45.9	93°38.7	97°54.0
2	312°10.6	10.7'	18°34.3	9.1'	56.7'	105°30.9	42°01.4	48°35.9	68°49.9	73° 12.8	92° 12.2	94°11.1	98°26.5
3	326°40.2	10.8'	18°25.2	9.2'	56.7'	105°01.0	41°36.6	49°08.3	69°13.7	73°36.5	92°38.6	94°43.4	98°58.9
4	341°10.0	10.9'	$18^{\circ}16.0$	9.3'	56.6'	104°31.2	41°12.1	49°40.6	69°37.4	74°00.3	93°04.9	95°15.7	99°31.3
5	355°39.9	11.0'	18°06.8	9.3'	56.6'	104°01.4	40°47.7	50°12.8	70°01.2	74°24.1	93°31.1	95°48.0	100°03.7
6	10°09.9	11.1'	S 17°57.4	9.4'	56.5'	103°31.6	40°23.5	50°45.0	70°25.0	74°47.9	93°57.4	96°20.2	100°36.0
7	24°40.0	11.2'	17°48.0	9.5'	56.5'	103°01.9	39°59.4	51°17.2	70°48.8	75°11.7	94°23.5	96°52.4	101°08.3
8	39°10.2	11.3'	$17^{\circ}38.5$	9.6'	56.5'	102°32.3	39°35.6	51°49.3	71°12.6	75°35.5	94° 49.7	97°24.5	101°40.5
9	53°40.5	11.4'	17°28.9	9.7'	56.4'	102°02.6	39°12.0	52°21.4	71°36.5	75°59.4	95° 15.8	97°56.6	102°12.7
10	68°10.9	11.5'	$17^{\circ}19.3$	9.7'	56.4'	101°33.0	38°48.5	52°53.5	72°00.4	76°23.2	95°41.8	98°28.7	102°44.8
11	82°41.3	11.6'	$17^{\circ}09.5$	9.8'	56.4'	101°03.5	38°25.3	53°25.5	72°24.2	76°47.0	96° 07.8	99°00.7	103°16.9
12	97°11.9	11.7'	S 16°59.7	9.9'	56.3'	100°34.0	38°02.3	53°57.5	72°48.1	77° 10.8	96°33.8	99°32.7	103°49.0
13	111°42.6	11.8'	16°49.9	9.9'	56.3'	100°04.5	37°39.5	54°29.4	73°12.0	77°34.6	96° 59.7	100°04.6	104°21.0
14	126°13.4	11.9'	16°39.9	10.0'	56.3'	99°35.1	37°16.9	55°01.3	73°35.9	77°58.5	97°25.6	100°36.5	104°53.0
15	140°44.2	12.0'	16°29.9	10.1'	56.2'	99°05.7	36°54.5	55°33.2	73°59.8	78°22.3	97°51.4	101°08.4	105°24.9
16	155°15.2	12.1'	$16^{\circ}19.9$	10.1'	56.2'	98°36.3	36°32.4	56°05.0	74°23.8	78°46.1	98° 17.2	101°40.2	105°56.8
17	169°46.2	12.1'	$16^{\circ}09.7$	10.2'	56.2'	98°07.0	36°10.5	56°36.8	74°47.7	79°09.9	98°42.9	102°11.9	106°28.7
18	184°17.4	12.2'	S 15°59.5	10.3'	56.1'	97°37.7	35°48.8	57°08.5	75°11.6	79°33.7	99°08.6	102°43.7	107°00.5
19	198°48.6	12.3'	15°49.3	10.3'	56.1'	97°08.5	35°27.4	57°40.2	75°35.5	79°57.5	99°34.2	103°15.4	107°32.3
20	213°19.9	12.4'	15°39.0	10.4'	56.1'	96°39.3	35°06.2	58°11.9	75°59.5	80°21.3	99°59.8	103°47.0	108°04.0
21	227°51.4	12.5'	$15^{\circ}28.6$	10.4'	56.0'	96°10.1	34°45.3	58°43.5	76°23.4	80°45.1	100°25.3	104°18.7	108°35.7
22	242°22.9	12.6'	$15^{\circ}18.1$	10.5'	56.0'	95°41.0	34°24.7	59°15.1	76°47.4	81°08.9	100°50.8	104°50.2	109°07.4
23	256°54.5	12.7'	15°07.6	10.6'	56.0'	95°11.9	34°04.3	59°46.6	77°11.3	81°32.7	101°16.3	105°21.8	109°39.0
4 th	SD	$=15.5^{\prime}$	Mer. pass	s. 05:18					$Sun\;SD =$	15.9'			

Moon (5th May)

h

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica	+Jupiter
-						94°42.9			_			105°53.3	110° 10.6
0	271°26.1	12.8'	S 14°57.1	10.6'	55.9'		33°44.2	60°18.1	77°35.3	81°56.4	101°41.7		
1	285°57.9	12.9'	14°46.5	10.7'	55.9'	94°13.9	33°24.4	60°49.6	77°59.2	82°20.2	102°07.0	106°24.8	110°42.1
2	300°29.8	12.9'	14°35.8	10.7'	55.9'	93°44.9	33°04.9	61°21.0	78°23.2	82°43.9	102°32.3	106°56.2	111°13.6
3	315°01.7	13.0'	14°25.1	10.8'	55.8'	93°15.9	32°45.7	61°52.4	78°47.1	83°07.7	102°57.5	107°27.6	111°45.1
4	329°33.7	13.1'	14°14.3	10.8'	55.8'	92°47.0	32°26.8	62°23.8	79°11.0	83°31.4	103°22.7	107°58.9	112°16.5
5	344°05.8	13.2'	14°03.5	10.9'	55.8'	92°18.2	32°08.2	62°55.1	79°35.0	83°55.1	103°47.8	108°30.3	112°47.9
6	358°38.0	13.3'	S 13°52.6	10.9'	55.7'	91°49.3	31°49.9	63°26.4	79°58.9	84° 18.8	104°12.9	109°01.6	113° 19.3
7	13°10.3	13.3'	13°41.7	11.0'	55.7'	91°20.5	31°31.9	63°57.7	80°22.8	84°42.5	104°37.9	109°32.8	113°50.6
8	27°42.6	13.4'	13°30.7	11.0'	55.7'	90°51.8	31°14.3	64°28.9	80°46.7	85°06.1	105°02.9	110°04.0	114°21.9
9	42°15.1	13.5'	13°19.7	11.1'	55.7'	90°23.0	30°57.0	65°00.1	81°10.6	85°29.8	105°27.8	110°35.2	114°53.1
10	56°47.6	13.6'	13°08.6	11.1'	55.6'	89°54.3	30°40.0	65°31.3	81°34.5	85°53.4	105°52.7	111°06.4	115°24.4
11	71°20.2	13.7'	12°57.5	11.2'	55.6'	89°25.7	30°23.4	66°02.4	81°58.4	86° 17.0	106° 17.5	111°37.5	115°55.5
12	85°52.8	13.7'	S 12°46.3	11.2'	55.6'	88°57.0	30°07.2	66°33.5	82°22.3	86°40.6	106° 42.2	112°08.6	116°26.7
13	100°25.6	13.8'	12°35.1	11.2'	55.5'	88°28.4	29°51.4	67°04.6	82°46.2	87°04.2	107°06.9	112°39.6	116°57.8
14	114°58.4	13.9'	12°23.9	11.3'	55.5'	87°59.9	29°35.9	67°35.6	83°10.0	87°27.8	107°31.5	113°10.6	117°28.9
15	129°31.2	14.0'	$12^{\circ}12.6$	11.3'	55.5'	87°31.3	29°20.8	68°06.6	83°33.9	87°51.3	107°56.1	113°41.6	117°59.9
16	144°04.2	14.0'	12°01.2	11.4'	55.4'	87°02.8		68°37.6	83°57.7	88° 14.9	108°20.6	114°12.6	118°30.9
17	158°37.2	14.1'	$11^{\circ}49.9$	11.4'	55.4'	86°34.3		69°08.5	84°21.5	88°38.4	108°45.1	114°43.5	119°01.9
18	173°10.3	14.2'	S 11°38.5	11.4'	55.4'	86°05.9		69°39.4	84°45.4	89°01.8	109°09.5	115°14.4	119°32.8
19	187°43.5	14.2'	11°27.0	11.5'	55.4'	85°37.5		70°10.3	85°09.2	89°25.3	109°33.8	115°45.2	
20	202°16.7	14.3'	$11^{\circ}15.5$	11.5'	55.3'	85°09.1		70°41.1	85°33.0	89°48.7	109°58.1	116°16.1	
21	216°50.0	14.4'	11°04.0	11.6'	55.3'	84°40.7		71°12.0	85°56.7	90°12.2	110°22.3	116°46.8	
22	231°23.4	14.4'	10°52.4	11.6'	55.3'	84°12.4		71°42.7	86°20.5	90°35.6	110°46.4	117°17.6	
23	245°56.8	14.5'	10°40.9	11.6'	55.3'	83°44.1		72°13.5	86°44.2	90°58.9	111°10.5	117°48.3	
5 th	SD	= 15.3'	Mer. pass	s. 06:06				Sun	SD = 15.9' at C	h; 15.8′ at	23h		

h Moon (6th May)

Sun	GHA	ν	Dec	d	HP	-Sun	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica	
0	260°30.3	14.6'	S 10°29.2	11.7'	55.2'	83° 15.9	32°01.3	72°44.2	87°08.0	91°22.3	99°07.5	111°34.5	118°19.1	
1	275°03.9	14.6'	$10^{\circ}17.6$	11.7'	55.2'	82°47.6	32°17.4	73°14.9	87°31.7	91°45.6	99°27.5	111°58.5	118°49.7	
2	289°37.5	14.7'	10°05.9	11.7'	55.2'	82° 19.4	32°33.8	73°45.6	87°55.4	92°08.9	99°47.4	112°22.4	119°20.4	
3	304°11.2	14.7'	09°54.2	11.8'	55.1'	81°51.2	32°50.5	74°16.2	88°19.0	92°32.2	100°07.2	112°46.2	119°51.0	
4	318°44.9	14.8'	09°42.4	11.8'	55.1'	81°23.1	33°07.5	74°46.8	88°42.7	92°55.4	100°27.0	113° 10.0		
5	333°18.7	14.9'	09°30.6	11.8'	55.1'	80°55.0	33°24.7	75°17.4	89°06.3	93°18.6	100°46.8	113°33.7		
6	347°52.6	14.9'	S 09°18.8	11.8'	55.1'	80°26.9	33°42.2	75°48.0	89°29.9	93°41.8	101°06.5	113°57.3		
7	2°26.5	15.0'	09°07.0	11.9'	55.0'	79°58.8	34°00.0	76°18.5	89°53.5	94°05.0	101°26.2	114°20.8	İ	
8	17°00.5	15.0'	$08^{\circ}55.1$	11.9'	55.0'	79°30.7	34°18.0	76°49.0	90°17.1	94°28.1	101°45.8	114°44.3		
9	31°34.5	15.1'	08°43.2	11.9'	55.0'	79°02.7	34°36.3	77°19.5	90°40.7	94°51.2	102°05.4	115°07.7		
10	46°08.6	15.1'	08°31.3	11.9'	55.0'	78°34.7	34°54.8	77°50.0	91°04.2	95°14.3	102°24.9	115°31.0		
11	60°42.8	15.2'	$08^{\circ}19.4$	12.0'	55.0'	78°06.8	35°13.5	78°20.4	91°27.7	95°37.4	102°44.3	115°54.3		
12	75°16.9	15.2'	S 08°07.4	12.0'	54.9'	77°38.8	35°32.5	78°50.8	91°51.2	96°00.4	103°03.8	116° 17.5		
13	89°51.2	15.3'	07°55.4	12.0'	54.9'	77° 10.9	35°51.7	79°21.2	92°14.7	96°23.4	103°23.1	116°40.6		
14	104°25.5	15.3'	07°43.4	12.0'	54.9'	76°43.0	36°11.0	79°51.6	92°38.1	96°46.3	103°42.4	117°03.6		
15	118°59.8	15.4'	07°31.4	12.0'	54.9'	76°15.1	36°30.6	80°21.9	93°01.6	97°09.2	104°01.7	117°26.6		
16	133°34.2	15.4'	$07^{\circ}19.4$	12.1'	54.8'	75°47.3	36°50.4	80°52.2	93°25.0	97°32.1	104°20.9	117°49.5		
17	148°08.6	15.5'	07°07.3	12.1'	54.8'	75°19.4	37°10.3	81°22.5	93°48.4	97°55.0	104°40.0	118°12.3		
18	162°43.1	15.5'	S 06°55.2	12.1'	54.8'	74°51.6	37°30.4	81°52.8	94°11.7	98°17.8	104°59.1	118°35.0		
19	177°17.6	15.6'	06°43.1	12.1'	54.8'	74°23.9	37°50.8	82°23.0	94°35.0	98°40.6	105°18.1	118° 57.7		
20	191°52.2	15.6'	$06^{\circ}31.0$	12.1'	54.8'	73°56.1	38°11.3	82°53.2	94°58.3	99°03.4	105°37.1	119°20.2		
21	206°26.8	15.6'	$06^{\circ}18.8$	12.2'	54.7'	73°28.4	38°31.9	83°23.4	95°21.6	99°26.1	105°56.0	119°42.7		
22	221°01.4	15.7'	06°06.7	12.2'	54.7'	73°00.7	38°52.7	83°53.6	95°44.9	99°48.8	106°14.9			
23	235°36.1	15.7'	05°54.5	12.2'	54.7'	72°33.0	39°13.7	84°23.8	96°08.1	100°11.4	106°33.7			
6 th	SD	= 15.1'	Mer. pass	. 06:50			SunSD = 15.8'							

h		Moor	n (7 th Ma	y)		Lunar	Distance	(objects	with largest	hourly LE) delta)
Mon	GHA	ν	Dec	d	HP	-Sun	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	250°10.9	15.8'	S 05°42.3	12.2'	54.7'	72°05.3	39°34.8	84°53.9	96°31.3	100°34.0	106°52.4
1	264°45.6	15.8'	$05^{\circ}30.1$	12.2'	54.7'	71°37.6	39°56.1	85°24.0	96°54.4	100°56.6	107°11.1
2	279°20.4	15.8'	$05^{\circ}17.9$	12.2'	54.6'	71°10.0	40°17.5	85°54.1	97° 17.6	101°19.2	107°29.7
3	293°55.3	15.9'	05°05.7	12.2'	54.6'	70°42.4	40°39.1	86°24.2	97°40.7	101°41.7	107°48.2
4	308°30.2	15.9'	04°53.5	12.2'	54.6'	70°14.8	41°00.7	86°54.3	98°03.8	102°04.1	108°06.7
5	323°05.1	15.9'	04°41.2	12.3'	54.6'	69°47.2	41°22.6	87°24.3	98°26.8	102°26.6	108°25.1
6	337°40.0	16.0'	S 04°29.0	12.3'	54.6'	69° 19.7	41°44.5	87°54.3	98°49.8	102°48.9	108°43.4
7	352°15.0	16.0'	$04^{\circ}16.7$	12.3'	54.5'	68°52.1	42°06.6	88°24.3	99°12.8	103°11.3	109°01.7
8	6°50.0	16.0'	04°04.4	12.3'	54.5'	68°24.6	42°28.8	88°54.3	99°35.8	103°33.6	109° 19.9
9	21°25.0	16.1'	$03^{\circ}52.1$	12.3'	54.5'	67°57.1	42°51.1	89°24.3	99°58.7	103°55.9	109°38.1
10	36°00.1	16.1'	03°39.8	12.3'	54.5'	67°29.6	43°13.5	89°54.2	100°21.6	104°18.1	109°56.1
11	50°35.2	16.1'	03°27.6	12.3'	54.5'	67°02.1	43°36.0	90°24.2	100°44.5	104°40.3	110°14.1
12	65°10.3	16.1'	S 03°15.2	12.3'	54.5'	66°34.7	43°58.7	90°54.1	101°07.3	105°02.4	110°32.1
13	79°45.4	16.2'	03°02.9	12.3'	54.4'	66°07.3	44°21.4	91°24.0	101°30.1	105°24.5	110°49.9
14	94°20.6	16.2'	$02^{\circ}50.6$	12.3'	54.4'	65°39.8	44°44.2	91°53.9	101°52.8	105°46.5	111°07.7
15	108°55.8	16.2'	02°38.3	12.3'	54.4'	65° 12.4	45°07.2	92°23.7	102°15.6	106°08.5	111°25.4
16	123°31.0	16.2'	$02^{\circ}26.0$	12.3'	54.4'	64°45.0	45°30.2	92°53.6	102°38.2	106°30.5	111°43.0
17	138°06.3	16.3'	02°13.7	12.3'	54.4'	64° 17.7	45°53.3	93°23.4	103°00.9	106°52.4	112°00.6
18	152°41.5	16.3'	S 02°01.3	12.3'	54.4'	63°50.3	46°16.5	93°53.3	103°23.5	107°14.3	112° 18.1
19	167°16.8	16.3'	$01^{\circ}49.0$	12.3'	54.3'	63°23.0	46°39.8	94°23.1	103°46.1	107°36.1	112°35.5
20	181°52.1	16.3'	01°36.7	12.3'	54.3'	62°55.6	47°03.2	94°52.9	104°08.6	107°57.8	112°52.8
21	196°27.4	16.3'	$01^{\circ}24.3$	12.3'	54.3'	62°28.3	47°26.6	95°22.6	104°31.1	108°19.6	113° 10.0
22	211°02.8	16.3'	$01^{\circ}12.0$	12.3'	54.3'	62°01.0	47°50.2	95°52.4	104°53.6	108°41.2	113°27.2
23	225°38.1	16.4'	00°59.7	12.3'	54.3'	61°33.7	48°13.8	96°22.2	105°16.0	109°02.8	113°44.3
7 th	SD	$= 14.9^{\prime}$	Mer. pass	s. 07:32				Sun S	SD = 15.8'		

h		Моо	n (8 th Ma	y)		l	_unar Distar	ice (obje	cts with la	argest hourly	LD delta	a)
Tue	GHA	ν	Dec	d	HP	-Sun	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	240°13.5	16.4'	S 00°47.4	12.3'	54.3'	61°06.5		48°37.5	96°51.9	105°38.4	109°24.4	114°01.3
1	254°48.8	16.4'	00°35.0	12.3'	54.3'	60°39.2		49°01.2	97°21.6	106°00.7	109°45.9	114°18.2
2	269°24.2	16.4'	00°22.7	12.3'	54.3'	60°11.9		49°25.1	97°51.4	106°23.0	110°07.4	114°35.0
3	283°59.6	16.4'	S 00°10.4	12.3'	54.2'	59°44.7		49°49.0	98°21.1	106°45.3	110°28.8	114°51.7
4	298°35.1	16.4'	N 00°01.9	12.3'	54.2'	59°17.5		50°12.9	98°50.8	107°07.5	110°50.1	115°08.4
5	313°10.5	16.4'	00°14.2	12.3'	54.2'	58°50.3		50°37.0	99°20.5	107°29.7	111°11.4	115°24.9
6	327°45.9	16.4'	N00°26.5	12.3'	54.2'	58°23.1	30°07.3	51°01.1	99°50.1	107°51.8	111°32.7	115°41.4
7	342°21.3	16.4'	00°38.8	12.3'	54.2'	57°55.9	30°22.8	51°25.2	100°19.8	108°13.9	111°53.8	115°57.8
8	356°56.8	16.5'	$00^{\circ}51.1$	12.3'	54.2'	57°28.7	30°38.6	51°49.5	100°49.4	108°35.9	112°15.0	116°14.1
9	11°32.2	16.5'	$01^{\circ}03.4$	12.3'	54.2'	57°01.5	30°54.6	52°13.7	101°19.1	108°57.9	112°36.0	116°30.3
10	26°07.7	16.5'	$01^{\circ}15.7$	12.3'	54.2'	56°34.4	31°11.0	52°38.1	101°48.7	109°19.9	112°57.0	116°46.4
11	40°43.2	16.5'	$01^{\circ}27.9$	12.3'	54.1'	56°07.2	31°27.7	53°02.5	102°18.3	109°41.8	113°18.0	117°02.4
12	55°18.6	16.5'	N01°40.2	12.2'	54.1'	55°40.1	31°44.6	53°26.9	102°48.0	110°03.6	113°38.9	117°18.3
13	69°54.1	16.5'	$01^{\circ}52.4$	12.2'	54.1'	55° 12.9	32°01.8	53°51.4	103°17.6	110°25.4	113°59.7	117°34.1
14	84°29.6	16.5'	02°04.7	12.2'	54.1'	54°45.8	32° 19.3	54°16.0	103°47.2	110°47.1	114°20.4	117°49.8
15	99°05.0	16.5'	$02^{\circ}16.9$	12.2'	54.1'	54°18.7	32°37.0	54°40.6	104°16.8	111°08.8	114°41.1	118°05.4
16	113°40.5	16.5'	$02^{\circ}29.1$	12.2'	54.1'	53°51.6	32°55.0	55°05.2	104°46.3	111°30.5	115°01.7	118°20.9
17	128°16.0	16.5'	$02^{\circ}41.3$	12.2'	54.1'	53°24.5	33°13.2	55°29.9	105°15.9	111°52.1	115°22.3	118°36.2
18	142°51.4	16.5'	N02°53.5	12.2'	54.1'	52°57.4	33°31.6	55° 54.7	105°45.5	112°13.6	115°42.8	118°51.5
19	157°26.9	16.5'	03°05.7	12.2'	54.1'	52°30.3	33°50.3	56° 19.5	106°15.0	112°35.1	116°03.2	119°06.7
20	172°02.4	16.5'	$03^{\circ}17.8$	12.1'	54.1'	52°03.3	34°09.2	56°44.3	106°44.6	112°56.5	116°23.6	119°21.8
21	186°37.8	16.4'	03°30.0	12.1'	54.1'	51°36.2	34°28.4	57°09.2	107°14.1	113°17.9	116°43.9	
22	201°13.2	16.4'	$03^{\circ}42.1$	12.1'	54.1'	51°09.1	34° 47.7	57°34.1	107°43.7	113°39.2	117°04.1	
23	215°48.7	16.4'	03°54.2	12.1'	54.0'	50°42.1	35°07.2	57°59.1	108°13.2	114°00.5	117°24.2	
8 th	SD	= 14.8'	Mer. pass	s. 08:13					Sun SD = 15	.8′		

h		Moor	n (9 th Ma	y)		Lunai	r Distance (d	objects v	vith larges	t hourly LD	delta)
Wed	GHA	ν	Dec	d	HP	-Sun	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar
0	230°24.1	16.4'	N 04°06.3	12.1'	54.0'	50°15.0	35°26.9	58°24.1	108°42.8	114°21.7	117°44.2
1	244°59.5	16.4'	04°18.4	12.1'	54.0'	49°48.0	35°46.9	58°49.2	109° 12.3	114°42.8	118°04.2
2	259°34.9	16.4'	04°30.5	12.0'	54.0'	49°20.9	36°07.0	59°14.2	109°41.8	115°03.9	118°24.1
3	274°10.3	16.4'	04°42.5	12.0'	54.0'	48°53.9	36°27.3	59°39.4	110°11.3	115°24.9	118°44.0
4	288°45.7	16.4'	04°54.5	12.0'	54.0'	48°26.9	36°47.7	60°04.5	110°40.8	115°45.9	119°03.7
5	303°21.1	16.4'	05°06.5	12.0'	54.0'	47°59.9	37°08.4	60°29.7	111°10.3	116°06.8	119°23.4
6	317°56.5	16.3'	N 05°18.5	12.0'	54.0'	47°32.9	37°29.2	60°55.0	111°39.8	116°27.6	119°43.0
7	332°31.8	16.3'	05°30.5	11.9'	54.0'	47°05.8	37°50.2	61°20.2	112°09.3	116°48.4	
8	347°07.2	16.3'	05°42.4	11.9'	54.0'	46°38.8	38°11.3	61°45.5	112°38.8	117°09.1	
9	1°42.5	16.3'	05°54.3	11.9'	54.0'	46°11.8	38°32.6	62°10.9	113°08.3	117°29.7	
10	16°17.8	16.3'	06°06.2	11.9'	54.0'	45°44.8	38°54.0	62°36.3	113°37.8	117°50.2	
11	30°53.1	16.3'	$06^{\circ}18.1$	11.8'	54.0'	45°17.8	39°15.6	63°01.7	114°07.3	118° 10.7	
12	45°28.3	16.2'	N06°29.9	11.8'	54.0'	44°50.9	39°37.3	63°27.1	114°36.8	118°31.1	
13	60°03.6	16.2'	06°41.7	11.8'	54.0'	44°23.9	39°59.2	63°52.6	115°06.2	118° 51.5	
14	74°38.8	16.2'	06°53.5	11.8'	54.0'	43°56.9	40°21.2	64°18.1	115° 35.7	119° 11.7	
15	89°14.0	16.2'	07°05.3	11.7'	54.0'	43°29.9	40°43.3	64°43.6	116°05.2	119°31.9	
16	103°49.2	16.2'	$07^{\circ}17.0$	11.7'	54.0'	43°02.9	41°05.5	65°09.1	116°34.7	119°52.0	
17	118°24.3	16.1'	07°28.8	11.7'	53.9'	42°36.0	41°27.9	65°34.7	117°04.2		
18	132°59.4	16.1'	N 07°40.4	11.7'	53.9'	42°09.0	41°50.4	66°00.3	117°33.6		
19	147°34.6	16.1'	$07^{\circ}52.1$	11.6'	53.9'	41°42.0	42°13.0	66°26.0	118°03.1		
20	162°09.6	16.1'	08°03.7	11.6'	53.9'	41°15.0	42°35.7	66°51.6	118°32.6		
21	176°44.7	16.0'	$08^{\circ}15.3$	11.6'	53.9'	40°48.1	42°58.6	67°17.3	119°02.0		
22	191°19.7	16.0'	$08^{\circ}26.9$	11.5'	53.9'	40°21.1	43°21.5	67°43.0	119°31.5		
23	205°54.7	16.0'	08°38.4	11.5'	53.9'		43°44.5	68°08.8			
9 th	SD	= 14.7'	Mer. pass	. 08:53			·	Sun S	D = 15.8'	·	

h		Moon	(10 th Ma	ıy)		Lunar Dis	stance
Thu	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair
0	220°29.7	15.9'	N 08°49.9	11.5'	53.9'	44°07.7	68°34.5
1	235°04.6	15.9'	09°01.4	11.4'	53.9'	44°30.9	69°00.3
2	249°39.6	15.9'	$09^{\circ}12.8$	11.4'	53.9'	44°54.3	69°26.2
3	264°14.4	15.9'	09°24.2	11.4'	53.9'	45°17.7	69°52.0
4	278°49.3	15.8'	09°35.5	11.3'	53.9'	45°41.3	70°17.9
5	293°24.1	15.8'	09°46.9	11.3'	53.9'	46°04.9	70°43.7
6	307°58.9	15.7'	N09°58.2	11.2'	53.9'	46°28.6	71°09.6
7	322°33.6	15.7'	10°09.4	11.2'	53.9'	46°52.4	71°35.6
8	337°08.4	15.7'	$10^{\circ}20.6$	11.2'	53.9'	47°16.3	72°01.5
9	351°43.0	15.6'	10°31.8	11.1'	53.9'	47°40.3	72°27.5
10	6°17.7	15.6'	10°42.9	11.1'	53.9'	48°04.3	72°53.5
11	20°52.3	15.6'	$10^{\circ}54.0$	11.1'	53.9'	48°28.4	73°19.5
12	35°26.9	15.5'	$N11^{\circ}05.1$	11.0'	53.9'	48°52.6	73°45.5
13	50°01.4	15.5'	$11^{\circ}16.1$	11.0'	53.9'	49°16.9	74°11.6
14	64°35.9	15.5'	$11^{\circ}27.0$	10.9'	53.9'	49°41.3	74°37.7
15	79°10.3	15.4'	11°38.0	10.9'	53.9'	50°05.7	75°03.8
16	93°44.7	15.4'	11°48.8	10.8'	53.9'	50°30.2	75°29.9
17	108°19.1	15.3'	$11^{\circ}59.7$	10.8'	53.9'	50°54.8	75°56.0
18	122°53.4	15.3'	N12°10.5	10.7'	53.9'	51°19.4	76°22.1
19	137°27.7	15.2'	$12^{\circ}21.2$	10.7'	53.9'	51°44.1	76°48.3
20	152°02.0	15.2'	12°31.9	10.7'	53.9'	52°08.8	77°14.5
21	166°36.1	15.2'	12°42.6	10.6'	53.9'	52°33.7	77°40.7
22	181°10.3	15.1'	12°53.2	10.6'	54.0'	52°58.5	78°06.9
23	195°44.4	15.1'	13°03.7	10.5'	54.0'	53°23.5	78°33.1
10 th	SD	= 14.7'	Mer. pass	. 09:34			

h		Moon	(11 th Ma	ay)		Lunar Dis	stance
Fri	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair
0	210°18.5	15.0'	N 13°14.2	10.5'	54.0'	53°48.5	78°59.4
1	224°52.5	15.0'	13°24.7	10.4'	54.0'	54°13.5	79°25.6
2	239°26.5	14.9'	13°35.1	10.3'	54.0'	54°38.7	79°51.9
3	254°00.4	14.9'	13°45.4	10.3'	54.0'	55°03.8	80°18.2
4	268°34.2	14.8'	13°55.7	10.2'	54.0'	55°29.1	80°44.5
5	283°08.1	14.8'	14°06.0	10.2'	54.0'	55°54.3	81°10.8
6	297°41.8	14.7'	$N14^{\circ}16.2$	10.1'	54.0'	56°19.7	81°37.2
7	312°15.6	14.7'	14°26.3	10.1'	54.0'	56°45.1	82°03.5
8	326°49.2	14.6'	14°36.4	10.0'	54.0'	57°10.5	82°29.9
9	341°22.9	14.6'	14°46.4	10.0'	54.0'	57°36.0	82°56.3
10	355°56.4	14.5'	14°56.3	9.9'	54.0'	58°01.5	83°22.7
11	10°29.9	14.5'	$15^{\circ}06.2$	9.8'	54.0'	58°27.1	83°49.1
12	25°03.4	14.4'	$N15^{\circ}16.1$	9.8'	54.0'	58°52.7	84°15.5
13	39°36.8	14.4'	15°25.9	9.7'	54.0'	59°18.4	84°41.9
14	54°10.2	14.3'	15°35.6	9.7'	54.0'	59°44.1	85°08.4
15	68°43.5	14.2'	15°45.3	9.6'	54.0'	60°09.9	85°34.8
16	83°16.7	14.2'	15°54.9	9.5'	54.0'	60°35.7	86°01.3
17	97°49.9	14.1'	$16^{\circ}04.4$	9.5'	54.0'	61°01.5	86°27.8
18	112°23.1	14.1'	$N16^{\circ}13.9$	9.4'	54.0'	61°27.4	86°54.3
19	126°56.2	14.0'	16°23.3	9.3'	54.1'	61°53.3	87°20.8
20	141°29.2	14.0'	$16^{\circ}32.6$	9.3'	54.1'	62°19.3	87°47.3
21	156°02.1	13.9'	$16^{\circ}41.9$	9.2'	54.1'	62°45.3	88°13.8
22	170°35.1	13.9'	$16^{\circ}51.1$	9.1'	54.1'	63°11.4	88°40.3
23	185°07.9	13.8'	17°00.3	9.1'	54.1'	63°37.4	89°06.9
11 th	SD	= 14.7'	Mer. pass	i. 10:17			

h	Moon (12 th May) Lunar Distance										
Sat	GHA	ν	Dec	d	HP	+Fomalhaut +Deneb +Altain					
0	199°40.7	13.7'	N 17°09.3	9.0'	54.1'	64°03.6		89°33.4			
1	214°13.5	13.7'	17°18.3	8.9'	54.1'	64°29.7		90°00.0			
2	228°46.1	13.6'	17°27.3	8.9'	54.1'	64°55.9		90°26.5			
3	243°18.8	13.6'	$17^{\circ}36.1$	8.8'	54.1'	65°22.2		90°53.1			
4	257°51.3	13.5'	17°44.9	8.7'	54.1'	65°48.4		91°19.7			
5	272°23.8	13.4'	17°53.6	8.6'	54.1'	66° 14.7		91°46.3			
6	286°56.3	13.4'	N 18°02.3	8.6'	54.1'	66°41.1		92°12.9			
7	301°28.7	13.3'	18°10.8	8.5'	54.1'	67°07.5	72°30.7	92°39.5			
8	316°01.0	13.3'	18°19.3	8.4'	54.2'	67°33.9	72°45.8	93°06.1			
9	330°33.3	13.2'	18°27.8	8.3'	54.2'	68°00.3	73°01.0	93°32.8			
10	345°05.5	13.1'	18°36.1	8.3'	54.2'	68° 26.8	73°16.3	93°59.4			
11	359°37.6	13.1'	18°44.4	8.2'	54.2'	68°53.3	73°31.6	94°26.0			
12	14°09.7	13.0'	N 18°52.5	8.1'	54.2'	69°19.8	73°47.0	94°52.7			
13	28°41.7	13.0'	19°00.6	8.0'	54.2'	69°46.4	74°02.4	95°19.3			
14	43°13.7	12.9'	19°08.7	7.9'	54.2'	70°13.0	74°18.0	95°46.0			
15	57°45.6	12.8'	$19^{\circ}16.6$	7.9'	54.2'	70°39.6	74°33.5	96°12.6			
16	72°17.4	12.8'	19°24.5	7.8'	54.2'	71°06.2	74°49.2	96°39.3			
17	86°49.2	12.7'	19°32.2	7.7'	54.2'	71°32.9	75°04.8	97°06.0			
18	101°20.9	12.7'	N 19°39.9	7.6'	54.2'	N	ew Moon —	<u> </u>			
19	115°52.6	12.6'	19°47.5	7.5'	54.3'	Ne	ew Moon —				
20	130°24.2	12.5'	19°55.1	7.4'	54.3'	Ne	ew Moon —				
21	144°55.7	12.5'	20°02.5	7.4'	54.3'	Ne	ew Moon —				
22	159°27.2	12.4'	$20^{\circ}09.9$	7.3'	54.3'		ew Moon —				
23	173°58.6	12.3'	20°17.1	7.2'	54.3'	Ne	ew Moon —				
12 th	SD	= 14.8'	Mer. pass.	11:02							

h Moon (13 th May)

Sun	GHA	ν	Dec	d	HP	
0	188°29.9	12.3'	N 20°24.3	7.1'	54.3'	New Moon
1	203°01.2	12.2'	20°31.4	7.0'	54.3'	New Moon
2	217°32.5	12.2'	20°38.4	6.9'	54.3'	New Moon
3	232°03.6	12.1'	20°45.3	6.8'	54.3'	New Moon
4	246°34.7	12.0'	20°52.1	6.7'	54.4'	New Moon
5	261°05.8	12.0'	20°58.8	6.6'	54.4'	New Moon
6	275°36.8	11.9'	$N21^{\circ}05.4$	6.5'	54.4'	New Moon
7	290°07.7	11.9'	21°12.0	6.4'	54.4'	New Moon
8	304°38.5	11.8'	21°18.4	6.3'	54.4'	New Moon
9	319°09.3	11.7'	21°24.7	6.2'	54.4'	New Moon
10	333°40.1	11.7'	21°31.0	6.1'	54.4'	New Moon
11	348°10.8	11.6'	$21^{\circ}37.1$	6.0'	54.4'	New Moon
12	2°41.4	11.6'	$N21^{\circ}43.2$	5.9'	54.5'	New Moon
13	17°11.9	11.5'	$21^{\circ}49.1$	5.8'	54.5'	New Moon
14	31°42.4	11.4'	21°55.0	5.7'	54.5'	New Moon
15	46°12.9	11.4'	22°00.7	5.6'	54.5'	New Moon
16	60°43.3	11.3'	22°06.3	5.5'	54.5'	New Moon
17	75°13.6	11.3'	$22^{\circ}11.9$	5.4'	54.5'	New Moon
18	89°43.9	11.2'	$N22^{\circ}17.3$	5.3'	54.5'	New Moon
19	104°14.1	11.2'	22°22.7	5.2'	54.5'	New Moon
20	118°44.3	11.1'	22°27.9	5.1'	54.6'	New Moon
21	133°14.4	11.0'	22°33.0	5.0'	54.6'	New Moon
22	147°44.4	11.0'	22°38.0	4.9'	54.6'	New Moon
23	162°14.4	10.9'	22°43.0	4.8'	54.6'	New Moon
13 th	SD	= 14.8'	Mer. pass.	11:49		

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

Mon	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Sirius	-Procyon		-Betelgeuse	-Aldebaran	-Venus
0	176°44.3	10.9'	N 22°47.8	4.7'	54.6'				New	Moon —			
1	191°14.2	10.8'	22°52.5	4.6'	54.6'				New	Moon —			
2	205°44.1	10.8'	22°57.1	4.5'	54.6'				New	Moon —			
3	220°13.8	10.7'	23°01.5	4.4'	54.7'								
4	234°43.6	10.7'	23°05.9	4.3'	54.7'								
5	249°13.2	10.6'	23° 10.2	4.1'	54.7'								
6	263°42.8	10.6'	N23°14.3	4.0'	54.7'				New	Moon —			
7	278°12.4	10.5'	23°18.4	3.9'	54.7'								
8	292°41.9	10.5'	23°22.3	3.8'	54.7'								
9	307°11.4	10.4'	23°26.1	3.7'	54.7'				New	Moon —			
10	321°40.8	10.4'	23°29.8	3.6'	54.8'								
11	336°10.2	10.3'	23°33.4	3.5'	54.8'	111°25.8	86°22.0	56°20.9	54°59.4	49°44.2	31°14.3	10° 19.4	4°12.6
12	350°39.5	10.3'	N23°36.8	3.4'	54.8'	110°55.7	85°51.5	56°00.8	54°30.2	49°14.2	30°48.8	9°59.2	3°49.3
13	5°08.8	10.2'	23°40.2	3.2'	54.8'	110°25.6	85°21.0	55°40.7	54°01.1	48°44.2	30°23.4	9°40.0	
14	19°38.1	10.2'	23°43.4	3.1'	54.8'	109°55.5	84°50.5	55°20.7	53°31.9	48°14.2	29°58.2		
15	34°07.2	10.1'	23°46.5	3.0'	54.8'	109°25.4	84°20.0	55°00.8	53°02.7	47°44.2	29°33.1		
16	48°36.4	10.1'	23°49.5	2.9'	54.8'	108°55.2	83°49.5	54°41.0	52°33.6	47°14.1	29°08.1		
17	63°05.5	10.1'	23°52.4	2.8'	54.9'	108°25.1	83°19.0	54°21.3	52°04.4	46°44.1	28°43.3		
18	77°34.6	10.0'	N23°55.2	2.6'	54.9'	107°54.9	82°48.4	54°01.7	51°35.3	46°14.0	28°18.6		
19	92°03.6	10.0'	23°57.8	2.5'	54.9'	107°24.7	82°17.8	53°42.2	51°06.1	45°44.0	27°54.2		
20	106°32.6	9.9'	24°00.3	2.4'	54.9'	106°54.5	81°47.2	53°22.8	50°37.0	45°13.9	27°29.9		
21	121°01.5	9.9'	24°02.7	2.3'	54.9'	106°24.2	81°16.6	53°03.6	50°07.9	44°43.8	27°05.7		
22	135°30.4	9.9'	24°05.0	2.2'	54.9'	105°54.0	80°46.0	52°44.4	49°38.7	44°13.8	26°41.8		
23	149°59.3	9.8'	24°07.2	2.0'	55.0'	105°23.7	80°15.4	52°25.4	49°09.6	43°43.7	26°18.1		
14 th	SD	= 14.9'	Mer. pass.	. 12:39									

	h	Moon (15 th May)	Lunar Distance (objects with largest hourly LD delta)
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Tue	GHA	ν	Dec	d	HP	-Jupiter	-Arcturus	-Mars	-Regulus	-Procyon	-Pollux	+Venus	+Aldebaran
0	164°28.1	9.8'	N 24°09.2	1.9'	55.0'			104°53.5	79°44.7	48°40.5	43°13.6		
1	178°56.9	9.8'	$24^{\circ}11.1$	1.8'	55.0'			104°23.2	79°14.0	48°11.4	42°43.5		
2	193°25.6	9.7'	$24^{\circ}12.9$	1.7'	55.0'			103°52.8	78°43.3	47°42.3	42°13.4		
3	207°54.4	9.7'	$24^{\circ}14.6$	1.5'	55.0'			103°22.5	78°12.6	47°13.2	41°43.3		
4	222°23.0	9.7'	24°16.2	1.4'	55.0'			102°52.2	77°41.9	46°44.2	41°13.2	4°42.6	
5	236°51.7	9.6'	24°17.6	1.3'	55.1'			102°21.8	77°11.2	46°15.1	40°43.1	5°07.6	
6	251°20.3	9.6'	N 24°18.9	1.2'	55.1'			101°51.4	76°40.4	45°46.1	40°13.0	5°33.1	
7	265°48.9	9.6'	$24^{\circ}20.1$	1.0'	55.1'			101°21.0	76°09.6	45°17.0	39°42.9	5°59.0	
8	280°17.5	9.5'	$24^{\circ}21.1$	0.9'	55.1'			100°50.6	75°38.8	44°48.0	39°12.8	6°25.1	
9	294°46.0	9.5'	24°22.0	0.8'	55.1'			100°20.2	75°08.0	44°19.0	38°42.8	6°51.5	
10	309°14.5	9.5'	24°22.8	0.7'	55.1'			99°49.7	74°37.2	43°50.1	38°12.7	7°18.1	
11	323°43.0	9.5'	24°23.5	0.5'	55.2'			99°19.2	74°06.3	43°21.1	37°42.6	7°44.9	
12	338°11.4	9.4'	N 24°24.0	0.4'	55.2'			98°48.7	73°35.5	42°52.2	37°12.5	8°11.8	
13	352°39.9	9.4'	24°24.5	0.3'	55.2'			98°18.2	73°04.6	42°23.3	36°42.4	8°38.8	
14	7°08.3	9.4'	24°24.8	0.2'	55.2'			97°47.7	72°33.7	41°54.4	36°12.3	9°06.0	
15	21°36.7	9.4'	24°24.9	0.0'	55.2'	_	119°49.2	97°17.2	72°02.8	41°25.5	35°42.2	9°33.2	10°36.0
16	36°05.0	9.3'	24°25.0	-0.1'	55.3'	119°59.4	119°26.2	96°46.6	71°31.8	40°56.7	35°12.1	10°00.5	10°57.9
17	50°33.4	9.3'	24°24.9	-0.2'	55.3'	119°28.4	119°03.0	96°16.0	71°00.9	40°27.8	34°42.1	10°27.9	11°20.5
18	65°01.7	9.3'	N 24°24.6	-0.3'	55.3'	118°57.3	118°39.8	95°45.4	70°29.9	39°59.1	34°12.0	10°55.4	11°43.8
19	79°30.0	9.3'	24°24.3	-0.5'	55.3'	118°26.3	118°16.4	95°14.8	69°58.9	39°30.3	33°42.0	11°22.9	12°07.6
20	93°58.3	9.3'	24°23.8	-0.6'	55.3'	117°55.2	117°53.0	94°44.2	69°27.9	39°01.6	33°11.9	11°50.5	12°32.0
21	108°26.6	9.3'	24°23.2	-0.7'	55.3'	117°24.1	117°29.6	94°13.5	68°56.9	38°32.9	32°41.9	12°18.2	12°56.9
22	122°54.8	9.2'	24°22.5	-0.9'	55.4'	116°53.0	117°06.0	93°42.9	68°25.8	38°04.2	32°11.9	12°45.9	13°22.2
23	137°23.1	9.2'	24°21.6	-1.0'	55.4'	116°21.9	116°42.4	93°12.2	67°54.8	37°35.6	31°41.9	13°13.6	13°48.0
15 th	SD :	= 15.0'	Mer. pass	s. 13:30	1								

h Moon (16th May) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	-Pollux	+Venus	+Aldebaran	+Capella
0	151°51.3	9.2'	N 24°20.6	-1.1'	55.4'		115°50.7	92°41.5	67°23.7	31°11.9	13°41.4	14°14.1	
1	166°19.5	9.2'	24° 19.5	-1.2'	55.4'		115° 19.5	92°10.8	66°52.6	30°41.9	14°09.2	14°40.5	
2	180°47.7	9.2'	24°18.3	-1.4'	55.4'		114°48.3	91°40.0	66°21.5	30°12.0	14°37.1	15°07.3	
3	195°15.9	9.2'	24°16.9	-1.5'	55.5'	119°52.5	114° 17.1	91°09.3	65°50.4	29°42.0	15°05.0	15°34.3	
4	209°44.1	9.2'	24°15.4	-1.6'	55.5'	119°21.3	113°45.9	90°38.5	65° 19.2	29°12.1	15°33.0	16°01.6	
5	224°12.3	9.2'	24°13.8	-1.8'	55.5'	118°50.0	113°14.6	90°07.7	64°48.0	28°42.3	16°01.0	16°29.2	
6	238°40.5	9.2'	N 24°12.0	-1.9'	55.5'	118°18.8	112°43.3	89°36.9	64° 16.8	28°12.4	16°29.0	16°57.0	
7	253°08.7	9.2'	24°10.1	-2.0'	55.5'	117°47.5	112°12.0	89°06.0	63°45.6	27°42.6	16°57.1	17°25.0	
8	267°36.8	9.2'	24°08.1	-2.2'	55.6'	117°16.2	111°40.7	88°35.2	63°14.4	27°12.8	17°25.1	17°53.2	
9	282°05.0	9.2'	24°05.9	-2.3'	55.6'	116°44.8	111°09.3	88°04.3	62°43.2	26°43.1	17°53.3	18° 21.5	
10	296°33.1	9.2'	24°03.7	-2.4'	55.6'	116°13.5	110°37.9	87°33.4	62°11.9	26°13.4	18°21.4	18°50.1	
11	311°01.3	9.2'	24°01.2	-2.5'	55.6'	115°42.1	110°06.6	87°02.5	61°40.6	25°43.7	18°49.6	19° 18.8	
12	325°29.5	9.2'	N 23°58.7	-2.7'	55.6'	115°10.7	109°35.1	86°31.6	61°09.3	25°14.1	19°17.8	19°47.7	
13	339°57.6	9.2'	23°56.0	-2.8'	55.7'	114°39.3	109°03.7	86°00.6	60°38.0	24°44.5	19°46.0	20° 16.7	
14	354°25.8	9.2'	23°53.2	-2.9'	55.7'	114°07.9	108°32.2	85°29.7	60°06.6	24°15.0	20°14.3	20°45.8	
15	8°54.0	9.2'	23°50.3	-3.1'	55.7'	113°36.4	108°00.8	84°58.7	59°35.3	23°45.6	20°42.6	21° 15.1	
16	23°22.1	9.2'	23°47.3	-3.2'	55.7'	113°04.9	107°29.3	84°27.7	59°03.9	23°16.2	21°10.9	21°44.5	
17	37°50.3	9.2'	23°44.1	-3.3'	55.7'	112°33.4	106°57.7	83°56.6	58°32.5	22°46.9	21°39.3	22°14.0	
18	52°18.5	9.2'	N 23°40.8	-3.4'	55.8'	112°01.9	106°26.2	83°25.6	58°01.1	22°17.6	22°07.7	22°43.6	
19	66°46.7	9.2'	23°37.3	-3.6'	55.8'	111°30.4	105°54.6	82°54.5	57° 29.6	21°48.5	22°36.1	23° 13.3	
20	81°14.9	9.2'	23°33.8	-3.7'	55.8'	110°58.8	105°23.0	82°23.4	56° 58.2	21°19.4	23°04.5	23°43.1	25°05.7
21	95°43.1	9.2'	23°30.1	-3.8'	55.8'	110°27.2	104°51.4	81°52.3	56° 26.7	20°50.4	23°32.9	24°13.0	25°21.6
22	110°11.3	9.2'	23°26.2	-4.0'	55.8'	109°55.6	104°19.8	81°21.2	55°55.2	20°21.6	24°01.4	24°42.9	25°38.0
23	124°39.5	9.2'	23°22.3	-4.1'	55.9'	109°24.0	103°48.2	80°50.1	55°23.7	19°52.8	24°29.9	25°13.0	25°54.8
16 th	SD :	= 15.1	Mer. pas	s. 14:23									

h Moon (17 th May) Lunar Distance (objects with larges	st hourly LD delta)	1
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Thu	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Venus	+Aldebaran	+Capella	+Sun
0	139°07.7	9.2'	N23°18.2	-4.2'	55.9'	108°52.3	103° 16.5	80°18.9	54°52.2	24°58.5	25°43.2	26°12.0	
1	153°36.0	9.3'	23°14.0	-4.3'	55.9'	108°20.7	102°44.8	79°47.7	54°20.6	25°27.0	26°13.4	26°29.7	
2	168°04.2	9.3'	23°09.7	-4.5'	55.9'	107°49.0	102°13.1	79°16.5	53°49.0	25°55.6	26°43.7	26°47.8	
3	182°32.5	9.3'	23°05.2	-4.6'	56.0'	107°17.3	101°41.3	78°45.3	53°17.4	26°24.2	27° 14.1	27°06.3	
4	197°00.8	9.3'	23°00.6	-4.7'	56.0'	106°45.5	101°09.5	78°14.0	52°45.8	26°52.9	27° 44.5	27°25.2	
5	211°29.1	9.3'	22°55.9	-4.8'	56.0'	106°13.8	100°37.8	77°42.8	52°14.2	27°21.5	28° 15.0	27°44.4	41°25.2
6	225°57.4	9.3'	N22°51.1	-5.0'	56.0'	105°42.0	100°05.9	77°11.5	51°42.5	27°50.2	28°45.6	28°04.0	41°54.5
7	240°25.7	9.4'	22°46.1	-5.1'	56.0'	105°10.2	99°34.1	76°40.2	51°10.9	28° 18.9	29° 16.2	28°24.0	42°23.8
8	254°54.1	9.4'	22°41.0	-5.2'	56.1'	104°38.3	99°02.3	76°08.9	50°39.2	28°47.7	29°46.9	28°44.3	42°53.2
9	269°22.5	9.4'	22°35.8	-5.3'	56.1'	104°06.5	98°30.4	75°37.5	50°07.5	29° 16.5	30° 17.6	29°05.0	43°22.5
10	283°50.9	9.4'	22°30.5	-5.5'	56.1'	103°34.6	97°58.5	75°06.1	49°35.7	29°45.2	30°48.5	29°25.9	43°51.9
11	298°19.3	9.4'	22°25.0	-5.6'	56.1'	103°02.7	97° 26.5	74°34.7	49°04.0	30°14.1	31° 19.3	29°47.2	44°21.4
12	312°47.7	9.5'	N22°19.5	-5.7'	56.2'	102°30.8	96° 54.6	74°03.3	48°32.2	30°42.9	31°50.2	30°08.8	44°50.8
13	327°16.1	9.5'	22°13.8	-5.8'	56.2'	101°58.8	96°22.6	73°31.9	48°00.4	31°11.8	32°21.2	30°30.7	45°20.3
14	341°44.6	9.5'	22°07.9	-5.9'	56.2'	101°26.9	95°50.6	73°00.5	47°28.6	31°40.7	32°52.2	30°52.8	45°49.8
15	356°13.1	9.5'	22°02.0	-6.1'	56.2'	100°54.9	95° 18.6	72°29.0	46°56.8	32°09.6	33°23.3	31°15.2	46°19.3
16	10°41.6	9.5'	21°55.9	-6.2'	56.2'	100°22.9	94°46.6	71°57.5	46°24.9	32°38.5	33°54.4	31°37.9	46°48.9
17	25°10.2	9.6'	$21^{\circ}49.7$	-6.3'	56.3'	99°50.8	94° 14.5	71°26.0	45°53.1	33°07.5	34°25.6	32°00.9	47°18.4
18	39°38.7	9.6'	N21°43.4	-6.4'	56.3'	99°18.8	93°42.4	70°54.4	45°21.2	33°36.5	34°56.8	32°24.1	47°48.1
19	54°07.3	9.6'	21°37.0	-6.5'	56.3'	98°46.7	93°10.3	70°22.9	44°49.3	34°05.5	35°28.1	32°47.5	48°17.7
20	68°36.0	9.6'	21°30.5	-6.7'	56.3'	98°14.6	92°38.2	69°51.3	44°17.3	34°34.5	35°59.4	33°11.2	48°47.3
21	83°04.6	9.7'	21°23.8	-6.8'	56.4'	97°42.4	92°06.0	69°19.7	43°45.4	35°03.6	36° 30.7	33°35.1	49°17.0
22	97°33.3	9.7'	21°17.0	-6.9'	56.4'	97°10.3	91°33.8	68°48.1	43°13.4	35°32.7	37°02.1	33°59.2	49°46.7
23	112°02.0	9.7'	$21^{\circ}10.1$	-7.0'	56.4'	96°38.1	91°01.6	68°16.4	42°41.4	36°01.8	37°33.6	34°23.5	50°16.5
17 th	SD :	= 15.2	Mer. pass	s. 15:16	i				Sun SI	D = 15.8'			

h Moon (18 th May)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Betelgeuse	+Venus	+Aldebaran	+Sun
0	126°30.7	9.8'	N21°03.1	-7.1'	56.4'	96°05.9	90°29.4	67°44.8	42°09.4	23°52.0	36°31.0	38°05.1	50°46.2
1	140°59.4	9.8'	20°55.9	-7.3'	56.5'	95°33.6	89°57.1	67° 13.1	41°37.4	24° 15.1	37°00.2	38°36.6	51°16.0
2	155°28.2	9.8'	20°48.7	-7.4'	56.5'	95°01.4	89°24.8	66°41.4	41°05.3	24°38.6	37°29.4	39°08.2	51°45.8
3	169°57.0	9.8'	20°41.3	-7.5'	56.5'	94°29.1	88°52.5	66°09.6	40°33.3	25°02.4	37°58.6	39°39.8	52° 15.6
4	184°25.9	9.9'	20°33.9	-7.6'	56.5'	93°56.8	88°20.2	65°37.9	40°01.2	25°26.6	38°27.8	40°11.4	52°45.5
5	198°54.7	9.9'	$20^{\circ}26.3$	-7.7'	56.5'	93°24.5	87°47.8	65°06.1	39°29.1	25°51.0	38°57.1	40°43.1	53° 15.4
6	213°23.6	9.9'	$N20^{\circ}18.5$	-7.8'	56.6'	92°52.1	87°15.5	64°34.3	38°57.0	26° 15.7	39°26.4	41°14.8	53°45.3
7	227°52.6	10.0'	$20^{\circ}10.7$	-7.9'	56.6'	92°19.7	86°43.1	64°02.5	38°24.8	26° 40.7	39°55.8	41°46.6	54° 15.2
8	242°21.5	10.0'	20°02.8	-8.0'	56.6'	91°47.3	86°10.6	63°30.6	37°52.7	27°06.0	40°25.1	42°18.4	54°45.2
9	256°50.5	10.0'	19°54.7	-8.2'	56.6'	91°14.9	85°38.2	62°58.8	37°20.5	27° 31.5	40°54.5	42°50.2	55° 15.2
10	271°19.5	10.0'	19°46.6	-8.3'	56.7'	90°42.4	85°05.7	62°26.9	36°48.3	27° 57.2	41°23.9	43°22.1	55°45.2
11	285°48.6	10.1'	19°38.3	-8.4'	56.7'	90°09.9	84°33.2	61°55.0	$36^{\circ}16.1$	28° 23.2	41°53.4	43°54.0	56° 15.3
12	300°17.6	10.1'	$N19^{\circ}30.0$	-8.5'	56.7'	89°37.4	84°00.7	61°23.0	35°43.8	28°49.4	42°22.8	44°26.0	56°45.4
13	314°46.8	10.1'	19°21.5	-8.6'	56.7'	89°04.9	83°28.1	60°51.1	35°11.6	29° 15.8	42°52.3	44°58.0	57° 15.5
14	329°15.9	10.2'	19°12.9	-8.7'	56.8'	88°32.3	82°55.5	60°19.1	34°39.3	29°42.5	43°21.8	45°30.0	57°45.6
15	343°45.1	10.2'	19°04.2	-8.8'	56.8'	87°59.7	82°22.9	59°47.1	34°07.0	30°09.3	43°51.4	46°02.1	58° 15.7
16	358°14.3	10.2'	18°55.4	-8.9'	56.8'	87°27.1	81°50.3	59° 15.1	33°34.7	30° 36.3	44°21.0	46°34.2	58° 45.9
17	12°43.5	10.3'	18°46.5	-9.0'	56.8'	86°54.5	81°17.6	58°43.0	33°02.4	31°03.5	44°50.6	47°06.3	59°16.1
18	27°12.8	10.3'	$N18^{\circ}37.4$	-9.1'	56.9'	86°21.8	80°44.9	58° 11.0	32°30.1	31°30.9	45°20.2	47°38.5	59°46.4
19	41°42.1	10.3'	18°28.3	-9.2'	56.9'	85°49.1	80°12.2	57°38.9	31°57.7	31°58.5	45°49.9	48°10.7	60°16.6
20	56°11.4	10.4'	$18^{\circ}19.1$	-9.3'	56.9'	85°16.4	79°39.5	57°06.8	31°25.4	32°26.2	46°19.5	48°42.9	60°46.9
21	70°40.8	10.4'	$18^{\circ}09.8$	-9.4'	56.9'	84°43.6	79°06.7	56°34.6	30°53.0	32°54.1	46°49.3	49°15.2	61°17.3
22	85°10.2	10.4'	18°00.3	-9.5'	57.0'	84°10.8	78°34.0	56°02.5	30°20.6	33°22.1	47°19.0	49°47.5	61°47.6
23	99°39.6	10.5'	17°50.8	-9.6'	57.0'	83°38.0	78°01.1	55°30.3	29°48.2	33°50.3	47°48.8	50°19.9	62°18.0
18 th	SD	= 15.4'	Mer. pass	16:07					Sun	SD = 15.8'		-	

Moon (19th May) Lunar Distance (objects with largest hourly LD delta) -Spica -Jupiter -Mars +Pollux +Betelgeuse +Aldebaran Sat GHA Dec HP -Antares d 114°09.1 10 5' 57.0' 83°05.2 77°28.3 54°58.1 11°40.0

0	114°09.1	10.5	N17°41.2	-9.7	57.0		83°05.2	77°28.3	54°58.1	11°40.0	34°18.7	50°52.3	62°48.4
1	128°38.5	10.5'	17°31.4	-9.8'	57.0'		82°32.3	76°55.4	54°25.9	12°03.4	34°47.1	51°24.7	63° 18.8
2	143°08.1	10.6'	$17^{\circ}21.6$	-9.9'	57.1'		81°59.5	76°22.6	53°53.6	12°27.5	35°15.8	51°57.1	63°49.3
3	157°37.6	10.6'	$17^{\circ}11.7$	-10.0'	57.1'		81°26.5	75°49.6	53°21.4	12°52.3	35°44.5	52°29.6	64°19.8
4	172°07.2	10.6'	17°01.6	-10.1'	57.1'		80°53.6	75°16.7	52°49.1	13°17.7	36°13.4	53°02.2	64°50.3
5	186°36.8	10.6'	16°51.5	-10.2'	57.2'		80°20.6	74°43.7	52° 16.7	13°43.7	36°42.4	53°34.7	65° 20.9
	201°06.5	10.7'	N16°41.3	-10.3	57.2'		79°47.6	74°10.7	51°44.4	14°10.1	37°11.5	54°07.3	65°51.4
6													
7	215°36.1	10.7'	16°31.0	-10.4'	57.2'		79°14.6	73°37.7	51°12.0	14°37.0	37°40.7	54°39.9	66°22.1
8	230°05.8	10.7'	16°20.6	-10.5'	57.2'		78°41.5	73°04.6	50°39.7	15°04.4	38°10.1	55°12.6	66°52.7
9	244°35.6	10.8'	$16^{\circ}10.1$	-10.6'	57.3'		78°08.4	72°31.6	50°07.2	15°32.1	38°39.6	55°45.3	67°23.4
10	259°05.3	10.8'	$15^{\circ}59.5$	-10.7'	57.3'		77°35.3	71°58.5	49°34.8	16°00.2	39°09.1	56°18.0	67°54.1
11	273°35.1	10.8'	15°48.8	-10.8'	57.3'		77°02.2	71°25.3	49°02.4	16°28.6	39°38.8	56°50.8	68°24.8
12	288°05.0	10.9'	N 15°38.0	-10.9'	57.3'		76°29.0	70°52.2	48° 29.9	16°57.3	40°08.6	57°23.6	68° 55.5
13	302°34.8	10.9'	$15^{\circ}27.1$	-11.0'	57.4'		75°55.8	70°19.0	47°57.4	17°26.3	40°38.5	57°56.4	69°26.3
14	317°04.7	10.9'	15°16.2	-11.0'	57.4		75°22.6	69°45.8	47°24.9	17°55.6	41°08.5	58°29.3	69°57.1
15	331°34.6	10.9'	15°05.1	-11.1'	57.4		74°49.3	69°12.5	46°52.3	18°25.1	41°38.5	59°02.2	70°28.0
16	346°04.5	11.0'	14°54.0	-11.2'	57.4	119°50.6	74°16.0	68°39.3	46° 19.8	18°54.8	42°08.7	59°35.1	70°58.9
17	0°34.5	11.0'	14°42.8	-11.3'	57.5'	119°17.3	73°42.7	68°06.0	45°47.2	19°24.8	42°39.0	60°08.1	71°29.8
							' '				1		
18	15°04.5	11.0'	N14°31.5	-11.4'	57.5'	118°43.9	73°09.4	67°32.7	45°14.6	19°55.0	43°09.3	60°41.1	72°00.7
19	29°34.5	11.0'	$14^{\circ}20.1$	-11.5'	57.5'	118°10.6	72°36.0	66°59.3	44°41.9	20°25.3	43°39.7	61°14.1	72°31.7
20	44°04.6	11.1'	14°08.6	-11.6'	57.6'	117°37.1	72°02.6	66°25.9	44°09.3	20°55.8	44°10.3	61°47.2	73°02.7
21	58°34.6	11.1'	13°57.0	-11.6'	57.6'	117°03.7	71°29.1	65°52.5	43°36.6	21°26.5	44°40.9	62°20.3	73°33.7
22	73°04.7	11.1'	13°45.4	-11.7'	57.6'	116°30.2	70°55.7	65°19.1	43°03.9	21°57.4	45°11.6	62°53.4	74°04.8
23	87°34.8	11.1'	13°33.7	-11.8'	57.6'	115°56.7	70°22.2	64°45.6	42°31.2	22°28.4	45°42.3	63°26.6	74°35.9
											,		. , , , , ,

SD = 15.6' Mer. pass. 16:58 Sun SD = 15.8'

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

Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Sun
0	102°05.0	11.2'	N 13°21.9	-11.9'	57.7'	115°23.2	69°48.6	64°12.1	41°58.5	22°59.5	46°13.2	63°59.8	75°07.0
1	116°35.1	11.2'	$13^{\circ}10.0$	-12.0'	57.7'	114°49.6	69°15.1	63°38.6	41°25.7	23°30.8	46°44.1	64°33.0	75°38.1
2	131°05.3	11.2'	12°58.0	-12.0'	57.7'	114°16.0	68°41.5	63°05.1	40°53.0	24°02.2	47°15.1	65°06.3	76°09.3
3	145°35.5	11.2'	12°46.0	-12.1'	57.7'	113°42.4	68°07.9	62°31.5	40°20.2	24°33.7	47°46.2	65°39.6	76°40.5
4	160°05.8	11.3'	12°33.9	-12.2'	57.8'	113°08.7	67°34.2	61°57.9	39°47.4	25°05.4	48°17.3	66°13.0	77°11.8
5	174°36.0	11.3'	$12^{\circ}21.7$	-12.3'	57.8'	112°35.0	67°00.5	61°24.3	39°14.5	25°37.1	48°48.5	66°46.3	77°43.1
6	189°06.3	11.3'	$N12^{\circ}09.5$	-12.3'	57.8'	112°01.3	66°26.8	60°50.6	38°41.7	26°09.0	49°19.8	67°19.7	78°14.4
7	203°36.6	11.3'	$11^{\circ}57.1$	-12.4'	57.9'	111°27.5	65°53.1	60°17.0	38°08.8	26°40.9	49°51.1	67°53.2	78°45.7
8	218°06.9	11.3'	$11^{\circ}44.7$	-12.5'	57.9'	110°53.7	65°19.3	59°43.2	37°35.9	27°13.0	50°22.6	68°26.6	79°17.1
9	232°37.2	11.3'	11°32.2	-12.5'	57.9'	110°19.9	64°45.5	59°09.5	37°03.0	27°45.2	50°54.1	69°00.2	79°48.5
10	247°07.6	11.4'	$11^{\circ}19.7$	-12.6'	57.9'	109°46.0	64°11.7	58°35.7	36°30.1	28°17.4	51°25.6	69°33.7	80°19.9
11	261°38.0	11.4'	$11^{\circ}07.1$	-12.7'	58.0'	109°12.2	63°37.8	58°02.0	35°57.2	28°49.7	51°57.2	70°07.3	80°51.4
12	276°08.3	11.4'	N 10°54.4	-12.8'	58.0'	108°38.2	63°03.9	57°28.1	35°24.2	29°22.2	52°28.9	70°40.9	81°22.9
13	290°38.7	11.4'	$10^{\circ}41.6$	-12.8'	58.0'	108°04.3	62°30.0	56°54.3	34°51.3	29°54.7	53°00.7	71°14.5	81°54.4
14	305°09.2	11.4'	10°28.8	-12.9'	58.0'	107°30.3	61°56.0	56°20.4	34°18.3	30°27.2	53°32.5	71°48.2	82°26.0
15	319°39.6	11.4'	$10^{\circ}15.9$	-13.0'	58.1'	106°56.3	61°22.0	55°46.5	33°45.3	30°59.9	54°04.3	72°21.9	82°57.6
16	334°10.0	11.5'	10°03.0	-13.0'	58.1'	106°22.2	60°48.0	55°12.6	33°12.3	31°32.6	54°36.3	72°55.7	83°29.2
17	348°40.5	11.5'	09°50.0	-13.1'	58.1'	105°48.2	60°14.0	54°38.6	32°39.3	32°05.4	55°08.2	73°29.5	84°00.9
18	3°10.9	11.5'	N09°36.9	-13.1'	58.2'	105°14.0	59°39.9	54°04.6	32°06.3	32°38.3	55°40.3	74°03.3	84°32.6
19	17°41.4	11.5'	09°23.7	-13.2'	58.2'	104°39.9	59°05.8	53°30.6	31°33.2	33°11.3	56°12.4	74°37.1	85°04.3
20	32°11.9	11.5'	$09^{\circ}10.5$	-13.3'	58.2'	104°05.7	58°31.6	52°56.6	31°00.2	33°44.3	56°44.6	75°11.0	85°36.1
21	46°42.4	11.5'	08°57.3	-13.3'	58.2'	103°31.5	57°57.4	52°22.5	30°27.1	34°17.4	57°16.8	75°44.9	86°07.9
22	61°12.9	11.5'	08°44.0	-13.4'	58.3'	102°57.3	57°23.2	51°48.5	29°54.1	34°50.5	57°49.0	76°18.9	86°39.7
23	75°43.4	11.5'	08°30.6	-13.4'	58.3'	102°23.0	56°49.0	51°14.3	29°21.0	35°23.7	58°21.4	76°52.8	87°11.6
20 th	SD	= 15.7	Mer. pas	s. 17:47					Sun	SD = 15.8	′		

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

Mon	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Procyon	+Pollux	+Betelgeuse	+Aldebaran
0	90°13.9	11.5'	N08° 17.2	-13.5'	58.3'	101°48.7	56°14.7	50°40.2	28°48.0	33°23.4	35°57.0	58°53.8	77°26.9
1	104°44.5	11.5'	08°03.7	-13.5'	58.4'	101°14.3	55°40.4	50°06.0	28° 14.9	33°54.2	36°30.3	59°26.2	78°00.9
2	119°15.0	11.5'	$07^{\circ}50.1$	-13.6'	58.4'	100°40.0	55°06.0	49°31.8	27°41.9	34°25.2	37°03.7	59°58.7	78°35.0
3	133°45.5	11.5'	07°36.5	-13.6'	58.4'	100°05.6	54°31.7	48° 57.6	27°08.8	34°56.4	37°37.1	60°31.2	79°09.1
4	148°16.1	11.5'	07°22.9	-13.7'	58.4'	99°31.1	53°57.3	48°23.4	26°35.7	35°27.6	38°10.6	61°03.8	79°43.3
5	162°46.6	11.5'	07°09.2	-13.7'	58.5'	98°56.7	53°22.8	47°49.1	26°02.7	35°58.9	38°44.2	61°36.5	80°17.5
6	$177^{\circ}17.1$	11.5'	N06°55.4	-13.8'	58.5'	98°22.1	52°48.3	47°14.8	25°29.7	36°30.4	39°17.8	62°09.2	80°51.7
7	191°47.7	11.5'	06°41.7	-13.8'	58.5'	97°47.6	52°13.8	46°40.5	24°56.6	37°02.0	39°51.5	62°41.9	81°25.9
8	206°18.2	11.5'	06°27.8	-13.9'	58.6'	97°13.0	51°39.3	46°06.1	24°23.6	37°33.7	40°25.2	63°14.7	82°00.2
9	220°48.8	11.5'	06° 13.9	-13.9'	58.6'	96°38.4	51°04.7	45°31.8	23°50.7	38°05.4	40°59.0	63°47.6	82°34.6
10	235°19.3	11.5'	$06^{\circ}00.0$	-14.0'	58.6'	96°03.8	50°30.2	44°57.4	23° 17.7	38°37.3	41°32.8	64°20.4	83°08.9
11	249°49.8	11.5'	05°46.0	-14.0'	58.6'	95°29.1	49°55.5	44°23.0	22°44.8	39°09.3	42°06.7	64°53.4	83°43.3
12	264°20.3	11.5'	N05°32.0	-14.1'	58.7'	94°54.4	49°20.9	43°48.5	22°11.9	39°41.4	42°40.6	65°26.4	84°17.7
13	278°50.9	11.5'	05° 17.9	-14.1'	58.7'	94°19.7	48°46.2	43°14.1	21°39.0	40°13.6	43°14.6	65°59.4	84°52.2
14	293°21.4	11.5'	05°03.8	-14.1'	58.7'	93°44.9	48°11.4	42°39.6	21°06.2	40°45.8	43°48.6	66°32.5	85°26.7
15	307°51.9	11.5'	04°49.7	-14.2'	58.7'	93°10.1	47°36.7	42°05.1	20°33.4	41°18.2	44°22.7	67°05.6	86°01.2
16	322°22.4	11.5'	04°35.5	-14.2'	58.8'	92°35.3	47°01.9	41°30.6	20°00.7	41°50.6	44°56.8	67°38.8	86°35.8
17	336°52.9	11.5'	04°21.3	-14.3'	58.8'	92°00.4	46°27.1	40°56.0	19°28.0	42°23.1	45°31.0	68°12.0	87°10.3
18	351°23.4	11.5'	N04°07.0	-14.3'	58.8'	91°25.5	45°52.2	40°21.4	18°55.4	42°55.7	46°05.2	68°45.3	87°45.0
19	5°53.8	11.5'	03°52.7	-14.3'	58.9'	90°50.5	45°17.3	39°46.9	18° 22.9	43°28.4	46°39.5	69°18.6	88°19.6
20	20°24.3	11.4'	03°38.4	-14.4'	58.9'	90°15.6	44°42.4	39°12.3	17°50.5	44°01.1	47°13.8	69°52.0	88°54.3
21	34°54.7	11.4'	$03^{\circ}24.1$	-14.4'	58.9'	89°40.6	44°07.5	38° 37.6	17° 18.2	44°34.0	47°48.2	70°25.4	89°29.0
22	49°25.2	11.4'	03°09.7	-14.4'	58.9'	89°05.5	43°32.5	38°03.0	16°46.0	45°06.9	48°22.6	70°58.8	90°03.8
23	63°55.6	11.4'	02°55.3	-14.4'	59.0'	88°30.5	42°57.5	37°28.3	16°14.0	45°39.9	48°57.0	71°32.3	90°38.6
21 st	SD	= 15.9	Mer. pass	s. 18:36									

19th

h		Moor	n (22 nd M	ay)			Lunar [Distance	(objects	with large	est hourly	LD delta	n)
Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Procyon	+Pollux	+Aldebaran
0	78°26.0	11.4'	N 02°40.8	-14.5'	59.0'	87°55.4	42°22.5	36°53.7	15°42.0	12°45.8	46°12.9	49°31.5	91°13.4
1	92°56.4	11.4'	02°26.3	-14.5'	59.0'	87°20.2	41°47.4	36°19.0	15°10.3	13° 18.5	46°46.0	50°06.0	91°48.3
2	107°26.7	11.3'	02°11.8	-14.5'	59.0'	86°45.0	41°12.3	35°44.3	14°38.7	13°51.5	47° 19.2	50°40.6	92°23.1
3	121°57.1	11.3'	$01^{\circ}57.3$	-14.5'	59.1'	86°09.8	40°37.2	35°09.6	14°07.4	14°24.7	47°52.5	51°15.2	92°58.1
4	136°27.4	11.3'	$01^{\circ}42.8$	-14.6'	59.1'	85°34.6	40°02.0	34°34.8	13°36.3	14°58.0	48°25.8	51°49.9	93°33.0
5	150°57.7	11.3'	01°28.2	-14.6'	59.1'	84°59.3	39°26.8	34°00.1	13°05.5	15°31.5	48°59.2	52°24.6	94°08.0
6	165°28.0	11.3'	N01°13.6	-14.6'	59.2'	84°24.0	38°51.6	33°25.4	12°34.9	16°05.2	49°32.7	52°59.3	94°43.0
7	179°58.2	11.2'	00°59.0	-14.6'	59.2'	83°48.7	38°16.3	32°50.6	12°04.8	16°39.0	50°06.2	53°34.1	95°18.1
8	194°28.5	11.2'	00°44.4	-14.6'	59.2'	83° 13.3	37°41.0	32°15.8	11°35.0	17°13.0	50°39.8	54°08.9	95°53.2
9	208°58.7	11.2'	00°29.7	-14.7'	59.2'	82°37.9	37°05.7	31°41.1	11°05.8	17°47.1	51°13.4	54°43.8	96°28.3
10	223°28.8	11.1'	$00^{\circ}15.0$	-14.7'	59.3'	82°02.5	36°30.4	31°06.3	10°37.0	18°21.3	51°47.1	55°18.7	97°03.4
11	237°59.0	11.1'	N 00°00.4	-14.7'	59.3'	81°27.0	35°55.0	30°31.5	10°08.9	18°55.5	52°20.9	55°53.7	97°38.6
12	252°29.1	11.1'	S 00°14.3	-14.7'	59.3'	80°51.5	35°19.6	29°56.8	9°41.5	19°29.9	52°54.7	56°28.7	98°13.8
13	266°59.2	11.1'	$00^{\circ}29.0$	-14.7'	59.3'	80°16.0	34°44.2	29°22.0	9°14.9	20°04.4	53°28.5	57°03.7	98°49.0
14	281°29.2	11.0'	00°43.7	-14.7'	59.4'	79°40.4	34°08.7	28°47.2		20°39.0	54°02.5	57°38.7	99°24.3
15	295°59.3	11.0'	00°58.5	-14.7'	59.4'	79°04.9	33°33.3	28°12.5		21°13.7	54°36.5	58°13.9	99°59.6
16	310°29.2	11.0'	$01^{\circ}13.2$	-14.7'	59.4'	78°29.2	32°57.8	27°37.7		21°48.4	55° 10.5	58°49.0	
17	324°59.2	10.9'	$01^{\circ}27.9$	-14.7'	59.4'	77°53.6	32°22.2	27°03.0		22°23.2	55°44.6	59°24.2	
18	339°29.1	10.9'	S 01°42.7	-14.7'	59.5'	77° 17.9	31°46.7	26°28.3		22°58.1	56° 18.7	59°59.4	
19	353°59.0	10.8'	01°57.4	-14.7'	59.5'	76°42.2	31°11.1	25°53.6		23°33.1	56°52.9	60°34.6	
20	8°28.8	10.8'	$02^{\circ}12.2$	-14.8'	59.5'	76°06.4	30°35.5	25°18.9		24°08.1	57°27.2	61°09.9	
21	22°58.6	10.8'	$02^{\circ}26.9$	-14.8'	59.5'	75°30.6	29°59.8	24°44.2		24°43.2	58°01.5	61°45.3	
22	37°28.4	10.7'	02°41.7	-14.7'	59.6'	74°54.8	29°24.2	24°09.6		25°18.4	58° 35.8	62°20.6	
23	51°58.1	10.7'	02°56.4	-14.7'	59.6'	74°19.0	28°48.5	23°35.0		25°53.6	59° 10.2	62°56.0	
22 nd	SD	= 16.1	Mer. pas	s. 19:25									

h Moon (23 rd May) Lunar Distance (objects with	largest hourly LD delta)
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Wed	GHA	ν	Dec	d	HP	-Altair	-Antares	-Spica	-Jupiter	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	66°27.8	10.6'	S 03°11.2	-14.7'	59.6'		73°43.1	28°12.8	23°00.5	26°28.9	59°44.6	63°31.5	85°42.1
1	80°57.4	10.6'	03°25.9	-14.7'	59.6'		73°07.2	27° 37.0	22°26.0	27°04.2	60°19.1	64°06.9	86°16.6
2	95°27.0	10.5'	03°40.6	-14.7'	59.7'		72°31.3	27°01.3	21°51.5	27°39.6	60°53.7	64°42.4	86°51.0
3	109°56.6	10.5'	03°55.4	-14.7'	59.7'		71°55.3	26°25.5	21°17.2	28° 15.0	61°28.2	65°18.0	87° 25.6
4	124°26.1	10.4'	$04^{\circ}10.1$	-14.7'	59.7'		71°19.3	25°49.7	20°42.8	28°50.5	62°02.8	65°53.5	88°00.1
5	138°55.5	10.4'	04°24.8	-14.7'	59.7'		70°43.3	25°13.9	20°08.6	29°26.1	62°37.5	66°29.1	88° 34.7
6	153°24.9	10.4'	S 04°39.5	-14.7'	59.7'		70°07.2	24°38.0	19°34.4	30°01.6	63°12.2	67°04.8	89°09.3
7	167°54.3	10.3'	04°54.2	-14.7'	59.8'		69°31.2	24°02.2	19°00.4	30°37.3	63°47.0	67°40.4	89°43.9
8	182°23.6	10.2'	05°08.8	-14.6'	59.8'	119°37.7	68°55.0	23°26.3	18°26.4	31°13.0	64°21.8	68°16.1	90°18.6
9	196°52.8	10.2'	05°23.5	-14.6'	59.8'	119°06.7	68°18.9	22°50.4	17°52.6	31°48.7	64°56.6	68°51.9	90°53.2
10	211°22.0	10.1'	05°38.1	-14.6'	59.8'	118°35.7	67°42.7	22°14.6	17°18.9	32°24.4	65°31.5	69°27.7	91°28.0
11	225°51.1	10.1'	05°52.7	-14.6'	59.9'	118°04.6	67°06.5	21°38.6	16°45.4	33°00.2	66°06.4	70°03.4	92°02.7
12	240°20.2	10.0'	S 06°07.3	-14.6'	59.9'	117°33.4	66°30.3	21°02.7	16°12.0	33°36.1	66°41.3	70°39.3	92°37.5
13	254°49.3	10.0'	$06^{\circ}21.9$	-14.5'	59.9'	117°02.2	65°54.1	20° 26.8	15°38.8	34°12.0	67°16.3	71°15.1	93°12.2
14	269°18.2	9.9'	06°36.4	-14.5'	59.9'	116°30.8	65°17.8	19°50.9	15°05.9	34°47.9	67°51.4	71°51.0	93°47.1
15	283°47.1	9.9'	06°50.9	-14.5'	59.9'	115°59.4	64°41.5	19°14.9	14°33.2	35°23.9	68°26.4	72°27.0	94°21.9
16	298°16.0	9.8'	07°05.4	-14.5'	60.0'	115°28.0	64°05.2	18°39.0	14°00.8	35°59.9	69°01.5	73°02.9	94°56.8
17	312°44.8	9.7'	$07^{\circ}19.8$	-14.4'	60.0'	114°56.4	63°28.8	18°03.1	13°28.7	36°35.9	69°36.7	73°38.9	95°31.6
18	327°13.5	9.7'	S 07°34.3	-14.4'	60.0'	114°24.8	62°52.4	17°27.1	12°56.9	37°12.0	70°11.9	74°14.9	96°06.6
19	341°42.2	9.6'	07°48.7	-14.4'	60.0'	113°53.1	62°16.0	16°51.2	12°25.6	37°48.1	70°47.1	74°50.9	96°41.5
20	356°10.8	9.5'	08°03.0	-14.3'	60.0'	113°21.4	61°39.6	16° 15.3	11°54.8	38°24.3	71°22.3	75°27.0	97° 16.4
21	10°39.3	9.5'	08°17.3	-14.3'	60.1'	112°49.6	61°03.1	15°39.4	11°24.5	39°00.4	71°57.6	76°03.1	97°51.4
22	25°07.8	9.4'	08°31.6	-14.2'	60.1'	112°17.7	60°26.6	15°03.5	10°54.8	39°36.7	72°32.9	76°39.2	98°26.4
23	39°36.2	9.3'	08°45.8	-14.2'	60.1'	111°45.8	59°50.1	14°27.7	10°25.8	40°12.9	73°08.2	77°15.4	99°01.4
23 rd	SD	= 16.3'	Mer. pas	s. 20:16									

h Moon (2	24 th May)	Lunar Distance (objects with la	rgest hourly LD delta	1)
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Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Mars	+Regulus	+Procyon	+Pollux
0	54°04.6	9.3'	S 09°00.0	-14.2'	60.1'	111°13.8	59°13.6	57°16.5	13°51.9	15°09.0	40°49.2	73°43.6	77°51.5
1	68°32.9	9.2'	09°14.2	-14.1'	60.1'	110°41.8	58°37.0	56°52.6	13°16.1	15°42.0	41°25.5	74°19.0	78°27.7
2	83°01.1	9.1'	09°28.3	-14.1'	60.2'	110°09.7	58°00.4	56°28.8	12°40.4	16°15.3	42°01.8	74°54.5	79°04.0
3	97°29.2	9.1'	09°42.4	-14.0'	60.2'	109°37.5	57°23.8	56°05.2	12°04.7	16°48.7	42°38.2	75°29.9	79°40.2
4	111°57.3	9.0'	09°56.4	-14.0'	60.2'	109°05.3	56°47.2	55°41.7	11°29.2	17°22.4	43°14.6	76°05.4	80°16.5
5	126°25.3	8.9'	10°10.4	-13.9'	60.2'	108°33.1	56°10.6	55°18.3	10°53.7	17°56.2	43°51.1	76°41.0	80°52.8
6	140°53.2	8.9'	S 10°24.3	-13.9'	60.2'	108°00.8	55°33.9	54°55.1	10°18.4	18°30.2	44°27.5	77° 16.5	81°29.1
7	155°21.1	8.8'	10°38.1	-13.8'	60.2'	107°28.4	54°57.2	54°32.1	9°43.2	19°04.4	45°04.0	77°52.1	82°05.4
8	169°48.9	8.7'	10°51.9	-13.7'	60.2'	106° 56.0	54°20.5	54°09.2	9°08.1	19°38.6	45°40.5	78° 27.7	82°41.8
9	184°16.6	8.6'	11°05.7	-13.7'	60.3'	106°23.6	53°43.8	53°46.4	8°33.3	20°13.1	46°17.0	79°03.3	83°18.2
10	198°44.2	8.6'	$11^{\circ}19.4$	-13.6'	60.3'	105°51.1	53°07.0	53°23.9	7°58.8	20°47.6	46°53.6	79°39.0	83°54.6
11	213°11.8	8.5'	11°33.0	-13.6'	60.3'	105°18.6	52°30.2	53°01.5	7°24.6	21°22.2	47°30.2	80°14.6	84°31.0
12	227°39.3	8.4'	S 11°46.6	-13.5'	60.3'	104°46.0	51°53.4	52°39.2	6°50.9	21°57.0	48°06.8	80°50.3	85°07.5
13	242°06.7	8.3'	12°00.1	-13.4'	60.3'	104°13.4	51°16.6	52°17.2	6°17.7	22°31.8	48°43.5	81°26.1	85°44.0
14	256°34.0	8.3'	12°13.5	-13.4'	60.3'	103°40.7	50°39.8	51°55.4	5°45.3	23°06.8	49°20.1	82°01.8	86°20.5
15	271°01.3	8.2'	12°26.9	-13.3'	60.3'	103°08.0	50°03.0	51°33.7		23°41.8	49°56.8	82° 37.6	86°57.0
16	285°28.4	8.1'	12°40.2	-13.2'	60.4'	102°35.3	49°26.1	51°12.2		24°16.9	50°33.5	83°13.4	87°33.5
17	299°55.5	8.0'	12°53.4	-13.2'	60.4'	102°02.6	48°49.2	50°51.0		24°52.1	51°10.2	83°49.2	88°10.0
18	314°22.6	7.9'	S 13°06.5	-13.1'	60.4'	101°29.8	48°12.3	50°29.9		25°27.3	51°47.0	84°25.0	88°46.6
19	328°49.5	7.9'	13°19.6	-13.0'	60.4'	100° 56.9	47°35.4	50°09.1		26°02.6	52°23.8	85°00.9	89°23.2
20	343°16.4	7.8'	13°32.6	-12.9'	60.4'	100°24.1	46°58.5	49°48.5		26°38.0	53°00.5	85° 36.7	89°59.8
21	357°43.2	7.7'	13°45.5	-12.8'	60.4'	99°51.2	46°21.5	49°28.1		27°13.4	53°37.3	86° 12.6	90°36.4
22	12°09.9	7.6'	13°58.4	-12.8'	60.4'	99°18.3	45°44.6	49°07.9		27°48.9	54°14.2	86° 48.5	91°13.0
23	26°36.5	7.5'	14°11.2	-12.7'	60.4'	98°45.3	45°07.6	48°48.0		28°24.5	54°51.0	87°24.4	91°49.7
24 th	SD	= 16.4	' Mer. pas	ss. 21:09				-					

h Moon (25th May)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Mars	+Regulus	+Pollux
0	41°03.0	7.5'	S 14°23.8	-12.6'	60.5'		98°12.4	48°28.3	44°30.6		29°00.1	55°27.9	92°26.4
1	55°29.5	7.4'	14°36.4	-12.5'	60.5'		97°39.4	48°08.8	43°53.6		29°35.7	56°04.8	93°03.0
2	69°55.8	7.3'	14°48.9	-12.4'	60.5'		97°06.4	47°49.6	43°16.6		30°11.4	56°41.7	93°39.7
3	84°22.1	7.2'	15°01.3	-12.3'	60.5'		96°33.3	47°30.7	42°39.6		30°47.1	57°18.6	94°16.4
4	98°48.3	7.1'	15°13.7	-12.2'	60.5'		96°00.3	47°12.0	42°02.5		31°22.9	57°55.5	94°53.1
5	113°14.5	7.0'	$15^{\circ}25.9$	-12.1'	60.5'		95°27.2	46°53.7	41°25.5		31°58.7	58°32.4	95°29.8
6	127°40.5	7.0'	S 15°38.0	-12.0'	60.5'		94°54.1	46°35.5	40°48.4		32°34.5	59°09.4	96°06.6
7	142°06.5	6.9'	$15^{\circ}50.1$	-11.9'	60.5'	119°43.3	94°21.0	46°17.7	40°11.4		33°10.4	59°46.4	96°43.3
8	156°32.4	6.8'	$16^{\circ}02.0$	-11.8'	60.5'	119°11.1	93°47.8	46°00.2	39°34.3	6°44.6	33°46.3	60°23.3	97°20.1
9	170°58.1	6.7'	16°13.8	-11.7'	60.5'	118°38.7	93°14.7	45°43.0	38°57.2	$7^{\circ}18.5$	34°22.3	61°00.3	97°56.8
10	185°23.9	6.6'	16°25.6	-11.6'	60.5'	118°06.3	92°41.5	45°26.0	38°20.1	7°53.0	34°58.2	61°37.3	98°33.6
11	199°49.5	6.5'	16°37.2	-11.5'	60.5'	117°33.9	92°08.4	45°09.4	37°43.0	8°27.8	35°34.2	62°14.4	99°10.4
12	214°15.0	6.5'	S 16°48.7	-11.4'	60.5'	117°01.4	91°35.2	44°53.1	37°05.9	9°02.9	36°10.2	62°51.4	99°47.2
13	228°40.5	6.4'	$17^{\circ}00.1$	-11.3'	60.5'	116°28.8	91°02.0	44°37.1	36°28.8	9°38.3	36°46.3	63°28.4	100°24.0
14	243°05.9	6.3'	$17^{\circ}11.4$	-11.2'	60.5'	115°56.2	90°28.8	44°21.5	35°51.7	10°13.9	37°22.4	64°05.5	101°00.8
15	257°31.2	6.2'	17°22.6	-11.1'	60.5'	115°23.6	89°55.6	44°06.2	35°14.6	10°49.7	37°58.5	64°42.5	101°37.6
16	271°56.4	6.1'	17°33.7	-11.0'	60.6'	114°50.9	89°22.4		34°37.5	11°25.7	38°34.6	65°19.6	102°14.4
17	286°21.5	6.1'	17°44.7	-10.9'	60.6'	114° 18.1	88°49.1		34°00.4	12°01.8	39°10.7	65°56.7	102°51.2
18	300°46.6	6.0'	S 17°55.5	-10.7'	60.6'	113°45.3	88° 15.9		33°23.2	12°38.0	39°46.8	66°33.7	103°28.0
19	315°11.6	5.9'	$18^{\circ}06.3$	-10.6'	60.6'	113° 12.5	87°42.7		32°46.1	13°14.3	40°23.0	67°10.8	104°04.8
20	329°36.5	5.8'	$18^{\circ}16.9$	-10.5'	60.6'	112°39.6	87°09.5		32°09.0	13°50.7	40°59.2	67°47.9	104°41.6
21	344°01.3	5.7'	18°27.4	-10.4'	60.6'	112°06.6	86°36.3		31°31.9	14°27.1	41°35.4	68°25.0	105°18.4
22	358°26.0	5.7'	18°37.8	-10.2'	60.6'	111°33.7	86°03.0		30°54.7	15°03.6	42°11.6	69°02.1	105°55.3
23	12°50.7	5.6'	18°48.0	-10.1'	60.6'	111°00.7	85°29.8		30°17.6	15°40.2	42°47.8	69°39.2	106°32.1
25 th	SD	= 16.5	′ Mer. pa	ss. 22:07			-			-			

h Moon (26th May)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	27°15.3	5.5'	S 18°58.1	-10.0'	60.6'	110°27.6	106°08.1	84°56.6	29°40.5	16°16.9	23°04.7	70°16.3	107°08.9
1	41°39.8	5.4'	19°08.1	-9.9'	60.6'	109°54.6	105°48.7	84°23.4	29°03.4	16°53.5	23°40.5	70°53.4	107°45.7
2	56°04.2	5.3'	19°18.0	-9.7'	60.6'	109°21.5	105°29.3	83°50.2	28°26.3	17°30.2	24°16.4	71°30.5	108°22.5
3	70°28.5	5.3'	19°27.7	-9.6'	60.6'	108°48.3	105°09.8	83°17.0	27°49.2	18°07.0	24°52.3	72°07.6	108°59.3
4	84°52.8	5.2'	19°37.3	-9.5'	60.6'	108° 15.2	104°50.3	82°43.9	27°12.1	18°43.8	25°28.4	72°44.7	109°36.1
5	99°17.0	5.1'	19°46.7	-9.3'	60.6'	107°42.0	104°30.6	82°10.7	26°35.0	19°20.6	26°04.5	73°21.8	110°12.9
6	113°41.1	5.1'	S 19°56.1	-9.2'	60.6'	107°08.8	104°10.9	81°37.5	25°57.9	19°57.4	26°40.6	73°58.9	110°49.7
7	128°05.2	5.0'	20°05.2	-9.0'	60.5'	106°35.6	103°51.1	81°04.4	25°20.9	20°34.3	27°16.8	74°36.0	111°26.5
8	142°29.2	4.9'	20°14.3	-8.9'	60.5'	106°02.3	103°31.3	80°31.3	24°43.8	21°11.1	27°53.0	75° 13.1	112°03.3
9	156°53.1	4.8'	20°23.2	-8.8'	60.5'	105°29.0	103°11.3	79°58.2	24°06.8	21°48.0	28°29.3	75°50.2	112°40.1
10	171°16.9	4.8'	20°31.9	-8.6'	60.5'	104°55.7	102°51.3	79°25.1	23°29.7	22°24.9	29°05.6	76°27.3	113°16.9
11	185°40.7	4.7'	20°40.6	-8.5'	60.5'	104°22.4	102°31.3	78°52.0	22°52.7	23°01.8	29°41.9	77°04.4	113°53.6
12	200°04.4	4.6'	S 20°49.0	-8.3'	60.5'	103°49.1	102°11.2	78°19.0	22°15.7	23°38.8	30°18.3	77°41.5	114°30.4
13	214°28.1	4.6'	20°57.3	-8.2'	60.5'	103° 15.8	101°51.0	77°46.0	21°38.7	24°15.7	30°54.7	78° 18.6	115°07.1
14	228°51.6	4.5'	21°05.5	-8.0'	60.5'	102°42.4	101°30.8	77°13.0	21°01.8	24°52.6	31°31.1	78°55.6	115°43.8
15	243°15.2	4.5'	21°13.5	-7.9'	60.5'	102°09.1	101°10.5	76°40.0	20°24.8	25°29.6	32°07.6	79°32.7	116°20.5
16	257°38.6	4.4'	21°21.4	-7.7'	60.5'	101°35.7	100°50.1	76°07.1	19°47.9	26°06.5	32°44.1	80°09.8	116°57.2
17	272°02.0	4.3'	21°29.1	-7.6'	60.5	101°02.3	100°29.7	75°34.1	19°11.0	26°43.5	33°20.6	80°46.8	117°33.9
18	286°25.3	4.3'	S 21°36.7	-7.4'	60.5'	100°28.9	100°09.3	75°01.3	18°34.1	27°20.4	33°57.1	81°23.9	118°10.6
19	300°48.6	4.2'	21°44.1	-7.3'	60.5'	99°55.5	99°48.8	74°28.4	17°57.3	27°57.4	34°33.6	82°00.9	118°47.2
20	315°11.8	4.2'	21°51.4	-7.1'	60.5'	99°22.1	99°28.3	73°55.6	17°20.5	28°34.3	35°10.2	82°37.9	119°23.9
21	329°35.0	4.1'	$21^{\circ}58.5$	-6.9'	60.4'	98°48.7	99°07.8	73°22.8	16°43.7	29°11.2	35°46.7	83° 14.9	
22	343°58.1	4.1'	22°05.4	-6.8'	60.4'	98°15.3	98°47.2	72°50.1	16°07.0	29°48.2	36°23.3	83°51.9	
23	358°21.2	4.0'	22°12.2	-6.6'	60.4'	97°41.9	98°26.5	72°17.4	15°30.3	30°25.1	36°59.8	84°28.9	
26 th	SD	= 16.5	′ Mer. pas	ss. 23:07									

h	Moon	(27th	May

Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Mars	+Regulus
0	12°44.2	4.0'	S 22°18.8	-6.5'	60.4'	98°05.9	97°08.5	71°44.7	14°53.7	31°02.1	37°36.4	57°54.6	85°05.9
1	27°07.2	3.9'	22°25.3	-6.3'	60.4'	97°45.1	96°35.2	71°12.1	14°17.1	31°39.0	38°13.0	58°30.9	85°42.9
2	41°30.1	3.9'	22°31.6	-6.1'	60.4'	97°24.4	96°01.8	70°39.5	13°40.6	32°15.9	38°49.6	59°07.1	86°19.8
3	55°53.0	3.8'	22°37.7	-6.0'	60.4'	97°03.7	95°28.4	70°07.0	13°04.1	32°52.8	39°26.2	59°43.3	86°56.7
4	70°15.8	3.8'	22°43.7	-5.8'	60.4'	96°42.9	94°55.0	69°34.5	12°27.8	33°29.7	40°02.8	60°19.5	87°33.7
5	84°38.6	3.8'	22°49.5	-5.6'	60.4'	96°22.1	94°21.6	69°02.0	11°51.5	34°06.6	40°39.3	60°55.6	88°10.6
6	99°01.4	3.7'	S 22°55.1	-5.5'	60.3'	96°01.2	93°48.3	68° 29.6	11°15.2	34°43.4	41°15.9	61°31.8	88°47.4
7	113°24.1	3.7'	23°00.6	-5.3'	60.3'	95°40.4	93°14.9	67°57.3	10°39.1	35°20.3	41°52.5	62°07.9	89°24.3
8	127°46.8	3.7'	23°05.9	-5.1'	60.3'	95°19.5	92°41.6	67°25.0	10°03.2	35°57.1	42°29.1	62°44.1	90°01.2
9	142°09.4	3.6'	23°11.0	-5.0'	60.3'	94°58.6	92°08.2	66°52.8	9°27.3	36°34.0	43°05.6	63°20.2	90°38.0
10	156°32.1	3.6'	23°16.0	-4.8'	60.3'	94°37.7	91°34.9	66°20.6	8°51.7	37°10.8	43°42.2	63°56.3	91°14.8
11	170°54.7	3.6'	23°20.7	-4.6'	60.3'	94°16.8	91°01.6	65°48.5	8°16.2	37°47.6	44°18.8	64°32.4	91°51.6
12	185°17.2	3.6'	S 23°25.4	-4.4'	60.2'	93°55.9	90°28.4	65°16.4	7°41.0	38°24.4	44°55.3	65°08.4	92°28.4
13	199°39.8	3.5'	23°29.8	-4.3'	60.2'	93°35.0	89°55.1	64°44.4	7°06.1	39°01.1	45°31.8	65°44.5	93°05.1
14	214°02.3	3.5'	23°34.1	-4.1'	60.2'	93°14.1	89°21.8	64° 12.5	6°31.6	39°37.9	46°08.4	66°20.5	93°41.9
15	228°24.8	3.5'	23°38.2	-3.9'	60.2'	92°53.1	88°48.6	63°40.6	5°57.6	40°14.6	46°44.9	66°56.5	94°18.6
16	242°47.3	3.5'	23°42.1	-3.8'	60.2'	92°32.2	88°15.4	63°08.8	5°24.2	40°51.3	47°21.4	67°32.5	94°55.3
17	257°09.8	3.5'	23°45.9	-3.6'	60.2'	92°11.3	87°42.2	62°37.1	4°51.6	41°28.0	47°57.9	68°08.4	95°32.0
18	271°32.3	3.5'	S 23°49.5	-3.4'	60.1'	91°50.3	87°09.1	62°05.5		42°04.7	48°34.3	68°44.4	96°08.6
19	285°54.7	3.4'	23°52.9	-3.2'	60.1'	91°29.4	86°36.0	61°33.9		42°41.3	49°10.8	69°20.3	96°45.2
20	300°17.2	3.4'	$23^{\circ}56.1$	-3.1'	60.1'	91°08.5	86°02.9	61°02.4		43°17.9	49°47.2	69°56.2	97°21.8
21	314°39.6	3.4'	23°59.1	-2.9'	60.1'	90°47.6	85°29.8	60°31.0		43°54.5	50°23.6	70°32.1	97°58.4
22	329°02.1	3.4'	24°02.0	-2.7'	60.1'	90°26.7	84°56.7	59°59.6		44°31.1	51°00.0	71°07.9	98°34.9
23	343°24.5	3.4'	24°04.7	-2.5'	60.0'	90°05.8	84°23.7	59°28.4		45°07.7	51°36.4	71°43.7	99°11.4
27 th	SD	= 16.5	5′ Mer. pa	iss:-									

h Moon (28th May)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Spica	+Jupiter	+Mars	+Regulus
0	357°46.9	3.4'	S 24°07.3	-2.4'	60.0'	91°00.6	89°45.0	83°50.7	58°57.2	45°44.2	52°12.8	72° 19.5	99°47.9
1	12°09.4	3.5'	24°09.6	-2.2'	60.0'	90°44.7	89°24.1	83°17.8	58°26.1	46°20.7	52°49.1	72°55.3	100°24.4
2	26°31.8	3.5'	24°11.8	-2.0'	60.0'	90°28.8	89°03.3	82°44.9	57°55.1	46°57.2	53°25.4	73°31.0	101°00.8
3	40°54.3	3.5'	24°13.8	-1.8'	59.9'	90°12.9	88° 42.5	82°12.0	57°24.2	47°33.6	54°01.7	74°06.7	101°37.2
4	55°16.8	3.5'	24° 15.6	-1.7'	59.9'	89°57.1	88°21.7	81°39.1	56°53.4	48°10.1	54°38.0	74°42.4	102°13.6
5	69°39.3	3.5'	$24^{\circ}17.3$	-1.5'	59.9'	89°41.2	88°00.9	81°06.3	56°22.7	48°46.5	55°14.3	75°18.1	102°50.0
6	84°01.8	3.5'	S 24°18.8	-1.3'	59.9'	89°25.4	87°40.2	80°33.6	55°52.1	49°22.8	55°50.5	75°53.7	103°26.3
7	98°24.3	3.5'	24°20.1	-1.1'	59.8'	89°09.6	87° 19.4	80°00.8	55°21.6	49°59.2	56°26.7	76°29.3	104°02.6
8	112°46.8	3.6'	24°21.2	-0.9'	59.8'	88°53.8	86° 58.8	79°28.1	54°51.2	50°35.5	57°02.9	77°04.9	104°38.8
9	127°09.4	3.6'	24°22.1	-0.8'	59.8'	88°38.0	86°38.1	78°55.5	54°20.9	51°11.8	57°39.0	77°40.4	105°15.1
10	141°32.0	3.6'	24°22.9	-0.6'	59.8'	88°22.2	86° 17.5	78°22.9	53°50.8	51°48.0	58°15.1	78° 15.9	105°51.3
11	155°54.6	3.6'	$24^{\circ}23.5$	-0.4'	59.7'	88°06.5	85° 56.9	77°50.3	53°20.7	52°24.3	58°51.2	78°51.4	106°27.4
12	170°17.2	3.7'	S 24°23.9	-0.3'	59.7'	87°50.8	85°36.3	77°17.8	52°50.7	53°00.5	59°27.3	79°26.8	107°03.5
13	184°39.9	3.7'	24°24.2	-0.1'	59.7'	87°35.1	85° 15.8	76°45.3	52°20.9	53°36.6	60°03.3	80°02.3	107°39.6
14	199°02.6	3.8'	24°24.3	0.1'	59.7'	87° 19.5	84°55.4	76°12.9	51°51.2	54° 12.7	60°39.3	80°37.6	108°15.7
15	213°25.4	3.8'	24°24.2	0.3'	59.6'	87°03.8	84°34.9	75°40.5	51°21.6	54°48.8	61°15.3	81°13.0	108°51.7
16	227°48.2	3.8'	24°23.9	0.4'	59.6'	86°48.2	84° 14.5	75°08.2	50°52.2	55°24.9	61°51.2	81°48.3	109°27.7
17	242°11.0	3.9'	$24^{\circ}23.5$	0.6'	59.6'	86°32.7	83°54.2	74°35.9	50°22.9	56°00.9	62°27.2	82°23.6	110°03.7
18	256°33.9	3.9'	S 24°22.8	0.8'	59.6'	86° 17.2	83°33.9	74°03.7	49°53.7	56°36.9	63°03.0	82°58.8	110°39.6
19	270°56.8	4.0'	24°22.1	1.0'	59.5'	86°01.7	83°13.7	73°31.5	49°24.6	57° 12.9	63°38.9	83°34.0	111°15.5
20	285°19.8	4.0'	$24^{\circ}21.1$	1.1'	59.5'	85°46.2	82°53.5	72°59.4	48°55.7	57°48.8	64°14.7	84°09.2	111°51.3
21	299°42.8	4.1'	24°20.0	1.3'	59.5'	85°30.8	82°33.3	72°27.4	48°27.0	58°24.7	64°50.5	84°44.3	112°27.1
22	314°05.9	4.1'	$24^{\circ}18.7$	1.5'	59.4'	85° 15.4	82°13.2	71°55.4	47°58.4	59°00.5	65°26.2	85° 19.4	113°02.9
23	328°29.0	4.2'	24° 17.2	1.6'	59.4'	85°00.1	81°53.2	71°23.4	47°29.9	59°36.4	66°02.0	85°54.5	113°38.6
28 th	SD =	= 16.4'	Mer. pas	s. 00:09									

Moon (29th Mav)

Lunar Distance (objects with largest hourly LD delta)

n		vioon	(29" 1018	ay <i>)</i>			Lunar L	istance (or	jects wi	th largest	nourly L	D deita)	
Tue	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	342°52.2	4.2'	S 24°15.6	1.8'	59.4'	84°44.8	81°33.2	70°51.5	47°01.6	14°43.8	60°12.1	66°37.6	114°14.3
1	357°15.5	4.3'	24°13.8	2.0'	59.3'	84°29.5	81°13.3	70° 19.7	46° 33.5	15°19.1	60°47.9	67°13.3	114°50.0
2	11°38.8	4.4'	24°11.9	2.1'	59.3'	84°14.3	80°53.5	69°48.0	46°05.5	15°54.4	61°23.6	67°48.9	115°25.6
3	26°02.1	4.4'	24°09.8	2.3'	59.3'	83°59.2	80°33.7	69°16.3	45°37.7	16°29.8	61°59.3	68°24.5	116°01.2
4	40°25.6	4.5'	24°07.5	2.4'	59.3'	83°44.1	80°14.0	68°44.6	45°10.1	17°05.1	62°34.9	69°00.0	116°36.7
5	54°49.1	4.6'	24°05.0	2.6'	59.2'	83°29.0	79°54.3	68°13.1	44°42.7	17°40.4	63°10.5	69°35.5	117°12.2
6	69°12.6	4.6'	S 24°02.4	2.8'	59.2'	83°14.0	79°34.7	67°41.6	44°15.4	18° 15.7	63°46.0	70°11.0	117°47.6
7	83°36.3	4.7'	23°59.6	2.9'	59.2'		79°15.2	67°10.1	43°48.3	18°50.9	64°21.6	70°46.4	118°23.0
8	98°00.0	4.8'	23°56.7	3.1'	59.1'		78°55.7	66°38.8	43°21.5	19°26.2	64°57.0	71°21.8	118°58.4
9	112°23.8	4.9'	23°53.6	3.2'	59.1'		78°36.3	66°07.5	42°54.8	20°01.4	65°32.5	71°57.1	119°33.7
10	126°47.6	4.9'	23°50.4	3.4'	59.1'		78°17.0	65°36.2	42°28.3	20°36.6	66°07.9	72°32.5	
11	141°11.6	5.0'	23°47.0	3.6'	59.0'		77°57.8	65°05.1	42°02.0	21°11.7	66°43.2	73°07.7	
12	155°35.6	5.1'	S 23°43.4	3.7'	59.0'		77°38.6	64°34.0	41°36.0	21°46.9	67°18.5	73°43.0	
13	169°59.7	5.2'	23°39.7	3.9'	59.0'		77°19.6	64°03.0	41°10.1	22°22.0	67°53.8	74°18.2	
14	184°23.9	5.3'	23°35.9	4.0'	58.9'		77°00.6	63°32.1	40°44.5	22°57.1	68°29.0	74°53.3	
15	198°48.2	5.4'	23°31.8	4.2'	58.9'		76°41.6	63°01.3	40°19.1	23°32.1	69°04.2	75°28.4	
16	213°12.5	5.4'	23°27.7	4.3'	58.9'		76°22.8	62°30.5	39°54.0	24°07.1	69°39.4	76°03.5	
17	227°36.9	5.5'	23°23.4	4.5'	58.8'		76°04.1	61°59.8	39°29.1	24°42.1	70°14.5	76°38.5	
18	242°01.5	5.6'	S 23°18.9	4.6'	58.8'		75°45.4	61°29.2	39°04.4	25°17.1	70°49.6	77°13.5	
19	256°26.1	5.7'	23°14.3	4.8'	58.8'		75°26.8	60°58.7	38°40.0	25°52.0	71°24.6	77°48.4	
20	270°50.8	5.8'	23°09.5	4.9'	58.7'		75°08.3	60°28.3	38° 15.9	26°26.8	71°59.6	78°23.3	
21	285°15.6	5.9'	23°04.6	5.0'	58.7'		74°49.9	59°58.0	37°52.0	27°01.7	72°34.5	78°58.2	
22	299°40.5	6.0'	22°59.6	5.2'	58.7'		74°31.6	59°27.7	37°28.4	27°36.5	73°09.4	79°33.0	
23	314°05.5	6.1'	22°54.4	5.3'	58.6'		74°13.4	58° 57.6	37°05.1	28°11.2	73°44.2	80°07.8	
29 th	SD =	= 16.2'	Mer. pass	s. 01:1:	1		-					-	

h Moon (30th May)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Mars
0	328°30.5	6.2'	S 22°49.1	5.5'	58.6'		73°55.3	58°27.5	36°42.1	28°46.0	74°19.1	80°42.5	100°17.8
1	342°55.7	6.3'	22°43.7	5.6'	58.6'		73°37.3	57°57.5	36° 19.4	29°20.6	74°53.8	81°17.2	100°51.8
2	357°21.0	6.4'	22°38.1	5.7'	58.5'		73°19.4	57°27.7	35°57.0	29°55.3	75°28.5	81°51.9	101°25.7
3	11°46.4	6.5'	22°32.3	5.9'	58.5'		73°01.6	56°57.9	35°34.9	30°29.9	76°03.2	82°26.5	101°59.6
4	26°11.8	6.6'	22°26.5	6.0'	58.4'		72°43.9	56°28.2	35° 13.1	31°04.5	76°37.8	83°01.0	102°33.4
5	40°37.4	6.7'	22°20.5	6.1'	58.4'		72°26.3	55°58.6	34°51.6	31°39.0	77°12.4	83°35.6	103°07.2
6	55°03.1	6.8'	S 22°14.3	6.3'	58.4'		72°08.7	55°29.2	34°30.5	32°13.5	77°47.0	84°10.0	103°41.0
7	69°28.9	6.9'	22°08.1	6.4'	58.3'		71°51.3	54°59.8	34°09.8	32°47.9	78°21.5	84°44.4	104°14.7
8	83°54.7	7.0'	22°01.7	6.5'	58.3'		71°34.0	54°30.5	33°49.4	33°22.3	78°55.9	85°18.8	104°48.3
9	98°20.7	7.1'	21°55.2	6.6'	58.3'		71°16.9	54°01.4	33°29.3	33°56.7	79°30.3	85°53.2	105°21.9
10	112°46.8	7.2'	21°48.5	6.8'	58.2'		70°59.8	53°32.3	33°09.7	34°31.0	80°04.7	86°27.5	105°55.5
11	127°13.0	7.3'	$21^{\circ}41.8$	6.9'	58.2'		70°42.8	53°03.4	32°50.4	35°05.2	80°39.0	87°01.7	106°29.0
12	141°39.3	7.4'	S 21°34.9	7.0'	58.2'		70°26.0	52°34.5	32°31.5	35°39.5	81°13.3	87°35.9	107°02.4
13	156°05.7	7.5'	21°27.9	7.1'	58.1'		70°09.2	52°05.8	32°13.0	36°13.7	81°47.5	88°10.1	107°35.9
14	170°32.2	7.6'	21°20.8	7.2'	58.1'		69°52.6	51°37.2	31°54.9	36°47.8	82°21.7	88°44.2	108°09.2
15	184°58.8	7.7'	21°13.5	7.4'	58.1'		69°36.1	51°08.8	31°37.2	37°21.9	82°55.8	89°18.2	108°42.6
16	199°25.5	7.8'	$21^{\circ}06.2$	7.5'	58.0'		69°19.7	50°40.4	31°20.0	37°56.0	83°29.9	89°52.3	109°15.8
17	213°52.4	7.9'	20°58.7	7.6'	58.0'	119°32.7	69°03.5	50°12.2	31°03.2	38°30.0	84°04.0	90°26.2	109°49.1
18	228°19.3	8.0'	S 20°51.1	7.7'	57.9'	118°59.2	68°47.3	49°44.1	30°46.9	39°03.9	84°38.0	91°00.2	110°22.2
19	242°46.3	8.2'	20°43.4	7.8'	57.9'	118°25.8	68°31.3	49°16.1	30°31.0	39°37.9	85°11.9	91°34.0	110°55.4
20	257°13.5	8.3'	20°35.6	7.9'	57.9'	117°52.4	68°15.4	48°48.3	30° 15.6	40°11.7	85°45.8	92°07.9	111°28.5
21	271°40.7	8.4'	20°27.7	8.0'	57.8'	$117^{\circ}19.0$	67°59.6	48°20.6		40°45.6	86°19.7	92°41.7	112°01.5
22	286°08.1	8.5'	$20^{\circ}19.7$	8.1'	57.8'	116°45.7	67°44.0	47°53.0		41°19.4	86°53.5	93°15.4	112°34.5
23	300°35.6	8.6'	$20^{\circ}11.5$	8.2'	57.8'	116°12.4	67°28.5	47°25.6		41°53.1	87°27.3	93°49.1	113°07.4
30 th	SD =	= 16.0′	Mer. pass	s. 02:1	1			-					

h Moon (31st May)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	+Antares	+Arcturus	+Spica	+Jupiter	+Mars
0	315°03.2	8.7'	S 20°03.3	8.3'	57.7'	115°39.1	67°13.1	46°58.3	42°26.8	87°06.4	88°01.0	94°22.8	113°40.3
1	329°30.9	8.8'	19°55.0	8.4'	57.7'	115°05.9	66°57.9	46°31.2	43°00.5	87°33.8	88°34.7	94°56.4	114°13.2
2	343°58.7	8.9'	19°46.5	8.5'	57.6'	114°32.8	66°42.7	46°04.2	43°34.1	88°01.1	89°08.3	95°29.9	114°46.0
3	358°26.6	9.0'	19°38.0	8.6'	57.6'	113°59.7		45°37.4	44°07.7	88°28.5	89°41.9	96°03.5	115°18.7
4	12°54.6	9.1'	19°29.4	8.7'	57.6'	113°26.6		45°10.7	44°41.2	88°55.7	90°15.5	96°36.9	115°51.4
5	27°22.7	9.2'	19°20.6	8.8'	57.5'	112°53.6		44°44.2	45°14.7	89°23.0	90°49.0	97°10.3	116°24.1
6	41°50.9	9.3'	S 19°11.8	8.9'	57.5'	112°20.6		44°17.8	45°48.1	89°50.2	91°22.4	97°43.7	116°56.7
7	56°19.3	9.4'	19°02.9	9.0'	57.5'	111°47.7		43°51.6	46°21.5	90°17.4	91°55.8	98°17.1	117°29.2
8	70°47.7	9.6'	18°53.9	9.1'	57.4'	111°14.8		43°25.6	46°54.9	90°44.6	92°29.2	98°50.3	118°01.7
9	85°16.3	9.7'	18°44.8	9.2'	57.4'	110°41.9		42°59.7	47°28.2	91°11.7	93°02.5	99°23.6	118°34.2
10	99°45.0	9.8'	18°35.6	9.3'	57.4'	110°09.1		42°34.0	48°01.4	91°38.8	93°35.8	99°56.8	119°06.6
11	114°13.7	9.9'	18°26.3	9.4'	57.3'	109°36.4		42°08.5	48°34.7	92°05.8	94°09.0	100°29.9	119°39.0
12	128°42.6	10.0'	S 18°16.9	9.4'	57.3'	109°03.6		41°43.2	49°07.8	92°32.8	94°42.2	101°03.0	
13	143°11.6	10.1'	18°07.5	9.5'	57.2'	108°31.0		41°18.0	49°41.0	92°59.7	95° 15.3	101°36.1	
14	157°40.7	10.2'	17°58.0	9.6'	57.2'	107°58.3		40°53.1	50°14.1	93°26.6	95°48.4	102°09.1	
15	172°09.9	10.3'	17°48.3	9.7'	57.2'	107°25.7		40°28.3	50°47.1	93°53.5	96°21.5	102°42.0	
16	186°39.2	10.4'	17°38.6	9.8'	57.1'	106°53.2		40°03.8	51°20.1	94°20.3	96°54.5	103°15.0	
17	201°08.6	10.5'	$17^{\circ}28.9$	9.9'	57.1'	106°20.7		39°39.4	51°53.0	94°47.1	97°27.4	103°47.8	
18	215°38.1	10.6'	S 17°19.0	9.9'	57.1'	105°48.2		39° 15.3	52°26.0	95°13.8	98°00.3	104°20.7	
19	230°07.7	10.7'	$17^{\circ}09.1$	10.0'	57.0'	105°15.8		38°51.3	52°58.8	95°40.5	98°33.2	104°53.4	
20	244°37.4	10.8'	$16^{\circ}59.1$	10.1'	57.0'	104°43.5		38° 27.6	53°31.6	96°07.2	99°06.0	105°26.2	
21	259°07.2	10.9'	$16^{\circ}49.0$	10.1'	57.0'	104°11.1		38°04.1	54°04.4	96°33.8	99°38.8	105°58.9	
22	273°37.2	11.0'	16°38.9	10.2'	56.9'	103°38.8		37°40.9	54°37.2	97°00.3	100°11.5	106°31.5	
23	288°07.2	11.1'	16°28.6	10.3'	56.9'	103°06.6		37°17.8	55°09.9	97°26.8	100°44.2	107°04.1	
31 st	SD	$=15.7^{\prime}$	Mer. pass	. 03:06									

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

		IVIOU	ii (I Jui	1)			Lulia	Distance	(Objects W	itti laigest li	ourly LD C	icita)	
Fri	GHA	ν	Dec	d	HP	-Sun	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica	+Jupiter
0	302°37.3	11.2'	S 16°18.3	10.4'	56.8'		102°34.4	36°55.0	55°42.5	74°12.7	97°53.3	101°16.9	107°36.7
1	317°07.5	11.3'	$16^{\circ}08.0$	10.4'	56.8'		102°02.2	36°32.5	56°15.1	74°37.2	98° 19.6	101°49.5	108°09.2
2	331°37.8	11.4'	15°57.6	10.5'	56.8'		101°30.1	36°10.2	56°47.7	75°01.7	98°46.0	102°22.1	108°41.6
3	346°08.3	11.5'	15°47.1	10.6'	56.7'		100°58.0	35°48.2	57°20.2	75°26.3	99°12.3	102°54.6	109°14.1
4	0°38.8	11.6'	15°36.5	10.6'	56.7'		100°26.0	35°26.4	57°52.7	75°50.8	99°38.5	103°27.0	109°46.4
5	15°09.4	11.7'	15°25.9	10.7'	56.7'		99°54.0	35°04.9	58°25.1	76°15.4	100°04.7	103°59.5	110°18.8
6	29°40.1	11.8'	S 15°15.2	10.7'	56.6'		99°22.1	34°43.6	58°57.5	76°39.9	100°30.9	104°31.9	110°51.0
7	44°10.9	11.9'	15°04.5	10.8'	56.6'		98°50.1	34°22.7	59°29.9	77°04.4	100° 56.9	105°04.2	111°23.3
8	58°41.8	12.0'	14°53.7	10.9'	56.6'		98° 18.3	34°02.0	60°02.2	77°29.0	101°23.0	105°36.5	111°55.5
9	73°12.8	12.1'	14°42.8	10.9'	56.5'		97°46.4	33°41.6	60°34.4	77°53.5	101°48.9	106°08.8	112°27.6
10	87°43.9	12.2'	14°31.9	11.0'	56.5'		97°14.7	33°21.6	61°06.7	78°18.0	102°14.9	106°41.0	112°59.8
11	102°15.0	12.3'	14°21.0	11.0'	56.5'	119°47.6	96°42.9	33°01.8	61°38.9	78°42.6	102°40.7	107°13.2	113°31.8
12	116°46.3	12.4'	S 14°09.9	11.1'	56.4'	119°17.8	96°11.2	32°42.4	62°11.0	79°07.1	103°06.5	107°45.3	114°03.9
13	131°17.7	12.4'	13°58.9	11.1'	56.4'	118°48.1	95°39.6	32°23.3	62°43.1	79°31.6	103°32.3	108°17.4	114°35.8
14	145°49.1	12.5'	13°47.7	11.2'	56.4'	118°18.4	95°07.9	32°04.5	63°15.2	79°56.1	103°57.9	108°49.5	115°07.8
15	160°20.6	12.6'	13°36.5	11.2'	56.3'	117°48.8	94°36.3	31°46.0	63°47.2	80°20.6	104°23.6	109°21.5	115°39.7
16	174°52.3	12.7'	13°25.3	11.3'	56.3'	117°19.2	94°04.8	31°27.9	64°19.2	80°45.1	104°49.1	109°53.5	116°11.5
17	189°24.0	12.8'	13°14.0	11.3'	56.3'	116°49.6	93°33.3	31°10.2	64°51.1	81°09.6	105°14.6	110°25.4	116°43.3
18	203°55.8	12.9'	S 13°02.7	11.4'	56.2'	116°20.1	93°01.8	30°52.8	65°23.0	81°34.0	105°40.1	110°57.3	117° 15.1
19	218°27.7	13.0'	12°51.4	11.4'	56.2'	115°50.6	92°30.4	30°35.8	65°54.9	81°58.5	106°05.5	111°29.1	117°46.8
20	232°59.6	13.0'	$12^{\circ}39.9$	11.5'	56.2'	115°21.1	91°59.0	30°19.2	66°26.7	82°22.9	106°30.8	112°00.9	118° 18.5
21	247°31.7	13.1'	12°28.5	11.5'	56.1'	114°51.7	91°27.7	30°03.0	66°58.5	82°47.4	106° 56.0	112°32.7	118°50.2
22	262°03.8	13.2'	$12^{\circ}17.0$	11.5'	56.1'	114°22.4	90°56.4	29°47.2	67°30.3	83°11.8	107°21.2	113°04.5	119°21.8
23	276°36.0	13.3'	12°05.4	11.6'	56.1'	113°53.0	90°25.1	29°31.7	68°02.0	83°36.2	107°46.3	113°36.1	119°53.3
1 st	SD	= 15.5'	Mer. pass	s. 03:57					Sun SE	D = 15.8'			

h		Moor	n (2 nd Jui	n)			Lunar	Distance	(objects wit	h largest	hourly L	D delta)	
Sat	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	291°08.3	13.4'	S 11°53.9	11.6'	56.0'	113°23.8	89°53.9	68°33.7	84°00.6	88°17.8	96°30.9	108°11.4	114°07.8
1	305°40.7	13.4'	11°42.2	11.7'	56.0'	112°54.5	89°22.7	69°05.3	84°24.9	88°41.9	96°51.6	108°36.4	114°39.4
2	320°13.1	13.5'	11°30.6	11.7'	56.0'	112°25.3	88°51.5	69°36.9	84°49.3	89°05.9	97°12.3	109°01.3	115°11.0
3	334°45.6	13.6'	$11^{\circ}18.9$	11.7'	55.9'	111°56.1	88°20.4	70°08.4	85°13.6	89°29.9	97°33.0	109°26.2	115°42.6
4	349°18.2	13.7'	11°07.2	11.8'	55.9'	111°27.0	87°49.3	70°40.0	85°37.9	89°53.8	97°53.6	109°51.0	116°14.1
5	3°50.9	13.8'	10°55.4	11.8'	55.9'	110°57.9	87°18.3	71°11.5	86°02.2	90°17.8	98°14.2	110°15.7	116°45.5
6	18°23.7	13.8'	S 10°43.6	11.8'	55.8'	110°28.8	86°47.2	71°42.9	86°26.5	90°41.7	98°34.7	110°40.4	117°17.0
7	32°56.5	13.9'	10°31.8	11.9'	55.8'	109°59.8	86°16.3	72°14.3	86°50.7	91°05.5	98°55.2	111°04.9	117°48.3
8	47°29.4	14.0'	$10^{\circ}19.9$	11.9'	55.8'	109°30.8	85°45.3	72°45.7	87°14.9	91°29.4	99°15.6	111°29.5	118°19.7
9	62°02.4	14.0'	$10^{\circ}08.0$	11.9'	55.7'	109°01.8	85°14.4	73°17.0	87°39.1	91°53.2	99°36.0	111°53.9	118°51.0
10	76°35.4	14.1'	$09^{\circ}56.1$	12.0'	55.7'	108°32.9	84°43.6	73°48.4	88°03.3	92°17.0	99°56.3	112°18.3	119°22.3
11	91°08.5	14.2'	09°44.1	12.0'	55.7'	108°04.0	84°12.7	74°19.6	88°27.5	92°40.7	100°16.5	112°42.5	119°53.6
12	105°41.7	14.2'	S 09°32.1	12.0'	55.7'	107°35.1	83°41.9	74°50.9	88°51.6	93°04.5	100°36.8	113°06.8	
13	120°14.9	14.3'	$09^{\circ}20.1$	12.0'	55.6'	107°06.3	83°11.2	75°22.1	89° 15.7	93°28.1	100°56.9	113°30.9	
14	134°48.2	14.4'	$09^{\circ}08.1$	12.1'	55.6'	106°37.5	82°40.5	75°53.2	89°39.8	93°51.8	101°17.0	113°55.0	
15	149°21.6	14.4'	08°56.0	12.1'	55.6'	106°08.8	82°09.8	76°24.4	90°03.9	94°15.4	101°37.1	114°19.0	
16	163°55.0	14.5'	08°43.9	12.1'	55.5'	105°40.0	81°39.1	76°55.5	90°27.9	94°39.0	101°57.1	114°42.9	
17	178°28.5	14.6'	08°31.8	12.1'	55.5'	105°11.3	81°08.5	77°26.5	90°51.9	95°02.5	102°17.0	115°06.7	
18	193°02.1	14.6'	S 08°19.6	12.2'	55.5'	104° 42.7	80°37.9	77°57.6	91°15.9	95°26.1	102°36.9	115°30.4	
19	207°35.7	14.7'	08°07.5	12.2'	55.5'	104°14.1	80°07.3	78°28.6	91°39.9	95°49.5	102°56.7	115°54.1	
20	222°09.4	14.7'	$07^{\circ}55.3$	12.2'	55.4'	103°45.5	79°36.8	78°59.6	92°03.8	96°13.0	103°16.5	116° 17.7	
21	236°43.1	14.8'	$07^{\circ}43.1$	12.2'	55.4'	103°16.9	79°06.3	79°30.5	92°27.7	96°36.4	103°36.2	116°41.2	
22	251°16.9	14.8'	07°30.9	12.2'	55.4'	102°48.4	78°35.8	80°01.4	92°51.6	96°59.8	103°55.9	117°04.6	
23	265°50.7	14.9'	07°18.6	12.3'	55.3'	102°19.9	78°05.4	80°32.3	93°15.4	97°23.1	104°15.4	117°28.0	
2 nd	SD	= 15.3'	Mer. pass	s. 04:44					Sun SD =	= 15.8'			

Moon (3rd Jun)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus
0	280°24.6	15.0'	S 07°06.4	12.3'	55.3'	101°51.4	77°35.0	36°50.0	81°03.1	93°39.2	97°46.4	104°35.0	117°51.2
1	294°58.6	15.0'	$06^{\circ}54.1$	12.3'	55.3'	101°23.0	77°04.6	37°10.5	81°33.9	94°03.0	98°09.6	104°54.4	118°14.4
2	309°32.6	15.1'	06°41.8	12.3'	55.3'	100°54.6	76°34.3	37°31.1	82°04.7	94°26.7	98°32.8	105°13.8	118°37.5
3	324°06.7	15.1'	$06^{\circ}29.5$	12.3'	55.2'	100°26.2	76°04.0	37°51.9	82°35.5	94°50.4	98°56.0	105°33.2	119°00.5
4	338°40.8	15.2'	$06^{\circ}17.2$	12.3'	55.2'	99°57.8	75°33.7	38°12.8	83°06.2	95°14.1	99°19.1	105°52.4	119°23.4
5	353°14.9	15.2'	06°04.9	12.3'	55.2'	99°29.5	75°03.5	38°34.0	83°36.9	95°37.8	99°42.2	106°11.6	119°46.2
6	7°49.1	15.3'	S 05°52.5	12.4'	55.2'	99°01.2	74°33.2	38°55.3	84°07.6	96°01.4	100°05.3	106°30.8	
7	22°23.4	15.3'	05°40.2	12.4'	55.1'	98°33.0	74°03.1	39°16.7	84°38.2	96°25.0	100°28.3	106°49.8	
8	36°57.7	15.3'	05°27.8	12.4'	55.1'	98°04.7	73°32.9	39°38.3	85°08.8	96°48.5	100°51.2	107°08.8	
9	51°32.1	15.4'	$05^{\circ}15.4$	12.4'	55.1'	97°36.5	73°02.8	40°00.1	85°39.4	97°12.0	101°14.1	107°27.8	
10	66°06.4	15.4'	05°03.0	12.4'	55.1'	97°08.4	72°32.7	40°21.9	86°10.0	97°35.5	101°37.0	107°46.6	
11	80°40.9	15.5'	04°50.6	12.4'	55.0'	96°40.2	72°02.6	40°44.0	86°40.5	97°59.0	101°59.8	108°05.4	
12	95°15.4	15.5'	S 04°38.2	12.4'	55.0'	96°12.1	71°32.5	41°06.1	87°11.0	98°22.4	102°22.6	108°24.1	
13	109°49.9	15.6'	04°25.8	12.4'	55.0'	95°44.0	71°02.5	41°28.4	87°41.5	98°45.7	102°45.3	108°42.8	
14	124°24.4	15.6'	04°13.4	12.4'	55.0'	95°15.9	70°32.5	41°50.8	88°11.9	99°09.1	103°08.0	109°01.4	
15	138°59.0	15.6'	04°00.9	12.4'	55.0'	94°47.9	70°02.6	42°13.3	88°42.4	99°32.4	103°30.7	109°19.9	
16	153°33.7	15.7'	03°48.5	12.4'	54.9'	94°19.9	69°32.6	42°35.9	89° 12.7	99°55.6	103°53.3	109°38.3	
17	168°08.3	15.7'	03°36.1	12.4'	54.9'	93°51.9	69°02.7	42°58.7	89°43.1	100°18.8	104°15.8	109°56.6	
18	182°43.0	15.7'	S 03°23.6	12.4'	54.9'	93°23.9	68°32.8	43°21.5	90°13.5	100°42.0	104°38.3	110°14.9	
19	197°17.8	15.8'	$03^{\circ}11.2$	12.4'	54.9'	92°55.9	68°03.0	43°44.5	90°43.8	101°05.1	105°00.7	110°33.1	
20	211°52.5	15.8'	02°58.7	12.5'	54.8'	92°28.0	67°33.1	44°07.5	91°14.1	101°28.2	105°23.1	110°51.2	
21	226°27.3	15.8'	02°46.3	12.5'	54.8'	92°00.1	67°03.3	44°30.7	91°44.4	101°51.3	105°45.5	111°09.2	
22	241°02.2	15.9'	02°33.8	12.5'	54.8'	91°32.2	66°33.5	44°53.9	92° 14.6	102°14.3	106°07.8	111°27.2	
23	255°37.0	15.9'	02°21.4	12.5'	54.8'	91°04.4	66°03.7	45°17.2	92°44.9	102°37.3	106°30.0	111°45.1	
3 rd	SD	= 15.1'	Mer. pass	. 05:28					Sun	SD = 15.8'			

h		Моо	n (4 th Jur	1)			Luna	r Distance (objects v	with larges	st hourly LD	delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	270°11.9	15.9'	S 02°08.9	12.5'	54.8'	90°36.6	65°34.0		45°40.7	93°15.1	103°00.2	106°52.2	112°02.9
1	284°46.8	15.9'	$01^{\circ}56.5$	12.4'	54.7'	90°08.7	65°04.3		46°04.2	93°45.2	103°23.1	107°14.3	112°20.6
2	299°21.8	16.0'	$01^{\circ}44.0$	12.4'	54.7'	89°41.0	64°34.6		46°27.8	94°15.4	103°46.0	107°36.4	112°38.2
3	313°56.8	16.0'	$01^{\circ}31.6$	12.4'	54.7'	89°13.2	64°04.9		46°51.5	94°45.6	104°08.8	107°58.4	112°55.7
4	328°31.8	16.0'	$01^{\circ}19.1$	12.4'	54.7'	88°45.4	63°35.3		47°15.2	95°15.7	104°31.5	108°20.4	113°13.2
5	343°06.8	16.0'	$01^{\circ}06.7$	12.4'	54.7'	88° 17.7	63°05.6		47°39.0	95°45.8	104°54.2	108°42.3	113°30.5
6	357°41.8	16.1'	S 00°54.3	12.4'	54.6'	87°50.0	62°36.0		48°02.9	96°15.9	105°16.9	109°04.2	113°47.8
7	12°16.9	16.1'	00°41.8	12.4'	54.6'	87°22.3	62°06.5		48°26.9	96°45.9	105°39.5	109°26.0	114°05.0
8	26°52.0	16.1'	00°29.4	12.4'	54.6'	86°54.7	61°36.9		48°51.0	97°16.0	106°02.1	109°47.7	114°22.1
9	41°27.1	16.1'	$00^{\circ}17.0$	12.4'	54.6'	86°27.0	61°07.4		49°15.1	97°46.0	106°24.6	110°09.4	114°39.1
10	56°02.2	16.1'	S 00°04.6	12.4'	54.6'	85°59.4	60°37.8		49°39.2	98°16.0	106°47.1	110°31.0	114°56.0
11	70°37.3	16.2'	N 00°07.8	12.4'	54.6'	85°31.8	60°08.3		50°03.5	98°46.0	107°09.5	110°52.6	115°12.8
12	85°12.5	16.2'	N00°20.2	12.4'	54.5'	85°04.2	59°38.9		50°27.8	99°15.9	107°31.9	111°14.1	115°29.5
13	99°47.7	16.2'	00°32.6	12.4'	54.5'	84°36.6	59°09.4	30°12.4	50°52.1	99°45.9	107°54.2	111°35.5	115°46.2
14	114°22.8	16.2'	00°45.0	12.4'	54.5'	84°09.1	58°40.0	30°27.8	51°16.5	100°15.8	108° 16.5	111°56.9	116°02.7
15	128°58.0	16.2'	00°57.4	12.4'	54.5'	83°41.5	58° 10.5	30°43.6	51°41.0	100°45.7	108°38.7	112°18.2	116° 19.1
16	143°33.3	16.2'	$01^{\circ}09.7$	12.3'	54.5'	83°14.0	57°41.1	30°59.7	52°05.5	101°15.6	109°00.9	112°39.4	116°35.4
17	158°08.5	16.2'	$01^{\circ}22.1$	12.3'	54.5'	82°46.5	57°11.7	31°16.1	52°30.1	101°45.5	109°23.0	113°00.6	116°51.7
18	172°43.7	16.2'	N01°34.4	12.3'	54.4'	82°19.0	56°42.4	31°32.8	52°54.7	102°15.4	109°45.1	113°21.7	117°07.8
19	187°18.9	16.2'	$01^{\circ}46.7$	12.3'	54.4'	81°51.5	56° 13.0	31°49.7	53°19.4	102°45.2	110°07.1	113°42.7	117°23.8
20	201°54.2	16.3'	$01^{\circ}59.1$	12.3'	54.4'	81°24.1	55°43.7	32°07.0	53°44.1	103°15.0	110°29.1	114°03.7	117°39.7
21	216°29.4	16.3'	02°11.4	12.3'	54.4'	80°56.6	55° 14.4	32°24.4	54°08.9	103°44.8	110°51.0	114°24.6	117°55.5
22	231°04.7	16.3'	02°23.6	12.3'	54.4'	80°29.2	54°45.1	32°42.2	54°33.7	104°14.7	111°12.8	114°45.5	118°11.3
23	245°40.0	16.3'	02°35.9	12.3'	54.4'	80°01.8	54° 15.8	33°00.2	54°58.6	104°44.4	111°34.6	115°06.2	118°26.9
4 th	SD	= 14.9'	Mer. pass	. 06:09					Sun S	D = 15.8'			

	N 4	/=+h	
h	Moon	(huii	lun)

		Luna	r Distance (objects v	with larges	st hourly LD	delta)	
HP	-Sun	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Had	ar

Tue	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	260°15.2	16.3'	N 02°48.2	12.2'	54.4'	79°34.4	53°46.6	33° 18.4	55°23.5	105°14.2	111°56.3	115°26.9	118°42.3
1	274°50.5	16.3'	03°00.4	12.2'	54.3'	79°07.0	53° 17.3	33°36.9	55°48.5	105°44.0	112°18.0	115°47.5	118° 57.7
2	289°25.8	16.3'	03°12.6	12.2'	54.3'	78°39.6	52°48.1	33°55.6	56°13.4	106°13.7	112°39.6	116°08.1	119°13.0
3	304°01.0	16.3'	03°24.8	12.2'	54.3'	78° 12.2	52° 18.9	34° 14.5	56°38.5	106°43.5	113°01.2	116°28.6	119°28.1
4	318°36.3	16.3'	03°37.0	12.2'	54.3'	77°44.9	51°49.7	34° 33.7	57°03.6	107°13.2	113°22.7	116°48.9	119°43.2
5	333°11.6	16.3'	03°49.2	12.1'	54.3'	77° 17.6	51°20.5	34°53.0	57°28.7	107°42.9	113°44.1	117°09.3	
6	347°46.9	16.3'	$N04^{\circ}01.3$	12.1'	54.3'	76°50.2	50°51.3	35°12.6	57°53.8	108°12.6	114°05.5	117°29.5	
7	2°22.1	16.3'	04°13.4	12.1'	54.3'	76°22.9	50°22.2	35°32.3	58°19.0	108°42.3	114°26.8	117°49.7	
8	16°57.4	16.3'	04°25.6	12.1'	54.3'	75°55.6	49°53.0	35°52.3	58°44.2	109°12.0	114°48.0	118°09.7	
9	31°32.6	16.3'	04°37.6	12.1'	54.3'	75°28.3	49°23.9	36° 12.4	59°09.5	109°41.6	115°09.2	118°29.7	
10	46°07.9	16.2'	04°49.7	12.0'	54.2'	75°01.0	48° 54.8	36° 32.7	59°34.7	110°11.3	115°30.3	118°49.6	
11	60°43.1	16.2'	$05^{\circ}01.7$	12.0'	54.2'	74°33.7	48° 25.7	36°53.2	60°00.1	110°40.9	115°51.3	119°09.5	
12	75°18.4	16.2'	$N05^{\circ}13.8$	12.0'	54.2'	74°06.5	47° 56.6	37° 13.9	60°25.4	111°10.6	116°12.3	119°29.2	
13	89°53.6	16.2'	05°25.8	12.0'	54.2'	73°39.2	47°27.5	37°34.7	60°50.8	111°40.2	116°33.2	119°48.9	i i
14	104°28.8	16.2'	05°37.7	11.9'	54.2'	73°12.0	46°58.5	37°55.7	61°16.2	112°09.8	116°54.0		
15	119°04.0	16.2'	05°49.7	11.9'	54.2'	72°44.7	46°29.4	38° 16.8	$61^{\circ}41.6$	112°39.4	117°14.8		
16	133°39.2	16.2'	$06^{\circ}01.6$	11.9'	54.2'	72° 17.5	46°00.4	38°38.1	62°07.1	113°09.0	117°35.5		
17	148°14.4	16.2'	$06^{\circ}13.5$	11.9'	54.2'	71°50.3	45°31.4	38°59.5	62°32.6	113°38.6	117°56.1		
18	162°49.6	16.2'	N06°25.4	11.8'	54.2'	71°23.1	45°02.4	39°21.1	62°58.1	114°08.2	118°16.6		
19	177°24.7	16.1'	06°37.2	11.8'	54.2'	70°55.9	44°33.4	39°42.8	63°23.7	114°37.8	118°37.1		i i
20	191°59.8	16.1'	06°49.0	11.8'	54.2'	70°28.6	44°04.4	40°04.7	63°49.3	115°07.3	118°57.5		
21	206°35.0	16.1'	$07^{\circ}00.8$	11.8'	54.2'	70°01.5	43°35.4	40° 26.7	64°14.9	115°36.9	119°17.8		
22	221°10.1	16.1'	$07^{\circ}12.6$	11.7'	54.1'	69°34.3	43°06.4	40°48.8	64°40.5	116°06.4	119°38.0		
23	235°45.2	16.1'	07°24.3	11.7'	54.1'	69°07.1	42°37.5	41°11.0	65°06.2	116°36.0	119°58.2		
5 th	SD	$= 14.8^{\prime}$	Mer. pass	. 06:50					Sun S	D = 15.8'			

h		Моо	n (6 th Jur	1)		Lunar [Distance	(objects wit	:h largest	hourly LD delta)
Wed	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Fomalhaut	+Altair	+Antares
0	250°20.2	16.0'	N07°36.0	11.7'	54.1'	68°39.9	42°08.5	41°33.4	65°31.8	117°05.5
1	264°55.3	16.0'	07°47.7	11.6'	54.1'	68°12.7	41°39.6	41°55.9	65°57.5	117°35.1
2	279°30.3	16.0'	07°59.3	11.6'	54.1'	67°45.5	41°10.7	42°18.5	66°23.3	118°04.6
3	294°05.3	16.0'	$08^{\circ}10.9$	11.6'	54.1'	67°18.4	40°41.8	42°41.2	66°49.0	118°34.2
4	308°40.3	16.0'	08°22.5	11.5'	54.1'	66°51.2	40°12.9	43°04.0	67°14.8	119°03.7
5	323°15.2	15.9'	08°34.0	11.5'	54.1'	66°24.1	39°44.0	43°26.9	67°40.6	119°33.2
6	337°50.1	15.9'	N 08°45.6	11.5'	54.1'	65°56.9	39°15.1	43°50.0	68°06.4	
7	352°25.0	15.9'	08°57.0	11.4'	54.1'	65°29.7	38°46.3	44°13.1	68°32.3	
8	6°59.9	15.8'	09°08.5	11.4'	54.1'	65°02.6	38°17.4	44°36.3	68°58.1	
9	21°34.8	15.8'	$09^{\circ}19.9$	11.4'	54.1'	64°35.4	37°48.6	44°59.7	69°24.0	
10	36°09.6	15.8'	09°31.2	11.3'	54.1'	64°08.3	37°19.8	45°23.1	69°49.9	
11	50°44.4	15.8'	09°42.6	11.3'	54.1'	63°41.2	36°50.9	45°46.6	70°15.8	
12	65°19.2	15.7'	N09°53.9	11.3'	54.1'	63°14.0	36°22.1	46°10.2	70°41.8	
13	79°53.9	15.7'	$10^{\circ}05.1$	11.2'	54.1'	62°46.9	35°53.3	46°33.9	71°07.7	
14	94°28.6	15.7'	10°16.3	11.2'	54.1'	62°19.7	35°24.6	46°57.6	71°33.7	
15	109°03.2	15.6'	10°27.5	11.1'	54.1'	61°52.6	34°55.8	47°21.5	71°59.7	
16	123°37.9	15.6'	10°38.6	11.1'	54.1'	61°25.4	34°27.0	47°45.4	72°25.8	
17	138°12.5	15.6'	$10^{\circ}49.7$	11.1'	54.1'	60°58.3	33°58.3	48°09.4	72°51.8	
18	152°47.0	15.5'	$N11^{\circ}00.8$	11.0'	54.1'	60°31.2	33°29.5	48°33.5	73°17.8	
19	167°21.6	15.5'	$11^{\circ}11.8$	11.0'	54.1'	60°04.0	33°00.8	48°57.7	73°43.9	
20	181°56.1	15.5'	11°22.7	10.9'	54.1'	59°36.9	32°32.1	49°21.9	74°10.0	
21	196°30.5	15.4'	11°33.7	10.9'	54.1'	59°09.7	32°03.4	49°46.2	74°36.1	
22	211°04.9	15.4'	$11^{\circ}44.5$	10.8'	54.1'	58°42.6	31°34.7	50°10.6	75°02.2	
23	225°39.3	15.3'	$11^{\circ}55.4$	10.8'	54.1'	58°15.4	31°06.0	50°35.1	75°28.4	
6 th	SD	$= 14.8^{\prime}$	Mer. pass	. 07:31				Sun SD :	= 15.8'	

h		Моо	n (7 th Jur	1)		Lunar Distance				
Thu	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Fomalhaut	+Altair	
0	240°13.7	15.3'	N 12°06.2	10.7'	54.1'	57°48.3	30°37.3	50° 59.6	75°54.5	
1	254°47.9	15.3'	12° 16.9	10.7'	54.1'	57°21.1	30°08.7	51°24.2	76°20.7	
2	269°22.2	15.2'	12°27.6	10.6'	54.1'	56°53.9	29°40.1	51°48.8	76°46.9	
3	283°56.4	15.2'	12°38.3	10.6'	54.1'	56°26.8	29°11.4	52° 13.5	77°13.1	
4	298°30.6	15.1'	12°48.9	10.5'	54.1'	55°59.6	28°42.8	52°38.3	77°39.3	
5	313°04.7	15.1'	12°59.4	10.5'	54.1'	55°32.4	28° 14.2	53°03.1	78°05.6	
6	327°38.8	15.0'	N 13°09.9	10.4'	54.1'	55°05.3	27°45.7	53° 28.0	78°31.8	
7	342°12.8	15.0'	13°20.4	10.4'	54.1'	54°38.1	27° 17.1	53°53.0	78°58.1	
8	356°46.8	14.9'	13°30.8	10.3'	54.1'	54° 10.9	26°48.6	54°18.0	79°24.4	
9	11°20.8	14.9'	13°41.1	10.3'	54.1'	53°43.7	26°20.1	54°43.0	79°50.7	
10	25°54.7	14.9'	13°51.4	10.2'	54.1'	53° 16.5	25°51.6	55°08.2	80°17.0	
11	40°28.5	14.8'	14°01.6	10.2'	54.1'	52°49.3	25°23.1	55° 33.3	80°43.3	
12	55°02.3	14.8'	$N14^{\circ}11.8$	10.1'	54.1'	52°22.1	24°54.7	55° 58.6	81°09.7	
13	69°36.1	14.7'	14°21.9	10.1'	54.1'	51°54.9	24°26.2	56°23.8	81°36.0	
14	84°09.8	14.7'	14°32.0	10.0'	54.1'	51°27.7	23°57.9	56°49.2	82°02.4	
15	98°43.4	14.6'	14°42.0	10.0'	54.1'	51°00.5	23°29.5	57°14.6	82°28.8	
16	113°17.0	14.6'	14°52.0	9.9'	54.1'	50°33.2	23°01.2	57°40.0	82°55.2	
17	127°50.6	14.5'	$15^{\circ}01.9$	9.8'	54.1'	50°06.0	22°32.9	58° 05.5	83°21.6	
18	142°24.1	14.4'	$N15^{\circ}11.8$	9.8'	54.1'	49°38.7	22°04.6	58° 31.0	83°48.0	
19	156°57.5	14.4'	15°21.5	9.7'	54.1'	49°11.5	21°36.4	58° 56.6	84°14.4	
20	171°30.9	14.3'	15°31.3	9.7'	54.1'	48°44.2	21°08.2	59°22.2	84°40.9	
21	186°04.3	14.3'	15°40.9	9.6'	54.1'	48° 16.9	20°40.0	59°47.9	85°07.3	
22	200°37.6	14.2'	$15^{\circ}50.5$	9.5'	54.1'	47°49.7	20°11.9	60°13.6	85°33.8	
23	215°10.8	14.2'	$16^{\circ}00.1$	9.5'	54.1'	47°22.4	19°43.9	60°39.3	86°00.3	
7 th	SD	= 14.7'	Mer. pass	s. 08:13			Sun S	D = 15.8'		

h		Moor	n (8 th Jun)		Lunar Distance (objects with largest hourly LD delta)					
Fri	GHA	ν	Dec	d	HP	-Sun	-Saturn	+Fomalhaut	+Deneb	+Altair	
0	229°44.0	14.1'	N 16°09.6	9.4'	54.1'	46°55.1	19°15.9	61°05.1		86°26.8	
1	244°17.1	14.1'	$16^{\circ}19.0$	9.4'	54.2'	46°27.8	18°48.0	61°31.0		86°53.3	
2	258°50.1	14.0'	16°28.3	9.3'	54.2'	46°00.4	18°20.1	61°56.8		87°19.8	
3	273°23.1	13.9'	16°37.6	9.2'	54.2'	45°33.1	17°52.3	62°22.8		87°46.4	
4	287°56.1	13.9'	16°46.8	9.2'	54.2'	45°05.8	17°24.6	62°48.7		88°12.9	
5	302°29.0	13.8'	$16^{\circ}56.0$	9.1'	54.2'	44°38.4	16°57.0	63°14.8		88°39.4	
6	317°01.8	13.8'	$N17^{\circ}05.1$	9.0'	54.2'	44°11.1	16°29.4	63°40.8		89°06.0	
7	331°34.6	13.7'	$17^{\circ}14.1$	8.9'	54.2'	43°43.7	16°02.0	64°06.9		89°32.6	
8	346°07.3	13.7'	17°23.0	8.9'	54.2'	43° 16.3	15°34.7	64°33.0		89°59.2	
9	0°39.9	13.6'	17°31.9	8.8'	54.2'	42°48.9	15°07.5	64°59.2		90°25.8	
10	15°12.5	13.5'	17°40.7	8.7'	54.2'	42°21.5	14°40.4	65°25.4		90°52.4	
11	29°45.1	13.5'	17°49.4	8.7'	54.2'	41°54.1	14°13.5	65°51.6		91°19.0	
12	44°17.5	13.4'	N17°58.1	8.6'	54.2'	41°26.7	13°46.7	66°17.9		91°45.6	
13	58°49.9	13.3'	18°06.7	8.5'	54.3'	40°59.2	13°20.1	66°44.2	72°12.7	92°12.3	
14	73°22.3	13.3'	18°15.2	8.4'	54.3'	40°31.8	12°53.7	67°10.6	72°27.8	92°38.9	
15	87°54.6	13.2'	18°23.6	8.4'	54.3'	40°04.3	12°27.5	67°36.9	72°43.0	93°05.6	
16	102°26.8	13.2'	18°32.0	8.3'	54.3'		12°01.6	68°03.4	72°58.3	93°32.2	
17	116°59.0	13.1'	18°40.3	8.2'	54.3'		11°36.0	68°29.8	73°13.6	93°58.9	
18	131°31.1	13.0'	N 18°48.5	8.1'	54.3'		11°10.6	68°56.3	73°29.0	94°25.6	
19	146°03.1	13.0'	18°56.6	8.0'	54.3'		10°45.7	69°22.8	73°44.4	94°52.3	
20	160°35.1	12.9'	19°04.7	8.0'	54.3'		10°21.1	69°49.4	74°00.0	95°19.0	
21	175°07.0	12.8'	$19^{\circ}12.6$	7.9'	54.3'		9°56.9	70°16.0	74°15.6	95°45.7	
22	189°38.8	12.8'	$19^{\circ}20.5$	7.8'	54.3'		9°33.3	70°42.6	74°31.2	96°12.4	
23	204°10.6	12.7'	19°28.3	7.7'	54.4'		9°10.2	71°09.2	74°46.9	96°39.1	
8 th	SD	= 14.8'	Mer. pass.	08:57				Sun SD :	= 15.8'		

h		Moo	n (9 th Jun)		Lunar Dis	tance (c	bjects with	largest h	ourly LD delta)
Sat	GHA	ν	Dec	d	HP	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	218°42.3	12.6'	N19°36.1	7.6'	54.4'		8°47.7	71°35.9	75°02.7	97°05.8
1	233°13.9	12.6'	19°43.7	7.6'	54.4'		8°26.0	72°02.6	75°18.5	97° 32.5
2	247°45.5	12.5'	19°51.3	7.5'	54.4'		8°05.1	72°29.4	75°34.4	97° 59.3
3	262°17.0	12.5'	19°58.7	7.4'	54.4'		7°45.2	72°56.1	75°50.3	98° 26.0
4	276°48.5	12.4'	$20^{\circ}06.1$	7.3'	54.4'	27°09.0		73°22.9	76°06.3	98° 52.8
5	291°19.9	12.3'	20°13.4	7.2'	54.4'	26°40.3		73°49.8	76°22.4	99°19.5
6	305°51.2	12.3'	N 20°20.6	7.1'	54.4'	26°11.6		74°16.7	76°38.5	99°46.3
7	320°22.5	12.2'	20°27.7	7.0'	54.4'	25°42.9		74°43.5	76°54.6	100° 13.1
8	334°53.7	12.1'	20°34.8	6.9'	54.5'	25°14.2		75° 10.5	77°10.8	100°39.8
9	349°24.8	12.1'	20°41.7	6.9'	54.5'	24°45.6		75°37.4	77°27.1	101°06.6
10	3°55.9	12.0'	20°48.6	6.8'	54.5'	24°17.0		76°04.4	77°43.4	101°33.4
11	18°26.9	11.9'	20°55.3	6.7'	54.5'	23°48.5		76°31.4	77°59.7	102°00.2
12	32°57.8	11.9'	$N21^{\circ}02.0$	6.6'	54.5'	23°20.0		76°58.5	78°16.2	102°26.9
13	47°28.7	11.8'	21°08.6	6.5'	54.5'	22°51.6		77°25.5	78°32.6	102°53.7
14	61°59.5	11.7'	$21^{\circ}15.1$	6.4'	54.5'	22°23.3		77°52.6	78°49.1	103°20.5
15	76°30.2	11.7'	21°21.5	6.3'	54.6'	21°55.0		78° 19.7	79°05.7	103°47.3
16	91°00.9	11.6'	21°27.7	6.2'	54.6'	21°26.7		78°46.9	79°22.3	104° 14.1
17	105°31.5	11.6'	21°33.9	6.1'	54.6'	20°58.6		79°14.0	79°38.9	104°40.9
18	120°02.1	11.5'	N 21°40.0	6.0'	54.6'	20°30.5		79°41.2	79°55.6	105°07.7
19	134°32.6	11.4'	21°46.0	5.9'	54.6'	20°02.5		80°08.5	80°12.3	105° 34.5
20	149°03.0	11.4'	$21^{\circ}51.9$	5.8'	54.6'	19°34.6		80°35.7	80°29.1	106°01.3
21	163°33.3	11.3'	21°57.7	5.7'	54.6'	19°06.8		81°03.0	80°45.9	106° 28.1
22	178°03.6	11.2'	22°03.4	5.6'	54.7'	18°39.1		81°30.3	81°02.8	106° 54.9
23	192°33.9	11.2'	22°09.0	5.5'	54.7'	18°11.5		81°57.6	81°19.7	107°21.7

23	192 33.9	11.2	22 09.0	5.5	54.7	10 11.5		01 37.0	01 19.7	107 21.7
9 th	SD =	= 14.8′	Mer. pass.	09:44						
h		Moon	(10 th Jur	1)		Lunar Dis	tance (o	bjects wit	h largest ho	ourly LD delta)
Sun	GHA	ν	Dec	d	HP	-Aldebaran	+Saturn	+Deneb	+Fomalhaut	+Altair
0	207°04.0	11.1'	N22°14.5	5.4'	54.7'	17°44.1		81°36.6	82°24.9	107°48.5
1	221°34.2	11.0'	22°19.9	5.3'	54.7'	17°16.8		81°53.6	82°52.3	108° 15.3
2	236°04.2	11.0'	22°25.2	5.2'	54.7'	16°49.6	8°40.3	82°10.6	83°19.7	108°42.0
3	250°34.2	10.9'	22°30.4	5.1'	54.7'	16°22.7	9°02.9	82°27.6	83°47.1	109°08.8
4	265°04.1	10.9'	22°35.4	5.0'	54.7'	15°55.9	9°26.2	82°44.7	84°14.6	109°35.6
5	279°34.0	10.8'	22°40.4	4.9'	54.8'	15°29.3	$9^{\circ}50.1$	83°01.8	84°42.0	110°02.4
6	294°03.8	10.7'	N22°45.3	4.8'	54.8'	15°02.9	10°14.6	83°18.9	85°09.5	110°29.1
7	308°33.5	10.7'	22°50.0	4.6'	54.8'	14°36.8	10°39.5	83°36.1	85°37.0	110°55.9
8	323°03.2	10.6'	22°54.7	4.5'	54.8'	14°11.0	11°05.0	83°53.3	86°04.6	111°22.7
9	337°32.8	10.6'	22°59.2	4.4'	54.8'	13°45.4	11°30.8	84°10.6	86°32.1	111°49.4
10	352°02.4	10.5'	23°03.6	4.3'	54.8'	13°20.2	11°57.0	84°27.9	86°59.7	112°16.1
11	6°31.9	10.5'	23°08.0	4.2'	54.9'	12°55.4	$12^{\circ}23.5$	84°45.2	87°27.3	112° 42.9
12	21°01.4	10.4'	N23°12.2	4.1'	54.9'	12°30.9	12°50.3	85°02.5	87°54.9	113°09.6
13	35°30.8	10.3'	23°16.3	4.0'	54.9'	12°06.9	13° 17.4	85°19.9	88°22.5	113°36.3
14	50°00.1	10.3'	23°20.2	3.9'	54.9'	11°43.4	13°44.8	85°37.2	88°50.2	114°03.0
15	64°29.4	10.2'	23°24.1	3.8'	54.9'	11°20.5	14°12.3	85°54.7	89°17.8	114°29.7
16	78°58.7	10.2'	23°27.8	3.6'	54.9'	10°58.1	14°40.1	86°12.1	89°45.5	114°56.4
17	93°27.8	10.1'	23°31.5	3.5'	55.0'	10°36.4	$15^{\circ}08.0$	86°29.6	90°13.2	115°23.0
18	107°57.0	10.1'	N23°35.0	3.4'	55.0'	10°15.5	15°36.1	86°47.0	90°41.0	115°49.7
19	122°26.0	10.0'	23°38.4	3.3'	55.0'	9°55.4	16°04.4	87°04.5	91°08.7	116° 16.3
20	136°55.1	10.0'	23°41.7	3.2'	55.0'	9°36.2	16°32.8	87°22.1	91°36.5	116° 42.9
21	151°24.0	9.9'	23°44.9	3.0'	55.0'		17°01.3	87°39.6	92°04.3	117°09.5
22	165°53.0	9.9'	23°47.9	2.9'	55.1'		17°30.0	87°57.2	92°32.1	117° 36.1
23	180°21.8	9.8'	23°50.8	2.8'	55.1'		17°58.8	88°14.8	92°59.9	118°02.7
10 th	SD	= 14.9'	Mer. pass.	10:33					·	·

h		Мооі	n (11 th Ju	ın)			Lunar	Distance				
Mon	GHA	ν	Dec	d	HP	+Saturn	+Deneb	+Fomalhaut	+Altair			
0	194°50.7	9.8'	N23°53.7	2.7'	55.1'	18°27.7	88°32.4	93°27.7	118°29.2			
1	209°19.4	9.7'	23°56.3	2.6'	55.1'	18°56.8	88°50.0	93°55.6	118°55.7			
2	223°48.2	9.7'	23°58.9	2.4'	55.1'							
3	238°16.9	9.6'	24°01.4	2.3'	55.1'	5.1' 19°55.1 89°25.3 94°51.3 119'						
4	252°45.5	9.6'	24°03.7	2.2'	55.2'	20°24.4	89°43.0	95° 19.2				
5	267°14.1	9.6'	24°05.9	2.1'	55.2'	20°53.8	90°00.7	95°47.1				
6	281°42.7	9.5'	N24°08.0	2.0'	55.2'	21°23.3	90°18.4	96° 15.1				
7	296°11.2	9.5'	24°09.9	1.8'	55.2'	21°52.8	90°36.1	96°43.0				
8	310°39.7	9.4'	24°11.8	1.7'	55.2'		Nev	w Moon ———				
9	325°08.1	9.4'	24°13.5	1.6'	55.3'							
10	339°36.5	9.4'	24°15.1	1.5'	55.3'							
11	354°04.8	9.3'	24°16.5	1.3'	55.3'			w Moon ———				
12	8°33.2	9.3'	N24°17.8	1.2'	55.3'			w Moon ———				
13	23°01.4	9.2'	24°19.1	1.1'	55.3'							
14	37°29.7	9.2'	24°20.1	1.0'	55.4'		Nev	w Moon ———				
15	51°57.9	9.2'	24°21.1	0.8'	55.4'			w Moon ———				
16	66°26.1	9.2'	24°21.9	0.7'	55.4'			w Moon ———				
17	80°54.2	9.1'	24°22.6	0.6'	55.4'			w Moon ———				
18	95°22.4	9.1'	N24°23.2	0.4'	55.4'			w Moon ———				
19	109°50.4	9.1'	24°23.6	0.3'	55.4'		Nev	w Moon ———				
20	124°18.5	9.0'	24°23.9	0.2'	55.5'		Nev	w Moon ———				
21	138°46.5	9.0'	24°24.1	0.0'	55.5'		Nev	w Moon ———				
22	153°14.6	9.0'	24°24.1	-0.1'	55.5'	1		w Moon ———				
23	167°42.5	9.0'	24°24.1	-0.2'	55.5'		Nev	w Moon ———				
11 th	SD	= 15.0	Mer. pas	s. 11:25								

h	Moon	(12 th	Jun)	١

Tue	GHA	ν	Dec	d	HP	
0	182°10.5	8.9'	N24°23.9	-0.3'	55.5'	New Moon
1	196°38.4	8.9'	24°23.5	-0.5'	55.6'	New Moon
2	211°06.4	8.9'	24°23.0	-0.6'	55.6'	New Moon
3	225°34.3	8.9'	24°22.4	-0.7'	55.6'	New Moon
4	240°02.1	8.9'	24°21.7	-0.9'	55.6'	New Moon
5	254°30.0	8.8'	24°20.8	-1.0'	55.6'	New Moon
6	268°57.8	8.8'	N 24°19.8	-1.1'	55.7'	New Moon
7	283°25.7	8.8'	24°18.7	-1.3'	55.7'	New Moon
8	297°53.5	8.8'	24°17.4	-1.4'	55.7'	New Moon
9	312°21.3	8.8'	24°16.0	-1.5'	55.7'	New Moon
10	326°49.1	8.8'	$24^{\circ}14.5$	-1.7'	55.7'	New Moon
11	341°16.8	8.8'	$24^{\circ}12.9$	-1.8'	55.8'	New Moon
12	355°44.6	8.8'	$N24^{\circ}11.1$	-1.9'	55.8'	New Moon
13	10°12.4	8.8'	24°09.1	-2.1'	55.8'	New Moon
14	24°40.1	8.7'	24°07.1	-2.2'	55.8'	New Moon
15	39°07.9	8.7'	24°04.9	-2.3'	55.9'	New Moon
16	53°35.6	8.7'	24°02.6	-2.5'	55.9'	New Moon
17	68°03.4	8.7'	24°00.1	-2.6'	55.9'	New Moon
18	82°31.1	8.7'	N23°57.5	-2.7'	55.9'	New Moon
19	96°58.8	8.7'	23°54.8	-2.8'	55.9'	New Moon
20	111°26.6	8.7'	23°52.0	-3.0'	56.0'	New Moon
21	125°54.3	8.7'	23°49.0	-3.1'	56.0'	New Moon
22	140°22.0	8.7'	23°45.9	-3.2'	56.0'	New Moon
23	154°49.8	8.7'	23°42.6	-3.4'	56.0'	New Moon
12 th	SD	= 15.1'	Mer. pas	s. 12:18		

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

Wed	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	-Procyon	-Pollux	-Venus	+Betelgeuse
0	169°17.5	8.8'	N23°39.3	-3.5'	56.0'				New	Moon —			
1	183°45.3	8.8'	23°35.7	-3.6'	56.1'	111°36.7	104°51.5	89°58.7	57°36.0	28°20.2	21°55.1	10°52.6	
2	198°13.0	8.8'	23°32.1	-3.8'	56.1'	111°04.7	104° 19.7	89°27.7	57°04.1	27°52.8	21°25.6	10°24.2	
3	212°40.8	8.8'	23°28.3	-3.9'	56.1'	110°32.7	103°47.9	88°56.7	56°32.3	27°25.4	20°56.3	9°55.9	
4	227°08.6	8.8'	23°24.4	-4.0'	56.1'	110°00.7	103°16.0	88°25.7	56°00.4	26°58.3	20°27.1	9°27.7	
5	241°36.3	8.8'	23°20.4	-4.2'	56.1'	109°28.7	102°44.1	87°54.7	55°28.4	26°31.2	19°58.0	8°59.5	
6	256°04.1	8.8'	N23°16.2	-4.3'	56.2'	108°56.6	102°12.2	87°23.7	54°56.5	26°04.4	19°29.0	8°31.4	
7	270°31.9	8.8'	23°12.0	-4.4'	56.2'	108°24.5	101°40.3	86°52.6	54°24.5	25°37.7	19°00.2	8°03.4	
8	284°59.8	8.8'	23°07.5	-4.6'	56.2'	107°52.4	101°08.4	86°21.5	53°52.5	25°11.1	18° 31.5	7°35.5	
9	299°27.6	8.8'	23°03.0	-4.7'	56.2'	107°20.3	100°36.4	85°50.4	53°20.5	24°44.8	18°03.0	7°07.7	
10	313°55.4	8.9'	22°58.3	-4.8'	56.2'	106°48.1	100°04.4	85° 19.2	52°48.5	24°18.7	17°34.7	6°40.1	
11	328°23.3	8.9'	22°53.5	-4.9'	56.3'	106°15.9	99°32.4	84°48.1	52° 16.5	23°52.7	17°06.6	6°12.7	
12	342°51.2	8.9'	N 22°48.6	-5.1'	56.3'	105°43.7	99°00.3	84°16.9	51°44.4	23°27.0	16°38.7	5°45.6	
13	357°19.1	8.9'	22°43.5	-5.2'	56.3'	105°11.5	98°28.3	83°45.7	51°12.3	23°01.6	16°11.0	5°18.9	
14	11°47.0	8.9'	22°38.3	-5.3'	56.3'	104°39.3	97°56.2	83°14.5	50°40.2	22°36.4	15°43.6	4°52.6	
15	26°14.9	9.0'	22°33.0	-5.4'	56.4'	104°07.0	97°24.1	82°43.2	50°08.1	22°11.5	15° 16.5	4°26.9	18°54.6
16	40°42.9	9.0'	22°27.5	-5.6'	56.4'	103°34.7	96°52.0	82°11.9	49°35.9	21°46.8	14°49.7	4°02.0	19°10.6
17	55°10.9	9.0'	22°22.0	-5.7'	56.4'	103°02.4	96°19.8	81°40.6	49°03.8	21°22.5	14°23.3		19°27.3
18	69°38.9	9.0'	$N22^{\circ}16.3$	-5.8'	56.4'	102°30.0	95°47.6	81°09.3	48°31.6	20°58.5	13°57.3		19°44.6
19	84°06.9	9.0'	22°10.4	-5.9'	56.4'	101°57.7	95° 15.4	80°38.0	47°59.4	20°34.8	13°31.7		20°02.6
20	98°35.0	9.1'	22°04.5	-6.1'	56.5'	101°25.3	94°43.2	80°06.6	47°27.2	20°11.6	13°06.5		20°21.1
21	113°03.0	9.1'	21°58.4	-6.2'	56.5'	100°52.9	94°11.0	79°35.3	46°54.9	19°48.7	12°41.9		20°40.2
22	127°31.1	9.1'	$21^{\circ}52.2$	-6.3'	56.5'	100°20.4	93°38.7	79°03.9	46°22.7	19°26.2	12° 17.9		20°59.8
23	141°59.2	9.2'	21°45.9	-6.4'	56.5'	99°48.0	93°06.4	78°32.4	45°50.4	19°04.2	11°54.5		21°20.0
13 th	SD :	= 15.3	Mer. pas	s. 13:11									

h Moon (14 ^t	th Jun)	Lunar Distance (c	objects with la	rgest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Hadar	-Spica	-Arcturus	-Jupiter	-Mars	-Regulus	+Venus	+Betelgeuse
0	156°27.4	9.2'	N 21°39.5	-6.6'	56.5'	116°15.9	99° 15.5	98°48.5	92°34.1	78°01.0	45°18.1		21°40.6
1	170°55.6	9.2'	21°32.9	-6.7'	56.6'	115°53.4	98°43.0	98°22.2	92°01.8	77° 29.5	44°45.8		22°01.7
2	185°23.8	9.2'	21°26.2	-6.8'	56.6'	115°30.9	98° 10.5	97°55.9	91°29.4	76°58.0	44°13.4		22°23.3
3	199°52.0	9.3'	21°19.4	-6.9'	56.6'	115°08.3	97°37.9	97°29.6	90°57.0	76°26.5	43°41.1		22°45.3
4	214°20.3	9.3'	21°12.5	-7.0'	56.6'	114°45.6	97°05.3	97°03.2	90°24.6	75°55.0	43°08.7		23°07.6
5	228°48.6	9.3'	21°05.4	-7.2'	56.6'	114°22.8	96°32.7	96°36.8	89°52.2	75°23.5	42°36.3		23°30.4
6	243°16.9	9.4'	N 20°58.3	-7.3'	56.7'	113°59.9	96°00.1	96°10.3	89°19.8	74°51.9	42°03.9		23°53.6
7	257°45.3	9.4'	20°51.0	-7.4'	56.7'	113°36.9	95°27.5	95°43.8	88°47.3	74°20.3	41°31.5		24°17.1
8	272°13.7	9.4'	20°43.6	-7.5'	56.7'	113°13.9	94°54.8	95°17.3	88°14.8	73°48.7	40°59.1	5°02.0	24°41.0
9	286°42.1	9.5'	20°36.1	-7.6'	56.7'	112°50.7	94°22.2	94°50.8	87°42.3	73°17.1	40°26.6	5°28.8	25°05.2
10	301°10.6	9.5'	20°28.4	-7.7'	56.8'	112°27.5	93°49.5	94°24.2	87°09.8	72°45.4	39°54.1	5°56.2	25°29.7
11	315°39.0	9.5'	20°20.7	-7.9'	56.8'	112°04.2	93°16.7	93°57.6	86°37.2	72°13.7	39°21.7	6°23.9	25°54.5
12	330°07.6	9.6'	N 20°12.8	-8.0'	56.8'	111°40.8	92°44.0	93°31.0	86°04.6	71°42.0	38°49.2	6°51.9	26°19.6
13	344°36.1	9.6'	20°04.9	-8.1'	56.8'	111°17.4	92°11.2	93°04.4	85°32.0	71°10.3	38°16.6	7°20.1	26°45.0
14	359°04.7	9.6'	$19^{\circ}56.8$	-8.2'	56.8'	110°53.8	91°38.4	92°37.7	84°59.4	70°38.6	37°44.1	7°48.6	27°10.6
15	13°33.4	9.7'	19°48.6	-8.3'	56.9'	110°30.2	91°05.6	92°11.0	84°26.8	70°06.8	37°11.6	8°17.3	27°36.5
16	28°02.0	9.7'	19°40.2	-8.4'	56.9'	110°06.6	90°32.8	91°44.3	83°54.1	69°35.1	36°39.0	8°46.1	28°02.6
17	42°30.7	9.7'	19°31.8	-8.5'	56.9'	109°42.8	89°59.9	91°17.6	83°21.4	69°03.3	36°06.4	9°15.0	28°29.0
18	56°59.5	9.8'	N 19°23.3	-8.6'	56.9'	109°19.0	89°27.0	90°50.8	82°48.7	68°31.4	35°33.9	9°44.0	28°55.6
19	71°28.2	9.8'	19°14.6	-8.8'	56.9'	108°55.1	88°54.1	90°24.1	82°16.0	67°59.6	35°01.3	10°13.2	29°22.4
20	85°57.1	9.9'	$19^{\circ}05.9$	-8.9'	57.0'	108°31.1	88°21.2	89°57.3	81°43.3	67°27.7	34°28.7	10°42.4	29°49.4
21	100°25.9	9.9'	18°57.0	-9.0'	57.0'	108°07.1	87°48.2	89°30.5	81°10.5	66°55.9	33°56.0	11°11.8	30°16.6
22	114°54.8	9.9'	18°48.1	-9.1'	57.0'	107°43.0	87° 15.3	89°03.7	80°37.7	66°24.0	33°23.4	11°41.2	30°43.9
23	129°23.7	10.0'	18°39.0	-9.2'	57.0'	107°18.9	86°42.3	88°36.8	80°04.9	65°52.1	32°50.8	12°10.6	31°11.5
14 th	SD	= 15.4'	Mer. pass	. 14:04									

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

Fri	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Pollux	+Venus	+Betelgeuse	+Sun
0	143°52.7	10.0'	N 18°29.8	-9.3'	57.0'	86°09.3	79°32.1	65°20.1	32°18.1		12°40.2	31°39.3	
1	158°21.7	10.0'	18°20.5	-9.4'	57.1'	85°36.2	78°59.2	64°48.2	31°45.4		13°09.8	32°07.2	
2	172°50.7	10.1'	$18^{\circ}11.1$	-9.5'	57.1'	85°03.2	78°26.4	64°16.2	31°12.8		13°39.4	32°35.3	
3	187°19.8	10.1'	$18^{\circ}01.6$	-9.6'	57.1'	84°30.1	77°53.5	63°44.2	30°40.1		14°09.1	33°03.5	i i
4	201°48.9	10.2'	$17^{\circ}52.1$	-9.7'	57.1'	83°57.0	77°20.6	63°12.2	30°07.4		14°38.8	33°31.9	
5	216°18.1	10.2'	17°42.4	-9.8'	57.2'	83°23.9	76°47.6	62°40.1	29°34.7	11°30.4	15°08.6	34°00.4	
6	230°47.3	10.2'	$N17^{\circ}32.6$	-9.9'	57.2'	82°50.7	76°14.7	62°08.1	29°02.0	11°53.5	15°38.4	34°29.1	
7	245°16.5	10.3'	17°22.7	-10.0'	57.2'	82°17.6	75°41.7	61°36.0	28°29.3	12°17.4	16°08.3	34°57.9	
8	259°45.8	10.3'	$17^{\circ}12.7$	-10.1'	57.2'	81°44.4	75°08.7	61°03.9	27°56.6	12°41.9	16°38.2	35°26.8	
9	274°15.1	10.3'	17°02.6	-10.2'	57.2'	81°11.2	74°35.7	60°31.8	27°23.9	13°07.2	17°08.2	35°55.9	
10	288°44.4	10.4'	$16^{\circ}52.4$	-10.3'	57.3'	80°37.9	74°02.7	59°59.7	26°51.2	13°33.0	17°38.2	36°25.1	
11	303°13.8	10.4'	16°42.2	-10.4'	57.3'	80°04.7	73°29.6	59°27.6	26°18.5	13°59.3	18°08.2	36°54.4	
12	317°43.2	10.5'	$N16^{\circ}31.8$	-10.5'	57.3'	79°31.4	72°56.6	58°55.4	25°45.8	14°26.1	18°38.2	37°23.8	
13	332°12.7	10.5'	$16^{\circ}21.3$	-10.6'	57.3'	78°58.1	72°23.5	58°23.2	25°13.1	14°53.4	19°08.3	37°53.3	
14	346°42.2	10.5'	$16^{\circ}10.8$	-10.6'	57.3'	78°24.8	71°50.4	57°51.0	24°40.4	15°21.1	19°38.5	38°23.0	41°05.1
15	1°11.7	10.6'	$16^{\circ}00.1$	-10.7'	57.4'	77°51.5	71°17.2	57°18.8	24°07.7	15°49.1	20°08.6	38°52.7	41°36.1
16	15°41.3	10.6'	15°49.4	-10.8'	57.4'	77°18.1	70°44.1	56°46.5	23°35.1	16°17.5	20°38.8	39°22.6	42°07.1
17	30°10.9	10.7'	15°38.6	-10.9'	57.4'	76°44.8	70°10.9	56°14.3	23°02.4	16°46.2	21°09.0	39°52.5	42°38.1
18	44°40.6	10.7'	$N15^{\circ}27.6$	-11.0'	57.4'	76°11.4	69°37.7	55°42.0	22°29.8	17°15.2	21°39.2	40°22.5	43°09.2
19	59°10.3	10.7'	$15^{\circ}16.6$	-11.1'	57.4'	75°37.9	69°04.5	55°09.7	21°57.1	17°44.5	22°09.5	40°52.7	43°40.3
20	73°40.0	10.8'	15°05.5	-11.2'	57.5'	75°04.5	68°31.3	54°37.4	21°24.5	18°14.1	22°39.8	41°22.9	44°11.4
21	88°09.7	10.8'	14°54.4	-11.3'	57.5'	74°31.0	67°58.1	54°05.1	20°51.9	18°43.8	23°10.1	41°53.2	44°42.5
22	102°39.5	10.8'	14°43.1	-11.3'	57.5'	73°57.6	67°24.8	53°32.7	20°19.4	19°13.8	23°40.5	42°23.6	45°13.6
23	117°09.4	10.9'	14°31.8	-11.4'	57.5'	73°24.0	66°51.5	53°00.4	19°46.8	19°44.0	24°10.9	42°54.1	45°44.8
15 th	SD	= 15.6	Mer. pas	s. 14:55					Sun S	D = 15.7'			

h Moon (16th Jun) Lunar Distance (objects with largest hourly LD delta)

			(, , , , ,	
Sat	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Pollux	+Venus	+Betelgeuse	+Sun
0	131°39.2	10.9'	N 14°20.3	-11.5'	57.5'	118°24.7	72°50.5	66°18.2	52°28.0	20°14.4	24°41.3	43°24.6	46°16.0
1	146°09.1	10.9'	14°08.8	-11.6'	57.6'	117°51.2	72°17.0	65°44.9	51°55.6	20°44.9	25°11.7	43°55.3	46°47.2
2	160°39.1	11.0'	13°57.2	-11.7'	57.6'	117°17.6	71°43.4	65°11.6	51°23.2	21°15.6	25°42.2	44°26.0	47°18.4
3	175°09.0	11.0'	13°45.6	-11.7'	57.6'	116°44.0	71°09.8	64°38.2	50°50.8	21°46.5	26°12.6	44° 56.8	47°49.6
4	189°39.1	11.0'	13°33.8	-11.8'	57.6'	116°10.4	70°36.2	64°04.8	50°18.3	22°17.5	26°43.1	45°27.6	48°20.9
5	204°09.1	11.1'	13°22.0	-11.9'	57.6'	115°36.7	70°02.6	63°31.5	49°45.9	22°48.7	27° 13.7	45°58.5	48°52.2
6	218°39.2	11.1'	N13°10.1	-12.0'	57.7'	115°03.1	69°28.9	62°58.0	49° 13.4	23°20.0	27°44.2	46°29.5	49°23.5
7	233°09.3	11.1'	12°58.1	-12.0'	57.7'	114°29.4	68°55.3	62°24.6	48°40.9	23°51.4	28°14.8	47°00.6	49°54.8
8	247°39.4	11.2'	12°46.1	-12.1'	57.7'	113°55.7	68°21.6	61°51.2	48°08.4	24°22.9	28°45.4	47°31.7	50°26.2
9	262°09.6	11.2'	12°34.0	-12.2'	57.7'	113°21.9	67°47.9	61°17.7	47°35.8	24°54.5	29° 16.1	48°02.9	50°57.6
10	276°39.8	11.2'	12°21.8	-12.3'	57.7'	112°48.2	67°14.1	60°44.2	47°03.3	25°26.3	29°46.7	48°34.2	51°29.0
11	291°10.0	11.3'	$12^{\circ}09.5$	-12.3'	57.8'	112°14.4	66°40.4	60°10.7	46°30.7	25°58.1	30° 17.4	49°05.5	52°00.4
12	305°40.3	11.3'	N 11°57.2	-12.4'	57.8'	111°40.6	66°06.6	59°37.2	45°58.2	26°30.0	30°48.1	49°36.9	52°31.8
13	320°10.5	11.3'	11°44.8	-12.5'	57.8'	111°06.8	65°32.8	59°03.7	45°25.6	27°02.1	31°18.8	50°08.3	53°03.3
14	334°40.9	11.3'	11°32.3	-12.5'	57.8'	110°33.0	64°59.0	58°30.1	44°53.0	27°34.2	31°49.6	50°39.8	53°34.8
15	349°11.2	11.4'	$11^{\circ}19.8$	-12.6'	57.8'	109°59.1	64°25.2	57°56.6	44°20.4	28°06.4	32°20.3	51°11.3	54°06.3
16	3°41.6	11.4'	11°07.2	-12.7'	57.9'	109°25.3	63°51.3	57°23.0	43°47.8	28°38.7	32°51.1	51°42.9	54°37.8
17	18°12.0	11.4'	10°54.5	-12.7'	57.9'	108°51.4	63°17.5	56°49.4	43°15.1	29°11.0	33°22.0	52°14.6	55°09.3
18	32°42.4	11.5'	N 10°41.8	-12.8'	57.9'	108°17.5	62°43.6	56°15.8	42°42.5	29°43.4	33°52.8	52°46.3	55°40.9
19	47°12.9	11.5'	10°29.0	-12.9'	57.9'	107°43.5	62°09.7	55°42.2	42°09.8	30°15.9	34°23.7	53°18.1	56°12.5
20	61°43.3	11.5'	$10^{\circ}16.1$	-12.9'	57.9'	107°09.6	61°35.7	55°08.5	41°37.1	30°48.5	34°54.5	53°49.9	56°44.1
21	76°13.8	11.5'	10°03.2	-13.0'	58.0'	106°35.6	61°01.8	54°34.9	41°04.4	31°21.1	35°25.4	54°21.7	57°15.7
22	90°44.3	11.5'	09°50.3	-13.0'	58.0'	106°01.6	60°27.8	54°01.2	40°31.7	31°53.8	35° 56.4	54°53.6	57°47.3
23	105°14.9	11.6'	09°37.2	-13.1'	58.0'	105°27.6	59°53.8	53°27.5	39°59.0	32°26.6	36°27.3	55°25.6	58°19.0
16 th	SD	= 15.7	Mer. pas	s. 15:45					Sun S	D = 15.7'			

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

Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Procyon	+Pollux	+Betelgeuse	+Sun
0	119°45.5	11.6'	N09°24.2	-13.1'	58.0'	104°53.5	59°19.8	52°53.8	39°26.3	30°36.5	32°59.4	55°57.6	58°50.7
1	134°16.0	11.6'	$09^{\circ}11.0$	-13.2'	58.0'	104°19.5	58°45.8	52°20.1	38°53.5	31°06.5	33° 32.3	56°29.6	59°22.4
2	148°46.7	11.6'	08°57.8	-13.2'	58.1'	103°45.4	58°11.7	51°46.3	38° 20.8	31°36.7	34°05.2	57°01.7	59°54.1
3	163°17.3	11.6'	08°44.6	-13.3'	58.1'	103°11.3	57°37.6	51°12.6	37°48.0	32°07.0	34°38.2	57° 33.9	60°25.9
4	177°47.9	11.7'	08°31.3	-13.4'	58.1'	102°37.1	57°03.5	50°38.8	37° 15.2	32°37.5	35°11.2	58°06.1	60°57.7
5	192°18.6	11.7'	$08^{\circ}17.9$	-13.4'	58.1'	102°03.0	56°29.4	50°05.0	36°42.5	33°08.0	35°44.3	58° 38.3	61°29.5
6	206°49.3	11.7'	N 08°04.5	-13.5'	58.1'	101°28.8	55°55.3	49°31.2	36°09.7	33°38.7	36° 17.4	59°10.6	62°01.3
7	221°20.0	11.7'	$07^{\circ}51.1$	-13.5'	58.2'	100°54.7	55°21.1	48°57.4	35°36.9	34°09.6	36°50.6	59°42.9	62°33.1
8	235°50.7	11.7'	07°37.6	-13.5'	58.2'	100°20.4	54°47.0	48°23.6	35°04.1	34°40.5	37°23.8	60° 15.2	63°04.9
9	250°21.4	11.7'	07°24.0	-13.6'	58.2'	99°46.2	54°12.8	47°49.8	34°31.3	35°11.5	37°57.1	60°47.6	63°36.8
10	264°52.1	11.8'	07°10.4	-13.6'	58.2'	99°12.0	53°38.6	47°15.9	33°58.4	35°42.6	38°30.4	61°20.0	64°08.7
11	279°22.9	11.8'	06°56.8	-13.7'	58.2'	98°37.7	53°04.3	46°42.1	33°25.6	36°13.9	39°03.8	61°52.5	64°40.6
12	293°53.7	11.8'	N 06°43.1	-13.7'	58.2'	98°03.4	52°30.1	46°08.2	32°52.8	36°45.2	39° 37.2	62°25.0	65°12.6
13	308°24.4	11.8'	06°29.4	-13.8'	58.3'	97°29.1	51°55.8	45°34.3	32°20.0	37°16.6	40°10.6	62°57.6	65°44.5
14	322°55.2	11.8'	$06^{\circ}15.6$	-13.8'	58.3'	96°54.8	51°21.5	45°00.4	31°47.1	37°48.2	40°44.1	63°30.1	66°16.5
15	337°26.0	11.8'	$06^{\circ}01.8$	-13.8'	58.3'	96°20.4	50°47.2	44°26.5	31°14.3	38°19.8	41°17.6	64°02.8	66°48.5
16	351°56.8	11.8'	05°48.0	-13.9'	58.3'	95°46.1	50°12.9	43°52.6	30°41.4	38°51.5	41°51.2	64°35.4	67°20.5
17	6°27.6	11.8'	05°34.1	-13.9'	58.3'	95°11.7	49°38.6	43°18.7	30°08.6	39°23.2	42°24.8	65°08.1	67°52.6
18	20°58.5	11.8'	N 05°20.2	-13.9'	58.4'	94°37.3	49°04.2	42°44.7	29°35.8	39°55.1	42°58.4	65°40.8	68°24.6
19	35°29.3	11.8'	05°06.2	-14.0'	58.4'	94°02.8	48°29.8	42°10.8	29°02.9	40°27.0	43°32.1	66° 13.6	68°56.7
20	50°00.1	11.8'	04°52.3	-14.0'	58.4'	93°28.4	47°55.4	41°36.9	28°30.1	40°59.0	44°05.8	66°46.4	69°28.8
21	64°30.9	11.8'	04°38.2	-14.0'	58.4'	92°53.9	47°21.0	41°02.9	27°57.3	41°31.1	44°39.5	67° 19.2	70°00.9
22	79°01.8	11.8'	04°24.2	-14.1'	58.4'	92°19.4	46°46.6	40°28.9	27°24.5	42°03.3	45°13.3	67°52.1	70°33.0
23	93°32.6	11.8'	04°10.1	-14.1'	$-14.1' 58.4' 91^{\circ}44.9 46^{\circ}12.1 39^{\circ}54.9 26^{\circ}51.7 42^{\circ}35.5 45^{\circ}47.1 68^{\circ}25.0 71^{\circ}68^{\circ}45.9 $								71°05.2
17 th	SD	= 15.8	Mer. pas	s. 16:33					Sun	SD = 15.7'			

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

Mon	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	108°03.4	11.8'	N 03°56.0	-14.1'	58.5'	91°10.4	45°37.6	39°21.0	26°18.8	9°51.7	43°07.8	46°21.0	68° 57.9
1	122°34.3	11.8'	03°41.9	-14.2'	58.5'	90°35.8	45°03.2	38°47.0	25°46.1	10°22.0	43°40.1	46°54.9	69°30.8
2	137°05.1	11.8'	03°27.7	-14.2'	58.5'	90°01.3	44°28.6	38° 13.0	25° 13.3	10°52.8	44°12.6	47°28.8	70°03.8
3	151°35.9	11.8'	$03^{\circ}13.5$	-14.2'	58.5'	89°26.7	43°54.1	37°39.0	24°40.5	11°24.0	44°45.0	48°02.7	70°36.8
4	166°06.8	11.8'	02°59.3	-14.2'	58.5'	88°52.1	43°19.6	37°05.0	24°07.8	11°55.5	45°17.6	48°36.7	71°09.9
5	180°37.6	11.8'	$02^{\circ}45.1$	-14.3'	58.6'	88°17.4	42°45.0	36°31.0	23°35.1	12°27.3	45°50.2	49°10.7	71°42.9
6	195°08.4	11.8'	N02°30.8	-14.3'	58.6'	87°42.8	42°10.4	35°57.0	23°02.4	12°59.4	46°22.8	49°44.7	72°16.0
7	209°39.2	11.8'	$02^{\circ}16.5$	-14.3'	58.6'	87°08.1	41°35.8	35°23.0	22°29.7	13°31.7	46°55.5	50° 18.8	72°49.2
8	224°10.0	11.8'	$02^{\circ}02.2$	-14.3'	58.6'	86°33.4	41°01.2	34°49.0	21°57.1	14°04.2	47°28.3	50°52.9	73°22.3
9	238°40.8	11.8'	$01^{\circ}47.9$	-14.3'	58.6'	85°58.7	40°26.6	34° 14.9	21°24.5	14°36.9	48°01.1	51°27.0	73°55.5
10	253°11.6	11.8'	01°33.6	-14.4'	58.6'	85°24.0	39°51.9	33°40.9	20°51.9	15°09.7	48°34.0	52°01.2	74°28.7
11	267°42.4	11.8'	$01^{\circ}19.2$	-14.4'	58.7'	84°49.2	39°17.3	33°06.9	20°19.4	15°42.7	49°06.9	52°35.4	75°02.0
12	282°13.1	11.7'	N 01°04.9	-14.4'	58.7'	84°14.5	38°42.6	32°32.9	19°46.9	16°15.9	49°39.9	53°09.6	75°35.3
13	296°43.9	11.7'	00°50.5	-14.4'	58.7'	83°39.7	38°07.9	31°58.9	19° 14.5	16°49.1	50°12.9	53°43.8	76°08.6
14	311°14.6	11.7'	$00^{\circ}36.1$	-14.4'	58.7'	83°04.9	37°33.2	31°25.0	18°42.1	17°22.5	50°46.0	54°18.1	76°41.9
15	325°45.4	11.7'	$00^{\circ}21.7$	-14.4'	58.7'	82°30.0	36°58.4	30°51.0	18°09.9	17°56.0	51°19.1	54°52.4	77° 15.2
16	340°16.1	11.7'	N 00°07.3	-14.4'	58.8'	81°55.2	36°23.7	30° 17.0	17°37.7	18°29.6	51°52.3	55°26.7	77°48.6
17	354°46.7	11.7'	S 00°07.1	-14.4'	58.8'	81°20.3	35°48.9	29°43.0	17°05.5	19°03.3	52°25.5	56°01.1	78°22.0
18	9°17.4	11.7'	S 00°21.6	-14.4'	58.8'	80°45.4	35°14.1	29°09.1	16°33.5	19°37.1	52°58.7	56°35.4	78°55.4
19	23°48.1	11.6'	00°36.0	-14.4'	58.8'	80°10.5	34°39.3	28°35.2	16°01.6	20°10.9	53°32.0	57°09.8	79°28.9
20	38°18.7	11.6'	00°50.5	-14.4'	58.8'	79°35.6	34°04.5	28°01.3	15°29.8	20°44.9	54°05.4	57°44.3	80°02.4
21	52°49.3	11.6'	$01^{\circ}04.9$	-14.4'	58.8'	79°00.7	33°29.7	27°27.4	14°58.2	21°18.9	54°38.8	58° 18.7	80°35.9
22	67°19.9	11.6'	$01^{\circ}19.3$	-14.4'	58.9'	78°25.7	32°54.9	26°53.5	14°26.7	21°52.9	55°12.2	58°53.2	81°09.4
23	81°50.4	11.5'	01°33.8	-14.4'	58.9'	77°50.7	32°20.0	26° 19.7	13°55.3	22°27.1	55°45.6	59°27.7	81°42.9
18 th	SD	= 15.9	Mer. pas	s. 17:22									

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

			((/
Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	96°21.0	11.5'	S 01°48.2	-14.4'	58.9'	77°15.7	31°45.1	25°45.9	13°24.2	23°01.3	56°19.1	60°02.2	82°16.5
1	110°51.5	11.5'	02°02.7	-14.4'	58.9'	76°40.7	31°10.2	25°12.1	12°53.3	23°35.5	56°52.7	60°36.8	82°50.1
2	125°22.0	11.5'	$02^{\circ}17.1$	-14.4'	58.9'	76°05.7	30°35.3	24°38.3	12°22.7	24°09.8	57°26.3	61°11.4	83°23.7
3	139°52.4	11.4'	02°31.6	-14.4'	58.9'	75°30.6	30°00.4	24°04.6	11°52.3	24°44.2	57°59.9	61°46.0	83°57.3
4	154°22.9	11.4'	02°46.0	-14.4'	58.9'	74°55.5	29°25.5	23°31.0	11°22.3	25°18.6	58°33.5	62°20.6	84°31.0
5	168°53.3	11.4'	03°00.4	-14.4'	59.0'	74°20.5	28°50.6	22°57.3	10°52.6	25°53.0	59°07.2	62°55.3	85°04.6
6	183°23.6	11.3'	S 03°14.8	-14.4'	59.0'	73°45.3	28°15.6	22°23.8	10°23.4	26°27.5	59°40.9	63°29.9	85°38.3
7	197°54.0	11.3'	03°29.3	-14.4'	59.0'	73°10.2	27°40.7	21°50.3	9°54.7	27°02.1	60°14.7	64°04.6	86° 12.0
8	212°24.3	11.3'	03°43.7	-14.4'	59.0'	72°35.1	27°05.7	21°16.8	9°26.6	27°36.7	60°48.5	64°39.3	86°45.8
9	226°54.5	11.2'	03°58.0	-14.4'	59.0'	71°59.9	26°30.7	20°43.5	8° 59.2	28°11.3	61°22.3	65°14.1	87° 19.5
10	241°24.8	11.2'	04°12.4	-14.4'	59.0'	71°24.7	25°55.8	20° 10.2	8°32.5	28°46.0	61°56.1	65°48.9	87°53.3
11	255°55.0	11.2'	04°26.8	-14.3'	59.1'	70°49.5	25°20.8	19°37.0	8°06.8	29°20.7	62°30.0	66°23.6	88°27.1
12	270°25.1	11.1'	S 04°41.1	-14.3'	59.1'	70°14.3	24°45.8	19°03.9		29°55.4	63°03.9	66° 58.5	89°00.9
13	284°55.2	11.1'	04°55.4	-14.3'	59.1'	69°39.0	24°10.8	18°30.9		30°30.2	63°37.9	67°33.3	89°34.7
14	299°25.3	11.0'	05°09.7	-14.3'	59.1'	69°03.8	23°35.8	17°58.0		31°05.0	64°11.9	68°08.1	90°08.6
15	313°55.3	11.0'	05°24.0	-14.3'	59.1'	68°28.5	23°00.7	17°25.3		31°39.9	64°45.9	68°43.0	90°42.4
16	328°25.3	11.0'	05°38.3	-14.2'	59.1'	67°53.2	22°25.7	16°52.7		32°14.8	65°19.9	69°17.9	91°16.3
17	342°55.3	10.9'	05°52.5	-14.2'	59.1'	67°17.9	21°50.7	16°20.3		32°49.7	65°54.0	69°52.8	91°50.2
18	357°25.2	10.9'	S 06°06.8	-14.2'	59.2'	66°42.6	21°15.7	15°48.1		33°24.6	66°28.1	70°27.8	92°24.1
19	11°55.1	10.8'	$06^{\circ}21.0$	-14.2'	59.2'	66°07.2	20°40.7	15° 16.0		33°59.6	67°02.2	71°02.7	92°58.0
20	26°24.9	10.8'	$06^{\circ}35.1$	-14.1'	59.2'	65°31.9	20°05.6	14°44.2		34°34.6	67°36.4	71°37.7	93°32.0
21	40°54.6	10.7'	06°49.3	-14.1'	59.2'	64°56.5	19°30.6	14° 12.7		35°09.6	68°10.6	72° 12.7	94°05.9
22	55°24.4	10.7'	$07^{\circ}03.4$	-14.1'	59.2'	64°21.1	18°55.6	13°41.4		35°44.7	68°44.8	72°47.7	94°39.9
23	69°54.0	10.6'	07° 17.4	-14.0'	59.2'	63°45.7	18°20.6	13° 10.5		36°19.8	69°19.0	73°22.7	95° 13.9
19 th	SD	= 16.1'	Mer. pas	s. 18:11									

h		Moor	า (20 th Jน	ın)			Lunar [Distance	(objects	with large	est hourly	LD delta)
Wed	GHA	ν	Dec	d	HP	-Altair	-Antares	-Spica	-Jupiter	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	84°23.7	10.6'	S 07°31.5	-14.0'	59.2'	114°43.0	63°10.3	17°45.6	12°39.9	36°54.9	69°53.3	73°57.8	95°47.9
1	98°53.2	10.5'	07°45.5	-14.0'	59.3'	114°12.1	62°34.8	17° 10.7	12°09.8	37°30.0	70°27.5	74°32.9	96°21.9
2	113°22.7	10.5'	07°59.5	-13.9'	59.3'	113°41.3	61°59.4	16°35.7	11°40.1	38°05.2	71°01.9	75°08.0	96°55.9
3	127°52.2	10.4'	08°13.4	-13.9'	59.3'	113°10.3	61°23.9	16°00.8	11°11.0	38°40.4	71°36.2	75°43.1	97° 30.0
4	142°21.6	10.4'	08°27.3	-13.9'	59.3'	112°39.3	60°48.4	15°25.9	10°42.5	39° 15.6	72°10.5	76°18.2	98°04.0
5	156°51.0	10.3'	08°41.2	-13.8'	59.3'	112°08.3	60°12.9	14°51.0	10°14.7	39°50.8	72°44.9	76°53.4	98°38.1
6	171°20.3	10.2'	S 08°55.0	-13.8'	59.3'	111°37.2	59°37.3	14° 16.2	9°47.7	40°26.1	73°19.3	77° 28.5	99°12.2
7	185°49.5	10.2'	09°08.8	-13.7'	59.3'	111°06.0	59°01.8	13°41.4	9°21.6	41°01.4	73°53.8	78°03.7	99°46.2
8	200°18.7	10.1'	09°22.5	-13.7'	59.4'	110°34.8	58°26.2	13°06.7		41°36.7	74°28.2	78° 38.9	
9	214°47.8	10.1'	09°36.2	-13.6'	59.4'	110°03.6	57°50.7	12°32.0		42° 12.0	75°02.7	79° 14.2	
10	229°16.9	10.0'	09°49.8	-13.6'	59.4'	109°32.3	57°15.1	11°57.4		42°47.4	75°37.2	79°49.4	
11	243°45.9	9.9'	10°03.4	-13.5'	59.4'	109°01.0	56°39.5	11°22.9		43°22.8	76°11.7	80°24.7	
12	258°14.8	9.9'	S 10°16.9	-13.5'	59.4'	108°29.6	56°03.9	10°48.5		43°58.2	76°46.2	80°59.9	
13	272°43.7	9.8'	10°30.4	-13.4'	59.4'	107°58.2	55°28.2	10°14.3		44°33.6	77°20.8	81°35.2	
14	287°12.5	9.8'	10°43.9	-13.4'	59.4'	107°26.7	54°52.6	9°40.1		45°09.0	77°55.4	82°10.5	
15	301°41.3	9.7'	10°57.2	-13.3'	59.4'	106°55.2	54°16.9	9°06.2		45° 44.5	78°30.0	82°45.9	
16	316°10.0	9.6'	$11^{\circ}10.6$	-13.3'	59.4'	106°23.7	53°41.2	8°32.5		46°20.0	79°04.6	83°21.2	
17	330°38.6	9.6'	11°23.8	-13.2'	59.5'	105°52.1	53°05.5	7°59.1		46°55.5	79°39.2	83°56.5	
18	345°07.2	9.5'	S 11°37.0	-13.1'	59.5'	105°20.5	52°29.8	7°26.0		47°31.0	80°13.9	84°31.9	
19	359°35.7	9.4'	11°50.2	-13.1'	59.5'	104°48.9	51°54.1	6°53.4		48°06.5	80°48.5	85°07.3	
20	14°04.1	9.4'	12°03.3	-13.0'	59.5'	104°17.2	51°18.4	6°21.3		48°42.1	81°23.2	85°42.7	
21	28°32.4	9.3'	12°16.3	-13.0'	59.5'	103°45.5	50°42.6	5°49.9		49° 17.7	81°57.9	86° 18.1	
22	43°00.7	9.2'	12°29.2	-12.9'	59.5'	103°13.7	50°06.9	5°19.4		49°53.2	82°32.6	86°53.5	
23	57°28.9	9.1'	12°42.1	-12.8'	59.5'	102°42.0	49°31.1			50°28.9	83°07.4	87°29.0	
20 th	SD	= 16.2'	Mer. pas	s. 19:02									

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

Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Regulus	+Procyon	+Pollux
0	71°57.1	9.1'	S 12°54.9	-12.7'	59.5'		102°10.2	50°51.3	48°55.3		51°04.5	83°42.1	88°04.4
1	86°25.1	9.0'	$13^{\circ}07.7$	-12.7'	59.5'		101°38.4	50°30.9	48°19.5		51°40.1	84°16.9	88° 39.9
2	100°53.1	8.9'	13°20.4	-12.6'	59.5'		101°06.5	50°10.6	47°43.7		52°15.8	84°51.7	89° 15.4
3	115°21.1	8.9'	13°33.0	-12.5'	59.6'		100°34.6	49°50.6	47°07.9		52°51.5	85°26.5	89°50.9
4	129°48.9	8.8'	13°45.5	-12.5'	59.6'		100°02.7	49°30.7	46°32.1		53°27.2	86°01.3	90°26.4
5	144°16.7	8.7'	13°57.9	-12.4'	59.6'		99°30.8	49°11.1	45°56.2		54°02.9	86°36.1	91°01.9
6	158°44.4	8.6'	S 14°10.3	-12.3'	59.6'		98°58.8	48°51.7	45°20.4		54°38.6	87°11.0	91°37.4
7	173°12.0	8.6'	14°22.6	-12.2'	59.6'		98°26.8	48°32.6	44°44.5		55°14.3	87°45.8	92°13.0
8	187°39.6	8.5'	14°34.8	-12.1'	59.6'		97°54.8	48°13.6	44°08.6		55°50.1	88°20.7	92°48.5
9	202°07.1	8.4'	14°47.0	-12.0'	59.6'		97°22.8	47°54.9	43°32.7		56°25.8	88°55.5	93°24.1
10	216°34.5	8.3'	$14^{\circ}59.0$	-12.0'	59.6'		96°50.8	47°36.5	42°56.8		57°01.6	89°30.4	93°59.7
11	231°01.8	8.3'	$15^{\circ}11.0$	-11.9'	59.6'		96°18.7	47°18.3	42°20.9		57°37.4	90°05.3	94°35.3
12	245°29.1	8.2'	S 15°22.8	-11.8'	59.6'		95°46.6	47°00.3	41°45.0		58°13.2	90°40.2	95° 10.9
13	259°56.2	8.1'	15°34.6	-11.7'	59.6'		95°14.5	46°42.6	41°09.1		58°49.0	91°15.2	95°46.5
14	274°23.3	8.0'	15°46.3	-11.6'	59.6'		94°42.4	46°25.2	40°33.2		59°24.9	91°50.1	96°22.1
15	288°50.4	7.9'	$15^{\circ}57.9$	-11.5'	59.7'	119°29.6	94°10.3	46°08.0	39°57.2	6°25.4	60°00.7	92°25.0	96°57.7
16	303°17.3	7.9'	$16^{\circ}09.4$	-11.4'	59.7'	118°58.3	93°38.1	45°51.2	39°21.3	6°57.8	60°36.6	93°00.0	97°33.3
17	317°44.2	7.8'	16°20.8	-11.3'	59.7'	118°27.0	93°06.0	45°34.6	38°45.3	7°30.7	61°12.4	93°34.9	98°09.0
18	332°10.9	7.7'	S 16°32.2	-11.2'	59.7'	117°55.6	92°33.8	45°18.3	38°09.4	8°04.1	61°48.3	94°09.9	98°44.6
19	346°37.6	7.6'	16°43.4	-11.1'	59.7'	117°24.2	92°01.6	45°02.2	37°33.4	8°37.9	62°24.2	94°44.9	99°20.3
20	1°04.3	7.5'	$16^{\circ}54.5$	-11.0'	59.7'	116°52.7	91°29.4	44°46.5	36°57.4	9°12.0	63°00.1	95°19.8	99°56.0
21	15°30.8	7.5'	17°05.5	-10.9'	59.7'	116°21.1	90°57.2	44°31.1	36°21.4	9°46.3	63°36.0	95°54.8	100°31.6
22	29°57.3	7.4'	17° 16.4	-10.8'	59.7'	115°49.5	90°25.0	44°16.0	35°45.4	10°20.8	64°11.9	96°29.8	101°07.3
23	44°23.7	7.3'	17°27.2	-10.7'	59.7'	115°17.8	89°52.8		35°09.4	10°55.5	64°47.9	97°04.8	101°43.0
21 st	SD	= 16.2	′ Mer. pa:	ss. 19:56									

h		Моо	n (22 nd Ji	un)		L	unar Dis	tance (ol	bjects wit	h largest	t hourly L	D delta)	
Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	58°50.0	7.2'	S 17°37.9	-10.6'	59.7'	114°46.1	108°40.4	89°20.5	34°33.4	11°30.3	18°50.0	65°23.8	102°18.7
1	73°16.2	7.2'	17°48.5	-10.5'	59.7'	114°14.4	108°22.3	88°48.3	33°57.4	12°05.3	19°23.8	65°59.7	102°54.4
2	87°42.4	7.1'	17°59.0	-10.4'	59.7'	113°42.6	108°04.2	88°16.1	33°21.4	12°40.3	19°57.8	66°35.7	103°30.1
3	102°08.5	7.0'	18°09.4	-10.3'	59.7'	113°10.8	107°45.9	87°43.8	32°45.4	13° 15.5	20°31.8	67°11.7	104°05.8
4	116°34.5	6.9'	$18^{\circ}19.6$	-10.1'	59.7'	112°38.9	107°27.6	87°11.6	32°09.4	13°50.8	21°06.0	67°47.6	104°41.5
5	131°00.4	6.8'	18°29.8	-10.0'	59.7'	112°07.0	107°09.1	86°39.3	31°33.4	14°26.1	21°40.3	68°23.6	105°17.2
6	145°26.2	6.8'	S 18°39.8	-9.9'	59.7'	111°35.0	106°50.6	86°07.1	30°57.4	15°01.5	22°14.7	68°59.6	105°52.9
7	159°52.0	6.7'	18°49.7	-9.8'	59.7'	111°03.0	106°32.0	85°34.8	30°21.4	15°37.0	22°49.2	69°35.6	106°28.7
8	174°17.7	6.6'	18°59.5	-9.7'	59.7'	110°31.0	106°13.3	85°02.6	29°45.3	16°12.5	23°23.7	70°11.6	107°04.4
9	188°43.3	6.5'	19°09.2	-9.6'	59.7'	109°58.9	105°54.5	84°30.4	29°09.3	16°48.0	23°58.4	70°47.6	107°40.1
10	203°08.8	6.5'	19°18.8	-9.4'	59.7'	109°26.8	105°35.7	83°58.1	28°33.3	17°23.6	24°33.1	71°23.6	108°15.8
11	217°34.3	6.4'	19°28.2	-9.3'	59.7'	108°54.7	105°16.7	83°25.9	27°57.3	17°59.3	25°07.8	71°59.6	108°51.6
12	231°59.7	6.3'	S 19°37.5	-9.2'	59.7'	108°22.5	104°57.7	82°53.6	27°21.2	18°35.0	25°42.6	72°35.7	109°27.3
13	246°25.0	6.2'	19°46.7	-9.1'	59.7'	107°50.3	104°38.6	82°21.4	26°45.2	19°10.7	26° 17.5	73°11.7	110°03.0
14	260°50.2	6.2'	19°55.8	-8.9'	59.7'	107°18.1	104°19.5	81°49.2	26°09.2	19°46.4	26°52.5	73°47.7	110°38.8
15	275°15.4	6.1'	20°04.7	-8.8'	59.7'	106°45.8	104°00.2	81°17.0	25°33.2	20°22.2	27° 27.4	74°23.8	111°14.5
16	289°40.4	6.0'	20°13.5	-8.7'	59.7'	106°13.6	103°40.9	80°44.8	24° 57.2	20°58.0	28°02.5	74°59.8	111°50.2
17	304°05.5	5.9'	20°22.1	-8.5'	59.7'	105°41.3	103°21.5	80°12.6	24°21.2	21°33.8	28°37.5	75°35.8	112°26.0
18	318°30.4	5.9'	S 20°30.7	-8.4'	59.7'	105°08.9	103°02.1	79°40.4	23°45.2	22°09.7	29° 12.7	76°11.9	113°01.7
19	332°55.3	5.8'	20°39.1	-8.3'	59.7'	104°36.6	102°42.6	79°08.3	23°09.2	22°45.5	29°47.8	76°47.9	113°37.4
20	347°20.1	5.7'	20°47.3	-8.1'	59.7'	104°04.2	102°23.0	78°36.1	22°33.2	23°21.4	30°23.0	77°24.0	114°13.1
21	1°44.8	5.7'	20°55.5	-8.0'	59.7'	103°31.8	102°03.4	78°04.0	21°57.3	23°57.3	30°58.2	78°00.0	114°48.8
22	16°09.5	5.6'	21°03.4	-7.8'	59.7'	102°59.4	101°43.7	77°31.9	21°21.3	24°33.2	31°33.5	78°36.1	115°24.6
23	30°34.1	5.5'	21°11.3	-7.7'	59.7'	102°27.0	101°24.0	76°59.8	20°45.4	25°09.1	32°08.8	79°12.1	116°00.3
22 nd	SD	= 16.3	' Mer. pas	ss. 20:53									

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

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	44°58.6	5.5'	S 21°19.0	-7.6'	59.7'	101°54.6	101°04.2	76°27.7	20°09.4	25°45.1	32°44.1	79°48.2	116°36.0
1	59°23.0	5.4'	21°26.6	-7.4'	59.7'	101°22.1	100°44.3	75°55.6	19°33.5	26°21.0	33°19.4	80°24.2	117°11.7
2	73°47.4	5.3'	21°34.0	-7.3'	59.7'	100°49.7	100°24.5	75°23.6	18° 57.6	26°56.9	33°54.7	81°00.3	117°47.4
3	88°11.8	5.3'	21°41.3	-7.1'	59.7'	100°17.2	100°04.5	74°51.6	18°21.7	27°32.9	34°30.1	81°36.3	118°23.1
4	102°36.1	5.2'	21°48.4	-7.0'	59.7'	99°44.7	99°44.5	74°19.6	17°45.9	28°08.9	35°05.5	82°12.4	118°58.7
5	117°00.3	5.2'	21°55.4	-6.8'	59.7'	99°12.2	99°24.5	73°47.6	17°10.1	28°44.8	35°40.9	82°48.4	119°34.4
6	131°24.4	5.1'	S 22°02.2	-6.7'	59.7'	98°39.7	99°04.4	73°15.7	16°34.3	29°20.8	36°16.4	83°24.5	
7	145°48.5	5.0'	22°08.9	-6.5'	59.7'	98°07.1	98°44.3	72°43.8	15°58.5	29°56.8	36°51.8	84°00.5	
8	160°12.6	5.0'	22°15.4	-6.4'	59.7'	97°34.6	98°24.1	72°11.9	15°22.7	30°32.8	37°27.3	84°36.6	
9	174°36.6	4.9'	22°21.8	-6.2'	59.7'	97°02.1	98°04.0	71°40.0	14°47.0	31°08.8	38°02.8	85° 12.6	
10	189°00.5	4.9'	22°28.0	-6.1'	59.7'	96°29.5	97°43.7	71°08.2	14°11.4	31°44.8	38°38.2	85°48.6	
11	203°24.4	4.8'	22°34.1	-5.9'	59.7'	95°57.0	97°23.5	70°36.4	13°35.7	32°20.8	39°13.7	86°24.7	
12	217°48.2	4.8'	S 22°40.0	-5.8'	59.7'	95°24.4	97°03.2	70°04.7	13°00.2	32°56.7	39°49.2	87°00.7	
13	232°12.0	4.7'	22°45.8	-5.6'	59.7'	94°51.9	96°42.9	69°33.0	12°24.7	33°32.7	40°24.8	87°36.7	
14	246°35.7	4.7'	22°51.4	-5.5'	59.7'	94°19.3	96°22.5	69°01.3	11°49.2	34°08.7	41°00.3	88° 12.7	
15	260°59.4	4.6'	22°56.9	-5.3'	59.7'	93°46.8	96°02.1	68°29.6	11°13.9	34°44.7	41°35.8	88°48.7	
16	275°23.0	4.6'	23°02.2	-5.1'	59.6'	93°14.2	95°41.7	67°58.0	10°38.6	35°20.7	42°11.4	89°24.8	
17	289°46.6	4.6'	23°07.3	-5.0'	59.6'	92°41.7	95°21.3	67°26.5	10°03.5	35°56.7	42°46.9	90°00.7	
18	304°10.2	4.5'	S 23°12.3	-4.8'	59.6'	92°09.1	95°00.9	66°55.0	9°28.4	36°32.7	43°22.5	90°36.7	
19	318°33.7	4.5'	23° 17.1	-4.7'	59.6'	91°36.6	94°40.4	66°23.5	8°53.6	37°08.7	43°58.0	91°12.7	
20	332°57.2	4.4'	23°21.8	-4.5'	59.6'	91°04.0	94°20.0	65°52.1	8° 18.9	37°44.6	44°33.6	91°48.7	
21	347°20.6	4.4'	23°26.2	-4.3'	59.6'	90°31.5	93°59.5	65°20.7	7°44.4	38°20.6	45°09.1	92°24.7	
22	1°44.0	4.4'	23°30.6	-4.2'	59.6'	89°59.0	93°39.0	64°49.4	7°10.2	38°56.6	45°44.7	93°00.6	
23	16°07.4	4.3'	23°34.7	-4.0'	59.6'	89°26.5	93°18.5	64°18.1	6°36.3	39°32.5	46°20.2	93°36.6	
23 rd	SD =	= 16.3′	Mer. pas	s. 21:53									

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

Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	±Antares	+Spica	+Jupiter	+Mars	+Regulus
0	30°30.7	4.3'	S 23°38.7	-3.8'	59.6'	92°57.9	88°54.0	63°46.9	6°02.9	40°08.5	46°55.8	57°32.3	94°12.5
1	44°54.0	4.3'	23°42.6	-3.7'	59.6'	92°37.4	88°21.5	63°15.7	5°30.0	40°44.4	47°31.3	58°07.1	94°48.4
2	59°17.3	4.3'	23°46.3	-3.5'	59.6'	92°16.9	87°49.0	62°44.6	4°57.9	41°20.4	48°06.9	58°41.9	95°24.4
3	73°40.6	4.2'	23°49.8	-3.3'	59.5'	91°56.3	87°16.5	62°13.6		41°56.3	48°42.4	59°16.6	96°00.3
4	88°03.8	4.2'	23°53.1	-3.2'	59.5'	91°35.8	86°44.1	61°42.6		42°32.2	49°18.0	59°51.4	96°36.2
5	102°27.1	4.2'	23°56.3	-3.0'	59.5'	91°15.2	86°11.6	61°11.7		43°08.1	49°53.5	60°26.1	97°12.0
6	116°50.3	4.2'	S 23°59.3	-2.8'	59.5'	90°54.7	85°39.2	60°40.8		43°44.0	50°29.0	61°00.8	97°47.9
7	131°13.5	4.2'	24°02.1	-2.7'	59.5'	90°34.2	85°06.8	60°10.0		44°19.9	51°04.6	61°35.6	98°23.8
8	145°36.6	4.2'	24°04.8	-2.5'	59.5'	90°13.6	84°34.4	59°39.3		44°55.8	51°40.1	62°10.3	98°59.6
9	159°59.8	4.2'	24°07.3	-2.3'	59.5'	89°53.1	84°02.0	59°08.7		45°31.7	52°15.6	62°45.0	99°35.4
10	174°23.0	4.1'	24°09.6	-2.2'	59.5'	89°32.6	83°29.6	58°38.1		46°07.5	52°51.1	63°19.6	100°11.3
11	188°46.1	4.1'	24°11.8	-2.0'	59.4'	89°12.1	82°57.3	58°07.6		46°43.4	53°26.6	63°54.3	100°47.1
12	203°09.2	4.1'	S 24°13.8	-1.8'	59.4'	88°51.6	82°25.0	57°37.2		47°19.2	54°02.1	64°29.0	101°22.9
13	217°32.4	4.1'	24°15.6	-1.7'	59.4'	88°31.1	81°52.7	57°06.8		47°55.0	54°37.6	65°03.6	101°58.6
14	231°55.5	4.1'	24°17.3	-1.5'	59.4'	88°10.6	81°20.4	56°36.6		48°30.8	55°13.0	65°38.2	102°34.4
15	246°18.7	4.1'	24°18.8	-1.3'	59.4'	87°50.2	80°48.2	56°06.4		49°06.6	55°48.5	66°12.9	103°10.1
16	260°41.8	4.1'	24°20.1	-1.1'	59.4'	87°29.8	80°16.0	55°36.3		49°42.4	56°23.9	66°47.5	103°45.8
17	275°04.9	4.2'	$24^{\circ}21.2$	-1.0'	59.4'	87°09.3	79°43.8	55°06.3		50°18.2	56°59.4	67°22.0	104°21.6
18	289°28.1	4.2'	S 24°22.2	-0.8'	59.3'	86°49.0	79°11.6	54°36.4	5°43.8	50°53.9	57°34.8	67°56.6	104°57.2
19	303°51.3	4.2'	24°23.0	-0.6'	59.3'	86°28.6	78°39.5	54°06.6	6° 16.7	51°29.6	58°10.2	68°31.2	105°32.9
20	318°14.4	4.2'	24°23.7	-0.5'	59.3'	86°08.2	78°07.4	53°36.9	6°50.0	52°05.4	58°45.6	69°05.7	106°08.6
21	332°37.6	4.2'	24°24.1	-0.3'	59.3'	85°47.9	77°35.3	53°07.3	7°23.7	52°41.1	59°21.0	69°40.2	106°44.2
22	347°00.8	4.2'	24°24.4	-0.1'	59.3'	85°27.6	77°03.3	52°37.8	7° 57.7	53°16.7	59°56.3	70°14.7	107° 19.8
23	1°24.0	4.2'	24°24.6	0.0'	59.3'	85°07.4	76°31.3	52°08.4	8°31.9	53°52.4	60°31.7	70°49.2	107°55.4
24 th	SD =	= 16.2'	Mer. pas	s. 22:54	1								

Moon (25th Jun)

Lunar Distance (objects with largest hourly LD delta)

n		ivioon	ı (25°° Ju	n)			Lunar L	distance (or	jects wi	tn largest	nourly L	D deita)	
Mon	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	15°47.3	4.3'	S 24°24.5	0.2'	59.2'	87°12.8	84°47.2	75°59.3	51°39.1	9°06.3	54°28.0	61°07.0	108°31.0
1	30°10.6	4.3'	24°24.3	0.4'	59.2'	86°57.4	84°27.0	75°27.4	51°09.9	9°40.9	55°03.7	61°42.3	109°06.5
2	44°33.8	4.3'	24°24.0	0.5'	59.2'	86°42.1	84°06.8	74°55.5	50°40.8	10°15.5	55°39.3	62°17.6	109°42.1
3	58°57.2	4.3'	24°23.4	0.7'	59.2'	86°26.7	83°46.7	74°23.6	50°11.9	10°50.2	56°14.9	62°52.9	110°17.6
4	73°20.5	4.4'	24°22.7	0.9'	59.2'	86°11.4	83°26.7	73°51.8	49°43.1	11°25.0	56°50.4	63°28.2	110°53.1
5	87°43.9	4.4'	24°21.8	1.0'	59.2'	85°56.1	83°06.6	73°20.0	49°14.4	11°59.9	57°26.0	64°03.4	111°28.5
6	102°07.3	4.4'	S 24°20.8	1.2'	59.1'	85°40.9	82°46.6	72°48.3	48°45.8	12°34.8	58°01.5	64°38.7	112°04.0
7	116°30.8	4.5'	$24^{\circ}19.6$	1.4'	59.1'	85°25.7	82°26.7	72°16.6	48°17.4	13°09.8	58° 37.0	65°13.9	112°39.4
8	130°54.2	4.5'	24°18.2	1.5'	59.1'	85°10.5	82°06.8	71°45.0	47°49.1	13°44.8	59° 12.5	65°49.1	113°14.8
9	145°17.8	4.6'	$24^{\circ}16.7$	1.7'	59.1'	84°55.4	81°46.9	71°13.4	47°20.9	14°19.8	59°47.9	66°24.2	113°50.2
10	159°41.3	4.6'	$24^{\circ}15.0$	1.9'	59.1'	84°40.3	81°27.1	70°41.8	46°52.9	14°54.8	60°23.4	66°59.4	114°25.5
11	174°04.9	4.7'	24°13.1	2.0'	59.0'	84°25.2	81°07.4	70°10.3	46°25.1	15°29.8	60°58.8	67°34.5	115°00.9
12	188°28.6	4.7'	S 24°11.1	2.2'	59.0'	84°10.2	80°47.7	69°38.9	45°57.4	16°04.9	61°34.2	68°09.6	115°36.2
13	202°52.3	4.8'	24°08.9	2.3'	59.0'		80°28.0	69°07.4	45°29.8	16°39.9	62°09.6	68°44.7	116°11.4
14	217°16.1	4.8'	24°06.6	2.5'	59.0'		80°08.5	68°36.1	45°02.4	17°14.9	62°44.9	69°19.7	116°46.7
15	231°39.9	4.9'	$24^{\circ}04.1$	2.7'	59.0'		79°48.9	68°04.8	44°35.2	17°50.0	63°20.2	69°54.8	117°21.9
16	246°03.7	4.9'	$24^{\circ}01.4$	2.8'	58.9'		79°29.5	67°33.5	44°08.2	18°25.0	63°55.5	70°29.8	117°57.1
17	260°27.7	5.0'	23°58.6	3.0'	58.9'		79°10.0	67°02.3	43°41.3	19°00.1	64°30.8	71°04.8	118°32.3
18	274°51.6	5.0'	S 23°55.6	3.1'	58.9'		78°50.7	66°31.2	43°14.6	19°35.1	65°06.0	71°39.7	119°07.4
19	289°15.7	5.1'	23°52.5	3.3'	58.9'		78°31.4	66°00.1	42°48.1	20°10.1	65°41.3	72°14.7	119°42.5
20	303°39.8	5.2'	23°49.2	3.5'	58.8'		78° 12.2	65°29.1	42°21.8	20°45.1	66° 16.5	72°49.6	
21	318°03.9	5.2'	23°45.7	3.6'	58.8'		77°53.0	64°58.2	41°55.7	21°20.1	66°51.6	73°24.5	
22	332°28.1	5.3'	$23^{\circ}42.1$	3.8'	58.8'		77°34.0	64°27.3	41°29.8	21°55.1	67°26.8	73°59.3	
23	346°52.4	5.4'	23°38.3	3.9'	58.8'		77°15.0	63°56.4	41°04.1	22°30.0	68°01.9	74°34.2	
25 th	SD =	= 16.2'	Mer. pass	s. 23:5!	5								

Tue	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Mars
0	1°16.8	5.4'	S 23°34.4	4.1'	58.8'	76°56.0	63°25.7	40°38.6	23°05.0	68°37.0	71°29.2	75°09.0	85°04.2
1	15°41.2	5.5'	23°30.3	4.2'	58.7'	76°37.2	62°55.0	40°13.3	23°39.9	69°12.0	71°56.9	75°43.8	85°38.1
2	30°05.7	5.6'	23°26.1	4.4'	58.7'	76°18.4	62°24.4	39°48.3	24°14.8	69°47.1	72°24.6	76° 18.5	86°11.9
3	44°30.3	5.6'	23°21.8	4.5'	58.7'	75°59.7	61°53.8	39°23.5	24°49.6	70°22.1	72°52.4	76°53.2	86°45.7
4	58°54.9	5.7'	23°17.3	4.7'	58.7'	75°41.1	61°23.3	38°58.9	25°24.5	70°57.0	73°20.1	77°27.9	87°19.5
5	73°19.6	5.8'	23°12.6	4.8'	58.6'	75°22.5	60°52.9	38°34.6	25°59.3	71°32.0	73°47.9	78°02.6	87°53.3
6	87°44.4	5.9'	S 23°07.8	5.0'	58.6'	75°04.0	60°22.6	38°10.5	26°34.1	72°06.9	74°15.7	78°37.2	88°27.0
7	102°09.3	6.0'	23°02.8	5.1'	58.6'	74°45.7	59°52.3	37°46.7	27°08.9	72°41.8	74°43.5	79° 11.9	89°00.7
8	116°34.3	6.0'	22°57.7	5.2'	58.6'	74°27.4	59°22.1	37°23.2	27°43.7	73°16.6	75°11.3	79°46.4	89°34.3
9	130°59.3	6.1'	22°52.5	5.4'	58.5'	74°09.2	58°52.0	36°59.9	28° 18.4	73°51.4	75°39.2	80°21.0	90°08.0
10	145°24.4	6.2'	22°47.1	5.5'	58.5'	73°51.0	58°22.0	36°36.9	28°53.1	74°26.2	76°07.0	80°55.5	90°41.6
11	159°49.6	6.3'	22°41.6	5.7'	58.5'	73°33.0	57°52.0	36°14.2	29°27.8	75°01.0	76°34.9	81°30.0	91°15.1
12	174°14.9	6.4'	S 22°36.0	5.8'	58.4'	73°15.1	57°22.2	35°51.8	30°02.5	75°35.7	77°02.7	82°04.5	91°48.7
13	188°40.3	6.5'	22°30.2	5.9'	58.4'	72°57.3	56°52.4	35°29.7	30°37.1	76°10.4	77°30.6	82°38.9	92°22.2
14	203°05.7	6.5'	22°24.2	6.1'	58.4'	72°39.5	56°22.7	35°08.0	31°11.7	76°45.1	77°58.4	83° 13.3	92°55.6
15	217°31.3	6.6'	22°18.2	6.2'	58.4'	72°21.9	55°53.2	34°46.5	31°46.3	$77^{\circ}19.7$	78°26.3	83°47.6	93°29.1
16	231°56.9	6.7'	22°12.0	6.3'	58.3'	72°04.3	55°23.7	34°25.4	32°20.8	77°54.3	78°54.1	84°22.0	94°02.5
17	246°22.6	6.8'	22°05.7	6.5'	58.3'	71°46.9	54°54.3	34°04.6	32°55.3	78°28.9	79°22.0	84°56.3	94°35.8
18	260°48.4	6.9'	S 21°59.2	6.6'	58.3'	71°29.5	54°25.0	33°44.2	33°29.8	79°03.4	79°49.9	85°30.5	95°09.2
19	275°14.3	7.0'	21°52.6	6.7'	58.3'	71°12.3	53°55.8	33°24.2	34°04.3	79°37.9	80°17.7	86°04.8	95°42.5
20	289°40.3	7.1'	21°45.9	6.8'	58.2'	70°55.2	53°26.6	33°04.5	34°38.7	80°12.4	80°45.5	86°39.0	96°15.8
21	304°06.4	7.2'	$21^{\circ}39.1$	7.0'	58.2'	70°38.1	52°57.6	32°45.2	35°13.1	80°46.8	81°13.4	87° 13.1	96°49.0
22	318°32.6	7.3'	$21^{\circ}32.1$	7.1'	58.2'	70°21.2	52°28.8	32°26.3	35°47.4	81°21.2	81°41.2	87°47.3	97°22.2
23	332°58.9	7.4'	21°25.0	7.2'	58.1'	70°04.4	52°00.0	32°07.8	36°21.8	81°55.6	82°09.0	88°21.4	97°55.3
26 th	SD	= 16.0)′ Mer. pa	ss:-									

h Moon (27th Jun)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Mars
0	347°25.2	7.5'	S 21°17.8	7.3'	58.1'		69°47.7	51°31.3	31°49.7	36°56.1	82°29.9	88°55.4	98°28.5
1	1°51.7	7.6'	$21^{\circ}10.5$	7.4'	58.1'		69°31.1	51°02.7	31°32.0	37°30.3	83°04.2	89°29.4	99°01.6
2	16°18.3	7.7'	21°03.0	7.6'	58.1'		69°14.7	50°34.3	31°14.8	38°04.5	83°38.5	90°03.4	99°34.6
3	30°44.9	7.8'	20°55.5	7.7'	58.0'		68°58.3	50°05.9	30°58.0	38°38.7	84°12.7	90°37.4	100°07.7
4	45°11.7	7.9'	20°47.8	7.8'	58.0'		68°42.1	49°37.7	30°41.6	39°12.9	84°46.9	91°11.3	100°40.6
5	59°38.6	8.0'	20°40.0	7.9'	58.0'		68°26.0	49°09.6	30°25.7	39°47.0	85°21.0	91°45.2	101°13.6
6	74°05.5	8.1'	S 20°32.1	8.0'	57.9'		68°10.0	48°41.7	30° 10.3	40°21.1	85°55.2	92°19.1	101°46.5
7	88°32.6	8.2'	20°24.0	8.1'	57.9'		67°54.1	48°13.8		40°55.2	86°29.3	92°52.9	102°19.4
8	102°59.7	8.3'	20°15.9	8.2'	57.9'	119°43.7	67°38.4	47°46.1		41°29.2	87°03.3	93°26.6	102°52.2
9	117°27.0	8.4'	20°07.7	8.3'	57.9'	$119^{\circ}10.1$	67°22.8	47°18.6		42°03.2	87°37.3	94°00.4	103°25.0
10	131°54.3	8.5'	19°59.3	8.5'	57.8'	118°36.6	67°07.3	46°51.1		42°37.2	88°11.3	94°34.1	103°57.8
11	146°21.8	8.6'	19°50.9	8.6'	57.8'	118°03.1	66°51.9	46°23.8		43°11.1	88°45.2	95°07.8	104°30.5
12	160°49.3	8.7'	S 19°42.3	8.7'	57.8'	117°29.6	66°36.7	45°56.7		43°45.0	89°19.1	95°41.4	105°03.2
13	175°17.0	8.8'	19°33.6	8.8'	57.7'	116°56.2	66°21.6	45°29.7		44°18.8	89°53.0	96°15.0	105°35.9
14	189°44.8	8.9'	19°24.9	8.9'	57.7'	116°22.8		45°02.8		44°52.6	90°26.8	96°48.5	106°08.5
15	204°12.6	9.0'	$19^{\circ}16.0$	9.0'	57.7'	115°49.4		44°36.1		45°26.4	91°00.6	97°22.1	106°41.0
16	218°40.6	9.1'	$19^{\circ}07.1$	9.1'	57.6'	$115^{\circ}16.1$		44°09.6		46°00.2	91°34.4	97°55.5	107°13.6
17	233°08.6	9.2'	18°58.0	9.2'	57.6'	114°42.8		43°43.2		46°33.9	92°08.1	98°29.0	107°46.1
18	247°36.8	9.3'	S 18°48.8	9.2'	57.6'	114°09.6		43°17.0		47°07.5	92°41.8	99°02.4	108°18.5
19	262°05.0	9.4'	18°39.6	9.3'	57.6'	113°36.3		42°51.0		47°41.2	93°15.4	99°35.7	108°51.0
20	276°33.4	9.5'	18°30.3	9.4'	57.5'	113°03.1		42°25.1		48°14.8	93°49.0	100°09.1	109°23.3
21	291°01.9	9.6'	18°20.8	9.5'	57.5'	112°30.0		41°59.4		48°48.3	94°22.6	100°42.4	109°55.7
22	305°30.4	9.7'	$18^{\circ}11.3$	9.6'	57.5'	111°56.9		41°33.9		49°21.8	94°56.1	101°15.6	110°28.0
23	319°59.1	9.8'	18°01.7	9.7'	57.4'	111°23.8		41°08.6		49°55.3	95°29.6	101°48.8	111°00.3
27 th	SD =	= 15.9′	Mer. pass	s. 00:52	2								

h Moon (28th Jun)

Lunar Distance (objects with largest hourly LD delta)

									· J · · · · ·	8			
Thu	GHA	ν	Dec	d	HP	-Aldebaran	-Saturn	-Fomalhaut	+Antares	+Arcturus	+Spica	+Jupiter	+Mars
0	334°27.8	9.9'	S 17°52.0	9.8'	57.4'		110°50.7	40°43.4	50°28.8	93°37.6	96°03.1	102°22.0	111°32.5
1	348°56.7	10.0'	17° 42.2	9.9'	57.4'		110°17.7	40° 18.5	51°02.2	94°04.8	96°36.5	102°55.1	112°04.7
2	3°25.7	10.1'	17° 32.3	9.9'	57.3'		109°44.8	39°53.8	51°35.6	94°31.9	97°09.9	103°28.2	112°36.8
3	17°54.7	10.2'	$17^{\circ}22.4$	10.0'	57.3'		109°11.8	39°29.2	52°08.9	94°59.0	97°43.2	104°01.3	113°08.9
4	32°23.9	10.3'	$17^{\circ}12.4$	10.1'	57.3'		108°38.9	39°04.9	52°42.2	95°26.0	98° 16.5	104°34.3	113°41.0
5	46°53.1	10.4'	$17^{\circ}02.3$	10.2'	57.2'		108°06.1	38° 40.8	53°15.5	95°53.0	98°49.8	105°07.3	114°13.0
6	61°22.5	10.5'	S 16°52.1	10.3'	57.2'		107°33.2	38° 16.9	53°48.7	96°19.9	99°23.0	105°40.2	114°45.0
7	75°51.9	10.5'	$16^{\circ}41.8$	10.3'	57.2'		107°00.4	37°53.3	54°21.9	96°46.8	99°56.2	106°13.1	115°17.0
8	90°21.5	10.6'	$16^{\circ}31.5$	10.4'	57.1'		106°27.7	37°29.8	54°55.0	97°13.7	100°29.3	106°46.0	115°48.9
9	104°51.1	10.7'	$16^{\circ}21.1$	10.5'	57.1'		105°55.0	37°06.6	55°28.1	97°40.5	101°02.4	107°18.8	116°20.7
10	119°20.9	10.8'	$16^{\circ}10.6$	10.6'	57.1'		105°22.3	36°43.7	56°01.2	98°07.3	101°35.5	107°51.6	116°52.6
11	133°50.7	10.9'	$16^{\circ}00.0$	10.6'	57.1'		104°49.7	36°21.0	56°34.3	98°34.0	102°08.5	108°24.3	117°24.4
12	148°20.6	11.0'	S 15°49.4	10.7'	57.0'		104°17.1	35°58.6	57°07.3	99°00.7	102°41.5	108°57.0	117°56.1
13	162°50.7	11.1'	15°38.7	10.8'	57.0'		103°44.5	35°36.4	57°40.2	99°27.3	103°14.5	109°29.7	118°27.8
14	177°20.8	11.2'	15°28.0	10.8'	57.0'		103°12.0	35°14.5	58°13.1	99°53.9	103°47.4	110°02.3	118°59.5
15	191°51.0	11.3'	$15^{\circ}17.1$	10.9'	56.9'		102°39.5	34°52.8	58°46.0	100°20.4	104°20.3	110°34.9	119°31.1
16	206°21.3	11.4'	15°06.3	10.9'	56.9'		102°07.0	34°31.5	59°18.9	100°46.9	104°53.1	111°07.4	
17	220°51.7	11.5'	14°55.3	11.0'	56.9'		101°34.6	34°10.5	59°51.7	101°13.3	105°25.9	111°39.9	
18	235°22.2	11.6'	S 14°44.3	11.1'	56.8'		101°02.2	33°49.7	60°24.4	101°39.7	105°58.7	112°12.4	
19	249°52.8	11.7'	14°33.2	11.1'	56.8'	119°38.7	100°29.9	33°29.3	60°57.2	102°06.0	106°31.4	112°44.8	
20	264°23.5	11.8'	$14^{\circ}22.1$	11.2'	56.8'	119°06.3	99°57.6	33°09.1	61°29.9	102°32.3	107°04.1	113°17.2	
21	278°54.2	11.9'	$14^{\circ}10.9$	11.2'	56.7'	118° 34.0	99°25.3	32°49.3	62°02.5	102°58.5	107°36.7	113°49.5	
22	293°25.1	11.9'	13°59.7	11.3'	56.7'	118°01.7	98°53.1	32° 29.8	62°35.2	103°24.6	108°09.3	114°21.8	
23	307°56.0	12.0'	13°48.4	11.4'	56.7'	117°29.5	98°20.9	32°10.7	63°07.7	103°50.7	108°41.9	114°54.0	
28 th	SD	= 15.7'	Mer. pass	s. 01:46				-					

h Moon (29th Jun)

Fri	GHA	ν	Dec	d	HP	-Rigel	-Capella	-Aldebaran	-Saturn	+Antares	+Arcturus	+Spica	+Jupiter
0	322°27.1	12.1'	S 13°37.0	11.4'	56.7'			116°57.3	97°48.7	63°40.3	104°16.8	109°14.5	115°26.3
1	336°58.2	12.2'	13°25.6	11.5'	56.6'	119°56.5		116°25.1	97°16.6	64°12.8	104°42.8	109°46.9	115°58.4
2	351°29.4	12.3'	13° 14.2	11.5'	56.6'	119°31.0		115°52.9	96°44.5	64°45.3	105°08.7	110°19.4	116°30.6
3	6°00.7	12.4'	13°02.7	11.6'	56.6'	119°05.5		115°20.8	96°12.5	65°17.7	105°34.5	110°51.8	117°02.7
4	20°32.1	12.5'	12°51.1	11.6'	56.5'	118°39.9		114°48.7	95°40.5	65°50.1	106°00.3	111°24.2	117°34.7
5	35°03.5	12.5'	12°39.5	11.6'	56.5'	118°14.3		114°16.7	95°08.5	66°22.4	106°26.1	111°56.5	118°06.7
6	49°35.1	12.6'	S 12°27.9	11.7'	56.5'	117°48.6		113°44.7	94°36.6	66°54.8	106°51.7	112°28.8	118°38.7
7	64°06.7	12.7'	$12^{\circ}16.2$	11.7'	56.4'	117°23.0		113°12.7	94°04.7	67°27.0	107°17.4	113°01.1	119°10.7
8	78°38.4	12.8'	12°04.4	11.8'	56.4'	116°57.3	119°47.3	112°40.8	93°32.8	67°59.3	107°42.9	113°33.3	119°42.6
9	93°10.2	12.9'	$11^{\circ}52.7$	11.8'	56.4'	116°31.5	119°18.1	112°08.9	93°01.0	68°31.5	108°08.4	114°05.5	
10	107°42.0	12.9'	11°40.8	11.9'	56.3'	116°05.8	118°48.9	111°37.0	92°29.2	69°03.7	108°33.8	114°37.7	
11	122°14.0	13.0'	11°29.0	11.9'	56.3'	115°40.0	118°19.7	111°05.2	91°57.5	69°35.8	108°59.1	115°09.8	
12	136°46.0	13.1'	S 11°17.1	11.9'	56.3'	115°14.2	117°50.5	110°33.4	91°25.7	70°07.9	109°24.4	115°41.9	
13	151°18.1	13.2'	$11^{\circ}05.1$	12.0'	56.3'	114°48.4	117°21.3	110°01.6	90°54.1	70°40.0	109°49.6	116°13.9	
14	165°50.3	13.2'	10°53.2	12.0'	56.2'	114°22.6	116°52.2	109°29.9	90°22.4	71°12.0	110°14.8	116°45.9	
15	180°22.5	13.3'	10°41.2	12.0'	56.2'	113°56.7	116°23.0	108°58.2	89°50.8	71°44.0	110°39.8	117°17.9	
16	194°54.8	13.4'	10°29.1	12.1'	56.2'	113°30.8	115°53.8	108°26.5	89°19.2	72°15.9	111°04.8	117°49.8	
17	209°27.2	13.5'	10° 17.0	12.1'	56.1'	113°05.0	115°24.7	107°54.9	88°47.7	72°47.8	111°29.7	118°21.7	
18	223°59.7	13.5'	S 10°04.9	12.1'	56.1'	112°39.1	114°55.5	107°23.3	88°16.2	73°19.7	111°54.6	118°53.6	
19	238°32.2	13.6'	09°52.8	12.2'	56.1'	112°13.1	114°26.4	106°51.7	87°44.8	73°51.6	112°19.3	119°25.4	
20	253°04.9	13.7'	09°40.6	12.2'	56.0'	111°47.2	113°57.3	106°20.2	87°13.3	74°23.4	112°44.0	119°57.2	
21	267°37.5	13.7'	09°28.4	12.2'	56.0'	111°21.3	113°28.2	105°48.7	86°41.9	74°55.1	113°08.7		
22	282°10.3	13.8'	09° 16.2	12.3'	56.0'	110°55.3	112°59.1	105°17.2	86°10.6	75°26.9	113°33.2		
23	296°43.1	13.9'	09°03.9	12.3'	56.0'	110°29.4	112°30.0	104°45.8	85°39.3	75°58.6	113°57.7		
29 th	SD	= 15.5'	Mer. pass	. 02:35									

h Moon (30th Jun)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	311°16.0	13.9'	S 08°51.6	12.3'	55.9'		112°00.9	104°14.4	85°08.0	76°30.3	90°09.8	94°21.3	114°22.1
1	325°48.9	14.0'	08°39.3	12.3'	55.9'		111°31.9	103°43.0	84°36.7	77°01.9	90°34.3	94°45.3	114°46.4
2	340°21.9	14.1'	08°27.0	12.4'	55.9'		111°02.8	103°11.7	84°05.5	77°33.5	90°58.7	95°09.3	115°10.6
3	354°55.0	14.1'	08° 14.7	12.4'	55.8'		110°33.8	102°40.4	83°34.3	78°05.1	91°23.1	95°33.2	115°34.7
4	9°28.1	14.2'	08°02.3	12.4'	55.8'		110°04.8	102°09.1	83°03.2	78°36.6	91°47.5	95°57.1	115°58.8
5	24°01.3	14.3'	07°49.9	12.4'	55.8'		109°35.8	101°37.9	82°32.1	79°08.1	92°11.8	96°20.9	116°22.7
6	38°34.6	14.3'	S 07°37.5	12.4'	55.8'	119°44.9	109°06.8	101°06.7	82°01.0	79°39.5	92°36.1	96°44.7	116°46.6
7	53°07.9	14.4'	07°25.0	12.5'	55.7'	119° 15.1	108°37.8	100°35.5	81°30.0	80°11.0	93°00.4	97°08.4	117°10.4
8	67°41.3	14.4'	$07^{\circ}12.6$	12.5'	55.7'	118°45.4	108°08.9	100°04.4	80°59.0	80°42.4	93°24.6	97°32.2	117°34.1
9	82°14.7	14.5'	$07^{\circ}00.1$	12.5'	55.7'	118° 15.7	107°39.9	99°33.3	80°28.0	81°13.7	93°48.8	97°55.8	117°57.7
10	96°48.2	14.5'	06° 47.6	12.5'	55.7'	117°46.0	107°11.0	99°02.2	79°57.0	81°45.1	94°13.0	$98^{\circ}19.5$	118°21.2
11	111°21.8	14.6'	06°35.1	12.5'	55.6'	117° 16.3	106°42.1	98°31.2	79°26.1	82°16.4	94°37.1	98°43.1	118°44.7
12	125°55.4	14.7'	S 06°22.6	12.5'	55.6'	116°46.6	106°13.2	98°00.2	78°55.3	82°47.6	95°01.2	99°06.6	119°08.0
13	140°29.0	14.7'	$06^{\circ}10.1$	12.5'	55.6'	116°17.0	105°44.3	97°29.2	78°24.4	83°18.9	95°25.3	99°30.1	119°31.2
14	155°02.7	14.8'	05° 57.5	12.6'	55.5'	115°47.3	105°15.5	96°58.2	77°53.6	83°50.1	95°49.3	99°53.6	119°54.4
15	169°36.5	14.8'	05°45.0	12.6'	55.5'	115° 17.7	104°46.6	96°27.3	77°22.8	84°21.2	96°13.3	$100^{\circ}17.0$	
16	184°10.3	14.9'	05°32.4	12.6'	55.5'	114°48.1	104°17.8	95°56.4	76°52.1	84°52.4	96°37.3	100°40.3	
17	198°44.2	14.9'	$05^{\circ}19.8$	12.6'	55.5'	114° 18.5	103°49.0	95°25.6	76°21.4	85°23.5	97°01.2	101°03.7	
18	213°18.1	15.0'	S 05°07.2	12.6'	55.4'	113°49.0	103°20.3	94°54.8	75°50.7	85°54.5	97°25.1	101°26.9	
19	227°52.0	15.0'	04°54.6	12.6'	55.4'	113° 19.4	102°51.5	94°24.0	75°20.0	86°25.6	97°48.9	101°50.2	
20	242°26.0	15.0'	04°42.0	12.6'	55.4'	112°49.9	102°22.8	93°53.2	74°49.4	86°56.6	98°12.7	102°13.3	
21	257°00.1	15.1'	04°29.4	12.6'	55.4'	112°20.4	101°54.0	93°22.5	74°18.8	87°27.6	98°36.5	102°36.4	
22	271°34.2	15.1'	04° 16.8	12.6'	55.3'	111°50.9	101°25.3	92°51.8	73°48.2	87°58.5	99°00.2	102°59.5	
23	286°08.3	15.2'	04°04.2	12.6'	55.3'	111°21.4	100°56.7	92°21.1	73°17.7	88°29.4	99°23.9	103°22.5	
30 th	SD	$=15.3^{\prime}$	Mer. pass	. 03:21									

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

		IVIOO	ıı (ı Jui)			Lunar D	istance (or	Jects wi	tilliarges	t nourly L	D delta)	
Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	300°42.5	15.2'	S 03°51.5	12.6'	55.3'	110°52.0	100°28.0	91°50.4	72°47.2	42°25.0	89°00.3	99° 47.5	103°45.5
1	315°16.7	15.3'	03°38.9	12.6'	55.3'	110°22.5	99°59.4	91°19.8	72°16.8	42°48.1	89°31.2	100°11.1	104°08.4
2	329°50.9	15.3'	03°26.3	12.6'	55.2'	109°53.1	99°30.8	90°49.2	71°46.3	43°11.2	90°02.0	100°34.7	104°31.3
3	344°25.2	15.3'	$03^{\circ}13.6$	12.6'	55.2'	109°23.7	99°02.2	90°18.7	71°15.9	43°34.5	90°32.8	100°58.2	104°54.1
4	358°59.6	15.4'	$03^{\circ}01.0$	12.6'	55.2'	108°54.3	98°33.6	89°48.2	70°45.5	43°57.9	91°03.6	101°21.7	105°16.9
5	13°33.9	15.4'	02°48.4	12.6'	55.2'	108°24.9	98°05.0	89° 17.7	70°15.2	44°21.4	91°34.4	101°45.1	105°39.6
6	28°08.3	15.4'	S 02°35.7	12.6'	55.2'	107°55.6	97°36.5	88°47.2	69°44.8	44°45.0	92°05.1	102°08.5	106°02.2
7	42°42.8	15.5'	$02^{\circ}23.1$	12.6'	55.1'	107°26.3	97°08.0	88° 16.7	69°14.6	45°08.7	92°35.8	102°31.8	106°24.8
8	57°17.2	15.5'	$02^{\circ}10.5$	12.6'	55.1'	106°57.0	96°39.5	87°46.3	68°44.3	45°32.4	93°06.4	102°55.1	106°47.3
9	71°51.7	15.5'	$01^{\circ}57.8$	12.6'	55.1'	106° 27.7	96°11.0	87° 15.9	68°14.1	45°56.3	93°37.1	103° 18.3	107°09.8
10	86°26.3	15.6'	01°45.2	12.6'	55.1'	105°58.4	95°42.5	86°45.6	67°43.8	46°20.2	94°07.7	103°41.5	107°32.2
11	101°00.8	15.6'	01°32.6	12.6'	55.0'	105°29.1	95°14.1	86° 15.2	67°13.7	46°44.2	94°38.3	104°04.7	107°54.6
12	115°35.4	15.6'	S 01°20.0	12.6'	55.0'	104°59.9	94°45.7	85°44.9	66°43.5	47°08.3	95°08.8	104°27.8	108°16.9
13	130°10.1	15.7'	$01^{\circ}07.4$	12.6'	55.0'	104°30.7	94°17.3	85° 14.6	66°13.4	47°32.4	95°39.4	104°50.8	108°39.1
14	144°44.7	15.7'	00°54.8	12.6'	55.0'	104°01.5	93°48.9	84°44.4	65°43.3	47°56.7	96°09.9	105° 13.8	109°01.3
15	159°19.4	15.7'	00°42.2	12.6'	55.0'	103°32.3	93°20.6	84°14.1	65°13.2	48°21.0	96°40.4	105°36.7	109°23.4
16	173°54.1	15.7'	00°29.6	12.6'	54.9'	103°03.1	92°52.2	83°43.9	64°43.2	48°45.4	97°10.8	105°59.6	109°45.5
17	188°28.8	15.7'	00°17.0	12.6'	54.9'	102°34.0	92°23.9	83° 13.7	64°13.1	49°09.8	97°41.2	106°22.5	110°07.4
18	203°03.6	15.8'	S 00°04.4	12.6'	54.9'	102°04.9	91°55.7	82°43.6	63°43.1	49°34.3	98°11.6	106°45.2	110°29.4
19	217°38.3	15.8'	N 00°08.2	12.6'	54.9'	101°35.8	91°27.4	82°13.4	63°13.2	49°58.8	98°42.0	107°08.0	110°51.2
20	232°13.1	15.8'	00°20.7	12.5'	54.9'	101°06.7	90°59.1	81°43.3	62°43.2	50°23.5	99°12.4	107°30.6	111°13.0
21	246°47.9	15.8'	00°33.3	12.5'	54.8'	100°37.6	90°30.9	81°13.2	62°13.3	50°48.1	99°42.7	107°53.3	111°34.7
22	261°22.8	15.9'	00°45.8	12.5'	54.8'	100°08.6	90°02.7	80°43.2	61°43.4	51°12.9	100°13.0	108° 15.8	111°56.4
23	275°57.6	15.9'	00°58.3	12.5'	54.8'	99°39.5	89°34.5	80°13.1	61°13.5	51°37.7	100°43.3	108°38.3	112°17.9
1 st	SD	$=15.1^{\prime}$	Mer. pass	. 04:04									

h		Моо	n (2 nd Ju	I)			Lunar D	istance (o	bjects wi	th larges	st hourly I	D delta)	
Mon	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	290°32.5	15.9'	N 01°10.8	12.5'	54.8'	99° 10.5	89°06.4	79°43.1	60°43.7	52°02.5	101°13.6	109°00.8	112°39.4
1	305°07.4	15.9'	01°23.3	12.5'	54.8'	98°41.5	88°38.2	79°13.1	60°13.9	52°27.4	101°43.8	109°23.2	113°00.9
2	319°42.3	15.9'	01°35.8	12.5'	54.7'	98° 12.5	88°10.1	78°43.2	59°44.1	52°52.3	102°14.1	109°45.5	113°22.3
3	334°17.2	15.9'	01°48.3	12.4'	54.7'	97°43.6	87°42.0	78°13.2	59°14.3	53°17.3	102°44.3	110°07.8	113°43.5
4	348°52.1	15.9'	02°00.7	12.4'	54.7'	97° 14.6	87°14.0	77°43.3	58°44.5	53°42.3	103°14.4	110°30.0	114°04.8
5	3°27.1	15.9'	$02^{\circ}13.1$	12.4'	54.7'	96° 45.7	86°45.9	77°13.4	58°14.8	54°07.4	103°44.6	110°52.2	114°25.9
6	18°02.0	16.0'	N 02°25.6	12.4'	54.7'	96° 16.8	86° 17.9	76°43.5	57°45.1	54°32.5	104°14.7	111°14.3	114°47.0
7	32°37.0	16.0'	02°37.9	12.4'	54.7'	95° 47.9	85°49.9	76°13.6	57°15.4	54°57.6	104°44.9	111°36.3	115°08.0
8	47°11.9	16.0'	02°50.3	12.4'	54.6'	95° 19.0	85°21.9	75°43.8	56°45.7	55°22.8	105°15.0	111°58.3	115°28.9
9	61°46.9	16.0'	03°02.7	12.3'	54.6'	94°50.1	84°53.9	75°14.0	56°16.1	55°48.1	105°45.0	112°20.2	115°49.7
10	76°21.9	16.0'	03°15.0	12.3'	54.6'	94°21.3	84°25.9	74°44.2	55°46.5	56°13.3	$106^{\circ}15.1$	112°42.0	116° 10.5
11	90°56.9	16.0'	03°27.3	12.3'	54.6'	93°52.4	83°58.0	74°14.4	55°16.9	56°38.6	106°45.1	113°03.8	116°31.2
12	105°31.9	16.0'	N03°39.6	12.3'	54.6'	93°23.6	83°30.1	73°44.6	54°47.3	57°04.0	107°15.2	113°25.5	116°51.7
13	120°06.9	16.0'	03°51.9	12.3'	54.6'	92° 54.8	83°02.2	73°14.9	54°17.7	57° 29.3	107°45.2	113°47.1	117° 12.3
14	134°41.9	16.0'	04°04.2	12.2'	54.5'	92°26.1	82°34.4	72°45.1	53°48.2	57°54.7	108°15.2	114°08.7	117°32.7
15	149°16.9	16.0'	04°16.4	12.2'	54.5'	91°57.3	82°06.5	72°15.4	53°18.7	58° 20.2	108°45.1	114°30.2	117°53.0
16	163°51.9	16.0'	04°28.6	12.2'	54.5'	91°28.5	81°38.7	71°45.7	52°49.2	58°45.6	109°15.1	114°51.6	118°13.3
17	178°26.9	16.0'	04°40.8	12.2'	54.5'	90°59.8	81°10.9	71°16.1	52°19.7	59°11.1	109°45.0	115°13.0	118°33.4
18	193°01.9	16.0'	N 04°53.0	12.1'	54.5'	90°31.1	80°43.1	70°46.4	51°50.2	59°36.6	110°14.9	115°34.2	118°53.5
19	207°36.9	16.0'	$05^{\circ}05.1$	12.1'	54.5'	90°02.4	80° 15.3	70°16.8	51°20.8	60°02.2	110°44.8	115°55.5	119°13.5
20	222°11.9	16.0'	$05^{\circ}17.2$	12.1'	54.5'	89°33.7	79°47.6	69°47.2	50°51.4	60°27.8	111°14.7	116°16.6	119°33.4
21	236°46.9	16.0'	$05^{\circ}29.3$	12.1'	54.4'	89°05.0	79° 19.9	69°17.6	50°21.9	60°53.4	111°44.6	116°37.7	119°53.2
22	251°21.8	16.0'	05°41.4	12.0'	54.4'	88° 36.3	78°52.2	68°48.0	49°52.6	61°19.0	112°14.4	116°58.6	
23	265°56.8	16.0'	05°53.4	12.0'	54.4'	88°07.7	78°24.5	68°18.4	49°23.2	61°44.7	112°44.3	117°19.6	
2 nd	SD	= 14.9'	Mer. pass	. 04:46			·			·			

h Moon (3rd Jul)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	280°31.8	16.0'	N 06°05.4	12.0'	54.4'	87°39.1	77°56.8	67°48.9	48°53.8	38°42.9	62°10.3	113°14.1	117°40.4
1	295°06.8	16.0'	$06^{\circ}17.4$	11.9'	54.4'	87° 10.5	77°29.2	67°19.3	48°24.5	39°04.5	62°36.0	113°43.9	118°01.1
2	309°41.7	15.9'	06°29.3	11.9'	54.4'	86°41.8	77°01.6	66°49.8	47°55.2	39°26.3	63°01.8	114° 13.7	118°21.8
3	324°16.7	15.9'	06°41.2	11.9'	54.4'	86°13.3	76°34.0	66°20.3	47°25.9	39°48.2	63°27.5	114°43.5	118°42.4
4	338°51.6	15.9'	$06^{\circ}53.1$	11.9'	54.4'	85°44.7	76°06.4	65°50.8	46°56.6	40°10.2	63°53.3	115°13.3	119°02.9
5	353°26.5	15.9'	$07^{\circ}05.0$	11.8'	54.4'	85° 16.1	75°38.9	65°21.4	46°27.3	40°32.3	64° 19.1	115°43.0	119°23.3
6	8°01.5	15.9'	$N07^{\circ}16.8$	11.8'	54.3'	84°47.6	75°11.3	64°51.9	45°58.1	40°54.6	64°44.9	116°12.8	119°43.7
7	22°36.4	15.9'	07°28.6	11.8'	54.3'	84° 19.0	74°43.8	64°22.5	45°28.9	41°17.0	65° 10.7	116°42.5	
8	37°11.2	15.9'	07°40.3	11.7'	54.3'	83° 50.5	74°16.3	63°53.0	44°59.6	41°39.5	65°36.6	117° 12.3	
9	51°46.1	15.9'	$07^{\circ}52.1$	11.7'	54.3'	83°22.0	73°48.9	63°23.6	44°30.4	42°02.1	66°02.5	117°42.0	
10	66°21.0	15.8'	08°03.7	11.7'	54.3'	82°53.5	73°21.4	62°54.2	44°01.2	42°24.9	66°28.3	118°11.7	
11	80°55.8	15.8'	$08^{\circ}15.4$	11.6'	54.3'	82°25.0	72°54.0	62°24.8	43°32.1	42°47.7	66°54.3	118°41.4	
12	95°30.6	15.8'	N 08°27.0	11.6'	54.3'	81°56.5	72°26.6	61°55.4	43°02.9	43°10.7	67°20.2	119°11.0	
13	110°05.4	15.8'	08°38.6	11.5'	54.3'	81°28.1	71°59.2	61°26.1	42°33.8	43°33.7	67°46.1	119°40.7	
14	124°40.2	15.8'	$08^{\circ}50.1$	11.5'	54.3'	80° 59.6	71°31.8	60°56.7	42°04.7	43°56.9	68° 12.1		
15	139°15.0	15.7'	$09^{\circ}01.7$	11.5'	54.3'	80°31.2	71°04.5	60°27.4	41°35.5	44°20.1	68°38.1		
16	153°49.7	15.7'	$09^{\circ}13.1$	11.4'	54.3'	80°02.8	70°37.1	59°58.0	41°06.4	44°43.4	69°04.0		
17	168°24.4	15.7'	09°24.6	11.4'	54.3'	79°34.3	70°09.8	59°28.7	40°37.4	45°06.9	69°30.1		
18	182°59.1	15.7'	N09°35.9	11.4'	54.2'	79°05.9	69°42.5	58°59.4	40°08.3	45°30.4	69°56.1		
19	197°33.8	15.6'	09°47.3	11.3'	54.2'	78° 37.5	69°15.3	58°30.1	39°39.2	45°54.0	70°22.1		
20	212°08.4	15.6'	09°58.6	11.3'	54.2'	78° 09.2	68°48.0	58°00.8	39°10.2	46°17.7	70°48.2		
21	226°43.1	15.6'	$10^{\circ}09.9$	11.2'	54.2'	77° 40.8	68° 20.8	57°31.6	38°41.2	46°41.5	71°14.2		
22	241°17.7	15.6'	$10^{\circ}21.1$	11.2'	54.2'	77° 12.4	67°53.6	57°02.3	38°12.2	47°05.3	71°40.3		
23	255°52.2	15.5'	10°32.3	11.1'	54.2'	76°44.1	67°26.5	56°33.0	37°43.2	47°29.3	72°06.4		
3 rd	SD	$=14.8^{\prime}$	Mer. pass	. 05:27									

h Moon (4th Jul)

on (4th Jul) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Betelgeuse	-Rigel	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	270°26.7	15.5'	N 10°43.4	11.1'	54.2'	87°15.3	76°15.7	69°25.7	66° 59.3	56°03.8	37°14.2	47°53.3	72°32.5
1	285°01.3	15.5'	10°54.5	11.1'	54.2'	86°48.0	75°47.4	69°01.5	66°32.2	55°34.6	36°45.2	48°17.4	72°58.6
2	299°35.7	15.4'	11°05.6	11.0'	54.2'	86°20.8	75°19.1	68° 37.3	66°05.1	55°05.3	36°16.3	48°41.5	73°24.8
3	314°10.2	15.4'	$11^{\circ}16.6$	11.0'	54.2'	85°53.6	74°50.8	68° 13.1	65°38.0	54°36.1	35°47.3	49°05.8	73°50.9
4	328°44.6	15.4'	11°27.6	10.9'	54.2'	85°26.3	74°22.5	67°49.0	65° 10.9	54°06.9	35°18.4	49°30.1	74°17.1
5	343°19.0	15.3'	11°38.5	10.9'	54.2'	84°59.1	73°54.2	67°24.9	64°43.9	53°37.7	34°49.5	49°54.4	74°43.3
6	357°53.3	15.3'	N11°49.4	10.8'	54.2'	84°31.9	73°25.9	67°00.9	64°16.8	53°08.5	34°20.6	50°18.9	75°09.5
7	12°27.6	15.3'	12°00.2	10.8'	54.2'	84°04.6	72°57.6	66°36.9	63°49.8	52°39.3	33°51.7	50°43.4	75°35.7
8	27°01.9	15.2'	12°11.0	10.7'	54.2'	83°37.4	72°29.4	66°13.0	63°22.9	52°10.1	33°22.8	51°07.9	76°01.9
9	41°36.1	15.2'	12°21.7	10.7'	54.2'	83°10.2	72°01.1	65°49.0	62°55.9	51°41.0	32°53.9	51°32.6	76°28.1
10	56°10.3	15.2'	12°32.4	10.6'	54.2'	82°43.0	71°32.9	65°25.2	62°29.0	51°11.8	32°25.1	51°57.3	76°54.3
11	70°44.5	15.1'	12°43.0	10.6'	54.2'	82°15.8	71°04.6	65°01.3	62°02.1	50°42.6	31°56.3	52°22.0	77°20.6
12	85°18.6	15.1'	N12°53.6	10.5'	54.2'	81°48.6	70°36.4	64°37.6	61°35.2	50°13.5	31°27.5	52°46.8	77°46.8
13	99°52.7	15.0'	13°04.1	10.5'	54.2'	81°21.4	70°08.2	64°13.8	61°08.4	49°44.4	30°58.7	53°11.7	78°13.1
14	114°26.8	15.0'	13°14.6	10.4'	54.2'	80°54.1	69°40.0	63°50.1	60°41.5	49°15.2	30°29.9	53°36.6	78°39.4
15	129°00.8	15.0'	13°25.1	10.4'	54.2'	80°26.9	69°11.8	63°26.4	60°14.7	48°46.1	30°01.1	54°01.5	79°05.7
16	143°34.7	14.9'	13°35.4	10.3'	54.2'	79°59.7	68°43.6	63°02.8	59°48.0	48°17.0	29°32.4	54°26.6	79°32.0
17	158°08.6	14.9'	13°45.7	10.3'	54.2'	79°32.5	68°15.4	62°39.3	59°21.2	47°47.9	29°03.6	54°51.6	79°58.3
18	172°42.5	14.8'	N13°56.0	10.2'	54.2'	79°05.3	67°47.2	62°15.8	58° 54.5	47°18.7	28°34.9	55°16.8	80°24.6
19	187°16.4	14.8'	14°06.2	10.2'	54.2'	78°38.1	67°19.0	61°52.3	58° 27.8	46°49.6	28°06.2	55°41.9	80°50.9
20	201°50.1	14.7'	14°16.4	10.1'	54.2'	78°10.8	66°50.9	61°28.9	58°01.1	46°20.5	27°37.6	56°07.2	81°17.3
21	216°23.9	14.7'	14°26.5	10.0'	54.2'	77°43.6	66°22.7	61°05.5	57° 34.5	45°51.5	27°08.9	56°32.4	81°43.6
22	230°57.6	14.7'	14°36.5	10.0'	54.2'	77°16.4	65°54.6	60°42.2	57° 07.9	45°22.4	26°40.3	56°57.8	82°10.0
23	245°31.2	14.6'	14°46.5	9.9'	54.2'	76°49.2	65°26.4	60° 18.9	56°41.3	44°53.3	26°11.6	57°23.1	82°36.4
4 th	SD	= 14.8'	Mer. pass	. 06:09					Sun SI	D = 15.7'			

h Moon (5th Jul)

			(/							· · · · · ·	,	
Thu	GHA	ν	Dec	d	HP	-Sun	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	260°04.8	14.6'	N 14°56.4	9.9'	54.2'	76°21.9	64°58.3	56°14.7	44°24.2	25°43.1	57°48.5		83°02.8
1	274°38.4	14.5'	15°06.3	9.8'	54.2'	75°54.7	64°30.2	55°48.2	43°55.1	25°14.5	58°14.0		83°29.1
2	289°11.9	14.5'	$15^{\circ}16.1$	9.7'	54.2'	75°27.5	64°02.1	55°21.7	43°26.1	24°45.9	58°39.5		83°55.6
3	303°45.4	14.4'	15°25.8	9.7'	54.2'	75°00.2	63°34.0	54°55.3	42°57.0	24°17.4	59°05.1		84°22.0
4	318°18.8	14.4'	15°35.5	9.6'	54.2'	74°33.0	63°05.9	54°28.8	42°28.0	23°48.9	59°30.6		84°48.4
5	332°52.1	14.3'	$15^{\circ}45.1$	9.6'	54.2'	74°05.7	62°37.8	54°02.4	41°58.9	23°20.5	59°56.3		85°14.8
6	347°25.4	14.3'	N15°54.7	9.5'	54.2'	73°38.5	62°09.7	53°36.1	41°29.9	22°52.1	60°22.0		85°41.3
7	1°58.7	14.2'	$16^{\circ}04.2$	9.4'	54.2'	73°11.2	61°41.6	53°09.7	41°00.9	22°23.7	60°47.7		86°07.7
8	16°31.9	14.2'	$16^{\circ}13.6$	9.4'	54.2'	72°44.0	61°13.6	52°43.5	40°31.8	21°55.3	61°13.4		86°34.2
9	31°05.1	14.1'	16°23.0	9.3'	54.2'	72°16.7	60°45.5	52°17.2	40°02.8	21°27.0	61°39.2		87°00.6
10	45°38.2	14.0'	16°32.3	9.2'	54.2'	71°49.4	60°17.5	51°51.0	39°33.8	20°58.7	62°05.1		87°27.1
11	60°11.2	14.0'	16°41.5	9.2'	54.2'	71°22.1	59°49.4	51°24.8	39°04.8	20°30.5	62°30.9		87°53.6
12	74°44.2	13.9'	$N16^{\circ}50.7$	9.1'	54.2'	70°54.8	59°21.4	50°58.7	38°35.8	20°02.3	62°56.8		88°20.1
13	89°17.1	13.9'	$16^{\circ}59.8$	9.0'	54.2'	70°27.5	58° 53.4	50°32.5	38°06.8	19°34.2	63°22.8		88°46.6
14	103°50.0	13.8'	17°08.8	9.0'	54.2'	70°00.2	58°25.4	50°06.5	37°37.8	19°06.1	63°48.8		89°13.1
15	118°22.8	13.8'	$17^{\circ}17.8$	8.9'	54.2'	69°32.9	57° 57.4	49°40.5	37°08.8	18°38.1	64°14.8		89°39.6
16	132°55.6	13.7'	17°26.7	8.8'	54.3'	69°05.5	57°29.4	49°14.5	36°39.9	18°10.1	64°40.9		90°06.1
17	147°28.3	13.6'	17°35.5	8.7'	54.3'	68°38.2	57°01.4	48°48.6	36°10.9	17°42.2	65°07.0		90°32.7
18	162°00.9	13.6'	N17°44.3	8.7'	54.3'	68°10.9	56° 33.5	48°22.7	35°41.9	17°14.4	65°33.1		90°59.2
19	176°33.5	13.5'	$17^{\circ}52.9$	8.6'	54.3'	67°43.5	56°05.5	47°56.8	35°13.0	16°46.7	65°59.3		91°25.8
20	191°06.1	13.5'	$18^{\circ}01.5$	8.5'	54.3'	67°16.1	55° 37.5	47°31.0	34°44.0	16°19.1	66°25.5		91°52.3
21	205°38.5	13.4'	$18^{\circ}10.1$	8.5'	54.3'	66°48.8	55°09.6	47°05.3	34°15.1	15°51.5	66°51.7	72° 15.7	92°18.9
22	220°10.9	13.4'	18° 18.5	8.4'	54.3'	66°21.4	54°41.7	46°39.6	33°46.2	15°24.1	67°18.0	72°30.8	92°45.5
23	234°43.3	13.3'	18°26.9	8.3'	54.3'	65°54.0	54°13.8	46°14.0	33°17.3	14°56.8	67°44.3	72°46.0	93°12.0
5 th	SD	= 14.8'	Mer. pass.	06:52					Sun SD :	= 15.7′			

h Moon (6th Jul)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sun	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	249°15.6	13.2'	N 18°35.2	8.2'	54.3'	65°26.6	53°45.9	45°48.4	32°48.4	14°29.6	68° 10.6	73°01.3	93°38.6
1	263°47.8	13.2'	18°43.4	8.2'	54.3'	64°59.1	53°18.0	45°22.9	32°19.5	14°02.6	68° 37.0	73°16.6	94°05.2
2	278°20.0	13.1'	18°51.6	8.1'	54.3'	64°31.7	52°50.1	44°57.4	31°50.6	13°35.7	69°03.4	73°31.9	94°31.8
3	292°52.1	13.0'	18°59.7	8.0'	54.3'	64°04.2	52°22.2	44°32.0	31°21.8	13°09.0	69°29.8	73°47.4	94°58.4
4	307°24.1	13.0'	19°07.7	7.9'	54.4'	63°36.8	51°54.4	44°06.6	30°53.0	12°42.5	69°56.3	74°02.9	95°25.1
5	321°56.1	12.9'	19°15.6	7.8'	54.4'	63°09.3	51°26.5	43°41.3	30°24.1	12°16.3	70°22.8	74°18.4	95°51.7
6	336°28.0	12.9'	N19°23.4	7.8'	54.4'	62°41.8	50°58.7	43°16.1	29°55.3	11°50.3	70°49.4	74°34.0	96°18.3
7	350°59.9	12.8'	19°31.2	7.7'	54.4'	62°14.3	50°30.9	42°51.0	29°26.5	11°24.5	71°15.9	74°49.7	96°44.9
8	5°31.7	12.7'	19°38.8	7.6'	54.4'	61°46.8	50°03.1	42°25.9	28°57.8	10°59.1	71°42.5	75°05.5	97°11.6
9	20°03.4	12.7'	19°46.4	7.5'	54.4'	61°19.3	49°35.3	42°00.9	28°29.0	10°34.0	72°09.1	75°21.3	97°38.2
10	34°35.1	12.6'	19°53.9	7.4'	54.4'	60°51.7	49°07.6	41°36.0	28°00.3	10°09.3	72°35.8	75°37.1	98°04.9
11	49°06.7	12.5'	20°01.3	7.3'	54.4'	60°24.2	48°39.8	41°11.1	27°31.6	9°45.1	73°02.5	75°53.0	98°31.5
12	63°38.2	12.5'	N 20°08.7	7.2'	54.4'	59°56.6	48°12.1	40°46.3	27°02.9	9°21.3	73°29.2	76°09.0	98°58.2
13	78°09.7	12.4'	$20^{\circ}15.9$	7.2'	54.5'	59°29.0	47°44.4	40°21.6	26°34.3	8°58.2	73°55.9	76°25.0	99°24.9
14	92°41.1	12.3'	20°23.1	7.1'	54.5'	59°01.4	47°16.7	39°57.0	26°05.7	8°35.7	74° 22.7	76°41.1	99°51.6
15	107°12.5	12.3'	20°30.1	7.0'	54.5'	58°33.8	46°49.0	39°32.5	25°37.1	8°14.0	74°49.5	76°57.2	100°18.2
16	121°43.7	12.2'	20°37.1	6.9'	54.5'	58°06.1	46°21.4	39°08.1	25°08.6	7°53.1	75°16.4	77°13.4	100°44.9
17	136°15.0	12.2'	20°44.0	6.8'	54.5'	57° 38.5	45°53.8	38°43.8	24°40.1		75°43.2	77°29.6	101°11.6
18	150°46.1	12.1'	N 20°50.8	6.7'	54.5'	57° 10.8	45°26.2	38°19.6	24°11.6		76°10.1	77°45.9	101°38.3
19	165°17.2	12.0'	20°57.5	6.6'	54.5'	56°43.1	44°58.6	37°55.4	23°43.2		76°37.0	78°02.2	102°05.0
20	179°48.2	12.0'	$21^{\circ}04.1$	6.5'	54.6'	56° 15.4	44°31.1	37°31.4	23°14.8		77°04.0	78°18.6	102°31.7
21	194°19.2	11.9'	$21^{\circ}10.7$	6.4'	54.6'	55° 47.7	44°03.6	37°07.5	22°46.5		77°31.0	78°35.0	102°58.4
22	208°50.1	11.8'	21°17.1	6.3'	54.6'	55°20.0	43°36.1	36°43.7	22°18.2		77°58.0	78°51.5	103°25.1
23	223°20.9	11.8'	21°23.4	6.2'	54.6'	54°52.2	43°08.6	36°20.1	21°50.0		78°25.0	79°08.0	103°51.8
6 th	SD	= 14.8'	Mer. pass	. 07:37					Sun SD	= 15.7'			

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

			((objects men algest meanly 12 denta)				
Sat	GHA	ν	Dec	d	HP	-Sun	-Betelgeuse	-Capella	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	237°51.7	11.7'	N 21°29.7	6.1'	54.6'	54°24.4	42°41.2	35°56.5	21°21.9		78°52.1	79°24.5	104°18.6
1	252°22.4	11.6'	21°35.8	6.1'	54.6'	53°56.6	42°13.8	35°33.1	20°53.9		79° 19.1	79°41.1	104°45.3
2	266°53.0	11.6'	21°41.9	6.0'	54.6'	53°28.8	41°46.4	35°09.8	20°25.9		79°46.3	79°57.8	105°12.0
3	281°23.6	11.5'	21°47.8	5.9'	54.7'	53°01.0	41°19.1	34°46.7	19°58.0		80°13.4	80°14.5	105°38.7
4	295°54.1	11.4'	21°53.7	5.8'	54.7'	52°33.1	40°51.8	34°23.7	19°30.2		80°40.6	80°31.2	106°05.4
5	310°24.5	11.4'	$21^{\circ}59.4$	5.7'	54.7'	52°05.2	40°24.6	34°00.9	19°02.5		81°07.8	80°48.0	106°32.1
6	324°54.9	11.3'	N22°05.1	5.6'	54.7'	51°37.3	39°57.4	33°38.2	18° 34.9		81°35.0	81°04.8	106°58.9
7	339°25.2	11.2'	22°10.6	5.5'	54.7'	51°09.4	39°30.2	33°15.7	18°07.4		82°02.2	81°21.7	107°25.6
8	353°55.4	11.2'	$22^{\circ}16.1$	5.4'	54.7'	50°41.5	39°03.1	32°53.3	17°40.1		82°29.5	81°38.6	107°52.3
9	8°25.6	11.1'	22°21.4	5.2'	54.8'	50°13.5	38°36.1	32°31.1	17° 12.9		82° 56.8	81°55.5	108°19.0
10	22°55.7	11.1'	22°26.7	5.1'	54.8'	49°45.6	38°09.0	32°09.1	16°45.8		83°24.1	82°12.5	108°45.8
11	37°25.8	11.0'	22°31.8	5.0'	54.8'	49°17.6	37°42.1	31°47.3	16° 18.9		83°51.5	82°29.5	109°12.5
12	51°55.8	10.9'	N22°36.9	4.9'	54.8'	48°49.5	37°15.2	31°25.7	15°52.2		84°18.8	82°46.6	109°39.2
13	66°25.7	10.9'	22°41.8	4.8'	54.8'	48°21.5	36°48.3	31°04.3	15°25.8		84°46.2	83°03.6	110°05.9
14	80°55.5	10.8'	22°46.6	4.7'	54.8'	47°53.4	36°21.5	30°43.1	14°59.5		85° 13.7	83°20.8	110°32.6
15	95°25.3	10.7'	22°51.4	4.6'	54.9'	47°25.3	35°54.8	30°22.1	14°33.5		85°41.1	83°37.9	110°59.3
16	109°55.1	10.7'	22°56.0	4.5'	54.9'	46°57.2	35°28.1	30°01.4	14°07.7	8°43.4	86°08.6	83°55.1	111°26.0
17	124°24.8	10.6'	23°00.5	4.4'	54.9'	46°29.1	35°01.6	29°40.9	13°42.3	9°06.5	86°36.1	84°12.3	111°52.7
18	138°54.4	10.6'	N 23°04.9	4.3'	54.9'	46°00.9	34°35.0	29°20.6	13° 17.2	9°30.4	87°03.6	84°29.6	112°19.4
19	153°23.9	10.5'	23°09.2	4.2'	54.9'	45°32.8	34°08.6	29°00.6	12°52.4	9°54.8	87°31.2	84°46.9	112°46.1
20	167°53.4	10.4'	23°13.3	4.1'	55.0'	45°04.6	33°42.3	28°40.9	12°28.1	10° 19.8	87°58.7	85°04.2	113°12.8
21	182°22.9	10.4'	23°17.4	4.0'	55.0'	44°36.3	33°16.0	28°21.4	12°04.2	10°45.2	88° 26.3	85°21.5	113°39.5
22	196°52.2	10.3'	$23^{\circ}21.3$	3.8'	55.0'	44°08.1	32°49.8	28°02.3	11°40.8	11°11.1	88° 53.9	85°38.9	114°06.1
23	211°21.6	10.3'	23°25.2	3.7'	55.0'	43°39.8	32°23.7	27°43.4	11° 17.9	11°37.4	89°21.6	85°56.3	114°32.8
7 th	sb $SD = 14.9'$ Mer. pass. 08:25					Sun SD = 15.7'							

h		Моо	n (8 th Jul)			Luna	r Distance	(objects wi	th largest	t hourly l	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Sirius	-Sun	-Betelgeuse	-Aldebaran	+Saturn	+Deneb	+Fomalhaut	+Altair
0	225°50.8	10.2'	N23°28.9	3.6'	55.0'	56°55.7	43°11.5	31°57.7	10°55.7	12°04.0	86°13.7	89°49.2	114°59.4
1	240°20.0	10.1'	23°32.5	3.5'	55.1'	56°35.2	42°43.2	31°31.9	10°34.1	12°30.9	86°31.2	90°16.9	$115^{\circ}26.1$
2	254°49.2	10.1'	23°36.0	3.4'	55.1'	56°14.8	42°14.8	31°06.1	10°13.3	12°58.1	86°48.7	90°44.6	115°52.7
3	269°18.3	10.0'	23°39.4	3.3'	55.1'	55°54.4	41°46.5	30°40.4	9°53.4	13°25.6	87°06.2	91°12.3	$116^{\circ}19.3$
4	283°47.3	10.0'	23°42.7	3.1'	55.1'	55°34.2	41°18.1	30°14.9	9°34.3	13°53.2	87°23.7	91°40.1	116°45.9
5	298°16.3	9.9'	23°45.8	3.0'	55.1'	55°14.1	40°49.6	29°49.5		14°21.1	87°41.3	92°07.9	$117^{\circ}12.5$
6	312°45.2	9.9'	N 23°48.8	2.9'	55.2'	54°54.0	40°21.2	29° 24.3		14°49.2	87°58.8	92°35.7	117°39.1
7	327°14.1	9.8'	23°51.7	2.8'	55.2'	54°34.0		28° 59.1		15°17.5	88°16.4	93°03.5	118°05.6
8	341°42.9	9.8'	23°54.5	2.7'	55.2'	54°14.2		28°34.2		15°46.0	88°34.0	93°31.3	118°32.2
9	356°11.6	9.7'	23°57.2	2.5'	55.2'	53°54.4		28°09.3		16°14.6	88°51.7	93°59.2	118°58.7
10	10°40.4	9.7'	23°59.7	2.4'	55.2'	53°34.8		27°44.7		16°43.3	89°09.3	94°27.0	119°25.2
11	25°09.0	9.6'	24°02.2	2.3'	55.3'	53°15.2		27°20.2		17°12.2	89°27.0	94°54.9	119°51.7
12	39°37.6	9.6'	N 24°04.5	2.2'	55.3'	52°55.8		26°55.9		17°41.2	89°44.7	95°22.8	
13	54°06.2	9.5'	24°06.7	2.1'	55.3'	52°36.5		26°31.8		18°10.3	90°02.4	95°50.8	
14	68°34.7	9.5'	24°08.7	1.9'	55.3'	52°17.3		26°08.0		18°39.6	90°20.1	96° 18.7	
15	83°03.2	9.4'	24°10.7	1.8'	55.3'	51°58.2		25°44.3		19°08.9	90°37.8	96°46.7	
16	97°31.6	9.4'	24°12.5	1.7'	55.4'	51°39.2		25°20.8		19°38.4	90°55.6	97°14.7	
17	112°00.0	9.3'	24°14.2	1.6'	55.4'	51°20.3		24°57.6		20°07.9	91°13.4	97°42.7	
18	126°28.3	9.3'	N 24°15.7	1.4'	55.4'	51°01.6		24°34.7		20°37.5	91°31.1	98°10.7	
19	140°56.6	9.2'	24°17.2	1.3'	55.4'	50°43.0		24°12.0		21°07.3	91°48.9	98° 38.8	
20	155°24.8	9.2'	24°18.5	1.2'	55.5'	50°24.6		23°49.6		21°37.1	92°06.7	99°06.8	
21	169°53.0	9.2'	$24^{\circ}19.7$	1.1'	55.5'	50°06.3		23°27.5		22°06.9	92°24.5	99°34.9	
22	184°21.2	9.1'	24°20.7	0.9'	55.5'	49°48.1		23°05.7		22°36.9	92°42.3	100°03.0	
23	198°49.3	9.1'	24°21.7	0.8'	55.5'	49°30.0		22°44.2		23°06.9	93°00.1	100°31.1	
8 th	SD	= 15.0'	Mer. pass.	09:16					Sun SD	= 15.7'			

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

Mon	GHA	ν	Dec	d	HP	-Adhara	-Sirius	-Betelgeuse	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	213°17.4	9.0'	N 24°22.5	0.7'	55.6'	61°08.9	49°12.2	22°23.1		23°37.0	93°18.0	100°59.2
1	227°45.4	9.0'	24°23.1	0.5'	55.6'	60°53.5	48°54.4	22°02.4		24°07.2	93°35.8	101°27.4
2	242°13.4	9.0'	24°23.7	0.4'	55.6'	60°38.2	48°36.8	21°42.0		24°37.4	93°53.6	101°55.5
3	256°41.4	8.9'	24°24.1	0.3'	55.6'	60°23.0	48° 19.4	21°22.0		25°07.7	94°11.4	102°23.7
4	271°09.3	8.9'	24°24.4	0.2'	55.6'	60°07.8	48°02.1	21°02.5		25°38.1	94°29.3	102°51.9
5	285°37.2	8.9'	24°24.5	0.0'	55.7'		47°45.0	20°43.4	10°27.8	26°08.5	94°47.1	103°20.1
6	300°05.1	8.8'	N24°24.6	-0.1'	55.7'		47°28.1	20°24.8	10°49.6	26°39.0	95°05.0	103°48.3
7	314°32.9	8.8'	24°24.4	-0.2'	55.7'		47°11.4	20°06.7	11°12.3	27°09.5	95°22.8	104°16.5
8	329°00.7	8.8'	24°24.2	-0.4'	55.7'		46°54.8	19°49.1	11°35.7	27°40.1	95°40.6	104°44.7
9	343°28.5	8.7'	24°23.8	-0.5'	55.8'		46°38.4	19°32.0	11°59.7	28°10.8	95°58.5	105°13.0
10	357°56.3	8.7'	24°23.3	-0.6'	55.8'		46°22.2	19°15.5	12°24.3	28°41.5	96°16.3	105°41.2
11	12°24.0	8.7'	24°22.7	-0.8'	55.8'		46°06.2	18°59.7	12°49.4	29°12.2	96°34.1	106°09.5
12	26°51.7	8.7'	N 24°21.9	-0.9'	55.8'		45°50.3	18°44.4	13°15.0	29°43.0	96°51.9	106°37.8
13	41°19.3	8.6'	24°21.0	-1.0'	55.9'		45°34.7		13°41.1	30°13.8	97°09.7	107°06.1
14	55°47.0	8.6'	24°20.0	-1.2'	55.9'		45° 19.3		14°07.5	30°44.7	97°27.6	107°34.3
15	70°14.6	8.6'	24°18.8	-1.3'	55.9'		45°04.1		14°34.4	31°15.7	97°45.3	108°02.6
16	84°42.2	8.6'	24°17.5	-1.4'	55.9'				15°01.5	31°46.7	98°03.1	108°30.9
17	99°09.8	8.6'	24°16.1	-1.6'	56.0'				15°29.0	32°17.7	98°20.9	108°59.3
18	113°37.3	8.5'	N24°14.5	-1.7'	56.0'				15°56.8	32°48.8	98°38.6	109°27.6
19	128°04.9	8.5'	24°12.8	-1.8'	56.0'				16°24.8	33°19.9	98°56.4	109°55.9
20	142°32.4	8.5'	24°11.0	-2.0'	56.0'				16°53.1	33°51.1	99°14.1	110°24.2
21	156°59.9	8.5'	24°09.0	-2.1'	56.1'				17°21.6	34°22.3	99°31.8	110°52.5
22	171°27.4	8.5'	24°06.9	-2.2'	56.1'				17°50.4	34°53.6	99°49.5	111°20.9
23	185°54.9	8.5'	24°04.7	-2.4'	56.1'				18°19.3	35°24.9	100°07.2	111°49.2
9 th	SD	= 15.2	Mer. pas	s. 10:09)							

h	Moon	(10 th	Tut)
11	IVIOUII	110	Juli

		14100	11 (10 30	41 <i>)</i>			(02 <u>)</u>			ourly LD derta)
Tue	GHA	ν	Dec	d	HP	+Aldebaran	+Capella	+Saturn	+Deneb	+Fomalhaut
0	200°22.3	8.5'	N 24°02.3	-2.5'	56.1'	18°48.4		35°56.3	100°24.8	112° 17.5
1 1	214°49.8	8.4'	23°59.8	-2.6'	56.2'	19° 17.7		36°27.6	100°42.5	112°45.9
2	229°17.3	8.4'	23°57.1	-2.8'	56.2'	19°47.2		36°59.1	101°00.1	113° 14.2
3	243°44.7	8.4'	23°54.4	-2.9'	56.2'	20° 16.8		37°30.6	101°17.7	113° 42.5
4	258°12.1	8.4'	23°51.4	-3.1'	56.2'	20°46.6		38°02.1	101°35.2	114° 10.9
5	272°39.5	8.4'	23°48.4	-3.2'	56.3'	21° 16.5		38°33.6	101°52.7	114° 39.2
6	287°07.0	8.4'	N 23°45.2	-3.3'	56.3'	21°46.5		39°05.2	102°10.2	115°07.5
7	301°34.4	8.4'	23°41.9	-3.5'	56.3'	22° 16.7		39°36.8	102°27.7	115°35.8
8	316°01.8	8.4'	23°38.4	-3.6'	56.3'	22°47.0		40°08.5	102°45.2	116°04.1
9	330°29.2	8.4'	23°34.8	-3.7'	56.4'	23° 17.4	24°54.3	40°40.2	103°02.6	116°32.4
10	344°56.6	8.4'	23°31.1	-3.9'	56.4'	23°47.9	25°10.2	41°12.0	103°19.9	117°00.7
11	359°24.0	8.4'	23°27.3	-4.0'	56.4'	24° 18.5	25°26.6	41°43.8	103°37.3	117° 29.0
12	13°51.4	8.4'	N23°23.3	-4.1'	56.4'	24°49.2	25°43.5	42°15.6	103°54.6	117°57.3
13	28°18.8	8.4'	23°19.1	-4.3'	56.5'	25°20.0	26°00.8	42°47.5	104°11.9	118° 25.5
14	42°46.3	8.4'	23°14.9	-4.4'	56.5'	25° 50.9	26°18.6	43° 19.4	104°29.1	118°53.8
15	57°13.7	8.4'	23°10.5	-4.5'	56.5'	26°21.9	26°36.9	43°51.3	104°46.3	119°22.0
16	71°41.1	8.4'	23°06.0	-4.7'	56.5'	26°53.0	26°55.6	44°23.3	105°03.4	119°50.2
17	86°08.6	8.4'	23°01.3	-4.8'	56.6'	27°24.1	27°14.7	44°55.3	105°20.5	
18	100°36.0	8.5'	N 22°56.5	-4.9'	56.6'	27°55.4	27°34.2	45°27.3	105°37.6	
19	115°03.5	8.5'	22°51.6	-5.1'	56.6'	28° 26.7	27°54.1	45°59.4	105°54.6	
20	129°30.9	8.5'	22°46.5	-5.2'	56.6'	28°58.1	28°14.4	46°31.5	106°11.5	
21	143°58.4	8.5'	22°41.3	-5.3'	56.7'	'		— New Mo	on ———	·
22	158°25.9	8.5'	22°36.0	-5.5'	56.7'			— New Mo	on ———	
23	172°53.4	8.5'	22°30.6	-5.6'	56.7'			— New Mo	oon ———	
10 th	SD :	= 15.3	Mer. pas	s. 11:02	!					

Moon (11th Jul)

Wed	GHA	ν	Dec	d	HP	
0	187°20.9	8.5'	N 22°25.0	-5.7'	56.7'	New Moon
1	201°48.4	8.5'	22°19.3	-5.8'	56.8'	New Moon
2	216°16.0	8.6'	22°13.4	-6.0'	56.8'	New Moon
3	230°43.6	8.6'	22°07.5	-6.1'	56.8'	New Moon
4	245°11.1	8.6'	22°01.4	-6.2'	56.9'	New Moon
5	259°38.7	8.6'	$21^{\circ}55.2$	-6.4'	56.9'	New Moon
6	274°06.4	8.6'	N 21°48.8	-6.5'	56.9'	New Moon
7	288°34.0	8.7'	21°42.3	-6.6'	56.9'	New Moon
8	303°01.7	8.7'	21°35.7	-6.7'	57.0'	New Moon
9	317°29.4	8.7'	21°29.0	-6.9'	57.0'	New Moon
10	331°57.1	8.7'	$21^{\circ}22.1$	-7.0'	57.0'	New Moon
11	346°24.8	8.8'	$21^{\circ}15.1$	-7.1'	57.0'	New Moon
12	0°52.6	8.8'	$N21^{\circ}08.0$	-7.2'	57.0'	New Moon
13	15°20.4	8.8'	21°00.8	-7.4'	57.1'	New Moon
14	29°48.2	8.8'	20°53.4	-7.5'	57.1'	New Moon
15	44°16.0	8.9'	20°45.9	-7.6'	57.1'	New Moon
16	58°43.9	8.9'	20°38.3	-7.7'	57.1'	New Moon
17	73°11.8	8.9'	20°30.6	-7.8'	57.2'	New Moon
18	87°39.7	9.0'	N20°22.8	-8.0'	57.2'	New Moon
19	102°07.7	9.0'	20°14.8	-8.1'	57.2'	New Moon
20	116°35.7	9.0'	20°06.7	-8.2'	57.2'	New Moon
21	131°03.7	9.0'	$19^{\circ}58.5$	-8.3'	57.3'	New Moon
22	145°31.7	9.1'	19°50.2	-8.4'	57.3'	New Moon
23	159°59.8	9.1'	19°41.8	-8.6'	57.3'	New Moon
11 th	SD :	= 15.5'	Mer. pas	s. 11:56		

L	Moon	(10th	11	
h	IVIOON	11200	11111	

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Rigil Kent.	-Arcturus	-Spica	-Jupiter	-Mars	-Regulus	-Venus	+Procyon	
0	174°27.9	9.1'	N19°33.2	-8.7'	57.3'				New N	100n ——				
1	188°56.1	9.2'	19°24.5	-8.8'	57.4'				New N	100n ——				
2	203°24.2	9.2'	19°15.8	-8.9'	57.4'									
3	217°52.4	9.2'	19°06.9	-9.0'	57.4'									
4	232°20.7	9.3'	18°57.9	-9.1'	57.4'									
5	246°49.0	9.3'	18°48.7	-9.2'	57.5'									
6	261°17.3	9.4'	N 18°39.5	-9.3'	57.5'		New Moon							
7	275°45.6	9.4'	18°30.2	-9.4'	57.5'									
8	290°14.0	9.4'	18°20.7	-9.6'	57.5'				New N	100n ——				
9	304°42.4	9.5'	18°11.2	-9.7'	57.6'				New N	100n ——				
10	319°10.9	9.5'	18°01.5	-9.8'	57.6'									
11	333°39.4	9.5'	$17^{\circ}51.7$	-9.9'	57.6'	109°38.1	$86^{\circ}19.3$	83°53.6	78°27.8	75°16.6	30°04.0	19°13.2		
12	348°07.9	9.6'	N17°41.9	-10.0'	57.6'	109°13.1	85°51.8	83°19.8	77°54.4	74°44.2	29°30.7	18°43.8		
13	2°36.5	9.6'	17°31.9	-10.1'	57.6'	108°48.1	85°24.4	82°46.1	77°21.1	74°11.8	28° 57.4	18°14.4	i i	
14	17°05.1	9.6'	17°21.8	-10.2'	57.7'	108°23.0	84°57.0	82°12.3	76°47.6	73°39.3	28° 24.1	17°45.1		
15	31°33.7	9.7'	$17^{\circ}11.6$	-10.3'	57.7'	107°57.8	84°29.5	81°38.5	76°14.2	73°06.9	27°50.7	$17^{\circ}15.8$	1	
16	46°02.4	9.7'	17°01.3	-10.4'	57.7'	107°32.6	84°02.0	81°04.6	75°40.7	72°34.4	27° 17.4	16°46.6		
17	60°31.1	9.8'	$16^{\circ}50.9$	-10.5'	57.7'	107°07.3	83°34.6	80°30.8	75°07.2	72°01.9	26°44.1	$16^{\circ}17.5$		
18	74°59.9	9.8'	N 16°40.5	-10.6'	57.8'	106°41.9	83°07.1	79°56.9	74°33.7	71°29.3	26° 10.7	15°48.4		
19	89°28.7	9.8'	16°29.9	-10.7'	57.8'	106°16.5	82°39.6	79°22.9	74°00.2	70°56.8	25° 37.4	15°19.5	i i	
20	103°57.5	9.9'	16°19.2	-10.8'	57.8'	105°51.0	82°12.1	78°49.0	73°26.6	70°24.2	25°04.1	14°50.6	16°06.5	
21	118°26.4	9.9'	16°08.4	-10.9'	57.8'	105°25.5	81°44.6	78°15.0	72°53.1	69°51.6	24°30.7	14°21.9	16°23.4	
22	132°55.3	9.9'	15°57.5	-11.0'	57.8'	104°59.8	$81^{\circ}17.1$	77°41.0	72°19.5	69°19.0	23°57.4	13°53.3	16°41.2	
23	147°24.2	10.0'	15°46.6	-11.1'	57.9'	104°34.2	80°49.6	77°07.0	71°45.8	68°46.3	23°24.1	13°24.9	16°59.8	
12 th	SD	= 15.6'	Mer. pas	s. 12:49					-	-		-		

h	Moon	(13th Jul)

Fri	GHA	ν	Dec	d	HP	-Antares	-Arcturus	-Spica	-Jupiter	-Mars	-Regulus	-Venus	+Procyon
0	161°53.2	10.0'	N15°35.5	-11.2'	57.9'		80°22.1	76°33.0	71°12.2	68°13.6	22°50.8	12°56.7	17° 19.2
1	176°22.2	10.1'	15°24.4	-11.2'	57.9'		79°54.6	75°58.9	70°38.5	67°41.0	22° 17.5	12°28.6	17°39.3
2	190°51.3	10.1'	$15^{\circ}13.1$	-11.3'	57.9'		79°27.1	75°24.9	70°04.8	67°08.2	21°44.2	12°00.8	18°00.1
3	205°20.4	10.1'	$15^{\circ}01.8$	-11.4'	57.9'		78°59.6	74°50.7	69°31.1	66°35.5	21°11.0	11°33.2	18°21.5
4	219°49.5	10.2'	14°50.4	-11.5'	58.0'	119°51.0	78°32.1	74°16.6	68° 57.4	66°02.7	20°37.8	11°05.9	18°43.6
5	234°18.7	10.2'	14°38.9	-11.6'	58.0'	119°16.8	78°04.6	73°42.5	68°23.7	65°30.0	20°04.6	10°39.0	19°06.3
6	248°47.9	10.2'	$N14^{\circ}27.3$	-11.7'	58.0'	118°42.7	77°37.1	73°08.3	67°49.9	64°57.2	19°31.4	10°12.4	19°29.5
7	263°17.1	10.3'	$14^{\circ}15.6$	-11.8'	58.0'	118°08.5	77°09.7	72°34.1	67° 16.1	64°24.3	18° 58.3	9°46.3	19°53.3
8	277°46.4	10.3'	14°03.8	-11.8'	58.0'	117°34.2	76°42.2	71°59.9	66°42.3	63°51.5	18° 25.2	9°20.6	20°17.5
9	292°15.7	10.3'	13°52.0	-11.9'	58.1'	117°00.0	76°14.8	71°25.7	66°08.5	63°18.6	17°52.2	8°55.5	20°42.2
10	306°45.0	10.4'	13°40.1	-12.0'	58.1'	116°25.7	75°47.3	70°51.4	65°34.6	62°45.8	17° 19.2	8°31.1	21°07.4
11	321°14.4	10.4'	13°28.0	-12.1'	58.1'	115°51.4	75°19.9	70°17.1	65°00.7	62°12.9	16°46.3	8°07.5	21°33.0
12	335°43.8	10.5'	N 13°16.0	-12.2'	58.1'	115°17.1	74°52.5	69°42.8	64°26.9	61°39.9	16° 13.5	7°44.7	21°58.9
13	350°13.3	10.5'	13°03.8	-12.2'	58.1'	114°42.8	74°25.1	69°08.5	63°53.0	61°07.0	15°40.8		22°25.3
14	4°42.8	10.5'	$12^{\circ}51.6$	-12.3'	58.2'	114°08.4	73°57.7	68°34.2	63°19.0	60°34.0	15°08.1		22°52.0
15	19°12.3	10.6'	12°39.2	-12.4'	58.2'	113°34.0	73°30.4	67°59.8	62°45.1	60°01.1	14° 35.6		23°19.0
16	33°41.9	10.6'	12°26.8	-12.5'	58.2'	112°59.6	73°03.1	67°25.4	62°11.1	59°28.1	14°03.2		23°46.4
17	48°11.4	10.6'	12°14.4	-12.5'	58.2'	112°25.2	72°35.8	66°51.0	61°37.2	58°55.1	13°30.9		24°14.0
18	62°41.1	10.7'	$N12^{\circ}01.8$	-12.6'	58.2'	111°50.8	72°08.5	66°16.6	61°03.2	58°22.0	12°58.8		24°42.0
19	77°10.7	10.7'	11°49.2	-12.7'	58.3'	111°16.3	71°41.2	65°42.2	60°29.2	57°49.0	12°26.9		25°10.2
20	91°40.4	10.7'	11°36.5	-12.7'	58.3'	110°41.9	71°14.0	65°07.7	59°55.2	57°15.9	11°55.2		25°38.6
21	106°10.1	10.7'	11°23.8	-12.8'	58.3'	110°07.4	70°46.8	64°33.2	59°21.1	56°42.8	11°23.8		26°07.3
22	120°39.9	10.8'	11°11.0	-12.9'	58.3'	109°32.9	70°19.6	63°58.7	58°47.1	56°09.7	10°52.6		26°36.3
23	135°09.6	10.8'	10°58.1	-12.9'	58.3'	108°58.3	69°52.5	63°24.2	58°13.0	55°36.6	10°21.8		27°05.4
13 th	SD	= 15.8	Mer. pas	s. 13:40									

L.	Moon	/1 4th	1 1
h	l∖/loon	(14411	Tril)

Lunar Distance (o	objects with I	largest hourly	/ LD delta)
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Sat	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Mars	-Regulus	+Venus	+Procyon	+Sun
0	149°39.4	10.8'	N 10°45.2	-13.0'	58.3'	108°23.8	62°49.7	57°38.9	55°03.5	9°51.4		27°34.8	
1	164°09.3	10.9'	10°32.2	-13.1'	58.4'	107°49.2	62°15.1	57°04.8	54°30.3	9°21.5		28°04.3	
2	178°39.1	10.9'	$10^{\circ}19.1$	-13.1'	58.4'	107°14.6	61°40.6	56°30.7	53° 57.2	8°52.1		28°34.1	
3	193°09.0	10.9'	$10^{\circ}05.9$	-13.2'	58.4'	106°40.0	61°06.0	55°56.6	53°24.0	8°23.3		29°04.0	
4	207°39.0	10.9'	09°52.8	-13.3'	58.4'	106°05.4	60°31.4	55°22.4	52°50.8	7°55.3		29°34.1	
5	222°08.9	11.0'	09°39.5	-13.3'	58.4'	105°30.7	59°56.8	54°48.3	52° 17.6	7°28.2		30°04.4	
6	236°38.9	11.0'	N09°26.2	-13.4'	58.4'	104°56.1	59°22.1	54°14.1	51°44.4			30°34.8	
7	251°08.9	11.0'	09°12.8	-13.4'	58.5'	104°21.4	58°47.5	53°40.0	51°11.2			31°05.4	
8	265°38.9	11.1'	08°59.4	-13.5'	58.5'	103°46.7	58°12.8	53°05.8	50°37.9			31°36.1	
9	280°09.0	11.1'	08°45.9	-13.5'	58.5'	103°12.0	57°38.1	52°31.6	50°04.6			32°07.0	
10	294°39.0	11.1'	08°32.4	-13.6'	58.5'	102°37.3	57°03.4	51°57.4	49°31.4			32°37.9	
11	309°09.1	11.1'	$08^{\circ}18.8$	-13.6'	58.5'	102°02.5	56°28.7	51°23.2	48°58.1		8°31.5	33°09.1	
12	323°39.3	11.1'	N08°05.2	-13.7'	58.5'	101°27.8	55°54.0	50°48.9	48°24.8		8°56.4	33°40.3	
13	338°09.4	11.2'	$07^{\circ}51.5$	-13.7'	58.6'	100°53.0	55°19.3	50°14.7	47°51.5		9°21.9	34°11.6	
14	352°39.6	11.2'	07°37.8	-13.8'	58.6'	100°18.2	54°44.5	49°40.4	47° 18.2		9°48.0	34°43.1	
15	7°09.7	11.2'	$07^{\circ}24.1$	-13.8'	58.6'	99°43.4	54°09.7	49°06.2	46°44.8		10°14.7	35° 14.7	
16	21°39.9	11.2'	$07^{\circ}10.2$	-13.9'	58.6'	99°08.6	53°34.9	48°31.9	46°11.5		10°41.9	35°46.3	
17	36°10.2	11.2'	06°56.4	-13.9'	58.6'	98°33.7	53°00.1	47°57.6	45°38.1		11°09.4	36° 18.1	
18	50°40.4	11.3'	N 06°42.5	-13.9'	58.6'	97°58.9	52°25.3	47°23.4	45°04.8		11°37.4	36°49.9	
19	65°10.7	11.3'	06°28.5	-14.0'	58.6'	97°24.0	51°50.5	46°49.1	44°31.4		12°05.7	37°21.9	
20	79°40.9	11.3'	06°14.6	-14.0'	58.7'	96°49.1	51°15.7	46°14.8	43°58.0		12°34.2	37°53.9	40°30.6
21	94°11.2	11.3'	06°00.6	-14.1'	58.7'	96°14.2	50°40.8	45°40.5	43°24.6		13°03.1	38°26.1	41°03.1
22	108°41.5	11.3'	05°46.5	-14.1'	58.7'	95°39.3	50°05.9	45°06.2	42°51.2		13°32.2	38° 58.3	41°35.7
23	123°11.9	11.3'	05°32.4	-14.1'	58.7'	95°04.4	49°31.1	44°31.9	42°17.8		14°01.5	39°30.5	42°08.2
14 th	SD = 15.9' Mer. pass. 14:30 $Sun SD = 15.7'$												

Moon (15th Jul) Lunar Distance (objects with largest hourly LD delta) h GHA HP -Mars +Regulus Sun Dec d -Antares -Spica -Jupiter +Venus +Procyon +Sun 137°42.2 N05°18.3 94°29.4 48°56.2 43°57.6 40°02.9 0 11.3 -14.258.7 41°44.4 14°30.9 42°40.8 152°12.5 93°54.5 48°21.3 40°35.3 43°13.4 11.4 05°04.1 -14.2 58.7 43°23.2 41°11.0 $15^{\circ}00.6$ 1 47°46.4 47°11.4 166°42.9 $93^{\circ}19.5$ 42°48.9 40°37.5 15°30.4 $41^{\circ}07.8$ 43°46.0 11.4' $04^{\circ}50.0$ -14.2 58.7 181°13.2 40°04.1 3 11.4' 04°35.7 -14.2' 58.7 $92^{\circ}44.6$ 42°14.6 $8^{\circ}30.8$ $16^{\circ}00.4$ $41^{\circ}40.4$ 44°18.6 46°36.5 195°43.6 41°40.3 44°51.2 4 11.4 04°21.5 -14.3 58.8 92°09.6 39°30.7 $9^{\circ}00.1$ 16°30.5 42°13.0 210°14.0 46°01.5 38°57.2 9°30.0 17°00.7 $42^{\circ}45.7$ 5 11.4' $04^{\circ}07.2$ -14.3 58.8 91°34.6 41°05.9 45°23.8 6 $224^{\circ}44.4$ 11.4' $N03^{\circ}52.9$ -14.3' 58.8 $90^{\circ}59.6$ $45^{\circ}26.6$ $40^{\circ}31.6$ $38^{\circ}23.8$ $10^{\circ}00.5$ $17^{\circ}\,31.1$ $43^{\circ}18.5$ $45^{\circ}56.5$ 239°14.8 253°45.2 03°38.6 37°50.3 37°16.8 90°24.5 $44^{\circ}51.6$ 39°57.3 10°31.5 $18^{\circ}\,01.5$ $43^{\circ}51.3$ 46°29.1 11.4' -14.3' 58.8' 11°02.8 11°34.6 12°06.6 47°01.8 47°34.5 8 11.4' $03^{\circ}24.2$ -14.4 58.8 $89^{\circ}49.5$ $44^{\circ}16.6$ 39°23.0 $18^{\circ}32.1$ 44°24.2 36°43.4 03°09.9 89°14.4 43°41.7 268°15 6 38°48.6 19°02.7 44°57.1 9 11.4 -14.4 58.8 282°46.0 88°39.4 45°30.1 48°07.2 02°55.5 43°06.7 38°14.3 19°33.4 10 11.4 36°09.9 -14.4 58.8 297°16.5 $02^{\circ}41.1$ 88°04.3 42°31.7 12°38.9 20°04.2 46°03.1 48°39.9 11.4 37°40.0 35°36.4 11 -14.4 58.8 87°29.2 311°46.9 41°56.6 49°12.6 12 11.4' $\text{N}02^{\circ}26.6$ -14.4 58.9 $37^{\circ}05.7$ $35^{\circ}03.0$ $13^{\circ}11.5$ $20^{\circ}35.1$ $46^{\circ}36.2$ 86°54.1 36°31.4 47°09.3 49°45.3 326°17.3 02°12.2 $34^{\circ}29.5$ 13°44.3 21°06.0 13 11.4 -14.5 58.9 41°21.6 340°47 7 35°57.1 50°18.1 01°57.7 86°19.0 40°46.6 33°56.0 14°173 14 11.4 -14.5 58.9 21°37 1 355°18.1 9°48.6 50°50.8 51°23.6 85°43.9 40°11.6 35°22.8 14°50.4 11.4 01°43.3 33°22.6 22°08.1 15 -14.5'58.9 01°28.8 85°08.8 39°36.5 34°48.5 32°49.1 15°23.7 22°39.2 11.4 -14.5 58.9 16 17 $24^{\circ}19.0$ 11.4' $01^{\circ}14.3$ -14.5 58.9 84°33.7 $39^{\circ}01.5$ $34^{\circ}14.2$ 32°15.6 $15^{\circ}57.2$ $23^{\circ}\,10.4$ 51°56.4 83°58.5 38°49 4 N00°59.8 $38^{\circ}26.4$ 33°39 9 16°30.7 52°29.1 31°42.2 23°41 6 18 11.4 -14.5 58.9 00°45.2 37°51.3 17°04.4 53°01.9 53°19.8 11.4 83°23.4 33°05.7 31°08.7 24°12.9 19 -14.5'58.9 67°50.2 00°30.7 82°48.2 37°16.2 30°35.3 17°38.2 11.4 32°31.4 24°44.2 53°34.7 20 -14.558.9 82°20.6 11.4' $00^{\circ}16.2$ -14.5 58.9 82°13.0 36°41.2 $31^{\circ}57.2$ $30^{\circ}01.8$ 18°12.1 25°15.6 54°07.5 21 96°51.0 11.4' $N00^{\circ}01.6$ -14.5' 81°37.8 $36^{\circ}06.1$ 31°23.0 29°28.4 18°46.0 25°47.0 54°40.3 23 $111^{\circ}21.4$ 11.4' $500^{\circ}12.9$ -14.5 59.0' $81^{\circ}02.7$ $35^{\circ}31.0$ $30^{\circ}48.8$ $28^{\circ}54.9$ $19^{\circ}20.1$ $26^{\circ}18.4$ $55^{\circ}13.2$

15 th	SD	= 16.0'	Mer. pas	s. 15:19		SunSD=15.7'							
h		Моо	n (16 th Ji	ul)		L	unar Dis	tance (ol	bjects wi	th larges	t hourly L	D delta))
Mon	GHA	ν	Dec	d	HP	-Altair	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Venus	+Sun
0	125°51.8	11.4'	S 00°27.5	-14.5'	59.0'		80°27.5	34°55.9	30°14.6	28°21.5	19°54.2	26°49.9	55°46.0
1	140°22.1	11.4'	00°42.0	-14.5'	59.0'		79°52.2	34°20.8	29°40.5	27°48.1	20°28.4	27°21.4	56°18.8
2	154°52.5	11.3'	00°56.6	-14.5'	59.0'		79°17.0	33°45.7	29°06.3	27° 14.7	21°02.6	27°52.9	56°51.7
3	169°22.8	11.3'	$01^{\circ}11.1$	-14.5'	59.0'		78°41.8	33°10.6	28°32.2	26°41.3	21°37.0	28°24.5	57°24.6
4	183°53.2	11.3'	01°25.7	-14.5'	59.0'		78°06.6	32°35.5	27°58.1	26°07.9	22°11.3	28°56.1	57°57.4
5	198°23.5	11.3'	$01^{\circ}40.2$	-14.5'	59.0'		77°31.3	32°00.4	27°24.1	25°34.6	22°45.7	29°27.8	58°30.3
6	212°53.8	11.3'	S 01°54.7	-14.5'	59.0'		76°56.1	31°25.2	26°50.1	25°01.2	23°20.2	29°59.4	59°03.2
7	227°24.1	11.3'	$02^{\circ}09.2$	-14.5'	59.0'		76°20.8	30°50.1	26°16.1	24°27.9	23°54.7	30°31.1	59°36.1
8	241°54.3	11.3'	02°23.8	-14.5'	59.0'		75°45.6	30°15.0	25°42.1	23°54.6	24°29.3	31°02.8	60°09.0
9	256°24.6	11.2'	02°38.3	-14.5'	59.0'		75°10.3	29°39.9	25°08.2	23°21.4	25°03.9	31°34.5	60°41.9
10	270°54.8	11.2'	02°52.8	-14.5'	59.1'		74°35.0	29°04.8	24°34.4	22°48.1	25°38.5	32°06.3	61°14.8
11	285°25.0	11.2'	03°07.3	-14.5'	59.1'		73°59.8	28°29.6	24°00.6	22°14.9	26°13.1	32°38.1	61°47.7
12	299°55.2	11.2'	S 03°21.7	-14.5'	59.1'		73°24.5	27°54.5	23°26.8	21°41.7	26°47.8	33°09.9	62°20.6
13	314°25.4	11.1'	03°36.2	-14.4'	59.1'		72°49.2	27°19.4	22°53.1	21°08.6	27°22.6	33°41.7	62°53.6
14	328°55.6	11.1'	03°50.6	-14.4'	59.1'		72°13.9	26°44.3	22°19.4	20°35.5	27°57.3	34°13.5	63°26.5
15	343°25.7	11.1'	04°05.0	-14.4'	59.1'		71°38.6	26°09.2	21°45.9	20°02.4	28°32.1	34°45.4	63°59.5
16	357°55.8	11.1'	04°19.4	-14.4'	59.1'		71°03.3	25°34.1	21°12.4	19°29.4	29°06.9	35°17.3	64°32.4
17	12°25.8	11.0'	04°33.8	-14.4'	59.1'		70°27.9	24°58.9	20°38.9	18°56.4	29°41.8	35°49.2	65°05.4
18	26°55.9	11.0'	S 04°48.2	-14.3'	59.1'		69°52.6	24°23.8	20°05.6	18°23.5	30°16.6	36°21.1	65°38.3
19	41°25.9	11.0'	05°02.5	-14.3'	59.1'	119°58.6	69°17.3	23°48.8	19°32.4	17°50.7	30°51.5	36°53.0	66°11.3
20	55°55.9	11.0'	$05^{\circ}16.8$	-14.3'	59.1'	119°28.4	68°42.0	23°13.7	18°59.2	17° 17.9	31°26.4	37°25.0	66°44.3
21	70°25.9	10.9'	05°31.1	-14.3'	59.1'	118°58.1	68°06.6	22°38.6	18°26.2	16°45.2	32°01.3	37°56.9	67°17.3
22	84°55.8	10.9'	05°45.4	-14.2'	59.1'	118°27.7	67°31.3	22°03.5	17°53.3	16°12.6	32°36.3	38°28.9	67°50.2
23	99°25.7	10.9'	05°59.6	-14.2'	59.1'	117°57.3	66°55.9	21°28.5	17°20.6	15°40.1	33°11.2	39°00.9	68°23.2
16 th	SD	= 16.1	Mer. pas	s. 16:09					Sun SD	= 15.7'			

h		Моо	n (17 th Jı	(اد		L	unar Dis	tance (ol	bjects wi	th larges	t hourly L	D delta	
Tue	GHA	ν	Dec	d	HP	-Altair	-Antares	-Spica	-Jupiter	-Mars	+Regulus	+Venus	+Sun
0	113°55.5	10.8'	S 06° 13.8	-14.2'	59.1'	117°26.8	66°20.6	20°53.4	16°48.0	15°07.7	33°46.2	39°32.9	68°56.2
1	128°25.4	10.8'	06°28.0	-14.1'	59.1'	116°56.3	65°45.2	20°18.4	16°15.5	14°35.4	34°21.2	40°04.9	69°29.2
2	142°55.2	10.8'	$06^{\circ}42.1$	-14.1'	59.2'	116°25.7	65°09.9	19°43.4	15°43.3	14°03.2	34°56.2	40°36.9	70°02.2
3	157°24.9	10.7'	06° 56.2	-14.1'	59.2'	115°55.1	64°34.5	19°08.4	15°11.2	13°31.2	35°31.2	41°08.9	70°35.2
4	171°54.7	10.7'	$07^{\circ}10.3$	-14.0'	59.2'	115°24.4	63°59.1	18°33.4	14°39.4	12°59.4	36°06.3	41°41.0	71°08.3
5	186°24.3	10.6'	07°24.3	-14.0'	59.2'	114°53.7	63°23.8	17°58.5	14°07.8	12°27.8	36°41.3	42°13.0	71°41.3
6	200°54.0	10.6'	S 07°38.3	-13.9'	59.2'	114°23.0	62°48.4	17°23.5	13°36.6	11°56.3	37°16.4	42°45.1	72°14.3
7	215°23.6	10.6'	07°52.2	-13.9'	59.2'	113°52.2	62°13.0	16°48.6	13°05.6	11°25.2	37°51.5	43°17.2	72°47.3
8	229°53.2	10.5'	$08^{\circ}06.1$	-13.9'	59.2'	113°21.3	61°37.6	16°13.8	12°35.0	10°54.3	38°26.6	43°49.3	73°20.3
9	244°22.7	10.5'	08°20.0	-13.8'	59.2'	112°50.4	61°02.2	15°38.9	12°04.8	10°23.7	39°01.7	44°21.4	73°53.4
10	258°52.2	10.4'	08°33.8	-13.8'	59.2'	112°19.5	60°26.8	15°04.2	11°35.1	9°53.5	39°36.8	44°53.5	74°26.4
11	273°21.6	10.4'	08°47.6	-13.7'	59.2'	111°48.5	59°51.5	14°29.4	11°05.9	9°23.8	40°11.9	45°25.6	74°59.4
12	287°51.0	10.4'	S 09°01.3	-13.7'	59.2'	111°17.5	59° 16.1	13°54.7	10°37.3	8°54.6	40°47.1	45°57.7	75°32.5
13	302°20.4	10.3'	09°15.0	-13.6'	59.2'	110°46.5	58°40.7	13°20.1	10°09.4	8°26.0	41°22.2	46°29.8	76°05.5
14	316°49.7	10.3'	09°28.6	-13.6'	59.2'	110°15.4	58°05.3	12°45.6	9°42.2	7°58.1	41°57.4	47°02.0	76°38.6
15	331°18.9	10.2'	09°42.2	-13.5'	59.2'	109°44.3	57°29.9	12°11.1	9°16.0	7°31.0	42°32.6	47°34.1	77°11.6
16	345°48.2	10.2'	09°55.7	-13.5'	59.2'	109°13.2	56° 54.5	11°36.7			43°07.7	48°06.3	77°44.7
17	0°17.3	10.1'	10°09.2	-13.4'	59.2'	108°42.0	56° 19.1	11°02.5			43°42.9	48°38.4	78° 17.7
18	14°46.4	10.1'	S 10°22.6	-13.4'	59.2'	108°10.8	55°43.7	10°28.3			44°18.1	49°10.6	78°50.8
19	29°15.5	10.0'	10°36.0	-13.3'	59.2'	107°39.6	55°08.3	9°54.3			44°53.3	49°42.8	79°23.8
20	43°44.5	10.0'	10°49.3	-13.2'	59.2'	107°08.3	54°32.9	9°20.5			45°28.5	50°14.9	79°56.9
21	58°13.5	9.9'	$11^{\circ}02.5$	-13.2'	59.2'	106°37.0	53° 57.5	8°46.9			46°03.7	50°47.1	80°29.9
22	72°42.4	9.9'	$11^{\circ}15.7$	-13.1'	59.2'	106°05.7	53°22.0	8°13.6			46°38.9	51°19.3	81°03.0
23	87°11.3	9.8'	11°28.8	-13.1'	59.2'	105°34.4	52°46.6	7°40.6			47°14.2	51°51.5	81°36.1
17 th	SD	= 16.1	Mer. pas	s. 16:59		Sun SD = 15.7'							

Moon (18th Jul)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	±Spica	+Mars	+Regulus	+Venus	+Sun
0	101°40.1	9.8'	S 11°41.9	-13.0'	59.2'		105°03.0	52°11.2	7°07.9		47°49.4	52°23.7	82°09.1
1	116°08.8	9.7'	11°54.9	-12.9'	59.2'		104°31.6	51°35.8	6°35.7		48°24.6	52°55.9	82°42.2
2	130°37.5	9.6'	12°07.8	-12.9'	59.2'		104°00.2	51°00.4	6°04.2		48°59.9	53°28.1	83°15.3
3	145°06.2	9.6'	12°20.7	-12.8'	59.2'		103°28.8	50°25.0	5°33.4		49°35.1	54°00.3	83°48.3
4	159°34.8	9.5'	12°33.5	-12.7'	59.2'		102°57.4	49°49.6			50°10.4	54°32.5	84°21.4
5	174°03.3	9.5'	12°46.2	-12.6'	59.2'		102°25.9	49°14.2			50°45.6	55°04.7	84°54.5
6	188°31.8	9.4'	S 12°58.8	-12.6'	59.2'		101°54.4	48°38.8			51°20.9	55°37.0	85°27.5
7	203°00.2	9.4'	13°11.4	-12.5'	59.2'		101°23.0	48°03.3			51°56.2	56°09.2	86°00.6
8	217°28.6	9.3'	13°23.9	-12.4'	59.2'		100°51.4	47°27.9			52°31.4	56°41.4	86°33.7
9	231°56.9	9.2'	13°36.3	-12.3'	59.2'		100°19.9	46°52.5			53°06.7	57°13.6	87°06.7
10	246°25.1	9.2'	13°48.7	-12.3'	59.2'		99°48.4	46°17.1			53°42.0	57°45.9	87°39.8
11	260°53.3	9.1'	14°00.9	-12.2'	59.2'		99°16.8	45°41.7			54°17.2	58°18.1	88°12.9
12	275°21.4	9.1'	S 14°13.1	-12.1'	59.2'		98°45.3	45°06.3			54°52.5	58°50.4	88°46.0
13	289°49.5	9.0'	14°25.2	-12.0'	59.2'		98°13.7	44°30.9		8°08.5	55°27.8	59°22.6	89°19.0
14	304°17.5	8.9'	14°37.2	-11.9'	59.2'		97°42.1	43°55.5		8°36.7	56°03.1	59°54.8	89°52.1
15	318°45.4	8.9'	14°49.2	-11.8'	59.2'		97° 10.5	43°20.1		9°05.6	56°38.4	60°27.1	90°25.2
16	333°13.3	8.8'	$15^{\circ}01.0$	-11.8'	59.2'		96°38.9	42°44.7		9°35.0	57°13.7	60°59.3	90°58.2
17	347°41.1	8.7'	15°12.8	-11.7'	59.2'		96°07.3	42°09.3		10°05.0	57°49.0	61°31.6	91°31.3
18	2°08.8	8.7'	S 15°24.4	-11.6'	59.2'		95°35.7	41°33.9		10°35.3	58°24.2	62°03.8	92°04.4
19	16°36.5	8.6'	15°36.0	-11.5'	59.2'		95°04.0	40°58.5		11°06.0	58°59.5	62°36.1	92°37.4
20	31°04.1	8.6'	$15^{\circ}47.5$	-11.4'	59.2'	119°53.3	94°32.4	40°23.1		11°37.1	59°34.8	63°08.3	93°10.5
21	45°31.7	8.5'	15°58.9	-11.3'	59.2'	119°22.5	94°00.8	39°47.7	6°33.1	12°08.4	60°10.1	63°40.6	93°43.6
22	59°59.1	8.4'	$16^{\circ}10.2$	-11.2'	59.2'	118°51.7	93°29.1	39°12.4	7°05.2	12°39.9	60°45.4	64°12.8	94°16.6
23	74°26.6	8.4'	$16^{\circ}21.4$	-11.1'	59.2'	2' 118°20.9 92°57.5 38°37.0 7°37.8 13°11.7 61°20.7 64°45.1 94'						94°49.7	
18 th	SD	= 16.2	' Mer. pas	ss. 17:51		$Sun\;SD=15.7'$							

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

		IVIOC	וו (ב. ד	ui)	Lunar Distance (objects with largest flourly LD delta								
Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Mars	+Jupiter	+Regulus
0	88°53.9	8.3'	S 16°32.5	-11.0'	59.2'	117°50.0	110°20.8	92°25.8	38°01.6	8°10.8	13°43.6	14°01.9	61°56.0
1	103°21.2	8.2'	16°43.5	-10.9'	59.2'	117° 19.0	110°03.7	91°54.2	37°26.2	8°44.1	14°15.7	14°33.4	62°31.3
2	117°48.4	8.2'	16°54.4	-10.8'	59.2'	116°48.1	109°46.4	91°22.5	36°50.9	9°17.7	14°47.9	15°05.2	63°06.6
3	132°15.6	8.1'	17°05.2	-10.7'	59.2'	116°17.0	109°29.1	90°50.9	36°15.5	9°51.5	15°20.3	15°37.3	63°41.9
4	146°42.7	8.0'	$17^{\circ}15.9$	-10.6'	59.2'	115°46.0	109°11.7	90°19.2	35°40.1	10°25.5	15°52.8	16°09.5	64°17.2
5	161°09.7	8.0'	$17^{\circ}26.5$	-10.5'	59.2'	115°14.9	108°54.1	89°47.6	35°04.8	10°59.6	16°25.4	16°42.0	64°52.5
6	175°36.7	7.9'	S 17°37.0	-10.4'	59.2'	114°43.7	108°36.5	89°15.9	34°29.4	11°33.8	16°58.1	17°14.6	65°27.8
7	190°03.6	7.8'	17°47.4	-10.3'	59.2'	114° 12.5	108°18.7	88°44.3	33°54.1	12°08.2	17°30.9	17°47.4	66°03.1
8	204°30.4	7.8'	17°57.7	-10.2'	59.2'	113°41.3	108°00.9	88°12.7	33°18.8	12°42.7	18°03.7	18°20.3	66°38.4
9	218°57.2	7.7'	18°07.9	-10.1'	59.2'	113° 10.1	107°43.0	87°41.0	32°43.4	13°17.2	18°36.7	18°53.3	67°13.7
10	233°23.9	7.6'	18°17.9	-9.9'	59.2'	112°38.8	107°25.0	87°09.4	32°08.1	13°51.8	19°09.6	19°26.5	67°48.9
11	247°50.5	7.6'	$18^{\circ}27.9$	-9.8'	59.2'	112°07.5	107°07.0	86°37.8	31°32.8	14°26.5	19°42.7	19°59.8	68°24.2
12	262°17.1	7.5'	S 18°37.7	-9.7'	59.2'	111°36.1	106°48.8	86°06.2	30°57.5	15°01.2	20°15.8	20°33.1	68°59.5
13	276°43.6	7.4'	18°47.5	-9.6'	59.2'	111°04.8	106°30.6	85°34.5	30°22.2	15°36.0	20°48.9	21°06.6	69°34.8
14	291°10.0	7.4'	18°57.1	-9.5'	59.2'	110°33.4	106°12.3	85°02.9	29°46.9	16°10.8	21°22.1	21°40.1	70°10.1
15	305°36.4	7.3'	19°06.5	-9.4'	59.2'	110°02.0	105°53.9	84°31.4	29°11.6	16°45.7	21°55.3	22°13.7	70°45.4
16	320°02.7	7.2'	$19^{\circ}15.9$	-9.3'	59.2'	109°30.5	105°35.4	83°59.8	28°36.3	17°20.5	22°28.6	22°47.4	71°20.6
17	334°28.9	7.2'	19°25.2	-9.1'	59.2'	108°59.0	105°16.9	83°28.2	28°01.0	17°55.5	23°01.9	23°21.2	71°55.9
18	348°55.1	7.1'	S 19°34.3	-9.0'	59.2'	108°27.5	104°58.3	82°56.7	27°25.8	18°30.4	23°35.2	23°55.0	72°31.2
19	3°21.2	7.0'	19°43.3	-8.9'	59.2'	107°56.0	104°39.6	82°25.1	26°50.5	19°05.4	24°08.6	24°28.9	73°06.4
20	17°47.2	7.0'	19°52.2	-8.8'	59.2'	107°24.5	104°20.9	81°53.6	26°15.3	19°40.4	24°42.0	25°02.8	73°41.7
21	32°13.2	6.9'	$20^{\circ}01.0$	-8.6'	59.2'	106°52.9	104°02.1	81°22.1	25°40.0	20°15.4	25°15.4	25°36.8	74°17.0
22	46°39.1	6.9'	$20^{\circ}09.6$	-8.5'	59.1'	106°21.4	103°43.2	80°50.6	25°04.8	20°50.4	25°48.8	26°10.8	74°52.2
23	61°05.0	6.8'	20°18.1	-8.4'	59.1'	105°49.8	103°24.3	80°19.1	24°29.6	21°25.4	26°22.3	26°44.8	75°27.5
19 th	SD	= 16.2	Mer. pa	ss. 18:46									

Mars +Jupiter °55.7 27°18.9 °29.2 27°53.0 °02.7 28°27.2 °36.2 29°01.4 °09.8 29°35.6	+Regulus 76°02.7 76°38.0 77°13.2 77°48.4
°29.2 27°53.0 °02.7 28°27.2 °36.2 29°01.4	76°38.0 77°13.2
°02.7 28°27.2 °36.2 29°01.4	77°13.2
°36.2 29°01.4	
	770/18/
°09.8 29°35.6	11 40.4
	78°23.7
°43.3 30°09.9	78°58.9
°16.9 30°44.1	79°34.1
°50.4 31°18.4	80°09.3
°24.0 31°52.7	80°44.5
°57.6 32°27.0	81°19.7
°31.1 33°01.4	81°54.9
°04.7 33°35.7	82°30.1
°38.3 34°10.1	83°05.3
°11.9 34°44.5	83°40.5
°45.5 35°18.9	84°15.7
	84°50.8
	85°26.0
°26.3 37°02.2	86°01.1
°59.9 37°36.6	86°36.3
°33.5 38°11.0	87°11.4
°07.2 38°45.5	87°46.6
	88°21.7
	88°56.8
°48.0 40°28.9	89°31.9
9 0 0 1 1 2 3 3 4 4 5 5 6 6 7 8 8 9 1	9°43.3 30°09.9 0°16.9 30°44.1 0°50.4 31°18.4 1°24.0 31°52.7 1°57.6 32°27.0 2°31.1 33°01.4 4°11.9 44.5 4°45.5 35°18.9 5°19.1 35°53.3 5°52.7 6°26.3 37°02.2 6°59.9 37°36.6 7°33.5 8°07.2 38°45.5 8°40.8 39°19.9 9°14.4 30°54.4

SD = 16.1'

Mer. pass. 19:44

20th

h Moon (21st Jul)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Mars	+Jupiter	+Regulus
0	61°33.4	5.5'	S 23°06.4	-4.8'	59.0'	95°16.3	92°36.9	67°20.1	9°57.7	36°03.0	40°21.6	41°03.3	90°07.0
1	75°58.0	5.5'	23°11.2	-4.7'	59.0'	94°56.4	92°05.2	66°49.4	9°23.6	36°38.1	40°55.2	41°37.8	90°42.1
2	90°22.5	5.5'	23°15.9	-4.5'	58.9'	94°36.5	91°33.4	66°18.7	8°49.6	37°13.2	41°28.8	42°12.3	91°17.2
3	104°46.9	5.4'	23°20.4	-4.4'	58.9'	94°16.5	91°01.7	65°48.1	8° 15.8	37°48.2	42°02.4	42°46.8	91°52.2
4	119°11.4	5.4'	23°24.8	-4.2'	58.9'	93°56.6	90°30.0	65°17.5	7°42.3	38°23.3	42°36.0	43°21.2	92°27.3
5	133°35.8	5.4'	23°29.0	-4.1'	58.9'	93°36.6	89°58.3	64°47.0	7°09.0	38°58.4	43°09.5	43°55.7	93°02.4
6	148°00.1	5.3'	S 23°33.1	-3.9'	58.9'	93°16.6	89°26.6	64°16.5	6°36.1	39°33.4	43°43.1	44°30.2	93°37.4
7	162°24.5	5.3'	23°37.0	-3.8'	58.9'	92°56.6	88°54.9	63°46.1	6°03.5	40°08.5	44°16.7	45°04.7	94°12.4
8	176°48.8	5.3'	23°40.8	-3.6'	58.9'	92°36.6	88°23.2	63°15.7	5°31.5	40°43.5	44°50.3	45°39.1	94°47.5
9	191°13.1	5.3'	23°44.4	-3.4'	58.9'	92°16.6	87°51.5	62°45.4	5°00.3	41°18.6	45°23.8	46°13.6	95°22.5
10	205°37.3	5.2'	23°47.8	-3.3'	58.9'	91°56.6	87°19.8	62°15.1	4°30.0	41°53.6	45°57.4	46°48.1	95°57.5
11	220°01.6	5.2'	$23^{\circ}51.1$	-3.1'	58.9'	91°36.6	86°48.2	61°44.9		42°28.6	46°30.9	47°22.6	96°32.5
12	234°25.8	5.2'	S 23°54.2	-3.0'	58.8'	91°16.6	86°16.5	61°14.8		43°03.6	47°04.5	47°57.0	97°07.5
13	248°50.0	5.2'	23°57.2	-2.8'	58.8'	90°56.6	85°44.9	60°44.7		43°38.6	47°38.0	48°31.5	97°42.4
14	263°14.2	5.2'	24°00.0	-2.7'	58.8'	90°36.6	85°13.3	60°14.7		44°13.6	48°11.6	49°05.9	98° 17.4
15	277°38.4	5.2'	24°02.7	-2.5'	58.8'	90°16.6	84°41.7	59°44.7		44°48.6	48°45.1	49°40.4	98°52.3
16	292°02.5	5.1'	24°05.2	-2.3'	58.8'	89°56.6	84°10.1	59°14.8		45°23.6	49°18.6	50°14.8	99°27.3
17	306°26.7	5.1'	24°07.5	-2.2'	58.8'	89°36.6	83°38.6	58°45.0		45°58.5	49°52.1	50°49.3	100°02.2
18	320°50.8	5.1'	S 24°09.7	-2.0'	58.8'	89°16.6	83°07.0	58°15.3		46°33.5	50°25.6	51°23.7	100°37.1
19	335°15.0	5.1'	$24^{\circ}11.7$	-1.9'	58.8'	88° 56.6	82°35.5	57°45.6		47°08.4	50°59.1	51°58.1	101°12.0
20	349°39.1	5.1'	24°13.5	-1.7'	58.8'	88°36.7	82°04.0	57°16.0		47°43.4	51°32.6	52°32.6	101°46.9
21	4°03.2	5.1'	24°15.2	-1.5'	58.7'	88°16.7	81°32.5	56°46.5		48°18.3	52°06.1	53°07.0	102°21.8
22	18°27.3	5.1'	$24^{\circ}16.8$	-1.4'	58.7'	87°56.8	81°01.1	56°17.0		48°53.2	52°39.5	53°41.4	102°56.7
23	32°51.4	5.1'	24°18.1	-1.2'	58.7'	87°36.9	80°29.6	55°47.6		49°28.1	53°13.0	54°15.8	103°31.5
21 st	SD :	= 16.1'	Mer. pas	s. 20:43	3								

Moon (22nd Jul)

h

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	47°15.5	5.1'	S 24°19.4	-1.0'	58.7'	89°09.0	87°17.0	79°58.2	55° 18.3		50°03.0	54°50.2	104°06.3
1	61°39.7	5.1'	24°20.4	-0.9'	58.7'	88°53.9	86°57.1	79°26.8	54°49.1	5°29.9	50°37.9	55°24.6	104°41.2
2	76°03.8	5.1'	24°21.3	-0.7'	58.7'	88°38.7	86°37.3	78°55.5	54°20.0	6°01.6	51°12.8	55°58.9	105°16.0
3	90°27.9	5.1'	24°22.0	-0.6'	58.7'	88°23.6	86°17.4	78°24.1	53°51.0	6°33.9	51°47.6	56°33.3	105°50.8
4	104°52.1	5.1'	24°22.6	-0.4'	58.7'	88°08.5	85°57.6	77°52.8	53°22.1	7°06.6	52°22.5	57°07.6	106°25.6
5	119°16.2	5.2'	24°23.0	-0.2'	58.6'	87°53.4	85°37.8	77°21.5	52°53.2	7°39.6	52°57.3	57°42.0	107°00.3
6	133°40.4	5.2'	S 24°23.2	-0.1'	58.6'	87°38.3	85°18.0	76°50.2	52°24.5	8°12.8	53°32.1	58°16.3	107°35.1
7	148°04.5	5.2'	24°23.3	0.1'	58.6'	87°23.2	84°58.3	76° 19.0	51°55.8	8°46.3	54°06.9	58°50.6	108°09.8
8	162°28.7	5.2'	24°23.3	0.2'	58.6'	87°08.2	84°38.6	75° 47.8	51°27.3	9°19.9	54°41.7	59°25.0	108°44.5
9	176°52.9	5.2'	24°23.0	0.4'	58.6'	86°53.1	84°18.9	75° 16.6	50°58.9	9°53.6	55°16.5	59°59.3	109° 19.3
10	191°17.2	5.2'	24°22.6	0.6'	58.6'	86°38.1	83°59.3	74° 45.5	50°30.5	10°27.5	55°51.2	60°33.5	109°53.9
11	205°41.4	5.3'	24°22.1	0.7'	58.6'		83°39.7	74°14.4	50°02.3	11°01.4	56°26.0	61°07.8	110°28.6
12	220°05.7	5.3'	S 24°21.4	0.9'	58.5'		83°20.1	73°43.3	49°34.2	11°35.4	57°00.7	61°42.1	111°03.3
13	234°30.0	5.3'	24°20.5	1.0'	58.5'		83°00.6	73° 12.3	49°06.2	12°09.4	57°35.5	62°16.3	111°37.9
14	248°54.3	5.4'	$24^{\circ}19.5$	1.2'	58.5'		82°41.1	72°41.3	48°38.4	12°43.6	58°10.2	62°50.6	112°12.6
15	263°18.7	5.4'	24°18.3	1.3'	58.5'		82°21.6	72°10.3	48°10.6	13°17.7	58°44.9	63°24.8	112°47.2
16	277°43.0	5.4'	24°16.9	1.5'	58.5'		82°02.2	71°39.4	47°43.0	13°51.9	59°19.5	63°59.0	113°21.8
17	292°07.5	5.4'	24°15.4	1.7'	58.5'		81°42.8	71°08.5	47° 15.5	14°26.1	59°54.2	64°33.2	113°56.3
18	306°31.9	5.5'	S 24°13.8	1.8'	58.4'		81°23.5	70°37.6	46°48.2	15°00.3	60°28.8	65°07.4	114°30.9
19	320°56.4	5.5'	24°12.0	2.0'	58.4'		81°04.2	70°06.8	46°21.0	15°34.6	61°03.5	65°41.6	115°05.4
20	335°20.9	5.6'	24°10.0	2.1'	58.4'		80°45.0	69°36.0	45°53.9	16°08.8	61°38.1	66°15.7	115°40.0
21	349°45.5	5.6'	24°07.9	2.3'	58.4'		80°25.8	69°05.3	45°27.0	16°43.1	62°12.7	66°49.9	116° 14.5
22	4°10.1	5.6'	24°05.6	2.4'	58.4'		80°06.6	68°34.6	45°00.2	17°17.4	62°47.3	67°24.0	116°48.9
23	18°34.7	5.7'	24°03.1	2.6'	58.4'		79°47.5	68°04.0	44°33.6	17°51.7	63°21.8	67°58.1	117°23.4
22 nd	SD =	= 16.0'	Mer. pass	s. 21:43									

		(aard	1 1
h	Moon	(7) XIU	Tril 1

Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Jupiter	+Regulus
0	32°59.4	5.7'	S 24°00.5	2.7'	58.3'	79°28.5	67°33.4	44°07.2	18°26.0	63°56.4	67°05.2	68°32.2	117°57.9
1	47°24.1	5.8'	23°57.8	2.9'	58.3'	79°09.5	67°02.8	43°40.9	19°00.2	64°30.9	67°38.3	69°06.3	118°32.3
2	61°48.9	5.8'	23°54.9	3.0'	58.3'	78°50.6	66°32.3	43°14.8	19°34.5	65°05.4	68°11.4	69°40.4	119°06.7
3	76°13.7	5.9'	23°51.9	3.2'	58.3'	78°31.8	66°01.9	42°48.8	20°08.8	65°39.9	68°44.4	70°14.4	119°41.1
4	90°38.6	5.9'	23°48.7	3.3'	58.3'	78°13.0	65°31.5	42°23.1	20°43.1	66°14.4	69°17.5	70°48.4	
5	105°03.5	6.0'	23°45.3	3.5'	58.3'	77°54.2	65°01.1	41°57.5	21°17.4	66°48.8	69°50.5	71°22.4	
6	119°28.5	6.0'	S 23°41.8	3.6'	58.2'	77°35.5	64°30.9	41°32.1	21°51.6	67°23.3	70°23.5	71°56.4	
7	133°53.6	6.1'	23°38.2	3.8'	58.2'	77°16.9	64°00.6	41°06.9	22°25.9	67°57.7	70°56.5	72°30.4	
8	148°18.6	6.2'	23°34.4	3.9'	58.2'	76°58.4	63°30.4	40°41.9	23°00.2	68°32.1	71°29.5	73°04.4	
9	162°43.8	6.2'	23°30.5	4.1'	58.2'	76°39.9	63°00.3	40° 17.1	23°34.4	69°06.5	72°02.4	73°38.3	
10	177°09.0	6.3'	23°26.4	4.2'	58.2'	76°21.5	62°30.2	39°52.5	24°08.6	69°40.9	72°35.4	74°12.2	
11	191°34.3	6.3'	23°22.2	4.4'	58.2'	76°03.1	62°00.2	39°28.1	24°42.8	70°15.2	73°08.3	74°46.2	
12	205°59.6	6.4'	S 23°17.8	4.5'	58.1'	75°44.9	61°30.3	39°04.0	25°17.0	70°49.5	73°41.2	75°20.0	
13	220°25.0	6.5'	23°13.3	4.7'	58.1'	75°26.7	61°00.4	38°40.1	25°51.2	71°23.8	74°14.1	75°53.9	
14	234°50.5	6.5'	23°08.6	4.8'	58.1'	75°08.5	60°30.6	38°16.4	26°25.4	71°58.1	74°46.9	76°27.8	
15	249°16.0	6.6'	23°03.9	4.9'	58.1'	74°50.5	60°00.8	37°53.0	26°59.6	72°32.4	75°19.7	77°01.6	
16	263°41.6	6.7'	22°58.9	5.1'	58.1'	74°32.5	59°31.1	37°29.8	27°33.7	73°06.6	75°52.6	77°35.4	
17	278°07.2	6.7'	22°53.9	5.2'	58.0'	74°14.7	59°01.5	37°06.9	28°07.9	73°40.9	76°25.3	78°09.2	
18	292°33.0	6.8'	S 22°48.6	5.3'	58.0'	73°56.8	58°32.0	36°44.2	28°42.0	74°15.1	76°58.1	78°42.9	
19	306°58.8	6.9'	22°43.3	5.5'	58.0'	73°39.1	58°02.5	36°21.8	29°16.1	74°49.2	77°30.9	79°16.7	
20	321°24.6	6.9'	22°37.8	5.6'	58.0'	73°21.5	57°33.1	35°59.7	29°50.2	75°23.4	78°03.6	79°50.4	
21	335°50.6	7.0'	22°32.2	5.7'	58.0'	73°03.9	57°03.8	35°37.9	30°24.2	75°57.5	78°36.3	80°24.1	
22	350°16.6	7.1'	22°26.5	5.9'	57.9'	72°46.5	56°34.5	35° 16.4	30°58.3	76°31.7	79°09.0	80°57.8	
23	4°42.7	7.2'	22°20.6	6.0'	57.9'	72°29.1	56°05.4	34°55.2	31°32.3	77°05.8	79°41.7	81°31.5	
23 rd	SD =	= 15.9′	Mer. pass	s. 22:40	0		-						

h Moon (24th Jul)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Mars	+Jupiter
0	19°08.8	7.2'	S 22°14.6	6.1'	57.9'		72°11.8	55°36.3	34°34.3	32°06.3	77°39.8	80°14.3	82°05.1
1	33°35.1	7.3'	22°08.4	6.3'	57.9'		71°54.6	55°07.3	34°13.8	32°40.3	78°13.9	80°46.9	82°38.7
2	48°01.4	7.4'	22°02.2	6.4'	57.9'		71°37.5	54° 38.3	33°53.5	33°14.3	78°47.9	81° 19.5	83°12.3
3	62°27.8	7.5'	$21^{\circ}55.8$	6.5'	57.8'		71°20.5	54°09.5	33°33.6	33°48.2	79°21.9	81°52.1	83°45.9
4	76°54.3	7.6'	$21^{\circ}49.2$	6.6'	57.8'		71°03.6	53°40.8	33°14.1	34°22.2	79°55.9	82°24.7	84°19.4
5	91°20.8	7.6'	21°42.6	6.8'	57.8'		70°46.8	53°12.1	32°54.9	34°56.1	80°29.9	82°57.2	84°53.0
6	105°47.5	7.7'	S 21°35.8	6.9'	57.8'		70°30.1	52°43.5	32°36.1	35°30.0	81°03.8	83°29.7	85°26.5
7	120°14.2	7.8'	$21^{\circ}28.9$	7.0'	57.8'		70°13.5	52°15.1	32°17.7	36°03.8	81°37.7	84°02.2	86°00.0
8	134°41.0	7.9'	$21^{\circ}21.9$	7.1'	57.7'		69°57.0	51°46.7	31°59.6	36°37.7	82°11.6	84°34.6	86°33.4
9	149°07.9	8.0'	$21^{\circ}14.8$	7.3'	57.7'		69°40.6	51°18.4	31°42.0	37°11.5	82°45.5	85°07.1	87°06.8
10	163°34.8	8.1'	$21^{\circ}07.5$	7.4'	57.7'		69°24.3	50°50.3	31°24.8	37°45.3	83°19.3	85°39.5	87°40.3
11	178°01.9	8.1'	$21^{\circ}00.1$	7.5'	57.7'		69°08.2	50°22.2	31°08.0	38°19.1	83°53.1	86°11.9	88°13.6
12	192°29.0	8.2'	S 20°52.7	7.6'	57.6'		68°52.1	49°54.2	30°51.6	38°52.9	84°26.9	86°44.2	88°47.0
13	206°56.2	8.3'	$20^{\circ}45.1$	7.7'	57.6'		68°36.1	49° 26.4	30°35.6	39°26.6	85°00.7	87° 16.6	89°20.3
14	221°23.6	8.4'	20°37.3	7.8'	57.6'		68°20.3	48° 58.7	30°20.2	40°00.3	85°34.4	87°48.9	89°53.6
15	235°50.9	8.5'	$20^{\circ}29.5$	7.9'	57.6'		68°04.6	48°31.0	30°05.1	40°34.0	86°08.2	88°21.2	90°26.9
16	250°18.4	8.6'	$20^{\circ}21.6$	8.0'	57.6'		67°49.0	48°03.5		41°07.7	86°41.8	88°53.4	91°00.2
17	264°46.0	8.7'	$20^{\circ}13.5$	8.2'	57.5'		67°33.5	47°36.2		41°41.3	87°15.5	89°25.7	91°33.4
18	279°13.6	8.7'	S 20°05.4	8.3'	57.5'		67°18.1	47°08.9		42°14.9	87°49.2	89°57.9	92°06.6
19	293°41.4	8.8'	$19^{\circ}57.1$	8.4'	57.5'		67°02.8	46°41.8		42°48.5	88°22.8	90°30.0	92°39.8
20	308°09.2	8.9'	19°48.7	8.5'	57.5'		66°47.7	46° 14.8		43°22.1	88°56.4	91°02.2	93°13.0
21	322°37.1	9.0'	19°40.2	8.6'	57.4'	119°44.2	66°32.7	45° 47.9		43°55.6	89°29.9	91°34.3	93°46.1
22	337°05.1	9.1'	19°31.7	8.7'	57.4'	119°11.0		45°21.2		44°29.2	90°03.5	92°06.4	94°19.2
23	351°33.2	9.2'	19°23.0	8.8'	57.4'	118°37.9		44°54.6		45°02.6	90°37.0	92°38.5	94°52.3
24 th	SD =	= 15.8′	Mer. pass	s. 23:35	5								

Moon (25th Jul)

h

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica	+Mars	+Jupiter
0	6°01.4	9.3'	S 19°14.2	8.9'	57.4'	118°04.7	44°28.2	45°36.1	66°45.4	89°40.1	91°10.5	93°10.6	95°25.3
1	20°29.6	9.4'	19°05.3	9.0'	57.3'	117°31.6	44°01.9	46°09.6	67°09.6	90°07.4	91°43.9	93°42.6	95°58.4
2	34°58.0	9.4'	18°56.4	9.1'	57.3'	116°58.5	43°35.7	46°43.0	67°33.9	90°34.6	92°17.4	94°14.6	96°31.4
3	49°26.4	9.5'	18°47.3	9.2'	57.3'	116°25.4	43°09.7	47°16.4	67°58.2	91°01.8	92°50.8	94°46.6	97°04.3
4	63°55.0	9.6'	18°38.1	9.3'	57.3'	115°52.4	42°43.9	47°49.7	68°22.5	91°28.9	93°24.1	95° 18.5	97°37.3
5	78°23.6	9.7'	18°28.9	9.4'	57.3'	115° 19.4	42°18.2	48°23.1	68°46.9	91°56.1	93°57.5	95°50.4	98°10.2
6	92°52.3	9.8'	S 18°19.5	9.4'	57.2'	114°46.4	41°52.8	48°56.4	69°11.3	92°23.2	94°30.8	96°22.3	98°43.1
7	107°21.1	9.9'	$18^{\circ}10.1$	9.5'	57.2'	114° 13.4	41°27.4	49°29.7	69°35.8	92°50.3	95°04.1	96°54.2	99°15.9
8	121°50.0	10.0'	18°00.5	9.6'	57.2'	113°40.5	41°02.3	50°02.9	70°00.2	93°17.4	95°37.4	97°26.0	99°48.8
9	136°19.0	10.1'	17°50.9	9.7'	57.2'	113°07.6	40°37.3	50°36.2	70°24.8	93°44.4	96°10.6	97°57.8	100°21.6
10	150°48.0	10.2'	17°41.2	9.8'	57.1'	112°34.7	40°12.5	51°09.4	70°49.3	94°11.4	96°43.8	98° 29.6	100°54.3
11	165°17.2	10.2'	17°31.4	9.9'	57.1'	112°01.8	39°47.9	51°42.6	71°13.9	94°38.4	97°17.0	99°01.3	101°27.1
12	179°46.4	10.3'	S 17°21.5	10.0'	57.1'	111°29.0	39°23.5	52°15.7	71°38.5	95°05.3	97°50.2	99°33.1	101°59.8
13	194°15.8	10.4'	$17^{\circ}11.6$	10.0'	57.1'	110°56.2	38°59.4	52°48.8	72°03.2	95°32.2	98°23.3	100°04.8	102°32.5
14	208°45.2	10.5'	$17^{\circ}01.5$	10.1'	57.0'	110°23.4	38°35.4	53°21.9	72°27.8	95°59.1	98°56.4	100°36.4	103°05.1
15	223°14.7	10.6'	$16^{\circ}51.4$	10.2'	57.0'	109°50.6	38°11.6	53°55.0	72°52.5	96°26.0	99°29.5	101°08.0	103°37.8
16	237°44.3	10.7'	16°41.2	10.3'	57.0'	109° 17.9	37°48.0	54°28.0	73°17.2	96°52.8	100°02.5	101°39.7	104°10.4
17	252°13.9	10.8'	16°30.9	10.4'	57.0'	108°45.2	37°24.7	55°01.1	73°42.0	97°19.5	100°35.5	102°11.2	104°42.9
18	266°43.7	10.9'	S 16°20.6	10.4'	56.9'	108° 12.5	37°01.6	55°34.0	74°06.7	97°46.3	101°08.5	102°42.8	105°15.5
19	281°13.6	10.9'	$16^{\circ}10.2$	10.5'	56.9'	107°39.9	36°38.7	56°07.0	74°31.5	98°13.0	101°41.5	103°14.3	105°48.0
20	295°43.5	11.0'	15°59.7	10.6'	56.9'	107°07.3	36°16.1	56°39.9	74°56.3	98°39.6	102°14.4	103°45.8	106°20.5
21	310°13.5	11.1'	$15^{\circ}49.1$	10.6'	56.9'	106°34.7	35°53.8	57°12.8	75°21.1	99°06.3	102°47.3	104°17.2	106°52.9
22	324°43.6	11.2'	$15^{\circ}38.5$	10.7'	56.8'	106°02.1	35°31.6	57°45.7	75°45.9	99°32.8	103°20.2	104°48.7	107°25.3
23	339°13.8	11.3'	15°27.7	10.8'	56.8'	105°29.6	35°09.8	58°18.5	76°10.7	99°59.4	103°53.0	105°20.1	107°57.7
25 th	SE	0 = 15.6	Mer. pa	ss:-									

h Moon (26th Jul)

Thu	GHA	ν	Dec	d	HP	-Rigel	-Capella	-Aldebaran	-Saturn	+Antares	+Spica	+Mars	+Jupiter
0	353°44.1	11.4'	S 15°17.0	10.8'	56.8'				104°57.0	58°51.4	104°25.8	105°51.4	108°30.1
1	8°14.5	11.4'	$15^{\circ}06.1$	10.9'	56.8'				104°24.6	59°24.1	104°58.6	106°22.8	109°02.4
2	22°44.9	11.5'	14°55.2	11.0'	56.7'				103°52.1	59° 56.9	105°31.4	106°54.1	109°34.7
3	37°15.4	11.6'	14°44.2	11.0'	56.7'				103°19.7	60°29.6	106°04.1	107°25.4	110°07.0
4	51°46.0	11.7'	14°33.2	11.1'	56.7'			119°33.4	102°47.3	61°02.3	106°36.8	107°56.6	110°39.2
5	66°16.7	11.8'	$14^{\circ}22.1$	11.2'	56.7'			119°01.1	102°14.9	61°35.0	107°09.5	108°27.8	111°11.4
6	80°47.5	11.9'	S 14°10.9	11.2'	56.6'			118°28.8	101°42.6	62°07.6	107°42.1	108°59.0	111°43.6
7	95°18.3	11.9'	13°59.7	11.3'	56.6'			117°56.5	101°10.3	62°40.2	108°14.7	109°30.2	112°15.7
8	109°49.3	12.0'	13°48.5	11.3'	56.6'			117°24.2	100°38.0	63° 12.8	108°47.3	110°01.3	112°47.8
9	124°20.3	12.1'	13°37.1	11.4'	56.6'			116°52.0	100°05.7	63°45.4	109°19.8	110°32.4	113°19.9
10	138°51.4	12.2'	13°25.7	11.4'	56.5'	119°51.3		116°19.8	99°33.5	64°17.9	109°52.3	111°03.5	113°51.9
11	153°22.6	12.2'	$13^{\circ}14.3$	11.5'	56.5'	119°25.8		115°47.6	99°01.3	64°50.4	110°24.8	111°34.5	114°24.0
12	167°53.8	12.3'	S 13°02.8	11.5'	56.5'	119°00.2		115° 15.5	98°29.2	65°22.9	110°57.3	112°05.5	114°55.9
13	182°25.1	12.4'	$12^{\circ}51.3$	11.6'	56.5'	118°34.5		114°43.4	97°57.0	65°55.3	111°29.7	112°36.5	115°27.9
14	196°56.5	12.5'	12°39.7	11.6'	56.4'	118°08.9		114°11.3	97°24.9	66°27.7	112°02.1	113°07.4	115°59.8
15	211°28.0	12.6'	12°28.0	11.7'	56.4'	117°43.1		113°39.2	96°52.8	67°00.1	112°34.4	113°38.3	116°31.7
16	225°59.6	12.6'	12°16.3	11.7'	56.4'	117°17.4	_	113°07.2	96°20.8	67°32.4	113°06.8	114°09.2	117°03.6
17	240°31.2	12.7'	12°04.6	11.8'	56.4'	116°51.6	119°43.5	112°35.1	95°48.8	68°04.7	113°39.1	114°40.1	117°35.4
18	255°02.9	12.8'	S 11°52.8	11.8'	56.3'	116°25.8	119°14.2	112°03.2	95°16.8	68°37.0	114°11.3	115°10.9	118°07.2
19	269°34.7	12.8'	11°41.0	11.9'	56.3'	115°59.9	118°44.9	111°31.2	94°44.8	69°09.3	114°43.6	115°41.7	118°38.9
20	284°06.5	12.9'	$11^{\circ}29.1$	11.9'	56.3'	115°34.1	118°15.6	110°59.3	94°12.9	69°41.5	115°15.8	116°12.4	119°10.7
21	298°38.4	13.0'	11° 17.2	12.0'	56.3'	115°08.2	117°46.4	110°27.4	93°41.0	70° 13.7	115°48.0	116°43.2	119°42.4
22	313°10.4	13.1'	11°05.3	12.0'	56.2'	114°42.2	117°17.1	109°55.5	93°09.1	70°45.9	116°20.1	117°13.9	
23	327°42.5	13.1'	10°53.3	12.0'	56.2'	114°16.3	116°47.8	109°23.6	92°37.3	71°18.0	116°52.2	117°44.5	
26 th	SD	$=15.5^{\prime}$	Mer. pass	. 00:26									

Moon (27th Jul)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Arcturus	+Spica	+Mars
0	342°14.6	13.2'	S 10°41.2	12.1'	56.2'		116°18.6	108°51.8	92°05.5	71°50.1	110°46.4	117°24.3	118°15.2
1	356°46.8	13.3'	$10^{\circ}29.2$	12.1'	56.2'		115°49.3	108°20.0	91°33.7	72°22.2	111°11.5	117°56.4	118°45.8
2	11°19.0	13.3'	$10^{\circ}17.1$	12.1'	56.1'		115°20.0	107°48.2	91°01.9	72°54.2	111°36.5	118°28.4	119°16.3
3	25°51.4	13.4'	10°04.9	12.2'	56.1'		114°50.8	107° 16.5	90°30.2	73°26.2	112°01.5	119°00.4	119°46.9
4	40°23.8	13.5'	09°52.7	12.2'	56.1'		114°21.5	106°44.8	89°58.5	73°58.2	112°26.4	119°32.4	
5	54°56.2	13.5'	09°40.5	12.2'	56.1'		113°52.2	106°13.1	89°26.8	74°30.2	112°51.3		
6	69°28.8	13.6'	S 09°28.3	12.3'	56.0'		113°23.0	105°41.4	88°55.2	75°02.1	113°16.0		
7	84°01.3	13.6'	$09^{\circ}16.0$	12.3'	56.0'		112°53.8	105°09.8	88°23.6	75°34.0	113°40.7		
8	98°34.0	13.7'	09°03.7	12.3'	56.0'		112°24.5	104°38.2	87°52.0	76°05.9	114°05.3		
9	113°06.7	13.8'	08°51.4	12.4'	56.0'		111°55.3	104°06.6	87°20.5	76°37.7	114°29.8		
10	127°39.5	13.8'	$08^{\circ}39.1$	12.4'	55.9'		111°26.1	103°35.1	86°49.0	77°09.5	114°54.3		
11	142°12.3	13.9'	08°26.7	12.4'	55.9'		110°56.9	103°03.6	86°17.5	77°41.3	115°18.7		
12	156°45.2	14.0'	S 08°14.3	12.4'	55.9'		110°27.7	102°32.1	85°46.0	78°13.1	115°42.9		
13	171°18.1	14.0'	$08^{\circ}01.9$	12.5'	55.9'		109°58.5	102°00.6	85°14.6	78°44.8	116°07.2		
14	185°51.2	14.1'	07°49.4	12.5'	55.8'		109°29.3	101°29.2	84°43.2	79°16.5	116°31.3		
15	200°24.2	14.1'	07°36.9	12.5'	55.8'	119°35.7	109°00.1	100°57.8	84°11.8	79°48.1	116°55.3		
16	214°57.3	14.2'	07°24.4	12.5'	55.8'	119°05.8	108°31.0	100°26.4	83°40.5	80°19.8	117°19.3		
17	229°30.5	14.2'	$07^{\circ}11.9$	12.5'	55.8'	118°35.8	108°01.8	99°55.1	83°09.2	80°51.4	117°43.2		
18	244°03.7	14.3'	S 06°59.4	12.6'	55.7'	118°05.9	107°32.7	99°23.8	82°37.9	81°22.9	118°07.0		
19	258°37.0	14.3'	06°46.8	12.6'	55.7'	117°36.0	107°03.6	98°52.5	82°06.6	81°54.5	118°30.7		
20	273°10.4	14.4'	06°34.3	12.6'	55.7'	117°06.1	106°34.5	98°21.2	81°35.4	82°26.0	118°54.3		
21	287°43.7	14.4'	$06^{\circ}21.7$	12.6'	55.7'	116°36.2	106°05.4	97°50.0	81°04.2	82°57.5	119°17.8		
22	302°17.2	14.5'	$06^{\circ}09.1$	12.6'	55.7'	116°06.3	105°36.3	97°18.8	80°33.0	83°29.0	119°41.2		
23	316°50.7	14.5'	05° 56.5	12.6'	55.6'	115°36.5	105°07.3	96°47.6	80°01.9	84°00.4			
27 th	SD = 15.3' Mer. pass. 01:13												

h		Moor	า (28 th Jเ	ıl)		Lunar Distance (objects with largest hourly LD delta)							
Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	331°24.2	14.6'	S 05°43.8	12.6'	55.6'	115°06.6	104°38.2	96°16.4	79°30.8	39°13.0	84°31.8	96° 19.4	100°22.8
1	345°57.8	14.6'	05°31.2	12.7'	55.6'	114°36.8	104°09.2	95°45.3	78°59.7	39°35.1	85°03.2	96°43.5	100°46.3
2	0°31.4	14.7'	$05^{\circ}18.5$	12.7'	55.6'	114°07.0	103°40.2	95°14.2	78°28.7	39°57.4	85°34.5	97° 07.6	101°09.7
3	15°05.1	14.7'	$05^{\circ}05.9$	12.7'	55.5'	113°37.1	103°11.2	94°43.1	77°57.7	40°19.8	86°05.8	97°31.6	101°33.2
4	29°38.8	14.8'	04°53.2	12.7'	55.5'	113°07.4	102°42.2	94°12.1	77°26.7	40°42.3	86°37.1	97°55.6	101°56.5
5	44°12.6	14.8'	04°40.5	12.7'	55.5'	112°37.6	102°13.3	93°41.1	76°55.7	41°05.0	87°08.4	98° 19.6	102°19.9
6	58°46.4	14.8'	S 04°27.8	12.7'	55.5'	112°07.8	101°44.3	93°10.1	76°24.8	41°27.9	87°39.6	98° 43.5	102°43.1
7	73°20.2	14.9'	$04^{\circ}15.1$	12.7'	55.4'	111°38.1	101°15.4	92°39.1	75°53.9	41°50.8	88°10.8	99°07.4	103°06.4
8	87°54.1	14.9'	$04^{\circ}02.4$	12.7'	55.4'	111°08.3	100°46.5	92°08.2	75°23.0	42°13.9	88°42.0	99°31.3	103°29.5
9	102°28.0	15.0'	03°49.7	12.7'	55.4'	110°38.6	100°17.6	91°37.3	74°52.1	42°37.1	89°13.1	99°55.1	103°52.7
10	117°02.0	15.0'	03°37.0	12.7'	55.4'	110°08.9	99°48.7	91°06.4	74°21.3	43°00.4	89°44.3	100°18.8	104°15.7
11	131°36.0	15.0'	03°24.3	12.7'	55.4'	109°39.2	99°19.9	90°35.6	73°50.5	43°23.9	90°15.4	100°42.5	104°38.7
12	146°10.0	15.1'	S 03°11.6	12.7'	55.3'	109°09.6	98°51.0	90°04.7	73°19.7	43°47.4	90°46.4	101°06.2	105°01.7
13	160°44.1	15.1'	02°58.8	12.7'	55.3'	108°39.9	98°22.2	89°34.0	72°49.0	44°11.1	91°17.5	101°29.9	105°24.6
14	175°18.2	15.1'	$02^{\circ}46.1$	12.7'	55.3'	108° 10.3	97°53.4	89°03.2	72°18.3	44°34.8	91°48.5	101°53.4	105°47.5
15	189°52.4	15.2'	02°33.4	12.7'	55.3'	107°40.7	97°24.6	88°32.4	71°47.6	44°58.6	92°19.5	102° 17.0	106°10.3
16	204°26.6	15.2'	$02^{\circ}20.7$	12.7'	55.2'	107°11.1	96°55.9	88°01.7	71°16.9	45°22.6	92°50.4	102°40.5	106°33.0
17	219°00.8	15.2'	$02^{\circ}08.0$	12.7'	55.2'	106°41.5	96°27.1	87°31.0	70°46.3	45°46.6	93°21.3	103°03.9	106°55.7
18	233°35.0	15.3'	S 01°55.2	12.7'	55.2'	106° 12.0	95°58.4	87°00.4	70°15.7	46°10.7	93°52.3	103°27.3	107°18.3
19	248°09.3	15.3'	$01^{\circ}42.5$	12.7'	55.2'	105°42.4	95°29.7	86°29.7	69°45.1	46°34.9	94°23.1	103°50.7	107°40.9
20	262°43.6	15.3'	$01^{\circ}29.8$	12.7'	55.2'	105° 12.9	95°01.0	85°59.1	69°14.6	46°59.2	94°54.0	104°14.0	108°03.4
21	277°17.9	15.4'	$01^{\circ}17.1$	12.7'	55.1'	104°43.4	94°32.4	85°28.5	68°44.1	47°23.5	95°24.8	104°37.3	108°25.8
22	291°52.3	15.4'	$01^{\circ}04.4$	12.7'	55.1'	104°13.9	94°03.7	84°58.0	68°13.6	47°48.0	95°55.6	105°00.5	108°48.2
23	306°26.7	15.4'	00°51.7	12.7'	55.1'	103°44.4	93°35.1	84°27.4	67°43.1	48°12.5	96°26.4	105°23.6	109°10.5
28 th	SD	$=15.2^{\prime}$	Mer. pass	. 01:58									

Moon (29th Jul)

Sun	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	321°01.1	15.4'	S 00°39.0	12.7'	55.1'		103°15.0	83°56.9	67° 12.6	48°37.0	96°57.2	105°46.7	109°32.8
1	335°35.6	15.5'	00°26.4	12.7'	55.1'		102°45.5	83°26.4	66°42.2	49°01.7	97°27.9	106°09.8	109°55.0
2	350°10.0	15.5'	$00^{\circ}13.7$	12.7'	55.0'		102°16.1	82°56.0	$66^{\circ}11.8$	49°26.4	97°58.6	106°32.8	110°17.1
3	4°44.5	15.5'	S 00°01.0	12.7'	55.0'		101°46.7	82°25.6	65°41.5	49°51.1	98°29.3	106°55.7	110°39.2
4	19°19.0	15.5'	$N00^{\circ}11.6$	12.6'	55.0'		101°17.4	81°55.1	$65^{\circ}11.1$	50°16.0	98°59.9	107° 18.6	111°01.2
5	33°53.6	15.6'	00°24.3	12.6'	55.0'		100°48.0	81°24.8	64°40.8	50°40.9	99°30.5	107°41.4	111°23.1
6	48°28.1	15.6'	N00°36.9	12.6'	55.0'		100°18.7	80°54.4	64°10.5	51°05.8	100°01.1	108°04.2	111°44.9
7	63°02.7	15.6'	00°49.5	12.6'	54.9'		99°49.3	80°24.1	63°40.2	51°30.8	100°31.7	108° 26.9	112°06.7
8	77°37.3	15.6'	$01^{\circ}02.1$	12.6'	54.9'		99°20.0	79°53.8	63°10.0	51°55.8	101°02.3	108°49.6	112°28.4
9	92°11.9	15.6'	$01^{\circ}14.7$	12.6'	54.9'		98°50.8	79°23.5	62°39.8	52°20.9	101°32.8	109° 12.2	112°50.0
10	106°46.5	15.6'	01°27.3	12.6'	54.9'		98°21.5	78°53.2	62°09.6	52°46.1	102°03.3	109°34.7	113°11.6
11	121°21.2	15.7'	$01^{\circ}39.8$	12.5'	54.9'		97°52.2	78°23.0	61°39.4	53°11.3	102°33.8	109°57.2	113°33.1
12	135°55.8	15.7'	$N01^{\circ}52.4$	12.5'	54.9'	119°38.7	97°23.0	77° 52.7	61°09.3	53°36.5	103°04.3	110° 19.6	113°54.5
13	150°30.5	15.7'	02°04.9	12.5'	54.8'	119°08.7	96°53.8	77°22.6	60°39.2	54°01.8	103°34.7	110°41.9	114°15.8
14	165°05.2	15.7'	$02^{\circ}17.4$	12.5'	54.8'	118°38.6	96°24.6	76°52.4	$60^{\circ}09.1$	54°27.1	104°05.1	111°04.2	114°37.1
15	179°39.9	15.7'	$02^{\circ}29.9$	12.5'	54.8'	118°08.6	95°55.4	76°22.2	59°39.0	54°52.5	104°35.5	111°26.4	114°58.3
16	194°14.6	15.7'	02°42.4	12.5'	54.8'	117°38.6	95°26.3	75°52.1	59°09.0	55°17.9	105°05.9	111°48.6	115°19.4
17	208°49.3	15.7'	02°54.8	12.4'	54.8'	117°08.7	94°57.2	75°22.0	58° 38.9	55°43.4	105°36.3	112°10.7	115°40.4
18	223°24.0	15.7'	$N03^{\circ}07.2$	12.4'	54.7'	116°38.7	94°28.0	74°51.9	58°08.9	56°08.8	106°06.6	112° 32.7	116°01.3
19	237°58.7	15.7'	$03^{\circ}19.7$	12.4'	54.7'	116°08.8	93°58.9	74°21.9	57°39.0	56°34.4	106°36.9	112°54.7	116°22.2
20	252°33.5	15.7'	03°32.0	12.4'	54.7'	115°38.9	93°29.9	73°51.8	57°09.0	56°59.9	107°07.2	113° 16.5	116°42.9
21	267°08.2	15.8'	03°44.4	12.3'	54.7'	115°09.0	93°00.8	73°21.8	56°39.1	57°25.5	107°37.5	113°38.4	117°03.6
22	281°43.0	15.8'	03°56.8	12.3'	54.7'	114°39.1	92°31.8	72°51.8	56°09.2	57°51.1	108°07.7	114°00.1	117°24.2
23	296°17.7	15.8'	04°09.1	12.3'	54.7'	114°09.2	92°02.7	72°21.9	55°39.3	58°16.7	108°37.9	114°21.8	117°44.7
29 th	SD	$=15.0^{\prime}$	Mer. pass	. 02:40									

23

30th

 $286^{\circ}11.0$

15.6

SD = 14.9'

 $08^{\circ}55.9$

Mer. pass. 03:22

11.5'

54.4

 $106^{\circ}24.3$

 $102^{\circ}17.0$

 $60^{\circ}28.5$

43°48.2

 $44^{\circ}15.2$

 $68^{\circ}39.0$

Moon (30th Jul) h Lunar Distance (objects with largest hourly LD delta) -Aldebaran +Fomalhaut +Altair Mon **GHA** ν Dec d HP -Procyon -Pollux -Saturn +Antares +Rigil Kent. 310°52.5 N04°21.4 117°30.8 71°51.9 55°09.4 35°47.4 15.8 12.3 54.6 113°39.4 58°42.4 109°08.1 114°43.4 0 117°01.7 36°07.8 115°04.9 325°27.3 15.8 04°33.6 12.2 54.6 113°09.5 71°22.0 54°39.6 59°08.1 109°38.3 1 340°02.0 $116^{\circ}32.6$ 70°52.1 54°09.7 $36^{\circ}28.5$ $59^{\circ}33.8$ $110^{\circ}08.5$ $115^{\circ}26.4$ 15.8 $04^{\circ}45.9$ 12.2' 54.6 $112^{\circ}39.7$ 36°49.3 115°47.7 354°36.8 15.8 $04^{\circ}58.1$ 12.2' 54.6' $116^{\circ}03.6$ $112^{\circ}09.9$ 70°22.2 53°39.9 $59^{\circ}59.6$ $110^{\circ}38.6$ 69°52.4 60°25.4 4 9°11.6 15.8 $05^{\circ}10.3$ 12.2 54.6 115°34.5 111°40.1 53°10.2 $37^{\circ}10.3$ 111°08.8 116°09.0 69°22.5 37°31.4 23°46.3 115°05.5 60°51.2 5 15.8 $05^{\circ}22.5$ 12.1' 54.6 111°10.4 52°40.4 111°38.9 116°30.2 6 $38^{\circ}21.1$ 15.8 $\text{N}05^{\circ}34.6$ 12.1' 54.6 114°36.5 $110^{\circ}40.6$ $68^{\circ}52.7$ $52^{\circ}10.7$ $37^{\circ}52.7$ $61^{\circ}\,17.0$ 112°09.0 $116^{\circ}51.4$ 117°12.4 117°33.4 52°55.9 05°46.7 114°07.4 $110^{\circ}10.9$ $68^{\circ}22.9$ $51^{\circ}41.0$ $38^{\circ}\,14.2$ 61°42.9 112°39.0 15.8 12.1' 54.5 8 $67^{\circ}30.6$ 15.8 $05^{\circ}58.8$ 12.0' 54.5 113°38.4 $109^{\circ}41.1$ $67^{\circ}53.1$ $51^{\circ}11.3$ $38^{\circ}35.8$ $62^{\circ}08.7$ $113^{\circ}09.1$ 113°09.4 112°40.4 67°23.3 38° 57.5 117°54.3 82°05.4 109°11.4 50°41.6 $06^{\circ}10.8$ 62°34 6 9 15.8 12.0' 54.5 113°39.1 118°15.1 108°41.7 66°53.6 50°11.9 63°00.6 96°40.1 06°22.8 39°19.4 114°09.2 10 15.7 12.0 54.5 111°14.9 112°11.5 66°23.9 49°42.3 39°41.5 63°26.5 114°39.2 06°34.8 54.5 108°12.1 118°35.8 11 15.7 12.0' $40^{\circ}03.6$ 118°56.5 12 125°49.6 15.7 N06°46.8 11.9' 54.5 $111^{\circ}42.5$ $107^{\circ}42.4$ $65^{\circ}54.2$ $49^{\circ}12.7$ $63^{\circ}52.4$ 115°09.1 48°43.1 115°39.1 140°24.4 06°58.7 111°13.5 107°12.7 40°25.9 119°17.0 13 15.7 11.9 54.5 65°24.5 64°18.4 119°37.5 40°48.4 154°59.1 $07^{\circ}10.6$ 106°43.1 64°548 48°13.5 64°44 4 14 15.7 11.9 54.5 110°44.5 116°09.1 41°10.9 41°33.6 119°57.8 169°33.8 07°22.4 64°25.1 47°44.0 65°10.4 11.8 54.4 110°15.6 106°13.5 116°39.0 15 15.7 184°08.5 07°34.2 109°46.7 105°43.9 63°55.5 47°14.4 65°36.4 117°08.9 15.7 11.8 54.4 16 17 $198^{\circ}43.2$ $07^{\circ}46.0$ 11.7 54.4 109°17.7 $105^{\circ}14.3$ $63^{\circ}25.9$ 46°44.9 $41^{\circ}56.3$ $66^{\circ}02.5$ 117°38.8 15.7 213°17.9 N07°578 104°44.7 62°56.3 46°154 42°19.2 66°28 5 108°48 8 118°08 7 18 15 7 11.7 54.4 $108^{\circ}19.9$ 104°15.1 62°26.7 42°42.2 66°54.6 227°52.5 $08^{\circ}09.5$ 54.4 45°45.9 118°38.6 19 15.7 11.7 242°27.2 107°51.0 103°45.6 61°57.1 45° 16.5 43°05.3 67°20.7 $08^{\circ}21.1$ 54.4 119°08.5 15.6 11.6 20 21 257°01.8 08°32.8 11.6' 54.4 107°22.1 $103^{\circ}16.0$ 61°27.6 44°47.0 43°28.5 67°46.8 119°38.3 15.6 271°36.4 08°44.4 54.4' 106°53.2 102°46.5 60°58.1 44°17.6 43°51.8 68°12.9 15.6 11.6'

	96	, — I 1.3	ivici. pus	5. 05.22									
h		Моог	n (31 st Ju	ıl)			Lunar	Distance (c	bjects w	ith largest	hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	300°45.6	15.6'	N09°07.4	11.5'	54.3'	105°55.4	101°47.5	80°02.9	70°41.0	59°59.1	43°18.8	44°38.6	69°05.1
1	315°20.2	15.6'	09°18.9	11.4'	54.3'	105°26.5	101°18.0	79°34.4	70°13.5	59°29.6	42°49.4	45°02.2	69°31.3
2	329°54.7	15.5'	09°30.3	11.4'	54.3'	104°57.7	100°48.5	79°05.8	69°46.1	59°00.1	42°20.1	45°25.9	69°57.4
3	344°29.3	15.5'	09°41.7	11.3'	54.3'	104°28.8	100°19.0	78°37.3	69°18.7	58°30.7	41°50.7	45°49.6	70°23.6
4	359°03.8	15.5'	09°53.1	11.3'	54.3'	104°00.0	99°49.5	78°08.7	68°51.4	58°01.2	41°21.4	46°13.4	70°49.8
5	13°38.3	15.5'	10°04.4	11.3'	54.3'	103°31.1	99°20.1	77°40.2	68°24.0	57°31.8	40°52.1	46°37.3	71°16.0
6	28° 12.7	15.4'	N10°15.6	11.2'	54.3'	103°02.3	98°50.7	77° 11.7	67°56.7	57°02.4	40°22.8	47°01.3	71°42.2
7	42°47.2	15.4'	10°26.9	11.2'	54.3'	102°33.5	98°21.2	76°43.2	67°29.5	56°33.0	39°53.6	47°25.3	72°08.4
8	57°21.6	15.4'	10°38.0	11.1'	54.3'	102°04.7	97°51.8	76°14.8	67°02.2	56°03.6	39°24.3	47°49.4	72°34.6
9	71°56.0	15.4'	10°49.2	11.1'	54.3'	101°35.8	97°22.4	75°46.3	66°35.0	55°34.3	38°55.1	48°13.6	73°00.8
10	86°30.4	15.3'	11°00.3	11.0'	54.3'	101°07.0	96°53.0	75° 17.9	66°07.8	55°04.9	38°25.9	48°37.9	73°27.1
11	101°04.7	15.3'	11°11.3	11.0'	54.3'	100°38.2	96°23.6	74°49.5	65°40.6	54°35.6	37°56.7	49°02.2	73°53.3
12	115°39.0	15.3'	N11°22.3	10.9'	54.2'	100°09.4	95°54.2	74°21.0	65°13.5	54°06.3	37°27.5	49°26.6	74°19.6
13	130°13.3	15.3'	11°33.2	10.9'	54.2'	99°40.7	95°24.8	73°52.7	64°46.3	53°37.0	36°58.3	49°51.1	74°45.8
14	144°47.6	15.2'	$11^{\circ}44.1$	10.8'	54.2'	99°11.9	94°55.4	73°24.3	64°19.3	53°07.7	36°29.2	50°15.6	75°12.1
15	159°21.8	15.2'	11°54.9	10.8'	54.2'	98°43.1	94°26.1	72°55.9	63°52.2	52°38.4	36°00.1	50°40.2	75°38.4
16	173°56.0	15.2'	12°05.7	10.7'	54.2'	98°14.3	93°56.7	72°27.6	63°25.2	52°09.1	35°31.0	51°04.8	76°04.7
17	188°30.2	15.1'	$12^{\circ}16.5$	10.7'	54.2'	97°45.6	93°27.4	71°59.2	62°58.2	51°39.9	35°01.9	51°29.5	76°30.9
18	203°04.3	15.1'	$N12^{\circ}27.2$	10.6'	54.2'	97°16.8	92°58.0	71°30.9	62°31.2	51°10.6	34°32.8	51°54.3	76°57.2
19	217°38.4	15.1'	12°37.8	10.6'	54.2'	96°48.0	92°28.7	71°02.6	62°04.2	50°41.4	34°03.7	52°19.1	77°23.5
20	232° 12.5	15.0'	12°48.4	10.5'	54.2'	96°19.3	91°59.3	70°34.3	61°37.3	50°12.2	33°34.7	52°44.0	77°49.9
21	246° 46.5	15.0'	12°58.9	10.5'	54.2'	95°50.5	91°30.0	70°06.0	61°10.4	49°43.0	33°05.7	53°08.9	78°16.2
22	261°20.5	15.0'	13°09.4	10.4'	54.2'	95°21.8	91°00.7	69°37.8	60°43.6	49°13.8	32°36.7	53°33.8	78°42.5
23	275°54.5	14.9'	13°19.8	10.4'	54.2'	94°53.0	90°31.4	69°09.5	60°16.8	48°44.6	32°07.7	53°58.8	79°08.8
31st	SD	= 14.8'	Mer. pass	s. 04:04									

				g)		Lunar Distance (objects with largest hourly LD delta)								
Wed	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	
0	290°28.4	14.9'	N13°30.2	10.3'	54.2'	105°58.6	94°24.3	90°02.1	68°41.3	48°15.4	31°38.7	54°23.9	79°35.2	
1 1	305°02.3	14.9'	13°40.5	10.3'	54.2'	105°31.4	93°55.6	89°32.8	68°13.1	47°46.3	31°09.7	54°49.0	80°01.5	
2	319°36.2	14.8'	13°50.8	10.2'	54.2'	105°04.2	93°26.8	89°03.5	67°44.8	$47^{\circ}17.1$	30°40.8	55° 14.2	80°27.8	
	334°10.0	14.8'	14°01.0	10.1'	54.2'	104°37.0	92°58.1	88°34.2	67°16.7	46°48.0	30°11.9	55° 39.4	80°54.2	
	348°43.8	14.7'	$14^{\circ}11.1$	10.1'	54.2'	104°09.8	92°29.4	88°04.9	66°48.5	46°18.9	29°43.0	56° 04.6	81°20.6	
5	3°17.5	14.7'	14°21.2	10.0'	54.2'	103°42.6	92°00.7	87°35.6	66°20.3	45°49.8	29°14.1	56°29.9	81°46.9	
6	$17^{\circ}51.3$	14.7'	N14°31.3	10.0'	54.2'	103°15.4	91°31.9	87°06.3	65°52.1	45°20.7	28°45.3	56°55.3	82°13.3	
7	32°24.9	14.6'	14°41.2	9.9'	54.2'	102°48.3	91°03.2	86°37.0	65°24.0	44°51.6	28° 16.4	57° 20.6	82°39.7	
8	46°58.5	14.6'	14°51.1	9.8'	54.2'	102°21.1	90°34.5	86°07.8	64°55.9	44°22.5	27°47.6	57°46.1	83°06.0	
9	61°32.1	14.5'	15°01.0	9.8'	54.2'	101°53.9	90°05.8	85°38.5	64°27.8	43°53.5	27°18.8	58°11.5	83°32.4	
10	76°05.6	14.5'	15°10.8	9.7'	54.2'	101°26.7	89°37.1	85°09.2	63°59.7	43°24.4	26°50.1	58° 37.0	83°58.8	
11	90°39.1	14.4'	15°20.5	9.7'	54.2'	100°59.6	89°08.4	84°39.9	63°31.6	42°55.4	26°21.3	59°02.5	84°25.2	
	105°12.6	14.4'	$N15^{\circ}30.1$	9.6'	54.2'	100°32.4	88°39.7	84°10.7	63°03.5	42°26.3	25°52.6	59°28.1	84°51.6	
	119°46.0	14.4'	15°39.7	9.5'	54.2'	100°05.2	88°10.9	83°41.4	62°35.4	41°57.3	25°23.9	59° 53.7	85°18.0	
	134°19.4	14.3'	15°49.3	9.5'	54.2'	99°38.1	87°42.2	83°12.1	62°07.4	41°28.3	24°55.3	60° 19.4	85°44.4	
	148°52.7	14.3'	15°58.8	9.4'	54.2'	99°10.9	87°13.5	82°42.8	61°39.3	40°59.3	24°26.6	60°45.1	86°10.8	
	163°25.9	14.2'	16°08.2	9.3'	54.2'	98°43.7	86°44.8	82°13.6	61°11.3	40°30.3	23°58.0	61°10.8	86°37.2	
17	177°59.1	14.2'	$16^{\circ}17.5$	9.3'	54.2'	98°16.6	86°16.1	81°44.3	60°43.3	40°01.3	23°29.5	61°36.5	87°03.6	
	192°32.3	14.1'	N 16°26.8	9.2'	54.2'	97°49.4	85°47.4	81°15.0	60°15.3	39°32.4	23°00.9	62°02.3	87°30.0	
	207°05.4	14.1'	16°36.0	9.1'	54.2'	97°22.2	85°18.7	80°45.8	59°47.3	39°03.4	22°32.4	62°28.2	87°56.5	
	221°38.5	14.0'	16°45.1	9.1'	54.2'	96°55.1	84°50.0	80°16.5	59°19.4	38°34.5	22°03.9	62°54.0	88°22.9	
	236°11.5	14.0'	16°54.2	9.0'	54.2'	96°27.9	84°21.3	79°47.2	58°51.4	38°05.5	21°35.5	63° 19.9	88°49.3	
1 1	250°44.5	13.9'	17°03.2	8.9'	54.2'	96°00.7	83°52.5	79°17.9	58°23.5	37°36.6	21°07.1	63°45.8	89°15.7	
	265°17.4	13.9'	17°12.1	8.9'	54.2'	95°33.5	83°23.8	78°48.7	57°55.6	37°07.7	20°38.8	64°11.8	89°42.2	
1 st	SD	= 14.8'	Mer. pass	. 04:46					Sun SD	= 15.8'				

h Moon (2nd Aug)

Thu	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	279°50.3	13.8'	$N17^{\circ}21.0$	8.8'	54.2'	82°55.1	78°19.4	57°27.7	36°38.8	20°10.5	64°37.8		90°08.6
1	294°23.1	13.8'	$17^{\circ}29.7$	8.7'	54.2'	82°26.4	77°50.1	56° 59.8	36°10.0	19°42.2	65°03.8		90°35.1
2	308°55.9	13.7'	$17^{\circ}38.5$	8.6'	54.2'	81°57.7	77°20.8	56°31.9	35°41.1	19°14.0	65°29.8		91°01.5
3	323°28.6	13.7'	$17^{\circ}47.1$	8.6'	54.2'	81°29.0	76°51.5	56°04.0	35°12.2	18°45.9	65°55.9		91°28.0
4	338°01.3	13.6'	17°55.7	8.5'	54.2'	81°00.2	76°22.2	55°36.2	34°43.4	18°17.8	66°22.0		91°54.4
5	352°33.9	13.6'	18°04.2	8.4'	54.2'	80°31.5	75°52.9	55°08.3	34°14.6	17°49.8	66°48.1		92°20.9
6	7°06.5	13.5'	$N18^{\circ}12.6$	8.3'	54.2'	80°02.8	75°23.6	54°40.5	33°45.8	17°21.9	67°14.3	72°35.5	92°47.3
7	21°39.0	13.4'	18° 20.9	8.3'	54.2'	79°34.0	74°54.3	54° 12.7	33°17.0	16°54.1	67°40.5	72°50.6	93°13.8
8	36°11.4	13.4'	18° 29.2	8.2'	54.2'	79°05.3	74°25.0	53°44.9	32°48.2	16°26.3	68°06.7	73°05.7	93°40.3
9	50°43.8	13.3'	18°37.4	8.1'	54.2'	78°36.6	73°55.7	53° 17.1	32°19.4	15°58.6	68°33.0	73°21.0	94°06.7
10	65°16.2	13.3'	18°45.5	8.0'	54.3'	78°07.8	73°26.4	52°49.4	31°50.7	15°31.1	68°59.3	73°36.2	94°33.2
11	79°48.4	13.2'	18°53.5	8.0'	54.3'	77°39.1	72°57.1	52°21.7	31°22.0	15°03.6	69°25.6	73°51.6	94°59.7
12	94°20.7	13.2'	$N19^{\circ}01.5$	7.9'	54.3'	77°10.3	72°27.7	51°53.9	30°53.2	14°36.3	69°51.9	74°07.0	95°26.1
13	108°52.8	13.1'	19°09.3	7.8'	54.3'	76°41.6	71°58.4	51°26.2	30°24.6	14°09.1	70°18.3	74°22.4	95°52.6
14	123°25.0	13.1'	$19^{\circ}17.1$	7.7'	54.3'	76°12.8	71°29.0	50° 58.6	29°55.9	13°42.0	70°44.7	74°38.0	96°19.1
15	137°57.0	13.0'	19°24.8	7.6'	54.3'	75°44.0	70°59.7	50°30.9	29°27.2	13°15.2	71°11.1	74°53.5	96°45.6
16	152°29.0	12.9'	19°32.5	7.5'	54.3'	75°15.3	70°30.3	50°03.3	28°58.6	12°48.5	71°37.5	75°09.2	97°12.1
17	167°00.9	12.9'	19°40.0	7.5'	54.3'	74°46.5	70°01.0	49°35.6	28°30.0	12°22.0	72°04.0	75°24.8	97°38.5
18	181°32.8	12.8'	N 19°47.5	7.4'	54.3'	74°17.7	69°31.6	49°08.0	28°01.5	11°55.7	72°30.5	75°40.6	98°05.0
19	196°04.7	12.8'	19°54.9	7.3'	54.3'	73°48.9	69°02.2	48° 40.4	27°32.9	11°29.7	72°57.0	75°56.4	98°31.5
20	210°36.4	12.7'	20°02.1	7.2'	54.3'	73°20.1	68°32.8	48°12.9	27°04.4	11°04.0	73°23.6	76°12.2	98°58.0
21	225°08.1	12.6'	20°09.4	7.1'	54.3'	72°51.3	68°03.4	47° 45.4	26°35.9	10°38.6	73°50.1	76°28.1	99°24.5
22	239°39.8	12.6'	$20^{\circ}16.5$	7.0'	54.4'	72°22.5	67°34.0	47° 17.8	26°07.5	10°13.6	74°16.7	76°44.0	99°51.0
23	254°11.4	12.5'	20°23.5	6.9'	54.4'	71°53.7	67°04.6	46°50.4	25°39.1	9°49.0	74°43.4	77°00.0	100°17.5
2 nd	SD	= 14.8'	Mer. pass.	05:31									

h Moon (3 rd Aug)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	268°42.9	12.5'	N 20°30.5	6.9'	54.4'	84°12.0	71°24.9	66°35.2	46°22.9	25°10.7	75°10.0	77°16.1	100°44.0
1	283°14.4	12.4'	20°37.3	6.8'	54.4'	83°44.6	70°56.0	66°05.7	45°55.5	24°42.4	75°36.7	77°32.2	101°10.5
2	297°45.8	12.4'	20°44.1	6.7'	54.4'	83°17.2	70°27.2	65°36.3	45°28.0	24°14.1	76°03.4	77°48.3	101°37.0
3	312°17.1	12.3'	20°50.8	6.6'	54.4'	82°49.8	69°58.4	65°06.8	45°00.7	23°45.8	76°30.1	78°04.5	102°03.5
4	326°48.4	12.2'	20°57.4	6.5'	54.4'	82°22.4	69°29.5	64°37.4	44°33.3	23°17.6	76°56.9	78°20.7	102°30.0
5	341°19.7	12.2'	21°03.9	6.4'	54.4'	81°54.9	69°00.7	64°07.9	44°06.0	22°49.5	77°23.6	78°37.0	102°56.5
6	355°50.8	12.1'	N 21°10.3	6.3'	54.5'	81°27.5	68°31.8	63°38.4	43°38.7	22°21.4	77°50.4	78°53.3	103°23.0
7	10°21.9	12.0'	21°16.6	6.2'	54.5'	81°00.0	68°03.0	63°08.9	43°11.4	21°53.4	78°17.3	79°09.7	103°49.5
8	24°53.0	12.0'	21°22.8	6.1'	54.5'	80°32.5	67°34.1	62°39.4	42°44.2	21°25.4	78°44.1	79°26.1	104°16.0
9	39°24.0	11.9'	21°28.9	6.0'	54.5'	80°05.0	67°05.2	62°09.8	42°17.0	20°57.5	79°11.0	79°42.5	104°42.5
10	53°54.9	11.9'	21°34.9	5.9'	54.5'	79°37.5	66°36.3	61°40.3	41°49.8	20°29.7	79°37.9	79°59.0	105°09.0
11	68°25.8	11.8'	21°40.9	5.8'	54.5'	79°10.0	66°07.4	61°10.8	41°22.7	20°02.0	80°04.8	80°15.5	105°35.5
12	82°56.6	11.7'	N 21°46.7	5.7'	54.5'	78°42.4	65°38.5	60°41.2	40°55.6	19°34.3	80°31.7	80°32.1	106°02.0
13	97°27.3	11.7'	21°52.4	5.6'	54.5'	78°14.9	65°09.6	60°11.6	40°28.6	19°06.8	80°58.7	80°48.7	106°28.5
14	111°58.0	11.6'	21°58.1	5.5'	54.6'	77°47.3	64°40.7	59°42.0	40°01.6	18°39.4	81°25.7	81°05.4	106°55.0
15	126°28.6	11.6'	22°03.6	5.4'	54.6'	77°19.7	64°11.7	59°12.4	39°34.6	18°12.1	81°52.7	81°22.1	107°21.5
16	140°59.2	11.5'	22°09.1	5.3'	54.6'	76°52.1	63°42.8	58°42.8	39°07.7	17°44.9	82°19.7	81°38.8	107°48.0
17	155°29.7	11.4'	22°14.4	5.2'	54.6'	76°24.4	63°13.8	58°13.2	38°40.9	17°17.8	82°46.8	81°55.6	108°14.4
18	170°00.1	11.4'	N22°19.7	5.1'	54.6'	75°56.8	62°44.9	57°43.6	38°14.1	16°50.9	83°13.9	82°12.4	108°40.9
19	184°30.5	11.3'	22°24.8	5.0'	54.6'	75°29.1	62°15.9	57°13.9	37°47.3	16°24.2	83°41.0	82°29.2	109°07.4
20	199°00.8	11.3'	22°29.8	4.9'	54.7'	75°01.4	61°46.9	56°44.2	37°20.6	15°57.6	84°08.1	82°46.1	109°33.9
21	213°31.1	11.2'	22°34.8	4.8'	54.7'	74°33.7	61°18.0	56°14.6	36°54.0	15°31.2	84°35.3	83°03.0	110°00.4
22	228°01.3	11.1'	22°39.6	4.7'	54.7'	74°06.0	60°49.0	55°44.9	36°27.4	15°05.0	85°02.5	83°19.9	110°26.8
23	242°31.5	11.1'	22°44.3	4.6'	54.7'	73°38.2	60°20.0	55°15.2	36°00.9	14°39.1	85°29.7	83°36.9	110°53.3
3 rd	SD	= 14.8'	Mer. pass	06:17					Sun S	D = 15.8'			

h Moon (4 th Aug)	Lunar Distance (objects with largest hourly LD delta)
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Sat	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Saturn	+Deneb	+Fomalhaut	+Altair
0	257°01.5	11.0'	N 22°48.9	4.5'	54.7'	73°10.5	59°51.0	54°45.4	35°34.4		83°53.9	85°56.9	111°19.7
1	271°31.6	11.0'	22°53.5	4.4'	54.7'	72°42.7	59°22.0	54°15.7	35°08.0		84°10.9	86°24.1	111°46.2
2	286°01.5	10.9'	22°57.9	4.3'	54.8'	72°14.9	58° 52.9	53°45.9	34°41.7		84°28.0	86°51.4	112°12.6
3	300°31.4	10.9'	23°02.2	4.2'	54.8'	71°47.0	58°23.9	53°16.2	34°15.5		84°45.1	87°18.7	112°39.1
4	315°01.3	10.8'	23°06.4	4.1'	54.8'	71°19.2	57°54.9	52°46.4	33°49.3	8°26.1	85°02.2	87°46.0	113°05.5
5	329°31.1	10.7'	23°10.4	4.0'	54.8'	70°51.3	57°25.8	52°16.6	33°23.2	8°49.2	85°19.3	88°13.3	113°31.9
6	344°00.8	10.7'	N23°14.4	3.9'	54.8'	70°23.4	56°56.8	51°46.8	32°57.2	9°12.9	85°36.5	88°40.7	113°58.4
7	358°30.5	10.6'	23°18.3	3.8'	54.9'	69°55.5	56°27.7	51°16.9	32°31.4	9°37.2	85°53.7	89°08.0	114° 24.8
8	13°00.1	10.6'	23°22.0	3.6'	54.9'	69°27.6	55°58.6	50°47.1	32°05.6	10°02.1	86°10.9	89°35.5	114°51.2
9	27°29.7	10.5'	23°25.7	3.5'	54.9'	68°59.6	55°29.6	50°17.2	31°39.9	10°27.4	86°28.2	90°02.9	115° 17.5
10	41°59.2	10.5'	23°29.2	3.4'	54.9'	68°31.6	55°00.5	49°47.3	31°14.3	10°53.2	86°45.5	90°30.3	115°43.9
11	56°28.7	10.4'	23°32.6	3.3'	54.9'	68°03.6	54°31.4	49°17.5	30°48.8	11°19.4	87°02.8	90°57.8	116°10.3
12	70°58.1	10.3'	N23°35.9	3.2'	55.0'	67°35.5	54°02.3	48°47.5	30°23.4	11°46.0	87°20.1	91°25.3	116°36.6
13	85°27.4	10.3'	23°39.1	3.1'	55.0'	67°07.5	53°33.2	48°17.6	29°58.2	12°12.8	87°37.5	91°52.8	117°03.0
14	99°56.7	10.2'	23°42.2	3.0'	55.0'	66°39.4	53°04.1	47°47.7	29°33.1	12°39.9	87°54.8	92°20.3	117°29.3
15	114°25.9	10.2'	23°45.2	2.8'	55.0'	66°11.3	52°35.0	47°17.7	29°08.1	13°07.3	88°12.2	92°47.9	117°55.6
16	128°55.1	10.1'	23°48.0	2.7'	55.0'	65°43.2	52°05.9	46°47.7	28°43.3	13°35.0	88°29.7	93°15.4	118°21.9
17	143°24.3	10.1'	23°50.7	2.6'	55.1'	65°15.0	51°36.7	46°17.8	28°18.6	14°02.8	88°47.1	93°43.0	118°48.2
18	157°53.3	10.0'	N23°53.3	2.5'	55.1'	64°46.8	51°07.6	45°47.8	27°54.0	14°30.8	89°04.5	94°10.6	119° 14.5
19	172°22.4	10.0'	23°55.8	2.4'	55.1'	64°18.6	50°38.5	45°17.7	27°29.7	14°59.1	89°22.0	94°38.3	119°40.7
20	186°51.3	9.9'	23°58.2	2.3'	55.1'	63°50.3	50°09.3	44°47.7	27°05.5	15°27.5	89°39.5	95°05.9	
21	201°20.3	9.9'	24°00.5	2.1'	55.2'	63°22.1	49°40.2	44°17.7	26°41.5	15°56.0	89°57.0	95°33.6	
22	215°49.2	9.8'	24°02.6	2.0'	55.2'	62°53.8	49°11.1	43°47.6	26°17.7	16°24.7	90°14.5	96°01.3	
23	230°18.0	9.8'	24°04.6	1.9'	55.2'	62°25.5	48°41.9	43°17.5	25°54.1	16°53.5	90°32.1	96°29.0	
4 th	SD	= 14.9'	Mer. pass.	07:06					Sun SE	0 = 15.8'			

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

Sun	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	244°46.8	9.7'	N 24°06.5	1.8'	55.2'	61°57.1	48°12.8	42°47.4	25°30.7		17°22.5	90°49.6	96°56.7
1	259°15.5	9.7'	24°08.3	1.7'	55.3'	61°28.7	47°43.6	42°17.3	25°07.6		17°51.6	91°07.2	97°24.5
2	273°44.2	9.6'	24°09.9	1.5'	55.3'	61°00.3	47°14.5	41°47.2	24°44.7		18° 20.7	91°24.8	97°52.3
3	288°12.8	9.6'	24°11.5	1.4'	55.3'	60°31.9	46°45.3	41°17.0	24°22.0		18° 50.0	91°42.4	98°20.1
4	302°41.4	9.6'	24°12.9	1.3'	55.3'	60°03.4	46°16.2	40°46.9	23°59.6		19° 19.4	92°00.0	98°47.9
5	317°10.0	9.5'	24°14.2	1.2'	55.4'	59°34.9	45°47.0	40°16.7	23°37.5		19°48.9	92°17.6	99°15.7
6	331°38.5	9.5'	N 24°15.3	1.0'	55.4'	59°06.4	45°17.9	39°46.6	23°15.7		20° 18.5	92°35.2	99°43.5
7	346°07.0	9.4'	24°16.3	0.9'	55.4'	58°37.9	44°48.7	39°16.4	22°54.1		20°48.2	92°52.8	100°11.4
8	0°35.4	9.4'	24°17.3	0.8'	55.4'	58°09.3	44°19.6	38°46.2	22°33.0		21°18.0	93°10.5	100°39.3
9	15°03.8	9.3'	24°18.0	0.7'	55.5'	57°40.7	43°50.5	38°16.0	22°12.1		21°47.8	93°28.1	101°07.2
10	29°32.1	9.3'	24°18.7	0.5'	55.5'	57°12.0	43°21.4	37°45.7	21°51.7		22° 17.7	93°45.8	101°35.1
11	44°00.4	9.3'	24°19.2	0.4'	55.5'	56°43.3	42°52.2	37°15.5	21°31.6		22°47.7	94°03.4	102°03.1
12	58°28.7	9.2'	N 24°19.6	0.3'	55.5'	56°14.6	42°23.1	36°45.3	21°11.9		23° 17.8	94°21.1	102°31.0
13	72°56.9	9.2'	24°19.9	0.1'	55.6'	55°45.9	41°54.0	36°15.0	20°52.6		23°47.9	94°38.7	102°59.0
14	87°25.1	9.2'	24°20.1	0.0'	55.6'	55°17.2	41°25.0	35°44.8	20°33.8	10°31.3	24° 18.1	94°56.4	103°27.0
15	101°53.2	9.1'	24°20.1	-0.1'	55.6'	54°48.4	40°55.9	35°14.5	20°15.5	10°53.4	24°48.4	95°14.1	103°55.0
16	116°21.3	9.1'	24°20.0	-0.2'	55.6'	54°19.5	40°26.8	34°44.2	19°57.6	11°16.2	25° 18.7	95°31.8	104°23.0
17	130°49.4	9.0'	24°19.7	-0.4'	55.7'	53°50.7	39°57.8	34°14.0	19°40.3	11°39.7	25°49.1	95°49.4	104°51.0
18	145°17.5	9.0'	N 24°19.4	-0.5'	55.7'	53°21.8	39°28.8	33°43.7	19°23.5	12°03.9	26° 19.6	96°07.1	105°19.1
19	159°45.5	9.0'	24°18.9	-0.6'	55.7'	52°52.9	38°59.8	33°13.4	19°07.3	12°28.5	26°50.1	96°24.7	105°47.1
20	174°13.5	9.0'	24°18.2	-0.8'	55.7'	52°23.9	38°30.8	32°43.1	18°51.7	12°53.7	27°20.6	96°42.4	106°15.2
21	188°41.4	8.9'	24°17.5	-0.9'	55.8'	51°54.9	38°01.8	32°12.9		13° 19.4	27°51.3	97°00.1	106°43.3
22	203°09.3	8.9'	24°16.6	-1.0'	55.8'	51°25.9	37°32.9	31°42.6		13° 45.5	28°22.0	97°17.7	107°11.4
23	217°37.2	8.9'	24°15.6	-1.2'	55.8'	50°56.8	37°04.0	31°12.3		14°11.9	28° 52.7	97°35.4	107°39.5
5 th	SD	= 15.1	Mer. pas	s. 07:58		Sun SD = 15.8'							

Moon (6th Aug)

n		IVIOO	n (o Au	g)			Lunar	Distanc	e (objects w	ith larges	t nourly	LD deita)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	+Aldebaran	+Capella	+Saturn	+Deneb	+Fomalhaut
0	232°05.1	8.8'	N 24°14.4	-1.3'	55.9'	50°27.8	36°35.1	30°42.0	14°38.7		29°23.5	97°53.0	108°07.6
1	246°32.9	8.8'	24°13.1	-1.4'	55.9'	49°58.6	36°06.3	30°11.8	15°05.9		29°54.4	98° 10.6	108°35.7
2	261°00.7	8.8'	24°11.7	-1.5'	55.9'	49°29.5	35°37.5	29°41.5	15°33.3		30°25.3	98°28.2	109°03.9
3	275°28.5	8.8'	24°10.2	-1.7'	55.9'	49°00.3	35°08.7	29°11.3	16°01.1		30°56.3	98°45.8	109°32.0
4	289°56.3	8.7'	24°08.5	-1.8'	56.0'	48°31.1	34°40.0	28°41.0	16°29.1		31°27.3	99°03.4	110°00.2
5	304°24.0	8.7'	24°06.7	-1.9'	56.0'	48°01.8	34°11.3	28°10.8	16°57.3		31°58.3	99°21.0	110°28.4
6	318°51.7	8.7'	N24°04.7	-2.1'	56.0'	47°32.6	33°42.7	27°40.6	17°25.8		32°29.4	99°38.6	110°56.6
7	333°19.4	8.7'	24°02.7	-2.2'	56.1'	47°03.2	33°14.1	27°10.4	17°54.5		33°00.6	99°56.2	111°24.8
8	347°47.1	8.7'	24°00.5	-2.3'	56.1'	46°33.9	32°45.6	26°40.3	18°23.3		33°31.8	100°13.7	111°53.0
9	2°14.8	8.6'	23°58.1	-2.5'	56.1'	46°04.5	32°17.2	26°10.2	18°52.4		34°03.1	100°31.2	112°21.2
10	16°42.4	8.6'	23°55.6	-2.6'	56.2'	45°35.1	31°48.8	25°40.1	19°21.6		34°34.4	100°48.7	112°49.4
11	31°10.0	8.6'	23°53.0	-2.7'	56.2'	45°05.6	31°20.4	25°10.0	19°51.1		35°05.8	101°06.2	113° 17.6
12	45°37.7	8.6'	N23°50.3	-2.9'	56.2'	44°36.1	30°52.2	24°40.0	20°20.6		35°37.2	101°23.7	113°45.8
13	60°05.2	8.6'	23°47.4	-3.0'	56.2'	44°06.6	30°24.0	24°10.0	20°50.3		36°08.6	101°41.1	114°14.0
14	74°32.8	8.6'	23°44.4	-3.1'	56.3'	43°37.0	29°55.9	23°40.1	21°20.2		36°40.1	101°58.5	114°42.2
15	89°00.4	8.6'	23°41.3	-3.3'	56.3'	43°07.5	29°27.9	23°10.2	21°50.2		37°11.7	102° 15.9	115° 10.5
16	103°27.9	8.5'	23°38.0	-3.4'	56.3'	42°37.8	29°00.0	22°40.4	22°20.3		37°43.3	102°33.3	115°38.7
17	117°55.5	8.5'	23°34.6	-3.5'	56.4'	42°08.2	28°32.2	22°10.7	22°50.5		38°15.0	102°50.6	116°06.9
18	132°23.0	8.5'	N23°31.0	-3.7'	56.4'	41°38.5	28°04.5	21°41.0	23°20.9	24°59.5	38°46.6	103°07.9	116°35.1
19	146°50.6	8.5'	23°27.3	-3.8'	56.4'	41°08.7	27°37.0	21°11.5	23°51.4	25°15.4	39°18.4	103°25.2	117°03.4
20	161°18.1	8.5'	23°23.5	-3.9'	56.5'	40°39.0	27°09.5	20°42.0	24°21.9	25°31.7	39°50.2	103°42.4	117°31.6
21	175°45.6	8.5'	$23^{\circ}19.6$	-4.1'	56.5'	40°09.2	26°42.2	20°12.6	24°52.6	25°48.5	40°22.0	103°59.6	117°59.8
22	190°13.1	8.5'	$23^{\circ}15.5$	-4.2'	56.5'		26°15.0	19°43.3	25°23.4	26°05.8	40°53.9	104°16.8	118°28.0
23	204°40.6	8.5'	23°11.3	-4.3'	56.5'		25°48.0	19°14.2	25°54.3	26°23.6	41°25.8	104°34.0	118°56.2
6 th	SD	= 15.2'	Mer. pas	s. 08:51					Sun SI	0 = 15.8'			

h	Moon	/7th	۸	
h	IVIOON	(/ "	Απσι	

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

 ν
 Dec
 d
 HP
 -Procyon
 -Pollux
 +Betelgeuse
 +Aldebaran
 +Capella
 +Rigel
 +Saturn
 +Deneb

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	+Betelgeuse	+Aldebaran	+Capella	+Rigel	+Saturn	+Deneb
0	219°08.1	8.5'	N 23°06.9	-4.5'	56.6'	25°21.2	18°45.2		26°25.3	26°41.8		41°57.8	104°51.1
1	233°35.6	8.5'	23°02.4	-4.6'	56.6'	24°54.5	18°16.3		26°56.3	27°00.5		42°29.8	105°08.1
2	248°03.1	8.5'	22°57.8	-4.7'	56.6'	24°28.0	17°47.6		27°27.5	27°19.5		43°01.8	105°25.2
3	262°30.6	8.5'	22°53.1	-4.9'	56.7'	24°01.8	17°19.1		27°58.7	27°39.0		43°33.9	105°42.1
4	276°58.1	8.5'	22°48.2	-5.0'	56.7'	23°35.7	16°50.8		28°30.0	27°58.9		44°06.1	105°59.1
5	291°25.5	8.5'	22°43.2	-5.1'	56.7'	23°09.9	16°22.8		29°01.4	28°19.2		44°38.3	106°16.0
6	305°53.0	8.5'	N22°38.0	-5.3'	56.8'	22°44.3	15°54.9		29°32.9	28°39.8		45°10.5	106°32.8
7	320°20.5	8.5'	22°32.8	-5.4'	56.8'	22°18.9	15°27.4	18°46.9	30°04.4	29°00.8	37°23.0	45°42.8	106°49.6
8	334°48.0	8.5'	22°27.4	-5.5'	56.8'	21°53.9	15°00.1	19°03.0	30°36.1	29°22.1	37°38.4	46°15.1	107°06.4
9	349°15.5	8.5'	22°21.8	-5.7'	56.9'	21°29.1	14°33.2	19°19.8	31°07.8	29°43.8	37°54.2	46°47.5	107°23.1
10	3°43.1	8.5'	22°16.1	-5.8'	56.9'	21°04.7	14°06.7	19°37.2	31°39.5	30°05.8	38°10.2	47°19.9	107°39.7
11	18°10.6	8.5'	22°10.3	-5.9'	56.9'	20°40.6	13°40.6	19°55.3	32°11.4	30°28.2	38°26.7	47°52.4	107°56.3
12	32°38.1	8.5'	N 22°04.4	-6.1'	57.0'	20°16.9	13°14.9	20°14.0	32°43.3	30°50.8	38°43.4	48°24.9	108° 12.8
13	47°05.6	8.5'	21°58.3	-6.2'	57.0'	19°53.6	12°49.8	20°33.3	33°15.3	31°13.8	39°00.4	48°57.4	108°29.3
14	61°33.2	8.6'	21°52.1	-6.3'	57.0'	19°30.7	12°25.2	20°53.2	33°47.3	31°37.0	39°17.7	49°30.0	108°45.7
15	76°00.7	8.6'	21°45.8	-6.5'	57.0'	19°08.2	12°01.3	21°13.6	34°19.4	32°00.6	39°35.4	50°02.6	109°02.1
16	90°28.3	8.6'	21°39.3	-6.6'	57.1'	18°46.2	11°38.0	21°34.5	34°51.6	32°24.4	39°53.3	50°35.3	109°18.4
17	104°55.9	8.6'	21°32.8	-6.7'	57.1'	18°24.7	11°15.6	21°56.0	35°23.8	32°48.5	40°11.5	51°08.0	109°34.6
18	119°23.5	8.6'	N21°26.1	-6.8'	57.1'	18°03.8	10°54.0	22°17.9	35°56.1	33°12.8	40°30.0	51°40.8	109°50.7
19	133°51.1	8.6'	21°19.2	-7.0'	57.2'	17°43.4		22°40.3	36°28.4	33°37.4	40°48.8	52°13.6	110°06.8
20	148°18.7	8.6'	21°12.2	-7.1'	57.2'	17°23.6		23°03.1	37°00.8	34°02.2	41°07.9	52°46.4	110°22.8
21	162°46.3	8.6'	21°05.1	-7.2'	57.2'	17°04.5		23°26.3	37°33.3	34°27.3	41°27.2	53°19.3	110°38.8
22	177°13.9	8.7'	20°57.9	-7.3'	57.3'	16°46.1		23°49.9	38°05.8	34°52.5	41°46.8	53°52.2	110°54.7
23	191°41.6	8.7'	20°50.6	-7.5'	57.3'	16°28.4		24°14.0	38°38.4	35°18.1	42°06.6	54°25.2	111°10.4
7 th	SD	= 15.4	Mer. pas	s. 09:45									

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

Wed	GHA	ν	Dec	d	HP	-Procyon	+Betelgeuse	+Capella	+Aldebaran	+Rigel	+Saturn	+Deneb
0	206°09.3	8.7'	N 20°43.1	-7.6'	57.3'	16° 11.5	24°38.3	35°43.8	39°11.0	42°26.7	54°58.2	111°26.1
1	220°37.0	8.7'	20°35.5	-7.7'	57.4'	15°55.5	25°03.1	36°09.7	39°43.7	42°47.0	55°31.3	111°41.8
2	235°04.7	8.7'	20°27.8	-7.8'	57.4'	15°40.3	25°28.2	36°35.9	40° 16.5	43°07.6	56°04.3	111°57.3
3	249°32.4	8.7'	$20^{\circ}19.9$	-8.0'	57.4'		25°53.6	37°02.2	40°49.3	43°28.5	56°37.5	112°12.8
4	264°00.2	8.8'	$20^{\circ}12.0$	-8.1'	57.5'		26° 19.3	37°28.8	41°22.1	43°49.5	57°10.7	112°28.2
5	278°27.9	8.8'	20°03.9	-8.2'	57.5'		26°45.3	37°55.5	41°55.0	44°10.8	57°43.9	112°43.4
6	292°55.7	8.8'	N19°55.7	-8.3'	57.5'		27°11.6	38°22.4	42°28.0	44°32.3	58°17.1	112°58.6
7	307°23.5	8.8'	19°47.3	-8.5'	57.6'		27°38.1	38°49.5	43°01.0	44°54.1	58°50.4	113°13.7
8	321°51.4	8.9'	19°38.9	-8.6'	57.6'		28° 05.0	39°16.8	43°34.1	45°16.0	59°23.8	
9	336°19.2	8.9'	19°30.3	-8.7'	57.6'		28° 32.1	39°44.2	44°07.2	45°38.2	59°57.2	
10	350°47.1	8.9'	$19^{\circ}21.6$	-8.8'	57.6'		28° 59.4	40°11.8	44°40.3	46°00.6	60°30.6	
11	5°15.0	8.9'	19°12.8	-8.9'	57.7'		29°27.0	40°39.5	45° 13.5	46°23.1	61°04.0	
12	19°42.9	8.9'	N19°03.9	-9.0'	57.7'		29°54.8	41°07.5	45°46.8	46°45.9	61°37.5	
13	34°10.8	9.0'	18°54.8	-9.2'	57.7'		30°22.8	41°35.5	46°20.1	47°08.9	62°11.1	
14	48°38.8	9.0'	18°45.6	-9.3'	57.8'		30°51.0	42°03.7	46°53.5	47°32.0	62°44.7	
15	63°06.8	9.0'	18°36.4	-9.4'	57.8'		31° 19.4	42°32.1	47° 26.8	47°55.4	63°18.3	
16	77°34.8	9.0'	18°27.0	-9.5'	57.8'		31°48.0	43°00.6	48°00.3	48°18.9	63°52.0	
17	92°02.9	9.1'	$18^{\circ}17.5$	-9.6'	57.9'		32°16.8	43°29.2	48° 33.8	48°42.7	64°25.7	
18	106°31.0	9.1'	N 18°07.9	-9.7'	57.9'		32°45.8	43°58.0	49°07.3	49°06.5	64°59.4	
19	120°59.0	9.1'	$17^{\circ}58.1$	-9.8'	57.9'		33° 15.0	44°26.9	49°40.9	49°30.6	65°33.2	
20	135°27.2	9.2'	17°48.3	-10.0'	57.9'		33°44.3	44°55.9	50° 14.5	49°54.9	66°07.0	
21	149°55.3	9.2'	17°38.3	-10.1'	58.0'		34°13.8	45°25.1	50°48.2	50° 19.3	66°40.8	
22	164°23.5	9.2'	17°28.3	-10.2'	58.0'		34°43.4	45°54.3	51°21.9	50°43.8	67°14.7	
23	178°51.7	9.2'	17°18.1	-10.3'	58.0'		35°13.2	46°23.7	51°55.7	51°08.6	67°48.7	
8 th	SD	= 15.6	o' Mer. pas	ss. 10:38	-							

h	Moon (9 th Aug)	Lunar Distance (objects with largest hourly LD delta)
11	MOOH (9 Aug)	Luliai Distalice (Oblects With largest Hourly LD delta

n		IVIO	on (9 th At	ig)	Lunar Distance (objects with largest hourly LD delta)							
Thu	GHA	ν	Dec	d	HP	+Pollux	+Procyon	+Betelgeuse	+Capella	+Rigel	+Aldebaran	+Saturn
0	193°19.9	9.3'	N 17°07.8	-10.4'	58.1'	12°55.3		35°43.2	46°53.2	51°33.5	52° 29.5	68°22.6
1	207°48.2	9.3'	16°57.4	-10.5'	58.1'	13°21.7		36°13.3	47°22.8	51°58.5	53°03.3	68° 56.6
2	222°16.5	9.3'	16°46.9	-10.6'	58.1'	13°48.6		36°43.5	47°52.6	52°23.7	53°37.2	69°30.7
3	236°44.8	9.3'	16°36.4	-10.7'	58.2'	14°16.1		37° 13.8	48°22.4	52°49.0	54° 11.1	70°04.8
4	251°13.1	9.4'	16°25.7	-10.8'	58.2'	14°44.1		37°44.3	48°52.4	53°14.5	54°45.1	70°38.9
5	265°41.5	9.4'	$16^{\circ}14.9$	-10.9'	58.2'	15°12.5	16°14.1	38° 14.9	49°22.4	53°40.1	55° 19.1	71°13.0
6	280°09.9	9.4'	N 16°04.0	-11.0'	58.2'	15°41.4	16°31.7	38°45.7	49°52.5	54°05.9	55° 53.2	71°47.2
7	294°38.3	9.5'	15°53.0	-11.1'	58.3'	16°10.6	16°50.2	39° 16.5	50°22.8	54°31.8	56° 27.2	72°21.4
8	309°06.8	9.5'	15°41.9	-11.2'	58.3'	16°40.2	17°09.5	39°47.5			57°01.4	72°55.7
9	323°35.3	9.5'	15°30.7	-11.3'	58.3'							
10	338°03.8	9.5'	$15^{\circ}19.4$	-11.4'	58.4'							
11	352°32.3	9.6'	$15^{\circ}08.0$	-11.5'	58.4'				New Moon –			
12	7°00.9	9.6'	N 14°56.5	-11.6'	58.4'				New Moon –			
13	21°29.5	9.6'	14°44.9	-11.7'	58.4'							
14	35°58.1	9.7'	14°33.2	-11.8'	58.5'							
15	50°26.8	9.7'	$14^{\circ}21.5$	-11.9'	58.5'							
16	64°55.4	9.7'	$14^{\circ}09.6$	-11.9'	58.5'							
17	79°24.1	9.7'	13°57.7	-12.0'	58.5'				New Moon –			
18	93°52.9	9.8'	N13°45.6	-12.1'	58.6'							
19	108°21.6	9.8'	13°33.5	-12.2'	58.6'				New Moon –			
20	122°50.4	9.8'	13°21.3	-12.3'	58.6'							
21	137°19.3	9.8'	13°09.0	-12.4'	58.6'							
22	151°48.1	9.9'	$12^{\circ}56.6$	-12.5'	58.7'							
23	166°17.0	9.9'	12°44.2	-12.5'	58.7'				New Moon –			
9 th	SD	= 15.8	Mer. pas	ss. 11:31				-			-	

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I_	Moon (10th Aug)	Lunar Distance (objects with largest hourly LD delta)
n	MOOD LIUS AUGI	I linar i listance i oniects with largest nollriv i i l'heita i

Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Arcturus	-Mars	-Spica	-Jupiter	-Venus
0	180°45.9	9.9'	N 12°31.6	-12.6'	58.7'				- New Mo	on ———			
1	195°14.8	9.9'	$12^{\circ}19.0$	-12.7'	58.7'								
2	209°43.7	10.0'	12°06.3	-12.8'	58.8'								
3	224°12.7	10.0'	11°53.6	-12.8'	58.8'								
4	238°41.7	10.0'	11°40.7	-12.9'	58.8'								
5	253°10.7	10.0'	11°27.8	-13.0'	58.8'								
6	267°39.8	10.1'	N 11°14.8	-13.1'	58.9'								
7	282°08.8	10.1'	$11^{\circ}01.7$	-13.1'	58.9'								
8	296°37.9	10.1'	10°48.6	-13.2'	58.9'				— New Mo	on ———			
9	311°07.1	10.1'	10°35.4	-13.3'	58.9'								
10	325°36.2	10.2'	10°22.1	-13.3'	59.0'								
11	340°05.4	10.2'	10°08.8	-13.4'	59.0'								
12	354°34.6	10.2'	N09°55.3	-13.5'	59.0'								
13	9°03.8	10.2'	$09^{\circ}41.9$	-13.5'	59.0'								
14	23°33.0	10.2'	09°28.3	-13.6'	59.0'								
15	38°02.2	10.3'	09°14.7	-13.7'	59.1'								
16	52°31.5	10.3'	09°01.1	-13.7'	59.1'								
17	67°00.8	10.3'	08°47.4	-13.8'	59.1'				— New Mo	on ———			
18	81°30.1	10.3'	N 08°33.6	-13.8'	59.1'				— New Mo				
19	95°59.4	10.3'	$08^{\circ}19.8$	-13.9'	59.1'	101°57.3	88°41.4	84°31.4	64°23.9			54°28.1	26°49.8
20	110°28.8	10.4'	08°05.9	-13.9'	59.2'	101°21.8	88°14.0	84°04.5	63°56.7	63°29.2	55°47.6	53°53.1	26° 18.0
21	124°58.1	10.4'	07°51.9	-14.0'	59.2'	100°46.2	87°46.5	83°37.6	63°29.6	62°55.2	55°12.1	53° 18.1	25°46.3
22	139°27.5	10.4'	07°37.9	-14.0'	59.2'	100°10.5	87°19.1	83°10.8	63°02.5	62°21.1	54°36.5	52°43.2	25°14.6
23	153°56.9	10.4'	07°23.9	-14.1'	59.2'	99°34.9	86°51.6	82°43.9	62°35.5	61°47.0	54°00.9	52°08.2	24°42.9
10 th	SD	= 16.0	Mer. pas	s. 12:22									

Moon (11th Aug)

Sat	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Arcturus	-Mars	-Spica	-Jupiter	-Venus	+Regulus
0	168°26.3	10.4'	N 07°09.8	-14.1'	59.2'	98°59.3	86°24.2	62°08.5	61°12.9	53°25.3	51°33.2	24°11.2	
1	182°55.7	10.4'	06°55.7	-14.2'	59.3'	98°23.6	85°56.7	61°41.6	60°38.8	52°49.6	50°58.1	23°39.6	
2	197°25.1	10.4'	06°41.5	-14.2'	59.3'	97°47.9	85°29.2	61°14.8	60°04.7	52°13.9	50°23.1	23°08.0	
3	211°54.6	10.5'	06°27.3	-14.3'	59.3'	97°12.2	85°01.7	60°48.1	59°30.5	51°38.3	49°48.0	22°36.4	
4	226°24.0	10.5'	$06^{\circ}13.0$	-14.3'	59.3'	96°36.4	84°34.2	60°21.4	58°56.3	51°02.6	49°13.0	22°04.8	
5	240°53.5	10.5'	05°58.7	-14.3'	59.3'	96°00.7	84°06.8	59°54.8	58°22.1	50°26.8	48°37.9	21°33.3	
6	255°23.0	10.5'	N05°44.4	-14.4'	59.3'	95°24.9	83°39.3	59°28.3	57°47.9	49°51.1	48°02.8	21°01.8	
7	269°52.5	10.5'	05°30.0	-14.4'	59.4'	94°49.1	83°11.8	59°01.9	57°13.7	49°15.3	47°27.7	20°30.4	
8	284°22.0	10.5'	05°15.5	-14.5'	59.4'	94°13.3	82°44.3	58° 35.6	56°39.4	48°39.6	46°52.6	19°59.0	
9	298°51.5	10.5'	$05^{\circ}01.1$	-14.5'	59.4'	93°37.4	82°16.9	58°09.3	56°05.2	48°03.8	46°17.4	19°27.7	
10	313°21.0	10.5'	04°46.6	-14.5'	59.4'	93°01.6	81°49.4	57°43.2	55°30.9	47°28.0	45°42.3	18° 56.5	
11	327°50.5	10.5'	04°32.1	-14.6'	59.4'	92°25.7	81°21.9	57° 17.2	54°56.6	46°52.1	45°07.2	18°25.3	8°44.2
12	342°20.1	10.5'	N 04°17.5	-14.6'	59.4'	91°49.9	80°54.5	56°51.2	54°22.3	46°16.3	44°32.0	17°54.2	9°14.7
13	356°49.6	10.5'	04°02.9	-14.6'	59.5'	91°14.0	80°27.1	56°25.4	53°48.0	45°40.4	43°56.8	17°23.3	9°45.8
14	11°19.2	10.5'	03°48.3	-14.6'	59.5'	90°38.0	79°59.7	55°59.7	53°13.6	45°04.6	43°21.7	16°52.4	10°17.4
15	25°48.7	10.6'	03°33.6	-14.7'	59.5'	90°02.1	79°32.3	55°34.1	52°39.3	44°28.7	42°46.5	16°21.6	10°49.5
16	40°18.3	10.6'	$03^{\circ}19.0$	-14.7'	59.5'	89°26.2	79°04.9	55°08.6	52°04.9	43°52.8	42°11.3	15°51.0	11°22.0
17	54°47.8	10.6'	03°04.3	-14.7'	59.5'	88°50.2	78°37.5	54°43.2	51°30.5	43°16.9	41°36.1	15°20.5	11°54.9
18	69°17.4	10.6'	N02°49.6	-14.7'	59.5'	88°14.2	78°10.2	54° 18.0	50°56.1	42°41.0	41°00.9	14°50.2	12°28.0
19	83°46.9	10.6'	02°34.8	-14.8'	59.5'	87°38.2	77°42.9	53°52.9	50°21.7	42°05.0	40°25.7	14°20.1	13°01.4
20	98°16.5	10.6'	$02^{\circ}20.1$	-14.8'	59.5'	87°02.2	77°15.6	53°27.9	49°47.3	41°29.1	39°50.5	13°50.1	13°35.1
21	112°46.1	10.6'	02°05.3	-14.8'	59.6'	86°26.2	76°48.3	53°03.0	49°12.9	40°53.2	39°15.3	13°20.4	14°08.9
22	127°15.6	10.6'	$01^{\circ}50.5$	-14.8'	59.6'	85°50.2	76°21.1	52°38.3	48°38.5	40°17.2	38°40.2	12°51.0	14°42.9
23	141°45.2	10.6'	01°35.7	-14.8'	59.6'	85°14.2	75°53.9	52°13.8	48°04.0	39°41.2	38°05.0	12°21.8	15°17.1
11 th	SD	= 16.2	Mer. pas	s. 13:13									

Moon (12 th Aug)	Lunar Distance (objects with largest hourly LD delta)
MOOII (12 Aug)	Euliai Distance (Oblects With largest nount ED delta)

h		Moor	ո (12 th Aւ	ıg)		Lunar Distance (objects with largest hourly LD delta))
Sun	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Mars	-Spica	-Jupiter	-Venus	+Regulus
0	156°14.7	10.6'	N01°20.9	-14.8'	59.6'	84°38.1	75°26.7	71°38.1	47°29.6	39°05.2	37°29.8	11°53.0	15°51.4
1	170°44.3	10.5'	$01^{\circ}06.1$	-14.8'	59.6'	84°02.1	74°59.6	71°12.0	46°55.1	38°29.3	36°54.6	11°24.5	16°25.9
2	185°13.8	10.5'	00°51.2	-14.8'	59.6'	83°26.0	74°32.5	70°45.9	46°20.6	37°53.3	36°19.4	10°56.5	17°00.5
3	199°43.4	10.5'	00°36.4	-14.9'	59.6'	82°49.9	74°05.4	70° 19.8	45°46.2	37°17.3	35°44.2	10°29.0	17°35.2
4	214°12.9	10.5'	$00^{\circ}21.5$	-14.9'	59.6'	82°13.8	73°38.4	69°53.8	45°11.7	36°41.2	35°09.1	10°02.0	18°10.0
5	228°42.4	10.5'	N 00°06.6	-14.9'	59.6'	81°37.7	73°11.4	69°27.9	44°37.2	36°05.2	34°33.9	9°35.6	18°44.9
6	243°11.9	10.5'	S 00°08.2	-14.9'	59.6'	81°01.6	72°44.5	69°02.0	44°02.7	35°29.2	33°58.7	9°09.9	19°19.8
7	257°41.5	10.5'	00°23.1	-14.9'	59.7'	80°25.5	72°17.6	68°36.2	43°28.2	34°53.2	33°23.6	8°45.1	19°54.9
8	272°11.0	10.5'	00°38.0	-14.9'	59.7'	79°49.4	71°50.8	68° 10.4	42°53.7	34°17.2	32°48.5	8°21.2	20°30.0
9	286°40.4	10.5'	00°52.8	-14.9'	59.7'	79°13.3	71°24.0	67°44.8	42°19.2	33°41.1	32°13.3		21°05.1
10	301°09.9	10.5'	$01^{\circ}07.7$	-14.9'	59.7'	78°37.1	70°57.2	67° 19.2	41°44.7	33°05.1	31°38.2		21°40.4
11	315°39.4	10.5'	$01^{\circ}22.6$	-14.9'	59.7'	78°01.0	70°30.6	66°53.6	41°10.2	32°29.0	31°03.2		22°15.7
12	330°08.9	10.4'	S 01°37.4	-14.9'	59.7'	77°24.8	70°03.9	66°28.2	40°35.6	31°53.0	30°28.1		22°51.0
13	344°38.3	10.4'	01°52.3	-14.8'	59.7'	76°48.7	69°37.4	66°02.8	40°01.1	31°17.0	29°53.1		23°26.4
14	359°07.7	10.4'	$02^{\circ}07.1$	-14.8'	59.7'	76°12.5	69°10.9	65°37.5	39°26.6	30°40.9	29°18.0		24°01.8
15	13°37.1	10.4'	$02^{\circ}21.9$	-14.8'	59.7'	75°36.3	68°44.4	65° 12.3	38°52.1	30°04.9	28°43.0		24°37.3
16	28°06.5	10.4'	02°36.8	-14.8'	59.7'	75°00.2	68°18.1	64°47.2	38°17.6	29°28.8	28°08.1		25°12.8
17	42°35.9	10.4'	$02^{\circ}51.6$	-14.8'	59.7'	74°24.0	67°51.8	64°22.2	37°43.0	28°52.8	27°33.1		
18	57°05.3	10.3'	S 03°06.4	-14.8'	59.7'	73°47.8	67°25.5	63°57.3	37°08.5	28°16.8	26°58.2		
19	71°34.6	10.3'	$03^{\circ}21.1$	-14.8'	59.7'	73°11.6	66°59.4	63°32.4	36°34.0	27°40.7	26°23.4		
20	86°03.9	10.3'	03°35.9	-14.7'	59.7'	72°35.4	66°33.3	63°07.7	35°59.5	27°04.7	25°48.5		
21	100°33.2	10.3'	03°50.6	-14.7'	59.7'	71°59.2	66°07.3	62°43.1	35°25.0	26°28.7	25°13.7		
22	115°02.5	10.3'	04°05.4	-14.7'	59.7'	71°23.1	65°41.4	62°18.5	34°50.4	25°52.7	24°39.0		
23	129°31.8	10.2'	$04^{\circ}20.1$	-14.7'	59.8'	70°46.9	65°15.5	61°54.1	34°15.9	25°16.7	24°04.3		
12 th	SD	= 16.3	Mer. pas	s. 14:04			•		•			•	

h Mo	on (13 th Aug)	Lunar Distance (objects with lar	gest hourly LD delta	1)
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Mon	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Mars	-Spica	-Jupiter	+Venus	+Sun
0	144°01.0	10.2'	S 04°34.7	-14.6'	59.8'		70°10.7	64° 49.8	33°41.4	24°40.7	23°29.7		
1	158°30.2	10.2'	04°49.4	-14.6'	59.8'		69°34.5	64°24.1	33°06.9	24°04.7	22°55.1		
2	172°59.4	10.2'	05°04.0	-14.6'	59.8'	119°38.6	68°58.3	63°58.5	32°32.4	23°28.7	22°20.6		
3	187°28.6	10.1'	$05^{\circ}18.6$	-14.6'	59.8'	119°07.5	68°22.1	63°33.0	31°58.0	22°52.7	21°46.1		41°07.9
4	201°57.7	10.1'	05°33.2	-14.5'	59.8'	118°36.5	67°45.9	63°07.7	31°23.5	22°16.8	21°11.7		41°41.6
5	216°26.8	10.1'	05°47.7	-14.5'	59.8'	118°05.3	67°09.7	62°42.4	30°49.0	21°40.8	20°37.4		42°15.3
6	230°55.9	10.1'	S 06°02.2	-14.5'	59.8'	117°34.1	66°33.5	62°17.2	30°14.6	21°04.9	20°03.2		42°48.9
7	245°24.9	10.0'	$06^{\circ}16.7$	-14.4'	59.8'	117°02.9	65°57.3	61°52.1	29°40.1	20°29.0	19°29.1		43°22.6
8	259°54.0	10.0'	$06^{\circ}31.1$	-14.4'	59.8'	116°31.6	65°21.1	61°27.1	29°05.7	19°53.1	18°55.1	9°27.9	43°56.3
9	274°22.9	10.0'	06°45.5	-14.4'	59.8'	116°00.3	64°44.9	61°02.3	28°31.3	19°17.3	18°21.2	9°54.2	44°30.0
10	288°51.9	9.9'	06°59.8	-14.3'	59.8'	115°28.9	64°08.7	60°37.5	27°56.8	18°41.4	17°47.4	10°21.1	45°03.7
11	303°20.8	9.9'	$07^{\circ}14.1$	-14.3'	59.8'	114°57.5	63°32.6	60°12.9	27°22.5	18°05.6	17°13.8	10°48.6	45°37.4
12	317°49.7	9.9'	S 07°28.4	-14.2'	59.8'	114°26.0	62°56.4	59°48.4	26°48.1	17°29.8	16°40.3	11°16.6	46°11.1
13	332°18.6	9.8'	07°42.6	-14.2'	59.8'	113°54.5	62°20.2	59°24.0	26° 13.7	16°54.1	16°07.0	11°45.0	46°44.8
14	346°47.4	9.8'	07°56.8	-14.1'	59.8'	113°23.0	61°44.0	58° 59.7	25°39.4	16°18.4	15°33.8	12° 13.9	47°18.5
15	$1^{\circ}16.2$	9.8'	$08^{\circ}10.9$	-14.1'	59.8'	112°51.4	61°07.9	58°35.6	25°05.0	15°42.7	15°00.9	12°43.1	47°52.1
16	15°45.0	9.7'	08°25.0	-14.0'	59.8'	112°19.8	60°31.7	58° 11.6	24°30.7	15°07.1	14°28.2	13°12.6	48°25.8
17	$30^{\circ}13.7$	9.7'	08°39.1	-14.0'	59.8'	111°48.1	59°55.6	57°47.8	23°56.5	14°31.5	13°55.8	13°42.4	48°59.5
18	44°42.4	9.6'	S 08°53.0	-13.9'	59.8'	111°16.5	59°19.4	57°24.0	23°22.2	13°56.0	13°23.6	14° 12.4	49°33.2
19	$59^{\circ}11.0$	9.6'	09°07.0	-13.9'	59.8'	110°44.8	58°43.3	57°00.5	22°48.0	13°20.6	12°51.8	14°42.6	50°06.8
20	73°39.6	9.6'	09°20.8	-13.8'	59.8'	110°13.0	58°07.1	56° 37.0	22°13.8	12°45.2	12°20.3	15° 13.1	50°40.5
21	88°08.2	9.5'	09°34.7	-13.8'	59.8'	109°41.3	57°31.0	56° 13.7	21°39.6	12°10.0	11°49.2	15°43.7	51°14.2
22	102°36.7	9.5'	09°48.4	-13.7'	59.7'	109°09.5	56°54.9	55° 50.6	21°05.4	11°34.8	11°18.7	16° 14.5	51°47.8
23	117°05.2	9.4'	10°02.1	-13.6'	59.7'	108°37.7	56°18.7	55°27.7	20°31.3	10°59.7	10°48.6	16°45.4	52°21.5
13 th	SD	= 16.3'	Mer. pas	s. 14:55					$Sun\;SD =$	15.8'			

Moon (14th Aug)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Mars	-Spica	-Jupiter	+Venus	+Sun
0	131°33.6	9.4'	S 10°15.8	-13.6'	59.7'	108°05.8	55°42.6	55°04.8	19°57.3	10°24.7	10°19.1	17°16.5	52°55.1
1	146°02.0	9.4'	10°29.4	-13.5'	59.7'	107°34.0	55°06.5	54°42.2	19°23.2	9°50.0	9°50.4	17°47.6	53°28.8
2	160°30.4	9.3'	10°42.9	-13.5'	59.7'	107°02.1	54°30.4	54°19.7	18°49.2	9°15.3	9°22.4	18°18.9	54°02.4
3	174°58.7	9.3'	$10^{\circ}56.3$	-13.4'	59.7'	106°30.2	53°54.3	53°57.4	18°15.3	8°40.9	8°55.4	18°50.3	54°36.0
4	189°27.0	9.2'	$11^{\circ}09.7$	-13.3'	59.7'	105°58.3	53°18.3	53°35.3	17°41.4	8°06.8		19°21.8	55°09.7
5	203°55.2	9.2'	11°23.0	-13.2'	59.7'	105°26.3	52°42.2	53°13.4	17°07.6	7°33.0		19°53.3	55°43.3
6	218°23.4	9.1'	S 11°36.3	-13.2'	59.7'	104°54.4	52°06.1	52°51.6	16°33.8	6°59.6		20°24.9	56°16.9
7	232°51.5	9.1'	11°49.4	-13.1'	59.7'	104°22.4	51°30.1	52°30.1	16°00.1	6°26.6		20°56.6	56°50.5
8	247°19.6	9.0'	12°02.6	-13.0'	59.7'	103°50.5	50°54.1	52°08.7	15°26.4	5°54.3		21°28.4	57°24.1
9	261°47.6	9.0'	12°15.6	-13.0'	59.7'	103°18.5	50°18.0	51°47.5	14°52.9	5°22.8		22°00.2	57°57.7
10	276°15.6	8.9'	12°28.5	-12.9'	59.7'	102°46.5	49°42.0	51°26.5	14°19.4			22°32.0	58°31.3
11	290°43.6	8.9'	$12^{\circ}41.4$	-12.8'	59.7'	102°14.5	49°06.0	51°05.8	13°46.0			23°03.9	59°04.8
12	305°11.5	8.8'	S 12°54.2	-12.7'	59.7'	101°42.5	48°30.0	50°45.2	13°12.7			23°35.9	59°38.4
13	319°39.3	8.8'	13°06.9	-12.6'	59.7'	101°10.5	47°54.0	50°24.9	12°39.6			24°07.9	60°11.9
14	334°07.1	8.8'	13°19.6	-12.6'	59.7'	100°38.4	47°18.1	50°04.8	12°06.6			24°39.9	60°45.5
15	348°34.9	8.7'	13°32.1	-12.5'	59.7'	100°06.4	46°42.1	49°44.9	11°33.7			25°11.9	61°19.0
16	3°02.6	8.7'	13°44.6	-12.4'	59.6'	99°34.4	46°06.2	49°25.2	11°01.0			25°44.0	61°52.5
17	17°30.2	8.6'	13°57.0	-12.3'	59.6'	99°02.3	45°30.2	49°05.8	10°28.6			26°16.1	62°26.0
18	31°57.8	8.5'	S 14°09.3	-12.2'	59.6'	98°30.3	44°54.3	48°46.6	9°56.3			26°48.2	62°59.5
19	46°25.4	8.5'	14°21.5	-12.1'	59.6'	97°58.3	44°18.4	48°27.6	9°24.3			27°20.4	63°33.0
20	60°52.9	8.4'	14°33.6	-12.0'	59.6'	97°26.2	43°42.5	48°08.9	8°52.7			27°52.5	64°06.5
21	75°20.3	8.4'	14°45.7	-11.9'	59.6'	96°54.2	43°06.6	47°50.5	8°21.4			28°24.7	64°39.9
22	89°47.7	8.3'	14°57.6	-11.8'	59.6'	96°22.1	42°30.8	47°32.3	7°50.6			28°56.9	65°13.4
23	104°15.1	8.3'	15°09.4	-11.8'	59.6'	95°50.1	41°54.9	47°14.4	7°20.3			29°29.1	65°46.8
14 th	SD	= 16.3	Mer. pas	ss. 15:47					$Sun\;SD =$	15.8'			

h		Моо	n (15 th A	ug)		Lunar Distance (objects with largest hourly LD delta)							
Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	±Mars	+Spica	+Jupiter	+Venus	+Sun
0	118°42.3	8.2'	S 15°21.2	-11.7'	59.6'		95°18.1	41°19.1	6°50.6			30°01.3	66°20.2
1	133°09.6	8.2'	15°32.9	-11.6'	59.6'		94°46.0	40°43.3	6°21.8			30°33.6	66°53.6
2	147°36.8	8.1'	15°44.4	-11.5'	59.6'	119°43.7	94°14.0	40°07.5		6°12.0		31°05.8	67°27.0
3	162°03.9	8.1'	15°55.9	-11.4'	59.5'	119°12.6	93°42.0	39°31.7		6°44.5	9°39.6	31°38.1	68°00.4
4	176°31.0	8.0'	$16^{\circ}07.2$	-11.3'	59.5'	118°41.4	93°10.0	38°55.9		7°17.5	10°07.8	32°10.3	68°33.8
5	190°58.0	8.0'	$16^{\circ}18.5$	-11.2'	59.5'	118°10.2	92°38.0	38°20.2		7°50.9	10°36.8	32°42.6	69°07.1
6	205°25.0	7.9'	S 16°29.6	-11.0'	59.5'	117°38.9	92°06.0	37°44.4		8°24.6	11°06.3	33° 14.9	69°40.5
7	219°51.9	7.9'	16°40.7	-10.9'	59.5'	117°07.6	91°34.0	37°08.7		8°58.6	11°36.4	33°47.1	70°13.8
8	234°18.8	7.8'	$16^{\circ}51.6$	-10.8'	59.5'	116°36.3	91°02.1	36°33.0		9°32.7	12°06.9	34° 19.4	70°47.1
9	248°45.6	7.8'	17°02.4	-10.7'	59.5'	116°04.9	90°30.1	35°57.3		10°07.1	12°37.9	34°51.7	71°20.4
10	263°12.3	7.7'	17°13.2	-10.6'	59.5'	115°33.6	89°58.2	35°21.7		10°41.6	13°09.2	35°23.9	71°53.7
11	277°39.0	7.7'	17°23.8	-10.5'	59.5'	115°02.1	89°26.3	34°46.0		11°16.2	13°40.8	35°56.2	72°26.9
12	292°05.7	7.6'	S 17°34.3	-10.4'	59.4'	114°30.7	88°54.3	34°10.4		11°50.9	14°12.7	36°28.5	73°00.2
13	306°32.3	7.5'	17°44.7	-10.3'	59.4'	113°59.3	88°22.4	33°34.8		12°25.7	14°44.8	37°00.7	73°33.4
14	320°58.8	7.5'	17°55.0	-10.2'	59.4'	113°27.8	87°50.6	32°59.2		13°00.5	15°17.2	37°33.0	74°06.7
15	335°25.3	7.4'	$18^{\circ}05.1$	-10.0'	59.4'	112°56.3	87°18.7	32°23.6		13°35.4	15°49.7	38°05.3	74°39.9
16	349°51.8	7.4'	18°15.2	-9.9'	59.4'	112°24.8	86°46.9	31°48.1		14°10.4	16°22.4	38° 37.5	75°13.0
17	4°18.1	7.3'	18°25.1	-9.8'	59.4'	111°53.2	86°15.0	31°12.5		14°45.4	16°55.3	39°09.8	75°46.2
18	18°44.5	7.3'	S 18°34.9	-9.7'	59.4'	111°21.7	85°43.2	30°37.0		15°20.4	17°28.3	39°42.0	76°19.4
19	33°10.8	7.2'	18°44.6	-9.6'	59.4'	110°50.1	85°11.4	30°01.6		15°55.5	18°01.4	40° 14.2	76°52.5
20	47°37.0	7.2'	18°54.2	-9.5'	59.3'	110°18.5	84°39.7	29°26.1		16°30.6	18°34.6	40°46.5	77°25.6
21	62°03.2	7.1'	19°03.6	-9.3'	59.3'	109°46.9	84°07.9	28°50.6	7°06.7	17°05.7	19°07.9	41° 18.7	77°58.7
22	76°29.3	7.1'	19°13.0	-9.2'	59.3'	109°15.3	83°36.2	28°15.2	7°36.4	17°40.8	19°41.4	41°50.9	78°31.8
23	90°55.4	7.0'	19°22.2	-9.1'	59.3'	108°43.6	83°04.5	27°39.8	8°06.7	18°15.9	20°14.8	42°23.1	79°04.9
15 th	SD	= 16.2	' Mer. pa	ss. 16:42					Sun SD =	= 15.8′			

h	Moon	(16 th	$\Delta u \sigma$

Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Mars	+Spica	+Jupiter	+Sun
0	105°21.4	7.0'	S 19°31.2	-9.0'	59.3'	108°12.0	104°39.0	82°32.8	27°04.4	8°37.4	18°51.0	20°48.4	79°38.0
1	119°47.4	6.9'	19°40.2	-8.8'	59.3'	107°40.4	104°20.2	82°01.2	26°29.1	9°08.5	19°26.2	21°22.0	80°11.0
2	134°13.3	6.9'	19°49.0	-8.7'	59.3'	107°08.7	104°01.4	81°29.6	25°53.8	9°39.8	20°01.3	21°55.7	80°44.0
3	148°39.2	6.8'	19°57.7	-8.6'	59.2'	106°37.0	103°42.5	80°58.0	25° 18.5	10°11.5	20°36.5	22°29.5	81°17.0
4	163°05.0	6.8'	20°06.3	-8.4'	59.2'	106°05.4	103°23.6	80°26.4	24°43.2	10°43.3	21°11.6	23°03.3	81°50.0
5	177°30.8	6.7'	$20^{\circ}14.7$	-8.3'	59.2'	105°33.7	103°04.6	79°54.9	24°08.0	11° 15.4	21°46.8	23°37.1	82°23.0
6	191°56.5	6.7'	S 20°23.0	-8.2'	59.2'	105°02.0	102°45.6	79°23.4	23°32.7	11°47.6	22°21.9	24°11.0	82°55.9
7	206°22.2	6.6'	20°31.2	-8.0'	59.2'	104°30.3	102°26.5	78°51.9	22°57.6	12° 19.9	22°57.1	24°44.9	83°28.8
8	220°47.9	6.6'	20°39.2	-7.9'	59.2'	103°58.7	102°07.3	78°20.4	22°22.4	12°52.4	23°32.2	25°18.8	84°01.8
9	235°13.5	6.6'	20°47.1	-7.8'	59.2'	103°27.0	101°48.1	77°49.0	21°47.3	13°24.9	24°07.3	25°52.7	84°34.6
10	249°39.0	6.5'	20°54.9	-7.6'	59.1'	102°55.3	101°28.9	77°17.7	21°12.2	13°57.5	24°42.4	26°26.7	85°07.5
11	264°04.5	6.5'	$21^{\circ}02.5$	-7.5'	59.1'	102°23.6	101°09.7	76°46.3	20°37.1	14°30.2	25°17.5	27°00.7	85°40.4
12	278°30.0	6.4'	S 21°10.0	-7.4'	59.1'	101°51.9	100°50.4	76°15.0	20°02.1	15°03.0	25°52.6	27°34.7	86°13.2
13	292°55.4	6.4'	21°17.4	-7.2'	59.1'	101°20.2	100°31.0	75°43.7	19°27.1	15°35.8	26°27.7	28°08.8	86°46.0
14	307°20.8	6.3'	21°24.6	-7.1'	59.1'	100°48.6	100°11.6	75°12.5	18°52.1	16°08.7	27°02.8	28°42.8	87°18.8
15	321°46.1	6.3'	21°31.7	-6.9'	59.1'	100°16.9	99°52.2	74°41.3	18° 17.2	16°41.6	27°37.9	29°16.9	87°51.6
16	336°11.4	6.3'	21°38.6	-6.8'	59.1'	99°45.2	99°32.8	74°10.1	17°42.3	17° 14.5	28°13.0	29°51.0	88°24.4
17	350°36.7	6.2'	21°45.4	-6.7'	59.0'	99°13.5	99°13.3	73°39.0	17°07.5	17°47.4	28°48.0	30°25.0	88°57.1
18	5°01.9	6.2'	S 21°52.1	-6.5'	59.0'	98°41.9	98°53.8	73°07.9	16°32.7	18°20.4	29°23.0	30°59.1	89°29.8
19	19°27.1	6.2'	$21^{\circ}58.6$	-6.4'	59.0'	98°10.2	98°34.2	72°36.9	15°57.9	18°53.4	29°58.1	31°33.2	90°02.5
20	33°52.3	6.1'	22°04.9	-6.2'	59.0'	97°38.6	98° 14.7	72°05.9	15°23.2	19°26.4	30°33.1	32°07.3	90°35.2
21	48°17.4	6.1'	22°11.2	-6.1'	59.0'	97°06.9	97°55.1	71°34.9	14°48.6	19°59.5	31°08.1	32°41.4	91°07.9
22	62°42.5	6.1'	22°17.2	-5.9'	59.0'	96°35.3	97°35.5	71°04.0	14°14.0	20°32.5	31°43.0	33°15.5	91°40.5
23	77°07.5	6.0'	22°23.2	-5.8'	58.9'	96°03.7	97° 15.8	70°33.1	13°39.5	21°05.6	32°18.0	33°49.6	92°13.2
16 th	SD =	= 16.2'	Mer. pas	s. 17:39)				Sun SD =	15.8			

h		Moor	า (17 th Aเ	ıg)			Lunar Dist	ance (ol	jects wit	h largest	hourly	LD delta)	
Fri	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Mars	+Spica	+Jupiter	+Sun
0	91°32.6	6.0'	S 22°28.9	-5.6'	58.9'	96°56.2	95°32.1	70°02.3	13°05.0	21°38.6	32°53.0	34°23.7	92°45.8
1	105°57.5	6.0'	22°34.6	-5.5'	58.9'	96°36.5	95°00.5	69°31.5	12°30.7	22°11.7	33°27.9	34°57.8	93°18.3
2	120°22.5	5.9'	22°40.1	-5.3'	58.9'	96°16.8	94°28.9	69°00.8	11°56.4	22°44.8	34°02.8	35°31.9	93°50.9
3	134°47.4	5.9'	22°45.4	-5.2'	58.9'	95°57.1	93°57.3	68°30.1	11°22.2	23°17.8	34°37.7	36°06.0	94°23.5
4	149°12.3	5.9'	22°50.6	-5.0'	58.9'	95°37.4	93°25.8	67° 59.5	10°48.1	23°50.9	35°12.6	36°40.0	94°56.0
5	163°37.2	5.9'	22°55.6	-4.9'	58.8'	95°17.6	92°54.2	67°28.9	10°14.2	24°24.0	35°47.5	37°14.1	95°28.5
6	178°02.1	5.8'	S 23°00.5	-4.7'	58.8'	94°57.9	92°22.7	66°58.4	9°40.4	24°57.0	36°22.3	37°48.2	96°01.0
7	192°26.9	5.8'	23°05.3	-4.6'	58.8'	94°38.1	91°51.2	66°27.9	9°06.7	25°30.1	36° 57.2	38°22.2	96°33.4
8	206°51.7	5.8'	23°09.9	-4.4'	58.8'	94°18.4	91°19.7	65°57.5	8°33.3	26°03.1	37° 32.0	38°56.3	97°05.9
9	221°16.5	5.8'	23°14.3	-4.3'	58.8'	93°58.6	90°48.2	65°27.2	8°00.1	26°36.2	38°06.8	39°30.3	97°38.3
10	235°41.3	5.8'	23°18.6	-4.1'	58.7'	93°38.8	90°16.7	64°56.9	7°27.1	27°09.2	38°41.6	40°04.4	98°10.7
11	250°06.0	5.7'	23°22.7	-4.0'	58.7'	93°19.0	89°45.3	64°26.6	6°54.5	27°42.2	39°16.4	40°38.4	98°43.1
12	264°30.8	5.7'	S 23°26.7	-3.8'	58.7'	92°59.3	89°13.8	63°56.4	6°22.3	28°15.3	39°51.1	41°12.4	99°15.5
13	278°55.5	5.7'	23°30.5	-3.7'	58.7'	92°39.5	88°42.4	63°26.3	5°50.6	28°48.3	40°25.9	41°46.4	99°47.8
14	293°20.2	5.7'	23°34.2	-3.5'	58.7'	92°19.7	88°11.0	62°56.2	5°19.6	29°21.3	41°00.6	42°20.4	100°20.1
15	307°44.9	5.7'	23°37.7	-3.4'	58.7'	91°59.9	87°39.7	62°26.2	4°49.5	29°54.3	41°35.3	42°54.4	100°52.4
16	322°09.6	5.7'	23°41.0	-3.2'	58.6'	91°40.1	87°08.3	61°56.3		30°27.2	42°10.0	43°28.4	101°24.7
17	336°34.2	5.7'	23°44.3	-3.1'	58.6'	91°20.4	86°37.0	61°26.4		31°00.2	42°44.6	44°02.4	101°57.0
18	350°58.9	5.7'	S 23°47.3	-2.9'	58.6'	91°00.6	86°05.7	60°56.6		31°33.2	43°19.3	44°36.3	102°29.2
19	5°23.6	5.7'	23°50.2	-2.7'	58.6'	90°40.8	85°34.4	60°26.9		32°06.1	43°53.9	45°10.3	103°01.4
20	19°48.2	5.6'	23°52.9	-2.6'	58.6'	90°21.1	85°03.1	59°57.3		32°39.0	44°28.5	45°44.2	103°33.6
21	34°12.9	5.6'	23°55.5	-2.4'	58.6'	90°01.3	84°31.9	59°27.7		33°11.9	45°03.1	46°18.1	104°05.8
22	48°37.5	5.6'	23°58.0	-2.3'	58.5'	89°41.6	84°00.7	58°58.2		33°44.8	45°37.6	46°52.0	104°37.9
23	63°02.2	5.6'	24°00.2	-2.1'	58.5'	89°21.9	83°29.5	58°28.7		34°17.7	46°12.2	47°25.9	105°10.1

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17 th	SD :	= 16.1'	Mer. pass	s. 18:38	1				Sun SD =	15.8'			
h		Moon	(18 th Au	ıg)			Lunar D	istance (obj	jects wit	h largest l	hourly LI	O delta)	
Sat	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Spica	+Jupiter
0	77°26.8	5.7'	S 24°02.4	-2.0'	58.5'	90°41.6	89°02.2	82°58.3	57°59.4		34°50.6	46°46.7	47°59.8
1	91°51.5	5.7'	24°04.3	-1.8'	58.5'	90°26.6	88°42.5	82°27.2	57°30.1		35°23.4	47°21.2	48°33.6
2	106°16.1	5.7'	24°06.1	-1.7'	58.5'	90°11.6	88°22.8	81°56.1	57°00.9		35°56.3	47°55.7	49°07.4
3	120°40.8	5.7'	24°07.8	-1.5'	58.4'	89°56.5	88°03.2	81°25.0	56°31.7		36°29.1	48° 30.2	49°41.3
4	135°05.4	5.7'	24°09.3	-1.3'	58.4'	89°41.5	87°43.6	80°54.0	56°02.7		37°01.9	49°04.7	50° 15.1
5	149°30.1	5.7'	24°10.6	-1.2'	58.4'	89°26.5	87°24.0	80°23.0	55°33.8		37°34.7	49°39.1	50°48.9
6	163°54.8	5.7'	S 24°11.8	-1.0'	58.4'		87°04.4	79°52.0	55°04.9		38°07.5	50° 13.5	51°22.7
7	178°19.5	5.7'	24°12.8	-0.9'	58.4'		86°44.8	79°21.0	54°36.1	5°42.8	38°40.2	50°47.9	51°56.4
8	192°44.2	5.7'	24°13.7	-0.7'	58.3'		86°25.3	78°50.1	54°07.5	6°14.0	39°13.0	51°22.3	52°30.2
9	207°08.9	5.7'	24°14.4	-0.6'	58.3'		86°05.8	78° 19.2	53°38.9	6°45.6	39°45.7	51°56.6	53°03.9
10	221°33.7	5.8'	24°15.0	-0.4'	58.3'		85°46.3	77°48.3	53°10.4	7°17.7	40°18.4	52°31.0	53°37.6
11	235°58.4	5.8'	24°15.4	-0.3'	58.3'		85°26.8	77° 17.5	52°42.0	7°50.1	40°51.1	53°05.3	54°11.3
12	250°23.2	5.8'	S 24°15.6	-0.1'	58.3'		85°07.4	76°46.7	52°13.7	8°22.7	41°23.8	53°39.6	54°45.0
13	264°48.0	5.8'	24°15.7	0.1'	58.3'		84°48.0	76° 15.9	51°45.5	8°55.5	41°56.4	54° 13.9	55° 18.7
14	279°12.8	5.8'	24°15.7	0.2'	58.2'		84°28.6	75°45.2	51°17.4	9°28.5	42°29.0	54°48.1	55°52.3
15	293°37.7	5.9'	24°15.5	0.4'	58.2'		84°09.3	75° 14.5	50°49.5	10°01.6	43°01.7	55°22.4	56°25.9
16	308°02.5	5.9'	$24^{\circ}15.1$	0.5'	58.2'		83°50.0	74°43.8	50°21.6	10°34.8	43°34.3	55°56.6	56°59.6
17	322°27.4	5.9'	24°14.6	0.7'	58.2'		83°30.8	74° 13.2	49°53.9	11°08.1	44°06.8	56°30.8	57°33.2
18	336°52.4	6.0'	S 24°13.9	0.8'	58.2'		83°11.6	73°42.6	49°26.2	11°41.5	44°39.4	57°05.0	58°06.7
19	351°17.3	6.0'	24°13.1	1.0'	58.1'		82°52.4	73° 12.1	48°58.7	12°14.9	45°11.9	57°39.1	58°40.3
20	5°42.3	6.0'	24°12.1	1.1'	58.1'		82°33.3	72°41.6	48°31.3	12°48.4	45°44.5	58° 13.3	59°13.8
21	20°07.4	6.1'	$24^{\circ}11.0$	1.3'	58.1'		82°14.2	72°11.1	48°04.1	13°21.9	46°17.0	58° 47.4	59°47.4
22	34°32.4	6.1'	24°09.7	1.4'	58.1'		81°55.1	71°40.7	47°36.9	13°55.5	46°49.5	59°21.5	60°20.9
23	48°57.5	6.1'	24°08.3	1.6'	58.1'		81°36.1	71°10.3	47°09.9	14°29.0	47°21.9	59°55.5	60°54.4
18 th	SD :	= 16.0'	Mer. pass	s. 19:36	,								

h	I	Moon	(19 th Au	ıg)			Lunar Dis	tance (o	bjects wit	h largest	hourly L	D delta)	
Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Spica	+Jupiter	+Sun
0	63°22.6	6.2'	S 24°06.7	1.7'	58.0'	81°17.2	70°40.0	46°43.1	15°02.6	47°54.4	60°29.6	61°27.8	118°26.4
1	77°47.8	6.2'	24°05.0	1.9'	58.0'	80°58.3	70°09.7	46°16.3	15°36.2	48°26.8	61°03.6	62°01.3	118°58.0
2	92°13.0	6.3'	24°03.1	2.0'	58.0'	80°39.4	69°39.4	45°49.7	16°09.9	48°59.2	61°37.7	62°34.7	119°29.5
3	106°38.3	6.3'	24°01.1	2.2'	58.0'	80°20.6	69°09.2	45°23.3	16°43.5	49°31.6	62°11.7	63°08.1	
4	121°03.6	6.3'	23°58.9	2.3'	58.0'	80°01.8	68°39.1	44°57.0	17° 17.1	50°04.0	62°45.6	63°41.5	
5	135°28.9	6.4'	23°56.6	2.5'	57.9'	79°43.1	68°09.0	44°30.9	17° 50.8	50°36.4	63°19.6	64°14.9	
6	149°54.3	6.4'	S 23°54.1	2.6'	57.9'	79°24.5	67°38.9	44°04.9	18°24.4	51°08.7	63°53.5	64°48.3	
7	164°19.7	6.5'	23°51.5	2.8'	57.9'	79°05.9	67°08.9	43°39.1	18° 58.0	51°41.0	64°27.4	65°21.6	
8	178°45.2	6.5'	23°48.7	2.9'	57.9'	78°47.3	66°38.9	43°13.4	19°31.7	52°13.3	65°01.3	65°54.9	
9	193°10.7	6.6'	23°45.8	3.1'	57.9'	78°28.9	66°09.0	42°47.9	20°05.3	52°45.6	65°35.2	66°28.2	
10	207°36.3	6.6'	23°42.8	3.2'	57.8'	78°10.4	65°39.1	42°22.6	20°38.9	53°17.8	66°09.1	67°01.5	
11	222°02.0	6.7'	23°39.6	3.3'	57.8'	77°52.1	65°09.3	41°57.5	21° 12.5	53°50.1	66°42.9	67°34.8	
12	236°27.6	6.7'	S 23°36.2	3.5'	57.8'	77°33.8	64°39.6	41°32.5	21°46.1	54°22.3	67°16.7	68°08.0	
13	250°53.4	6.8'	23°32.7	3.6'	57.8'	77°15.6	64°09.9	41°07.8	22° 19.7	54°54.5	67°50.5	68°41.2	
14	265°19.2	6.9'	23°29.1	3.8'	57.8'	76°57.4	63°40.2	40°43.2	22°53.3	55°26.7	68°24.3	69°14.5	
15	279°45.0	6.9'	23°25.4	3.9'	57.7'	76°39.3	63°10.6	40°18.8	23° 26.9	55°58.8	68°58.0	69°47.6	
16	294°11.0	7.0'	$23^{\circ}21.5$	4.0'	57.7'	76°21.3	62°41.1	39°54.7	24°00.5	56°31.0	69°31.7	70°20.8	
17	308°36.9	7.0'	23°17.4	4.2'	57.7'	76°03.3	62°11.6	39°30.7	24°34.0	57°03.1	70°05.4	70°53.9	
18	323°03.0	7.1'	S 23°13.3	4.3'	57.7'	75°45.4	61°42.2	39°07.0	25°07.6	57°35.2	70°39.1	71°27.1	
19	337°29.1	7.2'	23°08.9	4.4'	57.7'	75°27.6	61°12.8	38°43.5	25°41.1	58°07.3	71°12.8	72°00.2	
20	351°55.2	7.2'	23°04.5	4.6'	57.6'	75°09.8	60°43.5	38°20.2	26° 14.6	58°39.3	71°46.4	72°33.3	
21	6°21.4	7.3'	22°59.9	4.7'	57.6'	74°52.1	60°14.3	37°57.1	26°48.1	59°11.3	72°20.1	73°06.3	
22	20°47.7	7.4'	22°55.2	4.9'	57.6'	74°34.5	59°45.2	37°34.3	27°21.6	59°43.4	72°53.7	73°39.4	
23	35°14.1	7.4'	22°50.3	5.0'	57.6'	74°17.0	59°16.1	37°11.7	27°55.1	60°15.4	73°27.2	74°12.4	
19 th	SD =	= 15.8′	Mer. pass	s. 20:34	4				Sun SD =	= 15.8 [']			

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

Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Spica	+Jupiter	+Venus
0	49°40.5	7.5'	S 22°45.4	5.1'	57.6'	73°59.6	58°47.0	36°49.4	28°28.5	60°47.3	74°00.8	74°45.4	93°11.4
1	64°07.0	7.6'	22°40.2	5.2'	57.5'	73°42.2	58°18.1	36°27.4	29°02.0	61°19.3	74°34.4	75°18.4	93°41.8
2	78°33.5	7.6'	22°35.0	5.4'	57.5'	73°24.9	57°49.2	36°05.6	29°35.4	61°51.2	75°07.9	75°51.4	94°12.3
3	93°00.2	7.7'	$22^{\circ}29.6$	5.5'	57.5'	73°07.7	57°20.4	35°44.1	30°08.8	62°23.1	75°41.4	76°24.3	94°42.7
4	107°26.8	7.8'	$22^{\circ}24.1$	5.6'	57.5'	72°50.6	56°51.6	35°22.9	30°42.2	62°55.0	76°14.8	76°57.2	95°13.2
5	121°53.6	7.8'	$22^{\circ}18.5$	5.8'	57.5'	72°33.6	56°22.9	35°02.0	31°15.6	63°26.9	76°48.3	77°30.1	95°43.6
6	136°20.4	7.9'	S 22°12.7	5.9'	57.4'	72°16.7	55°54.3	34°41.3	31°48.9	63°58.8	77°21.7	78°03.0	96°13.9
7	150°47.3	8.0'	22°06.9	6.0'	57.4'	71°59.8	55°25.8	34°21.0	32°22.3	64°30.6	77°55.2	78°35.9	96°44.3
8	165°14.3	8.0'	22°00.9	6.1'	57.4'	71°43.0	54°57.4	34°01.0	32°55.6	65°02.4	78°28.5	79°08.7	97°14.6
9	179°41.4	8.1'	21°54.7	6.2'	57.4'	71°26.4	54°29.0	33°41.3	33°28.9	65°34.2	79°01.9	79°41.6	97°44.9
10	194°08.5	8.2'	$21^{\circ}48.5$	6.4'	57.4'	71°09.8	54°00.8	33°22.0	34°02.2	66°06.0	79°35.3	80°14.4	98°15.2
11	208°35.7	8.3'	$21^{\circ}42.1$	6.5'	57.3'	70°53.3	53°32.6	33°03.0	34°35.4	66°37.7	80°08.6	80°47.1	98°45.5
12	223°03.0	8.3'	S 21°35.6	6.6'	57.3'	70°36.9	53°04.5	32°44.3	35°08.7	67°09.4	80°41.9	81°19.9	99°15.8
13	237°30.3	8.4'	$21^{\circ}29.0$	6.7'	57.3'	70°20.6	52°36.5	32°26.0	35°41.9	67°41.1	81°15.2	81°52.6	99°46.0
14	251°57.7	8.5'	$21^{\circ}22.3$	6.8'	57.3'	70°04.4	52°08.5	32°08.1	36°15.1	68°12.8	81°48.5	82°25.4	100°16.2
15	266°25.2	8.6'	$21^{\circ}15.5$	7.0'	57.3'	69°48.3	51°40.7	31°50.6	36°48.3	68°44.5	82°21.7	82°58.1	100°46.4
16	280°52.8	8.7'	$21^{\circ}08.5$	7.1'	57.2'	69°32.4	51°13.0	31°33.4	37°21.5	69°16.1	82°54.9	83°30.7	101°16.6
17	295°20.5	8.7'	$21^{\circ}01.4$	7.2'	57.2'	69°16.5	50°45.3	31°16.7	37°54.6	69°47.7	83°28.1	84°03.4	101°46.7
18	309°48.2	8.8'	S 20°54.2	7.3'	57.2'	69°00.7	50°17.8	31°00.3	38°27.8	70°19.3	84°01.3	84°36.0	102°16.8
19	324°16.0	8.9'	20°47.0	7.4'	57.2'	68°45.0	49°50.4	30°44.4	39°00.9	70°50.9	84°34.5	85°08.6	102°46.9
20	338°43.9	9.0'	$20^{\circ}39.5$	7.5'	57.1'	68°29.4	49°23.0	30°28.9	39°34.0	71°22.5	85°07.6	85°41.2	103°17.0
21	353°11.9	9.0'	$20^{\circ}32.0$	7.6'	57.1'	68°14.0	48°55.8	$30^{\circ}13.8$	40°07.0	71°54.0	85°40.7	86°13.8	103°47.1
22	7°39.9	9.1'	20°24.4	7.7'	57.1'	67°58.6	48°28.7		40°40.1	72°25.5	86°13.8	86°46.4	104°17.1
23	22°08.0	9.2'	20°16.7	7.8'	57.1'	67°43.4	48°01.7		41°13.1	72°57.0	86°46.9	87°18.9	104°47.1
20 th	SD =	= 15.7'	Mer. pass	s. 21:28	3								

ŀ	Moon (21st Aug)	Lunar	Distance	(objects	wi+h	largest	hourly	ΙD	dolta)	
- 1	1 IVIOON LZTA AHDI	ı ıınar	Tristance	contects	WILLI	largest	HOHITIV	111	denai	

		IVIOUII	(21 Au	18 <i>)</i>			Luliai Dis	tance (ob	Jects wit	ii iaigest i	lourly LL	J ucita)	
Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Mars	+Arcturus	+Spica	+Jupiter	+Venus
0	36° 36.2	9.3'	S 20°08.8	7.9'	57.1'		47° 34.8	41°46.1	73°28.5	86°30.5	87°19.9	87°51.4	105° 17.1
1	51°04.5	9.4'	20°00.9	8.0'	57.0'		47°08.0	42°19.1	74°00.0	86°57.4	87°53.0	88°23.9	105°47.1
2	65°32.9	9.4'	19°52.9	8.1'	57.0'		46°41.4	42°52.1	74°31.4	87°24.3	88°26.0	88°56.3	106° 17.0
3	80°01.3	9.5'	19°44.7	8.2'	57.0'		46°14.8	43°25.1	75°02.8	87°51.2	88°59.0	89°28.8	106°47.0
4	94°29.9	9.6'	19°36.5	8.3'	57.0'		45° 48.4	43°58.0	75°34.2	88°18.1	89°31.9	90°01.2	107°16.9
5	108°58.5	9.7'	19°28.1	8.4'	57.0'		45°22.1	44°30.9	76°05.6	88°45.0	90°04.9	90°33.6	107°46.7
6	123°27.2	9.8'	S 19°19.7	8.5'	56.9'		44°56.0	45°03.8	76°36.9	89°11.8	90°37.8	91°06.0	108° 16.6
7	137°55.9	9.9'	$19^{\circ}11.1$	8.6'	56.9'	119°27.8	44°30.0	45°36.7	77°08.2	89°38.6	91°10.7	91°38.3	108°46.4
8	152°24.8	9.9'	$19^{\circ}02.5$	8.7'	56.9'	118°55.2	44°04.1	46°09.5	77°39.5	90°05.4	91°43.6	92°10.7	109°16.3
9	166°53.7	10.0'	18°53.8	8.8'	56.9'	118°22.6	43°38.4	46°42.4	78°10.8	90°32.2	92°16.4	92°43.0	109°46.1
10	181°22.7	10.1'	18°44.9	8.9'	56.9'	117°50.0	43°12.8	47°15.2	78°42.1	90°59.0	92°49.3	93°15.3	110° 15.8
11	195°51.8	10.2'	18°36.0	9.0'	56.8'	117°17.4	42°47.4	47°48.0	79°13.3	91°25.8	93°22.1	93°47.5	110°45.6
12	210°21.0	10.3'	S 18°27.0	9.1'	56.8'	116°44.8	42°22.1	48°20.7	79°44.5	91°52.5	93°54.9	94°19.8	111°15.3
13	224°50.2	10.3'	$18^{\circ}17.9$	9.2'	56.8'	116°12.2	41°57.0	48°53.5	80°15.7	92°19.2	94°27.6	94°52.0	111°45.0
14	239°19.6	10.4'	$18^{\circ}08.7$	9.3'	56.8'	115°39.7	41°32.0	49°26.2	80°46.9	92°45.9	95°00.4	95°24.2	112°14.7
15	253°49.0	10.5'	$17^{\circ}59.4$	9.4'	56.8'	115°07.2	41°07.2	49°58.9	81°18.0	93°12.6	95°33.1	95°56.4	112°44.4
16	268° 18.5	10.6'	17°50.1	9.5'	56.7'	114°34.7	40°42.6	50°31.6	81°49.1	93°39.2	96°05.8	96°28.5	113°14.0
17	282°48.1	10.7'	17°40.6	9.5'	56.7'	114°02.2	40°18.1	51°04.3	82°20.3	94°05.9	96°38.5	97°00.7	113°43.6
18	297° 17.7	10.7'	S 17°31.1	9.6'	56.7'	113°29.8	39°53.8	51°36.9	82°51.3	94°32.4	97°11.2	97°32.8	114°13.2
19	311°47.5	10.8'	$17^{\circ}21.5$	9.7'	56.7'	112°57.4	39°29.8	52°09.5	83°22.4	94°59.0	97°43.8	98°04.9	114°42.8
20	326° 17.3	10.9'	$17^{\circ}11.8$	9.8'	56.7'	112°25.0	39°05.9	52°42.1	83°53.4	95°25.6	98°16.4	98°36.9	115°12.3
21	340°47.2	11.0'	$17^{\circ}02.0$	9.9'	56.6'	111°52.6	38° 42.2	53°14.7	84°24.5	95°52.1	98°49.0	99°09.0	115°41.8
22	355°17.1	11.1'	16°52.1	9.9'	56.6'	111°20.2	38° 18.7	53°47.3	84°55.4	96°18.6	99°21.6	99°41.0	116°11.4
23	9°47.2	11.1'	16°42.2	10.0'	56.6'	110°47.9	37°55.4	54°19.8	85°26.4	96°45.0	99°54.1	100°13.0	116°40.8
21st	SD	= 15.6'	Mer. pass	s. 22:20									

Wod	CHV		Doc	<u>,</u>	нр	Aldobaran	-Rigol	Saturn	Fomalhaut	± Antaros	±Mare		⊥ luniter
h		Moon	(22 ^{na} Au	g)			Lunar D	istance (d	biects with	largest h	ourly LD	delta)	

Wed	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Antares	+Mars	+Spica	+Jupiter
0	24°17.3	11.2'	S 16°32.2	10.1'	56.6'			110° 15.5	37°32.3	54°52.3	85°57.4	100°26.6	100°45.0
1	38°47.5	11.3'	$16^{\circ}22.1$	10.2'	56.5'			109°43.2	37°09.4	55°24.8	86°28.3	100°59.1	101°16.9
2	53°17.8	11.4'	$16^{\circ}11.9$	10.2'	56.5'			109°10.9	36°46.8	55°57.3	86°59.2	101°31.6	101°48.9
3	67°48.2	11.4'	16°01.7	10.3'	56.5'			108°38.7	36°24.3	56°29.7	87°30.1	102°04.1	102°20.8
4	82°18.6	11.5'	15°51.4	10.4'	56.5'			108°06.4	36°02.1	57°02.2	88°01.0	102°36.5	102°52.6
5	96°49.1	11.6'	15°41.0	10.5'	56.5'			107°34.2	35°40.2	57°34.6	88°31.8	103°08.9	103°24.5
6	111°19.7	11.7'	S 15°30.5	10.5'	56.4'			107°02.0	35°18.5	58°06.9	89°02.6	103°41.3	103°56.3
7	125°50.4	11.7'	15°20.0	10.6'	56.4'			106° 29.8	34°57.1	58°39.3	89°33.4	104°13.7	104°28.2
8	140°21.1	11.8'	15°09.4	10.7'	56.4'			105°57.7	34°35.9	59°11.7	90°04.2	104°46.0	105°00.0
9	154°51.9	11.9'	14°58.8	10.7'	56.4'			105°25.5	34°15.0	59°44.0	90°34.9	105°18.4	105°31.7
10	169°22.8	12.0'	14°48.1	10.8'	56.4			104°53.4	33°54.4	60°16.3	91°05.7	105°50.7	106°03.5
11	183°53.8	12.0'	14°37.3	10.8'	56.3'	119° 47.4		104°21.3	33°34.0	60°48.5	91°36.4	106°22.9	106°35.2
12	198°24.8	12.1'	S 14°26.4	10.9'	56.3'	119° 15.5		103°49.3	33°14.0	61°20.8	92°07.0	106°55.2	107°06.9
13	212°55.9	12.2'	14° 15.5	11.0'	56.3'	118°43.6		103° 17.2	32°54.2	61°53.0	92°37.7	107°27.4	107°38.6
14	227°27.1	12.3'	14°04.6	11.0'	56.3'	118° 11.7		102°45.2	32°34.8	62°25.2	93°08.3	107°59.7	108°10.2
15	241°58.4	12.3'	13°53.5	11.1'	56.3	117°39.8		102°13.2	32°15.6	62°57.4	93°39.0	108°31.8	108°41.8
16	256°29.7	12.4'	13°42.5	11.1'	56.2'	117°08.0		101°41.2	31°56.8	63°29.6	94°09.5	109°04.0	109°13.4
17	271°01.1	12.5'	13°31.3	11.2'	56.2'	116°36.1		101°09.2	31°38.4	64°01.7	94°40.1	109°36.1	109°45.0
18	285°32.6	12.5'	S 13°20.1	11.2'	56.2'	116°04.3	119°39.1	100°37.3	31°20.2	64°33.9	95°10.7	110°08.3	110°16.6
19	300°04.1	12.6'	13°08.9	11.3'	56.2'	115°32.5	119°13.7	100°05.3	31°02.5	65°06.0	95°41.2	110°40.4	110°48.1
20	314°35.7	12.7'	12°57.6	11.4'	56.2'	115°00.7	118°48.3	99°33.4	30°45.1	65°38.0	96°11.7	111°12.4	111°19.6
21	329°07.4	12.7'	12°46.2	11.4'	56.1'	114°28.9	118°22.9	99°01.6	30°28.0	66°10.1	96°42.2	111°44.5	111°51.1
22	343°39.1	12.8'	12°34.8	11.5'	56.1'	113°57.2	117°57.4	98°29.7	30°11.4	66°42.1	97°12.6	112°16.5	112°22.6
23	358°10.9	12.9'	12°23.4	11.5'	56.1'	113°25.5	117°31.9	97°57.9	29°55.1	67°14.1	97°43.1	112°48.5	112°54.0
22 nd	SD	= 15.4'	Mer. pass	. 23:08									

h Moon (23rd Aug)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Antares	+Mars	+Spica	+Jupiter
0	12°42.8	12.9'	S 12°11.9	11.6'	56.1'		117°06.4	112°53.8	97°26.1	67°46.1	98°13.5	113°20.5	113°25.4
1	27°14.7	13.0'	12°00.3	11.6'	56.0'	119°31.8	116°40.8	112°22.1	96°54.3	68° 18.1	98°43.9	113°52.5	113°56.8
2	41°46.7	13.1'	11°48.7	11.6'	56.0'	119°02.9	116° 15.2	111°50.4	96°22.5	68° 50.0	99°14.2	114°24.4	114°28.2
3	56°18.8	13.1'	11°37.1	11.7'	56.0'	118°34.0	115°49.5	111°18.8	95°50.8	69°22.0	99°44.6	114°56.3	114°59.5
4	70°50.9	13.2'	11°25.4	11.7'	56.0'	118°05.0	115°23.8	110°47.1	95°19.0	69°53.9	100°14.9	115°28.2	115°30.9
5	85°23.1	13.3'	$11^{\circ}13.7$	11.8'	56.0'	117°36.1	114°58.1	110°15.5	94°47.3	70°25.7	100°45.2	$116^{\circ}00.1$	116°02.1
6	99°55.4	13.3'	S 11°01.9	11.8'	55.9'	117°07.1	114°32.4	109°43.9	94°15.6	70°57.6	101°15.5	116°31.9	116°33.4
7	114°27.7	13.4'	$10^{\circ}50.1$	11.9'	55.9'	116°38.1	114°06.6	109°12.4	93°44.0	71°29.4	101°45.7	117°03.8	117°04.7
8	129°00.1	13.4'	10°38.2	11.9'	55.9'	116°09.1	113°40.8	108°40.8	93°12.3	72°01.2	102°15.9	117°35.6	117°35.9
9	143°32.5	13.5'	10°26.3	11.9'	55.9'	115°40.2	113° 14.9	108°09.3	92°40.7	72°33.0	102°46.1	118°07.3	118°07.1
10	158°05.0	13.6'	10°14.4	12.0'	55.9'	115°11.2	112°49.1	107°37.8	92°09.1	73°04.8	103°16.3	118°39.1	118°38.2
11	172°37.6	13.6'	10°02.4	12.0'	55.8'	114°42.2	112°23.2	107°06.3	91°37.6	73°36.5	103°46.5	119°10.8	119°09.4
12	187°10.2	13.7'	S 09°50.4	12.0'	55.8'	114°13.2	111°57.3	106°34.9	91°06.0	74°08.2	104°16.6	119°42.5	119°40.5
13	201°42.9	13.7'	09°38.4	12.1'	55.8'	113°44.2	111°31.4	106°03.4	90°34.5	74°39.9	104°46.7		
14	216°15.6	13.8'	09°26.3	12.1'	55.8'	113°15.2	111°05.4	105°32.0	90°03.0	75° 11.6	105°16.8		
15	230°48.4	13.8'	09°14.2	12.1'	55.8'	112°46.2	110°39.5	105°00.6	89°31.5	75°43.3	105°46.9		
16	245°21.2	13.9'	$09^{\circ}02.1$	12.2'	55.7'	112°17.2	110° 13.5	104°29.2	89°00.0	76° 14.9	106°16.9		
17	259°54.1	13.9'	08°49.9	12.2'	55.7'	111°48.2	109°47.5	103°57.9	88°28.6	76° 46.5	106°47.0		
18	274°27.1	14.0'	S 08°37.7	12.2'	55.7'	111°19.2	109°21.5	103°26.5	87°57.2	77° 18.1	107°17.0		
19	289°00.1	14.1'	08°25.5	12.3'	55.7'	110°50.3	108°55.4	102°55.2	87°25.8	77°49.6	107°47.0		
20	303°33.1	14.1'	08°13.3	12.3'	55.7'	110°21.3	108°29.4	102°23.9	86°54.4	78°21.2	108°16.9		
21	318°06.2	14.2'	$08^{\circ}01.0$	12.3'	55.6'	109°52.3	108°03.3	101°52.6	86°23.1	78° 52.7	108°46.8		
22	332°39.4	14.2'	07°48.7	12.3'	55.6'	109°23.3	107°37.3	101°21.4	85°51.7	79°24.2	109°16.7		
23	347°12.6	14.3'	07°36.3	12.4'	55.6'	108°54.4	107°11.2	100°50.1	85°20.4	79°55.7	109°46.6		
23 rd	SD	= 15.3'	Mer. pass	s. 23:53									

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

			(=	0,						1011 141 600	,		
Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Mars	+Arcturus
0	1°45.9	14.3'	S 07°24.0	12.4'	55.6'	118°58.1	108°25.4	100° 18.9	84°49.2	80°27.1	93°09.4	110°16.5	117°26.8
1	16°19.2	14.3'	$07^{\circ}11.6$	12.4'	55.6'	118°28.3	107°56.5	99°47.7	84°17.9	80°58.6	93°33.6	110°46.3	117°50.6
2	30°52.5	14.4'	$06^{\circ}59.2$	12.4'	55.5'	117° 58.5	107°27.5	99°16.6	83°46.7	81°30.0	93° 57.7	111°16.2	118°14.3
3	45°25.9	14.4'	06°46.8	12.4'	55.5'	117°28.7	106°58.6	98°45.4	83°15.4	82°01.4	94°21.9	111°46.0	118°37.9
4	59°59.3	14.5'	06°34.4	12.5'	55.5'	116°58.9	106°29.6	98°14.3	82°44.3	82°32.7	94°46.0	112°15.7	119°01.5
5	74°32.8	14.5'	$06^{\circ}21.9$	12.5'	55.5'	116°29.1	106°00.7	97°43.2	82°13.1	83°04.1	95°10.0	112°45.5	119°24.9
6	89°06.4	14.6'	S 06°09.5	12.5'	55.5'	115°59.3	105°31.8	97° 12.1	81°41.9	83°35.4	95°34.1	113°15.2	119°48.3
7	103°39.9	14.6'	05°57.0	12.5'	55.4'	115°29.6	105°02.9	96°41.0	81°10.8	84°06.7	95°58.1	113°44.9	
8	118°13.5	14.7'	05°44.5	12.5'	55.4'	114°59.8	104°34.0	96°10.0	80°39.7	84°38.0	96°22.1	114°14.6	
9	132°47.2	14.7'	05°31.9	12.5'	55.4'	114°30.0	104°05.1	95°39.0	80°08.6	85°09.2	96°46.1	114°44.3	
10	147°20.9	14.7'	$05^{\circ}19.4$	12.5'	55.4'	114°00.3	103°36.2	95°08.0	79°37.6	85°40.4	97° 10.0	115°13.9	
11	161°54.6	14.8'	$05^{\circ}06.9$	12.6'	55.4'	113°30.6	103°07.3	94°37.0	79°06.5	86°11.6	97°33.9	115°43.5	
12	176°28.4	14.8'	S 04°54.3	12.6'	55.3'	113°00.8	102°38.5	94°06.1	78°35.5	86°42.8	97°57.8	116°13.1	
13	191°02.2	14.8'	04°41.7	12.6'	55.3'	112°31.1	102°09.6	93°35.1	78°04.5	87°14.0	98°21.6	116°42.7	
14	205°36.0	14.9'	04°29.2	12.6'	55.3'	112°01.4	101°40.8	93°04.2	77°33.5	87°45.1	98° 45.4	117°12.2	
15	220°09.9	14.9'	$04^{\circ}16.6$	12.6'	55.3'	111°31.7	101°12.0	92°33.3	77°02.6	88°16.3	99°09.1	117°41.7	
16	234°43.9	15.0'	04°04.0	12.6'	55.3'	111°02.0	100°43.2	92°02.4	76°31.7	88°47.4	99° 32.9	118°11.2	
17	249°17.8	15.0'	$03^{\circ}51.4$	12.6'	55.3'	110°32.4	100°14.4	91°31.6	76°00.8	89°18.4	99° 56.6	118°40.7	
18	263°51.8	15.0'	S 03°38.8	12.6'	55.2'	110°02.7	99°45.6	91°00.8	75°29.9	89°49.5	100°20.2	119°10.2	
19	278°25.8	15.1'	03°26.1	12.6'	55.2'	109°33.1	99°16.8	90°30.0	74°59.0	90°20.5	100°43.8	119°39.6	
20	292°59.9	15.1'	03° 13.5	12.6'	55.2'	109°03.4	98°48.0	89°59.2	74°28.2	90°51.5	101°07.4		
21	307°34.0	15.1'	03°00.9	12.6'	55.2'	108°33.8	98°19.3	89°28.4	73°57.4	91°22.5	101°30.9		
22	322°08.1	15.1'	02°48.3	12.6'	55.2'	108°04.2	97°50.6	88° 57.7	73°26.6	91°53.5	101°54.4		
23	336°42.2	15.2'	$02^{\circ}35.6$	12.6'	55.1'	107°34.6	97°21.8	88°26.9	72°55.8	92°24.4	102°17.9		
24 th	SE	0 = 15.2	.' Mer. pa	ss:-					*				

h Moon ((25 th Aug)	Lunar Distance (objects with lar	gest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	351°16.4	15.2'	S 02°23.0	12.6'	55.1'		107°05.0	87°56.3	72°25.1	45°29.6	92°55.4	102°41.3	106°33.6
1	5°50.6	15.2'	02°10.4	12.6'	55.1'		106°35.4	87°25.6	71°54.3	45°53.7	93°26.3	103°04.7	106°56.2
2	20°24.8	15.3'	01°57.7	12.6'	55.1'		106°05.8	86°54.9	71°23.6	46°17.8	93°57.2	103°28.0	107°18.7
3	34°59.1	15.3'	01°45.1	12.6'	55.1'		105°36.3	86°24.3	70°52.9	46°42.0	94°28.0	103°51.3	107°41.2
4	49°33.4	15.3'	01°32.5	12.6'	55.1'		105°06.7	85°53.7	70°22.3	47°06.3	94°58.9	104° 14.5	108°03.6
5	64°07.7	15.3'	$01^{\circ}19.8$	12.6'	55.0'		104°37.2	85°23.1	69°51.6	47°30.7	95°29.7	104°37.7	108°26.0
6	78°42.0	15.4'	S 01°07.2	12.6'	55.0'		104°07.7	84°52.5	69°21.0	47°55.2	96°00.5	105°00.8	108°48.3
7	93°16.3	15.4'	00°54.6	12.6'	55.0'		103°38.2	84°21.9	68°50.4	48°19.8	96°31.3	105°23.9	109°10.5
8	107°50.7	15.4'	00°42.0	12.6'	55.0'		103°08.7	83°51.4	68° 19.8	48°44.4	97°02.0	105°47.0	109°32.7
9	122°25.1	15.4'	00°29.4	12.6'	55.0'		102°39.3	83°20.9	67°49.3	49°09.1	97°32.8	106°09.9	109°54.8
10	136°59.5	15.4'	$00^{\circ}16.8$	12.6'	54.9'		102°09.8	82°50.4	67° 18.7	49°33.8	98°03.5	106° 32.9	110°16.9
11	151°34.0	15.5'	S 00°04.2	12.6'	54.9'		101°40.4	82°19.9	66°48.2	49°58.7	98°34.2	106°55.8	110°38.9
12	166°08.4	15.5'	N00°08.4	12.6'	54.9'		101°10.9	81°49.5	66° 17.7	50°23.6	99°04.9	107° 18.6	111°00.8
13	180°42.9	15.5'	$00^{\circ}21.0$	12.6'	54.9'		100°41.5	81°19.1	65°47.3	50°48.5	99°35.5	107°41.4	111°22.7
14	195°17.4	15.5'	00°33.6	12.6'	54.9'		100°12.1	80°48.7	65°16.8	51°13.5	100°06.1	108°04.1	111°44.5
15	209°51.9	15.5'	00°46.1	12.5'	54.9'		99°42.8	80°18.3	64°46.4	51°38.6	100°36.8	108° 26.8	112°06.2
16	224°26.4	15.5'	00°58.7	12.5'	54.8'		99°13.4	79°47.9	64°16.0	52°03.7	101°07.4	108°49.4	112°27.9
17	239°00.9	15.5'	$01^{\circ}11.2$	12.5'	54.8'		98°44.0	79°17.6	63°45.6	52°28.9	101°37.9	109°12.0	112°49.5
18	253°35.5	15.6'	N01°23.7	12.5'	54.8'		98°14.7	78°47.2	63°15.2	52°54.1	102°08.5	109°34.5	113°11.0
19	268°10.0	15.6'	$01^{\circ}36.2$	12.5'	54.8'		97°45.4	78° 16.9	62°44.9	53°19.4	102°39.0	109°56.9	113°32.4
20	282°44.6	15.6'	01°48.7	12.5'	54.8'	119°34.5	97°16.1	77°46.7	62°14.6	53°44.7	103°09.5	110° 19.3	113°53.8
21	297°19.2	15.6'	$02^{\circ}01.2$	12.5'	54.8'	119°04.4	96°46.8	77°16.4	61°44.3	54°10.1	103°40.0	110°41.6	114°15.1
22	311°53.8	15.6'	$02^{\circ}13.6$	12.4'	54.8'	118°34.4	96°17.5	76°46.1	61°14.0	54°35.5	104°10.5	111°03.9	114°36.3
23	326°28.4	15.6'	02°26.1	12.4'	54.7'	118°04.3	95°48.3	76° 15.9	60°43.7	55°00.9	104°41.0	111°26.1	114°57.5
25 th	SD	= 15.0'	Mer. pass	. 00:36									

Moon (26th Aug)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	341°03.0	15.6'	N 02°38.5	12.4'	54.7'	117°34.2	95°19.1	75° 45.7	60°13.5	33°09.2	55°26.4	105°11.4	111°48.2
1	355°37.6	15.6'	02°50.9	12.4'	54.7'	117°04.2	94°49.8	75° 15.5	59°43.2	33°28.1	55°52.0	105°41.8	112°10.3
2	10°12.3	15.6'	03°03.3	12.4'	54.7'	116°34.2	94°20.6	74°45.4	59°13.0	33°47.1	56°17.6	106°12.2	112°32.3
3	24°46.9	15.6'	03°15.7	12.3'	54.7'	116°04.2	93°51.4	74° 15.2	58°42.9	34°06.4	56°43.2	106°42.6	112°54.2
4	39°21.5	15.6'	03°28.0	12.3'	54.7'	115°34.2	93°22.3	73°45.1	58° 12.7	34°26.0	57°08.8	107°13.0	113°16.1
5	53°56.2	15.6'	03°40.3	12.3'	54.6'	115°04.2	92°53.1	73° 15.0	57°42.6	34°45.7	57°34.5	107°43.3	113°37.9
6	68°30.8	15.7'	N 03°52.6	12.3'	54.6'	114°34.3	92°24.0	72°44.9	57° 12.4	35°05.7	58°00.2	108°13.6	113°59.6
7	83°05.5	15.7'	04°04.9	12.3'	54.6'	114°04.3	91°54.8	72°14.9	56°42.3	35°25.8	58°26.0	108°43.9	114°21.2
8	97°40.1	15.7'	04°17.2	12.2'	54.6'	113°34.4	91°25.7	71°44.8	56° 12.3	35°46.2	58°51.7	109°14.2	114°42.8
9	112°14.8	15.7'	04°29.4	12.2'	54.6'	113°04.5	90°56.6	71°14.8	55°42.2	36°06.7	59°17.6	109°44.5	115°04.3
10	126°49.4	15.7'	04°41.6	12.2'	54.6'	112°34.6	90°27.6	70°44.8	55°12.2	36°27.4	59°43.4	110°14.8	115°25.7
11	141°24.1	15.7'	04°53.8	12.2'	54.6'	112°04.7	89°58.5	70°14.8	54°42.1	36°48.3	60°09.2	110°45.0	115°47.1
12	155°58.7	15.7'	N 05°05.9	12.1'	54.5'	111°34.8	89°29.5	69°44.8	54° 12.1	37°09.4	60°35.1	111°15.2	116°08.4
13	170°33.4	15.6'	$05^{\circ}18.1$	12.1'	54.5'	111°05.0	89°00.4	69°14.9	53°42.2	37°30.7	61°01.1	111°45.4	116°29.6
14	185°08.0	15.6'	05°30.2	12.1'	54.5'	110°35.1	88°31.4	68°44.9	53°12.2	37°52.1	61°27.0	112°15.6	116°50.7
15	199°42.7	15.6'	05°42.2	12.0'	54.5'	110°05.3	88°02.4	68° 15.0	52°42.3	38°13.6	61°53.0	112°45.8	117°11.7
16	214°17.3	15.6'	05°54.3	12.0'	54.5'	109°35.5	87°33.5	67°45.1	52°12.3	38°35.3	62°18.9	113°15.9	117°32.7
17	228°52.0	15.6'	06°06.3	12.0'	54.5'	109°05.7	87°04.5	67° 15.3	51°42.4	38°57.2	62°45.0	113°46.0	117°53.6
18	243°26.6	15.6'	N 06°18.3	11.9'	54.5'	108°35.9	86°35.6	66°45.4	51° 12.5	39° 19.2	63°11.0	114°16.2	118°14.3
19	258°01.2	15.6'	06°30.2	11.9'	54.5'	108°06.1	86°06.6	66° 15.6	50°42.7	39°41.3	63°37.0	114°46.2	118°35.0
20	272°35.8	15.6'	$06^{\circ}42.1$	11.9'	54.4'	107°36.4	85°37.7	65°45.7	50°12.8	40°03.6	64°03.1	115°16.3	118°55.7
21	287°10.4	15.6'	$06^{\circ}54.0$	11.9'	54.4'	107°06.6	85°08.8	65° 15.9	49°43.0	40°26.0	64°29.2	115°46.4	119°16.2
22	301°45.0	15.6'	$07^{\circ}05.9$	11.8'	54.4'	106°36.9	84°40.0	64°46.2	49°13.2	40°48.5	64°55.3	116°16.4	119°36.6
23	316°19.6 15.6' 07°17.7 11.8' 54.				54.4'	106°07.2	84°11.1	64°16.4	48°43.4	41°11.2	65°21.4	116°46.5	119°57.0
26 th	SD	$=14.9^{\prime}$	Mer. pass	. 01:18									

h		Moon	(27 th Au	g)			Lunar	Distance (objects wit	h largest	hourly LD	delta)	
Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares
0	330°54.2	15.6'	N 07°29.5	11.7'	54.4'	109°36.9	105°37.5	83°42.3	63°46.6	48°13.6	41°34.0	65°47.5	117°16.5
1	345°28.8	15.6'	$07^{\circ}41.2$	11.7'	54.4'	109°07.9	105°07.8	83°13.4	63° 16.9	47°43.9	41°56.8	66°13.7	117°46.5
2	0°03.3	15.5'	07°52.9	11.7'	54.4'	108°38.9	104°38.1	82°44.6	62°47.2	47°14.2	42°19.8	66°39.9	118°16.5
3	14°37.9	15.5'	08°04.6	11.6'	54.4'	108°09.8	104°08.5	82°15.9	62° 17.5	46°44.4	42°42.9	67°06.0	118°46.5
4	29°12.4	15.5'	$08^{\circ}16.2$	11.6'	54.4'	107°40.8	103°38.8	81°47.1	61°47.8	46°14.7	43°06.1	67°32.2	119°16.4
5	43°46.9	15.5'	$08^{\circ}27.8$	11.6'	54.3'	107°11.8	103°09.2	81°18.3	61°18.2	45°45.1	43°29.4	67°58.5	119°46.4
6	58°21.4	15.5'	N08°39.4	11.5'	54.3'	106°42.8	102°39.6	80°49.6	60°48.5	45°15.4	43°52.8	68°24.7	
7	72°55.9	15.5'	08°50.9	11.5'	54.3'	106°13.8	102°09.9	80°20.9	60°18.9	44°45.8	44°16.3	68°50.9	
8	87°30.4	15.5'	09°02.4	11.4'	54.3'	105°44.8	101°40.3	79°52.2	59°49.3	44°16.1	44°39.9	69°17.2	
9	102°04.9	15.4'	09°13.8	11.4'	54.3'	105°15.8	101°10.8	79°23.5	59° 19.7	43°46.5	45°03.6	69°43.4	
10	116°39.3	15.4'	09°25.2	11.4'	54.3'	104°46.9	100°41.2	78°54.8	58°50.1	43°16.9	45°27.3	70°09.7	
11	131°13.7	15.4'	09°36.6	11.3'	54.3'	104°17.9	100°11.6	78°26.1	58° 20.5	42°47.4	45°51.1	70°35.9	
12	145°48.1	15.4'	N09°47.9	11.3'	54.3'	103°49.0	99°42.1	77°57.5	57°51.0	42°17.8	46°15.1	71°02.2	
13	160°22.5	15.4'	09°59.2	11.2'	54.3'	103°20.0	99°12.5	77°28.9	57°21.5	41°48.3	46°39.1	71°28.5	
14	174°56.9	15.3'	$10^{\circ}10.4$	11.2'	54.3'	102°51.1	98°43.0	77°00.3	56°52.0	41°18.8	47°03.1	71°54.8	
15	189°31.2	15.3'	$10^{\circ}21.6$	11.1'	54.2'	102°22.2	98°13.5	76°31.7	56° 22.5	40°49.3	47°27.3	72°21.1	
16	204°05.5	15.3'	10°32.7	11.1'	54.2'	101°53.3	97°44.0	76°03.1	55°53.0	40°19.8	47°51.5	72°47.5	
17	218°39.8	15.3'	10°43.8	11.0'	54.2'	101°24.3	97°14.5	75°34.6	55°23.5	39°50.3	48°15.8	73°13.8	
18	233°14.1	15.2'	N 10°54.8	11.0'	54.2'	100°55.4	96°45.0	75°06.0	54°54.1	39°20.9	48°40.1	73°40.1	
19	247°48.3	15.2'	11°05.8	10.9'	54.2'	100°26.6	96°15.5	74°37.5	54°24.6	38°51.5	49°04.6	74°06.5	
20	262°22.5	15.2'	$11^{\circ}16.8$	10.9'	54.2'	99°57.7	95°46.1	74°09.0	53°55.2	38°22.1	49°29.0	74°32.8	
21	276°56.7	15.2'	$11^{\circ}27.6$	10.8'	54.2'	99°28.8	95°16.6	73°40.5	53° 25.8	37°52.7	49°53.6	74°59.2	
22	291°30.9	15.1'	$11^{\circ}38.5$	10.8'	54.2'	98°59.9	94°47.2	73°12.0	52° 56.4	37°23.3	50°18.2	75°25.5	
23	306°05.0	15.1'	$11^{\circ}49.3$	10.7'	54.2'	98°31.1	94°17.8	72°43.6	52°27.1	36°53.9	50°42.9	75°51.9	
27 th	SD	= 14.8'	Mer. pass	. 02:00									

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	320°39.2	15.1'	N 12°00.0	10.7'	54.2'	98°02.2	93°48.4	72° 15.1	63°20.3	51°57.7	36°24.6	51°07.6	76°18.2
1	335°13.2	15.1'	12°10.7	10.6'	54.2'	97°33.4	93°18.9	71°46.7	62°53.3	51°28.4	35°55.3	51°32.4	76°44.6
2	349°47.3	15.0'	12°21.4	10.6'	54.2'	97°04.5	92°49.5	71° 18.3	62°26.3	50°59.1	35°26.0	51°57.2	77°11.0
3	4°21.3	15.0'	12°32.0	10.5'	54.2'	96°35.7	92°20.1	70°49.9	61°59.4	50°29.8	34°56.7	52°22.1	77°37.4
4	18°55.3	15.0'	12°42.5	10.5'	54.1'	96°06.9	91°50.8	70°21.6	61°32.5	50°00.5	34°27.5	52°47.0	78°03.8
5	33°29.3	14.9'	12°53.0	10.4'	54.1'	95°38.1	91°21.4	69°53.2	61°05.6	49°31.2	33°58.2	53°12.0	78°30.1
6	48°03.2	14.9'	N13°03.4	10.4'	54.1'	95°09.3	90°52.0	69°24.9	60°38.7	49°01.9	33°29.0	53°37.0	78°56.5
7	62°37.1	14.9'	13°13.8	10.3'	54.1'	94°40.5	90°22.7	68° 56.6	60°11.9	48°32.7	32°59.8	54°02.1	79°22.9
8	77°11.0	14.8'	13°24.1	10.3'	54.1'	94°11.7	89°53.3	68° 28.2	59°45.1	48°03.5	32°30.6	54°27.2	79°49.3
9	91°44.8	14.8'	13°34.3	10.2'	54.1'	93°42.9	89°24.0	68°00.0	59° 18.4	47°34.2	32°01.5	54°52.4	80°15.7
10	106°18.7	14.8'	13°44.5	10.1'	54.1'	93°14.1	88°54.7	67°31.7	58°51.7	47°05.0	31°32.3	55°17.6	80°42.1
11	120°52.4	14.7'	13°54.7	10.1'	54.1'	92°45.3	88°25.3	67°03.4	58°25.0	46°35.8	31°03.2	55°42.9	81°08.5
12	135°26.2	14.7'	N 14°04.8	10.0'	54.1'	92°16.6	87°56.0	66°35.2	57°58.4	46°06.7	30°34.1	56°08.2	81°34.9
13	149°59.9	14.7'	14°14.8	10.0'	54.1'	91°47.8	87°26.7	66° 07.0	57°31.8	45°37.5	30°05.0	56°33.5	82°01.3
14	164°33.5	14.6'	14°24.7	9.9'	54.1'	91°19.0	86°57.4	65°38.8	57°05.2	45°08.4	29°36.0	56°58.9	82°27.7
15	179°07.2	14.6'	14°34.7	9.8'	54.1'	90°50.3	86°28.1	65° 10.6	56°38.7	44°39.2	29°06.9	57°24.3	82°54.1
16	193°40.8	14.6'	14°44.5	9.8'	54.1'	90°21.5	85°58.8	64° 42.4	56°12.2	44°10.1	28°37.9	57°49.7	83°20.5
17	208°14.3	14.5'	14°54.3	9.7'	54.1'	89°52.8	85°29.5	64°14.3	55°45.7	43°41.0	28°08.9	58°15.2	83°47.0
18	222°47.8	14.5'	N 15°04.0	9.7'	54.1'	89°24.1	85°00.3	63°46.1	55° 19.3	43°11.9	27°40.0	58°40.7	84°13.4
19	237°21.3	14.4'	15°13.6	9.6'	54.1'	88°55.3	84°31.0	63°18.0	54°53.0	42°42.9	27°11.0	59°06.3	84°39.8
20	251°54.7	14.4'	15°23.2	9.5'	54.1'	88°26.6	84°01.7	62°49.9	54°26.6	42°13.8	26°42.1	59°31.9	85°06.2
21	266°28.1	14.4'	15°32.8	9.5'	54.1'	87°57.9	83°32.5	62°21.8	54°00.4	41°44.8	26°13.3	59°57.5	85°32.6
22	281°01.5	14.3'	15°42.2	9.4'	54.1'	87°29.2	83°03.2	61°53.8	53°34.1	41°15.7	25°44.4	60°23.2	85°59.0
23	295°34.8	14.3'	15°51.6	9.3'	54.1'	87°00.5	82°34.0	61°25.7	53°07.9	40°46.7	25°15.6	60°48.8	86°25.4
28 th	SD	$=14.8^{\prime}$	Mer. pass	. 02:42									

h Moon (29th Aug)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	310°08.1	14.2'	N 16°00.9	9.3'	54.1'	86°31.8	82°04.7	60°57.7	40°17.7	24°46.8	61°14.6		86°51.8
1	324°41.3	14.2'	16°10.2	9.2'	54.1'	86°03.1	81°35.5	60°29.7	39°48.8	24° 18.0	61°40.3		87°18.3
2	339°14.5	14.1'	16°19.4	9.1'	54.1'	85°34.4	81°06.2	60°01.7	39°19.8	23°49.3	62°06.1		87°44.7
3	353°47.7	14.1'	$16^{\circ}28.5$	9.1'	54.1'	85°05.7	80°37.0	59°33.7	38°50.8	23°20.6	62°31.9		88°11.1
4	8°20.8	14.1'	16°37.6	9.0'	54.1'	84°37.0	80°07.8	59°05.8	38°21.9	22°51.9	62°57.7		88°37.5
5	22°53.8	14.0'	16°46.6	8.9'	54.1'	84°08.3	79°38.6	58°37.8	37°53.0	22°23.3	63°23.6		89°03.9
6	37°26.9	14.0'	$N16^{\circ}55.5$	8.8'	54.1'	83°39.7	79°09.3	58°09.9	37°24.1	21°54.7	63°49.5		89°30.3
7	51°59.8	13.9'	17°04.3	8.8'	54.1'	83°11.0	78°40.1	57°42.0	36°55.2	21°26.1	64°15.4		89°56.7
8	66°32.8	13.9'	17°13.1	8.7'	54.1'	82°42.3	78° 10.9	57°14.1	36°26.3	20°57.6	64°41.4		90°23.1
9	81°05.6	13.8'	$17^{\circ}21.8$	8.6'	54.1'	82°13.6	77°41.7	56°46.3	35°57.5	20°29.2	65°07.3		90°49.5
10	95°38.5	13.8'	17°30.4	8.6'	54.1'	81°45.0	77° 12.5	56°18.4	35°28.7	20°00.8	65°33.3		91°15.9
11	110°11.3	13.7'	17°39.0	8.5'	54.1'	81°16.3	76°43.3	55°50.6	34°59.8	19°32.4	65°59.4		91°42.3
12	124°44.0	13.7'	N17°47.4	8.4'	54.1'	80°47.7	76° 14.1	55°22.8	34°31.0	19°04.1	66°25.4		92°08.7
13	139°16.7	13.7'	17°55.8	8.3'	54.1'	80°19.0	75°44.9	54°55.0	34°02.3	18°35.9	66°51.5		92°35.1
14	153°49.4	13.6'	18°04.2	8.3'	54.1'	79°50.3	75° 15.7	54°27.3	33°33.5	18°07.7	67°17.6	72°50.6	93°01.5
15	168°22.0	13.6'	18°12.4	8.2'	54.1'	79°21.7	74°46.5	53°59.5	33°04.8	17°39.6	67°43.7	73°05.7	93°27.9
16	182°54.5	13.5'	18°20.6	8.1'	54.1'	78°53.0	74°17.3	53°31.8	32°36.1	17°11.6	68°09.9	73°20.8	93°54.3
17	197°27.0	13.5'	18°28.7	8.0'	54.1'	78°24.4	73°48.1	53°04.1	32°07.4	16°43.6	68°36.0	73°36.0	94°20.7
18	211°59.5	13.4'	N18°36.7	7.9'	54.1'	77°55.7	73°18.9	52°36.4	31°38.7	16° 15.8	69°02.2	73°51.3	94°47.1
19	226°31.9	13.4'	18°44.6	7.9'	54.1'	77°27.1	72°49.7	52°08.8	31°10.0	15°48.0	69°28.4	74°06.6	95°13.4
20	241°04.3	13.3'	18°52.5	7.8'	54.1'	76°58.5	72°20.5	51°41.1	30°41.4	15°20.4	69°54.7	74°22.0	95°39.8
21	255°36.6	13.3'	19°00.3	7.7'	54.1'	76°29.8	71°51.3	51°13.5	30°12.8	14°52.8	70°20.9	74°37.4	96°06.2
22	270°08.9	13.2'	19°08.0	7.6'	54.1'	76°01.2	71°22.1	50°46.0	29°44.2	14°25.4	70°47.2	74°52.8	96°32.6
23	284°41.1	13.2'	19°15.6	7.5'	54.1'	75°32.5	70°52.9	50°18.4	29°15.7	13°58.1	71°13.5	75°08.4	96°58.9
29 th	SD	= 14.7'	Mer. pass.	03:26									

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

$\overline{}$			(00 / 10)	<u> </u>					\ 3		== .		
Thu	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	299°13.2	13.1'	N19°23.1	7.5'	54.1'	113°55.4	75°03.9	70°23.7	49°50.9	28°47.2	71°39.8	75°23.9	97°25.3
1	313°45.3	13.1'	19°30.6	7.4'	54.1'	113°28.4	74°35.2	69°54.4	49°23.3	28°18.7	72°06.2	75°39.6	97°51.7
2	328°17.4	13.0'	19°38.0	7.3'	54.1'	113°01.3	74°06.6	69°25.2	48°55.9	27°50.2	72°32.5	75°55.2	98°18.0
3	342°49.4	13.0'	19°45.2	7.2'	54.1'	112°34.3	73°38.0	68°56.0	48°28.4	27°21.8	72°58.9	76° 10.9	98°44.4
4	357°21.4	12.9'	19°52.4	7.1'	54.1'	112°07.2	73°09.3	68°26.8	48°01.0	26°53.4	73°25.3	76°26.7	99°10.7
5	11°53.3	12.9'	$19^{\circ}59.5$	7.0'	54.1'	111°40.1	72°40.7	67°57.6	47°33.6	26°25.0	73°51.7	76°42.5	99°37.1
6	26°25.1	12.8'	N 20°06.6	6.9'	54.2'	111°13.0	72°12.0	67°28.4	47°06.2	25°56.7	74°18.2	76°58.4	100°03.4
7	40°56.9	12.8'	20°13.5	6.9'	54.2'	110°46.0	71°43.4	66°59.2	46°38.8	25°28.4	74°44.6	77° 14.3	100°29.8
8	55°28.7	12.7'	20°20.4	6.8'	54.2'	110°18.9	71°14.8	66°29.9	46°11.5	25°00.1	75°11.1	77°30.2	100°56.1
9	70°00.4	12.6'	20°27.1	6.7'	54.2'	109°51.8	70°46.1	66°00.7	45°44.2	24°31.9	75°37.6	77°46.2	101°22.5
10	84°32.1	12.6'	20°33.8	6.6'	54.2'	109°24.7	70°17.5	65°31.5	45°17.0	24°03.8	76°04.1	78°02.3	101°48.8
11	99°03.7	12.5'	20°40.4	6.5'	54.2'	108°57.5	69°48.8	65°02.3	44°49.8	23°35.7	76°30.7	78° 18.4	102°15.1
12	113°35.2	12.5'	N 20°46.9	6.4'	54.2'	108°30.4	69°20.2	64°33.0	44°22.6	23°07.6	76°57.2	78°34.5	102°41.4
13	128°06.7	12.4'	20°53.3	6.3'	54.2'	108°03.3	68°51.5	64°03.8	43°55.4	22°39.6	77°23.8	78°50.6	103°07.7
14	142°38.1	12.4'	20°59.6	6.2'	54.2'	107°36.2	68°22.9	63°34.5	43°28.3	22°11.7	77°50.4	79°06.8	103°34.0
15	157°09.5	12.3'	21°05.8	6.1'	54.2'	107°09.0	67°54.2	63°05.3	43°01.2	21°43.8	78°17.0	79°23.1	104°00.3
16	171°40.9	12.3'	21°11.9	6.0'	54.2'	106°41.9	67°25.6	62°36.0	42°34.2	21°16.0	78°43.7	79°39.4	104°26.6
17	186°12.1	12.2'	$21^{\circ}18.0$	5.9'	54.2'	106°14.7	66°56.9	62°06.8	42°07.2	20°48.3	79°10.3	79°55.7	104°52.9
18	200°43.4	12.2'	N 21°23.9	5.8'	54.3'	105°47.5	66°28.3	61°37.5	41°40.2	20°20.6	79°37.0	80°12.0	105°19.2
19	215°14.5	12.1'	21°29.8	5.8'	54.3'	105°20.3	65°59.6	61°08.2	41°13.3	19°53.0	80°03.7	80°28.4	105°45.5
20	229°45.7	12.1'	21°35.5	5.7'	54.3'	104°53.1	65°31.0	60°38.9	40°46.4	19°25.6	80°30.4	80°44.8	106°11.8
21	244°16.7	12.0'	21°41.2	5.6'	54.3'	104°25.9	65°02.3	60°09.6	40°19.6	18°58.2	80°57.1	81°01.3	106°38.0
22	258°47.8	12.0'	21°46.7	5.5'	54.3'	103°58.7	64°33.6	59°40.3	39°52.8	18°30.9	81°23.8	81°17.8	107°04.3
23	273°18.7	11.9'	21°52.2	5.4'	54.3'	103°31.5	64°05.0	59°11.0	39°26.0	18°03.7	81°50.6	81°34.3	107°30.5
30 th	SD	= 14.8'	Mer. pass.	04:11					Sun SI	D = 15.8'			

h		Moon	(31st Au	ıg)			Lunar [Distance	(objects w	ith larges	st hourly	LD delta)		
Fri	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Aldebaran	+Saturn	+Deneb	+Fomalhaut	+Altair	

Fri	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Aldebaran	+Saturn	+Deneb	+Fomalhaut	+Altair
0	287°49.6	11.9'	N 21°57.5	5.3'	54.3'	103°04.3	63°36.3	58°41.7	17°36.7		81°50.9	82°17.4	107°56.8
1	302°20.5	11.8'	22°02.8	5.2'	54.3'	102°37.0	63°07.6	58°12.4	17°09.8		82°07.5	82°44.1	108°23.0
2	316°51.3	11.8'	22°08.0	5.1'	54.4'	102°09.7	62°39.0	57°43.1	16°43.0		82°24.1	83°11.0	108°49.2
3	331°22.1	11.7'	22°13.0	5.0'	54.4'	101°42.5	62°10.3	57°13.8	16°16.4		82°40.8	83°37.8	109° 15.5
4	345°52.8	11.7'	22°18.0	4.9'	54.4'	101°15.2	61°41.6	56°44.4	15°50.0		82°57.5	84°04.6	109°41.7
5	0°23.4	11.6'	22°22.9	4.8'	54.4'	100°47.9	$61^{\circ}12.9$	56°15.1	15°23.8		83°14.2	84°31.5	110°07.9
6	14°54.0	11.6'	N22°27.6	4.7'	54.4'	100°20.6	60°44.2	55°45.7	14°57.7		83°30.9	84°58.4	110°34.1
7	29°24.6	11.5'	22°32.3	4.6'	54.4'	99°53.2	60°15.6	55°16.4	14°31.9		83°47.7	85°25.3	111°00.2
8	43°55.1	11.5'	22°36.9	4.5'	54.4'	99°25.9	59°46.9	54°47.0	14°06.4		84°04.5	85°52.2	111°26.4
9	58° 25.6	11.4'	22°41.3	4.3'	54.4'	98°58.5	59° 18.2	54°17.6	13°41.1		84°21.3	86°19.1	111°52.6
10	72°56.0	11.3'	22°45.7	4.2'	54.5'	98°31.1	58°49.5	53°48.2	13°16.1		84°38.2	86°46.0	112°18.7
11	87°26.3	11.3'	22°49.9	4.1'	54.5'	98°03.7	58° 20.8	53°18.8	12°51.4		84°55.1	87°13.0	112°44.9
12	101°56.6	11.2'	N 22°54.0	4.0'	54.5'	97°36.3	57°52.1	52°49.4	12°27.1		85°12.0	87°40.0	113°11.0
13	116°26.9	11.2'	22°58.1	3.9'	54.5'	97°08.9	57°23.4	52°20.0	12°03.2		85°28.9	88°07.0	113°37.1
14	130°57.0	11.1'	23°02.0	3.8'	54.5'	96°41.5	56°54.7	51°50.6	11°39.8	8°21.3	85°45.8	88°34.0	114°03.2
15	145°27.2	11.1'	23°05.8	3.7'	54.5'	96°14.0	56° 26.0	51°21.1	11°16.8	8°44.5	86°02.8	89°01.0	114°29.3
16	159°57.3	11.1'	23°09.5	3.6'	54.6'	95°46.5	55°57.2	50°51.7	10°54.4	9°08.3	86°19.8	89°28.1	114°55.4
17	174°27.4	11.0'	23°13.1	3.5'	54.6'	95°19.0	55°28.5	50°22.2	10°32.6	9°32.8	86°36.8	89°55.1	115°21.4
18	188°57.4	11.0'	N 23°16.6	3.4'	54.6'	94°51.5	54°59.8	49°52.8	10°11.5	9°57.8	86°53.9	90°22.2	115°47.5
19	203°27.3	10.9'	23°20.0	3.3'	54.6'	94°24.0	54°31.1	49°23.3	9°51.1	10°23.2	87°10.9	90°49.3	116° 13.5
20	217°57.2	10.9'	23°23.3	3.2'	54.6'	93°56.4	54°02.4	48°53.8	9°31.5	10°49.0	87°28.0	91°16.4	116°39.5
21	232°27.1	10.8'	23°26.5	3.1'	54.6'	93°28.9	53°33.7	48°24.3	9°12.9	11°15.2	87°45.1	91°43.6	117°05.5
22	246°56.9	10.8'	23°29.5	2.9'	54.7'	93°01.3	53°04.9	47°54.8		11°41.7	88°02.2	92°10.7	117°31.5
23	261°26.7	10.7'	23°32.5	2.8'	54.7'	92°33.7	52°36.2	47°25.3		12°08.5	88°19.4	92°37.9	117°57.5
31 st	SD	= 14.8'	Mer. pass.	04:58					Sun SD	0 = 15.8'			

h	Moon	(1st	Sep)	۱

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Saturn	+Deneb	+Fomalhaut	+Altair
0	275°56.4	10.7'	N23°35.3	2.7'	54.7'	92°06.0	52°07.5	46°55.8	28°40.7	$12^{\circ}35.6$	88°36.5	93°05.1	118°23.4
1	290°26.0	10.6'	23°38.0	2.6'	54.7'	91°38.4	51°38.8	46°26.2	28° 16.3	13°02.9	88°53.7	93°32.3	118°49.3
2	304°55.7	10.6'	23°40.6	2.5'	54.7'	91°10.7	51°10.0	45°56.7	27°52.0	13°30.4	89°10.9	93°59.5	119°15.2
3	319°25.3	10.5'	23°43.1	2.4'	54.8'	90°43.0	50°41.3	45°27.1	27°27.8	13°58.2	89°28.1	94°26.7	119°41.1
4	333°54.8	10.5'	23°45.5	2.3'	54.8'	90°15.3	50°12.6	44°57.6	27°03.9	$14^{\circ}26.1$	89°45.3	94°53.9	
5	348°24.3	10.5'	23°47.7	2.1'	54.8'	89°47.6	49°43.9	44°28.0	26°40.1	$14^{\circ}54.1$	90°02.5	95°21.2	
6	2°53.7	10.4'	N 23°49.9	2.0'	54.8'	89°19.8	49°15.1	43°58.4	26° 16.5	$15^{\circ}22.4$	90°19.8	95°48.5	
7	17°23.2	10.4'	23°51.9	1.9'	54.8'	88°52.0	48°46.4	43°28.8	25°53.1	15°50.7	90°37.0	96°15.8	
8	31°52.5	10.3'	23°53.8	1.8'	54.9'	88°24.2	48°17.7	42°59.2	25°29.9	$16^{\circ}19.3$	90°54.3	96°43.1	
9	46°21.8	10.3'	23°55.6	1.7'	54.9'	87°56.4	47°49.0	42°29.6	25°07.0	16°47.9	91°11.6	97°10.4	
10	60°51.1	10.2'	23°57.3	1.6'	54.9'	87°28.5	47°20.3	42°00.0	24°44.2	$17^{\circ}16.6$	91°28.8	97°37.7	
11	75°20.4	10.2'	23°58.9	1.4'	54.9'	87°00.6	46°51.5	41°30.3	24°21.7	17°45.5	91°46.1	98°05.1	
12	89°49.6	10.2'	N 24°00.3	1.3'	55.0'	86°32.7	46°22.8	41°00.7	23°59.5	18° 14.4	92°03.4	98°32.4	
13	104°18.7	10.1'	24°01.7	1.2'	55.0'	86°04.8	45°54.1	40°31.0	23°37.5	18°43.5	92°20.7	98°59.8	
14	118°47.9	10.1'	24°02.9	1.1'	55.0'	85°36.9	45°25.4	40°01.4	23° 15.8	$19^{\circ}12.7$	92°38.1	99°27.2	
15	133°16.9	10.0'	24°04.0	1.0'	55.0'	85°08.9	44°56.7	39°31.7	22°54.4	19°41.9	92°55.4	99°54.6	
16	147°46.0	10.0'	24°04.9	0.8'	55.0'	84°40.9	44°28.1	39°02.0	22°33.3	$20^{\circ}11.2$	93°12.7	100°22.1	
17	162°15.0	10.0'	24°05.8	0.7'	55.1'	84°12.9	43°59.4	38°32.3	22°12.6	20°40.6	93°30.0	100°49.5	
18	176°44.0	9.9'	N 24°06.5	0.6'	55.1'	83°44.8	43°30.7	38°02.6	21°52.2	$21^{\circ}10.1$	93°47.4	101°16.9	
19	191°12.9	9.9'	24°07.1	0.5'	55.1'	83°16.7	43°02.0	37°32.9	21°32.1	$21^{\circ}39.7$	94°04.7	101°44.4	
20	205°41.8	9.9'	24°07.6	0.4'	55.1'	82°48.6	42°33.4	37°03.2	21°12.5	22°09.3	94°22.1	102°11.9	
21	220°10.7	9.8'	24°08.0	0.2'	55.2'	82°20.5	42°04.7	36°33.5	20°53.2	22°39.0	94°39.4	102°39.4	
22	234°39.5	9.8'	24°08.2	0.1'	55.2'	81°52.3	41°36.1	36°03.8	20°34.4	23°08.7	94°56.7	103°06.9	
23	249°08.3	9.8'	24°08.3	-0.0'	55.2'	81°24.1	41°07.5	35°34.1	20°16.0	23°38.6	95°14.1	103°34.4	
1 st	SD	$=14.9^{\prime}$	Mer. pass	. 05:48					Sun SE	0 = 15.8'			

h		Моо	n (2 nd Se	p)			Lunar	Distance	(objects	with larges	t hourly	LD delta))
Sun	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	263°37.1	9.7'	N 24°08.3	-0.1'	55.2'	80°55.9		40°38.9	35°04.4	10°55.2	24°08.5	95°31.4	104°02.0
1	278°05.8	9.7'	24°08.2	-0.3'	55.3'	80°27.6		40°10.3	34°34.6	11°18.2	24°38.4	95°48.8	104°29.5
2	292°34.5	9.7'	24°07.9	-0.4'	55.3'	79°59.4		39°41.8	34°04.9	11°41.8	25°08.4	96°06.1	104°57.1
3	307°03.2	9.6'	24°07.6	-0.5'	55.3'	79°31.0		39°13.2	33°35.2	12°06.0	25°38.5	96°23.5	105°24.6
4	321°31.9	9.6'	24°07.1	-0.6'	55.3'	79°02.7		38° 44.7	33°05.5	12°30.7	26°08.6	96°40.8	105°52.2
5	336°00.5	9.6'	24°06.4	-0.7'	55.4'	78°34.3		38°16.2	32°35.7	12°55.9	26°38.8	96°58.1	106°19.8
6	350°29.1	9.6'	N 24°05.7	-0.9'	55.4'	78°05.9		37° 47.7	32°06.0	13°21.5	27°09.0	97°15.4	106°47.4
7	4°57.6	9.5'	24°04.8	-1.0'	55.4'	77°37.5		37° 19.3	31°36.3	13°47.4	27°39.3	97°32.8	107°15.0
8	19°26.2	9.5'	24°03.8	-1.1'	55.5'	77°09.0		36°50.8	31°06.6	14°13.8	28°09.7	97°50.1	107°42.7
9	33°54.7	9.5'	24°02.7	-1.3'	55.5'	76°40.5		36°22.4	30°36.9	14°40.4	28°40.1	98°07.4	108°10.3
10	48°23.2	9.5'	24°01.4	-1.4'	55.5'	76°12.0		35°54.1	30°07.2	15°07.3	29°10.5	98°24.6	108°38.0
11	62°51.6	9.4'	24°00.1	-1.5'	55.5'	75°43.5	65°41.7	35°25.8	29°37.5	15°34.6	29°41.0	98°41.9	109°05.6
12	77°20.1	9.4'	N 23°58.6	-1.6'	55.6'	75°14.9	65°10.8	34°57.5	29°07.8	16°02.0	30°11.6	98°59.2	109°33.3
13	91°48.5	9.4'	23°56.9	-1.8'	55.6'	74°46.2	64°39.7	34°29.2	28°38.2	16°29.8	30°42.2	99°16.4	110°01.0
14	106°16.9	9.4'	23°55.2	-1.9'	55.6'	74°17.6	64°08.7	34°01.0	28°08.5	16°57.7	31°12.8	99°33.7	110°28.7
15	120°45.3	9.4'	23°53.3	-2.0'	55.7'	73°48.9	63°37.6	33°32.9	27°38.9	17°25.9	31°43.5	99°50.9	110°56.4
16	135°13.6	9.3'	23°51.3	-2.1'	55.7'	73°20.2	63°06.5	33°04.8	27°09.3	17°54.2	32°14.3	100°08.1	111°24.1
17	149°41.9	9.3'	23°49.1	-2.3'	55.7'	72°51.4	62°35.3	32°36.7	26°39.7	18°22.7	32°45.1	100°25.3	111°51.8
18	164°10.3	9.3'	N23°46.9	-2.4'	55.7'	72°22.6	62°04.1	32°08.7	26°10.2	18°51.5	33°15.9	100°42.5	112°19.5
19	178°38.5	9.3'	23°44.5	-2.5'	55.8'	71°53.8	61°32.9	31°40.8	25°40.7	19°20.3	33°46.8	100°59.7	112°47.2
20	193°06.8	9.3'	23°41.9	-2.7'	55.8'	71°24.9	61°01.6	31°12.9	25°11.2	19°49.4	34°17.7	101°16.8	113°14.9
21	207°35.1	9.2'	23°39.3	-2.8'	55.8'	70°56.0	60°30.3	30°45.1	24°41.8	20°18.5	34°48.7	101°33.9	113°42.6
22	222°03.3	9.2'	23°36.5	-2.9'	55.9'	70°27.1	59°59.0	30°17.4	24°12.4	20°47.8	35°19.7	101°51.0	114°10.4
23	236°31.6	9.2'	23°33.6	-3.0'	55.9'	69°58.1	59°27.6	29°49.8	23°43.0	21°17.3	35°50.8	102°08.1	114°38.1
2 nd	SD	= 15.1	Mer. pas	s. 06:39)				Sun	SD = 15.8'			

	Moon	(ard	c \	
h	Moon	1 31a	Senl	

Lunar Distance	(objects with	largest hourly	/ LD delta))
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Mon	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	250°59.8	9.2'	N23°30.6	-3.2'	55.9'	69°29.1	58°56.2	29°22.2	23°13.8	21°46.8		36°22.0	115°05.9
1	265°28.0	9.2'	23°27.4	-3.3'	56.0'	69°00.1	58°24.8	28°54.7	22°44.5	22°16.5		36°53.1	115°33.6
2	279°56.2	9.2'	23°24.1	-3.4'	56.0'	68°31.0	57°53.3	28°27.4	22°15.4	22°46.4		37°24.3	116°01.3
3	294°24.3	9.2'	23°20.7	-3.5'	56.0'	68°01.9	57°21.8	28°00.1	21°46.3	23°16.3		37°55.6	116°29.1
4	308°52.5	9.2'	23°17.1	-3.7'	56.1'	67°32.8	56°50.3	27°33.0	21°17.3	23°46.3	25°23.5	38°26.9	116°56.8
5	323°20.7	9.1'	23°13.5	-3.8'	56.1'	67°03.6	56°18.7	27°05.9	20°48.4	24°16.4	25°39.4	38°58.3	117°24.6
6	337°48.8	9.1'	N23°09.7	-3.9'	56.1'	66°34.3	55°47.1	26°39.0	20°19.6	24°46.7	25°55.8	39°29.7	117°52.3
7	352°16.9	9.1'	23°05.7	-4.1'	56.2'	66°05.1	55°15.5	26°12.2	19°50.9	25°17.0	26°12.6	40°01.1	118°20.0
8	6°45.1	9.1'	23°01.7	-4.2'	56.2'	65°35.8	54°43.8	25°45.6	19°22.3	25°47.4	26°29.9	40°32.6	118°47.8
9	21°13.2	9.1'	22°57.5	-4.3'	56.2'	65°06.4	54°12.0	25°19.2	18°53.8	26°17.9	26°47.6	41°04.2	119°15.5
10	35°41.3	9.1'	22°53.1	-4.4'	56.3'	64°37.1	53°40.3	24°52.8	18°25.5	26°48.5	27°05.7	41°35.8	119°43.2
11	50°09.4	9.1'	22°48.7	-4.6'	56.3'	64°07.7	53°08.5	24°26.7	17°57.4	27°19.2	27°24.3	42°07.4	
12	64°37.5	9.1'	N22°44.1	-4.7'	56.3'	63°38.2	52°36.6	24°00.8	17°29.4	27°50.0	27°43.2	42°39.1	
13	79°05.6	9.1'	22°39.4	-4.8'	56.4'	63°08.7	52°04.8	23°35.0	17°01.6	28°20.8	28°02.6	43°10.8	
14	93°33.7	9.1'	22°34.6	-5.0'	56.4'	62°39.2	51°32.9	23°09.5	16°34.1	28°51.7	28°22.3	43°42.6	
15	108°01.8	9.1'	22°29.6	-5.1'	56.4'	62°09.6	51°00.9	22°44.2	16°06.7	29°22.7	28°42.4	44°14.4	
16	122°29.9	9.1'	22°24.5	-5.2'	56.5'	61°40.0	50°28.9	22°19.2	15°39.7	29°53.8	29°02.8	44°46.3	
17	136°58.0	9.1'	22°19.3	-5.3'	56.5'	61°10.4	49°56.9	21°54.4	15°12.9	30°25.0	29°23.6	45°18.2	
18	151°26.1	9.1'	N22°14.0	-5.5'	56.5'	60°40.7	49°24.8	21°29.9	14°46.4	30°56.2	29°44.7	45°50.2	
19	165°54.2	9.1'	22°08.5	-5.6'	56.6'	60°10.9	48°52.7	21°05.7	14°20.3	31°27.5	30°06.1	46°22.2	
20	180°22.3	9.1'	22°02.9	-5.7'	56.6'	59°41.2	48°20.6	20°41.8	13°54.6	31°58.9	30°27.9	46°54.3	
21	194°50.3	9.1'	21°57.2	-5.9'	56.6'	59°11.4	47°48.4	20°18.3	13°29.3	32°30.3	30°50.0	47°26.4	
22	209°18.4	9.1'	21°51.3	-6.0'	56.7'	58°41.5	47°16.2	19°55.1	13°04.5	33°01.8	31°12.4	47°58.5	
23	223°46.5	9.1'	21°45.4	-6.1'	56.7'	58°11.6	46°43.9	19°32.3	12°40.3	33°33.4	31°35.0	48°30.7	
3 rd	SD	= 15.3	Mer. pas	s. 07:32	!			Sı	$In\;SD=15$.8' at 0h; 15.9'	at 23h		

h	Moon	(4 th	Sep')

Lunar Distance (objects with largest hourly LD delta) Regulus -Procyon -Pollux +Betelgeuse +Capella +Aldebara

Tue	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	238°14.6	9.1'	N21°39.3	-6.2'	56.7'	57°41.7	46°11.6	19°09.9	12°16.6	20°58.6	31°58.0	34°05.0	49°03.0
1	252°42.7	9.1'	21°33.0	-6.4'	56.8'	57°11.7	45°39.3	18°48.0	11°53.6	21°19.2	32°21.2	34°36.7	49°35.3
2	267°10.8	9.1'	21°26.7	-6.5'	56.8'	56°41.7	45°06.9	18°26.6	11°31.3	21°40.3	32°44.7	35°08.5	50°07.6
3	281°38.9	9.1'	21°20.2	-6.6'	56.8'	56°11.6	44°34.5	18°05.6	11°09.8	22°01.8	33°08.4	35°40.3	50°40.0
4	296°07.0	9.1'	21°13.6	-6.7'	56.9'	55°41.5	44°02.1	17°45.3	10°49.2	22°23.9	33°32.4	36°12.2	51°12.4
5	310°35.2	9.1'	21°06.9	-6.9'	56.9'	55°11.4	43°29.6	17°25.4		22°46.3	33°56.7	36°44.2	51°44.9
6	325°03.3	9.1'	N 21°00.0	-7.0'	57.0'	54°41.2	42°57.0	17°06.2		23°09.2	34°21.2	37°16.2	52°17.4
7	339°31.4	9.1'	20°53.0	-7.1'	57.0'	54°11.0	42°24.5	16°47.7		23°32.5	34°45.9	37°48.3	52°50.0
8	353°59.6	9.1'	20°45.9	-7.2'	57.0'	53°40.7	41°51.9	16°29.8		23°56.1	35°10.8	38°20.5	53°22.6
9	8°27.7	9.2'	20°38.7	-7.3'	57.1'	53°10.4	41°19.2	16°12.7		24°20.1	35°36.0	38°52.7	53°55.3
10	22°55.9	9.2'	20°31.4	-7.5'	57.1'	52°40.1	40°46.5	15°56.4		24°44.5	36°01.4	39°24.9	54°28.0
11	37°24.0	9.2'	20°23.9	-7.6'	57.1'	52°09.7	40°13.8	15°40.9		25°09.2	36°27.0	39°57.3	55°00.8
12	51°52.2	9.2'	N20°16.3	-7.7'	57.2'	51°39.2	39°41.0			25°34.3	36°52.8	40°29.7	55°33.6
13	66°20.4	9.2'	20°08.6	-7.8'	57.2'	51°08.8	39°08.2			25°59.6	37°18.8	41°02.1	56°06.4
14	80°48.6	9.2'	20°00.8	-8.0'	57.2'	50°38.3	38°35.4			26°25.3	37°45.0	41°34.6	56°39.4
15	95°16.8	9.2'	19°52.8	-8.1'	57.3'	50°07.7	38°02.5			26°51.2	38°11.4	42°07.2	57°12.3
16	109°45.0	9.2'	19°44.7	-8.2'	57.3'	49°37.1	37°29.6			27°17.5	38°37.9	42°39.8	57°45.3
17	124°13.2	9.2'	19°36.5	-8.3'	57.4'	49°06.5	36°56.7			27°43.9	39°04.7	43°12.5	58°18.4
18	138°41.4	9.2'	N 19°28.2	-8.4'	57.4'	48°35.8	36°23.7			28°10.7	39°31.6	43°45.2	58°51.5
19	153°09.7	9.3'	$19^{\circ}19.8$	-8.5'	57.4'	48°05.0	35°50.7			28°37.7	39°58.7	44°18.0	59°24.6
20	167°38.0	9.3'	19°11.3	-8.7'	57.5'	47°34.3	35°17.6			29°04.9	40°25.9	44°50.8	59°57.8
21	182°06.2	9.3'	$19^{\circ}02.6$	-8.8'	57.5'	47°03.5	34°44.5			29°32.4	40°53.3	45°23.7	60°31.1
22	196°34.5	9.3'	18°53.8	-8.9'	57.5'	46°32.6	34°11.4			30°00.1	41°20.9	45°56.7	61°04.3
23	211°02.8	9.3'	18°44.9	-9.0'	57.6'	46°01.7	33°38.2			30°28.0	41°48.7	46°29.7	61°37.7
4 th	SD :	= 15.5	Mer. pas	s. 08:25					Sur	SD = 15.9'			

Moon (5th Sep)

h

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Regulus	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel	+Saturn
0	225°31.1	9.3'	N 18°35.9	-9.1'	57.6'	45°30.8	33°05.0		30°56.1	42°16.6	47°02.7	47°34.2	62°11.1
1	239°59.5	9.3'	18° 26.8	-9.2'	57.7'	44°59.8	32°31.8		31°24.4	42°44.6	47°35.9	47°57.5	62°44.5
2	254°27.8	9.4'	18° 17.5	-9.4'	57.7'	44°28.8	31°58.5		31°52.9	43°12.8	48°09.0	48°21.0	63°18.0
3	268°56.1	9.4'	18°08.2	-9.5'	57.7'	43°57.7	31°25.2		32°21.6	43°41.1	48°42.3	48°44.7	63°51.5
4	283°24.5	9.4'	17°58.7	-9.6'	57.8'	43°26.6	30°51.9		32°50.5	44°09.6	49°15.5	49°08.5	64°25.1
5	297°52.9	9.4'	$17^{\circ}49.1$	-9.7'	57.8'	42°55.5	30°18.5		33° 19.5	44°38.2	49°48.9	49°32.5	64°58.7
6	312°21.3	9.4'	$N17^{\circ}39.5$	-9.8'	57.8'	42°24.3	29°45.1		33°48.7	45°06.9	50°22.3	49°56.7	65°32.4
7	326°49.7	9.4'	$17^{\circ}29.7$	-9.9'	57.9'	41°53.1	29°11.7	11°51.2	34°18.1	45°35.8	50°55.7	50°21.0	66°06.1
8	341°18.1	9.4'	$17^{\circ}19.7$	-10.0'	57.9'	41°21.8	28°38.2	12°15.2	34°47.7	46°04.8	51°29.2	50°45.6	66°39.9
9	355°46.6	9.5'	$17^{\circ}09.7$	-10.1'	57.9'	40°50.5	28°04.8	12°39.9	35° 17.4	46°33.9	52°02.7	51°10.3	67° 13.7
10	10°15.1	9.5'	$16^{\circ}59.6$	-10.2'	58.0'	40°19.1	27°31.3	13°05.4	35°47.2	47°03.2	52°36.3	51°35.1	67°47.6
11	24°43.5	9.5'	16°49.4	-10.3'	58.0'		26°57.7	13°31.5	36°17.3	47°32.5	53°10.0	52°00.1	68°21.5
12	39°12.0	9.5'	$N16^{\circ}39.0$	-10.4'	58.1'		26°24.2	13°58.2	36°47.4	48°02.0	53°43.7	52°25.3	68°55.4
13	53°40.5	9.5'	$16^{\circ}28.6$	-10.6'	58.1'		25°50.6	14°25.4	37° 17.7	48°31.6	54°17.5	52°50.6	69°29.4
14	68°09.0	9.5'	$16^{\circ}18.0$	-10.7'	58.1'		25°17.0	14°53.2	37°48.1	49°01.3	54°51.3	53°16.0	70°03.5
15	82°37.6	9.6'	16°07.4	-10.8'	58.2'		24°43.4	15°21.4	38° 18.7	49°31.2	55°25.1	53°41.7	70°37.6
16	97°06.1	9.6'	15°56.6	-10.9'	58.2'		24°09.8	15°50.1	38°49.4	50°01.1	55°59.0	54°07.4	71°11.8
17	111°34.7	9.6'	15°45.8	-11.0'	58.2'		23°36.1	16°19.1	39°20.2	50°31.2	56°33.0	54°33.3	71°45.9
18	126°03.3	9.6'	N 15°34.8	-11.1'	58.3'		23°02.5	16°48.5	39°51.1	51°01.3	57°07.0	54°59.3	72°20.2
19	140°31.9	9.6'	15°23.7	-11.2'	58.3'		22°28.8	17°18.3	40°22.2	51°31.6	57°41.1	55°25.5	72°54.5
20	155°00.5	9.6'	$15^{\circ}12.6$	-11.3'	58.4'		21°55.2	17°48.3	40°53.3	52°01.9	58°15.2	55°51.8	73°28.8
21	169°29.1	9.6'	15°01.3	-11.4'	58.4'		21°21.5	18°18.7	41°24.6	52°32.4	58°49.3	56° 18.3	74°03.2
22	183°57.8	9.7'	14°50.0	-11.5'	58.4'		20°47.8	18°49.3	41°56.0	53°03.0	59°23.6	56°44.9	74°37.6
23	198°26.4	9.7'	14°38.5	-11.6'	58.5'		20°14.2	19°20.2	42°27.5	53°33.6	59°57.8	57°11.6	75°12.1
5 th	SD	= 15.7	7' Mer. pas	s. 09:18					Sun SD	= 15.9'			

h Moon (6th Sep)

Thu	GHA	ν	Dec	d	HP	-Regulus	+Procyon	+Pollux	+Betelgeuse	+Capella	+Rigel	+Aldebaran	+Saturn
0	212°55.1	9.7'	N 14°26.9	-11.6'	58.5'	19°40.5	19°21.0	19°51.3	42°59.1	54°04.4	57°38.4	60°32.1	75°46.6
1	227°23.8	9.7'	14° 15.3	-11.7'	58.5'	19°06.9	19°45.2	20°22.7	43°30.8	54°35.2	58°05.3	61°06.5	76°21.2
2	241°52.5	9.7'	14°03.6	-11.8'	58.6'	18° 33.3	20°09.9	20°54.2	44°02.6	55°06.2	58° 32.4	61°40.9	76°55.8
3	256°21.2	9.7'	13°51.7	-11.9'	58.6'	17°59.7	20°35.0	21°26.0	44°34.6	55°37.2	58° 59.6	62°15.3	77°30.5
4	270°50.0	9.7'	13°39.8	-12.0'	58.6'	17°26.1	21°00.7	21°57.9	45°06.6	56°08.3	59°26.9	62°49.8	78°05.2
5	285°18.7	9.8'	13°27.8	-12.1'	58.7'	16°52.6	21°26.8	22°30.0	45°38.7	56°39.5	59°54.3	63°24.4	78°39.9
6	299°47.5	9.8'	$N13^{\circ}15.7$	-12.2'	58.7'	16° 19.2	21°53.3	23°02.3	46°10.9	57°10.8	60°21.9	63°59.0	79°14.7
7	314°16.3	9.8'	13°03.5	-12.3'	58.7'	15°45.8	22°20.2	23°34.8	46°43.2	57°42.2	60°49.5	64°33.6	79°49.5
8	328°45.0	9.8'	12°51.2	-12.4'	58.8'	15° 12.5	22°47.5	24°07.4	47°15.6	58°13.6	61° 17.3	65°08.3	80°24.4
9	343°13.8	9.8'	12°38.8	-12.5'	58.8'	14°39.2	23°15.2	24°40.2	47°48.1	58°45.2	61°45.2	65°43.1	80°59.3
10	357°42.7	9.8'	12°26.4	-12.5'	58.8'	14°06.1	23°43.2	25° 13.0	48°20.6	59°16.8	62°13.1	66°17.9	81°34.3
11	12°11.5	9.8'	12°13.8	-12.6'	58.9'	13°33.1	24°11.6	25°46.1	48°53.3	59°48.5	62°41.2	66°52.7	82°09.3
12	26°40.3	9.9'	$N12^{\circ}01.2$	-12.7'	58.9'	13°00.3	24°40.2	26° 19.2	49°26.0	60°20.3	63°09.4	67°27.6	82°44.4
13	41°09.2	9.9'	11°48.5	-12.8'	59.0'	12°27.6	25°09.2	26°52.5	49°58.8	60°52.2	63°37.7	68°02.5	83°19.5
14	55°38.0	9.9'	11°35.7	-12.9'	59.0'	11°55.1	25°38.4	27°25.9	50°31.7	61°24.1	64°06.1	68°37.4	83°54.6
15	70°06.9	9.9'	11°22.9	-12.9'	59.0'	11°22.9	26°07.9	27°59.4	51°04.7	61°56.1	64°34.5	69°12.5	84°29.8
16	84°35.8	9.9'	$11^{\circ}09.9$	-13.0'	59.1'	10°50.9	26°37.6	28°33.0	51°37.7	62°28.2	65°03.1	69°47.5	85°05.0
17	99°04.7	9.9'	$10^{\circ}56.9$	-13.1'	59.1'	10°19.3	27°07.6	29°06.7	52°10.8	63°00.3	65°31.8	70°22.6	85°40.3
18	113°33.6	9.9'	N10°43.8	-13.2'	59.1'	9°48.0	27°37.9	29°40.5	52°44.0	63°32.5	66°00.5	70°57.8	86°15.6
19	128°02.5	9.9'	10°30.6	-13.2'	59.1'	9°17.3	28°08.3	30° 14.4	53°17.3	64°04.8	66° 29.4	71°32.9	86°51.0
20	142°31.4	9.9'	$10^{\circ}17.4$	-13.3'	59.2'	8°47.1	28°39.0	30°48.4	53°50.6	64°37.2	66°58.3	72°08.2	87°26.4
21	157°00.4	9.9'	$10^{\circ}04.1$	-13.4'	59.2'	8° 17.5	29°09.9	31°22.5	54°24.1	65°09.6	67°27.3	72°43.4	88°01.8
22	171°29.3	9.9'	09°50.7	-13.5'	59.2'	7°48.8	29°41.0	31°56.7	54°57.5	65°42.1	67°56.4	73°18.8	88°37.3
23	185°58.3	10.0'	09°37.2	-13.5'	59.3'		30°12.2	32°31.0	55°31.1	66°14.6	68°25.6	73°54.1	89°12.8
6 th	SD	= 16.0'	Mer. pas	s. 10:09									

h Moon (7th Sep)

Fri	GHA	ν	Dec	d	HP	+Procyon	+Pollux	+Sirius	+Betelgeuse	+Capella	+Rigel	+Aldebaran	+Saturn
0	200°27.2	10.0'	N09°23.7	-13.6'	59.3'	30°43.7	33°05.3	51°00.8	56°04.7	66°47.3	68°54.8	74°29.5	89°48.3
1	214°56.2	10.0'	$09^{\circ}10.1$	-13.7'	59.3'	31° 15.3	33°39.7	51°22.4	56°38.4	67°19.9	69°24.2	75°04.9	90°23.9
2	229°25.1	10.0'	08°56.5	-13.7'	59.4'	31°47.0	34°14.3	51°44.3	57° 12.1	67°52.7	69°53.6	75°40.4	90°59.6
3	243°54.1	10.0'	08°42.7	-13.8'	59.4'	32° 19.0	34°48.8	52°06.3	57° 45.9	68°25.5	70°23.1	76° 15.9	91°35.2
4	258°23.1	10.0'	08°28.9	-13.8'	59.4'	32°51.1	35°23.5	52°28.6	58° 19.8	68°58.3	70°52.7	76°51.5	92°11.0
5	272°52.1	10.0'	$08^{\circ}15.1$	-13.9'	59.5'	33°23.3	35°58.2	52°51.0	58°53.7	69°31.2	71°22.3	77°27.1	92°46.7
6	287°21.1	10.0'	N 08°01.2	-14.0'	59.5'	33°55.7	36°33.0	53°13.7	59°27.7	70°04.2	71°52.0	78°02.7	93°22.5
7	301°50.1	10.0'	07°47.2	-14.0'	59.5'	34°28.2	37°07.9	53°36.5	60°01.8	70°37.2	72°21.8	78°38.4	93°58.3
8	316° 19.0	10.0'	07°33.2	-14.1'	59.6'	35°00.9	37°42.8	53°59.5	60°35.9	71°10.3	72°51.7	79° 14.1	94°34.2
9	330°48.0	10.0'	$07^{\circ}19.1$	-14.1'	59.6'	35° 33.7	38°17.8	54°22.7	61°10.0	71°43.5	73°21.6	79°49.9	95°10.1
10	345°17.0	10.0'	07°05.0	-14.2'	59.6'	36°06.6	38°52.8	54°46.1	61°44.3	72°16.6	73°51.6	80°25.6	95°46.0
11	359°46.0	10.0'	06°50.8	-14.2'	59.6'	36°39.6	39°28.0	55°09.7	62° 18.5	72°49.9	74°21.6	81°01.5	96°22.0
12	14°15.0	10.0'	N 06°36.5	-14.3'	59.7'	37° 12.7	40°03.1	55°33.5	62°52.9	73°23.2	74°51.7	81°37.3	96°58.0
13	28°44.0	10.0'	06°22.3	-14.3'	59.7'	37°46.0	40°38.4	55°57.4	63°27.2	73°56.5	75°21.9	82°13.2	97°34.0
14	43°13.0	10.0'	06°07.9	-14.4'	59.7'	38° 19.4	41°13.6	56°21.5	64°01.7	74°29.9	75°52.1	82°49.1	98°10.1
15	57°42.0	10.0'	05°53.5	-14.4'	59.7'	38° 52.8	41°49.0	56°45.7	64°36.2	75°03.3	76°22.4	83°25.1	98°46.2
16	72°11.0	10.0'	05°39.1	-14.5'	59.8'	39°26.4	42°24.4	57°10.2	65° 10.7	75°36.8	76°52.8	84°01.1	99°22.3
17	86°40.0	10.0'	05°24.6	-14.5'	59.8'	40°00.0	42°59.8	57°34.7	65° 45.3	76°10.3	77°23.2	84°37.1	99°58.5
18	101°09.0	10.0'	$N05^{\circ}10.1$	-14.6'	59.8'	40°33.8	43°35.3	57°59.4	66° 19.9	76°43.9	77°53.6	85° 13.2	100°34.7
19	115°38.0	10.0'	04°55.5	-14.6'	59.8'	41°07.6	44°10.9	58°24.3	66° 54.6	77°17.5	78°24.1	85°49.3	101°10.9
20	130°07.0	10.0'	04°40.9	-14.6'	59.9'	·				Moon ———		<u> </u>	
21	144°35.9	10.0'	04°26.3	-14.7'	59.9'					Moon ———			
22	159°04.9	10.0'	04°11.6	-14.7'	59.9'					Moon ———			
23	173°33.9	10.0'	03°56.9	-14.8'	59.9'				New I	Moon ———			
7 th	SD	= 16.2'	Mer. pas	s. 11:01									

n Moon (8th Sep)

n		IVIO	on (8 ··· Se	:p)		
Sat	GHA	ν	Dec	d	HP	
0	188°02.8	9.9'	N 03°42.1	-14.8'	60.0'	New Moon
1	202°31.8	9.9'	03°27.3	-14.8'	60.0'	New Moon
2	217°00.7	9.9'	03°12.5	-14.8'	60.0'	New Moon
3	231°29.6	9.9'	02°57.7	-14.9'	60.0'	New Moon
4	245°58.5	9.9'	02°42.8	-14.9'	60.1'	New Moon
5	260°27.4	9.9'	02°27.9	-14.9'	60.1'	New Moon
6	274°56.3	9.9'	N02°13.0	-14.9'	60.1'	New Moon
7	289°25.2	9.9'	01°58.1	-15.0'	60.1'	New Moon
8	303°54.1	9.9'	01°43.1	-15.0'	60.1'	New Moon
9	318°22.9	9.8'	01°28.1	-15.0'	60.2'	New Moon
10	332°51.8	9.8'	$01^{\circ}13.1$	-15.0'	60.2'	New Moon
11	347°20.6	9.8'	$00^{\circ}58.1$	-15.0'	60.2'	New Moon
12	1°49.4	9.8'	N00°43.1	-15.0'	60.2'	New Moon
13	16°18.2	9.8'	00°28.0	-15.1'	60.2'	New Moon
14	30°47.0	9.8'	N 00°12.9	-15.1'	60.3'	New Moon
15	45°15.7	9.7'	S 00°02.1	-15.1'	60.3'	New Moon
16	59°44.4	9.7'	00°17.2	-15.1'	60.3'	New Moon
17	74°13.1	9.7'	00°32.3	-15.1'	60.3'	New Moon
18	88°41.8	9.7'	S 00°47.4	-15.1'	60.3'	New Moon
19	103°10.5	9.6'	$01^{\circ}02.5$	-15.1'	60.3'	New Moon
20	117°39.1	9.6'	$01^{\circ}17.5$	-15.1'	60.4'	New Moon
21	132°07.8	9.6'	01°32.6	-15.1'	60.4'	New Moon
22	146°36.4	9.6'	01°47.7	-15.1'	60.4'	New Moon
23	161°04.9	9.5'	02°02.8	-15.1'	60.4'	New Moon
8 th	SD	= 16.4	′ Mer. pas	s. 11:52		

 8th
 SD = 16.4'
 Mer. pass. 11:52

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

 Sun
 GHA
 ν Dec
 d
 HP
 -Altair
 -Antares
 -Rigil Kent.
 -Hadar
 -Mars
 -Venus
 -Jupiter

Sun	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Mars	-Venus	-Jupiter	-Spica
0	175°33.5	9.5'	S 02°17.9	-15.1'	60.4'				— New Mo	on ——			
1	190°02.0	9.5'	02°33.0	-15.1'	60.4'				— New Mo	on ———			
2	204°30.5	9.5'	02°48.0	-15.1'	60.4'		74°21.6	67°53.3	64°24.0	54°53.4	33°07.6	32°02.3	28°49.8
3	218°59.0	9.4'	03°03.1	-15.0'	60.5'		73°44.5	67°26.5	63°58.5	54°18.0	32°33.5	31°26.2	28°12.8
4	233°27.4	9.4'	$03^{\circ}18.1$	-15.0'	60.5'		73°07.4	66°59.8	63°33.2	53°42.5	31°59.4	30°50.2	27°35.8
5	247°55.8	9.4'	$03^{\circ}33.1$	-15.0'	60.5'		72°30.3	66°33.1	63°07.9	53°07.0	31°25.4	30°14.2	26°58.8
6	262°24.2	9.3'	S 03°48.1	-15.0'	60.5'		71°53.2	66°06.5	62°42.8	52°31.5	30°51.3	29°38.2	26°21.8
7	276°52.5	9.3'	$04^{\circ}03.1$	-15.0'	60.5'		71°16.0	65°40.0	62°17.7	51°56.0	30° 17.2	29°02.2	25°44.8
8	291°20.9	9.3'	$04^{\circ}18.1$	-14.9'	60.5'		70°38.9	65°13.6	61°52.8	51°20.5	29°43.2	28°26.2	25°07.8
9	305°49.1	9.2'	04°33.0	-14.9'	60.5'		70°01.7	64°47.3	61°28.0	50°45.0	29°09.1	27°50.3	24°30.8
10	320°17.4	9.2'	04°48.0	-14.9'	60.5'	119°57.7	69°24.5	64°21.1	61°03.2	50°09.5	28°35.0	27°14.4	23°53.8
11	334°45.6	9.2'	$05^{\circ}02.9$	-14.9'	60.5'	119°25.8	68°47.3	63°54.9	60°38.7	49°33.9	28°00.9	26°38.4	23°16.8
12	349°13.8	9.1'	S 05°17.7	-14.8'	60.5'	118°53.8	68°10.1	63°28.9	60°14.2	48°58.4	27° 26.8	26°02.6	22°39.8
13	3°41.9	9.1'	05°32.6	-14.8'	60.5'	118°21.8	67°32.9	63°02.9	59°49.8	48°22.8	26°52.8	25°26.7	22°02.8
14	18°10.0	9.1'	05°47.4	-14.8'	60.6'	117°49.8	66°55.7	62°37.1	59°25.6	47°47.3	26°18.7	24°50.9	21°25.9
15	32°38.1	9.0'	$06^{\circ}02.2$	-14.7'	60.6'	117°17.6	66°18.5	62°11.3	59°01.5	47°11.7	25°44.6	24°15.1	20°48.9
16	47°06.1	9.0'	$06^{\circ}16.9$	-14.7'	60.6'	116°45.4	65°41.3	61°45.7	58°37.6	46°36.1	25°10.6	23°39.4	20°11.9
17	61°34.1	9.0'	$06^{\circ}31.6$	-14.7'	60.6'	116°13.2	65°04.1	61°20.1	58°13.8	46°00.6	24°36.5	23°03.7	19°35.0
18	76°02.1	8.9'	S 06°46.3	-14.6'	60.6'	115°40.8	64°26.8	60°54.7	57°50.2	45°25.0	24°02.5	22°28.1	18°58.0
19	90°30.0	8.9'	$07^{\circ}01.0$	-14.6'	60.6'	115°08.5	63°49.6	60°29.4	57°26.7	44°49.4	23°28.4	21°52.5	18°21.1
20	104°57.9	8.8'	$07^{\circ}15.5$	-14.6'	60.6'	114°36.1	63°12.4	60°04.3	57°03.3	44°13.8	22°54.4	21°17.0	17°44.2
21	119°25.7	8.8'	$07^{\circ}30.1$	-14.5'	60.6'	114°03.6	62°35.1	59°39.2	56°40.1	43°38.2	22°20.4	20°41.6	17°07.3
22	133°53.5	8.8'	07°44.6	-14.5'	60.6'	113°31.1	61°57.9	59°14.3	56°17.1	43°02.6	21°46.4	20°06.2	16°30.5
23	148°21.3	8.7'	07°59.1	-14.4'	60.6'	112°58.5	61°20.6	58°49.5	55°54.2	42°27.0	21°12.5	19°30.9	15°53.7
9 th	SD	= 16.5	Mer. pas	ss. 12:45									

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

Mon	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Mars	-Venus	-Jupiter	-Spica
0	162°49.0	8.7'	S 08° 13.5	-14.4'	60.6'	112°25.9	60°43.4	58°24.8	55°31.5	41°51.5	20°38.5	18°55.7	15°16.9
1	177°16.7	8.6'	08°27.8	-14.3'	60.6'	111°53.3	60°06.2	58°00.3	55°09.0	41° 15.9	20°04.6	18°20.6	14°40.2
2	191°44.3	8.6'	08°42.2	-14.3'	60.6'	111°20.6	59°28.9	57°36.0	54°46.7	40°40.3	19°30.7	17°45.7	14°03.5
3	206°11.9	8.5'	08°56.4	-14.2'	60.6'	110°47.9	58°51.7	57°11.7	54°24.6	40°04.7	18°56.9	17°10.8	13°26.9
4	220°39.4	8.5'	09° 10.6	-14.1'	60.6'	110°15.2	58° 14.4	56°47.7	54°02.6	39°29.1	18°23.0	16°36.1	12°50.3
5	235°06.9	8.4'	09°24.8	-14.1'	60.6'	109°42.4	57°37.2	56°23.8	53°40.8	38°53.5	17°49.3	16°01.5	12°13.8
6	249°34.4	8.4'	S 09°38.9	-14.0'	60.6'	109°09.6	57°00.0	56°00.0	53°19.3	38° 18.0	17° 15.5	15°27.1	11°37.4
7	264°01.8	8.4'	09°52.9	-14.0'	60.6'	108°36.8	56°22.7	55°36.4	52°57.9	37°42.4	16°41.8	14°52.9	11°01.1
8	278°29.1	8.3'	10°06.8	-13.9'	60.6'	108°03.9	55° 45.5	55°13.0	52°36.8	37°06.8	16°08.2	14°19.0	10°24.9
9	292°56.4	8.3'	10°20.7	-13.8'	60.6'	107°31.0	55°08.3	54°49.8	52°15.8	36°31.2	15°34.6	13°45.2	9°48.8
10	307°23.7	8.2'	10°34.6	-13.8'	60.6'	106°58.1	54°31.1	54°26.7	51°55.1	35°55.7	15°01.1	13°11.8	9°13.0
11	321°50.9	8.2'	10°48.3	-13.7'	60.6'	106°25.2	53°53.8	54°03.8	51°34.6	35°20.1	14°27.6	12°38.6	8°37.3
12	336°18.1	8.1'	S 11°02.0	-13.6'	60.6'	105°52.2	53°16.6	53°41.1	51°14.3	34°44.6	13°54.3	12°05.8	8°01.8
13	350°45.2	8.1'	$11^{\circ}15.7$	-13.6'	60.6'	105°19.2	52°39.4	53°18.6	50°54.3	34°09.1	13°21.0	11°33.4	7°26.7
14	5°12.3	8.0'	11°29.2	-13.5'	60.6'	104°46.2	52°02.3	52°56.3	50°34.5	33°33.6	12°47.8	11°01.4	6°51.9
15	19°39.3	8.0'	11°42.7	-13.4'	60.6'	104°13.2	51°25.1	52°34.2	50°14.9	32°58.0	12°14.8	10°30.0	6°17.7
16	34°06.2	7.9'	$11^{\circ}56.1$	-13.3'	60.6'	103°40.2	50°47.9	52°12.3	49°55.6	32°22.5	11°41.9	9°59.2	5°44.0
17	48°33.2	7.9'	12°09.4	-13.2'	60.6'	103°07.2	50°10.8	51°50.7	49°36.6	31°47.0	11°09.1	9°29.0	5°11.2
18	63°00.0	7.8'	S 12°22.7	-13.2'	60.6'	102°34.1	49°33.6	51°29.2	49°17.8	31°11.6	10°36.5	8°59.8	
19	77°26.8	7.8'	12°35.9	-13.1'	60.6'	102°01.0	48° 56.5	51°07.9	48°59.2	30°36.1	10°04.1		
20	91°53.6	7.7'	12°48.9	-13.0'	60.5'	101°28.0	48° 19.3	50°46.9	48°41.0	30°00.6	9°32.0		
21	106°20.3	7.7'	$13^{\circ}01.9$	-12.9'	60.5'	100°54.9	47°42.2	50°26.1	48°23.0	29°25.2	9°00.1		
22	120°47.0	7.6'	13° 14.8	-12.8'	60.5'	100°21.8	47°05.1	50°05.6	48°05.3	28°49.8	8°28.5		
23	135°13.6	7.6'	13°27.7	-12.7'	60.5'	99°48.7	46°28.0	49°45.3	47°47.9	28°14.4	7°57.4		
10 th	SD	= 16.5	Mer. pa	ss. 13:38									

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

				<u> </u>				•					_
Tue	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	-Mars	±Venus	+Spica	+Jupiter	+Sun
0	149°40.1	7.5'	S 13°40.4	-12.6'	60.5'		99°15.6	45°51.0	27°39.0	7°26.7			
1	164°06.7	7.5'	13°53.1	-12.6'	60.5'		98°42.5	45°13.9	27°03.6	6°56.6			
2	178°33.1	7.4'	14°05.6	-12.5'	60.5'		98°09.4	44°36.9	26°28.3	6°27.1			
3	192°59.5	7.3'	$14^{\circ}18.1$	-12.4'	60.5'		97°36.3	43°59.8	25°52.9	5°58.6			
4	207°25.9	7.3'	14°30.4	-12.3'	60.5'		97°03.2	43°22.8	25°17.6				
5	221°52.1	7.2'	14°42.7	-12.2'	60.5'		96°30.1	42°45.8	24°42.3				
6	236°18.4	7.2'	S 14°54.9	-12.1'	60.5'		95°57.1	42°08.9	24°07.0				
7	250°44.6	7.1'	15°06.9	-12.0'	60.4'		95°24.0	41°31.9	23°31.8				
8	265°10.7	7.1'	15°18.9	-11.9'	60.4'		94°50.9	40°55.0	22°56.5				
9	279°36.8	7.0'	15°30.7	-11.8'	60.4'	119°57.8	94°17.8	40°18.0	22°21.3		5°58.3		
10	294°02.8	7.0'	15°42.5	-11.6'	60.4'	119°25.7	93°44.8	39°41.1	21°46.2		6°32.0		41°35.9
11	308°28.8	6.9'	$15^{\circ}54.1$	-11.5'	60.4'	118°53.6	93°11.7	39°04.3	21°11.0		7°06.3		42°10.2
12	322°54.8	6.9'	S 16°05.7	-11.4'	60.4'	118°21.4	92°38.7	38°27.4	20°35.9		7°40.9		42°44.4
13	337°20.6	6.8'	$16^{\circ}17.1$	-11.3'	60.4'	117°49.2	92°05.7	37°50.6	20°00.8		8°15.9		43°18.7
14	351°46.5	6.8'	16°28.4	-11.2'	60.4'	117°17.0	91°32.7	37°13.8	19°25.7		8°51.1		43°52.9
15	6°12.2	6.7'	16°39.6	-11.1'	60.3'	116°44.7	90°59.7	36°37.0	18°50.7		9°26.5		44°27.1
16	20°38.0	6.7'	$16^{\circ}50.7$	-11.0'	60.3'	116° 12.4	90°26.7	36°00.2	18° 15.7		10°02.1		45°01.3
17	35°03.6	6.6'	$17^{\circ}01.7$	-10.9'	60.3'	115°40.1	89°53.8	35°23.5	17°40.7		10°37.8		45°35.5
18	49°29.3	6.6'	S 17°12.6	-10.7'	60.3'	115°07.7	89°20.8	34°46.7	17°05.8		11°13.6	9°21.6	46°09.6
19	63°54.8	6.5'	17°23.3	-10.6'	60.3'	114°35.3	88°47.9	34°10.1	16°30.9		11°49.5	9°51.2	46°43.8
20	78°20.3	6.5'	17°33.9	-10.5'	60.3'	114°02.9	88°15.0	33°33.4	15°56.0		12°25.4	10°21.5	47°17.9
21	92°45.8	6.4'	17°44.4	-10.4'	60.2'	113°30.5	87°42.1	32°56.8	15°21.2		13°01.4	10°52.4	47°52.0
22	$107^{\circ}11.2$	6.4'	$17^{\circ}54.8$	-10.3'	60.2'	112°58.1	87°09.3	32°20.1	14°46.4	6°48.4	13°37.5	11°23.7	48°26.1
23	121°36.6	6.3'	18°05.0	-10.1'	60.2'	112°25.6	86°36.4	31°43.6	14° 11.7	7°18.0	14°13.6	11°55.5	49°00.2
11 th	SD	= 16.5	' Mer. pas	ss. 14:34					Sun SD =	= 15.9 [']			

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I_	Moon (12th Sen)	Lunar Distance (objects with largest hourly ID delta)

Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	-Mars	+Venus	+Jupiter	+Spica	+Sun
0	136°01.9	6.3'	S 18°15.2	-10.0'	60.2'	111°53.1	86°03.6	31°07.0	13°37.0	7°48.2	12°27.7	14°49.7	49°34.2
1 1	150°27.2	6.2'	18°25.2	-9.9'	60.2'	111°20.7	85°30.9	30°30.5	13°02.4	8°18.8	13°00.3	15°25.8	50°08.3
2	164°52.5	6.2'	18°35.0	-9.7'	60.2'	110°48.2	84°58.1	29°54.0	12°27.9	8°49.8	13°33.1	16°02.0	50°42.3
3	179°17.6	6.1'	18°44.8	-9.6'	60.1'	110°15.7	84°25.4	29°17.5	11°53.4	9°21.0	14°06.1	16°38.2	51°16.3
4	193°42.8	6.1'	18°54.4	-9.5'	60.1'	109°43.1	83°52.7	28°41.1	$11^{\circ}19.0$	9°52.6	14°39.4	17°14.3	51°50.2
5	208°07.9	6.0'	19°03.9	-9.4'	60.1'	109°10.6	83°20.1	28°04.7	10°44.7	10°24.3	15° 12.8	17°50.5	52°24.2
6	222°32.9	6.0'	S 19°13.2	-9.2'	60.1'	108°38.1	82°47.4	27°28.3	10°10.4	10°56.2	15°46.5	18°26.7	52°58.1
7	236°57.9	6.0'	19°22.5	-9.1'	60.1'	108°05.6	82°14.8	26°52.0	9°36.3	11°28.3	16° 20.2	19°02.9	53°32.0
8	251°22.9	5.9'	19°31.5	-8.9'	60.0'	107°33.0	81°42.3	26°15.7	9°02.3	12°00.4	16°54.1	19°39.1	54°05.9
9	265°47.8	5.9'	19°40.5	-8.8'	60.0'	107°00.5	81°09.8	25°39.4	8°28.4	12°32.7	17°28.1	20°15.2	54°39.7
10	280°12.7	5.8'	19°49.3	-8.7'	60.0'	106°28.0	80°37.3	25°03.2	7°54.7	13°05.1	18°02.2	20°51.4	55°13.6
11	294°37.5	5.8'	$19^{\circ}58.0$	-8.5'	60.0'	105°55.5	80°04.8	24°27.0	7°21.2	13°37.5	18°36.4	21°27.5	55°47.4
12	309°02.3	5.8'	S 20°06.5	-8.4'	60.0'	105°22.9	79°32.4	23°50.9	6°47.9	14°10.0	19° 10.7	22°03.7	56°21.1
13	323°27.1	5.7'	20°14.9	-8.3'	59.9'	104°50.4	79°00.0	23°14.8	$6^{\circ}14.9$	14°42.5	19°45.0	22°39.8	56°54.9
14	337°51.8	5.7'	20°23.1	-8.1'	59.9'	104°17.9	78°27.7	22°38.7	5°42.3	15°15.1	20° 19.4	23°15.9	57°28.6
15	352°16.5	5.6'	20°31.3	-8.0'	59.9'	103°45.4	77°55.4	22°02.7	$5^{\circ}10.1$	15°47.7	20°53.9	23°52.0	58°02.3
16	$6^{\circ}41.1$	5.6'	20°39.2	-7.8'	59.9'	103°12.9	77°23.2	21°26.7	4°38.6	16°20.4	21°28.4	24°28.0	58°36.0
17	21°05.7	5.6'	20°47.0	-7.7'	59.9'	102°40.4	76°51.0	20°50.8	4°07.9	16°53.1	22°02.9	25°04.1	59°09.7
18	35°30.3	5.5'	S 20°54.7	-7.5'	59.8'	102°07.9	76°18.8	20°14.9		17°25.7	22°37.5	25°40.1	59°43.3
19	49°54.9	5.5'	$21^{\circ}02.3$	-7.4'	59.8'	101°35.4	75°46.7	19°39.0		17°58.4	23° 12.1	26°16.1	60°16.9
20	64°19.4	5.5'	$21^{\circ}09.6$	-7.2'	59.8'	101°02.9	75°14.6	19°03.3		18°31.1	23°46.7	26°52.1	60°50.4
21	78°43.8	5.4'	$21^{\circ}16.9$	-7.1'	59.8'	100°30.5	74°42.6	18°27.5		19°03.9	24°21.3	27°28.1	61°24.0
22	93°08.3	5.4'	21°24.0	-6.9'	59.7'	99°58.0	74°10.7	17°51.8		19°36.6	24°56.0	28°04.0	61°57.5
23	107°32.7	5.4'	21°30.9	-6.8'	59.7'	99°25.6	73°38.7	17°16.2		20°09.3	25°30.6	28°39.9	62°31.0
12 th	SD	= 16.4	['] Mer. pas	s. 15:32					Sun SD =	= 15.9 [']			

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

Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Mars	+Jupiter	+Spica	+Sun
0	121°57.1	5.4'	S 21°37.7	-6.6'	59.7'	98°53.2	98°45.9	73°06.9	16°40.7		26°05.3	29°15.8	63°04.4
1	136°21.5	5.3'	21°44.3	-6.5'	59.7'	98°20.8	98°25.9	72°35.1	16°05.2		26°40.0	29°51.7	63°37.8
2	150°45.8	5.3'	21°50.8	-6.3'	59.6'	97°48.4	98°05.9	72°03.3	15°29.8		27°14.7	30°27.6	64°11.2
3	165°10.1	5.3'	21°57.2	-6.2'	59.6'	97°16.1	97°45.8	71°31.6	14°54.4		27°49.4	31°03.4	64°44.6
4	179°34.4	5.3'	22°03.4	-6.0'	59.6'	96°43.7	97°25.7	70°59.9	14°19.2		28°24.0	31°39.2	65°17.9
5	193°58.7	5.3'	22°09.4	-5.9'	59.6'	96°11.4	97°05.6	70°28.3	13°44.0		28°58.7	32°14.9	65°51.2
6	208°23.0	5.2'	S 22°15.3	-5.7'	59.5'	95°39.1	96°45.5	69°56.8	13°08.9		29°33.4	32°50.7	66°24.5
7	222°47.2	5.2'	22°21.0	-5.6'	59.5'	95°06.9	96°25.4	69°25.3	12°33.9	4°50.9	30°08.1	33°26.4	66° 57.7
8	237°11.4	5.2'	22°26.6	-5.4'	59.5'	94°34.6	96°05.3	68°53.9	$11^{\circ}59.1$	5°22.2	30°42.7	34°02.1	67°30.9
9	251°35.6	5.2'	22°32.0	-5.3'	59.5'	94°02.4	95°45.2	68°22.6	11°24.3	5°54.1	31°17.4	34°37.7	68°04.1
10	265°59.8	5.2'	22°37.2	-5.1'	59.4'	93°30.2	95°25.0	67°51.3	10°49.7	6°26.2	31°52.0	35°13.3	68°37.3
11	280°24.0	5.2'	22°42.3	-4.9'	59.4'	92°58.0	95°04.9	67°20.0	10°15.3	6°58.7	32°26.6	35°48.9	69°10.4
12	294°48.1	5.1'	S 22°47.3	-4.8'	59.4'	92°25.8	94°44.7	66°48.9	9°41.0	7°31.3	33°01.3	36°24.5	69°43.5
13	309°12.3	5.1'	22°52.1	-4.6'	59.4'	91°53.7	94°24.6	66° 17.8	9°07.0	8°04.1	33°35.9	37°00.0	70°16.5
14	323°36.4	5.1'	22°56.7	-4.5'	59.3'	91°21.6	94°04.4	65°46.7	8°33.2	8°37.1	34°10.4	37°35.5	70°49.5
15	338°00.5	5.1'	23°01.2	-4.3'	59.3'	90°49.5	93°44.2	65° 15.8	7°59.7	9°10.1	34°45.0	38°11.0	71°22.5
16	352°24.7	5.1'	23°05.5	-4.2'	59.3'	90°17.5	93°24.1	64°44.9	7°26.5	9°43.1	35°19.6	38°46.5	71°55.5
17	6°48.8	5.1'	23°09.6	-4.0'	59.3'	89°45.5	93°03.9	64°14.0	6°53.8	10°16.3	35°54.1	39°21.9	72°28.4
18	21°12.9	5.1'	S 23°13.6	-3.8'	59.2'	89°13.5	92°43.8	63°43.3	6°21.6	10°49.4	36°28.6	39°57.3	73°01.3
19	35°37.0	5.1'	23°17.5	-3.7'	59.2'	88°41.5	92°23.7	63°12.6	5°50.0	11°22.6	37°03.1	40°32.6	73°34.2
20	50°01.2	5.1'	23°21.2	-3.5'	59.2'	88°09.6	92°03.5	62°42.0	5°19.3	11°55.8	37°37.6	41°07.9	74°07.0
21	64°25.3	5.1'	23°24.7	-3.4'	59.2'	87°37.7	91°43.4	62°11.5		12°29.1	38°12.0	41°43.2	74°39.8
22	78°49.4	5.1'	23°28.0	-3.2'	59.1'	87°05.9	91°23.3	61°41.1		13°02.3	38°46.4	42°18.5	75°12.6
23	93°13.5	5.1'	23°31.2	-3.0'	59.1'	86°34.1	91°03.2	61°10.7		13°35.5	39°20.8	42°53.7	75°45.3
13 th	SD =	= 16.3	′ Mer. pas	s. 16:32)				Sun SD =	= 15.9′			

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

			. (1/				, , ,				,	
Fri	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Jupiter	+Spica
0	107°37.7	5.1'	S 23°34.3	-2.9'	59.1'	92°20.0	90°43.1	86°02.3	60°40.4		14°08.8	39°55.2	43°28.9
1	122°01.8	5.2'	23°37.2	-2.7'	59.0'	92°04.7	90°23.1	85° 30.5	60°10.2		14°42.0	40°29.6	44°04.1
2	136°26.0	5.2'	23°39.9	-2.6'	59.0'	91°49.4	90°03.0	84° 58.8	59°40.1		15° 15.2	41°03.9	44°39.2
3	150°50.1	5.2'	23°42.5	-2.4'	59.0'	91°34.2	89°43.0	84°27.1	59°10.0		15°48.4	41°38.2	45°14.3
4	165°14.3	5.2'	23°44.9	-2.2'	59.0'	91°18.9	89°23.0	83°55.5	58°40.1		16°21.6	42°12.5	45°49.4
5	179°38.5	5.2'	23°47.1	-2.1'	58.9'	91°03.6	89°03.0	83°23.9	58°10.2		16°54.8	42°46.7	46°24.4
6	194°02.7	5.2'	S 23°49.2	-1.9'	58.9'	90°48.4	88°43.1	82°52.3	57°40.5		17°27.9	43°21.0	46°59.4
7	208°26.9	5.2'	23°51.1	-1.8'	58.9'	90°33.2	88°23.1	82°20.8	57°10.8		18°01.0	43°55.2	47°34.3
8	222°51.2	5.3'	23°52.9	-1.6'	58.9'	90°17.9	88°03.2	81°49.3	56°41.2		18°34.2	44°29.3	48°09.3
9	237°15.4	5.3'	23°54.5	-1.4'	58.8'	90°02.7	87°43.3	81° 17.9	56°11.7		19°07.3	45°03.5	48°44.2
10	251°39.7	5.3'	23°55.9	-1.3'	58.8'	89°47.5	87°23.5	80°46.5	55°42.4		19°40.3	45°37.6	49°19.0
11	266°04.0	5.3'	23°57.2	-1.1'	58.8'	89°32.3	87°03.6	80° 15.1	55°13.1		20°13.4	46°11.7	49°53.9
12	280°28.3	5.4'	S 23°58.4	-1.0'	58.7'	89°17.2	86°43.9	79°43.8	54°43.9		20°46.4	46°45.8	50°28.7
13	294°52.7	5.4'	23°59.3	-0.8'	58.7'	89°02.0	86°24.1	79° 12.5	54°14.8	6°03.7	21°19.4	47°19.8	51°03.5
14	309°17.1	5.4'	24°00.2	-0.7'	58.7'	88°46.9	86°04.4	78°41.3	53°45.8	6°35.0	21°52.3	47°53.8	51°38.2
15	323°41.5	5.5'	24°00.8	-0.5'	58.7'	88°31.8	85°44.7	78° 10.1	53°17.0	7°06.8	22°25.3	48°27.8	52° 12.9
16	338°06.0	5.5'	24°01.3	-0.3'	58.6'	88°16.7	85°25.0	77°38.9	52°48.2	7°39.0	22°58.2	49°01.7	52°47.6
17	352°30.5	5.5'	24°01.7	-0.2'	58.6'	88°01.7	85°05.4	77°07.8	52°19.6	8°11.5	23°31.1	49°35.7	53°22.2
18	6°55.0	5.6'	S 24°01.9	-0.0'	58.6'	87°46.6	84°45.8	76°36.8	51°51.0	8°44.2	24°03.9	50°09.6	53°56.8
19	21°19.5	5.6'	24°01.9	0.1'	58.5'	87°31.6	84°26.3	76°05.8	51°22.6	9°17.1	24°36.7	50°43.4	54°31.4
20	35°44.1	5.6'	24°01.8	0.3'	58.5'		84°06.8	75°34.8	50°54.3	9°50.2	25°09.5	51°17.3	55°05.9
21	50°08.8	5.7'	$24^{\circ}01.5$	0.4'	58.5'		83°47.4	75°03.9	50°26.1	10°23.5	25°42.3	51°51.1	55°40.4
22	64°33.4	5.7'	$24^{\circ}01.1$	0.6'	58.5'		83°28.0	74°33.0	49°58.1	10°56.8	26°15.0	52°24.8	56°14.9
23	78°58.1	5.8'	24°00.5	0.7'	58.4'		83°08.6	74°02.2	49°30.2	11°30.2	26°47.8	52°58.6	56°49.3
14 th	SD =	= 16.1'	Mer. pas	s. 17:31									

h		Moon	(15 th Se	p)			Lunar Dis	tance (o	bjects wit	h largest	hourly L	D delta)	
Sat	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Jupiter	+Spica	+Sun
0	93°22.9	5.8'	S 23°59.7	0.9'	58.4'	82°49.3	73°31.5	49°02.4	12°03.7	27°20.4	53°32.3	57°23.7	89°12.6
1	107°47.7	5.8'	23°58.9	1.0'	58.4'	82°30.0	73°00.8	48°34.7	12° 37.2	27°53.1	54°06.0	57°58.1	89°44.5
2	122°12.5	5.9'	23°57.8	1.2'	58.3'	82°10.8	72°30.1	48°07.2	13° 10.8	28°25.7	54°39.6	58°32.4	90°16.3
3	136°37.4	5.9'	23°56.6	1.3'	58.3'	81°51.7	71°59.5	47°39.8	13°44.4	28°58.3	55° 13.3	59°06.7	90°48.1
4	151°02.4	6.0'	23°55.3	1.5'	58.3'	81°32.6	71°28.9	47°12.6	14° 18.0	29°30.8	55°46.9	59°41.0	91°19.8
5	165°27.4	6.0'	23°53.8	1.6'	58.3'	81°13.5	70°58.4	46°45.5	14°51.7	30°03.4	56°20.4	60°15.3	91°51.5
6	179°52.4	6.1'	S 23°52.1	1.8'	58.2'	80°54.5	70°28.0	46°18.5	15° 25.3	30°35.9	56° 54.0	60°49.5	92°23.2
7	194°17.5	6.2'	23°50.3	1.9'	58.2'	80°35.6	69°57.6	45°51.7	15°59.0	31°08.3	57° 27.5	61°23.6	92°54.9
8	208°42.7	6.2'	23°48.4	2.1'	58.2'	80°16.7	69°27.3	45°25.1	16°32.7	31°40.7	58°01.0	61°57.8	93°26.5
9	223°07.9	6.3'	23°46.3	2.2'	58.1'	79°57.9	68°57.0	44°58.6	17°06.4	32°13.2	58° 34.4	62°31.9	93°58.1
10	237°33.2	6.3'	23°44.1	2.4'	58.1'	79°39.1	68°26.8	44°32.3	17°40.0	32°45.5	59°07.8	63°06.0	94°29.6
11	251°58.5	6.4'	23°41.7	2.5'	58.1'	79°20.4	67°56.6	44°06.1	18° 13.7	33°17.9	59°41.2	63°40.0	95°01.2
12	266°23.9	6.4'	S 23°39.2	2.7'	58.1'	79°01.8	67°26.5	43°40.1	18°47.4	33°50.2	60°14.5	64°14.0	95°32.6
13	280°49.3	6.5'	23°36.5	2.8'	58.0'	78°43.2	66°56.4	43°14.3	19°21.0	34°22.4	60°47.9	64°48.0	96°04.1
14	295°14.8	6.6'	23°33.7	3.0'	58.0'	78°24.7	66°26.5	42°48.6	19°54.6	34°54.7	61°21.2	65°21.9	96°35.5
15	309°40.4	6.6'	23°30.7	3.1'	58.0'	78°06.2	65°56.5	42°23.2	20°28.3	35°26.9	61°54.4	65°55.9	97°06.9
16	324°06.0	6.7'	23°27.6	3.2'	57.9'	77°47.9	65°26.7	41°57.9	21°01.9	35°59.1	62°27.7	66°29.7	97°38.3
17	338°31.7	6.8'	23°24.4	3.4'	57.9'	77°29.5	64°56.9	41°32.8	21°35.5	36°31.2	63°00.9	67°03.6	98°09.6
18	352°57.5	6.8'	S 23°21.0	3.5'	57.9'	77°11.3	64°27.1	41°07.9	22°09.0	37°03.4	63°34.0	67°37.4	98°40.9
19	7°23.3	6.9'	23°17.5	3.7'	57.9'	76°53.1	63°57.5	40°43.3	22°42.6	37°35.5	64°07.2	68°11.2	99°12.1
20	21°49.2	7.0'	23°13.8	3.8'	57.8'	76°35.0	63°27.9	40°18.8	23°16.1	38°07.5	64° 40.3	68°45.0	99°43.4
21	36°15.2	7.0'	23°10.0	3.9'	57.8'	76°17.0	62°58.3	39°54.5	23°49.6	38°39.5	65° 13.4	69°18.7	100°14.6
22	50°41.2	7.1'	23°06.1	4.1'	57.8'	75°59.1	62°28.9	39°30.5	24°23.1	39°11.5	65°46.4	69°52.4	100°45.7
23	65°07.3	7.2'	23°02.1	4.2'	57.7'	75°41.2	61°59.5	39°06.6	24°56.6	39°43.5	66° 19.4	70°26.0	101°16.8
15 th	SD =	= 15.9′	Mer. pass	. 18:2	9				Sun SD =	= 15.9′			

h Moon (16th Sep) Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Jupiter	+Spica	+Sun
0	79°33.5	7.2'	S 22°57.9	4.3'	57.7'	75°23.4	61°30.1	38°43.0	25°30.1	40°15.4	66°52.4	70°59.7	101°47.9
1	93°59.7	7.3'	22°53.5	4.5'	57.7'	75°05.7	61°00.9	38°19.7	26°03.5	40°47.4	67°25.4	71°33.3	102°19.0
2	108°26.0	7.4'	$22^{\circ}49.1$	4.6'	57.7'	74°48.1	60°31.7	37°56.5	26°36.9	41°19.2	67°58.3	72°06.8	102°50.0
3	122°52.4	7.5'	22°44.5	4.7'	57.6'	74°30.5	60°02.6	37°33.6	27° 10.3	41°51.1	68°31.2	72°40.4	103°21.0
4	137°18.9	7.5'	22°39.7	4.9'	57.6'	74°13.0	59°33.5	37°11.0	27°43.6	42°22.9	69°04.1	73°13.9	103°52.0
5	151°45.4	7.6'	22°34.9	5.0'	57.6'	73°55.6	59°04.6	36°48.6	28° 17.0	42°54.7	69°36.9	73°47.3	104°22.9
6	166°12.1	7.7'	S 22°29.9	5.1'	57.6'	73°38.3	58°35.7	36°26.5	28° 50.3	43°26.4	70°09.7	74°20.8	104°53.8
7	180°38.8	7.8'	22°24.8	5.2'	57.5'	73°21.1	58°06.9	36°04.7	29°23.6	43°58.1	70°42.5	74°54.2	105°24.7
8	195°05.5	7.9'	22°19.6	5.4'	57.5'	73°04.0	57°38.1	35°43.1	29°56.8	44°29.8	71°15.3	75°27.6	105°55.6
9	209°32.4	7.9'	22°14.2	5.5'	57.5'	72°47.0	57°09.5	35°21.8	30°30.0	45°01.5	71°48.0	76°00.9	106°26.4
10	223°59.3	8.0'	22°08.7	5.6'	57.4'	72°30.0	56°40.9	35°00.8	31°03.3	45°33.1	72°20.7	76°34.2	106°57.2
11	238°26.3	8.1'	22°03.1	5.7'	57.4'	72°13.2	56°12.4	34°40.2	31°36.4	46°04.7	72°53.4	77°07.5	107°27.9
12	252°53.4	8.2'	S 21°57.4	5.8'	57.4'	71°56.4	55°44.0	34°19.8	32°09.6	46°36.3	73°26.0	77°40.8	107°58.6
13	267°20.6	8.2'	21°51.5	6.0'	57.4'	71°39.7	55°15.7	33°59.7	32°42.7	47°07.9	73°58.6	78°14.0	108°29.3
14	281°47.8	8.3'	21°45.6	6.1'	57.3'	71°23.1	54°47.5	33°40.0	33° 15.8	47°39.4	74°31.2	78°47.2	109°00.0
15	296°15.2	8.4'	21°39.5	6.2'	57.3'	71°06.7	54°19.3	33°20.6	33°48.9	48°10.9	75°03.7	79°20.4	109°30.6
16	310°42.6	8.5'	21°33.3	6.3'	57.3'	70°50.3	53°51.3	33°01.5	34°22.0	48°42.3	75°36.3	79°53.5	110°01.2
17	325°10.1	8.6'	$21^{\circ}27.0$	6.4'	57.3'	70°34.0	53°23.3	32°42.8	34°55.0	49°13.8	76°08.7	80°26.6	110°31.8
18	339°37.6	8.7'	S 21°20.5	6.5'	57.2'	70°17.8	52°55.4	32°24.4	35°28.0	49°45.1	76°41.2	80°59.7	111°02.3
19	354°05.3	8.7'	21°14.0	6.7'	57.2'	70°01.7	52°27.7	32°06.5	36°01.0	50°16.5	77°13.6	81°32.8	111°32.8
20	8°33.0	8.8'	21°07.3	6.8'	57.2'	69°45.7	52°00.0	31°48.8	36° 33.9	50°47.9	77°46.1	82°05.8	112°03.3
21	23°00.9	8.9'	$21^{\circ}00.5$	6.9'	57.1'	69°29.9	51°32.4	31°31.6	37°06.8	51°19.2	78° 18.4	82°38.8	112°33.7
22	37°28.8	9.0'	20°53.7	7.0'	57.1'	69°14.1	51°04.9	31°14.8	37°39.7	51°50.5	78°50.8	83°11.8	113°04.1
23	51°56.7	9.1'	20°46.7	7.1'	57.1'	68°58.4	50°37.6	30°58.4	38°12.6	52°21.7	79°23.1	83°44.7	113°34.5
16 th	SD =	= 15.7'	Mer. pass	s. 19:2	5				Sun SD =	= 15.9 [']			

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

Mon	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Mars	+Jupiter	+Spica
0	66°24.8	9.2'	S 20°39.6	7.2'	57.1'		68°42.9	50°10.3	30°42.3	38° 45.5	52°52.9	79°55.4	84°17.6
1	80°53.0	9.2'	20°32.3	7.3'	57.0'		68°27.4	49°43.1	30°26.7	39° 18.3	53°24.1	80°27.7	84°50.5
2	95°21.2	9.3'	20°25.0	7.4'	57.0'		68°12.1	49°16.1	30°11.6	39°51.1	53°55.3	80°59.9	85°23.4
3	109°49.5	9.4'	20°17.6	7.5'	57.0'		67°56.9	48°49.2		40°23.8	54°26.5	81°32.1	85°56.2
4	124°17.9	9.5'	$20^{\circ}10.1$	7.6'	57.0'		67°41.8	48°22.3		40°56.6	54°57.6	82°04.3	86°29.0
5	138°46.4	9.6'	20°02.5	7.7'	56.9'			47°55.6		41°29.3	55°28.7	82°36.5	87°01.7
6	153°15.0	9.7'	S 19°54.7	7.8'	56.9'			47°29.0		42°02.0	55°59.7	83°08.6	87°34.5
7	167°43.6	9.7'	19°46.9	7.9'	56.9'			47°02.5		42°34.6	56°30.8	83°40.7	88°07.2
8	182°12.4	9.8'	19°39.0	8.0'	56.9'			46°36.2		43°07.3	57°01.8	84°12.8	88°39.9
9	196°41.2	9.9'	19°31.0	8.1'	56.8'			46°10.0		43°39.9	57°32.7	84°44.8	89°12.6
10	211°10.1	10.0'	19°22.9	8.2'	56.8'			45°43.9		44° 12.5	58°03.7	85°16.8	89°45.2
11	225°39.1	10.1'	19°14.6	8.3'	56.8'			45°17.9		44°45.0	58°34.6	85°48.8	90°17.8
12	240°08.2	10.2'	S 19°06.3	8.4'	56.8'	119°56.0		44°52.1		45° 17.6	59°05.5	86°20.8	90°50.4
13	254°37.3	10.2'	18°57.9	8.5'	56.7'	119°23.6		44°26.4		45°50.1	59°36.4	86°52.7	91°22.9
14	269°06.6	10.3'	18°49.4	8.6'	56.7'	118°51.1		44°00.8		46°22.6	60°07.2	87°24.6	91°55.5
15	283°35.9	10.4'	18°40.9	8.7'	56.7'	118° 18.7		43°35.4		46°55.0	60°38.1	87°56.5	92°28.0
16	298°05.3	10.5'	18°32.2	8.8'	56.7'	117°46.4		43°10.2		47°27.5	61°08.9	88°28.4	93°00.4
17	312°34.8	10.6'	18°23.4	8.8'	56.6'	117°14.0		42°45.1		47°59.9	61°39.6	89°00.2	93°32.9
18	327°04.4	10.7'	S 18°14.6	8.9'	56.6'	116°41.7		42°20.1		48°32.3	62°10.4	89°32.0	94°05.3
19	341°34.0	10.7'	18°05.6	9.0'	56.6'	116°09.4		41°55.3		49°04.6	62°41.1	90°03.8	94°37.7
20	356°03.8	10.8'	17°56.6	9.1'	56.6'	115°37.1		41°30.7		49°37.0	63°11.8	90°35.6	95°10.1
21	10°33.6	10.9'	17°47.5	9.2'	56.5'	115°04.8		41°06.2		50°09.3	63°42.4	91°07.3	95°42.4
22	25°03.5	11.0'	17°38.3	9.3'	56.5'	114°32.6		40°41.9		50°41.6	64°13.1	91°39.0	96°14.7
23	39°33.5	11.1'	17°29.1	9.3'	56.5'	114°00.4		40°17.8		51°13.8	64°43.7	92°10.7	96°47.0
17 th	SD :	= 15.6'	Mer. pass	. 20:16									

h		Moor	ı (18 th Se	p)			Lunar Di	stance (obj	ects with	largest h	nourly LE	O delta)	
Tue	GHA	ν	Dec	d	HP	-Aldebaran	-Saturn	-Fomalhaut	+Antares	+Mars	+Venus	+Jupiter	+Spica
0	54°03.5	11.1'	S 17° 19.7	9.4'	56.5'		113°28.2	39°53.9	51°46.1	65°14.3	82°56.9	92°42.4	97°19.3
1	68°33.7	11.2'	$17^{\circ}10.3$	9.5'	56.4'		112°56.1	39°30.1	52°18.3	65°44.8	83°26.4	93°14.0	97°51.5
2	83°03.9	11.3'	$17^{\circ}00.8$	9.6'	56.4'		112°23.9	39°06.5	52°50.5	66°15.4	83°55.8	93°45.6	98°23.7
3	97°34.2	11.4'	$16^{\circ}51.2$	9.7'	56.4'		111°51.8	38°43.1	53°22.6	66°45.9	84°25.1	94°17.2	98°55.9
4	112°04.6	11.5'	$16^{\circ}41.5$	9.7'	56.4'		111°19.7	38° 19.9	53°54.8	67°16.4	84°54.5	94°48.8	99°28.1
5	126°35.0	11.5'	16°31.8	9.8'	56.3'		110°47.6	37°57.0	54°26.9	67°46.8	85°23.8	95°20.3	100°00.2
6	141°05.6	11.6'	S 16°22.0	9.9'	56.3'		110°15.6	37°34.2	54°59.0	68°17.3	85°53.1	95°51.8	100°32.4
7	155°36.2	11.7'	$16^{\circ}12.1$	9.9'	56.3'		109°43.6	37°11.6	55°31.1	68°47.7	86°22.4	96°23.3	101°04.5
8	170°06.9	11.8'	$16^{\circ}02.2$	10.0'	56.3'		109°11.6	36°49.3	56°03.1	69°18.1	86°51.6	96°54.7	101°36.5
9	184°37.7	11.8'	15°52.2	10.1'	56.3'		108°39.6	36°27.2	56°35.1	69°48.5	87°20.8	97°26.2	102°08.6
10	199°08.5	11.9'	15°42.1	10.2'	56.2'		108°07.6	36°05.3	57°07.1	70°18.8	87°50.0	97°57.6	102°40.6
11	213°39.4	12.0'	$15^{\circ}31.9$	10.2'	56.2'		107°35.7	35°43.6	57°39.1	70°49.1	88°19.2	98°29.0	103°12.6
12	228°10.4	12.1'	S 15°21.7	10.3'	56.2'		107°03.8	35°22.2	58°11.1	71°19.4	88°48.4	99°00.3	103°44.6
13	242°41.5	12.1'	$15^{\circ}11.4$	10.4'	56.2'		106°31.9	35°01.1	58°43.0	71°49.7	89°17.5	99°31.7	104°16.5
14	257°12.6	12.2'	$15^{\circ}01.1$	10.4'	56.1'		106°00.0	34°40.2	59°14.9	72°20.0	89°46.6	100°03.0	104°48.5
15	271°43.8	12.3'	14°50.7	10.5'	56.1'		105°28.2	34° 19.5	59°46.8	72°50.2	90°15.7	100°34.3	105°20.4
16	286°15.1	12.4'	14°40.2	10.5'	56.1'		104°56.4	33°59.2	60°18.7	73°20.4	90°44.8	101°05.6	105°52.2
17	300°46.5	12.4'	14°29.6	10.6'	56.1'	119°47.3	104°24.6	33°39.1	60°50.5	73°50.6	91°13.8	101°36.8	106°24.1
18	315°17.9	12.5'	S 14° 19.0	10.7'	56.0'	119° 15.8	103°52.8	33° 19.3	61°22.3	74°20.7	91°42.8	102°08.0	106°55.9
19	329°49.4	12.6'	14°08.4	10.7'	56.0'	118°44.3	103°21.0	32°59.7	61°54.1	74°50.9	92°11.8	102°39.2	107°27.8
20	344°21.0	12.6'	$13^{\circ}57.7$	10.8'	56.0'	118° 12.8	102°49.3	32°40.5	62°25.9	75°21.0	92°40.8	103°10.4	107°59.5
21	358°52.6	12.7'	$13^{\circ}46.9$	10.8'	56.0'	117°41.3	102°17.6	32°21.6	62°57.7	75°51.1	93°09.8	103°41.6	108°31.3
22	13°24.3	12.8'	$13^{\circ}36.1$	10.9'	56.0'	117°09.8	101°45.9	32°03.0	63°29.4	76°21.1	93°38.7	104°12.7	109°03.1
23	27°56.1	12.8'	13°25.2	10.9'	55.9'	116°38.4	101°14.2	31°44.7	64°01.1	76°51.2	94°07.6	104°43.8	109°34.8
18 th	SD	= 15.4'	Mer. pass	. 21:05									

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

Wed	GHA	ν	Dec	d	HP	-Rigel	-Capella	-Aldebaran	-Saturn	+Antares	+Mars	+Jupiter	+Spica
0	42°28.0	12.9'	S 13°14.2	11.0'	55.9'	119°44.7		116°07.0	100°42.6	64°32.8	77°21.2	105°14.9	110°06.5
1	56°59.9	13.0'	13°03.2	11.0'	55.9'	119°19.6		115°35.6	100°10.9	65°04.5	77°51.2	105°46.0	110°38.2
2	71°31.9	13.0'	12°52.2	11.1'	55.9'	118°54.4		115°04.2	99°39.3	65°36.1	78°21.2	106°17.0	111°09.8
3	86°03.9	13.1'	12°41.1	11.1'	55.9'	118°29.3		114°32.8	99°07.8	66°07.8	78°51.2	106°48.0	111°41.5
4	100°36.0	13.2'	12°30.0	11.2'	55.8'	118°04.1		114°01.5	98°36.2	66°39.4	79°21.1	107°19.0	112°13.1
5	115°08.2	13.2'	$12^{\circ}18.8$	11.2'	55.8'	117°38.8		113°30.1	98°04.6	67° 10.9	79°51.0	107°50.0	112°44.7
6	129°40.4	13.3'	S 12°07.5	11.3'	55.8'	117° 13.5		112°58.8	97°33.1	67°42.5	80°20.9	108°20.9	113°16.2
7	144°12.7	13.4'	11°56.3	11.3'	55.8'	116°48.2	119°33.5	112°27.5	97°01.6	68°14.0	80°50.8	108°51.9	113°47.8
8	158°45.1	13.4'	11°44.9	11.4'	55.7'	116°22.8	119°05.0	111°56.3	96°30.1	68° 45.6	81°20.6	109°22.8	114°19.3
9	173°17.5	13.5'	11°33.6	11.4'	55.7'	115°57.4	118°36.5	111°25.0	95°58.7	69°17.1	81°50.5	109°53.7	114°50.8
10	187°50.0	13.5'	$11^{\circ}22.1$	11.5'	55.7'	115°32.0	118°07.9	110°53.8	95°27.2	69°48.6	82°20.3	110°24.5	115°22.3
11	202°22.6	13.6'	$11^{\circ}10.7$	11.5'	55.7'	115°06.6	117°39.4	110°22.6	94°55.8	70°20.0	82°50.1	110°55.4	115°53.8
12	216°55.2	13.7'	S 10°59.2	11.5'	55.7'	114°41.1	117°10.9	109°51.4	94°24.4	70°51.4	83° 19.8	111°26.2	116°25.2
13	231°27.8	13.7'	10°47.6	11.6'	55.6'	114° 15.6	116°42.3	109° 20.2	93°53.0	71°22.9	83°49.6	111°57.0	116°56.6
14	246°00.5	13.8'	10°36.0	11.6'	55.6'	113°50.0	116°13.8	108°49.0	93°21.7	71°54.3	84° 19.3	112°27.8	117°28.0
15	260°33.3	13.8'	10°24.4	11.7'	55.6'	113°24.4	115°45.2	108° 17.9	92°50.3	72°25.6	84°49.0	112°58.5	117°59.4
16	275°06.1	13.9'	$10^{\circ}12.8$	11.7'	55.6'	112°58.8	115°16.7	107°46.7	92°19.0	72°57.0	85°18.7	113°29.3	118°30.8
17	289°39.0	13.9'	$10^{\circ}01.1$	11.7'	55.6'	112°33.2	114°48.1	107° 15.6	91°47.7	73°28.3	85°48.4	114°00.0	119°02.1
18	304°12.0	14.0'	S 09°49.3	11.8'	55.5'	112°07.6	114°19.5	106°44.5	91°16.4	73°59.7	86° 18.0	114°30.7	119°33.4
19	318°45.0	14.0'	09°37.6	11.8'	55.5'	111°41.9	113°51.0	106° 13.5	90°45.1	74°31.0	86°47.7	115°01.3	
20	333°18.0	14.1'	09°25.8	11.8'	55.5'	111°16.2	113°22.4	105°42.4	90°13.9	75°02.2	87° 17.3	115°32.0	
21	347°51.1	14.1'	09°13.9	11.9'	55.5'	110°50.5	112°53.8	105°11.4	89°42.7	75° 33.5	87°46.9	116°02.6	
22	2°24.2	14.2'	$09^{\circ}02.1$	11.9'	55.5'	110°24.8	112°25.2	104°40.4	89°11.5	76°04.7	88° 16.4	116°33.2	
23	16°57.4	14.2'	08°50.2	11.9'	55.5'	109°59.0	111°56.7	104°09.4	88°40.3	76°36.0	88°46.0	117°03.8	
19 th	SD	= 15.3'	Mer. pass	s. 21:50									

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

		1410011	1 (20 30	I' /				starree (obj	,				
Thu	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Mars	+Venus	+Jupiter
0	31°30.7	14.3'	S 08°38.2	12.0'	55.4'		111°28.1	103°38.4	88°09.1	77°07.2	89° 15.5	106°03.7	117°34.4
1 1	46°04.0	14.3'	08°26.3	12.0'	55.4'		110°59.5	103°07.4	87°38.0	77°38.4	89°45.0	106°32.1	118°04.9
2	60°37.3	14.4'	$08^{\circ}14.3$	12.0'	55.4'		110°30.9	102°36.5	87°06.8	78°09.5	90°14.5	107°00.4	118°35.5
3	75°10.7	14.4'	$08^{\circ}02.3$	12.0'	55.4'		110°02.3	102°05.6	86°35.7	78°40.7	90°44.0	107°28.8	119°06.0
4	89°44.2	14.5'	$07^{\circ}50.3$	12.1'	55.4'		109°33.8	101°34.6	86°04.6	79°11.8	91°13.4	107°57.1	119°36.4
5	104°17.7	14.5'	07°38.2	12.1'	55.3'	119°41.6	109°05.2	101°03.8	85°33.6	79°42.9	91°42.9	108°25.4	
6	118°51.2	14.6'	S 07°26.1	12.1'	55.3'	119° 12.1	108°36.6	100°32.9	85°02.5	80°14.0	92° 12.3	108°53.7	
7	133°24.8	14.6'	$07^{\circ}14.0$	12.1'	55.3'	118° 42.6	108°08.0	100°02.0	84°31.5	80°45.1	92°41.7	109°22.0	
8	147°58.4	14.7'	$07^{\circ}01.9$	12.2'	55.3'	118°13.1	107°39.5	99°31.2	84°00.5	81°16.1	93°11.1	109°50.2	
9	162°32.0	14.7'	06°49.7	12.2'	55.3'	117°43.6	$107^{\circ}10.9$	99°00.4	83°29.5	81°47.2	93°40.4	110°18.5	
10	177°05.7	14.7'	06°37.5	12.2'	55.2'	117°14.1	106°42.3	98°29.6	82°58.5	82°18.2	94°09.8	110°46.7	
11	191°39.5	14.8'	$06^{\circ}25.3$	12.2'	55.2'	116°44.6	106°13.8	97°58.8	82°27.5	82°49.2	94°39.1	111°14.9	
12	$206^{\circ}13.2$	14.8'	$506^{\circ}13.1$	12.2'	55.2'	116° 15.1	105°45.2	97°28.0	81°56.6	83°20.2	95°08.4	111°43.1	
13	220°47.1	14.9'	06°00.9	12.3'	55.2'	115°45.6	$105^{\circ}16.7$	96°57.3	81°25.6	83°51.1	95°37.7	112°11.3	
14	235°20.9	14.9'	05°48.6	12.3'	55.2'	115° 16.1	104°48.1	96° 26.5	80°54.7	84°22.1	96°06.9	112°39.4	
15	249°54.8	14.9'	05°36.4	12.3'	55.2'	114°46.6	104°19.6	95°55.8	80°23.8	84°53.0	96°36.2	113°07.5	
16	264°28.7	15.0'	$05^{\circ}24.1$	12.3'	55.1'	114° 17.1	103°51.0	95°25.1	79°53.0	85°23.9	97°05.4	113°35.7	
17	279°02.7	15.0'	$05^{\circ}11.8$	12.3'	55.1'	113°47.7	103°22.5	94°54.4	79°22.1	85°54.8	97°34.6	114°03.8	
18	293°36.7	15.0'	S 04°59.5	12.3'	55.1'	113° 18.2	102°54.0	94°23.7	78°51.3	86°25.7	98°03.8	114°31.8	
19	308°10.7	15.1'	04°47.2	12.3'	55.1'	112°48.7	102°25.5	93°53.1	78°20.5	86°56.5	98°33.0	114°59.9	
20	322°44.8	15.1'	04°34.8	12.3'	55.1'	112° 19.3	101°57.0	93°22.5	77°49.7	87°27.4	99°02.2	115°28.0	
21	$337^{\circ}18.9$	15.1'	$04^{\circ}22.5$	12.4'	55.1'	111°49.8	101°28.5	92°51.8	77°18.9	87°58.2	99°31.3	115°56.0	
22	351°53.0	15.2'	$04^{\circ}10.1$	12.4'	55.0'	111°20.4	101°00.0	92°21.2	76°48.1	88°29.0	100°00.5	116°24.0	
23	6°27.2	15.2'	03°57.7	12.4'	55.0'	110°51.0	100°31.5	91°50.7	76°17.4	88°59.8	100°29.6	116°52.0	
20 th	SD	= 15.1'	Mer. pass	. 22:33									

h		Moor	n (21 st Se	p)			Lunar Dis	stance (obj	ects with	largest	hourly LD	delta)	
Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Mars	+Venus
0	21°01.4	15.2'	S 03°45.4	12.4'	55.0'	110°21.5	100°03.0	91°20.1	75°46.6	42°52.2	89°30.5	100°58.7	117°20.0
1	35°35.6	15.2'	03°33.0	12.4'	55.0'	109°52.1	99°34.5	90°49.6	75°15.9	43° 15.4	90°01.3	101°27.7	117°47.9
2	50°09.8	15.3'	03°20.6	12.4'	55.0'	109°22.7	99°06.1	90°19.0	74°45.2	43°38.8	90°32.0	101°56.8	118°15.9
3	64°44.1	15.3'	03°08.2	12.4'	55.0'	108°53.3	98°37.6	89°48.5	74°14.5	44°02.3	91°02.8	102°25.8	118°43.8
4 5	79° 18.4 93° 52.7	15.3' 15.3'	02°55.8 02°43.4	12.4' 12.4'	54.9' 54.9'	108°23.9 107°54.5	98°09.2 97°40.8	89°18.0 88°47.5	73°43.9 73°13.2	44°25.9 44°49.5	91°33.5 92°04.1	102°54.9 103°23.9	119°11.7 119°39.6
1													119 39.0
6	108° 27.1 123° 01.4	15.4'	S 02°31.0	12.4'	54.9'	107°25.1 106°55.8	97°12.3	88°17.1	72°42.6	45°13.3 45°37.2	92°34.8	103°52.9 104°21.8	
8	123 01.4 137°35.8	15.4' 15.4'	02°18.6 02°06.1	12.4' 12.4'	54.9' 54.9'	106°55.8	96° 43.9 96° 15.5	87°46.6 87°16.2	72°12.0 71°41.4	45 37.2 46°01.1	93°05.5 93°36.1	104 21.8 104°50.8	
9	157 35.6 152°10.2	15.4' 15.4'	02 00.1 01°53.7	12.4'	54.9'	105°57.0	95°47.1	86°45.8	71 41.4 71°10.8	46°25.2	93 30.1 94°06.7	104 50.8 105°19.7	
10	166° 44.7	15.5'	01°41.3	12.4	54.8'	105°27.7	95° 18.8	86°15.4	70°40.2	46°49.3	94°37.3	105°48.7	
11	181° 19.1	15.5'	01°28.9	12.4	54.8'	104°58.3	94°50.4	85°45.0	70°09.7	47° 13.6	95°07.9	106°17.6	
12	195°53.6	15.5'	S 01°16.5	12.4'	54.8'	104°29.0	94°22.0	85°14.6	69°39.2	47°37.9	95°38.5	106°46.5	
13	210°28.1	15.5'	01°04.0	12.4'	54.8'	103°59.7	93°53.7	84°44.2	69°08.7	48°02.2	96°09.1	107°15.3	
14	225°02.6	15.5'	$00^{\circ}51.6$	12.4'	54.8'	103°30.4	93°25.4	84°13.9	68°38.2	48°26.7	96°39.6	107°44.2	
15	239°37.1	15.5'	00°39.2	12.4'	54.8'	103°01.1	92°57.1	83°43.6	68°07.7	48°51.2	97°10.1	108°13.1	
16	254°11.7	15.6'	$00^{\circ}26.8$	12.4'	54.8'	102°31.8	92°28.7	83°13.3	67°37.2	49° 15.8	97°40.6	108°41.9	
17	268°46.3	15.6'	$00^{\circ}14.4$	12.4'	54.7'	102°02.5	92°00.5	82°43.0	67°06.8	49°40.5	98°11.1	109°10.7	
18	283°20.8	15.6'	S 00°02.0	12.4'	54.7'	101°33.2	91°32.2	82°12.7	66°36.4	50°05.3	98°41.6	109°39.5	
19	297°55.4	15.6'	N 00°10.4	12.4'	54.7'	101°04.0	91°03.9	81°42.5	66°05.9	50°30.1	99°12.1	110°08.3	
20	312°30.0	15.6'	00°22.8	12.4'	54.7'	100°34.7	90°35.7	81°12.2	65°35.5	50°54.9	99°42.5	110°37.1	
21	327°04.7	15.6'	00°35.1	12.4'	54.7'	100°05.5	90°07.4	80°42.0	65°05.2	51°19.9	100°13.0	111°05.8	
22	341°39.3	15.6'	00°47.5	12.4'	54.7'	99°36.2	89°39.2	80°11.8	64°34.8	51°44.9	100°43.4	111°34.5	
23	356°13.9	15.6'	00°59.9	12.3'	54.7'	99°07.0	89°11.0	79°41.6	64°04.4	52°09.9	101°13.8	112°03.3	
21 st	SD	= 15.0'	Mer. pass	. 23:16									

h Moon (22nd Sep)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Mars
0	10°48.6	15.7'	N 01°12.2	12.3'	54.6'		98°37.8	79°11.4	63°34.1	52°35.0	101°44.2	109°15.5	112°32.0
1	25°23.2	15.7'	$01^{\circ}24.5$	12.3'	54.6'		98°08.6	78°41.2	63°03.8	53°00.2	102°14.5	109°37.8	113°00.7
2	39°57.9	15.7'	01°36.9	12.3'	54.6'	119°59.4	97°39.4	78°11.1	62°33.5	53°25.4	102°44.9	110°00.0	113°29.4
3	54°32.6	15.7'	01°49.2	12.3'	54.6'	119°29.4	97°10.3	77°41.0	62°03.2	53°50.6	103°15.2	110°22.2	113°58.0
4	69°07.3	15.7'	$02^{\circ}01.5$	12.3'	54.6'	118°59.5	96°41.1	77°10.8	61°32.9	54° 15.9	103°45.6	110°44.3	114°26.7
5	83°41.9	15.7'	$02^{\circ}13.8$	12.3'	54.6'	118°29.6	96°11.9	76°40.7	61°02.7	54°41.3	104°15.9	111°06.4	114°55.3
6	98°16.6	15.7'	N02°26.0	12.3'	54.6'	117°59.7	95°42.8	76°10.6	60°32.5	55°06.7	104°46.2	111°28.3	115°23.9
7	112°51.3	15.7'	02°38.3	12.2'	54.5'	117°29.8	95° 13.7	75°40.6	60°02.2	55°32.1	105°16.5	111°50.3	115°52.5
8	127°26.0	15.7'	02°50.5	12.2'	54.5'	117°00.0	94°44.6	75°10.5	59°32.0	55°57.6	105°46.7	112°12.1	116°21.1
9	142°00.7	15.7'	03°02.7	12.2'	54.5'	116°30.1	94° 15.4	74°40.5	59°01.8	56°23.2	106°17.0	112°33.9	116°49.7
10	156°35.4	15.7'	03°14.9	12.2'	54.5'	116°00.2	93°46.4	74°10.4	58°31.7	56°48.7	106°47.2	112°55.7	117°18.3
11	171°10.1	15.7'	$03^{\circ}27.1$	12.2'	54.5'	115°30.4	93°17.3	73°40.4	58°01.5	57°14.3	107°17.5	113°17.4	117°46.8
12	185°44.9	15.7'	N03°39.3	12.1'	54.5'	115°00.6	92°48.2	73°10.4	57°31.4	57°40.0	107°47.7	113°39.0	118° 15.3
13	200°19.6	15.7'	03°51.4	12.1'	54.5'	114°30.7	92° 19.1	72°40.4	57°01.2	58°05.6	108°17.9	114°00.5	118°43.9
14	214°54.3	15.7'	04°03.5	12.1'	54.5'	114°00.9	91°50.1	72°10.5	56°31.1	58°31.4	108°48.1	114°22.0	119°12.4
15	229°29.0	15.7'	04°15.6	12.1'	54.4'	113°31.1	91°21.1	71°40.5	56°01.0	58°57.1	109°18.2	114°43.4	119°40.9
16	244°03.7	15.7'	04°27.7	12.1'	54.4'	113°01.3	90°52.0	71°10.6	55°30.9	59°22.9	109°48.4	115°04.7	
17	258°38.4	15.7'	04°39.8	12.0'	54.4'	112°31.5	90°23.0	70°40.7	55°00.9	59°48.7	110°18.5	115°26.0	
18	273°13.1	15.7'	N 04°51.8	12.0'	54.4'	112°01.8	89°54.0	70°10.7	54°30.8	60° 14.5	110°48.7	115°47.1	
19	287°47.8	15.7'	05°03.8	12.0'	54.4'	111°32.0	89°25.0	69°40.9	54°00.8	60°40.4	111°18.8	116°08.3	
20	302°22.5	15.7'	05°15.8	12.0'	54.4'	111°02.3	88° 56.1	69°11.0	53°30.8	61°06.3	111°48.9	116°29.3	
21	316°57.1	15.7'	05°27.7	11.9'	54.4'	110°32.5	88°27.1	68°41.1	53°00.7	61°32.2	112°19.0	116°50.3	
22	331°31.8	15.7'	05°39.7	11.9'	54.4'	110°02.8	87°58.2	68°11.3	52°30.8	61°58.2	112°49.1	117°11.1	
23	346°06.5	15.7'	05°51.6	11.9'	54.4'	109°33.1	87°29.2	67°41.4	52°00.8	62°24.1	113°19.1	117°31.9	
22 nd	SD	$= 14.9^{\prime}$	Mer. pass	. 23:57									

h Moon (23rd Sep)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOOI	n (23°° 5 e	p)			Lunar	Distance	(objects	with largest	nourly L	.D deita)	
Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	0°41.1	15.6'	N 06°03.4	11.8'	54.3'	112°56.3	109°03.3	67°11.6	51°30.8	38° 56.5	62°50.1	113°49.2	117°52.7
1	15°15.8	15.6'	$06^{\circ}15.3$	11.8'	54.3'	112°27.2	108°33.6	66°41.8	51°00.9	39° 18.4	63°16.2	114°19.2	118°13.3
2	29°50.4	15.6'	$06^{\circ}27.1$	11.8'	54.3'	111°58.2	108°04.0	66°12.0	50°30.9	39°40.5	63°42.2	114°49.2	118°33.8
3	44°25.0	15.6'	06°38.9	11.8'	54.3'	111°29.1	107°34.3	65°42.2	50°01.0	40°02.7	64°08.3	115°19.3	118°54.3
4	58°59.7	15.6'	06°50.6	11.7'	54.3'	111°00.1	107°04.6	65°12.5	49°31.1	40°25.0	64°34.4	115°49.3	119°14.7
5	73°34.3	15.6'	07°02.3	11.7'	54.3'	110°31.0	106°34.9	64°42.7	49°01.2	40°47.4	65°00.5	116°19.3	119°35.0
6	88°08.9	15.6'	$N07^{\circ}14.0$	11.7'	54.3'	110°02.0	106°05.3	64°13.0	48°31.4	41°10.0	65°26.6	116°49.2	119°55.2
7	102°43.4	15.6'	$07^{\circ}25.7$	11.6'	54.3'	109°33.0	105°35.6	63°43.2	48°01.5	41°32.7	65°52.7	117°19.2	
8	117°18.0	15.6'	07°37.3	11.6'	54.3'	109°03.9	105°06.0	63°13.5	47°31.7	41°55.5	66°18.9	117°49.1	
9	131°52.6	15.5'	07°48.9	11.5'	54.2'	108°34.9	104°36.4	62°43.8	47°01.8	42°18.4	66°45.1	118°19.1	
10	146°27.1	15.5'	08°00.4	11.5'	54.2'	108°05.9	104°06.8	62°14.2	46°32.0	42°41.5	67°11.3	118°49.0	
11	161°01.6	15.5'	08° 12.0	11.5'	54.2'	107°36.9	103°37.2	61°44.5	46°02.2	43°04.6	67°37.5	119°18.9	
12	175°36.1	15.5'	N 08°23.4	11.4'	54.2'	107°07.9	103°07.6	61°14.8	45°32.5	43°27.8	68°03.7	119°48.8	
13	190°10.6	15.5'	08°34.9	11.4'	54.2'	106°38.9	102°38.0	60°45.2	45°02.7	43°51.2	68°30.0		
14	204°45.1	15.4'	08°46.3	11.4'	54.2'	106°09.9	102°08.4	60°15.6	44°32.9	44° 14.6	68° 56.3		
15	219°19.5	15.4'	08° 57.6	11.3'	54.2'	105°40.9	101°38.9	59°46.0	44°03.2	44°38.2	69°22.5		
16	233°53.9	15.4'	09°09.0	11.3'	54.2'	105°11.9	101°09.3	59°16.4	43°33.5	45°01.8	69°48.8		
17	248°28.4	15.4'	09° 20.2	11.2'	54.2'	104°42.9	100°39.8	58°46.8	43°03.8	45°25.5	70°15.1		
18	263°02.7	15.4'	N 09°31.5	11.2'	54.2'	104°14.0	100°10.2	58°17.2	42°34.1	45°49.3	70°41.4		
19	277°37.1	15.3'	09°42.7	11.2'	54.2'	103°45.0	99°40.7	57°47.6	42°04.4	46°13.2	71°07.7		
20	292°11.5	15.3'	09°53.8	11.1'	54.1'	103°16.0	99°11.2	57°18.1	41°34.8	46°37.1	71°34.1		
21	306°45.8	15.3'	10°04.9	11.1'	54.1'	102°47.1	98°41.7	56°48.6	41°05.1	47°01.2	72°00.4		
22	321°20.1	15.3'	10° 16.0	11.0'	54.1'	102°18.1	98°12.2	56°19.1	40°35.5	47°25.3	72°26.8		
23	335°54.4	15.3'	10°27.0	11.0'	54.1'	101°49.2	97°42.7	55°49.6	40°05.9	47°49.5	72°53.1		
23 rd	l si	0 = 14.8	B' Mer. pas	ss:-									

h Moon (24th Sep)

	,		. (. ,								,	
Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	350°28.6	15.2'	N 10°38.0	10.9'	54.1'	101°20.3	97°13.2	75°30.2	66°31.1	55°20.1	39°36.3	48°13.7	73° 19.5
1	5°02.9	15.2'	10°49.0	10.9'	54.1'	100°51.3	96°43.7	75°01.6	66°04.0	54°50.6	39°06.7	48°38.1	73°45.9
2	19°37.1	15.2'	10°59.8	10.8'	54.1'	100°22.4	96°14.3	74°33.1	65°36.8	54°21.1	38°37.2	49°02.5	74° 12.3
3	34°11.2	15.2'	$11^{\circ}10.7$	10.8'	54.1'	99°53.5	95°44.8	74°04.5	65°09.7	53°51.7	38°07.6	49°26.9	74°38.7
4	48°45.4	15.1'	$11^{\circ}21.5$	10.7'	54.1'	99°24.6	95° 15.4	73°36.0	64°42.6	53°22.3	37°38.1	49°51.4	75°05.1
5	63°19.5	15.1'	11°32.2	10.7'	54.1'	98°55.7	94°45.9	73°07.5	64°15.5	52°52.8	37°08.6	50°16.0	75°31.5
6	77°53.6	15.1'	N 11°42.9	10.6'	54.1'	98°26.8	94° 16.5	72°39.0	63°48.5	52°23.4	36°39.1	50°40.7	75°57.9
7	92°27.7	15.0'	11°53.5	10.6'	54.1'	97°57.9	93°47.1	72°10.5	63°21.5	51°54.0	36°09.6	51°05.4	76°24.3
8	107°01.7	15.0'	12°04.1	10.5'	54.1'	97°29.0	93°17.7	71°42.0	62°54.5	51°24.7	35°40.1	51°30.2	76°50.8
9	121°35.7	15.0'	12° 14.7	10.5'	54.1'	97°00.1	92°48.3	71°13.5	62°27.6	50°55.3	35°10.7	51°55.0	77° 17.2
10	136°09.7	15.0'	12°25.2	10.4'	54.0'	96°31.3	92°18.9	70°45.1	62°00.6	50°25.9	34°41.3	52°19.8	77°43.6
11	150°43.7	14.9'	12°35.6	10.4'	54.0'	96°02.4	91°49.5	70°16.7	61°33.8	49°56.6	34°11.8	52°44.8	$78^{\circ}10.1$
12	165°17.6	14.9'	N 12°46.0	10.3'	54.0'	95°33.5	91°20.1	69°48.3	61°06.9	49°27.3	33°42.5	53°09.7	78°36.5
13	179°51.5	14.9'	12°56.3	10.3'	54.0'	95°04.7	90°50.7	69°19.9	60°40.1	48°58.0	33°13.1	53°34.8	79°03.0
14	194°25.3	14.8'	13°06.6	10.2'	54.0'	94°35.8	90°21.4	68°51.5	60°13.3	48°28.7	32°43.7	53°59.8	79°29.4
15	208°59.2	14.8'	13° 16.8	10.2'	54.0'	94°07.0	89°52.0	68°23.1	59°46.6	47°59.4	32°14.4	54°25.0	79°55.9
16	223°32.9	14.8'	13°27.0	10.1'	54.0'	93°38.2	89°22.7	67°54.8	59°19.9	47°30.1	31°45.1	54°50.1	80°22.4
17	238°06.7	14.7'	13°37.1	10.0'	54.0'	93°09.3	88°53.3	67°26.4	58°53.2	47°00.8	31°15.8	55°15.3	80°48.8
18	252°40.4	14.7'	N13°47.1	10.0'	54.0'	92°40.5	88°24.0	66°58.1	58° 26.6	46°31.6	30°46.5	55°40.6	81°15.3
19	267°14.1	14.7'	13°57.1	9.9'	54.0'	92°11.7	87°54.7	66°29.8	58°00.0	46°02.4	30°17.2	56°05.9	81°41.8
20	281°47.8	14.6'	14°07.0	9.9'	54.0'	91°42.9	87°25.4	66°01.5	57°33.4	45°33.2	29°48.0	56°31.2	82°08.2
21	296°21.4	14.6'	$14^{\circ}16.9$	9.8'	54.0'	91°14.1	86°56.0	65°33.3	57°06.9	45°04.0	29°18.8	56°56.6	82°34.7
22	310°55.0	14.5'	14°26.7	9.7'	54.0'	90°45.3	86°26.7	65°05.0	56°40.4	44°34.8	28°49.6	57°22.0	83°01.2
23	325°28.5	14.5'	14°36.4	9.7'	54.0'	90°16.5	85°57.4	64°36.8	56°14.0	44°05.6	28°20.4	57°47.4	83°27.6
24 th	SD	= 14.8'	Mer. pass	. 00:39				-		-			

Moon (25th Sep)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	340°02.0	14.5'	N 14°46.1	9.6'	54.0'		89°47.7	85°28.1	43°36.5	27°51.3	58°12.9		83°54.1
1	354°35.5	14.4'	14°55.8	9.6'	54.0'		89°18.9	84°58.9	43°07.3	27°22.2	58°38.5		84°20.6
2	9°08.9	14.4'	15°05.3	9.5'	54.0'		88°50.1	84°29.6	42°38.2	26°53.1	59°04.0		84°47.1
3	23°42.3	14.4'	15°14.8	9.4'	54.0'		88°21.4	84°00.3	42°09.1	26°24.0	59°29.6		85° 13.5
4	38°15.7	14.3'	15°24.2	9.4'	54.0'		87°52.6	83°31.0	41°40.0	25°55.0	59°55.2		85°40.0
5	52°49.0	14.3'	15°33.6	9.3'	54.0'	119°57.0	87°23.9	83°01.8	41°10.9	25°26.0	60°20.9		86°06.5
6	67°22.3	14.2'	N 15°42.9	9.2'	54.0'	119°27.5	86°55.1	82°32.5	40°41.8	24°57.0	60°46.6		86°32.9
7	81°55.5	14.2'	15°52.1	9.2'	54.0'	118°58.1	86°26.4	82°03.3	40°12.8	24°28.0	61°12.3		86°59.4
8	96°28.7	14.2'	16°01.3	9.1'	54.0'	118°28.6	85°57.6	81°34.0	39°43.7	23°59.1	61°38.0		87°25.9
9	111°01.9	14.1'	$16^{\circ}10.4$	9.0'	54.0'	117°59.2	85°28.9	81°04.8	39°14.7	23°30.2	62°03.8		87°52.4
10	125°35.0	14.1'	$16^{\circ}19.4$	9.0'	54.0'	117°29.7	85°00.2	80°35.6	38°45.7	23°01.4	62°29.6		88° 18.8
11	140°08.1	14.0'	$16^{\circ}28.4$	8.9'	54.0'	117°00.3	84°31.4	80°06.3	38°16.7	22°32.6	62°55.4		88°45.3
12	154°41.2	14.0'	N 16°37.3	8.8'	53.9'	116°30.8	84°02.7	79°37.1	37°47.7	22°03.8	63°21.3		89°11.7
13	169°14.2	14.0'	$16^{\circ}46.1$	8.7'	53.9'	116°01.4	83°34.0	79°07.9	37°18.8	21°35.1	63°47.2		89°38.2
14	183°47.1	13.9'	16°54.8	8.7'	53.9'	115°32.0	83°05.3	78°38.7	36°49.9	21°06.4	64°13.1		90°04.6
15	198°20.0	13.9'	17°03.5	8.6'	53.9'	115°02.5	82°36.6	78°09.5	36°20.9	20°37.7	64°39.0		90°31.1
16	212°52.9	13.8'	$17^{\circ}12.1$	8.5'	53.9'	114°33.1	82°07.9	77°40.3	35°52.0	20°09.1	65°05.0		90°57.5
17	227°25.7	13.8'	17°20.6	8.5'	53.9'	114°03.7	81°39.2	77°11.1	35°23.2	19°40.6	65°31.0		91°24.0
18	241°58.5	13.7'	$N17^{\circ}29.1$	8.4'	53.9'	113°34.3	81°10.5	76°41.9	34°54.3	19°12.1	65°57.0		91°50.4
19	256°31.3	13.7'	17°37.5	8.3'	53.9'	113°04.8	80°41.8	76°12.7	34°25.5	18°43.7	66°23.0		92°16.9
20	271°04.0	13.7'	17°45.8	8.2'	53.9'	112°35.4	80°13.2	75°43.5	33°56.6	18°15.3	66°49.1	72°47.2	92°43.3
21	285°36.6	13.6'	17°54.0	8.2'	53.9'	112°06.0	79°44.5	75°14.3	33°27.8	17°47.0	67°15.1	73°02.3	93°09.7
22	300°09.2	13.6'	$18^{\circ}02.2$	8.1'	53.9'	111°36.6	79°15.8	74°45.2	32°59.1	17°18.8	67°41.2	73°17.4	93°36.1
23	314°41.8	13.5'	18°10.2	8.0'	53.9'	111°07.1	78°47.1	74°16.0	32°30.3	16°50.7	68°07.3	73°32.6	94°02.6
25 th	SD	= 14.7'	Mer. pass.	01:22						-			

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

		IVIOUII	(20 36	"			Lunai L	ristanice	(ODJECES W	itii laiges	st nouny LD	ucita	
Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	329°14.3	13.5'	N 18°18.2	7.9'	53.9'	110°37.7	78°18.5	73°46.8	32°01.6	16°22.6	68°33.5	73°47.9	94°29.0
1	343°46.8	13.4'	18°26.2	7.8'	53.9'	110°08.3	77°49.8	73°17.7	31°32.9	15°54.7	68°59.6	74°03.2	94°55.4
2	358°19.2	13.4'	18°34.0	7.8'	53.9'	109°38.9	77°21.2	72°48.5	31°04.2	15°26.8	69°25.8	74°18.5	95°21.8
3	12°51.6	13.3'	18°41.8	7.7'	53.9'	109°09.5	76°52.5	72°19.3	30°35.5	14°59.1	69°52.0	74°34.0	95°48.2
4	27°24.0	13.3'	18°49.4	7.6'	54.0'	108°40.1	76°23.9	71°50.2	30°06.9	14°31.5	70°18.2	74°49.4	96°14.6
5	41°56.3	13.3'	18°57.0	7.5'	54.0'	108°10.7	75°55.3	71°21.0	29°38.3	14°04.0	70°44.5	75°04.9	96°41.0
6	56°28.5	13.2'	N 19°04.5	7.4'	54.0'	107°41.2	75°26.6	70°51.9	29°09.7	13°36.6	71°10.7	75°20.5	97°07.3
7	71°00.7	13.2'	19°12.0	7.3'	54.0'	107°11.8	74°58.0	70°22.7	28°41.1	13°09.4	71°37.0	75°36.1	97°33.7
8	85°32.9	13.1'	19°19.3	7.3'	54.0'	106°42.4	74°29.4	69°53.6	28° 12.6	12°42.4	72°03.3	75°51.8	98°00.1
9	100°05.0	13.1'	19°26.6	7.2'	54.0'	106°13.0	74°00.7	69°24.4	27°44.1	12°15.6	72°29.6	76°07.5	98°26.4
10	114°37.1	13.0'	19°33.8	7.1'	54.0'	105°43.6	73°32.1	68°55.3	27° 15.7	11°49.0	72°55.9	76°23.2	98°52.8
11	129°09.1	13.0'	19°40.9	7.0'	54.0'	105°14.1	73°03.5	68°26.2	26°47.2	11°22.7	73°22.2	76°39.0	99°19.1
12	143°41.1	12.9'	N19°47.9	6.9'	54.0'	104°44.7	72°34.9	67°57.0	26° 18.8	10°56.6	73°48.6	76°54.8	99°45.5
13	158°13.0	12.9'	19°54.8	6.8'	54.0'	104°15.3	72°06.3	67°27.9	25° 50.5	10°30.8	74°14.9	77°10.7	100°11.8
14	172°44.9	12.8'	20°01.6	6.8'	54.0'	103°45.9	71°37.7	66°58.7	25°22.2	10°05.4	74°41.3	77°26.6	100°38.1
15	187°16.8	12.8'	20°08.4	6.7'	54.0'	103°16.4	71°09.1	66°29.6	24°53.9	9°40.4	75°07.7	77°42.6	101°04.4
16	201°48.6	12.8'	$20^{\circ}15.1$	6.6'	54.0'	102°47.0	70°40.5	66°00.5	24°25.7	9°15.8	75°34.1	77°58.6	101°30.7
17	216°20.3	12.7'	20°21.6	6.5'	54.0'	102°17.6	70°11.9	65°31.3	23°57.5	8°51.8	76°00.6	78°14.6	101°57.0
18	230°52.0	12.7'	N 20°28.1	6.4'	54.0'	101°48.1	69°43.3	65°02.2	23°29.4	8°28.3	76°27.0	78°30.7	102°23.3
19	245°23.7	12.6'	20°34.5	6.3'	54.0'	101°18.7	69°14.7	64°33.1	23°01.4	8°05.5	76°53.5	78°46.8	102°49.6
20	259°55.3	12.6'	20°40.8	6.2'	54.0'	100°49.3	68°46.1	64°04.0	22°33.4	7°43.4	77°20.0	79°03.0	103°15.9
21	274°26.9	12.5'	20°47.0	6.1'	54.0'	100°19.8	68°17.6	63°34.8	22°05.4	7°22.2	77°46.4	79°19.2	103°42.1
22	288°58.4	12.5'	20°53.1	6.0'	54.0'	99°50.4	67°49.0	63°05.7	21°37.5		78°12.9	79°35.4	104°08.4
23	303°29.9	12.4'	20°59.2	5.9'	54.0'	99°20.9	67°20.4	62°36.6	21°09.7		78°39.5	79°51.7	104°34.6
26 th	SD	= 14.7'	Mer. pass.	02:07									

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

		1110011	(-, 50)					213tance	()		or noung EB		
Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	318°01.3	12.4'	N 21°05.1	5.8'	54.0'	98°51.5	66°51.8	62°07.4	20°42.0		79°06.0	80°08.0	105°00.9
1	332°32.7	12.3'	21°10.9	5.7'	54.0'	98°22.0	66°23.3	61°38.3	20°14.3		79°32.5	80°24.3	105°27.1
2	347°04.0	12.3'	21°16.7	5.7'	54.0'	97°52.5	65°54.7	61°09.2	19°46.7		79°59.1	80°40.7	105°53.3
3	1°35.3	12.3'	21°22.3	5.6'	54.1'	97°23.1	65°26.2	60°40.1	19°19.2		80°25.6	80°57.1	106°19.5
4	16°06.6	12.2'	21°27.9	5.5'	54.1'	96°53.6	64°57.6	60°10.9	18°51.8		80°52.2	81°13.5	106°45.7
5	30°37.8	12.2'	21°33.4	5.4'	54.1'	96°24.1	64°29.0	59°41.8	18°24.5		81°18.8	81°30.0	107°11.8
6	45°09.0	12.1'	N21°38.7	5.3'	54.1'	95°54.6	64°00.5	59° 12.7	17°57.4		81°45.4	81°46.4	107°38.0
7	59°40.1	12.1'	21°44.0	5.2'	54.1'	95°25.1	63°31.9	58°43.5	17°30.3		82°12.0	82°03.0	108°04.1
8	74°11.1	12.0'	21°49.2	5.1'	54.1'	94°55.6	63°03.4	58° 14.4	17°03.4		82°38.7	82°19.5	108°30.3
9	88°42.2	12.0'	21°54.2	5.0'	54.1'	94°26.1	62°34.9	57°45.3	16°36.6		83°05.3	82°36.1	108°56.4
10	103°13.2	11.9'	21°59.2	4.9'	54.1'	93°56.6	62°06.3	57° 16.1	16°10.0		83°32.0	82°52.7	109°22.5
11	117°44.1	11.9'	22°04.1	4.8'	54.1'	93°27.1	61°37.8	56°47.0	15°43.5		83°58.6	83°09.3	109°48.6
12	132°15.0	11.9'	N22°08.8	4.7'	54.1'	92°57.6	61°09.2	56° 17.8	15°17.2		84°25.3	83°25.9	110°14.7
13	146°45.8	11.8'	22°13.5	4.6'	54.1'	92°28.0	60°40.7	55°48.7	14°51.1		84°52.0	83°42.6	110°40.8
14	161°16.7	11.8'	22°18.1	4.5'	54.1'	91°58.5	60°12.2	55° 19.6	14°25.3		85°18.7	83°59.3	111°06.8
15	175°47.4	11.7'	22°22.6	4.4'	54.2'	91°28.9	59°43.7	54°50.4	13°59.6		85°45.4	84°16.0	111°32.8
16	190°18.1	11.7'	22°26.9	4.3'	54.2'	90°59.4	59° 15.1	54°21.3	13°34.3		86°12.1	84°32.8	111°58.9
17	204°48.8	11.6'	22°31.2	4.2'	54.2'	90°29.8	58°46.6	53°52.1	13°09.2		86°38.8	84°49.5	112°24.9
18	219°19.5	11.6'	N22°35.4	4.1'	54.2'	90°00.2	58° 18.1	53°23.0	12°44.4		87°05.6	85°06.3	112°50.9
19	233°50.1	11.6'	22°39.4	4.0'	54.2'	89°30.7	57°49.6	52°53.8	12°20.0		87°32.3	85°23.1	113°16.8
20	248°20.6	11.5'	22°43.4	3.8'	54.2'	89°01.1	57°21.1	52°24.7	11°55.9	8°09.1	87°59.1	85°40.0	113°42.8
21	262°51.1	11.5'	22°47.2	3.7'	54.2'	88°31.5	56°52.6	51°55.5	11°32.3	8°32.2	88°25.9	85°56.8	114°08.7
22	277°21.6	11.4'	22°51.0	3.6'	54.2'	88°01.8	56°24.1	51°26.3	11°09.2	8°55.9	88°52.7	86°13.7	114°34.6
23	291°52.1	11.4'	22°54.6	3.5'	54.2'	87°32.2	55°55.6	50°57.2	10°46.6	9°20.3	89°19.4	86°30.6	115°00.5
27 th	SD	= 14.7'	Mer. pass.	02:53									

h Moon (28th Sep)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	306°22.4	11.4'	N 22°58.1	3.4'	54.3'		87°02.6	55°27.1	50°28.0	9°45.1	86°47.5	89°46.3	115°26.4
1	320°52.8	11.3'	23°01.6	3.3'	54.3'		86°32.9	54°58.6	49°58.9	10°10.4	87°04.4	90°13.1	115°52.3
2	335°23.1	11.3'	23°04.9	3.2'	54.3'		86°03.3	54°30.1	49°29.7	10°36.1	87°21.3	90°39.9	116°18.1
3	349°53.4	11.2'	23°08.1	3.1'	54.3'		85°33.6	54°01.6	49°00.5	11°02.1	87°38.2	91°06.7	116°43.9
4	4°23.6	11.2'	23°11.2	3.0'	54.3'		85°03.9	53°33.2	48°31.3	11°28.5	87°55.2	91°33.6	117°09.7
5	18°53.8	11.2'	23°14.2	2.9'	54.3'	119°41.0	84°34.2	53°04.7	48°02.2	11°55.1	88°12.2	92°00.4	117°35.5
6	33°24.0	11.1'	N23°17.1	2.8'	54.3'	119°13.7	84°04.5	52°36.2	47°33.0	12°22.0	88°29.2	92°27.3	118°01.2
7	47°54.1	11.1'	23°19.9	2.7'	54.3'	118°46.5	83°34.8	52°07.8	47°03.8	12°49.2	88°46.1	92°54.1	118°26.9
8	62°24.2	11.1'	23°22.5	2.6'	54.4'	118°19.3	83°05.1	51°39.3	46°34.6	13° 16.5	89°03.2	93°21.0	118°52.6
9	76°54.3	11.0'	23°25.1	2.4'	54.4'	117°52.0	82°35.3	51°10.8	46°05.4	13°44.1	89°20.2	93°47.9	119°18.3
10	91°24.3	11.0'	23°27.5	2.3'	54.4'	117°24.8	82°05.6	50°42.4	45°36.2	14°11.8	89°37.2	94°14.8	119°44.0
11	105°54.3	11.0'	23°29.9	2.2'	54.4'	116°57.5	81°35.8	50°14.0	45°07.1	14°39.6	89°54.2	94°41.7	
12	120°24.2	10.9'	N23°32.1	2.1'	54.4'	116°30.2	81°06.0	49°45.5	44°37.9	15°07.6	90°11.3	95°08.6	
13	134°54.2	10.9'	23°34.2	2.0'	54.4'	116°02.9	80°36.2	49°17.1	44°08.7	15°35.8	90°28.3	95°35.6	
14	149°24.0	10.9'	23°36.2	1.9'	54.4'	115°35.5	80°06.4	48°48.7	43°39.5	16°04.0	90°45.4	96°02.5	
15	163°53.9	10.8'	23°38.1	1.8'	54.5'	115°08.2	79°36.6	48°20.3	43°10.3	16°32.4	91°02.5	96°29.4	
16	178°23.7	10.8'	23°39.9	1.7'	54.5'	114°40.8	79°06.7	47°51.9	42°41.1	17°00.9	91°19.5	96°56.4	
17	192°53.5	10.8'	23°41.5	1.5'	54.5'	114°13.4	78°36.9	47°23.5	42°11.9	17°29.5	91°36.6	97°23.4	
18	207°23.3	10.7'	N23°43.1	1.4'	54.5'	113°46.0	78°07.0	46°55.1	41°42.7	17°58.2	91°53.7	97°50.3	
19	221°53.0	10.7'	23°44.5	1.3'	54.5'	113°18.6	77°37.1	46°26.7	41°13.5	18°26.9	92°10.8	98°17.3	
20	236°22.7	10.7'	23°45.8	1.2'	54.5'	112°51.2	77°07.2	45°58.4	40°44.3	18°55.8	92°27.9	98°44.3	
21	250°52.3	10.6'	23°47.0	1.1'	54.6'	112°23.7	76°37.3	45°30.0	40°15.1	19°24.7	92°45.0	99°11.3	
22	265°22.0	10.6'	23°48.1	1.0'	54.6'	111°56.3	76°07.3	45°01.7	39°45.8	19°53.7	93°02.1	99°38.3	
23	279°51.6	10.6'	23°49.1	0.9'	54.6'	111°28.8	75°37.4	44°33.4	39°16.6	20°22.8	93°19.2	100°05.3	
28 th	SD	= 14.8'	Mer. pass.	03:42					Sun S	D = 16.0'		·	

h Moon (29th Sep)

n		ivioon	ı (29 5e	p)			Lunar	Distance	(objects	with larges	t nourly I	LD deita)	
Sat	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	294°21.2	10.6'	N 23°50.0	0.7'	54.6'	111°01.3	75°07.4	44°05.0	38°47.4		20°52.0	93°36.3	100°32.3
1	308°50.7	10.5'	23°50.7	0.6'	54.6'	110°33.7	74°37.4	43°36.7	38° 18.2		21°21.2	93°53.4	100°59.3
2	323°20.3	10.5'	23°51.3	0.5'	54.7'	110°06.2	74°07.4	43°08.5	37°49.0		21°50.4	94°10.5	101°26.3
3	337°49.8	10.5'	23°51.8	0.4'	54.7'	109°38.6	73°37.4	42°40.2	37° 19.8		22°19.8	94°27.6	101°53.4
4	352°19.2	10.5'	23°52.2	0.3'	54.7'	109°11.0	73°07.3	42°11.9	36°50.6		22°49.2	94°44.6	102°20.4
5	6°48.7	10.4'	23°52.5	0.2'	54.7'	108°43.4	72°37.2	41°43.7	36°21.5	9°50.1	23°18.6	95°01.7	102°47.5
6	21°18.1	10.4'	N23°52.7	0.0'	54.7'	108° 15.8	72°07.2	41°15.5	35°52.3	10°11.4	23°48.1	95°18.8	103°14.5
7	35°47.5	10.4'	23°52.7	-0.1'	54.8'	107°48.2	71°37.0	40°47.3	35°23.1	10°33.4	24°17.7	95°35.9	103°41.6
8	50°16.9	10.4'	23°52.6	-0.2'	54.8'	107°20.5	71°06.9	40°19.1	34°53.9	10°56.1	24°47.3	95°53.0	104°08.6
9	64°46.2	10.3'	23°52.4	-0.3'	54.8'	106°52.8	70°36.8	39°51.0	34°24.7	11° 19.4	$25^{\circ}16.9$	96°10.0	104°35.7
10	79°15.6	10.3'	23°52.1	-0.4'	54.8'	106°25.1	70°06.6	39°22.8	33°55.6	11°43.2	25°46.6	96°27.1	105°02.8
11	93°44.9	10.3'	23°51.7	-0.6'	54.8'	105°57.3	69°36.4	38°54.7	33°26.4	12°07.5	26°16.3	96°44.1	105°29.9
12	108°14.2	10.3'	N 23°51.1	-0.7'	54.9'	105°29.6	69°06.2	38°26.6	32°57.3	12° 32.2	26°46.1	97°01.2	105°57.0
13	122°43.5	10.3'	23°50.5	-0.8'	54.9'	105°01.8	68°35.9	37°58.6	32°28.1	12°57.4	27°16.0	97°18.2	106°24.1
14	137°12.7	10.2'	23°49.7	-0.9'	54.9'	104°34.0	68°05.7	37°30.6	31°59.0	13°22.9	27°45.8	97°35.2	106°51.1
15	151°42.0	10.2'	23°48.8	-1.0'	54.9'	104°06.2	67°35.4	37°02.6	31°29.9	13°48.8	28°15.8	97°52.2	107°18.2
16	166°11.2	10.2'	23°47.7	-1.1'	55.0'	103°38.3	67°05.1	36°34.6	31°00.8	14° 15.0	28°45.7	98°09.2	107°45.4
17	180°40.4	10.2'	23°46.6	-1.3'	55.0'	103°10.4	66°34.8	36°06.7	30°31.7	14°41.5	29°15.7	98°26.2	108°12.5
18	195°09.6	10.2'	N23°45.3	-1.4'	55.0'	102°42.5	66°04.4	35°38.8	30°02.6	15°08.2	29°45.8	98°43.2	108°39.6
19	209°38.7	10.2'	23°43.9	-1.5'	55.0'	102°14.6	65°34.1	35°11.0	29°33.6	15°35.2	30°15.8	99°00.1	109°06.7
20	224°07.9	10.1'	23°42.4	-1.6'	55.0'	101°46.6	65°03.7	34°43.1	29°04.6	16°02.5	30°46.0	99°17.1	109°33.8
21	238°37.0	10.1'	23°40.8	-1.7'	55.1'	101° 18.7	64°33.2	34°15.4	28° 35.6	16°29.9	31°16.1	99°34.0	110°00.9
22	253°06.2	10.1'	23°39.0	-1.9'	55.1'	100°50.6	64°02.8	33°47.7	28°06.6	16°57.5	31°46.3	99°50.9	110°28.0
23	267°35.3	10.1'	23°37.2	-2.0'	55.1'	100°22.6	63°32.3	33°20.0	27°37.7	17°25.3	32°16.6	100°07.8	110°55.2
29 th	SD	= 14.9'	Mer. pass	. 04:32					Sun	SD = 16.0'			

h Moon ((30 th Sep)	Lunar Distance (ol	bjects with larg	est hourly LD delta)	

Sun	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	282°04.4	10.1'	N 23°35.2	-2.1'	55.1'	99°54.6	63°01.8	32°52.4	27°08.7	17°53.3		32°46.9	111°22.3
1	296°33.5	10.1'	23°33.1	-2.2'	55.2'	99°26.5	62°31.3	32°24.8	26°39.9	18°21.5		33°17.2	111°49.4
2	311°02.5	10.1'	23°30.8	-2.4'	55.2'	98°58.3	62°00.7	31°57.3	26°11.0	18°49.8		33°47.6	112°16.5
3	325°31.6	10.1'	23°28.5	-2.5'	55.2'	98°30.2	61°30.2	31°29.9	25°42.2	19°18.2		34°18.0	112°43.7
4	340°00.7	10.0'	23°26.0	-2.6'	55.2'	98°02.0	60°59.6	31°02.6	$25^{\circ}13.5$	19°46.8		34°48.4	113°10.8
5	354°29.7	10.0'	23°23.4	-2.7'	55.3'	97°33.8	60°28.9	30°35.3	24°44.8	20°15.5		35°18.9	113°37.9
6	8°58.8	10.0'	N23°20.7	-2.8'	55.3'	97°05.6	59°58.3	30°08.0	24°16.1	20°44.3		35°49.4	114°05.0
7	23°27.8	10.0'	23°17.9	-3.0'	55.3'	96°37.4	59°27.6	29°40.9	23°47.5	21°13.2		36°20.0	114°32.1
8	37°56.8	10.0'	23°14.9	-3.1'	55.4'	96°09.1	58°56.9	29°13.8	23°18.9	21°42.3		36°50.6	114°59.3
9	52°25.8	10.0'	23°11.8	-3.2'	55.4'	95°40.7	58°26.2	28°46.9	22°50.5	22°11.5		37°21.2	115°26.4
10	66°54.8	10.0'	23°08.6	-3.3'	55.4'	95°12.4	57°55.4	28°20.0	22°22.1	22°40.7		37°51.9	115°53.5
11	81°23.8	10.0'	23°05.3	-3.4'	55.4'	94°44.0	57°24.6	27°53.2	21°53.8	23°10.1		38°22.6	116°20.6
12	95°52.8	10.0'	N23°01.9	-3.6'	55.5'	94°15.6	56°53.8	27°26.6	21°25.5	23°39.5		38°53.3	116°47.7
13	110°21.8	10.0'	22°58.3	-3.7'	55.5'	93°47.2	56°22.9	27°00.0	20°57.4	24°09.1	25°51.5	39°24.1	117°14.8
14	124°50.8	10.0'	22°54.6	-3.8'	55.5'	93°18.7	55°52.0	26°33.6	20°29.4	24°38.7	26°07.3	39°54.9	117°41.9
15	139°19.8	10.0'	22°50.8	-3.9'	55.5'	92°50.2	55°21.1	26°07.3	20°01.4	25°08.4	26°23.5	40°25.8	118°08.9
16	153°48.8	10.0'	22°46.9	-4.0'	55.6'	92°21.7	54°50.2	25°41.2	19°33.6	25°38.2	26°40.2	40°56.7	118°36.0
17	168°17.8	10.0'	22°42.8	-4.2'	55.6'	91°53.1	54°19.2	25°15.2	19°06.0	26°08.1	26°57.3	41°27.6	119°03.1
18	182°46.7	10.0'	N22°38.7	-4.3'	55.6'	91°24.5	53°48.2	24°49.3	18°38.5	26°38.0	27°14.8	41°58.6	119°30.1
19	197°15.7	10.0'	22°34.4	-4.4'	55.7'	90°55.9	53°17.2	24°23.7	18°11.1	27°08.0	27°32.6	42°29.6	119°57.1
20	211°44.7	10.0'	22°30.0	-4.5'	55.7'	90°27.2	52°46.1	23°58.2	17°43.9	27°38.1	27°50.9	43°00.7	
21	226°13.7	10.0'	22°25.5	-4.6'	55.7'	89°58.5	52°15.0	23°32.8	17°17.0	28°08.3	28°09.5	43°31.8	
22	240°42.7	10.0'	22°20.8	-4.8'	55.8'	89°29.8	51°43.9	23°07.7	16°50.2	28°38.5	28°28.5	44°02.9	
23	255°11.6	10.0'	22°16.1	-4.9'	55.8'	89°01.0	51°12.7	22°42.8	16°23.6	29°08.8	28°47.9	44°34.1	
30 th	SD	= 15.0'	Mer. pass	. 05:23					Sur	SD = 16.0'			

Moon (1st Oct)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	269°40.6	10.0'	$N22^{\circ}11.2$	-5.0'	55.8'	88°32.2	50°41.5	22°18.2	15°57.3		29°07.5	29°39.2	45°05.3
1	284°09.6	10.0'	22°06.2	-5.1'	55.9'	88°03.4	50°10.3	21°53.8	15°31.3	18°31.0	29°27.5	30°09.6	45°36.6
2	298°38.6	10.0'	22°01.0	-5.2'	55.9'	87°34.5	49°39.1	21°29.6	15°05.6	18° 47.0	29°47.9	30°40.1	46°07.9
3	313°07.6	10.0'	21°55.8	-5.4'	55.9'	87°05.6	49°07.8	21°05.7	14°40.3	19°03.7	30°08.5	31°10.7	46°39.2
4	327°36.5	10.0'	21°50.4	-5.5'	55.9'	86°36.6	48°36.4	20°42.1	14° 15.2	19°21.0	30°29.5	31°41.3	47° 10.6
5	342°05.5	10.0'	21°44.9	-5.6'	56.0'	86°07.6	48°05.1	20°18.9	13°50.7	19°38.9	30°50.7	32°12.0	47°42.0
6	356°34.5	10.0'	N 21°39.3	-5.7'	56.0'	85°38.6	47°33.7	19°55.9	13°26.5	19°57.3	31°12.2	32°42.8	48° 13.5
7	11°03.5	10.0'	21°33.6	-5.8'	56.0'	85°09.6	47°02.3	19°33.3	13°02.8	20°16.3	31°34.1	33°13.6	48°45.0
8	25°32.5	10.0'	21°27.8	-6.0'	56.1'	84°40.5	46°30.8	19°11.2	12°39.7	20°35.8	31°56.1	33°44.4	49° 16.5
9	40°01.6	10.0'	21°21.8	-6.1'	56.1'	84°11.4	45°59.3	18°49.4	12° 17.2	20°55.8	32°18.5	34°15.4	49°48.1
10	54°30.6	10.0'	21°15.8	-6.2'	56.1'	83°42.2	45°27.8	18°28.0	11°55.4	21°16.3	32°41.1	34°46.3	50° 19.7
11	68°59.6	10.0'	21°09.6	-6.3'	56.2'	83°13.0	44°56.3	18°07.1	11°34.2	21°37.3	33°04.0	35°17.4	50°51.4
12	83°28.6	10.0'	N21°03.3	-6.4'	56.2'	82°43.7	44°24.7	17°46.8	11°13.9	21°58.6	33°27.1	35°48.5	51°23.1
13	97°57.7	10.0'	20°56.8	-6.5'	56.2'	82°14.5	43°53.1	17°26.9	10°54.5	22°20.4	33°50.4	36°19.6	51°54.8
14	112°26.7	10.0'	20°50.3	-6.7'	56.3'	81°45.1	43°21.4	17°07.6		22°42.7	34°14.0	36°50.9	52°26.6
15	126°55.7	10.1'	20°43.6	-6.8'	56.3'	81°15.8	42°49.7	16°48.9		23°05.2	34°37.8	37°22.1	52°58.4
16	141°24.8	10.1'	20°36.9	-6.9'	56.3'	80°46.4	42°18.0	16°30.9		23°28.2	35°01.8	37°53.4	53°30.3
17	155°53.9	10.1'	20°30.0	-7.0'	56.4'	80°16.9	41°46.2	16°13.5		23°51.5	35°26.0	38°24.8	54°02.2
18	170°22.9	10.1'	N20°23.0	-7.1'	56.4'	79°47.4	41°14.4	15°56.8		24°15.2	35°50.4	38°56.3	54°34.2
19	184°52.0	10.1'	20° 15.9	-7.2'	56.5'	79°17.9	40°42.6	15°40.9		24°39.2	36°15.1	39°27.7	55°06.2
20	199°21.1	10.1'	20°08.6	-7.3'	56.5'	78°48.4	40°10.7	15°25.8		25°03.5	36°39.9	39°59.3	55°38.3
21	213°50.2	10.1'	20°01.3	-7.5'	56.5'	78°18.8	39°38.8			25°28.1	37°05.0	40°30.9	56° 10.4
22	228°19.3	10.1'	19°53.8	-7.6'	56.6'	77°49.1	39°06.9			25°53.0	37°30.2	41°02.5	56°42.5
23	242°48.4	10.1'	19°46.3	-7.7'	56.6'	77°19.4	38°34.9			26°18.2	37°55.6	41°34.2	57° 14.7
1 st	SD	= 15.2'	Mer. pass	. 06:14					Sur	SD = 16.0'			

h		Моо	n (2 nd Oc	t)			Lunar	Distance	objects	s with larges	t hourly L	.D delta)	
Tue	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Regulus	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	257°17.6	10.1'	N 19°38.6	-7.8'	56.6'	100°18.1	76°49.7	38°02.9		26°43.6	38°21.2	42°06.0	57°46.9
1	271°46.7	10.1'	19°30.8	-7.9'	56.7'	99°57.4	76°19.9	37°30.9		27°09.4	38° 46.9	42°37.8	58°19.2
2	286°15.8	10.2'	19°22.9	-8.0'	56.7'	99°36.6	75°50.1	36°58.8		27°35.3	39°12.9	43°09.6	58°51.5
3	300°45.0	10.2'	19° 14.8	-8.1'	56.7'	99°15.7	75°20.3	36°26.7		28°01.5	39°39.0	43°41.6	59°23.9
4	315°14.2	10.2'	19°06.7	-8.2'	56.8'	98°54.8	74°50.4	35°54.5		28°28.0	40°05.2	44° 13.5	59°56.3
5	329°43.3	10.2'	$18^{\circ}58.5$	-8.4'	56.8'	98°33.8	74°20.4	35°22.3		28°54.6	40°31.7	44° 45.5	60°28.7
6	344°12.5	10.2'	N 18°50.1	-8.5'	56.9'	98°12.8	73°50.5	34°50.1		29°21.5	40°58.2	45° 17.6	61°01.2
7	358°41.7	10.2'	18°41.7	-8.6'	56.9'	97°51.7	73°20.4	34°17.9		29°48.6	41°25.0	45°49.7	61°33.8
8	13°10.9	10.2'	18°33.1	-8.7'	56.9'	97°30.6	72°50.4	33°45.6		30°15.9	41°51.9	46°21.9	62°06.4
9	27°40.1	10.2'	18°24.4	-8.8'	57.0'	97°09.4	72°20.2	33°13.3		30°43.4	42° 18.9	46°54.1	62°39.0
10	42°09.4	10.2'	$18^{\circ}15.6$	-8.9'	57.0'	96°48.2	71°50.1	32°40.9		31°11.0	42°46.1	47° 26.4	63°11.7
11	56°38.6	10.2'	18°06.7	-9.0'	57.0'	96°26.9	71°19.9	32°08.6		31°38.9	43°13.4	47°58.8	63°44.4
12	71°07.8	10.3'	N17°57.7	-9.1'	57.1'	96°05.5	70°49.6	31°36.1		32°06.9	43°40.9	48°31.2	64°17.2
13	85°37.1	10.3'	17°48.6	-9.2'	57.1'	95°44.1	70°19.3	31°03.7		32°35.1	44°08.5	49°03.6	64°50.0
14	100°06.4	10.3'	17°39.4	-9.3'	57.2'	95°22.7	69°49.0	30°31.2		33°03.5	44°36.2	49°36.1	65°22.9
15	114°35.7	10.3'	17°30.1	-9.4'	57.2'	95°01.2	69°18.6	29°58.7		33°32.1	45°04.1	50°08.6	65°55.8
16	129°04.9	10.3'	17°20.6	-9.5'	57.2'	94°39.7	68°48.2	29°26.2	11°52.3	34°00.8	45°32.0	50°41.2	66°28.8
17	143°34.2	10.3'	$17^{\circ}11.1$	-9.6'	57.3'	94°18.1	68°17.7	28°53.6	12°15.0	34°29.6	46°00.2	51°13.9	67°01.8
18	158°03.6	10.3'	$N17^{\circ}01.5$	-9.7'	57.3'	93°56.5	67°47.2	28°21.0	12°38.4	34°58.6	46°28.4	51°46.6	67°34.9
19	172°32.9	10.3'	$16^{\circ}51.7$	-9.8'	57.4'	93°34.8	67°16.7	27°48.4	13°02.6	35°27.8	46° 56.8	52° 19.4	68°08.0
20	187°02.2	10.3'	$16^{\circ}41.9$	-9.9'	57.4'	93°13.1	66°46.0	27°15.7	13°27.5	35°57.1	47°25.3	52° 52.2	68°41.2
21	201°31.6	10.4'	16°31.9	-10.0'	57.4'	92°51.4	66°15.4	26°43.1	13°52.9	36°26.5	47°53.9	53°25.0	69°14.4
22	216°00.9	10.4'	$16^{\circ}21.9$	-10.1'	57.5'	92°29.6	65°44.7	26°10.4	14° 18.9	36°56.1	48° 22.6	53° 57.9	69°47.6
23	230°30.3	10.4'	$16^{\circ}11.8$	-10.2'	57.5'	92°07.8	65°13.9	25°37.7	14° 45.5	37°25.8	48°51.4	54°30.9	70°20.9
2 nd	SD	= 15.4	Mer. pas	s. 07:05					Sur	SD = 16.0'			

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

Wed	GHA	ν	Dec	d	HP -Acrux -Sun -Regulus +Pollux +Betelgeuse +Capella +Aldebaran								+Saturn
0	244°59.6	10.4'	$N16^{\circ}01.5$	-10.3'	57.5'	91°45.9	64°43.1	25°04.9	15°12.5	37°55.6	49°20.3	55°03.9	70°54.3
1	259°29.0	10.4'	15°51.2	-10.4'	57.6'	91°24.0	64°12.3	24°32.2	15°39.9	38°25.6	49°49.4	55°37.0	71°27.7
2	273°58.4	10.4'	15°40.7	-10.5'	57.6'	91°02.1	63°41.4	23°59.4	16°07.8	38°55.7	50° 18.6	56°10.1	72°01.2
3	288°27.8	10.4'	15°30.2	-10.6'	57.7'	90°40.1	63°10.5	23°26.6	16°36.0	39°25.9	50°47.8	56°43.3	72°34.7
4	302°57.2	10.4'	$15^{\circ}19.6$	-10.7'	57.7'	90°18.1	62°39.5	22°53.8	17°04.6	39°56.2	51° 17.2	57°16.5	73°08.2
5	$317^{\circ}26.6$	10.4'	$15^{\circ}08.8$	-10.8'	57.7'	89°56.0	62°08.5	22°21.0	17°33.5	40°26.6	51°46.7	57°49.8	73°41.8
6	331°56.0	10.4'	N 14°58.0	-10.9'	57.8'	89°34.0	61°37.4	21°48.2	18°02.8	40°57.2	52°16.3	58°23.2	74°15.5
7	346°25.5	10.4'	$14^{\circ}47.1$	-11.0'	57.8'	89°11.9	61°06.3	21°15.3	18°32.3	41°27.8	52°46.0	58°56.5	74°49.2
8	0°54.9	10.4'	14°36.1	-11.1'	57.9'	88°49.7	60°35.1	20°42.5	19°02.1	41°58.6	53° 15.8	59°30.0	75°22.9
9	15°24.4	10.5'	14°25.0	-11.2'	57.9'	88°27.6	60°03.9	20°09.7	19°32.1	42°29.5	53°45.6	60°03.5	75°56.7
10	29°53.8	10.5'	14°13.8	-11.3'	57.9'	88°05.4	59°32.6	19°36.9	20°02.4	43°00.5	54° 15.6	60°37.0	76°30.6
11	44°23.3	10.5'	14°02.5	-11.4'	58.0'	87°43.2	59°01.3	19°04.1	20°32.9	43°31.6	54° 45.7	61°10.6	77°04.5
12	58°52.7	10.5'	$N13^{\circ}51.1$	-11.5'	58.0'	87°20.9	58°29.9	18°31.3	21°03.6	44°02.8	55° 15.9	61°44.3	77°38.4
13	73°22.2	10.5'	13°39.6	-11.6'	58.1'	86°58.7	57°58.5	17°58.5	21°34.5	44°34.0	55°46.1	62°18.0	78°12.4
14	87°51.7	10.5'	13°28.0	-11.7'	58.1'	86°36.4	57°27.1	17°25.8	22°05.6	45°05.4	56° 16.5	62°51.7	78°46.5
15	102°21.2	10.5'	13°16.4	-11.7'	58.1'	86°14.1	56°55.6	16°53.1	22°36.9	45°36.9	56°46.9	63°25.6	79°20.6
16	$116^{\circ}50.7$	10.5'	13°04.6	-11.8'	58.2'	85°51.8	56°24.0	16°20.5	23°08.4	46°08.5	57° 17.5	63°59.4	79°54.7
17	131°20.1	10.5'	12°52.8	-11.9'	58.2'	85°29.4	55°52.4	15°47.9	23°40.0	46°40.2	57°48.1	64°33.3	80°28.9
18	145°49.6	10.5'	N12°40.9	-12.0'	58.3'	85°07.1	55°20.8	15°15.4	24°11.8	47°11.9	58° 18.8	65°07.3	81°03.2
19	$160^{\circ}19.1$	10.5'	12°28.9	-12.1'	58.3'	84°44.7	54°49.1	14°42.9	24°43.7	47°43.8	58°49.6	65°41.3	81°37.5
20	174°48.6	10.5'	$12^{\circ}16.8$	-12.2'	58.3'	84°22.3	54°17.3	14°10.6	25°15.8	48°15.7	59° 20.5	66°15.4	82°11.9
21	189°18.1	10.5'	12°04.7	-12.2'	58.4'	83°59.9	53°45.6	13°38.4	25°48.0	48°47.8	59°51.4	66°49.5	82°46.3
22	203°47.7	10.5'	11°52.4	-12.3'	58.4'	83°37.5	53° 13.7	13°06.3	26°20.4	49°19.9	60°22.5	67°23.7	83°20.7
23	218°17.2	10.5'	11°40.1	-12.4'	58.5'	83°15.1	52°41.8	12°34.4	26°52.9	49°52.1	60°53.6	67°57.9	83°55.2
3 rd	SD	= 15.7	Mer. pas	s. 07:56					Su	n SD $= 16.0'$			

h Moon (4th Oct)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Regulus	+Procyon	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	232°46.7	10.5'	N11°27.7	-12.5'	58.5'	82°52.7	52°09.9	12°02.7	25°29.6	27°25.5	50°24.4	68°32.2	84°29.8
1	247°16.2	10.5'	11° 15.2	-12.6'	58.5'	82°30.2	51°37.9	11°31.2	25°58.6	27°58.2	50°56.8	69°06.5	85°04.4
2	261°45.7	10.5'	11°02.6	-12.6'	58.6'	82°07.8	51°05.9	11°00.0	26° 27.9	28°31.0	51°29.2	69°40.9	85°39.0
3	276°15.2	10.5'	$10^{\circ}50.0$	-12.7'	58.6'	81°45.4	50°33.8	10°29.0	26°57.4	29°04.0	52°01.8	70°15.4	86°13.7
4	290°44.7	10.5'	10°37.3	-12.8'	58.7'	81°22.9	50°01.7	9°58.5	27°27.2	29°37.1	52°34.4	70°49.9	86°48.5
5	305°14.2	10.5'	10°24.5	-12.9'	58.7'	81°00.5	49°29.6	9°28.4	27°57.2	30°10.2	53°07.1	71°24.4	87°23.3
6	319°43.7	10.5'	$N10^{\circ}11.6$	-12.9'	58.7'	80°38.0	48°57.3	8°58.8	28°27.4	30°43.5	53°39.9	71°59.0	87°58.2
7	334°13.2	10.5'	09°58.7	-13.0'	58.8'	80°15.6	48°25.1	8°29.9	28° 57.8	31°16.9	54°12.7	72°33.6	88°33.1
8	348°42.7	10.5'	09°45.7	-13.1'	58.8'	79°53.1	47°52.8	8°01.6	29°28.4	31°50.4	54°45.7	73°08.3	89°08.0
9	3°12.2	10.5'	09°32.6	-13.2'	58.9'	79°30.7	47°20.4	7°34.3	29°59.2	32°23.9	55°18.7	73°43.1	89°43.0
10	17°41.7	10.5'	09°19.4	-13.2'	58.9'	79°08.3	46°48.0		30°30.2	32°57.6	55°51.8	74°17.9	90°18.1
11	32°11.2	10.5'	09°06.2	-13.3'	58.9'	78°45.9	46°15.6		31°01.3	33°31.4	56°24.9	74°52.7	90°53.2
12	46°40.7	10.5'	N 08°52.9	-13.4'	59.0'	78°23.5	45°43.1		31°32.6	34°05.2	56°58.1	75°27.6	91°28.3
13	61°10.2	10.5'	08°39.6	-13.4'	59.0'	78°01.1	45°10.6		32°04.1	34°39.1	57°31.4	76°02.6	92°03.5
14	75°39.6	10.5'	$08^{\circ}26.1$	-13.5'	59.1'	77°38.7	44°38.0		32° 35.8	35°13.2	58°04.8	76°37.6	92°38.8
15	90°09.1	10.5'	$08^{\circ}12.6$	-13.6'	59.1'	77°16.3	44°05.4		33°07.6	35°47.2	58°38.3	77°12.6	93°14.1
16	104°38.5	10.4'	$07^{\circ}59.1$	-13.6'	59.1'	76°54.0	43°32.7		33°39.5	36°21.4	59°11.8	77°47.7	93°49.4
17	119°08.0	10.4'	07°45.5	-13.7'	59.2'	76°31.7	43°00.0		34°11.6	36°55.7	59°45.4	78°22.9	94°24.8
18	133°37.4	10.4'	N 07°31.8	-13.7'	59.2'	76°09.4	42°27.3		34°43.8	37°30.0	60°19.0	78°58.1	95°00.3
19	148°06.8	10.4'	$07^{\circ}18.1$	-13.8'	59.3'	75°47.1	41°54.5		35° 16.2	38°04.4	60°52.7	79°33.3	95°35.8
20	162°36.2	10.4'	07°04.3	-13.8'	59.3'	75°24.8	41°21.7		35°48.7	38°38.9	61°26.5	80°08.6	96°11.3
21	177°05.6	10.4'	$06^{\circ}50.4$	-13.9'	59.3'	75°02.6	40°48.8		36°21.3	39°13.5	62°00.3	80°44.0	96°46.9
22	191°35.0	10.4'	06°36.5	-14.0'	59.4'	74°40.4	40°15.9		36°54.1	39°48.1	62°34.3	81°19.3	97°22.6
23	206°04.4	10.4'	06°22.6	-14.0'	59.4'	74°18.3			37°26.9	40°22.8	63°08.2	81°54.8	97°58.2
4 th	SD	= 16.0'	Mer. pas	s. 08:47					Sun	SD = 16.0'			

Moon (5th Oct)

h

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Acrux	+Regulus	+Procyon	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	220°33.7	10.3'	N06°08.6	-14.1'	59.4'	73°56.1	Trogular	37°59.9	40°57.6	63°42.3	74° 15.9	82°30.3	98°34.0
0	235°03.1		05°54.5									83°05.8	
1	249°32.4	10.3'		-14.1'	59.5'	73°34.1		38°33.0	41°32.5 42°07.4	64°16.4	74°48.9		99°09.8
2	264° 01.7	10.3'	05°40.4	-14.2'	59.5'	73°12.0 72°50.0		39°06.2		64°50.5	75°21.9	83°41.4	99°45.6
3		10.3'	05°26.2	-14.2'	59.6'			39°39.6	42°42.4	65°24.7	75°54.9	84°17.0	100°21.5
4	278°31.0	10.3'	05°12.0	-14.3'	59.6'	72°28.1		40°13.0	43°17.4	65°59.0	76°28.1	84°52.7	100°57.4
5	293°00.3	10.3'	04°57.7	-14.3'	59.6'	72°06.1		40°46.5	43°52.5	66°33.4	77°01.3	85°28.4	101°33.3
6	307°29.6	10.2'	N 04°43.4	-14.4'	59.7'	71°44.3		41°20.2	44°27.7	67°07.8	77°34.5	86°04.2	102°09.3
7	321°58.8	10.2'	04°29.1	-14.4'	59.7'	71°22.5	8°43.6	41°53.9	45°02.9	67°42.2	78°07.8	86°40.0	102°45.4
8	336°28.0	10.2'	04°14.7	-14.4'	59.7'	71°00.7	9°13.9	42°27.7	45°38.2	68°16.8	78°41.1	87°15.9	103°21.5
9	350°57.2	10.2'	04°00.3	-14.5'	59.8'	70°39.0	9°44.9	43°01.6	46°13.6	68°51.3	79° 14.5	87°51.8	103°57.6
10	5°26.4	10.2'	03°45.8	-14.5'	59.8'	70°17.4	10°16.5	43°35.6	46°49.0	69°26.0	79°48.0	88°27.8	104°33.8
11	19°55.5	10.1'	03°31.3	-14.6'	59.8'	69°55.8	10°48.6	44°09.7	47°24.5	70°00.6	80°21.5	89°03.8	105°10.1
12	34°24.7	10.1'	N 03°16.7	-14.6'	59.9'	69°34.3	11°21.2	44°43.9	48°00.0	70°35.4	80°55.0	89°39.8	105°46.3
13	48°53.8	10.1'	$03^{\circ}02.1$	-14.6'	59.9'	69°12.8	11°54.2	45°18.2	48°35.6	71°10.2	81°28.6	90°15.9	106°22.6
14	63°22.9	10.1'	02°47.5	-14.7'	59.9'	68°51.5	12°27.5	45°52.5	49°11.3	71°45.0	82°02.3	90°52.0	106°59.0
15	77°51.9	10.0'	02°32.9	-14.7'	60.0'	68°30.2	13°01.1	46°27.0	49°47.0	72°19.9	82°36.0	91°28.2	107°35.4
16	92°20.9	10.0'	$02^{\circ}18.2$	-14.7'	60.0'	68°08.9	13°35.0	47°01.5	50°22.8	72°54.9	83°09.7	92°04.4	108° 11.8
17	106°49.9	10.0'	02°03.5	-14.7'	60.0'	67°47.8	14°09.2	47°36.1	50°58.6	73°29.9	83°43.5	92°40.7	108°48.3
18	121°18.9	9.9'	N 01°48.7	-14.8'	60.1'	67°26.7	14°43.6	48° 10.8	51°34.4	74°04.9	84° 17.4	93°17.0	109°24.9
19	135°47.9	9.9'	01°33.9	-14.8'	60.1'	67°05.8	15°18.2	48° 45.5	52°10.4	74°40.0	84°51.2	93°53.3	110°01.4
20	150°16.8	9.9'	$01^{\circ}19.1$	-14.8'	60.1'	66°44.9	15°52.9	49°20.3	52°46.3	75°15.2	85°25.2	94°29.7	110°38.0
21	164°45.7	9.9'	01°04.3	-14.8'	60.2'	66°24.1	16°27.9	49°55.2	53°22.4	75°50.3	85°59.1	95°06.1	111°14.7
22	179°14.5	9.8'	00°49.5	-14.9'	60.2'	66°03.4	17°03.0	50°30.2	53°58.4	76°25.6	86°33.1	95°42.6	111°51.3
23	193°43.3	9.8'	00°34.6	-14.9'	60.2'	65°42.7	17°38.3	51°05.2	54°34.6	77°00.9	87°07.2	96°19.0	112°28.1
5 th	SD	= 16.2	Mer. pas	s. 09:37									

h Moon (6th Oct)

Sat	GHA	ν	Dec	d	HP	-Acrux	+Regulus	+Procyon	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	208°12.1	9.8'	N 00°19.8	-14.9'	60.3'	65°22.2	18° 13.6	51°40.3	55°10.7	77°36.2	87°41.2	96°55.6	113°04.8
1	222°40.9	9.7'	N 00°04.9	-14.9'	60.3'	65°01.8	18°49.2	52°15.4	55°47.0	78°11.6	88° 15.4	97°32.2	113°41.6
2	237°09.6	9.7'	S 00°10.1	-14.9'	60.3'	64°41.5	19°24.8	52°50.7	56°23.2	78°47.0	88°49.5	98°08.8	114°18.5
3	251°38.3	9.6'	00°25.0	-14.9'	60.3'	64°21.3	20°00.5	53°25.9	56°59.5	79°22.5	89°23.7	98°45.4	114°55.3
4	266°06.9	9.6'	00°39.9	-14.9'	60.4	64°01.3	20°36.4	54°01.3	57°35.9	79°58.0	89°58.0	99°22.1	115°32.2
5	280°35.5	9.6'	00°54.9	-15.0'	60.4	63°41.3	21°12.3	54°36.7	58°12.3	80°33.5	90°32.2	99°58.8	116°09.2
6	295°04.1	9.5'	S 01°09.8	-15.0'	60.4'	63°21.5	21°48.4	55°12.2	58°48.8	81°09.1	91°06.5	100°35.6	116°46.1
7	309°32.6	9.5'	01°24.8	-15.0'	60.5'	63°01.8	22°24.5	55°47.7	59°25.2	81°44.7	91°40.8	101°12.4	117°23.1
8	324°01.1	9.4'	01°39.8	-15.0'	60.5'	62°42.2	23°00.7	56°23.3	60°01.8	82°20.4	92° 15.2	101°49.2	118°00.2
9	338°29.5	9.4'	01°54.7	-15.0'	60.5'	62°22.7	23°37.0	56°58.9	60°38.4	82°56.1	92°49.6	102°26.1	118°37.3
10	352°57.9	9.4'	02°09.7	-15.0'	60.5'	62°03.4	24°13.3	57°34.6	61°15.0	83°31.8	93°24.0	103°02.9	119°14.4
11	7°26.3	9.3'	02°24.7	-15.0'	60.6'	61°44.2	24°49.8	58°10.3	61°51.6	84°07.6	93°58.5	103°39.9	119°51.5
12	21°54.6	9.3'	S 02°39.7	-15.0'	60.6'	61°25.2	25°26.3	58°46.1	62°28.3	84°43.4	94°32.9	104°16.8	
13	36°22.9	9.2'	02°54.6	-15.0'	60.6'	61°06.3	26°02.8	59°22.0	63°05.1	85°19.2	95°07.4	104°53.8	
14	50°51.1	9.2'	03°09.6	-15.0'	60.6'	60°47.6	26°39.4	59°57.9	63°41.8	85°55.1	95°42.0	105°30.8	
15	65°19.3	9.1'	03°24.6	-15.0'	60.7'	60°29.0	27° 16.1	60°33.8	64°18.6	86°31.0	96° 16.5	106°07.9	
16	79°47.5	9.1'	03°39.5	-14.9'	60.7'	60°10.6	27°52.9	61°09.8	64°55.5	87°07.0	96°51.1	106°44.9	
17	94°15.6	9.0'	03°54.5	-14.9'	60.7'	59°52.3	28°29.7	61°45.8	65°32.4	87°43.0	97°25.7	107°22.0	
18	108°43.6	9.0'	S 04°09.4	-14.9'	60.7'	59°34.2	29°06.5	62°21.9	66°09.3	88°19.0	98°00.3	107°59.2	
19	123°11.6	8.9'	04°24.3	-14.9'	60.8'	59°16.3	29°43.4	62°58.0	66°46.2	88°55.0	98°34.9	108°36.3	
20	137°39.5	8.9'	04°39.2	-14.9'	60.8'	58°58.6	30°20.4	63°34.2	67°23.2	89°31.0	99°09.6	109°13.5	
21	152°07.4	8.8'	04°54.1	-14.9'	60.8'	58°41.0	30°57.4	64°10.4	68°00.2	90°07.1	99°44.2	109°50.7	
22	166°35.3	8.8'	$05^{\circ}09.0$	-14.8'	60.8'	58°23.6	31°34.4	64°46.7	68°37.3	90°43.2	100°18.9	110°28.0	
23	181°03.1	8.7'	05°23.8	-14.8'	60.8'	58°06.4	32°11.5	65°22.9	69°14.3	91°19.4	100°53.6	111°05.2	
6 th	SD	= 16.4	' Mer. pas	ss. 10:29									

Moon (7th Oct)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP											
0	195°30.8	8.7'	S 05°38.7	-14.8'	60.9'	57°49.4	32°48.7	65°59.3	69°51.4	91°55.5	100°25.8	101°28.3	111°42.5			
1	209°58.5	8.6'	05°53.5	-14.8'	60.9'	57°32.6	33°25.8	66°35.6	70°28.6	92°31.7	100°57.5	102°03.0	112°19.8			
2	224°26.1	8.6'	06°08.2	-14.7'	60.9'	57° 16.0	34°03.0	67° 12.0	71°05.7	93°07.9	101°29.2	102°37.7	112°57.1			
3	238°53.7	8.5'	06°23.0	-14.7'	60.9'	56° 59.6	34°40.3	67°48.4	71°42.9	93°44.2	102°00.9	103° 12.5	113°34.5			
4	253°21.2	8.5'	06°37.7	-14.7'	60.9'	56°43.4	35°17.6	68°24.9	72°20.1	94°20.4	102°32.6	103°47.2	114°11.8			
5	267°48.7	8.4'	06°52.4	-14.6'	61.0'		_		N	ew Moon ——		·				
6	282°16.1	8.4'	S 07°07.0	-14.6'	61.0'				N	ew Moon						
7	296°43.5	8.3'	07°21.6	-14.6'	61.0'				N	ew Moon						
8	311°10.8	8.2'	07°36.2	-14.5'	61.0'					ew Moon ——						
9	325°38.0	8.2'	07°50.7	-14.5'	61.0'		_			ew Moon ——						
10	340°05.2	8.1'	08°05.2	-14.4'	61.0'	New Moon										
11	354°32.3	8.1'	$08^{\circ}19.6$	-14.4'	61.0'	New Moon										
12	8°59.4	8.0'	S 08°34.0	-14.4'	61.1'					ew Moon ——						
13	23°26.4	7.9'	08°48.4	-14.3'	61.1'		_			ew Moon						
14	37°53.3	7.9'	09°02.7	-14.2'	61.1'					ew Moon ——						
15	52°20.2	7.8'	$09^{\circ}16.9$	-14.2'	61.1'		_			ew Moon ——						
16	66°47.0	7.8'	09°31.1	-14.1'	61.1'		_			ew Moon ——						
17	81°13.7	7.7'	09°45.3	-14.1'	61.1'		_			ew Moon ——						
18	95°40.4	7.6'	S 09°59.4	-14.0'	61.1'					ew Moon ——						
19	110°07.1	7.6'	10°13.4	-14.0'	61.1'	.1' New Moon ———										
20	124°33.6	7.5'	10°27.4	-13.9'	61.1'											
21	139°00.1	7.4'	$10^{\circ}41.3$	-13.8'	61.2'											
22	153°26.5	7.4'	10°55.1	-13.8'	61.2'		_			ew Moon ——						
23	167°52.9	7.3'	11°08.9	-13.7'	61.2'		_		N	ew Moon ——						
7 th	SD	= 16.6	Mer. pas	ss. 11:23												

h		Mod	on (8 th Oo	ct)		L	unar Dis	tance (o	bjects with	largest h	nourly LD	delta)		
Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Vega	-Rigil Kent.	-Mars	-Antares	-Venus	-Jupiter	
0	182°19.2	7.2'	S 11°22.5	-13.6'	61.2'				New Mod	on ———				
1	196°45.4	7.2'	11°36.2	-13.6'	61.2'				New Mod	on ———				
2	211°11.6	7.1'	11°49.7	-13.5'	61.2'				—— New Mo					
3	225°37.7	7.0'	12°03.2	-13.4'	61.2'									
4	240°03.8	7.0'	$12^{\circ}16.6$	-13.3'	61.2'									
5	254°29.7	6.9'	$12^{\circ}29.9$	-13.2'	61.2'				—— New Mo	on ———				
6	268°55.6	6.8'	S 12°43.2	-13.2'	61.2'									
7	283°21.5	6.8'	12°56.3	-13.1'	61.2'				New Mod	on ———				
8	297°47.2	6.7'	13°09.4	-13.0'	61.2'									
9	312°12.9	6.6'	13°22.4	-12.9'	61.2'									
10	326°38.6	6.6'	13°35.3	-12.8'	61.2'	New Moon								
11	341°04.1	6.5'	13°48.1	-12.7'	61.2'		98°38.1	89°41.7	49°09.3	45°49.0	45°12.4	36°30.5	9°49.3	
12	355°29.7	6.4'	S 14°00.8	-12.6'	61.2'		98°04.1	89°22.6	48°49.5	45°12.7	44°34.4	35°55.2	9°17.7	
13	9°55.1	6.4'	14°13.4	-12.5'	61.2'		97°30.1	89°03.5	48° 29.9	44°36.4	43°56.4	35° 19.8	8°46.9	
14	24°20.5	6.3'	14°25.9	-12.4'	61.2'		96°56.0	88°44.4	48° 10.5	44°00.1	43° 18.5	34°44.4	8°17.0	
15	38°45.8	6.2'	14°38.4	-12.3'	61.2'		96°22.0	88°25.4	47°51.5	43°23.8	42°40.5	34°09.1		
16	53°11.0	6.2'	14°50.7	-12.2'	61.2'		95°48.0	88°06.3	47° 32.7	42°47.5	42°02.6	33°33.7		
17	67°36.2	6.1'	$15^{\circ}02.9$	-12.1'	61.2'		95°14.0	87°47.2	47° 14.3	42°11.2	41°24.7	32°58.4		
18	82°01.3	6.0'	S 15°15.0	-12.0'	61.2'		94°39.9	87°28.2	46°56.1	41°35.0	40°46.7	32°23.0		
19	96°26.3	6.0'	15°27.0	-11.9'	61.2'	119°52.9	94°05.9	87°09.2	46°38.2	40°58.7	40°08.8	31°47.7		
20	110°51.3	5.9'	15°39.0	-11.8'	61.2'	119°20.0	93°31.8	86°50.2	46°20.7	40°22.5	39°30.9	31°12.3		
21	125°16.2	5.8'	15°50.8	-11.7'	61.2'	118°47.0	92°57.8	86°31.2	46°03.5	39°46.2	38°53.0	30°37.0		
22	139°41.0	5.8'	$16^{\circ}02.4$	-11.6'	61.2'	118°13.9	92°23.8	86°12.2	45°46.6	39°10.0	38° 15.1	30°01.7		
23	154°05.8	5.7'	16°14.0	-11.5'	61.2'	117°40.8	91°49.7	85°53.3	45°30.1	38°33.7	37°37.3	29°26.4		
8 th	SD	= 16.7	" Mer. pas	s. 12:19					-					

1	Moon	(Oth	ο·\	
h	Moon	(Qui	()ct)	

Lunar Distance (objects with	largest hour	ly LD delta)
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- 11		IVIO	ווכ פין ווכ				ullal Disi	tance (or	Jecus Wi	til lalgesi	Lillourry	LD della	
Tue	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Mars	-Antares	-Venus	+Jupiter	+Arcturus
0	168°30.5	5.6'	S 16°25.5	-11.3'	61.2'	117°07.7	109°24.9	91°15.7	37°57.5	36°59.4	28°51.0		
1	182°55.1	5.6'	16°36.8	-11.2'	61.2'	116°34.5	109°06.2	90°41.7	37°21.3	36°21.6	28°15.8		
2	197°19.7	5.5'	16°48.0	-11.1'	61.2'	116°01.2	108°47.4	90°07.7	36°45.1	35°43.7	27°40.5		
3	211°44.2	5.5'	16°59.2	-11.0'	61.1'	115°28.0	108°28.4	89°33.7	36°08.9	35°05.9	27°05.2	İ	
4	226°08.7	5.4'	$17^{\circ}10.1$	-10.9'	61.1'	114° 54.7	108°09.4	88°59.7	35°32.7	34°28.1	26°29.9		
5	240°33.1	5.3'	$17^{\circ}21.0$	-10.7'	61.1'	114°21.3	107°50.2	88°25.7	34°56.6	33°50.3	25°54.7		
6	254°57.4	5.3'	S 17°31.7	-10.6'	61.1'	113°48.0	107°31.0	87°51.7	34°20.4	33°12.6	25°19.5		
7	269°21.7	5.2'	17°42.3	-10.5'	61.1'	113° 14.6	107°11.7	87°17.8	33°44.3	32°34.8	24°44.3		
8	283°45.9	5.2'	17°52.8	-10.4'	61.1'	112°41.2	106°52.3	86°43.8	33°08.1	31°57.1	24°09.1		
9	298°10.1	5.1'	18°03.2	-10.2'	61.1'	112°07.7	106°32.8	86°09.9	32°32.0	31°19.4	23°33.9		
10	312°34.2	5.0'	18°13.4	-10.1'	61.1'	111°34.2	106°13.2	85°36.0	31°56.0	30°41.8	22°58.7		
11	326°58.2	5.0'	18°23.5	-10.0'	61.1'	111°00.7	105°53.6	85°02.2	31°19.9	30°04.1	22°23.6		
12	341°22.2	4.9'	S 18°33.5	-9.8'	61.0'	110°27.2	105°33.8	84°28.3	30°43.8	29°26.5	21°48.5		
13	355°46.1	4.9'	18°43.3	-9.7'	61.0'	109°53.7	105°14.0	83°54.5	30°07.8	28°48.9	21°13.3	9°21.8	
14	10°10.0	4.8'	18°53.0	-9.5'	61.0'	109° 20.2	104°54.1	83°20.7	29°31.8	28°11.3	20°38.3	9°53.3	
15	24°33.8	4.8'	19°02.5	-9.4'	61.0'	108°46.6	104°34.2	82°46.9	28°55.8	27°33.8	20°03.2	10°25.3	
16	38°57.6	4.7'	$19^{\circ}11.9$	-9.3'	61.0'	108° 13.1	104°14.2	82°13.2	28° 19.8	26°56.3	19°28.2	10°57.9	
17	53°21.3	4.7'	19°21.2	-9.1'	61.0'	107°39.5	103°54.1	81°39.5	27°43.9	26°18.8	18°53.1	11°31.0	
18	67°45.0	4.6'	S 19°30.3	-9.0'	61.0'	107°05.9	103°33.9	81°05.8	27°07.9	25°41.4	18°18.1	12°04.4	39°04.8
19	82°08.6	4.6'	19°39.3	-8.8'	60.9'	106° 32.3	103°13.7	80°32.2	26°32.0	25°04.0	17°43.2	12°38.1	39°20.3
20	96°32.2	4.5'	19°48.1	-8.7'	60.9'	105°58.7	102°53.5	79°58.6	25°56.2	24°26.6	17°08.2	13°12.1	39°36.2
21	110°55.7	4.5'	19°56.8	-8.5'	60.9'	105°25.1	102°33.2	79°25.0	25°20.3	23°49.3	16°33.3	13°46.4	39°52.4
22	125°19.2	4.4'	20°05.4	-8.4'	60.9'	104°51.5	102°12.8	78°51.5	24°44.5	23°12.0	15°58.4	14°20.9	40°09.1
23	139°42.6	4.4'	20°13.7	-8.2'	60.9'	104°18.0	101°52.4	78°18.0	24°08.6	22°34.8	15°23.5	14°55.5	40°26.1
9 th	SD	= 16.7	" Mer. pas	ss. 13:18									

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

Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Mars	-Antares	-Venus	+Jupiter	+Sun	+Arcturus
0	154°06.0	4.3'	S 20°22.0	-8.1'	60.8'	103°44.4	77°44.5	23°32.9	21°57.6	14°48.7	15°30.3		40°43.5
1	168°29.3	4.3'	20°30.1	-7.9'	60.8'	103°10.8	$77^{\circ}11.1$	22°57.1	21°20.4	14°13.9	16°05.3		41°01.3
2	182°52.7	4.3'	20°38.0	-7.8'	60.8'	102°37.2	76°37.7	22°21.4	20°43.3	13°39.1	16°40.3		41°19.4
3	$197^{\circ}15.9$	4.2'	20°45.8	-7.6'	60.8'	102°03.6	76°04.4	21°45.7	20°06.2	13°04.4	17°15.5		41°37.9
4	211°39.2	4.2'	20°53.4	-7.5'	60.8'	101°30.0	75°31.1	21°10.0	19°29.2	12°29.7	17°50.7		41°56.6
5	226°02.4	4.2'	$21^{\circ}00.9$	-7.3'	60.7'	100°56.5	74°57.9	20°34.4	18°52.3	11°55.0	18°26.1		42°15.8
6	240°25.5	4.1'	S 21°08.2	-7.2'	60.7'	100°22.9	74°24.7	19°58.7	18°15.4	11°20.4	19°01.5		42°35.2
7	254°48.6	4.1'	21°15.4	-7.0'	60.7'	99°49.4	73°51.5	19°23.1	17°38.6	10°45.8	19°36.9		42°54.9
8	$269^{\circ}11.7$	4.1'	21°22.4	-6.8'	60.7'	99°15.9	73°18.5	18°47.6	17°01.8	10°11.2	20°12.4		43°14.9
9	283°34.8	4.0'	21°29.2	-6.7'	60.7'	98°42.4	72°45.4	18°12.1	16°25.1	9°36.7	20°48.0		43°35.2
10	297°57.8	4.0'	21°35.9	-6.5'	60.6'	98°08.9	72°12.5	17°36.6	15°48.5	9°02.3	21°23.6		43°55.8
11	312°20.8	4.0'	21°42.4	-6.4'	60.6'	97°35.4	71°39.5	17°01.1	15°12.0	8°27.9	21°59.2		44°16.7
12	326°43.8	4.0'	S 21°48.8	-6.2'	60.6'	97°01.9	71°06.7	16°25.7	14°35.5	7°53.5	22°34.8		44°37.8
13	341°06.8	3.9'	21°55.0	-6.0'	60.6'	96°28.5	70°33.9	15°50.3	13°59.2	7°19.2	23°10.5		44°59.2
14	355°29.7	3.9'	22°01.0	-5.9'	60.5'	95°55.1	$70^{\circ}01.1$	15°14.9	13°23.0	6°45.0	23°46.2		45°20.8
15	9°52.7	3.9'	22°06.9	-5.7'	60.5'	95°21.7	69°28.4	14°39.6	12°46.9	6°10.9	24°21.8	40°00.2	45°42.7
16	24°15.6	3.9'	22°12.6	-5.5'	60.5'	94°48.3	68°55.8	14°04.3	12°10.9	5°36.8	24°57.5	40°34.5	46°04.8
17	38°38.4	3.9'	$22^{\circ}18.2$	-5.4'	60.5'	94°15.0	68°23.3	13°29.0	11°35.1	5°02.9	25°33.2	41°08.8	46°27.1
18	53°01.3	3.9'	S 22°23.6	-5.2'	60.4'	93°41.7	67°50.8	12°53.8	10°59.4	4°29.1	26°08.9	41°43.0	46°49.7
19	67°24.2	3.8'	22°28.8	-5.0'	60.4'	93°08.4	67°18.4	12°18.6	10°23.9	3°55.5	26°44.6	42°17.3	47°12.4
20	81°47.0	3.8'	22°33.8	-4.9'	60.4'	92°35.1	66°46.0	11°43.4	9°48.7	3°22.2	27°20.3	42°51.4	47°35.4
21	96°09.9	3.8'	22°38.7	-4.7'	60.3'	92°01.9	66°13.7	11°08.3	9°13.7	2°49.3	27°56.0	43°25.6	47°58.6
22	110°32.7	3.8'	22°43.4	-4.5'	60.3'	91°28.7	65°41.5	10°33.2	8°39.0	2°17.1	28°31.7	43°59.7	48°21.9
23	124°55.5	3.8'	22°47.9	-4.4'	60.3'	90°55.5	65°09.4	9°58.2	8°04.6		29°07.3	44°33.8	48°45.5
10 th	SD =	= 16.6'	Mer. pas	s. 14:19)				Sun SD	= 16.0'			

Moon (11th Oct)

h		Moor	า (11" 0	ct)		L	unar Dis	tance (d	objects wi	th larges	t hourly l	_D delta)
Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	± Mars	± Antares	+Venus	+Jupiter	+Sun	+Arcturus
0	139°18.4	3.8'	S 22°52.3	-4.2'	60.3'	90°22.4	64°37.3	9°23.2	7°30.7		29°43.0	45°07.9	49°09.2
1	153°41.2	3.8'	22°56.5	-4.0'	60.2'	89°49.3	64°05.4	8°48.2	6°57.3		30°18.6	45°41.9	49°33.1
2	168°04.0	3.8'	23°00.6	-3.9'	60.2'	89°16.2	63°33.5	8°13.3	6°24.5		30°54.2	46°16.0	49°57.1
3	182°26.8	3.8'	23°04.4	-3.7'	60.2'	88°43.2	63°01.6	7°38.4	5°52.5		31°29.8	46°49.9	50°21.3
4	196°49.7	3.8'	23°08.1	-3.5'	60.1'	88°10.2	62°29.9	7°03.5			32°05.4	47°23.9	50°45.7
5	211°12.5	3.8'	$23^{\circ}11.7$	-3.4'	60.1'	87°37.2	61°58.3	6°28.7			32°41.0	47°57.8	51°10.2
6	225°35.4	3.9'	S 23°15.0	-3.2'	60.1'	87°04.3	61°26.7	5°53.9			33°16.5	48°31.6	51°34.9
7	239°58.2	3.9'	23°18.2	-3.0'	60.1'	86°31.4	60°55.2	5°19.2		3°06.3	33°52.0	49°05.5	51°59.7
8	254°21.1	3.9'	23°21.2	-2.9'	60.0'	85°58.5	60°23.8	4°44.5		3°39.0	34°27.5	49°39.2	52°24.7
9	268°44.0	3.9'	23°24.1	-2.7'	60.0'	85°25.7	59°52.6	4°09.8		4°11.9	35°02.9	50°13.0	52°49.7
10	283°06.9	3.9'	23°26.8	-2.5'	60.0'	84°53.0	59°21.4	3°35.2		4°45.0	35°38.4	50°46.7	53°14.9
11	297°29.8	3.9'	23°29.3	-2.3'	59.9'	84°20.3	58°50.3	3°00.7		5°18.2	36°13.8	51°20.4	53°40.3
12	311°52.7	4.0'	S 23°31.6	-2.2'	59.9'	83°47.6	58°19.3	2°26.1		5°51.5	36°49.2	51°54.1	54°05.7
13	326°15.7	4.0'	23°33.8	-2.0'	59.9'	83°15.0	57°48.3	1°51.7		6°24.8	37°24.5	52°27.7	54°31.2
14	340°38.7	4.0'	23°35.8	-1.8'	59.8'	82°42.4	57°17.5	1°17.2		6°58.1	37°59.8	53°01.2	54°56.9
15	355°01.7	4.0'	23°37.7	-1.7'	59.8'	82°09.9	56°46.8	0°42.9		7°31.4	38°35.1	53°34.8	55°22.7
16	9°24.7	4.1'	23°39.3	-1.5'	59.8'	81°37.4	56°16.3	0°09.1		8°04.7	39°10.3	54°08.3	55°48.5
17	23°47.8	4.1'	23°40.8	-1.3'	59.7'	81°04.9	55°45.8			8°38.0	39°45.6	54°41.7	56°14.5
18	38°10.9	4.1'	S 23°42.2	-1.2'	59.7'	80°32.6	55°15.4			9°11.2	40°20.8	55°15.1	56°40.5
19	52°34.0	4.2'	23°43.3	-1.0'	59.7'	80°00.2	54°45.1	1°34.5		9°44.4	40°55.9	55°48.5	57°06.6
20	66°57.2	4.2'	23°44.3	-0.8'	59.6'	79°27.9	54°15.0	2°08.7		10°17.6	41°31.0	56°21.8	57°32.9
21	81°20.4	4.3'	23°45.2	-0.7'	59.6'	78°55.7	53°44.9	2°42.9	6°33.6	10°50.8	42°06.1	56°55.1	57°59.1
22	95°43.7	4.3'	23°45.8	-0.5'	59.6'	78°23.5	53°15.0	3°17.0	7°05.9	11°24.0	42°41.1	57°28.4	58°25.5
23	110°07.0	4.3'	23°46.3	-0.3'	59.5'	77°51.4	52°45.2	3°51.0	7°38.6	11°57.1	43°16.2	58°01.6	58°52.0
11 th	SD :	= 16.4'	Mer. pas	s. 15:21					Sun SD	= 16.0'			

h		Moor	n (12 th Oo	ct)			Lunar Di	istance (ob	jects wit	h largest	hourly LI	O delta)	
Fri	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Mars	+Antares	+Jupiter	+Sun
0	124°30.3	4.4'	S 23°46.7	-0.2'	59.5'	88°17.5	84°56.2	77° 19.3	52°15.6	4°25.1	8°11.7	43°51.1	58°34.7
1	138°53.7	4.4'	23°46.9	-0.0'	59.5'	88°02.0	84°35.9	76°47.3	51°46.0	4°59.0	8°45.1	44°26.1	59°07.9
2	153°17.1	4.5'	23°46.9	0.2'	59.4'	87°46.6	84° 15.7	76° 15.4	51°16.6	5°33.0	9° 18.8	45°01.0	59°40.9
3	167°40.6	4.5'	23°46.7	0.3'	59.4'	87°31.2	83°55.6	75°43.5	50°47.4	6°06.9	9°52.7	45°35.8	60°14.0
4	182°04.1	4.6'	23°46.4	0.5'	59.4'	87°15.8	83°35.5	75°11.6	50°18.2	6°40.7	10°26.7	46°10.6	60°47.0
5	196°27.7	4.6'	23°45.9	0.6'	59.3'	87°00.4	83°15.4	74°39.8	49°49.2	7°14.5	11°00.9	46°45.4	61°19.9
6	210°51.3	4.7'	S 23°45.3	0.8'	59.3'	86°45.1	82°55.4	74°08.1	49°20.3	7°48.3	11°35.1	47°20.2	61°52.9
7	225°15.0	4.7'	23°44.5	1.0'	59.3'	86°29.8	82°35.5	73°36.5	48°51.6	8°22.0	12°09.4	47°54.9	62°25.7
8	239°38.8	4.8'	23°43.5	1.1'	59.2'	86°14.6	82°15.6	73°04.9	48°23.1	8°55.6	12°43.8	48°29.5	62°58.6
9	254°02.6	4.9'	23°42.4	1.3'	59.2'	85°59.4	81°55.8	72°33.3	47°54.6	9°29.3	13° 18.3	49°04.2	63°31.3
10	268°26.4	4.9'	23°41.1	1.4'	59.1'	85°44.3	81°36.1	72°01.9	47°26.4	10°02.8	13°52.8	49°38.8	64°04.1
11	282°50.4	5.0'	23°39.7	1.6'	59.1'	85°29.1	81°16.4	71°30.5	46°58.3	10°36.4	14°27.3	50°13.3	64°36.8
12	297°14.4	5.1'	S 23°38.1	1.8'	59.1'	85°14.1	80°56.7	70°59.1	46°30.3	11°09.9	15°01.8	50°47.8	65°09.4
13	311°38.4	5.1'	23°36.3	1.9'	59.0'	84°59.0	80°37.2	70°27.8	46°02.5	11°43.3	15° 36.3	51°22.3	65°42.1
14	326°02.5	5.2'	23°34.4	2.1'	59.0'		80° 17.7	69° 56.6	45°34.9	12°16.7	16° 10.9	51°56.7	66°14.6
15	340°26.7	5.3'	23°32.3	2.2'	59.0'		79°58.2	69°25.5	45°07.5	12°50.1	16°45.4	52°31.1	66°47.2
16	354°51.0	5.3'	23°30.1	2.4'	58.9'		79°38.9	68° 54.4	44°40.2	13°23.4	17° 19.9	53°05.4	67° 19.6
17	9°15.3	5.4'	23°27.8	2.5'	58.9'		79°19.6	68°23.4	44°13.1	13°56.6	17°54.4	53°39.7	67°52.1
18	23°39.7	5.5'	S 23°25.2	2.7'	58.9'		79°00.4	67°52.5	43°46.2	14°29.8	18°29.0	54°14.0	68°24.5
19	38°04.2	5.6'	23°22.6	2.8'	58.8'		78°41.2	67°21.6	43°19.5	15°03.0	19°03.5	54°48.2	68° 56.8
20	52°28.8	5.6'	23°19.8	3.0'	58.8'		78°22.1	66° 50.8	42°52.9	15°36.1	19°37.9	55°22.4	69°29.1
21	66°53.4	5.7'	23°16.8	3.1'	58.8'		78°03.1	66°20.1	42°26.6	16°09.2	20° 12.4	55°56.5	70°01.4
22	81°18.1	5.8'	23°13.7	3.3'	58.7'		77°44.2	65°49.5	42°00.5	16°42.3	20°46.8	56°30.6	70°33.6
23	95°42.9	5.9'	23°10.4	3.4'	58.7'		77°25.4	65° 18.9	41°34.6	17°15.3	21°21.2	57°04.6	71°05.8
12 th													

h	Moon	(13 th	Oct)	i

Lunar Distance (objects with largest hourly LD delta) -Deneb -Fomalhaut -Altair +Mars +Antares +Venus +Jupiter

Sat	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Mars	+Antares	+Venus	+Jupiter	+Sun
0	110°07.7	5.9'	S 23°07.0	3.5'	58.6'	77°06.6	64°48.4	41°08.8	17°48.2	21°55.6	25°31.7	57°38.6	71°37.9
1	124°32.7	6.0'	23°03.5	3.7'	58.6'	76°47.9	64°18.0	40°43.3	18°21.1	22°30.0	26°03.7	58°12.6	72°10.0
2	138°57.7	6.1'	22°59.8	3.8'	58.6'	76°29.3	63°47.7	40°18.1	18°54.0	23°04.3	26°35.7	58°46.5	72°42.1
3	153°22.8	6.2'	22°56.0	4.0'	58.5'	76°10.8	63°17.4	39°53.0	19°26.8	23°38.6	27°07.6	59°20.4	73° 14.1
4	167°48.0	6.3'	22°52.0	4.1'	58.5'	75°52.3	62°47.3	39°28.2	19°59.6	24°12.9	27°39.5	59°54.3	73°46.0
5	182°13.3	6.4'	22°47.9	4.2'	58.5'	75°34.0	62°17.2	39°03.6	20°32.3	24°47.1	28°11.4	60°28.0	74°17.9
6	196°38.7	6.5'	S 22°43.6	4.4'	58.4'	75°15.7	61°47.2	38°39.3	21°05.0	25°21.4	28°43.2	61°01.8	74°49.8
7	211°04.1	6.5'	22°39.2	4.5'	58.4'	74°57.6	61°17.2	38°15.2	21°37.6	25°55.5	29°15.0	61°35.5	75°21.6
8	225°29.7	6.6'	22°34.7	4.7'	58.3'	74°39.5	60°47.4	37°51.4	22°10.2	26°29.7	29°46.7	62°09.2	75°53.4
9	239°55.3	6.7'	22°30.1	4.8'	58.3'	74°21.5	60°17.7	37°27.8	22°42.7	27°03.8	30°18.4	62°42.8	76°25.2
10	254°21.0	6.8'	22°25.3	4.9'	58.3'	74°03.6	59°48.0	37°04.5	23°15.2	27°37.8	30°50.0	63°16.4	76°56.9
11	268°46.8	6.9'	22°20.4	5.1'	58.2'	73°45.8	59°18.4	36°41.5	23°47.7	28°11.9	31°21.6	63°49.9	77°28.5
12	283°12.7	7.0'	S 22°15.3	5.2'	58.2'	73°28.1	58°48.9	36°18.7	24°20.1	28°45.9	31°53.1	64°23.4	78°00.1
13	297°38.7	7.1'	$22^{\circ}10.1$	5.3'	58.2'	73°10.5	58°19.5	35°56.3	24°52.5	29°19.8	32°24.7	64°56.9	78°31.7
14	312°04.8	7.2'	22°04.8	5.4'	58.1'	72°53.0	57°50.2	35°34.1	25°24.8	29°53.8	32°56.1	65°30.3	79°03.2
15	326°31.0	7.3'	$21^{\circ}59.4$	5.6'	58.1'	72°35.6	57°21.0	35°12.3	25°57.1	30°27.6	33°27.5	66°03.7	79°34.7
16	340°57.3	7.4'	21°53.8	5.7'	58.1'	72°18.2	56°51.9	34°50.7	26°29.3	31°01.5	33°58.9	66°37.0	80°06.1
17	355°23.6	7.5'	21°48.1	5.8'	58.0'	72°01.0	56°22.9	34°29.5	27°01.5	31°35.3	34°30.2	67°10.3	80°37.5
18	9°50.1	7.6'	S 21°42.3	5.9'	58.0'	71°43.9	55°54.0	34°08.6	27°33.7	32°09.1	35°01.5	67°43.5	81°08.9
19	24°16.6	7.6'	21°36.4	6.1'	57.9'	71°26.9	55°25.1	33°48.1	28°05.8	32°42.8	35°32.8	68°16.8	81°40.2
20	38°43.3	7.7'	21°30.3	6.2'	57.9'	71°10.0	54°56.4	33°27.8	28°37.8	33°16.5	36°04.0	68°49.9	82°11.5
21	53°10.0	7.8'	21°24.2	6.3'	57.9'	70°53.2	54°27.8	33°08.0	29°09.9	33°50.2	36°35.2	69°23.0	82°42.7
22	67°36.8	7.9'	21°17.9	6.4'	57.8'	70°36.5	53°59.3	32°48.5	29°41.8	34°23.8	37°06.3	69°56.1	83°13.9
23	82°03.8	8.0'	21°11.5	6.5'	57.8'	70°20.0	53°30.9	32°29.3	30°13.8	34°57.4	37°37.4	70°29.2	83°45.0
13 th	SD =	= 16.0′	Mer. pass	s. 17:19	9				Sun SD	= 16.0'			

Moon (14th Oct)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Mars	+Antares	+Jupiter	+Sun
0	96°30.8	8.1'	S 21°05.0	6.6'	57.8'		70°03.5	53°02.6	32°10.6	30°45.7	35°31.0	71°02.2	84°16.1
1	110°57.9	8.2'	20°58.3	6.7'	57.7'		69°47.1	52°34.4	31°52.2	31°17.5	36°04.5	71°35.1	84°47.2
2	125°25.2	8.3'	$20^{\circ}51.6$	6.9'	57.7'		69°30.9	52°06.3	31°34.3	31°49.3	36° 37.9	72°08.0	85°18.2
3	139°52.5	8.4'	20°44.7	7.0'	57.7'		69°14.8	51°38.3	31°16.7	32°21.1	37° 11.4	72°40.9	85°49.1
4	154°19.9	8.5'	20°37.7	7.1'	57.6'		68°58.8	51°10.5	30°59.6	32°52.8	37°44.8	73°13.8	86°20.1
5	168°47.4	8.6'	20°30.7	7.2'	57.6'		68°42.9	50°42.7	30°42.8	33°24.5	38° 18.1	73°46.5	86°51.0
6	183°15.0	8.7'	S 20°23.5	7.3'	57.6'		68°27.1	50°15.1	30°26.5	33°56.1	38°51.4	74°19.3	87°21.8
7	197°42.7	8.8'	$20^{\circ}16.2$	7.4'	57.5'		68°11.4	49°47.6	30°10.7	34°27.7	39°24.7	74°52.0	87°52.6
8	212°10.5	8.9'	20°08.8	7.5'	57.5'		67°55.9	49°20.2	29°55.3	34°59.3	39°58.0	75° 24.7	88°23.4
9	226°38.4	9.0'	$20^{\circ}01.3$	7.6'	57.5'		67°40.5	48°53.0		35°30.8	40°31.2	75°57.3	88°54.1
10	241°06.5	9.1'	$19^{\circ}53.7$	7.7'	57.4'		67°25.2	48°25.9		36°02.3	41°04.3	76°29.9	89°24.8
11	255°34.6	9.2'	19°46.0	7.8'	57.4'		67°10.0	47°58.9		36°33.7	41°37.5	77°02.5	89°55.5
12	270°02.7	9.3'	S 19°38.2	7.9'	57.3'		66°55.0	47°32.0		37°05.1	42°10.6	77°35.0	90°26.1
13	284°31.0	9.4'	19°30.3	8.0'	57.3'			47°05.3	İ	37°36.5	42°43.6	78° 07.5	90°56.6
14	298°59.4	9.5'	19°22.3	8.1'	57.3'			46°38.7		38°07.8	43° 16.6	78° 39.9	91°27.2
15	313°27.9	9.6'	$19^{\circ}14.2$	8.2'	57.2'			46°12.2		38°39.1	43°49.6	79° 12.3	91°57.7
16	327°56.5	9.7'	$19^{\circ}06.0$	8.3'	57.2'	119°45.2		45°45.9		39°10.3	44°22.5	79°44.7	92°28.1
17	342°25.2	9.8'	18° 57.7	8.4'	57.2'	119°12.2		45°19.7		39°41.5	44°55.4	80° 17.0	92°58.5
18	356°54.0	9.9'	S 18°49.4	8.5'	57.1'	118°39.3		44°53.7		40°12.7	45°28.3	80°49.3	93°28.9
19	11°22.8	10.0'	$18^{\circ}40.9$	8.6'	57.1'	118°06.4		44°27.8		40°43.8	46°01.1	81°21.5	93°59.2
20	25°51.8	10.1'	$18^{\circ}32.3$	8.6'	57.1'	117°33.5		44°02.1		41°14.9	46° 33.9	81°53.7	94°29.5
21	40°20.8	10.2'	$18^{\circ}23.7$	8.7'	57.0'	117°00.7		43°36.6		41°45.9	47°06.7	82°25.9	94°59.8
22	54°50.0	10.2'	$18^{\circ}15.0$	8.8'	57.0'	116°27.9		43°11.2		42°16.9	47°39.4	82°58.0	95°30.0
23	69°19.3	10.3'	18°06.2	8.9'	57.0'	115°55.2		42°45.9		42°47.9	48°12.1	83°30.1	96°00.2
14 th	SD	= 15.8′	Mer. pass	. 18:13					Sun SD :	= 16.0'			

Moon (15th Oct)

Mon	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Mars	+Antares	+Venus	+Jupiter	+Arcturus	+Sun
0	83°48.6	10.4'	S 17°57.3	9.0'	56.9'	115°22.5	42°20.8	43° 18.8	48°44.7	50°21.3	84°02.2	91°56.5	96°30.3
1	98°18.0	10.5'	17°48.3	9.1'	56.9'	114°49.8	41°55.9	43°49.7	49°17.4	50°51.3	84°34.2	92°23.2	97°00.4
2	112°47.6	10.6'	17°39.2	9.1'	56.9'	114°17.2	41°31.2	44°20.6	49°49.9	51°21.4	85°06.2	92°49.9	97°30.5
3	127°17.2	10.7'	$17^{\circ}30.1$	9.2'	56.8'	113°44.6	41°06.7	44°51.4	50°22.5	51°51.3	85°38.1	93°16.5	98°00.5
4	141°46.9	10.8'	17°20.8	9.3'	56.8'	113°12.0	40°42.3	45°22.2	50°55.0	52°21.3	86°10.1	93°43.1	98°30.5
5	156°16.7	10.9'	$17^{\circ}11.5$	9.4'	56.8'	112°39.5	40°18.1	45°52.9	51°27.4	52°51.2	86°41.9	94°09.6	99°00.5
6	170°46.6	11.0'	S 17°02.2	9.5'	56.7'	112°07.0	39°54.1	46°23.6	51°59.9	53°21.1	87°13.8	94°36.2	99°30.4
7	185°16.6	11.1'	$16^{\circ}52.7$	9.5'	56.7'	111°34.5	39°30.4	46°54.3	52°32.3	53°50.9	87°45.6	95°02.6	100°00.3
8	199°46.7	11.2'	16°43.2	9.6'	56.7'	111°02.1	39°06.8	47° 24.9	53°04.6	54°20.7	88°17.3	95°29.1	100°30.1
9	214°16.8	11.3'	16°33.6	9.7'	56.7'	110°29.7	38°43.4	47°55.6	53°37.0	54°50.5	88°49.1	95°55.5	101°00.0
10	228°47.1	11.3'	16°23.9	9.7'	56.6'	109°57.3	38°20.2	48°26.1	54°09.3	55°20.2	89°20.8	96°21.8	101°29.7
11	243°17.4	11.4'	16°14.2	9.8'	56.6'	109°25.0	37°57.2	48°56.7	54°41.5	55°49.9	89°52.4	96°48.2	101°59.5
12	257°47.9	11.5'	S 16°04.3	9.9'	56.6'	108°52.7	37°34.5	49°27.1	55°13.8	56° 19.6	90°24.1	97°14.5	102°29.2
13	272°18.4	11.6'	15°54.5	10.0'	56.5'	108°20.4	37°12.0	49°57.6	55°46.0	56°49.2	90°55.7	97°40.7	102°58.9
14	286°49.0	11.7'	15°44.5	10.0'	56.5'	107°48.2	36°49.7	50°28.0	56°18.1	57°18.8	91°27.2	98°06.9	103°28.5
15	301°19.7	11.8'	15°34.5	10.1'	56.5'	107°16.0	36°27.6	50°58.4	56°50.3	57°48.4	91°58.8	98°33.1	103°58.1
16	315°50.4	11.9'	15°24.4	10.1'	56.4'	106°43.8	36°05.8	51°28.8	57°22.4	58° 17.9	92°30.3	98°59.2	104°27.7
17	330°21.3	11.9'	15°14.3	10.2'	56.4'	106°11.7	35°44.2	51°59.1	57°54.4	58°47.4	93°01.7	99°25.2	104°57.2
18	344°52.2	12.0'	S 15°04.1	10.3'	56.4'	105°39.6	35°22.9	52°29.4	58°26.5	59° 16.9	93°33.1	99°51.3	105°26.8
19	359°23.3	12.1'	14°53.8	10.3'	56.3'	105°07.5	35°01.8	52°59.7	58°58.5	59°46.3	94°04.5	100°17.3	105°56.2
20	13°54.4	12.2'	14°43.4	10.4'	56.3'	104°35.5	34°41.0	53°29.9	59°30.4	60°15.7	94°35.9	100°43.2	106°25.7
21	28°25.6	12.3'	$14^{\circ}33.1$	10.4'	56.3'	104°03.5	34°20.5	54°00.1	60°02.4	60°45.1	95°07.2	101°09.1	106°55.1
22	42°56.8	12.3'	14°22.6	10.5'	56.3'	103°31.5	34°00.3	54°30.3	60°34.3	61°14.4	95°38.5	101°34.9	107°24.5
23	57°28.2	12.4'	14°12.1	10.6'	56.2'	102°59.5	33°40.3	55°00.4	61°06.1	61°43.7	96°09.8	102°00.7	107°53.8
15 th	SD	= 15.5'	Mer. pass	s. 19:03					Sun SD :	= 16.0'			

Moon (16th Oct) Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Mars	+Antares	+Jupiter	+Sun
0	71°59.6	12.5'	S 14°01.5	10.6'	56.2'			119°03.2	102°27.6	55° 30.5	61°38.0	96°41.0	108°23.1
1	86°31.1	12.6'	$13^{\circ}50.9$	10.7'	56.2'			118°31.6	101°55.7	56°00.6	62°09.8	97°12.2	108°52.4
2	101°02.7	12.7'	13°40.2	10.7'	56.1'			$118^{\circ}00.1$	101°23.9	56° 30.6	62°41.6	97°43.4	109°21.6
3	115°34.3	12.7'	13° 29.5	10.8'	56.1'			117°28.6	100°52.1	57°00.6	63°13.3	98° 14.6	109°50.9
4	130°06.1	12.8'	$13^{\circ}18.7$	10.8'	56.1'			$116^{\circ}57.1$	100°20.3	57°30.6	63°45.1	98° 45.7	110°20.1
5	144°37.9	12.9'	13°07.9	10.9'	56.1'			116°25.7	99°48.5	58°00.5	64°16.8	99°16.8	110°49.2
6	159°09.8	13.0'	S 12°57.0	10.9'	56.0'		119°41.0	115°54.2	99°16.8	58° 30.5	64°48.4	99°47.8	111°18.3
7	173°41.7	13.0'	$12^{\circ}46.1$	11.0'	56.0'		119°15.8	115°22.8	98°45.1	59°00.3	65°20.1	100°18.8	111°47.4
8	188°13.8	13.1'	$12^{\circ}35.1$	11.0'	56.0'		118°50.6	114°51.5	98°13.4	59°30.2	65°51.7	100°49.8	112°16.5
9	202°45.8	13.2'	$12^{\circ}24.1$	11.1'	55.9'		118°25.3	114°20.1	97°41.7	60°00.0	66°23.2	101°20.8	112°45.5
10	217°18.0	13.2'	$12^{\circ}13.0$	11.1'	55.9'		118°00.1	113°48.8	97°10.1	60°29.8	66°54.8	101°51.7	113°14.6
11	231°50.3	13.3'	$12^{\circ}01.9$	11.2'	55.9'		117°34.8	113°17.5	96°38.5	60°59.6	67°26.3	102°22.6	113°43.5
12	246°22.6	13.4'	S 11°50.8	11.2'	55.9'	119°43.6	117°09.4	112°46.3	96°06.9	61°29.3	67°57.8	102°53.5	114°12.5
13	260°54.9	13.4'	$11^{\circ}39.6$	11.2'	55.8'	119°15.2	116°44.1	112°15.0	95°35.4	61°59.0	68°29.3	103°24.3	114°41.4
14	275°27.4	13.5'	11°28.3	11.3'	55.8'	118°46.9	116°18.7	111°43.8	95°03.9	62°28.7	69°00.7	103°55.2	115°10.3
15	289°59.9	13.6'	$11^{\circ}17.0$	11.3'	55.8'	118°18.5	115°53.2	111°12.6	94°32.4	62°58.4	69°32.1	104°25.9	115°39.2
16	304°32.5	13.6'	$11^{\circ}05.7$	11.4'	55.8'	117°50.1	115°27.8	110°41.4	94°01.0	63°28.0	70°03.5	104°56.7	116°08.0
17	319°05.1	13.7'	10°54.4	11.4'	55.7'	117°21.7	115°02.3	110°10.3	93°29.5	63°57.6	70°34.9	105°27.4	116°36.8
18	333°37.8	13.8'	S 10°43.0	11.4'	55.7'	116°53.3	114°36.8	109°39.2	92°58.1	64°27.2	71°06.2	105°58.2	117°05.6
19	348°10.6	13.8'	$10^{\circ}31.5$	11.5'	55.7'	116°24.9	114°11.3	109°08.1	92°26.7	64° 56.7	71°37.5	106°28.8	117°34.3
20	2°43.4	13.9'	$10^{\circ}20.0$	11.5'	55.7'	115°56.5	113°45.7	108°37.0	91°55.4	65°26.3	72°08.8	106°59.5	118°03.1
21	17°16.3	13.9'	$10^{\circ}08.5$	11.5'	55.6'	115°28.1	113°20.2	108°06.0	91°24.1	65°55.8	72°40.0	107°30.1	118°31.8
22	31°49.2	14.0'	09°57.0	11.6'	55.6'	114°59.7	112°54.6	107°35.0	90°52.8	66°25.2	73°11.2	108°00.7	119°00.4
23	46°22.2	14.1'	09°45.4	11.6'	55.6'	114°31.3	112°29.0	107°04.0	90°21.5	66°54.7	73°42.4	108°31.3	119°29.1
16 th	SD	= 15.3'	Mer. pass	s. 19:49					Sun SD =	= 16.0′			

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

			•					taee (02).			, , ,		
Wed	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Mars	+Venus	+Antares	+Jupiter
0	60°55.3	14.1'	S 09°33.8	11.6'	55.6'		114°02.9	106°33.0	89°50.2	67°24.1	73°46.9	74° 13.6	109°01.8
1	75°28.4	14.2'	09°22.2	11.7'	55.5'		113°34.5	106°02.1	89° 19.0	67°53.5	74° 15.5	74°44.8	109°32.4
2	90°01.6	14.2'	$09^{\circ}10.5$	11.7'	55.5'		113°06.1	105°31.2	88°47.8	68°22.9	74°44.1	75° 15.9	110°02.9
3	104°34.8	14.3'	08°58.8	11.7'	55.5'		112°37.8	105°00.3	88° 16.6	68°52.2	75°12.6	75°47.0	110°33.3
4	119°08.1	14.3'	08°47.1	11.8'	55.5'		112°09.4	104°29.4	87°45.5	69°21.5	75°41.1	76° 18.1	111°03.8
5	133°41.4	14.4'	08°35.3	11.8'	55.4'		111°41.0	103°58.5	87° 14.4	69°50.8	76°09.6	76°49.1	111°34.2
6	148°14.8	14.4'	S 08°23.5	11.8'	55.4'		111°12.6	103°27.7	86°43.3	70°20.1	76°38.1	77°20.2	112°04.6
7	162°48.3	14.5'	$08^{\circ}11.7$	11.8'	55.4'		110°44.2	102°56.9	86° 12.2	70°49.3	77°06.5	77°51.2	112°35.0
8	177°21.8	14.5'	07°59.9	11.9'	55.4'		110°15.8	102°26.1	85°41.1	71°18.5	77°34.9	78° 22.2	113°05.3
9	191°55.3	14.6'	07°48.0	11.9'	55.3'		109°47.5	101°55.3	85°10.1	71°47.7	78°03.3	78°53.1	113°35.6
10	206°28.9	14.6'	07°36.1	11.9'	55.3'		109°19.1	101°24.6	84°39.1	72°16.9	78°31.7	79°24.1	114°05.9
11	221°02.5	14.7'	$07^{\circ}24.2$	11.9'	55.3'	119°34.2	108°50.7	100°53.9	84°08.1	72°46.1	79°00.0	79°55.0	114°36.2
12	235°36.2	14.7'	S 07°12.3	12.0'	55.3'	119°04.8	108°22.4	100°23.2	83°37.1	73°15.2	79°28.3	80°25.9	115°06.5
13	250°10.0	14.8'	07°00.3	12.0'	55.3'	118°35.4	107°54.0	99°52.5	83°06.2	73°44.3	79°56.6	80°56.7	115°36.7
14	264°43.7	14.8'	06°48.4	12.0'	55.2'	118°06.1	107°25.7	99°21.8	82°35.3	74°13.4	80°24.9	81°27.6	116°06.9
15	279°17.6	14.9'	06°36.4	12.0'	55.2'	117°36.7	106°57.3	98°51.2	82°04.4	74°42.5	80°53.2	81°58.4	116°37.1
16	293°51.4	14.9'	06°24.4	12.0'	55.2'	117°07.4	106°29.0	98°20.6	81°33.5	75°11.5	81°21.4	82°29.2	117°07.3
17	308°25.3	14.9'	$06^{\circ}12.3$	12.0'	55.2'	116°38.0	106°00.7	97°50.0	81°02.6	75°40.5	81°49.6	83°00.0	117°37.4
18	322°59.3	15.0'	S 06°00.3	12.1'	55.2'	116°08.7	105°32.4	97° 19.4	80°31.8	76°09.5	82° 17.8	83°30.8	118°07.5
19	337°33.3	15.0'	05°48.2	12.1'	55.1'	115°39.3	105°04.1	96°48.9	80°01.0	76°38.5	82°46.0	84°01.5	118°37.6
20	352°07.3	15.1'	05°36.2	12.1'	55.1'	115°10.0	104°35.8	96°18.3	79°30.2	77°07.5	83°14.2	84°32.2	119°07.7
21	6°41.3	15.1'	$05^{\circ}24.1$	12.1'	55.1'	114°40.7	104°07.5	95°47.8	78°59.4	77°36.4	83°42.3	85°02.9	119°37.7
22	21°15.4	15.1'	$05^{\circ}12.0$	12.1'	55.1'	114°11.4	103°39.2	95°17.3	78°28.7	78°05.3	84°10.4	85°33.6	
23	35°49.6	15.2'	04°59.9	12.1'	55.0'	113°42.1	103°10.9	94°46.8	77°57.9	78°34.2	84°38.5	86°04.3	
17 th	SD	= 15.2'	Mer. pass	20:32									

h		Moor	ı (18 th Od	ct)		L	unar Dist	ance (obje	cts with	largest l	hourly LI	O delta)	
Thu	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Antares
0	50°23.8	15.2'	S 04°47.7	12.1'	55.0'	113° 12.8	102°42.6	94°16.4	77°27.2	40°35.6	79°03.1	85°06.6	86°34.9
1	64°58.0	15.2'	04°35.6	12.2'	55.0'	112°43.5	102°14.4	93°45.9	76°56.5	40°58.1	79°32.0	85°34.7	87°05.6
2	79°32.2	15.3'	04°23.4	12.2'	55.0'	112° 14.2	101°46.1	93° 15.5	76°25.9	41°20.7	80°00.8	86°02.7	87°36.2
3	94°06.5	15.3'	$04^{\circ}11.3$	12.2'	55.0'	111°44.9	101°17.9	92°45.1	75°55.2	41°43.4	80°29.6	86°30.7	88°06.8
4	108°40.8	15.3'	$03^{\circ}59.1$	12.2'	55.0'	111° 15.7	100°49.6	92°14.7	75°24.6	42°06.3	80°58.4	86°58.7	88°37.3
5	123°15.1	15.4'	03°46.9	12.2'	54.9'	110°46.4	100°21.4	91°44.4	74°54.0	42°29.3	81°27.2	87°26.7	89°07.9
6	137°49.5	15.4'	S 03°34.7	12.2'	54.9'	110°17.2	99°53.2	91°14.0	74°23.4	42°52.4	81°56.0	87°54.7	89°38.4
7	152°23.9	15.4'	$03^{\circ}22.5$	12.2'	54.9'	109°47.9	99°25.0	90°43.7	73°52.8	43°15.6	82°24.7	88°22.6	90°08.9
8	166°58.3	15.4'	$03^{\circ}10.3$	12.2'	54.9'	109° 18.7	98°56.8	90°13.4	73°22.2	43°38.9	82°53.5	88°50.6	90°39.4
9	181°32.8	15.5'	$02^{\circ}58.1$	12.2'	54.9'	108°49.5	98°28.6	89°43.1	72°51.7	44°02.3	83°22.2	89°18.5	91°09.9
10	196°07.2	15.5'	02°45.9	12.2'	54.8'	108°20.3	98°00.4	89°12.8	72°21.2	44°25.8	83°50.9	89°46.4	91°40.4
11	210°41.7	15.5'	02°33.7	12.2'	54.8'	107°51.1	97°32.3	88°42.5	71°50.6	44°49.4	84°19.6	90°14.3	92°10.8
12	225°16.3	15.5'	S 02°21.5	12.2'	54.8'	107°21.9	97°04.1	88°12.3	71°20.2	45°13.2	84°48.2	90°42.1	92°41.2
13	239°50.8	15.6'	$02^{\circ}09.3$	12.2'	54.8'	106°52.7	96°36.0	87°42.1	70°49.7	45°37.0	85°16.9	91°10.0	93°11.6
14	254°25.4	15.6'	$01^{\circ}57.1$	12.2'	54.8'	106°23.5	96°07.8	87° 11.9	70°19.2	46°00.9	85°45.5	91°37.8	93°42.0
15	269°00.0	15.6'	01°44.8	12.2'	54.8'	105°54.4	95°39.7	86°41.7	69°48.8	46°24.8	86°14.1	92°05.6	94°12.4
16	283°34.6	15.6'	$01^{\circ}32.6$	12.2'	54.7'	105°25.2	95°11.6	86°11.5	69°18.4	46°48.9	86°42.7	92°33.4	94°42.8
17	298°09.2	15.7'	$01^{\circ}20.4$	12.2'	54.7'	104°56.0	94°43.5	85°41.3	68°48.0	47°13.1	87°11.3	93°01.2	95°13.1
18	312°43.9	15.7'	S 01°08.2	12.2'	54.7'	104°26.9	94°15.4	85°11.2	68°17.6	47°37.3	87°39.8	93°29.0	95°43.4
19	327°18.5	15.7'	$00^{\circ}56.0$	12.2'	54.7'	103°57.8	93°47.3	84°41.1	67°47.2	48°01.6	88°08.4	93°56.7	96°13.7
20	341°53.2	15.7'	00°43.7	12.2'	54.7'	103°28.7	93°19.3	84°10.9	67°16.9	48°26.0	88°36.9	94°24.4	96°44.0
21	356°27.9	15.7'	$00^{\circ}31.5$	12.2'	54.7'	102°59.6	92°51.2	83°40.9	66°46.5	48°50.4	89°05.4	94°52.2	97°14.3
22	11°02.7	15.7'	$00^{\circ}19.3$	12.2'	54.6'	102°30.5	92°23.2	83° 10.8	66°16.2	49°14.9	89°33.9	95°19.9	97°44.6
23	25°37.4	15.7'	$00^{\circ}07.1$	12.2'	54.6'	102°01.4	91°55.1	82°40.7	65°45.9	49°39.5	90°02.4	95°47.6	98°14.8
18 th	SD	= 15.0'	Mer. pass	s. 21:15									

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

Fri	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Antares
0	40°12.1	15.8'	N00°05.1	12.2'	54.6'		101°32.3	82° 10.7	65° 15.6	50°04.2	90°30.9	96°15.2	98°45.1
1	54°46.9	15.8'	00°17.3	12.2'	54.6'		101°03.2	81°40.6	64°45.3	50°28.9	90°59.3	96°42.9	99°15.3
2	69°21.7	15.8'	00°29.4	12.2'	54.6'		100°34.2	81°10.6	$64^{\circ}15.1$	50°53.6	91°27.8	97°10.6	99°45.5
3	83°56.5	15.8'	00°41.6	12.2'	54.6'		100°05.1	80°40.6	63°44.8	51°18.5	91°56.2	97°38.2	100°15.7
4	98°31.2	15.8'	00°53.8	12.2'	54.5'		99°36.1	80°10.6	63°14.6	51°43.4	92°24.6	98°05.8	100°45.9
5	113°06.0	15.8'	$01^{\circ}05.9$	12.1'	54.5'		99°07.0	79°40.6	62°44.4	52°08.3	92°53.0	98°33.4	101°16.1
6	127°40.9	15.8'	N 01°18.1	12.1'	54.5'		98°38.0	79° 10.6	62°14.2	52°33.3	93°21.4	99°01.0	101°46.2
7	142°15.7	15.8'	01°30.2	12.1'	54.5'		98°09.0	78°40.7	61°44.0	52°58.4	93°49.7	99°28.6	102°16.3
8	156°50.5	15.8'	01°42.3	12.1'	54.5'	119°57.4	97°40.0	78° 10.8	61°13.8	53°23.5	94°18.1	99°56.2	102°46.5
9	171°25.3	15.8'	01°54.4	12.1'	54.5'	119°27.7	97°11.0	77°40.8	60°43.7	53°48.6	94°46.4	100°23.7	103°16.6
10	186°00.2	15.8'	02°06.5	12.1'	54.5'	118°58.1	96°42.0	77° 10.9	60°13.5	54°13.8	95°14.8	100°51.3	103°46.7
11	200°35.0	15.8'	$02^{\circ}18.6$	12.1'	54.5'	118°28.4	96°13.0	76°41.0	59°43.4	54°39.1	95°43.1	101°18.8	104°16.8
12	215°09.9	15.8'	N02°30.7	12.1'	54.4'	117°58.7	95°44.1	76°11.1	59° 13.3	55°04.4	96°11.4	101°46.3	104°46.8
13	229°44.7	15.8'	02°42.8	12.0'	54.4'	117°29.1	95°15.1	75°41.3	58°43.2	55°29.7	96°39.7	102°13.8	105°16.9
14	244°19.6	15.9'	02°54.8	12.0'	54.4'	116°59.5	94°46.2	75° 11.4	58° 13.1	55°55.1	97°08.0	102°41.3	105°47.0
15	258°54.4	15.9'	03°06.8	12.0'	54.4'	116°29.8	94°17.2	74°41.6	57°43.1	56°20.5	97°36.2	103°08.8	106°17.0
16	273°29.3	15.8'	03°18.8	12.0'	54.4'	116°00.2	93°48.3	74° 11.7	57° 13.0	56°46.0	98°04.5	103°36.3	106°47.0
17	288°04.1	15.8'	03°30.8	12.0'	54.4'	115°30.6	93°19.4	73°41.9	56°43.0	57°11.5	98°32.7	104°03.8	107°17.0
18	302°39.0	15.8'	N 03°42.8	12.0'	54.4'	115°01.0	92°50.5	73°12.1	56° 12.9	57°37.0	99°01.0	104°31.2	107°47.0
19	317°13.8	15.8'	03°54.7	11.9'	54.4'	114°31.4	92°21.6	72°42.3	55°42.9	58°02.6	99°29.2	104°58.6	108°17.0
20	331°48.6	15.8'	04°06.7	11.9'	54.3'	114°01.8	91°52.7	72°12.5	55° 12.9	58°28.2	99°57.4	105°26.1	108°47.0
21	346°23.5	15.8'	04°18.6	11.9'	54.3'	113°32.2	91°23.8	71°42.7	54°42.9	58°53.8	100°25.6	105°53.5	109°17.0
22	0°58.3	15.8'	04°30.5	11.9'	54.3'	113°02.6	90°55.0	71°13.0	54° 12.9	59°19.5	100°53.8	106°20.9	109°46.9
23	15°33.1	15.8'	04°42.3	11.8'	54.3'	112°33.1	90°26.1	70°43.2	53°43.0	59°45.2	101°22.0	106°48.3	110°16.9
19 th	SD	= 14.9'	Mer. pass	. 21:56									

h		Moon	ı (20 th Oc	t)			Lunar D	istance (ob	jects wit	th larges	t hourly L	D delta)	
Sat	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Antares
0	30°08.0	15.8'	N 04°54.2	11.8'	54.3'	115°54.0	112°03.5	70°13.5	53°13.0	60°11.0	101°50.2	107° 15.7	110°46.8
1	44°42.8	15.8'	05°06.0	11.8'	54.3'	115°25.0	111°33.9	69°43.8	52°43.1	60°36.8	102°18.3	107°43.1	111°16.7
2	59°17.6	15.8'	05°17.8	11.8'	54.3'	114°56.1	111°04.4	69°14.1	52°13.1	61°02.6	102°46.5	108°10.4	111°46.6
3	73°52.4	15.8'	05°29.6	11.7'	54.3'	114°27.2	110°34.9	68°44.4	51°43.2	61°28.4	103°14.6	108°37.8	112°16.6
4	88°27.2	15.8'	05°41.3	11.7'	54.2'	113°58.2	110°05.3	68°14.7	51°13.3	61°54.3	103°42.7	109°05.1	112°46.4
5	103°02.0	15.8'	05°53.0	11.7'	54.2'	113°29.3	109°35.8	67°45.0	50°43.4	62°20.1	104°10.8	109°32.5	113°16.3
6	117°36.7	15.8'	N 06°04.7	11.7'	54.2'	113°00.3	109°06.3	67°15.3	50°13.6	62°46.0	104°38.9	109°59.8	113°46.2
7	132°11.5	15.7'	$06^{\circ}16.4$	11.6'	54.2'	112°31.4	108°36.8	66°45.7	49°43.7	63°12.0	105°07.0	110°27.1	114°16.1
8	146°46.2	15.7'	06°28.0	11.6'	54.2'	112°02.5	108°07.3	66°16.1	49°13.9	63°38.0	105°35.1	110°54.4	114°45.9
9	161°21.0	15.7'	06°39.7	11.6'	54.2'	111°33.6	107°37.8	65°46.4	48°44.0	64°03.9	106°03.2	111°21.7	115°15.8
10	175°55.7	15.7'	$06^{\circ}51.2$	11.6'	54.2'	111°04.6	107°08.3	65°16.8	48°14.2	64°29.9	106°31.3	111°49.0	115°45.6
11	190°30.4	15.7'	07°02.8	11.5'	54.2'	110°35.7	106°38.8	64°47.2	47°44.4	64°56.0	106°59.3	112°16.3	116°15.4
12	205°05.1	15.7'	N07°14.3	11.5'	54.2'	110°06.8	106°09.3	64°17.6	47°14.6	65°22.0	107°27.4	112°43.6	116°45.2
13	219°39.8	15.7'	07°25.8	11.5'	54.2'	109°37.9	105°39.8	63°48.0	46°44.8	65°48.1	107°55.4	113°10.8	117°15.0
14	234°14.4	15.6'	07°37.3	11.4'	54.2'	109°08.9	105°10.4	63°18.4	46°15.0	66°14.2	108°23.5	113°38.1	117°44.8
15	248°49.1	15.6'	07°48.7	11.4'	54.1'	108°40.0	104°40.9	62°48.8	45°45.2	66°40.3	108°51.5	114°05.3	118°14.6
16	263°23.7	15.6'	$08^{\circ}00.1$	11.4'	54.1'	108°11.1	104°11.5	62°19.3	45°15.5	67°06.5	109°19.5	114°32.6	118°44.4
17	277°58.3	15.6'	08°11.4	11.3'	54.1'	107°42.2	103°42.0	61°49.7	44°45.7	67°32.6	109°47.5	114°59.8	119°14.2
18	292°32.9	15.6'	N08°22.7	11.3'	54.1'	107°13.3	103° 12.6	61°20.2	44°16.0	67°58.8	110°15.5	115°27.0	119°43.9
19	307°07.4	15.5'	08°34.0	11.2'	54.1'	106°44.4	102°43.1	60°50.7	43°46.3	68°25.0	110°43.5	115°54.3	
20	321°42.0	15.5'	08°45.3	11.2'	54.1'	106°15.5	102° 13.7	60°21.2	43°16.6	68°51.2	111°11.5	116°21.5	
21	336°16.5	15.5'	08°56.5	11.2'	54.1'	105°46.6	101°44.3	59°51.7	42°46.9	69°17.4	111°39.5	116°48.7	
22	350°51.0	15.5'	09°07.6	11.1'	54.1'	105°17.7	101°14.9	59°22.2	42°17.2	69°43.6	112°07.5	117°15.9	
23	5°25.5	15.5'	$09^{\circ}18.8$	11.1'	54.1'	104°48.8	100°45.5	58°52.7	41°47.5	70°09.9	112°35.4	117°43.0	
20 th	SD	= 14.8'	Mer. pass	. 22:38				-					

h	Moon (21st Oct)	Lunar Distance (objects with largest hourly LD del	1+2)
r	1 IVIOON 1/1 ²² UCT 1	I linar Distance Conjects with largest hollriv LD del	пат

Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Mars	+Venus
0	19°59.9	15.4'	N09°29.9	11.1'	54.1'	104° 19.9	100°16.1	58°23.2	41°17.9	45°45.1	70°36.2	113°03.4	118°10.2
1	34°34.4	15.4'	09°40.9	11.0'	54.1'	103°51.0	99°46.7	57° 53.7	40°48.2	46°08.8	71°02.4	113°31.3	118°37.4
2	49°08.8	15.4'	09°51.9	11.0'	54.1'	103°22.1	99°17.3	57°24.3	40° 18.6	46° 32.6	71°28.7	113°59.3	119°04.6
3	63°43.2	15.4'	10°02.9	10.9'	54.0'	102°53.3	98°47.9	56° 54.8	39°49.0	46° 56.5	71°55.0	114°27.2	119°31.7
4	78° 17.5	15.3'	10°13.8	10.9'	54.0'	102°24.4	98°18.5	56°25.4	39° 19.4	47° 20.4	72°21.4	114°55.1	119°58.9
5	92°51.8	15.3'	10°24.7	10.8'	54.0'	101°55.5	97°49.1	55°56.0	38°49.8	47° 44.4	72°47.7	115°23.1	
6	107°26.1	15.3'	N 10°35.6	10.8'	54.0'	101°26.6	97°19.7	55° 26.5	38°20.2	48° 08.5	73°14.0	115°51.0	
7	122°00.4	15.2'	10°46.4	10.8'	54.0'	100°57.7	96°50.4	54°57.1	37°50.6	48°32.7	73°40.4	116° 18.9	
8	136°34.7	15.2'	10°57.1	10.7'	54.0'	100°28.9	96°21.0	54°27.7	37°21.1	48° 56.9	74°06.8	116°46.8	
9	151°08.9	15.2'	11°07.8	10.7'	54.0'	100°00.0	95°51.7	53°58.3	36°51.6	49°21.3	74°33.1	117° 14.7	
10	165°43.1	15.2'	11°18.5	10.6'	54.0'	99°31.1	95°22.3	53°29.0	36°22.0	49°45.6	74°59.5	117°42.6	
11	180° 17.2	15.1'	11°29.1	10.6'	54.0'	99°02.3	94°53.0	52°59.6	35°52.5	50° 10.1	75°25.9	118° 10.5	
12	194°51.4	15.1'	N 11°39.7	10.5'	54.0'	98°33.4	94°23.6	52°30.2	35°23.0	50°34.6	75°52.3	118°38.3	
13	209°25.5	15.1'	11°50.2	10.5'	54.0'	98°04.6	93°54.3	52°00.9	34°53.5	50° 59.2	76°18.8	119°06.2	
14	223°59.5	15.0'	12°00.6	10.4'	54.0'	97°35.7	93°24.9	51°31.6	34°24.1	51°23.8	76°45.2	119°34.1	
15	238°33.6	15.0'	12°11.1	10.4'	54.0'	97°06.9	92°55.6	51°02.2	33°54.6	51°48.5	77°11.6		
16	253°07.6	15.0'	12°21.4	10.3'	54.0'	96°38.0	92°26.3	50°32.9	33°25.2	52°13.2	77°38.0		
17	267°41.5	14.9'	12°31.7	10.3'	54.0'	96°09.2	91°57.0	50°03.6	32°55.7	52°38.1	78°04.5		
18	282° 15.5	14.9'	N 12°42.0	10.2'	54.0'	95° 40.3	91°27.7	49°34.3	32°26.3	53°02.9	78°31.0		
19	296°49.4	14.9'	12°52.2	10.2'	54.0'	95°11.5	90°58.4	49°05.0	31°57.0	53°27.8	78°57.4		
20	311°23.2	14.8'	13°02.4	10.1'	54.0'	94°42.7	90°29.1	48°35.7	31°27.6	53°52.8	79°23.9		
21	325°57.1	14.8'	13°12.5	10.0'	53.9'	94°13.8	89°59.8	48°06.5	30°58.2	54° 17.8	79°50.4		
22	340°30.9	14.8'	13°22.5	10.0'	53.9'	93°45.0	89°30.5	47°37.2	30°28.9	54°42.9	80°16.8		
23	355°04.6	14.7'	13°32.5	9.9'	53.9'	93°16.2	89°01.2	47°07.9	29°59.6	55°08.0	80°43.3		
21 st	SD	= 14.7'	Mer. pass	. 23:20									

h Moon (22nd Oct)

h

Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	9°38.3	14.7'	N 13°42.4	9.9'	53.9'		92°47.4	88°31.9	67°04.7	46°38.7	29°30.3	55°33.1	81°09.8
1	24°12.0	14.6'	13°52.3	9.8'	53.9'		92°18.5	88°02.6	66°36.4	46°09.5	29°01.0	55°58.3	81°36.3
2	38°45.7	14.6'	$14^{\circ}02.1$	9.8'	53.9'		91°49.7	87°33.3	66°08.1	45°40.3	28°31.7	56°23.6	82°02.8
3	53°19.3	14.6'	$14^{\circ}11.9$	9.7'	53.9'		91°20.9	87°04.0	65°39.8	45° 11.1	28° 02.5	56° 48.9	82°29.3
4	67°52.9	14.5'	14°21.6	9.6'	53.9'		90°52.1	86°34.8	65°11.5	44°41.9	27°33.3	57° 14.2	82°55.8
5	82°26.4	14.5'	14°31.3	9.6'	53.9'		90°23.3	86°05.5	64°43.3	44° 12.7	27°04.1	57° 39.6	83°22.3
6	96°59.9	14.5'	N 14°40.8	9.5'	53.9'		89°54.5	85°36.2	64°15.0	43°43.5	26°34.9	58°05.0	83°48.9
7	111°33.3	14.4'	14°50.4	9.5'	53.9'		89°25.7	85°07.0	63°46.8	43°14.3	26°05.8	58° 30.5	84°15.4
8	126°06.8	14.4'	14°59.8	9.4'	53.9'		88°56.9	84°37.7	63°18.6	42°45.2	25°36.6	58° 56.0	84°41.9
9	140°40.1	14.3'	15°09.2	9.3'	53.9'		88°28.1	84°08.5	62°50.4	42°16.0	25°07.5	59°21.5	85°08.4
10	155°13.5	14.3'	$15^{\circ}18.6$	9.3'	53.9'		87°59.3	83°39.2	62°22.2	41°46.9	24°38.5	59° 47.0	85°34.9
11	169°46.8	14.3'	15°27.8	9.2'	53.9'		87°30.5	83°10.0	61°54.0	41°17.8	24°09.4	60°12.6	86°01.5
12	184°20.0	14.2'	N 15°37.0	9.1'	53.9'	119°35.5	87°01.7	82°40.7	61°25.8	40°48.7	23°40.4	60°38.3	86°28.0
13	198°53.2	14.2'	15°46.2	9.1'	53.9'	119°06.1	86°32.9	82°11.5	60°57.7	40° 19.6	23°11.5	61°03.9	86°54.5
14	213°26.4	14.1'	15°55.2	9.0'	53.9'	118°36.6	86°04.2	81°42.2	60°29.6	39° 50.5	22°42.5	61°29.6	87°21.1
15	227°59.5	14.1'	$16^{\circ}04.2$	8.9'	53.9'	118°07.2	85°35.4	81°13.0	60°01.4	39°21.4	22°13.6	61°55.4	87°47.6
16	242°32.6	14.0'	16° 13.2	8.9'	53.9'	117°37.7	85°06.6	80°43.8	59°33.3	38°52.4	21°44.8	62°21.1	88°14.1
17	257°05.7	14.0'	$16^{\circ}22.1$	8.8'	53.9'	117°08.3	84°37.8	80°14.6	59°05.3	38°23.3	21°16.0	62°46.9	88°40.6
18	271°38.7	14.0'	$N16^{\circ}30.9$	8.7'	53.9'	116°38.8	84°09.1	79°45.3	58°37.2	37°54.3	20°47.2	63°12.8	89°07.2
19	286°11.6	13.9'	16°39.6	8.7'	53.9'	116°09.3	83°40.3	79°16.1	58°09.2	37° 25.3	20° 18.5	63°38.6	89°33.7
20	300°44.6	13.9'	16°48.2	8.6'	53.9'	115°39.9	83°11.5	78°46.9	57°41.1	36° 56.3	19°49.8	64°04.5	90°00.2
21	315°17.4	13.8'	$16^{\circ}56.8$	8.5'	53.9'	115°10.4	82°42.8	78° 17.7	57°13.1	36°27.3	19°21.2	64°30.4	90°26.8
22	329°50.3	13.8'	$17^{\circ}05.4$	8.4'	53.9'	114°41.0	82°14.0	77°48.5	56°45.1	35°58.3	18°52.6	64°56.3	90°53.3
23	344°23.0	13.7'	17° 13.8	8.4'	53.9'	114°11.5	81°45.3	77°19.2	56°17.1	35°29.4	18°24.1	65°22.3	91°19.8
22 nd	SD	= 14.7	′ Mer. pas	s:-								·	

Moon ((23 rd Oct)	Lunar Distance	(objects with	largest hourly	v I D delta)

T	CHA				LID	Damilia	D	D-II	A L-1 - 1 - 1 - 1	C-4	(F	ı Danak	1 Ala-:
Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Deneb	+Altair
0	358°55.8	13.7'	$N17^{\circ}22.2$	8.3'	53.9'	113°42.1	81°16.5	76°50.0	35°00.4	17°55.7	65°48.3	72°18.0	91°46.3
1	13°28.5	13.7'	$17^{\circ}30.5$	8.2'	53.9'	113° 12.6	80°47.8	76°20.8	34°31.5	17°27.3	66°14.3	72°33.1	92°12.9
2	28°01.1	13.6'	17°38.7	8.1'	53.9'	112°43.2	80°19.0	75°51.6	34°02.6	16°59.0	66°40.3	72°48.2	92°39.4
3	42°33.7	13.6'	17°46.8	8.1'	53.9'	112° 13.7	79°50.3	75°22.4	33°33.7	16°30.9	67°06.4	73°03.4	93°05.9
4	57°06.3	13.5'	$17^{\circ}54.9$	8.0'	53.9'	111°44.3	79°21.5	74°53.2	33°04.9	16°02.7	67°32.5	73°18.7	93°32.4
5	71°38.8	13.5'	18°02.9	7.9'	53.9'	111° 14.8	78°52.8	74°24.0	32°36.0	15°34.7	67°58.6	73°33.9	93°58.9
6	86°11.3	13.4'	$N18^{\circ}10.8$	7.8'	53.9'	110°45.4	78°24.1	73°54.8	32°07.2	15°06.8	68°24.7	73°49.3	94°25.4
7	100°43.7	13.4'	18° 18.7	7.8'	53.9'	110° 15.9	77°55.3	73°25.6	31°38.4	14°39.1	68°50.9	74°04.7	94°51.9
8	115°16.1	13.3'	18°26.4	7.7'	53.9'	109°46.5	77°26.6	72°56.4	31°09.6	14°11.4	69°17.0	74°20.2	95°18.4
9	129°48.4	13.3'	18°34.1	7.6'	53.9'	109° 17.0	76°57.9	72°27.3	30°40.8	13°43.9	69°43.2	74°35.7	95°44.9
10	144°20.7	13.2'	18°41.7	7.5'	53.9'	108°47.5	76° 29.2	71°58.1	30°12.1	13°16.6	70°09.4	74°51.2	96°11.4
11	158°53.0	13.2'	$18^{\circ}49.2$	7.4'	53.9'	108° 18.1	76°00.5	$71^{\circ}28.9$	29°43.4	12°49.4	70°35.7	75°06.8	96°37.9
12	173°25.2	13.2'	$N18^{\circ}56.7$	7.4'	53.9'	107°48.6	75°31.7	70°59.7	29°14.7	12°22.4	71°01.9	75°22.5	97°04.4
13	187°57.3	13.1'	19°04.0	7.3'	53.9'	107° 19.2	75°03.0	70°30.5	28°46.0	11°55.7	71°28.2	75°38.2	97°30.8
14	202°29.4	13.1'	19°11.3	7.2'	53.9'	106°49.7	74°34.3	70°01.3	28°17.4	11°29.2	71°54.5	75°54.0	97°57.3
15	217°01.5	13.0'	$19^{\circ}18.5$	7.1'	53.9'	106° 20.2	74°05.6	69°32.2	27°48.8	11°02.9	72°20.8	76°09.8	98°23.8
16	231°33.5	13.0'	19°25.6	7.0'	53.9'	105°50.8	73°36.9	69°03.0	27°20.2	10°37.0	72°47.1	76°25.6	98°50.2
17	246°05.5	12.9'	19°32.6	6.9'	53.9'	105°21.3	73°08.2	68°33.8	26°51.7	10°11.4	73°13.4	76°41.5	99°16.7
18	260°37.4	12.9'	$N19^{\circ}39.5$	6.8'	53.9'	104°51.8	72°39.5	68°04.6	26°23.2	9°46.2	73°39.8	76°57.5	99°43.1
19	275°09.3	12.8'	19°46.4	6.8'	53.9'	104°22.4	72°10.8	67°35.5	25°54.7	9°21.4	74°06.2	77°13.4	100°09.5
20	289°41.1	12.8'	19°53.2	6.7'	53.9'	103°52.9	71°42.1	67°06.3	25°26.3	8°57.2	74°32.6	77°29.5	100°35.9
21	304°12.9	12.7'	$19^{\circ}59.8$	6.6'	53.9'	103°23.4	71°13.4	66°37.1	24°57.9	8°33.5	74°59.0	77°45.5	101°02.4
22	318°44.7	12.7'	20°06.4	6.5'	53.9'	102°53.9	70°44.8	66°08.0	24°29.5	8°10.4	75°25.4	78°01.6	101°28.8
23	333°16.4	12.7'	$20^{\circ}12.9$	6.4'	53.9'	102°24.5	70°16.1	65°38.8	24°01.2	7°48.2	75°51.8	78°17.8	101°55.2
23 rd	SD	= 14.7'	Mer. pass.	00:04									

h Moon ((24 th Oct)	Lunar Distance (objects with	largest hourly	√LD delta`)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	347°48.0	12.6'	N20°19.3	6.3'	53.9'	101°55.0	69°47.4	65°09.6	44°45.3	23°33.0	76°18.3	78°34.0	102°21.6
1	2°19.7	12.6'	20°25.6	6.2'	53.9'	101°25.5	69°18.7	64°40.5	44°18.0	23°04.8	76°44.8	78°50.2	102°48.0
2	16°51.2	12.5'	20°31.9	6.1'	53.9'	100°56.0	68°50.1	64°11.3	43°50.8	22°36.6	77°11.2	79°06.4	103°14.3
3	31°22.8	12.5'	20°38.0	6.0'	53.9'	100°26.5	68°21.4	63°42.2	43°23.5	22°08.5	77°37.7	79°22.7	103°40.7
4	45°54.2	12.4'	$20^{\circ}44.1$	6.0'	53.9'	99°57.0	67°52.7	63°13.0	42°56.4	21°40.5	78°04.2	79°39.1	104°07.0
5	60°25.7	12.4'	20°50.0	5.9'	53.9'	99°27.5	67°24.1	62°43.8	42°29.2	21°12.5	78°30.8	79°55.4	104°33.4
6	74°57.1	12.3'	N20°55.9	5.8'	53.9'	98°58.0	66°55.4	62°14.7	42°02.1	20°44.6	78°57.3	80°11.8	104°59.7
7	89°28.4	12.3'	21°01.6	5.7'	54.0'	98°28.5	66°26.8	61°45.5	41°35.1	20°16.8	79°23.8	80°28.3	105°26.0
8	103°59.7	12.3'	21°07.3	5.6'	54.0'	97°59.0	65°58.1	61°16.4	41°08.0	19°49.1	79°50.4	80°44.7	105°52.3
9	118°31.0	12.2'	$21^{\circ}12.9$	5.5'	54.0'	97°29.5	65°29.5	60°47.2	40°41.1	19°21.4	80°17.0	81°01.2	106°18.6
10	133°02.2	12.2'	21°18.4	5.4'	54.0'	97°00.0	65°00.9	60°18.1	40°14.2	18°53.8	80°43.6	81°17.7	106°44.9
11	147°33.4	12.1'	21°23.8	5.3'	54.0'	96°30.5	64°32.2	59°48.9	39°47.3	18°26.4	81°10.1	81°34.3	107°11.2
12	162°04.5	12.1'	$N21^{\circ}29.1$	5.2'	54.0'	96°00.9	64°03.6	59°19.8	39° 20.5	17°59.0	81°36.8	81°50.9	107°37.4
13	176°35.6	12.0'	21°34.2	5.1'	54.0'	95°31.4	63°35.0	58°50.6	38° 53.7	17°31.8	82°03.4	82°07.5	108°03.7
14	191°06.6	12.0'	21°39.3	5.0'	54.0'	95°01.9	63°06.3	58°21.5	38°27.0	17°04.6	82°30.0	82°24.1	108°29.9
15	205°37.7	12.0'	21°44.3	4.9'	54.0'	94°32.3	62°37.7	57°52.3	38°00.4	16°37.6	82°56.6	82°40.8	108°56.1
16	220°08.6	11.9'	$21^{\circ}49.2$	4.8'	54.0'	94°02.8	62°09.1	57°23.2	37°33.8	16°10.8	83°23.3	82°57.4	109°22.3
17	234°39.5	11.9'	21°54.0	4.7'	54.0'	93°33.3	61°40.5	56°54.0	37° 07.3	15°44.1	83°49.9	83°14.2	109°48.5
18	249°10.4	11.8'	N 21°58.7	4.6'	54.0'	93°03.7	61°11.9	56°24.9	36°40.8	15°17.6	84°16.6	83°30.9	110°14.7
19	263°41.3	11.8'	22°03.3	4.5'	54.0'	92°34.2	60°43.3	55°55.7	36° 14.4	14°51.3	84°43.3	83°47.6	110°40.8
20	278°12.1	11.8'	22°07.8	4.4'	54.0'	92°04.6	60°14.7	55°26.6	35°48.1	14°25.2	85°10.0	84°04.4	111°07.0
21	292°42.9	11.7'	22°12.2	4.3'	54.0'	91°35.0	59°46.1	54°57.5	35°21.8	13°59.3	85°36.6	84°21.2	111°33.1
22	307°13.6	11.7'	22°16.5	4.2'	54.0'	91°05.5	59°17.6	54°28.3	34°55.6	13°33.7	86°03.3	84°38.0	111°59.2
23	321°44.3	11.7'	22°20.7	4.1'	54.0'	90°35.9	58°49.0	53°59.2	34°29.5	13°08.3	86°30.1	84°54.9	112°25.3
24 th	SD	= 14.7'	Mer. pass.	00:50									

h Moon (25th Oct)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Saturn	+Deneb	+Fomalhaut	+Altair
0	336°14.9	11.6'	N 22°24.8	4.0'	54.1'	90°06.3	58° 20.4	53°30.0	34°03.5	8°30.8	85°11.7	86°56.8	112°51.3
1	350°45.5	11.6'	22°28.8	3.9'	54.1'	89°36.7	57°51.8	53°00.9	33°37.6	8°54.5	85°28.6	87°23.5	113°17.4
2	5°16.1	11.5'	22°32.7	3.8'	54.1'	89°07.1	57°23.3	52°31.8	33°11.7	9°18.8	85°45.5	87°50.2	113°43.4
3	19°46.7	11.5'	22°36.5	3.7'	54.1'	88° 37.5	56°54.7	52°02.6	32°46.0	9°43.6	86°02.4	88°17.0	114°09.4
4	34°17.2	11.5'	22°40.1	3.6'	54.1'	88°07.9	56°26.2	51°33.5	32°20.3	10°08.9	86°19.4	88°43.7	114°35.4
5	48°47.6	11.4'	22°43.7	3.5'	54.1'	87°38.3	55° 57.7	51°04.4	31°54.7	10°34.6	86°36.3	89°10.5	115°01.3
6	63°18.1	11.4'	N22°47.2	3.4'	54.1'	87°08.7	55°29.1	50°35.2	31°29.2	11°00.6	86°53.3	89°37.2	115°27.3
7	77°48.5	11.4'	22°50.5	3.2'	54.1'	86°39.0	55°00.6	50°06.1	31°03.9	11°27.0	87°10.2	90°04.0	115°53.2
8	92°18.8	11.3'	22°53.8	3.1'	54.1'	86°09.4	54°32.1	49°37.0	30°38.6	11°53.6	87°27.2	90°30.8	116°19.1
9	106°49.2	11.3'	22°56.9	3.0'	54.1'	85°39.8	54°03.6	49°07.9	30°13.5	12°20.5	87°44.2	90°57.6	116°44.9
10	121°19.5	11.3'	22°59.9	2.9'	54.1'	85°10.1	53°35.1	48°38.7	29°48.5	12°47.6	88°01.2	91°24.4	117°10.8
11	135°49.7	11.2'	23°02.9	2.8'	54.1'	84°40.4	53°06.6	48°09.6	29°23.6	13°15.0	88°18.3	91°51.1	117°36.6
12	150°20.0	11.2'	N 23°05.7	2.7'	54.2'	84°10.8	52°38.1	47°40.5	28°58.9	13°42.5	88°35.3	92°17.9	118°02.4
13	164°50.2	11.2'	23°08.4	2.6'	54.2'	83°41.1	52°09.6	47°11.4	28°34.2	14°10.2	88°52.3	92°44.8	118°28.1
14	179°20.4	11.1'	23°11.0	2.5'	54.2'	83°11.4	51°41.1	46°42.3	28°09.8	14°38.0	89°09.4	93°11.6	118°53.9
15	193°50.5	11.1'	23°13.5	2.4'	54.2'	82°41.7	51°12.7	46°13.2	27°45.5	15°06.0	89°26.4	93°38.4	119°19.6
16	208°20.6	11.1'	23°15.9	2.3'	54.2'	82°12.0	50°44.2	45°44.1	27°21.3	15°34.1	89°43.5	94°05.2	119°45.2
17	222°50.7	11.1'	23°18.1	2.2'	54.2'	81°42.3	50°15.8	45°15.0	26°57.3	16°02.4	90°00.6	94°32.0	
18	237°20.8	11.0'	N23°20.3	2.1'	54.2'	81°12.6	49°47.4	44° 45.9	26°33.5	16°30.7	90°17.6	94°58.8	
19	251°50.8	11.0'	23°22.4	1.9'	54.2'	80°42.9	49°19.0	44°16.8	26°09.9	16°59.1	90°34.7	95°25.7	
20	266°20.8	11.0'	23°24.3	1.8'	54.2'	80°13.1	48°50.6	43°47.7	25°46.4	17°27.7	90°51.8	95°52.5	
21	280°50.8	11.0'	23°26.1	1.7'	54.3'	79°43.4	48°22.2	43°18.6	25°23.2	17°56.3	91°08.9	96°19.3	
22	295°20.7	10.9'	23°27.8	1.6'	54.3'	79°13.6	47°53.8	42°49.5	25°00.2	18°25.0	91°26.0	96°46.2	
23	309°50.7	10.9'	23°29.4	1.5'	54.3'	78°43.9	47°25.4	42°20.4	24°37.4	18°53.8	91°43.1	97°13.0	
25 th	SD	= 14.7'	Mer. pass.	01:38									

h Moon (26th Oct)

Lunar Distance (objects with largest hourly LD delta)

										8000			
Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	324°20.6	10.9'	N23°30.9	1.4'	54.3'	78°14.1	46°57.1	41°51.4	24°14.8		19°22.7	92°00.2	97°39.9
1	338°50.5	10.9'	23°32.3	1.3'	54.3'	77°44.3	46°28.7	41°22.3	23°52.5		19°51.6	92°17.2	98°06.7
2	353°20.3	10.8'	23°33.6	1.2'	54.3'	77°14.5	46°00.4	40°53.2	23°30.4		20°20.6	92°34.3	98°33.6
3	7°50.2	10.8'	23°34.7	1.0'	54.3'	76°44.7	45°32.1	40°24.2	23°08.6		20°49.7	92°51.4	99°00.5
4	22°20.0	10.8'	23°35.8	0.9'	54.3'	76°14.9	45°03.8	39°55.1	22°47.1		21°18.8	93°08.5	99°27.3
5	36°49.8	10.8'	23°36.7	0.8'	54.4'	75°45.1	44°35.6	39°26.1	22°25.8		21°48.0	93°25.6	99°54.2
6	51°19.5	10.8'	N 23°37.5	0.7'	54.4'	75°15.2	44°07.3	38°57.0	22°04.9		22° 17.2	93°42.7	100°21.0
7	65°49.3	10.7'	23°38.2	0.6'	54.4'	74°45.4	43°39.1	38°28.0	21°44.3		22°46.5	93°59.8	100°47.9
8	80°19.0	10.7'	23°38.8	0.5'	54.4'	74°15.5	43°10.8	37°59.0	21°24.1		23° 15.8	94°16.8	101°14.8
9	94°48.7	10.7'	23°39.3	0.4'	54.4'	73°45.6	42° 42.6	37°30.0	21°04.2		23°45.1	94°33.9	101°41.6
10	109°18.4	10.7'	23°39.6	0.2'	54.4'	73°15.8	42° 14.5	37°01.0	20°44.7		24°14.6	94°51.0	102°08.5
11	123°48.1	10.7'	23°39.9	0.1'	54.4'	72°45.9	41°46.3	36°32.0	20°25.6	9°35.9	24°44.0	95°08.0	102°35.3
12	138°17.8	10.7'	N23°40.0	0.0'	54.5'	72°16.0	41°18.2	36°03.0	20°06.9	9°57.1	25° 13.5	95°25.1	103°02.2
13	152°47.4	10.6'	23°40.0	-0.1'	54.5'	71°46.0	40°50.1	35°34.1	19°48.6	10° 19.1	25°43.0	95°42.1	103°29.1
14	167°17.1	10.6'	23°39.9	-0.2'	54.5'	71°16.1	40°22.0	35°05.1	19°30.8	10°41.7	26° 12.6	95°59.1	103°55.9
15	181°46.7	10.6'	23°39.7	-0.3'	54.5'	70°46.1	39°54.0	34°36.2	19°13.5	11°04.9	26°42.2	96°16.1	104°22.8
16	196°16.3	10.6'	23°39.3	-0.5'	54.5'	70°16.2	39°25.9	34°07.3	18°56.7	11°28.6	27°11.8	96°33.1	104°49.7
17	210°45.9	10.6'	23°38.9	-0.6'	54.5'	69°46.2	38°57.9	33°38.4	18°40.4	11°52.9	27°41.5	96°50.1	105°16.5
18	225°15.5	10.6'	N23°38.3	-0.7'	54.5'	69°16.2	38° 30.0	33°09.5	18°24.7	12° 17.6	28°11.2	97°07.1	105°43.4
19	239°45.1	10.6'	23°37.6	-0.8'	54.6'	68°46.2	38°02.0	32°40.6	18°09.5	12°42.6	28°41.0	97°24.1	106°10.2
20	254°14.6	10.6'	23°36.8	-0.9'	54.6'	68°16.2	37°34.1	32°11.8		13°08.1	29° 10.8	97°41.0	106°37.1
21	268°44.2	10.5'	23°35.9	-1.0'	54.6'	67°46.2	37°06.3	31°42.9		13° 33.8	29°40.6	97°57.9	107°03.9
22	283°13.8	10.5'	23°34.8	-1.2'	54.6'	67°16.1	36° 38.5	31°14.1		13° 59.9	30° 10.4	98°14.9	107°30.8
23	297°43.3	10.5'	23°33.7	-1.3'	54.6'	66°46.1	36° 10.7	30°45.4		14°26.2	30°40.3	98°31.8	107°57.6
26 th	SD	= 14.8'	Mer. pass	02:28									

h Moon (27th Oct)

Lunar Distance	(objects with	largest hourl	y LD delta)
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Sat	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	312°12.8	10.5'	N23°32.4	-1.4'	54.6'		66°16.0	35°42.9	30°16.6	14°52.8	31°10.2	98°48.7	108°24.5
1	326°42.4	10.5'	23°31.0	-1.5'	54.7'		65°45.9	35°15.2	29°47.9	15° 19.7	31°40.1	99°05.5	108°51.3
2	341°11.9	10.5'	23°29.5	-1.6'	54.7'		65°15.8	34°47.6	29° 19.2	15°46.7	32°10.1	99°22.4	109°18.1
3	355°41.4	10.5'	23°27.9	-1.7'	54.7'		64°45.7	34°20.0	28°50.6	16°14.0	32°40.1	99°39.2	109°45.0
4	10°10.9	10.5'	23°26.2	-1.9'	54.7'		64°15.5	33°52.4	28°21.9	16°41.4	33°10.1	99°56.0	110°11.8
5	24°40.4	10.5'	23°24.3	-2.0'	54.7'	117°44.8	63°45.4	33°24.9	27°53.3	17°09.0	33°40.2	100°12.8	110°38.6
6	39°09.9	10.5'	N23°22.4	-2.1'	54.7'	117° 14.6	63°15.2	32°57.5	27°24.8	17°36.7	34°10.3	100°29.5	111°05.4
7	53°39.4	10.5'	23°20.3	-2.2'	54.8'	116°44.3	62°45.0	32°30.1	26°56.3	18°04.6	34°40.4	100°46.2	111°32.2
8	68°08.9	10.5'	23°18.1	-2.3'	54.8'	116° 14.0	62°14.8	32°02.8	26°27.8	18° 32.7	35°10.5	101°02.9	111°59.0
9	82°38.4	10.5'	23°15.8	-2.4'	54.8'	115°43.6	61°44.6	31°35.5	25°59.4	19°00.9	35°40.7	101°19.6	112°25.8
10	97°07.9	10.5'	23°13.3	-2.5'	54.8'	115°13.3	61°14.4	31°08.3	25°31.1	19°29.2	36°10.9	101°36.3	112°52.6
11	111°37.4	10.5'	$23^{\circ}10.8$	-2.7'	54.8'	114°42.9	60°44.1	30°41.2	25°02.8	19°57.6	36°41.1	101°52.9	113°19.3
12	126°06.9	10.5'	N23°08.1	-2.8'	54.9'	114° 12.5	60°13.8	30°14.2	24°34.5	20°26.1	37°11.3	102°09.5	113°46.1
13	140°36.4	10.5'	23°05.3	-2.9'	54.9'	113°42.1	59°43.6	29°47.2	24°06.4	20°54.8	37°41.6	102°26.0	114°12.8
14	155°05.9	10.5'	23°02.4	-3.0'	54.9'	113°11.7	59°13.3	29°20.4	23°38.3	21°23.5	38°11.9	102°42.6	114°39.6
15	169°35.4	10.5'	22°59.4	-3.1'	54.9'	112°41.2	58°42.9	28°53.6	23°10.2	21°52.3	38°42.3	102°59.1	115°06.3
16	184°04.9	10.5'	22°56.3	-3.2'	54.9'	112° 10.7	58°12.6	28°26.9	22°42.3	22°21.2	39°12.6	103°15.5	115°33.0
17	198°34.4	10.5'	22°53.0	-3.4'	55.0'	111°40.2	57°42.2	28°00.3	22°14.4	22°50.2	39°43.0	103°32.0	115°59.7
18	213°03.9	10.5'	N 22°49.7	-3.5'	55.0'	111°09.7	57°11.8	27°33.8	21°46.7	23° 19.3	40°13.4	103°48.4	116°26.4
19	227°33.4	10.5'	22°46.2	-3.6'	55.0'	110°39.2	56°41.4	27°07.5	21°19.0	23°48.5	40°43.9	104°04.7	116°53.1
20	242°03.0	10.5'	22°42.6	-3.7'	55.0'	110°08.6	56°11.0	26°41.2	20°51.4	24° 17.7	41°14.3	104°21.1	117°19.8
21	256°32.5	10.5'	22°38.9	-3.8'	55.0'	109°38.0	55°40.6	$26^{\circ}15.1$	20°24.0	24°47.0	41°44.8	104°37.3	117°46.4
22	271°02.0	10.5'	$22^{\circ}35.1$	-3.9'	55.1'	109°07.4	55°10.1	25°49.1	19°56.7	25° 16.4	42°15.4	104°53.6	118°13.0
23	285°31.6	10.6'	22°31.1	-4.1'	55.1'	108°36.8	54°39.7	25°23.3	19°29.5	25°45.8	42°45.9	105°09.8	118°39.6
27 th	SD	$=14.9^{\prime}$	Mer. pass	. 03:18									

Moon (28th Oct)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Spica	-Regulus	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	300°01.1	10.6'	N22°27.1	-4.2'	55.1'	118°44.5	108°06.2	54°09.2	19°02.5	26°15.3	27°15.7	43°16.5	119°06.2
1	314°30.7	10.6'	22°22.9	-4.3'	55.1'	118° 16.4	107°35.5	53°38.6	18°35.6	26°44.9	27°32.9	43°47.1	119°32.8
2	329°00.3	10.6'	22°18.6	-4.4'	55.2'	117°48.3	107°04.8	53°08.1	18°09.0	27°14.5	27°50.6	44°17.7	119°59.4
3	343°29.8	10.6'	22°14.2	-4.5'	55.2'	117°20.1	106°34.1	52°37.5	17°42.5	27°44.2	28°08.6	44°48.4	
4	357°59.4	10.6'	22°09.7	-4.6'	55.2'	116°51.9	106°03.4	52°07.0	17°16.2	28°13.9	28°26.9	45°19.1	
5	12°29.0	10.6'	22°05.1	-4.7'	55.2'	116°23.7	105°32.6	51°36.4	16°50.1	28°43.7	28°45.6	45°49.8	
6	26°58.6	10.6'	N22°00.4	-4.8'	55.3'	115°55.5	105°01.8	51°05.7	16°24.3	29°13.6	29°04.6	46°20.6	
7	41°28.2	10.6'	21°55.5	-5.0'	55.3'	115°27.2	104°31.0	50°35.1	15°58.8	29°43.5	29°23.9	46°51.4	
8	55°57.9	10.6'	21°50.6	-5.1'	55.3'	114°59.0	104°00.1	50°04.4	15°33.5	30°13.5	29°43.6	47°22.2	
9	70°27.5	10.7'	21°45.5	-5.2'	55.3'	114°30.7	103°29.3	49°33.7	15°08.6	30°43.5	30°03.5	47°53.0	
10	84°57.2	10.7'	21°40.3	-5.3'	55.4'	114°02.3	102°58.4	49°03.0	14°44.0	31°13.5	30°23.7	48°23.9	
11	99°26.8	10.7'	21°35.0	-5.4'	55.4'	113°34.0	102°27.5	48°32.3	14°19.8	31°43.7	30°44.3	48°54.8	
12	113°56.5	10.7'	N 21°29.6	-5.5'	55.4'	113°05.6	101°56.5	48°01.5	13°56.0	32°13.8	31°05.1	49°25.7	
13	128°26.2	10.7'	21°24.1	-5.6'	55.4'	112°37.2	101°25.6	47°30.8	13°32.7	32°44.0	31°26.1	49°56.7	
14	142°55.9	10.7'	$21^{\circ}18.5$	-5.7'	55.5'	112°08.7	100°54.6	47°00.0	13°09.8	33°14.3	31°47.5	50°27.6	
15	157°25.6	10.7'	$21^{\circ}12.7$	-5.9'	55.5'	111°40.2	100°23.6	46°29.2	12°47.5	33°44.6	32°09.0	50°58.7	
16	171°55.4	10.7'	$21^{\circ}06.9$	-6.0'	55.5'	111°11.8	99°52.5	45°58.3	12°25.8	34°15.0	32°30.9	51°29.7	
17	186°25.1	10.8'	21°00.9	-6.1'	55.5'	110°43.2	99°21.4	45°27.4	12°04.8	34°45.4	32°52.9	52°00.8	
18	200°54.9	10.8'	N 20°54.8	-6.2'	55.6'	110°14.7	98°50.3	44°56.5	11°44.5	35°15.8	33°15.3	52°31.9	
19	215°24.7	10.8'	20°48.6	-6.3'	55.6'	109°46.1	98°19.2	44°25.6	11°24.9	35°46.3	33°37.8	53°03.0	
20	229°54.4	10.8'	20°42.4	-6.4'	55.6'	109° 17.5	97°48.0	43°54.7	11°06.3	36°16.8	34°00.5	53°34.2	
21	244°24.3	10.8'	20°36.0	-6.5'	55.6'	108°48.8	97°16.9	43°23.7	10°48.5	36°47.4	34°23.5	54°05.4	
22	258°54.1	10.8'	20°29.4	-6.6'	55.7'	108°20.2	96°45.6	42°52.7		37°18.0	34°46.7	54°36.6	
23	273°23.9	10.9'	20°22.8	-6.7'	55.7'	107°51.5	96°14.4	42°21.7		37°48.7	35°10.1	55°07.9	
28 th	SD	= 15.0'	Mer. pass	. 04:08		SunSD=16.1'							

h		Moon	(29 th Oc	t)			Lunai	Distance	(objects	with largest	hourly L	D delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Spica	-Arcturus	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	287°53.8	10.9'	N 20°16.1	-6.8'	55.7'	107°22.8	95°43.1		41°50.7	23°39.6	35°33.7	38°19.4	55°39.2
1	302°23.7	10.9'	20°09.3	-6.9'	55.7'	106°54.0	95°11.8		41°19.7	24°02.9	35°57.4	38°50.1	56°10.5
2	316°53.5	10.9'	20°02.3	-7.0'	55.8'	106°25.2	94°40.5		40°48.6	24°26.4	36°21.4	39°20.9	56°41.9
3	331°23.5	10.9'	19°55.3	-7.1'	55.8'	105°56.4	94°09.1		40°17.5	24°50.3	36°45.6	39°51.8	57°13.3
4	345°53.4	10.9'	19°48.2	-7.3'	55.8'	105°27.5	93°37.7		39°46.3	25°14.4	37°09.9	40°22.6	57°44.7
5	0°23.3	11.0'	19°40.9	-7.4'	55.9'	104°58.7	93°06.3		39°15.2	25°38.8	37°34.4	40°53.5	58°16.1
6	14°53.3	11.0'	N19°33.5	-7.5'	55.9'	104°29.7	92°34.8		38°44.0	26°03.4	37°59.1	41°24.5	58°47.6
7	29°23.3	11.0'	19°26.1	-7.6'	55.9'	104°00.8	92°03.3		38°12.8	26°28.3	38°23.9	41°55.5	59°19.2
8	43°53.2	11.0'	19° 18.5	-7.7'	56.0'	103°31.8	91°31.8		37°41.6	26°53.5	38°48.9	42°26.6	59°50.7
9	58°23.3	11.0'	19° 10.8	-7.8'	56.0'	103°02.8	91°00.2		37°10.3	27°18.9	39°14.1	42°57.6	60°22.3
10	72°53.3	11.0'	19°03.1	-7.9'	56.0'	102°33.8	90°28.7		36°39.1	27°44.5	39°39.4	43°28.8	60°53.9
11	87°23.3	11.1'	$18^{\circ}55.2$	-8.0'	56.0'	102°04.7	89°57.0		36°07.8	28°10.3	40°04.9	43°59.9	61°25.6
12	101°53.4	11.1'	N18°47.2	-8.1'	56.1'	101°35.6	89°25.4		35°36.4	28°36.3	40°30.5	44°31.1	61°57.3
13	116°23.5	11.1'	18°39.1	-8.2'	56.1'	101°06.4	88°53.7		35°05.1	29°02.6	40°56.3	45°02.4	62°29.0
14	130°53.6	11.1'	18°31.0	-8.3'	56.1'	100°37.2	88°22.0		34°33.7	29°29.0	41°22.2	45°33.7	63°00.8
15	145°23.7	11.1'	18°22.7	-8.4'	56.2'	100°08.0	87°50.2		34°02.3	29°55.6	41°48.2	46°05.0	63°32.6
16	159°53.8	11.1'	18° 14.3	-8.5'	56.2'	99°38.8	87°18.4		33°30.9	30°22.4	42°14.4	46°36.4	64°04.4
17	174°24.0	11.2'	$18^{\circ}05.8$	-8.6'	56.2'	99°09.5	86°46.6		32°59.5	30°49.3	42°40.7	47°07.8	64°36.3
18	188°54.1	11.2'	$N17^{\circ}57.2$	-8.7'	56.3'	98°40.2	86°14.7	88°33.3	32°28.0	31°16.4	43°07.1	47°39.3	65°08.2
19	203°24.3	11.2'	17°48.5	-8.8'	56.3'	98° 10.8	85°42.9	88°07.2	31°56.5	31°43.7	43°33.7	48°10.8	65°40.2
20	217°54.5	11.2'	17°39.8	-8.9'	56.3'	97°41.4	85°10.9	87°41.1	31°25.0	32°11.2	44°00.4	48°42.3	66°12.2
21	232°24.7	11.2'	17°30.9	-9.0'	56.4'	97°12.0	84°39.0	87°15.0	30°53.5	32°38.8	44°27.2	49°13.9	66°44.2
22	246°55.0	11.2'	$17^{\circ}21.9$	-9.1'	56.4'	96°42.6	84°07.0	86°48.9	30°22.0	33°06.5	44°54.1	49°45.6	67°16.2
23	261°25.2	11.3'	$17^{\circ}12.9$	-9.2'	56.4'	96°13.1	83°34.9	86°22.7	29°50.4	33°34.4	45°21.2	50°17.2	67°48.3
29 th	SD	$= 15.2^{\prime}$	Mer. pass	. 04:58		<u> </u>			Sun	SD = 16.1'			

h Moon (30th Oct)

Tue	GHA	ν	Dec	d	HP	-Sun	-Arcturus	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	275°55.5	11.3'	N 17°03.7	-9.3'	56.5'	95°43.5	85°56.5	83°02.8	29°18.8	12°09.9	34°02.4	50°48.9	68°20.5
1	290°25.7	11.3'	16°54.4	-9.4'	56.5'	95°14.0	85°30.3	82°30.7	28°47.2	12°31.8	34° 30.6	51°20.7	68°52.6
2	304°56.0	11.3'	$16^{\circ}45.1$	-9.4'	56.5'	94°44.4	85°04.0	81°58.6	28°15.6	12°54.5	34° 58.9	51°52.5	69°24.9
3	319°26.3	11.3'	16°35.6	-9.5'	56.6'	94°14.7	84°37.8	81°26.4	27°43.9	13° 17.8	35°27.4	52°24.3	69°57.1
4	333°56.7	11.3'	$16^{\circ}26.1$	-9.6'	56.6'	93°45.0	84°11.5	80°54.2	27°12.3	13°41.7	35°55.9	52°56.2	70°29.4
5	348°27.0	11.4'	$16^{\circ}16.5$	-9.7'	56.6'	93° 15.3	83°45.2	80°21.9	26°40.6	14°06.3	36°24.6	53°28.1	71°01.7
6	2°57.4	11.4'	N 16°06.7	-9.8'	56.7'	92°45.5	83°18.9	79°49.6	26°08.9	14°31.3	36° 53.4	54°00.1	71°34.1
7	17°27.7	11.4'	15°56.9	-9.9'	56.7'	92°15.7	82°52.5	79°17.3	25°37.2	14°56.8	37°22.3	54°32.1	72°06.5
8	31°58.1	11.4'	15°47.0	-10.0'	56.7'	91°45.9	82°26.2	78°44.9	25°05.5	15°22.8	37°51.3	55°04.2	72°38.9
9	46°28.5	11.4'	15°37.0	-10.1'	56.8'	91°16.0	81°59.8	78°12.5	24°33.8	15°49.2	38° 20.5	55°36.3	73°11.4
10	60°58.9	11.4'	15°26.9	-10.2'	56.8'	90°46.1	81°33.4	77°40.0	24°02.1	16°16.0	38°49.8	56°08.4	73°44.0
11	75°29.4	11.4'	$15^{\circ}16.7$	-10.3'	56.8'	90°16.1	81°07.0	77°07.5	23°30.3	16°43.2	39° 19.1	56°40.6	74°16.5
12	89°59.8	11.4'	N 15°06.5	-10.4'	56.9'	89°46.1	80°40.5	76°35.0	22°58.6	17° 10.7	39°48.6	57°12.8	74°49.1
13	104°30.2	11.5'	14°56.1	-10.4'	56.9'	89°16.1	80°14.1	76°02.4	22°26.9	17°38.5	40° 18.2	57°45.1	75°21.8
14	119°00.7	11.5'	14°45.7	-10.5'	56.9'	88°46.0	79°47.6	75°29.8	21°55.1	18°06.6	40°47.8	58°17.4	75°54.5
15	133°31.2	11.5'	14°35.2	-10.6'	57.0'	88° 15.9	79°21.2	74°57.2	21°23.4	18°34.9	41° 17.6	58°49.8	76°27.2
16	148°01.7	11.5'	14°24.5	-10.7'	57.0'	87°45.8	78°54.7	74°24.5	20°51.6	19°03.6	41°47.5	59°22.2	77°00.0
17	162°32.2	11.5'	14°13.8	-10.8'	57.0'	87° 15.5	78°28.2	73°51.7	20°19.9	19°32.4	42°17.4	59°54.7	77°32.8
18	177°02.7	11.5'	N 14°03.1	-10.9'	57.1'	86°45.3	78°01.7	73°18.9	19°48.2	20°01.5	42° 47.5	60°27.2	78°05.6
19	191°33.2	11.5'	13°52.2	-10.9'	57.1'	86°15.0	77°35.1	72°46.1	19°16.5	20°30.9	43° 17.6	60°59.7	78°38.5
20	206°03.7	11.5'	13°41.3	-11.0'	57.1'	85°44.7	77°08.6	72°13.3	18°44.9	21°00.4	43°47.9	61°32.3	79°11.5
21	220°34.2	11.5'	13°30.2	-11.1'	57.2'	85°14.3	76°42.1	71°40.4	18°13.2	21°30.1	44° 18.2	62°04.9	79°44.5
22	235°04.8	11.5'	13°19.1	-11.2'	57.2'	84°43.9	76°15.5	71°07.4	17°41.6	22°00.0	44° 48.6	62°37.6	80°17.5
23	249°35.3	11.6'	13°07.9	-11.3'	57.3'	84°13.5	75°49.0	70°34.4	17°10.1	22°30.1	45° 19.1	63°10.3	80°50.6
30 th	30 th SD = 15.4' Mer. pass. 05:48 Sun SD = 16.1'												

h	Moon	(31 st	Oct)	1
11	1410011	ιo±	000	,

Lunar Distance (objects with largest hourly LD delta)

-Arcturus -Spica -Regulus +Pollux +Betelgeuse +Aldebaran

Wed	GHA	ν	Dec	d	HP	-Sun	-Arcturus	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	264°05.9	11.6'	N 12°56.6	-11.4'	57.3'	83°43.0	75°22.4	70°01.4	16°38.6	23°00.3	45°49.7	63°43.1	81°23.7
1	278°36.4	11.6'	12°45.3	-11.4'	57.3'	83°12.4	74°55.8	69°28.3	16°07.2	23°30.7	46°20.4	64° 15.9	81°56.8
2	293°07.0	11.6'	12°33.9	-11.5'	57.4'	82°41.8	74°29.3	68° 55.2	15°35.8	24°01.3	46°51.2	64°48.8	82°30.0
3	307°37.6	11.6'	12°22.3	-11.6'	57.4'	82°11.2	74°02.7	68°22.0	15°04.5	24°32.0	47°22.0	65°21.7	83°03.3
4	322°08.2	11.6'	$12^{\circ}10.8$	-11.7'	57.4'	81°40.5	73°36.1	67°48.8	14°33.3	25°02.9	47°52.9	65°54.6	83°36.6
5	336°38.7	11.6'	$11^{\circ}59.1$	-11.7'	57.5'	81°09.8	73°09.5	67° 15.6	14°02.2	25°33.8	48°23.9	66°27.6	84°09.9
6	351°09.3	11.6'	N11°47.4	-11.8'	57.5'	80°39.1	72°42.9	66°42.3	13°31.3	26°04.9	48°55.0	67°00.7	84°43.3
7	5°39.9	11.6'	11°35.5	-11.9'	57.6'	80°08.3	72°16.4	66°08.9	13°00.5	26°36.2	49°26.2	67° 33.7	85°16.7
8	20°10.5	11.6'	11°23.6	-12.0'	57.6'	79°37.4	71°49.8	65°35.6	12°29.9	27°07.5	49°57.4	68°06.9	85°50.2
9	34°41.1	11.6'	$11^{\circ}11.7$	-12.0'	57.6'	79°06.5	71°23.2	65°02.1	11°59.5	27°39.0	50°28.7	68°40.1	86°23.7
10	49°11.7	11.6'	$10^{\circ}59.7$	-12.1'	57.7'	78°35.6	70°56.7	64°28.7	11°29.3	28°10.6	51°00.1	69°13.3	86°57.2
11	63°42.3	11.6'	10°47.5	-12.2'	57.7'	78°04.6	70°30.1	63°55.1	10°59.4	28°42.3	51°31.6	69°46.6	87°30.8
12	78°12.9	11.6'	N10°35.4	-12.2'	57.7'	77°33.6	70°03.5	63°21.6	10°29.8	29°14.1	52°03.1	70° 19.9	88°04.5
13	92°43.5	11.6'	10°23.1	-12.3'	57.8'	77°02.5	69°37.0	62°48.0	10°00.6	29°46.0	52°34.7	70°53.3	88°38.2
14	107°14.1	11.6'	$10^{\circ}10.8$	-12.4'	57.8'	76°31.4	69° 10.5	62° 14.3	9°31.8	30°18.0	53°06.4	71°26.7	89°11.9
15	121°44.6	11.6'	09°58.4	-12.5'	57.9'	76°00.2	68°43.9	61°40.6	9°03.6	30°50.1	53°38.1	72°00.2	89°45.7
16	136°15.2	11.6'	09°46.0	-12.5'	57.9'	75°29.0	68° 17.4	61°06.9	8°36.0	31°22.3	54°10.0	72°33.7	90°19.5
17	150°45.8	11.6'	09°33.5	-12.6'	57.9'	74°57.7	67°50.9	60°33.1	8°09.1	31°54.6	54°41.9	73°07.2	90°53.4
18	165°16.4	11.6'	N09°20.9	-12.6'	58.0'	74°26.4	67°24.5	59°59.3	7°43.1	32°27.0	55°13.8	73°40.9	91°27.3
19	179°47.0	11.6'	09°08.2	-12.7'	58.0'	73°55.1	66°58.0	59°25.4		32°59.5	55°45.9	74° 14.5	92°01.3
20	194°17.5	11.6'	08°55.5	-12.8'	58.1'	73°23.7	66°31.6	58° 51.5		33°32.0	56°18.0	74°48.2	92°35.3
21	208°48.1	11.5'	08°42.7	-12.8'	58.1'	72°52.2	66°05.1	58° 17.5		34°04.7	56°50.1	75°22.0	93°09.4
22	223°18.6	11.5'	$08^{\circ}29.9$	-12.9'	58.1'	72°20.8	65°38.7	57°43.5		34°37.4	57°22.4	75°55.8	93°43.5
23	237°49.2	11.5'	08°17.0	-13.0'	58.2'	71°49.2	65°12.4	57°09.4		35°10.2	57°54.7	76°29.6	94°17.6
31 st	SD	= 15.6	Mer. pas	s. 06:37					Sun	SD = 16.1	,		

Moon (1st Nov)

		IVIOO	011 (T 140	v)		Lunar Distance (objects with largest nourly LD delta)							
Thu	GHA	ν	Dec	d	HP	-Hadar	-Sun	-Arcturus	-Spica	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	252°19.7	11.5'	N 08°04.1	-13.0'	58.2'	84°25.2	71°17.6	64°46.0	56°35.3	35°43.1	58°27.1	77°03.5	94°51.8
1	266°50.2	11.5'	$07^{\circ}51.0$	-13.1'	58.3'	83°59.5	70°46.0	64°19.7	56°01.1	36°16.1	58°59.5	77°37.5	95°26.1
2	281°20.7	11.5'	07°38.0	-13.1'	58.3'	83°33.9	70°14.3	63°53.4	55°26.9	36°49.2	59°32.0	78°11.5	96°00.4
3	295°51.2	11.5'	07°24.8	-13.2'	58.3'	83°08.2	69°42.6	63°27.2	54°52.7	37°22.3	60°04.6	78°45.5	96°34.7
4	310°21.7	11.5'	$07^{\circ}11.6$	-13.2'	58.4'	82°42.6	69°10.8	63°00.9	54°18.4	37°55.5	60°37.2	79°19.6	97°09.1
5	324°52.2	11.5'	06°58.4	-13.3'	58.4'	82°16.9	68°39.0	62°34.8	53°44.0	38°28.8	61°09.9	79°53.7	97°43.6
6	339°22.7	11.4'	N 06°45.1	-13.4'	58.4'	81°51.1	68°07.1	62°08.6	53°09.6	39°02.1	61°42.7	80°27.9	98°18.0
7	353°53.1	11.4'	06°31.8	-13.4'	58.5'	81°25.4	67°35.2	61°42.5	52°35.2	39°35.6	62°15.5	81°02.2	98°52.6
8	8°23.5	11.4'	06° 18.4	-13.5'	58.5'	80°59.7	67°03.3	61°16.5	52°00.7	40°09.1	62°48.4	81°36.5	99°27.2
9	22°53.9	11.4'	06°04.9	-13.5'	58.6'	80°33.9	66°31.3	60°50.4	51°26.2	40°42.6	63°21.3	82°10.8	100°01.8
10	37°24.3	11.4'	05°51.4	-13.6'	58.6'	80°08.2	65°59.2	60°24.5	50°51.6	41°16.3	63°54.4	82°45.2	100°36.5
11	51°54.7	11.4'	05°37.8	-13.6'	58.6'	79°42.4	65°27.1	59°58.6	50°16.9	41°50.0	64°27.4	83°19.6	101°11.2
12	66°25.0	11.3'	N05°24.2	-13.6'	58.7'	79°16.6	64°54.9	59°32.7	49°42.3	42°23.7	65°00.6	83°54.1	101°46.0
13	80°55.4	11.3'	$05^{\circ}10.6$	-13.7'	58.7'	78°50.8	64°22.7	59°06.9	49°07.5	42°57.6	65°33.8	84°28.6	102°20.8
14	95°25.7	11.3'	04°56.9	-13.7'	58.8'	78°25.1	63°50.5	58°41.2	48°32.8	43°31.5	66°07.0	85°03.2	102°55.7
15	109°56.0	11.3'	04°43.2	-13.8'	58.8'	77°59.3	63°18.2	58°15.5	47°57.9	44°05.5	66°40.4	85°37.8	103°30.6
16	124°26.2	11.2'	04°29.4	-13.8'	58.8'	77°33.5	62°45.9	57°49.9	47°23.1	44°39.5	67°13.7	86°12.5	104°05.5
17	138°56.5	11.2'	04° 15.6	-13.9'	58.9'	77°07.7	62°13.5	57°24.3	46°48.2	45°13.6	67°47.2	86°47.2	104°40.5
18	153°26.7	11.2'	N 04°01.7	-13.9'	58.9'	76°41.9	61°41.0	56°58.8	46° 13.2	45°47.8	68°20.7	87°22.0	105°15.6
19	167°56.9	11.2'	03°47.8	-13.9'	59.0'	76°16.1	61°08.5	56°33.4	45°38.2	46°22.1	68°54.2	87°56.8	105°50.7
20	182°27.1	11.1'	03°33.8	-14.0'	59.0'	75°50.3	60°36.0	$56^{\circ}08.1$	45°03.1	46°56.4	69°27.8	88°31.7	106°25.8
21	196°57.2	11.1'	$03^{\circ}19.9$	-14.0'	59.0'	75°24.6	60°03.4	55°42.9	44°28.0	47°30.7	70°01.5	89°06.6	107°01.0
22	211°27.3	11.1'	03°05.8	-14.1'	59.1'	74°58.8	59°30.8	55°17.7	43°52.9	48°05.1	70°35.2	89°41.5	107°36.3
23	225°57.4	11.0'	02°51.8	-14.1'	59.1'	74°33.0	58°58.1	54°52.6	43°17.7	48°39.6	71°09.0	90°16.6	108°11.6
1 st	SD	= 15.9'	Mer. pas	s. 07:25					Sun	SD = 16.1	.'		

h	Moon	(2nd	Mov)
[]	IVIOOH	1/	INOVI

h		Moor	ı (2 nd Nov	ov) Lunar Distance (objects with largest h				st hourly	LD delta)					
Fri	GHΔ	1/	Dec	d	HP	-Hadar	-Sun	- Arcturus	-Snica	+Regulus	+Pollux	⊥∆ldeharan	+Saturn	

Fri	GHA	ν	Dec	d	HP	-Hadar	-Sun	-Arcturus	-Spica	+Regulus	+Pollux	+Aldebaran	+Saturn
0	240°27.4	11.0'	N 02°37.7	-14.1'	59.1'	74°07.3	58°25.4	54°27.7	42°42.4	12°32.4	49°14.2	90°51.6	108°46.9
1	254°57.4	11.0'	02°23.6	-14.2'	59.2'	73°41.6	57°52.6	54°02.8	42°07.1	13°04.8	49°48.8	91°26.7	109°22.3
2	269°27.4	10.9'	02°09.4	-14.2'	59.2'	73°15.9	57°19.8	53°38.0	41°31.8	13°37.5	50°23.4	92°01.9	109°57.7
3	283°57.4	10.9'	$01^{\circ}55.2$	-14.2'	59.3'	72°50.2	56°47.0	53° 13.3	40°56.4	14°10.5	50°58.2	92°37.1	110°33.2
4	298°27.3	10.9'	$01^{\circ}41.0$	-14.2'	59.3'	72°24.5	56°14.1	52°48.8	40°21.0	14°43.7	51°33.0	93°12.3	111°08.7
5	312°57.1	10.8'	$01^{\circ}26.8$	-14.3'	59.3'	71°58.8	55°41.1	52°24.3	39° 45.5	15°17.1	52°07.8	93°47.6	111°44.3
6	327°27.0	10.8'	$N01^{\circ}12.5$	-14.3'	59.4'	71°33.2	55°08.1	52°00.0	39° 10.0	15°50.7	52°42.7	94°23.0	112°19.9
7	341°56.8	10.8'	00°58.2	-14.3'	59.4'	71°07.6	54°35.0	51°35.8	38° 34.4	16°24.5	53°17.7	94°58.4	112°55.6
8	356° 26.5	10.7'	00°43.9	-14.3'	59.4'	70°42.0	54°02.0	51°11.7	37°58.8	16°58.5	53°52.7	95°33.8	113°31.3
9	10°56.3	10.7'	00°29.5	-14.4'	59.5'	70°16.4	53°28.8	50°47.7	37°23.2	17°32.6	54°27.7	96°09.3	114°07.0
10	25°25.9	10.6'	$00^{\circ}15.2$	-14.4'	59.5'	69°50.9	52°55.6	50°23.9	36°47.5	18°06.8	55°02.9	96°44.8	114°42.8
11	39°55.6	10.6'	N 00°00.8	-14.4'	59.6'	69°25.4	52°22.4	50°00.2	36°11.7	18°41.2	55°38.1	97°20.4	115°18.7
12	54°25.2	10.6'	S 00°13.6	-14.4'	59.6'	69°00.0	51°49.1	49°36.7	35°36.0	19°15.8	56°13.3	97°56.0	115°54.6
13	68°54.7	10.5'	00°28.0	-14.4'	59.6'	68°34.6	51°15.8	49°13.3	35°00.1	19°50.4	56°48.6	98°31.7	116°30.5
14	83°24.2	10.5'	00°42.5	-14.4'	59.7'	68°09.2	50°42.4	48°50.1	34°24.3	20°25.2	57°23.9	99°07.4	117°06.5
15	97°53.7	10.4'	00°56.9	-14.5'	59.7'	67°43.9	50°09.0	48°27.0	33°48.3	21°00.1	57°59.3	99°43.1	117°42.5
16	112°23.1	10.4'	$01^{\circ}11.4$	-14.5'	59.7'	67°18.6	49°35.6	48°04.2	33° 12.4	21°35.1	58°34.8	100°18.9	118° 18.6
17	126°52.5	10.3'	$01^{\circ}25.8$	-14.5'	59.8'	66°53.4	49°02.1	47°41.4	32°36.4	22°10.2	59°10.3	100°54.8	118°54.7
18	141°21.8	10.3'	S 01°40.3	-14.5'	59.8'	66°28.2	48°28.5	47°18.9	32°00.3	22°45.3	59°45.9	101°30.7	119°30.8
19	155°51.0	10.2'	01°54.8	-14.5'	59.8'	66°03.1	47°54.9	46° 56.6	31°24.3	23°20.6	60°21.5	102°06.6	
20	170°20.3	10.2'	$02^{\circ}09.3$	-14.5'	59.9'	65°38.0	47°21.3	46°34.4	30°48.1	23°56.0	60°57.1	102°42.6	
21	184°49.4	10.1'	02°23.8	-14.5'	59.9'	65°13.0	46°47.6	46° 12.5	30° 12.0	24°31.4	61°32.9	103°18.6	
22	199° 18.5	10.1'	02°38.3	-14.5'	59.9'	64°48.1	46°13.9	45°50.7	29°35.8	25°06.9	62°08.6	103°54.7	
23	213°47.6	10.0'	02°52.8	-14.5'	60.0'	64°23.2	45°40.2	45°29.2	28° 59.5	25°42.5	62°44.4	104°30.8	
2 nd	SD	= 16.1'	Mer. pas	s. 08:15	Sun SD = $16.1'$								

h	Moon	(3 rd	Nov)	

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Hadar	-Arcturus	-Sun	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	228°16.6	9.9'	S 03°07.4	-14.5'	60.0'	63°58.4	45°07.9	45°06.4	28°23.2	26° 18.2	59°33.5	63°20.3	105°06.9
1	242°45.5	9.9'	03°21.9	-14.5'	60.0'	63°33.7	44°46.8	44°32.5	27°46.9	26°54.0	60°08.7	63°56.2	105°43.1
2	257°14.4	9.8'	03°36.4	-14.5'	60.1'	63°09.0	44°26.0	43°58.6	27°10.6	27°29.8	60°43.9	64°32.2	106°19.4
3	271°43.3	9.8'	03°50.9	-14.5'	60.1'	62°44.4	44°05.4	43°24.7	26°34.2	28°05.7	61°19.1	65°08.2	106°55.6
4	286°12.0	9.7'	04°05.4	-14.5'	60.1'	62°19.9	43°45.1	42°50.8	25°57.8	28°41.7	61°54.4	65°44.2	107°32.0
5	300°40.8	9.7'	$04^{\circ}19.9$	-14.5'	60.2'	61°55.5	43°25.0	42°16.8	25°21.3	29° 17.7	62°29.8	66°20.4	108°08.3
6	315°09.4	9.6'	S 04°34.4	-14.5'	60.2'	61°31.2	43°05.2	41°42.7	24°44.8	29°53.8	63°05.2	66°56.5	108°44.7
7	329°38.0	9.5'	04°48.8	-14.5'	60.2'	61°06.9	42°45.6	41°08.6	24°08.3	30°29.9	63°40.7	67°32.7	109°21.1
8	344°06.5	9.5'	$05^{\circ}03.3$	-14.4'	60.3'	60°42.8	42°26.4	40°34.5	23°31.7	31°06.2	64°16.2	68°08.9	109°57.6
9	358°35.0	9.4'	$05^{\circ}17.8$	-14.4'	60.3'	60°18.8	42°07.4	40°00.4	22°55.1	31°42.4	64°51.8	68°45.2	110°34.1
10	13°03.4	9.3'	05°32.2	-14.4'	60.3'	59°54.8	41°48.8		22°18.5	32° 18.8	65°27.4	69°21.6	111°10.7
11	27°31.7	9.3'	05°46.6	-14.4'	60.4'	59°31.0	41°30.4		21°41.9	32°55.2	66°03.1	69°57.9	111°47.3
12	42°00.0	9.2'	S 06°01.0	-14.4'	60.4'	59°07.3	41°12.4		21°05.2	33°31.6	66°38.8	70°34.4	112°23.9
13	56°28.2	9.1'	$06^{\circ}15.4$	-14.4'	60.4'	58°43.7	40°54.7		20°28.5	34°08.1	67°14.6	71°10.8	113°00.5
14	70°56.4	9.1'	$06^{\circ}29.7$	-14.3'	60.5'	58°20.2	40°37.3		19°51.8	34° 44.7	67°50.4	71°47.3	113°37.2
15	85°24.4	9.0'	$06^{\circ}44.1$	-14.3'	60.5'	57°56.8	40°20.3		19°15.1	35°21.3	68°26.3	72°23.9	114°14.0
16	99°52.4	8.9'	06°58.4	-14.3'	60.5'	57°33.6	40°03.6		18°38.3	35° 57.9	69°02.2	73°00.5	114°50.7
17	114°20.4	8.9'	$07^{\circ}12.7$	-14.3'	60.5'	57°10.5	39°47.3		18°01.5	36°34.7	69°38.1	73°37.1	115°27.5
18	128°48.2	8.8'	S 07°26.9	-14.2'	60.6'	56°47.6	39°31.4		17°24.7	37° 11.4	70°14.2	74°13.8	116°04.4
19	143°16.0	8.7'	$07^{\circ}41.1$	-14.2'	60.6'	56°24.7	39° 15.9		16°48.0	37°48.2	70°50.2	74°50.5	116°41.2
20	157°43.7	8.6'	07°55.3	-14.2'	60.6'	56°02.1	39°00.7		16°11.2	38°25.1	71°26.3	75°27.2	117°18.1
21	172°11.3	8.6'	$08^{\circ}09.5$	-14.1'	60.7'	55°39.5			15°34.4	39°02.0	72°02.5	76°04.0	117°55.1
22	186°38.9	8.5'	08°23.6	-14.1'	60.7'	55°17.2			14°57.6	39°38.9	72°38.6	76°40.8	118°32.0
23	201°06.4	8.4'	08°37.7	-14.0'	60.7'	54°54.9			14°20.8	40° 15.9	73°14.9	77°17.7	119°09.0
3 rd	SD	= 16.4	′ Mer. pa:	ss. 09:06					Sun	SD = 16.1'			

Moon (4th Nov)

Sun	GHA	ν	Dec		HP	-Hadar	-Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse	+Rigel	+Capella
0	215°33.8	8.3'	S 08°51.7	-14.0'	60.7'	54°32.9	13°44.0	40°52.9	73°51.1	77°54.6	99°44.1	107°12.8	108°59.6
1	230°01.2	8.3'	09°05.7	-14.0'	60.8'	54°11.0	13°07.3	41°30.0	74°27.4	78°31.5	100°20.0	107°44.0	100°33.8
2	244°28.4	8.2'	09°19.6	-13.9'	60.8	53°49.3	12° 30.5	42°07.1	75°03.8	79°08.4	100°56.0	108°15.2	110°08.0
3	258°55.6	8.1'	09°33.5	-13.9'	60.8'	53°27.8	11°53.9	42°44.2	75°40.2	79°45.4	101°32.0	108°46.3	110°42.3
4	273°22.7	8.0'	09°47.4	-13.8'	60.8'	53°06.5	11° 17.3	43°21.4	76°16.6	80°22.5	102°08.1	109°17.5	111°16.5
5	287°49.7	7.9'	$10^{\circ}01.2$	-13.8'	60.9'	52°45.3	10°40.7	43°58.7	76°53.0	80°59.5	102°44.1	109°48.6	111°50.8
6	302°16.7	7.9'	S 10°15.0	-13.7'	60.9'	52°24.4	10°04.3	44°35.9	77°29.5	81°36.6	103° 20.2	110°19.7	112°25.0
7	316°43.5	7.8'	10°28.7	-13.6'	60.9'	52°03.6	9°27.9	45°13.2	78°06.0	82°13.8	103°56.4	110°50.8	112°59.3
8	331°10.3	7.7'	10°42.3	-13.6'	60.9'	51°43.1	8°51.7	45°50.6	78°42.6	82°50.9	104° 32.5	111°21.8	113°33.5
9	345°37.0	7.6'	10°55.9	-13.5'	60.9'	51°22.8	8° 15.7	46°28.0	79°19.2	83°28.1	105°08.6	111°52.9	114°07.7
10	0°03.7	7.5'	$11^{\circ}09.4$	-13.5'	61.0'	51°02.7	7°39.9	47°05.4	79°55.8	84°05.3	105°44.8	112°23.9	114°42.0
11	14°30.2	7.5'	11°22.9	-13.4'	61.0'	50°42.8	7°04.4	47°42.8	80°32.5	84°42.6	106°21.0	112°54.8	115°16.2
12	28°56.7	7.4'	S 11°36.3	-13.3'	61.0'	50°23.2	6°29.4	48°20.3	81°09.2	85° 19.8	106° 57.2	113°25.7	115°50.4
13	43°23.0	7.3'	11°49.6	-13.3'	61.0'	50°03.8	5°54.8	48°57.8	81°45.9	85°57.1	107°33.4	113°56.6	116°24.6
14	57°49.3	7.2'	12°02.9	-13.2'	61.0'	49°44.6	5°20.9	49°35.3	82°22.6	86°34.5	108° 09.7	114°27.5	116°58.8
15	72°15.5	7.1'	12°16.1	-13.1'	61.1'	49°25.7	4°48.0	50°12.9	82°59.4	87° 11.8	108° 45.9	114°58.3	117°33.0
16	86°41.7	7.0'	12°29.2	-13.1'	61.1'	49°07.0		50°50.5	83°36.2	87°49.2	109°22.2	115°29.1	118°07.1
17	101°07.7	7.0'	12°42.3	-13.0'	61.1'	48°48.6		51°28.1	84°13.0	88°26.6	109°58.4	115°59.8	118°41.2
18	115°33.7	6.9'	S 12°55.3	-12.9'	61.1'	48°30.5		52°05.8	84°49.9	89°04.0	110°34.7	116°30.5	119°15.3
19	129°59.5	6.8'	13°08.2	-12.8'	61.1'	48°12.7		52°43.4	85°26.7	89°41.5	111°11.0	117°01.1	119°49.4
20	144°25.3	6.7'	13°21.0	-12.7'	61.1'	47°55.1		53°21.1	86°03.6	90° 18.9	111° 47.3	117°31.6	
21	158°51.0	6.6'	13°33.8	-12.7'	61.2'	47°37.8		53°58.9	86°40.6	90°56.4	112°23.6	118°02.1	
22	173°16.6	6.5'	13°46.4	-12.6'	61.2'	47°20.9		54°36.6	87°17.5	91°33.9	112°59.9	118°32.5	
23	187°42.2	6.4'	13°59.0	-12.5'	61.2'	47°04.2		55°14.4	87°54.5	92°11.5	113°36.2	119°02.9	
4 th	SD	= 16.6	′ Mer. pas	ss. 10:00									

h	Moon	(5th	Nov)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Rigil Kent.	-Hadar	+Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse	+Rigel
0	202°07.6	6.4'	S 14°11.5	-12.4'	61.2'		46°47.8		55°52.2	88°31.4	92°49.0	114°12.6	119°33.2
1	216°33.0	6.3'	14°23.9	-12.3'	61.2'	48°14.1	46°31.8		56°30.0	89°08.4	93°26.6	114°48.9	
2	230°58.2	6.2'	14°36.2	-12.2'	61.2'	47°55.1	46°16.0		57°07.8	89°45.5	94°04.1	115°25.2	
3	245°23.4	6.1'	14°48.4	-12.1'	61.2'	47°36.4	46°00.6		57°45.7	90°22.5	94°41.7	116°01.5	
4	259°48.5	6.0'	$15^{\circ}00.5$	-12.0'	61.3'	47°18.0	45°45.6		58°23.6	90°59.5	95°19.4	116°37.8	
5	$274^{\circ}13.5$	5.9'	$15^{\circ}12.5$	-11.9'	61.3'	46°59.8			59°01.5	91°36.6	95°57.0	117°14.1	
6	288°38.5	5.8'	S 15°24.5	-11.8'	61.3'	46°42.0			59°39.4	92°13.7	96°34.6	117°50.4	
7	303°03.3	5.8'	15°36.3	-11.7'	61.3'	46°24.5		6°31.4	60°17.3	92°50.8	97°12.3	118°26.7	
8	$317^{\circ}28.1$	5.7'	15°48.0	-11.6'	61.3'	46°07.3		7°06.9	60°55.3	93°27.9	97°49.9	119°03.0	
9	331°52.7	5.6'	15°59.6	-11.5'	61.3'	45°50.4		7°42.8	61°33.2	94°05.0	98°27.6	119°39.3	
10	$346^{\circ}17.3$	5.5'	$16^{\circ}11.1$	-11.4'	61.3'	45°33.8		8°19.0	62°11.2	94°42.1	99°05.3		
11	$0^{\circ}41.8$	5.4'	$16^{\circ}22.5$	-11.3'	61.3'	45°17.6		8°55.6	62°49.2	95° 19.2	99°43.0		
12	15°06.2	5.3'	S 16°33.8	-11.2'	61.3'	45°01.7		9°32.3	63°27.2	95°56.4	100°20.7		
13	29°30.6	5.3'	16°45.0	-11.1'	61.3'	44°46.2		10°09.3	64°05.2	96°33.5	100°58.4		
14	43°54.8	5.2'	$16^{\circ}56.0$	-10.9'	61.3'		·			v Moon ——		<u>. </u>	·
15	$58^{\circ}19.0$	5.1'	17°07.0	-10.8'	61.3'					v Moon ——			
16	$72^{\circ}43.1$	5.0'	$17^{\circ}17.8$	-10.7'	61.3'					v Moon ——			
17	$87^{\circ}07.1$	4.9'	$17^{\circ}28.5$	-10.6'	61.4'				Nev	v Moon ——			
18	101°31.0	4.8'	S 17°39.1	-10.5'	61.4'				Nev	v Moon ——			
19	115°54.9	4.8'	17°49.5	-10.3'	61.4'				Nev	v Moon ——			l
20	130°18.7	4.7'	17°59.9	-10.2'	61.4'					v Moon ——			
21	144°42.4	4.6'	$18^{\circ}10.1$	-10.1'	61.4'				Nev	v Moon ——			
22	$159^{\circ}06.0$	4.5'	$18^{\circ}20.1$	-9.9'	61.4'					v Moon ——			
23	173°29.5	4.5'	18°30.1	-9.8'	61.4'				Nev	v Moon ——			
5 th	SD	= 16.7	" Mer. pa	ss. 10:57									

h Moon (6 th Nov)	Lunar Distance (objects with largest hourly LD delta)
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Tu	ıe	GHA	ν	Dec	d	HP	-Achernar	-Fomalhaut	-Deneb	-Vega	-Altair	-Mars	-Venus	-Antares
0)	187°53.0	4.4'	S 18°39.9	-9.7'	61.4'				New Mo	oon ———			
1	L	202°16.4	4.3'	18°49.6	-9.5'	61.4'				New Mo	oon ———			
2	2	216°39.7	4.2'	$18^{\circ}59.1$	-9.4'	61.4'				New Mo	oon ———			
3	3	231°02.9	4.2'	19°08.5	-9.3'	61.4'					oon ———			İ
4	1	245°26.1	4.1'	19°17.8	-9.1'	61.4'					oon ———			
5	5	259°49.2	4.0'	$19^{\circ}26.9$	-9.0'	61.4'					oon ———			
6	5	274°12.2	4.0'	S 19°35.9	-8.8'	61.3'				New Mo	oon ———			
7	7	288°35.2	3.9'	19°44.7	-8.7'	61.3'				New Mo	oon ———			
8	3	302°58.1	3.8'	19°53.4	-8.5'	61.3'				New Mo	oon ———			
9	9	317°20.9	3.8'	$20^{\circ}01.9$	-8.4'	61.3'					oon ———			İ
10	0	331°43.7	3.7'	$20^{\circ}10.3$	-8.2'	61.3'					oon ———			İ
1	1	346°06.4	3.6'	$20^{\circ}18.5$	-8.1'	61.3'				New Mo	oon ———			
12	2	0°29.1	3.6'	S 20°26.6	-7.9'	61.3'					oon ———			
13	3	14°51.7	3.5'	20°34.5	-7.8'	61.3'				New Mo	oon ———			İ
14	4	29°14.2	3.5'	20°42.3	-7.6'	61.3'				New Mo	oon ———			
1		43°36.7	3.4'	20°49.9	-7.5'	61.3'					oon ———			
1 1	-	57°59.1	3.4'	20°57.4	-7.3'	61.3'					oon ———			
1	7	72°21.5	3.3'	$21^{\circ}04.7$	-7.1'	61.3'				New Mo	oon ———			
18	8	86°43.8	3.3'	S 21°11.8	-7.0'	61.3'				New Mo	oon ———			
19	9	101°06.1	3.2'	21°18.8	-6.8'	61.2'				New Mo	oon ———			
20	0	115°28.3	3.2'	$21^{\circ}25.6$	-6.7'	61.2'				New Mo	oon ———			İ
2	1	129°50.5	3.1'	21°32.3	-6.5'	61.2'	98°13.1	98°02.5			72°01.3		36°34.2	
22		144°12.6	3.1'	21°38.8	-6.3'	61.2'	97°57.4	97°28.4	97°33.8		71°27.6	36°56.7	35°58.8	
23	3	158°34.7	3.1'	21°45.1	-6.2'	61.2'	97°41.7	96°54.2	97°12.4	74°38.9	70°54.0	36°20.6	35°23.4	14°25.7
6 ^t	th	SD :	= 16.7'	Mer. pas	s. 11:58	3								

h Moon (7 th Nov) Lunar Distance (objects with la	argest hourly LD delta	a)
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n		IVIOO	n (/" Nc)V)		L	Lunar Dis	stance (obje	ects with	largest	hourly L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Vega	-Altair	-Mars	-Venus	-Antares
0	172°56.8	3.0'	S 21°51.3	-6.0'	61.2'	97°26.0	96°50.9	96°20.1	74°22.0	70°20.3	35°44.5	34°48.0	13°48.7
1	187°18.8	3.0'	21°57.3	-5.8'	61.2'	97°10.2	96°29.4	95° 45.9	74°05.1	69°46.8	35°08.4	34°12.6	13°11.7
2	201°40.8	3.0'	22°03.1	-5.7'	61.1'	96°54.4	96°07.9	95° 11.8	73°48.4	69°13.3	34°32.4	33°37.2	12°34.9
3	216°02.7	2.9'	22°08.7	-5.5'	61.1'	96°38.5	95°46.4	94°37.7	73°31.8	68°39.9	33°56.4	33°01.9	11°58.2
4	230°24.6	2.9'	22°14.2	-5.3'	61.1'	96°22.6	95°24.9	94°03.6	73°15.3	68°06.5	33°20.4	32°26.6	11°21.7
5	244°46.5	2.9'	$22^{\circ}19.5$	-5.1'	61.1'	96°06.7	95°03.3	93°29.5	72°58.9	67°33.1	32°44.4	31°51.4	10°45.4
6	259°08.4	2.8'	S 22°24.7	-5.0'	61.1'	95°50.8	94°41.8	92°55.5	72°42.7	66°59.8	32°08.5	31°16.2	10°09.3
7	273°30.3	2.8'	22°29.6	-4.8'	61.1'	95°34.8	94°20.2	92°21.4	72°26.5	66°26.6	31°32.5	30°41.0	9°33.4
8	287°52.1	2.8'	22°34.4	-4.6'	61.0'	95°18.8	93°58.6	91°47.4	72°10.4	65°53.5	30°56.7	30°05.9	8°57.8
9	302°13.9	2.8'	22°39.0	-4.4'	61.0'	95°02.8	93°37.1	91°13.4	71°54.5	65°20.4	30°20.8	29°30.8	8°22.6
10	316°35.7	2.8'	22°43.5	-4.3'	61.0'	94°46.8	93°15.5	90°39.4	71°38.7	64°47.4	29°45.0	28°55.7	7°47.8
11	330°57.4	2.8'	22°47.8	-4.1'	61.0'	94°30.7	92°53.9	90°05.4	71°23.1	64°14.4	29°09.2	28°20.7	7°13.5
12	345°19.2	2.7'	S 22°51.9	-3.9'	61.0'	94°14.6	92°32.3	89°31.5	71°07.5	63°41.6	28°33.4	27°45.7	6°39.8
13	359°40.9	2.7'	22°55.8	-3.7'	60.9'	93°58.6	92°10.7	88° 57.6	70°52.1	63°08.8	27°57.6	27°10.8	6°07.0
14	14°02.7	2.7'	22°59.5	-3.6'	60.9'	93°42.5	91°49.1	88°23.7	70°36.8	62°36.0	27°21.9	26°35.9	
15	28°24.4	2.7'	23°03.1	-3.4'	60.9'	93°26.4	91°27.6	87°49.8	70°21.6	62°03.4	26°46.3	26°01.1	
16	42°46.1	2.7'	23°06.5	-3.2'	60.9'	93°10.3	91°06.0	87° 16.0	70°06.6	61°30.8	26°10.6	25°26.3	
17	57°07.9	2.7'	23°09.7	-3.0'	60.8'	92°54.2	90°44.5	86°42.2		60°58.3	25°35.0	24°51.6	
18	71°29.6	2.7'	S 23°12.7	-2.9'	60.8'	92°38.1	90°22.9	86°08.4		60°25.9	24°59.4	24°17.0	
19	85°51.3	2.7'	23°15.6	-2.7'	60.8'	92°21.9	90°01.4	85°34.7		59°53.6	24°23.9	23°42.4	
20	100°13.1	2.8'	23°18.3	-2.5'	60.8'	92°05.8	89°39.9	85°01.0		59°21.4	23°48.4	23°07.8	
21	114°34.8	2.8'	23°20.8	-2.3'	60.8'	91°49.7	89°18.4	84°27.4		58°49.2	23°13.0	22°33.4	
22	128°56.6	2.8'	23°23.1	-2.1'	60.7'	91°33.6	88°57.0	83°53.7		58°17.2	22°37.5	21°59.0	
23	143°18.4	2.8'	23°25.2	-2.0'	60.7'	91°17.5	88°35.5	83°20.1		57°45.2	22°02.2	21°24.6	
7 th	SD :	= 16.7'	Mer. pas	s. 13:01									

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L.	Moon (8 th Nov)	Lunar Distance (objects with largest hourly ID delta)
n	1/100h (8 th 1/10//)	I linar i listance i oniects with largest noliriv i i li delta i

Thu	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	-Mars	-Venus	+Antares
0	157°40.2	2.8'	S 23°27.2	-1.8'	60.7'	91°01.4	88°14.1	82°46.6	57°13.4	21°26.8	20°50.4	
1	172°02.0	2.8'	23°29.0	-1.6'	60.6'	90°45.3	87°52.7	82°13.1	56°41.6	20°51.6	20°16.2	
2	186°23.8	2.9'	23°30.6	-1.4'	60.6'	90° 29.2	87°31.4	81°39.6	56°10.0	20°16.3	19°42.1	
3	200°45.7	2.9'	23°32.0	-1.3'	60.6'	90°13.2	87° 10.1	81°06.2	55°38.5	19°41.1	19°08.1	
4	215°07.6	2.9'	23°33.3	-1.1'	60.6'	89°57.1	86°48.8	80°32.8	55°07.0	19°06.0	18°34.2	
5	229°29.5	2.9'	23°34.4	-0.9'	60.5'	89°41.1	86°27.5	79°59.5	54°35.7	18°30.9	18°00.4	
6	243°51.4	3.0'	S 23°35.3	-0.7'	60.5'	89°25.1	86°06.3	79°26.2	54°04.5	17°55.8	17°26.7	
7	258°13.4	3.0'	23°36.0	-0.6'	60.5'	89°09.1	85°45.2	78°53.0	53°33.4	17° 20.8	16°53.2	6°44.6
8	272°35.4	3.0'	23°36.6	-0.4'	60.4'	88°53.1	85°24.0	78°19.8	53°02.5	16°45.9	16° 19.7	7°17.8
9	286°57.5	3.1'	23°37.0	-0.2'	60.4'	88° 37.2	85°03.0	77°46.7	52°31.7	16°11.0	15°46.4	7°51.5
10	301°19.5	3.1'	23°37.2	-0.0'	60.4'	88°21.3	84°41.9	77°13.6	52°00.9	15°36.2	15°13.2	8°25.6
11	315°41.7	3.2'	23°37.2	0.1'	60.4'	88°05.4	84°20.9	76°40.6	51°30.4	15°01.4	14°40.2	9°00.0
12	330°03.9	3.2'	S 23°37.0	0.3'	60.3'	87° 49.5	84°00.0	76°07.7	50°59.9	14°26.7	14°07.3	9°34.7
13	344°26.1	3.3'	23°36.7	0.5'	60.3'	87° 33.7	83°39.1	75°34.7	50°29.6	13°52.1	13°34.7	10°09.7
14	358°48.4	3.3'	23°36.2	0.7'	60.3'	87° 17.8	83° 18.3	75°01.9	49°59.5	13° 17.6	13°02.2	10°44.8
15	13°10.7	3.4'	23°35.6	0.8'	60.2'	87°02.1	82°57.5	74°29.1	49°29.4	12°43.1	12°30.0	11°20.0
16	27°33.1	3.4'	23°34.7	1.0'	60.2'	86°46.3	82°36.7	73°56.4	48°59.6	12°08.7	11°58.0	11°55.4
17	41°55.5	3.5'	23°33.7	1.2'	60.2'	86°30.6	82°16.1	73°23.7	48°29.8	11°34.4	11°26.3	12°30.8
18	56°18.0	3.6'	S 23°32.6	1.3'	60.1'	86° 15.0	81°55.5	72°51.1	48°00.3	11°00.2	10°54.9	13°06.4
19	70°40.5	3.6'	23°31.2	1.5'	60.1'	85° 59.4	81°34.9	72°18.6	47°30.8	10°26.1	10°23.8	13°42.0
20	85°03.1	3.7'	23°29.7	1.7'	60.1'	85°43.8	81°14.4	71°46.1	47°01.6	9°52.2	9°53.2	14°17.6
21	99°25.8	3.7'	23°28.0	1.8'	60.0'	85°28.2	80°54.0	71°13.7	46°32.5	9°18.3	9°23.0	14°53.2
22	113°48.6	3.8'	23°26.2	2.0'	60.0'	85° 12.7	80°33.7	70°41.3	46°03.6	8°44.6	8°53.3	15°28.9
23	128°11.4	3.9'	23°24.2	2.2'	60.0'	84°57.3	80°13.4	70°09.0	45°34.9	8°11.1	8°24.3	16°04.6
8 th	SD =	= 16.5'	Mer. pas	s. 14:05								

Moon (9th Nov)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	±Venus	±Mars	+Antares	+Sun
0	142°34.3	4.0'	S 23°22.0	2.3'	59.9'	84°41.9	79°53.2	69°36.8	45°06.3	7°56.0	7°37.8	16°40.3	
1	156°57.2	4.0'	23°19.7	2.5'	59.9'	84°26.5	79°33.1	69°04.7	44°37.9	7°28.5	7°04.7	17°16.0	
2	171°20.2	4.1'	23°17.2	2.7'	59.9'	84°11.2	79°13.0	68°32.6	44°09.7		6°31.9	17°51.7	
3	185°43.3	4.2'	23°14.5	2.8'	59.8'	83°56.0	78°53.0	68°00.7	43°41.7		5°59.4	18°27.4	
4	200°06.5	4.3'	23°11.7	3.0'	59.8'	83°40.8	78°33.1	67°28.7	43°14.0		5°27.4	19°03.1	41°35.6
5	214°29.8	4.3'	23°08.7	3.1'	59.7'	83°25.6	78°13.3	66°56.9	42°46.4		4°55.9	19°38.8	42°09.2
6	228°53.1	4.4'	S 23°05.6	3.3'	59.7'	83° 10.5	77°53.5	66°25.2	42°19.0		4°25.1	20°14.4	42°42.6
7	243°16.5	4.5'	23°02.3	3.4'	59.7'	82°55.5	77°33.9	65°53.5	41°51.8			20°50.0	43°16.1
8	257°40.0	4.6'	22°58.9	3.6'	59.6'		77°14.3	65°21.9	41°24.9			21°25.7	43°49.5
9	272°03.6	4.7'	22°55.3	3.8'	59.6'		76°54.8	64°50.4	40°58.1			22°01.2	44°22.8
10	286°27.3	4.8'	22°51.5	3.9'	59.6'		76°35.4	64°18.9	40°31.7			22°36.8	44°56.1
11	300°51.1	4.9'	22°47.6	4.1'	59.5'		76°16.1	63°47.6	40°05.4			23°12.3	45°29.4
12	315°14.9	4.9'	S 22°43.6	4.2'	59.5'		75°56.8	63°16.3	39°39.4			23°47.8	46°02.6
13	329°38.9	5.0'	22°39.4	4.3'	59.4'		75°37.7	62°45.1	39°13.6			24°23.3	46°35.7
14	344°02.9	5.1'	22°35.0	4.5'	59.4'		75°18.6	62°14.1	38°48.1			24°58.7	47°08.9
15	358°27.0	5.2'	22°30.5	4.6'	59.4'		74°59.7	61°43.1	38°22.9			25°34.1	47°41.9
16	12°51.3	5.3'	22°25.9	4.8'	59.3'		74°40.9	61°12.2	37°57.9			26°09.5	48°15.0
17	27°15.6	5.4'	22°21.1	4.9'	59.3'		74°22.1	60°41.4	37°33.2			26°44.8	48°47.9
18	41°40.0	5.5'	S 22°16.2	5.1'	59.3'		74°03.5	60°10.6	37°08.8			27°20.1	49°20.9
19	56°04.5	5.6'	22°11.1	5.2'	59.2'		73°44.9	59°40.0	36°44.7			27°55.3	49°53.8
20	70°29.1	5.7'	22°05.9	5.3'	59.2'		73°26.5	59°09.5	36°20.9			28°30.5	50°26.6
21	84°53.8	5.8'	22°00.6	5.5'	59.1'		73°08.1	58°39.1	35°57.3		4°59.7	29°05.7	50°59.4
22	99°18.7	5.9'	$21^{\circ}55.1$	5.6'	59.1'		72°49.9	58°08.8	35°34.1		5°30.4	29°40.8	51°32.1
23	113°43.6	6.0'	21°49.5	5.7'	59.1'		72°31.8	57°38.5	35°11.3	7°50.3	6°01.6	30°15.9	52°04.8
9 th	SD =	= 16.3′	Mer. pass	. 15:0	6	$Sun\;SD=16.1'$							

Moon (10 th Nov)	Lunar Distance (objects with largest hourly LD delta)
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Sat	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Mars	+Venus	+Antares	+Sun
0	128°08.6	6.1'	S 21°43.7	5.9'	59.0'		72°13.7	57° 08.4	34°48.7	6°33.2	8° 17.5	30°50.9	52°37.4
1	142°33.7	6.2'	21°37.8	6.0'	59.0'		71°55.8	56°38.4	34°26.5	7°04.9	8°45.4	31°25.9	53°10.0
2	156°59.0	6.3'	21°31.8	6.1'	58.9'		71°38.0	56°08.5	34°04.7	7°36.9	9°13.7	32°00.9	53°42.6
3	171°24.3	6.4'	$21^{\circ}25.7$	6.3'	58.9'		71°20.4	55° 38.7	33°43.2	8°08.9	9°42.5	32°35.8	54°15.1
4	185°49.7	6.5'	$21^{\circ}19.4$	6.4'	58.9'		71°02.8	55°09.0	33°22.1	8°41.1	10°11.7	33°10.6	54°47.5
5	200°15.3	6.7'	$21^{\circ}13.0$	6.5'	58.8'		70°45.3	54° 39.5	33°01.3	9°13.3	10°41.1	33°45.5	55°19.9
6	214°40.9	6.8'	S 21°06.5	6.6'	58.8'		70°28.0	54°10.0	32°41.0	9°45.6	11°10.9	34°20.2	55°52.3
7	229°06.7	6.9'	20°59.9	6.8'	58.7'		70°10.8	53°40.7	32°21.0	10°17.9	11°40.8	34°55.0	56°24.6
8	243°32.5	7.0'	20°53.1	6.9'	58.7'		69°53.7	53° 11.5	32°01.5	10°50.2	12°10.9	35°29.6	56°56.8
9	257°58.5	7.1'	20°46.2	7.0'	58.7'		69°36.8	52°42.4	31°42.3	11°22.5	12°41.2	36°04.3	57°29.0
10	272°24.6	7.2'	20°39.3	7.1'	58.6'		69°19.9	52° 13.4	31°23.6	11°54.9	13°11.7	36°38.9	58°01.2
11	286°50.8	7.3'	$20^{\circ}32.1$	7.2'	58.6'		69°03.2	51°44.6	31°05.4	12°27.2	13°42.2	37°13.4	58°33.3
12	301°17.1	7.4'	S 20°24.9	7.3'	58.5'		68°46.6	51° 15.8	30°47.5	12°59.5	14°12.8	37°47.9	59°05.4
13	315°43.5	7.5'	$20^{\circ}17.6$	7.5'	58.5'		68°30.1	50°47.2	30°30.2	13°31.8	14°43.5	38°22.4	59°37.4
14	330°10.0	7.6'	$20^{\circ}10.1$	7.6'	58.5'		68°13.8	50° 18.8	30°13.3	14°04.1	15°14.3	38°56.8	60°09.3
15	344°36.7	7.7'	20°02.5	7.7'	58.4'		67°57.6	49° 50.5	29°56.9	14°36.4	15°45.2	39°31.1	60°41.2
16	359°03.4	7.8'	$19^{\circ}54.9$	7.8'	58.4'		67°41.5	49°22.3	29°41.0	15°08.6	16°16.0	40°05.5	61°13.1
17	13°30.2	8.0'	$19^{\circ}47.1$	7.9'	58.3'		67°25.6	48°54.2	29°25.5	15°40.8	16°47.0	40°39.7	61°44.9
18	27°57.2	8.1'	S 19°39.2	8.0'	58.3'		67°09.8	48°26.3		16°13.0	17° 17.9	41°13.9	62°16.7
19	42°24.3	8.2'	19°31.2	8.1'	58.3'		66°54.2	47°58.6		16°45.2	17°48.9	41°48.1	62°48.4
20	56°51.5	8.3'	$19^{\circ}23.1$	8.2'	58.2'	119°46.9	66°38.6	47°31.0		17°17.3	18° 19.8	42°22.2	63°20.0
21	71°18.7	8.4'	19°14.9	8.3'	58.2'	119°12.7	66°23.2	47°03.5		17°49.4	18°50.8	42°56.3	63°51.7
22	85°46.1	8.5'	$19^{\circ}06.6$	8.4'	58.1'	118°38.6	66°08.0	46°36.2		18°21.4	19°21.8	43°30.4	64°23.2
23	100°13.7	8.6'	18°58.2	8.5'	58.1'	118°04.5	65°52.9	46°09.0		18°53.4	19°52.8	44°04.3	64°54.7
10 th	SD =	= 16.1'	Mer. pass	Mer. pass. $16:04$ Sun SD = $16.1'$									

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

Sun	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Mars	+Venus	+Antares	+Sun	
0	114°41.3	8.7'	S 18°49.7	8.6'	58.0'	117°30.4	45°42.0	19°25.4	20°23.8	44°38.3	65°26.2	
1	129°09.0	8.8'	18°41.2	8.7'	58.0'	116°56.4	45°15.2	19°57.3	20°54.8	45°12.2	65°57.6	
2	143°36.8	8.9'	18° 32.5	8.8'	58.0'	116°22.4	44°48.5	20°29.2	21°25.8	45°46.0	66°29.0	
3	158°04.8	9.1'	18°23.7	8.9'	57.9'	115°48.5	44°22.0	21°01.1	21°56.8	46°19.8	67°00.3	
4	172°32.8	9.2'	$18^{\circ}14.8$	9.0'	57.9'	115°14.7	43°55.7	21°32.9	22°27.7	46°53.6	67°31.6	
5	187°01.0	9.3'	$18^{\circ}05.9$	9.0'	57.8'	114°40.8	43°29.5	22°04.6	22°58.7	47°27.3	68°02.8	
6	201°29.3	9.4'	S 17°56.9	9.1'	57.8'	114°07.1	43°03.6	22°36.4	23°29.6	48°00.9	68°34.0	
7	215°57.7	9.5'	17°47.7	9.2'	57.8'	113°33.4	42°37.8	23°08.1	24°00.5	48°34.5	69°05.1	
8	230°26.1	9.6'	17°38.5	9.3'	57.7'	112°59.7	42°12.2	23°39.7	24°31.4	49°08.1	69°36.2	
9	244°54.7	9.7'	$17^{\circ}29.2$	9.4'	57.7'	112°26.0	41°46.8	24°11.3	25°02.3	49°41.6	70°07.3	
10	259°23.4	9.8'	$17^{\circ}19.8$	9.5'	57.6'	111°52.5	41°21.5	24°42.8	25°33.1	50°15.1	70°38.3	
11	273°52.2	9.9'	$17^{\circ}10.4$	9.5'	57.6'	111°18.9	40°56.5	25°14.4	26°03.9	50°48.5	71°09.2	
12	288°21.1	10.0'	S 17°00.8	9.6'	57.6'	110°45.4	40°31.7	25°45.8	26°34.7	51°21.9	71°40.1	
13	302°50.2	10.1'	$16^{\circ}51.2$	9.7'	57.5'	110°12.0	40°07.1	26°17.2	27°05.4	51°55.2	72°10.9	
14	317°19.3	10.2'	$16^{\circ}41.5$	9.8'	57.5'	109°38.6	39°42.7	26°48.6	27°36.2	52°28.5	72°41.7	
15	331°48.5	10.3'	16°31.8	9.8'	57.5'	109°05.2	39°18.5	27°20.0	28°06.9	53°01.7	73°12.5	
16	346°17.8	10.4'	$16^{\circ}21.9$	9.9'	57.4'	108°31.9	38°54.5	27°51.3	28°37.5	53°34.9	73°43.2	
17	0°47.3	10.5'	$16^{\circ}12.0$	10.0'	57.4'	107°58.7	38°30.8	28°22.5	29°08.2	54°08.1	74°13.9	
18	15°16.8	10.6'	S 16°02.0	10.1'	57.3'	107°25.4	38°07.3	28°53.7	29°38.8	54°41.2	74°44.5	
19	29°46.4	10.7'	15°52.0	10.1'	57.3'	106°52.3	37°44.1	29°24.9	30°09.3	55°14.2	75°15.1	
20	44°16.1	10.8'	$15^{\circ}41.9$	10.2'	57.3'	106°19.1	37°21.0	29°56.0	30°39.9	55°47.3	75°45.6	
21	58°46.0	10.9'	15°31.7	10.3'	57.2'	105°46.0	36°58.3	30°27.1	31°10.4	56°20.2	76°16.1	
22	73°15.9	11.0'	$15^{\circ}21.4$	10.3'	57.2'	105°13.0	36°35.8	30°58.1	31°40.8	56°53.2	76°46.5	
23	87°45.9	11.1'	$15^{\circ}11.1$	10.4'	57.1'	$.1' \mid 104^{\circ}40.0 \mid 36^{\circ}13.5 \mid 31^{\circ}29.1 \mid 32^{\circ}11.3 \mid 57^{\circ}26.0 \mid 77^{\circ}16.99$						
11 th	SD	= 15.8'	Mer. pass	s. 16:57		Sun SD = $16.1'$ at 0h; $16.2'$ at 23h						

h Moon (12th Nov)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Mars	+Venus	+Antares	+Sun
0	102°16.1	11.2'	S 15°00.7	10.4'	57.1'				104°07.1	32°00.1	32°41.7	57°58.9	77°47.2
1	116°46.3	11.3'	14°50.3	10.5'	57.1'				103°34.2	32°31.0	33° 12.1	58°31.7	78°17.5
2	131°16.6	11.4'	14°39.8	10.6'	57.0'				103°01.3	33°01.8	33°42.4	59°04.4	78°47.8
3	145°47.0	11.5'	14°29.2	10.6'	57.0'				102°28.5	33°32.6	34° 12.7	59°37.1	79°18.0
4	160°17.5	11.6'	$14^{\circ}18.6$	10.7'	57.0'				101°55.7	34°03.4	34°43.0	60°09.8	79°48.2
5	174°48.1	11.7'	14°07.9	10.7'	56.9'				101°23.0	34°34.2	35°13.2	60°42.4	80°18.3
6	189°18.8	11.8'	S 13°57.2	10.8'	56.9'			119°28.8	100°50.3	35°04.8	35°43.4	61°15.0	80°48.4
7	203°49.6	11.9'	13°46.4	10.8'	56.8'			118°56.5	100°17.6	35°35.5	36° 13.6	61°47.5	81°18.4
8	218°20.5	12.0'	13°35.6	10.9'	56.8'			118°24.3	99°45.0	36°06.1	36°43.7	62°20.0	81°48.4
9	232°51.4	12.1'	13°24.7	10.9'	56.8'			$117^{\circ}52.0$	99°12.4	36°36.7	37°13.8	62°52.4	82°18.4
10	247°22.5	12.1'	13°13.7	11.0'	56.7'			$117^{\circ}19.9$	98°39.9	37°07.2	37°43.8	63°24.8	82°48.3
11	261°53.6	12.2'	13°02.7	11.0'	56.7'			116°47.7	98°07.4	37°37.7	38° 13.9	63°57.2	83°18.1
12	276°24.8	12.3'	S 12°51.7	11.1'	56.7'			$116^{\circ}15.7$	97°35.0	38°08.1	38°43.9	64°29.5	83°48.0
13	290°56.1	12.4'	12°40.6	11.1'	56.6'		119°38.9	115°43.6	97°02.6	38°38.5	39°13.8	65°01.8	84°17.7
14	305°27.5	12.5'	12°29.5	11.2'	56.6'		119°13.2	$115^{\circ}11.6$	96°30.3	39°08.9	39°43.7	65°34.1	84°47.5
15	319°59.0	12.6'	12°18.3	11.2'	56.6'		118°47.4	114°39.6	95°57.9	39°39.2	40°13.6	66°06.3	85°17.2
16	334°30.6	12.6'	$12^{\circ}07.1$	11.3'	56.5'		118°21.6	114°07.7	95°25.7	40°09.5	40°43.5	66°38.4	85°46.9
17	349°02.2	12.7'	$11^{\circ}55.8$	11.3'	56.5'		117°55.8	113°35.8	94°53.4	40°39.8	41°13.3	67°10.5	86°16.5
18	3°34.0	12.8'	S 11°44.5	11.3'	56.4'	119°52.5	117°30.0	113°03.9	94°21.2	41°10.0	41°43.1	67°42.6	86°46.1
19	18°05.8	12.9'	11°33.1	11.4'	56.4'	119°23.7	117°04.1	112°32.1	93°49.1	41°40.1	42° 12.8	68°14.7	87°15.6
20	32°37.7	13.0'	11°21.8	11.4'	56.4'	118°54.9	116°38.2	112°00.3	93°16.9	42°10.3	42°42.5	68°46.7	87°45.1
21	47°09.6	13.0'	$11^{\circ}10.3$	11.5'	56.3'	118°26.0	116°12.4	111°28.5	92°44.9	42°40.3	43°12.2	69°18.6	88°14.6
22	61°41.7	13.1'	10°58.9	11.5'	56.3'	117°57.2	115°46.4	110°56.8	92°12.8	43°10.4	43°41.8	69°50.6	88°44.0
23	76°13.8	13.2'	10°47.4	11.5'	56.3'	117°28.4	115°20.5	110°25.1	91°40.8	43°40.4	44°11.5	70°22.4	89°13.4
12 th	SD	= 15.6'	Mer. pass	i. 17:45		SunSD=16.2'							

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

	Intern (15 tret)												
Tue	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Mars	+Venus	+Antares	+Sun
0	90°46.0	13.3'	S 10°35.8	11.6'	56.2'		116°59.5	109°53.5	91°08.9	44°10.4	44°41.0	70°54.3	89°42.7
1	105°18.2	13.3'	10°24.3	11.6'	56.2'		116°30.7	109°21.9	90°36.9	44°40.3	45° 10.6	71°26.1	90°12.1
2	119°50.6	13.4'	$10^{\circ}12.7$	11.6'	56.2'		116°01.9	108°50.3	90°05.1	45°10.2	45°40.1	71°57.9	90°41.3
3	134°23.0	13.5'	$10^{\circ}01.0$	11.7'	56.1'		115°33.1	108° 18.8	89°33.2	45°40.1	46°09.6	72°29.6	91°10.6
4	148°55.5	13.6'	09°49.4	11.7'	56.1'		115°04.3	107°47.3	89°01.4	46°09.9	46°39.0	73°01.3	91°39.8
5	163°28.0	13.6'	09°37.7	11.7'	56.1'		114°35.6	107°15.8	88°29.6	46°39.7	47°08.4	73°33.0	92°08.9
6	178°00.7	13.7'	S 09°25.9	11.8'	56.0'		114°06.8	106°44.4	87°57.9	47°09.5	47° 37.8	74°04.6	92°38.1
7	192°33.3	13.8'	09°14.2	11.8'	56.0'		113°38.0	106°13.0	87°26.2	47°39.2	48°07.2	74°36.2	93°07.2
8	207°06.1	13.8'	09°02.4	11.8'	56.0'		113°09.3	105°41.6	86°54.5	48°08.9	48° 36.5	75°07.8	93°36.2
9	221°38.9	13.9'	08°50.6	11.8'	55.9'		112°40.5	105°10.3	86°22.9	48°38.5	49°05.8	75°39.3	94°05.2
10	236°11.8	14.0'	08°38.8	11.9'	55.9'		112°11.8	104°39.0	85°51.3	49°08.1	49°35.0	76°10.8	94°34.2
11	250°44.8	14.0'	$08^{\circ}26.9$	11.9'	55.9'		111°43.1	104°07.8	85°19.7	49°37.7	50°04.2	76°42.2	95°03.2
12	265°17.8	14.1'	S 08°15.0	11.9'	55.9'		111°14.4	103°36.5	84°48.2	50°07.2	50°33.4	77°13.6	95°32.1
13	279°50.9	14.1'	$08^{\circ}03.1$	11.9'	55.8'		110°45.7	103°05.3	84°16.7	50°36.8	51°02.6	77°45.0	96°01.0
14	294°24.0	14.2'	$07^{\circ}51.2$	11.9'	55.8'		110°17.0	102°34.2	83°45.2	51°06.2	51°31.7	78°16.4	96°29.8
15	308°57.2	14.3'	07°39.2	12.0'	55.8'		109°48.4	102°03.0	83°13.8	51°35.7	52°00.8	78°47.7	96° 58.6
16	323°30.4	14.3'	07°27.3	12.0'	55.7'		109°19.7	101°31.9	82°42.4	52°05.1	52°29.9	79°19.0	97°27.4
17	338°03.7	14.4'	$07^{\circ}15.3$	12.0'	55.7'	119°43.3	108°51.1	101°00.9	82°11.0	52°34.5	52°58.9	79°50.2	97°56.2
18	352°37.1	14.4'	S 07°03.3	12.0'	55.7'	119° 13.5	108°22.4	100°29.8	81°39.7	53°03.8	53°27.9	80°21.4	98°24.9
19	7°10.5	14.5'	$06^{\circ}51.3$	12.0'	55.6'	118°43.8	107°53.8	99°58.8	81°08.4	53°33.1	53°56.9	80°52.6	98°53.6
20	21°44.0	14.5'	$06^{\circ}39.2$	12.1'	55.6'	118° 14.1	107°25.2	99°27.9	80°37.1	54°02.4	54°25.9	81°23.8	99°22.2
21	36°17.5	14.6'	$06^{\circ}27.2$	12.1'	55.6'	117°44.5	106°56.7	98° 56.9	80°05.9	54°31.7	54°54.8	81°54.9	99°50.8
22	50°51.1	14.6'	$06^{\circ}15.1$	12.1'	55.6'	117° 14.8	106°28.1	98°26.0	79°34.7	55°00.9	55°23.7	82°26.0	100°19.4
23	65°24.8	14.7'	06°03.0	12.1'	55.5'	116°45.2	105°59.5	97°55.1	79°03.5	55°30.1	55°52.6	82°57.1	100°48.0
13 th	SD	= 15.3'	Mer. pass	s. 18:30					Sun SD =	16.2'			

h		Moon	ı (14 th No	ov)		ļ	Lunar Dis	tance (obje	ects with	largest	hourly L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Mars	+Venus	+Antares	+Sun
0	79°58.4	14.7'	S 05°50.9	12.1'	55.5'	116°15.5	105°31.0	97°24.3	78°32.4	55°59.2	56°21.4	83°28.1	101°16.5
1	94°32.2	14.8'	05°38.8	12.1'	55.5'	115°45.9	105°02.5	96°53.5	78°01.3	56°28.4	56°50.2	83°59.1	101°45.0
2	109°05.9	14.8'	05°26.7	12.1'	55.4'	115°16.3	104°34.0	96°22.7	77°30.2	56°57.5	57°19.0	84°30.1	102°13.5
3	123°39.8	14.9'	05°14.6	12.1'	55.4'	114°46.7	104°05.5	95°51.9	76° 59.2	57°26.5	57° 47.7	85°01.0	102°41.9
4	138°13.6	14.9'	05°02.4	12.2'	55.4'	114°17.2	103°37.0	95°21.2	76°28.2	57°55.6	58° 16.5	85°31.9	103°10.4
5	152°47.5	15.0'	04°50.3	12.2'	55.4'	113°47.6	103°08.6	94°50.4	75°57.2	58°24.6	58°45.2	86°02.8	103°38.7
6	167°21.5	15.0'	S 04°38.1	12.2'	55.3'	113°18.1	102°40.1	94°19.8	75°26.2	58°53.6	59°13.9	86° 33.7	104°07.1
7	181°55.5	15.0'	04°25.9	12.2'	55.3'	112°48.6	102°11.7	93°49.1	74°55.3	59°22.5	59°42.5	87°04.5	104°35.4
8	196°29.5	15.1'	04°13.8	12.2'	55.3'	112°19.1	101°43.3	93° 18.5	74°24.4	59°51.5	60°11.2	87° 35.3	105°03.7
9	211°03.6	15.1'	$04^{\circ}01.6$	12.2'	55.3'	111°49.6	101°14.9	92°47.9	73°53.5	60°20.4	60°39.8	88°06.1	105°32.0
10	225°37.7	15.2'	03°49.4	12.2'	55.2'	111°20.1	100°46.5	92°17.3	73°22.7	60°49.2	61°08.3	88° 36.8	106°00.2
11	240°11.9	15.2'	03°37.2	12.2'	55.2'	110°50.7	100°18.2	91°46.8	72°51.8	61°18.1	61°36.9	89°07.5	106°28.4
12	254°46.1	15.2'	S 03°25.0	12.2'	55.2'	110°21.3	99°49.8	91°16.3	72°21.1	61°46.9	62°05.4	89° 38.2	106°56.6
13	269°20.3	15.3'	03°12.8	12.2'	55.2'	109°51.9	99°21.5	90°45.8	71°50.3	62°15.7	62°33.9	90°08.9	107°24.8
14	283°54.6	15.3'	03°00.6	12.2'	55.1'	109°22.5	98°53.2	90°15.3	71°19.6	62°44.5	63°02.4	90°39.5	107°52.9
15	298°28.9	15.3'	02°48.4	12.2'	55.1'	108°53.1	98°24.9	89°44.9	70°48.8	63°13.2	63°30.9	91°10.2	108°21.0
16	313°03.2	15.4'	02°36.2	12.2'	55.1'	108°23.7	97°56.6	89°14.4	70° 18.2	63°41.9	63°59.3	91°40.8	108°49.1
17	327°37.6	15.4'	02°24.0	12.2'	55.1'	107°54.4	97°28.4	88°44.0	69°47.5	64°10.6	64°27.7	92°11.3	109°17.2
18	342°12.0	15.4'	S 02°11.8	12.2'	55.0'	107°25.0	97°00.2	88°13.7	69° 16.9	64°39.3	64°56.1	92°41.9	109°45.2
19	356°46.4	15.5'	$01^{\circ}59.6$	12.2'	55.0'	106°55.7	96°31.9	87°43.3	68°46.3	65°08.0	65°24.5	93° 12.4	110°13.2
20	11°20.9	15.5'	$01^{\circ}47.4$	12.2'	55.0'	106°26.4	96°03.7	87°13.0	68° 15.7	65°36.6	65°52.8	93°42.9	110°41.2
21	25°55.4	15.5'	$01^{\circ}35.2$	12.2'	55.0'	105°57.1	95°35.6	86°42.7	67°45.1	66°05.2	66°21.2	94° 13.3	111°09.2
22	40°29.9	15.5'	01°23.0	12.2'	55.0'	105°27.9	95°07.4	86°12.4	67° 14.6	66°33.8	66°49.5	94°43.8	111°37.1
23	55°04.4	15.6'	$01^{\circ}10.8$	12.2'	54.9'	104°58.6	94°39.2	85°42.2	66°44.1	67°02.3	67° 17.7	95°14.2	112°05.1
14 th	SD	= 15.1'	Mer. pass	s. 19:13					Sun SD =	16.2'			

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

Thu	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Mars	+Venus	+Antares	+Sun
0	69°39.0	15.6'	S 00°58.6	12.2'	54.9'		104°29.4	85°12.0	66° 13.6	67°30.8	67°46.0	95°44.6	112°33.0
1	84°13.5	15.6'	00°46.4	12.2'	54.9'		104°00.2	84°41.8	65°43.1	67°59.3	68° 14.3	96°15.0	113°00.8
2	98°48.1	15.6'	00°34.2	12.2'	54.9'		103°31.0	84°11.6	65° 12.7	68°27.8	68°42.5	96°45.4	113°28.7
3	113°22.8	15.6'	00°22.0	12.2'	54.8'		103°01.8	83°41.4	64°42.3	68°56.3	69°10.7	97°15.7	113°56.5
4	127°57.4	15.7'	S 00°09.9	12.2'	54.8'		102°32.6	83°11.3	64°11.9	69°24.7	69°38.9	97°46.0	114°24.3
5	142°32.1	15.7'	N 00°02.3	12.1'	54.8'		102°03.4	82°41.2	63°41.5	69°53.2	70°07.0	98°16.3	114°52.1
6	157°06.8	15.7'	N 00°14.4	12.1'	54.8'		101°34.3	82°11.1	63°11.1	70°21.6	70°35.2	98°46.6	115°19.9
7	171°41.5	15.7'	00°26.6	12.1'	54.8'		101°05.2	81°41.0	62°40.8	70°49.9	71°03.3	99°16.8	115°47.6
8	186°16.2	15.7'	00°38.7	12.1'	54.7'		100°36.1	81° 10.9	62° 10.5	71°18.3	71°31.4	99°47.0	116°15.4
9	200°50.9	15.8'	00°50.8	12.1'	54.7'		100°07.0	80°40.9	61°40.2	71°46.6	71°59.5	100°17.3	116°43.1
10	215°25.7	15.8'	$01^{\circ}02.9$	12.1'	54.7'		99°37.9	80° 10.9	61°09.9	72°15.0	72°27.6	100°47.4	117°10.8
11	230°00.4	15.8'	$01^{\circ}15.0$	12.1'	54.7'		99°08.8	79°40.9	60°39.7	72°43.3	72°55.6	101°17.6	117°38.4
12	244°35.2	15.8'	N 01°27.1	12.1'	54.7'		98°39.8	79° 10.9	60°09.5	73°11.5	73°23.7	101°47.8	118°06.1
13	259°10.0	15.8'	$01^{\circ}39.2$	12.1'	54.6'		98°10.7	78°41.0	59°39.3	73°39.8	73°51.7	102°17.9	118°33.7
14	273°44.8	15.8'	$01^{\circ}51.2$	12.0'	54.6'	119°54.9	97°41.7	78°11.0	59°09.1	74°08.1	74° 19.7	102°48.0	119°01.3
15	288°19.6	15.8'	02°03.3	12.0'	54.6'	119°25.3	97°12.7	77°41.1	58° 38.9	74°36.3	74°47.7	103°18.1	119°28.9
16	302°54.4	15.8'	02°15.3	12.0'	54.6'	118°55.7	96°43.7	77° 11.2	58°08.8	75°04.5	75° 15.7	103°48.2	119°56.5
17	317°29.3	15.8'	02°27.3	12.0'	54.6'	118°26.0	96°14.7	76°41.3	57°38.7	75°32.7	75°43.6	104°18.3	
18	332°04.1	15.8'	N02°39.3	12.0'	54.6'	117°56.4	95°45.8	76°11.4	57°08.5	76°00.9	76°11.6	104°48.3	
19	346°39.0	15.8'	02°51.3	12.0'	54.5'	117°26.8	95°16.8	75°41.6	56°38.5	76°29.0	76°39.5	105°18.3	
20	1°13.8	15.9'	03°03.3	11.9'	54.5'	116°57.2	94°47.9	75°11.8	56°08.4	76°57.2	77°07.4	105°48.4	
21	15°48.7	15.9'	$03^{\circ}15.2$	11.9'	54.5'	116°27.7	94°19.0	74°41.9	55°38.3	77°25.3	77°35.3	106°18.4	
22	30°23.5	15.9'	03°27.1	11.9'	54.5'	115°58.1	93°50.1	74° 12.1	55°08.3	77°53.4	78°03.2	106°48.3	
23	44°58.4	15.9'	03°39.0	11.9'	54.5'	115°28.6	93°21.2	73°42.4	54°38.3	78°21.5	78°31.1	107°18.3	
15 th	SD	$=15.0^{\prime}$	Mer. pass	. 19:55					$Sun\;SD =$	16.2			

Moon (16th Nov) h

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Antares
0	59°33.2	15.9'	N 03°50.9	11.9'	54.5'	118°49.4	114°59.0	73°12.6	54°08.3	57°33.3	78°49.6	78°59.0	107°48.3
1	74°08.1	15.9'	04°02.8	11.8'	54.4'	118°20.5	114°29.5	72°42.8	53°38.3	57°58.9	79°17.6	79°26.8	108° 18.2
2	88°42.9	15.9'	04°14.6	11.8'	54.4'	117°51.6	114°00.0	72°13.1	53°08.3	58°24.5	79°45.7	79°54.6	108°48.1
3	103°17.8	15.9'	04°26.4	11.8'	54.4'	117°22.7	113°30.5	71°43.4	52°38.4	58°50.1	80°13.7	80°22.5	109° 18.0
4	117°52.7	15.9'	04°38.2	11.8'	54.4'	116°53.7	113°01.0	71°13.7	52°08.5	59°15.8	80°41.8	80°50.3	109°47.9
5	132°27.5	15.9'	04°50.0	11.7'	54.4'	116°24.8	112°31.5	70°44.0	51°38.6	59°41.5	81°09.8	81°18.1	110°17.8
6	147°02.4	15.8'	N 05°01.8	11.7'	54.4'	115°55.9	112°02.0	70°14.3	51°08.7	60°07.3	81°37.8	81°45.8	110°47.7
7	161°37.2	15.8'	05°13.5	11.7'	54.4'	115°27.0	111°32.5	69°44.7	50°38.8	60°33.0	82°05.7	82°13.6	111° 17.5
8	176°12.0	15.8'	05°25.2	11.7'	54.3'	114°58.1	111°03.1	69°15.0	50°08.9	60°58.8	82°33.7	82°41.4	111°47.3
9	190°46.9	15.8'	05°36.9	11.6'	54.3'	114°29.2	110°33.6	68°45.4	49°39.1	61°24.7	83°01.7	83°09.1	112° 17.2
10	205°21.7	15.8'	05°48.5	11.6'	54.3'	114°00.3	110°04.2	68°15.8	49°09.2	61°50.5	83°29.6	83°36.9	112°47.0
11	219°56.5	15.8'	$06^{\circ}00.1$	11.6'	54.3'	113°31.5	109°34.8	67°46.2	48°39.4	62°16.4	83°57.5	84°04.6	113° 16.8
12	234°31.3	15.8'	N 06°11.7	11.6'	54.3'	113°02.6	109°05.3	67°16.6	48°09.6	62°42.3	84°25.5	84°32.3	113°46.6
13	249°06.1	15.8'	06°23.3	11.5'	54.3'	112°33.7	108°35.9	66°47.0	47°39.8	63°08.2	84°53.4	85°00.0	114° 16.3
14	263°40.9	15.8'	06°34.8	11.5'	54.3'	112°04.8	108°06.5	66°17.4	47°10.0	63°34.1	85°21.3	85°27.7	114°46.1
15	278°15.7	15.8'	06°46.3	11.5'	54.2'	111°36.0	$107^{\circ}37.1$	65°47.9	46°40.3	64°00.1	85°49.2	85°55.4	115° 15.9
16	292°50.5	15.8'	06°57.8	11.4'	54.2'	111°07.1	107° 07.7	65°18.3	46°10.5	64°26.1	86° 17.0	86°23.1	115°45.6
17	307°25.2	15.7'	07°09.2	11.4'	54.2'	110°38.2	106°38.4	64°48.8	45°40.8	64°52.1	86°44.9	86°50.8	116° 15.3
18	322°00.0	15.7'	N07°20.6	11.4'	54.2'	110°09.4	106°09.0	64°19.3	45°11.1	65°18.1	87°12.8	87°18.4	116°45.0
19	336°34.7	15.7'	07°32.0	11.3'	54.2'	109°40.5	105°39.6	63°49.8	44°41.4	65°44.2	87°40.6	87°46.1	117° 14.8
20	351°09.4	15.7'	07°43.4	11.3'	54.2'	109°11.7	105°10.3	63°20.3	44°11.7	66°10.2	88°08.4	88°13.7	117°44.5
21	5°44.1	15.7'	07°54.7	11.3'	54.2'	108°42.8	104°40.9	62°50.8	43°42.1	66°36.3	88°36.3	88°41.4	118° 14.1
22	20°18.8	15.7'	$08^{\circ}06.0$	11.2'	54.2'	108°14.0	$104^{\circ}11.6$	62°21.4	43°12.4	67°02.4	89°04.1	89°09.0	118°43.8
23	34°53.4	15.6'	08°17.2	11.2'	54.2'	107°45.1	103°42.2	61°51.9	42°42.8	67°28.5	89°31.9	89°36.6	119°13.5
16 th	SD	$= 14.9^{\prime}$	Mer. pass	. 20:36									

Moon (17th Nov)

Sat	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Mars	+Venus
0	49°28.1	15.6'	N 08°28.4	11.2'	54.1'	107°16.3	103°12.9	61°22.5	42°13.1	43°28.2	67°54.7	89°59.7	90°04.2
1	64°02.7	15.6'	08°39.6	11.1'	54.1'	106°47.5	102°43.6	60°53.0	41°43.5	43°51.2	68°20.8	90°27.5	90°31.8
2	78°37.3	15.6'	08°50.7	11.1'	54.1'	106°18.7	102°14.3	60°23.6	41°13.9	44°14.2	68°47.0	90°55.2	90°59.4
3	93°11.9	15.6'	09°01.8	11.1'	54.1'	105°49.8	101°45.0	59°54.2	40°44.3	44°37.4	69°13.1	91°23.0	91°27.0
4	107°46.4	15.5'	09°12.9	11.0'	54.1'	105°21.0	101°15.7	59°24.8	40°14.7	45°00.7	69°39.3	91°50.8	91°54.6
5	122°21.0	15.5'	09°23.9	11.0'	54.1'	104°52.2	100°46.4	58°55.4	39°45.2	45°24.0	70°05.6	92°18.5	92°22.2
6	136°55.5	15.5'	N09°34.9	10.9'	54.1'	104°23.4	100°17.1	58°26.0	39°15.6	45°47.5	70°31.8	92°46.3	92°49.8
7	151°30.0	15.5'	09°45.8	10.9'	54.1'	103°54.6	99°47.8	57°56.6	38°46.1	46°11.0	70°58.0	93°14.0	93°17.4
8	166°04.4	15.4'	09°56.7	10.9'	54.1'	103°25.7	99° 18.5	57°27.3	38°16.6	46°34.6	71°24.3	93°41.8	93°44.9
9	180°38.9	15.4'	10°07.6	10.8'	54.1'	102°56.9	98°49.3	56°57.9	37°47.1	46°58.3	71°50.5	94°09.5	94°12.5
10	195°13.3	15.4'	10°18.4	10.8'	54.1'	102°28.1	98° 20.0	56°28.6	37°17.6	47°22.1	72°16.8	94°37.2	94°40.0
11	209°47.7	15.4'	10°29.2	10.7'	54.1'	101°59.3	97°50.7	55°59.2	36°48.1	47°46.0	72°43.1	95°04.9	95°07.6
12	224°22.0	15.3'	N10°39.9	10.7'	54.0'	101°30.5	97°21.5	55°29.9	36°18.7	48°09.9	73°09.4	95°32.7	95°35.1
13	238°56.4	15.3'	10°50.6	10.6'	54.0'	101°01.7	96°52.2	55°00.6	35°49.2	48°33.9	73°35.7	96°00.4	96°02.7
14	253°30.7	15.3'	11°01.2	10.6'	54.0'	100°32.9	96°23.0	54°31.3	35°19.8	48°58.0	74°02.0	96°28.1	96°30.2
15	268°05.0	15.2'	$11^{\circ}11.8$	10.6'	54.0'	100°04.1	95°53.7	54°02.0	34°50.4	49°22.2	74°28.4	96°55.8	96° 57.7
16	282°39.2	15.2'	11°22.4	10.5'	54.0'	99°35.3	95°24.5	53°32.7	34°21.0	49°46.4	74°54.7	97°23.4	97°25.3
17	297°13.4	15.2'	11°32.9	10.5'	54.0'	99°06.6	94°55.2	53°03.4	33°51.6	50°10.7	75°21.1	97°51.1	97°52.8
18	311°47.6	15.2'	N11°43.3	10.4'	54.0'	98°37.8	94°26.0	52°34.1	33°22.2	50°35.1	75°47.4	98°18.8	98°20.3
19	326°21.8	15.1'	11°53.7	10.4'	54.0'	98°09.0	93°56.8	52°04.9	32°52.9	50°59.5	76°13.8	98°46.5	98°47.8
20	340°55.9	15.1'	12°04.1	10.3'	54.0'	97°40.2	93°27.6	51°35.6	32°23.5	51°24.0	76°40.2	99°14.1	99°15.4
21	355°30.0	15.1'	12°14.4	10.3'	54.0'	97°11.4	92°58.3	51°06.4	31°54.2	51°48.5	77°06.6	99°41.8	99°42.9
22	10°04.0	15.0'	12°24.7	10.2'	54.0'	96°42.6	92°29.1	50°37.1	31°24.9	52°13.1	77°33.0	100°09.5	100°10.4
23	24°38.0	15.0'	12°34.9	10.2'	54.0'	96°13.9	91°59.9	50°07.9	30°55.6	52°37.8	77°59.4	100°37.1	100°37.9
17 th	SD	= 14.8'	Mer. pass	. 21:19									

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

Sun	GHA	ν	Dec	d	HP	-Regulus	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Mars	+Venus
0	39°12.0	14.9'	N 12°45.0	10.1'	54.0'		91°30.7	49°38.7	30°26.3	53°02.5	78°25.8	101°04.8	101°05.4
1	53°46.0	14.9'	12°55.2	10.1'	54.0'		91°01.5	49°09.5	29°57.1	53°27.3	78°52.3	101°32.4	101°32.9
2	68°19.9	14.9'	13°05.2	10.0'	54.0'		90°32.3	48°40.2	29°27.8	53°52.1	79° 18.7	102°00.1	102°00.4
3	82°53.8	14.8'	$13^{\circ}15.2$	9.9'	54.0'		90°03.1	48°11.0	28°58.6	54°17.0	79°45.1	102°27.7	102°27.9
4	97°27.6	14.8'	13°25.2	9.9'	54.0'		89°33.9	47°41.9	28°29.4	54°41.9	80°11.6	102°55.4	102°55.4
5	112°01.4	14.8'	13°35.0	9.8'	53.9'		89°04.7	47°12.7	28°00.3	55°06.9	80°38.0	103°23.0	103°22.9
6	126°35.2	14.7'	N 13°44.9	9.8'	53.9'		88°35.5	46°43.5	27°31.1	55°31.9	81°04.5	103°50.7	103°50.4
7	141°08.9	14.7'	13°54.7	9.7'	53.9'		88°06.3	46°14.3	27°02.0	55° 57.0	81°31.0	104°18.3	104°17.9
8	155°42.6	14.6'	14°04.4	9.7'	53.9'		87°37.1	45°45.2	26°32.9	56° 22.1	81°57.5	104°45.9	104°45.4
9	170°16.2	14.6'	14°14.1	9.6'	53.9'		87°07.9	45°16.0	26°03.8	56° 47.3	82°23.9	105°13.6	105°12.9
10	184°49.8	14.6'	$14^{\circ}23.7$	9.5'	53.9'		86°38.7	44°46.9	25°34.7	57° 12.5	82°50.4	105°41.2	105°40.4
11	199°23.4	14.5'	14°33.2	9.5'	53.9'		86°09.5	44°17.7	25°05.7	57°37.8	83°16.9	106°08.8	106°07.9
12	213°56.9	14.5'	$N14^{\circ}42.7$	9.4'	53.9'		85°40.3	43°48.6	24°36.7	58°03.1	83°43.4	106°36.5	106°35.4
13	228°30.4	14.4'	$14^{\circ}52.1$	9.4'	53.9'		85°11.1	43°19.5	24°07.7	58° 28.4	84°09.9	107°04.1	107°02.9
14	243°03.9	14.4'	$15^{\circ}01.5$	9.3'	53.9'		84°41.9	42°50.4	23°38.8	58° 53.8	84°36.4	107°31.7	107°30.4
15	257°37.3	14.4'	$15^{\circ}10.8$	9.2'	53.9'		84°12.7	42°21.3	23°09.9	59° 19.2	85°03.0	107°59.4	107°57.9
16	272°10.6	14.3'	$15^{\circ}20.0$	9.2'	53.9'		83°43.6	41°52.2	22°41.0	59°44.7	85°29.5	108°27.0	108°25.4
17	286°43.9	14.3'	$15^{\circ}29.2$	9.1'	53.9'		83°14.4	41°23.1	22°12.2	60°10.2	85°56.0	108°54.6	108°52.9
18	301°17.2	14.2'	N15°38.3	9.1'	53.9'	119°40.2	82°45.2	40°54.0	21°43.4	60°35.7	86° 22.5	109°22.2	109°20.4
19	315°50.4	14.2'	15°47.4	9.0'	53.9'	119°10.8	82°16.0	40°25.0	21°14.6	61°01.3	86°49.0	109°49.9	109°47.9
20	330°23.6	14.1'	15°56.4	8.9'	53.9'	118°41.4	81°46.8	39°55.9	20°45.9	61°26.9	87° 15.6	110°17.5	110°15.4
21	344°56.8	14.1'	$16^{\circ}05.3$	8.9'	53.9'	118°12.0	81°17.6	39°26.9	20° 17.2	61°52.5	87°42.1	110°45.1	110°42.9
22	359°29.9	14.0'	$16^{\circ}14.2$	8.8'	53.9'	117°42.6	80°48.4	38°57.8	19°48.6	62°18.2	88°08.7	111°12.7	111°10.4
23	14°02.9	14.0'	16°23.0	8.7'	53.9'	117°13.1	80°19.3	38°28.8	19°20.1	62°43.9	88°35.2	111°40.4	111°37.9
18 th	SD	$= 14.7^{\prime}$	Mer. pass	. 22:02	-								

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

		IVIOOII	(19, 140	v)			Lullar I	Distance	(objects w	itii iargest ii	ourly LL	della	
Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Fomalhaut	+Altair	+Venus	+Mars
0	28°35.9	14.0'	N 16°31.7	8.7'	53.9'	116°43.7	84°14.7	79°50.1	37°59.8	63°09.7	89°01.8	112°05.4	112°08.0
1	43°08.9	13.9'	16°40.3	8.6'	53.9'	116°14.3	83°45.9	79°20.9	37°30.8	63°35.5	89°28.3	112°32.9	112°35.6
2	57°41.8	13.9'	16°48.9	8.5'	53.9'	115°44.9	83°17.2	78°51.7	37°01.8	64°01.3	89°54.8	113°00.4	113°03.3
3	72°14.6	13.8'	16° 57.4	8.4'	53.9'	115° 15.5	82°48.4	78°22.5	36°32.8	64°27.1	90°21.4	113°28.0	113°30.9
4	86°47.5	13.8'	17°05.9	8.4'	53.9'	114°46.0	82°19.6	77°53.3	36°03.8	64°53.0	90°47.9	113°55.5	113°58.5
5	101°20.2	13.7'	$17^{\circ}14.2$	8.3'	53.9'	114°16.6	81°50.9	77°24.2	35°34.9	65°18.9	91°14.5	114°23.0	114°26.2
6	115°53.0	13.7'	$N17^{\circ}22.5$	8.2'	53.9'	113°47.2	81°22.1	76°55.0	35°05.9	65°44.8	91°41.1	114°50.5	114°53.8
7	130°25.6	13.6'	17°30.7	8.1'	53.9'	113° 17.7	80°53.3	76°25.8	34°37.0	66°10.8	92°07.6	115°18.1	115°21.4
8	144°58.3	13.6'	17°38.9	8.1'	53.9'	112°48.3	80°24.6	75°56.6	34°08.1	66°36.7	92°34.2	115°45.6	115°49.1
9	159°30.9	13.5'	17°47.0	8.0'	53.9'	112°18.9	79°55.8	75°27.4	33°39.2	67°02.8	93°00.7	116°13.1	116° 16.7
10	174°03.4	13.5'	17°55.0	7.9'	53.9'	111°49.4	79°27.0	74°58.2	33°10.3	67°28.8	93°27.3	116°40.7	116°44.4
11	188°35.9	13.4'	18°02.9	7.8'	53.9'	111°19.9	78°58.3	74°29.0	32°41.4	67°54.9	93°53.8	117°08.2	117°12.0
12	203°08.3	13.4'	N 18° 10.7	7.8'	53.9'	110°50.5	78°29.5	73°59.8	32°12.6	68°20.9	94°20.4	117°35.7	117°39.7
13	217°40.7	13.3'	$18^{\circ}18.5$	7.7'	53.9'	110°21.0	78°00.7	73°30.6	31°43.7	68°47.1	94°47.0	118°03.3	118°07.3
14	232°13.1	13.3'	18° 26.2	7.6'	53.9'	109°51.6	77°32.0	73°01.4	31°14.9	69°13.2	95°13.5	118°30.8	118°35.0
15	246°45.4	13.2'	18° 33.8	7.5'	53.9'	109°22.1	77°03.2	72°32.2	30°46.1	69°39.4	95°40.1	118°58.4	119°02.6
16	261°17.6	13.2'	18°41.4	7.5'	53.9'	108°52.6	76°34.4	72°03.0	30°17.3	70°05.6	96°06.6	119°25.9	119°30.3
17	275°49.8	13.1'	18°48.8	7.4'	53.9'	108°23.1	76°05.7	71°33.8	29°48.5	70°31.8	96°33.2	119°53.5	119°58.0
18	290°21.9	13.1'	$N18^{\circ}56.2$	7.3'	53.9'	107°53.7	75°36.9	71°04.6	29°19.8	70°58.0	96°59.7		
19	304°54.0	13.1'	19°03.5	7.2'	53.9'	107°24.2	75°08.1	70°35.4	28°51.1	71°24.3	97°26.3		İ
20	319°26.1	13.0'	$19^{\circ}10.7$	7.1'	53.9'	106°54.7	74°39.4	70°06.2	28°22.4	71°50.5	97°52.8		
21	333°58.1	13.0'	19° 17.8	7.0'	53.9'	106°25.2	74°10.6	69°37.0	27°53.7	72°16.8	98°19.3		
22	348°30.1	12.9'	19°24.9	7.0'	53.9'	105°55.7	73°41.8	69°07.8	27°25.1	72°43.2	98°45.9		
23	3°02.0	12.9'	19°31.8	6.9'	53.9'	105°26.2	73°13.1	68°38.6	26°56.4	73°09.5	99°12.4		
19 th	SD	= 14.7'	Mer. pass.	. 22:47			-		-			-	

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	17°33.8	12.8'	N 19°38.7	6.8'	53.9'	104°56.7	72°44.3	68°09.4	47°34.4	26°27.9	73°35.9	76°54.9	99°38.9
1	32°05.6	12.8'	19°45.5	6.7'	53.9'	104°27.1	72°15.5	67°40.2	47°06.8	25°59.3	74°02.3	77°11.0	100°05.5
2	46°37.4	12.7'	19°52.2	6.6'	54.0'	103°57.6	71°46.8	67°11.0	46°39.2	25°30.8	74°28.7	77°27.1	100°32.0
3	61°09.1	12.7'	19°58.8	6.5'	54.0'	103°28.1	71°18.0	66°41.7	46°11.7	25°02.3	74°55.1	77°43.2	100°58.5
4	75°40.8	12.6'	20°05.3	6.4'	54.0'	102°58.5	70°49.2	66°12.5	45°44.2	24°33.8	75°21.5	77°59.5	101°25.0
5	90°12.4	12.6'	20°11.8	6.4'	54.0'	102°29.0	70°20.4	65°43.3	45°16.7	24°05.4	75°48.0	78° 15.7	101°51.5
6	104°43.9	12.5'	N 20°18.1	6.3'	54.0'	101°59.4	69°51.7	65°14.1	44°49.3	23°37.1	76°14.5	78°32.0	102°18.0
7	119°15.5	12.5'	20°24.4	6.2'	54.0'	101°29.9	69°22.9	64°44.9	44°21.9	23°08.8	76°41.0	78°48.3	102°44.5
8	133°46.9	12.4'	20°30.6	6.1'	54.0'	101°00.3	68°54.1	64°15.6	43°54.5	22°40.5	77°07.5	79°04.7	103°11.0
9	148°18.3	12.4'	20°36.7	6.0'	54.0'	100°30.8	68°25.4	63°46.4	43°27.2	22°12.3	77°34.0	79°21.1	103°37.5
10	162°49.7	12.3'	20°42.6	5.9'	54.0'	100°01.2	67°56.6	63°17.2	42°59.9	21°44.1	78°00.6	79°37.5	104°03.9
11	177°21.1	12.3'	20°48.5	5.8'	54.0'	99°31.6	67°27.8	62°47.9	42°32.6	21°16.0	78°27.1	79°54.0	104°30.4
12	191°52.3	12.2'	N20°54.3	5.7'	54.0'	99°02.0	$66^{\circ}59.1$	62°18.7	42°05.4	20°48.0	78°53.7	80° 10.5	104°56.9
13	206°23.6	12.2'	21°00.1	5.6'	54.0'	98°32.4	66°30.3	61°49.5	41°38.2	20°20.0	79°20.3	80°27.1	105°23.3
14	220°54.8	12.1'	21°05.7	5.5'	54.0'	98°02.8	66°01.5	61°20.2	41°11.0	19°52.1	79°46.9	80°43.7	105°49.8
15	235°25.9	12.1'	$21^{\circ}11.2$	5.4'	54.0'	97°33.2	65°32.7	60°51.0	40°43.9	19°24.3	80°13.5	81°00.3	106°16.2
16	249°57.0	12.1'	$21^{\circ}16.6$	5.3'	54.0'	97°03.6	65°04.0	60°21.7	40°16.9	18°56.6	80°40.2	81°16.9	106°42.6
17	264°28.0	12.0'	21°22.0	5.2'	54.0'	96°34.0	64°35.2	59°52.5	39°49.9	18°29.0	81°06.8	81°33.6	107°09.0
18	278°59.1	12.0'	N21°27.2	5.1'	54.0'	96°04.4	64°06.5	59°23.3	39°22.9	18°01.5	81°33.5	81°50.3	107°35.4
19	293°30.0	11.9'	21°32.3	5.0'	54.0'	95°34.7	63°37.7	58°54.0	38°56.0	17°34.1	82°00.2	82°07.1	108°01.8
20	308°00.9	11.9'	21°37.4	4.9'	54.0'	95°05.1	63°08.9	58°24.8	38°29.1	17°06.8	82°26.9	82°23.8	108°28.2
21	322°31.8	11.8'	21°42.3	4.8'	54.0'	94°35.4	62°40.2	57°55.5	38°02.3	16°39.6	82°53.6	82°40.6	108°54.5
22	337°02.6	11.8'	21°47.2	4.7'	54.1'	94°05.8	62°11.4	57°26.3	37°35.6	16°12.6	83°20.3	82°57.5	109°20.9
23	351°33.4	11.7'	21°51.9	4.6'	54.1'	93°36.1	61°42.7	56°57.0	37°08.9	15°45.7	83°47.0	83°14.3	109°47.2
20 th	SD	= 14.7'	Mer. pass.	23:35									

h Moon (21st Nov)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Deneb	+Fomalhaut	+Altair
0	6°04.2	11.7'	N 21°56.6	4.5'	54.1'	93°06.4	61°13.9	56°27.7	15°19.0		83°31.2	84°13.8	110°13.6
1	20°34.9	11.7'	22°01.1	4.4'	54.1'	92°36.7	60°45.2	55° 58.5	14°52.5	8°18.3	83°48.1	84°40.5	110°39.9
2	35°05.5	11.6'	22°05.5	4.3'	54.1'	92°07.1	60°16.4	55°29.2	14°26.2	8°41.4	84°05.0	85°07.3	111°06.2
3	49°36.1	11.6'	22°09.9	4.2'	54.1'	91°37.4	59°47.7	55°00.0	14°00.1	9°05.1	84°22.0	85°34.1	111°32.5
4	64°06.7	11.5'	22°14.1	4.1'	54.1'	91°07.7	59°18.9	54°30.7	13°34.2	9°29.5	84°38.9	86°00.9	111°58.7
5	78°37.2	11.5'	22°18.3	4.0'	54.1'	90°37.9	58°50.2	54°01.5	13°08.7	9°54.3	84°55.9	86°27.7	112°25.0
6	93°07.7	11.5'	$N22^{\circ}22.3$	3.9'	54.1'	90°08.2	58°21.4	53°32.2	12°43.4	10°19.6	85°12.9	86° 54.5	112°51.2
7	107°38.2	11.4'	22°26.2	3.8'	54.1'	89°38.5	57°52.7	53°02.9	12°18.4	10°45.4	85°30.0	87°21.3	113°17.4
8	122°08.6	11.4'	22°30.0	3.7'	54.1'	89°08.8	57°24.0	52°33.7	11°53.8	$11^{\circ}11.5$	85°47.0	87°48.2	113°43.6
9	136°39.0	11.3'	22°33.8	3.6'	54.1'	88°39.0	56°55.2	52°04.4	11°29.6	11°37.9	86°04.1	88°15.0	114°09.8
10	151°09.3	11.3'	22°37.4	3.5'	54.1'	88°09.3	56°26.5	51°35.1	11°05.9	12°04.6	86°21.1	88°41.9	114°36.0
11	165°39.6	11.3'	22°40.9	3.4'	54.2'	87°39.5	55°57.8	51°05.9	10°42.7	12°31.5	86°38.2	89°08.7	115°02.1
12	180°09.9	11.2'	N22°44.3	3.3'	54.2'	87°09.7	55°29.1	50°36.6	10°20.0	12°58.7	86°55.4	89°35.6	115°28.2
13	194°40.1	11.2'	22°47.6	3.2'	54.2'	86°39.9	55°00.4	50°07.3	9°57.9	13°26.1	87° 12.5	90°02.5	115°54.3
14	209°10.3	11.2'	22°50.8	3.1'	54.2'	86°10.1	54°31.7	49°38.1	9°36.5	13°53.7	87°29.6	90° 29.3	116°20.4
15	223°40.5	11.1'	22°53.8	3.0'	54.2'	85°40.3	54°03.0	49°08.8	9°15.9	14°21.5	87°46.8	90°56.2	116°46.5
16	238°10.6	11.1'	22°56.8	2.9'	54.2'	85°10.5	53°34.3	48°39.5	8°56.2	14°49.4	88°04.0	91°23.1	117°12.5
17	252°40.7	11.1'	22°59.7	2.8'	54.2'	84°40.7	53°05.6	48° 10.3		15°17.5	88°21.1	91°50.0	117°38.5
18	267°10.8	11.0'	N23°02.4	2.6'	54.2'	84°10.9	52°36.9	47°41.0		15°45.7	88°38.3	92°17.0	118°04.5
19	281°40.8	11.0'	23°05.1	2.5'	54.2'	83°41.0	52°08.3	47° 11.8		16°14.0	88°55.5	92°43.9	118°30.4
20	296°10.8	11.0'	23°07.6	2.4'	54.2'	83°11.2	51°39.6	46° 42.5		16°42.5	89°12.7	93° 10.8	118°56.4
21	310°40.7	10.9'	$23^{\circ}10.0$	2.3'	54.2'	82°41.3	$51^{\circ}11.0$	46° 13.3		$17^{\circ}11.0$	89°30.0	93°37.7	119°22.2
22	325°10.7	10.9'	23°12.4	2.2'	54.3'	82°11.5	50°42.3	45°44.0		17°39.7	89°47.2	94°04.7	119°48.1
23	339°40.6	10.9'	23°14.6	2.1'	54.3'	81°41.6	50°13.7	45° 14.7		18°08.4	90°04.4	94°31.6	
21 st	SD	= 14.7	′ Mer. pas	s:-									

Moon (22nd Nov)

Lunar Distance (objects with largest hourly LD delta)

n		ivioon	(22 110)V)			Lunar	Distanc	e (objects i	with largest	nourly L	D deita)	
Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	354°10.5	10.8'	N23°16.6	2.0'	54.3'	81°11.7	49°45.1	44° 45.5	26°30.2		18° 37.2	90°21.7	94°58.6
1	8°40.3	10.8'	$23^{\circ}18.6$	1.9'	54.3'	80°41.8	49°16.5	44°16.3	26°06.4		19°06.1	90°38.9	95°25.5
2	23°10.1	10.8'	23°20.5	1.8'	54.3'	80°11.9	48°47.9	43°47.0	25°42.8		19°35.1	90°56.1	95°52.5
3	37°39.9	10.8'	23°22.2	1.6'	54.3'	79°42.0	48° 19.3	43° 17.8	25°19.3		20°04.1	91°13.4	96°19.5
4	52°09.7	10.7'	23°23.9	1.5'	54.3'	79°12.1	47°50.7	42°48.6	24°56.1		20°33.2	91°30.7	96°46.4
5	66°39.4	10.7'	23°25.4	1.4'	54.3'	78°42.1	47°22.1	42°19.3	24°33.1		21°02.4	91°47.9	97°13.4
6	81°09.2	10.7'	N 23°26.8	1.3'	54.3'	78° 12.2	46°53.6	41°50.1	24°10.3		21°31.6	92°05.2	97°40.4
7	95°38.9	10.7'	23°28.1	1.2'	54.3'	77°42.2	46°25.0	41°20.9	23°47.7		22°00.9	92°22.4	98°07.4
8	110°08.5	10.7'	23°29.3	1.1'	54.4'	77° 12.3	45°56.5	40°51.7	23°25.5		22°30.3	92°39.7	98°34.3
9	124°38.2	10.6'	23°30.4	1.0'	54.4'	76°42.3	45°28.0	40°22.5	23°03.5		22°59.6	92°56.9	99°01.3
10	139°07.8	10.6'	23°31.4	0.8'	54.4'	76°12.3	44°59.5	39°53.3	22°41.7		23°29.1	93°14.2	99°28.3
11	153°37.4	10.6'	23°32.2	0.7'	54.4'	75°42.3	44°31.0	39°24.1	22°20.3		23°58.6	93°31.4	99°55.3
12	168°07.0	10.6'	N23°32.9	0.6'	54.4'	75°12.3	44°02.6	38°54.9	21°59.2		24°28.1	93°48.7	100°22.3
13	182°36.6	10.6'	23°33.6	0.5'	54.4'	74°42.3	43°34.1	38°25.8	21°38.4		24°57.6	94°05.9	100°49.3
14	197°06.2	10.5'	23°34.1	0.4'	54.4'	74°12.3	43°05.7	37°56.6	21°18.0		25°27.3	94°23.1	101°16.2
15	211°35.7	10.5'	23°34.4	0.3'	54.4'	73°42.2	42°37.3	37°27.5	20°58.0		25°56.9	94°40.4	101°43.2
16	226°05.2	10.5'	23°34.7	0.2'	54.5'	73° 12.2	42°08.9	36°58.3	20°38.3		26°26.6	94°57.6	102°10.2
17	240°34.8	10.5'	23°34.9	0.0'	54.5'	72°42.1	41°40.6	36°29.2	20°19.0	9°35.3	26°56.3	95°14.8	102°37.2
18	255°04.3	10.5'	N23°34.9	-0.1'	54.5'	72°12.0	41°12.3	36°00.1	20°00.1	9°56.8	27°26.0	95°32.0	103°04.2
19	269°33.7	10.5'	23°34.8	-0.2'	54.5'	71°41.9	40°44.0	35°31.0	19°41.7	10°19.1	27°55.8	95°49.2	103°31.2
20	284°03.2	10.5'	23°34.6	-0.3'	54.5'	71°11.8	40°15.7	35°02.0	19°23.8	10°42.0	28°25.6	96°06.3	103°58.1
21	298°32.7	10.5'	23°34.3	-0.4'	54.5'	70°41.7	39°47.4	34°32.9	19°06.3	11°05.6	28° 55.5	96°23.5	104°25.1
22	313°02.1	10.4'	23°33.9	-0.5'	54.5'	70°11.6	39° 19.2	34°03.9	18°49.4	11°29.6	29°25.4	96°40.7	104°52.1
23	327°31.6	10.4'	23°33.3	-0.7'	54.5'	69°41.5	38°51.0	33°34.9	18°33.0	11°54.1	29°55.3	96°57.8	105°19.1
22 nd	SD	= 14.8'	Mer. pass	. 00:24									

I.	Moon (23rd Nov)	
h	Moon (23 rd Nov)	

Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	342°01.0	10.4'	N23°32.7	-0.8'	54.6'		69°11.3	38°22.9	33°05.9	12°19.1	30°25.2	97°14.9	105°46.0
1	356°30.4	10.4'	23°31.9	-0.9'	54.6'		68°41.2	37°54.8	32°36.9	12°44.4	30°55.2	97°32.0	106° 13.0
2	10°59.8	10.4'	23°31.0	-1.0'	54.6'		68°11.0	37° 26.7	32°07.9	13°10.1	31°25.2	97°49.1	106°39.9
3	25°29.3	10.4'	23°30.0	-1.1'	54.6'		67°40.8	36°58.6	31°39.0	13°36.1	31°55.2	98°06.2	107°06.9
4	39°58.7	10.4'	23°28.9	-1.2'	54.6'		67° 10.6	36° 30.6	31°10.1	14°02.4	32°25.3	98°23.3	107°33.8
5	54°28.1	10.4'	23°27.6	-1.4'	54.6'		66°40.4	36°02.7	30°41.2	14°29.0	32°55.4	98°40.3	108°00.8
6	68°57.5	10.4'	$N23^{\circ}26.2$	-1.5'	54.6'		66° 10.2	35°34.8	30°12.4	14°55.8	33°25.5	98°57.3	108°27.7
7	83°26.9	10.4'	23°24.8	-1.6'	54.6'	119°39.5	65°40.0	35°06.9	29°43.6	15°22.9	33°55.6	99°14.3	108° 54.6
8	97°56.2	10.4'	23°23.2	-1.7'	54.7'	119°09.1	65°09.7	34°39.1	29°14.8	15°50.2	34°25.7	99°31.3	109°21.6
9	112°25.6	10.4'	23°21.5	-1.8'	54.7'	118°38.8	64°39.5	34°11.3	28°46.1	16°17.6	34°55.9	99°48.2	109°48.5
10	126°55.0	10.4'	$23^{\circ}19.6$	-1.9'	54.7'	118°08.4	64°09.2	33°43.6	28°17.4	16°45.3	35°26.1	100°05.2	110° 15.4
11	141°24.4	10.4'	23° 17.7	-2.1'	54.7'	117°38.0	63°38.9	33° 15.9	27°48.8	17°13.1	35°56.3	100°22.1	110°42.3
12	155°53.8	10.4'	$N23^{\circ}15.6$	-2.2'	54.7'	117°07.6	63°08.7	32°48.3	27°20.1	17°41.0	36°26.6	100°38.9	111°09.1
13	170°23.2	10.4'	23° 13.4	-2.3'	54.7'	116°37.1	62°38.4	32°20.7	26°51.6	18°09.1	36°56.9	100°55.8	111°36.0
14	184°52.6	10.4'	23°11.1	-2.4'	54.8'	116°06.7	62°08.0	31°53.3	26°23.1	18°37.3	37°27.2	101°12.6	112°02.9
15	199°22.0	10.4'	23°08.7	-2.5'	54.8'	115°36.2	61°37.7	31°25.9	25°54.6	19°05.7	37°57.5	101°29.4	112°29.7
16	213°51.4	10.4'	23°06.2	-2.6'	54.8'	115°05.8	61°07.4	30°58.5	25°26.3	19°34.2	38°27.8	101°46.1	112°56.6
17	228°20.8	10.4'	23°03.5	-2.8'	54.8'	114°35.3	60°37.0	30°31.3	24°57.9	20°02.7	38°58.2	102°02.9	113°23.4
18	242°50.2	10.4'	$N23^{\circ}00.8$	-2.9'	54.8'	114°04.8	60°06.6	30°04.1	24°29.7	20°31.4	39°28.6	102°19.6	113°50.2
19	257°19.7	10.4'	22°57.9	-3.0'	54.8'	113°34.3	59°36.3	29°37.0	24°01.5	21°00.2	39°59.0	102°36.2	114° 17.0
20	271°49.1	10.4'	22°54.9	-3.1'	54.8'	113°03.7	59°05.9	29° 10.0	23°33.4	21°29.1	40°29.4	102°52.9	114° 43.8
21	286°18.5	10.4'	$22^{\circ}51.8$	-3.2'	54.9'	112°33.2	58°35.4	28°43.1	23°05.4	21°58.0	40°59.9	103°09.4	115° 10.5
22	300°48.0	10.5'	22°48.6	-3.3'	54.9'	112°02.6	58°05.0	28° 16.3	22°37.5	22°27.1	41°30.4	103°26.0	115°37.3
23	315°17.4	10.5'	22°45.2	-3.5'	54.9'	111°32.1	57°34.6	27°49.6	22°09.6	22°56.2	42°00.9	103°42.5	116°04.0
23 rd	SD	= 14.9'	Mer. pass	. 01:14									

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Regulus	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	329°46.9	10.5'	N22°41.8	-3.6'	54.9'		111°01.5	57°04.1	21°41.9	23°25.4		42°31.4	116°30.7
1	344°16.4	10.5'	22°38.2	-3.7'	54.9'		110°30.9	56°33.7	21°14.3	23°54.7		43°01.9	116°57.4
2	358°45.9	10.5'	22°34.5	-3.8'	54.9'		110°00.2	56°03.2	20°46.8	24°24.0	26°21.1	43°32.5	117°24.1
3	13°15.4	10.5'	22°30.7	-3.9'	55.0'		109°29.6	55°32.7	20°19.5	24°53.4	26°36.9	44°03.1	117°50.7
4	27°44.9	10.5'	22°26.8	-4.0'	55.0'		108°58.9	55°02.2	19°52.2	25°22.9	26°53.1	44°33.7	118°17.4
5	42°14.4	10.5'	22°22.8	-4.1'	55.0'		108°28.2	54°31.7	19°25.2	25°52.4	27°09.7	45°04.3	118°44.0
6	56°44.0	10.6'	N22°18.7	-4.3'	55.0'		107°57.6	54°01.1	18°58.3	26°22.0	27°26.7	45°34.9	119°10.6
7	71°13.5	10.6'	22°14.4	-4.4'	55.0'		107°26.8	53°30.6	18°31.5	26°51.6	27°44.1	46°05.6	119°37.1
8	85°43.1	10.6'	22°10.0	-4.5'	55.0'		106°56.1	53°00.0	18°05.0	27°21.3	28°01.8	46°36.3	
9	100°12.7	10.6'	22°05.6	-4.6'	55.1'		106°25.4	52°29.5	17°38.7	27°51.1	28°19.9	47°07.0	
10	114°42.3	10.6'	22°01.0	-4.7'	55.1'		105°54.6	51°58.9	17°12.5	28°20.9	28°38.4	47°37.8	
11	129°11.9	10.6'	21°56.3	-4.8'	55.1'		105°23.8	51°28.3	16°46.7	28°50.7	28°57.1	48°08.5	
12	143°41.6	10.7'	N 21°51.5	-4.9'	55.1'		104°53.0	50°57.6	16°21.1	29°20.6	29°16.2	48°39.3	
13	158°11.3	10.7'	21°46.5	-5.0'	55.1'		104°22.2	50°27.0	15°55.7	29°50.5	29°35.6	49°10.1	
14	172°40.9	10.7'	21°41.5	-5.1'	55.2'		103°51.4	49°56.4	15°30.7	30°20.5	29°55.3	49°40.9	
15	187°10.6	10.7'	21°36.4	-5.3'	55.2'		103°20.5	49°25.7	15°06.1	30°50.5	30°15.3	50°11.7	
16	201°40.4	10.7'	21°31.1	-5.4'	55.2'		102°49.7	48°55.0	14°41.8	31°20.6	30°35.6	50°42.6	
17	216°10.1	10.8'	$21^{\circ}25.7$	-5.5'	55.2'		102°18.8	48°24.3	14°17.9	31°50.7	30°56.1	51°13.5	
18	230°39.9	10.8'	N21°20.3	-5.6'	55.2'		101°47.9	47°53.6	13°54.4	32°20.9	31°17.0	51°44.4	
19	245°09.6	10.8'	$21^{\circ}14.7$	-5.7'	55.2'		101°17.0	47°22.9	13°31.4	32°51.1	31°38.0	52°15.3	
20	259°39.5	10.8'	$21^{\circ}09.0$	-5.8'	55.3'	119°49.9	100°46.0	46°52.2	13°08.9	33°21.3	31°59.4	52°46.3	
21	274°09.3	10.9'	21°03.2	-5.9'	55.3'	$119^{\circ}19.5$	100°15.1	46°21.4	12°47.1	33°51.6	32°21.0	53°17.2	
22	288°39.1	10.9'	20°57.3	-6.0'	55.3'	118°49.2	99°44.1	45°50.7	12°25.8	34°21.9	32°42.8	53°48.2	
23	303°09.0	10.9'	20°51.3	-6.1'	55.3'	118° 18.8	99°13.1	45°19.9	12°05.2	34°52.2	33°04.8	54°19.2	
24 th	SD	$=15.0^{\prime}$	Mer. pass	. 02:05									

Moon (25th Nov)

Lunar Distance (objects with largest hourly LD delta)

									\				
Sun	GHA	ν	Dec	d	HP	-Jupiter	-Arcturus	-Spica	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	317°38.9	10.9'	N 20°45.1	-6.2'	55.3'	117°48.4	98°47.8	98°42.1	44°49.1	21°27.2	33°27.1	35°22.6	54°50.3
1	332°08.8	10.9'	20°38.9	-6.3'	55.4'	117° 18.0	98°22.5	98°11.0	44°18.3	21°48.4	33°49.6	35°53.0	55°21.3
2	346°38.8	11.0'	20°32.6	-6.4'	55.4'	116°47.6	97°57.3	97°40.0	43°47.5	22°10.0	34°12.3	36°23.5	55°52.4
3	1°08.8	11.0'	20°26.2	-6.5'	55.4'	$116^{\circ}17.1$	97°32.0	97°08.9	43°16.6	22°32.0	34°35.2	36°53.9	56°23.5
4	15°38.8	11.0'	$20^{\circ}19.6$	-6.6'	55.4'	115°46.6	97°06.7	96°37.8	42°45.8	22°54.3	34°58.4	37°24.5	56°54.6
5	30°08.8	11.0'	$20^{\circ}13.0$	-6.7'	55.4'	$115^{\circ}16.1$	96°41.4	96°06.7	42°14.9	23°16.9	35°21.7	37°55.0	57°25.8
6	44°38.8	11.1'	N 20°06.2	-6.9'	55.5'	114°45.6	96°16.0	95°35.5	41°44.0	23°39.9	35°45.2	38°25.6	57°56.9
7	59°08.9	11.1'	19°59.4	-7.0'	55.5'	114° 15.0	95°50.6	95°04.4	41°13.1	24°03.1	36°08.8	38°56.2	58°28.1
8	73°39.0	11.1'	19°52.4	-7.1'	55.5'	113°44.5	95°25.2	94°33.2	40°42.2	24°26.7	36°32.7	39°26.9	58°59.3
9	88°09.1	11.2'	19°45.3	-7.2'	55.5'	113° 13.9	94°59.7	94°02.0	40°11.3	24°50.6	36°56.7	39°57.6	59°30.6
10	102°39.3	11.2'	19°38.2	-7.3'	55.5'	112°43.3	94°34.3	93°30.8	39°40.4	25°14.7	37°20.9	40°28.3	60°01.8
11	117°09.4	11.2'	19°30.9	-7.4'	55.6'	112° 12.7	94°08.8	92°59.5	39°09.4	25°39.0	37°45.3	40°59.0	60°33.1
12	131°39.6	11.2'	$N19^{\circ}23.6$	-7.5'	55.6'	111°42.0	93°43.3	92°28.2	38°38.4	26°03.7	38°09.8	41°29.8	61°04.4
13	146°09.9	11.3'	$19^{\circ}16.1$	-7.6'	55.6'	111°11.3	93°17.7	91°57.0	38°07.5	26°28.5	38° 34.5	42°00.6	61°35.8
14	160°40.1	11.3'	19°08.5	-7.7'	55.6'	110°40.6	92°52.2	91°25.7	37°36.5	26°53.6	38°59.4	42°31.5	62°07.1
15	175°10.4	11.3'	$19^{\circ}00.9$	-7.8'	55.7'	110°09.9	92°26.6	90°54.3	37°05.5	27°18.9	39°24.3	43°02.4	62°38.5
16	189°40.7	11.3'	18°53.1	-7.9'	55.7'	109°39.2	92°01.0	90°23.0	36°34.4	27°44.4	39°49.5	43°33.3	63°09.9
17	204°11.1	11.4'	18°45.3	-8.0'	55.7'	109°08.4	91°35.3	89°51.6	36°03.4	28°10.1	40°14.7	44°04.2	63°41.3
18	218°41.4	11.4'	$N18^{\circ}37.3$	-8.0'	55.7'	108°37.6	91°09.7	89°20.2	35°32.4	28°36.0	40°40.1	44°35.2	64°12.8
19	233°11.8	11.4'	18°29.3	-8.1'	55.7'	108°06.8	90°44.0	88°48.8	35°01.3	29°02.1	41°05.7	45°06.2	64°44.2
20	247°42.2	11.4'	18°21.1	-8.2'	55.8'	107°36.0	90°18.3	88°17.3	34°30.2	29°28.3	41°31.3	45°37.2	65°15.7
21	262°12.7	11.5'	18°12.9	-8.3'	55.8'	107°05.1	89°52.6	87°45.9	33°59.1	29°54.8	41°57.1	46°08.3	65°47.2
22	276°43.2	11.5'	18°04.5	-8.4'	55.8'	106°34.2	89°26.8	87°14.4	33°28.0	30°21.4	42°23.1	46°39.4	66°18.8
23	291°13.7	11.5'	$17^{\circ}56.1$	-8.5'	55.8'	106°03.3	89°01.1	86°42.9	32°56.9	30°48.1	42°49.1	47°10.5	66°50.4
25 th	SD	= 15.1'	Mer. pass	. 02:55									

h Moon (26th Nov)

Mon	GHA	ν	Dec	d	HP	-Sun	-Jupiter	-Spica	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	305°44.2	11.6'	N 17°47.6	-8.6'	55.9'		105°32.4	86°11.3	32°25.8	31°15.0	43°15.3	47°41.6	67°22.0
1	320°14.7	11.6'	17°39.0	-8.7'	55.9'		105°01.4	85°39.8	31°54.7	31°42.1	43°41.5	48° 12.8	67°53.6
2	334°45.3	11.6'	17°30.3	-8.8'	55.9'		104°30.4	85°08.2	31°23.6	32°09.3	44°07.9	48°44.0	68°25.2
3	349°15.9	11.6'	$17^{\circ}21.5$	-8.9'	55.9'		103°59.4	84°36.6	30°52.4	32°36.7	44°34.4	49° 15.3	68°56.9
4	3°46.6	11.7'	$17^{\circ}12.6$	-9.0'	56.0'		103°28.4	84°04.9	30°21.3	33°04.2	45°01.0	49°46.5	69°28.6
5	18°17.2	11.7'	17°03.6	-9.1'	56.0'		102°57.3	83°33.3	29°50.1	33°31.8	45°27.7	50° 17.9	70°00.3
6	32°47.9	11.7'	N 16°54.5	-9.2'	56.0'		102°26.2	83°01.6	29°18.9	33°59.5	45°54.6	50°49.2	70°32.0
7	47°18.6	11.7'	16°45.4	-9.2'	56.0'		101°55.1	82°29.9	28°47.8	34°27.4	46°21.5	51°20.6	71°03.8
8	61°49.4	11.8'	$16^{\circ}36.1$	-9.3'	56.1'		101°24.0	81°58.2	28°16.6	34°55.4	46° 48.5	51°52.0	71°35.6
9	76°20.1	11.8'	$16^{\circ}26.8$	-9.4'	56.1'		100°52.8	81°26.4	27°45.4	35°23.5	47° 15.6	52°23.4	72°07.4
10	90°50.9	11.8'	$16^{\circ}17.4$	-9.5'	56.1'		100°21.7	80°54.6	27°14.2	35°51.7	47°42.8	52°54.8	72°39.3
11	105°21.7	11.8'	$16^{\circ}07.9$	-9.6'	56.1'		99°50.4	80°22.8	26°43.0	36°20.0	48°10.1	53°26.3	73°11.2
12	119°52.6	11.9'	N 15°58.3	-9.7'	56.2'		99°19.2	79°51.0	26°11.8	36°48.4	48° 37.5	53° 57.8	73°43.1
13	134°23.5	11.9'	15°48.6	-9.8'	56.2'	119°39.4	98°47.9	79°19.1	25°40.6	37°16.9	49°05.0	54°29.4	74°15.0
14	148°54.3	11.9'	15°38.8	-9.8'	56.2'	119°10.0	98°16.6	78°47.2	25°09.4	37°45.6	49°32.6	55°01.0	74°47.0
15	163°25.3	11.9'	$15^{\circ}29.0$	-9.9'	56.2'	118°40.6	97°45.3	78°15.3	24°38.2	38°14.3	50°00.2	55°32.6	75°19.0
16	177°56.2	12.0'	15° 19.1	-10.0'	56.3'	118°11.2	97°14.0	77°43.4	24°07.0	38°43.1	50°28.0	56°04.2	75°51.0
17	192°27.2	12.0'	15°09.0	-10.1'	56.3'	117°41.8	96°42.6	77°11.4	23°35.9	39°12.0	50°55.8	56°35.9	76°23.0
18	206°58.1	12.0'	N 14°58.9	-10.2'	56.3'	117°12.3	96°11.2	76°39.4	23°04.7	39°41.0	51°23.7	57° 07.6	76°55.1
19	221°29.2	12.0'	14°48.8	-10.3'	56.3'	116°42.8	95°39.8	76°07.4	22°33.5	40°10.1	51°51.7	57°39.3	77°27.2
20	236°00.2	12.1'	14°38.5	-10.3'	56.4'	116°13.2	95°08.3	75°35.3	22°02.4	40°39.3	52° 19.8	58°11.1	77°59.3
21	250°31.2	12.1'	14°28.2	-10.4'	56.4'	115°43.7	94°36.8	75°03.3	21°31.2	41°08.6	52° 47.9	58°42.9	78°31.4
22	265°02.3	12.1'	14° 17.8	-10.5'	56.4'	115°14.1	94°05.3	74°31.2	21°00.1	41°37.9	53°16.2	59°14.7	79°03.6
23	279°33.4	12.1'	14°07.3	-10.6'	56.4'	114°44.4	93°33.8	73°59.0	20°29.0	42°07.4	53°44.5	59°46.6	79°35.8
26 th	SD	= 15.2'	Mer. pas	s. 03:44					Sun	SD = 16.2'			

h	Moon	(27 th	Nov)

Lunar Distance (objects with largest hourly LD delta)

-Jupiter -Spica -Regulus +Pollux +Betelgeuse +Aldebara

Tue	GHA	ν	Dec	d	HP	-Sun	-Jupiter	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	294°04.5	12.1'	N 13°56.7	-10.6'	56.5'	114°14.8	93°02.2	73°26.9	19°58.0	19°59.1	42°36.9	60°18.5	80°08.1
1	308°35.6	12.2'	13°46.1	-10.7'	56.5'	113°45.1	92°30.6	72°54.7	19°27.0	20°27.7	43°06.5	60°50.4	80°40.3
2	323°06.8	12.2'	13°35.4	-10.8'	56.5'	113°15.4	91°59.0	72°22.5	18°56.0	20°56.6	43°36.1	61°22.4	81°12.6
3	337°38.0	12.2'	13°24.6	-10.9'	56.6'	112°45.6	91°27.3	71°50.2	18°25.0	21°25.6	44°05.9	61°54.3	81°45.0
4	352°09.2	12.2'	13°13.7	-10.9'	56.6'	112°15.9	90°55.6	71°17.9	17°54.1	21°54.7	44°35.7	62°26.4	82°17.3
5	6°40.4	12.2'	13°02.8	-11.0'	56.6'	111°46.1	90°23.9	70°45.6	17°23.3	22°24.1	45°05.6	62°58.4	82°49.7
6	21°11.6	12.2'	N 12°51.7	-11.1'	56.6'	111°16.2	89°52.2	70°13.3	16°52.5	22°53.6	45°35.6	63°30.5	83°22.1
7	35°42.8	12.3'	12°40.7	-11.2'	56.7'	110°46.4	89°20.4	69°40.9	16°21.8	23°23.2	46°05.6	64°02.6	83°54.6
8	50°14.1	12.3'	$12^{\circ}29.5$	-11.2'	56.7'	110°16.5	88°48.6	69°08.5	15°51.1	23°53.0	46°35.7	64°34.8	84°27.0
9	64°45.4	12.3'	12°18.3	-11.3'	56.7'	109°46.6	88°16.8	68°36.1	15°20.6	24°22.9	47°05.9	65°06.9	84°59.6
10	79°16.7	12.3'	$12^{\circ}07.0$	-11.4'	56.7'	109°16.6	87°44.9	68°03.6	14°50.1	24°52.9	47°36.1	65°39.1	85°32.1
11	93°48.0	12.3'	$11^{\circ}55.6$	-11.4'	56.8'	108°46.6	87°13.0	67°31.2	14°19.8	25°23.1	48°06.4	66°11.4	86°04.7
12	108°19.3	12.3'	N 11°44.2	-11.5'	56.8'	108°16.6	86°41.1	66°58.6	13°49.6	25°53.4	48°36.8	66°43.7	86°37.3
13	122°50.6	12.3'	11°32.7	-11.6'	56.8'	107°46.6	86°09.1	66°26.1	13°19.6	26°23.8	49°07.2	67°16.0	87°09.9
14	137°22.0	12.4'	$11^{\circ}21.1$	-11.6'	56.9'	107°16.5	85°37.1	65°53.5	12°49.7	26°54.3	49°37.7	67°48.3	87°42.5
15	151°53.3	12.4'	$11^{\circ}09.5$	-11.7'	56.9'	106°46.4	85°05.1	65°20.9	12°20.1	27°24.9	50°08.2	68°20.7	88°15.2
16	166°24.7	12.4'	10°57.8	-11.8'	56.9'	106°16.2	84°33.0	64°48.3	11°50.7	27°55.6	50°38.9	68°53.1	88°48.0
17	180°56.1	12.4'	10°46.0	-11.8'	56.9'	105°46.1	84°01.0	64°15.6	11°21.5	28°26.4	51°09.5	69°25.6	89°20.7
18	195°27.5	12.4'	N10°34.2	-11.9'	57.0'	105°15.9	83°28.8	63°42.9	10°52.6	28°57.3	51°40.3	69°58.1	89°53.5
19	209°58.9	12.4'	10°22.3	-11.9'	57.0'	104°45.6	82°56.7	63°10.1	10°24.1	29°28.3	52°11.1	70°30.6	90°26.3
20	224°30.3	12.4'	10°10.4	-12.0'	57.0'	104°15.4	82°24.5	62°37.4	9°56.0	29°59.4	52°41.9	71°03.1	90°59.2
21	239°01.7	12.4'	09°58.4	-12.1'	57.1'	103°45.0	81°52.3	62°04.6	9°28.4	30°30.6	53°12.9	71°35.7	91°32.1
22	253°33.1	12.4'	09°46.3	-12.1'	57.1'	103°14.7	81°20.0	61°31.7	9°01.3	31°01.8	53°43.8	72°08.3	92°05.0
23	268°04.6	12.4'	09°34.2	-12.2'	57.1'	102°44.3	80°47.8	60°58.9	8°34.9	31°33.2	54°14.9	72°41.0	92°37.9
27 th	SD	= 15.4	Mer. pas	s. 04:32					Sun	SD = 16.2	′		

h		Moor	n (28 th No	ov)			Lunar	Distance	(objects	with lar	gest hourly I	_D delta)	
Wed	GHA	ν	Dec	d	HP	-Sun	-Jupiter	-Arcturus	-Spica	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	282°36.0	12.4'	N09°22.0	-12.2'	57.2'	102° 13.9	80°15.4	67°50.7	60°26.0	32°04.6	54°46.0	73°13.7	93° 10.9
1	297°07.4	12.4'	09°09.7	-12.3'	57.2'	101°43.5	79°43.1	67°25.0	59°53.0	32°36.1	55°17.1	73°46.4	93°43.9
2	311°38.9	12.4'	08°57.4	-12.4'	57.2'	101°13.0	79°10.7	66°59.3	59°20.1	33°07.6	55°48.3	74°19.1	94°17.0
3	326°10.3	12.4'	08°45.1	-12.4'	57.2'	100°42.5	78°38.3	66°33.6	58°47.1	33°39.3	56°19.6	74°51.9	94°50.1
4	340°41.8	12.4'	08°32.7	-12.5'	57.3'	100°12.0	78°05.8	66°07.9	58°14.0	34°11.0	56°50.9	75°24.8	95°23.2
5	355°13.2	12.5'	08°20.2	-12.5'	57.3'	99°41.4	77°33.4	65°42.2	57°41.0	34°42.8	57°22.2	75°57.6	95°56.4
6	9°44.7	12.4'	N08°07.7	-12.6'	57.3'	99° 10.8	77°00.8	65°16.6	57°07.9	35°14.6	57°53.6	76°30.5	96°29.5
7	24°16.1	12.4'	07°55.1	-12.6'	57.4'	98°40.1	76°28.3	64°51.1	56°34.7	35°46.6	58°25.1	77°03.5	97°02.8
8	38°47.6	12.4'	07°42.5	-12.7'	57.4'	98°09.5	75°55.7	64°25.5	56°01.6	36°18.5	58°56.6	77°36.4	97°36.0
9	53°19.0	12.4'	07°29.8	-12.7'	57.4'	97°38.7	75°23.1	64°00.0	55°28.3	36°50.6	59°28.2	78°09.4	98°09.3
10	67°50.4	12.4'	$07^{\circ}17.1$	-12.8'	57.5'	97°08.0	74°50.4	63°34.5	54°55.1	37°22.7	59°59.9	78°42.5	98°42.6
11	82°21.9	12.4'	07°04.3	-12.8'	57.5'	96°37.2	74°17.7	63°09.1	54°21.8	37°54.9	60°31.5	79°15.6	99°16.0
12	96°53.3	12.4'	N06°51.5	-12.9'	57.5'	96°06.4	73°45.0	62°43.7	53°48.5	38°27.1	61°03.3	79°48.7	99°49.4
13	111°24.8	12.4'	06°38.6	-12.9'	57.6'	95° 35.5	73°12.2	62°18.4	53°15.2	38°59.4	61°35.0	80°21.8	100°22.8
14	125°56.2	12.4'	06°25.7	-13.0'	57.6'	95°04.6	72°39.5	61°53.1	52°41.8	39°31.8	62°06.9	80°55.0	100°56.3
15	140°27.6	12.4'	06°12.8	-13.0'	57.6'	94°33.7	72°06.6	61°27.8	52°08.4	40°04.2	62°38.8	81°28.2	101°29.8
16	154°59.0	12.4'	05°59.8	-13.0'	57.7'	94°02.7	71°33.7	61°02.6	51°34.9	40°36.7	63°10.7	82°01.5	102°03.3
17	169°30.4	12.4'	05°46.7	-13.1'	57.7'	93°31.7	71°00.8	60°37.4	51°01.4	41°09.2	63°42.7	82°34.8	102°36.9
18	184°01.8	12.4'	N05°33.6	-13.1'	57.7'	93°00.7	70°27.9	60°12.3	50°27.9	41°41.8	64°14.7	83°08.1	103° 10.5
19	198°33.2	12.4'	05°20.5	-13.2'	57.7'	92°29.6	69°54.9	59°47.3	49°54.4	42°14.5	64°46.8	83°41.5	103°44.1
20	213°04.5	12.4'	05°07.3	-13.2'	57.8'	91°58.5	69°21.9	59°22.3	49°20.8	42°47.2	65°18.9	84°14.9	104°17.8
21	227°35.9	12.3'	$04^{\circ}54.1$	-13.2'	57.8'	91°27.3	68°48.9	58°57.4	48°47.1	43°20.0	65°51.1	84°48.4	104°51.5
22	242°07.2	12.3'	04°40.9	-13.3'	57.8'	90°56.1	68°15.8	58°32.5	48°13.5	43°52.8	66°23.3	85°21.8	105°25.3
23	256°38.6	12.3'	04°27.6	-13.3'	57.9'	90°24.9	67°42.7	58°07.7	47°39.8	44°25.7	66°55.6	85°55.4	105°59.1
28 th	SD	= 15.6	Mer. pass	s. 05:20					Sun	SD = 16.2	′	-	

h	Moon	(20th	May 1

Thu	GHA	ν	Dec	d	HP	-Sun	-Rigil Kent.	-Jupiter	-Spica	+Regulus	+Pollux	+Aldebaran	+Saturn
0	271°09.9	12.3'	N 04°14.3	-13.4'	57.9'	89°53.7	81°14.9	67°09.5	47°06.0	8°47.8	44°58.6	86°28.9	106°32.9
1	285°41.2	12.3'	04°00.9	-13.4'	57.9'	89°22.4	80°49.3	66°36.3	46°32.3	9°15.3	45°31.6	87°02.5	107°06.8
2	300°12.4	12.3'	03°47.5	-13.4'	58.0'	88°51.0	80°23.7	66°03.1	45°58.4	9°43.5	46°04.6	87°36.2	107°40.7
3	314°43.7	12.2'	03°34.1	-13.5'	58.0'	88° 19.6	79°58.0	65°29.8	45°24.6	10°12.4	46°37.7	88°09.8	108°14.6
4	329°14.9	12.2'	03°20.6	-13.5'	58.0'	87°48.2	79°32.4	64°56.5	44°50.7	10°41.7	47° 10.9	88°43.6	108°48.6
5	343°46.1	12.2'	$03^{\circ}07.1$	-13.5'	58.1'	87°16.8	79°06.7	64°23.2	44°16.8	$11^{\circ}11.6$	47°44.0	89°17.3	109°22.6
6	358°17.3	12.2'	N 02°53.6	-13.6'	58.1'	86°45.3	78°41.0	63°49.8	43°42.8	11°41.8	48° 17.3	89°51.1	109°56.6
7	12°48.5	12.1'	02°40.0	-13.6'	58.1'	86°13.7	78°15.4	63°16.4	43°08.8	12°12.4	48°50.6	90°24.9	110°30.7
8	27°19.6	12.1'	02°26.5	-13.6'	58.2'	85°42.2	77°49.7	62°42.9	42°34.8	12°43.3	49°23.9	90°58.8	111°04.8
9	41°50.8	12.1'	$02^{\circ}12.9$	-13.6'	58.2'	85° 10.5	77°24.1	62°09.4	42°00.7	13°14.5	49°57.3	91°32.7	111°39.0
10	56°21.8	12.1'	$01^{\circ}59.2$	-13.7'	58.2'	84°38.9	76°58.4	61°35.9	41°26.6	13°46.0	50°30.8	92°06.6	112°13.2
11	70°52.9	12.0'	$01^{\circ}45.6$	-13.7'	58.3'	84°07.2	76°32.8	61°02.3	40°52.5	14°17.7	51°04.3	92°40.6	112°47.4
12	85°24.0	12.0'	N 01°31.9	-13.7'	58.3'	83°35.5	76°07.2	60°28.7	40° 18.3	14°49.7	51° 37.8	93°14.6	113°21.7
13	99°55.0	12.0'	$01^{\circ}18.2$	-13.7'	58.3'	83°03.7	75°41.5	59°55.1	39°44.1	15°21.8	52°11.4	93°48.7	113°56.0
14	114°25.9	11.9'	$01^{\circ}04.4$	-13.8'	58.4'	82°31.9	75°15.9	59°21.4	39°09.8	15°54.1	52°45.1	94°22.8	114°30.3
15	128°56.9	11.9'	00°50.7	-13.8'	58.4'	82°00.1	74°50.3	58°47.7	38°35.5	16°26.6	53° 18.8	94°56.9	115°04.7
16	143°27.8	11.9'	00°36.9	-13.8'	58.4'	81°28.2	74°24.7	58°13.9	38°01.2	16°59.3	53°52.5	95°31.1	115°39.1
17	157°58.7	11.8'	00°23.1	-13.8'	58.5'	80°56.2	73°59.1	57°40.1	37°26.8	17°32.1	54°26.3	96°05.3	116°13.6
18	172°29.5	11.8'	N 00°09.3	-13.8'	58.5'	80°24.3	73°33.6	57°06.3	36°52.4	18°05.0	55°00.2	96°39.6	116°48.0
19	187°00.3	11.8'	S 00°04.5	-13.8'	58.5'	79°52.3	73°08.0	56°32.4	36°18.0	18°38.1	55°34.1	97°13.9	117°22.6
20	201°31.1	11.7'	00°18.3	-13.9'	58.6'	79°20.2	72°42.5	55°58.5	35°43.5	19°11.3	56°08.0	97°48.2	117°57.1
21	216°01.8	11.7'	00°32.2	-13.9'	58.6'	78°48.1	72°17.0	55°24.5	35°09.0	19°44.6	56°42.0	98°22.6	118°31.7
22	230°32.5	11.7'	$00^{\circ}46.1$	-13.9'	58.6'	78°16.0	71°51.5	54°50.6	34°34.4	20°18.0	$57^{\circ}16.0$	98°57.0	119°06.4
23	245°03.2	11.6'	00°59.9	-13.9'	58.7'	77°43.9	71°26.0	54°16.5	33°59.8	20°51.5	57°50.1	99°31.4	119°41.1
29 th	SD	= 15.8	Mer. pas	s. 06:07					Sun S	D = 16.2'			

h		Moor	n (30 th No	ov)			Lunar D	istance (objects	with larges	st hourly L	.D delta)	
Fri	GHA	ν	Dec	d	HP	-Sun	-Rigil Kent.	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	259°33.8	11.6'	S 01°13.8	-13.9'	58.7'	77° 11.7	71°00.6	53°42.5	33°25.2	21°25.1	54°40.6	58°24.2	100°05.9
1	274°04.4	11.5'	$01^{\circ}27.7$	-13.9'	58.7'	76°39.4	70°35.1	53°08.4	32°50.5	21°58.8	55°14.0	58° 58.4	100°40.4
2	288°34.9	11.5'	$01^{\circ}41.6$	-13.9'	58.8'	76°07.1	70°09.8	52°34.2	32°15.8	22°32.6	55°47.4	59°32.6	101°15.0
3	303°05.4	11.4'	01°55.6	-13.9'	58.8'	75°34.8	69°44.4	52°00.1	31°41.1	23°06.5	56°20.9	60°06.9	101°49.6
4	317°35.8	11.4'	02°09.5	-13.9'	58.8'	75°02.4	69°19.1	51°25.9	31°06.3	23°40.5	56°54.5	60°41.2	102°24.2
5	332°06.2	11.3'	02°23.4	-13.9'	58.9'	74°30.0	68°53.8	50°51.6	30°31.5	24°14.5	57°28.1	61°15.5	102°58.9
6	346°36.6	11.3'	S 02°37.3	-13.9'	58.9'	73°57.6	68°28.5	50°17.3	29°56.7	24°48.6	58°01.7	61°50.0	103°33.6
7	1°06.9	11.2'	$02^{\circ}51.3$	-13.9'	58.9'	73°25.1	68°03.3	49°43.0	29°21.8	25°22.8	58°35.5	62°24.4	104°08.4
8	15°37.1	11.2'	03°05.2	-13.9'	59.0'	72°52.6	67°38.2	49°08.7	28°46.9	25°57.1	59°09.2	62°58.9	104°43.2
9	30°07.3	11.1'	03°19.1	-13.9'	59.0'	72°20.0	67°13.0	48°34.3	28°12.0	26°31.5	59°43.1	63°33.4	105° 18.0
10	44°37.5	11.1'	03°33.1	-13.9'	59.0'	71°47.4	66°47.9	47°59.8	27°37.0	27°05.9	60°16.9	64°08.0	105°52.9
11	59°07.6	11.0'	03°47.0	-13.9'	59.1'	71°14.8	66°22.9	47°25.4	27°02.0	27°40.4	60°50.9	64°42.7	106°27.8
12	73°37.6	11.0'	S 04°00.9	-13.9'	59.1'	70°42.1	65°57.9	46°50.8	26°26.9	28°14.9	61°24.9	65°17.3	107°02.7
13	88°07.6	10.9'	04°14.8	-13.9'	59.1'	70°09.3	65°33.0	46°16.3	25°51.8	28°49.5	61°58.9	65°52.1	107° 37.7
14	102°37.5	10.9'	04°28.8	-13.9'	59.1'	69°36.6	65°08.1	45°41.7	25°16.7	29°24.2	62°33.0	66°26.8	108° 12.7
15	117°07.4	10.8'	04°42.7	-13.9'	59.2'	69°03.8	64°43.3	45°07.1	24°41.6	29°59.0	63°07.1	67°01.6	108°47.8
16	131°37.2	10.7'	04°56.6	-13.9'	59.2'	68°30.9	64°18.5	44°32.5	24°06.4	30°33.7	63°41.3	67°36.5	109°22.9
17	146°06.9	10.7'	05°10.4	-13.9'	59.2'	67°58.0	63°53.8	43°57.8	23°31.2	31°08.6	64°15.5	68°11.4	109°58.0
18	160°36.6	10.6'	S 05°24.3	-13.9'	59.3'	67°25.1	63°29.2	43°23.1	22°56.0	31°43.5	64°49.8	68°46.3	110°33.2
19	175°06.2	10.6'	05°38.2	-13.8'	59.3'	66°52.2	63°04.6	42°48.3	22°20.7	32°18.5	65°24.2	69°21.3	111°08.4
20	189°35.8	10.5'	05°52.0	-13.8'	59.3'	66° 19.2	62°40.1	42°13.5	21°45.4	32°53.5	65°58.6	69°56.3	111°43.7
21	204°05.3	10.4'	06°05.8	-13.8'	59.4'	65°46.1	62°15.7	41°38.7	21°10.1	33°28.6	66°33.0	70°31.4	112° 19.0
22	218°34.7	10.4'	06° 19.6	-13.8'	59.4'	65°13.0	61°51.3	41°03.8	20°34.8	34°03.7	67°07.5	71°06.5	112°54.3
23	233°04.1	10.3'	06°33.4	-13.8'	59.4'	64°39.9	61°27.0	40°28.9	19°59.4	34°38.9	67°42.0	71°41.7	113°29.6
30 th	SD	= 16.0'	Mer. pas	s. 06:55					Sun S	5D = 16.2'			

h		Моо	n (1st De	c)			Lunar D	istance (objects v	with larges	st hourly L	D delta))
Sat	GHA	ν	Dec	d	HP	-Sun	-Rigil Kent.	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	247°33.4	10.2'	S 06°47.2	-13.7'	59.5'	64°06.7	61°02.8	39°54.0	19°24.1	35°14.2	68°16.6	72°16.9	114°05.0
1	262°02.6	10.2'	$07^{\circ}00.9$	-13.7'	59.5'	63°33.5	60°38.7	39°19.1	18°48.7	35°49.5	68°51.2	72°52.1	114° 40.5
2	276°31.8	10.1'	07°14.6	-13.7'	59.5'	63°00.3	60°14.7	38°44.1	18° 13.2	36°24.8	69°25.9	73°27.4	115° 15.9
3	291°00.9	10.0'	07°28.3	-13.7'	59.6'	62°27.0	59°50.8	38°09.1	17° 37.8	37°00.2	70°00.6	74°02.7	115°51.4
4	305°29.9	10.0'	07°42.0	-13.6'	59.6'	61°53.7	59°27.0	37°34.0	17°02.4	37°35.7	70°35.4	74°38.1	116°27.0
5	319°58.9	9.9'	07°55.6	-13.6'	59.6'	61°20.4	59°03.2	36°58.9	16°26.9	38°11.1	71°10.2	75°13.5	117°02.5
6	334°27.8	9.8'	S 08°09.2	-13.6'	59.6'	60°47.0	58°39.6	36°23.8	15°51.4	38°46.7	71°45.1	75°48.9	117°38.1
7	348°56.6	9.7'	08°22.8	-13.5'	59.7'	60°13.5	58°16.1	35°48.7	15°16.0	39°22.3	72°20.0	76°24.4	118° 13.8
8	3°25.3	9.7'	08°36.4	-13.5'	59.7'	59°40.1	57°52.7	35°13.5	14°40.5	39°57.9	72°54.9	76°59.9	118°49.4
9	17°54.0	9.6'	08°49.9	-13.5'	59.7'	59°06.6	57°29.4	34°38.3	14°05.1	40°33.6	73°29.9	77°35.5	119°25.1
10	32°22.5	9.5'	09°03.3	-13.4'	59.8'	58°33.0	57°06.2	34°03.1	13°29.6	41°09.3	74°04.9	78°11.1	
11	46°51.0	9.4'	$09^{\circ}16.8$	-13.4'	59.8'	57°59.4	56°43.1	33°27.8	12°54.2	41°45.1	74°40.0	78°46.7	
12	61°19.5	9.3'	S 09°30.1	-13.3'	59.8'	57°25.8	56°20.2	32°52.5	12° 18.8	42°20.9	75°15.1	79°22.4	
13	75°47.8	9.3'	09°43.5	-13.3'	59.8'	56°52.2	55°57.4	32°17.2	11°43.5	42°56.8	75°50.3	79°58.1	
14	90°16.1	9.2'	09°56.8	-13.3'	59.9'	56° 18.5	55°34.7	31°41.9	11°08.2	43°32.7	76°25.5	80°33.9	
15	104°44.3	9.1'	$10^{\circ}10.1$	-13.2'	59.9'	55°44.7	55°12.1	31°06.5	10°33.0	44°08.6	77°00.7	81°09.7	
16	119°12.4	9.0'	10°23.3	-13.2'	59.9'	55°11.0	54°49.7	30°31.2	9°57.9	44°44.6	77°36.0	81°45.5	
17	133°40.4	8.9'	$10^{\circ}36.5$	-13.1'	60.0'	54°37.2	54°27.5	29°55.8	9°22.8	45°20.7	78°11.3	82°21.4	
18	148°08.3	8.9'	S 10°49.6	-13.1'	60.0'	54°03.3	54°05.4	29°20.3	8°48.0	45°56.7	78°46.7	82°57.3	
19	162°36.2	8.8'	11°02.6	-13.0'	60.0'	53°29.5	53°43.4	28°44.9	8°13.3	46°32.9	79°22.1	83°33.2	
20	177°03.9	8.7'	11°15.6	-13.0'	60.0'	52°55.6	53°21.6	28°09.5	7°38.8	47°09.0	79°57.5	84°09.2	
21	191°31.6	8.6'	11°28.6	-12.9'	60.1'	52°21.6	53°00.0	27°34.0	7°04.6	47°45.2	80°33.0	84°45.2	
22	205°59.2	8.5'	$11^{\circ}41.5$	-12.8'	60.1'	51°47.6	52°38.6	26°58.5	6°30.8	48°21.5	81°08.5	85°21.2	
23	220°26.7	8.4'	11°54.4	-12.8'	60.1'	51°13.6	52°17.3	26°23.0	5°57.5	48°57.7	81°44.0	85°57.3	
1 st	SD	= 16.2'	Mer. pas	s. 07:46					Sun S	5D = 16.2'			

h		Mod	on (2 nd De	ec)			Lunar D	istance	(objects	with large	est hourly	LD delta)	1
Sun	GHA	ν	Dec	d	HP	-Rigil Kent.	-Sun	-Jupiter	±Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	234°54.1	8.3'	S 12°07.1	-12.7'	60.1'	51°56.2	50°39.6	25°47.5	5°24.9	49°34.1	82° 19.6	86°33.4	108°06.5
1	249°21.5	8.2'	12°19.9	-12.7'	60.2'	51°35.3	50°05.5	25°12.0	4°53.2	50°10.4	82°55.2	87°09.6	108°41.6
2	263°48.7	8.2'	12°32.5	-12.6'	60.2'	51°14.5	49°31.4	24°36.5	İ	50°46.8	83°30.9	87°45.8	109°16.7
3	278°15.9	8.1'	12°45.1	-12.5'	60.2'	50°54.0	48°57.3	24°00.9		51°23.2	84°06.6	88°22.0	109°51.9
4	292°42.9	8.0'	12°57.6	-12.5'	60.2'	50°33.7	48°23.1	23°25.4		51°59.7	84°42.3	88°58.2	110°27.0
5	307°09.9	7.9'	$13^{\circ}10.1$	-12.4'	60.3'	50°13.6	47°48.9	22°49.9		52°36.2	85° 18.0	89°34.5	111°02.2
6	321°36.8	7.8'	S 13°22.5	-12.3'	60.3'	49°53.7	47°14.6	22°14.3		53°12.7	85°53.8	90°10.8	111°37.4
7	336°03.6	7.7'	13°34.8	-12.2'	60.3'	49°34.0	46°40.4	21°38.8		53°49.3	86° 29.7	90°47.2	112°12.6
8	350°30.3	7.6'	13°47.0	-12.2'	60.3'	49°14.5	46°06.1	21°03.3		54°25.9	87°05.5	91°23.5	112°47.9
9	4°56.9	7.5'	13°59.2	-12.1'	60.4'	48°55.3	45°31.7	20°27.8		55°02.6	87°41.4	91°59.9	113°23.1
10	19°23.4	7.4'	$14^{\circ}11.3$	-12.0'	60.4'	48°36.3	44°57.4	19°52.4		55°39.2	88° 17.3	92°36.4	113°58.4
11	33°49.8	7.3'	14°23.3	-11.9'	60.4'	48°17.6	44°23.0	19°16.9		56°15.9	88°53.2	93°12.8	114°33.7
12	48°16.2	7.2'	S 14°35.2	-11.8'	60.4'	47°59.1	43°48.6	18°41.5		56°52.7	89°29.2	93°49.3	115°09.0
13	62°42.4	7.1'	14°47.0	-11.8'	60.4'	47°40.8	43°14.1	18°06.1		57°29.5	90°05.2	94°25.9	115°44.3
14	77°08.5	7.0'	14°58.8	-11.7'	60.5'	47°22.8	42°39.6	17°30.8		58°06.3	90°41.2	95°02.4	116°19.6
15	91°34.6	7.0'	$15^{\circ}10.5$	-11.6'	60.5'	47°05.1	42°05.1	16°55.5		58°43.1	91°17.3	95°39.0	116°55.0
16	106°00.5	6.9'	15°22.0	-11.5'	60.5'	46°47.7	41°30.6	16°20.3		59°20.0	91°53.4	96°15.6	117°30.3
17	120°26.4	6.8'	15°33.5	-11.4'	60.5'	46°30.5	40°56.0	15°45.1	6°13.7	59°56.9	92°29.5	96°52.2	118°05.6
18	134°52.2	6.7'	S 15°44.9	-11.3'	60.5'	46°13.6	40°21.4	15°10.1	6°47.8	60°33.8	93°05.6	97°28.9	118°41.0
19	149°17.8	6.6'	15°56.2	-11.2'	60.6'	45°57.1		14°35.1	7°22.4	61°10.7	93°41.8	98°05.5	119°16.3
20	163°43.4	6.5'	$16^{\circ}07.4$	-11.1'	60.6'	45°40.8		14°00.2	7°57.5	61°47.7	94°18.0	98°42.2	119°51.7
21	178°08.9	6.4'	$16^{\circ}18.5$	-11.0'	60.6'	45°24.8		13°25.5	8°32.8	62°24.7	94°54.2	99°19.0	
22	192°34.3	6.3'	$16^{\circ}29.5$	-10.9'	60.6'	45°09.2		12°50.9	9°08.4	63°01.8	95°30.4	99°55.7	
23	206°59.6	6.2'	16°40.4	-10.8'	60.6'	44°53.8		12°16.6	9°44.3	63°38.8	96°06.7	100°32.5	
2 nd	SD	= 16.4	′ Mer. pas	ss. 08:39					Sun	SD = 16.2'			

h Moon (3rd Dec)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Jupiter	+Spica	+Arcturus	+Regulus	+Adhara	+Procyon	+Pollux	+Sirius
0	221°24.8	6.1'	S 16°51.2	-10.7'	60.7'	11°42.4	10°20.3		64° 15.9	94°57.5	96°42.9	101°09.3	102°28.0
1	235°49.9	6.0'	$17^{\circ}01.9$	-10.6'	60.7'	11°08.5	10°56.5		64°53.0	95°21.9	97°19.2	101°46.1	102°57.0
2	250°14.9	5.9'	$17^{\circ}12.5$	-10.5'	60.7'	10°34.8	11°32.8		65° 30.2	95°46.3	97°55.5	102°22.9	103°26.1
3	264°39.8	5.8'	17°23.0	-10.4'	60.7'	10°01.6	12°09.3		66°07.3	96°10.7	98°31.8	102°59.7	103°55.1
4	279°04.6	5.7'	17°33.3	-10.3'	60.7'	9°28.7	12°45.8		66° 44.5	96°35.1	99°08.2	103°36.6	104°24.1
5	293°29.3	5.6'	17°43.6	-10.1'	60.7'	8°56.3	13°22.5		67°21.7	96°59.5	99°44.6	104°13.5	104°53.1
6	307°54.0	5.5'	S 17°53.7	-10.0'	60.7'	8°24.5	13°59.2		67°59.0	97°23.9	100°20.9	104°50.4	105°22.0
7	322°18.5	5.5'	18°03.8	-9.9'	60.8'	7°53.5	14°36.0		68° 36.2	97°48.2	100°57.3	105°27.3	105°50.9
8	336°43.0	5.4'	18° 13.7	-9.8'	60.8'	7°23.3	15°12.9		69° 13.5	98°12.5	101°33.7	106°04.3	106° 19.8
9	351°07.3	5.3'	18°23.4	-9.7'	60.8'		15°49.8		69° 50.8	98°36.8	102°10.2	106°41.2	106°48.6
10	5°31.6	5.2'	18°33.1	-9.5'	60.8'		16°26.8		70°28.1	99°01.1	102°46.6	107°18.2	107°17.4
11	19°55.8	5.1'	$18^{\circ}42.6$	-9.4'	60.8'		17°03.9		71°05.4	99°25.4	103°23.1	107°55.2	107°46.2
12	34°19.9	5.0'	S 18°52.0	-9.3'	60.8'		17°41.0		71°42.8	99°49.6	103°59.5	108°32.2	108°14.9
13	48°43.9	4.9'	19°01.3	-9.2'	60.8'		18°18.1		72°20.2	100°13.8	104°36.0	109°09.2	108°43.6
14	63°07.8	4.8'	$19^{\circ}10.5$	-9.0'	60.8'		18°55.3		72°57.5	100°38.0	105°12.5	109°46.2	109°12.3
15	77°31.6	4.7'	$19^{\circ}19.5$	-8.9'	60.9'		19°32.5		73°34.9	101°02.1	105°49.0	110°23.2	109°40.8
16	91°55.4	4.7'	19°28.4	-8.8'	60.9'		20°09.8		74° 12.4	101°26.2	106°25.5	111°00.3	110°09.4
17	106°19.0	4.6'	$19^{\circ}37.1$	-8.6'	60.9'		20°47.1	39°17.5	74°49.8	101°50.3	107°02.0	111°37.3	110°37.9
18	120°42.6	4.5'	S 19°45.8	-8.5'	60.9'		21°24.4	39°33.1	75° 27.2	102°14.3	107°38.5	112°14.4	111°06.3
19	135°06.1	4.4'	19°54.2	-8.3'	60.9'		22°01.8	39°49.1	76°04.7	102°38.2	108°15.0	112°51.5	111°34.7
20	149°29.5	4.3'	$20^{\circ}02.6$	-8.2'	60.9'		22°39.1	40°05.6	76° 42.2	103°02.1	108°51.5	113°28.5	112°03.0
21	163°52.8	4.2'	$20^{\circ}10.8$	-8.1'	60.9'		23°16.5	40°22.4	77° 19.7	103°26.0	109°28.0	114°05.6	112°31.2
22	178°16.1	4.2'	$20^{\circ}18.8$	-7.9'	60.9'		23°54.0	40°39.7	77° 57.2	103°49.8	110°04.6	114°42.7	112°59.4
23	192°39.2	4.1'	20°26.8	-7.8'	60.9'		24°31.4	40°57.3	78°34.7	104°13.6	110°41.1	115°19.8	113°27.5
3 rd	SD	= 16.5	′ Mer. pas	ss. 09:37									

Moon (4th Dec)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOO	n (4" De	ec)			Lunar	Distance (objects wi	th largest	nourly LL) deita)	
Tue	GHA	ν	Dec	d	HP	+Jupiter	+Spica	+Arcturus	+Regulus	+Adhara	+Procyon	+Sirius	+Pollux
0	207°02.3	4.0'	S 20°34.5	-7.6'	60.9'		25°08.9	41°15.3	79°12.2	104°37.3	111° 17.6	113°55.6	115°56.9
1	221°25.4	3.9'	20°42.2	-7.5'	60.9'		25°46.4	41°33.7	79°49.7	105°00.9	111°54.1	114°23.5	116°34.0
2	235°48.3	3.9'	20°49.6	-7.3'	60.9'		26°23.9	41°52.4	80°27.3	105°24.5	112°30.6	114°51.4	117°11.1
3	250°11.2	3.8'	20°57.0	-7.2'	60.9'		27°01.4	42°11.4	81°04.8	105°48.0	113°07.2	115°19.2	117°48.2
4	264°34.0	3.7'	$21^{\circ}04.1$	-7.0'	60.9'		27°38.9	42°30.8	81°42.4	106°11.5	113°43.7	115°46.9	118°25.3
5	278°56.7	3.7'	$21^{\circ}11.2$	-6.9'	60.9'	8°17.4	28°16.5	42°50.6	82°19.9	106°34.9	114°20.2	116°14.6	119°02.4
6	293°19.4	3.6'	S 21°18.0	-6.7'	61.0'	8°49.3	28°54.0	43°10.6	82°57.5	106°58.2	114° 56.7	116°42.1	119°39.5
7	307°42.0	3.5'	21°24.7	-6.6'	61.0'	9°21.8	29°31.6	43°31.0	83°35.1	107°21.4	115°33.2	117°09.5	
8	322°04.5	3.5'	21°31.3	-6.4'	61.0'	9°54.9	30°09.2	43°51.7	84°12.6	107°44.6	116°09.7	117°36.9	
9	336°27.0	3.4'	21°37.7	-6.2'	61.0'	10°28.5	30°46.8	44°12.7	84°50.2	108°07.7	116°46.1	118°04.1	
10	350°49.4	3.3'	21°43.9	-6.1'	61.0'	11°02.4	31°24.4	44°34.0	85°27.8	108°30.6	117°22.6	118°31.3	
11	5°11.7	3.3'	$21^{\circ}50.0$	-5.9'	61.0'	11°36.7	32°02.0	44°55.6	86°05.4	108°53.6	117°59.0	118°58.3	
12	19°34.0	3.2'	S 21°55.9	-5.8'	61.0'	12°11.3	32°39.6	45°17.4	86°43.0	109°16.4	118° 35.5	119°25.2	
13	33°56.2	3.2'	22°01.7	-5.6'	61.0'	12°46.1	33°17.2	45°39.5	87°20.6	109°39.1	$119^{\circ}11.9$	119°52.0	
14	48°18.4	3.1'	22°07.3	-5.4'	61.0'	13°21.1	33°54.8	46°01.9	87°58.1	110°01.7	119°48.3		
15	62°40.6	3.1'	$22^{\circ}12.7$	-5.3'	61.0'	13°56.3	34°32.5	46°24.6	88°35.7	110°24.3			
16	77°02.6	3.0'	22°17.9	-5.1'	60.9'	14°31.7	35°10.1	46°47.5	89°13.3	110°46.7			
17	91°24.7	3.0'	22°23.0	-4.9'	60.9'	15°07.2	35°47.7	47°10.6	89°50.9	111°09.0			
18	105°46.7	2.9'	S 22°27.9	-4.8'	60.9'	15°42.8	36°25.3	47°34.0	90°28.5	111°31.2			
19	120°08.6	2.9'	22°32.7	-4.6'	60.9'	16°18.6	37°03.0	47°57.6	91°06.1	111°53.4			
20	134°30.5	2.9'	22°37.3	-4.4'	60.9'	16°54.4	37°40.6	48°21.4	91°43.6	112°15.4			
21	148°52.4	2.8'	22°41.7	-4.2'	60.9'	17°30.4	38°18.2	48°45.4	92°21.2	112°37.3		1	
22	163°14.2	2.8'	22°45.9	-4.1'	60.9'	18°06.4	38°55.8	49°09.7	92°58.8	112°59.0			
23	177°36.0	2.8'	22°50.0	-3.9'	60.9'		·	•	New	Moon ——			
4 th	SD =	= 16.6'	Mer. pas	s. 10:38	3				-	-			

h Moon (5th Dec)

		10100	11 (3 DC	· •)		
Wed	GHA	ν	Dec	d	HP	
0	191°57.8	2.7'	S 22°53.9	-3.7'	60.9'	New Moon
1	206°19.5	2.7'	22°57.6	-3.5'	60.9'	New Moon
2	220°41.2	2.7'	23°01.2	-3.4'	60.9'	New Moon
3	235°02.9	2.7'	23°04.5	-3.2'	60.9'	New Moon
4	249°24.5	2.6'	23°07.7	-3.0'	60.9'	New Moon
5	263°46.2	2.6'	$23^{\circ}10.8$	-2.8'	60.9'	New Moon
6	278°07.8	2.6'	S 23°13.6	-2.7'	60.9'	New Moon
7	292°29.4	2.6'	23°16.3	-2.5'	60.8'	New Moon
8	306°51.0	2.6'	23°18.8	-2.3'	60.8'	New Moon
9	321°12.6	2.6'	$23^{\circ}21.1$	-2.1'	60.8'	New Moon
10	335°34.2	2.6'	23°23.2	-2.0'	60.8'	New Moon
11	349°55.7	2.6'	23°25.2	-1.8'	60.8'	New Moon
12	4°17.3	2.6'	S 23°26.9	-1.6'	60.8'	New Moon
13	18°38.9	2.6'	23°28.5	-1.4'	60.8'	New Moon
14	33°00.5	2.6'	23°30.0	-1.2'	60.8'	New Moon
15	47°22.0	2.6'	23°31.2	-1.1'	60.7'	New Moon
16	61°43.6	2.6'	23°32.3	-0.9'	60.7'	New Moon
17	76°05.2	2.6'	23°33.1	-0.7'	60.7'	New Moon
18	90°26.8	2.6'	S 23°33.9	-0.5'	60.7'	New Moon
19	104°48.5	2.6'	23°34.4	-0.4'	60.7'	New Moon
20	119°10.1	2.7'	23°34.7	-0.2'	60.7'	New Moon
21	133°31.8	2.7'	23°34.9	0.0'	60.6'	New Moon
22	147°53.5	2.7'	23°34.9	0.2'	60.6'	New Moon
23	162°15.2	2.7'	23°34.7	0.4'	60.6'	New Moon
5 th	SD :	= 16.6'	Mer. pas	s. 11:42	!	

h		Moor	n (6 th De	c)		Lunar Di	stance (objects with	n largest	hourly L	.D delta)
Thu	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	-Mars	-Venus
0	176°36.9	2.8'	S 23°34.4	0.5'	60.6'	_		New M	oon ——		_
1	190°58.7	2.8'	23°33.8	0.7'	60.6'	_		New M	oon ——		_
2	205°20.5	2.8'	23°33.1	0.9'	60.5'	_		New M	oon ——		_
3	219°42.4	2.9'	23°32.2	1.1'	60.5'	_		New M	oon ——		_
4	234°04.3	2.9'	23°31.2	1.2'	60.5'	<u> </u>		New M	oon ——		_
5	248°26.2	3.0'	23° 29.9	1.4'	60.5'	_		New M	oon ——		_
6	262°48.2	3.0'	S 23°28.5	1.6'	60.5'	_		New M	oon ——		_
7	277°10.2	3.1'	23°26.9	1.8'	60.4'	_		New M	oon ——		_
8	291°32.3	3.1'	23°25.2	1.9'	60.4'	_		New M	oon ——		_
9	305°54.4	3.2'	23°23.3	2.1'	60.4'	85°16.1	80°32.0	70°44.1	46°03.0	29°42.8	26°59.6
10	320°16.6	3.2'	23°21.2	2.3'	60.4'	85°00.4	80°11.3	70°11.3	45°33.7	29°08.1	26°24.1
11	334°38.8	3.3'	$23^{\circ}18.9$	2.4'	60.3'	84°44.8	79°50.7	69°38.6	45°04.6	28°33.3	25°48.6
12	349°01.1	3.3'	S 23°16.5	2.6'	60.3'	84°29.2	79°30.1	69°05.9	44°35.7	27°58.7	25°13.2
13	3°23.4	3.4'	23°13.8	2.8'	60.3'	84°13.7	79°09.7	68°33.3	44°06.9	27°24.1	24°37.8
14	17°45.8	3.5'	$23^{\circ}11.1$	2.9'	60.3'	83°58.3	78°49.3	68°00.8	43°38.4	26°49.5	24°02.5
15	32°08.3	3.5'	23°08.1	3.1'	60.2'	83°42.8	78°28.9	67°28.3	43°10.0	26°14.9	23°27.3
16	46°30.8	3.6'	23°05.0	3.3'	60.2'	83°27.5	78°08.7	66°55.9	42°41.8	25°40.5	22°52.1
17	60°53.4	3.7'	$23^{\circ}01.8$	3.4'	60.2'	83°12.1	77°48.5	66°23.6	42°13.9	25°06.0	22°17.0
18	75°16.1	3.7'	S 22°58.3	3.6'	60.2'	82°56.9	77°28.4	65°51.3	41°46.1	24°31.7	21°42.0
19	89°38.8	3.8'	22°54.7	3.8'	60.1'	82°41.7	77°08.4	65°19.1	41°18.6	23°57.4	21°07.0
20	104°01.7	3.9'	$22^{\circ}51.0$	3.9'	60.1'	82°26.5	76°48.4	64°47.0	40°51.3	23°23.1	20°32.1
21	118°24.6	4.0'	$22^{\circ}47.1$	4.1'	60.1'	82°11.4	76°28.6	64°15.0	40°24.2	22°48.9	19°57.3
22	132°47.5	4.1'	22°43.0	4.2'	60.0'	81°56.4	76°08.8	63°43.0	39°57.4	22°14.8	19°22.6
23	147°10.6	4.1'	22°38.8	4.4'	60.0'		75°49.1	63°11.1	39°30.8	21°40.7	18°48.0
6 th	SD =	= 16.5′	Mer. pass	s. 12:4	6						

h		Моо	n (7 th De	c)		Lunar [Distance (o	bjects w	ith larges	st hourly LD delta)
Fri	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Mars	-Venus
0	161°33.7	4.2'	S 22°34.4	4.5'	60.0'	75°29.5	62°39.3	39°04.5	21°06.7	18°13.4
1	175°56.9	4.3'	22°29.9	4.7'	60.0'	75° 10.0	62°07.6	38°38.4	20°32.8	17°39.0
2	190°20.2	4.4'	22°25.2	4.8'	59.9'	74°50.6	61°35.9	38°12.6	19°58.9	17°04.7
3	204°43.6	4.5'	22°20.3	5.0'	59.9'	74°31.3	61°04.4	37°47.0	19°25.1	16°30.5
4	219°07.1	4.6'	22°15.3	5.1'	59.9'	74°12.1	60°32.9	37°21.8	18°51.4	15°56.4
5	233°30.7	4.7'	22°10.2	5.3'	59.8'	73°53.0	60°01.5	36°56.8	18°17.8	15°22.4
6	247°54.3	4.7'	S 22°04.9	5.4'	59.8'	73°34.0	59°30.2	36°32.2	17°44.3	14°48.6
7	262°18.1	4.8'	21°59.4	5.6'	59.8'	73°15.1	58°59.0	36°07.8	17°10.9	14°15.0
8	276°41.9	4.9'	21°53.9	5.7'	59.7'	72°56.3	58°27.9	35°43.8	16°37.6	13°41.6
9	291°05.9	5.0'	21°48.1	5.9'	59.7'	72°37.6	57°56.9	35°20.1	16°04.3	13°08.3
10	305°29.9	5.1'	21°42.3	6.0'	59.7'	72°19.0	57°26.0	34°56.7	15°31.2	12°35.3
11	319°54.0	5.2'	21°36.3	6.1'	59.6'	72°00.5	56°55.2	34°33.7	14°58.3	12°02.5
12	334°18.2	5.3'	S 21°30.1	6.3'	59.6'	71°42.2	56°24.5	34°11.0	14°25.4	11°29.9
13	348°42.6	5.4'	21°23.8	6.4'	59.6'	71°23.9	55°53.9	33°48.7	13°52.7	10°57.7
14	3°07.0	5.5'	21°17.4	6.6'	59.5'	71°05.8	55°23.4	33°26.8	13°20.2	10°25.8
15	17°31.5	5.6'	21°10.9	6.7'	59.5'	70°47.8	54°53.1	33°05.3	12°47.8	9°54.3
16	31°56.2	5.7'	21°04.2	6.8'	59.5'	70°29.9	54°22.8	32°44.1	12°15.6	9°23.3
17	46°20.9	5.8'	20°57.3	6.9'	59.4'	70°12.1	53°52.7	32°23.4	11°43.6	8°52.8
18	60°45.8	5.9'	S 20°50.4	7.1'	59.4'	69°54.5	53°22.6	32°03.1	11°11.9	8°22.9
19	75°10.7	6.1'	20°43.3	7.2'	59.4'	69°36.9	52°52.7	31°43.3	10°40.4	7°53.8
20	89°35.7	6.2'	20°36.1	7.3'	59.3'	69°19.5	52°22.9	31°23.8	10°09.2	7°25.4
21	104°00.9	6.3'	20°28.8	7.5'	59.3'	69°02.3	51°53.3	31°04.9	9°38.3	
22	118°26.2	6.4'	20°21.3	7.6'	59.3'	68°45.1	51°23.8	30°46.4	9°07.9	
23	132°51.5	6.5'	20°13.8	7.7'	59.2'	68°28.1	50°54.4	30°28.4	8°37.8	
7 th	SD -	- 16 <i>1</i> ′	Mor pas	- 13.4	7		·	·	·	·

h										elta)		
Sat	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	-Mars	+Venus	+Sun
0	147°17.0	6.6'	S 20°06.1	7.8'	59.2'		68°11.3	50°25.1	30°10.8	8°08.3		
1	161°42.6	6.7'	19°58.3	7.9'	59.2'		67°54.5	49°56.0	29°53.8	7°39.3		
2	176°08.3	6.8'	19°50.3	8.0'	59.1'	119°59.6	67° 37.9	49°27.0	29°37.3	$7^{\circ}11.1$		
3	190°34.1	6.9'	19°42.3	8.2'	59.1'	119°24.3	67°21.5	48°58.1	29°21.3	6°43.7		
4	205°00.1	7.0'	19°34.2	8.3'	59.0'	118°49.0	67°05.2	48°29.4	29°05.9			
5	219°26.1	7.1'	$19^{\circ}25.9$	8.4'	59.0'	118°13.7	66°49.0	48°00.9				
6	233°52.2	7.3'	S 19°17.5	8.5'	59.0'	117°38.4	66°33.0	47°32.5				
7	248°18.5	7.4'	19°09.0	8.6'	58.9'	117°03.2	66° 17.1	47°04.2				
8	262°44.8	277°11.3 7.6' 18°51.7 8.8				116°28.1	66°01.3	46°36.1				
9	277°11.3			8.8'	58.9'	115°53.0	65°45.7	46°08.2				
10	291°37.9	7.7'	18°43.0	8.9'	58.8'	115°17.9	65°30.3	45°40.5				
11	306°04.6	7.8'	18°34.1	9.0'	58.8'	114°42.9	65° 15.0	45°12.9				
12	320°31.4	7.9'	S 18°25.1	9.1'	58.7'	114°08.0	64°59.9	44°45.5				
13	334°58.3	8.0'	$18^{\circ}16.0$	9.2'	58.7'	113°33.1		44°18.2				
14	349°25.4	8.1'	18°06.8	9.3'	58.7'	112°58.2		43°51.2				
15	3°52.5	8.3'	17°57.5	9.4'	58.6'	112°23.4		43°24.3				
16	18°19.8	8.4'	17°48.1	9.5'	58.6'	111°48.6		42°57.6				41°06.0
17	32°47.2	8.5'	17°38.6	9.6'	58.5'	111°13.9		42°31.2				41°38.2
18	47°14.6	8.6'	S 17°29.1	9.6'	58.5'	110°39.2		42°04.9			8°00.1	42°10.4
19	61°42.2	8.7'	$17^{\circ}19.4$	9.7'	58.5'	110°04.5		41°38.8			8° 28.5	42°42.5
20	76°09.9	8.8'	$17^{\circ}09.7$	9.8'	58.4'	109°30.0		41°12.9			8° 57.5	43°14.6
21	90°37.7	8.9'	$16^{\circ}59.9$	9.9'	58.4'	108°55.4		40°47.2			9°27.0	43°46.6
22	105°05.7	9.0'	$16^{\circ}50.0$	10.0'	58.4'	108°20.9		40°21.8			9°57.0	44° 18.5
23	119°33.7	9.1'	16°40.0	10.1'	58.3'	3.3' 107°46.5 39°56.6 10°27.2 44°5						44°50.4
8 th	SD	= 16.1	′ Mer. pas	s. 14:44				Sun S	5D = 16.2'			

h		Моо	n (9 th De	c)		Lunar Dis	stance (ol	ojects with	largest h	ourly LD	delta)
Sun	GHA	ν	Dec	d	HP	-Aldebaran	-Saturn	-Fomalhaut	+Mars	+Venus	+Sun
0	134°01.8	9.2'	S 16°29.9	10.1'	58.3'		107°12.1	39°31.6	7°17.5	10°57.7	45°22.3
1	148°30.1	9.4'	$16^{\circ}19.8$	10.2'	58.2'		106°37.7	39°06.8	7°44.9	11°28.5	45°54.1
2	162°58.4	9.5'	$16^{\circ}09.5$	10.3'	58.2'		106°03.4	38°42.3	8°12.9	11°59.5	46°25.9
3	177°26.9	9.6'	$15^{\circ}59.2$	10.4'	58.2'		105°29.2	38° 18.0	8°41.4	12°30.7	46°57.6
4	191°55.5	9.7'	15°48.9	10.4'	58.1'		104°55.0	37° 54.0	9°10.3	13°02.0	47°29.3
5	206°24.1	9.8'	15°38.4	10.5'	58.1'		104°20.8	37°30.3	9°39.4	13°33.4	48°00.9
6	220°52.9	9.9'	S 15°27.9	10.6'	58.0'		103°46.7	37°06.8	10°08.8	14°04.9	48°32.5
7	235°21.8	10.0'	15°17.3	10.7'	58.0'		103°12.7	36°43.5	10°38.5	14°36.5	49°04.0
8	249°50.8	10.1'	$15^{\circ}06.7$	10.7'	58.0'		102°38.7	36°20.6	11°08.3	15°08.2	49°35.4
9	264°19.9	10.2'	14°56.0	10.8'	57.9'		102°04.7	35° 57.9	11°38.2	15°40.0	50°06.9
10	278°49.1	10.3'	14°45.2	10.8'	57.9'		101°30.8	35°35.6	12°08.3	16°11.8	50°38.2
11	293°18.4	10.4'	14°34.3	10.9'	57.8'		100°56.9	35°13.5	12°38.5	16°43.7	51°09.6
12	307°47.8	10.5'	S 14°23.4	11.0'	57.8'		100°23.1	34°51.7	13°08.8	17° 15.5	51°40.8
13	322°17.3	10.6'	$14^{\circ}12.5$	11.0'	57.8'		99°49.3	34°30.2	13°39.2	17°47.4	52°12.1
14	336°47.0	10.7'	$14^{\circ}01.4$	11.1'	57.7'	119°59.9	99°15.6	34°09.1	14°09.6	18° 19.4	52°43.3
15	351°16.7	10.8'	13°50.3	11.1'	57.7'	119°26.5	98°42.0	33°48.3	14°40.0	18°51.3	53° 14.4
16	5°46.5	10.9'	13°39.2	11.2'	57.6'	118°53.2	98°08.3	33°27.8	15°10.5	19°23.3	53°45.5
17	20°16.4	11.0'	13°28.0	11.2'	57.6'	118°20.0	97°34.8	33°07.7	15°41.0	19°55.2	54°16.5
18	34°46.4	11.1'	S 13°16.8	11.3'	57.6'	117°46.7	97°01.2	32°47.9	16°11.6	20°27.2	54°47.5
19	49°16.5	11.2'	$13^{\circ}05.5$	11.4'	57.5'	117°13.6	96°27.7	32°28.5	16°42.2	20°59.1	55° 18.4
20	63°46.7	11.3'	$12^{\circ}54.1$	11.4'	57.5'	116°40.5	95°54.3	32°09.5	17°12.7	21°31.1	55°49.3
21	78°17.0	11.4'	12°42.7	11.4'	57.4'	116°07.4	95°20.9	31°50.8	17°43.3	22°03.0	$56^{\circ}20.1$
22	92°47.4	11.5'	12°31.3	11.5'	57.4'	115°34.3	94°47.6	31°32.5	18°13.9	22°35.0	56°50.9
23	107°17.9	11.6'	$12^{\circ}19.8$	11.5'	57.4'	115°01.3	94°14.3	31°14.6	18°44.5	23°06.9	57°21.7
Qth	SD	- 15 9 [']	Mer nass	15.36				Sun SD — 1	6.2'		

h		Moon	(10 th De	ec)		1	Lunar Dis	tance (obje	ects with	largest	hourly L	D delta)	
Mon	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Mars	+Venus	+Altair	+Sun
0	121°48.4	11.7'	S 12°08.2	11.6'	57.3'		118°41.4	114°28.4	93°41.1	19°15.0	23°38.8		57°52.4
1	136°19.1	11.8'	$11^{\circ}56.6$	11.6'	57.3'		118°14.8	113°55.5	93°07.9	19°45.6	24°10.7		58°23.0
2	150°49.9	11.8'	11°45.0	11.7'	57.2'		117°48.2	113°22.6	92°34.7	20°16.1	24°42.6		58°53.6
3	165°20.7	11.9'	11°33.3	11.7'	57.2'	119°36.3	117°21.6	112°49.8	92°01.6	20°46.6	25°14.4		59°24.2
4	179°51.7	12.0'	$11^{\circ}21.6$	11.8'	57.2'	119°06.6	116°54.9	112°17.1	91°28.6	21°17.2	25°46.3		59°54.7
5	194°22.7	12.1'	$11^{\circ}09.9$	11.8'	57.1'	118°37.0	116°28.3	111°44.3	90°55.5	21°47.6	26°18.1		60°25.2
6	208°53.8	12.2'	S 10°58.1	11.8'	57.1'	118°07.3	116°01.6	111°11.7	90°22.6	22°18.1	26°49.8	29°48.9	60°55.6
7	223°25.0	12.3'	10°46.3	11.9'	57.1'	117°37.6	115°34.9	110°39.0	89°49.7	22°48.6	27°21.6	30°04.5	61°26.0
8	237°56.3	12.4'	10°34.4	11.9'	57.0'	117°07.9	115°08.2	110°06.4	89°16.8	23°19.0	27°53.3	30°20.5	61°56.3
9	252°27.6	12.4'	$10^{\circ}22.5$	11.9'	57.0'	116°38.3	114°41.4	109°33.9	88°44.0	23°49.4	28°25.1	30°36.9	62°26.6
10	266°59.1	12.5'	$10^{\circ}10.6$	12.0'	56.9'	116°08.7	114°14.7	109°01.4	88°11.2	24°19.7	28°56.7	30°53.7	62°56.8
11	281°30.6	12.6'	09°58.6	12.0'	56.9'	115°39.0	113°47.9	108°28.9	87°38.5	24°50.1	29°28.4	31°10.8	63°27.0
12	296°02.2	12.7'	S 09°46.6	12.0'	56.9'	115°09.4	113°21.2	107°56.5	87°05.8	25°20.4	30°00.0	31°28.3	63°57.1
13	310°33.9	12.8'	09°34.6	12.0'	56.8'	114°39.8	112°54.4	107°24.1	86°33.1	25°50.7	30°31.6	31°46.1	64°27.2
14	325°05.7	12.8'	09°22.6	12.1'	56.8'	114°10.3	112°27.6	106°51.8	86°00.5	26°20.9	31°03.2	32°04.2	64°57.3
15	339°37.5	12.9'	$09^{\circ}10.5$	12.1'	56.8'	113°40.7	112°00.9	106°19.5	85°28.0	26°51.1	31°34.7	32°22.7	65°27.3
16	354°09.5	13.0'	08°58.4	12.1'	56.7'	113°11.1	111°34.1	105°47.3	84°55.5	27°21.3	32°06.2	32°41.4	65°57.2
17	8°41.5	13.1'	08°46.3	12.2'	56.7'	112°41.6	111°07.3	105°15.1	84°23.0	27°51.5	32°37.7	33°00.4	66°27.1
18	23°13.5	13.1'	S 08°34.1	12.2'	56.6'	112°12.1	110°40.5	104°42.9	83°50.6	28°21.6	33°09.2	33°19.8	66°57.0
19	37°45.7	13.2'	$08^{\circ}21.9$	12.2'	56.6'	111°42.6	110°13.7	104°10.8	83°18.2	28°51.7	33°40.6	33°39.3	67°26.8
20	52°17.9	13.3'	08°09.7	12.2'	56.6'	111°13.2	109°47.0	103°38.7	82°45.9	29°21.8	34°12.0	33°59.2	67°56.6
21	66°50.2	13.4'	07°57.5	12.2'	56.5'	110°43.7	109°20.2	103°06.7	82°13.6	29°51.8	34°43.4	34°19.3	68°26.4
22	81°22.6	13.4'	07°45.3	12.3'	56.5'	110°14.3	108°53.4	102°34.7	81°41.4	30°21.8	35°14.7	34°39.6	68°56.1
23	95°55.0	13.5'	07°33.0	12.3'	56.5'	109°44.9	108°26.6	102°02.7	81°09.2	30°51.8	35°46.0	35°00.2	69°25.7
10 th	SD	-15.6'	Mer nass	16.24			·		Sun SD -	16.2			

h		Moon	\cdot (11 th De	ec)		L	unar Dista	ance (objed	cts with	largest h	ourly LD	delta)	
Tue	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Mars	+Altair	+Venus	+Sun
0	110°27.5	13.6'	S 07°20.7	12.3'	56.4'		109°15.5	101°30.8	80°37.0	31°21.7	35°21.0	36°17.2	69°55.3
1	125°00.1	13.6'	07°08.5	12.3'	56.4'	119°42.7	108°46.1	100°59.0	80°04.9	31°51.6	35°42.0	36°48.5	70°24.9
2	139°32.7	13.7'	$06^{\circ}56.2$	12.3'	56.4'	119° 12.2	108°16.8	100°27.1	79°32.8	32°21.4	36°03.2	37°19.7	70°54.4
3	154°05.4	13.8'	06°43.8	12.3'	56.3'	118°41.7	107°47.4	99°55.3	79°00.8	32°51.3	36°24.6	37°50.9	71°23.9
4	168°38.1	13.8'	$06^{\circ}31.5$	12.3'	56.3'	118° 11.3	107°18.1	99°23.6	78°28.8	33°21.0	36°46.2	38°22.0	71°53.4
5	183°11.0	13.9'	$06^{\circ}19.1$	12.4'	56.3'	117°40.9	106°48.9	98°51.9	77°56.9	33°50.8	37°08.0	38°53.1	72°22.8
6	197°43.8	13.9'	S 06°06.8	12.4'	56.2'	117° 10.5	106°19.6	98° 20.2	77°25.0	34°20.5	37°30.0	39°24.2	72°52.2
7	212°16.8	14.0'	05°54.4	12.4'	56.2'	116°40.1	105°50.4	97°48.6	76°53.1	34°50.2	37°52.2	39°55.2	73°21.5
8	226°49.8	14.1'	05°42.0	12.4'	56.2'	116°09.7	105°21.2	97° 17.0	76°21.3	35°19.9	38°14.5	40°26.2	73°50.8
9	241°22.8	14.1'	$05^{\circ}29.6$	12.4'	56.1'	115°39.4	104°52.0	96°45.5	75°49.5	35°49.5	38°37.0	40°57.2	74°20.0
10	255°56.0	14.2'	05° 17.2	12.4'	56.1'	115°09.1	104°22.8	96°14.0	75°17.8	36°19.0	38°59.6	41°28.2	74°49.2
11	270°29.1	14.2'	05°04.8	12.4'	56.1'	114°38.9	103°53.7	95°42.5	74°46.1	36°48.6	39°22.4	41°59.1	75°18.4
12	285°02.4	14.3'	S 04°52.4	12.4'	56.0'	114°08.6	103°24.6	95°11.1	74°14.4	37°18.1	39°45.3	42°30.0	75°47.5
13	299°35.7	14.3'	04°40.0	12.4'	56.0'	113°38.4	102°55.5	94°39.7	73°42.8	37°47.6	40°08.4	43°00.9	76°16.6
14	314°09.0	14.4'	$04^{\circ}27.6$	12.4'	56.0'	113°08.2	102°26.4	94°08.3	73°11.2	38°17.0	40°31.6	43°31.7	76°45.7
15	328°42.4	14.4'	$04^{\circ}15.1$	12.4'	55.9'	112°38.0	101°57.4	93°37.0	72°39.6	38°46.4	40°54.9	44°02.5	77°14.7
16	343°15.8	14.5'	04°02.7	12.4'	55.9'	112°07.9	101°28.4	93°05.7	72°08.1	39°15.8	41°18.3	44°33.3	77°43.6
17	357°49.3	14.5'	03°50.3	12.4'	55.9'	111°37.8	100°59.4	92°34.4	71°36.7	39°45.2	41°41.9	45°04.0	78°12.6
18	12°22.8	14.6'	S 03°37.8	12.4'	55.8'	111°07.7	100°30.4	92°03.2	71°05.2	40°14.5	42°05.6	45°34.7	78°41.5
19	26°56.4	14.6'	03°25.4	12.4'	55.8'	110° 37.6	100°01.5	91°32.1	70°33.8	40°43.8	42°29.3	46°05.4	79°10.4
20	41°30.0	14.7'	$03^{\circ}13.0$	12.4'	55.8'	110°07.6	99°32.6	91°00.9	70°02.5	41°13.0	42°53.2	46°36.1	79°39.2
21	56°03.7	14.7'	$03^{\circ}00.5$	12.4'	55.7'	109° 37.6	99°03.7	90°29.8	69°31.2	41°42.2	43°17.2	47°06.7	80°08.0
22	70°37.4	14.8'	$02^{\circ}48.1$	12.4'	55.7'	109°07.6	98°34.9	89° 58.8	68°59.9	42°11.4	43°41.3	47°37.3	80°36.7
23	85°11.2	14.8'	02°35.6	12.4'	55.7'	108°37.6	98°06.0	89°27.7	68°28.6	42°40.5	44°05.5	48°07.9	81°05.5
11 th	SD	$= 15.4^{\prime}$	Mer. pass	s. 17:09				9	SD = 1	6.2'			

h	Moon	(12 th	Dec)	١

Lunar Distance (objects with largest hourly LD delta) -Betelgeuse -Aldebaran -Saturn +Mars +Altair +Venus

Wed	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Mars	+Altair	+Venus	+Sun
0	99°45.0	14.8'	S 02°23.2	12.4'	55.6'		108°07.7	88°56.7	67°57.4	43°09.7	44°29.7	48°38.4	81°34.1
1	114°18.8	14.9'	$02^{\circ}10.8$	12.4'	55.6'		107°37.8	88°25.8	67°26.3	43°38.7	44°54.1	49°08.9	82°02.8
2	128°52.7	14.9'	01°58.4	12.4'	55.6'		107°07.9	87°54.8	66°55.1	44°07.8	45°18.5	49°39.4	82°31.4
3	143°26.6	15.0'	$01^{\circ}46.0$	12.4'	55.5'		106°38.0	87°23.9	66°24.0	44°36.8	45°43.0	50°09.9	83°00.0
4	158°00.6	15.0'	$01^{\circ}33.5$	12.4'	55.5'		106°08.2	86°53.1	65°52.9	45°05.8	46°07.6	50°40.3	83°28.5
5	172°34.6	15.0'	$01^{\circ}21.1$	12.4'	55.5'		105°38.4	86°22.3	65°21.9	45°34.8	46°32.3	51°10.7	83°57.1
6	187°08.6	15.1'	S 01°08.7	12.4'	55.5'		105°08.6	85°51.5	64°50.9	46°03.7	46°57.0	51°41.1	84°25.5
7	201°42.7	15.1'	00°56.4	12.4'	55.4'		104°38.8	85°20.7	64°20.0	46°32.6	47°21.8	52°11.4	84°54.0
8	216°16.7	15.1'	00°44.0	12.4'	55.4'		104°09.1	84°50.0	63°49.0	47°01.4	47°46.7	52°41.8	85°22.4
9	230°50.9	15.2'	00°31.6	12.4'	55.4'		103°39.4	84°19.3	63°18.1	47°30.3	48°11.7	53°12.1	85°50.8
10	245°25.0	15.2'	$00^{\circ}19.3$	12.3'	55.3'		103°09.7	83°48.6	62°47.3	47°59.1	48°36.6	53°42.3	86°19.2
11	259°59.2	15.2'	S 00°06.9	12.3'	55.3'		102°40.1	83°18.0	62°16.4	48°27.9	49°01.7	54°12.6	86°47.5
12	274°33.4	15.2'	N00°05.4	12.3'	55.3'		102° 10.4	82°47.4	61°45.6	48°56.6	49°26.8	54°42.8	87° 15.8
13	289°07.7	15.3'	$00^{\circ}17.8$	12.3'	55.3'		101°40.8	82°16.8	61°14.9	49°25.3	49°52.0	55°13.0	87°44.0
14	303°41.9	15.3'	00°30.1	12.3'	55.2'		101°11.2	81°46.3	60°44.1	49°54.0	50°17.2	55°43.2	88°12.3
15	318°16.2	15.3'	00°42.4	12.3'	55.2'		100°41.7	81°15.7	60°13.4	50°22.7	50°42.5	56° 13.3	88°40.5
16	332°50.5	15.3'	00°54.6	12.3'	55.2'		100°12.2	80°45.3	59°42.8	50°51.3	51°07.8	56°43.4	89°08.6
17	347°24.9	15.4'	$01^{\circ}06.9$	12.2'	55.2'		99°42.6	80°14.8	59°12.1	51° 19.9	51°33.1	57°13.6	89°36.8
18	1°59.2	15.4'	$N01^{\circ}19.2$	12.2'	55.1'		99° 13.2	79°44.4	58°41.5	51°48.5	51°58.5	57°43.6	90°04.9
19	16°33.6	15.4'	01°31.4	12.2'	55.1'		98°43.7	79°14.0	58°10.9	52°17.1	52°24.0	58° 13.7	90°33.0
20	31°08.0	15.4'	01°43.6	12.2'	55.1'		98°14.3	78°43.6	57°40.4	52°45.6	52°49.5	58°43.7	91°01.1
21	45°42.5	15.4'	$01^{\circ}55.8$	12.2'	55.1'	119°55.6	97°44.8	78°13.3	57°09.8	53°14.1	53°15.0	59° 13.7	91°29.1
22	60°16.9	15.5'	02°08.0	12.2'	55.0'	119°25.6	97° 15.5	77°43.0	56°39.4	53°42.6	53°40.6	59°43.7	91°57.1
23	74°51.4	15.5'	02°20.1	12.1'	55.0'	118°55.6	96°46.1	77°12.7	56°08.9	54°11.0	54°06.2	60°13.7	92°25.1
12 th	SD	= 15.2'	Mer. pass	. 17:52				9	Sun SD = 1	6.2'			

Moon (13th Dec)

h

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Sun
0	89°25.8	15.5'	N 02°32.3	12.1'	55.0'	118° 25.6	96°16.7	76°42.4	55°38.5	54°31.8	54°39.5	60°43.7	92°53.0
1	104°00.3	15.5'	02°44.4	12.1'	55.0'	117°55.6	95°47.4	76°12.2	55°08.1	54°57.5	55°07.9	61°13.6	93°21.0
2	118°34.8	15.5'	02°56.5	12.1'	54.9'	117°25.7	95°18.1	75°42.0	54°37.7	55°23.2	55°36.2	61°43.5	93°48.9
3	133°09.4	15.5'	03°08.6	12.1'	54.9'	116°55.8	94°48.8	75°11.8	54°07.3	55°48.9	56°04.6	62°13.4	94°16.7
4	147°43.9	15.5'	03°20.6	12.0'	54.9'	116°25.9	94°19.6	74°41.7	53°37.0	56°14.7	56°32.9	62°43.3	94°44.6
5	162°18.4	15.6'	03°32.7	12.0'	54.9'	115°56.0	93°50.4	74°11.6	53°06.7	56°40.5	57°01.2	63°13.1	95°12.4
6	176°53.0	15.6'	N03°44.7	12.0'	54.9'	115°26.1	93°21.2	73°41.5	52°36.4	57°06.3	57°29.5	63°42.9	95°40.2
7	191°27.5	15.6'	03°56.7	12.0'	54.8'	114°56.3	92°52.0	73°11.4	52°06.2	57°32.2	57°57.8	64°12.8	96°08.0
8	206°02.1	15.6'	04°08.6	11.9'	54.8'	114°26.5	92°22.8	72°41.3	51°36.0	57°58.1	58°26.0	64°42.6	96°35.8
9	220°36.7	15.6'	04°20.6	11.9'	54.8'	113°56.7	91°53.7	72°11.3	51°05.8	58°24.0	58°54.2	65°12.3	97°03.5
10	235°11.3	15.6'	04°32.5	11.9'	54.8'	113°26.9	91°24.5	71°41.3	50°35.6	58°49.9	59°22.4	65°42.1	97°31.2
11	249°45.9	15.6'	04°44.3	11.9'	54.7'	112°57.1	90°55.4	71°11.3	50°05.5	59°15.9	59°50.6	66°11.8	97°58.9
12	264°20.4	15.6'	N04°56.2	11.8'	54.7'	112°27.4	90°26.3	70°41.4	49°35.4	59°41.8	60°18.7	66°41.6	98°26.5
13	278°55.0	15.6'	05°08.0	11.8'	54.7'	111°57.7	89°57.3	70°11.4	49°05.3	60°07.8	60°46.9	67°11.3	98°54.2
14	293°29.6	15.6'	$05^{\circ}19.8$	11.8'	54.7'	111°27.9	89°28.2	69°41.5	48° 35.3	60°33.9	61°15.0	67°41.0	99°21.8
15	308°04.2	15.6'	05°31.6	11.7'	54.7'	110°58.3	88°59.2	69°11.6	48°05.2	60°59.9	61°43.1	68° 10.6	99°49.4
16	322°38.8	15.6'	05°43.3	11.7'	54.6'	110°28.6	88°30.2	68°41.8	47°35.2	61°25.9	62°11.1	68°40.3	100°17.0
17	337°13.4	15.6'	05°55.0	11.7'	54.6'	109°58.9	88°01.2	68°11.9	47°05.2	61°52.0	62°39.2	69°09.9	100°44.6
18	351°48.0	15.6'	N 06°06.7	11.6'	54.6'	109°29.3	87°32.3	67°42.1	46°35.3	62°18.1	63°07.2	69°39.6	101°12.1
19	6°22.6	15.6'	06°18.4	11.6'	54.6'	108°59.7	87°03.3	67° 12.3	46°05.3	62°44.2	63°35.2	70°09.2	101°39.6
20	20°57.2	15.6'	06°30.0	11.6'	54.6'	108°30.1	86°34.4	66°42.5	45°35.4	63°10.3	64°03.2	70°38.8	102°07.1
21	35°31.8	15.6'	06°41.6	11.5'	54.6'	108°00.5	86°05.5	66°12.7	45°05.5	63°36.5	64°31.2	71°08.4	102°34.6
22	50°06.4	15.6'	$06^{\circ}53.1$	11.5'	54.5'	107°30.9	85°36.6	65°43.0	44°35.6	64°02.6	64°59.1	71°38.0	103°02.1
23	64°41.0	15.6'	07°04.6	11.5'	54.5'	107°01.3	85°07.8	65°13.3	44°05.8	64°28.8	65°27.1	72°07.5	103°29.5
13 th	SD	= 15.0'	Mer. pass	. 18:34					Sun SD = 1	16.2'			

h Moon (14th Dec)

Fri	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Sun
0	79°15.5	15.6'	N 07°16.1	11.4'	54.5'	110°33.8	106°31.8	64°43.6	43°36.0	64°55.0	65°55.0	72°37.1	103°57.0
1 1	93°50.1	15.6'	07°27.6	11.4'	54.5'	110°04.8	106°02.2	64°13.9	43°06.2	65°21.2	66°22.9	73°06.6	104°24.4
2	108°24.7	15.5'	07°39.0	11.4'	54.5'	109°35.7	105°32.7	63°44.2	42°36.4	65°47.4	66°50.8	73°36.1	104°51.8
3	122°59.2	15.5'	07°50.3	11.3'	54.5'	109°06.7	105°03.2	63°14.6	42°06.6	66°13.7	67° 18.7	74°05.7	105°19.1
4	137°33.7	15.5'	$08^{\circ}01.7$	11.3'	54.4'	108°37.7	104°33.7	62°45.0	41°36.9	66°39.9	67°46.5	74°35.2	105°46.5
5	152°08.3	15.5'	$08^{\circ}13.0$	11.3'	54.4'	108°08.7	104°04.3	62°15.3	41°07.2	67°06.1	68° 14.4	75°04.7	106°13.9
6	166°42.8	15.5'	N08°24.2	11.2'	54.4'	107°39.8	103°34.8	61°45.8	40°37.5	67°32.4	68°42.2	75°34.1	106°41.2
7	181°17.3	15.5'	08°35.5	11.2'	54.4'	107°10.8	103°05.4	61°16.2	40°07.8	67°58.7	69° 10.0	76°03.6	107°08.5
8	195°51.7	15.5'	08°46.7	11.1'	54.4'	106°41.8	102°35.9	60°46.6	39°38.2	68°25.0	69°37.8	76°33.1	107°35.8
9	210°26.2	15.5'	08°57.8	11.1'	54.4'	106°12.9	102°06.5	60°17.1	39°08.6	68°51.3	70°05.6	77°02.5	108°03.1
10	225°00.7	15.4'	09°08.9	11.1'	54.3'	105°43.9	101°37.1	59°47.6	38°39.0	69°17.6	70°33.4	77°32.0	108°30.4
11	239°35.1	15.4'	09°20.0	11.0'	54.3'	105°15.0	101°07.7	59°18.0	38°09.4	69°43.9	71°01.1	78°01.4	108°57.6
12	254°09.5	15.4'	N09°31.0	11.0'	54.3'	104°46.1	100°38.3	58°48.6	37°39.8	70°10.2	71°28.9	78°30.8	109°24.9
13	268°43.9	15.4'	09°42.0	10.9'	54.3'	104°17.1	100°08.9	58°19.1	37°10.3	70°36.5	71°56.6	79°00.2	109°52.1
14	283°18.3	15.4'	09°52.9	10.9'	54.3'	103°48.2	99°39.6	57°49.6	36°40.8	71°02.9	72°24.3	79°29.7	110°19.4
15	297°52.7	15.3'	10°03.8	10.9'	54.3'	103°19.3	99°10.2	57°20.2	36°11.3	71°29.2	72°52.0	79°59.1	110°46.6
16	312°27.0	15.3'	$10^{\circ}14.6$	10.8'	54.3'	102°50.4	98°40.9	56°50.7	35°41.8	71°55.6	73° 19.7	80°28.5	111°13.8
17	327°01.3	15.3'	$10^{\circ}25.5$	10.8'	54.3'	102°21.6	98°11.5	56°21.3	35°12.3	72°21.9	73°47.4	80°57.8	111°41.0
18	341°35.6	15.3'	N10°36.2	10.7'	54.2'	101°52.7	97°42.2	55°51.9	34°42.9	72°48.3	74° 15.1	81°27.2	112°08.1
19	356°09.9	15.3'	10°46.9	10.7'	54.2'	101°23.8	97° 12.9	55°22.5	34°13.5	73°14.7	74°42.8	81°56.6	112°35.3
20	10°44.2	15.2'	10°57.6	10.6'	54.2'	100°54.9	96°43.6	54°53.2	33°44.1	73°41.1	75° 10.4	82°26.0	113°02.4
21	25°18.4	15.2'	$11^{\circ}08.2$	10.6'	54.2'	100°26.1	96°14.3	54°23.8	33°14.7	74°07.5	75°38.1	82°55.3	113°29.6
22	39°52.6	15.2'	11°18.8	10.5'	54.2'	99°57.2	95° 45.0	53°54.5	32°45.4	74°33.9	76°05.7	83°24.7	113°56.7
23	54°26.8	15.2'	11°29.3	10.5'	54.2'	99°28.4	95° 15.7	53°25.1	32°16.0	75°00.3	76°33.3	83°54.1	114°23.9
14 th	SD	$=14.9^{\prime}$	Mer. pass	. 19:16					Sun SD =	16.2'			

h	Moon (15 th Dec)	ı	Lu

Dec

GHA

 ν

Sat

ec)		l	_unar Di	stance (obj	ects with	h largest	hourly I	_D delta)
d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Altair	+Mars	+Venus	+Sun
10.4'	54.2'	98°59.6	94°46.5	52°55.8	31°46.7	75°26.7	77°00.9	84°23.4	114°51.0
10.4'	54.2'	98°30.7	94°17.2	52° 26.5	31°17.5	75°53.1	77°28.5	84°52.7	115°18.1
10.3'	54.2'	98°01.9	93°48.0	51°57.2	30°48.2	76°19.5	77°56.1	85°22.1	115°45.2
10.3'	54.2'	97°33.1	93°18.7	51°27.9	30°19.0	76°46.0	78°23.7	85°51.4	116°12.3
10.2'	54.1'	97°04.3	92°49.5	50° 58.7	29°49.8	77°12.4	78°51.3	86°20.8	116°39.4
10.2'	54.1'	96°35.5	92°20.2	50°29.4	29°20.6	77°38.8	79°18.9	86°50.1	117°06.4
10.1'	54.1'	96°06.7	91°51.0	50°00.2	28°51.4	78°05.3	79°46.5	87°19.4	117°33.5
10.1'	54.1'	95°37.9	91°21.8	49° 30.9	28°22.3	78°31.7	80°14.0	87°48.8	118°00.6
10.0'	54.1'	95°09.1	90°52.6	49°01.7	27°53.2	78°58.2	80°41.6	88°18.1	118°27.6

	Sat	GHA	ν	Dec	а	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Altair	+iviars	+venus	+Sun
ſ	0	69°00.9	15.1'	N 11°39.8	10.4'	54.2'	98°59.6	94°46.5	52°55.8	31°46.7	75°26.7	77°00.9	84°23.4	114°51.0
	1	83°35.1	15.1'	11°50.2	10.4'	54.2'	98°30.7	94°17.2	52°26.5	31°17.5	75°53.1	77°28.5	84°52.7	115°18.1
	2	98°09.2	15.1'	12°00.6	10.3'	54.2'	98°01.9	93°48.0	51°57.2	30°48.2	76°19.5	77°56.1	85°22.1	115°45.2
-	3	112°43.2	15.0'	12°10.9	10.3'	54.2'	97°33.1	93°18.7	51°27.9	30°19.0	76°46.0	78°23.7	85°51.4	116°12.3
ı	4	$127^{\circ}17.3$	15.0'	$12^{\circ}21.2$	10.2'	54.1'	97°04.3	92°49.5	50°58.7	29°49.8	77°12.4	78°51.3	86°20.8	116°39.4
	5	141°51.3	15.0'	12°31.4	10.2'	54.1'	96°35.5	92°20.2	50° 29.4	29°20.6	77°38.8	79°18.9	86°50.1	117°06.4
	6	156°25.2	14.9'	$N12^{\circ}41.6$	10.1'	54.1'	96°06.7	91°51.0	50°00.2	28°51.4	78°05.3	79°46.5	87°19.4	117°33.5
-	7	170°59.2	14.9'	12°51.7	10.1'	54.1'	95°37.9	91°21.8	49°30.9	28°22.3	78°31.7	80°14.0	87°48.8	118°00.6
	8	185°33.1	14.9'	13°01.8	10.0'	54.1'	95°09.1	90°52.6	49°01.7	27°53.2	78°58.2	80°41.6	88°18.1	118°27.6
-	9	200°07.0	14.8'	13°11.8	10.0'	54.1'	94°40.3	90°23.4	48° 32.5	27°24.1	79°24.6	81°09.1	88°47.4	118°54.7
ı	10	214°40.8	14.8'	13°21.8	9.9'	54.1'	94°11.5	89°54.2	48°03.3	26°55.0	79°51.1	81°36.7	89°16.7	119°21.7
	11	229°14.7	14.8'	13°31.7	9.8'	54.1'	93°42.8	89°25.0	47°34.1	26°26.0	80°17.6	82°04.2	89°46.1	119°48.8
	12	243°48.4	14.7'	$N13^{\circ}41.5$	9.8'	54.1'	93°14.0	88°55.8	47°04.9	25°57.0	80°44.0	82°31.8	90°15.4	
	13	258°22.2	14.7'	13°51.3	9.7'	54.1'	92°45.2	88°26.6	46°35.8	25°28.0	81°10.5	82°59.3	90°44.7	
	14	272°55.9	14.7'	$14^{\circ}01.0$	9.7'	54.1'	92°16.4	87°57.4	46°06.6	24°59.1	81°37.0	83°26.8	91°14.0	
	15	287°29.6	14.6'	14°10.7	9.6'	54.1'	91°47.7	87°28.3	45°37.5	24°30.2	82°03.5	83°54.3	91°43.4	
ı	16	302°03.2	14.6'	14°20.3	9.6'	54.1'	91°18.9	86°59.1	45°08.4	24°01.3	82°30.0	84°21.8	92°12.7	
	17	316°36.8	14.6'	14°29.9	9.5'	54.1'	90°50.2	86°29.9	44°39.2	23°32.5	82°56.5	84°49.4	92°42.0	
	18	331°10.4	14.5'	N14°39.4	9.4'	54.0'	90°21.4	86°00.8	44°10.1	23°03.7	83°22.9	85°16.9	93°11.3	
ı	19	345°43.9	14.5'	14°48.8	9.4'	54.0'	89°52.7	85°31.6	43°41.0	22°34.9	83°49.4	85°44.4	93°40.7	
-	20	0°17.4	14.4'	14°58.2	9.3'	54.0'	89°23.9	85°02.4	43°11.9	22°06.2	84°15.9	86°11.9	94°10.0	
	21	14°50.8	14.4'	15°07.5	9.2'	54.0'	88°55.2	84°33.3	42°42.9	21°37.6	84°42.4	86°39.4	94°39.3	
-	22	29°24.2	14.4'	$15^{\circ}16.7$	9.2'	54.0'	88°26.4	84°04.1	42°13.8	21°08.9	85°08.9	87°06.9	95°08.7	
ı	23	43°57.6	14.3'	15°25.9	9.1'	54.0'	87°57.7	83°35.0	41°44.7	20°40.4	85°35.5	87°34.4	95°38.0	
ſ	15 th	SD	= 14.8'	Mer pass	19.59					Sun SD =	= 16.2'			

The introduction decided the Lunar Distance (objects with largest hourly LD de	h	Moon (16 th Dec)	Lunar Distance (objects with largest hourly LD delt
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										(expects titel largest lively 12 delta)				
Sun	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Fomalhaut	+Altair	+Mars	+Venus	
0	58°30.9	14.3'	N15°35.1	9.1'	54.0'		87°29.0	83°05.8	41°15.7	60°19.1	86°02.0	88°01.9	96°07.3	
1	73°04.2	14.2'	$15^{\circ}44.1$	9.0'	54.0'	119°31.9	87°00.2	82°36.7	40°46.6	60°44.6	86°28.5	88°29.4	96°36.7	
2	87°37.4	14.2'	$15^{\circ}53.1$	8.9'	54.0'	119°02.5	86°31.5	82°07.6	40°17.6	61°10.2	86°55.0	88°56.9	97°06.0	
3	102°10.6	14.1'	$16^{\circ}02.0$	8.9'	54.0'	118°33.2	86°02.8	81°38.4	39°48.6	61°35.7	87°21.5	89°24.3	97°35.4	
4	116°43.7	14.1'	$16^{\circ}10.9$	8.8'	54.0'	118°03.8	85°34.0	81°09.3	39°19.6	62°01.3	87°48.0	89°51.8	98°04.7	
5	131°16.8	14.1'	$16^{\circ}19.7$	8.7'	54.0'	117°34.4	85°05.3	80°40.1	38°50.6	62°26.9	88°14.5	90°19.3	98°34.1	
6	145°49.9	14.0'	N 16°28.4	8.7'	54.0'	117°05.1	84°36.6	80°11.0	38°21.6	62°52.6	88°41.1	90°46.8	99°03.5	
7	160°22.9	14.0'	$16^{\circ}37.1$	8.6'	54.0'	116°35.7	84°07.8	79°41.8	37°52.6	63°18.3	89°07.6	91°14.3	99°32.8	
8	174°55.9	13.9'	16°45.7	8.5'	54.0'	116°06.3	83°39.1	79°12.7	37°23.7	63°44.0	89°34.1	91°41.8	100°02.2	
9	189°28.8	13.9'	16°54.2	8.4'	54.0'	115°36.9	83°10.4	78°43.6	36°54.7	64°09.8	90°00.6	92°09.3	100°31.6	
10	204°01.7	13.8'	$17^{\circ}02.6$	8.4'	54.0'	115°07.6	82°41.6	78°14.4	36°25.8	64°35.6	90°27.2	92°36.8	101°01.0	
11	218°34.5	13.8'	$17^{\circ}11.0$	8.3'	54.0'	114°38.2	82°12.9	77°45.3	35°56.9	65°01.4	90°53.7	93°04.3	101°30.4	
12	233°07.3	13.7'	$N17^{\circ}19.3$	8.2'	54.0'	114°08.8	81°44.2	77°16.2	35°28.0	65°27.2	91°20.2	93°31.8	101°59.8	
13	247°40.0	13.7'	$17^{\circ}27.6$	8.2'	54.0'	113°39.4	81°15.5	76°47.0	34°59.1	65°53.1	91°46.8	93°59.3	102°29.2	
14	262°12.7	13.6'	17°35.7	8.1'	54.0'	113°10.0	80°46.7	76°17.9	34°30.2	66°19.0	92°13.3	94°26.8	102°58.6	
15	276°45.4	13.6'	17°43.8	8.0'	54.0'	112°40.6	80°18.0	75°48.7	34°01.3	66°45.0	92°39.8	94°54.3	103°28.0	
16	291°18.0	13.6'	$17^{\circ}51.8$	7.9'	54.0'	112°11.2	79°49.3	75°19.6	33°32.4	67°10.9	93°06.4	95°21.8	103°57.4	
17	305°50.5	13.5'	17°59.8	7.9'	54.0'	111°41.8	79°20.5	74°50.4	33°03.6	67°36.9	93°32.9	95°49.3	104°26.9	
18	320°23.0	13.5'	N 18°07.6	7.8'	54.0'	111°12.4	78°51.8	74°21.3	32°34.8	68°02.9	93°59.4	96°16.8	104°56.3	
19	334°55.5	13.4'	$18^{\circ}15.4$	7.7'	54.0'	110°43.0	78°23.1	73°52.2	32°06.0	68°29.0	94°26.0	96°44.3	105°25.8	
20	349°27.9	13.4'	18°23.1	7.6'	54.0'	110°13.6	77°54.3	73°23.0	31°37.2	68°55.0	94°52.5	97°11.9	105°55.2	
21	4°00.3	13.3'	18°30.7	7.6'	54.0'	109°44.2	77°25.6	72°53.9	31°08.4	69°21.1	$95^{\circ}19.0$	97°39.4	106°24.7	
22	18°32.6	13.3'	18°38.3	7.5'	54.0'	109°14.7	76°56.9	72°24.7	30°39.6	69°47.2	95°45.5	98°06.9	106°54.2	
23	33°04.8	13.2'	18°45.8	7.4'	54.0'	108°45.3	76°28.1	71°55.5	30°10.9	70°13.4	96°12.1	98°34.4	107°23.7	
16 th	SD	= 14.7'	Mer. pass.	20:43										

h Moon	(17 th Dec)	Lunar Distance (objects with larg	gest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Fomalhaut	+Altair	+Mars	+Venus
0	47°37.0	13.2'	N 18°53.2	7.3'	54.0'	108° 15.9	75°59.4	71°26.4	29°42.2	70°39.5	96°38.6	99°02.0	107°53.2
1	62°09.2	13.1'	$19^{\circ}00.5$	7.2'	54.0'	107°46.4	75°30.7	70°57.2	29°13.4	71°05.7	97°05.1	99°29.5	108°22.7
2	76°41.3	13.1'	19°07.7	7.2'	54.0'	107°17.0	75°01.9	70°28.1	28°44.8	71°31.9	97°31.7	99°57.1	108°52.2
3	91°13.3	13.0'	$19^{\circ}14.9$	7.1'	54.0'	106°47.5	74°33.2	69°58.9	28°16.1	71°58.2	97°58.2	100°24.6	109°21.7
4	105°45.4	13.0'	$19^{\circ}21.9$	7.0'	54.0'	106° 18.0	74°04.4	69°29.7	27°47.5	72°24.4	98°24.7	100°52.2	109°51.2
5	120°17.3	12.9'	19°28.9	6.9'	54.0'	105°48.6	73°35.7	69°00.5	27°18.9	72°50.7	98°51.2	101°19.7	110°20.8
6	134°49.2	12.9'	$N19^{\circ}35.8$	6.8'	54.0'	105° 19.1	73°06.9	68°31.4	26°50.3	73°17.0	99°17.8	101°47.3	110°50.4
7	149°21.1	12.8'	19°42.6	6.7'	54.0'	104°49.6	72°38.2	68°02.2	26°21.7	73°43.4	99°44.3	102°14.9	111°19.9
8	163°52.9	12.8'	19°49.4	6.6'	54.0'	104°20.1	72°09.4	67°33.0	25°53.2	74°09.7	100°10.8	102°42.5	111°49.5
9	178°24.6	12.7'	$19^{\circ}56.0$	6.6'	54.0'	103°50.6	71°40.7	67°03.8	25°24.7	74°36.1	100°37.3	103°10.1	112°19.1
10	192°56.3	12.7'	20°02.6	6.5'	54.0'	103°21.1	71°11.9	66°34.6	24°56.3	75°02.5	101°03.8	103°37.7	112°48.7
11	207°28.0	12.6'	$20^{\circ}09.1$	6.4'	54.1'	102°51.6	70°43.1	66°05.4	24°27.8	75°28.9	101°30.3	104°05.3	113°18.3
12	221°59.6	12.6'	N20°15.4	6.3'	54.1'	102°22.1	70°14.4	65°36.2	23°59.5	75°55.3	101°56.8	104°32.9	113°48.0
13	236°31.2	12.5'	20°21.7	6.2'	54.1'	101°52.5	69°45.6	65°07.0	23°31.1	76°21.8	102°23.3	105°00.5	114°17.6
14	251°02.7	12.5'	20°27.9	6.1'	54.1'	101°23.0	69°16.9	64°37.8	23°02.8	76°48.2	102°49.8	105°28.1	114°47.2
15	265°34.1	12.4'	20°34.1	6.0'	54.1'	100°53.4	68°48.1	64°08.6	22°34.6	77°14.7	103°16.3	105°55.7	115°16.9
16	280°05.5	12.4'	20°40.1	5.9'	54.1'	100°23.9	68° 19.3	63°39.4	22°06.4	77°41.3	103°42.8	106°23.4	115°46.6
17	294°36.9	12.3'	20°46.0	5.8'	54.1'	99°54.3	67°50.5	63°10.1	21°38.3	78°07.8	104°09.3	106°51.0	116°16.3
18	309°08.2	12.3'	N 20°51.9	5.8'	54.1'	99°24.7	67°21.8	62°40.9	21°10.2	78°34.3	104°35.8	107°18.7	116°46.0
19	323°39.4	12.2'	20°57.6	5.7'	54.1'	98°55.1	66°53.0	62°11.7	20°42.2	79°00.9	105°02.2	107°46.4	117°15.7
20	338°10.6	12.2'	21°03.3	5.6'	54.1'	98° 25.5	66°24.2	61°42.4	20°14.2	79°27.5	105°28.7	108°14.0	117°45.5
21	352°41.8	12.1'	21°08.9	5.5'	54.1'	97°55.9	65°55.4	61°13.2	19°46.3	79°54.1	105°55.2	108°41.7	118°15.2
22	$7^{\circ}12.9$	12.1'	21°14.3	5.4'	54.1'	97°26.3	65°26.6	60°43.9	19°18.5	80°20.7	106°21.6	109°09.4	118°45.0
23	21°43.9	12.0'	21° 19.7	5.3'	54.1'	96°56.7	64°57.8	60°14.7	18°50.8	80°47.4	106°48.1	109°37.1	119°14.7
17 th	SD	= 14.7'	Mer. pass	21:30									

h Moon (18th Dec)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Altair	+Mars
0	36°14.9	12.0'	N 21°25.0	5.2'	54.1'	96°27.0	64°29.0	59°45.4	18°23.2		81°14.0	107°14.5	110°04.8
1	50°45.9	11.9'	21°30.2	5.1'	54.1'	95°57.4	64°00.3	59° 16.2	17°55.7		81°40.7	107°40.9	110°32.5
2	65°16.8	11.9'	21°35.3	5.0'	54.1'	95°27.7	63°31.5	58° 46.9	17°28.3		82°07.4	108°07.4	111°00.3
3	79°47.7	11.8'	21°40.3	4.9'	54.2'	94°58.0	63°02.7	58° 17.6	17°01.0		82°34.1	108°33.8	111°28.0
4	94°18.5	11.8'	21°45.2	4.8'	54.2'	94°28.4	62°33.9	57°48.3	16°33.8	8°24.1	83°00.8	109°00.2	111°55.8
5	108°49.3	11.7'	21°49.9	4.7'	54.2'	93°58.7	62°05.1	57° 19.0	16°06.8	8°47.0	83°27.6	109°26.6	112°23.5
6	123°20.0	11.7'	N21°54.6	4.6'	54.2'	93°29.0	61°36.3	56°49.8	15°40.0	9°10.6	83°54.4	109°53.0	112°51.3
7	137°50.6	11.6'	21°59.2	4.5'	54.2'	92°59.2	61°07.5	56° 20.5	15°13.3	9°34.8	84°21.1	110°19.3	113° 19.1
8	152°21.3	11.6'	22°03.7	4.4'	54.2'	92°29.5	60°38.7	55°51.2	14°46.8	9°59.5	84°47.9	110°45.7	113°46.9
9	166°51.8	11.5'	22°08.1	4.3'	54.2'	91°59.8	60°09.8	55°21.8	14°20.5	10°24.6	85°14.7	111°12.1	114°14.7
10	181°22.4	11.5'	22°12.4	4.2'	54.2'	91°30.0	59°41.0	54°52.5	13°54.4	10°50.2	85°41.5	111°38.4	114°42.5
11	195°52.9	11.4'	$22^{\circ}16.6$	4.1'	54.2'	91°00.3	59°12.2	54°23.2	13°28.6	11°16.2	86°08.4	112°04.7	115°10.3
12	210°23.3	11.4'	N22°20.7	4.0'	54.2'	90°30.5	58°43.4	53°53.9	13°03.0	11°42.5	86°35.2	112°31.1	115°38.1
13	224°53.7	11.4'	22°24.7	3.9'	54.2'	90°00.7	58° 14.6	53°24.6	12°37.8	12°09.1	87°02.1	112°57.4	116°06.0
14	239°24.1	11.3'	22°28.6	3.8'	54.2'	89°30.9	57°45.8	52°55.2	12°12.8	12°35.9	87°29.0	113°23.6	116°33.8
15	253°54.4	11.3'	22°32.3	3.7'	54.3'	89°01.1	57° 17.0	52°25.9	11°48.3	13°03.0	87°55.9	113°49.9	117°01.7
16	268°24.7	11.2'	22°36.0	3.6'	54.3'	88°31.2	56°48.2	51°56.6	11°24.1	13°30.3	88°22.8	114°16.2	117°29.6
17	282°54.9	11.2'	22°39.6	3.5'	54.3'	88°01.4	56° 19.4	51°27.2	11°00.5	13°57.9	88°49.7	114°42.4	117°57.5
18	297°25.1	11.1'	N22°43.0	3.4'	54.3'	87°31.5	55°50.6	50°57.9	10°37.3	14°25.5	89°16.6	115°08.7	118°25.4
19	311°55.2	11.1'	22°46.4	3.2'	54.3'	87°01.7	55°21.8	50° 28.5	10°14.7	14°53.4	89°43.6	115°34.9	118°53.3
20	326°25.3	11.1'	22°49.6	3.1'	54.3'	86°31.8	54°52.9	49°59.2	9°52.8	15°21.4	90°10.5	$116^{\circ}01.1$	119°21.2
21	340°55.4	11.0'	22°52.8	3.0'	54.3'	86°01.9	54°24.1	49° 29.8	9°31.5	15°49.6	90°37.5	116°27.2	119°49.2
22	355°25.4	11.0'	22°55.8	2.9'	54.3'	85°32.0	53°55.3	49°00.4	9°11.1	16°17.9	91°04.5	116°53.4	
23	9°55.4	10.9'	22°58.7	2.8'	54.3'	85°02.1	53°26.5	48°31.1	8°51.6	16°46.3	91°31.5	$117^{\circ}19.5$	
18 th	SD	= 14.8'	Mer. pass.	22:19				-					

h N	Moon (19 th Dec)	Lunar Distance (o	bjects with largest	hourly LD delta)
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Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Saturn	+Deneb	+Fomalhaut	+Altair
0	24°25.3	10.9'	N 23°01.5	2.7'	54.4'	84°32.1	52°57.7	48°01.7	29°15.2	17°14.8	88°25.4	91°58.5	117°45.6
1	38°55.2	10.9'	23°04.2	2.6'	54.4'	84°02.2	52°28.9	47°32.3	28°50.2	17°43.4	88° 42.7	92° 25.5	118°11.7
2	53°25.1	10.8'	23°06.8	2.5'	54.4'	83°32.2	52°00.1	47°02.9	28°25.3	18°12.1	89°00.0	92°52.5	118°37.8
3	67°55.0	10.8'	23°09.3	2.4'	54.4'	83°02.2	51°31.3	46°33.6	28°00.5	18°40.9	89° 17.3	93° 19.5	119°03.8
4	82°24.8	10.8'	23°11.7	2.3'	54.4'	82°32.2	51°02.6	46°04.2	27°35.9	19°09.8	89°34.7	93°46.6	119°29.9
5	96°54.5	10.7'	23°14.0	2.1'	54.4'	82°02.2	50°33.8	45°34.8	27°11.5	19°38.8	89°52.0	94°13.7	119°55.9
6	111°24.3	10.7'	$N23^{\circ}16.1$	2.0'	54.4'	81°32.2	50°05.0	45°05.4	26°47.2	20°07.8	90°09.3	94°40.7	
7	125°53.9	10.7'	23°18.1	1.9'	54.4'	81°02.2	49°36.2	44°36.0	26°23.1	20°36.9	90°26.7	95°07.8	
8	140°23.6	10.6'	23°20.1	1.8'	54.4'	80°32.1	49°07.5	44°06.6	25°59.2	21°06.1	90°44.0	95°34.9	
9	154°53.2	10.6'	23°21.9	1.7'	54.5'	80°02.1	48°38.7	43°37.2	25°35.5	21°35.4	91°01.4	96°02.0	
10	169°22.9	10.6'	23°23.6	1.6'	54.5'	79°32.0	48°10.0	43°07.8	25°12.0	22°04.7	91°18.8	96°29.1	
11	183°52.4	10.5'	23°25.2	1.5'	54.5'	79°01.9	47°41.2	42°38.5	24°48.7	22°34.1	91°36.1	96°56.2	
12	198°22.0	10.5'	N23°26.6	1.4'	54.5'	78°31.8	47°12.5	42°09.1	24°25.6	23°03.5	91°53.5	97°23.3	
13	212°51.5	10.5'	23°28.0	1.2'	54.5'	78°01.7	46°43.8	41°39.7	24°02.7	23°33.0	92°10.9	97°50.4	
14	227°21.0	10.5'	23°29.2	1.1'	54.5'	77°31.5	46°15.0	41°10.3	23°40.2	24°02.5	92°28.3	98° 17.5	
15	241°50.4	10.4'	23°30.3	1.0'	54.5'	77°01.4	45°46.3	40°40.9	23°17.8	24°32.1	92°45.7	98° 44.7	
16	256°19.9	10.4'	23°31.4	0.9'	54.5'	76°31.2	45°17.6	40°11.5	22°55.8	25°01.7	93°03.1	99°11.8	
17	270°49.3	10.4'	23°32.3	0.8'	54.6'	76°01.0	44°49.0	39°42.2	22°34.0	25°31.4	93°20.4	99°39.0	
18	285°18.6	10.4'	N23°33.0	0.7'	54.6'	75°30.8	44°20.3	39° 12.8	22°12.5	26°01.1	93°37.8	100°06.1	
19	299°48.0	10.3'	23°33.7	0.5'	54.6'	75°00.6	43°51.6	38°43.4	21°51.4	26°30.8	93°55.2	100°33.3	
20	314°17.3	10.3'	23°34.2	0.4'	54.6'	74°30.3	43°23.0	38° 14.1	21°30.6	27°00.6	94°12.6	101°00.5	
21	328°46.7	10.3'	23°34.7	0.3'	54.6'	74°00.1	42°54.4	37° 44.7	21°10.2	27°30.5	94°30.0	101°27.6	
22	343°15.9	10.3'	23°35.0	0.2'	54.6'	73°29.8	42°25.8	37° 15.4	20°50.1	28°00.3	94°47.3	101°54.8	
23	357°45.2	10.3'	23°35.2	0.1'	54.6'	72°59.6	41°57.2	36°46.0	20°30.4	28°30.2	95°04.7	102°22.0	
19 th	SD	= 14.8'	Mer. pass.	23:09									

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

Thu	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Procyon	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	12°14.5	10.2'	N23°35.3	-0.0'	54.7'		72°29.3	41°28.6	36° 16.7	9°44.8	29°00.2	95°22.1	102°49.2
1	26°43.7	10.2'	23°35.2	-0.2'	54.7'		71°58.9	41°00.1	35°47.4	10°06.8	29°30.2	95°39.4	103°16.3
2	41°12.9	10.2'	23°35.1	-0.3'	54.7'		71°28.6	40°31.6	35°18.1	10° 29.5	30°00.2	95°56.8	103°43.5
3	55°42.1	10.2'	23°34.8	-0.4'	54.7'		70°58.3	40°03.1	34°48.8	10°52.9	30°30.3	96°14.1	104°10.7
4	70°11.3	10.2'	23°34.4	-0.5'	54.7'		70°27.9	39°34.6	$34^{\circ}19.5$	11°16.8	31°00.3	96°31.4	104°37.9
5	84°40.5	10.2'	23°33.9	-0.6'	54.7'		69°57.5	39°06.1	33°50.2	11°41.3	31°30.5	96°48.7	105°05.1
6	99°09.6	10.1'	N23°33.2	-0.8'	54.7'		69°27.1	38°37.7	33°21.0	12°06.2	32°00.6	97°06.0	105°32.3
7	113°38.8	10.1'	23°32.5	-0.9'	54.8'		68°56.7	38°09.3	32°51.7	12° 31.5	32°30.8	97°23.3	105°59.5
8	128°07.9	10.1'	23°31.6	-1.0'	54.8'		68°26.3	37°41.0	32°22.5	12° 57.3	33°01.0	97°40.6	106°26.6
9	142°37.0	10.1'	23°30.6	-1.1'	54.8'		67°55.9	37°12.6	31°53.3	13°23.3	33°31.3	97°57.8	106°53.8
10	157°06.1	10.1'	23°29.5	-1.2'	54.8'		67°25.4	36°44.3	31°24.2	13°49.7	$34^{\circ}01.5$	98°15.1	107°21.0
11	171°35.2	10.1'	23°28.3	-1.3'	54.8'		66°54.9	36°16.1	30°55.0	14° 16.4	34°31.8	98°32.3	107°48.2
12	186°04.3	10.1'	N23°27.0	-1.5'	54.8'		66°24.4	35°47.9	30°25.9	14°43.4	35°02.2	98°49.5	108°15.4
13	200°33.4	10.1'	23°25.5	-1.6'	54.9'	119°53.4	65°53.9	35°19.7	29°56.8	15° 10.6	35°32.5	99°06.7	108°42.5
14	215°02.5	10.1'	23°23.9	-1.7'	54.9'	119°22.8	65°23.4	34°51.6	29°27.8	15°38.0	36°02.9	99°23.8	109°09.7
15	229°31.6	10.1'	23°22.2	-1.8'	54.9'	118°52.2	64°52.9	34°23.5	28° 58.7	16°05.6	36°33.3	99°41.0	109°36.9
16	244°00.6	10.1'	23°20.4	-1.9'	54.9'	118°21.5	64°22.3	33°55.5	28°29.8	16°33.4	37°03.8	99°58.1	110°04.0
17	258°29.7	10.1'	23°18.4	-2.1'	54.9'	117°50.8	63°51.7	33°27.5	28°00.8	17°01.4	37°34.3	100°15.2	110°31.2
18	272°58.7	10.1'	N 23°16.4	-2.2'	54.9'	117°20.1	63°21.2	32°59.6	27°31.9	17°29.6	38°04.7	100°32.3	110°58.3
19	287°27.8	10.1'	23°14.2	-2.3'	54.9'	116°49.3	62°50.5	32°31.7	27°03.1	17° 57.9	38°35.3	100°49.3	111°25.5
20	301°56.9	10.1'	23°11.9	-2.4'	55.0'	116° 18.6	62°19.9	32°03.9	26°34.2	18° 26.4	39°05.8	101°06.4	111°52.6
21	316°25.9	10.1'	23°09.5	-2.5'	55.0'	115°47.8	61°49.3	31°36.2	26°05.5	18° 55.0	39°36.4	101°23.3	112°19.7
22	330°55.0	10.1'	23°07.0	-2.7'	55.0'	$115^{\circ}17.1$	61°18.6	31°08.5	25°36.8	19°23.7	40°07.0	101°40.3	112°46.8
23	345°24.0	10.1'	23°04.3	-2.8'	55.0'	114°46.2	60°48.0	30°41.0	25°08.2	19°52.5	40°37.6	101°57.2	113°13.9
20 th	SE	0 = 14.9	Mer. pas	s:-									

h	Moon	(21 st	Dec)	

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Spica	-Regulus	-Procyon	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	359°53.1	10.1'	N23°01.5	-2.9'	55.0'	114°15.4	60°17.3	30°13.5	24°39.6	20°21.5		41°08.3	113°41.0
1	14°22.2	10.1'	22°58.6	-3.0'	55.0'	113°44.6	59°46.6	29°46.0	24°11.1	20°50.5		41°39.0	114°08.1
2	28°51.2	10.1'	22°55.6	-3.1'	55.1'	113°13.7	59°15.8	29°18.7	23°42.7	21°19.7		42°09.7	114°35.2
3	43°20.3	10.1'	22°52.5	-3.2'	55.1'	112°42.9	58°45.1	28°51.4	23°14.3	21°48.9		42°40.4	115°02.2
4	57°49.4	10.1'	22°49.3	-3.4'	55.1'	112°12.0	58°14.3	28°24.3	22°46.1	22°18.3		43°11.1	115°29.3
5	72°18.5	10.1'	22°45.9	-3.5'	55.1'	111°41.0	57°43.6	27°57.3	22°17.9	22°47.7		43°41.9	115°56.3
6	86°47.6	10.1'	N22°42.4	-3.6'	55.1'	111°10.1	57°12.8	27°30.3	21°49.8	23°17.2		44°12.7	116°23.3
7	101°16.7	10.1'	22°38.8	-3.7'	55.1'	110°39.2	56°42.0	27°03.5	21°21.9	23°46.8	26°02.0	44°43.5	116°50.3
8	115°45.8	10.1'	22°35.1	-3.8'	55.2'	110°08.2	56°11.2	26°36.8	20°54.1	24°16.4	26°17.5	45°14.4	117°17.3
9	130°14.9	10.1'	22°31.3	-3.9'	55.2'	109°37.2	55°40.3	26°10.2	20°26.4	24°46.1	26°33.4	45°45.2	117°44.2
10	144°44.1	10.1'	22°27.3	-4.1'	55.2'	109°06.2	55°09.5	25°43.8	19°58.8	25°15.9	26°49.7	46°16.1	118°11.2
11	159°13.2	10.2'	22°23.3	-4.2'	55.2'	108°35.2	54°38.6	25°17.5	19°31.4	25°45.8	27°06.4	46°47.0	118°38.1
12	173°42.4	10.2'	$N22^{\circ}19.1$	-4.3'	55.2'	108°04.1	54°07.7	24°51.4	19°04.2	26°15.7	27°23.6	47°18.0	119°05.0
13	188°11.5	10.2'	22°14.8	-4.4'	55.2'	107°33.0	53°36.8	24°25.5	18°37.1	26°45.7	27°41.1	47°48.9	119°31.8
14	202°40.7	10.2'	22°10.4	-4.5'	55.3'	107°02.0	53°05.9	23°59.7	18°10.2	27°15.7	27°59.0	48°19.9	119°58.7
15	217°09.9	10.2'	22°05.8	-4.6'	55.3'	106°30.8	52°35.0	23°34.1	17°43.5	27°45.8	28°17.2	48°50.9	
16	231°39.2	10.2'	22°01.2	-4.8'	55.3'	105°59.7	52°04.0	23°08.7	$17^{\circ}17.1$	28°15.9	28°35.8	49°22.0	
17	246°08.4	10.3'	21°56.4	-4.9'	55.3'	105°28.6	51°33.1	22°43.5	16°50.9	28°46.1	28°54.8	49°53.0	
18	260°37.6	10.3'	N21°51.6	-5.0'	55.3'	104°57.4	51°02.1	22°18.5	16°25.0	29°16.4	29°14.0	50°24.1	
19	275°06.9	10.3'	21°46.6	-5.1'	55.4'	104°26.2	50°31.1	21°53.8	15°59.3	29°46.7	29°33.6	50°55.2	
20	289°36.2	10.3'	$21^{\circ}41.5$	-5.2'	55.4'	103°55.0	50°00.1	21°29.3	15°34.0	30°17.0	29°53.5	51°26.3	
21	304°05.5	10.3'	21°36.3	-5.3'	55.4'	103°23.8	49°29.0	21°05.1	15°09.0	30°47.4	30°13.8	51°57.5	
22	318°34.8	10.3'	21°30.9	-5.4'	55.4'	102°52.6	48°58.0	20°41.2	14°44.4	31°17.8	30°34.3	52°28.6	
23	333°04.2	10.4'	21°25.5	-5.5'	55.4'	102°21.3	48°26.9	20°17.6	14°20.2	31°48.3	30°55.0	52°59.8	
21 st	SD	$=15.0^{\prime}$	Mer. pass	. 00:00									

Moon (22nd Dec)

h

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Arcturus	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	347°33.6	10.4'	N21°20.0	-5.7'	55.4'		101°50.0	101°20.6	47°55.9	19°27.3	31°16.1	32°18.8	53°31.0
1	2°03.0	10.4'	21°14.3	-5.8'	55.5'		101°18.7	100°55.2	47°24.8	19°46.0	31°37.4	32°49.4	54°02.2
2	16°32.4	10.4'	21°08.5	-5.9'	55.5'		100°47.4	100°29.9	46°53.7	20°05.2	31°59.0	33°19.9	54°33.5
3	31°01.8	10.5'	21°02.7	-6.0'	55.5'		100°16.1	100°04.5	46°22.5	20°24.9	32°20.9	33°50.6	55°04.8
4	45°31.3	10.5'	20°56.7	-6.1'	55.5'		99°44.7	99°39.1	45°51.4	20°45.1	32°43.0	34°21.3	55°36.1
5	60°00.8	10.5'	20°50.6	-6.2'	55.5'		99°13.4	99°13.6	45°20.3	21°05.7	33°05.3	34°52.0	56°07.4
6	74°30.3	10.5'	N20°44.4	-6.3'	55.6'		98°42.0	98°48.1	44°49.1	21°26.8	33°27.8	35°22.7	56°38.7
7	88°59.8	10.6'	20°38.0	-6.4'	55.6'		98°10.5	98°22.6	44°17.9	21°48.3	33°50.6	35°53.5	57°10.1
8	103°29.4	10.6'	20°31.6	-6.5'	55.6'		97°39.1	97°57.1	43°46.7	22°10.1	34°13.6	36°24.3	57°41.5
9	117°58.9	10.6'	20°25.1	-6.6'	55.6'		97°07.7	97°31.5	43°15.5	22°32.4	34°36.8	36°55.2	58°12.9
10	132°28.6	10.6'	20°18.4	-6.7'	55.6'		96°36.2	97°05.9	42°44.3	22°55.0	35°00.2	37°26.1	58°44.3
11	146°58.2	10.7'	20°11.7	-6.9'	55.6'		96°04.7	96°40.2	42°13.1	23°17.9	35°23.8	37°57.0	59°15.8
12	161°27.9	10.7'	N 20°04.8	-7.0'	55.7'		95°33.2	96°14.6	41°41.8	23°41.2	35°47.6	38°27.9	59°47.2
13	175°57.6	10.7'	19°57.9	-7.1'	55.7'	119°42.7	95°01.7	95°48.9	41°10.5	24°04.8	36°11.6	38°58.9	60°18.7
14	190°27.3	10.8'	19°50.8	-7.2'	55.7'	119°11.7	94°30.1	95°23.2	40°39.3	24°28.6	36°35.8	39°29.9	60°50.2
15	204°57.0	10.8'	19°43.7	-7.3'	55.7'	118°40.6	93°58.5	94°57.4	40°08.0	24°52.8	37°00.1	40°01.0	61°21.8
16	219°26.8	10.8'	19°36.4	-7.4'	55.7'	118°09.6	93°26.9	94°31.7	39°36.7	25°17.2	37°24.6	40°32.1	61°53.3
17	233°56.6	10.8'	19°29.0	-7.5'	55.8'	117°38.5	92°55.3	94°05.9	39°05.4	25°41.9	37°49.3	41°03.2	62°24.9
18	248°26.5	10.9'	$N19^{\circ}21.6$	-7.6'	55.8'	117°07.4	92°23.7	93°40.1	38°34.0	26°06.8	38°14.1	41°34.3	62°56.5
19	262°56.3	10.9'	19°14.0	-7.7'	55.8'	116°36.3	91°52.0	93°14.2	38°02.7	26°32.0	38°39.1	42°05.5	63°28.1
20	277°26.2	10.9'	19°06.3	-7.8'	55.8'	116°05.2	91°20.4	92°48.4	37°31.4	26°57.4	39°04.3	42°36.7	63°59.8
21	291°56.2	11.0'	18°58.5	-7.9'	55.8'	115°34.1	90°48.7	92°22.5	37°00.0	27°23.0	39°29.6	43°07.9	64°31.4
22	306°26.1	11.0'	18°50.7	-8.0'	55.9'	115°02.9	90°17.0	91°56.6	36°28.6	27°48.9	39°55.0	43°39.2	65°03.1
23	320°56.1	11.0'	18°42.7	-8.1'	55.9'	114°31.7	89°45.2	91°30.7	35°57.3	28°14.9	40°20.6	44°10.5	65°34.8
22 nd	SD	= 15.1'	Mer. pass.	00:52									

h Moon (23rd Dec)

Sun	GHA	ν	Dec	d	HP	-Jupiter	-Arcturus	-Spica	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	335°26.1	11.1'	$N18^{\circ}34.6$	-8.2'	55.9'	114°00.5	91°04.7	89° 13.5	35°25.9	28°41.1	40°46.3	44°41.8	66°06.5
1	349°56.2	11.1'	$18^{\circ}26.5$	-8.3'	55.9'	113°29.3	90°38.8	88°41.7	34°54.5	29° 07.5	41°12.1	45° 13.2	66°38.3
2	4°26.3	11.1'	$18^{\circ}18.2$	-8.4'	55.9'	112°58.0	90°12.8	88°09.9	34°23.1	29°34.1	41°38.1	45° 44.5	67°10.0
3	18°56.4	11.1'	$18^{\circ}09.8$	-8.5'	56.0'	112°26.7	89°46.8	87°38.1	33°51.7	30°00.9	42°04.2	46° 15.9	67°41.8
4	33°26.5	11.2'	18°01.4	-8.6'	56.0'	111°55.4	89°20.8	87°06.3	33°20.2	30°27.8	42°30.5	46°47.4	68°13.6
5	47°56.7	11.2'	$17^{\circ}52.8$	-8.6'	56.0'	111°24.1	88°54.8	86°34.5	32°48.8	30°54.9	42°56.8	47° 18.8	68°45.5
6	62°26.9	11.2'	$N17^{\circ}44.2$	-8.7'	56.0'	110°52.8	88°28.8	86°02.6	32°17.4	31°22.1	43°23.3	47°50.3	69°17.3
7	76°57.2	11.3'	$17^{\circ}35.4$	-8.8'	56.0'	110°21.4	88°02.7	85°30.7	31°45.9	31°49.5	43°49.8	48°21.8	69°49.2
8	91°27.4	11.3'	$17^{\circ}26.6$	-8.9'	56.0'	109°50.0	87°36.7	84°58.8	31° 14.5	32° 17.1	44°16.5	48° 53.3	70°21.1
9	105°57.8	11.3'	$17^{\circ}17.7$	-9.0'	56.1'	109°18.6	87°10.6	84°26.9	30°43.0	32°44.7	44°43.3	49°24.9	70°53.0
10	120°28.1	11.4'	$17^{\circ}08.7$	-9.1'	56.1'	108°47.2	86°44.5	83°54.9	30°11.6	33°12.5	45°10.2	49°56.5	71°24.9
11	134°58.5	11.4'	$16^{\circ}59.6$	-9.2'	56.1'	108°15.8	86°18.4	83°22.9	29°40.1	33°40.4	45°37.2	50°28.1	71°56.9
12	149°28.9	11.4'	$N16^{\circ}50.4$	-9.3'	56.1'	107°44.3	85°52.3	82°51.0	29°08.6	34°08.5	46°04.3	50° 59.8	72°28.9
13	163°59.3	11.5'	$16^{\circ}41.1$	-9.4'	56.1'	107°12.8	85°26.2	82°18.9	28° 37.2	34° 36.6	46°31.5	51°31.4	73°00.9
14	178°29.8	11.5'	$16^{\circ}31.7$	-9.5'	56.2'	106°41.3	85°00.1	81°46.9	28°05.7	35°04.9	46°58.8	52°03.1	73°32.9
15	193°00.3	11.5'	$16^{\circ}22.3$	-9.5'	56.2'	106°09.8	84°33.9	81°14.9	27°34.2	35°33.3	47°26.2	52°34.8	74°04.9
16	207°30.8	11.6'	16° 12.7	-9.6'	56.2'	105°38.3	84°07.8	80°42.8	27°02.8	36°01.8	47°53.7	53°06.6	74°37.0
17	222°01.4	11.6'	$16^{\circ}03.1$	-9.7'	56.2'	105°06.7	83°41.6	80°10.7	26°31.3	36°30.4	48°21.3	53°38.3	75°09.1
18	236°31.9	11.6'	$N15^{\circ}53.4$	-9.8'	56.2'	104°35.1	83°15.5	79°38.6	25°59.9	36°59.1	48°48.9	54° 10.1	75°41.2
19	251°02.6	11.7'	15°43.6	-9.9'	56.3'	104°03.5	82°49.3	79°06.5	25°28.4	37° 27.9	49°16.7	54°42.0	76° 13.3
20	265°33.2	11.7'	15°33.7	-10.0'	56.3'	103°31.9	82°23.2	78°34.3	24°57.0	37° 56.8	49°44.5	55° 13.8	76°45.4
21	280°03.9	11.7'	15° 23.8	-10.0'	56.3'	103°00.2	81°57.0	78°02.1	24°25.6	38° 25.8	50°12.4	55° 45.7	77° 17.6
22	294°34.6	11.7'	15° 13.7	-10.1'	56.3'	102°28.5	81°30.8	77°30.0	23°54.2	38° 54.9	50°40.4	56° 17.6	77°49.8
23	309°05.4	11.8'	15°03.6	-10.2'	56.3'	101°56.9	81°04.7	76°57.7	23°22.8	39°24.1	51°08.5	56°49.5	78°22.0
23 rd	SD	= 15.2'	Mer. pass	s. 01:42									

h	Moon	(24 th	Dec)	
11	IVIOUII	144	ושכעו	

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	323°36.1	11.8'	N 14°53.4	-10.3'	56.4'		101°25.1	76°25.5	22°51.4	17°24.6	39°53.3	57°21.4	78°54.2
1	338°06.9	11.8'	14°43.1	-10.4'	56.4'		100°53.4	75°53.3	22°20.0	17°52.1	40°22.7	57° 53.4	79°26.5
2	352°37.8	11.9'	14°32.7	-10.4'	56.4'		100°21.7	75°21.0	21°48.7	18°19.8	40°52.1	58°25.4	79°58.7
3	7°08.7	11.9'	14°22.3	-10.5'	56.4'		99°49.9	74°48.7	21°17.4	18°47.8	41°21.6	58° 57.4	80°31.0
4	21°39.5	11.9'	$14^{\circ}11.8$	-10.6'	56.5'	119°46.1	99°18.1	74°16.4	20°46.1	19°16.1	41°51.2	59°29.4	81°03.3
5	36°10.5	12.0'	14°01.2	-10.7'	56.5'	119°13.8	98°46.3	73°44.0	20°14.8	19°44.5	42°20.8	60°01.5	81°35.7
6	50°41.4	12.0'	N 13°50.5	-10.7'	56.5'	118°41.5	98°14.4	73°11.7	19°43.6	20°13.2	42°50.5	60°33.6	82°08.0
7	65°12.4	12.0'	13°39.8	-10.8'	56.5'	118°09.1	97°42.6	72°39.3	19°12.5	20°42.1	43°20.3	61°05.7	82°40.4
8	79°43.4	12.0'	13°29.0	-10.9'	56.5'	117°36.8	97° 10.7	72°06.9	18°41.3	21°11.1	43°50.2	61°37.8	83°12.8
9	94°14.4	12.1'	$13^{\circ}18.1$	-11.0'	56.6'	117°04.4	96°38.8	71°34.5	18°10.3	21°40.3	44°20.1	62° 10.0	83°45.2
10	108°45.5	12.1'	13°07.2	-11.0'	56.6'	116°32.0	96°06.8	71°02.1	17°39.3	22°09.7	44°50.1	62°42.2	84°17.7
11	123°16.6	12.1'	$12^{\circ}56.1$	-11.1'	56.6'	115°59.5	95°34.9	70°29.6	17°08.3	22°39.2	45°20.2	63° 14.4	84°50.1
12	137°47.7	12.1'	N12°45.0	-11.2'	56.6'	115°27.1	95°02.9	69°57.1	16°37.5	23°08.9	45°50.3	63°46.6	85°22.6
13	152°18.8	12.2'	12°33.9	-11.2'	56.6'	114°54.6	94°30.9	69°24.6	16°06.7	23°38.7	46° 20.5	64° 18.8	85°55.1
14	166°50.0	12.2'	12°22.6	-11.3'	56.7'	114°22.1	93°58.9	68°52.1	15°36.0	24°08.7	46°50.7	64°51.1	86°27.6
15	181°21.2	12.2'	12°11.3	-11.4'	56.7'	113°49.6	93°26.9	$68^{\circ}19.5$	15°05.4	24°38.7	47°21.0	65°23.4	87°00.2
16	195°52.4	12.2'	12°00.0	-11.4'	56.7'	113°17.0	92°54.8	67°47.0	14°35.0	25°08.9	47°51.4	65°55.7	87°32.7
17	210°23.6	12.3'	11°48.5	-11.5'	56.7'	112°44.5	92°22.8	67°14.4	14°04.7	25°39.2	48°21.8	66°28.1	88°05.3
18	224°54.9	12.3'	N11°37.1	-11.6'	56.7'	112°11.9	91°50.7	66°41.8	13°34.5	26°09.6	48°52.3	67°00.5	88°37.9
19	239°26.2	12.3'	11°25.5	-11.6'	56.8'	111°39.3	91°18.5	66°09.2	13°04.5	26°40.1	49°22.8	67°32.9	89°10.6
20	253°57.5	12.3'	11°13.9	-11.7'	56.8'	111°06.6	90°46.4	65°36.5	12°34.7	27°10.7	49°53.4	68°05.3	89°43.2
21	268°28.8	12.3'	11°02.2	-11.7'	56.8'	110°34.0	90°14.2	65°03.8	12°05.2	27°41.4	50°24.0	68° 37.7	90°15.9
22	283°00.2	12.4'	10°50.5	-11.8'	56.8'	110°01.3	89°42.1	64°31.2	11°35.8	28°12.2	50°54.7	69° 10.2	90°48.6
23	297°31.5	12.4'	10°38.6	-11.9'	56.8'	109°28.6	89°09.8	63°58.4	11°06.8	28°43.1	51°25.4	69°42.7	91°21.3
24 th	SD	= 15.4	Mer. pass	s. 02:30									

Moon (25th Dec)

Lunar Distance (objects with largest hourly LD delta)

h		Moor	n (25 th De	ec)			Lunar	Distance	e (objects	with lar	gest hourly	LD delta)	
Tue	GHA	ν	Dec	d	HP	-Antares	-Jupiter	-Spica	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	312°02.9	12.4'	N 10°26.8	-11.9'	56.9'	108°55.9	88°37.6	63°25.7	10°38.2	29°14.1	51°56.2	70°15.2	91°54.0
1	326°34.3	12.4'	10°14.9	-12.0'	56.9'	108°23.1	88°05.4	62°53.0	10°09.9	29°45.1	52°27.0	70°47.7	92°26.8
2	341°05.7	12.4'	10°02.9	-12.0'	56.9'	107°50.4	87°33.1	62°20.2	9°42.1	30° 16.2	52°57.9	71°20.3	92°59.6
3	355°37.2	12.5'	09°50.9	-12.1'	56.9'	107°17.6	87°00.8	61°47.4	9°14.8	30°47.4	53°28.8	71°52.9	93°32.4
4	10°08.6	12.5'	09°38.8	-12.1'	57.0'	106°44.8	86°28.5	61°14.6	8°48.1	31°18.7	53°59.8	72°25.5	94°05.2
5	24°40.1	12.5'	09°26.6	-12.2'	57.0'	106°12.0	85°56.2	60°41.7	8°22.1	31°50.0	54°30.8	72°58.1	94°38.0
6	39°11.6	12.5'	N09°14.4	-12.2'	57.0'	105°39.1	85°23.8	60°08.9	7°56.9	32°21.4	55°01.9	73°30.7	95° 10.9
7	53°43.1	12.5'	09°02.2	-12.3'	57.0'	105°06.2	84°51.4	59°36.0		32°52.9	55°33.0	74°03.4	95°43.8
8	68°14.6	12.5'	08°49.9	-12.3'	57.0'	104°33.3	84°19.0	59°03.1		33°24.4	56°04.2	74°36.1	96° 16.7
9	82°46.1	12.5'	08°37.5	-12.4'	57.1'	104°00.4	83°46.6	58°30.1		33°56.0	56°35.4	75°08.8	96°49.6
10	97°17.7	12.6'	08°25.2	-12.4'	57.1'	103°27.5	83°14.1	57°57.2		34° 27.6	57°06.6	75°41.6	97°22.6
11	111°49.2	12.6'	08°12.7	-12.5'	57.1'	102°54.5	82°41.7	57°24.2		34°59.3	57°37.9	76°14.3	97°55.6
12	126°20.8	12.6'	N08°00.2	-12.5'	57.1'	102°21.5	82°09.2	56°51.2		35°31.1	58°09.2	76°47.1	98°28.5
13	140°52.4	12.6'	07°47.7	-12.6'	57.2'	101°48.5	81°36.7	56°18.2		36°02.9	58°40.6	77°20.0	99°01.6
14	155°24.0	12.6'	07°35.1	-12.6'	57.2'	101°15.5	81°04.1	55°45.2		36°34.8	59°12.0	77°52.8	99°34.6
15	169°55.6	12.6'	07°22.5	-12.7'	57.2'	100°42.4	80°31.6	55°12.1		37°06.7	59°43.5	78°25.7	100°07.7
16	184°27.2	12.6'	07°09.8	-12.7'	57.2'	100°09.3	79°59.0	54°39.0		37° 38.7	60°15.0	78°58.5	100°40.7
17	198°58.8	12.6'	06°57.1	-12.8'	57.2'	99°36.2	79°26.4	54°05.9		38° 10.7	60°46.5	79°31.5	101°13.9
18	213°30.4	12.6'	N 06°44.3	-12.8'	57.3'	99°03.1	78°53.7	53°32.8		38° 42.7	61°18.1	80°04.4	101°47.0
19	228°02.0	12.6'	06°31.5	-12.8'	57.3'	98°30.0	78°21.1	52°59.7		39° 14.9	61°49.7	80°37.3	102°20.1
20	242°33.7	12.6'	06°18.7	-12.9'	57.3'	97°56.8	77°48.4	52°26.5		39°47.0	62°21.3	81°10.3	102°53.3
21	257°05.3	12.6'	06°05.8	-12.9'	57.3'	97°23.6	77°15.7	51°53.3		40° 19.2	62°53.0	81°43.3	103°26.5
22	271°36.9	12.6'	05°52.9	-13.0'	57.3'	96°50.4	76°43.0	51°20.1		40°51.5	63°24.7	82°16.4	103°59.7
23	286°08.6	12.6'	05°39.9	-13.0'	57.4'	96°17.1	76°10.3	50°46.8		41°23.8	63°56.5	82°49.4	104°32.9
25 th	SD	= 15.5'	Mer. pass	s. 03:18									

Moon (26th Dec) h

Wed	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	300°40.2	12.6'	N 05°26.9	-13.0'	57.4'		95°43.9	75°37.5	50°13.6	41°56.2	64°28.3	83°22.5	105°06.2
1	315°11.9	12.6'	05°13.9	-13.1'	57.4'	119°50.2	95°10.6	75°04.7	49°40.3	42°28.5	65°00.1	83°55.6	105°39.5
2	329°43.5	12.6'	05°00.8	-13.1'	57.4'	119° 19.4	94°37.3	74°31.9	49°07.0	43°01.0	65°31.9	84°28.7	106°12.8
3	344°15.2	12.6'	04°47.7	-13.1'	57.5'	118°48.6	94°04.0	73°59.1	48°33.7	43°33.4	66°03.8	85°01.8	106°46.1
4	358°46.8	12.6'	04°34.6	-13.2'	57.5'	118° 17.7	93°30.6	73°26.2	48°00.3	44°06.0	66°35.8	85°35.0	107°19.5
5	13°18.4	12.6'	04°21.4	-13.2'	57.5'	117°46.8	92°57.2	72°53.3	47°27.0	44°38.5	67°07.7	86°08.2	107°52.8
6	27°50.1	12.6'	N04°08.2	-13.2'	57.5'	117° 15.9	92°23.8	72°20.4	46°53.6	45°11.1	67°39.8	86°41.4	108°26.2
7	42°21.7	12.6'	03°55.0	-13.2'	57.5'	116°44.9	91°50.4	71°47.5	46° 20.2	45°43.7	68°11.8	87°14.7	108°59.6
8	56°53.3	12.6'	03°41.8	-13.3'	57.6'	116° 14.0	91°16.9	71°14.5	45°46.7	46°16.4	68°43.9	87°47.9	109°33.1
9	71°24.9	12.6'	03°28.5	-13.3'	57.6'	115°43.0	90°43.5	70°41.6	45° 13.3	46°49.1	69°16.0	88°21.2	110°06.5
10	85°56.5	12.6'	03°15.2	-13.3'	57.6'	115°12.0	90°10.0	70°08.6	44°39.8	47°21.9	69°48.1	88°54.5	110°40.0
11	100°28.1	12.6'	03°01.9	-13.3'	57.6'	114°40.9	89°36.4	69°35.5	44°06.3	47°54.7	70°20.3	89°27.9	111°13.5
12	114°59.7	12.6'	N02°48.5	-13.4'	57.7'	114°09.9	89°02.9	69°02.5	43°32.7	48°27.5	70°52.5	90°01.2	111°47.0
13	129°31.3	12.6'	02°35.2	-13.4'	57.7'	113°38.8	88°29.3	68°29.4	42°59.2	49°00.4	71°24.7	90°34.6	112°20.6
14	144°02.9	12.6'	02°21.8	-13.4'	57.7'	113°07.7	87°55.7	67°56.3	42°25.6	49°33.3	71°57.0	91°08.0	112°54.2
15	158°34.4	12.5'	02°08.4	-13.4'	57.7'	112°36.6	87°22.1	67°23.2	41°52.0	50°06.2	72°29.3	91°41.5	113°27.8
16	173°06.0	12.5'	01°54.9	-13.5'	57.8'	112°05.4	86°48.5	66°50.1	41°18.4	50°39.2	73°01.6	92°14.9	114°01.4
17	187°37.5	12.5'	01°41.5	-13.5'	57.8'	111°34.2	86°14.8	66°16.9	40°44.8	51°12.2	73°34.0	92°48.4	114°35.0
18	202°09.0	12.5'	N01°28.0	-13.5'	57.8'	111°03.0	85°41.1	65°43.7	40°11.1	51°45.2	74°06.4	93°21.9	115°08.7
19	216°40.5	12.5'	$01^{\circ}14.5$	-13.5'	57.8'	110°31.8	85°07.4	65°10.5	39°37.4	52°18.3	74°38.8	93°55.4	115°42.4
20	231°12.0	12.5'	$01^{\circ}01.0$	-13.5'	57.8'	110°00.5	84°33.6	64°37.3	39°03.7	52°51.4	75°11.2	94°29.0	116°16.1
21	245°43.5	12.4'	00°47.5	-13.5'	57.9'	109°29.3	83°59.9	64°04.0	38°30.0	53°24.5	75°43.7	95°02.5	116°49.8
22	260°14.9	12.4'	00°34.0	-13.5'	57.9'	108°58.0	83°26.1	63°30.8	37°56.2	53°57.7	76°16.2	95°36.1	117°23.5
23	274°46.3	12.4'	00°20.4	-13.6'	57.9'	108°26.6	82°52.3	62°57.5	37°22.4	54°30.9	76°48.8	96°09.8	117°57.3
26 th	SD	= 15.7	Mer. pass	s. 04:05					Sun	SD = 16.3	′		

23 27th

h		Мооі	n (27 th De	ec)			Lunar D	istance ((objects	with large	st hourly	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Pollux	+Aldebaran	+Saturn
0	289°17.7	12.4'	N 00°06.9	-13.6'	57.9'	107°55.3	82°18.4	62°24.1	36°48.7	18°08.9	55°04.2	96°43.4	118°31.1
1	303°49.1	12.4'	S 00°06.7	-13.6'	58.0'	107°23.9	81°44.6	61°50.8	36°14.8	18°41.4	55°37.4	97°17.1	119°04.9
2	318°20.5	12.3'	00°20.3	-13.6'	58.0'	106°52.5	81°10.7	61°17.4	35°41.0	19° 14.0	56°10.7	97°50.8	119°38.8
3	332°51.8	12.3'	00°33.9	-13.6'	58.0'	106°21.1	80°36.8	60°44.0	35°07.1	19°46.6	56°44.1	98°24.5	
4	347°23.1	12.3'	00°47.5	-13.6'	58.0'	105°49.6	80°02.8	60° 10.6	34°33.2	20° 19.4	57°17.5	98°58.3	
5	1°54.4	12.3'	$01^{\circ}01.1$	-13.6'	58.0'	105°18.1	79°28.8	59°37.1	33°59.3	20°52.2	57°50.9	99°32.0	
6	16°25.6	12.2'	S 01°14.7	-13.6'	58.1'	104°46.6	78°54.9	59°03.6	33°25.4	21°25.2	58°24.3	100°05.8	
7	30°56.8	12.2'	01°28.3	-13.6'	58.1'	104°15.1	78°20.8	58° 30.1	32°51.4	21°58.2	58°57.8	100°39.6	
8	45°28.0	12.2'	01°41.9	-13.6'	58.1'	103°43.6	77°46.8	57° 56.6	32°17.5	22°31.3	59°31.3	101°13.5	
9	59°59.2	12.1'	$01^{\circ}55.5$	-13.6'	58.1'	103°12.0	77°12.7	57°23.1	31°43.5	23°04.4	60°04.8	101°47.4	
10	74°30.3	12.1'	$02^{\circ}09.1$	-13.6'	58.2'	102°40.4	76°38.6	56° 49.5	31°09.5	23°37.7	60°38.4	102°21.2	
11	89°01.4	12.1'	02°22.7	-13.6'	58.2'	102°08.7	76°04.5	56° 15.9	30°35.4	24° 10.9	61°12.0	102°55.2	
12	103°32.5	12.0'	S 02°36.3	-13.6'	58.2'	101°37.1	75°30.4	55°42.3	30°01.4	24°44.3	61°45.6	103°29.1	
13	118°03.5	12.0'	02°49.9	-13.6'	58.2'	101°05.4	74°56.2	55°08.7	29°27.3	25° 17.7	62°19.3	104°03.1	
14	132°34.5	12.0'	03°03.6	-13.6'	58.3'	100°33.7	74°22.0	54°35.0	28°53.2	25°51.2	62°53.0	104°37.1	
15	147°05.5	11.9'	03°17.2	-13.6'	58.3'	100°02.0	73°47.8	54°01.3	28°19.1	26°24.7	63°26.7	105°11.1	
16	161°36.4	11.9'	03°30.7	-13.6'	58.3'	99°30.2	73°13.6	53°27.6	27°44.9	26°58.3	64°00.4	105°45.1	
17	176°07.3	11.8'	03°44.3	-13.6'	58.3'	98°58.4	72°39.3	52°53.9	27°10.7	27°31.9	64°34.2	106°19.2	
18	190°38.1	11.8'	S 03°57.9	-13.6'	58.3'	98°26.6	72°05.0	52°20.1	26°36.6	28°05.6	65°08.0	106°53.2	
19	205°08.9	11.8'	04°11.5	-13.6'	58.4'	97°54.8	71°30.7	51°46.3	26°02.4	28° 39.3	65°41.9	107°27.4	
20	219°39.7	11.7'	04°25.0	-13.5'	58.4'	97°22.9	70°56.4	51° 12.5	25°28.2	29° 13.1	66°15.8	108°01.5	
21	234°10.4	11.7'	04°38.6	-13.5'	58.4'	96°51.0	70°22.0	50°38.7	24°53.9	29°47.0	66°49.7	108°35.6	
22	248°41.0	11.6'	04°52.1	-13.5'	58.4'	96°19.1	69°47.6	50°04.8	24°19.7	30°20.8	67°23.6	109°09.8	
23	263°11.7	11.6'	05°05.6	-13.5'	58.5'	95°47.2	69°13.2	49°30.9	23°45.4	30°54.8	67°57.6	109°44.0	

													-
27 th	SD	= 15.8	Mer. pas	ss. 04:52					Sun	SD = 16.3'			
h		Moor	n (28 th D	ec)			Lunar I	Distance	(objects	with larg	est hourly	LD delta	n)
Fri	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	277°42.2	11.5'	S 05° 19.1	-13.5'	58.5'	95°15.2	68°38.7	48°57.0	23°11.1	31°28.7	64°35.1	68°31.6	110° 18.3
1	292°12.8	11.5'	05°32.6	-13.5'	58.5'	94°43.2	68°04.3	48°23.1	22°36.8	32°02.7	65°08.5	69°05.6	110°52.5
2	306°43.3	11.4'	$05^{\circ}46.1$	-13.4'	58.5'	94°11.2	67°29.8	47°49.1	22°02.5	32°36.8	65°41.9	69°39.7	111°26.8
3	321°13.7	11.4'	$05^{\circ}59.5$	-13.4'	58.5'	93°39.2	66°55.2	47° 15.2	21°28.2	33°10.9	66°15.4	70°13.7	112°01.1
4	335°44.1	11.3'	$06^{\circ}12.9$	-13.4'	58.6'	93°07.1	66°20.7	46°41.2	20°53.8	33°45.0	66°48.9	70°47.9	112°35.4
5	350°14.4	11.3'	06°26.3	-13.4'	58.6'	92°35.0	65°46.1	46°07.1	20° 19.5	34°19.2	67°22.4	71°22.0	113°09.8
6	4°44.7	11.2'	S 06°39.7	-13.4'	58.6'	92°02.9	65°11.5	45°33.1	19°45.1	34°53.4	67°56.0	71°56.2	113°44.1
7	19°14.9	11.2'	$06^{\circ}53.1$	-13.3'	58.6'	91°30.7	64°36.9	44°59.0	19° 10.7	35°27.6	68°29.6	72°30.4	114° 18.5
8	33°45.1	11.1'	07°06.4	-13.3'	58.7'	90°58.6	64°02.2	44°24.9	18°36.4	36°01.9	69°03.3	73°04.6	114°52.9
9	48°15.2	11.1'	$07^{\circ}19.7$	-13.3'	58.7'	90°26.4	63°27.6	43°50.8	18°02.0	36°36.2	69°36.9	73°38.9	115°27.4
10	62°45.2	11.0'	07°32.9	-13.2'	58.7'	89°54.2	62°52.9	43°16.7	17°27.6	37°10.6	70°10.6	74°13.1	116°01.8
11	77°15.2	10.9'	07°46.2	-13.2'	58.7'	89°21.9	62°18.1	42°42.5	16°53.2	37°45.0	70°44.4	74°47.5	116°36.3
12	91°45.2	10.9'	S 07°59.4	-13.2'	58.7'	88°49.6	61°43.4	42°08.4	16° 18.8	38°19.4	71°18.2	75°21.8	117° 10.8
13	106°15.0	10.8'	$08^{\circ}12.6$	-13.1'	58.8'	88° 17.3	61°08.6	41°34.2	15°44.4	38°53.9	71°52.0	75°56.2	117°45.4
14	120°44.9	10.8'	08°25.7	-13.1'	58.8'	87°45.0	60°33.8	40°59.9	15° 10.0	39°28.4	72°25.8	76°30.6	118° 19.9
15	135°14.6	10.7'	08°38.8	-13.1'	58.8'	87° 12.6	59°59.0	40°25.7	14°35.7	40°03.0	72°59.7	77°05.0	118°54.5
16	149°44.3	10.6'	$08^{\circ}51.9$	-13.0'	58.8'	86°40.3	59°24.1	39°51.4	14°01.3	40°37.5	73°33.6	77°39.5	119°29.1
17	164°13.9	10.6'	09°04.9	-13.0'	58.9'	86°07.8	58°49.2	39°17.1	13°27.0	41°12.1	74°07.5	78°14.0	
18	178°43.5	10.5'	S 09°17.9	-13.0'	58.9'	85°35.4	58°14.3	38°42.8	12°52.7	41°46.8	74°41.5	78°48.5	
19	193°13.0	10.4'	09°30.9	-12.9'	58.9'	85°03.0	57°39.4	38° 08.5	12° 18.5	42°21.5	75°15.5	79°23.0	
20	207°42.4	10.4'	09°43.8	-12.9'	58.9'	84°30.5	57°04.5	37°34.1	11°44.3	42°56.2	75°49.5	79°57.6	
21	222°11.8	10.3'	09°56.7	-12.8'	58.9'	83°58.0	56°29.5	36°59.8	11°10.1	43°30.9	76°23.6	80°32.2	
22	236°41.1	10.2'	10°09.5	-12.8'	59.0'	83°25.4	55°54.5	36°25.4	10°36.0	44°05.7	76°57.7	81°06.8	
23	251°10.3	10.2'	10°22.3	-12.7'	59.0'	82°52.8	55°19.4	35°51.0	10°02.1	44°40.5	77°31.8	81°41.5	
28 th	SD	= 15.9'	Mer. pas	s. 05:40					Sun	SD = 16.3'			

h		Moor	n (29 th De	ec)			Lunar [Distance	(object	s with larg	est hourly	LD delt	a)
Sat	GHA	ν	Dec	d	HP	-Sun	-Antares	-Jupiter	-Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	265°39.5	10.1'	S 10°35.0	-12.7'	59.0'	82°20.3	54°44.4	35° 16.5	9°28.2	45°15.3	78°06.0	82°16.1	103°56.1
1	280°08.6	10.0'	10°47.7	-12.6'	59.0'	81°47.6	54°09.3	34°42.1	8°54.4	45°50.2	78°40.2	82°50.8	104°29.9
2	294°37.6	9.9'	11°00.3	-12.6'	59.0'	81°15.0	53°34.2	34°07.6	8°20.9	46°25.1	79° 14.4	83°25.6	105°03.7
3	309°06.6	9.9'	11° 12.9	-12.5'	59.1'	80°42.3	52°59.1	33°33.1	7°47.5	47°00.0	79°48.6	84°00.3	105°37.5
4	323°35.4	9.8'	11°25.4	-12.5'	59.1'	80°09.6	52°23.9	32°58.6	7°14.4	47°35.0	80°22.9	84°35.1	106°11.3
5	338°04.2	9.7'	$11^{\circ}37.9$	-12.4'	59.1'	79°36.9	51°48.7	32°24.1	6°41.7	48°10.0	80° 57.2	85°09.9	106°45.2
6	352°33.0	9.6'	S 11°50.3	-12.4'	59.1'	79°04.2	51°13.5	31°49.6	6°09.4	48°45.0	81°31.5	85°44.8	107°19.0
7	7°01.6	9.6'	12°02.7	-12.3'	59.2'	78°31.4	50°38.3	31°15.0	5°37.6	49°20.1	82°05.8	86°19.6	107°52.9
8	21°30.2	9.5'	12° 15.0	-12.2'	59.2'	77°58.6	50°03.1	30°40.5	5°06.6	49°55.2	82°40.2	86°54.5	108°26.8
9	35°58.7	9.4'	12°27.2	-12.2'	59.2'	77°25.8	49°27.8	30°05.9		50°30.3	83° 14.6	87°29.4	109°00.7
10	50°27.1	9.3'	$12^{\circ}39.4$	-12.1'	59.2'	76°52.9	48°52.5	29°31.3		51°05.4	83°49.1	88°04.4	109°34.6
11	64°55.4	9.3'	$12^{\circ}51.5$	-12.0'	59.2'	76°20.1	48°17.2	28°56.7		51°40.6	84°23.5	88°39.3	110°08.6
12	79°23.7	9.2'	S 13°03.5	-12.0'	59.3'	75°47.2	47°41.8	28°22.1		52°15.8	84°58.0	89°14.3	110°42.5
13	93°51.9	9.1'	13° 15.5	-11.9'	59.3'	75°14.3	47°06.5	27° 47.4		52°51.0	85° 32.5	89°49.3	111°16.5
14	108°20.0	9.0'	13°27.4	-11.8'	59.3'	74°41.3	46°31.1	27° 12.8		53°26.3	86°07.1	90°24.4	111°50.5
15	122°48.0	8.9'	13°39.3	-11.8'	59.3'	74°08.3	45°55.7	26°38.2		54°01.6	86°41.6	90°59.4	112°24.5
16	137°15.9	8.9'	13°51.0	-11.7'	59.3'	73°35.3	45°20.2	26°03.5		54°36.9	87° 16.2	91°34.5	112°58.4
17	151°43.8	8.8'	$14^{\circ}02.7$	-11.6'	59.3'	73°02.3	44°44.8	25°28.9		55°12.2	87°50.8	92°09.6	113°32.5
18	166°11.6	8.7'	S 14°14.4	-11.5'	59.4'	72°29.3	44°09.3	24°54.2		55°47.6	88°25.5	92°44.8	114°06.5
19	180°39.3	8.6'	14°25.9	-11.5'	59.4'	71°56.2	43°33.8	24° 19.5		56°23.0	89°00.1	93°19.9	114°40.5
20	195°06.9	8.5'	14° 37.4	-11.4'	59.4'	71°23.1	42°58.3	23°44.9		56°58.4	89°34.8	93°55.1	115°14.5
21	209°34.4	8.4'	14°48.8	-11.3'	59.4'	70°50.0	42°22.7	23° 10.2		57°33.9	90°09.5	94°30.3	115°48.6
22	224°01.8	8.4'	$15^{\circ}00.1$	-11.2'	59.4'	70°16.9	41°47.1	22°35.5		58°09.4	90°44.3	95°05.6	116°22.6
23	238°29.2	8.3'	15°11.3	-11.1'	59.5'	69°43.7	41°11.6	22°00.9		58°44.9	91°19.0	95°40.8	116°56.7
29 th	SD	= 16.1'	Mer. pas	s. 06:31					Sui	SD = 16.3'			

DUT1	= UT1-U	TC =	+0.1552 se	ec ΔT	= TT-	UT1 = +	69.0288 se	ec			2029 De	ecember 3	0 to Dec
h		Моо	n (30 th D	ec)			Lunar D	istance (objects v	with larg	est hourly	LD delta)	
Sun	GHA	ν	Dec	d	HP	-Vega	-Sun	-Antares	-Jupiter	+Spica	+Regulus	+Procyon	+Pollux
0	252°56.4	8.2'	S 15°22.5	-11.1'	59.5'		69° 10.5	40°36.0	21°26.2		59°20.4	91°53.8	96°16.1
1	267°23.6	8.1'	15°33.5	-11.0'	59.5'		68° 37.3	40°00.3	20°51.6	6°13.0	59°56.0	92°28.6	96°51.4
2	281°50.7	8.0'	15°44.5	-10.9'	59.5'		68°04.1	39°24.7	20°17.0	6°45.8	60°31.5	93°03.4	97°26.7
3	296°17.7	7.9'	15°55.4	-10.8'	59.5'		67°30.8	38°49.0	19°42.4	7°19.1	61°07.2	93°38.3	98°02.1
4	310°44.7	7.8'	$16^{\circ}06.2$	-10.7'	59.6'	86°14.1	66° 57.5	38°13.3	19°07.8	7°52.8	61°42.8	94°13.1	98°37.4
5	325°11.5	7.7'	$16^{\circ}16.9$	-10.6'	59.6'	85°56.0	66°24.2	37°37.6	18°33.2	8°26.8	62°18.5	94°48.0	99°12.8
6	339°38.2	7.7'	S 16°27.5	-10.5'	59.6'	85°38.0	65°50.9	37°01.9	17°58.7	9°01.1	62°54.1	95°22.9	99°48.2
7	354°04.9	7.6'	$16^{\circ}38.0$	-10.4'	59.6'	85°19.9	65° 17.6	36°26.1	17°24.2	9°35.6	63°29.8	95°57.9	100°23.6
8	8°31.5	7.5'	16°48.5	-10.3'	59.6'	85°01.9	64°44.2	35°50.4	16°49.7	10° 10.3	64°05.6	96°32.8	100°59.1
9	22°58.0	7.4'	16°58.8	-10.2'	59.6'	84°43.9	64°10.8	35°14.6	16°15.3	10°45.1	64°41.3	97°07.8	101°34.5
10	37°24.3	7.3'	17°09.0	-10.1'	59.7'	84°25.9	63°37.4	34°38.8	15°41.0	11°20.0	65°17.1	97°42.8	102°10.0
11	51°50.7	7.2'	$17^{\circ}19.1$	-10.0'	59.7'	84°07.9	63°03.9	34°03.0	15°06.7	11°55.1	65°52.9	98°17.8	102°45.5
12	66°16.9	7.1'	S 17°29.2	-9.9'	59.7'	83°49.9	62°30.5	33°27.2	14°32.5	12°30.3	66°28.7	98°52.8	103°21.1
13	80°43.0	7.0'	17°39.1	-9.8'	59.7'	83°32.0	61°57.0	32°51.3	13°58.4	13°05.6	67°04.6	99°27.8	103°56.6
14	95°09.1	7.0'	17°48.9	-9.7'	59.7'	83°14.1	61°23.5	32°15.4	13°24.4	13°41.0	67°40.5	100°02.9	104°32.2
15	109°35.0	6.9'	17°58.6	-9.6'	59.7'	82°56.2	60°50.0	31°39.6	12°50.5	14°16.4	68°16.4	100°38.0	105°07.7
16	124°00.9	6.8'	18°08.2	-9.5'	59.7'	82°38.3	60° 16.5	31°03.7	12°16.8	14°51.9	68°52.3	101°13.1	105°43.3
17	138°26.7	6.7'	$18^{\circ}17.7$	-9.4'	59.8'	82°20.5	59°42.9	30°27.8	11°43.2	15°27.5	69°28.2	101°48.2	106°19.0
18	152°52.4	6.6'	S 18°27.1	-9.3'	59.8'	82°02.6	59°09.3	29°51.9	11°09.8	16°03.1	70°04.2	102°23.3	106°54.6
19	167°18.0	6.5'	18°36.3	-9.2'	59.8'	81°44.9	58° 35.7	29°15.9	10°36.7	16°38.8	70°40.2	102°58.4	107°30.2
20	181°43.5	6.4'	18°45.5	-9.0'	59.8'	81°27.1	58°02.1	28°40.0	10°03.8	17° 14.6	71°16.2	103°33.6	108°05.9
21	196°08.9	6.4'	18°54.5	-8.9'	59.8'	81°09.4	57°28.5	28°04.1	9°31.2	17°50.3	71°52.2	104°08.7	108°41.6
22	210°34.3	6.3'	19°03.4	-8.8'	59.8'	80°51.7	56°54.8	27°28.1	8°59.1	18°26.2	72°28.2	104°43.9	109°17.3
23	224°59.5	6.2'	19°12.2	-8.7'	59.8'	80°34.1	56°21.1	26°52.1	8°27.4	19°02.0	73°04.3	105°19.1	109°53.0
30 th	SD	= 16.2	' Mer. pa	ss. 07:25					Sun S	D = 16.3'			

30***	$SD = 16.2^{\circ}$ Mer. pass. 07:25					Sun SD = 16.3							
h	Moon (31 st Dec)					Lunar Distance (objects with largest hourly LD delta)							
Mon	GHA	ν	Dec	d	HP	-Vega	-Sun	-Antares	±Jupiter	+Spica	+Regulus	+Procyon	+Pollux
0	239°24.7	6.1'	S 19°20.9	-8.6'	59.9'	80°16.4	55°47.4	26°16.2	7°56.2	19°38.0	73°40.4	105°54.3	110°28.7
1	253°49.8	6.0'	$19^{\circ}29.5$	-8.4'	59.9'	79°58.9	55° 13.7	25°40.2	7°25.7	20°13.9	74° 16.5	106°29.5	111°04.4
2	268°14.8	5.9'	19°37.9	-8.3'	59.9'	79°41.4	54°40.0	25°04.2	6°56.1	20°49.9	74°52.6	107°04.7	111°40.2
3	282°39.8	5.8'	19°46.2	-8.2'	59.9'	79°23.9	54°06.2	24°28.2		21°25.9	75° 28.7	107°40.0	112°16.0
4	297°04.6	5.8'	$19^{\circ}54.4$	-8.1'	59.9'	79°06.5	53°32.5	23°52.2		22°02.0	76°04.9	108°15.2	112°51.7
5	311°29.4	5.7'	20°02.4	-7.9'	59.9'	78°49.1	52°58.7	23°16.3		22°38.0	76°41.1	108°50.5	113°27.5
6	325°54.0	5.6'	S 20°10.4	-7.8'	59.9'	78°31.7	52°24.9	22°40.3		23°14.2	77° 17.3	109°25.7	114°03.3
7	340°18.7	5.5'	$20^{\circ}18.1$	-7.7'	59.9'	78°14.5	51°51.1	22°04.3		23°50.3	77°53.5	110°01.0	114°39.1
8	354°43.2	5.4'	20°25.8	-7.5'	60.0'	77°57.2	51°17.3	21°28.3		24°26.5	78° 29.7	110°36.3	115°14.9
9	9°07.6	5.4'	20°33.3	-7.4'	60.0'	77°40.1	50°43.4	20°52.3		25°02.6	79°05.9	111°11.6	115°50.8
10	23°32.0	5.3'	20°40.7	-7.3'	60.0'	77°23.0	50°09.6	20°16.4		25°38.9	79°42.2	111°46.8	116°26.6
11	37°56.3	5.2'	20°48.0	-7.1'	60.0'	77°05.9	49°35.7	19°40.4		26°15.1	80° 18.5	112°22.1	117°02.5
12	52°20.5	5.1'	S 20°55.1	-7.0'	60.0'	76°48.9	49°01.8	19°04.5		26°51.4	80°54.8	112°57.4	117°38.3
13	66°44.6	5.1'	$21^{\circ}02.1$	-6.8'	60.0'	76°32.0	48° 27.9	18°28.6		27°27.6	81°31.1	113°32.7	118°14.2
14	81°08.7	5.0'	21°08.9	-6.7'	60.0'	76°15.2	47°54.0	17°52.7		28°04.0	82°07.4	114°08.0	118°50.1
15	95°32.7	4.9'	$21^{\circ}15.6$	-6.5'	60.0'	75°58.4	47°20.1	17°16.8		28°40.3	82°43.7	114°43.4	119°25.9
16	109°56.6	4.8'	$21^{\circ}22.1$	-6.4'	60.0'	75°41.7	46°46.1	16°40.9		29°16.6	83°20.1	115°18.7	
17	124°20.4	4.8'	21°28.5	-6.3'	60.0'	75°25.0	46°12.2	16°05.1		29°53.0	83°56.4	115°54.0	
18	138°44.2	4.7'	S 21°34.8	-6.1'	60.0'	75°08.4	45°38.2	15°29.4		30°29.4	84°32.8	116°29.3	
19	153°07.9	4.6'	21°40.9	-6.0'	60.0'	74°51.9	45°04.2	14°53.6		31°05.8	85°09.2	117°04.6	
20	167°31.6	4.6'	21°46.9	-5.8'	60.1'	74°35.5	44°30.2	14°18.0		31°42.2	85° 45.6	117°39.9	
21	181°55.1	4.5'	$21^{\circ}52.7$	-5.7'	60.1'	74°19.2	43°56.3	13°42.4		32°18.6	86°22.0	118°15.2	
22	196°18.7	4.5'	21°58.3	-5.5'	60.1'	74°03.0	43°22.2	13°06.9		32°55.1	86° 58.4	118°50.5	
23	210°42.1	4.4'	22°03.8	-5.4'	60.1'	73°46.8	42°48.2	12°31.4	8°01.7	33°31.5	87°34.8	119°25.8	
31 st	SD = 16.3' Mer. pass. 08:22					$Sun\;SD=16.3'$							