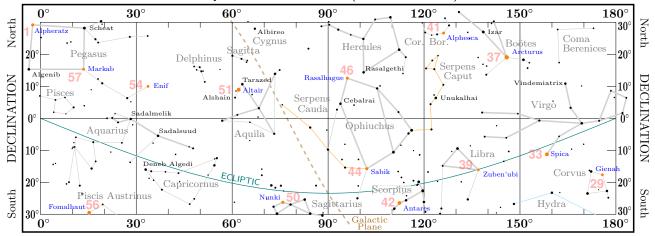
GENERATED USING SKYFIELD

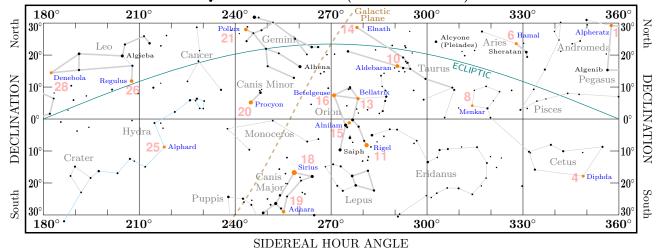
http://rhodesmill.org/skyfield/

EQUATORIAL STARS (SHA 0° to 180°)



SIDEREAL HOUR ANGLE

EQUATORIAL STARS (SHA 180° to 360°)



LUNAR DISTANCE

2028

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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 $<120^{\circ}$ 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

Moon (1st Jan)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Venus	+Mars	+Altair	+Sun
0	133°00.0	16.1'	S 11°00.6	12.2'	54.0'		113°28.8	104°40.5	55°36.8	11°20.1	27°54.5	35°12.1	45°36.1
1	147°35.0	16.1'	10°48.4	12.3'	54.0'		113°01.3	104°11.4	55°07.7	11°45.7	28°22.1	35°27.9	46°03.1
2	162°10.2	16.2'	10°36.1	12.3'	54.0'		112°33.7	103°42.3	54°38.6	12°11.4	28°49.7	35°44.1	46°30.0
3	176°45.3	16.2'	10°23.9	12.3'	54.0'		112°06.2	103°13.2	54°09.5	12°37.2	29° 17.3	36°00.4	46°57.0
4	191°20.5	16.2'	$10^{\circ}11.5$	12.4'	54.0'		111°38.6	102°44.2	53°40.5	13°03.0	29°44.9	36°17.0	47°23.9
5	205°55.7	16.3'	$09^{\circ}59.2$	12.4'	54.0'		111°11.0	102° 15.1	53°11.4	13°28.8	30° 12.4	36°33.9	47°50.9
6	220°31.0	16.3'	S 09°46.8	12.4'	54.0'	119°58.5	110°43.4	101°46.0	52°42.3	13°54.7	30°40.0	36°50.9	48°17.8
7	235°06.3	16.3'	09°34.3	12.5'	54.0'	119°31.1	110°15.8	101°16.9	52°13.3	14°20.6	31°07.6	37°08.2	48°44.8
8	249°41.6	16.4'	$09^{\circ}21.9$	12.5'	54.0'	119°03.7	109°48.2	100°47.8	51°44.2	14°46.5	31°35.1	37°25.7	49°11.7
9	264°17.0	16.4'	09°09.4	12.5'	54.0'	118°36.3	109°20.6	100°18.7	51°15.2	15°12.5	32°02.7	37°43.4	49°38.7
10	278°52.4	16.4'	08°56.8	12.6'	54.0'	118°08.8	108°53.0	99°49.6	50°46.1	15°38.4	32°30.3	38°01.4	50°05.6
11	293°27.9	16.5'	08°44.2	12.6'	54.0'	117°41.4	108°25.3	99°20.5	50°17.1	16°04.5	32°57.8	38°19.5	50°32.5
12	308°03.3	16.5'	S 08°31.6	12.6'	54.0'	117°13.9	107°57.7	98°51.4	49°48.1	16°30.5	33°25.4	38°37.8	50°59.5
13	322°38.8	16.5'	$08^{\circ}19.0$	12.7'	54.0'	116°46.4	107°30.0	98°22.4	49°19.1	16°56.5	33°53.0	38°56.3	51°26.4
14	337°14.4	16.6'	08°06.4	12.7'	54.0'	116° 18.9	107°02.4	97°53.3	48°50.1	17°22.6	34°20.5	39°15.1	51°53.4
15	351°49.9	16.6'	07°53.7	12.7'	54.0'	115°51.3	106°34.7	97°24.2	48°21.1	17°48.7	34°48.1	39°33.9	52°20.3
16	6°25.5	16.6'	07°40.9	12.7'	54.0'	115°23.8	106°07.0	96°55.1	47°52.1	18°14.8	35° 15.6	39°53.0	52°47.2
17	21°01.1	16.6'	07°28.2	12.8'	54.0'	114°56.2	105°39.3	96°26.0	47°23.1	18°40.9	35°43.2	40°12.3	53°14.2
18	35°36.7	16.7'	S 07°15.4	12.8'	54.0'	114°28.6	105°11.6	95°56.9	46°54.1	19°07.1	36° 10.8	40°31.7	53°41.1
19	50°12.4	16.7'	07°02.6	12.8'	54.0'	114°01.0	104°43.9	95° 27.8	46°25.1	19°33.2	36°38.3	40°51.3	54°08.1
20	64°48.1	16.7'	06°49.8	12.9'	54.0'	113°33.4	104°16.2	94°58.7	45°56.2	19°59.4	37°05.9	41°11.0	54°35.0
21	79°23.8	16.7'	06°36.9	12.9'	54.0'	113°05.8	103°48.4	94°29.6	45°27.2	20°25.6	37°33.5	41°30.9	55°02.0
22	93°59.5	16.7'	$06^{\circ}24.1$	12.9'	54.0'	112°38.1	103°20.7	94°00.5	44°58.3	20°51.8	38°01.0	41°51.0	55°28.9
23	108°35.3	16.8'	06°11.2	12.9'	54.0'	112° 10.5	102°52.9	93°31.4	44°29.3	21°18.0	38°28.6	42°11.2	55°55.9
1 st	SD	= 14.7'	Mer. pass	s. 15:34				5	$Sun\;SD=1$	6.3'			

h		Moo	n (2 nd Jai	n)		Lunar Distance (objects with largest hourly LD delta)							
Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Venus	+Mars	+Altair	+Sun
0	123°11.0	16.8'	S 05°58.2	12.9'	54.0'	111°42.8	102°25.2	93°02.3	44°00.4	21°44.2	38°56.2	42°31.6	56°22.8
1	137°46.8	16.8'	05°45.3	13.0'	54.0'	111°15.1	101°57.4	92°33.2	43°31.5	22°10.5	39°23.8	42°52.1	56°49.8
2	152°22.6	16.8'	05°32.3	13.0'	54.0'	110°47.4	101°29.6	92°04.1	43°02.5	22°36.7	39°51.3	43°12.8	57°16.8
3	166°58.5	16.8'	$05^{\circ}19.3$	13.0'	54.1'	110°19.7	101°01.8	91°34.9	42°33.6	23°03.0	40°18.9	43°33.6	57°43.7
4	181°34.3	16.8'	05°06.3	13.0'	54.1'	109°52.0	100°34.0	91°05.8	42°04.7	23°29.2	40°46.5	43°54.5	58°10.7
5	196°10.1	16.9'	04°53.3	13.1'	54.1'	109°24.2	100°06.2	90°36.7	41°35.8	23°55.5	41°14.1	44°15.6	58°37.7
6	210°46.0	16.9'	S 04°40.2	13.1'	54.1'	108°56.5	99°38.4	90°07.6	41°06.9	24°21.8	41°41.7	44°36.7	59°04.7
7	225°21.9	16.9'	$04^{\circ}27.1$	13.1'	54.1'	108°28.7	99°10.6	89°38.4	40°38.0	24°48.1	42°09.3	44°58.1	59°31.7
8	239°57.8	16.9'	$04^{\circ}14.0$	13.1'	54.1'	108°00.9	98°42.8	89°09.3	40°09.2	25°14.4	42°36.9	45°19.5	59°58.7
9	254°33.7	16.9'	04°00.9	13.1'	54.1'	107°33.1	98°14.9	88°40.1	39°40.3	25°40.8	43°04.5	45°41.1	60°25.7
10	269°09.6	16.9'	03°47.8	13.1'	54.1'	107°05.3	97°47.1	88°11.0	39°11.4	26°07.1	43°32.1	46°02.8	60°52.7
11	283°45.5	16.9'	03°34.7	13.2'	54.1'	106°37.4	97°19.2	87°41.8	38°42.6	26°33.4	43°59.8	46°24.6	61°19.7
12	298°21.4	16.9'	S 03°21.5	13.2'	54.1'	106°09.6	96°51.3	87°12.7	38°13.7	26°59.8	44°27.4	46°46.5	61°46.7
13	312°57.3	16.9'	03°08.3	13.2'	54.1'	105°41.7	96°23.4	86°43.5	37°44.9	27°26.2	44°55.0	47°08.6	62°13.7
14	327°33.3	16.9'	02°55.2	13.2'	54.1'	105°13.8	95°55.5	86°14.3	37°16.1	27°52.6	45°22.7	47°30.7	62°40.7
15	342°09.2	16.9'	02°42.0	13.2'	54.1'	104°45.9	95°27.6	85°45.1	36°47.3	28°19.0	45°50.3	47°52.9	63°07.8
16	356°45.1	16.9'	02°28.7	13.2'	54.1'	104°18.0	94°59.7	85°15.9	36°18.4	28°45.4	46°18.0	48°15.3	63°34.8
17	11°21.1	16.9'	$02^{\circ}15.5$	13.2'	54.2'	103°50.1	94°31.8	84°46.7	35°49.7	29°11.8	46°45.6	48°37.8	64°01.9
18	25°57.0	16.9'	S 02°02.3	13.2'	54.2'	103°22.2	94°03.9	84°17.5	35°20.9	29°38.2	47°13.3	49°00.3	64°29.0
19	40°33.0	16.9'	$01^{\circ}49.0$	13.3'	54.2'	102°54.2	93°35.9	83°48.3	34°52.1	30°04.7	47°41.0	49°23.0	64°56.0
20	55°08.9	16.9'	$01^{\circ}35.8$	13.3'	54.2'	102°26.2	93°08.0	83°19.1	34°23.3	30°31.1	48°08.7	49°45.7	65°23.1
21	69°44.8	16.9'	$01^{\circ}22.5$	13.3'	54.2'	101°58.3	92°40.0	82°49.9	33°54.6	30°57.6	48°36.4	50°08.6	65°50.2
22	84°20.8	16.9'	01°09.2	13.3'	54.2'	101°30.3	92°12.0	82°20.6	33°25.8	31°24.1	49°04.1	50°31.6	66°17.3
23	98°56.7	16.9'	00°55.9	13.3'	54.2'	101°02.2	91°44.0	81°51.4	32°57.1	31°50.6	49°31.8	50°54.6	66°44.4
2 nd	SD	= 14.7'	Mer. pass	. 16:13					Sun SD = 1	6.3'			

Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Venus	+Mars	+Altair	+Sun
0	113°32.6	16.9'	S 00°42.6	13.3'	54.2'			81°22.1	32°28.4	32°17.1	49°59.6	51°17.7	67°11.6
1	128°08.5	16.9'	$00^{\circ}29.3$	13.3'	54.2'			80°52.9	31°59.7	32°43.6	50°27.3	51°40.9	67°38.7
2	142°44.4	16.9'	$00^{\circ}16.0$	13.3'	54.3'			80°23.6	31°31.0	33°10.2	50°55.1	52°04.2	68°05.8
3	157°20.3	16.9'	S 00°02.7	13.3'	54.3'			79°54.3	31°02.3	33°36.7	51°22.8	52°27.6	68°33.0
4	171°56.2	16.9'	N 00° 10.6	13.3'	54.3'			79°25.0	30°33.7	34°03.3	51°50.6	52°51.1	69°00.2
5	186°32.1	16.9'	$00^{\circ}23.9$	13.3'	54.3'			78°55.7	30°05.1	34°29.9	52°18.4	53° 14.7	69°27.3
6	201°08.0	16.8'	N00°37.3	13.3'	54.3'			78°26.4	29°36.5	34°56.4	52°46.2	53°38.3	69°54.5
7	215°43.8	16.8'	00°50.6	13.3'	54.3'			77°57.0	29°07.9	35°23.1	53°14.0	54°02.0	70°21.7
8	230°19.6	16.8'	$01^{\circ}03.9$	13.3'	54.3'		119°31.8	77°27.7	28°39.3	35°49.7	53°41.8	54°25.8	70°49.0
9	244°55.5	16.8'	$01^{\circ}17.3$	13.3'	54.3'		119°02.2	76°58.3	28° 10.8	36°16.3	54°09.7	54°49.7	71°16.2
10	259°31.3	16.8'	01°30.6	13.3'	54.4'		118°32.6	76°29.0	27°42.2	36°43.0	54°37.5	55° 13.7	71°43.5
11	274°07.0	16.8'	$01^{\circ}44.0$	13.3'	54.4'		118°03.0	75°59.6	27° 13.8	37°09.7	55°05.4	55°37.7	72°10.7
12	288°42.8	16.7'	N 01°57.3	13.3'	54.4'		117°33.3	75°30.2	26°45.3	37°36.3	55°33.3	56°01.8	72°38.0
13	303°18.6	16.7'	$02^{\circ}10.6$	13.3'	54.4'		117°03.7	75°00.8	26° 16.9	38°03.1	56°01.2	56°25.9	73°05.3
14	317°54.3	16.7'	02°24.0	13.3'	54.4'	119°57.5	116°34.0	74°31.4	25°48.5	38°29.8	56°29.1	56° 50.2	73°32.6
15	332°30.0	16.7'	02°37.3	13.3'	54.4'	119°29.3	116°04.3	74°02.0	25°20.1	38°56.5	56°57.0	57° 14.5	73°59.9
16	347°05.6	16.7'	02°50.7	13.3'	54.5'	119°01.0	115°34.6	73°32.5	24°51.8	39°23.3	57°25.0	57°38.9	74°27.3
17	1°41.3	16.6'	03°04.0	13.3'	54.5'	118°32.7	115°04.9	73°03.1	24°23.5	39°50.0	57°52.9	58°03.3	74°54.6
18	16°16.9	16.6'	N 03° 17.3	13.3'	54.5'	118°04.4	114°35.2	72°33.6	23°55.3	40°16.8	58°20.9	58°27.9	75°22.0
19	30°52.5	16.6'	03°30.7	13.3'	54.5'	117°36.0	114°05.4	72°04.1	23°27.1	40°43.7	58°48.9	58° 52.4	75°49.4
20	45°28.1	16.5'	03°44.0	13.3'	54.5'	117°07.7	113°35.6	71°34.6	22°59.0	41°10.5	59°16.9	59° 17.1	76°16.8
21	60°03.6	16.5'	03°57.3	13.3'	54.5'	116°39.2	113°05.8	71°05.1	22°30.9	41°37.3	59°44.9	59°41.8	76°44.2
22	74°39.1	16.5'	$04^{\circ}10.6$	13.3'	54.6'	116°10.8	112°36.0	70°35.6	22°02.9	42°04.2	60°13.0	60°06.6	77°11.7
23	89°14.6	16.4'	04°23.9	13.3'	54.6'	115°42.3	112°06.2	70°06.1	21°34.9	42°31.1	60°41.0	60°31.4	77°39.1
3 rd	SD	= 14.8'	Mer. pass	s. 16:53					$Sun\;SD =$	16.3′			

h	Moon	(4 th	lan)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Venus	+Altair	+Mars	+Sun
0	103°50.1	16.4'	N 04°37.2	13.3'	54.6'	115°13.8	111°36.3	89°16.7	69°36.5	42°58.0	60°56.3	61°09.1	78°06.6
1	118°25.5	16.4'	04°50.5	13.3'	54.6'	114°45.3	111°06.4	88°48.2	69°06.9	43°24.9	61°21.3	61°37.2	78°34.1
2	133°00.8	16.3'	05°03.8	13.3'	54.6'	114°16.7	110°36.5	88°19.8	68° 37.3	43°51.9	61°46.3	62°05.4	79°01.7
3	147°36.2	16.3'	$05^{\circ}17.0$	13.3'	54.7'	113°48.1	110°06.6	87°51.3	68°07.7	44°18.9	62°11.4	62°33.5	79°29.2
4	162°11.5	16.3'	05°30.3	13.2'	54.7'	113°19.5	109°36.7	87°22.8	67°38.1	44°45.9	62°36.5	63°01.7	79°56.8
5	176°46.7	16.2'	05°43.5	13.2'	54.7'	112°50.8	109°06.7	86°54.3	67°08.5	45°12.9	63°01.7	63°29.9	80°24.4
6	191°21.9	16.2'	N 05°56.7	13.2'	54.7'	112°22.1	108°36.7	86°25.8	66°38.8	45°39.9	63°27.0	63°58.1	80°52.0
7	205°57.1	16.1'	$06^{\circ}10.0$	13.2'	54.7'	111°53.4	108°06.7	85°57.2	66°09.1	46°07.0	63°52.3	64°26.3	81°19.6
8	220°32.3	16.1'	06°23.2	13.2'	54.8'	111°24.6	107°36.7	85°28.6	65°39.4	46°34.1	64°17.7	64°54.5	81°47.2
9	235°07.4	16.0'	06°36.4	13.2'	54.8'	110°55.9	107°06.6	85°00.0	65°09.7	47°01.2	64°43.1	65°22.8	82°14.9
10	249°42.4	16.0'	06°49.5	13.2'	54.8'	110°27.0	106°36.6	84°31.4	64°40.0	47°28.3	65°08.6	65°51.1	82°42.6
11	264°17.4	16.0'	$07^{\circ}02.7$	13.1'	54.8'	109°58.2	106°06.4	84°02.8	64°10.2	47°55.4	65°34.2	66°19.4	83°10.3
12	278°52.4	15.9'	$N07^{\circ}15.8$	13.1'	54.8'	109°29.3	105°36.3	83°34.2	63°40.5	48°22.6	65°59.8	66° 47.8	83°38.1
13	293°27.3	15.9'	$07^{\circ}29.0$	13.1'	54.9'	109°00.4	105°06.2	83°05.5	63°10.7	48°49.8	66°25.4	67°16.1	84°05.8
14	308°02.1	15.8'	$07^{\circ}42.1$	13.1'	54.9'	108°31.5	104°36.0	82°36.8	62°40.9	49°17.0	66°51.1	67°44.5	84°33.6
15	322°36.9	15.8'	$07^{\circ}55.2$	13.1'	54.9'	108°02.5	104°05.8	82°08.1	62°11.1	49°44.3	67°16.9	68°12.9	85°01.4
16	337°11.7	15.7'	08°08.2	13.0'	54.9'	107°33.5	103°35.6	81°39.4	61°41.2	50°11.6	67°42.7	68°41.4	85°29.3
17	351°46.4	15.6'	08°21.3	13.0'	55.0'	107°04.5	103°05.3	81°10.6	61°11.4	50°38.9	68°08.6	69°09.8	85°57.2
18	6°21.0	15.6'	N 08°34.3	13.0'	55.0'	106°35.4	102°35.0	80°41.9	60°41.5	51°06.2	68°34.5	69°38.3	86°25.0
19	20°55.6	15.5'	08°47.3	13.0'	55.0'	106°06.3	102°04.7	80°13.1	60°11.6	51°33.6	69°00.4	70°06.8	86°53.0
20	35°30.1	15.5'	09°00.3	13.0'	55.0'	105°37.2	101°34.4	79°44.3	59°41.7	52°01.0	69°26.4	70°35.4	87°20.9
21	50°04.6	15.4'	$09^{\circ}13.3$	12.9'	55.0'	105°08.0	101°04.1	79°15.5	59°11.7	52°28.4	69°52.5	71°03.9	87°48.9
22	64°39.0	15.4'	$09^{\circ}26.2$	12.9'	55.1'	104°38.8	100°33.7	78°46.6	58°41.8	52°55.8	70°18.6	71°32.5	88°16.9
23	79°13.4	15.3'	09°39.1	12.9'	55.1'	104°09.6	100°03.3	78°17.8	58°11.8	53°23.3	70°44.8	72°01.2	88°44.9
4 th	SD	$=14.9^{\prime}$	Mer. pass	. 17:34					$Sun\;SD=10$	5.3'			

h	Moon (5 th Jan)					Lunar Distance (objects with largest hourly LD delta)							
Wed	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Venus	+Mars	+Sun
0	93°47.7	15.2'	N 09°52.0	12.9'	55.1'	103°40.3	99°32.8	77°48.9	57°41.8	46°24.1	53°50.8	72°29.8	89°13.0
1	108°21.9	15.2'	10°04.9	12.8'	55.1'	103°11.0	99°02.3	77°20.0	57°11.7	46° 49.5	54°18.3	72°58.5	89°41.0
2	122°56.1	15.1'	10°17.7	12.8'	55.2'	102°41.7	98°31.8	76°51.0	56°41.7	47° 15.1	54°45.8	73°27.2	90°09.1
3	137°30.2	15.0'	10°30.5	12.8'	55.2'	102°12.3	98°01.3	76°22.1	56°11.6	47° 40.8	55°13.4	73°55.9	90°37.3
4	152°04.2	15.0'	10°43.2	12.7'	55.2'	101°43.0	97°30.8	75°53.1	55°41.5	48°06.5	55°41.0	74°24.7	91°05.5
5	166°38.2	14.9'	$10^{\circ}56.0$	12.7'	55.3'	101°13.5	97°00.2	75°24.1	55°11.4	48°32.4	56°08.7	74°53.5	91°33.7
6	181°12.1	14.8'	N11°08.7	12.7'	55.3'	100°44.1	96°29.6	74°55.1	54°41.3	48°58.3	56°36.4	75°22.3	92°01.9
7	195°45.9	14.8'	11°21.4	12.6'	55.3'	100°14.6	95°58.9	74°26.1	54°11.2	49°24.4	57°04.1	75°51.2	92°30.1
8	210°19.7	14.7'	11°34.0	12.6'	55.3'	99°45.1	95°28.2	73°57.1	53°41.0	49°50.5	57°31.8	76°20.1	92°58.4
9	224°53.4	14.6'	11°46.6	12.6'	55.4'	99° 15.5	94°57.5	73°28.0	53°10.8	50° 16.8	57°59.6	76°49.0	93°26.8
10	239°27.0	14.5'	11°59.2	12.5'	55.4'	98°45.9	94°26.8	72°58.9	52°40.6	50°43.1	58°27.4	77° 17.9	93°55.1
11	254°00.5	14.5'	12°11.7	12.5'	55.4'	98°16.3	93°56.0	72°29.8	52°10.3	51°09.5	58°55.2	77°46.9	94°23.5
12	268°34.0	14.4'	$N12^{\circ}24.2$	12.5'	55.4'	97°46.6	93°25.2	72°00.7	51°40.1	51°36.0	59°23.0	78° 15.9	94°51.9
13	283°07.4	14.3'	12°36.7	12.4'	55.5'	97°16.9	92°54.4	71°31.5	51°09.8	52°02.6	59°50.9	78°45.0	95°20.4
14	297°40.7	14.2'	12°49.1	12.4'	55.5'	96°47.2	92°23.5	71°02.4	50°39.5	52°29.2	60°18.9	79°14.0	95°48.9
15	312°13.9	14.1'	13°01.5	12.3'	55.5'	96°17.4	91°52.6	70°33.2	50°09.2	52°56.0	60°46.8	79°43.1	96°17.4
16	326°47.1	14.1'	13°13.8	12.3'	55.6'	95°47.6	91°21.6	70°04.0	49°38.8	53°22.8	61°14.8	80°12.3	96°45.9
17	341°20.1	14.0'	13°26.1	12.3'	55.6'	95°17.8	90°50.7	69°34.7	49°08.4	53°49.8	61°42.9	80°41.5	97°14.5
18	355°53.1	13.9'	N13°38.4	12.2'	55.6'	94°47.9	90°19.7	69°05.5	48°38.0	54° 16.8	62°10.9	81°10.7	97°43.1
19	10°26.0	13.8'	13°50.6	12.2'	55.7'	94°18.0	89°48.6	68°36.2	48°07.6	54°43.9	62°39.0	81°39.9	98°11.8
20	24°58.8	13.7'	14°02.7	12.1'	55.7'	93°48.1	89°17.5	68°06.9	47°37.2	55°11.0	63°07.2	82°09.2	98°40.5
21	39°31.6	13.6'	14°14.8	12.1'	55.7'	93°18.1	88°46.4	67°37.6	47°06.7	55°38.3	63°35.3	82°38.5	99°09.2
22	54°04.2	13.6'	14°26.9	12.0'	55.7'	92°48.1	88°15.3	67°08.3	46°36.3	56° 05.6	64°03.5	83°07.9	99°38.0
23	68°36.8 13.5' 14°38.9 12.0' 55.8'					8' 92°18.0 87°44.1 66°39.0 46°05.8 56°33.0 64°31.8 83°37.3 100°06.							100°06.7
5 th	SD	= 15.0'	Mer. pass	. 18:17					Sun SD =	= 16.3′			

h	Moon	(cth	11
h	l\/l∩∩n	(huii	lani

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Venus	+Mars	+Sun
0	83°09.2	13.4'	N 14°50.9	11.9'	55.8'		91°48.0	87°12.9	45°35.3		65°00.1	84°06.7	100°35.6
1	97°41.6	13.3'	15°02.8	11.9'	55.8'		91°17.8	86°41.6	45°04.7		65°28.4	84°36.1	101°04.5
2	112°13.9	13.2'	$15^{\circ}14.7$	11.8'	55.9'		90°47.7	86°10.3	44°34.2		65°56.7	85°05.6	101°33.4
3	126°46.1	13.1'	$15^{\circ}26.5$	11.8'	55.9'		90°17.5	85°39.0	44°03.6		66°25.1	85°35.2	102°02.3
4	141°18.2	13.0'	15°38.2	11.7'	55.9'		89°47.3	85°07.6	43°33.0		66°53.6	86°04.7	102°31.3
5	155°50.2	12.9'	15°49.9	11.6'	56.0'		89°17.0	84°36.2	43°02.4	10°38.7	67°22.0	86°34.4	103°00.3
6	170°22.1	12.8'	$N16^{\circ}01.6$	11.6'	56.0'		88°46.7	84°04.8	42°31.7	11°00.8	67°50.5	87°04.0	103°29.4
7	184°53.9	12.7'	$16^{\circ}13.2$	11.5'	56.0'		88°16.4	83°33.3	42°01.1	11°23.7	68°19.1	87°33.7	103°58.5
8	199°25.6	12.6'	$16^{\circ}24.7$	11.5'	56.1'	120°00.0	87°46.0	83°01.8	41°30.4	11°47.3	68°47.7	88°03.4	104°27.6
9	213°57.2	12.5'	$16^{\circ}36.2$	11.4'	56.1'	119°28.3	87°15.6	82°30.2	40°59.7	12°11.5	69°16.3	88°33.2	104°56.8
10	228°28.7	12.4'	16°47.6	11.3'	56.1'	118°56.6	86°45.1	81°58.7	40°29.0	12°36.2	69°44.9	89°03.0	105°26.0
11	243°00.1	12.3'	$16^{\circ}58.9$	11.3'	56.2'	118°24.8	86°14.7	81°27.0	39°58.3	13°01.5	70°13.7	89°32.8	105°55.2
12	257°31.5	12.2'	$N17^{\circ}10.2$	11.2'	56.2'	117°53.0	85°44.1	80°55.3	39°27.6	13°27.3	70°42.4	90°02.7	106°24.5
13	272°02.7	12.1'	$17^{\circ}21.4$	11.1'	56.2'	117°21.2	85°13.6	80°23.6	38°56.8	13°53.5	71°11.2	90°32.6	106°53.9
14	286°33.8	12.0'	$17^{\circ}32.5$	11.1'	56.3'	116°49.3	84°43.0	79°51.9	38°26.1	14°20.2	71°40.0	91°02.6	107°23.3
15	301°04.8	11.9'	17°43.6	11.0'	56.3'	116°17.4	84°12.4	79°20.1	37°55.3	14°47.2	72°08.9	91°32.6	107°52.7
16	315°35.7	11.8'	17°54.6	10.9'	56.3'	115°45.5	83°41.7	78°48.2	37° 24.5	15° 14.5	72°37.8	92°02.7	108°22.1
17	330°06.4	11.7'	$18^{\circ}05.6$	10.9'	56.4'	115°13.5	83°11.0	78°16.4	36°53.7	15°42.2	73°06.7	92°32.8	108°51.6
18	344°37.1	11.6'	$N18^{\circ}16.4$	10.8'	56.4'	114°41.4	82°40.2	77°44.5	36°22.9	16° 10.1	73°35.7	93°02.9	109°21.2
19	359°07.7	11.5'	18° 27.2	10.7'	56.5'	114°09.3	82°09.5	77°12.5	35°52.1	16°38.3	74°04.8	93°33.1	109°50.8
20	13°38.2	11.4'	18° 37.9	10.6'	56.5'	113°37.2	81°38.6	76°40.5	35°21.3	17°06.8	74°33.8	94°03.3	110°20.4
21	28°08.5	11.2'	18°48.6	10.6'	56.5'	113°05.0	81°07.8	76°08.5	34°50.4	17°35.6	75°03.0	94°33.5	110°50.1
22	42°38.8	11.1'	$18^{\circ}59.1$	10.5'	56.6'	112°32.8	80°36.9	75°36.4	34° 19.6	18°04.5	75°32.1	95°03.8	111°19.8
23	57°08.9	11.0'	19°09.6	10.4'	56.6'	112°00.6	80°06.0	75°04.2	33°48.8	18°33.7	76°01.3	95°34.2	111°49.5
6 th	SD	= 15.2'	Mer. pass	s. 19:04					Sun SD =	16.3			

I.	Maan (7th Ian)	1

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Mars	+Sun
0	71°38.9	10.9'	N 19°20.0	10.3'	56.6'	111°28.3	79°35.0	74°32.1	33°17.9	19°03.0	68°21.0	96°04.6	112°19.3
1	86°08.8	10.8'	19°30.3	10.2'	56.7'	110°55.9	79°04.0	73°59.9	32°47.1	19°32.6	68°50.2	96°35.0	112°49.2
2	100°38.6	10.7'	19°40.6	10.2'	56.7'	110°23.5	78°32.9	73°27.6	32°16.3	20°02.3	69°19.4	97°05.5	113°19.1
3	115°08.3	10.6'	19°50.7	10.1'	56.7'	109°51.1	78°01.9	72°55.3	31°45.5	20°32.2	69°48.7	97°36.0	113°49.0
4	129°37.8	10.4'	20°00.8	10.0'	56.8'	109°18.6	77°30.7	72°23.0	31°14.6	21°02.3	70°18.1	98°06.6	114°19.0
5	144°07.3	10.3'	20°10.8	9.9'	56.8'	108°46.1	76°59.6	71°50.6	30°43.8	21°32.5	70°47.5	98°37.2	114°49.0
6	158°36.6	10.2'	N 20°20.6	9.8'	56.9'	108°13.5	76°28.4	71°18.2	30°13.0	22°02.9	71°17.0	99°07.8	115°19.1
7	173°05.8	10.1'	20°30.4	9.7'	56.9'	107°40.9	75°57.2	70°45.7	29°42.3	22°33.4	71°46.5	99°38.5	115°49.2
8	187°34.9	10.0'	$20^{\circ}40.1$	9.6'	56.9'	107°08.3	75°25.9	70°13.2	29°11.5	23°04.0	72°16.1	100°09.3	116°19.4
9	202°03.9	9.9'	20°49.7	9.5'	57.0'	106°35.6	74°54.6	69°40.6	28°40.8	23°34.7	72°45.8	100°40.1	116°49.6
10	216°32.8	9.7'	20°59.3	9.4'	57.0'	106°02.8	74°23.3	69°08.0	28°10.1	24°05.6	73°15.5	101°10.9	117°19.8
11	231°01.5	9.6'	21°08.7	9.3'	57.0'	105°30.0	73°51.9	68°35.4	27°39.4	24°36.6	73°45.3	101°41.8	117°50.1
12	245°30.2	9.5'	N 21°18.0	9.2'	57.1'	104°57.2	73°20.5	68°02.7	27°08.8	25°07.7	74°15.2	102°12.7	118°20.5
13	259°58.7	9.4'	21°27.2	9.1'	57.1'	104°24.3	72°49.0	67°29.9	26°38.2	25°39.0	74°45.1	102°43.7	118°50.9
14	274°27.0	9.3'	21°36.3	9.0'	57.2'	103°51.3	72°17.5	66°57.1	26°07.6	26°10.3	75°15.0	103°14.7	119°21.3
15	288°55.3	9.1'	21°45.4	8.9'	57.2'	103°18.3	71°46.0	66°24.3	25°37.1	26°41.7	75°45.0	103°45.8	119°51.8
16	303°23.5	9.0'	21°54.3	8.8'	57.2'	102°45.3	71°14.5	65°51.4	25°06.6	27°13.3	76°15.1	104°16.9	
17	317°51.5	8.9'	22°03.1	8.7'	57.3'	102°12.2	70°42.9	65°18.5	24°36.2	27°44.9	76°45.2	104°48.1	
18	332°19.4	8.8'	$N22^{\circ}11.8$	8.6'	57.3'	101°39.1	70°11.3	64°45.6	24°05.9	28°16.6	77°15.4	105°19.3	
19	346°47.2	8.7'	22°20.3	8.5'	57.4'	101°05.9	69°39.6	64°12.5	23°35.7	28°48.5	77°45.6	105°50.6	
20	1°14.8	8.5'	22°28.8	8.4'	57.4'	100°32.7	69°07.9	63°39.5	23°05.5	29°20.4	78°15.9	106°21.9	
21	15° 42.4	8.4'	22°37.2	8.2'	57.4'	99°59.4	68°36.2	63°06.4	22°35.4	29°52.4	78°46.3	106°53.2	
22	30°09.8	8.3'	22°45.4	8.1'	57.5'	99°26.1	68°04.4	62°33.2	22°05.5	30°24.5	79°16.7	107°24.6	
23	44°37.1	8.2'	22°53.6	8.0'	57.5'	98°52.7	67°32.6	62°00.1	21°35.6	30°56.6	79°47.2	107°56.1	
7 th	SD	$=15.4^{\prime}$	Mer. pass	. 19:55					Sun SE	0 = 16.3'			

h	Moon (8 th Jan)					Lunar Distance (objects with largest hourly LD delta)							
Sat	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Saturn	+Fomalhaut	+Venus	+Mars
0	59°04.3	8.1'	N 23°01.6	7.9'	57.6'		98°19.3	67° 00.8	61°26.8	31°28.9	80°17.7	88°26.2	108°27.6
1	73°31.3	7.9'	23°09.5	7.8'	57.6'		97°45.8	66°28.9	60°53.5	32°01.2	80°48.2	88°56.6	108°59.1
2	87°58.3	7.8'	23°17.2	7.7'	57.6'		97°12.3	65°57.0	60°20.2	32°33.7	81°18.9	89°27.1	109°30.7
3	102°25.1	7.7'	23°24.9	7.5'	57.7'		96°38.8	65°25.1	59°46.8	33°06.2	81°49.5	89°57.6	110°02.4
4	116°51.8	7.6'	23°32.4	7.4'	57.7'		96°05.1	64°53.1	59°13.4	33°38.7	82°20.3	90°28.2	110°34.1
5	131°18.4	7.5'	23°39.8	7.3'	57.8'		95°31.5	64°21.1	58°39.9	34°11.4	82°51.0	90°58.8	111°05.8
6	145°44.8	7.3'	N23°47.1	7.1'	57.8'		94°57.8	63°49.1	58°06.4	34°44.1	83°21.9	91°29.4	111°37.6
7	160°11.2	7.2'	23°54.2	7.0'	57.8'		94°24.0	63°17.1	57°32.9	35°16.9	83°52.7	92°00.1	112°09.4
8	174°37.4	7.1'	24°01.2	6.9'	57.9'		93°50.2	62°45.0	56°59.3	35°49.8	84°23.7	92°30.9	112°41.3
9	189°03.5	7.0'	24°08.1	6.7'	57.9'		93°16.3	62°12.9	56°25.6	36°22.7	84°54.7	93°01.7	113°13.3
10	203°29.5	6.9'	24°14.9	6.6'	58.0'	119°46.0	92°42.4	61°40.7	55°51.9	36°55.8	85°25.7	93°32.5	113°45.2
11	217°55.3	6.8'	24°21.5	6.5'	58.0'	119°12.3	92°08.5	61°08.6	55°18.2	37°28.9	85°56.8	94°03.4	114°17.3
12	232°21.1	6.6'	N24°27.9	6.3'	58.0'	118°38.5	91°34.5	60°36.4	54°44.4	38°02.0	86°27.9	94°34.3	114°49.4
13	246°46.7	6.5'	24°34.3	6.2'	58.1'	118°04.6	91°00.4	60°04.1	54°10.6	38°35.2	86°59.1	95°05.3	115°21.5
14	261°12.2	6.4'	24°40.5	6.1'	58.1'	117°30.7	90°26.3	59°31.9	53°36.7	39°08.5	87°30.3	95°36.4	115°53.7
15	275°37.7	6.3'	24°46.5	5.9'	58.2'	116°56.7	89°52.2	58° 59.6	53°02.8	39°41.9	88°01.6	96°07.5	116°25.9
16	290°02.9	6.2'	24°52.4	5.8'	58.2'	116°22.7	89°17.9	58° 27.3	52°28.8	40°15.3	88°32.9	96°38.6	116°58.2
17	304°28.1	6.1'	24°58.2	5.6'	58.2'	115°48.7	88°43.7	57°55.0	51°54.8	40°48.8	89°04.3	97°09.8	117°30.5
18	318°53.2	6.0'	N25°03.8	5.5'	58.3'	115°14.6	88°09.4	57° 22.7	51°20.7	41°22.4	89°35.7	97°41.0	118°02.9
19	333°18.2	5.8'	25°09.3	5.3'	58.3'	114°40.4	87°35.0	56°50.3	50°46.6	41°56.0	90°07.1	98°12.3	118°35.3
20	347°43.0	5.7'	$25^{\circ}14.6$	5.2'	58.4'	114°06.2	87°00.6	56° 17.9	50°12.5	42°29.7	90°38.6	98°43.7	119°07.8
21	2°07.7	5.6'	25°19.8	5.0'	58.4'	113°31.9	86°26.2	55° 45.5	49°38.3	43°03.4	91°10.2	99°15.1	119°40.3
22	16°32.4	5.5'	25°24.8	4.9'	58.4'	112°57.6	85°51.7	55°13.1	49°04.0	43°37.2	91°41.8	99°46.5	
23	30°56.9	5.4'	25°29.6	4.7'	58.5'	112°23.2	85°17.1	54°40.7	48°29.8	44°11.1	92°13.4	100°18.0	
8 th	SD =	= 15.7′	Mer. pass	. 20:51	L								

L.	Moon	(Oth	1	
h	Moon	1 Gui	lan l	

h		Moo	n (9 th Jar	ı)			Lunar D	Distance (objects v	with large	est hourly L[O delta)	
Sun	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Saturn	+Fomalhaut	+Venus	+Altair
0	45°21.3	5.3'	N25°34.3	4.5'	58.5'	111°48.8	84°42.5	54°08.2	47°55.5	44°45.0	92°45.1	100°49.5	116°06.0
1	59°45.7	5.2'	25°38.9	4.4'	58.5'	111°14.3	84°07.9	53°35.7	47°21.1	45°19.0	93°16.8	101°21.1	116°35.1
2	74°09.9	5.1'	25°43.2	4.2'	58.6'	110°39.8	83°33.2	53°03.2	46°46.7	45°53.1	93°48.6	101°52.7	117°04.2
3	88°34.0	5.0'	25°47.5	4.1'	58.6'	110°05.2	82°58.4	52°30.7	46°12.2	46°27.2	94°20.4	102°24.4	117°33.3
4	102°58.0	4.9'	25°51.5	3.9'	58.7'	109°30.6	82°23.6	51°58.2	45°37.7	47°01.4	94°52.2	102°56.1	118°02.3
5	117°21.9	4.8'	25°55.4	3.7'	58.7'	108°55.9	81°48.8	51°25.7	45°03.2	47°35.6	95°24.1	103°27.9	118°31.4
6	131°45.8	4.7'	$N25^{\circ}59.1$	3.6'	58.7'	108°21.2	81°13.9	50°53.2	44°28.6	48°09.9	95°56.1	103°59.7	119°00.4
7	146°09.5	4.6'	26°02.7	3.4'	58.8'	107°46.4	80°39.0	50°20.7	43°54.0	48°44.2	96°28.0	104°31.6	119°29.4
8	160°33.1	4.6'	$26^{\circ}06.1$	3.2'	58.8'	107°11.5	80°04.0	49°48.1	43°19.4	49°18.7	97°00.0	105°03.5	119°58.4
9	174°56.7	4.5'	26°09.3	3.1'	58.9'	106°36.7	79°28.9	49°15.6	42°44.7	49°53.1	97°32.1	105°35.5	
10	189°20.1	4.4'	26°12.4	2.9'	58.9'	106°01.7	78°53.9	48°43.0	42°10.0	50°27.6	98°04.1	106°07.5	
11	203°43.5	4.3'	$26^{\circ}15.3$	2.7'	58.9'	105°26.8	78°18.7	48°10.5	41°35.2	51°02.2	98°36.2	106°39.6	
12	218°06.8	4.2'	N26°18.0	2.5'	59.0'	104°51.7	77°43.5	47°38.0	41°00.4	51°36.9	99°08.4	107°11.7	
13	232°30.0	4.1'	26°20.5	2.4'	59.0'	104°16.7	77°08.3	47°05.4	40°25.5	52°11.5	99°40.6	107°43.8	
14	246°53.1	4.0'	26°22.9	2.2'	59.0'	103°41.5	76°33.0	46°32.9	39°50.7	52°46.3	100°12.8	108°16.0	
15	261°16.2	4.0'	$26^{\circ}25.1$	2.0'	59.1'	103°06.4	75°57.7	46°00.4	39°15.7	53°21.1	100°45.0	108°48.3	
16	275°39.2	3.9'	$26^{\circ}27.1$	1.8'	59.1'	102°31.1	75°22.3	45°27.9	38°40.8	53°55.9	101°17.3	109°20.6	
17	290°02.1	3.8'	26°28.9	1.6'	59.2'	101°55.9	74°46.9	44°55.4	38°05.8	54°30.8	101°49.6	109°52.9	
18	304°24.9	3.8'	$N26^{\circ}30.5$	1.5'	59.2'	101°20.6	74°11.4	44°22.9	37°30.8	55°05.8	102°21.9	110°25.3	
19	318°47.6	3.7'	26°32.0	1.3'	59.2'	100°45.2	73°35.9	43°50.4	36°55.7	55°40.8	102°54.3	110°57.8	
20	333°10.3	3.6'	26°33.3	1.1'	59.3'	100°09.8	73°00.4	43°18.0	36°20.6	56°15.9	103°26.7	111°30.2	
21	347°32.9	3.6'	26°34.4	0.9'	59.3'	99°34.3	72°24.8	42°45.6	35°45.5	56°51.0	103°59.1	112°02.8	
22	1°55.5	3.5'	26°35.3	0.7'	59.3'	98°58.8	71°49.1	42°13.2	35°10.4	57°26.2	104°31.5	112°35.3	
23	16°18.0	3.4'	26°36.1	0.5'	59.4'	98°23.3	71°13.4	41°40.9	34°35.2	58°01.4	105°04.0	113°08.0	
9 th	SD =	= 16.0'	Mer. pass	. 21:52	2								

Moon (10th Jan)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Saturn	+Fomalhaut	+Venus
0	30°40.4	3.4'	N 26°36.6	0.4'	59.4'		97°47.7	70°37.7	34°00.0		58°36.6	105°36.5	113° 40.6
1	45°02.8	3.3'	26°37.0	0.2'	59.4'		97° 12.0	70°01.9	33°24.8	13°28.0	59°12.0	106°09.0	114°13.3
2	59°25.2	3.3'	26°37.1	-0.0'	59.5'		96°36.3	69°26.1	32°49.5	13°53.4	59°47.3	106°41.5	114°46.1
3	73°47.4	3.2'	26°37.1	-0.2'	59.5'		96°00.6	68° 50.2	32°14.3	14°19.5	60°22.7	107°14.1	115°18.9
4	88°09.7	3.2'	26°36.9	-0.4'	59.6'		95°24.8	68° 14.3	31°39.0	14°46.4	60°58.2	107°46.7	115°51.7
5	102°31.8	3.1'	26°36.5	-0.6'	59.6'		94°49.0	67°38.3	31°03.7	15°13.9	61°33.7	108°19.3	116°24.6
6	116°54.0	3.1'	N 26°36.0	-0.8'	59.6'		94°13.2	67°02.3	30°28.3	15°41.9	62°09.3	108°51.9	116°57.5
7	131°16.1	3.1'	26°35.2	-1.0'	59.7'		93°37.2	66°26.3	29°53.0	16°10.6	62°44.9	109°24.5	117°30.5
8	145°38.2	3.0'	26°34.2	-1.2'	59.7'	119°53.6	93°01.3	65°50.2	29° 17.6	16°39.7	63°20.5	109°57.1	118°03.5
9	160°00.2	3.0'	26°33.1	-1.3'	59.7'	119°17.5	92°25.3	65° 14.1	28° 42.2	17°09.3	63°56.2	110°29.8	118°36.5
10	174°22.2	3.0'	26°31.7	-1.5'	59.8'	118°41.3	91°49.3	64°37.9	28°06.9	17°39.4	64°32.0	111°02.5	119°09.6
11	188°44.2	2.9'	26°30.2	-1.7'	59.8'	118°05.1	91°13.2	64°01.7	27°31.5	18°09.8	65°07.8	111°35.1	119°42.7
12	203°06.1	2.9'	N 26°28.4	-1.9'	59.8'	117°28.9	90°37.1	63°25.5	26°56.1	18°40.6	65°43.6	112°07.8	
13	217°28.0	2.9'	26°26.5	-2.1'	59.9'	116°52.6	90°00.9	62°49.2	26° 20.7	19°11.7	66°19.5	112°40.5	i i
14	231°49.9	2.9'	26°24.4	-2.3'	59.9'	116°16.3	89°24.7	62° 12.8	25°45.3	19°43.2	66°55.4	113°13.2	
15	246°11.8	2.9'	$26^{\circ}22.1$	-2.5'	59.9'	115°39.9	88°48.5	61°36.5	25°09.9	20°15.0	67°31.4	113°45.9	
16	260°33.6	2.8'	$26^{\circ}19.6$	-2.7'	59.9'	115°03.5	88° 12.2	61°00.1	24°34.5	20°47.0	68°07.4	114°18.6	
17	274°55.5	2.8'	$26^{\circ}16.9$	-2.9'	60.0'	114°27.1	87°35.9	60°23.6	23°59.1	21°19.4	68°43.4	114°51.3	
18	289°17.3	2.8'	N 26°14.0	-3.1'	60.0'	113°50.6	86°59.5	59°47.1	23°23.8	21°51.9	69°19.5	115°24.0	
19	303°39.2	2.8'	26°10.9	-3.3'	60.0'	113°14.1	86°23.1	59° 10.6	22°48.5	22°24.7	69°55.7	115°56.7	i i
20	318°01.0	2.8'	26°07.6	-3.5'	60.1'	112°37.5	85°46.7	58° 34.0	22°13.2	22°57.7	70°31.8	116°29.4	
21	332°22.8	2.8'	26°04.2	-3.7'	60.1'	112°00.9	85° 10.2	57°57.4	21°37.9	23°30.9	71°08.0	117°02.1	
22	346°44.6	2.8'	$26^{\circ}00.5$	-3.9'	60.1'	111°24.3	84°33.7	57°20.8	21°02.7	24°04.3	71°44.3	117°34.7	
23	1°06.4	2.8'	25°56.7	-4.1'	60.2'	110°47.6	83°57.1	56°44.1	20°27.5	24°37.9	72°20.6	118°07.4	
10 th	SD	= 16.2	Mer. pas	s. 22:55									

h

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

Tue	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Capella	+Aldebaran	+Saturn	+Fomalhaut
0	15°28.3	2.8'	N 25°52.6	-4.2'	60.2'	110°10.9	83°20.5	56°07.4	19°52.4	23°22.9	25°11.6	72°56.9	118°40.1
1	29°50.1	2.9'	25°48.4	-4.4'	60.2'	109°34.1	82°43.9	55°30.7	19° 17.3	23°43.4	25°45.6	73°33.3	119°12.7
2	44°12.0	2.9'	25°43.9	-4.6'	60.2'	108°57.4	82°07.3	54°53.9	18°42.3	24°04.4	26°19.6	74°09.7	119°45.3
3	58°33.8	2.9'	25°39.3	-4.8'	60.3'	108°20.5	81°30.6	54°17.1	18°07.4	24°26.1	26°53.8	74°46.1	
4	72°55.7	2.9'	25°34.5	-5.0'	60.3'	107°43.7	80°53.9	53°40.3	17°32.6	24°48.4	27°28.2	75°22.6	
5	87°17.6	2.9'	$25^{\circ}29.5$	-5.2'	60.3'	107°06.8	80°17.1	53°03.4	16° 57.9	25°11.2	28°02.7	75°59.1	
6	101°39.5	2.9'	N25°24.3	-5.4'	60.3'	106°29.9	79°40.3	52°26.5	16°23.4	25°34.6	28°37.3	76°35.6	
7	116°01.5	3.0'	$25^{\circ}18.9$	-5.6'	60.4'	105°53.0	79°03.5	51°49.6	15°49.0	25°58.4	29°12.0	77°12.2	
8	130°23.5	3.0'	25°13.3	-5.8'	60.4'	105°16.0	78°26.7	51°12.6	15° 14.7	26°22.8	29°46.8	77°48.8	
9	144°45.5	3.0'	25°07.5	-6.0'	60.4'	104°39.0	77°49.8	50°35.6	14°40.7	26°47.6	30°21.8	78°25.5	
10	159°07.5	3.1'	$25^{\circ}01.6$	-6.1'	60.4'	104°01.9	77°12.9	49°58.6	14°06.8	27°12.9	30°56.8	79°02.1	
11	173°29.5	3.1'	24°55.4	-6.3'	60.5'	103°24.9	76°36.0	49°21.6	13°33.2	27°38.6	31°32.0	79°38.8	
12	187°51.6	3.1'	N 24°49.1	-6.5'	60.5'	102°47.7	75°59.0	48°44.5	13°00.0	28°04.8	32°07.2	80°15.6	
13	202°13.8	3.2'	24°42.6	-6.7'	60.5'	102°10.6	75°22.0	48°07.4	12°27.0	28°31.3	32°42.5	80°52.3	
14	216°36.0	3.2'	24°35.9	-6.9'	60.5'	101°33.5	74°45.0	47°30.3	11°54.4	28°58.2	33°18.0	81°29.1	
15	230°58.2	3.3'	24°29.0	-7.1'	60.5'	100°56.3	74°07.9	46°53.1	11°22.3	29°25.5	33°53.5	82°05.9	
16	245°20.5	3.3'	$24^{\circ}21.9$	-7.2'	60.6'	100°19.1	73°30.9	46°15.9	10°50.7	29°53.1	34°29.0	82°42.8	
17	259°42.8	3.4'	24°14.7	-7.4'	60.6'	99°41.8	72°53.8	45°38.7	10° 19.7	30°21.0	35°04.7	83°19.7	
18	274°05.1	3.4'	N 24°07.3	-7.6'	60.6'	99°04.6	72°16.7	45°01.5	9°49.4	30°49.3	35°40.4	83°56.6	
19	288°27.6	3.5'	23°59.7	-7.8'	60.6'	98°27.3	71°39.5	44°24.2	9° 19.9	31°17.9	36°16.2	84°33.5	
20	302°50.0	3.5'	23°51.9	-8.0'	60.7'	97°49.9	71°02.3	43°47.0		31°46.7	36°52.1	85°10.4	
21	317°12.6	3.6'	23°43.9	-8.1'	60.7'	97°12.6	70°25.1	43°09.7		32°15.9	37°28.1	85°47.4	
22	331°35.2	3.6'	23°35.8	-8.3'	60.7'	96°35.2	69°47.9	42°32.3		32°45.3	38°04.1	86°24.4	
23	345°57.8	3.7'	23°27.5	-8.5'	60.7'	95°57.9	69°10.7	41°55.0		33°15.0	38°40.1	87°01.4	
11 th	SD	= 16.4'	Mer. pas	s. 23:59									

h	Moon (12th	lan)

Wed	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Jupiter	-Regulus	+Pollux	+Capella	+Aldebaran	+Saturn
0	0°20.5	3.8'	N23°19.0	-8.7'	60.7'	95°20.5	94°15.7	68°33.4	41°17.7		33°44.9	39°16.2	87°38.5
1	14°43.3	3.8'	23°10.3	-8.8'	60.7'	94°43.0	93°45.4	67°56.2	40°40.3		34°15.0	39°52.4	88°15.5
2	29°06.1	3.9'	23°01.5	-9.0'	60.8'	94°05.6	93°15.1	67°18.9	40°02.9		34°45.4	40°28.6	88°52.6
3	43°29.0	4.0'	22°52.5	-9.2'	60.8'	93°28.1	92°44.7	66°41.6	39°25.5		35°16.0	41°04.9	89°29.7
4	57°52.0	4.0'	22°43.3	-9.3'	60.8'	92°50.6	92°14.3	66°04.2	38°48.1		35°46.8	41°41.2	90°06.8
5	72°15.0	4.1'	22°34.0	-9.5'	60.8'	92°13.1	91°43.9	65°26.9	38°10.6		36°17.8	42°17.6	90°44.0
6	86°38.1	4.2'	N22°24.5	-9.7'	60.8'	91°35.6	91°13.5	64°49.5	37°33.2		36°49.0	42°54.0	91°21.1
7	101°01.3	4.3'	22°14.8	-9.8'	60.8'	90°58.0	90°43.1	64°12.2	36°55.7		37°20.4	43°30.5	91°58.3
8	115°24.6	4.3'	22°05.0	-10.0'	60.8'	90°20.5	90°12.6	63°34.8	36°18.2		37°51.9	44°07.0	92°35.5
9	129°47.9	4.4'	21°55.0	-10.1'	60.9'	89°42.9	89°42.2	62°57.4	35°40.8		38°23.6	44° 43.5	93°12.7
10	144°11.3	4.5'	21°44.9	-10.3'	60.9'	89°05.3	89°11.7	62°20.0	35°03.3		38°55.5	45°20.1	93°49.9
11	158°34.8	4.6'	21°34.6	-10.4'	60.9'	88°27.7	88°41.2	61°42.5	34°25.8		39°27.6	45°56.7	94°27.2
12	172°58.3	4.6'	N21°24.2	-10.6'	60.9'	87°50.1	88°10.7	61°05.1	33°48.2		39°59.7	46°33.4	95°04.4
13	187°22.0	4.7'	21°13.6	-10.8'	60.9'	87°12.5	87°40.2	60°27.7	33°10.7		40°32.1	47° 10.0	95°41.7
14	201°45.7	4.8'	21°02.8	-10.9'	60.9'	86°34.8	87°09.7	59°50.2	32°33.2		41°04.5	47° 46.7	96°18.9
15	216°09.5	4.9'	20°51.9	-11.0'	60.9'	85°57.2	86°39.2	59°12.7	31°55.6		$41^{\circ}37.1$	48°23.5	96°56.2
16	230°33.4	5.0'	20°40.9	-11.2'	60.9'	85°19.5	86°08.7	58°35.3	31°18.1		42°09.8	49°00.3	97°33.5
17	244°57.4	5.1'	20°29.7	-11.3'	60.9'	84°41.9	85°38.2	57°57.8	30°40.6		42°42.7	49°37.1	98°10.8
18	259°21.4	5.1'	N 20° 18.3	-11.5'	60.9'	84°04.2	85°07.7	57°20.3	30°03.0		43°15.6	50° 13.9	98°48.1
19	273°45.6	5.2'	20°06.9	-11.6'	61.0'	83°26.5	84°37.2	56°42.8	29°25.5		43°48.7	50°50.7	99°25.4
20	288°09.8	5.3'	19°55.2	-11.8'	61.0'	82°48.8	84°06.8	56°05.3	28°47.9	10°13.2	44°21.9	51°27.6	100°02.7
21	302°34.1	5.4'	19°43.5	-11.9'	61.0'	82°11.1	83°36.3	55°27.8	28°10.4	10°44.4	44°55.2	52°04.5	100°40.0
22	316°58.5	5.5'	19°31.6	-12.0'	61.0'	81°33.4	83°05.8	54°50.3	27°32.8	11°16.3	45°28.5	52°41.4	101°17.4
23	331°23.0	5.6'	19° 19.5	-12.2'	61.0'	80°55.7	82°35.4	54°12.8	26°55.3	11°48.8	46°02.0	53° 18.4	101°54.7
12 th	SE	0 = 16	.6' Mer. pa	ass:-									

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

Thu	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Capella	+Aldebaran	+Saturn
0	345°47.6	5.7'	N 19°07.4	-12.3'	61.0'		80° 18.0	53°35.3	26°17.8	12°21.8	46°35.6	53°55.3	102°32.0
1	0°12.3	5.8'	18°55.1	-12.4'	61.0'		79°40.2	52°57.8	25°40.3	12°55.2	47°09.2	54°32.3	103°09.4
2	14°37.1	5.9'	18°42.7	-12.5'	61.0'		79°02.5	52°20.3	25°02.7	13°29.0	47°42.9	55°09.3	103°46.7
3	29°01.9	5.9'	18°30.1	-12.7'	61.0'		78°24.8	51°42.8	24°25.2	14°03.2	48°16.7	55°46.3	104°24.0
4	43°26.9	6.0'	$18^{\circ}17.5$	-12.8'	61.0'		77°47.0	51°05.3	23°47.7	14°37.6	48°50.6	56°23.3	105°01.4
5	57°51.9	6.1'	18°04.7	-12.9'	61.0'		77°09.3	50°27.8	23°10.3	15°12.3	49°24.5	57°00.3	105°38.7
6	72°17.0	6.2'	N 17°51.8	-13.0'	61.0'		76°31.6	49°50.4	22°32.8	15°47.2	49°58.6	57°37.4	106°16.0
7	86°42.2	6.3'	17°38.7	-13.1'	61.0'		75°53.9	49°12.9	21°55.4	16°22.4	50°32.6	58°14.4	106°53.4
8	101°07.5	6.4'	17°25.6	-13.3'	61.0'		75°16.1	48°35.4	21°17.9	16°57.7	51°06.8	58°51.5	107°30.7
9	115°32.9	6.5'	$17^{\circ}12.3$	-13.4'	61.0'		74°38.4	47°57.9	20°40.5	17°33.2	51°41.0	59°28.5	108°08.0
10	129°58.4	6.6'	$16^{\circ}58.9$	-13.5'	61.0'	119°46.1	74°00.7	47°20.5	20°03.2	18°08.8	52°15.3	60°05.6	108°45.3
11	144°24.0	6.7'	16°45.5	-13.6'	61.0'	119°08.4	73°23.0	46°43.0	19°25.8	18°44.6	52°49.6	60°42.7	109°22.7
12	158°49.7	6.8'	N 16°31.9	-13.7'	61.0'	118°30.6	72°45.2	46°05.6	18°48.5	19°20.4	53°23.9	61°19.8	110°00.0
13	173°15.4	6.9'	$16^{\circ}18.2$	-13.8'	61.0'	117°52.8	72°07.5	45°28.2	18°11.2	19°56.4	53°58.4	61°56.9	110°37.3
14	187°41.3	6.9'	16°04.4	-13.9'	61.0'	117° 15.0	71°29.8	44°50.8	17°34.0	20°32.5	54°32.8	62°33.9	111°14.5
15	202°07.2	7.0'	15°50.5	-14.0'	61.0'	116°37.3	70°52.1	44°13.4	16°56.8	21°08.7	55°07.3	63°11.0	111°51.8
16	216°33.3	7.1'	15°36.5	-14.1'	61.0'	115°59.5	70°14.4	43°36.0	16°19.6	21°45.0	55°41.9	63°48.1	112°29.1
17	230°59.4	7.2'	15°22.4	-14.2'	61.0'	115°21.8	69°36.7	42°58.6	15°42.5	22°21.3	56°16.5	64°25.2	113°06.4
18	245°25.6	7.3'	$N15^{\circ}08.2$	-14.3'	61.0'	114°44.0	68°59.1	42°21.2	15°05.5	22°57.7	56°51.1	65°02.3	113°43.6
19	259°51.9	7.4'	14°53.9	-14.4'	61.0'	114°06.3	68°21.4	41°43.9	14°28.5	23°34.1	57°25.7	65°39.4	114°20.8
20	274°18.3	7.5'	14°39.5	-14.5'	61.0'	113°28.6	67°43.7	41°06.6	13°51.6	24°10.6	58°00.4	66°16.5	114°58.1
21	288°44.8	7.6'	14°25.1	-14.6'	60.9'	112°50.8	67°06.1	40°29.3	13°14.8	24°47.2	58°35.2	66°53.6	115°35.3
22	303°11.3	7.7'	$14^{\circ}10.5$	-14.6'	60.9'	112° 13.1	66°28.5	39°52.0	12°38.1	25°23.8	59°09.9	67°30.6	116° 12.5
23	317°38.0	7.7'	13°55.9	-14.7'	60.9'	111°35.5	65°50.8	39°14.8	12°01.5	26°00.4	59°44.7	68°07.7	116°49.6
13 th	SD	= 16.6	5' Mer. pas	s. 00:59									

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

n		IVIOO	n (14° Ja	an <i>)</i>			Lunar L	distance	(objects)	with larg	est nourly	LD deita)	
Fri	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Capella	+Aldebaran	+Saturn
0	332°04.7	7.8'	N 13°41.2	-14.8'	60.9'	110°57.8	65°13.2	38°37.6	11°25.1	26°37.1	60°19.5	68°44.8	117°26.8
1	346°31.6	7.9'	13°26.4	-14.9'	60.9'	110°20.1	64°35.6	38°00.4	10°48.8	27°13.8	60°54.3	69°21.9	118°03.9
2	0°58.5	8.0'	13°11.5	-15.0'	60.9'	109°42.5	63°58.0	37°23.2	10°12.6	27°50.5	61°29.2	69°58.9	118°41.1
3	15°25.5	8.1'	12°56.5	-15.0'	60.9'	109°04.8	63°20.5	36°46.0	9°36.7	28°27.3	62°04.0	70°35.9	119° 18.2
4	29°52.6	8.2'	12°41.5	-15.1'	60.9'	108°27.2	62°42.9	36°08.9	9°01.0	29°04.0	62°38.9	71°13.0	119°55.2
5	44°19.7	8.3'	12°26.4	-15.2'	60.9'	107°49.6	62°05.4	35°31.8	8°25.6	29°40.8	63°13.8	71°50.0	
6	58°47.0	8.3'	$N12^{\circ}11.2$	-15.2'	60.9'	107° 12.0	61°27.9	34°54.8	7°50.6	30°17.6	63°48.7	72°27.0	
7	73°14.3	8.4'	11°56.0	-15.3'	60.9'	106°34.4	60°50.4	34°17.8	7°16.0	30°54.5	64°23.6	73°04.0	
8	87°41.7	8.5'	11°40.7	-15.4'	60.8'	105°56.8	60°12.9	33°40.8	6°41.9	31°31.3	64°58.6	73°41.0	
9	102°09.2	8.6'	11°25.3	-15.4'	60.8'	105°19.3	59°35.4	33°03.8	6°08.6	32°08.1	65°33.5	74°18.0	
10	116°36.8	8.7'	11°09.9	-15.5'	60.8'	104°41.8	58°58.0	32°26.9	5°36.1	32°45.0	66°08.5	74°54.9	
11	131°04.5	8.7'	10°54.4	-15.5'	60.8'	104°04.3	58°20.5	31°50.0		33°21.8	66°43.4	75°31.9	
12	145°32.2	8.8'	N 10°38.9	-15.6'	60.8'	103°26.8	57°43.1	31°13.2		33°58.7	67°18.4	76°08.8	
13	160°00.0	8.9'	10°23.3	-15.7'	60.8'	102°49.3	57°05.7	30°36.4		34°35.5	67°53.4	76°45.7	
14	174°27.9	9.0'	10°07.6	-15.7'	60.8'	102°11.9	56°28.4	29°59.7		35°12.3	68°28.3	77°22.6	
15	188°55.9	9.0'	09°51.9	-15.8'	60.7'	101°34.4	55°51.0	29°23.0		35°49.2	69°03.3	77°59.5	
16	203°23.9	9.1'	09°36.2	-15.8'	60.7'	100°57.0	55°13.7	28°46.4		36°26.0	69°38.3	78°36.3	
17	217°52.1	9.2'	09°20.4	-15.8'	60.7'	100°19.7	54°36.4	28°09.8		37°02.9	70°13.2	79°13.1	
18	232°20.3	9.3'	N 09°04.5	-15.9'	60.7'	99°42.3	53°59.1	27°33.2		37°39.7	70°48.2	79°50.0	
19	246°48.5	9.3'	08°48.7	-15.9'	60.7'	99°05.0	53°21.9	26°56.8		38°16.5	71°23.1	80°26.7	
20	261°16.8	9.4'	08°32.7	-16.0'	60.7'	98°27.7	52°44.7	26°20.4		38°53.3	71°58.1	81°03.5	
21	275°45.2	9.5'	08°16.8	-16.0'	60.6'	97°50.4	52°07.5	25°44.0		39°30.1	72°33.0	81°40.3	
22	290°13.7	9.5'	08°00.8	-16.0'	60.6'	97°13.1	51°30.3	25°07.7		40°06.9	73°08.0	82°17.0	
23	304°42.3	9.6'	07°44.7	-16.1'	60.6'	96°35.9	50°53.2	24°31.5		40°43.7	73°42.9	82°53.7	
14 th	SD	= 16.6	Mer. pas	ss. 01:56									

h Moon (1	15 th Jan)	Lunar Distance (o	objects with largest	hourly LD delta)
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Sat	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Pollux	+Capella	+Aldebaran
0	319°10.9	9.7'	N 07°28.6	-16.1'	60.6'	95°58.7	85°06.4	50°16.1	23°55.4		41°20.4	74°17.8	83°30.4
1	333°39.5	9.7'	07°12.5	-16.1'	60.6'	95°21.5	84°37.1	49°39.0	23°19.3		41°57.2	74°52.7	84°07.0
2	348°08.3	9.8'	06°56.4	-16.2'	60.5'	94°44.3	84°07.8	49°01.9	22°43.4		42°33.9	75°27.6	84°43.6
3	2°37.1	9.9'	06°40.2	-16.2'	60.5'	94°07.2	83°38.6	48°24.9	22°07.5	6°30.2	43°10.6	76°02.5	85°20.2
4	17°05.9	9.9'	06°24.0	-16.2'	60.5'	93°30.1	83°09.5	47°47.9	21°31.7	7°03.6	43°47.3	76°37.4	85°56.8
5	31°34.9	10.0'	06°07.8	-16.2'	60.5'	92°53.0	82°40.3	47° 10.9	20°56.0	7°37.6	44°24.0	77° 12.2	86°33.4
6	46°03.8	10.0'	N 05°51.6	-16.3'	60.5'	92°16.0	82°11.2	46°34.0	20°20.4	8°12.0	45°00.6	77°47.1	87°09.9
7	60°32.9	10.1'	05°35.3	-16.3'	60.4'	91°39.0	81°42.2	45°57.1	19°45.0	8°46.7	45°37.3	78°21.9	87°46.4
8	75°02.0	10.2'	$05^{\circ}19.1$	-16.3'	60.4'	91°02.0	81°13.2	45°20.2	19°09.6	9°21.6	46°13.9	78° 56.7	88°22.8
9	89°31.2	10.2'	05°02.8	-16.3'	60.4'	90°25.0	80°44.2	44°43.4	18°34.4	9°56.8	46°50.4	79°31.4	88°59.3
10	104°00.4	10.3'	04°46.5	-16.3'	60.4'	89°48.1	80°15.3	44°06.6	17°59.4	10°32.2	47°27.0	80°06.2	89°35.7
11	118°29.6	10.3'	04°30.2	-16.3'	60.4'	89°11.2	79°46.5	43°29.8	17°24.5	11°07.7	48°03.6	80°40.9	90°12.0
12	132°59.0	10.4'	N 04°13.8	-16.3'	60.3'	88°34.4	79°17.7	42°53.1	16°49.7	11°43.3	48°40.1	81°15.7	90°48.4
13	147°28.3	10.4'	03°57.5	-16.3'	60.3'	87°57.5	78°48.9	42°16.4	16°15.2	12° 19.0	49°16.6	81°50.3	91°24.7
14	161°57.7	10.5'	03°41.2	-16.4'	60.3'	87°20.7	78°20.3	41°39.7	15°40.8	12°54.7	49°53.0	82°25.0	92°01.0
15	176°27.2	10.5'	03°24.8	-16.4'	60.3'	86°44.0	77°51.6	41°03.1	15°06.7	13°30.6	50°29.5	82°59.7	92°37.2
16	190°56.7	10.6'	03°08.4	-16.4'	60.2'	86°07.3	77°23.0	40°26.5	14°32.8	14°06.4	51°05.9	83°34.3	93°13.4
17	205°26.3	10.6'	02°52.1	-16.4'	60.2'	85°30.6	76°54.5	39°49.9	13°59.1	14°42.3	51°42.3	84°08.9	93°49.6
18	219°55.9	10.7'	N02°35.7	-16.4'	60.2'	84°53.9	76°26.1	39° 13.4	13°25.8	15° 18.3	52°18.6	84°43.4	94°25.8
19	234°25.6	10.7'	02°19.4	-16.4'	60.2'	84°17.3	75°57.7	38° 36.9	12°52.8	15°54.2	52°54.9	85° 18.0	95°01.9
20	248°55.3	10.7'	02°03.0	-16.4'	60.1'	83°40.7	75°29.4	38°00.4	12°20.1	16°30.2	53°31.2	85°52.5	95°37.9
21	263°25.0	10.8'	01°46.7	-16.3'	60.1'	83°04.1	75°01.1	37°24.0	11°47.9	17°06.2	54°07.5	86° 26.9	96°14.0
22	277°54.8	10.8'	01°30.3	-16.3'	60.1'	82°27.6	74°32.9	36°47.7	11°16.1	17°42.2	54°43.7	87°01.4	96°50.0
23	292°24.6	10.9'	$01^{\circ}14.0$	-16.3'	60.0'	81°51.1	74°04.8	36°11.3	10°44.9	18° 18.2	55°20.0	87°35.8	97°26.0
15 th	SD	= 16.5'	Mer. pass	s. 02:49									

Moon (16th Jan)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Antares	-Spica	-Jupiter	+Regulus	+Pollux	+Betelgeuse	+Aldebaran
0	306°54.5	10.9'	N 00°57.7	-16.3'	60.0'		81°14.6	35°35.0	10°14.3	18°54.2	55°56.1	78°51.1	98°01.9
1	321°24.4	10.9'	00°41.3	-16.3'	60.0'		80°38.2	34°58.8	9°44.4	19°30.1	56°32.3	79°25.4	98°37.8
2	335°54.3	11.0'	00°25.0	-16.3'	60.0'		80°01.8	34°22.6	9°15.2	20°06.1	57°08.4	79°59.8	99°13.6
3	350°24.3	11.0'	N 00°08.7	-16.3'	59.9'		79°25.5	33°46.4	8°47.0	20°42.0	57°44.5	80°34.1	99°49.5
4	4°54.3	11.0'	S 00°07.5	-16.3'	59.9'		78°49.2	33°10.3		21°18.0	58°20.5	81°08.4	100°25.2
5	19°24.4	11.1'	00°23.8	-16.2'	59.9'		78°12.9	32°34.2		21°53.9	58°56.5	81°42.7	101°01.0
6	33°54.4	11.1'	S 00°40.0	-16.2'	59.9'		77°36.7	31°58.2		22°29.8	59°32.5	82°17.0	101°36.7
7	48°24.5	11.1'	00°56.2	-16.2'	59.8'		77°00.5	31°22.2		23°05.7	60°08.5	82°51.2	102°12.4
8	62°54.6	11.2'	$01^{\circ}12.4$	-16.2'	59.8'		76°24.3	30°46.2		23°41.5	60°44.4	83°25.4	102°48.0
9	77°24.8	11.2'	01°28.6	-16.1'	59.8'		75°48.2	30° 10.3		24°17.4	61°20.3	83°59.5	103°23.6
10	91°55.0	11.2'	01°44.8	-16.1'	59.7'		75°12.1	29°34.4		24°53.2	61°56.1	84°33.7	103°59.1
11	106°25.2	11.2'	02°00.9	-16.1'	59.7'		74°36.1	28°58.6		25°29.0	62°31.9	85°07.8	104°34.6
12	120°55.4	11.3'	S 02°17.0	-16.1'	59.7'	119°52.9	74°00.0	28° 22.9		26°04.7	63°07.7	85°41.8	105°10.1
13	135°25.7	11.3'	02°33.1	-16.0'	59.6'	119°19.5	73°24.1	27° 47.2		26°40.5	63°43.4	86°15.8	105°45.5
14	149°55.9	11.3'	02°49.1	-16.0'	59.6'	118°46.1	72°48.1	27° 11.5		27° 16.2	64°19.1	86°49.8	106°20.9
15	164°26.2	11.3'	$03^{\circ}05.1$	-16.0'	59.6'	118°12.7	72°12.3	26°35.9		27°51.8	64°54.8	87°23.8	106°56.2
16	178°56.5	11.3'	03°21.1	-15.9'	59.6'	117°39.4	71°36.4	26°00.3		28°27.5	65°30.4	87°57.7	107°31.5
17	193°26.9	11.3'	03°37.0	-15.9'	59.5'	117°06.1	71°00.6	25°24.8		29°03.1	66°06.0	88°31.6	108°06.8
18	207°57.2	11.4'	S 03°52.9	-15.9'	59.5'	116°32.9	70°24.8	24°49.3		29°38.7	66°41.5	89°05.5	108°42.0
19	222°27.6	11.4'	04°08.8	-15.8'	59.5'	115°59.7	69°49.1	24° 13.9		30° 14.2	67°17.1	89°39.3	109°17.2
20	236°58.0	11.4'	04°24.6	-15.8'	59.4'	115°26.5	69°13.4	23°38.5		30°49.7	67°52.5	90°13.1	109°52.3
21	251°28.3	11.4'	04°40.4	-15.7'	59.4'	114°53.4	68°37.7	23°03.2		31°25.2	68°28.0	90°46.8	110°27.4
22	265°58.7	11.4'	04°56.1	-15.7'	59.4'	114°20.4	68°02.1	22°28.0		32°00.7	69°03.4	91°20.5	111°02.4
23	280°29.2	11.4'	05°11.8	-15.7'	59.3'	113°47.3	67°26.5	21°52.8		32°36.1	69°38.7	91°54.2	111°37.4
16 th	SD	= 16.4'	Mer. pas	s. 03:40					Sur	SD = 16.3'			

h		Moor	n (17 th Ja	n)		Lunar Distance (objects with largest hourly LD delta))
Mon	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Aldebaran
0	294°59.6	11.4'	S 05°27.4	-15.6'	59.3'	117°32.2	113°14.3	66°51.0	21°17.7	33°11.5	66°31.1	70°14.1	112° 12.4
1	309°30.0	11.4'	05°43.0	-15.6'	59.3'	117°02.5	112°41.4	66°15.5	20°42.6	33°46.8	67°04.8	70°49.4	112°47.3
2	324°00.4	11.4'	05°58.6	-15.5'	59.2'	116°32.8	112°08.4	65°40.1	20°07.6	34°22.1	67°38.5	71°24.6	113°22.1
3	338°30.9	11.4'	$06^{\circ}14.1$	-15.5'	59.2'	116°03.1	111°35.6	65°04.6	19°32.7	34°57.4	68°12.2	71°59.8	113°57.0
4	353°01.3	11.5'	06°29.6	-15.4'	59.2'	115°33.3	111°02.7	64°29.3	18°57.8	35°32.6	68°45.9	72°35.0	114°31.7
5	7°31.8	11.5'	06°45.0	-15.4'	59.1'	115°03.6	110°29.9	63°53.9	18°23.0	36°07.8	69°19.6	73°10.1	115°06.5
6	22°02.2	11.5'	S 07°00.3	-15.3'	59.1'	114°33.8	109°57.2	63°18.6	17°48.3	36°43.0	69°53.2	73°45.2	115°41.1
7	36°32.7	11.5'	$07^{\circ}15.6$	-15.2'	59.1'	114°04.0	109°24.5	62°43.4	17° 13.6	37°18.1	70°26.8	74°20.3	116° 15.8
8	51°03.2	11.5'	07°30.9	-15.2'	59.0'	113°34.2	108°51.8	62°08.2	16°39.1	37°53.2	71°00.4	74°55.3	116° 50.4
9	65°33.6	11.5'	$07^{\circ}46.1$	-15.1'	59.0'	113°04.4	108°19.1	61°33.0	16°04.6	38°28.2	71°33.9	75°30.3	117°24.9
10	80°04.1	11.5'	$08^{\circ}01.2$	-15.1'	59.0'	112°34.6	107°46.5	60°57.9	15°30.2	39°03.2	72°07.5	76°05.2	117°59.4
11	94°34.5	11.4'	$08^{\circ}16.3$	-15.0'	58.9'	112°04.8	107°14.0	60°22.8	14°55.9	39°38.2	72°41.0	76°40.1	118°33.9
12	109°05.0	11.4'	S 08°31.3	-15.0'	58.9'	111°35.0	106°41.5	59°47.7	14°21.7	40°13.2	73°14.4	77° 15.0	119°08.3
13	123°35.4	11.4'	08°46.2	-14.9'	58.9'	111°05.1	106°09.0	59°12.7	13°47.6	40°48.1	73°47.8	77°49.8	119°42.6
14	138°05.9	11.4'	$09^{\circ}01.1$	-14.8'	58.9'	110°35.3	105°36.6	58° 37.8	13° 13.7	41°22.9	74°21.3	78° 24.5	
15	152°36.3	11.4'	$09^{\circ}16.0$	-14.8'	58.8'	110°05.5	105°04.2	58°02.8	12°39.8	41°57.7	74°54.6	78°59.3	
16	167°06.7	11.4'	09°30.7	-14.7'	58.8'	109°35.6	104°31.8	57°27.9	12°06.1	42°32.5	75°28.0	79°34.0	
17	181°37.1	11.4'	09°45.4	-14.6'	58.8'	109°05.8	103°59.5	56°53.1	11°32.6	43°07.3	76°01.3	80°08.6	
18	196°07.5	11.4'	S 10°00.1	-14.6'	58.7'	108°36.0	103°27.3	56° 18.3	10°59.2	43°42.0	76°34.6	80°43.3	
19	210°37.9	11.4'	$10^{\circ}14.6$	-14.5'	58.7'	108°06.2	102°55.0	55°43.5	10°26.1	44°16.7	77°07.8	81°17.8	
20	225°08.3	11.4'	$10^{\circ}29.1$	-14.4'	58.7'	107°36.3	102°22.8	55°08.8	9°53.1	44°51.3	77°41.0	81°52.4	
21	239°38.7	11.4'	10°43.5	-14.4'	58.6'	107°06.5	101°50.7	54°34.1	9°20.4	45°25.9	78°14.2	82°26.9	
22	254°09.1	11.3'	10°57.9	-14.3'	58.6'	106°36.7	101°18.6	53°59.5	8°48.0	46°00.4	78°47.4	83°01.3	
23	268°39.4	11.3'	11°12.2	-14.2'	58.6'	106°06.9	100°46.5	53°24.9	8° 15.9	46°35.0	79°20.5	83°35.8	
17 th	SD	= 16.2'	Mer. pas	s. 04:29					Sun S	5D = 16.3'			

h		Моог	n (18 th Ja	n)			Lunar Di	stance (c	bjects v	vith larges	st hourly l	D delta)	
Tue	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	±Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	283°09.7	11.3'	S 11°26.4	-14.1'	58.5'	105°37.1	100° 14.5	52°50.3	7°44.2	20°39.9	47°09.4	79°53.6	84°10.1
1	297°40.0	11.3'	11°40.5	-14.1'	58.5'	105°07.3	99°42.5	52°15.8	7°13.0	21°13.2	47°43.9	80°26.6	84°44.5
2	312°10.3	11.3'	11°54.5	-14.0'	58.5'	104°37.6	99°10.6	51°41.3	6°42.4	21°46.4	48°18.3	80°59.6	85°18.8
3	326°40.6	11.3'	12°08.5	-13.9'	58.4'	104°07.8	98°38.7	51°06.9	6°12.5	22°19.7	48°52.6	81°32.6	85°53.0
4	341°10.9	11.2'	$12^{\circ}22.4$	-13.8'	58.4'	103°38.1	98°06.8	50°32.5	5°43.4	22°53.0	49°27.0	82°05.6	86°27.3
5	355°41.1	11.2'	12°36.2	-13.7'	58.4'	103°08.3	97°35.0	49°58.1		23°26.3	50°01.2	82°38.5	87°01.5
6	10°11.3	11.2'	S 12°50.0	-13.7'	58.3'	102°38.6	97°03.2	49°23.8		23°59.6	50°35.5	83°11.4	87°35.6
7	24°41.5	11.2'	13°03.6	-13.6'	58.3'	102°08.9	96°31.4	48°49.5		24°32.9	51°09.7	83°44.2	88°09.7
8	39°11.7	11.2'	13° 17.2	-13.5'	58.3'	101°39.2	95°59.7	48°15.3		25°06.2	51°43.9	84°17.0	88°43.8
9	53°41.9	11.1'	13°30.7	-13.4'	58.2'	101°09.5	95°28.1	47°41.1		25°39.5	52°18.0	84°49.8	89°17.8
10	68°12.0	11.1'	13°44.1	-13.3'	58.2'	100°39.9	94°56.4	47°06.9		26°12.9	52°52.1	85°22.5	89°51.8
11	82°42.1	11.1'	13°57.4	-13.2'	58.2'	100°10.3	94°24.8	46°32.8		26°46.2	53°26.1	85°55.3	90°25.7
12	97°12.2	11.1'	S 14° 10.6	-13.1'	58.1'	99°40.6	93°53.3	45°58.7		27°19.5	54°00.1	86°27.9	90°59.6
13	111°42.2	11.0'	14°23.8	-13.1'	58.1'	99°11.0	93°21.8	45°24.7		27°52.8	54°34.1	87°00.6	91°33.5
14	126°12.3	11.0'	14°36.9	-13.0'	58.1'	98°41.5	92°50.3	44°50.7		28°26.1	55°08.1	87°33.2	92°07.3
15	140°42.3	11.0'	14°49.8	-12.9'	58.0'	98°11.9	92°18.9	44°16.7		28°59.4	55°42.0	88°05.7	92°41.1
16	155°12.3	10.9'	15°02.7	-12.8'	58.0'	97°42.4	91°47.5	43°42.8		29°32.7	56°15.8	88°38.2	93°14.9
17	169°42.2	10.9'	$15^{\circ}15.5$	-12.7'	58.0'	97°12.9	91°16.1	43°08.9		30°05.9	56°49.7	89°10.7	93°48.6
18	184°12.1	10.9'	S 15°28.2	-12.6'	57.9'	96°43.4	90°44.8	42°35.0		30°39.2	57°23.4	89°43.2	94°22.2
19	198°42.0	10.9'	15°40.8	-12.5'	57.9'	96°13.9	90°13.5	42°01.2		31°12.4	57°57.2	90°15.6	94°55.9
20	213°11.9	10.8'	15°53.3	-12.4'	57.9'	95°44.5	89°42.3	41°27.4		31°45.6	58°30.9	90°48.0	95°29.5
21	227°41.7	10.8'	$16^{\circ}05.7$	-12.3'	57.8'	95°15.1	89°11.1	40°53.7		32°18.8	59°04.6	91°20.3	96°03.0
22	242°11.5	10.8'	$16^{\circ}18.0$	-12.2'	57.8'	94°45.7	88°39.9	40°20.0	6°18.8	32°52.0	59°38.2	91°52.6	96°36.6
23	256°41.3	10.7'	$16^{\circ}30.2$	-12.1'	57.8'	94°16.3	88°08.8	39°46.4	6°48.2	33°25.2	60°11.8	92°24.9	97°10.0
18 th	SD	= 16.0'	Mer. pas	s. 05:18				Sun S	D = 16.3'	at 0h; 16.2'	at 23h		

Moon (19th Jan)

h		Моог	n (19 th Ja	n)			Lunar	Distance (o	bjects wi	th larges	t hourly I	_D delta)	
Wed	GHA	ν	Dec	d	HP	-Altair	-Sun	-Rigil Kent.	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	271°11.0	10.7'	S 16°42.3	-12.0'	57.7'	93°47.0	87°37.7	45°18.5	39°12.7	7°18.1	33°58.3	60°45.4	97°43.5
1	285°40.7	10.7'	16°54.3	-11.9'	57.7'	93° 17.7	87°06.7	45°01.7	38°39.2	7°48.6	34°31.4	61°18.9	98°16.9
2	300°10.4	10.6'	$17^{\circ}06.3$	-11.8'	57.7'	92°48.4	86°35.7	44°45.1	38°05.6	8°19.4	35°04.5	61°52.4	98°50.3
3	314°40.0	10.6'	$17^{\circ}18.1$	-11.7'	57.6'	92°19.2	86°04.7	44°28.8	37°32.1	8°50.5	35°37.6	62°25.9	99°23.6
4	329°09.6	10.6'	17°29.8	-11.6'	57.6'	91°50.0	85°33.7	44°12.8	36°58.6	9°21.8	36°10.6	62°59.3	99°56.9
5	343°39.2	10.5'	$17^{\circ}41.4$	-11.5'	57.6'	91°20.8	85°02.8	43°57.1	36°25.2	9°53.3	36°43.7	63°32.7	100°30.1
6	358°08.7	10.5'	S 17°52.9	-11.4'	57.5'	90°51.6	84°32.0	43°41.6	35°51.8	10°25.0	37°16.7	64°06.0	101°03.4
7	12°38.2	10.5'	18°04.3	-11.3'	57.5'	90°22.5	84°01.1	43°26.4	35°18.4	10°56.9	37°49.6	64°39.3	101°36.6
8	27°07.7	10.4'	18°15.6	-11.2'	57.5'	89°53.4	83°30.3		34°45.1	11°28.8	38°22.6	65° 12.6	102°09.7
9	41°37.1	10.4'	18°26.8	-11.1'	57.4'	89°24.3	82°59.6		34°11.8	12°00.8	38°55.5	65°45.8	102°42.8
10	56°06.5	10.4'	18°37.9	-11.0'	57.4'	88°55.3	82°28.9		33°38.6	12°32.9	39°28.4	66° 19.0	103°15.9
11	70°35.9	10.3'	18°48.9	-10.9'	57.4'	88°26.3	81°58.2		33°05.3	13°05.1	40°01.3	66° 52.2	103°48.9
12	85°05.2	10.3'	S 18°59.7	-10.8'	57.3'	87°57.3	81°27.5		32°32.2	13°37.3	40°34.2	67°25.3	104°21.9
13	99°34.5	10.2'	19°10.5	-10.6'	57.3'	87°28.4	80°56.9		31°59.0	14°09.5	41°07.0	67°58.4	104°54.9
14	114°03.7	10.2'	19°21.1	-10.5'	57.3'	86° 59.5	80°26.3		31°25.9	14°41.8	41°39.8	68°31.5	105°27.8
15	128°32.9	10.2'	19°31.7	-10.4'	57.3'	86°30.6	79°55.8		30°52.8	15°14.1	42°12.5	69°04.5	106°00.7
16	143°02.1	10.1'	19°42.1	-10.3'	57.2'	86°01.8	79°25.3		30°19.8	15°46.4	42°45.3	69°37.5	106°33.6
17	157°31.2	10.1'	$19^{\circ}52.4$	-10.2'	57.2'	85°33.0	78°54.8		29°46.8	16°18.8	43°18.0	70° 10.5	107°06.4
18	172°00.3	10.1'	S 20°02.6	-10.1'	57.2'	85°04.2	78°24.4		29°13.8	16°51.1	43°50.7	70°43.4	107°39.2
19	186°29.4	10.0'	20°12.6	-10.0'	57.1'	84°35.5	77°54.0		28°40.9	17°23.5	44°23.4	71°16.3	108°11.9
20	200°58.4	10.0'	20°22.6	-9.8'	57.1'	84°06.8	77°23.6		28°08.0	17°55.8	44°56.0	71°49.2	108°44.6
21	215°27.4	10.0'	20°32.5	-9.7'	57.1'	83°38.2	76°53.2		27°35.1	18°28.2	45°28.6	72°22.0	109°17.3
22	229°56.4	9.9'	20°42.2	-9.6'	57.0'	83°09.6	76°22.9		27°02.3	19°00.5	46°01.2	72°54.8	109°50.0
23	244°25.3	9.9'	20°51.8	-9.5'	57.0'	82°41.0	75°52.7		26°29.5	19°32.8	46°33.8	73°27.5	110°22.6
19 th	SD	= 15.7'	Mer. pas	s. 06:08					Sun SD	= 16.2'			

h		Moor	n (20 th Ja	n)			Lunar [Distance	(objects	with large	est hourly	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	+Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	258°54.1	9.8'	S 21°01.3	-9.4'	57.0'	82°12.5	75°22.4	25°56.7	20°05.2	47°06.3	74°00.3	105°39.3	110°55.2
1	273°23.0	9.8'	$21^{\circ}10.7$	-9.3'	56.9'	81°44.0	74°52.2	25°24.0	20°37.5	47°38.8	74°33.0	106°10.6	111°27.7
2	287°51.8	9.8'	$21^{\circ}19.9$	-9.1'	56.9'	81°15.5	74°22.0	24°51.2	21°09.8	48°11.3	75°05.6	106°41.8	112°00.2
3	302°20.5	9.7'	21°29.0	-9.0'	56.9'	80°47.1	73°51.9	24°18.6	21°42.1	48°43.7	75°38.3	107°13.0	112°32.7
4	316°49.3	9.7'	21°38.1	-8.9'	56.9'	80°18.7	73°21.8	23°45.9	22°14.4	49°16.2	76° 10.9	107°44.2	113°05.1
5	331°18.0	9.7'	21°46.9	-8.8'	56.8'	79°50.4	72°51.7	23°13.3	22°46.6	49°48.6	76°43.4	108°15.3	113°37.5
6	345°46.6	9.6'	S 21°55.7	-8.6'	56.8'	79°22.1	72°21.7	22°40.8	23°18.9	50°20.9	77° 16.0	108°46.4	114°09.9
7	0°15.2	9.6'	22°04.3	-8.5'	56.8'	78°53.8	71°51.7	22°08.2	23°51.1	50°53.3	77° 48.5	109°17.4	114°42.3
8	14°43.8	9.5'	22°12.9	-8.4'	56.7'	78°25.6	71°21.7	21°35.7	24°23.3	51°25.6	78°20.9	109°48.4	115°14.6
9	29°12.4	9.5'	22°21.2	-8.3'	56.7'	77°57.5	70°51.7	21°03.2	24°55.5	51°57.9	78°53.4	110°19.4	115°46.9
10	43°40.9	9.5'	22°29.5	-8.1'	56.7'	77°29.3	70°21.8	20°30.8	25°27.7	52°30.1	79°25.8	110°50.3	116°19.1
11	58°09.4	9.4'	22°37.6	-8.0'	56.7'	77°01.3	69°51.9	19°58.4	25°59.9	53°02.4	79°58.2	111°21.2	116°51.3
12	72°37.8	9.4'	S 22°45.7	-7.9'	56.6'	76°33.2	69°22.1	19°26.0	26°32.0	53°34.6	80° 30.5	111°52.0	117°23.5
13	87°06.2	9.4'	22°53.5	-7.8'	56.6'	76°05.2	68°52.2	18°53.6	27°04.1	54°06.8	81°02.8	112°22.8	117°55.6
14	101°34.6	9.3'	23°01.3	-7.6'	56.6'	75°37.3	68°22.4	18°21.3	27°36.2	54°38.9	81°35.1	112°53.6	118°27.7
15	116°02.9	9.3'	23°08.9	-7.5'	56.5'	75°09.4	67°52.7	17°49.0	28°08.3	55°11.1	82°07.4	113°24.3	118°59.8
16	130°31.3	9.3'	23°16.4	-7.4'	56.5'	74°41.5	67°22.9	17°16.7	28°40.3	55°43.2	82°39.6	113°55.0	119°31.9
17	144°59.5	9.2'	23°23.8	-7.2'	56.5'	74°13.7	66°53.2	16°44.5	29°12.3	56°15.2	83°11.8	114°25.6	
18	159°27.8	9.2'	S 23°31.0	-7.1'	56.5'	73°46.0	66°23.5	16°12.3	29°44.4	56°47.3	83°44.0	114°56.2	
19	173°56.0	9.2'	23°38.1	-7.0'	56.4'	73°18.2	65°53.9	15°40.1	30°16.3	57°19.3	84° 16.1	115°26.7	
20	188°24.2	9.2'	23°45.1	-6.8'	56.4'	72°50.6	65°24.3	15°08.0	30°48.3	57°51.3	84°48.2	115°57.2	
21	202°52.3	9.1'	23°51.9	-6.7'	56.4'	72°23.0	64°54.7	14°35.9	31°20.2	58°23.3	85°20.3	116°27.7	
22	217°20.5	9.1'	23°58.7	-6.6'	56.4'	71°55.4	64°25.1	14°03.8	31°52.2	58°55.2	85°52.4	116°58.1	
23	231°48.6	9.1'	24°05.2	-6.4'	56.3'	71°27.9	63°55.6	13°31.7	32°24.1	59°27.2	86°24.4	117°28.5	
20 th	SD :	= 15.5'	Mer. pas	s. 06:59)				Sun S	5D = 16.2'			

h		Mooi	n (21 st Ja	n)			Lunar l	Distance	(objects	with large	st hourly	LD delta)	
Fri	GHA	ν	Dec	d	HP	-Altair	-Sun	-Antares	+Spica	+Arcturus	+Jupiter	+Regulus	+Procyon
0	246° 16.6	9.0'	S 24°11.7	-6.3'	56.3'	71°00.4	63°26.1	12°59.7	32°55.9	47° 10.5	59°59.1	86°56.4	117°58.9
1	260°44.7	9.0'	24°18.0	-6.2'	56.3'	70°33.0	62°56.6	12°27.7	33°27.8	47°29.7	60°30.9	87°28.4	118°29.2
2	275°12.7	9.0'	$24^{\circ}24.1$	-6.0'	56.2'	70°05.6	62°27.1	11°55.7	33°59.6	47°49.2	61°02.8	88°00.3	118°59.4
3	289°40.7	9.0'	24°30.2	-5.9'	56.2'	69°38.3	61°57.7	11°23.8	34°31.4	48°08.7	61°34.6	88°32.2	119°29.6
4	304°08.6	8.9'	$24^{\circ}36.1$	-5.8'	56.2'	69°11.1	61°28.3	10°51.9	35°03.2	48°28.5	62°06.4	89°04.1	119°59.8
5	318°36.6	8.9'	24°41.8	-5.6'	56.2'	68°43.9	60°58.9	10°20.0	35°34.9	48°48.3	62°38.2	89°36.0	
6	333°04.5	8.9'	S 24°47.5	-5.5'	56.1'	68° 16.7	60°29.6	9°48.1	36°06.7	49°08.4	63°09.9	90°07.8	
7	347°32.4	8.9'	24°53.0	-5.4'	56.1'	67°49.6	60°00.3	9°16.3	36°38.4	49°28.5	63°41.7	90°39.6	
8	2°00.2	8.8'	24°58.3	-5.2'	56.1'	67°22.6	59°31.0	8°44.5	37°10.1	49°48.8	64° 13.4	91°11.4	
9	16°28.1	8.8'	25°03.5	-5.1'	56.1'	66° 55.6	59°01.7	8°12.7	37°41.7	50°09.2	64°45.1	91°43.2	
10	30°55.9	8.8'	25°08.6	-4.9'	56.0'	66°28.7	58°32.5	7°41.0	38°13.4	50°29.7	65° 16.7	92°14.9	
11	45°23.7	8.8'	25°13.6	-4.8'	56.0'	66°01.8	58°03.3	7°09.3	38° 45.0	50°50.4	65°48.3	92°46.6	
12	59°51.5	8.8'	S 25°18.4	-4.7'	56.0'	65°35.0	57°34.1	6°37.6	39° 16.6	51°11.2	66° 19.9	93°18.3	
13	74° 19.3	8.8'	25°23.0	-4.5'	56.0'	65°08.2	57°04.9	6°06.0	39°48.2	51°32.1	66°51.5	93°49.9	
14	88°47.0	8.7'	25°27.5	-4.4'	55.9'	64°41.6	56°35.8	5°34.4	40° 19.7	51°53.1	67°23.1	94°21.6	
15	103°14.8	8.7'	25°31.9	-4.2'	55.9'	64° 14.9	56°06.7	5°02.8	40°51.2	52° 14.2	67°54.6	94°53.2	
16	117° 42.5	8.7'	25°36.2	-4.1'	55.9'	63°48.4	55°37.6	4°31.3	41°22.8	52°35.4	68°26.1	95°24.7	
17	132°10.2	8.7'	25°40.3	-4.0'	55.9'	63°21.9	55°08.5	3°59.8	41°54.2	52°56.8	68°57.6	95°56.3	
18	146°37.9	8.7'	S 25°44.2	-3.8'	55.9'	62°55.4	54°39.5	3°28.4	42°25.7	53°18.2	69°29.1	96°27.8	
19	161°05.6	8.7'	$25^{\circ}48.1$	-3.7'	55.8'	62°29.0	54°10.5	2°57.1	42°57.1	53°39.8	70°00.6	96°59.3	
20	175°33.3	8.7'	$25^{\circ}51.7$	-3.5'	55.8'	62°02.7	53°41.5	2°25.9	43°28.6	54°01.4	70°32.0	97°30.8	
21	190°01.0	8.7'	25°55.3	-3.4'	55.8'	61°36.5	53°12.5	1°54.9	44°00.0	54°23.1	71°03.4	98°02.3	
22	204°28.6	8.7'	25°58.7	-3.3'	55.8'	61°10.3	52°43.6	1°24.3	44°31.3	54° 45.0	71°34.8	98°33.7	
23	218°56.3	8.6'	26°01.9	-3.1'	55.7'	60°44.2	52°14.6		45°02.7	55°06.9	72°06.1	99°05.1	
21 st	SD = 15.4' Mer. pass. 07:52								Sun	SD = 16.2'			

Moon (22nd Jan)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Altair	-Sun	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus	+Adhara
0	233°23.9	8.6'	S 26°05.1	-3.0'	55.7'	60°18.2	51°45.7		45°34.0	55°28.9	72°37.5	99°36.5	114°13.3
1	247°51.6	8.6'	$26^{\circ}08.0$	-2.8'	55.7'	59°52.2	51°16.9		46°05.3	55°50.9	73°08.8	100°07.9	114°29.0
2	262°19.2	8.6'	$26^{\circ}10.9$	-2.7'	55.7'	59°26.3	50°48.0		46°36.6	56° 13.1	73°40.1	100°39.2	114°44.6
3	276°46.9	8.6'	26°13.6	-2.6'	55.6'	59°00.5	50°19.2		47°07.9	56° 35.3	74°11.4	101°10.5	115°00.1
4	291°14.5	8.6'	$26^{\circ}16.1$	-2.4'	55.6'	58°34.7	49°50.4		47°39.2	56° 57.7	74°42.6	101°41.8	115°15.4
5	305°42.1	8.6'	$26^{\circ}18.5$	-2.3'	55.6'	58°09.1	49°21.6	2°20.5	48°10.4	57°20.1	75°13.8	102°13.1	115°30.7
6	320°09.8	8.6'	S 26°20.8	-2.1'	55.6'	57°43.5	48°52.8	2°51.4	48°41.6	57° 42.5	75°45.0	102°44.4	115°45.8
7	334°37.4	8.6'	26°22.9	-2.0'	55.6'	57°17.9	48°24.1	3°22.4	49°12.8	58°05.1	76°16.2	103°15.6	116°00.9
8	349°05.0	8.6'	26°24.9	-1.8'	55.5'	56°52.5	47°55.4	3°53.5	49°44.0	58° 27.7	76°47.4	103°46.8	
9	3°32.7	8.7'	26°26.7	-1.7'	55.5'	56°27.1	47°26.7	4°24.6	50°15.1	58°50.4	77°18.6	104°18.0	
10	18°00.4	8.7'	26°28.4	-1.6'	55.5'	56°01.9	46°58.0	4°55.7	50°46.2	59°13.1	77°49.7	104°49.2	
11	32°28.0	8.7'	26°30.0	-1.4'	55.5'	55°36.7	46°29.3	5°26.8	51°17.3	59°35.9	78°20.8	105°20.3	
12	46°55.7	8.7'	S 26°31.4	-1.3'	55.4'	55°11.6	46°00.7	5°57.9	51°48.4	59°58.8	78°51.9	105°51.4	
13	61°23.4	8.7'	26°32.7	-1.1'	55.4'	54°46.5	45°32.1	6°29.0	52° 19.5	60°21.7	79°23.0	106°22.5	
14	75°51.0	8.7'	26°33.8	-1.0'	55.4'	54°21.6	45°03.5	7°00.1	52°50.6	60°44.7	79°54.0	106°53.6	
15	90°18.7	8.7'	26°34.8	-0.9'	55.4'	53°56.7	44°34.9	7°31.2	53°21.6	61°07.7	80°25.0	107°24.7	
16	104°46.5	8.7'	26°35.7	-0.7'	55.4'	53°32.0	44°06.4	8°02.2	53°52.6	61°30.8	80°56.1	107°55.7	
17	119°14.2	8.7'	26°36.4	-0.6'	55.3'	53°07.3	43°37.8	8°33.3	54°23.6	61°54.0	81°27.1	108°26.7	
18	133°41.9	8.8'	S 26°36.9	-0.4'	55.3'	52°42.7	43°09.3	9°04.3	54°54.6	62° 17.2	81°58.0	108°57.7	
19	148°09.7	8.8'	26°37.4	-0.3'	55.3'	52°18.3	42°40.8	9°35.3	55°25.5	62°40.4	82°29.0	109°28.7	
20	162°37.5	8.8'	26°37.7	-0.1'	55.3'	51°53.9	42°12.3	10°06.3	55° 56.5	63°03.7	82°59.9	109°59.7	
21	177°05.3	8.8'	26°37.8	-0.0'	55.3'	51°29.6	41°43.9	10°37.2	56°27.4	63°27.1	83°30.8	110°30.6	
22	191°33.1	8.8'	26°37.8	0.1'	55.2'	51°05.4	41°15.4	11°08.2	56°58.3	63° 50.5	84°01.7	111°01.6	
23	206°00.9	8.9'	26°37.7	0.3'	55.2'	50°41.4	40°47.0	11°39.1	57°29.2	64°13.9	84°32.6	111°32.5	
22 nd	SD :	= 15.2'	Mer. pas	s. 08:45	j				Sun S	5D = 16.2'			

h

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

Sun	GHA	ν	Dec	d	HP	-Altair	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Jupiter	+Regulus
0	220°28.8	8.9'	S 26°37.4	0.4'	55.2'	50°17.4	12°10.0		47°40.3	58°00.0	64°37.4	85°03.5	112°03.3
1	234°56.7	8.9'	26° 37.0	0.6'	55.2'	49°53.5	12°40.9		47°56.5	58°30.9	65°00.9	85°34.3	112°34.2
2	249°24.6	8.9'	26°36.4	0.7'	55.2'	49°29.8	13°11.8		48°12.8	59°01.7	65°24.5	86°05.2	113°05.1
3	263°52.5	9.0'	26°35.8	0.8'	55.2'	49°06.1	13°42.7	44°44.4	48°29.3	59°32.5	65°48.1	86°36.0	113°35.9
4	278°20.5	9.0'	26°34.9	1.0'	55.1'	48°42.6	14°13.5	44° 59.6	48°45.9	60°03.3	66°11.7	87°06.8	114°06.7
5	292°48.5	9.0'	26°34.0	1.1'	55.1'	48°19.2	14°44.3	45° 15.0	49°02.7	60°34.1	66°35.4	87°37.5	114°37.5
6	307°16.5	9.1'	S 26°32.9	1.2'	55.1'	47°55.9	15°15.2	45° 30.6	49°19.7	61°04.9	66°59.1	88°08.3	115°08.3
7	321°44.6	9.1'	$26^{\circ}31.6$	1.4'	55.1'	47°32.7	15°46.0	45°46.4	49°36.8	61°35.6	67°22.8	88°39.0	115°39.0
8	336°12.7	9.1'	26°30.2	1.5'	55.1'	47°09.7	16°16.7	46°02.4	49°54.1	62°06.3	67°46.6	89°09.8	116°09.8
9	350°40.8	9.2'	26°28.7	1.6'	55.0'	46°46.7	16°47.5	46° 18.6	$50^{\circ}11.5$	62°37.0	68°10.4	89°40.5	116°40.5
10	5°09.0	9.2'	$26^{\circ}27.1$	1.8'	55.0'	46°23.9	17°18.2	46°35.0	50°29.0	63°07.7	68°34.3	90°11.2	117°11.2
11	19°37.1	9.2'	26°25.3	1.9'	55.0'	46°01.3	17°49.0	46°51.5	50°46.8	63°38.4	68°58.1	90°41.8	117°41.9
12	34°05.4	9.3'	S 26°23.4	2.1'	55.0'	45°38.7	18° 19.7	47°08.2	51°04.6	64°09.1	69°22.0	91°12.5	118° 12.5
13	48°33.7	9.3'	$26^{\circ}21.3$	2.2'	55.0'	45°16.3	18°50.4	47° 25.1	51°22.6	64°39.7	69°45.9	91°43.1	118°43.2
14	63°02.0	9.4'	$26^{\circ}19.1$	2.3'	55.0'	44°54.1	19°21.1	47°42.1	51°40.7	65°10.3	70°09.9	92°13.8	119°13.8
15	77°30.3	9.4'	26° 16.8	2.5'	54.9'	44°32.0	19°51.7	47°59.3	51°59.0	65°41.0	70°33.9	92°44.4	119°44.4
16	91°58.7	9.4'	26° 14.4	2.6'	54.9'	44°10.0	20°22.4	48° 16.7	52°17.3	66°11.6	70°57.9	93°15.0	
17	106°27.1	9.5'	26° 11.8	2.7'	54.9'	43°48.2	20°53.0	48° 34.2	52°35.8	66°42.1	71°21.9	93°45.5	
18	120°55.6	9.5'	S 26°09.1	2.8'	54.9'	43°26.5	21°23.6	48°51.9	52°54.5	67°12.7	71°46.0	94°16.1	
19	135°24.1	9.6'	26°06.2	3.0'	54.9'	43°05.0	21°54.2	49°09.7	53°13.2	67°43.3	72°10.0	94°46.6	
20	149°52.7	9.6'	26°03.2	3.1'	54.9'	42°43.7	22°24.8	49°27.7	53°32.1	68°13.8	72°34.1	95°17.2	
21	164°21.3	9.7'	26°00.1	3.2'	54.8'	42°22.5	22°55.4	49°45.8	53°51.0	68°44.3	72°58.2	95°47.7	
22	178°50.0	9.7'	25°56.9	3.4'	54.8'	42°01.5	23°25.9	50°04.0	54°10.1	69°14.8	73°22.4	96°18.2	
23	193°18.7	9.8'	25°53.5	3.5'	54.8'	41°40.6	23°56.5	50°22.4	54°29.3	69°45.3	73°46.5	96°48.7	
23 rd	SD =	= 15.1′	Mer. pass	. 09:39	9								

	Moon	(O 4th		
h	Moon	(24111	lan I	

Mon	GHA	ν	Dec	d	HP	-Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus	+Jupiter
0	207°47.5	9.8'	S 25°50.0	3.6'	54.8'	41°20.0	24°27.0	50°40.9	54°48.6	66°13.4	70°15.8	74° 10.7	97°19.1
1	222°16.3	9.9'	25°46.4	3.8'	54.8'	40°59.5	24°57.5	50°59.6	55°08.0	66°31.4	70°46.2	74°34.9	97°49.6
2	236°45.1	9.9'	25°42.6	3.9'	54.8'	40°39.1	25°28.0	51°18.3	55°27.5	66°49.5	71°16.7	74°59.1	98°20.0
3	251°14.0	10.0'	25°38.8	4.0'	54.7'	40°19.0	25° 58.5	51°37.2	55°47.1	67°07.7	71°47.1	75°23.3	98°50.5
4	265°43.0	10.0'	25°34.8	4.1'	54.7'	39°59.1	26°28.9	51°56.3	56°06.9	67°25.9	72°17.5	75°47.5	99°20.9
5	280°12.0	10.1'	25°30.6	4.3'	54.7'	39°39.3	26°59.4	52°15.4	56°26.7	67°44.2	72°47.9	76°11.8	99°51.3
6	294°41.1	10.1'	S 25°26.4	4.4'	54.7'	39°19.8	27°29.8	52°34.7	56°46.6	68°02.6	73°18.3	76°36.0	100°21.6
7	309°10.2	10.2'	25°22.0	4.5'	54.7'	39°00.5	28°00.3	52°54.0	57°06.5	68°21.0	73°48.7	77°00.3	100°52.0
8	323°39.4	10.2'	25°17.5	4.6'	54.7'	38°41.3	28°30.7	53°13.5	57°26.6	68°39.5	74° 19.1	77°24.6	101°22.4
9	338°08.7	10.3'	$25^{\circ}12.9$	4.7'	54.7'	38°22.4	29°01.1	53°33.1	57°46.8	68°58.0	74°49.4	77°48.9	101°52.7
10	352°38.0	10.4'	$25^{\circ}08.1$	4.9'	54.6'	38°03.7	29°31.5	53°52.8	58°07.0	69°16.6	75° 19.7	78°13.2	102°23.0
11	7°07.3	10.4'	25°03.3	5.0'	54.6'	37°45.2	30°01.8	54°12.6	58°27.4	69°35.3	75°50.1	78°37.5	102°53.3
12	21°36.7	10.5'	S 24°58.3	5.1'	54.6'	37°27.0	30°32.2	54°32.5	58°47.8	69°54.0	76°20.4	79°01.8	103°23.6
13	36°06.2	10.5'	24°53.2	5.2'	54.6'	37°09.0	31°02.5	54°52.5	59°08.3	70°12.7	76°50.7	79°26.1	103°53.9
14	50°35.8	10.6'	24°48.0	5.3'	54.6'	36°51.2	31°32.8	55°12.6	59°28.9	70°31.5	77°20.9	79°50.5	104°24.2
15	65°05.4	10.7'	24°42.6	5.5'	54.6'	36°33.7	32°03.2	55°32.8	59°49.5	70°50.4	77°51.2	80°14.8	104°54.4
16	79°35.0	10.7'	24°37.2	5.6'	54.6'	36°16.4	32°33.5	55°53.1	60°10.2	71°09.3	78°21.5	80°39.1	105°24.7
17	94°04.7	10.8'	24°31.6	5.7'	54.5'	35°59.3	33°03.7	56°13.5	60°31.0	71°28.2	78°51.7	81°03.5	105°54.9
18	108°34.5	10.9'	S 24°25.9	5.8'	54.5'	35°42.6	33°34.0	56°34.0	60°51.9	71°47.2	79°21.9	81°27.8	106°25.1
19	123°04.4	10.9'	24°20.1	5.9'	54.5'	35°26.1	34°04.3	56°54.5	61°12.8	72°06.3	79°52.2	81°52.2	106°55.3
20	137°34.3	11.0'	24°14.2	6.0'	54.5'	35°09.8	34°34.5	57°15.2	61°33.8	72°25.3	80°22.4	82°16.6	107°25.5
21	152°04.3	11.0'	24°08.2	6.1'	54.5'	34°53.9	35°04.8	57°35.9	61°54.9	72°44.5	80°52.6	82°40.9	107°55.7
22	166°34.3	11.1'	24°02.0	6.2'	54.5'	34°38.2	35°35.0	57°56.7	62°16.0	73°03.6	81°22.7	83°05.3	108°25.9
23	181°04.4	11.2'	23°55.8	6.4'	54.5'	34°22.8	36°05.2	58°17.6	62°37.2	73°22.9	81°52.9	83°29.7	108°56.0
24 th	SD :	= 14.9'	Mer. pass	. 10:31									

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

Tue	GHA	ν	Dec	d	HP	-Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus	+Jupiter
0	195°34.6	11.2'	S 23°49.4	6.5'	54.5'	34°07.7	36°35.4	58° 38.5	62°58.5	73°42.1	82°23.1	83°54.0	109°26.1
1	210°04.8	11.3'	23°43.0	6.6'	54.4'		37°05.6	58° 59.6	63°19.8	74°01.4	82°53.2	84° 18.4	109°56.3
2	224°35.1	11.4'	23°36.4	6.7'	54.4'		37°35.8	59°20.7	63°41.1	74°20.7	83°23.3	84°42.8	110°26.4
3	239°05.5	11.4'	23°29.7	6.8'	54.4'		38°05.9	59°41.9	64°02.6	74°40.1	83°53.5	85°07.1	110°56.5
4	253°36.0	11.5'	23°22.9	6.9'	54.4'		38°36.1	60°03.1	64°24.1	74°59.5	84°23.6	85°31.5	111°26.6
5	268°06.5	11.6'	$23^{\circ}16.0$	7.0'	54.4'		39°06.2	60°24.4	64°45.6	75°18.9	84°53.7	85°55.9	111°56.6
6	282°37.0	11.6'	S 23°09.0	7.1'	54.4'		39°36.4	60°45.8	65°07.2	75°38.3	85°23.7	86°20.2	112°26.7
7	297°07.7	11.7'	23°01.9	7.2'	54.4'		40°06.5	61°07.3	65°28.8	75°57.8	85°53.8	86°44.6	112°56.7
8	311°38.4	11.8'	22°54.7	7.3'	54.4'		40°36.6	61°28.8	65°50.5	76°17.4	86°23.9	87°08.9	113°26.8
9	326°09.2	11.8'	22°47.4	7.4'	54.4'		41°06.7	61°50.3	66°12.3	76°36.9	86°53.9	87°33.3	113°56.8
10	340°40.0	11.9'	22°40.0	7.5'	54.3'		41°36.8	62° 12.0	66°34.1	76°56.5	87°24.0	87°57.6	114°26.8
11	355°10.9	12.0'	$22^{\circ}32.5$	7.6'	54.3'		42°06.9	62°33.7	66°55.9	77°16.1	87°54.0	88°22.0	114°56.8
12	9°41.9	12.1'	S 22°24.9	7.7'	54.3'		42°36.9	62°55.4	67°17.8	77°35.8	88°24.0	88°46.3	115°26.8
13	24°13.0	12.1'	$22^{\circ}17.1$	7.8'	54.3'		43°07.0	63° 17.2	67°39.7	77°55.4	88°54.0	89°10.6	115°56.8
14	38°44.1	12.2'	22°09.3	7.9'	54.3'		43°37.0	63°39.1	68°01.7	78°15.1	89°24.0	89°34.9	116°26.7
15	53°15.3	12.3'	22°01.4	8.0'	54.3'		44°07.1	64°01.0	68°23.7	78°34.8	89°54.0	89°59.3	116°56.7
16	67°46.6	12.3'	21°53.4	8.1'	54.3'		44°37.1	64°23.0	68°45.7	78°54.6	90°24.0	90°23.6	117°26.6
17	82°17.9	12.4'	21°45.3	8.2'	54.3'		45°07.1	64°45.0	69°07.8	79°14.3	90°54.0	90°47.8	117°56.6
18	96°49.3	12.5'	S 21°37.1	8.3'	54.3'			·	New M	loon ———	<u> </u>		'
19	111°20.8	12.5'	21°28.9	8.4'	54.2'				— New M	loon ———			
20	125°52.3	12.6'	$21^{\circ}20.5$	8.5'	54.2'					loon ———			
21	140°23.9	12.7'	$21^{\circ}12.0$	8.6'	54.2'					loon ———			
22	154°55.6	12.7'	$21^{\circ}03.5$	8.6'	54.2'								
23	23 169°27.4 12.8' 20°54.8 8.7' 54.2'								— New M	loon ——			
25 th	5 th SD = 14.9′ Mer. pass. 11:20												

Moon (26th Jan) h

		1410011	(20 30	,		
Wed	GHA	ν	Dec	d	HP	
0	183°59.2	12.9'	S 20°46.1	8.8'	54.2'	New Moon
1	198°31.1	13.0'	20°37.3	8.9'	54.2'	New Moon
2	213°03.0	13.0'	20°28.4	9.0'	54.2'	New Moon
3	227°35.0	13.1'	$20^{\circ}19.4$	9.1'	54.2'	New Moon
4	242°07.1	13.2'	20°10.3	9.2'	54.2'	New Moon
5	256°39.3	13.2'	20°01.1	9.2'	54.2'	New Moon
6	271°11.5	13.3'	S 19°51.9	9.3'	54.1'	New Moon
7	285°43.8	13.4'	19°42.5	9.4'	54.1'	New Moon
8	300°16.2	13.4'	19°33.1	9.5'	54.1'	New Moon
9	314°48.6	13.5'	19°23.6	9.6'	54.1'	New Moon
10	329°21.1	13.6'	$19^{\circ}14.1$	9.6'	54.1'	New Moon
11	343°53.7	13.6'	19°04.4	9.7'	54.1'	New Moon
12	358°26.3	13.7'	S 18°54.7	9.8'	54.1'	New Moon
13	12°59.0	13.8'	18°44.9	9.9'	54.1'	New Moon
14	27°31.8	13.8'	18°35.0	10.0'	54.1'	New Moon
15	42°04.6	13.9'	18°25.1	10.0'	54.1'	New Moon
16	56°37.5	14.0'	$18^{\circ}15.1$	10.1'	54.1'	New Moon
17	71°10.5	14.0'	18°05.0	10.2'	54.1'	New Moon
18	85°43.5	14.1'	S 17°54.8	10.2'	54.1'	New Moon
19	100°16.6	14.2'	17°44.5	10.3'	54.0'	New Moon
20	114°49.8	14.2'	17°34.2	10.4'	54.0'	New Moon
21	129°23.0	14.3'	17°23.9	10.4'	54.0'	New Moon
22	143°56.2	14.3'	17°13.4	10.5'	54.0'	New Moon
23	158°29.6	14.4'	17°02.9	10.6'	54.0'	New Moon
26 th	SD	= 14.8'	Mer. pass	. 12:06		

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1.	Moon (27 th Ian)	Lunar Distance (objects with largest hourly ID delta)	
n	1/100h 1 / / *** 12h 1	I linar i listance i oniects with largest nollriv i i l'i delta i	

Thu	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	-Venus	-Fomalhaut
0	173°03.0	14.5'	S 16°52.3	10.6'	54.0'			New N	100n ——		_
1	187°36.5	14.5'	$16^{\circ}41.7$	10.7'	54.0'			——— New N	100n ——		_
2	202°10.0	14.6'	$16^{\circ}31.0$	10.8'	54.0'			——— New N	100n ——		_
3	216°43.6	14.6'	$16^{\circ}20.2$	10.8'	54.0'			——— New N	100n ——		_
4	231°17.2	14.7'	$16^{\circ}09.3$	10.9'	54.0'			——— New N			
5	245°50.9	14.8'	15°58.4	11.0'	54.0'			——— New N	100n ——		-
6	260°24.7	14.8'	S 15°47.5	11.0'	54.0'			——— New N	100n ——		_
7	274°58.5	14.9'	$15^{\circ}36.5$	11.1'	54.0'			——— New N	100n ——		_
8	289°32.4	14.9'	$15^{\circ}25.4$	11.1'	54.0'			——— New N			
9	304°06.3	15.0'	$15^{\circ}14.2$	11.2'	54.0'			——— New N			
10	318°40.3	15.0'	$15^{\circ}03.0$	11.3'	54.0'						I
11	333°14.3	15.1'	$14^{\circ}51.8$	11.3'	54.0'			——— New N	100n ——		-
12	347°48.4	15.2'	S 14°40.5	11.4'	53.9'			——— New N	100n ——		_
13	2°22.6	15.2'	$14^{\circ}29.1$	11.4'	53.9'				100n ——		_
14	$16^{\circ}56.8$	15.3'	$14^{\circ}17.7$	11.5'	53.9'		115°57.8	112°47.2	64°45.9	29°50.9	27°53.5
15	31°31.1	15.3'	14°06.2	11.5'	53.9'		115°34.8	112°18.0	64°16.7	29°24.6	
16	46°05.4	15.4'	13°54.7	11.6'	53.9'		115°11.8	111°48.9	63°47.5	28°58.4	
17	60°39.8	15.4'	13°43.1	11.6'	53.9'	119°44.8	114°48.8	111°19.7	63°18.4	28°32.1	
18	75°14.2	15.5'	S 13°31.5	11.7'	53.9'	119°17.4	114°25.7	110°50.6	62°49.2	28°05.9	
19	89°48.6	15.5'	$13^{\circ}19.8$	11.7'	53.9'	118°50.0	114°02.6	110°21.4	62°20.1	27°39.7	
20	104°23.2	15.6'	13°08.1	11.8'	53.9'	118°22.6	113°39.5	109°52.3	61°50.9	27°13.5	
21	118°57.7	15.6'	12°56.3	11.8'	53.9'	117°55.2	113°16.3	109°23.1	61°21.8	26°47.4	
22	133°32.3	15.7'	12°44.5	11.9'	53.9'	117°27.7	112°53.1	108°54.0	60°52.7	26°21.3	
23	148°07.0	15.7'	12°32.6	11.9'	53.9'	117°00.3	112°29.8	108°24.8	60°23.6	25°55.1	
27 th	SD	= 14.7'	Mer. pass	s. 12:50							

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

Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	-Venus	+Mars
0	162°41.7	15.8'	S 12°20.7	12.0'	53.9'		116°32.8	112°06.5	107°55.7	59°54.5	25°29.0	
1	177°16.5	15.8'	12°08.8	12.0'	53.9'		116°05.3	111°43.1	107°26.5	59°25.4	25°03.0	
2	191°51.3	15.8'	$11^{\circ}56.7$	12.0'	53.9'		115°37.8	111°19.8	106°57.4	58°56.3	24°36.9	5°04.2
3	206°26.1	15.9'	11°44.7	12.1'	53.9'		115°10.2	110°56.4	106°28.2	58°27.2	24° 10.9	5°28.2
4	221°01.0	15.9'	11°32.6	12.1'	53.9'		114°42.7	110°32.9	105°59.1	57°58.1	23°44.8	5°52.8
5	235°35.9	16.0'	11°20.5	12.2'	53.9'		114°15.2	110°09.4	105°30.0	57°29.1	23° 18.9	6°17.8
6	250°10.9	16.0'	S 11°08.3	12.2'	53.9'		113°47.6	109°45.9	105°00.8	57°00.0	22°52.9	6°43.1
7	264°45.9	16.1'	$10^{\circ}56.1$	12.3'	53.9'		113°20.0	109°22.4	104°31.7	56°31.0	22°27.0	7°08.7
8	279°21.0	16.1'	10°43.8	12.3'	53.9'		112°52.5	108°58.8	104°02.6	56°01.9	22°01.0	7°34.5
9	293°56.1	16.1'	10°31.6	12.3'	53.9'		112°24.9	108°35.2	103°33.4	55°32.9	21°35.2	8°00.5
10	308°31.2	16.2'	$10^{\circ}19.2$	12.4'	53.9'		111°57.3	108°11.6	103°04.3	55°03.8	21°09.3	8°26.7
11	323°06.4	16.2'	$10^{\circ}06.9$	12.4'	53.9'		111°29.7	107°47.9	102°35.2	54°34.8	20°43.5	8°53.0
12	337°41.6	16.2'	S 09°54.5	12.4'	53.9'		111°02.0	107°24.3	102°06.1	54°05.8	20° 17.7	9°19.5
13	352°16.8	16.3'	09°42.0	12.5'	53.9'	119°50.2	110°34.4	107°00.5	101°36.9	53°36.8	19°52.0	9°46.0
14	6°52.1	16.3'	09°29.6	12.5'	53.9'	119°22.8	110°06.8	106°36.8	101°07.8	53°07.8	19°26.2	10°12.7
15	21°27.4	16.4'	09° 17.0	12.5'	53.9'	118°55.3	109°39.1	106°13.1	100°38.7	52°38.8	19°00.6	10°39.4
16	36°02.8	16.4'	09°04.5	12.6'	53.9'	118°27.9	109°11.4	105°49.3	100°09.5	52°09.8	18°34.9	11°06.2
17	50°38.2	16.4'	08°51.9	12.6'	53.9'	118°00.4	108°43.8	105°25.5	99°40.4	51°40.9	18°09.4	11°33.0
18	65°13.6	16.4'	S 08°39.3	12.6'	53.9'	117°32.9	108°16.1	105°01.6	99°11.3	51°11.9	17°43.8	11°59.9
19	79°49.0	16.5'	08°26.7	12.7'	53.9'	117°05.3	107°48.4	104°37.8	98°42.2	50°42.9	17° 18.3	12°26.8
20	94°24.5	16.5'	$08^{\circ}14.0$	12.7'	53.9'	116°37.8	107°20.7	104°13.9	98°13.1	50°14.0	16°52.9	12°53.8
21	109°00.0	16.5'	08°01.3	12.7'	53.9'	116° 10.2	106°53.0	103°50.0	97°43.9	49°45.0	16°27.5	13°20.9
22	123°35.6	16.6'	07°48.6	12.8'	53.9'	115°42.7	106°25.3	103°26.1	97°14.8	49°16.1	16°02.2	13°47.9
23	138°11.1	16.6'	07°35.9	12.8'	53.9'	115° 15.1	105°57.6	103°02.1	96°45.7	48°47.1	15°37.0	14°15.0
28 th	SD	$= 14.7^{\prime}$	Mer. pass	s. 13:32								

h Moon	(29 th Jan)	Lunar Distance	(objects with I	argest hourly LD del	ta)
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Sat	GHA	ν	Dec	d	HP	-Sirius	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	-Venus	+Mars
0	152°46.7	16.6'	S 07°23.1	12.8'	53.9'		114°47.5	105°29.8	102°38.2	96°16.6	48°18.2	15°11.8	14°42.1
1	167°22.3	16.6'	$07^{\circ}10.3$	12.8'	53.9'		114°19.9	105°02.1	102°14.2	95°47.4	47°49.3	14°46.7	15°09.3
2	181°58.0	16.7'	$06^{\circ}57.5$	12.9'	53.9'		113°52.2	104°34.3	101°50.2	95°18.3	47°20.4	14°21.7	15°36.4
3	196°33.7	16.7'	06°44.6	12.9'	53.9'		113°24.6	104°06.6	101°26.2	94°49.2	46°51.5	13°56.8	16°03.6
4	211°09.4	16.7'	06°31.7	12.9'	53.9'		112°56.9	103°38.8	101°02.2	94°20.1	46°22.6	13°32.0	16°30.8
5	225°45.1	16.7'	$06^{\circ}18.8$	12.9'	53.9'		112°29.3	103°11.0	100°38.1	93°50.9	45°53.7	13°07.3	16°58.1
6	240°20.8	16.8'	S 06°05.9	12.9'	53.9'		112°01.6	102°43.3	100°14.0	93°21.8	45°24.8	12°42.7	17°25.3
7	254°56.6	16.8'	05°52.9	13.0'	53.9'	119°43.4	111°33.9	102°15.5	99°50.0	92°52.7	44°56.0	12°18.3	17°52.6
8	269°32.4	16.8'	$05^{\circ}40.0$	13.0'	53.9'	119°24.0	111°06.2	101°47.7	99°25.9	92°23.5	44°27.1	11°54.0	18° 19.9
9	284°08.2	16.8'	$05^{\circ}27.0$	13.0'	53.9'	119°04.6	110°38.5	101°19.9	99°01.8	91°54.4	43°58.3	11°29.8	18°47.2
10	298°44.0	16.8'	$05^{\circ}14.0$	13.0'	53.9'	118°45.0	110°10.7	100°52.1	98°37.6	91°25.3	43°29.4	11°05.9	19°14.5
11	313°19.8	16.9'	$05^{\circ}01.0$	13.0'	53.9'	118°25.4	109°43.0	100°24.3	98°13.5	90°56.1	43°00.6	10°42.2	19°41.8
12	327°55.7	16.9'	S 04°47.9	13.1'	53.9'	118°05.7	109°15.2	99°56.5	97°49.3	90°27.0	42°31.8	10°18.6	20°09.1
13	342°31.5	16.9'	04°34.8	13.1'	53.9'	117°46.0	108°47.5	99°28.6	97°25.2	89°57.9	42°03.0	9°55.4	20°36.5
14	357°07.4	16.9'	04°21.8	13.1'	53.9'	117°26.1	108°19.7	99°00.8	97°01.0	89°28.7	41°34.1	9°32.4	21°03.8
15	11°43.3	16.9'	04°08.7	13.1'	53.9'	117°06.2	107°51.9	98°33.0	96°36.8	88°59.6	41°05.3	9°09.7	21°31.2
16	26°19.2	16.9'	03°55.5	13.1'	53.9'	116°46.2	107°24.1	98°05.1	96°12.6	88°30.5	40°36.6	8°47.4	21°58.6
17	40°55.1	16.9'	03°42.4	13.1'	53.9'	116°26.1	106°56.3	97°37.3	95°48.4	88°01.3	40°07.8	8°25.5	22°26.0
18	55°31.1	16.9'	S 03°29.3	13.2'	53.9'	116°06.0	106°28.4	97°09.4	95°24.2	87°32.2	39°39.0	8°04.0	22°53.4
19	70°07.0	16.9'	$03^{\circ}16.1$	13.2'	54.0'	115°45.8	106°00.6	96°41.6	94°59.9	87°03.0	39°10.3	7°43.1	23°20.8
20	84°43.0	17.0'	03°02.9	13.2'	54.0'	115°25.5	105°32.7	96°13.7	94°35.7	86°33.9	38°41.5	7°22.8	23°48.2
21	99°18.9	17.0'	02°49.8	13.2'	54.0'	115°05.2	105°04.9	95°45.8	94°11.5	86°04.7	38°12.8	7°03.2	24°15.6
22	113°54.9	17.0'	02°36.6	13.2'	54.0'	114°44.8	104°37.0	95°18.0	93°47.2	85°35.6	37°44.1	6°44.4	24°43.0
23	128°30.8	17.0'	02°23.4	13.2'	54.0'	114°24.4	104°09.1	94°50.1	93°22.9	85°06.4	37°15.3	6°26.4	25°10.5
29 th	SD	$=14.7^{\prime}$	Mer. pass	s. 14:12									

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Sun	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Venus	+Mars	+Fomalhaut	+Sun
0	143°06.8	17.0'	S 02°10.2	13.2'	54.0'		103°41.2	84°37.2	36°46.6		25°37.9		
1	157°42.8	17.0'	$01^{\circ}56.9$	13.2'	54.0'		103°13.3	84°08.1	36° 18.0		26°05.4		
2	172°18.8	17.0'	01°43.7	13.2'	54.0'		102°45.4	83°38.9	35°49.3		26°32.9		
3	186°54.8	17.0'	01°30.5	13.2'	54.0'		102°17.5	83°09.7	35°20.6		27°00.4		
4	201°30.8	17.0'	$01^{\circ}17.2$	13.3'	54.0'		101°49.6	82°40.5	34°52.0		27°27.9	28° 17.9	
5	216°06.7	17.0'	$01^{\circ}03.9$	13.3'	54.0'		101°21.6	82°11.4	34°23.4		27°55.4	28°33.5	
6	230°42.7	17.0'	S 00°50.7	13.3'	54.0'		100°53.7	81°42.2	33°54.7		28°22.9	28°49.4	
7	245°18.7	17.0'	00°37.4	13.3'	54.0'		100°25.7	81°13.0	33°26.1		28°50.4	29°05.7	
8	259°54.7	17.0'	00°24.2	13.3'	54.0'		99°57.7	80°43.8	32°57.6		29°17.9	29°22.3	
9	274°30.7	17.0'	S 00°10.9	13.3'	54.0'		99°29.7	80°14.6	32°29.0		29°45.4	29°39.2	
10	289°06.6	17.0'	N 00°02.4	13.3'	54.1'		99°01.7	79°45.4	32°00.5		30°13.0	29°56.4	41°01.3
11	303°42.6	17.0'	$00^{\circ}15.7$	13.3'	54.1'		98°33.7	79°16.2	31°31.9		30°40.5	30° 13.9	41°28.4
12	318°18.6	17.0'	N00°29.0	13.3'	54.1'		98°05.7	78°47.0	31°03.4		31°08.1	30°31.7	41°55.5
13	332°54.5	16.9'	00°42.2	13.3'	54.1'		97°37.7	78° 17.8	30°34.9		31°35.7	30°49.8	42°22.6
14	347°30.5	16.9'	00°55.5	13.3'	54.1'	119°52.6	97°09.6	77°48.5	30°06.5		32°03.2	31°08.1	42°49.7
15	2°06.4	16.9'	$01^{\circ}08.8$	13.3'	54.1'	119°23.1	96°41.6	$77^{\circ}19.3$	29°38.0		32°30.8	31°26.7	43°16.9
16	16°42.3	16.9'	$01^{\circ}22.1$	13.3'	54.1'	118°53.7	96°13.5	$76^{\circ}50.1$	29°09.6		32°58.4	31°45.6	43°44.0
17	31°18.2	16.9'	01°35.4	13.3'	54.1'	118°24.2	95°45.5	76°20.8	28°41.2		33°26.1	32°04.7	44°11.2
18	45°54.1	16.9'	N 01°48.7	13.3'	54.1'	117°54.7	95°17.4	75°51.6	28° 12.9		33°53.7	32°24.0	44°38.3
19	60°30.0	16.9'	$02^{\circ}01.9$	13.3'	54.1'	117°25.2	94°49.3	75°22.3	27°44.5		34°21.3	32°43.6	45°05.5
20	75°05.9	16.9'	$02^{\circ}15.2$	13.3'	54.1'	116°55.7	94°21.2	74°53.1	27°16.3	7°02.1	34°48.9	33°03.4	45°32.7
21	89°41.7	16.8'	02°28.5	13.3'	54.2'	116°26.2	93°53.1	74°23.8	26°48.0	7°21.8	35° 16.6	33° 23.5	45°59.8
22	104°17.6	16.8'	02°41.7	13.3'	54.2'	115° 56.6	93°25.0	73°54.6	26° 19.8	7°42.2	35°44.3	33°43.7	46°27.0
23	118°53.4	16.8'	02°55.0	13.3'	54.2'	115°27.1	92°56.8	73°25.3	25°51.6	8°03.3	36°11.9	34°04.2	46°54.2
30 th	SD	$= 14.7^{\prime}$	Mer. pass	. 14:51					Sun SD =	= 16.2′			

Moon (31st Jan)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Venus	+Fomalhaut	+Mars	+Sun
0	133°29.2	16.8'	N 03°08.3	13.2'	54.2'	118°26.2	114°57.5	92°28.7	72°56.0	8°24.8	34°24.8	36°39.6	47°21.5
1	148°05.0	16.8'	03°21.5	13.2'	54.2'	117°58.0	114°28.0	92°00.5	72°26.7	8°46.9	34°45.7	37°07.3	47°48.7
2	162°40.7	16.7'	03°34.7	13.2'	54.2'	117°29.8	113°58.4	91°32.4	71°57.4	9°09.4	35°06.8	37°35.0	48° 15.9
3	177°16.5	16.7'	03°48.0	13.2'	54.2'	117°01.6	113°28.8	91°04.2	71°28.1	9°32.2	35°28.0	38°02.7	48°43.1
4	191°52.2	16.7'	$04^{\circ}01.2$	13.2'	54.2'	116°33.4	112°59.2	90°36.0	70°58.8	9°55.4	35°49.5	38°30.5	49°10.4
5	206°27.9	16.7'	04°14.4	13.2'	54.2'	116°05.2	112°29.6	90°07.8	70°29.5	10°18.9	36°11.1	38°58.2	49°37.7
6	221°03.6	16.6'	N 04°27.6	13.2'	54.3'	115°36.9	112°00.0	89°39.6	70°00.1	10°42.7	36°32.9	39°26.0	50°04.9
7	235°39.2	16.6'	04°40.8	13.2'	54.3'	115°08.6	111°30.4	89°11.4	69°30.8	11°06.7	36°54.8	39°53.7	50°32.2
8	250°14.8	16.6'	04°54.0	13.2'	54.3'	114°40.3	111°00.7	88°43.2	69°01.5	11°30.9	37°16.9	40°21.5	50° 59.5
9	264°50.4	16.6'	$05^{\circ}07.1$	13.1'	54.3'	114°11.9	110°31.0	88°15.0	68°32.1	11°55.3	37°39.2	40°49.3	51°26.8
10	279°25.9	16.5'	05°20.3	13.1'	54.3'	113°43.5	110°01.4	87°46.7	68°02.7	$12^{\circ}19.9$	38°01.7	41°17.1	51°54.1
11	294°01.5	16.5'	05°33.4	13.1'	54.3'	113°15.2	109°31.7	87°18.5	67°33.4	12°44.6	38°24.2	41°44.9	52°21.5
12	308°37.0	16.5'	N 05°46.5	13.1'	54.3'	112°46.7	109°02.0	86°50.2	67°04.0	13°09.5	38°47.0	42°12.8	52°48.8
13	323°12.4	16.4'	05°59.6	13.1'	54.4'	112°18.3	108°32.3	86°21.9	66°34.6	13°34.5	39°09.9	42°40.6	53° 16.2
14	337°47.9	16.4'	$06^{\circ}12.7$	13.1'	54.4'	111°49.9	108°02.5	85°53.6	66°05.2	13°59.7	39°32.9	43°08.5	53°43.5
15	352°23.2	16.4'	$06^{\circ}25.8$	13.1'	54.4'	111°21.4	107°32.8	85°25.3	65°35.8	14°25.0	39°56.1	43°36.3	54° 10.9
16	6°58.6	16.3'	06°38.8	13.0'	54.4'	110°52.9	107°03.1	84°57.0	65°06.4	14°50.4	40°19.3	44°04.2	54°38.3
17	21°33.9	16.3'	$06^{\circ}51.9$	13.0'	54.4'	110°24.3	106°33.3	84°28.7	64°37.0	15°15.8	40°42.8	44°32.1	55°05.7
18	36°09.2	16.2'	N 07°04.9	13.0'	54.4'	109°55.8	106°03.5	84°00.4	64°07.5	15°41.4	41°06.3	45°00.1	55°33.1
19	50°44.5	16.2'	$07^{\circ}17.9$	13.0'	54.4'	109°27.2	105°33.7	83°32.0	63°38.1	$16^{\circ}07.1$	41°30.0	45°28.0	56°00.6
20	65°19.7	16.2'	07°30.9	13.0'	54.5'	108°58.6	105°03.9	83°03.7	63°08.6	16°32.8	41°53.8	45°55.9	56°28.0
21	79°54.8	16.1'	07°43.8	12.9'	54.5'	108°30.0	104°34.0	82°35.3	62°39.2	16°58.7	42°17.7	46°23.9	56° 55.5
22	94°29.9	16.1'	07°56.7	12.9'	54.5'	108°01.4	104°04.2	82°07.0	62°09.7	17°24.6	42°41.8	46°51.9	57°23.0
23	109°05.0	16.0'	08°09.7	12.9'	54.5'	107°32.7	103°34.3	81°38.6	61°40.2	17°50.5	43°05.9	47° 19.9	57°50.5
31 st	SD	$=14.8^{\prime}$	Mer. pass	. 15:31					$Sun\;SD =$	16.2			

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

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Venus	+Fomalhaut	+Mars	+Sun
0	123°40.1	16.0'	N 08°22.5	12.9'	54.5'	107°04.0	103°04.5	81°10.2	61°10.7	18°16.6	43°30.2	47°47.9	58° 18.0
1	138°15.0	15.9'	08°35.4	12.8'	54.5'	106°35.3	102°34.6	80°41.8	60°41.2	18°42.7	43°54.5	48°15.9	58° 45.5
2	152°50.0	15.9'	08°48.2	12.8'	54.6'	106°06.6	102°04.6	80°13.3	60°11.7	19°08.8	44°19.0	48°44.0	59°13.1
3	167°24.9	15.8'	$09^{\circ}01.0$	12.8'	54.6'	105°37.8	101°34.7	79°44.9	59°42.1	19°35.1	44°43.6	49°12.1	59°40.7
4	181°59.7	15.8'	09°13.8	12.8'	54.6'	105°09.1	101°04.8	79°16.5	59° 12.6	20°01.3	45°08.3	49°40.2	60°08.2
5	196°34.5	15.7'	$09^{\circ}26.6$	12.7'	54.6'	104°40.3	100°34.8	78°48.0	58°43.0	20°27.7	45°33.1	50°08.3	60°35.9
6	211°09.3	15.7'	N09°39.3	12.7'	54.6'	104°11.4	100°04.8	78°19.6	58° 13.5	20°54.0	45°58.0	50°36.4	61°03.5
7	225°44.0	15.6'	09°52.0	12.7'	54.7'	103°42.6	99°34.8	77°51.1	57°43.9	21°20.5	46°22.9	51°04.5	61°31.1
8	240°18.6	15.6'	10°04.7	12.6'	54.7'	103°13.7	99°04.8	77°22.6	57° 14.3	21°46.9	46°48.0	51°32.7	61°58.8
9	254°53.2	15.5'	10° 17.3	12.6'	54.7'	102°44.8	98° 34.7	76°54.1	56° 44.7	22°13.5	47°13.2	52°00.9	62°26.4
10	269°27.7	15.5'	10°29.9	12.6'	54.7'	102°15.9	98°04.7	76°25.6	56° 15.1	22°40.0	47°38.4	52°29.1	62°54.1
11	284°02.2	15.4'	$10^{\circ}42.5$	12.5'	54.7'	101°47.0	97°34.6	75°57.1	55° 45.5	23°06.6	48°03.8	52°57.3	63°21.8
12	298°36.6	15.4'	N 10°55.0	12.5'	54.7'	101°18.0	97°04.5	75°28.5	55° 15.8	23°33.3	48°29.2	53°25.5	63°49.6
13	313°11.0	15.3'	11°07.5	12.5'	54.8'	100°49.0	96°34.4	75°00.0	54°46.2	24°00.0	48°54.7	53°53.8	64°17.3
14	327°45.3	15.2'	11°20.0	12.4'	54.8'	100°20.0	96°04.2	74°31.5	54° 16.5	24°26.7	49°20.3	54°22.1	64°45.1
15	342°19.5	15.2'	11°32.4	12.4'	54.8'	99°51.0	95°34.0	74°02.9	53°46.9	24°53.5	49°46.0	54°50.4	65°12.9
16	356°53.7	15.1'	11°44.8	12.4'	54.8'	99°21.9	95°03.9	73°34.3	53° 17.2	25°20.3	50°11.8	55°18.7	65°40.7
17	11°27.8	15.1'	$11^{\circ}57.1$	12.3'	54.9'	98°52.9	94°33.7	73°05.7	52°47.5	25°47.2	50°37.6	55°47.0	66°08.6
18	26°01.9	15.0'	N12°09.5	12.3'	54.9'	98°23.8	94°03.4	72°37.1	52° 17.8	26°14.1	51°03.5	56°15.4	66°36.4
19	40°35.9	14.9'	12°21.7	12.2'	54.9'	97°54.6	93°33.2	72°08.5	51°48.1	26°41.0	51°29.5	56°43.8	67°04.3
20	55°09.8	14.9'	12°34.0	12.2'	54.9'	97°25.5	93°02.9	71°39.9	51° 18.3	27°08.0	51°55.6	57°12.2	67°32.2
21	69°43.7	14.8'	12°46.2	12.2'	54.9'	96°56.3	92°32.6	71°11.3	50°48.6	27°35.0	52°21.8	57°40.6	68°00.1
22	84°17.5	14.7'	$12^{\circ}58.3$	12.1'	55.0'	96°27.1	92°02.3	70°42.6	50° 18.8	28°02.0	52°48.0	58°09.1	68°28.1
23	98°51.2	14.7'	13° 10.4	12.1'	55.0'	95°57.9	91°31.9	70°14.0	49°49.1	28°29.1	53°14.3	58°37.6	68°56.0
1 st	SD	= 14.9'	Mer. pass	. 16:13					$Sun\;SD =$	16.2'		·	

h		Моо	n (2 nd Fel	o)			Lunar D	istance (objects wi	th larges	t hourly LD	delta)	
Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Venus	+Fomalhaut	+Mars	+Sun
0	113°24.8	14.6'	N13°22.5	12.0'	55.0'		95°28.6	91°01.6	49°19.3	28°56.2	53° 40.7	59°06.1	69°24.0
1	127°58.4	14.5'	13°34.5	12.0'	55.0'		94°59.3	90°31.2	48°49.5	29°23.4	54°07.1	59°34.6	69°52.1
2	142°31.9	14.4'	13°46.5	11.9'	55.1'		94°30.0	90°00.8	48°19.7	29°50.6	54°33.6	60°03.2	70°20.1
3	157°05.4	14.4'	13°58.4	11.9'	55.1'		94°00.7	89°30.3	47°49.9	30° 17.8	55°00.2	60°31.7	70°48.2
4	171°38.8	14.3'	14°10.3	11.8'	55.1'		93°31.4	88°59.9	47°20.0	30°45.1	55°26.8	61°00.3	71°16.3
5	186°12.0	14.2'	14°22.1	11.8'	55.1'		93°02.0	88°29.4	46°50.2	31°12.4	55°53.6	61°29.0	71°44.4
6	200°45.3	14.1'	N14°33.9	11.7'	55.2'		92°32.6	87°58.9	46°20.4	31°39.7	56° 20.3	61°57.6	72°12.5
7	215°18.4	14.1'	14°45.6	11.7'	55.2'		92°03.1	87°28.3	45°50.5	32°07.1	56° 47.2	62°26.3	72°40.7
8	229°51.5	14.0'	14°57.3	11.6'	55.2'		91°33.7	86°57.8	45°20.6	32°34.5	57° 14.1	62°55.0	73°08.9
9	244°24.4	13.9'	15°08.9	11.6'	55.2'		91°04.2	86°27.2	44°50.7	33°01.9	57°41.1	63°23.7	73°37.1
10	258°57.3	13.8'	15°20.5	11.5'	55.3'		90°34.7	85°56.6	44°20.8	33° 29.4	58°08.1	63°52.5	74°05.3
11	273°30.2	13.7'	15°32.0	11.5'	55.3'		90°05.2	85°25.9	43°50.9	33°56.9	58° 35.2	64°21.3	74°33.6
12	288°02.9	13.7'	N15°43.5	11.4'	55.3'		89°35.6	84°55.2	43°21.0	34° 24.4	59°02.4	64°50.1	75°01.9
13	302°35.6	13.6'	15°54.9	11.3'	55.3'		89°06.0	84°24.5	42°51.1	34°52.0	59° 29.6	65° 19.0	75°30.3
14	317°08.1	13.5'	$16^{\circ}06.2$	11.3'	55.4'		88°36.4	83°53.8	42°21.2	35° 19.6	59°56.9	65°47.8	75°58.6
15	331°40.6	13.4'	$16^{\circ}17.5$	11.2'	55.4'		88°06.7	83°23.1	41°51.2	35°47.2	60°24.3	66° 16.7	76°27.0
16	346°13.0	13.3'	16°28.8	11.2'	55.4'	119°50.5	87°37.1	82°52.3	41°21.3	36° 14.9	60°51.7	66° 45.7	76°55.4
17	0°45.3	13.2'	16°39.9	11.1'	55.4'	119°19.6	87°07.4	82°21.5	40°51.3	36°42.7	61°19.2	67° 14.6	77°23.9
18	15°17.6	13.1'	N16°51.0	11.0'	55.5'	118°48.6	86°37.7	81°50.6	40°21.3	37° 10.4	61°46.7	67°43.6	77°52.4
19	29°49.7	13.1'	17°02.1	11.0'	55.5'	118°17.7	86°07.9	81°19.7	39°51.4	37°38.2	62°14.3	68° 12.6	78°20.9
20	44°21.8	13.0'	17°13.0	10.9'	55.5'	117°46.6	85°38.1	80°48.8	39°21.4	38°06.0	62°41.9	68°41.7	78°49.4
21	58°53.7	12.9'	$17^{\circ}24.0$	10.8'	55.6'	117°15.6	85°08.3	80° 17.9	38°51.4	38° 33.9	63°09.6	69° 10.8	79°18.0
22	73°25.6	12.8'	17°34.8	10.8'	55.6'	116°44.5	84°38.5	79°47.0	38°21.4	39°01.8	63°37.4	69°39.9	79°46.6
23	87°57.4	12.7'	17°45.6	10.7'	55.6'	116°13.4	84°08.6	79°16.0	37°51.4	39°29.7	64°05.2	70°09.0	80°15.2
2 nd	SD	= 15.0'	Mer. pass	. 16:57					Sun SD	$= \overline{16.2'}$			

h

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

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Mars	+Sun
0	102°29.1	12.6'	$N17^{\circ}56.3$	10.6'	55.6'	115°42.3	83°38.7	78°44.9	37°21.4	14°06.2	64°33.1	70°38.2	80°43.8
1	117°00.6	12.5'	$18^{\circ}06.9$	10.6'	55.7'	115°11.1	83°08.8	78°13.9	36°51.4	14°32.4	65°01.0	71°07.4	81°12.5
2	131°32.1	12.4'	$18^{\circ}17.5$	10.5'	55.7'	114°39.9	82°38.9	77°42.8	36°21.4	14°58.9	65°29.0	71°36.7	81°41.3
3	146°03.5	12.3'	18°28.0	10.4'	55.7'	114°08.7	82°08.9	77°11.7	35°51.4	15°25.8	65°57.0	72°05.9	82°10.0
4	160°34.9	12.2'	18°38.4	10.3'	55.8'	113°37.4	81°38.9	76°40.5	35°21.4	15°52.9	66°25.1	72°35.2	82°38.8
5	175°06.1	12.1'	18°48.7	10.3'	55.8'	113°06.1	81°08.9	76°09.4	34°51.4	16°20.3	66°53.2	73°04.6	83°07.6
6	189°37.2	12.0'	$N18^{\circ}59.0$	10.2'	55.8'	112°34.7	80°38.8	75°38.1	34°21.4	16°48.0	67°21.4	73°33.9	83°36.5
7	204°08.2	11.9'	19°09.2	10.1'	55.8'	112°03.4	80°08.7	75°06.9	33°51.4	17° 15.8	67°49.7	74°03.3	84°05.4
8	218°39.1	11.8'	19° 19.3	10.0'	55.9'	111°32.0	79°38.6	74°35.6	33°21.4	17°43.9	68° 18.0	74°32.8	84°34.3
9	233°09.9	11.7'	19°29.4	10.0'	55.9'	111°00.5	79°08.4	74°04.3	32°51.4	18° 12.2	68°46.4	75°02.3	85°03.3
10	247°40.6	11.6'	19°39.3	9.9'	55.9'	110°29.0	78°38.3	73°32.9	32°21.5	18°40.7	69°14.8	75°31.8	85°32.3
11	262°11.3	11.5'	19°49.2	9.8'	56.0'	109°57.5	78°08.1	73°01.6	31°51.5	19°09.3	69°43.2	76°01.3	86°01.3
12	276°41.8	11.4'	$N19^{\circ}59.0$	9.7'	56.0'	109°26.0	77°37.8	72°30.1	31°21.6	19°38.1	70°11.8	76°30.9	86°30.4
13	291°12.2	11.3'	20°08.7	9.6'	56.0'	108°54.4	77°07.6	71°58.7	30°51.6	20°07.1	70°40.3	77°00.5	86°59.5
14	305°42.5	11.2'	20°18.3	9.5'	56.1'	108°22.8	76°37.3	71°27.2	30°21.7	20°36.2	71°09.0	77°30.2	87°28.6
15	320°12.7	11.1'	$20^{\circ}27.8$	9.4'	56.1'	107°51.1	76°07.0	70°55.7	29°51.8	21°05.5	71°37.6	77°59.9	87°57.8
16	334°42.8	11.0'	20°37.3	9.4'	56.1'	107°19.4	75°36.6	70°24.1	29°22.0	21°34.9	72°06.3	78°29.6	88°27.0
17	349°12.8	10.9'	20°46.6	9.3'	56.2'	106°47.7	75°06.2	69°52.5	28°52.1	22°04.4	72°35.1	78°59.4	88°56.2
18	3°42.7	10.8'	N 20°55.9	9.2'	56.2'	106°15.9	74°35.8	69°20.9	28° 22.3	22°34.0	73°03.9	79°29.2	89°25.5
19	18°12.5	10.7'	21°05.0	9.1'	56.2'	105°44.1	74°05.4	68°49.2	27° 52.5	23°03.8	73°32.8	79°59.0	89°54.9
20	32°42.1	10.6'	$21^{\circ}14.1$	9.0'	56.3'	105°12.2	73°34.9	68°17.5	27°22.8	23°33.7	74°01.7	80°28.9	90°24.2
21	47°11.7	10.5'	$21^{\circ}23.1$	8.9'	56.3'	104°40.3	73°04.4	67°45.8	26°53.1	24°03.7	74°30.7	80°58.8	90°53.6
22	61°41.2	10.4'	21°32.0	8.8'	56.3'	104°08.4	72°33.9	67°14.0	26°23.4	24°33.8	74°59.7	81°28.7	91°23.1
23	76°10.5	10.2'	21°40.8	8.7'	56.4'	103°36.4	72°03.4	66°42.2	25°53.8	25°04.0	75°28.8	81°58.7	91°52.5
3 rd	SD	$=15.2^{\prime}$	Mer. pass	. 17:45					Sun SD	= 16.2'			

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

						I .	1		_		, ,		
Fri	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Saturn	+Fomalhaut	+Mars	+Sun
0	90°39.8	10.1'	N21°49.4	8.6'	56.4'		103°04.4	71°32.8	66° 10.4	25°34.3	75°57.9	82°28.8	92°22.1
1	105°08.9	10.0'	21°58.0	8.5'	56.4'		102°32.4	71°02.2	65°38.5	26°04.7	76°27.1	82°58.8	92°51.6
2	119°37.9	9.9'	22°06.5	8.4'	56.5'		102°00.3	70°31.5	65°06.6	26°35.2	76°56.3	83°29.0	93°21.2
3	134°06.9	9.8'	22°14.9	8.3'	56.5'		101°28.2	70°00.9	64°34.6	27°05.8	77°25.6	83°59.1	93°50.9
4	148°35.7	9.7'	22°23.2	8.2'	56.5'		100°56.0	69°30.2	64°02.6	27°36.4	77°54.9	84°29.3	94°20.5
5	163°04.4	9.6'	22°31.3	8.1'	56.6'		100°23.8	68°59.4	63°30.5	28°07.2	78°24.3	84°59.5	94°50.2
6	177°33.0	9.5'	N22°39.4	8.0'	56.6'		99°51.6	68°28.7	62°58.5	28°38.0	78°53.7	85°29.8	95°20.0
7	192°01.5	9.4'	22°47.4	7.8'	56.7'		99°19.3	67°57.9	62°26.3	29°08.9	79°23.2	86°00.1	95°49.8
8	206° 29.8	9.3'	22°55.2	7.7'	56.7'		98°46.9	67°27.1	61°54.2	29°39.9	79°52.7	86°30.5	96°19.7
9	220°58.1	9.2'	23°02.9	7.6'	56.7'		98°14.6	66°56.2	61°22.0	30°11.0	80°22.2		96°49.5
10	235°26.3	9.0'	23°10.6	7.5'	56.8'		97°42.1	66°25.4	60°49.7	30°42.2	80°51.8		97°19.5
11	249°54.3	8.9'	23°18.1	7.4'	56.8'		97°09.7	65°54.5	60°17.5	31°13.4	81°21.5		97°49.4
12	264°22.2	8.8'	N23°25.5	7.3'	56.8'		96°37.2	65°23.6	59°45.1	31°44.7	81°51.2		98° 19.5
13	278°50.1	8.7'	23°32.7	7.2'	56.9'		96°04.6	64°52.6	59°12.8	32°16.1	82°20.9		98°49.5
14	293°17.8	8.6'	23°39.9	7.0'	56.9'		95°32.0	64°21.6	58°40.4	32°47.5	82°50.7		99°19.6
15	307°45.4	8.5'	23°46.9	6.9'	57.0'		94°59.4	63°50.6	58° 07.9	33°19.1	83°20.6		99°49.8
16	322°12.9	8.4'	23°53.8	6.8'	57.0'		94°26.7	63°19.6	57°35.4	33°50.7	83°50.5		100°20.0
17	336°40.3	8.3'	24°00.6	6.7'	57.0'		93°54.0	62°48.5	57°02.9	34°22.3	84°20.4		100°50.2
18	351°07.5	8.2'	N 24°07.3	6.5'	57.1'	119°33.6	93°21.2	62°17.5	56°30.4	34°54.1	84°50.4		101°20.5
19	5°34.7	8.1'	24°13.8	6.4'	57.1'	119°00.7	92°48.4	61°46.4	55°57.8	35°25.9	85°20.4		101°50.8
20	20°01.8	8.0'	24°20.2	6.3'	57.1'	118°27.9	92°15.6	61°15.2	55°25.1	35°57.7	85°50.5		102°21.2
21	34°28.7	7.8'	24°26.5	6.2'	57.2'	117°54.9	91°42.7	60°44.1	54°52.4	36°29.6	86°20.6		102°51.6
22	48°55.6	7.7'	24°32.7	6.0'	57.2'	117°22.0	91°09.7	60°12.9	54° 19.7	37°01.6	86°50.7		103°22.0
23	63°22.3	7.6'	24°38.7	5.9'	57.3'	116°49.0	90°36.7	59°41.7	53°46.9	37°33.7	87°20.9		103°52.5
4 th	SD	= 15.4'	Mer. pass.	. 18:37					Sun SI	D = 16.2'			

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

Sat	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Saturn	+Venus	+Fomalhaut	+Sun
0	77°49.0	7.5'	N 24°44.6	5.8'	57.3'	116°15.9	90°03.7	59° 10.5	53°14.1	38°05.8	63°07.5	87°51.2	104°23.1
1	92°15.5	7.4'	24°50.4	5.6'	57.3'	115°42.8	89°30.6	58° 39.2	52°41.2	38°38.0	63°37.5	88°21.5	104°53.7
2	106°41.9	7.3'	24°56.0	5.5'	57.4'	115°09.6	88° 57.5	58° 07.9	52°08.3	39°10.3	64°07.6	88°51.8	105°24.3
3	121°08.2	7.2'	25°01.5	5.3'	57.4'	114°36.4	88°24.3	57°36.6	51°35.4	39°42.6	64°37.7	89°22.2	105°55.0
4	135°34.4	7.1'	25°06.8	5.2'	57.5'	114°03.2	87°51.1	57°05.3	51°02.4	40°14.9	65°07.9	89°52.6	106°25.7
5	150°00.5	7.0'	$25^{\circ}12.0$	5.1'	57.5'	113°29.9	87° 17.8	56°34.0	50°29.4	40°47.4	65°38.1	90°23.1	106°56.5
6	164°26.5	6.9'	$N25^{\circ}17.1$	4.9'	57.5'	112°56.5	86°44.5	56°02.6	49°56.3	41°19.9	66°08.4	90°53.6	107°27.4
7	178°52.4	6.8'	25°22.0	4.8'	57.6'	112°23.1	86°11.1	55°31.2	49°23.2	41°52.4	66°38.7	91°24.2	107°58.2
8	193°18.2	6.7'	25°26.8	4.6'	57.6'	111°49.7	85°37.7	54° 59.9	48°50.0	42°25.1	67°09.1	91°54.8	108°29.2
9	207°43.9	6.6'	25°31.4	4.5'	57.7'	111°16.2	85°04.2	54°28.4	48°16.9	42°57.7	67°39.5	92°25.4	109°00.1
10	222°09.5	6.5'	25°35.9	4.3'	57.7'	110°42.6	84°30.7	53°57.0	47°43.6	43°30.5	68° 10.0	92°56.1	109°31.2
11	236°35.0	6.4'	25°40.2	4.2'	57.7'	110°09.0	83°57.1	53°25.6	47°10.3	44°03.3	68°40.5	93°26.8	110°02.2
12	251°00.4	6.3'	N 25°44.4	4.0'	57.8'	109°35.4	83°23.5	52°54.1	46°37.0	44°36.1	69°11.1	93°57.6	110°33.3
13	265°25.8	6.2'	25°48.5	3.9'	57.8'	109°01.7	82°49.9	52°22.6	46°03.6	45°09.1	69°41.7	94°28.4	111°04.5
14	279°51.0	6.1'	25°52.3	3.7'	57.9'	108°27.9	82°16.2	51°51.2	45°30.2	45°42.0	70°12.4	94°59.2	111°35.7
15	294°16.1	6.0'	25°56.1	3.6'	57.9'	107°54.1	81°42.4	51° 19.7	44°56.8	46°15.1	70°43.1	95°30.1	112°07.0
16	308°41.1	5.9'	25°59.6	3.4'	57.9'	107°20.3	81°08.6	50°48.2	44°23.3	46°48.2	71°13.8	96°01.0	112°38.3
17	323°06.0	5.8'	$26^{\circ}03.1$	3.3'	58.0'	106°46.4	80°34.8	50°16.6	43°49.8	47°21.3	71°44.7	96°32.0	113°09.7
18	337°30.9	5.8'	$N26^{\circ}06.3$	3.1'	58.0'	106°12.4	80°00.9	49°45.1	43°16.2	47°54.5	72° 15.5	97°03.0	113°41.1
19	351°55.6	5.7'	26°09.4	2.9'	58.1'	105°38.4	79°26.9	49° 13.6	42°42.6	48°27.8	72°46.4	97°34.0	114°12.5
20	6°20.3	5.6'	26°12.4	2.8'	58.1'	105°04.4	78°52.9	48°42.0	42°08.9	49°01.1	73° 17.4	98°05.1	114°44.0
21	20°44.9	5.5'	$26^{\circ}15.2$	2.6'	58.1'	104°30.3	78° 18.9	48° 10.5	41°35.2	49°34.5	73°48.4	98°36.2	115°15.6
22	35°09.4	5.4'	$26^{\circ}17.8$	2.5'	58.2'	103°56.1	77°44.8	47°39.0	41°01.5	50°08.0	74° 19.5	99°07.4	115°47.2
23	49°33.8	5.3'	26°20.3	2.3'	58.2'	103°21.9	77° 10.6	47°07.4	40°27.7	50°41.5	74°50.6	99°38.6	116°18.9
5 th	SD =	= 15.6′	Mer. pass	s. 19:34	ļ				Sun SI	D = 16.2'		-	

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

Sun	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Saturn	+Venus	+Fomalhaut	+Sun
0	63°58.1	5.3'	$N26^{\circ}22.6$	2.1'	58.3'		102°47.6	76°36.4	39°53.9	51°15.0	75°21.8	100°09.8	116°50.6
1	78°22.4	5.2'	26°24.7	2.0'	58.3'		102°13.3	76°02.2	39°20.1	51°48.7	75°53.0	100°41.1	117°22.3
2	92°46.6	5.1'	26°26.6	1.8'	58.3'		101°39.0	75°27.9	38°46.2	52°22.3	76°24.3	101°12.3	117°54.1
3	107°10.6	5.0'	26°28.4	1.6'	58.4'		101°04.6	74°53.5	38°12.2	52°56.1	76°55.6	101°43.7	118°26.0
4	121°34.7	4.9'	$26^{\circ}30.1$	1.5'	58.4'		100°30.1	74° 19.1	37°38.3	53°29.8	77°27.0	102°15.0	118°57.9
5	135°58.6	4.9'	$26^{\circ}31.5$	1.3'	58.5'		99°55.6	73°44.7	37°04.3	54°03.7	77°58.4	102°46.4	119°29.9
6	150°22.5	4.8'	N26°32.8	1.1'	58.5'		99°21.0	73° 10.2	36°30.2	54°37.6	78° 29.9	103° 17.9	
7	164°46.3	4.7'	26°33.9	0.9'	58.5'		98°46.4	72°35.6	35°56.1	55°11.5	79°01.4	103°49.3	
8	179°10.0	4.7'	26°34.9	0.8'	58.6'		98°11.7	72°01.0	35°22.0	55°45.6	79°33.0	104°20.8	
9	193°33.7	4.6'	26°35.6	0.6'	58.6'		97°37.0	71°26.4	34°47.9	56°19.6	80°04.6	104°52.3	
10	207°57.3	4.5'	26°36.2	0.4'	58.7'		97°02.3	70°51.7	34°13.7	56°53.8	80°36.3	105°23.9	
11	222°20.8	4.5'	26°36.7	0.2'	58.7'		96°27.4	70°16.9	33°39.5	57°27.9	81°08.0	105°55.5	
12	236°44.3	4.4'	N26°36.9	0.1'	58.7'		95°52.6	69°42.1	33°05.2	58°02.2	81°39.8	106°27.1	
13	251°07.8	4.4'	26°37.0	-0.1'	58.8'		95°17.6	69°07.3	32°31.0	58°36.5	82°11.6	106°58.7	İ
14	265°31.1	4.3'	26°36.9	-0.3'	58.8'		94°42.7	68° 32.4	31°56.7	59°10.8	82°43.5	107°30.4	
15	279°54.4	4.3'	26°36.6	-0.5'	58.9'		94°07.6	67°57.4	31°22.3	59°45.2	83°15.4	108°02.1	
16	294°17.7	4.2'	26°36.1	-0.6'	58.9'		93°32.6	67°22.4	30°48.0	60°19.7	83°47.4	108°33.8	
17	308°40.9	4.2'	26°35.5	-0.8'	58.9'		92°57.4	66°47.4	30°13.6	60°54.2	84° 19.5	109°05.5	
18	323°04.1	4.1'	N26°34.6	-1.0'	59.0'		92°22.3	66° 12.3	29°39.2	61°28.7	84°51.5	109°37.3	
19	337°27.2	4.1'	26°33.6	-1.2'	59.0'	119°40.6	91°47.0	65°37.1	29°04.7	62°03.4	85°23.7	110°09.1	İ
20	351°50.3	4.0'	26°32.4	-1.4'	59.1'	119°05.4	91°11.8	65°01.9	28°30.3	62°38.0	85°55.9	110°40.9	
21	6°13.3	4.0'	$26^{\circ}31.0$	-1.6'	59.1'	118°30.1	90°36.4	64°26.7	27°55.8	63°12.7	86°28.1	111°12.7	
22	20°36.3	4.0'	$26^{\circ}29.5$	-1.7'	59.1'	117°54.9	90°01.1	63°51.4	27°21.3	63°47.5	87°00.4	111°44.5	
23	34°59.2	3.9'	26°27.7	-1.9'	59.2'	117°19.5	89°25.6	63°16.0	26°46.8	64°22.4	87°32.7	112°16.4	
6 th	SD :	= 15.9'	Mer. pass	s. 20:34					Sun S	D = 16.2'			

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

		14100	11 (1 1 61	- /				Distance	(00)0000	With larges			<u>'</u>
Mon	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Saturn	+Venus	+Fomalhaut
0	49°22.2	3.9'	N 26°25.8	-2.1'	59.2'	116°44.1	88°50.2	62°40.6	26°12.3	19°19.2	64°57.2	88°05.1	112°48.3
1	63°45.1	3.9'	26°23.7	-2.3'	59.3'	116°08.7	88° 14.6	62°05.2	25°37.8	19°50.0	65°32.2	88° 37.6	113°20.1
2	78°07.9	3.8'	26°21.4	-2.5'	59.3'	115°33.2	87°39.1	61°29.7	25°03.2	20°21.0	66°07.2	89°10.0	113°52.1
3	92°30.7	3.8'	$26^{\circ}18.9$	-2.7'	59.3'	114°57.7	87°03.4	60°54.1	24°28.7	20°52.4	66°42.2	89°42.6	114°24.0
4	106°53.5	3.8'	$26^{\circ}16.3$	-2.8'	59.4'	114°22.1	86°27.8	60° 18.5	23°54.2	21°24.0	67°17.3	90°15.2	114°55.9
5	121°16.3	3.8'	$26^{\circ}13.4$	-3.0'	59.4'	113°46.4	85°52.0	59°42.9	23°19.6	21°55.8	67°52.5	90°47.8	115°27.8
6	135°39.1	3.7'	N26°10.4	-3.2'	59.5'	113°10.7	85°16.3	59°07.2	22°45.1	22°27.9	68°27.7	91°20.5	115°59.8
7	150°01.8	3.7'	26°07.2	-3.4'	59.5'	112°35.0	84°40.4	58°31.5	22°10.6	23°00.1	69°02.9	91°53.2	116°31.7
8	164°24.5	3.7'	26°03.8	-3.6'	59.5'	111°59.2	84°04.6	57°55.7	21°36.1	23°32.6	69°38.2	92°26.0	117°03.7
9	178°47.3	3.7'	26°00.2	-3.8'	59.6'	111°23.4	83°28.6	57° 19.8	21°01.7	24°05.3	70°13.6	92°58.9	117° 35.7
10	193°10.0	3.7'	25°56.4	-4.0'	59.6'	110°47.5	82°52.7	56° 44.0	20°27.3	24°38.2	70°49.0	93°31.7	118° 07.6
11	207°32.6	3.7'	25°52.4	-4.2'	59.7'	110°11.6	82°16.7	56°08.0	19°52.9	25°11.2	71°24.4	94°04.7	118° 39.6
12	221°55.3	3.7'	N 25°48.3	-4.3'	59.7'	109°35.6	81°40.6	55°32.0	19° 18.5	25°44.4	71°59.9	94°37.6	119° 11.6
13	236°18.0	3.7'	25°43.9	-4.5'	59.7'	108°59.5	81°04.5	54°56.0	18°44.3	26°17.8	72°35.5	95°10.7	119° 43.5
14	250°40.7	3.7'	25°39.4	-4.7'	59.8'	108°23.5	80°28.3	54°20.0	18° 10.1	26°51.3	73°11.1	95°43.7	
15	265°03.3	3.7'	25°34.7	-4.9'	59.8'	107°47.3	79°52.1	53°43.8	17°35.9	27°25.0	73°46.7	96°16.9	
16	279°26.0	3.7'	25°29.8	-5.1'	59.8'	107°11.2	79° 15.9	53°07.7	17°01.9	27°58.8	74°22.4	96°50.0	
17	293°48.7	3.7'	25°24.7	-5.3'	59.9'	106°34.9	78°39.6	52°31.5	16°28.0	28°32.7	74°58.2	97°23.2	
18	308°11.4	3.7'	N 25°19.5	-5.4'	59.9'	105°58.7	78°03.2	51°55.2	15°54.2	29°06.8	75°34.0	97°56.5	
19	322°34.1	3.7'	25°14.0	-5.6'	59.9'	105°22.4	77°26.8	51° 18.9	15°20.5	29°41.0	76°09.8	98°29.8	
20	336°56.8	3.7'	25°08.4	-5.8'	60.0'	104°46.0	76°50.4	50°42.6	14°47.0	30°15.3	76°45.7	99°03.2	
21	351°19.5	3.7'	25°02.6	-6.0'	60.0'	104°09.6	76°13.9	50°06.2	14°13.7	30°49.8	77°21.6	99°36.6	
22	5°42.2	3.7'	24°56.6	-6.2'	60.0'	103°33.1	75°37.4	49°29.8	13°40.6	31°24.3	77°57.6	100°10.0	
23	20°05.0	3.8'	24°50.4	-6.4'	60.1'	102°56.6	75°00.8	48°53.3	13°07.8	31°59.0	78°33.6	100°43.5	
7 th	SD :	= 16.2'	Mer. pass	s. 21:36									

h	•	Мо	on (8 th Fe	eb)			Lunar [Distance ((objects	with large	st hourly LI	D delta)	
Tue	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Capella	+Aldebaran	+Saturn	+Venus
0	34°27.7	3.8'	N 24°44.0	-6.5'	60.1'	102°20.1	74°24.2	48°16.8	12°35.3	28°24.9	32°33.7	79°09.7	101°17.0
1	48°50.5	3.8'	24°37.5	-6.7'	60.2'	101°43.5	73°47.6	47°40.2	12°03.1	28°51.3	33°08.6	79°45.8	101°50.6
2	63°13.3	3.8'	24°30.8	-6.9'	60.2'	101°06.9	73°10.9	47°03.6	11°31.4	29°18.0	33°43.6	80°22.0	102°24.2
3	77°36.1	3.9'	24°23.8	-7.1'	60.2'	100°30.2	72°34.2	46°27.0	11°00.0	29°45.1	34°18.6	80°58.2	102°57.9
4	91°59.0	3.9'	24°16.8	-7.3'	60.3'	99°53.5	71°57.4	45°50.3	10°29.3	30°12.6	34°53.8	81°34.5	103°31.6
5	106°21.9	3.9'	24°09.5	-7.4'	60.3'	99°16.7	71°20.6	45°13.6	9°59.2	30°40.4	35°29.0	82°10.8	104°05.3
6	120°44.8	4.0'	N 24°02.0	-7.6'	60.3'	98°39.9	70°43.7	44°36.8	9°29.8	31°08.5	36°04.3	82°47.1	104°39.1
7	135°07.8	4.0'	23°54.4	-7.8'	60.3'	98°03.1	70°06.8	44°00.0	9°01.3	31°36.9	36°39.7	83°23.5	105°12.9
8	149°30.7	4.0'	23°46.6	-8.0'	60.4'	97°26.2	69°29.9	43°23.2		32°05.6	37°15.2	83°59.9	105°46.8
9	163°53.8	4.1'	23°38.6	-8.2'	60.4'	96°49.3	68°52.9	42°46.3		32°34.6	37°50.8	84°36.3	106°20.7
10	178°16.8	4.1'	23°30.5	-8.3'	60.4'	96°12.3	68°15.9	42°09.4		33°03.8	38°26.4	85°12.9	106°54.6
11	192°39.9	4.1'	23°22.2	-8.5'	60.5'	95°35.3	67°38.8	41°32.4		33°33.3	39°02.1	85°49.4	107°28.6
12	207°03.1	4.2'	$N23^{\circ}13.7$	-8.7'	60.5'	94°58.3	67°01.7	40°55.4		34°03.1	39°37.9	86°26.0	108°02.7
13	221°26.3	4.2'	23°05.0	-8.8'	60.5'	94°21.2	66°24.6	40°18.4	İ	34°33.1	40°13.8	87°02.6	108°36.7
14	235°49.5	4.3'	22°56.2	-9.0'	60.6'	93°44.1	65°47.4	39°41.3		35°03.3	40°49.7	87°39.3	109°10.8
15	250°12.8	4.3'	22°47.2	-9.2'	60.6'	93°06.9	65°10.2	39°04.2		35°33.7	41°25.7	88°16.0	109°45.0
16	264°36.1	4.4'	22°38.0	-9.3'	60.6'	92°29.7	64°33.0	38°27.1		36°04.4	42°01.8	88°52.7	110°19.1
17	278°59.4	4.4'	22°28.6	-9.5'	60.6'	91°52.5	63°55.7	37°49.9		36°35.3	42°37.9	89°29.5	110°53.3
18	293°22.9	4.5'	$N22^{\circ}19.1$	-9.7'	60.7'	91°15.2	63°18.4	37°12.7		37°06.3	43°14.1	90°06.3	111°27.6
19	307°46.3	4.5'	22°09.4	-9.8'	60.7'	90°37.9	62°41.1	36°35.5		37°37.6	43°50.3	90°43.1	112°01.9
20	322°09.9	4.6'	21°59.6	-10.0'	60.7'	90°00.5	62°03.7	35°58.3		38°09.1	44°26.6	91°20.0	112°36.2
21	336°33.4	4.6'	$21^{\circ}49.6$	-10.2'	60.8'	89°23.2	61°26.3	35°21.0		38°40.7	45°03.0	91°56.9	113° 10.5
22	350°57.1	4.7'	21°39.4	-10.3'	60.8'	88° 45.8	60°48.8	34°43.6		39° 12.5	45°39.4	92°33.8	113°44.9
23	5°20.8	4.8'	21°29.1	-10.5'	60.8'	88°08.3	60°11.4	34°06.3		39°44.5	46°15.9	93°10.8	114°19.3
8 th	SD	= 16.4	l' Mer. pas	ss. 22:38									

h Moon (9th Feb)

Wed	GHA	ν	Dec	d	HP	-Arcturus	-Spica	-Jupiter	-Regulus	+Pollux	+Aldebaran	+Saturn	+Venus
0	19°44.5	4.8'	N 21°18.6	-10.6'	60.8'	87°55.2	87°30.8	59°33.9	33°28.9		46°52.4	93°47.8	114°53.8
1	34°08.3	4.9'	21°08.0	-10.8'	60.9'	87°24.8	86°53.3	58°56.3	32°51.5		47°29.0	94°24.9	115°28.3
2	48°32.2	4.9'	20°57.2	-10.9'	60.9'	86°54.3	86°15.8	58°18.8	32°14.1		48°05.6	95°01.9	116°02.8
3	62°56.1	5.0'	20°46.3	-11.1'	60.9'	86°23.9	85°38.2	57°41.2	31°36.6		48°42.3	95°39.0	116°37.3
4	77°20.1	5.1'	20°35.2	-11.2'	60.9'	85°53.4	85°00.6	57°03.6	30°59.1		49°19.1	96°16.2	117°11.9
5	91°44.2	5.1'	20°23.9	-11.4'	60.9'	85°23.0	84°23.0	56°26.0	30°21.6		49°55.8	96°53.3	117°46.5
6	106°08.3	5.2'	$N20^{\circ}12.5$	-11.5'	61.0'	84°52.5	83°45.3	55°48.3	29°44.1		50°32.7	97°30.5	118°21.1
7	120°32.5	5.3'	20°01.0	-11.7'	61.0'	84°22.0	83°07.6	55°10.6	29°06.6		51°09.5	98°07.7	118°55.8
8	134°56.8	5.3'	19°49.3	-11.8'	61.0'	83°51.5	82°29.9	54°32.9	28°29.0	10°28.9	51°46.4	98°45.0	119°30.4
9	149°21.1	5.4'	19°37.5	-12.0'	61.0'	83°21.0	81°52.1	53°55.2	27°51.4	11°00.5	52°23.4	99°22.2	
10	163°45.5	5.5'	19°25.5	-12.1'	61.1'	82°50.5	81°14.4	53°17.4	27°13.8	11°32.8	53°00.4	99°59.5	
11	178°09.9	5.5'	19°13.4	-12.2'	61.1'	82°20.0	80°36.6	52°39.6	26°36.2	12°05.6	53°37.4	100°36.9	
12	192°34.4	5.6'	$N19^{\circ}01.2$	-12.4'	61.1'	81°49.4	79°58.7	52°01.8	25°58.6	12°38.9	54°14.4	101°14.2	
13	206°59.0	5.7'	18°48.8	-12.5'	61.1'	81°18.9	79°20.9	51°24.0	25°20.9	13°12.6	54°51.5	101°51.6	İ
14	221°23.7	5.7'	18°36.3	-12.7'	61.1'	80°48.4	78°43.0	50°46.2	24°43.3	13°46.8	55°28.7	102°29.0	
15	235°48.4	5.8'	18°23.6	-12.8'	61.1'	80°17.9	78°05.1	50°08.3	24°05.6	14°21.2	56°05.9	103°06.4	
16	250°13.2	5.9'	18° 10.8	-12.9'	61.2'	79°47.4	77°27.2	49°30.5	23°27.9	14°55.9	56°43.1	103°43.8	
17	264°38.1	5.9'	17°57.9	-13.0'	61.2'	79°16.9	76°49.3	48°52.6	22°50.3	15°30.9	57°20.3	104°21.2	
18	279°03.0	6.0'	N17°44.9	-13.2'	61.2'	78°46.4	76°11.3	48°14.7	22°12.6	16°06.2	57°57.6	104°58.7	
19	293°28.1	6.1'	17°31.7	-13.3'	61.2'	78°16.0	75°33.3	47°36.8	21°34.9	16°41.7	58°34.9	105°36.2	İ
20	307°53.1	6.2'	17° 18.4	-13.4'	61.2'	77°45.5	74°55.3	46°58.9	20°57.2	17°17.3	59°12.2	106° 13.7	
21	322°18.3	6.2'	17°05.0	-13.5'	61.2'	77°15.1	74°17.3	46°20.9	20°19.5	17°53.2	59°49.6	106°51.2	
22	336°43.5	6.3'	$16^{\circ}51.5$	-13.7'	61.3'	76°44.7	73°39.3	45°43.0	19°41.9	18°29.2	60°26.9	107°28.7	
23	351°08.8	6.4'	16°37.8	-13.8'	61.3'	76°14.3	73°01.2	45°05.0	19°04.2	19°05.3	61°04.3	108°06.3	
9 th	SD	= 16.6	Mer. pas	s. 23:37									

h Moon (10 th Feb) Lunar Distance (objects with largest hourly LD of	delta)
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Thu	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Capella	+Aldebaran	+Saturn
0	5°34.2	6.4'	N 16°24.0	-13.9'	61.3'	118°08.5	72°23.2	44°27.1	18°26.6	19°41.6	53°44.2	61°41.8	108°43.8
1	19°59.7	6.5'	$16^{\circ}10.2$	-14.0'	61.3'	117°30.3	71°45.1	43°49.1	17°48.9	20°18.0	54°19.0	62°19.2	109°21.4
2	34°25.2	6.6'	15°56.2	-14.1'	61.3'	116°52.2	71°07.0	43°11.1	17°11.3	20°54.5	54°53.8	62°56.7	109°59.0
3	48°50.8	6.7'	$15^{\circ}42.1$	-14.2'	61.3'	116°14.0	70°28.9	42°33.1	16°33.8	21°31.1	55°28.7	63°34.2	110°36.6
4	63°16.4	6.7'	15°27.9	-14.3'	61.3'	115°35.8	69°50.8	41°55.1	15°56.2	22°07.8	56°03.7	64°11.7	111°14.2
5	77°42.2	6.8'	$15^{\circ}13.5$	-14.4'	61.3'	114°57.6	69°12.6	41°17.1	15°18.7	22°44.7	56°38.7	64°49.3	111°51.8
6	92°08.0	6.9'	N 14°59.1	-14.5'	61.3'	114°19.4	68°34.5	40°39.2	14°41.2	23°21.5	57°13.8	65°26.8	112°29.4
7	106°33.9	7.0'	14°44.6	-14.6'	61.3'	113°41.2	67°56.3	40°01.2	14°03.8	23°58.5	57°48.9	66°04.4	113°07.1
8	120°59.8	7.0'	14°30.0	-14.7'	61.4'	113°03.0	67°18.2	39°23.2	13°26.5	24°35.5	58°24.1	66°42.0	113°44.7
9	135°25.8	7.1'	$14^{\circ}15.3$	-14.8'	61.4'	112°24.7	66°40.0	38°45.2	12°49.2	25°12.6	58°59.3	67°19.6	114°22.3
10	149°51.9	7.2'	14°00.5	-14.9'	61.4'	111°46.5	66°01.8	38°07.2	12°12.1	25°49.8	59°34.6	67°57.2	115°00.0
11	164°18.1	7.2'	13°45.6	-15.0'	61.4'	111°08.2	65°23.6	37°29.3	11°35.0	26°27.0	60°09.9	68°34.9	115°37.6
12	178°44.3	7.3'	N 13°30.6	-15.1'	61.4'	110°29.9	64°45.4	36°51.3	10°58.1	27°04.3	60°45.3	69°12.5	116° 15.3
13	193°10.7	7.4'	$13^{\circ}15.5$	-15.2'	61.4'	109°51.7	64°07.2	36°13.3	10°21.3	27°41.6	61°20.7	69°50.2	116°52.9
14	207°37.0	7.4'	13°00.3	-15.3'	61.4'	109°13.4	63°29.0	35°35.4	9°44.7	28°19.0	61°56.1	70°27.9	117°30.6
15	222°03.5	7.5'	12°45.1	-15.3'	61.4'	108°35.1	62°50.8	34°57.5	9°08.3	28°56.4	62°31.6	71°05.5	118°08.2
16	236°30.0	7.6'	12°29.7	-15.4'	61.4'	107°56.8	62°12.6	34°19.5	8°32.2	29°33.8	63°07.1	71°43.2	118°45.9
17	250°56.6	7.7'	12°14.3	-15.5'	61.4'	107°18.5	61°34.4	33°41.6	7°56.4	30°11.3	63°42.7	72°20.9	119°23.6
18	265°23.2	7.7'	N11°58.8	-15.6'	61.4'	106°40.3	60°56.2	33°03.8	7°21.0	30°48.8	64°18.2	72°58.6	
19	279°49.9	7.8'	11°43.2	-15.6'	61.4'	106°02.0	60°18.0	32°25.9	6°46.2	31°26.3	64°53.9	73°36.3	
20	294°16.7	7.9'	11°27.6	-15.7'	61.4'	105°23.7	59°39.7	31°48.1	6°12.1	32°03.9	65°29.5	74°14.0	
21	308°43.6	7.9'	$11^{\circ}11.9$	-15.8'	61.4'	104°45.4	59°01.5	31°10.2	5°38.8	32°41.5	66°05.1	74°51.7	
22	323°10.5	8.0'	10°56.1	-15.9'	61.4'	104°07.1	58°23.3	30°32.5		33°19.1	66°40.8	75°29.5	
23	337°37.5	8.0'	10°40.2	-15.9'	61.4'	103°28.8	57°45.1	29°54.7		33°56.7	67°16.5	76°07.2	
10 th	SE) = 16	.7' Mer. pa	ass:-									

h Moon (11 th Feb)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Pollux	+Capella	+Aldebaran
0	352°04.5	8.1'	N 10°24.3	-16.0'	61.4'	102°50.5	90°31.8	57°06.9	29° 17.0		34°34.4	67°52.2	76°44.9
1	6°31.6	8.2'	10°08.3	-16.0'	61.4'	102°12.2	90°01.6	56°28.7	28° 39.3		35°12.0	68°28.0	77°22.6
2	20°58.8	8.2'	09°52.3	-16.1'	61.4'	101°34.0	89°31.3	55°50.5	28°01.6		35°49.7	69°03.8	78°00.3
3	35°26.1	8.3'	09°36.2	-16.2'	61.4'	100°55.7	89°01.1	55°12.3	27°24.0		36°27.4	69°39.5	78°38.0
4	49°53.3	8.4'	09°20.0	-16.2'	61.4'	100°17.4	88°31.0	54°34.2	26°46.4		$37^{\circ}05.1$	70°15.3	79° 15.8
5	64°20.7	8.4'	09°03.8	-16.3'	61.4'	99°39.2	88°00.8	53°56.0	26°08.9		37°42.8	70°51.1	79°53.5
6	78°48.1	8.5'	N 08°47.5	-16.3'	61.4'	99°00.9	87°30.6	53°17.8	25°31.5		38°20.6	71°26.9	80°31.2
7	93°15.6	8.5'	08°31.2	-16.4'	61.4'	98° 22.7	87°00.4	52°39.7	24°54.0		38°58.3	72°02.8	81°08.9
8	107°43.1	8.6'	08°14.9	-16.4'	61.4'	97°44.4	86°30.3	52°01.5	24° 16.7		39°36.0	72°38.6	81°46.5
9	122°10.7	8.6'	07°58.5	-16.5'	61.3'	97°06.2	86°00.2	51°23.4	23°39.4		40° 13.8	73°14.4	82°24.2
10	136°38.4	8.7'	07°42.0	-16.5'	61.3'	96°28.0	85°30.1	50°45.3	23°02.2		40°51.5	73°50.3	83°01.9
11	151°06.1	8.8'	07°25.5	-16.5'	61.3'	95°49.8	85°00.0	50°07.2	22°25.0		41°29.2	74°26.1	83°39.5
12	165°33.8	8.8'	N 07°09.0	-16.6'	61.3'	95°11.6	84°29.9	49°29.1	21°48.0		42°07.0	75°02.0	84°17.2
13	180°01.6	8.9'	06°52.4	-16.6'	61.3'	94°33.4	83°59.9	48°51.0	21°11.0		42°44.7	75°37.8	84° 54.8
14	194°29.5	8.9'	06°35.8	-16.6'	61.3'	93°55.3	83°29.9	48°12.9	20°34.1	6°40.5	43°22.5	76°13.7	85°32.5
15	208°57.4	9.0'	$06^{\circ}19.2$	-16.7'	61.3'	93°17.1	82°59.9	47°34.9	19°57.4	7°15.1	44°00.2	76°49.5	86°10.1
16	223°25.4	9.0'	06°02.5	-16.7'	61.3'	92°39.0	82°29.9	46°56.9	19°20.7	7°50.3	44°37.9	77°25.3	86°47.7
17	237°53.4	9.1'	05°45.8	-16.7'	61.3'	92°00.9	82°00.0	46°18.9	18°44.2	8°25.8	45° 15.6	78°01.2	87°25.2
18	252°21.5	9.1'	N05°29.1	-16.8'	61.3'	91°22.8	81°30.2	45°40.9	18°07.8	9°01.7	45°53.3	78°37.0	88°02.8
19	266°49.6	9.2'	05°12.3	-16.8'	61.2'	90°44.7	81°00.3	45°02.9	17°31.5	9°37.8	46°31.0	79°12.9	88°40.4
20	281°17.8	9.2'	04°55.5	-16.8'	61.2'	90°06.6	80°30.5	44°25.0	16°55.4	10°14.2	47°08.7	79°48.7	89° 17.9
21	295°46.0	9.3'	04°38.7	-16.8'	61.2'	89°28.6	80°00.8	43°47.0	16° 19.5	10°50.7	47° 46.4	80°24.5	89° 55.4
22	310°14.2	9.3'	04°21.9	-16.8'	61.2'	88° 50.6	79°31.1	43°09.1	15°43.8	11°27.4	48°24.1	81°00.3	90°32.9
23	324°42.5	9.3'	04°05.1	-16.8'	61.2'	88° 12.6	79°01.4	42°31.3	15°08.3	12°04.2	49°01.7	81°36.1	91°10.4
11 th	SD	= 16.7	" Mer. pas	ss. 00:33									

h Moon (12th Feb)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Pollux	+Capella	+Aldebaran
0	339°10.9	9.4'	N 03°48.3	-16.9'	61.2'	87°34.6	78°31.8	41°53.4	14°33.1	12°41.1	49°39.3	82°11.8	91°47.8
1	353°39.2	9.4'	03°31.4	-16.9'	61.1'	86°56.6	78°02.2	41°15.6	13°58.1	13° 18.1	50°17.0	82°47.6	92°25.2
2	8°07.7	9.5'	03°14.5	-16.9'	61.1'	86°18.7	77°32.7	40°37.8	13°23.5	13°55.1	50°54.6	83°23.4	93°02.6
3	22°36.1	9.5'	02°57.7	-16.9'	61.1'	85°40.8	77°03.3	40°00.0	12°49.2	14°32.2	51°32.2	83°59.1	93°40.0
4	37°04.6	9.5'	02°40.8	-16.9'	61.1'	85°02.9	76°33.9	39°22.2	12°15.2	15°09.3	52°09.7	84°34.8	94°17.4
5	51°33.2	9.6'	02°23.9	-16.9'	61.1'	84°25.0	76°04.5	38°44.5	11°41.8	15°46.5	52°47.3	85°10.5	94°54.7
6	66°01.7	9.6'	N 02°07.0	-16.9'	61.1'	83°47.2	75°35.3	38°06.8	11°08.8	16°23.7	53°24.8	85°46.2	95°32.0
7	80°30.4	9.6'	$01^{\circ}50.1$	-16.9'	61.0'	83°09.4	75°06.1	37° 29.2	10°36.4	17°00.9	54°02.3	86°21.8	96°09.3
8	94°59.0	9.7'	01°33.2	-16.9'	61.0'	82°31.6	74°36.9	36°51.5	10°04.7	17°38.1	54°39.8	86° 57.4	96°46.5
9	109°27.7	9.7'	$01^{\circ}16.3$	-16.9'	61.0'	81°53.8	74°07.8	36°13.9	9°33.8	18° 15.3	55°17.3	87°33.0	97°23.8
10	123°56.4	9.7'	00°59.5	-16.9'	61.0'	81°16.1	73°38.8	35°36.4	9°03.8	18°52.6	55°54.7	88°08.6	98°01.0
11	138°25.1	9.8'	00°42.6	-16.9'	61.0'	80°38.4	73°09.9	34°58.8		19°29.8	56°32.1	88°44.2	98°38.1
12	152°53.9	9.8'	N 00°25.7	-16.9'	60.9'	80°00.7	72°41.0	34°21.3		20°07.1	57°09.5	89° 19.7	99°15.3
13	167°22.7	9.8'	N 00°08.9	-16.8'	60.9'	79°23.1	72°12.2	33°43.9		20°44.3	57°46.9	89°55.2	99°52.4
14	181°51.5	9.9'	S 00°08.0	-16.8'	60.9'	78°45.5	71°43.5	33°06.5		21°21.5	58°24.2	90°30.7	100°29.4
15	196°20.4	9.9'	00°24.8	-16.8'	60.9'	78°07.9	71°14.9	32°29.1		21°58.8	59°01.5	91°06.1	101°06.5
16	210°49.3	9.9'	00°41.6	-16.8'	60.8'	77°30.3	70°46.3	31°51.7		22°36.0	59°38.8	91°41.5	101°43.5
17	225°18.2	9.9'	00°58.4	-16.8'	60.8'	76°52.8	70°17.9	31°14.4		23°13.2	60°16.1	92°16.9	102°20.4
18	239°47.1	10.0'	S 01°15.2	-16.7'	60.8'	76°15.3	69°49.5	30°37.1		23°50.3	60°53.3	92°52.2	102°57.4
19	254°16.1	10.0'	01°31.9	-16.7'	60.8'	75°37.9	69°21.2	29°59.9		24°27.5	61°30.5	93°27.5	103°34.3
20	268°45.1	10.0'	01°48.6	-16.7'	60.7'	75°00.5	68°53.0	29°22.7		25°04.6	62°07.6	94°02.8	104°11.1
21	283°14.1	10.0'	$02^{\circ}05.3$	-16.7'	60.7'	74°23.1	68°24.9	28°45.6		25°41.7	62°44.8	94°38.1	104°47.9
22	297°43.1	10.0'	02°22.0	-16.6'	60.7'	73°45.8	67°56.9	28°08.5		26°18.8	63°21.9	95°13.3	105°24.7
23	312°12.1	10.1'	02°38.6	-16.6'	60.7'	73°08.4	67°29.0	27°31.4		26°55.9	63°58.9	95°48.4	106°01.5
12 th	SD	= 16.7	Mer. pas	s. 01:26									

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

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Sun	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Betelgeuse	+Aldebaran
0	326°41.2	10.1'	S 02°55.2	-16.6'	60.6'		72°31.2	67°01.2	26°54.4	27°32.9	64°36.0	87°06.7	106°38.2
1	341°10.2	10.1'	03°11.8	-16.5'	60.6'		71°53.9	66°33.5	26°17.5	28°10.0	65° 13.0	87°41.9	107°14.9
2	355°39.3	10.1'	03°28.3	-16.5'	60.6'		71°16.7	66°05.9	25°40.6	28°46.9	65°49.9	88° 17.1	107°51.5
3	10°08.4	10.1'	03°44.8	-16.5'	60.5'		70°39.6	65°38.5	25°03.7	29°23.9	66° 26.9	88° 52.3	108°28.1
4	24°37.5	10.1'	$04^{\circ}01.3$	-16.4'	60.5'		70°02.5	$65^{\circ}11.1$	24°26.9	30°00.8	67°03.8	89°27.5	109°04.6
5	39°06.7	10.1'	$04^{\circ}17.7$	-16.4'	60.5'	119°39.4	69°25.4	64°43.8	23°50.2	30°37.7	67°40.6	90°02.6	109°41.1
6	53°35.8	10.1'	S 04°34.1	-16.3'	60.5'	119°08.7	68°48.3	64°16.7	23°13.5	31°14.6	68° 17.5	90°37.6	110°17.6
7	68°04.9	10.2'	$04^{\circ}50.5$	-16.3'	60.4'	118°38.0	68°11.3	63°49.7	22°36.8	31°51.4	68°54.2	91°12.6	110°54.0
8	82°34.1	10.2'	05°06.8	-16.2'	60.4'	118°07.2	67°34.3	63°22.8	22°00.2	32°28.2	69°31.0	91°47.6	111°30.4
9	97°03.3	10.2'	05°23.0	-16.2'	60.4'	117°36.4	66°57.4	62°56.0	21°23.7	33°05.0	70°07.7	92°22.6	112°06.7
10	111°32.4	10.2'	05°39.2	-16.2'	60.3'	117°05.5	66°20.5	62°29.3	20°47.3	33°41.7	70°44.4	92°57.5	112°43.0
11	126°01.6	10.2'	05°55.4	-16.1'	60.3'	116°34.7	65°43.7	62°02.8	20°10.9	34°18.4	71°21.0	93°32.3	113°19.2
12	140°30.8	10.2'	$S06^{\circ}11.5$	-16.0'	60.3'	116°03.8	65°06.9	61°36.4	19°34.6	34°55.1	71°57.6	94°07.2	113°55.4
13	155°00.0	10.2'	06°27.5	-16.0'	60.2'	115°32.9	64°30.1	$61^{\circ}10.1$	18°58.3	35°31.7	72°34.1	94°42.0	114°31.6
14	169°29.2	10.2'	06°43.5	-15.9'	60.2'	115°02.0	63°53.4	60°44.0	18°22.1	36°08.3	73° 10.6	95° 16.7	115°07.6
15	183°58.3	10.2'	$06^{\circ}59.4$	-15.9'	60.2'	114°31.0	63° 16.7	60°18.0	17°46.0	36°44.8	73°47.1	95°51.4	115°43.7
16	198°27.5	10.2'	$07^{\circ}15.3$	-15.8'	60.1'	114°00.1	62°40.1	59°52.2	17°10.0	37°21.3	74°23.5	96°26.0	116°19.7
17	212°56.7	10.2'	$07^{\circ}31.1$	-15.8'	60.1'	113°29.1	62°03.5	59°26.5	16°34.1	37°57.8	74°59.9	97°00.6	116°55.6
18	227°25.9	10.2'	S 07°46.9	-15.7'	60.1'	112°58.1	61°27.0	59°00.9	15°58.2	38°34.2	75°36.3	97°35.2	117°31.5
19	241°55.1	10.2'	$08^{\circ}02.6$	-15.6'	60.0'	112°27.1	60°50.5	58°35.5	15°22.5	39°10.6	76° 12.6	98°09.7	118°07.4
20	256°24.3	10.2'	$08^{\circ}18.2$	-15.6'	60.0'	111°56.1	60°14.0	58°10.3	14°46.9	39°46.9	76°48.8	98° 44.2	118°43.2
21	270°53.5	10.2'	08°33.8	-15.5'	60.0'	111°25.1	59°37.6	57°45.2	14°11.3	40°23.2	77°25.0	99° 18.6	119°18.9
22	285°22.7	10.2'	08°49.3	-15.4'	59.9'	110°54.1	59°01.2	57°20.3	13°35.9	40°59.5	78°01.2	99°52.9	119°54.6
23	299°51.8	10.2'	09°04.7	-15.4'	59.9'	110°23.1	58°24.9	56°55.5	13°00.6	41°35.7	78° 37.3	100°27.3	
13 th	SD	$= 16.5^{\prime}$	Mer. pas	s. 02:18									

h Moon (14 th Feb)	Lunar Distance (d	objects with la	rgest hourly	≀LD delta)
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Mon	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	314°21.0	10.2'	S 09°20.1	-15.3'	59.9'	109°52.1	57°48.6	56°30.9	12°25.5	17°27.6	42°11.9	75°09.1	79°13.4
1	328°50.2	10.2'	09°35.4	-15.2'	59.8'	109°21.1	57°12.4	56°06.5	11°50.5	18°02.1	42°48.0	75°43.7	79°49.5
2	343°19.3	10.1'	09°50.6	-15.1'	59.8'	108°50.1	56°36.2	55° 42.2	11° 15.7	18° 36.7	43°24.1	76°18.3	80°25.4
3	357°48.5	10.1'	10°05.7	-15.1'	59.8'	108°19.1	56°00.1	55° 18.1	10°41.1	19°11.3	44°00.1	76°52.9	81°01.4
4	12°17.6	10.1'	10°20.8	-15.0'	59.7'	107°48.1	55°24.0	54°54.2	10°06.7	19°46.0	44°36.1	77°27.4	81°37.3
5	26°46.7	10.1'	10°35.8	-14.9'	59.7'	107°17.1	54°47.9	54°30.5	9°32.6	20°20.8	45°12.1	78°01.9	82°13.1
6	41°15.8	10.1'	S 10°50.7	-14.8'	59.6'	106°46.1	54°11.9	54°06.9	8°58.8	20°55.6	45°48.0	78°36.3	82°49.0
7	55°45.0	10.1'	11°05.5	-14.8'	59.6'	106°15.1	53°36.0	53°43.6	8°25.3	21°30.4	46°23.8	79°10.8	83°24.7
8	70°14.0	10.1'	11°20.3	-14.7'	59.6'	105°44.2	53°00.1	53°20.4	7°52.2	22°05.2	46°59.7	79°45.1	84°00.4
9	84°43.1	10.1'	11°35.0	-14.6'	59.5'	105°13.3	52°24.2	52° 57.4	7° 19.5	22°40.1	47°35.4	80°19.5	84°36.1
10	99°12.2	10.0'	$11^{\circ}49.6$	-14.5'	59.5'	104°42.3	51°48.4	52°34.6	6°47.5	23°15.0	48°11.2	80°53.8	85°11.7
11	113°41.2	10.0'	$12^{\circ}04.1$	-14.4'	59.5'	104°11.4	51°12.6	52° 12.1	6°16.2	23°49.8	48°46.9	81°28.0	85°47.3
12	128°10.3	10.0'	S 12°18.5	-14.3'	59.4'	103°40.5	50°36.9	51°49.7	5°45.8	24°24.7	49°22.5	82°02.2	86°22.8
13	142°39.3	10.0'	12°32.8	-14.2'	59.4'	103°09.7	50°01.2	51°27.5		24°59.6	49°58.1	82°36.4	86°58.3
14	157°08.3	10.0'	12°47.1	-14.2'	59.4'	102°38.8	49°25.6	51°05.6		25°34.5	50°33.6	83°10.5	87°33.7
15	171°37.3	10.0'	13°01.2	-14.1'	59.3'	102°08.0	48°50.0	50°43.8		26°09.4	51°09.1	83°44.6	88°09.1
16	186°06.2	9.9'	13°15.3	-14.0'	59.3'	101°37.2	48°14.5	50°22.3		26°44.3	51°44.6	84°18.7	88°44.5
17	200°35.2	9.9'	13°29.3	-13.9'	59.2'	101°06.4	47°39.0	50°01.0		27° 19.1	52°20.0	84°52.7	89°19.8
18	215°04.1	9.9'	S 13°43.1	-13.8'	59.2'	100°35.6	47°03.6	49°40.0		27°54.0	52°55.3	85°26.6	89°55.0
19	229°33.0	9.9'	13°56.9	-13.7'	59.2'	100°04.9	46°28.2	49°19.1		28° 28.8	53°30.6	86°00.6	90°30.2
20	244°01.9	9.9'	14°10.6	-13.6'	59.1'	99°34.2	45°52.9	48° 58.5		29°03.6	54°05.9	86°34.4	91°05.3
21	258°30.8	9.8'	14°24.2	-13.5'	59.1'	99°03.5	45°17.6	48°38.1		29°38.4	54°41.1	87°08.2	91°40.4
22	272°59.6	9.8'	14°37.7	-13.4'	59.0'	98°32.9	44°42.4	48° 18.0		30°13.2	55°16.3	87°42.0	92°15.5
23	287°28.4	9.8'	14°51.1	-13.3'	59.0'	98°02.3	44°07.2	47°58.1		30°47.9	55°51.4	88°15.8	92°50.5
14 th	SD	= 16.3'	Mer. pas	s. 03:09									

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

Tue	GHA	ν	Dec	d	HP	-Sun	-Altair	-Rigil Kent.	-Antares	+Jupiter	+Regulus	+Procyon	+Pollux
0	301°57.2	9.8'	S 15°04.4	-13.2'	59.0'	119°13.4	97°31.7	47°38.5	43°32.1	31°22.7	56°26.4	88°49.4	93°25.4
1	316°26.0	9.8'	15°17.6	-13.1'	58.9'	118°40.9	97°01.1	47° 19.1	42°57.0	31°57.4	57°01.5	89°23.1	94°00.3
2	330°54.7	9.7'	15°30.7	-13.0'	58.9'	118°08.4	96°30.6	47°00.0	42°22.0	32°32.0	57°36.4	89°56.7	94°35.2
3	345°23.5	9.7'	15°43.6	-12.9'	58.8'	117°35.9	96°00.1	46°41.1	41°47.0	33°06.7	58°11.4	90°30.2	95°10.0
4	359°52.2	9.7'	$15^{\circ}56.5$	-12.8'	58.8'	117°03.5	95°29.6	46°22.6	41°12.0	33°41.3	58°46.2	91°03.7	95°44.7
5	14°20.9	9.7'	$16^{\circ}09.3$	-12.7'	58.8'	116°31.2	94°59.2	46°04.2	40°37.2	34°15.9	59°21.1	91°37.2	96°19.5
6	28°49.5	9.6'	S 16°22.0	-12.6'	58.7'	115°58.9	94°28.8	45°46.2	40°02.3	34°50.4	59°55.9	92°10.6	96°54.1
7	43°18.1	9.6'	16°34.5	-12.5'	58.7'	115°26.6	93°58.4	45°28.4	39°27.5	35°24.9	60°30.6	92°43.9	97°28.7
8	57°46.7	9.6'	16°47.0	-12.3'	58.7'	114°54.4	93°28.1	45° 10.9	38°52.8	35°59.4	61°05.3	93°17.3	98°03.3
9	72°15.3	9.6'	16°59.3	-12.2'	58.6'	114°22.3	92°57.8	44°53.7	38°18.1	36°33.9	61°39.9	93°50.5	98°37.8
10	86°43.9	9.5'	$17^{\circ}11.6$	-12.1'	58.6'	113°50.2	92°27.6	44°36.8	37°43.5	37°08.3	62°14.5	94°23.7	99°12.2
11	101°12.4	9.5'	17°23.7	-12.0'	58.5'	113° 18.1	91°57.4	44°20.2	37°08.9	37°42.7	62°49.0	94°56.9	99°46.7
12	115°40.9	9.5'	S 17°35.7	-11.9'	58.5'	112°46.1	91°27.2	44°03.8	36°34.3	38°17.0	63°23.5	95°30.0	100°21.0
13	130°09.4	9.4'	17°47.6	-11.8'	58.5'	112° 14.1	90°57.1	43°47.8	35°59.8	38°51.3	63°58.0	96°03.1	100°55.3
14	144°37.8	9.4'	17°59.3	-11.7'	58.4'	111° 42.2	90°27.0	43°32.1	35°25.4	39°25.6	64°32.4	96°36.1	101°29.6
15	159°06.2	9.4'	$18^{\circ}11.0$	-11.5'	58.4'	111°10.4	89°57.0	43°16.7	34°51.0	39°59.8	65°06.7	97°09.0	102°03.8
16	173°34.6	9.4'	18°22.6	-11.4'	58.3'	110°38.5	89°27.0	43°01.6	34°16.6	40°34.0	65°41.0	97°42.0	102°38.0
17	188°03.0	9.3'	18°34.0	-11.3'	58.3'	110°06.8	88°57.0		33°42.3	41°08.2	66°15.3	98°14.8	103°12.1
18	202°31.3	9.3'	S 18°45.3	-11.2'	58.3'	109°35.1	88°27.1		33°08.1	41°42.3	66° 49.5	98°47.6	103°46.2
19	216°59.6	9.3'	$18^{\circ}56.5$	-11.1'	58.2'	109°03.4	87°57.2		32°33.8	42°16.4	67°23.6	99°20.4	104°20.2
20	231°27.9	9.2'	19°07.6	-11.0'	58.2'	108°31.8	87°27.4		31°59.7	42°50.4	67° 57.7	99°53.1	104°54.1
21	245°56.1	9.2'	$19^{\circ}18.5$	-10.8'	58.1'	108°00.2	86°57.6		31°25.6	43°24.4	68°31.8	100°25.8	105°28.1
22	260°24.4	9.2'	19°29.3	-10.7'	58.1'	107°28.7	86°27.9		30°51.5	43°58.4	69°05.8	100°58.4	106°01.9
23	274°52.6	9.2'	19°40.1	-10.6'	58.1'	106°57.2	85°58.2		30°17.5	44°32.3	69°39.8	101°31.0	106°35.8
15 th	SD	= 16.1	' Mer. pas	ss. 04:01					Sun SD	= 16.2'			

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

Wed	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	289°20.7	9.1'	S 19°50.6	-10.5'	58.0'	107°00.2	106°25.8	85°28.6	29°43.5	16°21.4	45°06.2	70°13.7	107°09.5
1	303°48.9	9.1'	$20^{\circ}01.1$	-10.3'	58.0'	106°43.7	105°54.4	84°59.0	29°09.6	16°54.7	45°40.1	70°47.6	107°43.3
2	318°17.0	9.1'	20°11.4	-10.2'	57.9'	106°27.1	105°23.0	84°29.4	28°35.7	17°28.0	46°13.9	71°21.4	108°16.9
3	332°45.0	9.1'	20°21.6	-10.1'	57.9'	106° 10.5	104°51.8	83°59.9	28°01.9	18°01.2	46°47.6	71°55.2	108°50.6
4	347°13.1	9.0'	20°31.7	-10.0'	57.9'	105°53.9	104°20.5	83°30.5	27°28.1	18°34.5	47°21.3	72°28.9	109°24.2
5	1°41.1	9.0'	$20^{\circ}41.7$	-9.8'	57.8'	105°37.2	103°49.3	83°01.1	26°54.4	19°07.8	47°55.0	73°02.6	109°57.7
6	16°09.1	9.0'	S 20°51.5	-9.7'	57.8'	105°20.4	103°18.2	82°31.7	26°20.7	19°41.0	48°28.7	73°36.2	110°31.2
7	30°37.1	8.9'	21°01.2	-9.6'	57.7'	105°03.6	102°47.1	82°02.5	25°47.1	20°14.2	49°02.3	74°09.8	111°04.6
8	45°05.0	8.9'	21°10.8	-9.4'	57.7'	104°46.8	102°16.0	81°33.2	25°13.5	20°47.4	49°35.8	74°43.4	111°38.0
9	59°33.0	8.9'	21°20.2	-9.3'	57.7'	104°29.9	101°45.0	81°04.0	24°40.0	21°20.5	50°09.3	75° 16.9	112°11.4
10	74°00.8	8.9'	$21^{\circ}29.5$	-9.2'	57.6'	104°13.0	101°14.0	80°34.9	24°06.5	21°53.7	50°42.8	75°50.3	112°44.7
11	88°28.7	8.8'	21°38.7	-9.0'	57.6'	103°56.0	100°43.1	80°05.8	23°33.0	22°26.8	51°16.3	76°23.8	113°17.9
12	102°56.6	8.8'	S 21°47.7	-8.9'	57.6'	103°39.0	100°12.2	79°36.8	22°59.6	22°59.8	51°49.7	76°57.1	113°51.1
13	117°24.4	8.8'	21°56.7	-8.8'	57.5'	103°22.0	99°41.4	79°07.8	22°26.2	23°32.9	52°23.0	77°30.5	114°24.3
14	131°52.2	8.8'	22°05.4	-8.6'	57.5'	103°04.9	99°10.6	78°38.9	21°52.9	24°05.9	52°56.3	78°03.7	114°57.4
15	146°19.9	8.7'	22°14.1	-8.5'	57.4'	102°47.9	98°39.9	78°10.0	21°19.6	24°38.9	53°29.6	78°37.0	115°30.4
16	160°47.7	8.7'	22°22.6	-8.4'	57.4'	102°30.7	98°09.2	77°41.2	20°46.4	25°11.8	54°02.9	79° 10.1	116°03.5
17	175°15.4	8.7'	22°31.0	-8.2'	57.4'	102°13.6	97°38.6	77°12.4	20°13.2	25°44.7	54°36.0	79°43.3	116°36.4
18	189°43.1	8.7'	S 22°39.2	-8.1'	57.3'	101°56.4	97°08.0	76°43.7	19°40.1	26°17.6	55°09.2	80°16.4	117°09.4
19	204°10.7	8.6'	22°47.3	-8.0'	57.3'	101°39.2	96°37.4	76°15.1	19°07.0	26°50.5	55°42.3	80°49.5	117°42.2
20	218°38.4	8.6'	22°55.3	-7.8'	57.3'	101°21.9	96°06.9	75°46.5	18°34.0	27°23.3	56°15.4	81°22.5	118°15.1
21	233°06.0	8.6'	23°03.1	-7.7'	57.2'	101°04.7	95°36.4	75°17.9	18°01.0	27°56.1	56°48.4	81°55.4	118°47.9
22	247°33.6	8.6'	23°10.8	-7.6'	57.2'	100°47.4	95°06.0	74°49.5	17°28.0	28°28.8	57°21.4	82°28.4	119°20.6
23	262°01.2	8.6'	23°18.4	-7.4'	57.1'	100°30.1	94°35.6	74°21.1	16°55.1	29°01.5	57°54.4	83°01.2	119°53.3
16 th	SD	= 15.8	' Mer. pas	ss. 04:53					Sun SD	= 16.2'			

Moon (17th Feb)

Thu	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Procyon
0	276°28.8	8.5'	S 23°25.8	-7.3'	57.1'	100°12.8	94°05.2	73°52.7	16°22.2	29°34.2	58° 27.3	83°34.1	114°48.0
1	290°56.3	8.5'	23°33.1	-7.1'	57.1'	99°55.4	93°34.9	73°24.4	15°49.4	30°06.9	59°00.2	84°06.9	115°19.2
2	305°23.8	8.5'	23°40.2	-7.0'	57.0'	99°38.1	93°04.7	72°56.2	15°16.6	30°39.5	59°33.0	84°39.6	115°50.3
3	319°51.3	8.5'	23°47.2	-6.9'	57.0'	99°20.7	92°34.5	72°28.0	14°43.8	31°12.0	60°05.8	85°12.4	116°21.4
4	334°18.8	8.5'	23°54.1	-6.7'	57.0'	99°03.3	92°04.3	71°59.9	14°11.1	31°44.6	60°38.6	85°45.0	116°52.4
5	348°46.3	8.5'	24°00.8	-6.6'	56.9'	98°45.9	91°34.2	71°31.9	13°38.5	32°17.1	61°11.3	86°17.7	117°23.4
6	3°13.8	8.4'	S 24°07.4	-6.4'	56.9'	98°28.5	91°04.1	71°03.9	13°05.9	32°49.5	61°44.0	86°50.3	117°54.3
7	17°41.2	8.4'	24°13.8	-6.3'	56.9'	98°11.1	90°34.0	70°35.9	12°33.3	33°22.0	62°16.6	87°22.8	118°25.2
8	32°08.6	8.4'	24°20.1	-6.2'	56.8'	97°53.6	90°04.0	70°08.1	12°00.8	33°54.4	62°49.2	87°55.3	118°56.0
9	46°36.1	8.4'	24°26.3	-6.0'	56.8'	97°36.2	89°34.0	69°40.3	11°28.3	34°26.7	63°21.8	88°27.8	119°26.7
10	61°03.5	8.4'	24°32.3	-5.9'	56.7'	97°18.7	89°04.1	69°12.6	10°55.8	34°59.0	63°54.3	89°00.2	119°57.4
11	75°30.8	8.4'	24°38.2	-5.7'	56.7'	97°01.3	88°34.2	68°44.9	10°23.4	35°31.3	64°26.8	89°32.6	
12	89°58.2	8.4'	S 24°43.9	-5.6'	56.7'	96°43.8	88°04.4	68°17.3	9°51.1	36°03.6	64°59.3	90°04.9	
13	104°25.6	8.4'	24°49.5	-5.4'	56.6'	96°26.3	87°34.5	67°49.8	9°18.7	36°35.8	65°31.7	90°37.3	İ
14	118°52.9	8.3'	24°54.9	-5.3'	56.6'	96°08.9	87°04.8	67°22.3	8°46.5	37°08.0	66°04.1	91°09.5	
15	133°20.3	8.3'	25°00.2	-5.2'	56.6'	95°51.4	86°35.0	66°54.9	8°14.2	37°40.1	66°36.4	91°41.8	
16	147°47.6	8.3'	25°05.4	-5.0'	56.5'	95°33.9	86°05.4	66°27.6	7°42.0	38°12.2	67°08.7	92°14.0	
17	162°15.0	8.3'	25°10.4	-4.9'	56.5'	95°16.4	85°35.7	66°00.3	7°09.9	38°44.3	67°41.0	92°46.1	
18	176°42.3	8.3'	S 25°15.2	-4.7'	56.5'	94°59.0	85°06.1	65°33.2	6°37.8	39° 16.3	68° 13.2	93°18.2	
19	191°09.6	8.3'	25°20.0	-4.6'	56.4'	94°41.5	84°36.5	65°06.0	6°05.8	39°48.3	68°45.4	93°50.3	
20	205°36.9	8.3'	25°24.5	-4.4'	56.4'	94°24.0	84°07.0	64°39.0	5°33.8	40°20.3	69°17.6	94°22.4	
21	220°04.2	8.3'	25°29.0	-4.3'	56.4'	94°06.6	83°37.4	64°12.0	5°01.8	40°52.2	69°49.7	94°54.4	
22	234°31.5	8.3'	25°33.3	-4.1'	56.3'	93°49.1	83°08.0	63°45.1	4°29.9	41°24.1	70°21.8	95°26.3	
23	248°58.9	8.3'	25°37.4	-4.0'	56.3'	93°31.7	82°38.5	63°18.3	3°58.1	41°56.0	70°53.9	95°58.3	
17 th	SD :	= 15.6'	Mer. pas	s. 05:47	7				Sun S	D = 16.2'	-		

h Moon (18 th Feb)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	±Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	263°26.2	8.3'	S 25°41.4	-3.9'	56.3'	93°14.2	82°09.2	62°51.6	3°26.4	42°27.8	53°17.5	71°25.9	96°30.2
1	277°53.5	8.3'	25°45.3	-3.7'	56.2'	92°56.8	81°39.8	62°24.9	2°54.8	42°59.6	53°39.3	71°57.9	97°02.0
2	292°20.8	8.3'	25°49.0	-3.6'	56.2'	92°39.3	81°10.5	61°58.3	2°23.4	43°31.4	54°01.2	72°29.9	97°33.8
3	306°48.1	8.3'	25°52.5	-3.4'	56.2'	92°21.9	80°41.2	61°31.8	1°52.2	44°03.1	54°23.2	73°01.8	98°05.6
4	321°15.4	8.3'	25°56.0	-3.3'	56.1'	92°04.5	80°11.9	61°05.3	1°21.6	44°34.8	54°45.3	73°33.7	98°37.4
5	335°42.8	8.3'	25°59.2	-3.1'	56.1'	91°47.1	79°42.7	60°39.0		45°06.5	55°07.4	74°05.5	99°09.1
6	350°10.1	8.3'	S 26°02.4	-3.0'	56.1'	91°29.7	79°13.5	60°12.7		45°38.1	55°29.6	74°37.4	99°40.8
7	4°37.4	8.3'	$26^{\circ}05.3$	-2.8'	56.1'	91°12.4	78°44.4	59°46.5		46°09.7	55°52.0	75°09.2	100°12.4
8	19°04.8	8.4'	26°08.2	-2.7'	56.0'	90°55.0	78°15.3	59°20.4		46°41.3	56°14.3	75°40.9	100°44.1
9	33°32.1	8.4'	$26^{\circ}10.9$	-2.6'	56.0'	90°37.7	77°46.2	58°54.3		47°12.8	56°36.8	76° 12.6	101°15.6
10	47°59.5	8.4'	26°13.4	-2.4'	56.0'	90°20.3	77°17.1	58°28.4		47°44.3	56°59.3	76°44.3	101°47.2
11	62°26.9	8.4'	$26^{\circ}15.8$	-2.3'	55.9'	90°03.0	76°48.1	58°02.5	2°26.6	48°15.8	57°21.9	77° 16.0	102°18.7
12	76°54.3	8.4'	S 26°18.1	-2.1'	55.9'	89°45.7	76°19.1	57° 36.7	2°57.7	48°47.2	57°44.6	77°47.6	102°50.2
13	91°21.7	8.4'	26°20.2	-2.0'	55.9'	89°28.4	75°50.2	57° 11.0	3°28.9	49°18.7	58°07.3	78° 19.2	103°21.7
14	105°49.1	8.4'	26°22.2	-1.8'	55.8'	89°11.2	75°21.3	56° 45.4	4°00.1	49°50.0	58°30.1	78°50.8	103°53.1
15	120°16.5	8.5'	26°24.0	-1.7'	55.8'	88°54.0	74°52.4	56° 19.9	4°31.4	50°21.4	58°53.0	79°22.3	104°24.5
16	134°44.0	8.5'	26°25.7	-1.5'	55.8'	88°36.7	74°23.5	55°54.5	5°02.7	50°52.7	59°15.9	79°53.8	104°55.8
17	149°11.4	8.5'	26°27.3	-1.4'	55.8'	88°19.6	73°54.7	55°29.2	5°34.0	51°24.0	59°38.8	80°25.3	105°27.1
18	163°38.9	8.5'	S 26°28.7	-1.3'	55.7'	88°02.4	73°25.9	55°03.9	6°05.2	51°55.3	60°01.9	80°56.8	105°58.4
19	178°06.4	8.5'	$26^{\circ}29.9$	-1.1'	55.7'	87°45.2	72°57.1	54°38.8	6°36.4	52°26.5	60°24.9	81°28.2	106°29.7
20	192°34.0	8.6'	26°31.0	-1.0'	55.7'	87°28.1	72°28.4	54° 13.7	7° 07.7	52°57.7	60°48.1	81°59.6	107°00.9
21	207°01.5	8.6'	26°32.0	-0.8'	55.6'	87°11.0	71°59.7	53°48.8	7°38.9	53°28.9	61°11.3	82°30.9	107°32.1
22	221°29.1	8.6'	26°32.8	-0.7'	55.6'	86°54.0	71°31.0	53°23.9	8° 10.0	54°00.0	61°34.5	83°02.3	108°03.3
23	235°56.7	8.6'	26°33.5	-0.5'	55.6'	86°36.9	71°02.4	52°59.2	8°41.2	54°31.2	61°57.8	83°33.6	108°34.5
18 th	SD :	= 15.3′	Mer. pas	s. 06:41	L				Sun S	D = 16.2'			

Moon (19th Feb)

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Lunar	Distance	(objects	with	largest	hourly	ו ח	dalta)	١
Lunar	Distance	objects	with	iargest	nouriv	ᄓ	ueitai	

Sat	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	250°24.3	8.7'	S 26°34.1	-0.4'	55.6'	86°19.9	70°33.8	52°34.5	9°12.3	55°02.2	62°21.1	84°04.8	109°05.6
1	264°52.0	8.7'	26°34.5	-0.3'	55.5'	86°02.9	70°05.2	52°10.0	9°43.4	55°33.3	62°44.4	84°36.1	109°36.7
2	279°19.7	8.7'	26°34.7	-0.1'	55.5'	85°45.9	69°36.6	51°45.5	10° 14.5	56°04.3	63°07.8	85°07.3	110°07.7
3	293°47.4	8.7'	26°34.8	0.0'	55.5'	85°29.0	69°08.1	51°21.2	10°45.5	56°35.4	63°31.3	85°38.5	110°38.8
4	308°15.1	8.8'	26°34.8	0.2'	55.5'	85°12.1	68°39.6	50°57.0	11° 16.6	57°06.3	63°54.8	86°09.7	111°09.8
5	322°42.9	8.8'	26°34.7	0.3'	55.4'	84°55.3	68°11.1	50°32.9	11°47.6	57°37.3	64°18.3	86°40.8	111°40.7
6	337°10.7	8.8'	S 26°34.4	0.4'	55.4'	84°38.4	67°42.7	50°08.9	12° 18.5	58°08.2	64°41.8	87°11.9	112°11.7
7	351°38.6	8.9'	26°33.9	0.6'	55.4'	84°21.6	67°14.3	49°45.0	12°49.5	58°39.1	65°05.4	87°43.0	112°42.6
8	6°06.4	8.9'	26°33.3	0.7'	55.4'	84°04.9	66°45.9	49°21.2	13°20.4	59°10.0	65°29.1	88°14.1	113°13.5
9	20°34.3	8.9'	26°32.6	0.9'	55.3'	83°48.1	66°17.5	48° 57.6	13°51.3	59°40.9	65°52.7	88°45.1	113°44.4
10	35°02.3	9.0'	26°31.8	1.0'	55.3'	83°31.4	65°49.2	48°34.1	14°22.2	60°11.7	66°16.4	89°16.1	114°15.2
11	49°30.3	9.0'	26°30.8	1.1'	55.3'	83°14.8	65°20.9	48° 10.6	14°53.0	60°42.5	66°40.1	89°47.1	114°46.0
12	63°58.3	9.1'	S 26°29.7	1.3'	55.3'	82°58.1	64°52.6	47°47.4	15°23.9	61°13.3	67°03.9	90°18.0	115°16.8
13	78°26.4	9.1'	26°28.4	1.4'	55.2'	82°41.6	64°24.3	47°24.2	15°54.7	61°44.0	67°27.7	90°49.0	115°47.6
14	92°54.5	9.1'	26°27.0	1.5'	55.2'	82°25.0	63°56.1	47°01.2	16°25.4	62°14.8	67°51.5	91°19.9	116°18.3
15	107°22.6	9.2'	26°25.5	1.7'	55.2'	82°08.5	63°27.9	46°38.3	16° 56.2	62°45.5	68°15.3	91°50.8	116°49.0
16	121°50.8	9.2'	26°23.8	1.8'	55.2'	81°52.0	62°59.7	46° 15.5	17°26.9	63°16.2	68°39.2	92°21.6	117°19.7
17	136°19.0	9.3'	26°22.0	1.9'	55.1'	81°35.6	62°31.5	45°52.9	17°57.6	63°46.8	69°03.0	92°52.5	117°50.4
18	150°47.3	9.3'	S 26°20.0	2.1'	55.1'	81°19.2	62°03.4	45°30.4	18°28.3	64°17.5	69°26.9	93°23.3	118°21.1
19	165°15.6	9.4'	26°18.0	2.2'	55.1'	81°02.9	61°35.2	45°08.1	18°59.0	64°48.1	69°50.9	93°54.1	118°51.7
20	179°44.0	9.4'	$26^{\circ}15.8$	2.3'	55.1'	80°46.6	61°07.2	44°45.9	19°29.6	65°18.7	70°14.8	94°24.9	119°22.3
21	194°12.4	9.5'	$26^{\circ}13.4$	2.5'	55.0'	80°30.3	60°39.1	44°23.9	20°00.2	65°49.2	70°38.8	94°55.6	119°52.8
22	208°40.9	9.5'	$26^{\circ}11.0$	2.6'	55.0'	80°14.1	60°11.0	44°02.0	20°30.8	66°19.8	71°02.8	95°26.3	
23	223°09.4	9.6'	26°08.4	2.7'	55.0'	79°57.9	59°43.0	43°40.2	21°01.4	66°50.3	71°26.8	95°57.0	
19 th	SD :	= 15.2 [']	Mer. pas	s. 07:35	5				Sun S	D = 16.2'			

h	Moon	(2∩th	Eab)

Sun	GHA	ν	Dec	d	HP	-Deneb	-Sun	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Jupiter
0	237°38.0	9.6'	S 26°05.6	2.9'	55.0'	79°41.8	59°15.0	43°18.7	21°32.0	53°01.6	67°20.8	71°50.8	96°27.7
1	252°06.6	9.7'	$26^{\circ}02.8$	3.0'	55.0'	79°25.7	58°47.0	42°57.2	22°02.5	53°20.3	67°51.3	72°14.9	96°58.4
2	266°35.3	9.7'	25°59.8	3.1'	54.9'	79°09.7	58°19.1	42°36.0	22°33.0	53°39.1	68°21.8	72°38.9	97°29.0
3	281°04.0	9.8'	25°56.7	3.2'	54.9'	78°53.7	57°51.1	42°14.9	23°03.5	53°58.1	68°52.2	73°03.0	97°59.6
4	295°32.8	9.8'	25°53.4	3.4'	54.9'	78°37.8	57°23.2	41°54.0	23°34.0	54°17.1	69°22.6	73°27.1	98°30.2
5	310°01.6	9.9'	$25^{\circ}50.0$	3.5'	54.9'	78°21.9	56°55.3	41°33.2	24°04.4	54°36.3	69°53.0	73°51.2	99°00.8
6	324°30.5	9.9'	S 25°46.5	3.6'	54.9'	78°06.1	56°27.4	41°12.7	24°34.9	54°55.5	70°23.4	74°15.3	99°31.4
7	338°59.4	10.0'	25°42.9	3.8'	54.8'	77°50.3	55°59.6	40°52.3	25°05.3	55°14.9	70°53.8	74°39.4	100°01.9
8	353°28.4	10.0'	25°39.2	3.9'	54.8'	77°34.6	55°31.7	40°32.1	25°35.7	55°34.3	71°24.1	75°03.6	100°32.4
9	7°57.4	10.1'	25°35.3	4.0'	54.8'	77°18.9	55°03.9	40° 12.1	26°06.0	55°53.9	71°54.5	75°27.7	101°02.9
10	22°26.5	10.2'	25°31.3	4.1'	54.8'	77°03.3	54°36.1	39°52.3	26°36.4	56°13.5	72°24.8	75°51.9	101°33.4
11	36°55.7	10.2'	25°27.2	4.2'	54.8'	76°47.8	54°08.4	39°32.6	27°06.7	56°33.2	72°55.1	76°16.1	102°03.9
12	51°24.9	10.3'	S 25°22.9	4.4'	54.7'	76°32.3	53°40.6	39°13.2	27°37.0	56°53.1	73°25.3	76°40.2	102°34.3
13	65°54.2	10.3'	$25^{\circ}18.6$	4.5'	54.7'	76°16.8	53°12.9	38°54.0	28°07.4	57°13.0	73°55.6	77°04.4	103°04.7
14	80°23.5	10.4'	$25^{\circ}14.1$	4.6'	54.7'	76°01.4	52°45.1	38°35.0	28°37.6	57°33.0	74°25.8	77°28.6	103°35.1
15	94°52.9	10.5'	$25^{\circ}09.5$	4.7'	54.7'	75°46.1	52°17.4	38°16.2	29°07.9	57°53.0	74°56.1	77°52.8	104°05.5
16	109°22.4	10.5'	25°04.7	4.8'	54.7'	75°30.8	51°49.7	37°57.7	29°38.1	58°13.2	75°26.3	78°17.1	104°35.9
17	123°51.9	10.6'	24°59.9	5.0'	54.7'	75°15.6	51°22.1	37°39.3	30°08.4	58°33.4	75°56.4	78°41.3	105°06.2
18	138°21.5	10.6'	S 24°54.9	5.1'	54.6'	75°00.5	50°54.4	37°21.2	30°38.6	58°53.8	76°26.6	79°05.5	105°36.6
19	152°51.2	10.7'	24°49.9	5.2'	54.6'	74°45.4	50°26.8	37°03.3	31°08.8	59°14.1	76°56.8	79°29.7	106°06.9
20	167°20.9	10.8'	24° 44.7	5.3'	54.6'	74°30.4	49°59.2	36°45.7	31°39.0	59°34.6	77°26.9	79°54.0	106°37.2
21	181°50.7	10.8'	24°39.3	5.4'	54.6'		49°31.6	36°28.3	32°09.1	59°55.2	77°57.0	80°18.2	107°07.5
22	196°20.5	10.9'	24°33.9	5.5'	54.6'		49°04.0	36°11.2	32°39.3	60°15.8	78°27.1	80°42.5	107°37.7
23	210°50.4	11.0'	24°28.4	5.7'	54.6'	6' 48°36.4 35°54.3 33°09.4 60°36.4 78°57.2 81°06.7 108°							108°08.0
20 th	SD :	= 15.0'	Mer. pass	. 08:27		$Sun\;SD=16.2'$							

Moon (21st Feb)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Sun	-Altair	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Jupiter
0	225°20.4	11.0'	S 24°22.7	5.8'	54.5'	48°08.9	35°37.6	33°39.5	56°39.2	60°57.2	79°27.3	81°31.0	108°38.2
1	239°50.4	11.1'	24°17.0	5.9'	54.5'	47°41.4	35°21.3	34°09.6	56°59.7	61°18.0	79°57.4	81°55.2	109°08.4
2	254°20.5	11.2'	24°11.1	6.0'	54.5'	47°13.8	35°05.2	34°39.7	57°20.2	61°38.9	80°27.4	82° 19.5	109°38.7
3	268°50.7	11.2'	24°05.1	6.1'	54.5'	46°46.3	34°49.4	35°09.8	57°40.8	61°59.8	80°57.4	82°43.7	110°08.8
4	283°20.9	11.3'	23°59.0	6.2'	54.5'	46°18.9	34°33.8	35°39.9	58°01.5	62°20.8	81°27.5	83°08.0	110°39.0
5	297°51.2	11.4'	23°52.8	6.3'	54.5'	45°51.4	34° 18.6	36°09.9	58°22.2	62°41.9	81°57.5	83°32.2	111°09.2
6	312°21.6	11.4'	S 23°46.5	6.4'	54.4'	45°23.9		36°40.0	58°43.1	63°03.0	82°27.5	83°56.5	111°39.3
7	326°52.0	11.5'	23°40.1	6.5'	54.4'	44°56.5		37°10.0	59°04.0	63°24.2	82°57.4	84°20.7	112°09.5
8	341°22.5	11.6'	23°33.5	6.6'	54.4'	44°29.1		37°40.0	59°25.0	63°45.4	83°27.4	84°45.0	112°39.6
9	355°53.0	11.6'	23°26.9	6.7'	54.4'	44°01.6		38°10.0	59°46.0	64°06.7	83°57.3	85°09.2	113°09.7
10	10°23.7	11.7'	23°20.2	6.8'	54.4'	43°34.2		38°40.0	60°07.1	64°28.1	84°27.3	85°33.5	113°39.8
11	24°54.4	11.8'	23°13.3	6.9'	54.4'	43°06.9		39°09.9	60°28.3	64°49.5	84°57.2	85°57.7	114°09.8
12	39°25.1	11.8'	S 23°06.4	7.0'	54.4'	42°39.5		39°39.9	60°49.5	65° 10.9	85°27.1	86°21.9	114°39.9
13	53°56.0	11.9'	22°59.3	7.1'	54.3'	42°12.1		40°09.8	61°10.8	65°32.4	85°57.0	86°46.2	115°10.0
14	68°26.9	12.0'	22°52.2	7.2'	54.3'	41°44.8		40°39.8	61°32.2	65°54.0	86°26.9	87°10.4	115°40.0
15	82°57.8	12.0'	22°44.9	7.3'	54.3'	41°17.5		41°09.7	61°53.6	66° 15.6	86°56.8	87°34.6	116°10.0
16	97°28.9	12.1'	22°37.6	7.4'	54.3'	40°50.1		41°39.6	62°15.1	66°37.2	87°26.7	87°58.8	116°40.0
17	112°00.0	12.2'	22°30.1	7.5'	54.3'	40°22.8		42°09.5	62°36.7	66°58.9	87°56.5	88°23.1	117°10.0
18	126°31.2	12.2'	S 22°22.6	7.6'	54.3'			42°39.4	62°58.3	67°20.6	88°26.4	88°47.3	117°40.0
19	141°02.4	12.3'	22°15.0	7.7'	54.3'			43°09.3	63°19.9	67°42.4	88° 56.2	89°11.5	118°10.0
20	155°33.7	12.4'	22°07.2	7.8'	54.3'			43°39.1	63°41.7	68°04.2	89°26.0	89°35.7	118°39.9
21	170°05.1	12.4'	21°59.4	7.9'	54.2'			44°09.0	64°03.4	68°26.1	89°55.8	89°59.9	119°09.9
22	184°36.5	12.5'	$21^{\circ}51.5$	8.0'	54.2'			44°38.8	64°25.2	68°48.0	90°25.6	90°24.0	119°39.8
23	199°08.0	12.6'	21°43.4	8.1'	54.2'			45°08.7	64°47.1	69°09.9	90°55.4	90°48.2	
21 st	SD :	= 14.9'	Mer. pass	. 09:17		-			Sun SD =	= 16.2′			

h		Moon	(22 nd Fe	b)		Lunar D	Distance (ob	jects wit	h largest	hourly LD	delta)
Tue	GHA	ν	Dec	d	HP	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	213°39.6	12.6'	S 21°35.3	8.2'	54.2'	45°38.5	65°09.0	69°31.9	79°36.1	91°12.4	91°25.2
1	228°11.3	12.7'	$21^{\circ}27.1$	8.3'	54.2'	46°08.3	65°31.0	69°53.9	79°55.7	91°36.5	91°55.0
2	242°43.0	12.8'	21°18.8	8.4'	54.2'	46°38.1	65°53.0	70°15.9	80°15.4	92°00.6	92°24.7
3	257°14.8	12.9'	21°10.4	8.5'	54.2'	47°07.9	66° 15.0	70°38.0	80°35.1	92°24.8	92°54.5
4	271°46.6	12.9'	21°01.9	8.6'	54.2'	47°37.7	66°37.1	71°00.1	80°54.8	92°48.9	93°24.2
5	286°18.5	13.0'	20°53.4	8.7'	54.2'	48°07.5	66° 59.3	71°22.3	81°14.5	93°13.0	93°54.0
6	300°50.5	13.1'	S 20°44.7	8.7'	54.1'	48°37.2	67°21.5	71°44.5	81°34.3	93°37.1	94°23.7
7	315°22.6	13.1'	20°36.0	8.8'	54.1'	49°07.0	67°43.7	72°06.7	81°54.1	94°01.2	94°53.4
8	329°54.7	13.2'	20°27.2	8.9'	54.1'	49°36.8	68°06.0	72°28.9	82°13.8	94°25.3	95°23.1
9	344°26.9	13.3'	20°18.2	9.0'	54.1'	50°06.5	68°28.3	72°51.2	82°33.6	94°49.3	95°52.9
10	358°59.1	13.3'	20°09.3	9.1'	54.1'	50°36.2	68° 50.6	73°13.5	82°53.5	95°13.4	96°22.6
11	13°31.5	13.4'	20°00.2	9.2'	54.1'	51°06.0	69°13.0	73°35.8	83°13.3	95°37.4	96°52.2
12	28°03.8	13.4'	S 19°51.0	9.2'	54.1'	51°35.7	69°35.4	73°58.2	83°33.1	96°01.4	97°21.9
13	42°36.3	13.5'	19°41.8	9.3'	54.1'	52°05.4	69°57.9	74°20.6	83°53.0	96°25.4	97°51.6
14	57°08.8	13.6'	19°32.4	9.4'	54.1'	52°35.1	70°20.4	74°43.0	84°12.8	96°49.4	98°21.3
15	71°41.4	13.6'	19°23.0	9.5'	54.1'	53°04.8	70°42.9	75°05.4	84°32.7	97°13.4	98°50.9
16	86°14.0	13.7'	19°13.6	9.6'	54.1'	53°34.5	71°05.4	75°27.9	84°52.6	97°37.3	99°20.6
17	100°46.7	13.8'	19°04.0	9.6'	54.0'	54°04.2	71°28.0	75°50.3	85°12.4	98°01.3	99°50.2
18	115°19.5	13.8'	S 18°54.4	9.7'	54.0'	54°33.9	71°50.7	76°12.8	85°32.3	98°25.2	100°19.9
19	129°52.3	13.9'	18°44.7	9.8'	54.0'	55°03.6	72°13.3	76°35.4	85°52.2	98°49.1	100°49.5
20	144°25.2	14.0'	18°34.9	9.9'	54.0'	55°33.3	72°36.0	76°57.9	86°12.1	99°13.0	101°19.1
21	158°58.2	14.0'	$18^{\circ}25.0$	9.9'	54.0'	56°02.9	72°58.7	77°20.5	86°32.0	99°36.8	101°48.8
22	173°31.2	14.1'	$18^{\circ}15.1$	10.0'	54.0'	56°32.6	73°21.4	77°43.1	86°52.0	100°00.7	102°18.4
23	188°04.3	14.1'	18°05.1	10.1'	54.0'	57°02.3	73°44.2	78°05.7	87°11.9	100°24.5	102°48.0
22 nd	SD	= 14.8'	Mer. pass	. 10:04							

h Moon (23 rd Feb)	Lunar Distance (objects with lar	gest hourly	LD delta)
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Wed	GHA	ν	Dec	d	HP	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	202°37.4	14.2'	S 17°55.0	10.2'	54.0'	57°31.9	74°07.0	78°28.3	87°31.8	100°48.3	103°17.6
1 1	217°10.6	14.3'	17°44.8	10.2'	54.0'	58°01.5	74°29.8	78°50.9	87°51.7	101°12.1	103°47.2
2	231°43.9	14.3'	17°34.6	10.3'	54.0'	58°31.2	74°52.6	79°13.6	88°11.6	101°35.8	104° 16.8
3	246°17.2	14.4'	17°24.3	10.4'	54.0'	59°00.8	75° 15.5	79°36.3	88°31.6	101°59.6	104°46.4
4	260°50.6	14.4'	17°13.9	10.4'	54.0'	59°30.5	75°38.4	79°59.0	88°51.5	102°23.3	105°16.0
5	275°24.0	14.5'	$17^{\circ}03.5$	10.5'	54.0'	60°00.1	76°01.3	80°21.7	89°11.4	102°47.0	105°45.5
6	289°57.5	14.6'	S 16°53.0	10.6'	54.0'	60°29.7	76°24.2	80°44.4	89°31.3	103°10.6	106° 15.1
7	304°31.1	14.6'	16°42.5	10.6'	54.0'	60°59.3	76° 47.2	81°07.1	89°51.3	103°34.3	106°44.7
8	319°04.7	14.7'	16°31.8	10.7'	54.0'	61°28.9	77° 10.2	81°29.9	90°11.2	103°57.9	107° 14.3
9	333°38.4	14.7'	$16^{\circ}21.1$	10.8'	53.9'	61°58.6	77° 33.2	81°52.6	90°31.1	104°21.5	107°43.8
10	348°12.1	14.8'	$16^{\circ}10.4$	10.8'	53.9'	62°28.2	77° 56.2	82°15.4	90°51.0	104°45.0	108° 13.4
11	2°45.9	14.8'	$15^{\circ}59.6$	10.9'	53.9'	62°57.8	78° 19.2	82°38.2	91°10.9	105°08.6	108°43.0
12	$17^{\circ}19.7$	14.9'	S 15°48.7	10.9'	53.9'	63°27.4	78°42.3	83°01.0	91°30.8	105°32.1	109° 12.5
13	31°53.6	14.9'	15°37.8	11.0'	53.9'	63°57.0	79°05.3	83°23.8	91°50.7	105°55.6	109°42.1
14	46°27.6	15.0'	15°26.8	11.1'	53.9'	64°26.6	79°28.4	83°46.6	92°10.6	106°19.0	110°11.6
15	61°01.6	15.1'	15°15.7	11.1'	53.9'	64°56.2	79°51.5	84°09.4	92°30.5	106°42.4	110°41.2
16	75°35.6	15.1'	15°04.6	11.2'	53.9'	65°25.8	80°14.6	84°32.3	92°50.4	107°05.8	111° 10.7
17	90°09.7	15.2'	14°53.4	11.2'	53.9'	65°55.3	80°37.8	84°55.1	93°10.2	107°29.2	111°40.2
18	104°43.9	15.2'	S 14°42.2	11.3'	53.9'	66°24.9	81°00.9	85°18.0	93°30.1	107°52.5	112°09.8
19	119°18.1	15.3'	14°30.9	11.3'	53.9'	66°54.5	81°24.1	85°40.8	93°49.9	108°15.8	112°39.3
20	133°52.3	15.3'	$14^{\circ}19.5$	11.4'	53.9'	67°24.1	81°47.3	86°03.7	94°09.8	108°39.1	113°08.8
21	148°26.6	15.4'	14°08.1	11.5'	53.9'	67°53.7	82°10.4	86°26.5	94°29.6	109°02.3	113°38.4
22	163°01.0	15.4'	13°56.7	11.5'	53.9'	68°23.2	82°33.6	86°49.4	94°49.4	109°25.5	114°07.9
23	177°35.4	15.4'	13°45.2	11.6'	53.9'	68°52.8	82°56.9	87°12.3	95°09.2	109°48.6	114°37.4
23 rd	SD	= 14.7'	Mer. pass	s. 10:49							

h Moon (24th Feb)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	192°09.8	15.5'	S 13°33.6	11.6'	53.9'		69°22.4	83°20.1	87°35.2	95°29.0	110°11.7	115°06.9
1	206°44.3	15.5'	13°22.0	11.7'	53.9'		69°52.0	83°43.3	87°58.0	95°48.8	110°34.8	115°36.5
2	221°18.9	15.6'	13° 10.4	11.7'	53.9'		70°21.5	84°06.5	88°20.9	96°08.5	110°57.9	116°06.0
3	235°53.4	15.6'	12°58.7	11.8'	53.9'		70°51.1	84°29.8	88°43.8	96°28.3	111°20.9	116°35.5
4	250°28.1	15.7'	12°46.9	11.8'	53.9'		71°20.7	84°53.0	89°06.7	96°48.0	111°43.8	117°05.0
5	265°02.7	15.7'	12°35.1	11.9'	53.9'		71°50.2	85°16.3	89°29.6	97°07.7	112°06.8	117°34.5
6	279°37.5	15.8'	S 12°23.2	11.9'	53.9'		72°19.8	85°39.6	89°52.5	97°27.4	112°29.6	118°04.0
7	294°12.2	15.8'	12°11.4	11.9'	53.9'		72°49.4	86°02.9	90°15.4	97°47.0	112°52.5	118°33.5
8	308°47.0	15.8'	11°59.4	12.0'	53.9'		73°18.9	86°26.1	90°38.2	98°06.7	113° 15.3	119°03.1
9	323°21.9	15.9'	11°47.4	12.0'	53.9'		73°48.5	86°49.4	91°01.1	98°26.3	113°38.0	119°32.6
10	337°56.7	15.9'	11°35.4	12.1'	53.9'		74°18.1	87°12.7	91°24.0	98°45.9	114°00.7	
11	352°31.7	16.0'	$11^{\circ}23.3$	12.1'	53.9'	34°43.0	74°47.6	87°36.0	91°46.9	99°05.5	114°23.4	
12	7°06.6	16.0'	S 11°11.2	12.2'	53.9'	34°58.4	75°17.2	87°59.3	92°09.8		114°46.0	
13	21°41.6	16.0'	$10^{\circ}59.0$	12.2'	53.9'			N				·
14	36°16.7	16.1'	10°46.8	12.2'	53.9'							
15	50°51.7	16.1'	10°34.6	12.3'	53.9'							
16	65°26.9	16.1'	10°22.3	12.3'	53.9'							
17	80°02.0	16.2'	$10^{\circ}10.0$	12.4'	53.9'				lew Moon -			
18	94°37.2	16.2'	S 09°57.6	12.4'	53.9'							
19	109°12.4	16.2'	09°45.2	12.4'	53.9'							
20	123°47.6	16.3'	09°32.8	12.5'	53.9'				lew Moon -			
21	138°22.9	16.3'	09°20.4	12.5'	53.9'							
22	152°58.2	16.3'	09°07.9	12.5'	53.9'							
23	167°33.6	16.4'	08°55.3	12.6'	53.9'			N	lew Moon -			
24 th	SD	= 14.7'	Mer. pass	. 11:31								

h Moon (25th Feb)

Fri	GHA	ν	Dec	d	HP	
0	182°08.9	16.4'	S 08°42.8	12.6'	53.9'	New Moon
1	196°44.3	16.4'	08°30.2	12.6'	53.9'	New Moon
2	211°19.7	16.5'	$08^{\circ}17.5$	12.7'	53.9'	New Moon
3	225°55.2	16.5'	08°04.9	12.7'	53.9'	New Moon
4	240°30.7	16.5'	07°52.2	12.7'	53.9'	New Moon
5	255°06.2	16.5'	$07^{\circ}39.5$	12.7'	53.9'	New Moon
6	269°41.7	16.6'	S 07°26.7	12.8'	53.9'	New Moon
7	284°17.3	16.6'	07° 13.9	12.8'	53.9'	New Moon
8	298°52.8	16.6'	$07^{\circ}01.1$	12.8'	53.9'	New Moon
9	313°28.4	16.6'	06°48.3	12.9'	53.9'	New Moon
10	328°04.1	16.6'	06°35.4	12.9'	53.9'	New Moon
11	342°39.7	16.7'	06°22.6	12.9'	53.9'	New Moon
12	357°15.3	16.7'	S 06°09.6	12.9'	53.9'	New Moon
13	11°51.0	16.7'	05°56.7	13.0'	53.9'	New Moon
14	26°26.7	16.7'	05°43.8	13.0'	53.9'	New Moon
15	41°02.4	16.7'	05°30.8	13.0'	53.9'	New Moon
16	55°38.2	16.7'	$05^{\circ}17.8$	13.0'	53.9'	New Moon
17	70°13.9	16.8'	05°04.8	13.0'	53.9'	New Moon
18	84°49.7	16.8'	S 04°51.8	13.1'	53.9'	New Moon
19	99°25.4	16.8'	04°38.7	13.1'	53.9'	New Moon
20	114°01.2	16.8'	$04^{\circ}25.6$	13.1'	53.9'	New Moon
21	128°37.0	16.8'	$04^{\circ}12.5$	13.1'	53.9'	New Moon
22	143°12.8	16.8'	03°59.4	13.1'	53.9'	New Moon
23	157°48.6	16.8'	03°46.3	13.1'	53.9'	New Moon
25 th	SD	$= 14.7^{\prime}$	Mer. pass	s. 12:11		

		(+ l-	
h	Moon	(26 th	Feh)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	-Venus	+Fomalhaut
0	172°24.5	16.8'	S 03°33.2	13.2'	53.9'				New	Moon ——			
1	187°00.3	16.8'	03°20.0	13.2'	53.9'				New	Moon ——			
2	201°36.2	16.9'	03°06.9	13.2'	53.9'				New	Moon ———			
3	216°12.0	16.9'	02°53.7	13.2'	54.0'				New	Moon ———			
4	230°47.9	16.9'	02°40.5	13.2'	54.0'					Moon ——			
5	245°23.7	16.9'	02°27.3	13.2'	54.0'				New	Moon ——			
6	259°59.6	16.9'	S 02°14.1	13.2'	54.0'				New	Moon ——			
7	274°35.5	16.9'	02°00.8	13.2'	54.0'				New	Moon ——			
8	289°11.3	16.9'	01°47.6	13.2'	54.0'		102°46.8	93°29.8	92°10.4	83°40.9	38°04.6	34°53.2	
9	303°47.2	16.9'	01°34.4	13.2'	54.0'		102°18.8	93°01.8	91°46.0	83°11.6	37°35.8	34°26.5	
10	318°23.1	16.9'	$01^{\circ}21.1$	13.3'	54.0'		101°50.8	92°33.8	91°21.6	82°42.3	37°07.1	33°59.8	28°13.9
11	332°58.9	16.9'	$01^{\circ}07.9$	13.3'	54.0'		101°22.7	92°05.8	90°57.2	82°13.1	36°38.3	33°33.1	28°29.5
12	347°34.8	16.9'	S 00°54.6	13.3'	54.0'		100°54.6	91°37.8	90°32.7	81°43.8	36°09.6	33°06.5	28°45.4
13	2°10.7	16.9'	00°41.3	13.3'	54.0'		100°26.6	91°09.8	90°08.3	81°14.5	35°40.8	32°39.8	29°01.7
14	16°46.5	16.9'	00°28.1	13.3'	54.0'		99°58.5	90°41.8	89°43.9	80°45.2	35°12.1	32°13.1	29°18.3
15	31°22.4	16.9'	00°14.8	13.3'	54.0'		99°30.4	90°13.8	89°19.4	80° 15.8	34°43.4	31°46.4	29°35.2
16	45°58.3	16.9'	S 00°01.5	13.3'	54.0'		99°02.3	89°45.7	88°55.0	79°46.5	34°14.7	31°19.7	29°52.5
17	60°34.1	16.8'	N 00°11.8	13.3'	54.0'		98°34.1	89°17.7	88°30.5	79° 17.2	33°46.0	30°53.0	30°10.0
18	75°10.0	16.8'	N00°25.1	13.3'	54.0'		98°06.0	88°49.6	88°06.1	78° 47.9	33°17.3	30°26.3	30°27.8
19	89°45.8	16.8'	00°38.4	13.3'	54.1'		97°37.9	88°21.6	87°41.6	78° 18.6	32°48.7	29°59.6	30°45.9
20	104°21.6	16.8'	$00^{\circ}51.6$	13.3'	54.1'	119°54.4	97°09.7	87°53.5	87°17.1	77°49.2	32°20.0	29°33.0	31°04.3
21	118°57.4	16.8'	$01^{\circ}04.9$	13.3'	54.1'	119°24.8	96°41.6	87°25.5	86°52.7	77° 19.9	31°51.4	29°06.3	31°22.9
22	133°33.3	16.8'	$01^{\circ}18.2$	13.3'	54.1'	118°55.3	96°13.4	86°57.4	86°28.2	76°50.5	31°22.8	28°39.6	31°41.8
23	148°09.1	16.8'	$01^{\circ}31.5$	13.3'	54.1'	118°25.7	95°45.2	86°29.3	86°03.7	76°21.2	30°54.2	28°12.9	32°01.0
26 th	SD	= 14.7'	Mer. pass	. 12:51						-			

Moon (27th Feb)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	-Venus	+Fomalhaut
0	162°44.8	16.8'	N 01°44.8	13.3'	54.1'		117°56.1	95°17.0	86°01.3	75°51.8	30°25.6	27°46.2	32°20.4
1	177°20.6	16.8'	$01^{\circ}58.1$	13.3'	54.1'		117°26.5	94°48.8	85°33.2	75°22.5	29°57.1	27° 19.5	32°40.0
2	191°56.4	16.7'	02°11.3	13.3'	54.1'		116°56.9	94°20.6	85°05.1	74°53.1	29°28.6	26°52.8	32°59.9
3	206°32.1	16.7'	02°24.6	13.3'	54.1'	119°49.8	116°27.3	93°52.4	84°37.0	74°23.7	29°00.1	26°26.1	33°20.0
4	221°07.8	16.7'	02°37.9	13.3'	54.1'	119°21.6	115°57.6	93°24.1	84°08.9	73°54.3	28°31.6	25°59.5	33°40.3
5	235°43.5	16.7'	$02^{\circ}51.1$	13.3'	54.1'	118°53.4	115°28.0	92°55.9	83°40.8	73°24.9	28°03.1	25°32.8	34°00.8
6	250°19.2	16.7'	N 03°04.4	13.2'	54.1'	118°25.2	114°58.4	92°27.6	83°12.7	72°55.6	27°34.7	25°06.1	34°21.5
7	264°54.9	16.7'	03°17.6	13.2'	54.2'	117°56.9	114°28.7	91°59.4	82°44.6	72°26.2	27°06.3	24°39.4	34° 42.5
8	279°30.6	16.6'	03°30.9	13.2'	54.2'	117°28.6	113°59.0	91°31.1	82°16.5	71°56.8	26°38.0	24°12.7	35°03.6
9	294°06.2	16.6'	03°44.1	13.2'	54.2'	117°00.3	113°29.4	91°02.8	81°48.4	71°27.3	26°09.6	23°46.1	35°24.9
10	308°41.8	16.6'	03°57.3	13.2'	54.2'	116°32.0	112°59.7	90°34.6	81°20.3	70°57.9	25°41.3	23°19.4	35°46.4
11	323°17.4	16.6'	04°10.5	13.2'	54.2'	116°03.7	112°30.0	90°06.3	80°52.1	70°28.5	25°13.1	22°52.8	36°08.1
12	337°53.0	16.5'	N04°23.7	13.2'	54.2'	115°35.3	112°00.3	89°38.0	80°24.0	69°59.1	24°44.9	22°26.1	36°29.9
13	352°28.5	16.5'	04°36.9	13.2'	54.2'	115°06.9	111°30.6	89°09.7	79°55.9	69°29.7	24°16.7	21°59.5	36°51.9
14	7°04.0	16.5'	04°50.0	13.2'	54.2'	114°38.5	111°00.8	88°41.3	79°27.7	69°00.2	23°48.6	21°32.9	37° 14.1
15	21°39.5	16.5'	05°03.2	13.1'	54.2'	114°10.1	110°31.1	88°13.0	78°59.6	68°30.8	23°20.5	21°06.2	37°36.5
16	36°15.0	16.4'	$05^{\circ}16.3$	13.1'	54.2'	113°41.6	110°01.3	87°44.7	78°31.5	68°01.3	22°52.5	20°39.6	37°58.9
17	50°50.4	16.4'	05°29.5	13.1'	54.3'	113°13.1	109°31.6	87°16.3	78°03.3	67°31.9	22°24.6	20°13.0	38°21.6
18	65°25.8	16.4'	N 05°42.6	13.1'	54.3'	112°44.6	109°01.8	86°48.0	77°35.2	67°02.4	21°56.7	19°46.4	38° 44.4
19	80°01.2	16.3'	05°55.7	13.1'	54.3'	112°16.1	108°32.0	86°19.6	77°07.0	66°32.9	21°28.9	19°19.9	39°07.3
20	94°36.5	16.3'	06°08.7	13.1'	54.3'	111°47.6	108°02.2	85°51.2	76°38.9	66°03.4	21°01.1	18°53.3	39°30.4
21	109°11.9	16.3'	$06^{\circ}21.8$	13.0'	54.3'	111°19.0	107°32.4	85°22.9	76°10.7	65°34.0	20°33.4	18°26.8	39°53.6
22	123°47.1	16.2'	06°34.8	13.0'	54.3'	110°50.5	107°02.6	84°54.5	75°42.6	65°04.5	20°05.8	18°00.3	40°16.9
23	138°22.4	16.2'	06°47.8	13.0'	54.3'	110°21.9	106°32.8	84°26.1	75°14.4	64°35.0	19°38.3	17°33.8	40°40.4
27 th	SD	$=14.8^{\prime}$	Mer. pass	. 13:31									

h		Moon	(28 th Fe	b)		Lunar Distance (objects with largest hourly LD delta)							
Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	-Venus	+Fomalhaut
0	152°57.6	16.2'	N 07°00.8	13.0'	54.3'	109°53.3	106°03.0	83°57.7	74°46.2	64°05.5	19°10.9	17°07.3	41°04.0
1	167°32.8	16.1'	$07^{\circ}13.8$	13.0'	54.3'	109°24.6	105°33.1	83°29.3	74°18.1	63°36.0	18°43.6	16°40.9	41°27.7
2	182°07.9	16.1'	07°26.8	12.9'	54.4'	108°56.0	105°03.2	83°00.9	73°49.9	63°06.4	18°16.5	16°14.4	41°51.6
3	196°43.0	16.1'	07°39.7	12.9'	54.4'	108°27.3	104°33.4	82°32.4	73°21.8	62°36.9	17°49.4	15°48.1	42°15.5
4	211°18.1	16.0'	07°52.6	12.9'	54.4'	107°58.6	104°03.5	82°04.0	72°53.6	62°07.4	17°22.5	15°21.7	42°39.6
5	225°53.1	16.0'	$08^{\circ}05.5$	12.9'	54.4'	107°29.9	103°33.6	81°35.6	72°25.4	61°37.9	16°55.7	14°55.4	43°03.8
6	240°28.1	15.9'	$N08^{\circ}18.3$	12.8'	54.4'	107°01.2	103°03.7	81°07.1	71°57.3	61°08.3	16°29.1	14°29.2	43°28.1
7	255°03.1	15.9'	08°31.2	12.8'	54.4'	106°32.4	102°33.8	80°38.7	71°29.1	60°38.8	16°02.6	14°03.0	43°52.5
8	269°38.0	15.9'	08°43.9	12.8'	54.4'	106°03.7	102°03.8	80°10.2	71°00.9	60°09.2	15°36.3	13°36.8	44°17.0
9	284°12.8	15.8'	08°56.7	12.7'	54.4'	105°34.9	101°33.9	79°41.8	70°32.8	59°39.6	15°10.3	13°10.8	44°41.6
10	298°47.6	15.8'	$09^{\circ}09.5$	12.7'	54.5'	105°06.1	101°03.9	79°13.3	70°04.6	59°10.1	14°44.4	12°44.8	45°06.3
11	313°22.4	15.7'	$09^{\circ}22.2$	12.7'	54.5'	104°37.3	100°33.9	78°44.8	69°36.4	58° 40.5	14°18.9	12°18.9	45°31.0
12	327°57.1	15.7'	N09°34.9	12.6'	54.5'	104°08.5	100°04.0	78°16.3	69°08.3	58° 10.9	13°53.5	11°53.0	45°55.9
13	342°31.8	15.6'	09°47.5	12.6'	54.5'	103°39.6	99°34.0	77°47.8	68°40.1	57°41.3	13°28.5	11°27.3	46°20.9
14	357°06.5	15.6'	$10^{\circ}00.1$	12.6'	54.5'	103°10.7	99°03.9	77°19.3	68°11.9	57°11.7	13°03.8	11°01.7	46°46.0
15	11°41.0	15.5'	$10^{\circ}12.7$	12.5'	54.5'	102°41.8	98°33.9	76°50.8	67°43.8	56°42.1	12°39.4	10°36.3	47°11.1
16	26°15.6	15.5'	10°25.3	12.5'	54.5'	102°12.9	98°03.9	76°22.3	67°15.6	56° 12.5	12°15.5	10°10.9	47°36.4
17	40°50.1	15.4'	$10^{\circ}37.8$	12.5'	54.6'	101°44.0	97°33.8	75°53.8	66°47.5	55°42.9	11°52.0	9°45.8	48°01.7
18	55°24.5	15.4'	N10°50.2	12.4'	54.6'	101°15.1	97°03.7	75°25.3	66°19.3	55° 13.3	11°28.9	9°20.9	48°27.1
19	69°58.9	15.3'	$11^{\circ}02.7$	12.4'	54.6'	100°46.1	96°33.7	74°56.8	65°51.1	54°43.7	11°06.4	8°56.2	48°52.6
20	84°33.2	15.3'	$11^{\circ}15.1$	12.4'	54.6'	100°17.1	96°03.6	74°28.2	65°23.0	54°14.0	10°44.5	8°31.7	49°18.2
21	99°07.5	15.2'	$11^{\circ}27.5$	12.3'	54.6'	99°48.1	95°33.4	73°59.7	64°54.8	53°44.4	10°23.3	8°07.6	49°43.8
22	113°41.7	15.2'	11°39.8	12.3'	54.6'	99°19.1	95°03.3	73°31.2	64°26.7	53° 14.7	10°02.8	7°43.8	50°09.5
23	128°15.9	15.1'	$11^{\circ}52.1$	12.2'	54.7'	98°50.1	94°33.2	73°02.6	63°58.6	52°45.1	9°43.1	7°20.4	50°35.3
28 th	SD	= 14.8'	Mer. pass	. 14:12									

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

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Rigel	-Capella	-Aldebaran	+Sun	+Fomalhaut
0	142°50.0	15.1'	$N12^{\circ}04.3$	12.2'	54.7'	98°21.0	94°03.0	72°34.1	66°15.5	63°30.4	52°15.4		51°01.2
1	157°24.0	15.0'	$12^{\circ}16.5$	12.2'	54.7'	97°52.0	93°32.8	72°05.5	65°51.7	63°02.3	51°45.8		51°27.1
2	171°58.0	14.9'	12°28.7	12.1'	54.7'	97°22.9	93°02.6	71°36.9	65°28.0	62°34.2	51°16.1		51°53.1
3	186°32.0	14.9'	12°40.8	12.1'	54.7'	96°53.8	92°32.4	71°08.4	65°04.3	62°06.0	50°46.4		52°19.2
4	201°05.8	14.8'	12°52.9	12.0'	54.7'	96°24.6	92°02.2	70°39.8	64°40.7	61°37.9	50°16.7	41°07.4	52°45.3
5	215°39.6	14.7'	13°04.9	12.0'	54.8'	95°55.5	91°32.0	70°11.2	64°17.1	61°09.8	49°47.0	41°35.2	53°11.6
6	230°13.4	14.7'	N 13°16.9	11.9'	54.8'	95°26.3	91°01.7	69°42.6	63°53.5	60°41.7	49°17.4	42°03.0	53°37.8
7	244°47.1	14.6'	13°28.8	11.9'	54.8'	94°57.2	90°31.5	69°14.1	63°30.0	60°13.6	48°47.7	42°30.8	54°04.2
8	259°20.7	14.6'	13°40.7	11.8'	54.8'	94°28.0	90°01.2	68° 45.5	63°06.5	59°45.5	48°18.0	42°58.7	54°30.6
9	273°54.3	14.5'	13°52.5	11.8'	54.8'	93°58.8	89°30.9	68° 16.9	62°43.1	59°17.4	47°48.2	43°26.6	54°57.0
10	288°27.8	14.4'	$14^{\circ}04.3$	11.7'	54.8'	93°29.5	89°00.6	67°48.3	62°19.7	58°49.4	47°18.5	43°54.5	55°23.6
11	303°01.2	14.4'	$14^{\circ}16.0$	11.7'	54.9'	93°00.3	88°30.2	67° 19.7	61°56.4	58°21.3	46°48.8	44°22.4	55°50.1
12	317°34.5	14.3'	$N14^{\circ}27.7$	11.6'	54.9'	92°31.0	87°59.9	66°51.1	61°33.0	57°53.3	46°19.1	44°50.3	56°16.8
13	332°07.8	14.2'	14°39.3	11.6'	54.9'	92°01.7	87°29.5	66°22.5	61°09.8	57°25.2	45°49.4	45°18.2	56°43.5
14	346°41.1	14.2'	14°50.9	11.5'	54.9'	91°32.4	86°59.1	65°53.9	60°46.6	56°57.2	45°19.7	45°46.2	57°10.3
15	1°14.2	14.1'	15°02.4	11.5'	54.9'	91°03.1	86°28.7	65°25.3	60°23.4	56°29.2	44°49.9	46°14.2	57°37.1
16	15°47.3	14.0'	15°13.9	11.4'	54.9'	90°33.8	85°58.3	64° 56.7	60°00.3	56°01.2	44°20.2	46°42.2	58°03.9
17	30°20.3	13.9'	15°25.3	11.3'	55.0'	90°04.4	85°27.8	64°28.1	59°37.3	55°33.2	43°50.5	47°10.2	58°30.9
18	44°53.2	13.9'	N 15°36.6	11.3'	55.0'	89°35.1	84°57.4	63° 59.5	59°14.3	55°05.2	43°20.7	47°38.3	58°57.8
19	59°26.1	13.8'	15°47.9	11.2'	55.0'	89°05.7	84°26.9	63°30.8	58°51.3	54°37.2	42°51.0	48°06.3	59°24.9
20	73°58.9	13.7'	15°59.2	11.2'	55.0'	88°36.3	83°56.4	63°02.2	58°28.5	54°09.3	42°21.2	48°34.4	59°52.0
21	88°31.6	13.6'	16°10.3	11.1'	55.0'	88°06.8	83°25.9	62°33.6	58°05.6	53°41.3	41°51.5	49°02.5	60°19.1
22	103°04.3	13.6'	16°21.4	11.0'	55.1'	87°37.4	82°55.3	62°05.0	57°42.9	53°13.4	41°21.8	49°30.6	60°46.3
23	117°36.8	13.5'	16°32.5	11.0'	55.1'	87°07.9	82°24.8	61°36.4	57°20.2	52°45.5	40°52.0	49°58.8	61°13.5
29 th	SD	= 14.9'	Mer. pass	. 14:55					Sun SI	D = 16.1'			

h	Moon	(1st	Mar)	

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Venus	+Saturn	+Sun	+Fomalhaut
0	132°09.3	13.4'	N 16°43.4	10.9'	55.1'	118°52.0	86°38.4	81°54.2	40°22.3	6°41.3		50°27.0	61°40.8
1	146°41.8	13.3'	16°54.4	10.8'	55.1'	118°21.3	86°08.9	81°23.6	39°52.5	7°04.1	10°05.8	50°55.1	62°08.2
2	161°14.1	13.3'	17°05.2	10.8'	55.1'	117°50.6	85°39.4	80°53.0	39°22.8	7°27.6	10°26.8	51°23.3	62°35.5
3	175°46.4	13.2'	$17^{\circ}16.0$	10.7'	55.2'	117°19.8	85°09.9	80°22.4	38°53.1	7°51.5	10°48.6	51°51.6	63°03.0
4	190°18.5	13.1'	$17^{\circ}26.7$	10.6'	55.2'	116°49.1	84°40.3	79°51.7	38°23.3	8° 15.9	11°11.0	52°19.8	63°30.5
5	204°50.6	13.0'	17°37.3	10.6'	55.2'	116°18.3	84°10.7	79°21.0	37°53.6	8°40.7	11°34.1	52°48.1	63°58.0
6	219°22.6	12.9'	N 17°47.9	10.5'	55.2'	115°47.5	83°41.2	78°50.3	37°23.9	9°05.8	11°57.7	53°16.4	64°25.6
7	233°54.6	12.9'	17°58.4	10.4'	55.3'	115°16.6	83°11.5	78° 19.6	36°54.2	9°31.2	12°21.9	53°44.7	64°53.2
8	248°26.4	12.8'	18°08.8	10.4'	55.3'	114°45.7	82°41.9	77°48.9	36°24.5	9°56.8	12°46.5	54°13.1	65°20.9
9	262°58.2	12.7'	$18^{\circ}19.2$	10.3'	55.3'	114°14.9	82°12.3	77°18.1	35°54.8	10°22.7	13° 11.6	54°41.4	65°48.6
10	277°29.9	12.6'	18°29.5	10.2'	55.3'	113°44.0	81°42.6	76°47.3	35°25.1	10°48.9	13°37.0	55°09.8	66°16.3
11	292°01.5	12.5'	18°39.7	10.1'	55.3'	113°13.0	81°12.9	76°16.5	34°55.4	11°15.2	14°02.9	55°38.2	66°44.1
12	306°33.0	12.4'	N 18°49.8	10.0'	55.4'	112°42.1	80°43.2	75°45.7	34°25.7	11°41.6	14°29.0	56°06.6	67°12.0
13	321°04.5	12.3'	18°59.8	10.0'	55.4'	112°11.1	80°13.5	75°14.9	33°56.0	12°08.2	14°55.5	56°35.1	67°39.9
14	335°35.8	12.3'	19°09.8	9.9'	55.4'	111°40.1	79°43.8	74°44.0	33°26.4	12°35.0	15°22.2	57°03.6	68°07.8
15	350°07.1	12.2'	19°19.7	9.8'	55.4'	111°09.1	79°14.0	74°13.1	32°56.8	13°01.9	15°49.2	57°32.1	68°35.8
16	4°38.3	12.1'	19°29.5	9.7'	55.5'	110°38.0	78°44.2	73°42.2	32°27.2	13°28.9	$16^{\circ}16.5$	58°00.6	69°03.8
17	19°09.3	12.0'	19°39.2	9.6'	55.5'	110°06.9	78°14.4	73°11.3	31°57.6	13°56.0	16°43.9	58°29.2	69°31.8
18	33°40.3	11.9'	N 19°48.9	9.6'	55.5'	109°35.8	77°44.6	72°40.3	31°28.0	14°23.2	17° 11.6	58°57.7	69°59.9
19	48°11.3	11.8'	19°58.4	9.5'	55.5'	109°04.7	77°14.8	72°09.3	30°58.4	14°50.5	17°39.5	59°26.3	70°28.1
20	62°42.1	11.7'	20°07.9	9.4'	55.6'	108°33.6	76°44.9	71°38.3	30°28.9	15° 17.9	18°07.5	59°55.0	70°56.3
21	77°12.8	11.6'	20°17.3	9.3'	55.6'	108°02.4	76°15.1	71°07.3	29°59.4	15°45.4	18° 35.7	60°23.6	71°24.5
22	91°43.5	11.6'	$20^{\circ}26.6$	9.2'	55.6'	107°31.2	75°45.2	70°36.2	29°30.0	16° 13.0	19°04.1	60°52.3	71°52.8
23	106°14.0	11.5'	20°35.8	9.1'	55.6'	107°00.0	75°15.3	70°05.1	29°00.5	16°40.6	19°32.6	61°21.0	72°21.1
1 st	SD	= 15.0'	Mer. pass	15:41					Sun SD	= 16.1'			

Moon (2nd Mar)

h

Lunar	Distance	Cohiects	with	largest	hourly	ΙD	delta)
Luliai	Distance	loblects	WILII	iaigest	HOULIV	LU	ueita

Thu	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Venus	+Saturn	+Sun	+Fomalhaut
0	120°44.5	11.4'	N 20°44.9	9.0'	55.7'		106°28.7	74°45.4	69°34.0	17°08.3	20°01.3	61°49.7	72°49.4
1	135°14.9	11.3'	20°53.9	8.9'	55.7'		105°57.5	74°15.4	69°02.9	17°36.1	20°30.1	62°18.5	73°17.8
2	149°45.1	11.2'	21°02.8	8.8'	55.7'		105°26.1	73°45.5	68°31.7	18°04.0	20°59.0	62°47.3	73°46.2
3	164°15.3	11.1'	$21^{\circ}11.7$	8.7'	55.7'		104°54.8	73°15.5	68°00.6	18°31.9	21°28.1	63°16.1	74°14.7
4	178°45.4	11.0'	21°20.4	8.6'	55.8'		104°23.5	72°45.5	67°29.4	18°59.9	21°57.3	63°44.9	74°43.2
5	193°15.4	10.9'	$21^{\circ}29.1$	8.5'	55.8'		103°52.1	72°15.5	66°58.1	19°27.9	22°26.5	64°13.8	75°11.7
6	207°45.4	10.8'	N21°37.6	8.5'	55.8'		103°20.7	71°45.4	66°26.9	19°56.0	22°55.9	64°42.7	75°40.3
7	222°15.2	10.7'	21°46.1	8.4'	55.8'		102°49.2	71°15.4	65°55.6	20°24.1	23°25.4	65°11.6	76°08.9
8	236°44.9	10.6'	21°54.4	8.2'	55.9'		102°17.8	70°45.3	65°24.3	20°52.3	23°55.0	65°40.6	76°37.5
9	251°14.5	10.5'	22°02.7	8.1'	55.9'		101°46.3	70°15.2	64°53.0	21°20.6	24°24.6	66°09.5	77°06.2
10	265°44.1	10.5'	22°10.8	8.0'	55.9'		101°14.7	69°45.1	64°21.6	21°48.9	24°54.4	66°38.5	77°35.0
11	280°13.5	10.4'	22° 18.9	7.9'	55.9'		100°43.2	69°15.0	63°50.2	22°17.2	25°24.3	67°07.6	78°03.7
12	294°42.9	10.3'	N22°26.8	7.8'	56.0'		100°11.6	68°44.9	63°18.8	22°45.6	25°54.2	67°36.6	78°32.5
13	309°12.2	10.2'	22°34.6	7.7'	56.0'		99°40.0	68°14.7	62°47.4	23°14.0	26°24.2	68°05.7	79°01.3
14	323°41.3	10.1'	22°42.4	7.6'	56.0'		99°08.3	67°44.5	62°15.9	23°42.5	26°54.3	68°34.9	79°30.2
15	338°10.4	10.0'	22°50.0	7.5'	56.1'		98°36.7	67°14.4	61°44.4	24°11.1	27°24.4	69°04.0	79°59.1
16	352°39.4	9.9'	22°57.5	7.4'	56.1'		98°05.0	66°44.1	61°12.9	24°39.7	27°54.7	69°33.2	80°28.1
17	7°08.3	9.8'	23°04.9	7.3'	56.1'		97°33.2	66°13.9	60°41.3	25°08.3	28°25.0	70°02.4	80°57.1
18	21°37.1	9.7'	N23° 12.2	7.2'	56.1'		97°01.5	65°43.7	60°09.7	25°37.0	28°55.3	70°31.6	81°26.1
19	36°05.8	9.6'	23° 19.3	7.1'	56.2'	119°54.6	96°29.7	65°13.4	59°38.1	26°05.7	29°25.8	71°00.9	81°55.1
20	50°34.4	9.5'	23°26.4	6.9'	56.2'	119°22.6	95°57.9	64°43.1	59°06.5	26°34.4	29°56.3	71°30.2	82°24.2
21	65°02.9	9.4'	23°33.4	6.8'	56.2'	118°50.6	95°26.0	64°12.9	58°34.8	27°03.2	30°26.8	71°59.6	82°53.3
22	79°31.3	9.3'	23°40.2	6.7'	56.3'	118° 18.5	94°54.1	63°42.5	58°03.1	27°32.1	30°57.5	72°28.9	83°22.5
23	93°59.6	9.2'	23°46.9	6.6'	56.3'	117°46.5	94°22.2	63°12.2	57°31.4	28°01.0	31°28.1	72°58.3	83°51.7
2 nd	SD	= 15.2'	Mer. pass.	16:30					Sun SE	0 = 16.1'			

h	Moon	(2rd	1/122)
h	IVIOON	1314	IV/Iar I

Fri	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Venus	+Saturn	+Sun	+Fomalhaut
0	108°27.9	9.1'	N23°53.5	6.5'	56.3'	117°14.4	93°50.2	62°41.9	56°59.7	28°29.9	31°58.9	73°27.8	84°20.9
1	122°56.0	9.1'	24°00.0	6.4'	56.3'	116°42.2	93°18.3	62°11.5	56°27.9	28°58.9	32°29.7	73°57.2	84°50.2
2	137°24.1	9.0'	24°06.3	6.2'	56.4'	116°10.0	92°46.2	61°41.2	55°56.1	29°27.9	33°00.6	74°26.7	85°19.5
3	151°52.0	8.9'	24°12.5	6.1'	56.4'	115°37.8	92°14.2	61°10.8	55°24.2	29°57.0	33°31.5	74°56.3	85°48.8
4	166°19.9	8.8'	24°18.7	6.0'	56.4'	115°05.6	91°42.1	60°40.4	54°52.4	30°26.1	34°02.5	75°25.8	86°18.2
5	180°47.7	8.7'	24°24.6	5.9'	56.5'	114°33.3	91°10.0	60°10.0	54°20.5	30°55.2	34°33.5	75°55.4	86°47.5
6	195°15.4	8.6'	N 24°30.5	5.7'	56.5'	114°00.9	90°37.8	59°39.6	53°48.6	31°24.4	35°04.6	76°25.1	87°17.0
7	209°43.0	8.5'	24°36.2	5.6'	56.5'	113°28.6	90°05.7	59°09.1	53°16.6	31°53.6	35°35.8	76°54.7	87°46.4
8	224°10.5	8.4'	24°41.8	5.5'	56.6'	112°56.2	89°33.4	58°38.7	52°44.6	32°22.9	36°07.0	77°24.4	88°15.9
9	238°37.9	8.3'	24°47.3	5.3'	56.6'	112°23.8	89°01.2	58°08.2	52°12.6	32°52.2	36°38.2	77°54.2	88°45.5
10	253°05.2	8.2'	24°52.6	5.2'	56.6'	111°51.3	88°28.9	57°37.7	51°40.5	33°21.5	37°09.5	78°23.9	89°15.0
11	267°32.5	8.2'	24°57.8	5.1'	56.7'	111°18.8	87°56.6	57°07.2	51°08.5	33°50.9	37°40.9	78°53.7	89°44.6
12	281°59.6	8.1'	N 25°02.9	4.9'	56.7'	110°46.3	87°24.2	56°36.8	50°36.4	34°20.4	38° 12.3	79°23.6	90°14.3
13	296°26.7	8.0'	25°07.8	4.8'	56.7'	110°13.7	86°51.8	56°06.2	50°04.2	34°49.8	38°43.8	79°53.5	90°43.9
14	310°53.7	7.9'	25°12.7	4.7'	56.7'	109°41.1	86°19.4	55°35.7	49°32.1	35° 19.3	39°15.3	80°23.4	
15	325°20.6	7.8'	25°17.3	4.5'	56.8'	109°08.4	85°46.9	55°05.2	48°59.9	35°48.9	39°46.8	80°53.3	
16	339°47.4	7.7'	25°21.9	4.4'	56.8'	108°35.7	85°14.4	54°34.7	48°27.6	36°18.5	40° 18.5	81°23.3	
17	354°14.1	7.6'	25°26.2	4.3'	56.8'	108°03.0	84°41.9	54°04.1	47°55.4	36°48.1	40°50.1	81°53.3	
18	8°40.8	7.6'	N 25°30.5	4.1'	56.9'	107°30.3	84°09.3	53°33.6	47°23.1	37° 17.8	41°21.8	82°23.4	
19	23°07.3	7.5'	25°34.6	4.0'	56.9'	106°57.5	83°36.7	53°03.0	46°50.7	37°47.5	41°53.6	82°53.5	
20	37°33.8	7.4'	25°38.6	3.8'	56.9'	106°24.6	83°04.1	52°32.5	46°18.4	38° 17.3	42°25.4	83°23.6	
21	52°00.2	7.3'	25°42.4	3.7'	57.0'	105°51.8	82°31.4	52°01.9	45°46.0	38°47.1	42°57.3	83°53.8	
22	66°26.5	7.2'	25°46.1	3.5'	57.0'	105°18.8	81°58.7	51°31.3	45°13.6	39°17.0	43°29.2	84°24.0	
23	80°52.8	7.2'	25°49.6	3.4'	57.0'	104°45.9	81°25.9	51°00.8	44°41.1	39°46.8	44°01.2	84°54.2	
3 rd	SD =	= 15.4'	Mer. pass	s. 17:24	4				Sun SI	0 = 16.1'			

h		Моо	n (4 th Ma	ır)			Lunar D	istance (c	bjects w	ith largest h	nourly L[O delta)	
Sat	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	+Aldebaran	+Venus	+Saturn	+Sun
0	95°18.9	7.1'	N25°53.0	3.2'	57.1'	104°12.9	80°53.1	50°30.2	44°08.7		40°16.8	44°33.2	85°24.5
1	109°45.0	7.0'	25°56.3	3.1'	57.1'	103°39.9	80°20.3	49°59.6	43°36.1		40°46.8	45°05.2	85°54.8
2	124°11.0	6.9'	25°59.4	2.9'	57.1'	103°06.8	79°47.4	49°29.1	43°03.6		41°16.8	45°37.3	86°25.2
3	138°37.0	6.9'	26°02.3	2.8'	57.2'	102°33.7	79°14.5	48°58.5	42°31.0		41°46.8	46°09.5	86°55.6
4	153°02.8	6.8'	$26^{\circ}05.1$	2.6'	57.2'	102°00.5	78°41.5	48°27.9	41°58.4		42°16.9	46°41.7	87°26.0
5	167°28.6	6.7'	26°07.8	2.5'	57.2'	101°27.4	78°08.6	47°57.3	41°25.8		42°47.1	47°13.9	87°56.5
6	181°54.3	6.7'	$N26^{\circ}10.3$	2.3'	57.3'	100°54.1	77°35.5	47°26.8	40°53.1		43°17.3	47°46.2	88°27.0
7	196°20.0	6.6'	$26^{\circ}12.6$	2.2'	57.3'	100°20.9	77°02.5	46°56.2	40°20.5		43°47.5	48°18.6	88°57.5
8	210°45.6	6.5'	26°14.8	2.0'	57.4'	99°47.6	76°29.4	46°25.7	39°47.7		44°17.8	48°51.0	89°28.1
9	225°11.1	6.5'	$26^{\circ}16.8$	1.9'	57.4'	99°14.2	75°56.2	45°55.1	39°15.0		44°48.1	49°23.4	89°58.8
10	239°36.6	6.4'	$26^{\circ}18.7$	1.7'	57.4'	98°40.8	75°23.0	45°24.6	38°42.2		45°18.5	49°55.9	90°29.4
11	254°01.9	6.3'	26°20.4	1.6'	57.5'	98°07.4	74°49.8	44°54.1	38°09.4		45°48.9	50°28.4	91°00.1
12	268°27.3	6.3'	$N26^{\circ}22.0$	1.4'	57.5'	97°33.9	74°16.5	44°23.6	37°36.6		46°19.3	51°01.0	91°30.9
13	282°52.5	6.2'	26°23.4	1.2'	57.5'	97°00.4	73°43.2	43°53.1	37°03.7		46°49.8	51°33.6	92°01.7
14	297°17.7	6.1'	26°24.7	1.1'	57.6'	96°26.8	73°09.9	43°22.7	36°30.8		47°20.3	52°06.3	92°32.5
15	311°42.9	6.1'	26°25.8	0.9'	57.6'	95°53.3	72°36.5	42°52.2	35°57.9		47°50.9	52°39.0	93°03.4
16	326°08.0	6.0'	26°26.7	0.8'	57.6'	95°19.6	72°03.0	42°21.8	35°24.9		48°21.5	53°11.8	93°34.3
17	340°33.0	6.0'	26°27.5	0.6'	57.7'	94°45.9	71°29.6	41°51.4	34°52.0		48°52.2	53°44.6	94°05.3
18	354°58.0	5.9'	$N26^{\circ}28.1$	0.4'	57.7'	94°12.2	70°56.1	41°21.0	34°19.0	12°45.6	49°22.9	54°17.5	94°36.3
19	9°22.9	5.9'	26°28.5	0.3'	57.7'	93°38.4	70°22.5	40°50.7	33°45.9	13°08.4	49°53.7	54°50.4	95°07.3
20	23°47.8	5.8'	26°28.8	0.1'	57.8'	93°04.6	69°48.9	40°20.4	33°12.9	13°31.9	50°24.5	55°23.4	95°38.4
21	38°12.6	5.8'	26°28.9	-0.0'	57.8'	92°30.8	69°15.3	39°50.1	32°39.8	13°56.2	50°55.3	55°56.4	96°09.5
22	52°37.4	5.7'	26°28.9	-0.2'	57.8'	91°56.9	68°41.6	39°19.9	32°06.7	14°21.1	51°26.2	56°29.4	96°40.7
23	67°02.1	5.7'	26°28.6	-0.4'	57.9'	91°23.0	68°07.8	38°49.7	31°33.6	14°46.6	51°57.2	57°02.5	97°11.9
4 th	SD	= 15.6	' Mer. pass	s. 18:21					Sun SE	0 = 16.1'			
			(-+l										

h		Mod	on (5 th Ma	ır)			Lunar D	istance (objects v	with largest	hourly L	D delta)	
Sun	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Venus	+Saturn	+Sun
0	81°26.8	5.6'	N26°28.3	-0.5'	57.9'		90°49.0	67°34.1	31°00.5	15°12.6	52°28.1	57°35.7	97°43.2
1	95°51.4	5.6'	26°27.7	-0.7'	58.0'		90°15.0	67°00.3	30°27.3	15°39.2	52°59.2	58°08.9	98°14.5
2	110°16.0	5.6'	26°27.0	-0.9'	58.0'		89°40.9	66°26.4	29°54.1	16°06.3	53°30.2	58°42.1	98°45.8
3	124°40.6	5.5'	$26^{\circ}26.1$	-1.0'	58.0'	119°56.2	89°06.8	65°52.5	29°21.0	16°33.8	54°01.4	59° 15.4	99°17.2
4	139°05.1	5.5'	26°25.1	-1.2'	58.1'	119°22.2	88°32.7	65°18.6	28°47.7	17°01.7	54°32.5	59°48.8	99°48.6
5	153°29.6	5.5'	26°23.9	-1.4'	58.1'	118°48.3	87°58.5	64°44.6	28° 14.5	17°30.0	55°03.7	60°22.1	100°20.1
6	167°54.0	5.4'	$N26^{\circ}22.5$	-1.6'	58.1'	118°14.2	87°24.2	$64^{\circ}10.6$	27°41.3	17°58.7	55°35.0	60°55.6	100°51.6
7	182°18.5	5.4'	26°20.9	-1.7'	58.2'	117°40.2	86°49.9	63°36.5	27°08.0	18°27.7	56°06.3	61°29.1	101°23.1
8	196°42.9	5.4'	$26^{\circ}19.2$	-1.9'	58.2'	117°06.1	86°15.6	63°02.4	26°34.8	18°57.0	56°37.6	62°02.6	101°54.7
9	211°07.2	5.3'	26°17.3	-2.1'	58.2'	116°31.9	85°41.2	62°28.2	26°01.5	19°26.6	57°09.0	62°36.2	102°26.4
10	225°31.5	5.3'	$26^{\circ}15.2$	-2.2'	58.3'	115°57.7	85°06.8	61°54.0	25°28.3	19°56.5	57°40.5	63°09.8	102°58.1
11	239°55.8	5.3'	26°13.0	-2.4'	58.3'	115°23.5	84°32.4	61°19.8	24°55.0	20°26.6	58°11.9	63°43.5	103°29.8
12	254°20.1	5.3'	$N26^{\circ}10.6$	-2.6'	58.4'	114°49.2	83°57.9	60°45.5	24°21.7	20°57.0	58°43.5	64°17.2	104°01.6
13	268°44.4	5.2'	26°08.0	-2.7'	58.4'	114°14.9	83°23.3	60°11.2	23°48.5	21°27.6	59°15.0	64°50.9	104°33.4
14	283°08.6	5.2'	26°05.3	-2.9'	58.4'	113°40.5	82°48.7	59°36.8	23° 15.2	21°58.4	59°46.7	65°24.8	105°05.3
15	297°32.8	5.2'	26°02.4	-3.1'	58.5'	113°06.1	82°14.1	59°02.4	22°42.0	22°29.4	60°18.3	65°58.6	105°37.2
16	311°57.0	5.2'	25°59.3	-3.3'	58.5'	112°31.6	81°39.4	58°27.9	22°08.8	23°00.7	60°50.1	66°32.5	106°09.1
17	326°21.2	5.2'	25°56.0	-3.4'	58.5'	111°57.1	81°04.7	57°53.4	21°35.6	23°32.1	61°21.8	67°06.5	106°41.1
18	340°45.4	5.2'	N25°52.6	-3.6'	58.6'	111°22.5	80°30.0	57°18.9	21°02.4	24°03.7	61°53.6	67°40.5	107°13.1
19	355°09.6	5.2'	25°49.0	-3.8'	58.6'	110°47.9	79°55.1	56°44.3	20°29.3	24°35.5	62°25.5	68° 14.5	107°45.2
20	9°33.7	5.1'	25°45.2	-4.0'	58.7'	110°13.3	79°20.3	56°09.6	19°56.2	25°07.4	62°57.4	68°48.6	108°17.4
21	23°57.9	5.1'	25°41.2	-4.1'	58.7'	109°38.6	78°45.4	55°35.0	19°23.1	25°39.5	63°29.3	69°22.8	108°49.5
22	38°22.0	5.1'	25°37.1	-4.3'	58.7'	109°03.9	78°10.4	55°00.2	18°50.1	26°11.7	64°01.3	69°57.0	109°21.7
23	52°46.1	5.1'	25°32.8	-4.5'	58.8'	108°29.1	77°35.5	54°25.5	18° 17.2	26°44.1	64°33.4	70°31.2	109°54.0
5 th	SD	= 15.8	' Mer. pas	s. 19:20)			<u> </u>	Sun S	D = 16.1'			

h		Моо	n (6 th Ma	ır)			Lunar D	istance (objects v	vith largest	hourly L	D delta)	
Mon	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Venus	+Saturn	+Sun
0	67°10.3	5.1'	N25°28.3	-4.6'	58.8'	107°54.2	77°00.4	53°50.7	17°44.3	27°16.6	65°05.4	71°05.5	110°26.3
1	81°34.4	5.1'	25°23.7	-4.8'	58.8'	107°19.4	76°25.4	53° 15.8	17°11.5	27°49.2	65°37.6	71°39.8	110°58.7
2	95°58.5	5.1'	25°18.9	-5.0'	58.9'	106°44.5	75°50.2	52°40.9	16°38.9	28°22.0	66°09.8	72°14.2	111°31.0
3	110°22.7	5.1'	25°13.9	-5.2'	58.9'	106°09.5	75° 15.1	52°05.9	16°06.3	28°54.9	66°42.0	72°48.6	112°03.5
4	124°46.8	5.1'	25°08.7	-5.3'	58.9'	105°34.5	74°39.9	51°31.0	15°33.9	29°27.9	67° 14.3	73°23.1	112°36.0
5	139°10.9	5.1'	25°03.4	-5.5'	59.0'	104°59.4	74°04.6	50°55.9	15°01.6	30°01.0	67°46.6	73° 57.6	113°08.5
6	153°35.1	5.2'	N 24°57.9	-5.7'	59.0'	104°24.3	73°29.3	50°20.8	14° 29.5	30°34.2	68° 18.9	74°32.2	113°41.1
7	167°59.2	5.2'	24°52.3	-5.8'	59.1'	103°49.2	72°54.0	49° 45.7	13°57.6	31°07.5	68°51.4	75°06.8	114°13.7
8	182°23.4	5.2'	24°46.4	-6.0'	59.1'	103°14.0	72°18.6	49° 10.6	13°25.9	31°41.0	69°23.8	75°41.5	114°46.3
9	196°47.6	5.2'	24°40.4	-6.2'	59.1'	102°38.7	71°43.2	48° 35.3	12°54.5	32°14.5	69°56.3	76° 16.2	115°19.0
10	211°11.8	5.2'	24°34.2	-6.3'	59.2'	102°03.5	71°07.7	48°00.1	12°23.4	32°48.1	70°28.9	76° 50.9	115°51.8
11	225°36.0	5.2'	24°27.9	-6.5'	59.2'	101°28.1	70°32.2	47°24.8	11°52.6	33°21.9	71°01.5	77°25.7	116°24.6
12	240°00.2	5.2'	N24°21.4	-6.7'	59.2'	100°52.8	69°56.6	46°49.5	11°22.2	33°55.7	71°34.1	78°00.6	116°57.4
13	254°24.4	5.3'	$24^{\circ}14.7$	-6.8'	59.3'	100°17.3	69°21.0	46°14.1	10°52.3	34°29.6	72°06.8	78° 35.5	117°30.3
14	268°48.7	5.3'	24°07.9	-7.0'	59.3'	99°41.9	68°45.4	45°38.7	10°23.0	35°03.6	72°39.5	79° 10.4	118°03.2
15	283°13.0	5.3'	24°00.8	-7.2'	59.3'	99°06.4	68°09.7	45°03.2	9°54.3	35°37.7	73° 12.3	79°45.4	118°36.2
16	297°37.3	5.3'	23°53.7	-7.3'	59.4'	98°30.8	67°34.0	44°27.7	9°26.3	36°11.9	73°45.2	80°20.4	119°09.2
17	312°01.6	5.4'	23°46.3	-7.5'	59.4'	97°55.2	66°58.2	43°52.1	8°59.1	36°46.1	74°18.0	80°55.5	119°42.3
18	326°26.0	5.4'	N23°38.8	-7.7'	59.4'	97°19.6	66°22.4	43° 16.5		37°20.5	74°50.9	81°30.6	
19	340°50.3	5.4'	23°31.1	-7.8'	59.5'	96°43.9	65°46.5	42°40.9		37°54.9	75°23.9	82°05.7	
20	355°14.7	5.4'	23°23.3	-8.0'	59.5'	96°08.2	65°10.6	42°05.2		38°29.4	75°56.9	82°41.0	
21	9°39.2	5.5'	23°15.3	-8.2'	59.6'	95°32.4	64°34.7	41°29.5		39°03.9	76°30.0	83° 16.2	
22	24°03.6	5.5'	23°07.1	-8.3'	59.6'	94°56.6	63°58.7	40°53.7		39°38.6	77°03.1	83°51.5	
23	38°28.1	5.5'	22°58.8	-8.5'	59.6'	94°20.7	63°22.7	40°17.9		40°13.3	77°36.2	84°26.8	
6 th	SD :	= 16.0	Mer. pas	s. 20:20					Sun S	D = 16.1'			

DOII	_ 011-0	10 –	⊤0.1400 Sec	Δ1	_ ' ' ' -	011 – +	09.0332 Sec	•			2020 IVI	iicii or t
h		Мо	on (7 th Ma	ar)			Lunar D	istance	(objects v	with larges	st hourly LE) delta)
Tue	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Jupiter	-Regulus	+Capella	+Aldebaran	+Venus
0	52°52.7	5.6'	N22°50.3	-8.6'	59.7'	93°44.8	93°01.7	62°46.6	39°42.1	35°06.7	40°48.1	78°09.4
1	67°17.2	5.6'	22°41.7	-8.8'	59.7'	93°08.8	92°32.5	62°10.5	39°06.2	35°36.1	41°22.9	78°42.6
2	81°41.8	5.6'	22°32.9	-9.0'	59.7'	92°32.9	92°03.3	61°34.3	38°30.3	36°05.7	41°57.8	79°15.9
3	96°06.5	5.7'	22°23.9	-9.1'	59.8'	91°56.8	91°34.1	60°58.2	37°54.3	36°35.5	42° 32.8	79°49.2
4	110°31.1	5.7'	22°14.8	-9.3'	59.8'	91°20.7	91°04.8	60°21.9	37°18.3	37°05.5	43°07.9	80°22.6
5	124°55 9	5 7'	22°05.5	-9 4'	59.8'	90°44 6	90°35.4	59°45 7	36°42 3	37°35.6	43°43 0	80°56.0

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Tue	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Jupiter	-Regulus	+Capella	+Aldebaran	+Venus	+Saturn
0	52°52.7	5.6'	N22°50.3	-8.6'	59.7'	93°44.8	93°01.7	62°46.6	39°42.1	35°06.7	40°48.1	78°09.4	85°02.2
1	67°17.2	5.6'	22°41.7	-8.8'	59.7'	93°08.8	92°32.5	62°10.5	39°06.2	35°36.1	41°22.9	78°42.6	85°37.6
2	81°41.8	5.6'	22°32.9	-9.0'	59.7'	92°32.9	92°03.3	61°34.3	38°30.3	36°05.7	41°57.8	79°15.9	86°13.1
3	96°06.5	5.7'	22°23.9	-9.1'	59.8'	91°56.8	91°34.1	60°58.2	37°54.3	36°35.5	42°32.8	79°49.2	86°48.6
4	110°31.1	5.7'	22°14.8	-9.3'	59.8'	91°20.7	91°04.8	60°21.9	37°18.3	37°05.5	43°07.9	80°22.6	87°24.2
5	124°55.9	5.7'	22°05.5	-9.4'	59.8'	90°44.6	90°35.4	59°45.7	36°42.3	37°35.6	43°43.0	80°56.0	87°59.8
6	139°20.6	5.8'	N 21°56.1	-9.6'	59.9'	90°08.5	90°06.1	59°09.4	36°06.2	38°06.0	44° 18.2	81°29.5	88°35.4
7	153°45.4	5.8'	21°46.5	-9.7'	59.9'	89°32.3	89°36.7	58°33.0	35°30.1	38°36.5	44° 53.4	82°02.9	89°11.1
8	168°10.2	5.9'	21°36.7	-9.9'	59.9'	88°56.0	89°07.3	57°56.6	34°53.9	39°07.2	45°28.7	82°36.5	89°46.8
9	182°35.1	5.9'	21°26.9	-10.0'	59.9'	88°19.7	88°37.8	57°20.2	34°17.7	39°38.1	46°04.1	83°10.1	90°22.6
10	197°00.0	6.0'	21°16.8	-10.2'	60.0'	87°43.4	88°08.3	56°43.7	33°41.5	40°09.1	46° 39.5	83°43.7	90°58.4
11	211°25.0	6.0'	21°06.6	-10.3'	60.0'	87°07.0	87°38.8	56°07.2	33°05.3	40°40.3	47° 15.0	84°17.3	91°34.2
12	225°50.0	6.0'	N20°56.3	-10.5'	60.0'	86°30.6	87°09.3	55°30.7	32°29.0	41°11.7	47° 50.5	84°51.0	92°10.1
13	240°15.0	6.1'	20°45.8	-10.6'	60.1'	85°54.2	86°39.7	54°54.1	31°52.6	41°43.2	48°26.1	85°24.8	92°46.0
14	254°40.1	6.1'	20°35.2	-10.8'	60.1'	85°17.7	86° 10.1	54°17.5	31°16.2	42°14.8	49°01.8	85°58.6	93°22.0
15	269°05.3	6.2'	20°24.4	-10.9'	60.1'	84°41.1	85°40.5	53°40.9	30°39.8	42°46.6	49° 37.5	86°32.4	93°58.0
16	283°30.4	6.2'	20°13.5	-11.1'	60.2'	84°04.6	85° 10.8	53°04.2	30°03.4	43°18.5	50° 13.3	87°06.3	94°34.0
17	297°55.7	6.3'	20°02.4	-11.2'	60.2'	83°28.0	84°41.2	52°27.5	29°26.9	43°50.6	50°49.1	87°40.2	95°10.1
18	312°21.0	6.3'	$N19^{\circ}51.2$	-11.3'	60.2'	82°51.3	84°11.5	51°50.7	28°50.5	44°22.7	51°25.0	88°14.1	95°46.2
19	326°46.3	6.4'	19°39.9	-11.5'	60.3'	82°14.6	83°41.8	51°14.0	28°13.9	44°55.1	52°00.9	88°48.1	96°22.4
20	341°11.7	6.4'	19°28.4	-11.6'	60.3'	81°37.9	83°12.1	50°37.2	27°37.4	45°27.5	52° 36.9	89°22.1	96°58.6
21	$355^{\circ}37.1$	6.5'	$19^{\circ}16.7$	-11.8'	60.3'	81°01.1	82°42.3	50°00.3	27°00.8	46°00.0	53° 12.9	89°56.2	97°34.8
22	10°02.6	6.5'	19°05.0	-11.9'	60.3'	80°24.3	82°12.6	49°23.4	26°24.2	46°32.7	53°49.0	90°30.3	98°11.1
23	24°28.1	6.6'	18°53.1	-12.0'	60.4'	79°47.5	81°42.9	48°46.5	25°47.5	47°05.5	54°25.1	91°04.5	98°47.4
7 th	SD	= 16.3	B' Mer. pas	s. 21:18									

h		Мос	on (8 th Ma	ar)			Lunar E	istance	(objects v	with larg	est hourly L	.D delta)	
Wed	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Aldebaran	+Venus	+Saturn
0	38°53.7	6.6'	N 18°41.1	-12.2'	60.4'		79°10.6	48°09.6	25°10.9	13°24.3	55°01.3	91°38.6	99°23.7
1	53°19.3	6.7'	18°28.9	-12.3'	60.4'		78°33.7	47°32.6	24°34.2	13°57.5	55°37.5	92°12.9	100°00.1
2	67°45.0	6.7'	$18^{\circ}16.6$	-12.4'	60.5'		77°56.8	46°55.6	23°57.5	14°31.0	56°13.7	92°47.1	100°36.5
3	82°10.8	6.8'	18°04.2	-12.5'	60.5'		77°19.8	46° 18.6	23°20.7	15°04.9	56°50.0	93°21.4	101°12.9
4	96°36.6	6.8'	$17^{\circ}51.7$	-12.7'	60.5'		76°42.8	45°41.5	22°44.0	15°39.0	57°26.4	93°55.7	101°49.4
5	111°02.4	6.9'	17°39.0	-12.8'	60.5'		76°05.7	45°04.4	22°07.2	16°13.3	58°02.8	94°30.1	102°25.9
6	125°28.3	6.9'	$N17^{\circ}26.2$	-12.9'	60.6'		75°28.6	44°27.3	21°30.4	16°47.9	58°39.2	95°04.5	103°02.5
7	139°54.3	7.0'	17° 13.3	-13.0'	60.6'		74°51.5	43°50.2	20°53.6	17°22.7	59°15.7	95°38.9	103°39.0
8	154°20.3	7.1'	17°00.3	-13.2'	60.6'	119°59.6	74°14.4	43° 13.0	20°16.8	17°57.6	59°52.2	96°13.4	104°15.6
9	168°46.3	7.1'	$16^{\circ}47.1$	-13.3'	60.6'	119°22.4	73°37.2	42°35.8	19°40.0	18°32.8	60°28.8	96°47.9	104°52.3
10	183°12.4	7.2'	16°33.8	-13.4'	60.7'	118°45.1	73°00.0	41°58.6	19°03.2	19°08.1	61°05.4	97°22.4	105°28.9
11	197°38.6	7.2'	$16^{\circ}20.5$	-13.5'	60.7'	118°07.8	72°22.7	41°21.4	18°26.4	19°43.5	61°42.0	97°56.9	106°05.6
12	212°04.8	7.3'	$N16^{\circ}07.0$	-13.6'	60.7'	117°30.5	71°45.5	40°44.2	17°49.5	20°19.1	62°18.7	98°31.5	106°42.3
13	226°31.0	7.3'	15°53.3	-13.7'	60.7'	116°53.1	71°08.1	40°06.9	17° 12.7	20°54.8	62°55.4	99°06.2	107°19.1
14	240°57.4	7.4'	15°39.6	-13.8'	60.7'	116°15.7	70°30.8	39° 29.6	16°35.9	21°30.6	63°32.2	99°40.8	107°55.9
15	255°23.7	7.4'	15°25.8	-13.9'	60.8'	115°38.3	69°53.4	38° 52.3	15°59.1	22°06.5	64°09.0	100°15.5	108°32.7
16	269°50.2	7.5'	$15^{\circ}11.8$	-14.0'	60.8'	115°00.9	69°16.1	38° 15.0	15°22.3	22°42.6	64°45.8	100°50.2	109°09.5
17	284°16.6	7.5'	14°57.8	-14.2'	60.8'	114°23.4	68°38.6	37°37.6	14°45.6	23°18.7	65°22.7	101°25.0	109°46.4
18	298°43.2	7.6'	N 14°43.6	-14.3'	60.8'	113°45.9	68°01.2	37°00.3	14°08.9	23°54.9	65°59.6	101°59.7	110°23.2
19	313°09.7	7.6'	14°29.4	-14.4'	60.9'	113°08.3	67°23.7	36°22.9	13°32.2	24°31.3	66°36.5	102°34.5	111°00.1
20	327°36.4	7.7'	$14^{\circ}15.0$	-14.5'	60.9'	112°30.8	66°46.2	35°45.5	12°55.6	25°07.7	67°13.5	103°09.4	111°37.1
21	342°03.0	7.7'	14°00.6	-14.6'	60.9'	111°53.2	66°08.7	35°08.1	12° 19.1	25°44.1	67°50.5	103°44.2	112°14.0
22	356°29.8	7.8'	13°46.0	-14.6'	60.9'	111°15.6	65°31.1	34°30.7	11°42.6	26°20.7	68°27.5	104°19.1	112°51.0
23	10°56.6	7.8'	13°31.4	-14.7'	60.9'	110°37.9	64°53.5	33°53.3	11°06.3	26°57.3	69°04.5	104°54.0	113°28.0
Ωth	SD	_ 16.5	' Mor no	° 22·15									

h		Mod	on (9 th Ma	ar)			Lunar D	Distance	(objects v	with larg	est hourly	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Capella	+Aldebaran	+Saturn
0	25°23.4	7.9'	N 13°16.6	-14.8'	60.9'	110°00.3	64°15.9	33°15.9	10°30.0	27°34.0	61°13.9	69°41.6	114°05.0
1	39°50.3	7.9'	13°01.8	-14.9'	61.0'	109°22.6	63°38.3	32°38.5	9°54.0	28° 10.7	61°48.8	70° 18.7	114°42.1
2	54°17.2	8.0'	12°46.9	-15.0'	61.0'	108°44.9	63°00.7	32°01.1	9°18.1	28°47.6	62°23.7	70°55.9	115°19.1
3	68°44.2	8.0'	12°31.9	-15.1'	61.0'	108°07.1	62°23.0	31°23.7	8°42.4	29°24.4	62°58.6	71°33.0	115°56.2
4	83°11.2	8.1'	$12^{\circ}16.8$	-15.2'	61.0'	107°29.4	61°45.3	30°46.3	8°07.1	30°01.3	63°33.7	72°10.2	116°33.3
5	97°38.3	8.1'	12°01.6	-15.3'	61.0'	106°51.6	61°07.6	30°08.8	7°32.1	30°38.3	64°08.7	72°47.4	117°10.4
6	112°05.4	8.2'	N 11°46.3	-15.3'	61.0'	106°13.8	60°29.9	29°31.4	6°57.5	31° 15.3	64°43.8	73°24.7	117°47.5
7	126°32.6	8.2'	11°31.0	-15.4'	61.1'	105°36.0	59°52.1	28°54.0	6°23.6	31°52.4	65°19.0	74°01.9	118°24.7
8	140°59.8	8.3'	$11^{\circ}15.6$	-15.5'	61.1'	104°58.1	59°14.3	28°16.7	5°50.4	32°29.5	65°54.1	74°39.2	119°01.8
9	155°27.0	8.3'	$11^{\circ}00.1$	-15.6'	61.1'	104°20.3	58°36.6	27°39.3		33°06.7	66°29.4	75° 16.5	119°39.0
10	169°54.3	8.3'	10°44.5	-15.6'	61.1'	103°42.4	57°58.8	27°01.9		33°43.9	67°04.6	75°53.9	
11	184°21.7	8.4'	10°28.9	-15.7'	61.1'	103°04.5	57°20.9	26°24.6		34°21.1	67°40.0	76°31.2	
12	198°49.1	8.4'	N10°13.1	-15.8'	61.1'	102°26.6	56°43.1	25°47.3		34°58.4	68°15.3	77°08.6	
13	213°16.5	8.5'	09°57.4	-15.9'	61.1'	101°48.7	56°05.2	25°10.0		35°35.7	68°50.7	77°46.0	
14	227°44.0	8.5'	09°41.5	-15.9'	61.1'	101°10.7	55°27.4	24°32.8		36°13.0	69°26.1	78°23.4	
15	242°11.5	8.6'	09°25.6	-16.0'	61.2'	100°32.8	54°49.5	23°55.5		36°50.4	70°01.6	79°00.8	
16	256°39.1	8.6'	09°09.6	-16.0'	61.2'	99°54.8	54°11.6	23°18.4		37°27.8	70°37.1	79°38.2	
17	271°06.7	8.6'	08°53.6	-16.1'	61.2'	99°16.8	53°33.7	22°41.2		38°05.3	71°12.6	80° 15.7	
18	285°34.3	8.7'	N 08°37.5	-16.2'	61.2'	98°38.8	52°55.8	22°04.2		38°42.7	71°48.1	80°53.1	
19	300°02.0	8.7'	08°21.3	-16.2'	61.2'	98°00.8	52°17.9	21°27.1		39°20.2	72°23.7	81°30.6	
20	314°29.7	8.8'	$08^{\circ}05.1$	-16.3'	61.2'	97°22.8	51°39.9	20°50.2		39°57.7	72°59.3	82°08.1	
21	328°57.4	8.8'	07°48.9	-16.3'	61.2'	96°44.8	51°02.0	20°13.3		40°35.3	73°34.9	82°45.6	
22	343°25.2	8.8'	07°32.5	-16.4'	61.2'	96°06.7	50°24.0	19°36.5		41°12.8	74°10.6	83°23.1	
23	357°53.1	8.9'	07°16.2	-16.4'	61.2'	95°28.7	49°46.1	18°59.8		41°50.4	74°46.3	84°00.7	
9 th	SD	= 16.6	′ Mer. pas	ss. 23:09									

Moon (10th Mar)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Pollux	+Betelgeuse	+Aldebaran
0	12°20.9	8.9'	N 06°59.8	-16.5'	61.2'	94°50.6	84°13.4	49°08.1	18°23.2		42°28.0	66°04.6	84°38.2
1	26°48.8	8.9'	06°43.3	-16.5'	61.2'	94°12.6	83°43.6	48°30.2	17°46.7		43°05.6	66°40.2	85°15.7
2	41°16.7	9.0'	06°26.8	-16.5'	61.2'	93°34.5	83°13.7	47°52.2	17° 10.3	6°59.4	43°43.2	67°15.9	85°53.3
3	55°44.7	9.0'	06°10.3	-16.6'	61.2'	92°56.4	82°43.8	47°14.2	16°34.1	7°34.2	44°20.9	67°51.6	86°30.8
4	70°12.7	9.0'	05°53.7	-16.6'	61.2'	92°18.4	82°14.0	46°36.2	15°58.0	8°09.5	44°58.6	68°27.3	87°08.4
5	84°40.7	9.0'	05°37.1	-16.6'	61.2'	91°40.3	81°44.2	45°58.2	15°22.1	8°45.2	45°36.2	69°03.1	87°46.0
6	99°08.7	9.1'	N 05°20.4	-16.7'	61.2'	91°02.2	81°14.4	45°20.3	14°46.4	9°21.2	46°13.9	69°38.9	88°23.5
7	113°36.8	9.1'	05°03.8	-16.7'	61.2'	90°24.1	80°44.7	44°42.3	14°11.0	9°57.5	46°51.6	70°14.7	89°01.1
8	128°04.9	9.1'	04°47.1	-16.7'	61.2'	89°46.0	80°14.9	44°04.3	13°35.8	10°33.9	47°29.3	70°50.5	89°38.7
9	142°33.1	9.2'	04°30.3	-16.8'	61.2'	89°07.9	79°45.2	43°26.3	13°00.9	11°10.6	48°07.0	71°26.3	90°16.3
10	157°01.2	9.2'	04°13.5	-16.8'	61.2'	88°29.8	79°15.5	42°48.3	12°26.3	11°47.4	48°44.8	72°02.2	90°53.9
11	171°29.4	9.2'	03°56.8	-16.8'	61.2'	87°51.7	78°45.9	42°10.3	11°52.1	12°24.3	49°22.5	72°38.1	91°31.4
12	185°57.6	9.2'	N 03°39.9	-16.8'	61.2'	87° 13.6	78°16.3	41°32.4	11° 18.4	13°01.4	50°00.2	73°14.0	92°09.0
13	200°25.8	9.3'	03°23.1	-16.9'	61.2'	86°35.5	77°46.7	40°54.4	10°45.2	13°38.5	50°38.0	73°49.9	92°46.6
14	214°54.1	9.3'	03°06.3	-16.9'	61.2'	85° 57.5	77°17.1	40°16.4	10° 12.6	14°15.7	51° 15.7	74°25.8	93°24.1
15	229°22.4	9.3'	02°49.4	-16.9'	61.2'	85° 19.4	76°47.6	39°38.5	9°40.7	14°53.0	51°53.5	75°01.7	94°01.7
16	243°50.7	9.3'	02°32.5	-16.9'	61.2'	84°41.3	76°18.2	39°00.5	9°09.7	15°30.4	52°31.2	75°37.6	94°39.3
17	258°19.0	9.3'	$02^{\circ}15.6$	-16.9'	61.2'	84°03.2	75°48.8	38°22.6		16°07.8	53°09.0	76°13.5	95°16.8
18	272°47.3	9.3'	N 01°58.7	-16.9'	61.2'	83°25.1	75°19.4	37°44.7		16°45.2	53°46.7	76°49.5	95°54.4
19	287°15.6	9.4'	01°41.8	-16.9'	61.2'	82°47.1	74°50.1	37°06.7		17°22.7	54°24.5	77°25.4	96°31.9
20	301°44.0	9.4'	$01^{\circ}24.9$	-16.9'	61.2'	82°09.0	74°20.8	36°28.8		18°00.2	55°02.2	78°01.4	97°09.5
21	316°12.4	9.4'	$01^{\circ}07.9$	-16.9'	61.2'	81°31.0	73°51.6	35°50.9		18°37.7	55°40.0	78°37.3	97°47.0
22	330°40.8	9.4'	00°51.0	-16.9'	61.2'	80°52.9	73°22.5	35°13.1		19°15.3	56° 17.7	79°13.3	98°24.5
23	345°09.2	9.4'	00°34.1	-16.9'	61.2'	80°14.9	72°53.4	34°35.2		19°52.9	56°55.4	79°49.2	99°02.0
10 th	SE) = 16	.7' Mer. pa	ass:-									

h		Моо	n (11 th M	lar)			Luna	r Distance ((objects	with large	st hourly	LD delta)	
Sat	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Betelgeuse	+Aldebaran
0	359°37.6	9.4'	N 00°17.1	-16.9'	61.2'		79°36.9	72°24.4	33°57.3	20°30.5	57°33.2	80°25.2	99°39.5
1	14°06.0	9.4'	N00°00.2	-16.9'	61.2'		78°58.9	71°55.4	33°19.5	21°08.1	58°10.9	81°01.1	100°17.0
2	28°34.5	9.5'	S 00°16.7	-16.9'	61.2'		78°20.9	71°26.5	32°41.7	21°45.7	58°48.6	81°37.1	100°54.4
3	43°02.9	9.5'	00°33.6	-16.9'	61.1'		77°42.9	70° 57.7	32°03.9	22°23.3	59°26.3	82°13.0	101°31.9
4	57°31.4	9.5'	00°50.5	-16.9'	61.1'		77°05.0	70°28.9	31°26.1	23°01.0	60°04.0	82°49.0	102°09.3
5	71°59.9	9.5'	$01^{\circ}07.4$	-16.9'	61.1'		76°27.0	70°00.3	30°48.4	23°38.6	60°41.7	83°24.9	102°46.7
6	86°28.3	9.5'	S 01°24.3	-16.9'	61.1'		75°49.1	69°31.7	30°10.6	24° 16.2	61°19.3	84°00.8	103°24.1
7	100°56.8	9.5'	$01^{\circ}41.1$	-16.8'	61.1'		75°11.1	69°03.1	29°32.9	24°53.9	61°57.0	84°36.7	104°01.5
8	115°25.3	9.5'	$01^{\circ}58.0$	-16.8'	61.1'		74°33.2	68°34.7	28°55.2	25°31.5	62°34.6	85°12.6	104°38.9
9	129°53.8	9.5'	02°14.8	-16.8'	61.1'		73°55.3	68°06.3	28°17.6	26°09.1	63°12.3	85°48.5	105°16.2
10	144°22.3	9.5'	02°31.6	-16.8'	61.1'		73°17.5	67°38.1	27°39.9	26°46.8	63°49.9	86°24.3	105°53.5
11	158°50.8	9.5'	02°48.4	-16.8'	61.0'		72°39.6	67°09.9	27°02.3	27°24.4	64°27.5	87°00.2	106°30.8
12	173°19.3	9.5'	S 03°05.1	-16.7'	61.0'		72°01.8	66°41.8	26°24.7	28°02.0	65°05.1	87°36.0	107°08.1
13	187°47.8	9.5'	03°21.9	-16.7'	61.0'		71°24.0	66° 13.8	25°47.2	28° 39.6	65°42.6	88°11.8	107°45.4
14	202°16.3	9.5'	03°38.6	-16.7'	61.0'		70°46.2	65° 45.9	25°09.7	29° 17.2	66°20.2	88°47.6	108°22.6
15	216°44.7	9.5'	03°55.2	-16.6'	61.0'		70°08.4	65° 18.2	24°32.2	29°54.7	66°57.7	89°23.4	108°59.8
16	231°13.2	9.5'	$04^{\circ}11.9$	-16.6'	61.0'	119°41.5	69°30.7	64° 50.5	23°54.8	30°32.3	67°35.2	89°59.2	109°37.0
17	245°41.7	9.5'	04°28.5	-16.6'	60.9'	119°10.2	68°52.9	64°22.9	23°17.4	31°09.8	68°12.7	90°34.9	110°14.1
18	260°10.2	9.5'	S 04°45.0	-16.5'	60.9'	118°38.8	68°15.2	63°55.4	22°40.0	31°47.3	68°50.2	91°10.6	110°51.3
19	274°38.7	9.5'	$05^{\circ}01.6$	-16.5'	60.9'	118°07.4	67°37.5	63°28.1	22°02.7	32°24.8	69°27.6	91°46.3	111°28.4
20	289°07.1	9.5'	$05^{\circ}18.0$	-16.4'	60.9'	117°35.9	66°59.9	63°00.8	21°25.4	33°02.3	70°05.1	92°22.0	112°05.4
21	303°35.6	9.5'	05°34.5	-16.4'	60.9'	117°04.4	66°22.3	62°33.7	20°48.2	33°39.8	70°42.5	92°57.6	112°42.5
22	318°04.1	9.4'	05°50.9	-16.3'	60.8'	116°32.9	65°44.7	62°06.7	20°11.0	34° 17.2	71°19.8	93°33.3	113° 19.5
23	332°32.5	9.4'	06°07.2	-16.3'	60.8'	116°01.3	65°07.1	61°39.9	19°33.9	34° 54.7	71°57.2	94°08.8	113°56.4
11 th	SD	= 16.7	" Mer. pas	ss. 00:02									

Moon (12th Mar)

Sun	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Pollux	+Aldebaran
0	347°00.9	9.4'	S 06°23.5	-16.3'	60.8'	115°29.7	64°29.5	61°13.1	18°56.8	14°08.9	35°32.1	72°34.5	114°33.4
1	1°29.4	9.4'	06°39.8	-16.2'	60.8'	114°58.1	63°52.0	60°46.5	18°19.8	14°43.8	36°09.4	73°11.8	115°10.3
2	15°57.8	9.4'	$06^{\circ}56.0$	-16.1'	60.8'	114°26.4	63°14.5	60°20.0	17°42.9	15°18.9	36°46.8	73°49.1	115°47.1
3	30°26.2	9.4'	$07^{\circ}12.1$	-16.1'	60.7'	113°54.7	62°37.1	59°53.7	17°06.0	15°54.2	37°24.1	74°26.3	116°24.0
4	44°54.6	9.4'	07°28.2	-16.0'	60.7'	113°23.0	61°59.6	59°27.5	16°29.2	16°29.6	38°01.4	75°03.5	117°00.8
5	59°22.9	9.4'	07°44.2	-16.0'	60.7'	112°51.2	61°22.2	59°01.5	15°52.5	17°05.2	38°38.7	75°40.7	117°37.5
6	73°51.3	9.3'	S 08°00.2	-15.9'	60.7'	112° 19.4	60°44.9	58°35.6	15°15.8	17°40.9	39°15.9	76°17.9	118°14.3
7	88°19.6	9.3'	$08^{\circ}16.1$	-15.9'	60.6'	111°47.7	60°07.5	58°09.8	14°39.3	18°16.7	39°53.2	76°55.0	118°50.9
8	102°48.0	9.3'	08°32.0	-15.8'	60.6'	111° 15.8	59°30.2	57°44.2	14°02.8	18°52.6	40°30.3	77°32.1	119°27.6
9	117°16.3	9.3'	08°47.8	-15.7'	60.6'	110°44.0	58°53.0	57°18.8	13°26.5	19°28.5	41°07.5	78°09.1	
10	131°44.6	9.3'	09°03.5	-15.7'	60.6'	110°12.2	58°15.7	56°53.5	12°50.3	20°04.5	41°44.6	78°46.2	
11	146°12.8	9.3'	$09^{\circ}19.1$	-15.6'	60.5'	109°40.3	57°38.5	56°28.4	12°14.2	20°40.6	42°21.7	79°23.2	
12	160°41.1	9.2'	S 09°34.7	-15.5'	60.5'	109°08.5	57°01.4	56°03.5	11°38.2	21°16.7	42°58.8	80°00.1	
13	175°09.3	9.2'	09°50.2	-15.4'	60.5'	108°36.6	56°24.2	55°38.7	11°02.5	21°52.9	43°35.8	80°37.1	
14	189°37.5	9.2'	$10^{\circ}05.7$	-15.4'	60.4'	108°04.7	55°47.1	55°14.1	10°26.9	22°29.1	44°12.8	81°13.9	
15	204°05.7	9.2'	$10^{\circ}21.1$	-15.3'	60.4'	107°32.9	55°10.1	54°49.7	9°51.5	23°05.3	44°49.8	81°50.8	
16	218°33.9	9.1'	10°36.3	-15.2'	60.4'	107°01.0	54°33.0	54°25.5	9°16.4	23°41.5	45°26.7	82°27.6	
17	233°02.0	9.1'	10°51.6	-15.1'	60.4'	106°29.1	53°56.1	54°01.5	8°41.6	24°17.8	46°03.6	83°04.4	
18	247°30.2	9.1'	S 11°06.7	-15.1'	60.3'	105°57.3	53°19.1	53°37.6	8°07.1	24°54.0	46°40.5	83°41.2	
19	261°58.3	9.1'	$11^{\circ}21.7$	-15.0'	60.3'	105°25.4	52°42.2	53°14.0	7°33.1	25°30.3	47° 17.3	84°17.9	
20	276°26.4	9.1'	$11^{\circ}36.7$	-14.9'	60.3'	104°53.5	52°05.3	52°50.5	6°59.6	26°06.6	47°54.1	84°54.5	
21	290°54.4	9.0'	$11^{\circ}51.6$	-14.8'	60.2'	104°21.7	51°28.5	52°27.3	6°26.7	26°42.9	48°30.8	85°31.2	
22	305°22.4	9.0'	12°06.4	-14.7'	60.2'	103°49.8	50°51.7	52°04.3	5°54.6	27°19.1	49°07.5	86°07.8	
23	319°50.4	9.0'	12°21.1	-14.6'	60.2'	103°18.0	50°15.0	51°41.4		27°55.4	49°44.2	86°44.3	
12 th	SD	= 16.6	' Mer. pa	ss. 00:54									

 $\mathsf{Moon}\ \underline{(13^\mathsf{th}\ \mathsf{Mar})}$

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Jupiter	+Regulus	+Procyon	+Pollux
0	334°18.4	8.9'	S 12°35.7	-14.5'	60.1'		102°46.2	51°18.8	49°38.3	28°31.7	50°20.8	83°00.8	87°20.8
1	348°46.4	8.9'	12°50.3	-14.4'	60.1'		102°14.4	50°56.5	49°01.6	29°07.9	50°57.4	83°35.9	87°57.3
2	3°14.3	8.9'	13°04.7	-14.3'	60.1'		101°42.6	50°34.3	48°25.0	29°44.2	51°34.0	84°11.1	88°33.7
3	17°42.2	8.9'	$13^{\circ}19.1$	-14.3'	60.0'		101°10.8	50°12.4	47°48.4	30°20.4	52°10.5	84°46.1	89°10.1
4	32°10.0	8.8'	13°33.3	-14.2'	60.0'		100°39.0	49°50.7	47°11.8	30°56.6	52°46.9	85°21.2	89°46.5
5	46°37.9	8.8'	13°47.5	-14.1'	60.0'		100°07.3	49°29.2	46°35.3	31°32.8	53°23.4	85°56.2	90°22.8
6	61°05.7	8.8'	S 14°01.5	-14.0'	59.9'		99°35.6	49°08.0	45°58.9	32°09.0	53°59.7	86°31.2	90°59.0
7	75°33.5	8.7'	14° 15.5	-13.9'	59.9'		99°03.9	48°47.1	45°22.5	32°45.1	54°36.1	87°06.1	91°35.2
8	90°01.2	8.7'	14°29.4	-13.8'	59.9'		98°32.2	48°26.4	44°46.1	33°21.2	55°12.4	87°41.0	92°11.4
9	104°28.9	8.7'	14°43.1	-13.7'	59.8'		98°00.6	48°05.9	44°09.8	33°57.3	55°48.6	88° 15.9	92°47.5
10	118°56.6	8.7'	14°56.8	-13.5'	59.8'		97°28.9	47°45.7	43°33.5	34°33.4	56°24.9	88°50.7	93°23.6
11	133°24.3	8.6'	$15^{\circ}10.3$	-13.4'	59.8'		96°57.3	47°25.8	42°57.3	35°09.5	57°01.0	89°25.4	93°59.7
12	147°51.9	8.6'	S 15°23.8	-13.3'	59.7'		96°25.8	47°06.1	42°21.1	35°45.5	57°37.2	90°00.2	94°35.7
13	162°19.5	8.6'	$15^{\circ}37.1$	-13.2'	59.7'		95°54.2	46°46.8	41°44.9	36°21.4	58°13.2	90°34.8	95°11.6
14	176°47.1	8.5'	15°50.3	-13.1'	59.7'		95°22.7	46°27.7	41°08.8	36°57.4	58°49.3	91°09.5	95°47.5
15	191°14.6	8.5'	$16^{\circ}03.5$	-13.0'	59.6'	119°51.8	94°51.3	46°08.9	40°32.8	37°33.3	59°25.3	91°44.1	96°23.4
16	205°42.1	8.5'	$16^{\circ}16.5$	-12.9'	59.6'	119°19.9	94°19.8	45°50.3	39°56.8	38°09.2	60°01.2	92°18.6	96°59.2
17	220°09.6	8.4'	$16^{\circ}29.3$	-12.8'	59.6'	118°48.0	93°48.4	45°32.1	39°20.8	38°45.1	60°37.1	92°53.1	97°34.9
18	234°37.0	8.4'	S 16°42.1	-12.7'	59.5'	118° 16.2	93°17.0	45°14.2	38°44.9	39°20.9	61°13.0	93°27.6	98°10.6
19	249°04.4	8.4'	$16^{\circ}54.8$	-12.5'	59.5'	117°44.3	92°45.7	44°56.6	38°09.0	39°56.7	61°48.8	94°02.0	98°46.3
20	263°31.8	8.3'	$17^{\circ}07.3$	-12.4'	59.4'	117°12.4	92°14.4	44°39.2	37°33.2	40°32.4	62°24.5	94°36.3	99°21.9
21	277°59.1	8.3'	$17^{\circ}19.8$	-12.3'	59.4'	116°40.5	91°43.1	44°22.2	36°57.5	41°08.1	63°00.2	95°10.6	99°57.5
22	292°26.5	8.3'	$17^{\circ}32.1$	-12.2'	59.4'	116°08.7	$91^{\circ}11.9$	44°05.6	36°21.7	41°43.8	63°35.9	95°44.9	100°33.0
23	306°53.7	8.2'	17°44.3	-12.1'	59.3'	115°36.8	90°40.7	43°49.2	35°46.1	42°19.4	64°11.5	96°19.1	101°08.5
13 th	SD	= 16.4	Mer. pas	ss. 01:47									

h		Моо	n (14 th M	lar)		L	unar Dis	tance (ol	bjects wit	h larges	t hourly L	.D delta)	
Tue	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	321°21.0	8.2'	S 17°56.3	-11.9'	59.3'	115°05.0	109°27.1	90°09.6	35°10.4	11°01.4	42°55.0	64°47.1	101°43.9
1	335°48.2	8.2'	18°08.3	-11.8'	59.3'	114°33.1	109°10.7	89°38.5	34°34.9	11°35.7	43°30.5	65°22.6	102°19.3
2	350°15.4	8.2'	18°20.1	-11.7'	59.2'	114°01.3	108°54.1	89°07.4	33°59.3	12°10.0	44°06.0	65°58.1	102°54.6
3	4°42.5	8.1'	18°31.8	-11.6'	59.2'	113°29.5	108°37.4	88°36.4	33°23.9	12°44.4	44°41.5	66°33.5	103°29.9
4	19°09.7	8.1'	18°43.4	-11.4'	59.1'	112°57.7	108°20.7	88°05.4	32°48.4	13°18.9	45°16.9	67°08.9	104°05.1
5	33°36.7	8.1'	$18^{\circ}54.8$	-11.3'	59.1'	112°25.9	108°03.9	87°34.5	32°13.1	13°53.4	45°52.3	67°44.2	104°40.3
6	48°03.8	8.0'	S 19°06.1	-11.2'	59.1'	111°54.1	107°47.1	87°03.6	31°37.7	14°27.9	46°27.7	68° 19.5	105°15.4
7	62°30.8	8.0'	19°17.3	-11.1'	59.0'	111°22.3	107°30.2	86°32.8	31°02.5	15°02.4	47°03.0	68°54.7	105°50.5
8	76°57.8	8.0'	19°28.4	-10.9'	59.0'	110°50.6	107°13.2	86°02.0	30°27.2	15°36.9	47°38.2	69°29.9	106°25.5
9	91°24.8	7.9'	19°39.3	-10.8'	58.9'	110° 18.9	106°56.1	85°31.3	29°52.1	16°11.5	48°13.4	70°05.0	107°00.5
10	105°51.7	7.9'	$19^{\circ}50.1$	-10.7'	58.9'	109°47.1	106°39.0	85°00.6	29°16.9	16°46.0	48°48.6	70°40.1	107°35.4
11	120°18.7	7.9'	20°00.8	-10.5'	58.9'	109° 15.5	106°21.8	84°30.0	28°41.9	17°20.5	49°23.7	71° 15.2	108°10.3
12	134°45.5	7.9'	S 20°11.3	-10.4'	58.8'	108°43.8	106°04.6	83°59.4	28°06.8	17°55.0	49°58.8	71°50.1	108°45.1
13	149°12.4	7.8'	20°21.7	-10.3'	58.8'	108° 12.2	105°47.3	83°28.9	27°31.8	18°29.5	50°33.8	72°25.1	109°19.9
14	163°39.2	7.8'	20°31.9	-10.1'	58.7'	107°40.6	105°30.0	82°58.4	26°56.9	19°04.0	51°08.8	73°00.0	109°54.6
15	178°06.0	7.8'	20°42.1	-10.0'	58.7'	107°09.0	105°12.6	82°28.0	26°22.0	19°38.4	51°43.8	73°34.8	110°29.3
16	192°32.8	7.7'	20°52.0	-9.8'	58.7'	106°37.4	104°55.2	81°57.6	25°47.2	20°12.8	52°18.7	74°09.6	111°03.9
17	206°59.5	7.7'	$21^{\circ}01.9$	-9.7'	58.6'	106°05.9	104°37.8	81°27.3	25°12.4	20°47.2	52°53.5	74°44.3	111°38.5
18	221°26.2	7.7'	S 21°11.6	-9.6'	58.6'	105°34.4	104°20.2	80°57.0	24°37.7	21°21.6	53°28.3	75° 19.0	112°13.0
19	235°52.9	7.7'	21°21.2	-9.4'	58.5'	105°02.9	104°02.7	80°26.8	24°03.1	21°55.9	54°03.1	75°53.6	112°47.4
20	250°19.6	7.6'	21°30.6	-9.3'	58.5'	104°31.4	103°45.1	79°56.7	23°28.4	22°30.2	54°37.8	76°28.2	113°21.8
21	264°46.2	7.6'	21°39.9	-9.1'	58.5'	104°00.0	103°27.5	79°26.6	22°53.9	23°04.4	55°12.5	77°02.8	113°56.2
22	279°12.8	7.6'	$21^{\circ}49.0$	-9.0'	58.4'	103°28.6	103°09.8	78°56.6	22°19.3	23°38.7	55°47.1	77° 37.2	114°30.5
23	293°39.4	7.6'	21°58.0	-8.9'	58.4'	102°57.3	102°52.1	78°26.7	21°44.9	24°12.8	56°21.7	78° 11.7	115°04.7
14 th	SD	= 16.2	' Mer. pas	ss. 02:40									

h Moon (15th Mar)

Wed	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux			
0	308°06.0	7.5'	S 22°06.9	-8.7'	58.3'		102°26.0	77°56.8	21°10.5	24°47.0	56°56.2	78°46.1	115°38.9			
1	322°32.5	7.5'	22°15.6	-8.6'	58.3'		101°54.7	77°26.9	20°36.1	25°21.1	57°30.7	79°20.4	116°13.1			
2	336°59.1	7.5'	22°24.2	-8.4'	58.3'		101°23.4	76°57.2	20°01.8	25°55.2	58°05.1	79°54.7	116°47.2			
3	351°25.6	7.5'	22°32.6	-8.3'	58.2'		100°52.2	76°27.4	19°27.5	26°29.2	58°39.5	80°28.9	117°21.2			
4	5°52.1	7.5'	22°40.9	-8.1'	58.2'		100°21.0	75°57.8	18°53.3	27°03.2	59°13.8	81°03.1	117°55.2			
5	20°18.5	7.4'	22°49.0	-8.0'	58.1'		99°49.9	75°28.2	18°19.2	27°37.2	59°48.1	81°37.2	118°29.2			
6	34°45.0	7.4'	S 22°57.0	-7.8'	58.1'		99°18.7	74°58.7	17°45.0	28°11.1	60°22.3	82°11.3	119°03.0			
7	49°11.4	7.4'	23°04.8	-7.7'	58.1'		98°47.7	74°29.3	17°11.0	28°44.9	60°56.5	82°45.3	119°36.9			
8	63°37.8	7.4'	23°12.5	-7.5'	58.0'		98°16.6	73°59.9	16°37.0	29°18.8	61°30.7	83°19.3				
9	78°04.2	7.4'	23°20.1	-7.4'	58.0'		97°45.6	73°30.6	16°03.0	29°52.6	62°04.8	83°53.2				
10	92°30.6	7.4'	23°27.5	-7.2'	57.9'		97°14.6	73°01.3	15°29.1	30°26.3	62°38.8	84°27.1				
11	106°57.0	7.4'	23°34.7	-7.1'	57.9'		96°43.7	72°32.1	14°55.3	31°00.0	63°12.8	85°01.0				
12	121°23.3	7.3'	S 23°41.8	-6.9'	57.9'	119°33.8	96°12.8	72°03.0	14°21.5	31°33.7	63°46.8	85°34.7				
13	135°49.7	7.3'	23°48.8	-6.8'	57.8'	119°02.6	95°42.0	71°34.0	13°47.7	32°07.3	64°20.7	86°08.5				
14	150°16.0	7.3'	23°55.6	-6.6'	57.8'	118°31.5	95°11.2	71°05.0	13°14.0	32°40.8	64°54.6	86°42.2				
15	164°42.3	7.3'	24°02.2	-6.5'	57.7'	118°00.4	94°40.4	70°36.1	12°40.4	33°14.4	65°28.4	87°15.8				
16	179°08.6	7.3'	24°08.7	-6.3'	57.7'	117°29.4	94°09.7	70°07.3	12°06.8	33°47.8	66°02.2					
17	193°34.9	7.3'	24°15.0	-6.2'	57.7'	116°58.4	93°39.0	69°38.6	11°33.3	34°21.3	66°35.9	88°22.9				
18	208°01.2	7.3'	S 24°21.2	-6.0'	57.6'	116°27.5	93°08.3	69°09.9	10°59.8	34°54.7	67°09.5	88°56.4				
19	222°27.5	7.3'	24°27.3	-5.9'	57.6'	115°56.6	92°37.7	68°41.3	10°26.3	35°28.0	67°43.2	89°29.9				
20	236°53.8	7.3'	24°33.1	-5.7'	57.5'	115°25.7	92°07.1	68° 12.8	9°53.0	36°01.3	68°16.8	90°03.3				
21	251°20.1	7.3'	24°38.9	-5.6'	57.5'	114°54.9	91°36.6	67°44.3	$9^{\circ}19.6$	36°34.6	68°50.3	90°36.6				
22	265°46.4	7.3'	24°44.5	-5.4'	57.5'	114°24.2	91°06.1	67°16.0	8°46.4	37°07.8	69°23.8					
23	280°12.7	7.3'	24°49.9	-5.3'	57.4'	113°53.5	90°35.7	66°47.7	8°13.2	37°40.9	69°57.2	91°43.1				
15 th	SD =	= 15.9'	Mer. pas	s. 03:36	j				Sun SD	= 16.1'		39°48.1 81°37.2 39°22.3 82°11.3 30°56.5 82°45.3 31°30.7 83°19.3 32°04.8 83°53.2 32°38.8 84°27.1 33°12.8 85°01.0 33°46.8 85°34.7 36°08.5 36°08.5 36°45.6 86°42.2 36°02.2 87°49.4 36°35.9 88°22.9 37°09.5 88°56.4 38°16.8 90°03.3 38°50.3 90°33.6 39°23.8 91°09.9				

h Moon (16th Mar)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	-Altair	± Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	294°39.0	7.3'	S 24°55.2	-5.1'	57.4'	113°22.8	90°05.3	66°19.5	7°40.0	38°14.1	50°20.4	70°30.6	92°16.3
1	309°05.2	7.3'	25°00.3	-5.0'	57.3'	112°52.2	89°35.0	65°51.3	7°07.0	38°47.1	50°42.0	71°04.0	92°49.5
2	323°31.5	7.3'	25°05.3	-4.8'	57.3'	112°21.6	89°04.7	65°23.3	6°33.9	39°20.2	51°03.8	71°37.3	93°22.6
3	337°57.8	7.3'	$25^{\circ}10.1$	-4.7'	57.3'	111°51.1	88°34.4	64°55.3	6°01.0	39°53.2	51°25.7	$72^{\circ}10.5$	93°55.7
4	352°24.1	7.3'	$25^{\circ}14.7$	-4.5'	57.2'	111°20.6	88°04.2	64°27.4	5°28.1	40°26.1	51°47.7	72°43.7	94°28.7
5	6°50.4	7.3'	$25^{\circ}19.2$	-4.4'	57.2'	110°50.2	87°34.0	63°59.6	4°55.4	40°59.0	52°09.8	73°16.9	95°01.6
6	21°16.7	7.3'	S 25°23.6	-4.2'	57.1'	110°19.8	87°03.9	63°31.9	4°22.7	41°31.9	52°32.0	73°50.0	95°34.6
7	35°43.0	7.3'	25°27.8	-4.0'	57.1'	109°49.5	86°33.8	63°04.3	3°50.2	42°04.7	52°54.3	74°23.1	96°07.4
8	50°09.4	7.3'	25°31.8	-3.9'	57.1'	109°19.2	86°03.7	62°36.7	3°17.8	42°37.4	53°16.7	74°56.1	96°40.2
9	64°35.7	7.3'	25°35.7	-3.7'	57.0'	108°49.0	85°33.8	62°09.3	2°45.7	43°10.2	53°39.2	75°29.1	97°13.0
10	79°02.1	7.4'	25°39.5	-3.6'	57.0'	108°18.8	85°03.8	61°41.9	2°13.9	43°42.9	54°01.8	76°02.0	97°45.8
11	93°28.4	7.4'	25°43.1	-3.4'	57.0'	107°48.6	84°33.9	61°14.6	1°42.9	44°15.5	54°24.5	76°34.9	98°18.4
12	107°54.8	7.4'	S 25°46.5	-3.3'	56.9'	107°18.5	84°04.1	60°47.4		44°48.1	54°47.2	77°07.8	98°51.1
13	122°21.2	7.4'	25°49.8	-3.1'	56.9'	106°48.4	83°34.2	60°20.3		45°20.6	55°10.1	77°40.6	99°23.7
14	136°47.6	7.4'	25°52.9	-3.0'	56.8'	106°18.4	83°04.5	59°53.3		45°53.1	55°33.0	78°13.4	99°56.2
15	151°14.0	7.4'	25°55.9	-2.8'	56.8'	105°48.5	82°34.8	59°26.4		46°25.6	55°56.0	78°46.1	100°28.7
16	165°40.5	7.5'	25°58.7	-2.7'	56.8'	105°18.5	82°05.1	58°59.6		46°58.0	56°19.1	79°18.7	101°01.2
17	180°06.9	7.5'	26°01.4	-2.5'	56.7'	104°48.6	81°35.5	58°32.8		47°30.4	56°42.2	79°51.4	101°33.6
18	194°33.4	7.5'	S 26°03.9	-2.4'	56.7'	104°18.8	81°05.9	58°06.2		48°02.7	57°05.4	80°24.0	102°06.0
19	208°59.9	7.5'	$26^{\circ}06.3$	-2.2'	56.7'	103°49.0	80°36.4	57°39.7	2°48.4	48°35.0	57°28.7	80°56.5	102°38.3
20	223°26.5	7.6'	$26^{\circ}08.5$	-2.1'	56.6'	103°19.2	80°06.9	57°13.2	3°20.1	49°07.3	57°52.0	81°29.0	103°10.6
21	237°53.0	7.6'	$26^{\circ}10.5$	-1.9'	56.6'	102°49.5	79° 37.5	56°46.9	3°51.9	49°39.5	58°15.4	82°01.5	103°42.9
22	252°19.6	7.6'	$26^{\circ}12.5$	-1.8'	56.5'	102°19.8	79°08.1	56°20.7	4°23.8	50°11.7	58°38.8	82°33.9	104°15.1
23	266°46.2	7.6'	26°14.2	-1.6'	56.5'	101°50.2	78°38.8	55°54.5	4°55.7	50°43.8	59°02.4	83°06.3	104°47.2
16 th	SD :	= 15.6′	Mer. pas	s. 04:32					Sun SD	= 16.1'			

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

Fri	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	281°12.9	7.7'	S 26°15.8	-1.5'	56.5'	101°20.6	88°14.2	78°09.5	55°28.5	5°27.6	51°15.9	83°38.6	105°19.3
1	295°39.5	7.7'	26°17.3	-1.3'	56.4'	100°51.1	87°56.6	77°40.3	55°02.6	5°59.6	51°47.9	84°10.9	105°51.4
2	310°06.3	7.7'	26°18.6	-1.2'	56.4'	100°21.6	87°39.1	77°11.1	54°36.8	6°31.5	52°20.0	84°43.2	106°23.5
3	324°33.0	7.8'	$26^{\circ}19.8$	-1.0'	56.4'	99°52.1	87°21.5	76°41.9	54°11.1	7°03.4	52°51.9	85°15.4	106°55.4
4	338°59.8	7.8'	26°20.8	-0.9'	56.3'	99°22.7	87°04.0	76°12.9	53°45.5	7°35.3	53°23.9	85°47.5	107°27.4
5	353°26.6	7.8'	$26^{\circ}21.6$	-0.7'	56.3'	98°53.3	86°46.5	75°43.8	53°20.0	8°07.1	53°55.7	86°19.7	107°59.3
6	7°53.4	7.9'	S 26°22.4	-0.6'	56.3'	98°24.0	86°29.1	75°14.8	52°54.6	8°39.0	54°27.6	86°51.8	108°31.2
7	22°20.3	7.9'	26°22.9	-0.4'	56.2'	97°54.7	86°11.7	74°45.9	52°29.4	9°10.8	54°59.4	87°23.8	109°03.0
8	36°47.2	8.0'	26°23.4	-0.3'	56.2'	97°25.4	85°54.3	74°17.0	52°04.2	9°42.5	55°31.2	87°55.8	109°34.8
9	51°14.2	8.0'	26°23.6	-0.1'	56.2'	96°56.2	85°37.0	73°48.2	51°39.2	10°14.3	56°02.9	88°27.8	110°06.5
10	65°41.2	8.1'	26°23.8	0.0'	56.1'	96°27.0	85° 19.7	73°19.4	51°14.3	10°46.0	56°34.6	88°59.8	110°38.3
11	80°08.3	8.1'	26°23.7	0.2'	56.1'	95°57.8	85°02.4	72°50.6	50°49.5	11°17.7	57°06.3	89°31.6	111°09.9
12	94°35.4	8.1'	S 26°23.6	0.3'	56.1'	95°28.7	84°45.2	72°22.0	50°24.9	11°49.3	57° 37.9	90°03.5	111°41.6
13	109°02.5	8.2'	26°23.3	0.4'	56.0'	94°59.6	84°28.0	71°53.3	50°00.3	12°20.9	58°09.5	90°35.3	112°13.2
14	123°29.7	8.2'	26°22.8	0.6'	56.0'	94°30.6	84°10.9	71°24.7	49°35.9	12°52.5	58°41.0	91°07.1	112°44.7
15	137°56.9	8.3'	26°22.2	0.7'	56.0'	94°01.6	83°53.8	70°56.2	49°11.7	13°24.0	59° 12.5	91°38.9	113°16.2
16	152°24.2	8.3'	26°21.5	0.9'	55.9'	93°32.6	83°36.7	70°27.7	48°47.5	13°55.5	59°44.0	92°10.6	113°47.7
17	166°51.5	8.4'	26°20.6	1.0'	55.9'	93°03.7	83°19.7	69°59.3	48°23.5	14°27.0	60°15.4	92°42.2	114°19.2
18	181°18.9	8.4'	S 26°19.6	1.2'	55.9'	92°34.8	83°02.7	69°30.9	47°59.6	14°58.4	60°46.8	93°13.9	114°50.6
19	195°46.3	8.5'	$26^{\circ}18.5$	1.3'	55.8'	92°06.0	82°45.8	69°02.6	47°35.9	15°29.8	61°18.2	93°45.5	115°21.9
20	210°13.8	8.5'	$26^{\circ}17.2$	1.4'	55.8'	91°37.2	82°28.9	68°34.4	47°12.3	16°01.2	61°49.5	94°17.0	115°53.3
21	224°41.4	8.6'	26° 15.7	1.6'	55.8'	91°08.4	82°12.1	68°06.1	46°48.8	16°32.5	62°20.8	94°48.6	116°24.6
22	239°08.9	8.6'	26°14.1	1.7'	55.7'	90°39.6	81°55.3	67°38.0	46°25.5	17°03.8	62°52.1	95°20.1	116°55.8
23	253°36.6	8.7'	26°12.4	1.9'	55.7'	90°10.9	81°38.5	67°09.9	46°02.4	17°35.0	63°23.3	95°51.5	117°27.1
17 th	SD :	= 15.4'	Mer. pas	s. 05:27	7				Sun SD	= 16.1'			

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

Sat	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	268°04.3	8.8'	S 26°10.6	2.0'	55.7'	89°42.3	81°21.8	66°41.8	45°39.3	18°06.3	63°54.5	96°23.0	117°58.3
1	282°32.1	8.8'	$26^{\circ}08.6$	2.1'	55.6'	89°13.6	81°05.2	66° 13.8	45°16.5	18°37.5	64°25.7	96°54.3	118°29.4
2	296°59.9	8.9'	26°06.4	2.3'	55.6'	88°45.0	80°48.6	65°45.9	44°53.8	19°08.6	64°56.8	97°25.7	119°00.6
3	311°27.7	8.9'	26°04.2	2.4'	55.6'	88°16.4	80°32.0	65°18.0	44°31.2	19°39.8	65°27.9	97°57.0	119°31.6
4	325°55.7	9.0'	$26^{\circ}01.8$	2.5'	55.6'	87°47.9	80°15.5	64°50.1	44°08.8	20°10.9	65°59.0	98°28.3	
5	340°23.7	9.1'	25°59.3	2.7'	55.5'	87°19.4	79°59.1	64°22.4	43°46.6	20°41.9	66°30.0	98°59.6	
6	354°51.7	9.1'	S 25°56.6	2.8'	55.5'	86°50.9	79°42.7	63°54.6	43°24.6	21°13.0	67°01.0	99°30.8	
7	9°19.8	9.2'	25°53.8	2.9'	55.5'	86°22.5	79°26.4	63°27.0	43°02.7	21°44.0	67°32.0	100°02.0	
8	23°48.0	9.2'	25°50.9	3.1'	55.4'	85°54.0	79°10.1	62°59.4	42°41.0	22°14.9	68°02.9	100°33.1	
9	38°16.3	9.3'	25°47.8	3.2'	55.4'	85°25.7	78°53.8	62°31.8	42°19.4	22°45.9	68°33.8	101°04.3	
10	52°44.6	9.4'	25°44.6	3.3'	55.4'	84°57.3	78°37.7	62°04.3	41°58.1	23°16.8	69°04.7	101°35.4	
11	67°12.9	9.4'	25°41.3	3.4'	55.4'	84°29.0	78°21.6	61°36.9	41°36.9	23°47.7	69°35.5	102°06.4	
12	81°41.4	9.5'	S 25°37.9	3.6'	55.3'	84°00.7	78°05.5	61°09.5	41°15.9	24°18.5	70°06.3	102°37.5	
13	96°09.9	9.6'	25°34.3	3.7'	55.3'	83°32.4	77°49.5	60°42.2	40°55.1	24°49.4	70°37.1	103°08.5	
14	110°38.5	9.6'	25°30.6	3.8'	55.3'	83°04.2	77°33.6	60° 14.9	40°34.5	25°20.1	71°07.9	103°39.5	
15	125°07.1	9.7'	25°26.8	4.0'	55.3'	82°36.0	77°17.7	59° 47.7	40°14.1	25°50.9	71°38.6	104°10.4	
16	139°35.8	9.8'	25°22.8	4.1'	55.2'	82°07.8	77°01.9	59°20.6	39°53.9	26°21.6	72°09.3	104°41.3	
17	154°04.6	9.8'	$25^{\circ}18.7$	4.2'	55.2'	81°39.7	76°46.1	58°53.5	39°34.0	26°52.4	72°40.0	105°12.2	
18	168°33.4	9.9'	S 25°14.5	4.3'	55.2'	81°11.6	76°30.4	58° 26.5	39°14.2	27°23.0	73°10.6	105°43.1	
19	183°02.3	10.0'	$25^{\circ}10.2$	4.4'	55.1'	80°43.5	76°14.8	57° 59.6	38°54.6	27°53.7	73°41.2	106°13.9	
20	197°31.3	10.1'	25°05.8	4.6'	55.1'	80°15.4	75°59.2	57° 32.7	38°35.3	28°24.3	74°11.8	106°44.7	
21	212°00.4	10.1'	$25^{\circ}01.2$	4.7'	55.1'	79°47.4	75°43.7	57° 05.8	38°16.2	28°54.9	74°42.4	107°15.5	
22	226°29.5	10.2'	24° 56.5	4.8'	55.1'	79°19.4	75°28.2	56°39.1	37°57.3	29°25.5	75°12.9	107°46.2	
23	240°58.7	10.3'	24°51.7	4.9'	55.0'	78°51.4	75°12.9	56°12.4	37°38.6	29°56.0	75°43.4	108°16.9	
18 th	SD :	= 15.2'	Mer. pass	. 06:21					Sun SD	= 16.1'			

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

Sun	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	255°28.0	10.3'	S 24°46.8	5.0'	55.0'	78°23.5	74°57.5	55° 45.7	37°20.2	30°26.6	76°13.9	78°49.6	108°47.6
1	269°57.3	10.4'	24°41.7	5.2'	55.0'	77°55.5	74°42.3	55° 19.2	37°02.0	30°57.0	76°44.4	79°14.1	109°18.3
2	284°26.7	10.5'	24°36.6	5.3'	55.0'	77°27.6	74°27.1	54° 52.7	36°44.1	31°27.5	77°14.8	79°38.6	109°48.9
3	298°56.2	10.6'	24°31.3	5.4'	55.0'	76°59.8	74°12.0	54°26.3	36°26.4	31°58.0	77°45.2	80°03.1	110°19.6
4	313°25.8	10.6'	24°25.9	5.5'	54.9'	76°31.9	73°57.0	53°59.9	36°09.0	32°28.4	78°15.6	80°27.6	110°50.1
5	327°55.4	10.7'	24°20.4	5.6'	54.9'	76°04.1		53°33.6	35°51.8	32°58.8	78°45.9	80°52.1	111°20.7
6	342°25.1	10.8'	S 24°14.8	5.7'	54.9'	75°36.3		53°07.4	35°35.0	33°29.2	79°16.3	81°16.5	111°51.2
7	356°54.9	10.9'	24°09.1	5.8'	54.9'	75°08.5		52°41.2	35°18.3	33°59.5	79°46.6	81°41.0	112°21.8
8	11°24.7	10.9'	24°03.2	5.9'	54.8'	74°40.8		52° 15.2	35°02.0	34°29.8	80°16.9	82°05.5	112°52.3
9	25°54.7	11.0'	23°57.3	6.1'	54.8'	74°13.0		51°49.2	34°46.0	35°00.1	80°47.1	82°29.9	113°22.7
10	40°24.7	11.1'	23°51.2	6.2'	54.8'	73°45.3		51°23.2	34°30.2	35°30.4	81°17.4	82°54.4	113°53.2
11	54°54.8	11.2'	23°45.1	6.3'	54.8'	73°17.6		50°57.4	34°14.7	36°00.7	81°47.6	83°18.9	114°23.6
12	69°24.9	11.2'	S 23°38.8	6.4'	54.8'	72°50.0		50°31.6	33°59.6	36°30.9	82°17.8	83°43.3	114°54.0
13	83°55.1	11.3'	23°32.4	6.5'	54.7'	72°22.3		50°05.9		37°01.1	82°48.0	84°07.7	115°24.4
14	98°25.4	11.4'	23°25.9	6.6'	54.7'	71°54.7		49°40.3		37°31.3	83°18.2	84°32.2	115°54.7
15	112°55.8	11.5'	$23^{\circ}19.3$	6.7'	54.7'	71°27.1		49° 14.8		38°01.5	83°48.3	84°56.6	116°25.0
16	127°26.3	11.5'	23° 12.6	6.8'	54.7'	70°59.5		48°49.3		38°31.7	84°18.4	85°21.0	116°55.3
17	141°56.8	11.6'	23°05.8	6.9'	54.7'	70°32.0		48°24.0		39°01.8	84°48.5	85°45.4	117°25.6
18	156°27.4	11.7'	S 22°58.9	7.0'	54.6'	70°04.4		47° 58.7		39°31.9	85°18.6	86°09.8	117°55.9
19	170°58.1	11.8'	$22^{\circ}51.9$	7.1'	54.6'	69°36.9		47° 33.5		40°02.0	85°48.7	86°34.2	118°26.1
20	185°28.8	11.8'	22°44.8	7.2'	54.6'	69°09.4		47°08.4		40°32.1	86°18.7	86°58.6	118°56.4
21	199°59.6	11.9'	22°37.6	7.3'	54.6'	68°41.9		46° 43.4		41°02.2	86°48.7	87°23.0	119°26.6
22	214°30.5	12.0'	22°30.3	7.4'	54.6'	68°14.5		46° 18.4		41°32.2	87°18.7	87°47.3	119°56.7
23	229°01.5	12.1'	22°22.9	7.5'	54.5'	67°47.0		45°53.6		42°02.2	87°48.7	88°11.7	
19 th	SD :	= 15.0'	Mer. pass	. 07:13					Sun SE	0 = 16.1'			

h		Moon	(20 th Ma	ır)			Lunar D	istance (c	bjects with	largest h	ourly LE	delta)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus
0	243°32.6	12.1'	S 22°15.4	7.6'	54.5'	67°19.6	45°28.9	42°32.2	62°59.4	67°21.7	77°40.8	88°18.7	88°36.0
1	258°03.7	12.2'	22°07.8	7.7'	54.5'	66°52.2	45°04.2	43°02.2	63°21.1	67°43.5	78°00.4	88°48.6	89°00.3
2	272°34.9	12.3'	22°00.2	7.8'	54.5'	66°24.8	44°39.7	43°32.2	63°42.8	68°05.3	78°19.9	89°18.6	89°24.6
3	287°06.2	12.3'	21°52.4	7.9'	54.5'	65°57.4	44° 15.3	44°02.2	64°04.6	68°27.2	78°39.5	89°48.5	89°48.9
4	301°37.5	12.4'	21°44.5	8.0'	54.5'	65°30.1	43°50.9	44°32.1	64°26.4	68°49.1	78°59.1	90°18.4	90°13.2
5	316°08.9	12.5'	$21^{\circ}36.5$	8.1'	54.4'	65°02.8	43°26.7	45°02.0	64°48.3	69°11.0	79°18.7	90°48.3	90°37.5
6	330°40.4	12.6'	S 21°28.5	8.1'	54.4'	64°35.4	43°02.6	45°31.9	65°10.2	69°33.0	79°38.4	91°18.1	91°01.8
7	345°12.0	12.6'	21°20.3	8.2'	54.4'	64°08.1	42°38.6	46°01.8	65°32.1	69°55.0	79°58.0	91°48.0	91°26.0
8	359°43.6	12.7'	21°12.1	8.3'	54.4'	63°40.8	42°14.7	46°31.7	65°54.1	70°17.0	80°17.7	92°17.8	91°50.2
9	14°15.4	12.8'	21°03.8	8.4'	54.4'	63°13.6	41°50.9	47°01.6	66°16.2	70°39.1	80°37.4	92°47.7	92°14.4
10	28°47.1	12.9'	20°55.4	8.5'	54.4'	62°46.3	41°27.2	47°31.4	66°38.2	71°01.2	80°57.1	93°17.5	92°38.6
11	43°19.0	12.9'	20°46.9	8.6'	54.3'	62°19.1	41°03.7	48°01.2	67°00.4	71°23.3	81°16.8	93°47.3	93°02.8
12	57°50.9	13.0'	S 20°38.3	8.7'	54.3'	61°51.8	40°40.3	48°31.1	67°22.5	71°45.5	81°36.6	94°17.0	93°27.0
13	72°22.9	13.1'	20°29.6	8.8'	54.3'	61°24.6	40°17.0	49°00.9	67°44.7	72°07.7	81°56.3	94°46.8	93°51.2
14	86°55.0	13.1'	20°20.8	8.8'	54.3'	60°57.4	39°53.8	49°30.7	68°07.0	72°29.9	82°16.1	95°16.6	94°15.3
15	101°27.1	13.2'	20°12.0	8.9'	54.3'	60°30.2	39°30.8	50°00.5	68°29.2	72°52.2	82°35.8	95°46.3	94°39.4
16	115°59.4	13.3'	20°03.1	9.0'	54.3'	60°03.1	39°07.9	50°30.2	68°51.5	73°14.4	82°55.6	96°16.0	95°03.5
17	130°31.6	13.4'	$19^{\circ}54.1$	9.1'	54.3'	59°35.9	38°45.1	51°00.0	69°13.9	73°36.7	83°15.4	96°45.8	95°27.6
18	145°04.0	13.4'	S 19°45.0	9.2'	54.3'	59°08.8	38°22.5	51°29.7	69°36.3	73°59.0	83°35.2	97°15.5	95°51.7
19	159°36.4	13.5'	19°35.8	9.2'	54.2'	58°41.6	38°00.1	51°59.5	69°58.7	74°21.4	83°55.0	97°45.2	96°15.7
20	174°08.9	13.6'	$19^{\circ}26.6$	9.3'	54.2'	58°14.5	37° 37.8	52°29.2	70°21.1	74°43.7	84°14.8	98°14.9	96°39.8
21	188°41.4	13.6'	19°17.3	9.4'	54.2'	57°47.4	37°15.6	52°58.9	70°43.6	75°06.1	84°34.6	98°44.5	97°03.8
22	203°14.1	13.7'	$19^{\circ}07.9$	9.5'	54.2'	57°20.3	36°53.6	53°28.6	71°06.1	75°28.5	84°54.4	99°14.2	97°27.8
23	217°46.8	13.8'	18°58.4	9.6'	54.2'	56°53.2	36°31.8	53°58.3	71°28.6	75°50.9	85°14.3	99°43.8	97°51.7
20 th	SD :	= 14.9'	Mer. pass	. 08:01				Sun S	D = 16.1' at $0h$	$_{ m i}$; $16.0'$ at 2	23h		

Moon (21st Mar)

Tue	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica			
0	232° 19.5	13.8'	S 18°48.8	9.6'	54.2'	56°26.1	36°10.1	54°28.0	71°51.2	76°13.4	85°34.1	98° 15.7	100°13.5			
1	246°52.3	13.9'	$18^{\circ}39.2$	9.7'	54.2'	55°59.1	35°48.6	54° 57.7	72°13.7	76°35.9	85°54.0	98°39.6	100°43.1			
2	261°25.2	14.0'	18°29.5	9.8'	54.2'	55°32.0	35°27.3	55°27.3	72°36.4	76°58.3	86°13.8	99°03.5	101°12.7			
3	275°58.2	14.0'	18°19.7	9.8'	54.2'	55°05.0	35°06.1	55° 57.0	72°59.0	77°20.8	86°33.6	99°27.4	101°42.4			
4	290°31.2	14.1'	18°09.9	9.9'	54.1'	54°37.9	34°45.2	56° 26.6	73°21.7	77°43.4	86°53.5	99°51.3	102°12.0			
5	305°04.3	14.1'	$18^{\circ}00.0$	10.0'	54.1'	54°10.9	34°24.4	56°56.3	73°44.3	78°05.9	87°13.3	100°15.1	102°41.6			
6	319°37.4	14.2'	S 17°50.0	10.1'	54.1'	53°43.9	34°03.9	57°25.9	74°07.1	78°28.5	87°33.2	100°39.0	103°11.2			
7	334°10.6	14.3'	17°39.9	10.1'	54.1'	53°16.9	33°43.5	57° 55.5	74°29.8	78°51.0	87°53.1	101°02.8	103°40.7			
8	348°43.9	14.3'	$17^{\circ}29.8$	10.2'	54.1'	52°49.9	33°23.4	58°25.1	74°52.6	79°13.6	88°12.9	101°26.5	104°10.3			
9	3°17.2	14.4'	$17^{\circ}19.6$	10.3'	54.1'	52°22.9	33°03.4		75°15.3				104°39.9			
10	17°50.6	14.5'	17°09.3	10.3'	54.1'	51°55.9	32°43.7						105°09.4			
11	32°24.1	14.5'	$16^{\circ}59.0$	10.4'	54.1'	51°29.0	32°24.2	59°53.9	76°01.0	80°21.4		102°37.7	105°39.0			
12	46°57.6	14.6'	S 16°48.6	10.5'	54.1'	51°02.0	32°05.0	60°23.5	76°23.8	80°44.1		103°01.4	106°08.5			
13	61°31.1	14.6'	$16^{\circ}38.1$	10.5'	54.1'	50°35.1	31°45.9	60°53.1	76°46.7	81°06.7			106°38.1			
14	76°04.8	14.7'	16°27.6	10.6'	54.1'	50°08.1	31°27.2						107°07.6			
15	90°38.5	14.7'	16°17.0	10.7'	54.0'	49°41.2	31°08.7						107°37.1			
16	105° 12.2	14.8'	16°06.4	10.7'	54.0'	49°14.3	30°50.4						108°06.7			
17	119°46.0	14.9'	15°55.7	10.8'	54.0'	48°47.3	30°32.4	62°51.4	78°18.4		91°11.5		108°36.2			
18	134°19.9	14.9'	S 15°44.9	10.8'	54.0'	48°20.4	30°14.7	63°20.9	78°41.3		91°31.3		109°05.7			
19	148°53.8	15.0'	15°34.1	10.9'	54.0'	47°53.5	29°57.3		79°04.3				109°35.2			
20	163°27.7	15.0'	15°23.2	11.0'	54.0'	47°26.6	29°40.1						110°04.7			
21	178°01.7	15.1'	15°12.2	11.0'	54.0'	46°59.7	29°23.3						110°34.2			
22	192°35.8	15.1'	15°01.2	11.1'	54.0'	46°32.8	29°06.8						111°03.7			
23	207°09.9	15.2'	14°50.1	11.1'	54.0'	46°05.9	28°50.6	65°48.6	80°36.3	84°53.8	93°10.3	107°20.0	111°33.2			
21 st	SD	= 14.8'	Mer. pass	. 08:46				57°25.9 74°07.1 78°28.5 87°33.2 100°39.0 103°1 57°55.5 74°29.8 78°51.0 87°53.1 101°02.8 103°4 58°25.1 74°52.6 79°13.6 88°12.9 101°26.5 104°1 58°54.7 75°15.3 79°36.2 88°32.8 101°50.3 104°3 59°53.9 76°01.0 80°21.4 89°12.5 102°37.7 105°3 60°23.5 76°23.8 80°44.1 89°32.3 103°01.4 106°3 60°53.1 76°46.7 81°06.7 80°52.1 103°25.1 106°3 61°52.2 77°32.5 81°52.1 90°31.8 104°12.3 107°3 62°21.8 77°55.4 82°14.8 90°51.7 104°35.9 108°0 63°20.9 78°41.3 83°00.2 91°31.3 105°22.9 109°0 63°50.5 79°04.3 83°22.9 91°51.1 106°09.9 100°0 64°40.0 79°27.3 83°45.6 92°10.9 106°09.9 110°0 65°19.1								

Moon (22nd Mar) Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	221°44.1	15.2'	S 14°39.0	11.2'	54.0'	45°39.0	28°34.7	66°18.2	80°59.4	85°16.6	93°30.0	107°43.4	112°02.7
1	236°18.3	15.3'	14°27.8	11.2'	54.0'	45°12.2	28° 19.2	66°47.7	81°22.4	85°39.3	93°49.8	108°06.7	112°32.1
2	250°52.6	15.3'	$14^{\circ}16.6$	11.3'	54.0'	44°45.3	28°04.0	67°17.2	81°45.5	86°02.1	94°09.5	108°29.9	113°01.6
3	265°26.9	15.4'	14°05.3	11.3'	54.0'	44°18.4		67°46.7	82°08.6	86°24.9	94°29.3	108°53.2	113°31.1
4	280°01.3	15.4'	13°54.0	11.4'	54.0'	43°51.6		68°16.3	82°31.7	86°47.6	94°49.0	109°16.4	114°00.6
5	294°35.7	15.5'	13°42.6	11.4'	54.0'	43°24.7		68°45.8	82°54.8	87°10.4	95°08.7	109°39.5	114°30.0
6	309°10.2	15.5'	S 13°31.1	11.5'	54.0'	42°57.9		69°15.3	83°17.9	87°33.2	95°28.4	110°02.6	114°59.5
7	323°44.7	15.6'	13°19.7	11.5'	54.0'	42°31.0		69°44.8	83°41.1	87°56.0	95°48.1	110°25.7	115°29.0
8	338°19.3	15.6'	13°08.1	11.6'	54.0'	42°04.2		70°14.3	84°04.2	88°18.8	96°07.7	110°48.8	115°58.5
9	352°53.9	15.6'	$12^{\circ}56.5$	11.6'	54.0'	41°37.4		70°43.8	84°27.4	88°41.6	96°27.4	111°11.8	116°27.9
10	7°28.5	15.7'	12°44.9	11.7'	54.0'	41°10.5		71°13.4	84°50.5	89°04.3	96°47.0	111°34.8	116°57.4
11	22°03.2	15.7'	12°33.2	11.7'	53.9'	40°43.7		71°42.9	85°13.7	89°27.1	97°06.6	111°57.7	117°26.9
12	36°37.9	15.8'	S 12°21.4	11.8'	53.9'	40°16.9		72°12.4	85°36.9	89°49.9	97°26.2	112°20.6	117°56.3
13	51°12.7	15.8'	$12^{\circ}09.7$	11.8'	53.9'			72°41.9	86°00.0	90°12.7	97°45.8	112°43.5	118°25.8
14	65°47.5	15.9'	11°57.8	11.9'	53.9'			73°11.4	86°23.2	90°35.5	98°05.4	113°06.3	118°55.2
15	80°22.4	15.9'	11°46.0	11.9'	53.9'			73°40.9	86°46.4	90°58.3	98°24.9	113°29.0	119°24.7
16	94°57.2	15.9'	11°34.0	12.0'	53.9'			74°10.4	87°09.6	91°21.1	98°44.4	113°51.7	119°54.2
17	109°32.2	16.0'	11°22.1	12.0'	53.9'			74°40.0	87°32.8	91°43.9	99°03.9	114°14.4	
18	124°07.1	16.0'	S 11°10.1	12.0'	53.9'			75°09.5	87°56.1	92°06.7	99°23.4	114°37.1	
19	138°42.1	16.0'	10°58.0	12.1'	53.9'			75°39.0	88°19.3	92°29.5	99°42.8	114°59.6	
20	153°17.2	16.1'	10°45.9	12.1'	53.9'			76°08.5	88°42.5	92°52.2	100°02.2	115°22.2	
21	167°52.3	16.1'	10°33.8	12.2'	53.9'			76°38.0	89°05.7	93°15.0	100°21.6	115°44.7	
22	182°27.4	16.1'	$10^{\circ}21.6$	12.2'	53.9'			77°07.6	89°28.9	93°37.8	100°41.0	$116^{\circ}07.1$	
23	197°02.5	16.2'	10°09.4	12.2'	53.9'			77°37.1	89°52.2	94°00.5	101°00.4	116°29.5	
22 nd	SD	= 14.7'	Mer. pass	. 09:29					$Sun\;SD =$	16.0′			

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

							D .00000	(asjects iii			
Thu	GHA	ν	Dec	d	HP	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus
0	211°37.7	16.2'	S 09°57.2	12.3'	53.9'	36°28.3	78°06.6	90°15.4	94°23.3	101°19.7	116°51.8
1	$226^{\circ}12.9$	16.2'	09°44.9	12.3'	53.9'	36°45.5	78°36.1	90°38.6	94°46.1	101°39.0	117° 14.1
2	240°48.1	16.3'	09°32.6	12.4'	53.9'	37°02.9	79°05.7	91°01.9	95°08.8	101°58.2	117° 36.3
3	255°23.4	16.3'	09°20.2	12.4'	53.9'	37°20.5	79°35.2	91°25.1	95°31.5	102°17.5	117°58.5
4	269°58.7	16.3'	09°07.8	12.4'	53.9'	37°38.3	80°04.7	91°48.3	95°54.3	102°36.7	118° 20.6
5	284°34.0	16.4'	08°55.4	12.5'	53.9'	37°56.4	80°34.3	92°11.5	96°17.0	102°55.9	118°42.7
6	299°09.4	16.4'	S 08°42.9	12.5'	53.9'	38°14.6	81°03.8	92°34.8	96°39.7	103°15.0	119°04.7
7	313°44.7	16.4'	08°30.4	12.5'	53.9'	38°33.1	81°33.4	92°58.0	97°02.4	103°34.1	119° 26.6
8	328°20.1	16.4'	08°17.9	12.6'	53.9'	38°51.7	82°02.9	93°21.2	97°25.1	103°53.2	119°48.5
9	342°55.6	16.5'	08°05.4	12.6'	53.9'	39°10.5	82°32.5	93°44.5	97°47.8	104°12.2	
10	357°31.0	16.5'	07°52.8	12.6'	53.9'	39°29.5	83°02.1	94°07.7	98°10.5	104°31.3	
11	$12^{\circ}06.5$	16.5'	$07^{\circ}40.1$	12.7'	53.9'	39°48.7	83°31.6	94°30.9	98°33.1	104°50.2	
12	26°42.0	16.5'	S 07°27.5	12.7'	53.9'	40°08.1	84°01.2	94°54.1	98°55.8	105°09.2	
13	$41^{\circ}17.5$	16.5'	07°14.8	12.7'	53.9'	40°27.7	84°30.8	95°17.3	99°18.4	105°28.1	
14	55°53.0	16.6'	$07^{\circ}02.1$	12.7'	54.0'	40°47.4	85°00.4	95°40.5	99°41.1	105°46.9	
15	70°28.6	16.6'	06°49.4	12.8'	54.0'	41°07.3	85°30.0	96°03.7	100°03.7	106°05.7	
16	85°04.2	16.6'	06°36.6	12.8'	54.0'	41°27.4	85°59.5	96°26.9	100°26.3	106°24.5	
17	99°39.8	16.6'	06°23.8	12.8'	54.0'	41°47.6	86°29.1	96°50.1	100°48.8	106°43.3	
18	114°15.4	16.6'	S 06°11.0	12.8'	54.0'	42°07.9	86°58.7	97°13.3	101°11.4	107°01.9	
19	128°51.0	16.6'	05°58.2	12.9'	54.0'	42°28.5	87°28.4	97°36.4	101°33.9	107°20.6	
20	143°26.7	16.7'	05°45.3	12.9'	54.0'	42°49.1	87°58.0	97°59.6	101°56.5	107°39.2	
21	158°02.3	16.7'	05°32.4	12.9'	54.0'	43°10.0	88°27.6	98°22.8	102°19.0	107°57.8	
22	172°38.0	16.7'	$05^{\circ}19.5$	12.9'	54.0'	43°30.9	88°57.2	98°45.9	102°41.5	108°16.3	
23	187°13.7	16.7'	05°06.6	13.0'	54.0'	43°52.0	89°26.9	99°09.0	103°03.9	108°34.7	
23 rd	SD	= 14.7'	Mer. pass	s. 10:10							

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I_	Moon (24 th Mar)	Lunar Distance (objects with largest hourly ID delta)
n	MOOD 1/4" Mari	I linar i listance i oniects with largest nollriv i i li delta i

Fri	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	201°49.4	16.7'	S 04°53.6	13.0'	54.0'		44°13.2	89° 56.5	99°32.2	103°26.4	108°53.2
1	216°25.1	16.7'	04°40.7	13.0'	54.0'		44°34.6	90°26.2	99°55.3	103°48.8	109°11.5
2	231°00.8	16.7'	04°27.7	13.0'	54.0'		44°56.1	90°55.8	100°18.4	104°11.2	109°29.9
3	245°36.5	16.7'	$04^{\circ}14.7$	13.0'	54.0'		45°17.7	91°25.5	100°41.4	104°33.6	109°48.1
4	260°12.2	16.7'	$04^{\circ}01.6$	13.0'	54.0'		45°39.5	91°55.2	101°04.5	104°56.0	110°06.3
5	274°48.0	16.7'	03°48.6	13.1'	54.0'		46°01.3	92°24.8	101°27.6	105°18.3	110°24.5
6	289°23.7	16.8'	S 03°35.5	13.1'	54.0'		46°23.3	92°54.5	101°50.6	105°40.6	110°42.6
7	303°59.5	16.8'	03°22.4	13.1'	54.0'		46°45.4	93°24.2	102°13.6	106°02.9	111°00.6
8	318°35.2	16.8'	03°09.3	13.1'	54.0'		47°07.6	93°53.9	102°36.6	106°25.2	111°18.6
9	333°11.0	16.8'	02°56.2	13.1'	54.0'		47°30.0	94°23.6	102°59.6	106°47.4	111°36.6
10	347°46.7	16.8'	02°43.1	13.1'	54.0'		47°52.4	94°53.4	103°22.6	107°09.6	111°54.4
11	2°22.5	16.8'	02°30.0	13.1'	54.1'		48°14.9	95°23.1	103°45.6	107°31.8	112°12.2
12	16°58.3	16.8'	S 02°16.8	13.2'	54.1'		48°37.6	95°52.8	104°08.5	107°54.0	112°30.0
13	31°34.0	16.8'	02°03.7	13.2'	54.1'		49°00.3	96°22.6	104°31.4	108°16.1	112°47.7
14	46°09.8	16.8'	01°50.5	13.2'	54.1'		49°23.2	96°52.3	104°54.3	108°38.2	113°05.3
15	60°45.6	16.8'	01°37.3	13.2'	54.1'		49°46.1	97°22.1	105°17.2	109°00.2	113°22.8
16	75°21.3	16.8'	$01^{\circ}24.1$	13.2'	54.1'	28°10.2	50°09.1	97°51.9	105°40.1	109°22.2	113°40.3
17	89°57.1	16.8'	$01^{\circ}10.9$	13.2'	54.1'	28°25.7	50°32.3	98°21.7	106°02.9	109°44.2	113°57.7
18	104°32.8	16.7'	S 00°57.7	13.2'	54.1'	28°41.5	50°55.5	98°51.5	106°25.7	110°06.2	114°15.1
19	119°08.6	16.7'	00°44.5	13.2'	54.1'	28°57.7	51°18.8	99°21.3	106°48.5	110°28.1	114°32.3
20	133°44.3	16.7'	$00^{\circ}31.3$	13.2'	54.1'	29°14.2	51°42.2	99°51.1	107°11.2	110°50.0	114°49.5
21	148°20.0	16.7'	$00^{\circ}18.0$	13.2'	54.1'	29°31.0	52°05.7	100°20.9	107°34.0	$111^{\circ}11.8$	115°06.7
22	162°55.8	16.7'	S 00°04.8	13.2'	54.1'	29°48.2	52°29.3	100°50.7	107°56.7	111°33.6	115°23.7
23	177°31.5	16.7'	N 00°08.4	13.2'	54.1'	30°05.6	52°52.9	101°20.6	108°19.4	111°55.3	115°40.7
24 th	SD	$= 14.7^{\prime}$	Mer. pass	. 10:50					·		

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

Sat GHA ν Dec d HP +Fomalhaut +Altair +Antares +Rigil Kent. +Hadar +Acrus

Sat	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux		
0	192°07.2	16.7'	N 00°21.7	13.2'	54.1'	30°23.4	53°16.7	101°50.4	108°42.0	112°17.1	115°57.6		
1	206°42.9	16.7'	00°34.9	13.2'	54.2'	30°41.4	53°40.5	102°20.3	109°04.6	112°38.7	116°14.4		
2	221°18.6	16.7'	00°48.2	13.2'	54.2'	30°59.7	54°04.4	102°50.2	109°27.2	113°00.4	116°31.1		
3	235°54.2	16.7'	$01^{\circ}01.4$	13.2'	54.2'	31°18.3	54°28.3	103°20.1	109°49.8	113°21.9	116°47.8		
4	250°29.9	16.6'	$01^{\circ}14.7$	13.2'	54.2'	31°37.1	54°52.4	103°50.0	110°12.3	113°43.5	117°04.3		
5	265°05.5	16.6'	01°27.9	13.2'	54.2'	31°56.3	55°16.5	104° 19.9	110°34.8	114°05.0	117°20.8		
6	279°41.2	16.6'	N 01°41.2	13.2'	54.2'	32°15.6	55°40.7	104°49.8	110°57.2	114°26.4	117°37.2		
7	294°16.8	16.6'	01°54.4	13.2'	54.2'	32°35.2	56°04.9	105° 19.7	111°19.6	114°47.8	117°53.5		
8	308°52.4	16.6'	02°07.7	13.2'	54.2'	32°55.1	56°29.3	105°49.7	111°42.0	115°09.1	118°09.7		
9	323°27.9	16.6'	02°20.9	13.2'	54.2'	-	·	New	Moon ———		·		
10	338°03.5	16.5'	02°34.2	13.2'	54.2'	-		New	Moon ———				
11	352°39.0	16.5'	02°47.4	13.2'	54.2'								
12	7°14.5	16.5'	N 03°00.6	13.2'	54.3'	-		New	Moon ———				
13	21°50.0	16.5'	03°13.8	13.2'	54.3'	-		New	Moon ———				
14	36°25.5	16.4'	03°27.0	13.2'	54.3'	-		New	Moon ———				
15	51°00.9	16.4'	03°40.3	13.2'	54.3'	-		New	Moon ———				
16	65°36.4	16.4'	03°53.5	13.2'	54.3'	-		New	Moon ———				
17	80°11.8	16.4'	04°06.6	13.2'	54.3'	-		New	Moon ———				
18	94°47.1	16.3'	N 04°19.8	13.2'	54.3'	-		New	Moon ———				
19	109°22.5	16.3'	04°33.0	13.2'	54.3'	-		New	Moon ———				
20	123°57.8	16.3'	04°46.1	13.1'	54.3'	-			Moon ———				
21	138°33.1	16.3'	04°59.3	13.1'	54.4'	-			Moon ———				
22	153°08.3	16.2'	05°12.4	13.1'	54.4'	-			Moon ———				
23	167°43.6	16.2'	05°25.5	13.1'	54.4'	-		New	Moon ———				
25 th	SD	= 14.8'	Mer. pass	. 11:30									

h Moon (26th Mar)

Sun	GHA	ν	Dec	d	HP	
0	182°18.8	16.2'	N 05°38.6	13.1'	54.4'	New Moon
1	196°53.9	16.1'	05°51.7	13.1'	54.4'	New Moon
2	211°29.0	16.1'	06°04.8	13.1'	54.4'	New Moon
3	226°04.1	16.1'	06°17.8	13.0'	54.4'	New Moon
4	240°39.2	16.0'	06°30.9	13.0'	54.4'	New Moon
5	255°14.2	16.0'	06°43.9	13.0'	54.4'	New Moon
6	269°49.2	15.9'	N 06°56.9	13.0'	54.5'	New Moon
7	284°24.2	15.9'	07°09.8	12.9'	54.5'	New Moon
8	298°59.1	15.9'	07°22.8	12.9'	54.5'	New Moon
9	313°33.9	15.8'	07°35.7	12.9'	54.5'	New Moon
10	328°08.8	15.8'	07°48.6	12.9'	54.5'	New Moon
11	342°43.5	15.7'	$08^{\circ}01.5$	12.9'	54.5'	New Moon
12	357°18.3	15.7'	N 08°14.4	12.8'	54.5'	New Moon
13	11°53.0	15.7'	08°27.2	12.8'	54.5'	New Moon
14	26°27.7	15.6'	08°40.0	12.8'	54.6'	New Moon
15	41°02.3	15.6'	08°52.8	12.7'	54.6'	New Moon
16	55°36.8	15.5'	09°05.5	12.7'	54.6'	New Moon
17	70°11.4	15.5'	$09^{\circ}18.2$	12.7'	54.6'	New Moon
18	84°45.8	15.4'	N 09°30.9	12.7'	54.6'	New Moon
19	99°20.2	15.4'	09°43.5	12.6'	54.6'	New Moon
20	113°54.6	15.3'	09°56.2	12.6'	54.6'	New Moon
21	128°28.9	15.3'	10°08.8	12.6'	54.7'	New Moon
22	143°03.2	15.2'	10°21.3	12.5'	54.7'	New Moon
23	157°37.4	15.2'	10°33.8	12.5'	54.7'	New Moon
26 th	SD	$=14.8^{\prime}$	Mer. pass	. 12:11		

h Moon (27 th M	ar) Lunar Distance	(objects with lar	gest hourly LD delt	:a)
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Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Rigel	-Capella	-Aldebaran	-Venus	-Saturn
0	172°11.6	15.1'	N 10°46.3	12.4'	54.7'	101°11.2	97°01.9	75°21.2	68°33.4	66°19.0	55°09.8	36°48.5	13°53.5
1	186°45.7	15.1'	10°58.7	12.4'	54.7'	100°42.0	96°31.6	74°52.4	68°09.2	65°50.6	54°39.9	36°20.4	13°28.1
2	201°19.8	15.0'	$11^{\circ}11.2$	12.4'	54.7'	100°12.7	96°01.3	74°23.6	67°45.0	65°22.3	54°10.0	35°52.2	13°02.9
3	215°53.8	15.0'	11°23.5	12.3'	54.7'	99°43.5	95°30.9	73°54.8	67°20.9	64°54.0	53°40.1	35°24.1	12°38.1
4	230°27.8	14.9'	11°35.9	12.3'	54.8'	99°14.2	95°00.5	73°26.0	66°56.8	64°25.7	53°10.2	34°55.9	12°13.6
5	245°01.6	14.8'	$11^{\circ}48.1$	12.2'	54.8'	98°44.9	94°30.2	72°57.2	66°32.7	63°57.3	52°40.3	34°27.8	11°49.6
6	259°35.5	14.8'	$N12^{\circ}00.4$	12.2'	54.8'	98°15.6	93°59.8	72°28.4	66°08.7	63°29.0	52°10.4	33°59.6	11°26.1
7	274°09.3	14.7'	$12^{\circ}12.6$	12.2'	54.8'	97°46.3	93°29.4	71°59.5	65°44.7	63°00.7	51°40.4	33°31.4	11°03.1
8	288°43.0	14.7'	12°24.7	12.1'	54.8'	97°16.9	92°58.9	71°30.7	65°20.7	62°32.4	51°10.5	33°03.1	10°40.6
9	303°16.6	14.6'	12°36.9	12.1'	54.8'	96°47.5	92°28.5	71°01.9	64°56.8	62°04.1	50°40.5	32°34.9	10°18.9
10	317°50.2	14.5'	12°48.9	12.0'	54.8'	96°18.1	91°58.0	70°33.0	64°32.9	61°35.8	50°10.6	32°06.7	9°57.8
11	332°23.8	14.5'	13°00.9	12.0'	54.9'	95°48.7	91°27.5	70°04.2	64°09.0	61°07.5	49°40.6	31°38.4	9°37.6
12	346°57.3	14.4'	N 13° 12.9	11.9'	54.9'	95°19.3	90°57.1	69°35.3	63°45.2	60°39.2	49°10.7	31°10.1	9°18.2
13	1°30.7	14.4'	13°24.8	11.9'	54.9'	94°49.9	90°26.6	69°06.5	63°21.4	60°10.9	48°40.7	30°41.8	
14	16°04.0	14.3'	13°36.7	11.8'	54.9'	94°20.4	89°56.0	68°37.6	62°57.7	59°42.7	48°10.7	30° 13.5	
15	30°37.3	14.2'	13°48.5	11.8'	54.9'	93°50.9	89°25.5	68°08.7	62°34.0	59°14.4	47°40.7	29°45.1	
16	45°10.5	14.2'	14°00.3	11.7'	54.9'	93°21.5	88°54.9	67°39.9	62°10.3	58°46.2	47°10.8	29°16.8	
17	59°43.7	14.1'	14° 12.0	11.7'	55.0'	92°51.9	88°24.4	67°11.0	61°46.7	58°18.0	46°40.8	28°48.4	
18	74°16.8	14.0'	N14°23.7	11.6'	55.0'	92°22.4	87°53.8	66°42.1	61°23.2	57°49.7	46°10.8	28° 20.0	
19	88°49.8	14.0'	14°35.3	11.6'	55.0'	91°52.9	87°23.2	66°13.3	60°59.6	57°21.5	45°40.8	27°51.6	
20	103°22.8	13.9'	14°46.9	11.5'	55.0'	91°23.3	86°52.5	65°44.4	60°36.2	56°53.3	45°10.8	27°23.2	
21	117°55.6	13.8'	14°58.4	11.4'	55.0'	90°53.7	86°21.9	65°15.5	60°12.8	56°25.1	44°40.8	26° 54.7	
22	132°28.5	13.7'	$15^{\circ}09.8$	11.4'	55.0'	90°24.1	85°51.3	64°46.7	59°49.4	55°57.0	44°10.8	26°26.3	
23	147°01.2	13.7'	15°21.2	11.3'	55.1'	89°54.5	85°20.6	64°17.8	59°26.1	55°28.8	43°40.8	25°57.8	
27 th	SD	= 14.9'	Mer. pass	. 12:54									

h Moon (28th Mar)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Venus	+Saturn
0	161°33.9	13.6'	N 15°32.5	11.3'	55.1'		89°24.9	84°49.9	63°48.9	55°00.7	43°10.8	25°29.3	
1	176°06.5	13.5'	15°43.8	11.2'	55.1'		88°55.2	84°19.2	63°20.0	54°32.6	42°40.8	25°00.8	
2	190°39.0	13.5'	15°55.0	11.1'	55.1'		88°25.6	83°48.5	62°51.2	54°04.5	42° 10.8	24°32.2	
3	205°11.5	13.4'	$16^{\circ}06.1$	11.1'	55.1'		87°55.9	83° 17.7	62°22.3	53°36.4	41°40.8	24°03.7	
4	219°43.8	13.3'	$16^{\circ}17.2$	11.0'	55.1'	119°44.7	87°26.2	82°47.0	61°53.4	53°08.3	41°10.8	23°35.1	
5	234°16.2	13.2'	16°28.2	10.9'	55.2'	119°13.8	86°56.5	82°16.2	61°24.6	52°40.3	40°40.8	23°06.5	
6	248°48.4	13.2'	N 16°39.2	10.9'	55.2'	118°42.9	86° 26.8	81°45.4	60°55.7	52°12.3	40°10.8	22°37.9	
7	263°20.6	13.1'	16°50.0	10.8'	55.2'	118°11.9	85°57.0	81°14.6	60°26.8	51°44.3	39°40.8	22°09.3	
8	277°52.6	13.0'	17°00.8	10.7'	55.2'	117°41.0	85°27.3	80°43.8	59°58.0	51°16.3	39° 10.8	21°40.7	
9	292°24.7	12.9'	$17^{\circ}11.6$	10.7'	55.2'	117°10.0	84°57.5	80°12.9	59°29.1	50°48.4	38°40.8	21°12.0	
10	306°56.6	12.9'	$17^{\circ}22.2$	10.6'	55.2'	116°39.0	84°27.7	79°42.1	59°00.3	50°20.5	38° 10.8	20°43.4	
11	321°28.4	12.8'	17°32.8	10.5'	55.3'	116°08.0	83°57.9	79°11.2	58°31.5	49°52.6	37°40.8	20°14.7	
12	336°00.2	12.7'	N17°43.4	10.4'	55.3'	115°37.0	83°28.1	78°40.3	58°02.6	49°24.7	37°10.9	19°46.0	
13	350°31.9	12.6'	17°53.8	10.4'	55.3'	115°06.0	82°58.3	78°09.4	57°33.8	48°56.9	36°40.9	19° 17.2	10°02.0
14	5°03.6	12.5'	18°04.2	10.3'	55.3'	114°34.9	82°28.4	77°38.5	57°05.0	48°29.1	36°11.0	18°48.5	10°23.6
15	19°35.1	12.5'	18°14.5	10.2'	55.3'	114°03.8	81°58.5	77°07.5	56°36.2	48°01.4	35°41.0	18° 19.7	10°45.9
16	34°06.6	12.4'	18°24.7	10.1'	55.4'	113°32.7	81°28.7	76°36.6	56°07.4	47°33.7	35°11.1	17°51.0	11°08.9
17	48°37.9	12.3'	18°34.8	10.1'	55.4'	113°01.6	80°58.8	76°05.6	55°38.6	47°06.0	34°41.2	17°22.2	11°32.5
18	63°09.2	12.2'	N 18°44.9	10.0'	55.4'	112°30.5	80°28.9	75°34.6	55°09.8	46°38.3	34°11.3	16°53.3	11°56.6
19	77°40.5	12.1'	18°54.9	9.9'	55.4'	111°59.3	79°58.9	75°03.6	54°41.1	46°10.7	33°41.4	16°24.5	12°21.3
20	92°11.6	12.1'	19°04.8	9.8'	55.4'	111°28.1	79°29.0	74°32.5	54°12.3	45°43.2	33°11.6	15°55.7	12°46.4
21	106°42.7	12.0'	$19^{\circ}14.6$	9.7'	55.5'	110°56.9	78°59.0	74°01.5	53°43.6	45°15.7	32°41.7	15°26.8	13°12.0
22	121°13.7	11.9'	19°24.4	9.6'	55.5'	110°25.7	78°29.1	73°30.4	53°14.9	44°48.2	32°11.9	14°57.9	13°37.9
23	135°44.5	11.8'	19°34.0	9.6'	55.5'	109°54.5	77°59.1	72°59.3	52°46.2	44°20.8	31°42.1	14°29.0	14°04.2
28 th	SD	= 15.0'	Mer. pass	. 13:39									

h Moon (29th Mar)

Lunar Distance (objects with largest hourly LD delta)

			(==						· J	a. goot .			
Wed	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	-Aldebaran	-Venus	+Saturn	+Sun
0	150°15.4	11.7'	N 19°43.6	9.5'	55.5'		109°23.2	77°29.1	72°28.2	31°12.3	14°00.1	14°30.8	
1	164°46.1	11.6'	19°53.0	9.4'	55.5'		108°51.9	76°59.1	71°57.1	30°42.6	13°31.2	14°57.7	i i
2	179°16.7	11.6'	20°02.4	9.3'	55.5'		108°20.7	76°29.1	71°25.9	30°12.9	13°02.2	15°24.9	
3	193°47.3	11.5'	$20^{\circ}11.7$	9.2'	55.6'		107°49.3	75°59.0	70°54.8	29°43.2	12°33.3	15°52.3	
4	208°17.8	11.4'	20°20.9	9.1'	55.6'		107°18.0	75°29.0	70°23.6	29°13.5	12°04.3	16° 19.9	i i
5	222°48.2	11.3'	20°30.1	9.0'	55.6'		106°46.7	74°58.9	69°52.4	28°43.9	11°35.3	16°47.8	
6	237°18.5	11.2'	N20°39.1	8.9'	55.6'		106° 15.3	74°28.9	69°21.2	28°14.3	11°06.3	17° 15.8	
7	251°48.7	11.1'	20°48.0	8.8'	55.6'		105°43.9	73°58.8	68°49.9	27°44.8	10°37.3	17°44.0	İ
8	266°18.9	11.1'	20°56.8	8.7'	55.7'		105° 12.5	73°28.7	68° 18.7	27°15.3	10°08.3	18° 12.5	
9	280°48.9	11.0'	21°05.6	8.6'	55.7'		104°41.0	72°58.6	67°47.4	26°45.9	9°39.2	18°41.0	
10	295°18.9	10.9'	21°14.2	8.5'	55.7'		104°09.6	72°28.5	$67^{\circ}16.1$	26°16.5	9°10.2	19°09.7	
11	309°48.8	10.8'	21°22.8	8.4'	55.7'		103°38.1	71°58.3	66°44.8	25°47.2	8°41.1	19°38.6	
12	324°18.6	10.7'	N21°31.2	8.3'	55.7'		103°06.6	71°28.2	66° 13.5	25°17.9	8°12.1	20°07.6	
13	338°48.3	10.6'	21°39.5	8.2'	55.8'		102°35.1	70°58.0	65°42.1	24°48.7	7°43.0	20°36.7	
14	353°18.0	10.6'	21°47.8	8.1'	55.8'		102°03.5	70°27.9	65° 10.8	24°19.6	7°14.0	21°05.9	
15	7°47.5	10.5'	21°55.9	8.0'	55.8'		101°32.0	69°57.7	64°39.4	23°50.5	6°44.9	21°35.2	
16	22°17.0	10.4'	22°03.9	7.9'	55.8'		101°00.4	69°27.5	64°08.0	23°21.6	6°15.9	22°04.7	
17	36°46.4	10.3'	22°11.9	7.8'	55.9'		100°28.8	68°57.3	63°36.5	22°52.7	5°46.9	22°34.2	40°22.6
18	51°15.7	10.2'	$N22^{\circ}19.7$	7.7'	55.9'	119°57.8	99°57.2	68°27.1	63°05.1	22°24.0	5°18.0	23°03.9	40°51.5
19	65°44.9	10.1'	22°27.4	7.6'	55.9'	119°26.0	99°25.5	67°56.9	62°33.6	21°55.3	4°49.1	23°33.6	41°20.5
20	80°14.0	10.0'	22°35.0	7.5'	55.9'	118°54.2	98°53.8	67° 26.6	62°02.2	21°26.8	4°20.3	24°03.4	41°49.5
21	94°43.1	10.0'	22°42.5	7.4'	55.9'	118°22.4	98° 22.2	66°56.4	61°30.7	20°58.3	3°51.6	24°33.3	42°18.6
22	109°12.0	9.9'	22°49.9	7.3'	56.0'	117°50.5	97°50.4	66°26.1	$60^{\circ}59.1$	20°30.1	3°23.1	25°03.3	42°47.6
23	123°40.9	9.8'	22°57.1	7.2'	56.0'	117°18.6	97° 18.7	65°55.9	60°27.6	20°01.9	2°55.0	25°33.3	43°16.7
29 th	SD	= 15.1'	Mer. pass.	14:28					Sun SD	$=16.0^{\prime}$			

h Moon (30th Mar)

Thu	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	-Aldebaran	± Venus	+Saturn	+Sun
0	138°09.7	9.7'	N 23°04.3	7.0'	56.0'	116°46.7	96°47.0	65°25.6	59°56.0	19°33.9	2°27.3	26°03.5	43°45.8
1	152°38.4	9.6'	23°11.3	6.9'	56.0'	116°14.8	96°15.2	64°55.3	59°24.5	19°06.1	2°00.4	26°33.7	44°15.0
2	167°07.1	9.6'	23°18.3	6.8'	56.0'	115°42.8	95°43.4	64°25.1	58°52.9	18°38.5		27°03.9	44°44.2
3	181°35.6	9.5'	23°25.1	6.7'	56.1'	115°10.8	95°11.5	63°54.8	58°21.2	$18^{\circ}11.1$		27°34.3	45°13.4
4	196°04.1	9.4'	23°31.8	6.6'	56.1'	114°38.8	94°39.7	63°24.5	57°49.6	17°43.9		28°04.7	45°42.6
5	210°32.5	9.3'	23°38.3	6.5'	56.1'	114°06.8	94°07.8	62°54.2	57°18.0	17°17.0		28°35.1	46°11.8
6	225°00.8	9.2'	N23°44.8	6.3'	56.1'	113°34.7	93°35.9	62°23.8	56°46.3	16°50.3		29°05.6	46°41.1
7	239°29.0	9.1'	23°51.1	6.2'	56.2'	113°02.7	93°04.0	61°53.5	56°14.6	16°23.9		29°36.2	47°10.4
8	253°57.2	9.1'	23°57.3	6.1'	56.2'	112°30.6	92°32.1	61°23.2	55°42.9	15°57.8		30°06.8	47°39.7
9	268°25.2	9.0'	24°03.4	6.0'	56.2'	111°58.4	92°00.1	60°52.9	55°11.1	15°32.0		30°37.5	48°09.1
10	282°53.2	8.9'	24°09.4	5.8'	56.2'	111°26.3	91°28.1	60°22.5	54°39.4	15°06.6		31°08.2	48°38.4
11	297°21.1	8.8'	24°15.2	5.7'	56.2'	110°54.1	90°56.1	59°52.2	54°07.6	14°41.6	3°17.5	31°39.0	49°07.8
12	311°48.9	8.8'	N 24°20.9	5.6'	56.3'	110°21.9	90°24.1	59°21.9	53°35.8	$14^{\circ}17.1$	3°46.3	32°09.9	49°37.3
13	326°16.7	8.7'	24°26.5	5.5'	56.3'	109°49.7	89°52.1	58°51.5	53°04.0	13°53.0	4°15.3	32°40.8	50°06.7
14	340°44.4	8.6'	24°31.9	5.3'	56.3'	109°17.4	89°20.0	58°21.2	52°32.2	13°29.5	4°44.5	33°11.7	50°36.2
15	355°12.0	8.5'	24°37.3	5.2'	56.3'	108°45.2	88°47.9	57° 50.8	52°00.3	13°06.5	5°13.8	33°42.7	51°05.7
16	9°39.5	8.5'	24°42.5	5.1'	56.4'	108°12.9	88°15.7	57°20.4	51°28.5	12°44.2	5°43.3	34°13.7	51°35.2
17	24°07.0	8.4'	24°47.5	4.9'	56.4'	107°40.5	87°43.6	56°50.1	50°56.6	12°22.5	6°12.8	34°44.8	52°04.8
18	38°34.3	8.3'	N 24°52.4	4.8'	56.4'	107°08.2	87°11.4	56° 19.7	50°24.7	12°01.7	6°42.5	35°15.9	52°34.4
19	53°01.6	8.2'	24°57.2	4.7'	56.4'	106°35.8	86°39.2	55°49.4	49°52.7	11°41.6	7°12.1	35°47.1	53°04.0
20	67°28.9	8.2'	$25^{\circ}01.9$	4.5'	56.5'	106°03.4	86°07.0	55° 19.0	49°20.8	11°22.5	7°41.9	36°18.3	53°33.6
21	81°56.0	8.1'	25°06.4	4.4'	56.5'	105°31.0	85°34.7	54° 48.6	48°48.8		8°11.7	36°49.5	54°03.3
22	96°23.1	8.0'	$25^{\circ}10.8$	4.3'	56.5'	104°58.5	85°02.5	54° 18.3	48°16.8		8°41.6	37°20.8	54°33.0
23	110°50.1	8.0'	25°15.1	4.1'	56.5'	104°26.1	84°30.2	53°47.9	47°44.8		9°11.5	37°52.1	55°02.7
30 th	SD =	= 15.3'	Mer. pass	. 15:20)				Sun SD	= 16.0'			

h		Moor	ı (31 st Ma	ar)	
Fri	GHA	ν	Dec	d	HP
Λ	1250171	7.0'	M25°10.2	4 0'	E6 6

Lunar Distance (objects with largest hourly LD delta)

P -Jupiter -Regulus -Procyon -Pollux -Betelgeuse +Venus +Saturn +Sun

Fri	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	-Betelgeuse	+Venus	+Saturn	+Sun
0	125°17.1	7.9'	N 25°19.2	4.0'	56.6'	103°53.6	83°57.8	53°17.6	47° 12.8	30°15.5	9°41.4	38°23.5	55°32.4
1	139°44.0	7.8'	25°23.2	3.8'	56.6'	103°21.0	83°25.5	52°47.2	46°40.8	29°50.4	10°11.4	38°54.9	56°02.2
2	154° 10.8	7.8'	25°27.0	3.7'	56.6'	102°48.5	82°53.1	52°16.9	46°08.7	29°25.6	10°41.4	39°26.4	56°32.0
3	168°37.6	7.7'	25°30.7	3.6'	56.6'	102°15.9	82°20.7	51°46.5	45°36.6	29°00.9	11°11.5	39°57.9	57°01.8
4	183°04.3	7.6'	25°34.2	3.4'	56.7'	101°43.3	81°48.3	51°16.2	45°04.5	28°36.5	11°41.6	40°29.4	57°31.7
5	197°30.9	7.6'	25°37.6	3.3'	56.7'	101°10.7	81°15.9	50°45.9	44°32.4	28°12.3	12° 11.7	41°01.0	58°01.5
6	211°57.4	7.5'	N 25°40.9	3.1'	56.7'	100°38.0	80°43.4	50°15.6	44°00.3	27°48.3	12°41.9	41°32.6	58°31.4
7	226°24.0	7.4'	25°44.0	3.0'	56.7'	100°05.3	80°10.9	49°45.3	43°28.1	27°24.6	13°12.1	42°04.3	59°01.4
8	240°50.4	7.4'	25°47.0	2.8'	56.8'	99°32.6	79°38.3	49°15.0	42°55.9	27°01.1	13°42.3	42°35.9	59°31.3
9	255°16.8	7.3'	25°49.8	2.7'	56.8'	98°59.9	79°05.8	48°44.7	42°23.7	26°38.0	14° 12.6	43°07.7	60°01.3
10	269°43.1	7.3'	25°52.5	2.5'	56.8'	98°27.1	78°33.2	48°14.4	41°51.5	26°15.1	14°42.9	43°39.4	60°31.3
11	284°09.4	7.2'	$25^{\circ}55.1$	2.4'	56.8'	97°54.3	78°00.6	47°44.2	41°19.3	25°52.5	15° 13.2	44°11.2	61°01.4
12	298°35.6	7.2'	N25°57.4	2.2'	56.9'	97°21.5	77°28.0	47°13.9	40°47.1	25°30.2	15°43.6	44°43.1	61°31.5
13	313°01.8	7.1'	25°59.7	2.1'	56.9'	96°48.6	76°55.3	46°43.7	40°14.8	25°08.3	16°14.0	45°14.9	62°01.6
14	327°27.9	7.1'	$26^{\circ}01.8$	1.9'	56.9'	96° 15.8	76°22.6	46°13.5	39°42.5	24°46.7	16°44.4	45°46.8	62°31.7
15	341°53.9	7.0'	26°03.7	1.8'	56.9'	95°42.9	75°49.9	45°43.3	39° 10.2	24°25.5	17° 14.9	46°18.8	63°01.8
16	356°19.9	7.0'	26°05.5	1.6'	57.0'	95°09.9	75°17.2	45°13.1	38°37.9	24°04.7	17°45.4	46°50.8	63°32.0
17	10°45.9	6.9'	$26^{\circ}07.1$	1.5'	57.0'	94°37.0	74°44.4	44°43.0	38°05.6	23°44.3	18° 15.9	47°22.8	64°02.2
18	25°11.8	6.9'	N 26°08.6	1.3'	57.0'	94°04.0	74°11.6	44°12.9	37°33.3	23°24.3	18°46.4	47°54.8	64°32.5
19	39°37.7	6.8'	26°09.9	1.2'	57.0'	93°31.0	73°38.8	43°42.8	37°00.9	23°04.7	19° 17.0	48°26.9	65°02.8
20	54°03.5	6.8'	$26^{\circ}11.1$	1.0'	57.1'	92°57.9	73°05.9	43°12.7	36°28.5	22°45.7	19°47.6	48°59.0	65°33.1
21	68°29.3	6.7'	$26^{\circ}12.1$	0.9'	57.1'	92°24.9	72°33.0	42°42.7	35°56.2	22°27.1	20° 18.3	49°31.2	66°03.4
22	82°55.0	6.7'	26°13.0	0.7'	57.1'	91°51.8	72°00.1	42°12.7	35°23.8	22°09.0	20°48.9	50°03.4	66°33.7
23	97°20.7	6.7'	26°13.7	0.6'	57.1'	91°18.7	71°27.2	41°42.7	34°51.4	21°51.5	21°19.6	50°35.6	67°04.1
31 st	SD =	= 15.4'	Mer. pass	. 16:15	5				Sun SD	0 = 16.0'			

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

		IVIOO	$m (\tau \Delta \rho)$	')			Luliai D	istance (objects v	vitii laigest	HOUTTY L	D delta)	
Sat	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Venus	+Saturn	+Sun
0	111°46.4	6.6'	N 26°14.3	0.4'	57.2'		90°45.5	70°54.2	34°18.9	12°37.2	21°50.4	51°07.9	67°34.5
1	126°12.0	6.6'	$26^{\circ}14.7$	0.2'	57.2'		90°12.3	70°21.2	33°46.5	12°59.9	22°21.2	51°40.2	68°05.0
2	140°37.6	6.6'	26°14.9	0.1'	57.2'		89°39.1	69°48.2	33°14.1	13°23.3	22°52.0	52°12.5	68°35.5
3	155°03.2	6.5'	$26^{\circ}15.0$	-0.1'	57.2'		89°05.9	69°15.2	32°41.6	13° 47.4	23°22.8	52°44.9	69°06.0
4	169°28.7	6.5'	$26^{\circ}15.0$	-0.2'	57.3'		88°32.6	68°42.1	32°09.2	14°12.1	23°53.6	53°17.3	69°36.5
5	183°54.2	6.5'	26°14.7	-0.4'	57.3'		87°59.3	68°09.0	31°36.7	14°37.4	24°24.5	53°49.7	70°07.1
6	198°19.6	6.4'	$N26^{\circ}14.3$	-0.5'	57.3'		87°26.0	67°35.8	31°04.2	15°03.2	24°55.5	54°22.2	70°37.7
7	212°45.1	6.4'	26°13.8	-0.7'	57.4'		86°52.6	67°02.7	30°31.7	15° 29.5	25°26.4	54°54.7	71°08.3
8	227°10.5	6.4'	$26^{\circ}13.1$	-0.9'	57.4'		86°19.3	66°29.5	29°59.2	15°56.3	25°57.4	55°27.3	71°39.0
9	241°35.8	6.4'	$26^{\circ}12.2$	-1.0'	57.4'		85°45.8	65°56.3	29°26.8	16°23.4	26°28.4	55°59.8	72°09.6
10	256°01.2	6.3'	26°11.2	-1.2'	57.4'	119°26.8	85°12.4	65°23.0	28°54.3	16°50.9	26°59.5	56°32.4	72°40.4
11	270°26.5	6.3'	26°10.0	-1.3'	57.5'	118°53.5	84°38.9	64°49.7	28°21.8	17° 18.8	27°30.6	57°05.1	73°11.1
12	284°51.9	6.3'	N 26°08.7	-1.5'	57.5'	118°20.2	84°05.4	64°16.4	27°49.3	17°47.0	28°01.7	57°37.8	73°41.9
13	299°17.2	6.3'	26°07.2	-1.7'	57.5'	117°46.9	83°31.9	63°43.1	27°16.8	18° 15.6	28°32.8	58°10.5	74°12.7
14	313°42.4	6.3'	26°05.5	-1.8'	57.5'	117°13.5	82°58.3	63°09.7	26°44.3	18°44.4	29°04.0	58°43.2	74°43.5
15	328°07.7	6.3'	26°03.7	-2.0'	57.6'	116°40.1	82°24.7	62°36.3	26°11.8	19° 13.4	29°35.2	59°16.0	75°14.4
16	342°32.9	6.2'	26°01.7	-2.1'	57.6'	116°06.7	81°51.1	62°02.9	25°39.4	19°42.8	30°06.4	59°48.8	75°45.3
17	356°58.2	6.2'	25°59.6	-2.3'	57.6'	115°33.2	81°17.5	61°29.4	25°06.9	20°12.3	30°37.7	60°21.7	76°16.2
18	11°23.4	6.2'	$N25^{\circ}57.3$	-2.5'	57.7'	114°59.7	80°43.8	60°55.9	24°34.5	20°42.1	31°09.0	60°54.6	76°47.2
19	25°48.6	6.2'	25°54.8	-2.6'	57.7'	114°26.2	80°10.1	60°22.4	24°02.1	21°12.1	31°40.4	61°27.5	77°18.2
20	40°13.8	6.2'	25°52.2	-2.8'	57.7'	113°52.6	79°36.3	59°48.8	23°29.7	21°42.3	32°11.7	62°00.5	77°49.2
21	54°39.0	6.2'	25°49.4	-3.0'	57.7'	113°19.0	79°02.6	59°15.2	22°57.3	22°12.6	32°43.2	62°33.4	78°20.3
22	69°04.2	6.2'	25°46.4	-3.1'	57.8'	112°45.4	78°28.8	58°41.6	22°25.0	22°43.2	33°14.6	63°06.5	78°51.4
23	83°29.4	6.2'	25°43.3	-3.3'	57.8'	112°11.7	77°54.9	58°08.0	21°52.6	23° 13.9	33°46.1	63°39.5	79°22.5
1 st	SD	= 15.6'	Mer. pas	s. 17:13	3				Sun SI	D = 16.0'			

h	Moon (2 nd Apr)	Lunar Distance (objects with largest hourly LD delta)
n	IVIOON (2" Apr)	Lunar Distance Conjects with largest hourly LD deltal

Sun	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Venus	+Saturn	+Sun
0	97°54.6	6.2'	N 25°40.0	-3.4'	57.8'	111°38.0	77°21.1	57°34.3	21°20.4	23°44.8	34°17.6	64°12.6	79°53.7
1	112°19.8	6.2'	25°36.6	-3.6'	57.8'	111°04.3	76°47.2	57°00.6	20°48.1	24°15.8	34°49.1	64°45.8	80°24.8
2	126°45.0	6.2'	25°33.0	-3.8'	57.9'	110°30.6	76°13.2	56°26.9	20°16.0	24°46.9	35°20.7	65°18.9	80°56.1
3	141°10.2	6.2'	25°29.3	-3.9'	57.9'	109°56.8	75°39.3	55°53.1	19°43.8	25°18.2	35°52.3	65°52.1	81°27.3
4	155°35.4	6.2'	25°25.3	-4.1'	57.9'	109°22.9	75°05.3	55°19.3	19°11.8	25°49.7	36°23.9	66°25.4	81°58.6
5	170°00.6	6.2'	25°21.3	-4.2'	58.0'	108°49.1	74°31.3	54°45.5	18°39.8	26°21.2	36°55.6	66°58.6	82°29.9
6	184°25.8	6.2'	N25°17.0	-4.4'	58.0'	108°15.2	73°57.2	54°11.6	18°07.9	26°52.9	37°27.3	67°31.9	83°01.3
7	198°51.1	6.2'	25°12.6	-4.6'	58.0'	107°41.3	73°23.1	53°37.7	17°36.1	27°24.7	37°59.1	68°05.3	83°32.6
8	213°16.3	6.2'	25°08.1	-4.7'	58.0'	107°07.3	72°49.0	53°03.8	17°04.4	27°56.6	38°30.8	68°38.6	84°04.1
9	227°41.5	6.3'	25°03.4	-4.9'	58.1'	106°33.4	72°14.9	52°29.8	16°32.8	28°28.6	39°02.6	69°12.0	84°35.5
10	242°06.8	6.3'	24°58.5	-5.0'	58.1'	105°59.3	71°40.7	51°55.8	16°01.3	29°00.7	39°34.5	69°45.5	85°07.0
11	256°32.1	6.3'	24°53.4	-5.2'	58.1'	105°25.3	71°06.5	51°21.8	15°30.0	29°32.9	40°06.4	70°19.0	85°38.5
12	270°57.4	6.3'	N24°48.3	-5.4'	58.2'	104°51.2	70°32.3	50°47.8	14°58.9	30°05.1	40°38.3	70°52.5	86°10.0
13	285°22.7	6.3'	24°42.9	-5.5'	58.2'	104°17.1	69°58.0	50°13.7	14°27.9	30°37.5	41°10.2	71°26.0	86°41.6
14	299°48.0	6.3'	24°37.4	-5.7'	58.2'	103°42.9	69°23.7	49°39.6	13°57.2	31°10.0	41°42.2	71°59.6	87° 13.2
15	314°13.3	6.4'	24°31.7	-5.8'	58.2'	103°08.8	68°49.4	49°05.4	13° 26.7	31°42.6	42°14.2	72°33.2	87°44.9
16	328°38.7	6.4'	24°25.9	-6.0'	58.3'	102°34.5	68°15.0	48°31.2	12°56.5	32°15.2	42°46.3	73°06.9	88° 16.6
17	343°04.1	6.4'	$24^{\circ}19.9$	-6.1'	58.3'	102°00.3	67°40.6	47°57.0	12°26.6	32°47.9	43°18.3	73°40.6	88°48.3
18	357°29.5	6.4'	N24°13.8	-6.3'	58.3'	101°26.0	67°06.2	47°22.8	11°57.0	33°20.7	43°50.5	74°14.3	89°20.0
19	11°54.9	6.5'	24°07.5	-6.4'	58.4'	100°51.7	66°31.7	46°48.5	11°27.9	33°53.6	44°22.6	74°48.0	89°51.8
20	26°20.4	6.5'	24°01.1	-6.6'	58.4'	100°17.3	65°57.2	46°14.2	10°59.2	34°26.6	44°54.8	75°21.8	90°23.6
21	40°45.8	6.5'	23°54.5	-6.8'	58.4'	99°43.0	65°22.7	45°39.9	10°31.1	34°59.6	45°27.0	75°55.6	90°55.4
22	55°11.4	6.5'	23°47.7	-6.9'	58.4'	99°08.5	64°48.1	45°05.5	10°03.6	35°32.7	45°59.3	76°29.5	91°27.3
23	69°36.9	6.6'	23°40.8	-7.1'	58.5'	98°34.1	64°13.6	44°31.1	9°36.8	36°05.9	46°31.6	77°03.4	91°59.2
2 nd	SD :	= 15.8'	Mer. pass	s. 18:10					Sun SI	D = 16.0'			

h Moon (3rd Apr)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Jupiter	-Regulus	+Aldebaran	+Venus	+Saturn	+Sun	
0	84°02.5	6.6'	N23°33.7	-7.2'	58.5'	97°59.6	96°35.6	63°38.9	43°56.7	36°39.1	47°03.9	77°37.3	92°31.2	
1	98°28.1	6.6'	23°26.5	-7.4'	58.5'	97°25.1	96°07.6	63°04.3	43°22.2	37°12.4	47°36.3	78°11.3	93°03.2	
2	112°53.7	6.7'	23°19.2	-7.5'	58.6'	96°50.5	95°39.6	62°29.6	42°47.7	37°45.8	48°08.7	78°45.3	93°35.2	
3	$127^{\circ}19.4$	6.7'	23°11.6	-7.7'	58.6'	96°15.9	95°11.6	61°54.9	42°13.2	38°19.2	48°41.1	79°19.3	94°07.2	
4	141°45.0	6.7'	23°04.0	-7.8'	58.6'	95°41.3	94°43.5	61°20.2	41°38.6	38°52.7	49°13.6	79°53.4	94°39.3	
5	156°10.8	6.8'	22°56.2	-8.0'	58.6'	95°06.7	94°15.4	60°45.4	41°04.0	39°26.3	49°46.1	80°27.5	95°11.4	
6	170°36.5	6.8'	N 22°48.2	-8.1'	58.7'	94°32.0	93°47.2	60°10.6	40°29.4	39°59.9	50° 18.6	81°01.6	95°43.6	
7	185°02.3	6.8'	22°40.1	-8.3'	58.7'	93°57.2	93°19.0	59°35.7	39°54.8	40°33.6	50°51.2	81°35.8	96°15.7	
8	199°28.2	6.9'	22°31.8	-8.4'	58.7'	93°22.5	92°50.8	59°00.9	39°20.1	41°07.3	51°23.8	82°10.0	96°47.9	
9	213°54.1	6.9'	22°23.4	-8.5'	58.8'	92°47.7	92°22.6	58°26.0	38°45.4	41°41.1	51°56.5	82°44.2	97°20.2	
10	228°20.0	7.0'	22°14.9	-8.7'	58.8'	92°12.9	91°54.3	57°51.0	38°10.6	42°14.9	52°29.1	83°18.5	97°52.5	
11	242°45.9	7.0'	22°06.2	-8.8'	58.8'	91°38.0	91°25.9	57°16.1	37°35.8	42°48.8	53°01.9	83°52.8	98°24.8	
12	$257^{\circ}11.9$	7.0'	N21°57.4	-9.0'	58.8'	91°03.1	90°57.6	56°41.1	37°01.0	43°22.8	53°34.6	84°27.2	98°57.1	
13	271°38.0	7.1'	21°48.4	-9.1'	58.9'	90°28.2	90°29.2	56°06.1	36°26.2	43°56.8	54°07.4	85°01.6	99°29.5	
14	286°04.0	7.1'	21°39.3	-9.3'	58.9'	89°53.2	90°00.8	55°31.0	35°51.3	44°30.9	54°40.2	85°36.0	100°01.9	
15	300°30.2	7.2'	21°30.0	-9.4'	58.9'	89°18.2	89°32.4	54°55.9	35°16.4	45°05.0	55°13.1	86°10.4	100°34.4	
16	314°56.3	7.2'	21°20.6	-9.5'	59.0'	88°43.2	89°03.9	54°20.8	34°41.5	45°39.1	55°46.0	86°44.9	101°06.9	
17	329°22.5	7.2'	$21^{\circ}11.1$	-9.7'	59.0'	88°08.1	88°35.4	53°45.7	34°06.6	46°13.4	56° 18.9	87°19.4	101°39.4	
18	343°48.8	7.3'	N21°01.4	-9.8'	59.0'	87°33.0	88°06.9	53°10.5	33°31.6	46°47.6	56°51.9	87°54.0	102°11.9	
19	$358^{\circ}15.1$	7.3'	20°51.6	-9.9'	59.0'	86°57.9	87°38.3	52°35.3	32°56.6	47°21.9	57° 24.9	88°28.5	102°44.5	
20	12°41.4	7.4'	20°41.6	-10.1'	59.1'	86°22.7	87°09.8	52°00.1	32°21.5	47°56.3	57° 57.9	89°03.2	103°17.1	
21	27°07.8	7.4'	20°31.6	-10.2'	59.1'	85°47.5	86°41.2	51°24.8	31°46.5	48°30.7	58°31.0	89°37.8	103°49.8	
22	41°34.2	7.5'	20°21.3	-10.4'	59.1'	85°12.3	86°12.6	50°49.5	31°11.4	49°05.2	59°04.1	90°12.5	104°22.4	
23	56°00.7	7.5'	20°11.0	-10.5'	59.1'	84°37.0 85°44.0 50°14.2 30°36.3 49°39.7 59°37.2 90°47.2 104°55.2								
3 rd	SD	= 16.0)' Mer. pas	s. 19:07		Sun SD = 16.0'								

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

h		Mod	on (4''' Ap	or)			Lunar D	istance (objects v	vith large	est hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Aldebaran	+Venus	+Saturn
0	70°27.2	7.6'	N 20°00.5	-10.6'	59.2'		84°01.7	49°38.8	30°01.1		50°14.3	60°10.4	91°22.0
1	84°53.8	7.6'	19°49.9	-10.7'	59.2'		83°26.4	49°03.5	29°25.9		50°48.9	60°43.6	91°56.7
2	99°20.4	7.7'	19°39.1	-10.9'	59.2'		82°51.0	48°28.1	28°50.7	10°22.7	51°23.5	61°16.8	92°31.6
3	113°47.0	7.7'	19°28.3	-11.0'	59.2'		82°15.6	47°52.6	28°15.5	10°51.5	51°58.2	61°50.1	93°06.4
4	128°13.7	7.8'	19°17.3	-11.1'	59.3'		81°40.2	47°17.2	27°40.3	11°20.9	52°33.0	62°23.4	93°41.3
5	142°40.5	7.8'	19°06.2	-11.2'	59.3'		81°04.7	46°41.7	27°05.0	11°50.9	53°07.7	62°56.8	94°16.2
6	157°07.3	7.8'	N 18°54.9	-11.4'	59.3'		80°29.2	46°06.2	26°29.7	12°21.4	53°42.6	63°30.1	94°51.1
7	171°34.1	7.9'	18°43.5	-11.5'	59.4'		79°53.7	45°30.6	25°54.4	12°52.4	54°17.4	64°03.6	95°26.1
8	186°01.0	7.9'	18°32.0	-11.6'	59.4'		79°18.2	44°55.0	25°19.0	13°23.7	54°52.3	64°37.0	96°01.1
9	200°28.0	8.0'	18°20.4	-11.7'	59.4'		78°42.6	44°19.5	24°43.7	13°55.5	55°27.3	65°10.5	96°36.2
10	214°55.0	8.0'	18°08.7	-11.9'	59.4'		78°06.9	43°43.8	24°08.3	14°27.5	56°02.3	65°44.0	97°11.2
11	229°22.0	8.1'	17°56.8	-12.0'	59.5'		77°31.3	43°08.2	23°32.9	14°59.9	56°37.3	66°17.6	97°46.4
12	243°49.1	8.1'	N17°44.9	-12.1'	59.5'		76°55.6	42°32.5	22°57.5	15° 32.5	57°12.4	66°51.1	98°21.5
13	258°16.2	8.2'	17°32.8	-12.2'	59.5'		76°19.8	41°56.8	22°22.1	16°05.4	57°47.5	67°24.8	98°56.7
14	272°43.4	8.2'	17°20.6	-12.3'	59.5'		75°44.1	41°21.1	21°46.6	16°38.5	58°22.7	67°58.4	99°31.9
15	287°10.6	8.3'	17°08.3	-12.4'	59.6'		75°08.3	40°45.4	21°11.2	17° 11.8	58°57.9	68°32.1	100°07.1
16	301°37.9	8.3'	$16^{\circ}55.8$	-12.5'	59.6'		74°32.5	40°09.6	20°35.7	17°45.3	59°33.1	69°05.8	100°42.4
17	316°05.2	8.4'	16°43.3	-12.7'	59.6'	119°41.2	73°56.6	39°33.8	20°00.2	18° 18.9	60°08.4	69°39.6	101°17.6
18	330°32.5	8.4'	N16°30.6	-12.8'	59.6'	119°05.3	73°20.7	38°58.0	19°24.7	18° 52.8	60°43.7	70°13.4	101°53.0
19	345°00.0	8.5'	$16^{\circ}17.9$	-12.9'	59.7'	118°29.3	72°44.8	38°22.2	18°49.3	19°26.7	61°19.1	70°47.2	102°28.3
20	359°27.4	8.5'	$16^{\circ}05.0$	-13.0'	59.7'	117°53.3	72°08.9	37°46.4	18°13.8	20°00.9	61°54.5	71°21.0	103°03.7
21	13°54.9	8.5'	15°52.0	-13.1'	59.7'	117°17.3	71°32.9	37°10.5	17°38.3	20°35.1	62°29.9	71°54.9	103°39.1
22	28°22.5	8.6'	15°39.0	-13.2'	59.7'	116°41.2	70°56.9	36°34.6	17°02.8	21°09.5	63°05.3	72°28.8	104°14.5
23	42°50.0	8.6'	15°25.8	-13.3'	59.8'	116°05.1	70°20.9	35°58.7	16°27.4	21°44.0	63°40.8	73°02.8	104°50.0
4 th	SD	= 16.1	.' Mer. pas	s. 20:02									

h		Мо	on (5 th Ap	or)			Lunar D	istance	(objects v	vith large	est hourly L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Aldebaran	+Venus	+Saturn
0	57°17.7	8.7'	$N15^{\circ}12.5$	-13.4'	59.8'	115°29.0	69°44.8	35°22.8	15°51.9	22°18.6	64°16.4	73°36.7	105°25.5
1	71°45.4	8.7'	14°59.1	-13.5'	59.8'	114°52.9	69°08.7	34°46.9	15° 16.5	22°53.3	64°52.0	74°10.7	106°01.0
2	86°13.1	8.8'	14°45.6	-13.6'	59.8'	114°16.7	68°32.6	34°11.0	14°41.1	23°28.1	65°27.6	74°44.8	106°36.6
3	100°40.9	8.8'	14°32.1	-13.7'	59.8'	113°40.5	67°56.4	33°35.0	14°05.7	24°03.0	66°03.2	75°18.9	107° 12.2
4	115°08.7	8.9'	14° 18.4	-13.8'	59.9'	113°04.3	67°20.2	32°59.0	13°30.4	24°38.0	66°38.9	75°53.0	107°47.8
5	129°36.5	8.9'	14°04.6	-13.9'	59.9'	112°28.0	66°44.0	32°23.1	12°55.2	25°13.0	67°14.6	76°27.1	108°23.4
6	144°04.4	8.9'	N 13°50.8	-14.0'	59.9'	111°51.7	66°07.8	31°47.1	12°20.0	25°48.2	67°50.3	77°01.2	108°59.0
7	158°32.4	9.0'	13°36.8	-14.0'	59.9'	111°15.4	65°31.5	31°11.1	11°44.9	26°23.4	68°26.1	77°35.4	109°34.7
8	173°00.3	9.0'	13°22.8	-14.1'	60.0'	110°39.0	64°55.2	30°35.1	11°09.9	26°58.7	69°01.9	78°09.7	110°10.4
9	187°28.4	9.1'	13°08.6	-14.2'	60.0'	110°02.7	64° 18.9	29°59.1	10°35.0	27°34.1	69°37.8	78°43.9	110°46.2
10	201°56.4	9.1'	12°54.4	-14.3'	60.0'	109°26.2	63°42.6	29°23.1	10°00.2	28°09.5	70°13.6	79°18.2	111°21.9
11	216°24.5	9.1'	12°40.1	-14.4'	60.0'	108°49.8	63°06.2	28°47.1	9°25.7	28°45.0	70°49.5	79°52.5	111°57.7
12	230°52.7	9.2'	$N12^{\circ}25.7$	-14.5'	60.0'	108°13.4	62°29.8	28°11.0	8°51.4	29°20.5	71°25.5	80°26.8	112°33.5
13	245°20.8	9.2'	$12^{\circ}11.3$	-14.5'	60.1'	107°36.9	61°53.4	27°35.0	8°17.3	29°56.2	72°01.4	81°01.2	113°09.4
14	259°49.0	9.2'	$11^{\circ}56.7$	-14.6'	60.1'	107°00.4	61°16.9	26°59.0	7°43.6	30°31.8	72°37.4	81°35.6	113°45.2
15	274°17.3	9.3'	11°42.1	-14.7'	60.1'	106°23.8	60°40.4	26°23.0	7°10.3	31°07.6	73°13.4	82°10.0	114°21.1
16	288°45.6	9.3'	11°27.4	-14.8'	60.1'	105°47.2	60°03.9	25°47.1	6°37.6	31°43.3	73°49.5	82°44.5	114°57.0
17	303°13.9	9.4'	11°12.6	-14.9'	60.1'	105°10.7	59°27.4	25°11.1	6°05.6	32°19.2	74°25.6	83°18.9	115°32.9
18	317°42.3	9.4'	N 10°57.8	-14.9'	60.1'	104°34.0	58°50.8	24°35.1	5°34.5	32°55.1	75°01.7	83°53.4	116°08.9
19	332°10.6	9.4'	10°42.8	-15.0'	60.2'	103°57.4	58°14.3	23°59.2		33°31.0	75°37.8	84°28.0	116°44.8
20	346°39.1	9.5'	10°27.8	-15.1'	60.2'	103°20.7	57° 37.7	23°23.3		34°07.0	76°14.0	85°02.5	117°20.8
21	1°07.5	9.5'	10°12.8	-15.1'	60.2'	102°44.0	57°01.0	22°47.4		34°43.0	76°50.2	85°37.1	117°56.8
22	15°36.0	9.5'	09°57.6	-15.2'	60.2	102°07.3	56°24.4	22°11.5		35°19.0	77°26.4	86°11.7	118°32.8
23	30°04.5	9.5'	09°42.4	-15.3'	60.2'	101°30.6	55°47.7	21°35.7		35°55.2	78°02.6	86°46.3	119°08.9
5 th	SD	= 16.3	8' Mer. pas	s. 20:55									

Moon (6th Apr)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Pollux	+Aldebaran	+Venus
0	44°33.1	9.6'	N 09°27.1	-15.3'	60.3'	100°53.8	88°54.3	55°11.0	21°00.0		36°31.3	78°38.9	87°21.0
1	59°01.7	9.6'	$09^{\circ}11.8$	-15.4'	60.3'	100°17.1	88°25.4	54°34.3	20°24.2		37°07.5	79° 15.2	87°55.6
2	73°30.3	9.6'	08°56.4	-15.5'	60.3'	99°40.2	87° 56.5	53°57.6	19°48.6		37°43.7	79°51.5	88°30.3
3	87°58.9	9.7'	08°41.0	-15.5'	60.3'	99°03.4	87°27.6	53°20.8	19°13.0		38°20.0	80°27.8	89°05.1
4	102°27.6	9.7'	08°25.4	-15.6'	60.3'	98°26.6	86°58.6	52°44.1	18°37.4		38°56.3	81°04.2	89°39.8
5	116°56.2	9.7'	$08^{\circ}09.9$	-15.6'	60.3'	97°49.7	86°29.7	52°07.3	18°02.0		39°32.6	81°40.6	90°14.6
6	131°24.9	9.7'	N 07°54.3	-15.7'	60.3'	97°12.8	86°00.7	51°30.4	17°26.6		40°09.0	82°17.0	90°49.4
7	145°53.7	9.8'	07°38.6	-15.7'	60.4'	96°35.9	85°31.8	50°53.6	16°51.4		40°45.4	82°53.4	91°24.2
8	160°22.4	9.8'	07°22.8	-15.8'	60.4'	95°59.0	85°02.8	50°16.8	16°16.3		41°21.8	83°29.9	91°59.0
9	174°51.2	9.8'	$07^{\circ}07.1$	-15.8'	60.4'	95°22.0	84°33.9	49°39.9	15°41.3		41°58.3	84°06.3	92°33.8
10	189°20.0	9.8'	$06^{\circ}51.2$	-15.9'	60.4'	94°45.1	84°04.9	49°03.0	15°06.5		42°34.8	84°42.8	93°08.7
11	203°48.9	9.8'	06°35.4	-15.9'	60.4'	94°08.1	83°36.0	48°26.1	14°31.8		43°11.3	85° 19.3	93°43.6
12	218°17.7	9.9'	$N06^{\circ}19.4$	-16.0'	60.4'	93°31.1	83°07.0	47°49.2	13°57.3	7°05.4	43°47.8	85°55.8	94°18.5
13	232°46.6	9.9'	06°03.5	-16.0'	60.4'	92°54.0	82°38.1	47°12.3	13°23.1	7°39.0	44°24.4	86°32.4	94°53.4
14	247°15.4	9.9'	05°47.5	-16.0'	60.4'	92°17.0	82°09.2	46°35.3	12°49.2	8° 13.2	45°01.0	87°08.9	95°28.4
15	261°44.3	9.9'	05°31.4	-16.1'	60.5'	91°40.0	81°40.2	45°58.3	12°15.5	8°47.7	45°37.7	87°45.5	96°03.4
16	276°13.2	9.9'	05° 15.4	-16.1'	60.5'	91°02.9	81°11.3	45°21.4	11°42.2	9°22.6	46°14.3	88°22.1	96°38.3
17	290°42.2	9.9'	04°59.2	-16.2'	60.5'	90°25.8	80°42.4	44°44.4	11°09.3	9°57.8	46°51.0	88°58.7	97°13.3
18	305°11.1	10.0'	N 04°43.1	-16.2'	60.5'	89°48.7	80° 13.5	44°07.4	10°36.8	10°33.1	47°27.7	89°35.3	97°48.3
19	319°40.1	10.0'	04°26.9	-16.2'	60.5'	89°11.6	79°44.7	43°30.4	10°05.0	11°08.7	48°04.4	90°12.0	98°23.4
20	334°09.0	10.0'	$04^{\circ}10.7$	-16.2'	60.5'	88°34.5	79° 15.8	42°53.3	9°33.7	11°44.5	48°41.2	90°48.6	98°58.4
21	348°38.0	10.0'	03°54.4	-16.3'	60.5'	87°57.3	78° 47.0	42°16.3	9°03.2	12°20.4	49°17.9	91°25.3	99°33.5
22	3°07.0	10.0'	03°38.2	-16.3'	60.5'	87°20.2	78° 18.2	41°39.2	8°33.6	12°56.4	49°54.7	92°02.0	100°08.6
23	17°36.0	10.0'	03°21.9	-16.3'	60.5'	86°43.0	77°49.4	41°02.2		13°32.5	50°31.5	92°38.7	100°43.6
6 th	SD	= 16.4	Mer. pas	s. 21:47									

h		Mod	n (7 th Ap	r)		Lunar Distance (objects with largest hourly LD delta)								
Fri	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Pollux	+Betelgeuse	+Aldebaran	
0	32°05.0	10.0'	N 03°05.5	-16.3'	60.5'	86°05.8	77°20.6	73°32.0	40°25.1	14°08.8	51°08.3	74°16.5	93°15.4	
1	46°34.0	10.0'	02°49.2	-16.4'	60.5'	85°28.6	76°51.9	73°04.2	39°48.0	14°45.1	51°45.2	74°51.7	93°52.1	
2	61°03.0	10.0'	02°32.8	-16.4'	60.6'	84°51.4	76°23.2	72°36.4	39°11.0	15°21.5	52°22.0	75°26.8	94°28.8	
3	75°32.0	10.0'	02°16.4	-16.4'	60.6'	84°14.2	75°54.5	72°08.8	38°33.9	15°58.0	52°58.9	76°02.0	95°05.5	
4	90°01.1	10.0'	02°00.0	-16.4'	60.6'	83°37.0	75°25.9	71°41.1	37°56.8	16°34.5	53°35.8	76°37.2	95°42.2	
5	104°30.1	10.0'	01°43.6	-16.4'	60.6'	82°59.8	74°57.3	71°13.5	37° 19.7	17°11.1	54°12.7	77°12.4	96°19.0	
6	118°59.1	10.0'	N01°27.2	-16.4'	60.6'	82°22.5	74°28.7	70°46.0	36°42.6	17°47.8	54°49.6	77°47.6	96°55.7	
7	133°28.1	10.0'	01°10.8	-16.4'	60.6'	81°45.3	74°00.2	70°18.5	36°05.5	18°24.5	55° 26.5	78°22.8	97°32.5	
8	147° 57.2	10.0'	00°54.3	-16.5'	60.6'	81°08.0	73°31.7	69°51.1	35°28.4	19°01.2	56°03.5	78°58.1	98°09.3	
9	162°26.2	10.0'	00°37.9	-16.5'	60.6'	80°30.8	73°03.3	69°23.8	34°51.2	19°38.0	56°40.4	79°33.4	98°46.0	
10	176°55.2	10.0'	00°21.4	-16.5'	60.6'	79°53.5	72°34.9	68°56.5	34°14.1	20°14.8	57° 17.4	80°08.7	99°22.8	
11	191°24.2	10.0'	N 00°04.9	-16.5'	60.6'	79°16.2	72°06.5	68°29.3	33°37.0	20°51.6	57°54.3	80°44.0	99°59.6	
12	205°53.3	10.0'	S 00°11.5	-16.5'	60.6'	78°38.9	71°38.3	68°02.2	32°59.9	21°28.5	58°31.3	81°19.3	100°36.4	
13	220° 22.3	10.0'	00°28.0	-16.5'	60.6'	78°01.7	71°10.0	67°35.1	32°22.8	22°05.4	59°08.3	81°54.6	101°13.2	
14	234°51.3	10.0'	00°44.5	-16.5'	60.6'	77°24.4	70°41.8	67°08.1	31°45.7	22°42.3	59°45.3	82°29.9	101°49.9	
15	249°20.3	10.0'	$01^{\circ}00.9$	-16.5'	60.6'	76°47.1	70°13.7	66°41.2	31°08.6	23°19.2	60°22.3	83°05.3	102°26.7	
16	263°49.3	10.0'	01°17.4	-16.5'	60.6'	76°09.8	69°45.7	66°14.4	30°31.4	23°56.2	60°59.3	83°40.6	103°03.5	
17	278°18.3	10.0'	01°33.9	-16.4'	60.6'	75°32.5	69°17.7	65°47.6	29°54.3	24°33.2	61°36.3	84°16.0	103°40.3	
18	292°47.2	10.0'	S 01°50.3	-16.4'	60.6'	74°55.2	68°49.7	65°21.0	29°17.3	25°10.2	62°13.3	84°51.3	104°17.1	
19	307°16.2	9.9'	02°06.7	-16.4'	60.6'	74°17.9	68°21.9	64°54.4	28°40.2	25°47.2	62°50.4	85°26.7	104°53.9	
20	321°45.1	9.9'	02°23.2	-16.4'	60.6'	73°40.6	67°54.1	64°28.0	28°03.1	26°24.2	63°27.4	86°02.1	105°30.7	
21	336° 14.1	9.9'	02°39.6	-16.4'	60.6'	73°03.3	67°26.4	64°01.6	27°26.0	27°01.2	64°04.4	86°37.4	106°07.4	
22	350°43.0	9.9'	02°56.0	-16.4'	60.6'	72°26.0	66°58.8	63°35.3	26°49.0	27°38.3	64°41.4	87°12.8	106°44.2	
23	5°11.9	9.9'	03°12.3	-16.4'	60.6'	71°48.7	66°31.2	63°09.2	26°11.9	28°15.3	65° 18.5	87°48.2	107°21.0	
7 th	SD	= 16.5	Mer. pas	s. 22:38										

i.	Moon	(Oth	Λ.
h	lVl∩∩n	(800	Anrl

Sat	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Pollux	+Aldebaran
0	19°40.8	9.9'	S 03°28.7	-16.3'	60.6'		71°11.5	66°03.7	25°34.9	10°58.5	28°52.4	65°55.5	107°57.7
1	34°09.7	9.9'	03°45.0	-16.3'	60.6'		70°34.2	65°36.3	24°57.9	11°31.4	29° 29.4	66°32.5	108°34.5
2	48°38.5	9.8'	$04^{\circ}01.3$	-16.3'	60.6'		69°56.9	65°09.0	24°20.8	12°04.8	30°06.5	67°09.6	109°11.2
3	63°07.4	9.8'	04°17.6	-16.3'	60.6'	119°32.8	69°19.6	64°41.8	23°43.9	12°38.5	30°43.6	67°46.6	109°48.0
4	77°36.2	9.8'	04°33.9	-16.2'	60.6'	119°01.8	68°42.3	64°14.7	23°06.9	13°12.6	31°20.7	68°23.6	110°24.7
5	92°05.0	9.8'	$04^{\circ}50.1$	-16.2'	60.6'	118°30.7	68°05.1	63°47.7	22°30.0	13°46.9	31°57.7	69°00.6	111°01.4
6	106°33.7	9.8'	S 05°06.3	-16.2'	60.6'	117°59.5	67°27.8	63°20.8	21°53.0	14°21.6	32° 34.8	69°37.7	111°38.2
7	121°02.5	9.7'	05°22.5	-16.1'	60.5'	117°28.3	66°50.5	62°53.9	21°16.1	14°56.4	33° 11.9	70°14.7	112°14.9
8	135°31.2	9.7'	05°38.6	-16.1'	60.5'	116°57.0	66°13.3	62°27.2	20°39.3	15°31.4	33°49.0	70°51.7	112°51.5
9	149°59.9	9.7'	05°54.7	-16.1'	60.5'	116°25.7	65°36.1	62°00.6	20°02.4	16°06.6	34°26.0	71°28.7	113°28.2
10	164°28.6	9.7'	$06^{\circ}10.7$	-16.0'	60.5'	115°54.3	64°58.8	61°34.1	19°25.6	16°42.0	35°03.1	72°05.7	114°04.9
11	178°57.3	9.6'	06°26.8	-16.0'	60.5'	115°22.9	64°21.6	61°07.7	18°48.9	17°17.5	35°40.2	72°42.7	114°41.5
12	193°25.9	9.6'	S 06°42.7	-15.9'	60.5'	114°51.4	63°44.4	60°41.5	18°12.1	17°53.1	36° 17.2	73°19.6	115°18.2
13	207°54.5	9.6'	06°58.7	-15.9'	60.5'	114°19.9	63°07.2	60° 15.3	17°35.4	18°28.9	36° 54.3	73°56.6	115°54.8
14	222°23.1	9.5'	$07^{\circ}14.6$	-15.8'	60.5'	113°48.3	62°30.0	59°49.3	16°58.8	19°04.7	37°31.4	74°33.6	116°31.4
15	236°51.6	9.5'	07°30.4	-15.8'	60.5'	113°16.7	61°52.8	59°23.4	16°22.2	19°40.6	38°08.4	75°10.5	117°08.0
16	251°20.1	9.5'	07°46.2	-15.7'	60.5'	112°45.1	61°15.6	58° 57.7	15°45.7	20°16.6	38° 45.4	75°47.5	117°44.5
17	265°48.6	9.4'	$08^{\circ}01.9$	-15.7'	60.5'	112°13.4	60°38.5	58°32.1	15°09.2	20°52.6	39°22.5	76°24.4	118°21.1
18	280°17.0	9.4'	S 08°17.6	-15.6'	60.4'	111°41.7	60°01.3	58°06.6	14°32.8	21°28.7	39° 59.5	77°01.3	118°57.6
19	294°45.4	9.4'	08°33.2	-15.6'	60.4'	111°09.9	59°24.2	57°41.2	13°56.5	22°04.9	40°36.5	77°38.2	119°34.1
20	309°13.8	9.3'	08°48.8	-15.5'	60.4'	110°38.1	58°47.1	57° 16.1	13°20.3	22°41.1	41° 13.5	78°15.1	
21	323°42.2	9.3'	09°04.3	-15.5'	60.4'	110°06.3	58°10.0	56°51.0	12°44.2	23°17.4	41°50.4	78°52.0	
22	338°10.5	9.3'	09°19.8	-15.4'	60.4'	109°34.5	57°32.9	56°26.1	12°08.1	23°53.7	42°27.4	79°28.8	
23	352°38.8	9.2'	09°35.2	-15.3'	60.4'	109°02.7	56°55.9	56°01.4	11°32.3	24°30.0	43°04.4	80°05.7	
8 th	SD	= 16.5	' Mer. pa:	ss. 23:30									

h Moon (9th Apr)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	7°07.0	9.2'	S 09°50.5	-15.3'	60.4'	108°30.8	56°18.8	55°36.8	10°56.5	25°06.4	43°41.3	76°38.0	80°42.5
1	21°35.2	9.2'	10°05.8	-15.2'	60.3'	107°58.9	55°41.8	55°12.4	10°20.9	25°42.7	44°18.2	77°13.5	81°19.3
2	36°03.4	9.1'	10°21.0	-15.1'	60.3'	107°27.0	55°04.8	54°48.2	9°45.6	26°19.1	44°55.1	77°49.0	81°56.1
3	50°31.5	9.1'	10°36.1	-15.1'	60.3'	106°55.1	54°27.8	54°24.1	9°10.4	26°55.5	45°32.0	78°24.4	82°32.9
4	64°59.6	9.1'	$10^{\circ}51.2$	-15.0'	60.3'	106°23.1	53°50.8	54°00.3	8°35.5	27°32.0	46°08.9	78°59.9	83°09.7
5	79°27.6	9.0'	$11^{\circ}06.2$	-14.9'	60.3'	105°51.2	53°13.9	53°36.6	8°01.0	28°08.4	46°45.8	79°35.3	83°46.4
6	93°55.7	9.0'	S 11°21.1	-14.8'	60.3'	105°19.2	52°36.9	53°13.1	7°26.8	28°44.9	47°22.6	80°10.7	84°23.1
7	108°23.6	8.9'	11°35.9	-14.8'	60.3'	104°47.2	52°00.0	52°49.7	6°53.2	29°21.3	47° 59.4	80°46.2	84°59.8
8	122°51.6	8.9'	$11^{\circ}50.7$	-14.7'	60.2'	104°15.3	51°23.1	52°26.6	6°20.2	29°57.8	48°36.2	81°21.6	85°36.5
9	137°19.5	8.8'	$12^{\circ}05.4$	-14.6'	60.2'	103°43.3	50°46.3	52°03.7	5°48.0	30°34.3	49°13.0	81°56.9	86°13.2
10	151°47.3	8.8'	12°20.0	-14.5'	60.2'	103°11.3	50°09.4	51°41.0		31°10.7	49°49.8	82°32.3	86°49.8
11	166°15.1	8.8'	12°34.5	-14.4'	60.2'	102°39.3	49°32.6	51°18.5		31°47.2	50°26.5	83°07.6	87°26.4
12	180°42.9	8.7'	S 12°48.9	-14.4'	60.2'	102°07.3	48°55.8	50°56.2		32°23.7	51°03.2	83°43.0	88°03.0
13	195°10.6	8.7'	13°03.3	-14.3'	60.1'	101°35.3	48°19.0	50°34.1		33°00.1	51°39.9	84°18.3	88°39.5
14	209°38.3	8.6'	13°17.6	-14.2'	60.1'	101°03.3	47°42.3	50°12.2		33°36.6	52° 16.6	84°53.6	89°16.1
15	224°05.9	8.6'	13°31.7	-14.1'	60.1'	100°31.3	47°05.6	49°50.6		34°13.0	52°53.2	85°28.8	89°52.6
16	238°33.5	8.5'	13°45.8	-14.0'	60.1'	99°59.4	46°28.9	49°29.2		34°49.5	53°29.8	86°04.1	90°29.1
17	253°01.0	8.5'	13°59.8	-13.9'	60.1'	99°27.4	45°52.2	49°08.1		35°25.9	54°06.4	86°39.3	91°05.5
18	267°28.5	8.5'	S 14°13.7	-13.8'	60.0'	98°55.4	45°15.6	48°47.2		36°02.3	54°43.0	87°14.5	91°42.0
19	281°56.0	8.4'	14°27.5	-13.7'	60.0'	98°23.5	44°39.0	48°26.5		36°38.7	55° 19.5	87°49.6	92°18.4
20	296°23.4	8.4'	14°41.2	-13.6'	60.0'	97°51.5	44°02.4	48°06.1		37°15.1	55° 56.0	88°24.8	92°54.7
21	310°50.8	8.3'	$14^{\circ}54.8$	-13.5'	60.0'	97°19.6	43°25.8	47°45.9		37°51.4	56° 32.5	88°59.9	93°31.1
22	325°18.1	8.3'	15°08.3	-13.4'	59.9'	96°47.7	42°49.3	47°26.1		38°27.8	57°09.0	89°35.0	94°07.4
23	339°45.3	8.2'	15°21.7	-13.3'	59.9'	96°15.8	42°12.8	47°06.4		39°04.1	57°45.4	90°10.0	94°43.7
9 th	SD	= 16.	5' Mer. pa	ass:-									

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

n		IVIOO	n (10 A	.pr)			Lunar D	istance (ob	jects witr	i iargest	nourly LI	J deita)	
Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	354°12.6	8.2'	S 15°35.0	-13.2'	59.9'		95°43.9	46°47.1	41°36.3		39°40.4	58°21.8	95°19.9
1	8°39.8	8.1'	15°48.2	-13.1'	59.9'		95°12.0	46°28.0	40°59.9		40°16.7	58°58.2	95°56.2
2	23°06.9	8.1'	$16^{\circ}01.3$	-13.0'	59.8'	119°46.3	94°40.1	46°09.2	40°23.5		40°53.0	59°34.5	96°32.3
3	37°34.0	8.0'	$16^{\circ}14.3$	-12.9'	59.8'	119° 14.1	94°08.3	45°50.8	39°47.1	6°40.0	41°29.2	60°10.8	97°08.5
4	52°01.0	8.0'	$16^{\circ}27.1$	-12.8'	59.8'	118°41.9	93°36.5	45°32.6	39°10.8	7°12.9	42°05.4	60°47.1	97°44.6
5	66°28.0	7.9'	16°39.9	-12.6'	59.8'	118°09.7	93°04.7	45°14.7	38°34.5	7°46.3	42°41.6	61°23.3	98°20.7
6	80°55.0	7.9'	S 16°52.5	-12.5'	59.7'	117° 37.5	92°33.0	44°57.1	37°58.2	8°20.1	43°17.8	61°59.5	98°56.8
7	95°21.9	7.9'	$17^{\circ}05.1$	-12.4'	59.7'	117°05.3	92°01.2	44°39.8	37°22.0	8°54.1	43°53.9	62°35.7	99°32.8
8	109°48.7	7.8'	$17^{\circ}17.5$	-12.3'	59.7'	116°33.1	91°29.5	44°22.8	36°45.8	9°28.4	44°30.0	63°11.9	100°08.8
9	124°15.5	7.8'	17°29.8	-12.2'	59.6'	116°00.9	90°57.8	44°06.2	36°09.6	10°02.9	45°06.1	63°48.0	100°44.7
10	138°42.3	7.7'	$17^{\circ}41.9$	-12.1'	59.6'	115°28.6	90°26.2	43°49.9	35°33.5	10°37.5	45°42.2	64°24.0	101°20.7
11	153°09.0	7.7'	$17^{\circ}54.0$	-11.9'	59.6'	114°56.4	89°54.5	43°33.9	34°57.4	11°12.3	46°18.2	65°00.1	101°56.5
12	167°35.7	7.6'	S 18°05.9	-11.8'	59.6'	114°24.1	89°22.9	43° 18.2	34°21.4	11°47.1	46°54.2	65°36.1	102°32.4
13	182°02.3	7.6'	18° 17.8	-11.7'	59.5'	113°51.9	88°51.4	43°02.9	33°45.3	12°22.1	47°30.2	66°12.1	103°08.2
14	196°28.9	7.5'	18° 29.4	-11.6'	59.5'	113° 19.6	88°19.9		33°09.3	12°57.1	48°06.1	66°48.0	103°44.0
15	210°55.5	7.5'	$18^{\circ}41.0$	-11.4'	59.5'	112°47.4	87°48.4		32°33.4	13°32.1	48°42.0	67°23.9	104°19.7
16	225°22.0	7.5'	$18^{\circ}52.4$	-11.3'	59.4'	112°15.1	87°16.9		31°57.5	14°07.2	49°17.9	67°59.7	104°55.4
17	239°48.4	7.4'	19°03.8	-11.2'	59.4'	111°42.9	86°45.5		31°21.6	14°42.3	49°53.8	68°35.6	105°31.1
18	254°14.8	7.4'	S 19°14.9	-11.1'	59.4'	111° 10.6	86°14.1		30°45.8	15°17.4	50°29.6	69°11.4	106°06.7
19	268°41.2	7.3'	$19^{\circ}26.0$	-10.9'	59.4'	110°38.4	85°42.8		30°10.0	15°52.6	51°05.4	69°47.1	106°42.2
20	283°07.5	7.3'	19°36.9	-10.8'	59.3'	110°06.2	85°11.5		29°34.2	16°27.7	51°41.1	70°22.8	107°17.8
21	297°33.8	7.2'	$19^{\circ}47.7$	-10.7'	59.3'	109°34.0	84°40.2		28°58.5	17°02.9	52°16.8	70°58.5	107°53.3
22	312°00.0	7.2'	19°58.4	-10.5'	59.3'	109°01.8	84°09.0		28°22.9	17°38.0	52°52.5	71°34.1	108°28.7
23	326°26.2	7.2'	20°08.9	-10.4'	59.2'	108°29.6	83°37.8		27°47.2	18°13.2	53°28.1	72°09.7	109°04.2
10 th	SD	= 16.3	' Mer. pa	ss. 00:24									

h		Моо	n (11 th A	pr)		Lunar Distance (objects with largest hourly LD delta)							
Tue	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	340°52.4	7.1'	S 20°19.3	-10.2'	59.2'	107° 57.4	105°29.5	83°06.7	27°11.6	18°48.3	54°03.7	72°45.3	109°39.5
1	355°18.5	7.1'	20°29.5	-10.1'	59.2'	107°25.3	105°11.8	82°35.6	26°36.1	19°23.5	54°39.3	73°20.8	110°14.9
2	9°44.6	7.0'	20°39.6	-10.0'	59.1'	106°53.1	104°53.9	82°04.6	26°00.6	19°58.6	55°14.8	73°56.3	110°50.1
3	24°10.6	7.0'	20°49.6	-9.8'	59.1'	106°21.0	104°36.0	81°33.6	25°25.1	20°33.7	55°50.3	74°31.7	111°25.4
4	38°36.6	7.0'	20°59.4	-9.7'	59.1'	105°48.9	104°18.1	81°02.6	24°49.7	21°08.7	56°25.7	75°07.1	112°00.6
5	53°02.6	6.9'	$21^{\circ}09.1$	-9.5'	59.0'	105° 16.8	104°00.1	80°31.7	24°14.3	21°43.8	57°01.2	75°42.4	112°35.8
6	67°28.6	6.9'	S 21°18.6	-9.4'	59.0'	104°44.7	103°42.1	80°00.9	23°39.0	22°18.8	57°36.5	76° 17.7	113°10.9
7	81°54.5	6.9'	21°28.0	-9.3'	59.0'	104° 12.7	103°24.0	79°30.1	23°03.7	22°53.8	58°11.9	76°53.0	113°45.9
8	96°20.3	6.8'	21°37.3	-9.1'	58.9'	103°40.7	103°05.9	78°59.4	22°28.4	23°28.8	58°47.2	77°28.2	114°21.0
9	110°46.1	6.8'	21°46.4	-9.0'	58.9'	103°08.7	102°47.7	78°28.7	21°53.2	24°03.8	59°22.4	78°03.4	114°55.9
10	125°11.9	6.8'	21°55.4	-8.8'	58.9'	102°36.7	102°29.5	77°58.1	21°18.0	24°38.7	59°57.6	78° 38.5	115°30.9
11	139°37.7	6.7'	22°04.2	-8.7'	58.8'	102°04.7	102°11.3	77°27.5	20°42.9	25°13.6	60°32.8	79°13.6	116°05.8
12	154°03.5	6.7'	S 22°12.9	-8.5'	58.8'	101°32.8	101°53.0	76°57.0	20°07.8	25°48.4	61°07.9	79°48.7	116°40.6
13	168°29.2	6.7'	22°21.4	-8.4'	58.8'	101°00.9	101°34.7	76°26.5	19°32.8	26°23.2	61°43.0	80°23.7	117°15.4
14	182°54.8	6.7'	22°29.8	-8.2'	58.7'	100°29.0	101°16.4	75°56.1	18°57.8	26°58.0	62°18.1	80°58.7	117°50.2
15	197°20.5	6.6'	22°38.0	-8.1'	58.7'	99°57.2	100°58.0	75°25.8	18°22.9	27°32.8	62°53.1	81°33.6	118°24.9
16	211°46.1	6.6'	22°46.1	-7.9'	58.7'	99°25.4	100°39.6	74°55.5	17°48.0	28°07.5	63°28.0	82°08.5	118°59.5
17	226°11.7	6.6'	22°54.0	-7.8'	58.6'	98°53.6	100°21.2	74°25.3	17°13.1	28°42.2	64°03.0	82°43.3	119°34.1
18	240°37.3	6.6'	S 23°01.8	-7.6'	58.6'	98°21.9	100°02.8	73°55.2	16°38.4	29°16.8	64°37.8	83°18.1	
19	255°02.8	6.5'	23°09.4	-7.5'	58.5'	97°50.1	99°44.3	73°25.1	16°03.6	29°51.4	65°12.7	83°52.8	
20	269°28.4	6.5'	23°16.8	-7.3'	58.5'	97°18.5	99°25.9	72°55.1	15°28.9	30°26.0	65°47.5	84°27.5	
21	283°53.9	6.5'	23°24.1	-7.2'	58.5'	96°46.8	99°07.4	72°25.1	14°54.2	31°00.5	66°22.2	85°02.2	
22	298°19.4	6.5'	23°31.3	-7.0'	58.4'	96°15.2	98°48.9	71°55.2	14°19.6	31°35.0	66°56.9	85°36.8	
23	312°44.9	6.5'	23°38.3	-6.8'	58.4'	95°43.6	98°30.3	71°25.4	13°45.1	32°09.5	67°31.6	86°11.4	

SD = 16.1' Mer. pass. 01:20

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

Wed	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Procyon
0	327°10.3	6.4'	S 23°45.1	-6.7'	58.4'	98° 11.8	95°12.1	70°55.7	13°10.6	32°43.9	68°06.2	86°45.9	117°58.4
1	341°35.8	6.4'	23°51.8	-6.5'	58.3'	97°53.2	94°40.6	70°26.0	12°36.1	33°18.3	68°40.8	87°20.3	118°31.2
2	356°01.2	6.4'	23°58.4	-6.4'	58.3'	97°34.7	94°09.1	69°56.4	12°01.7	33°52.6	69°15.3	87° 54.8	119°03.9
3	10°26.6	6.4'	24°04.7	-6.2'	58.3'	97° 16.1	93°37.7	69°26.8	11°27.4	34°26.9	69°49.8	88° 29.2	119°36.5
4	24°52.0	6.4'	24°10.9	-6.1'	58.2'	96°57.5	93°06.3	68°57.4	10°53.1	35°01.1	70°24.3	89°03.5	
5	39°17.4	6.4'	$24^{\circ}17.0$	-5.9'	58.2'	96°39.0	92°34.9	68°28.0	10°18.9	35°35.3	70°58.6	89°37.8	
6	53°42.8	6.4'	S 24°22.9	-5.7'	58.1'	96°20.4	92°03.6	67°58.7	9°44.7	36°09.5	71°33.0	90°12.0	
7	68°08.2	6.4'	24°28.6	-5.6'	58.1'	96°01.8	91°32.3	67°29.4	9°10.6	36°43.6	72°07.3	90°46.2	
8	82°33.5	6.4'	24°34.2	-5.4'	58.1'	95°43.2	91°01.1	67°00.3	8°36.5	37°17.7	72°41.6	91°20.4	
9	96°58.9	6.4'	24°39.7	-5.3'	58.0'	95°24.6	90°29.9	66°31.2	8°02.6	37°51.7	73°15.8	91°54.5	
10	111°24.3	6.4'	24°44.9	-5.1'	58.0'	95°06.0	89°58.7	66°02.2	7°28.6	38°25.7	73°50.0	92°28.6	
11	125°49.6	6.4'	24°50.0	-4.9'	58.0'	94°47.4	89°27.6	65°33.3	6°54.8	38°59.7	74°24.1	93°02.6	
12	140°15.0	6.4'	S 24°55.0	-4.8'	57.9'	94°28.9	88°56.6	65°04.4	6°21.1	39°33.6	74°58.2	93°36.5	
13	154°40.4	6.4'	24°59.8	-4.6'	57.9'	94°10.3	88°25.5	64°35.7	5°47.4	40°07.4	75°32.2	94° 10.5	
14	169°05.7	6.4'	25°04.4	-4.5'	57.9'	93°51.7	87°54.6	64°07.0	5°13.9	40°41.3	76°06.2	94°44.3	
15	183°31.1	6.4'	25°08.8	-4.3'	57.8'	93°33.2	87°23.6	63°38.4	4°40.5	41°15.0	76°40.1	95° 18.2	
16	197°56.5	6.4'	$25^{\circ}13.1$	-4.1'	57.8'	93° 14.6	86°52.7	63°09.9	4°07.3	41°48.8	77°14.0	95°52.0	
17	212°21.9	6.4'	$25^{\circ}17.3$	-4.0'	57.7'	92°56.1	86°21.9	62°41.5	3°34.3	42°22.5	77°47.9	96°25.7	
18	226°47.3	6.4'	S 25°21.3	-3.8'	57.7'	92°37.6	85°51.1	62°13.2	3°01.7	42°56.1	78°21.7	96°59.4	
19	241°12.7	6.4'	$25^{\circ}25.1$	-3.7'	57.7'	92°19.1	85°20.3	61°45.0	2°29.6	43°29.7	78°55.5	97°33.0	
20	255°38.1	6.4'	25°28.8	-3.5'	57.6'	92°00.6	84°49.6	61°16.8	1°58.5	44°03.3	79°29.2	98°06.6	
21	270°03.5	6.4'	25°32.3	-3.3'	57.6'	91°42.1	84°19.0	60°48.8		44°36.8	80°02.9	98°40.2	
22	284°29.0	6.5'	25°35.6	-3.2'	57.6'	91°23.7	83°48.4	60°20.8		45°10.2	80°36.5	99° 13.7	
23	298°54.4	6.5'	25°38.8	-3.0'	57.5'	91°05.3	83°17.8	59°53.0		45°43.7	81°10.1	99°47.1	
12 th	SD =	= 15.9'	Mer. pas	s. 02:17	,					-			

Moon (13th Apr)

n		IVIOOR	ı (13°° A	pr)			Lunar Di	stance (objects wi	th larges	st nourly L	D deita)	
Thu	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	313°19.9	6.5'	S 25°41.8	-2.9'	57.5'	90°46.9	82°47.3	59°25.2		46°17.0	55°41.1	81°43.6	100° 20.6
1	327°45.4	6.5'	25°44.7	-2.7'	57.4'	90°28.5	82°16.8	58° 57.6		46°50.4	56°04.8	82°17.1	100°53.9
2	342°10.9	6.6'	25°47.4	-2.5'	57.4'	90°10.1	81°46.4	58°30.0		47°23.7	56°28.6	82°50.5	101°27.3
3	356°36.5	6.6'	25°49.9	-2.4'	57.4'	89°51.8	81°16.0	58°02.5		47°56.9	56°52.4	83°23.9	102°00.5
4	11°02.1	6.6'	25°52.3	-2.2'	57.3'	89°33.4	80°45.7	57°35.2		48°30.1	57°16.3	83°57.3	102°33.8
5	25°27.7	6.6'	25°54.5	-2.1'	57.3'	89°15.2	80°15.4	57°07.9	3°20.0	49°03.3	57°40.3	84°30.6	103°06.9
6	39°53.3	6.7'	S 25°56.6	-1.9'	57.3'	88°56.9	79°45.2	56°40.8	3°52.3	49°36.4	58°04.3	85°03.9	103°40.1
7	54°19.0	6.7'	25°58.5	-1.8'	57.2'	88°38.7	79°15.1	56°13.7	4°24.7	50°09.5	58°28.4	85°37.1	104°13.2
8	68°44.7	6.7'	26°00.3	-1.6'	57.2'	88°20.5	78°45.0	55°46.8	4°57.3	50°42.5	58°52.6	86°10.3	104°46.2
9	83°10.4	6.8'	$26^{\circ}01.9$	-1.4'	57.1'	88°02.3	78°14.9	55°20.0	5°29.9	51°15.5	59°16.8	86°43.4	105°19.2
10	97°36.1	6.8'	26°03.3	-1.3'	57.1'	87°44.1	77°44.9	54°53.2	6°02.6	51°48.4	59°41.1	87°16.5	105°52.2
11	112°01.9	6.8'	26°04.6	-1.1'	57.1'	87°26.0	77°14.9	54°26.6	6°35.2	52°21.3	60°05.4	87°49.5	106°25.1
12	126°27.8	6.9'	S 26°05.7	-1.0'	57.0'	87°08.0	76°45.0	54°00.2	7°07.9	52°54.2	60°29.7	88°22.5	106°58.0
13	140°53.6	6.9'	26°06.7	-0.8'	57.0'	86°49.9	76°15.2	53°33.8	7°40.6	53°27.0	60°54.2	88°55.4	107°30.8
14	155°19.5	7.0'	26°07.5	-0.7'	57.0'	86°31.9	75°45.4	53°07.5	8°13.2	53°59.7	61°18.6	89°28.4	108°03.6
15	169°45.5	7.0'	$26^{\circ}08.1$	-0.5'	56.9'	86°14.0	75°15.7	52°41.4	8°45.9	54°32.5	61°43.1	90°01.2	108°36.3
16	184°11.5	7.0'	26°08.6	-0.4'	56.9'	85°56.0	74°46.0	52°15.4	9°18.5	55°05.1	62°07.7	90°34.0	109°09.0
17	198°37.5	7.1'	26°09.0	-0.2'	56.9'	85°38.2	74°16.3	51°49.5	9°51.0	55°37.8	62°32.2	91°06.8	109°41.6
18	213°03.6	7.1'	S 26°09.2	-0.0'	56.8'	85°20.3	73°46.8	51°23.8	10°23.6	56°10.4	62°56.8	91°39.5	110°14.2
19	227°29.7	7.2'	26°09.2	0.1'	56.8'	85°02.5	73°17.2	50°58.1	10°56.1	56°42.9	63°21.5	92°12.2	110°46.8
20	241°55.9	7.2'	$26^{\circ}09.1$	0.3'	56.7'	84°44.7	72°47.8	50°32.6	11°28.5	57°15.4	63°46.2	92°44.9	111°19.3
21	256°22.2	7.3'	26°08.9	0.4'	56.7'	84°27.0	72°18.4	50°07.3	12°01.0	57°47.9	64°10.9	93°17.4	111°51.8
22	270°48.4	7.3'	26°08.5	0.6'	56.7'	84°09.3	71°49.0	49°42.0	12°33.4	58°20.3	64°35.6	93°50.0	112°24.2
23	285°14.8	7.4'	26°07.9	0.7'	56.6'	83°51.7	71°19.7	49°16.9	13°05.8	58°52.7	65°00.4	94°22.5	112°56.6
13 th	SD :	= 15.7'	Mer. pas	s. 03:14	1			-	-			-	

1.	Moon (14 th Apr)	Lunar Distance (objects with largest hourly LD delta)
n	MOON (14" Apri	I linar i listance i oniects with largest nollriv i i li delta i

Fri	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	299°41.2	7.4'	S 26°07.2	0.9'	56.6'		83°34.1	70°50.5	48°52.0	13°38.1	59°25.0	94°55.0	113°28.9
1	314°07.6	7.5'	$26^{\circ}06.3$	1.0'	56.6'		83°16.6	70°21.3	48°27.2	14°10.4	59°57.3	95°27.4	114°01.2
2	328°34.1	7.6'	26°05.3	1.2'	56.5'	119°49.4	82°59.1	69°52.2	48°02.5	14°42.6	60°29.6	95°59.8	114°33.5
3	343°00.7	7.6'	26°04.2	1.3'	56.5'	119°19.7	82°41.7	69°23.2	47°38.0	15°14.9	61°01.8	96°32.1	115°05.7
4	357°27.3	7.7'	26°02.9	1.4'	56.5'	118°50.1	82°24.3	68°54.2	47°13.6	15°47.0	61°34.0	97°04.4	115°37.8
5	11°54.0	7.7'	26°01.4	1.6'	56.4'	118°20.5	82°06.9	68°25.2	46°49.4	16°19.2	62°06.1	97°36.7	116°10.0
6	26°20.7	7.8'	S 25°59.9	1.7'	56.4'	117°51.0	81°49.7	67°56.3	46°25.3	16°51.3	62°38.2	98°08.9	116°42.0
7	40°47.5	7.9'	$25^{\circ}58.1$	1.9'	56.4'	117°21.4	81°32.4	67°27.5	46°01.4	17°23.3	63°10.2	98°41.1	117°14.1
8	55°14.4	7.9'	25°56.2	2.0'	56.3'	116°52.0	81°15.2	66° 58.8	45°37.7	17°55.4	63°42.2	99°13.2	117°46.1
9	69°41.3	8.0'	25°54.2	2.2'	56.3'	116°22.6	80°58.1	66°30.1	45°14.1	18°27.4	64°14.2	99°45.3	118° 18.1
10	84°08.3	8.1'	$25^{\circ}52.1$	2.3'	56.3'	115°53.2	80°41.0	66°01.4	44°50.6	18°59.3	64°46.1	100°17.3	118°50.0
11	98°35.4	8.1'	25°49.8	2.4'	56.2'	115°23.8	80°24.0	65°32.9	44°27.4	19°31.2	65°18.0	100°49.3	119°21.9
12	113°02.5	8.2'	S 25°47.3	2.6'	56.2'	114°54.5	80°07.1	65°04.4	44°04.3	20°03.1	65°49.9	101°21.3	119°53.7
13	127°29.7	8.3'	25°44.7	2.7'	56.2'	114°25.3	79°50.2	64°35.9	43°41.4	20°34.9	66°21.7	101°53.2	
14	141°57.0	8.3'	25°42.0	2.9'	56.1'	113°56.0	79°33.3	64°07.5	43°18.7	21°06.7	66°53.5	102°25.1	
15	156°24.3	8.4'	25°39.2	3.0'	56.1'	113°26.8	79°16.5	63°39.2	42°56.1	21°38.5	67°25.2	102°57.0	
16	170°51.7	8.5'	25°36.2	3.1'	56.1'	112°57.7	78°59.8	63°11.0	42°33.8	22°10.2	67°56.9	103°28.8	
17	185°19.2	8.6'	25°33.1	3.3'	56.0'	112°28.6	78°43.2	62°42.8	42°11.6	22°41.9	68°28.5	104°00.6	
18	199°46.7	8.6'	S 25°29.8	3.4'	56.0'	111°59.5	78°26.6	62°14.7	41°49.6	23°13.5	69°00.2	104°32.3	
19	214°14.4	8.7'	25°26.4	3.5'	56.0'	111°30.4	78°10.0	61°46.6	41°27.8	23°45.1	69°31.7	105°04.0	
20	228°42.1	8.8'	25°22.9	3.7'	55.9'	111°01.4	77°53.6	61°18.6	41°06.2	24°16.7	70°03.3	105°35.6	
21	243°09.9	8.9'	$25^{\circ}19.2$	3.8'	55.9'	110°32.5	77°37.2	60°50.7	40°44.8	24°48.2	70°34.8	106°07.2	
22	257°37.7	8.9'	25°15.4	3.9'	55.9'	110°03.5	77°20.8	60°22.8	40°23.7	25°19.7	71°06.3	106°38.8	
23	272°05.7	9.0'	9.0' 25°11.5 4.0' 55.8'				1' 109°34.6 77°04.5 59°55.1 40°02.7 25°51.2 71°37.7 107°10.4						
14 th	SD = 15.4' Mer. pass. 04:11								Sun SD	= 15.9'			

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

Sat	GHA	ν	Dec	d	HP	-Sun	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	286°33.7	9.1'	S 25°07.5	4.2'	55.8'	109°05.8	76°48.3	59°27.3	39°42.0	26°22.6	72°09.1	75°24.9	107°41.9
1	301°01.8	9.2'	25°03.3	4.3'	55.8'	108°36.9	76°32.2	58°59.7	39°21.4	26°54.0	72°40.5	75°49.9	108°13.3
2	315°29.9	9.2'	24°59.0	4.4'	55.8'	108°08.2	76°16.1	58°32.1	39°01.1	27°25.4	73°11.8	76° 15.0	108°44.8
3	329°58.2	9.3'	24°54.5	4.6'	55.7'	107°39.4	76°00.1	58°04.6	38°41.1	27°56.7	73°43.1	76°40.0	109°16.1
4	344°26.5	9.4'	24°50.0	4.7'	55.7'	107°10.7	75°44.2	57°37.2	38°21.2	28°28.0	74°14.3	77°05.1	109°47.5
5	358°54.9	9.5'	24°45.3	4.8'	55.7'	106°42.0	75°28.3	57°09.8	38°01.6	28°59.2	74°45.6	77°30.1	110°18.8
6	13°23.4	9.6'	S 24°40.5	4.9'	55.6'	106°13.3	75° 12.6	56°42.6	37°42.3	29° 30.5	75° 16.7	77°55.1	110°50.1
7	27°52.0	9.7'	24°35.6	5.0'	55.6'	105°44.7	74°56.8	56°15.3	37°23.2	30°01.6	75°47.9	78° 20.2	111°21.3
8	42°20.6	9.7'	24°30.5	5.2'	55.6'	105°16.1	74°41.2	55°48.2	37°04.3	30°32.8	76° 19.0	78°45.2	111°52.6
9	56°49.4	9.8'	24°25.4	5.3'	55.5'	104°47.6	74°25.6	55°21.2	36°45.7	31°03.9	76°50.1	79° 10.2	112°23.7
10	71°18.2	9.9'	24°20.1	5.4'	55.5'	104°19.0	74°10.1	54°54.2	36°27.4	31°35.0	77°21.1	79°35.2	112°54.9
11	85°47.1	10.0'	$24^{\circ}14.7$	5.5'	55.5'	103°50.6	73°54.7	54°27.3	36°09.3	32°06.0	77°52.2	80°00.2	113°26.0
12	100°16.1	10.1'	S 24°09.2	5.6'	55.5'	103°22.1	73°39.4	54°00.4	35°51.5	32°37.1	78° 23.2	80°25.2	113°57.0
13	114°45.2	10.2'	24°03.6	5.7'	55.4'	102°53.7	73°24.1	53°33.7	35°34.0	33°08.1	78°54.1	80°50.2	114°28.1
14	129°14.3	10.2'	23°57.8	5.9'	55.4'	102°25.3	73°09.0	53°07.0	35°16.8	33°39.0	79°25.0	81° 15.1	114°59.1
15	143°43.6	10.3'	$23^{\circ}51.9$	6.0'	55.4'	101°56.9	72°53.9	52°40.5	34°59.9	34°09.9	79°55.9	81°40.1	115°30.1
16	158°12.9	10.4'	23°46.0	6.1'	55.4'	101°28.6	72°38.8	52°14.0	34°43.2	34°40.8	80°26.8	82°05.0	116°01.0
17	172°42.3	10.5'	23°39.9	6.2'	55.3'	101°00.3		51°47.5	34°26.9	35° 11.7	80°57.6	82°30.0	116°31.9
18	187°11.8	10.6'	S 23°33.7	6.3'	55.3'	100°32.0		51°21.2	34°10.9	35° 42.5	81°28.4	82°54.9	117°02.8
19	201°41.3	10.7'	23°27.4	6.4'	55.3'	100°03.8		50°55.0	33°55.2	36° 13.3	81°59.2	83° 19.8	117°33.6
20	216°11.0	10.7'	$23^{\circ}21.0$	6.5'	55.2'	99°35.6		50°28.8	33°39.8	36°44.1	82°29.9	83°44.7	118°04.4
21	230°40.8	10.8'	23° 14.5	6.6'	55.2'	99°07.4		50°02.7	33°24.8	37° 14.8	83°00.6	84°09.6	118°35.2
22	245°10.6	10.9'	23°07.8	6.7'	55.2'	98°39.2		49°36.8		37° 45.5	83°31.3	84°34.4	119°06.0
23	259°40.5	11.0'	23°01.1	6.8'	55.2'	2' 98°11.1 49°10.9 38°16.2 84°02.0 84°59.3 119°36.7							
15 th	SD = 15.2' Mer. pass. 05:04								Sun SD	= 15.9'			

Moon (16th Apr)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Spica	+Arcturus
0	274°10.5	11.1'	S 22°54.3	6.9'	55.1'	97°43.0	48°45.1	38°46.9	60°29.5	64°50.3	75°26.7	84°32.6	85°24.1
1	288°40.6	11.2'	22°47.3	7.0'	55.1'	97°14.9	48°19.4	39° 17.5	60°51.0	65°12.1	75°46.4	85°03.2	85°49.0
2	303°10.8	11.3'	22°40.3	7.1'	55.1'	96°46.9	47°53.8	39°48.1	61°12.6	65°33.9	76°06.0	85°33.7	86°13.8
3	317°41.0	11.3'	22°33.1	7.2'	55.1'	96°18.9	47°28.3	40° 18.7	61°34.3	65°55.8	76°25.7	86°04.3	86°38.6
4	332°11.3	11.4'	22°25.9	7.3'	55.0'	95°50.9	47°02.9	40°49.2	61°56.0	66°17.7	76°45.5	86°34.8	87°03.3
5	346°41.8	11.5'	$22^{\circ}18.5$	7.4'	55.0'	95°22.9	46°37.6	41° 19.7	62°17.8	66°39.7	77°05.2	87°05.3	87°28.1
6	1°12.3	11.6'	S 22°11.1	7.5'	55.0'	94°55.0	46°12.4	41°50.2	62°39.7	67°01.6	77°25.0	87°35.7	87°52.8
7	15°42.9	11.7'	22°03.6	7.6'	55.0'	94°27.1	45°47.3	42°20.7	63°01.5	67°23.7	77°44.8	88°06.2	88° 17.5
8	30°13.5	11.8'	21°55.9	7.7'	55.0'	93°59.2	45°22.3	42°51.1	63°23.5	67°45.7	78°04.6	88°36.6	88°42.2
9	44°44.3	11.8'	21°48.2	7.8'	54.9'	93°31.4	44°57.4	43°21.5	63°45.4	68°07.8	78°24.4	89°06.9	89°06.9
10	59°15.2	11.9'	21°40.4	7.9'	54.9'	93°03.5	44°32.6	43°51.9	64°07.4	68°30.0	78°44.2	89°37.3	89°31.6
11	73°46.1	12.0'	21°32.5	8.0'	54.9'	92°35.7	44°08.0	44°22.3	64°29.5	68°52.1	79°04.0	90°07.6	89°56.2
12	88°17.1	12.1'	S 21°24.4	8.1'	54.9'	92°07.9	43°43.4	44°52.6	64°51.6	69°14.3	79°23.9	90°37.9	90°20.9
13	102°48.2	12.2'	21°16.3	8.2'	54.8'	91°40.2	43°19.0	45°23.0	65°13.7	69°36.5	79°43.8	91°08.2	90°45.5
14	117°19.4	12.3'	21°08.2	8.3'	54.8'	91°12.4	42°54.7	45°53.2	65°35.9	69°58.8	80°03.7	91°38.5	91°10.1
15	131°50.6	12.3'	$20^{\circ}59.9$	8.4'	54.8'	90°44.7	42°30.5	46°23.5	65°58.2	70°21.0	80°23.6	92°08.7	91°34.6
16	146°21.9	12.4'	20°51.5	8.5'	54.8'	90°17.0	42°06.4	46°53.8	66°20.4	70°43.3	80°43.5	92°38.9	91°59.2
17	160°53.4	12.5'	20°43.1	8.5'	54.8'	89°49.4	41°42.5	47°24.0	66°42.7	71°05.7	81°03.4	93°09.1	92°23.7
18	175°24.9	12.6'	S 20°34.5	8.6'	54.7'	89°21.7	41°18.7	47°54.2	67°05.0	71°28.0	81°23.3	93°39.3	92°48.2
19	189°56.4	12.7'	20°25.9	8.7'	54.7'	88°54.1	40°55.0	48°24.4	67°27.4	71°50.4	81°43.2	94°09.4	93° 12.7
20	204°28.1	12.7'	20° 17.2	8.8'	54.7'	88°26.5	40°31.5	48°54.5	67°49.8	72°12.8	82°03.2	94°39.5	93°37.1
21	218°59.8	12.8'	20°08.4	8.9'	54.7'	87°58.9	40°08.1	49°24.7	68°12.3	72°35.2	82°23.1	95°09.6	94°01.6
22	233°31.7	12.9'	19°59.5	9.0'	54.7'	87°31.4	39°44.8	49°54.8	68°34.7	72°57.7	82°43.1	95° 39.7	94°26.0
23	248°03.6	13.0'	19°50.5	9.0'	54.6'	87°03.8	39°21.7	50°24.9	68°57.2	73°20.1	83°03.0	96°09.8	94°50.4
16 th	SD = 15.0' Mer. pass. 05:55								Sun SD = 1	5.9'			

Moon (17th Apr) h

Mon	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	262°35.5	13.1'	S 19°41.5	9.1'	54.6'	86°36.3	38°58.7	50°55.0	69° 19.7	73°42.6	83°23.0	95°14.7	96°39.8
1	277°07.6	13.1'	19°32.4	9.2'	54.6'	86°08.8	38°35.9	51°25.0	69°42.3	74°05.1	83°43.0	95°39.1	97°09.9
2	291°39.7	13.2'	19°23.2	9.3'	54.6'	85°41.3	38°13.2	51°55.1	70°04.9	74°27.6	84°02.9	96°03.4	97°39.9
3	306°11.9	13.3'	19°13.9	9.4'	54.6'	85° 13.8	37°50.7	52°25.1	70°27.5	74°50.2	84°22.9	96°27.7	98°09.8
4	320°44.2	13.4'	19°04.6	9.4'	54.6'	84°46.4	37°28.4	52°55.1	70°50.1	75°12.7	84°42.9	96°51.9	98°39.8
5	335°16.6	13.4'	$18^{\circ}55.1$	9.5'	54.5'	84° 19.0	37°06.2	53°25.1	71°12.8	75°35.3	85°02.8	97°16.2	99°09.8
6	349°49.0	13.5'	S 18°45.6	9.6'	54.5'	83°51.6	36°44.2	53°55.0	71°35.5	75°57.9	85°22.8	97°40.4	99°39.7
7	4°21.5	13.6'	18°36.1	9.7'	54.5'	83°24.2	36°22.4	54°25.0	71°58.2	76°20.5	85°42.8	98°04.6	100°09.6
8	18°54.1	13.7'	18°26.4	9.7'	54.5'	82°56.8	36°00.8	54°54.9	72°20.9	76°43.1	86°02.8	98°28.7	100°39.5
9	33°26.7	13.7'	18°16.7	9.8'	54.5'	82°29.4	35°39.3	55°24.8	72°43.7	77°05.7	86°22.8	98°52.9	101°09.4
10	47°59.4	13.8'	18°06.9	9.9'	54.5'	82°02.1	35°18.0	55°54.7	73°06.4	77°28.4	86°42.7	99°17.0	101°39.2
11	62°32.2	13.9'	17°57.0	9.9'	54.4'	81°34.8	34°56.9	56°24.6	73°29.2	77°51.0	87°02.7	99°41.0	102°09.1
12	77°05.1	13.9'	S 17°47.1	10.0'	54.4'	81°07.5	34°36.1	56°54.5	73°52.1	78°13.7	87°22.7	100°05.1	102°38.9
13	91°38.0	14.0'	17°37.1	10.1'	54.4'	80°40.2	34°15.4	57°24.3	74°14.9	78°36.4	87°42.6	100°29.1	103°08.7
14	106°11.0	14.1'	17°27.0	10.1'	54.4'	80° 12.9	33°54.9	57°54.2	74°37.7	78°59.1	88°02.6	100°53.1	103°38.5
15	120°44.1	14.1'	$17^{\circ}16.9$	10.2'	54.4'	79°45.6	33°34.7	58°24.0	75°00.6	79°21.8	88°22.5	101°17.1	104°08.3
16	135°17.3	14.2'	17°06.7	10.3'	54.4'	79° 18.4	33°14.7	58°53.8	75°23.5	79°44.5	88°42.5	101°41.0	104°38.1
17	149°50.5	14.3'	$16^{\circ}56.4$	10.3'	54.4'	78°51.1	32°54.9	59°23.6	75°46.4	80°07.2	89°02.4	102°04.9	105°07.8
18	164°23.7	14.3'	S 16°46.1	10.4'	54.3'	78°23.9	32°35.3	59°53.4	76°09.3	80°29.9	89°22.4	102°28.8	105°37.6
19	178°57.1	14.4'	16°35.7	10.5'	54.3'	77°56.7	32°16.0	60°23.1	76° 32.3	80°52.7	89°42.3	102°52.6	106°07.3
20	193°30.5	14.5'	$16^{\circ}25.2$	10.5'	54.3'	77° 29.5	31°56.9	60°52.9	76°55.2	81°15.4	90°02.2	103°16.4	106°37.0
21	208°04.0	14.5'	$16^{\circ}14.7$	10.6'	54.3'	77°02.3	31°38.1	61°22.6	77° 18.2	81°38.2	90°22.1	103°40.2	107°06.7
22	222°37.5	14.6'	$16^{\circ}04.1$	10.6'	54.3'	76°35.2	31°19.5	61°52.4	77°41.2	82°00.9	90°42.0	104°04.0	107°36.4
23	237°11.1	14.7'	15°53.5	10.7'	54.3'	76°08.0	31°01.2	62°22.1	78°04.2	82°23.7	91°01.9	104°27.7	108°06.1
17 th	SD = 14.9' Mer. pass. 06:42								Sun SD =	15.9′			

Moon (18th Apr)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Sun	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	251°44.7	14.7'	S 15°42.7	10.8'	54.3'	75°40.9	30°43.2	62°51.8	78°27.2	82°46.4	91°21.8	104°51.4	108°35.8
1	266°18.5	14.8'	$15^{\circ}32.0$	10.8'	54.3'	75° 13.7	30°25.4	63°21.5	78°50.2	83°09.2	91°41.7	105°15.0	109°05.4
2	280°52.2	14.8'	$15^{\circ}21.2$	10.9'	54.3'	74°46.6	30°08.0	63°51.2	79°13.3	83°32.0	92°01.6	105°38.6	109°35.1
3	295°26.1	14.9'	$15^{\circ}10.3$	10.9'	54.2'	74° 19.5	29°50.8	64°20.9	79°36.3	83°54.8	92°21.4	106°02.2	110°04.7
4	310°00.0	15.0'	$14^{\circ}59.4$	11.0'	54.2'	73°52.4	29°34.0	64°50.5	79°59.4	84° 17.6	92°41.3	106°25.8	110°34.3
5	324°33.9	15.0'	14°48.4	11.0'	54.2'	73°25.3	29°17.4	65°20.2	80°22.4	84°40.3	93°01.1	106°49.3	111°03.9
6	339°07.9	15.1'	S 14°37.3	11.1'	54.2'	72°58.2	29°01.2	65°49.8	80°45.5	85°03.1	93°20.9	107°12.7	111°33.6
7	353°42.0	15.1'	$14^{\circ}26.2$	11.2'	54.2'	72°31.1	28°45.3	66°19.5	81°08.6	85°25.9	93°40.7	107°36.2	112°03.2
8	8°16.1	15.2'	$14^{\circ}15.1$	11.2'	54.2'	72°04.0	28°29.8	66°49.1	81°31.7	85°48.7	94°00.5	107°59.6	112°32.7
9	22°50.3	15.2'	$14^{\circ}03.9$	11.3'	54.2'	71°37.0	28°14.6	67°18.7	81°54.8	86°11.5	94°20.2	108°22.9	113°02.3
10	37°24.5	15.3'	13°52.6	11.3'	54.2'	71°09.9		67°48.4	82°17.9	86°34.3	94°40.0	108°46.3	113°31.9
11	51°58.8	15.3'	13°41.3	11.4'	54.2'	70°42.9		68°18.0	82°41.0	86°57.1	94°59.7	109°09.6	114°01.5
12	66°33.1							68°47.6	83°04.2	87° 19.9	95°19.4	109°32.8	114°31.0
13	81°07.5	81°07.5 15.4' 13°18.5 11.5' 54.2'				69°48.8		69°17.2	83°27.3	87°42.7	95°39.1	109°56.0	115°00.6
14	95°42.0	15.5'	$13^{\circ}07.1$	11.5'	54.2'	69°21.8		69°46.8	83°50.5	88°05.5	95°58.8	110°19.2	115°30.1
15	110°16.5	15.5'	$12^{\circ}55.6$	11.6'	54.1'	68°54.8		70°16.3	84°13.6	88°28.3	96°18.5	110°42.3	115°59.7
16	124°51.0	15.6'	12°44.0	11.6'	54.1'	68°27.8		70°45.9	84°36.8	88°51.1	96°38.1	111°05.4	116°29.2
17	139°25.6	15.6'	12°32.4	11.6'	54.1'	68°00.8		71°15.5	84°59.9	89°13.9	96°57.8	111°28.4	116°58.7
18	154°00.2					67°33.8		71°45.1	85°23.1	89°36.7	97°17.4	111°51.4	117°28.2
19	168°34.9					67°06.8		72°14.6	85°46.2	89°59.5	97°36.9	112°14.4	117°57.8
20	183°09.6					66°39.8 66°12.8		72°44.2	86°09.4	90°22.3	97°56.5	112°37.3	118°27.3
21	197°44.3							73°13.7	86°32.6	90°45.0	98°16.0	113°00.2	118°56.8
22	212°19.1 15.8' 11°33.8 11.9' 54.1'					65°45.8		73°43.3	86°55.8	91°07.8	98°35.6	113°23.0	119°26.3
23	226°54.0 15.9' 11°21.9 11.9' 54.1'					65°18.9		74°12.8	87°19.0	91°30.6	98°55.0	113°45.7	119°55.8
18 th	th $SD = 14.8'$ Mer. pass. 07:26								$Sun\;SD =$	15.9′			

h		Moor	n (19 th Ap	or)		L	unar Dis	tance (obj	jects with la	rgest hou	rly LD de	lta)
Wed	GHA	ν	Dec	d	HP	-Sun	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus
0	241°28.9	15.9'	S 11°10.0	11.9'	54.1'	64°51.9	34°25.7	74°42.4	87°42.1	91°53.4	99°14.5	114°08.5
1	256°03.8	16.0'	10°58.1	12.0'	54.1'	64°24.9	34°41.3	75° 11.9	88°05.3	92°16.1	99°33.9	114°31.1
2	270°38.8	16.0'	$10^{\circ}46.1$	12.0'	54.1'	63°58.0	34°57.2	75°41.5	88°28.5	92°38.9	99°53.4	114°53.8
3	285°13.8	16.0'	10°34.0	12.1'	54.1'	63°31.0	35° 13.3	76° 11.0	88°51.7	93°01.6	100°12.7	115°16.3
4	299°48.8	16.1'	10°22.0	12.1'	54.1'	63°04.0	35°29.7	76°40.6	89°14.9	93°24.4	100°32.1	115°38.9
5	314°23.9	16.1'	$10^{\circ}09.9$	12.1'	54.1'	62°37.1	35°46.3	$77^{\circ}10.1$	89°38.1	93°47.1	100°51.4	116°01.3
6	328°59.0	16.1'	S 09°57.7	12.2'	54.1'	62°10.1	36°03.2	77°39.6	90°01.3	94°09.8	101°10.7	116°23.8
7	$343^{\circ}34.1$	16.2'	09°45.6	12.2'	54.1'	61°43.2	36°20.3	78°09.2	90°24.4	94°32.5	101°30.0	116°46.1
8	358°09.3	16.2'	09°33.4	12.2'	54.1'	61°16.2	36°37.6	78°38.7	90°47.6	94°55.3	101°49.3	117°08.4
9	12°44.5	16.2'	$09^{\circ}21.1$	12.3'	54.1'	60°49.3	36°55.1	79°08.2	91°10.8	95° 18.0	102°08.5	117°30.7
10	$27^{\circ}19.8$	16.3'	09°08.8	12.3'	54.1'	60°22.3	37°12.9	79°37.8	91°34.0	95°40.6	102°27.7	117°52.9
11	41°55.0	16.3'	08°56.5	12.3'	54.1'	59°55.4	37° 30.8	80°07.3	91°57.2	96°03.3	102°46.8	118°15.0
12	56°30.3	16.3'	S 08°44.2	12.4'	54.1'	59°28.4	37°49.0	80°36.9	92°20.4	96°26.0	103°05.9	118°37.1
13	71°05.7	16.4'	08°31.8	12.4'	54.1'	59°01.5	38°07.4	81°06.4	92°43.5	96°48.7	103°25.0	118°59.1
14	85°41.0	16.4'	08°19.4	12.4'	54.1'	58°34.5	38° 26.0	81°35.9	93°06.7	97°11.3	103°44.1	119°21.1
15	100°16.4	16.4'	08°06.9	12.5'	54.1'	58°07.6	38°44.8	82°05.5	93°29.9	97°33.9	104°03.1	119°43.0
16	114°51.8	16.4'	07°54.5	12.5'	54.1'	57°40.6	39°03.7	82°35.0	93°53.0	97°56.6	104°22.0	
17	129°27.3	16.5'	07°42.0	12.5'	54.1'	57°13.6	39°22.9	83°04.6	94°16.2	98° 19.2	104°41.0	
18	144°02.7	16.5'	S 07°29.4	12.6'	54.1'	56°46.7	39°42.2	83°34.1	94°39.3	98°41.8	104°59.9	
19	158°38.2	16.5'	$07^{\circ}16.9$	12.6'	54.1'	56°19.7	40°01.7	84°03.7	95°02.5	99°04.4	105°18.8	
20	173°13.7	16.5'	07°04.3	12.6'	54.1'	55°52.8	40°21.4	84°33.2	95°25.6	99°26.9	105°37.6	
21	187°49.3	16.5'	$06^{\circ}51.7$	12.6'	54.1'	55°25.8	40°41.2	85°02.8	95°48.8	99°49.5	105°56.4	
22	202°24.8	16.6'	06°39.0	12.7'	54.1'	54°58.9	41°01.2	85°32.4	96°11.9	100°12.0	106°15.1	
23	217°00.4	16.6'	06°26.4	12.7'	54.1'	54°31.9	41°21.4	86°01.9	96°35.0	100°34.6	106°33.8	
19 th	SD	$=14.8^{\prime}$	Mer. pass	s. 08:08					Sun $SD = 15.9$	9′		

h Mo	oon (20 th Apr)	Lunar Distance (objects with largest	t hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Sun	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	231°35.9	16.6'	S 06° 13.7	12.7'	54.1'	54°04.9	41°41.7	86°31.5	96°58.1	100°57.1	106°52.5
1	246°11.5	16.6'	$06^{\circ}01.0$	12.7'	54.1'	53°37.9	42°02.2	87°01.1	97°21.2	101°19.6	107°11.1
2	260°47.2	16.6'	05°48.2	12.8'	54.1'	53°11.0	42°22.8	87°30.7	97°44.3	101°42.0	107°29.7
3	275°22.8	16.6'	05°35.4	12.8'	54.1'	52°44.0	42°43.6	88°00.3	98°07.4	102°04.5	107°48.2
4	289°58.4	16.7'	05°22.7	12.8'	54.1'	52° 17.0	43°04.5	88°29.9	98°30.5	102°26.9	108°06.7
5	304°34.1	16.7'	$05^{\circ}09.9$	12.8'	54.1'	51°50.0	43°25.6	88°59.5	98°53.6	102°49.3	108°25.1
6	319°09.8	16.7'	S 04°57.0	12.9'	54.1'	51°23.0	43°46.8	89°29.1	99°16.6	103°11.7	108°43.5
7	333°45.5	16.7'	04°44.2	12.9'	54.1'	50°56.0	44°08.1	89°58.7	99°39.7	103°34.1	109°01.8
8	348°21.1	16.7'	04°31.3	12.9'	54.1'	50°29.0	44°29.6	90°28.3	100°02.7	103°56.5	109°20.1
9	2°56.9	16.7'	$04^{\circ}18.4$	12.9'	54.1'	50°02.0	44°51.2	90°57.9	100°25.7	104°18.8	109°38.3
10	17°32.6	16.7'	04°05.5	12.9'	54.1'	49°35.0	45°12.9	91°27.6	100°48.7	104°41.1	109°56.5
11	32°08.3	16.7'	03°52.6	12.9'	54.1'	49°08.0	45°34.7	91°57.2	101°11.7	105°03.4	110°14.6
12	46°44.0	16.7'	S 03°39.6	13.0'	54.1'	48°41.0	45°56.7	92°26.9	101°34.7	105°25.6	110°32.7
13	61°19.7	16.7'	03°26.7	13.0'	54.1'	48°13.9	46°18.8	92°56.5	101°57.6	105°47.9	110°50.7
14	75°55.5	16.7'	03° 13.7	13.0'	54.1'	47°46.9	46°41.0	93°26.2	102°20.6	106°10.1	111°08.7
15	90°31.2	16.7'	$03^{\circ}00.7$	13.0'	54.1'	$47^{\circ}19.9$	47°03.3	93°55.9	102°43.5	106°32.3	111°26.6
16	105°06.9	16.7'	02°47.7	13.0'	54.1'	46°52.8	47°25.7	94°25.6	103°06.4	106°54.4	111°44.4
17	119°42.7	16.7'	02°34.7	13.0'	54.1'	46°25.8	47°48.2	94°55.3	103°29.3	107°16.6	112°02.2
18	134°18.4	16.7'	S 02°21.6	13.0'	54.2'	45°58.7	48°10.8	95°25.0	103°52.2	107°38.7	112°19.9
19	148°54.2	16.7'	02°08.6	13.1'	54.2'	45°31.6	48°33.6	95°54.7	104°15.1	108°00.7	112°37.6
20	163°29.9	16.7'	01°55.5	13.1'	54.2'	45°04.6	48° 56.4	96°24.4	104°37.9	108°22.8	112°55.2
21	178°05.6	16.7'	$01^{\circ}42.5$	13.1'	54.2'	44°37.5	49°19.3	96°54.1	105°00.7	108°44.8	113°12.7
22	192°41.4	16.7'	01°29.4	13.1'	54.2'	44° 10.4	49°42.3	97°23.9	105°23.5	109°06.8	113°30.2
23	207°17.1	16.7'	01°16.3	13.1'	54.2'	43°43.3	50°05.5	97°53.7	105°46.3	109°28.7	113°47.6
20 th	SD	= 14.7'	Mer. pass	08:48				Sun S	SD = 15.9'		

h Moon (21st Apr)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Sun	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	221°52.8	16.7'	S 01°03.2	13.1'	54.2'	43°16.2	28°33.1	50°28.7	98°23.4	106°09.1	109°50.6	114°04.9
1	236°28.5	16.7'	$00^{\circ}50.1$	13.1'	54.2'	42°49.1	28°48.8	50°52.0	98°53.2	106°31.8	110°12.5	114°22.2
2	251°04.3	16.7'	00°37.0	13.1'	54.2'	42°22.0	29°04.8	51°15.4	99°23.0	106°54.5	110°34.3	114°39.3
3	265°40.0	16.7'	00°23.9	13.1'	54.2'	41°54.8	29°21.2	51°38.9	99°52.8	107° 17.2	110°56.1	114°56.5
4	280°15.6	16.7'	S 00°10.7	13.1'	54.2'	41°27.7	29°37.9	52°02.5	100°22.6	107°39.9	111°17.9	115°13.5
5	294°51.3	16.7'	N 00°02.4	13.1'	54.2'	41°00.6	29°54.9	52°26.1	100°52.4	108°02.5	111°39.6	115°30.5
6	309°27.0	16.7'	$N00^{\circ}15.5$	13.1'	54.2'	40°33.4	30°12.2	52°49.9	101°22.3	108°25.1	112°01.3	115°47.3
7	324°02.6	16.6'	00°28.7	13.1'	54.3'	40°06.3	30°29.8	53°13.7	101°52.1	108°47.7	112°23.0	116°04.2
8	338°38.3	16.6'	00°41.8	13.1'	54.3'		30°47.8	53°37.6	102°22.0	109° 10.3	112°44.6	116°20.9
9	353°13.9	16.6'	00°55.0	13.2'	54.3'		31°05.9	54°01.6	102°51.9	109°32.8	113°06.1	116°37.5
10	7°49.5	16.6'	$01^{\circ}08.1$	13.2'	54.3'		31°24.4	54°25.6	103°21.8	109°55.3	113°27.6	116°54.1
11	22°25.1	16.6'	$01^{\circ}21.3$	13.2'	54.3'		31°43.2	54°49.8	103°51.7	110° 17.7	113°49.1	117°10.6
12	37°00.7	16.6'	N 01°34.4	13.2'	54.3'		32°02.2	55°14.0	104°21.6	110°40.2	114°10.5	117°27.0
13	51°36.3	16.5'	01°47.6	13.2'	54.3'		32°21.4	55°38.3	104°51.5	111°02.6	114°31.9	117°43.3
14	66°11.8	16.5'	02°00.7	13.2'	54.3'		32°40.9	56°02.7	105°21.5	111°24.9	114°53.2	117°59.5
15	80°47.3	16.5'	$02^{\circ}13.9$	13.1'	54.3'		33°00.7	56°27.1	105°51.4	111°47.3	115°14.5	118°15.6
16	95°22.8	16.5'	$02^{\circ}27.0$	13.1'	54.3'		33°20.6	56°51.6	106°21.4	112°09.6	115°35.8	118°31.6
17	109°58.3	16.5'	02°40.2	13.1'	54.4'		33°40.9	57°16.2	106°51.4	112°31.8	115°56.9	118°47.6
18	124°33.8	16.4'	$N02^{\circ}53.3$	13.1'	54.4'		34°01.3	57°40.8	107°21.4	112°54.0	116°18.1	119°03.4
19	139°09.2	16.4'	03°06.5	13.1'	54.4'		34°21.9	58°05.5	107°51.4	113° 16.2	116°39.1	119°19.2
20	153°44.6	16.4'	$03^{\circ}19.6$	13.1'	54.4'		34°42.8	58°30.3	108°21.4	113°38.4	117°00.1	119°34.8
21	168°20.0	16.4'	03°32.7	13.1'	54.4'		35°03.9	58°55.1	108°51.5	114°00.5	117°21.1	119°50.4
22	182°55.3	16.3'	03°45.9	13.1'	54.4'		35°25.1	59°20.0	109°21.6	114°22.5	117°42.0	
23	197°30.7	16.3'	03°59.0	13.1'	54.4'		35°46.6	59°45.0	109°51.6	114°44.5	118°02.8	
21 st	SD	$=14.8^{\prime}$	Mer. pass	. 09:28					$Sun\;SD=15$.9′		

h Moon (22nd Apr) Lunar Distance (objects with largest hourly LD delta)

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Sat	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar
0	$212^{\circ}06.0$	16.3'	$N04^{\circ}12.1$	13.1'	54.4'	36°08.2	60°10.0	110°21.7	115°06.5	118°23.6
1	226°41.2	16.2'	04°25.2	13.1'	54.5'	36°30.1	60°35.0	110°51.8	115°28.4	118°44.3
2	241°16.5	16.2'	04°38.3	13.1'	54.5'	36°52.1	61°00.2	111°22.0	115°50.3	119°04.9
3	255°51.7	16.2'	04°51.3	13.1'	54.5'	37°14.2	61°25.4	111°52.1	116° 12.1	119°25.5
4	270°26.8	16.1'	05°04.4	13.1'	54.5'	37°36.6	61°50.6	112°22.3	116°33.9	119°46.0
5	285°02.0	16.1'	$05^{\circ}17.4$	13.0'	54.5'	37°59.1	62°16.0	112°52.5	116°55.6	
6	299°37.1	16.1'	N 05°30.5	13.0'	54.5'	38°21.8	62°41.3	113°22.7	117° 17.3	
7	$314^{\circ}12.1$	16.0'	05°43.5	13.0'	54.5'	38°44.7	63°06.7	113°52.9	117°38.9	
8	328°47.2	16.0'	05°56.5	13.0'	54.5'	39°07.6	63°32.2	114°23.1	118°00.4	
9	343°22.2	16.0'	06°09.5	13.0'	54.6'	39°30.8	63°57.8	114°53.3	118°21.9	
10	357°57.1	15.9'	06°22.5	13.0'	54.6'	39°54.1	64°23.3	115°23.6	118°43.4	
11	12°32.0	15.9'	06°35.5	12.9'	54.6'	40°17.5	64°49.0	115°53.9	119°04.8	
12	27°06.9	15.8'	N 06°48.4	12.9'	54.6'	40°41.1	65°14.7	116°24.2	119°26.1	
13	$41^{\circ}41.7$	15.8'	$07^{\circ}01.3$	12.9'	54.6'	41°04.8	65°40.4	116°54.5	119°47.3	
14	$56^{\circ}16.5$	15.7'	$07^{\circ}14.2$	12.9'	54.6'	41°28.6	66°06.2	117°24.9		
15	70°51.3	15.7'	$07^{\circ}27.1$	12.9'	54.6'	41°52.6	66°32.0	117°55.2		
16	85°26.0	15.7'	07°40.0	12.8'	54.7'	42°16.7	66°57.9	118°25.6		
17	100°00.6	15.6'	07°52.8	12.8'	54.7'	42°40.9	67°23.8	118°56.0		
18	114°35.2	15.6'	N 08°05.6	12.8'	54.7'	43°05.3	67°49.8	119°26.4		
19	129°09.8	15.5'	08°18.4	12.8'	54.7'	43°29.7	68°15.8	119°56.8		
20	143°44.3	15.5'	08°31.2	12.7'	54.7'	43°54.3	68°41.9			
21	158°18.8	15.4'	08°44.0	12.7'	54.7'	44°19.0	69°08.0			
22	172°53.2	15.4'	08°56.7	12.7'	54.8'	44°43.8	69°34.1			
23	187°27.6	15.3'	09°09.4	12.7'	54.8'	45°08.7	70°00.3			
22 nd	SD	$=14.8^{\prime}$	Mer. pass	. 10:08						

h		Moon	(23 rd Ap	r)		Lunar Dis	stance
Sun	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair
0	202°01.9	15.3'	N 09°22.0	12.6'	54.8'	45°33.7	70°26.6
1	216°36.1	15.2'	09°34.7	12.6'	54.8'	45°58.8	70°52.9
2	231°10.3	15.2'	09°47.3	12.6'	54.8'	46°24.0	71°19.2
3	245°44.5	15.1'	09°59.8	12.5'	54.8'	46°49.3	71°45.6
4	260°18.6	15.0'	$10^{\circ}12.4$	12.5'	54.9'	47°14.7	72°12.0
5	274°52.6	15.0'	10°24.9	12.5'	54.9'	47°40.2	72°38.4
6	289°26.6	14.9'	$N10^{\circ}37.3$	12.4'	54.9'	48°05.8	73°04.9
7	304°00.5	14.9'	10°49.8	12.4'	54.9'	48°31.5	73°31.4
8	318°34.4	14.8'	11°02.2	12.4'	54.9'	48°57.3	73°58.0
9	333°08.2	14.7'	$11^{\circ}14.5$	12.3'	54.9'	49°23.1	74°24.6
10	347°42.0	14.7'	$11^{\circ}26.9$	12.3'	55.0'	49°49.1	74°51.2
11	2°15.7	14.6'	11°39.2	12.2'	55.0'	50°15.1	75°17.9
12	16°49.3	14.6'	$N11^{\circ}51.4$	12.2'	55.0'	50°41.2	75°44.6
13	31°22.9	14.5'	12°03.6	12.2'	55.0'	51°07.4	76°11.4
14	45°56.4	14.4'	12° 15.8	12.1'	55.0'	51°33.7	76°38.1
15	60°29.8	14.4'	12°27.9	12.1'	55.0'	52°00.0	77°05.0
16	75°03.2	14.3'	12°40.0	12.0'	55.1'	52°26.4	77°31.8
17	89°36.5	14.2'	12°52.0	12.0'	55.1'	52°52.9	77°58.7
18	104°09.7	14.2'	$N13^{\circ}04.0$	11.9'	55.1'	53°19.5	78°25.6
19	118°42.9	14.1'	13° 15.9	11.9'	55.1'	53°46.2	78°52.6
20	133°16.0	14.0'	13°27.8	11.8'	55.1'	54°12.9	79°19.5
21	147°49.0	14.0'	13°39.7	11.8'	55.1'	54°39.7	79°46.6
22	162°22.0	13.9'	$13^{\circ}51.5$	11.7'	55.2'	55°06.5	80°13.6
23	176°54.8	13.8'	14°03.2	11.7'	55.2'	55°33.4	80°40.7
23 rd	SD	$=14.9^{\prime}$	Mer. pass	. 10:51			

h		Moon	(24 th Ap		Lunar Dis	stance	
Mon	GHA	ν	Dec	d	HP	+Fomalhaut	+Altair
0	191°27.7	13.7'	$N14^{\circ}14.9$	11.6'	55.2'	56°00.4	81°07.8
1	206°00.4	13.7'	$14^{\circ}26.5$	11.6'	55.2'	56°27.4	81°34.9
2	220°33.1	13.6'	14°38.1	11.5'	55.2'	New Mo	on
3	235°05.7	13.5'	14°49.6	11.5'	55.3'	New Mo	oon
4	249°38.2	13.5'	$15^{\circ}01.1$	11.4'	55.3'	New Mo	oon
5	264°10.7	13.4'	$15^{\circ}12.5$	11.4'	55.3'	New Mo	oon
6	278°43.0	13.3'	$N15^{\circ}23.9$	11.3'	55.3'	New Mo	oon
7	293°15.3	13.2'	15°35.2	11.2'	55.3'	New Mo	oon
8	307°47.6	13.1'	15°46.4	11.2'	55.4'	New Mo	oon
9	322°19.7	13.1'	15°57.6	11.1'	55.4'	New Mo	oon
10	336°51.8	13.0'	$16^{\circ}08.7$	11.0'	55.4'	New Mo	oon
11	351°23.8	12.9'	$16^{\circ}19.7$	11.0'	55.4'	New Mo	oon
12	5°55.7	12.8'	$N16^{\circ}30.7$	10.9'	55.4'	New Mo	oon
13	20°27.5	12.8'	$16^{\circ}41.6$	10.8'	55.5'	New Mo	oon
14	34°59.3	12.7'	$16^{\circ}52.4$	10.8'	55.5'	New Mo	oon
15	49°30.9	12.6'	17°03.2	10.7'	55.5'	New Mo	oon
16	64°02.5	12.5'	17° 13.9	10.6'	55.5'	New Mo	oon
17	78°34.0	12.4'	$17^{\circ}24.5$	10.6'	55.5'	New Mo	oon
18	93°05.5	12.3'	$N17^{\circ}35.1$	10.5'	55.5'	New Mo	oon
19	107°36.8	12.3'	$17^{\circ}45.6$	10.4'	55.6'	New Mo	oon
20	122°08.1	12.2'	$17^{\circ}56.0$	10.3'	55.6'	New Mo	oon
21	136°39.2	12.1'	$18^{\circ}06.3$	10.3'	55.6'	New Mo	oon
22	151°10.3	12.0'	$18^{\circ}16.6$	10.2'	55.6'	New Mo	oon
23	165°41.3	11.9'	18°26.8	10.1'	55.6'	New Mo	oon
24 th	SD	= 15.1'	Mer. pass	. 11:36			

h		Moor	n (25 th Ap	or)			Lunar D	istance (objects v	vith largest	hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Venus	-Aldebaran
0	180°12.3	11.8'	N 18°36.9	10.0'	55.7'				Nev	v Moon ——			
1	194°43.1	11.8'	18°46.9	9.9'	55.7'				Nev	v Moon ——			
2	209°13.8	11.7'	18°56.8	9.8'	55.7'				Nev	v Moon ——			
3	223°44.5	11.6'	19°06.6	9.8'	55.7'				Nev	v Moon ———			
4	238°15.1	11.5'	19°16.4	9.7'	55.7'					v Moon ———			
5	252°45.6	11.4'	$19^{\circ}26.1$	9.6'	55.8'				Nev	v Moon ———			
6	267°16.0	11.3'	$N19^{\circ}35.7$	9.5'	55.8'				Nev	v Moon ——			
7	281°46.3	11.2'	19°45.2	9.4'	55.8'				Nev	v Moon ——			
8	296°16.5	11.1'	19°54.6	9.3'	55.8'				Nev	v Moon ——			
9	310°46.7	11.1'	20°03.9	9.2'	55.9'				Nev	v Moon ——			
10	325°16.8	11.0'	20°13.2	9.1'	55.9'				Nev	v Moon ———			
11	339°46.7	10.9'	20°22.3	9.0'	55.9'				Nev	v Moon ——			
12	354°16.6	10.8'	N20°31.3	8.9'	55.9'				Nev	v Moon ——			
13	8°46.4	10.7'	20°40.3	8.9'	55.9'					v Moon ——			
14	23°16.1	10.6'	20°49.1	8.8'	56.0'		105°20.0	73°33.9	68°26.5	48°32.7	40°25.9	30°36.4	27°20.0
15	37°45.8	10.5'	20°57.9	8.7'	56.0'		104°48.2	73°03.3	67°54.8	48°03.8	39°58.8	30°05.8	26°50.1
16	52°15.3	10.5'	$21^{\circ}06.5$	8.6'	56.0'		104°16.3	72°32.7	67°23.1	47° 34.9	39°31.8	29°35.2	26°20.2
17	66°44.7	10.4'	$21^{\circ}15.1$	8.5'	56.0'		103°44.4	72°02.2	66°51.4	47°06.0	39°04.9	29°04.6	25°50.4
18	81°14.1	10.3'	N21°23.6	8.3'	56.0'		103°12.5	71°31.6	66°19.7	46°37.1	38°38.1	28°33.9	25°20.6
19	95°43.4	10.2'	21°31.9	8.2'	56.1'		102°40.5	71°00.9	65°47.9	46°08.3	38° 11.4	28°03.2	24°51.0
20	110°12.6	10.1'	21°40.1	8.1'	56.1'	119°46.1	102°08.6	70°30.3	65°16.1	45° 39.5	37° 44.7	27°32.5	24°21.3
21	124°41.7	10.0'	21°48.3	8.0'	56.1'	119° 14.1	101°36.6	69°59.7	64°44.3	45° 10.7	37° 18.2	27°01.7	23°51.8
22	139°10.7	9.9'	21°56.3	7.9'	56.1'	118°42.1	101°04.6	69°29.0	64°12.5	44°42.0	36°51.8	26°31.0	23°22.3
23	153°39.6	9.8'	22°04.2	7.8'	56.1'	118°10.1	100°32.5	68°58.4	63°40.7	44° 13.3	36°25.5	26°00.2	22°52.9
25 th	SD	= 15.2'	Mer. pass	s. 12:24									

h		Moor	ո (26 th Ap	or)			Lunar D	istance (objects v	vith largest	hourly L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Venus	-Aldebaran
0	168°08.5	9.8'	N 22°12.1	7.7'	56.2'	117°38.0	100°00.5	68°27.7	63°08.8	43°44.6	35°59.3	25°29.4	22°23.6
1	182°37.2	9.7'	$22^{\circ}19.8$	7.6'	56.2'	117°05.9	99°28.4	67°57.0	62°37.0	43° 16.0	35°33.2	24°58.5	21°54.5
2	197°05.9	9.6'	22°27.4	7.5'	56.2'	116°33.8	98°56.3	67°26.3	62°05.1	42°47.5	35°07.3	24°27.7	21°25.4
3	211°34.5	9.5'	22°34.8	7.4'	56.2'	116°01.7	98°24.2	66°55.6	61°33.1	42° 19.0	34°41.5	23°56.8	20°56.5
4	226°03.0	9.4'	22°42.2	7.3'	56.2'	115°29.5	97°52.0	66°24.9	61°01.2	41°50.5	34°15.8	23°25.9	20°27.6
5	240°31.4	9.3'	22°49.5	7.1'	56.3'	114°57.3	$97^{\circ}19.9$	65°54.2	60°29.2	41°22.1	33°50.3	22°55.0	19°59.0
6	254°59.7	9.3'	N 22°56.6	7.0'	56.3'	114°25.1	96°47.7	65°23.5	59°57.3	40°53.8	33°24.9	22°24.0	19°30.5
7	269°28.0	9.2'	23°03.6	6.9'	56.3'	113°52.9	96°15.5	64°52.7	59°25.3	40°25.5	32°59.7	21°53.1	19°02.1
8	283°56.2	9.1'	23° 10.5	6.8'	56.3'	113°20.7	95°43.2	64°22.0	58°53.3	39° 57.3	32°34.6	21°22.1	18°34.0
9	298°24.2	9.0'	23°17.3	6.7'	56.3'	112°48.4	95°11.0	63°51.2	58°21.2	39°29.1	32°09.8	20°51.1	18°06.0
10	312°52.3	8.9'	23°23.9	6.5'	56.4'	112°16.1	94°38.7	63°20.5	57°49.2	39°01.1	31°45.1	20°20.1	17°38.3
11	327°20.2	8.8'	23°30.5	6.4'	56.4'	111°43.8	94°06.4	62°49.7	57°17.1	38°33.1	31°20.6	19°49.0	17°10.8
12	341°48.0	8.8'	N 23°36.9	6.3'	56.4'	111°11.4	93°34.1	62°18.9	56°45.0	38°05.1	30°56.3	19°18.0	16°43.6
13	356°15.8	8.7'	23°43.2	6.2'	56.4'	110°39.1	93°01.7	61°48.1	56°12.9	37°37.3	30°32.2	18°46.9	16°16.7
14	10°43.5	8.6'	23°49.4	6.0'	56.4'	110°06.7	92°29.3	61°17.3	55°40.8	37°09.5	30°08.3	18°15.8	15°50.0
15	25°11.1	8.5'	23°55.4	5.9'	56.5'	109°34.3	91°56.9	60°46.5	55°08.6	36°41.8	29°44.7	17°44.7	15°23.8
16	39°38.6	8.4'	24°01.3	5.8'	56.5'	109°01.8	91°24.5	60°15.8	54°36.5	36° 14.3	29°21.3	17°13.6	14°57.9
17	54°06.0	8.4'	24°07.1	5.7'	56.5'	108°29.4	90°52.1	59°45.0	54°04.3	35°46.8	28°58.1	16°42.4	14°32.4
18	68°33.4	8.3'	N 24° 12.7	5.5'	56.5'	107°56.9	$90^{\circ}19.6$	59°14.1	53°32.1	35° 19.4	28°35.2	16°11.3	14°07.3
19	83°00.7	8.2'	24°18.3	5.4'	56.6'	107°24.4	89°47.2	58°43.3	52°59.9	34°52.1	28°12.6	15°40.1	13°42.8
20	97°27.9	8.2'	24°23.6	5.3'	56.6'	106°51.9	89°14.7	58°12.5	52°27.7	34°25.0	27°50.3	15°08.9	13°18.8
21	111°55.1	8.1'	24°28.9	5.1'	56.6'	106°19.3	88°42.1	57°41.7	51°55.4	33°57.9	27°28.2	14°37.7	12°55.4
22	126°22.2	8.0'	24°34.0	5.0'	56.6'	105°46.7	88°09.6	57°10.9	51°23.1	33°31.0	27°06.5	14°06.5	12°32.6
23	140°49.2	7.9'	24°39.0	4.9'	56.6'	105°14.1	87°37.0	56°40.1	50°50.9	33°04.3	26°45.1	13°35.3	12°10.6
26 th	SD =	= 15.3′	Mer. pass	s. 13:16	5								

h	Moon	(27 th	Apr)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Jupiter	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Venus	-Aldebaran
0	155°16.1	7.9'	N 24°43.9	4.7'	56.7'	104°41.5	87°04.4	56°09.3	50°18.5	32°37.6	26°24.0	13°04.1	11°49.3
1	169°43.0	7.8'	24°48.6	4.6'	56.7'	104°08.9	86°31.8	55° 38.5	49°46.2	32°11.1	26°03.3	12°32.8	11°28.9
2	184°09.8	7.7'	24°53.1	4.4'	56.7'	103°36.2	85°59.2	55°07.7	49°13.9	31°44.8	25°43.0	12°01.6	11°09.5
3	198°36.5	7.7'	24°57.6	4.3'	56.7'	103°03.6	85°26.5	54°36.9	48°41.6	31°18.6	25°23.0	11°30.4	
4	213°03.2	7.6'	25°01.9	4.2'	56.7'	102°30.8	84°53.8	54°06.1	48°09.2	30°52.6	25°03.5	10°59.2	
5	227°29.8	7.5'	25°06.0	4.0'	56.8'	101°58.1	84°21.1	53°35.3	47°36.8	30°26.8	24°44.4	10°28.0	
6	241°56.3	7.5'	$N25^{\circ}10.0$	3.9'	56.8'	101°25.4	83°48.4	53°04.5	47°04.4	30°01.1	24°25.7	9°56.8	i i
7	256°22.8	7.4'	25°13.9	3.7'	56.8'	100°52.6	83°15.7	52°33.8	46°32.0	29°35.7	24°07.5	9°25.7	
8	270°49.2	7.3'	$25^{\circ}17.6$	3.6'	56.8'	100°19.8	82°42.9	52°03.0	45°59.6	29°10.4	23°49.7	8°54.5	
9	285°15.5	7.3'	25°21.2	3.4'	56.8'	99°47.0	82°10.1	51°32.2	45°27.1	28°45.4	23°32.5	8°23.5	
10	299°41.8	7.2'	25°24.7	3.3'	56.9'	99°14.2	81°37.3	51°01.5	44°54.7	28°20.6	23°15.8	7°52.5	
11	314°08.1	7.2'	25°28.0	3.1'	56.9'	98°41.3	81°04.5	50°30.7	44°22.2	27°56.0	22°59.6	7°21.5	
12	328°34.2	7.1'	$N25^{\circ}31.1$	3.0'	56.9'	98°08.4	80°31.6	50°00.0	43°49.8	27°31.7	22°43.9	6°50.7	i i
13	343°00.4	7.1'	25°34.1	2.9'	56.9'	97°35.5	79°58.8	49°29.3	43°17.3	27°07.7	22°28.9	6°20.0	i i
14	357°26.4	7.0'	25°37.0	2.7'	56.9'	97°02.6	79°25.9	48°58.6	42°44.8	26°43.9		5°49.4	
15	11°52.4	7.0'	25°39.7	2.6'	57.0'	96°29.7	78°53.0	48°27.9	42°12.2	26°20.4		$5^{\circ}19.1$	
16	26°18.4	6.9'	25°42.2	2.4'	57.0'	95°56.7	78°20.0	47°57.3	41°39.7	25°57.2		4°49.1	i
17	40°44.3	6.9'	25°44.6	2.3'	57.0'	95°23.7	77°47.1	47°26.6	41°07.2	25°34.4		4° 19.5	
18	55°10.2	6.8'	N 25°46.9	2.1'	57.0'	94°50.7	77°14.1	46°56.0	40°34.6	25°11.8		3°50.6	i i
19	69°36.0	6.8'	25°49.0	1.9'	57.1'	94°17.7	76°41.1	46°25.4	40°02.1	24°49.6		3°22.4	
20	84°01.8	6.7'	25°50.9	1.8'	57.1'	93°44.6	76°08.1	45°54.9	39°29.5	24°27.8			i l
21	98°27.5	6.7'	25°52.7	1.6'	57.1'	93°11.5	75°35.0	45° 24.3	38°56.9	24°06.4			i l
22	112°53.2	6.7'	25°54.3	1.5'	57.1'	92°38.4	75°02.0	44°53.8	38°24.3	23°45.4			i l
23	127°18.9	6.6'	25°55.8	1.3'	57.1'	92°05.3	74°28.9	44°23.3	37°51.8	23°24.8			
27 th	SD =	= 15.5 [']	Mer. pass	. 14:11	L								

Moon (28th Apr)

h

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Procyon	-Pollux	+Venus	+Aldebaran	+Sun
0	141°44.5	6.6'	N 25°57.2	1.2'	57.2'		91°32.2	73°55.8	43°52.8	37°19.1			
1	156°10.1	6.5'	25°58.3	1.0'	57.2'		90°59.0	73°22.6	43°22.4	36°46.5			
2	170°35.6	6.5'	25°59.4	0.9'	57.2'		90°25.9	72°49.5	42°52.0	36°13.9			
3	185°01.1	6.5'	26°00.2	0.7'	57.2'		89°52.7	72°16.3	42°21.6	35°41.3			
4	199°26.6	6.4'	26°00.9	0.6'	57.2'		89°19.4	71°43.1	41°51.3	35°08.7			
5	213°52.0	6.4'	$26^{\circ}01.5$	0.4'	57.3'		88°46.2	71°09.9	41°21.0	34°36.1		12°17.8	
6	228°17.5	6.4'	N26°01.9	0.2'	57.3'		88°12.9	70°36.7	40°50.8	34°03.4		12°40.5	41°13.7
7	242°42.9	6.4'	26°02.1	0.1'	57.3'		87°39.7	70°03.5	40°20.6	33°30.8		13°04.0	41°44.3
8	257°08.2	6.3'	26°02.2	-0.1'	57.3'		87°06.4	69°30.2	39°50.5	32°58.2	4°23.5	13°28.2	42°15.0
9	271°33.6	6.3'	26°02.1	-0.2'	57.3'		86°33.0	68°56.9	39°20.4	32°25.5	4°53.5	13°53.0	42°45.6
10	285°58.9	6.3'	26°01.9	-0.4'	57.4'		85°59.7	68°23.6	38°50.4	31°52.9	5°24.0	14°18.5	43°16.3
11	300°24.2	6.3'	26°01.5	-0.6'	57.4'		85°26.3	67°50.2	38°20.4	31°20.3	5°54.8	14°44.4	43°47.0
12	314°49.5	6.3'	N 26°00.9	-0.7'	57.4'		84°52.9	67°16.9	37°50.5	30°47.7	6°25.9	15° 10.9	44°17.8
13	329°14.7	6.3'	26°00.2	-0.9'	57.4'		84°19.5	66°43.5	37°20.7	30°15.0	6°57.2	15°37.8	44°48.5
14	343°40.0	6.2'	25°59.3	-1.0'	57.4'		83°46.1	66°10.1	36°50.9	29°42.4	7°28.7	16°05.1	45°19.3
15	358°05.2	6.2'	25°58.3	-1.2'	57.5'	119°40.6	83°12.7	65°36.7	36°21.2	29°09.8	8°00.3	16°32.8	45°50.1
16	12°30.5	6.2'	25°57.1	-1.4'	57.5'	119°07.2	82°39.2	65°03.3	35°51.6	28°37.3	8°32.0	17°00.8	46°21.0
17	26°55.7	6.2'	25°55.7	-1.5'	57.5'	118°33.7	82°05.7	64°29.8	35°22.0	28°04.7	9°03.9	17°29.2	46°51.8
18	41°20.9	6.2'	N25°54.2	-1.7'	57.5'	118°00.3	81°32.2	63°56.3	34°52.6	27°32.1	9°35.8	17°57.9	47°22.7
19	55°46.1	6.2'	25°52.6	-1.8'	57.5'	117°26.8	80°58.7	63°22.9	34°23.2	26°59.6	10°07.9	18°26.9	47°53.6
20	70°11.3	6.2'	25°50.7	-2.0'	57.6'	116°53.2	80°25.1	62°49.3	33°53.9	26°27.0	10°40.0	18°56.1	48°24.6
21	84°36.5	6.2'	25°48.7	-2.2'	57.6'	116°19.7	79°51.6	62°15.8	33°24.7	25°54.5	11°12.1	19°25.6	48°55.5
22	99°01.7	6.2'	25°46.6	-2.3'	57.6'	115°46.1	79°18.0	61°42.2	32°55.7	25°22.1	11°44.4	19°55.3	49°26.5
23	113°26.9	6.2'	25°44.3	-2.5'	57.6'	115°12.5	78°44.4	61°08.7	32°26.7	24°49.6	12°16.6	20°25.2	49°57.5
28 th	SD	= 15.6'	Mer. pass	s. 15:08					Sun SD	= 15.9'			

h Moon (20th Apr)

Sat	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Venus	+Aldebaran	+Capella	+Sun
0	127°52.1	6.2'	N 25°41.8	-2.6'	57.6'	114°38.9	78°10.8	60°35.1	24°17.2	12°49.0	20°55.3		50°28.6
1	142°17.2	6.2'	25°39.1	-2.8'	57.7'	114°05.3	77°37.1	60°01.4	23°44.8	13°21.4	21°25.6		50°59.6
2	156°42.5	6.2'	25°36.4	-3.0'	57.7'	113°31.6	77°03.4	59°27.8	23° 12.4	13°53.8	21°56.1		51°30.7
3	171°07.7	6.2'	25°33.4	-3.1'	57.7'	112°57.9	76°29.8	58°54.2	22°40.1	14°26.2	22°26.7		52°01.8
4	185°32.9	6.2'	25°30.3	-3.3'	57.7'	112°24.2	75°56.1	58°20.5	22°07.9	14°58.8	22°57.5	22°47.5	52°32.9
5	199°58.1	6.2'	25°27.0	-3.4'	57.7'	111°50.5	75°22.3	57°46.8	21°35.7	15°31.3	23°28.5	23°03.7	53°04.1
6	214°23.4	6.3'	N25°23.6	-3.6'	57.8'	111°16.8	74°48.6	57°13.1	21°03.5	16°03.9	23°59.5	23°20.5	53°35.2
7	228°48.6	6.3'	25°20.0	-3.7'	57.8'	110°43.0	74°14.8	56°39.3	20°31.4	16°36.5	24°30.8	23°37.8	54°06.4
8	243°13.9	6.3'	25°16.3	-3.9'	57.8'	110°09.2	73°41.0	56°05.6	19°59.4	17°09.2	25°02.1	23°55.8	54°37.7
9	257°39.2	6.3'	25°12.3	-4.1'	57.8'	109°35.4	73°07.2	55°31.8	19°27.5	17°41.9	25°33.6	24°14.3	55°08.9
10	272°04.5	6.3'	25°08.3	-4.2'	57.8'	109°01.6	72°33.4	54°58.0	18°55.6	18°14.6	26°05.1	24°33.3	55°40.2
11	286°29.8	6.3'	25°04.1	-4.4'	57.9'	108°27.8	71°59.6	54°24.2	18°23.9	18°47.3	26°36.8	24°52.8	56°11.5
12	300°55.1	6.4'	N 24°59.7	-4.5'	57.9'	107°53.9	71°25.7	53°50.4	17°52.2	19°20.1	27°08.6	25°12.8	56°42.8
13	315°20.5	6.4'	24°55.2	-4.7'	57.9'	107°20.0	70°51.8	53°16.5	17°20.7	19°52.9	27°40.5	25°33.3	57°14.1
14	329°45.9	6.4'	24°50.5	-4.8'	57.9'	106°46.1	70°18.0	52°42.6	16°49.3	20°25.8	28°12.5	25°54.2	57°45.5
15	344°11.3	6.4'	24°45.6	-5.0'	57.9'	106°12.2	69°44.0	52°08.8	16° 18.1	20°58.7	28°44.5	26°15.6	58°16.8
16	358°36.7	6.5'	24°40.6	-5.2'	58.0'	105°38.2	69°10.1	51°34.8	15°47.0	21°31.6	29°16.7	26°37.4	58°48.2
17	13°02.2	6.5'	24°35.5	-5.3'	58.0'	105°04.3	68°36.1	$51^{\circ}00.9$	15°16.1	22°04.5	29°48.9	26°59.6	59°19.7
18	27°27.7	6.5'	N24°30.2	-5.5'	58.0'	104°30.3	68°02.2	50°27.0	14°45.4	22°37.5	30°21.2	27°22.1	59°51.1
19	41°53.2	6.6'	24°24.7	-5.6'	58.0'	103°56.2	67°28.2	49°53.0	14° 14.9	23°10.5	30°53.6	27°45.1	60°22.6
20	56°18.8	6.6'	$24^{\circ}19.1$	-5.8'	58.0'	103°22.2	66°54.2	49°19.0	13°44.7	23°43.5	31°26.0	28°08.4	60°54.1
21	70°44.4	6.6'	24°13.3	-5.9'	58.1'	102°48.2	66°20.1	48°45.0	13° 14.8	24°16.5	31°58.6	28°32.1	61°25.6
22	85°10.0	6.7'	24°07.4	-6.1'	58.1'	102°14.1	65°46.1	$48^{\circ}11.0$	12°45.2	24°49.6	32°31.2	28°56.1	61°57.1
23	99°35.7	6.7'	24°01.3	-6.2'	58.1'	101°40.0	65°12.0	47°37.0	12°16.0	25°22.7	33°03.8	29°20.4	62°28.7
29 th	SD :	= 15.7	Mer. pas	s. 16:06	i				Sun S	D = 15.9'			

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

Sun	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Venus	+Capella	+Aldebaran	+Sun
0	114°01.4	6.7'	N23°55.1	-6.4'	58.1'	101°05.9	64°37.9	47°02.9	11°47.2	25°55.8	29°45.0	33°36.5	63°00.2
1	128°27.1	6.8'	23°48.8	-6.5'	58.1'	100°31.7	64°03.8	46°28.8	11°18.9	26°29.0	30°09.9	34°09.3	63°31.8
2	142°52.9	6.8'	23°42.2	-6.7'	58.1'	99°57.6	63°29.7	45°54.7	10°51.1	27°02.2	30°35.1	34°42.2	64°03.5
3	157°18.7	6.9'	23°35.6	-6.8'	58.2'	99°23.4	62°55.6	45°20.6	10°23.9	27°35.4	31°00.6	35°15.1	64°35.1
4	171°44.6	6.9'	23°28.8	-7.0'	58.2'	98°49.2	62°21.4	44°46.5	9°57.4	28°08.6	31°26.4	35°48.0	65°06.8
5	186°10.5	6.9'	23°21.8	-7.1'	58.2'	98°15.0	61°47.3	44°12.3	9°31.8	28°41.9	31°52.4	36°21.0	65°38.5
6	200°36.4	7.0'	$N23^{\circ}14.7$	-7.2'	58.2'	97°40.8	61°13.1	43°38.1	9°07.0	29°15.2	32°18.6	36°54.1	66°10.2
7	215°02.4	7.0'	23°07.5	-7.4'	58.2'	97°06.5	60°38.8	43°04.0		29°48.5	32°45.1	37°27.2	66°41.9
8	229°28.4	7.1'	$23^{\circ}00.1$	-7.5'	58.3'	96°32.2	60°04.6	42°29.8		30°21.8	33°11.8	38°00.4	67°13.6
9	243°54.5	7.1'	22°52.5	-7.7'	58.3'	95°57.9	59°30.4	41°55.5		30°55.2	33°38.8	38°33.6	67°45.4
10	258°20.6	7.2'	22°44.8	-7.8'	58.3'	95°23.6	58°56.1	41°21.3		31°28.6	34°05.9	39°06.9	68°17.2
11	272°46.8	7.2'	22°37.0	-8.0'	58.3'	94°49.3	58°21.8	40°47.0		32°02.0	34°33.3	39°40.2	68°49.0
12	287°13.0	7.3'	$N22^{\circ}29.1$	-8.1'	58.3'	94°14.9	57°47.5	40°12.8		32°35.4	35°00.8	40°13.5	69°20.9
13	301°39.3	7.3'	$22^{\circ}21.0$	-8.2'	58.4'	93°40.5	57°13.2	39°38.5		33°08.9	35°28.5	40°46.9	69°52.7
14	316°05.6	7.4'	$22^{\circ}12.7$	-8.4'	58.4'	93°06.1	56°38.9	39°04.2		33°42.4	35°56.5	41°20.3	70°24.6
15	330°32.0	7.4'	22°04.3	-8.5'	58.4'	92°31.7	56°04.5	38°29.8		34°15.9	36°24.6	41°53.8	70°56.5
16	344°58.4	7.5'	21°55.8	-8.7'	58.4'	91°57.2	55°30.2	37°55.5		34°49.4	36°52.8	42°27.3	71°28.4
17	359°24.9	7.5'	$21^{\circ}47.2$	-8.8'	58.4'	91°22.8	54°55.8	37°21.1		35°23.0	37°21.3	43°00.9	72°00.4
18	13°51.4	7.6'	N 21°38.4	-8.9'	58.4'	90°48.3	54°21.4	36°46.8		35°56.5	37°49.9	43°34.5	72°32.3
19	28°18.0	7.6'	21°29.5	-9.1'	58.5'	90°13.8	53°47.0	36°12.4		36°30.1	38° 18.6	44°08.2	73°04.3
20	42°44.6	7.7'	21°20.4	-9.2'	58.5'	89°39.3	53°12.5	35°38.0		37°03.8	38°47.6	44°41.8	73°36.3
21	57°11.3	7.7'	$21^{\circ}11.2$	-9.3'	58.5'	89°04.7	52°38.1	35°03.6		37°37.4	39°16.6	45°15.5	74°08.4
22	71°38.0	7.8'	$21^{\circ}01.9$	-9.4'	58.5'	88°30.2	52°03.6	34°29.1		38°11.1	39°45.8	45°49.3	74°40.4
23	86°04.8	7.8'	20°52.5	-9.6'	58.5'	87°55.6	51°29.1	33°54.7		38°44.8	40°15.1	46°23.1	75°12.5
30 th	SD :	= 15.8'	Mer. pass	s. 17:02					Sun S	D = 15.9'			

h Moon (1st May)

		IVIOC	ווכ בן ווכ	ay <i>)</i>			Luliai Di	stance (objects w	itii laige	st nourry	LD delta)	
Mon	GHA	ν	Dec	d	HP	-Arcturus	-Spica	-Jupiter	-Regulus	+Pollux	+Venus	+Aldebaran	+Sun
0	100°31.6	7.9'	N 20°42.9	-9.7'	58.6'	88°05.5	87°21.0	50°54.7	33°20.2		39°18.6	46°56.9	75°44.6
1	114°58.5	8.0'	20°33.2	-9.8'	58.6'	87° 37.4	86°46.4	50°20.1	32°45.7		39°52.3	47°30.8	76°16.7
2	129°25.5	8.0'	20°23.4	-10.0'	58.6'	87°09.3	86°11.7	49°45.6	32°11.2		40°26.1	48°04.7	76°48.8
3	143°52.5	8.1'	20°13.4	-10.1'	58.6'	86°41.1	85°37.0	49°11.1	31°36.7		40°59.9	48°38.6	77°21.0
4	158°19.5	8.1'	20°03.3	-10.2'	58.6'	86°13.0	85°02.4	48°36.5	31°02.2		41°33.7	49°12.5	77°53.1
5	172°46.7	8.2'	19°53.1	-10.3'	58.6'	85°44.8	84°27.7	48°01.9	30°27.7		42°07.6	49°46.5	78°25.3
6	187°13.8	8.2'	N 19°42.8	-10.4'	58.7'	85° 16.6	83°52.9	47°27.4	29°53.1		42°41.4	50°20.6	78°57.5
7	201°41.1	8.3'	19°32.4	-10.6'	58.7'	84° 48.5	83°18.2	46°52.8	29°18.6	10°11.5	43°15.3	50°54.6	79°29.8
8	216°08.3	8.3'	19°21.8	-10.7'	58.7'	84°20.3	82°43.4	46°18.1	28°44.0	10°38.9	43°49.3	51°28.7	80°02.0
9	230°35.7	8.4'	$19^{\circ}11.1$	-10.8'	58.7'	83°52.1	82°08.7	45°43.5	28°09.4	11°06.9	44°23.2	52°02.8	80°34.3
10	245°03.1	8.5'	19°00.3	-10.9'	58.7'	83°23.9	81°33.9	45°08.9	27°34.9	11°35.5	44°57.2	52°37.0	81°06.6
11	259°30.5	8.5'	18°49.4	-11.0'	58.7'	82°55.7	80°59.0	44°34.2	27°00.3	12°04.7	45°31.2	53°11.2	81°38.9
12	273°58.1	8.6'	N18°38.4	-11.1'	58.8'	82°27.5	80°24.2	43°59.6	26°25.7	12°34.4	46°05.2	53°45.4	82°11.2
13	288°25.6	8.6'	18°27.2	-11.3'	58.8'	81°59.4	79°49.3	43°24.9	25°51.0	13°04.6	46°39.2	54°19.6	82°43.6
14	302°53.3	8.7'	$18^{\circ}16.0$	-11.4'	58.8'	81°31.2	79°14.4	42°50.2	25°16.4	13°35.1	47°13.3	54°53.9	83°16.0
15	317°20.9	8.7'	18°04.6	-11.5'	58.8'	81°03.0	78°39.6	42°15.5	24°41.8	14°06.0	47°47.4	55°28.2	83°48.4
16	331°48.7	8.8'	$17^{\circ}53.1$	-11.6'	58.8'	80°34.8	78°04.6	41°40.8	24°07.2	14°37.2	48°21.5	56°02.5	84°20.8
17	346°16.5	8.8'	17°41.6	-11.7'	58.9'	80°06.6	77°29.7	41°06.1	23°32.5	15°08.7	48°55.6	56°36.8	84°53.2
18	0°44.3	8.9'	$N17^{\circ}29.9$	-11.8'	58.9'	79°38.5	76°54.7	40°31.3	22°57.9	15°40.4	49°29.7	57°11.2	85°25.7
19	15°12.2	9.0'	$17^{\circ}18.1$	-11.9'	58.9'	79°10.3	76°19.8	39°56.6	22°23.3	16°12.4	50°03.9	57°45.6	85°58.1
20	29°40.2	9.0'	17°06.2	-12.0'	58.9'	78°42.2	75°44.8	39°21.8	21°48.6	16°44.6	50°38.1	58°20.1	86°30.6
21	44°08.2	9.1'	$16^{\circ}54.1$	-12.1'	58.9'	78° 14.0	75°09.8	38°47.1	21°14.0	17°17.0	51°12.3	58°54.5	87°03.1
22	58°36.3	9.1'	16°42.0	-12.2'	58.9'	77°45.9	74°34.7	38°12.3	20°39.4	17°49.5	51°46.6	59°29.0	87°35.7
23	73°04.4	9.2'	16°29.8	-12.3'	58.9'	77° 17.8	73°59.7	37°37.5	20°04.8	18°22.3	52°20.9	60°03.5	88°08.2
1 st	SD	= 16.0)' Mer. pas	ss. 17:57					Sun SE	0 = 15.9'			

ŀ	Moon (2 nd May)	Lunar Distance (objects with largest hourly LD delta)	
- 1	1 1010001 17 10130 1	Tillnar Distance Toblects with Jargest Hourty LD Gellat	

Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Venus	+Aldebaran	+Sun
0	87°32.6	9.2'	N 16° 17.5	-12.4'	59.0'	119°08.2	73°24.6	37°02.7	19°30.1	18°55.2	52°55.2	60°38.0	88°40.8
1	102°00.8	9.3'	$16^{\circ}05.1$	-12.5'	59.0'	118°33.0	72°49.5	36°27.9	18°55.5	19°28.2	53° 29.5	61°12.6	89°13.4
2	116°29.1	9.3'	15°52.6	-12.6'	59.0'	117°57.9	72°14.4	35°53.1	18°20.9	20°01.4	54°03.8	61°47.2	89°46.0
3	130°57.4	9.4'	15°40.0	-12.7'	59.0'	117°22.7	71°39.3	35°18.3	17°46.4	20°34.7	54°38.2	62°21.8	90°18.6
4	145°25.8	9.4'	15°27.3	-12.8'	59.0'	116°47.5	71°04.1	34°43.5	$17^{\circ}11.8$	21°08.1	55° 12.5	62°56.4	90°51.3
5	159°54.2	9.5'	$15^{\circ}14.5$	-12.9'	59.0'	116°12.3	70°29.0	34°08.7	16°37.3	21°41.6	55°46.9	63°31.1	91°23.9
6	174°22.7	9.5'	N 15°01.6	-13.0'	59.1'	115°37.1	69°53.8	33°33.9	16°02.8	22°15.2	56°21.4	64°05.8	91°56.6
7	188°51.3	9.6'	14°48.6	-13.1'	59.1'	115°01.8	69°18.6	32°59.0	15°28.4	22°48.9	56° 55.8	64°40.5	92°29.3
8	203°19.9	9.6'	14°35.6	-13.2'	59.1'	114°26.6	68°43.4	32°24.2	14°53.9	23°22.7	57°30.3	65° 15.2	93°02.0
9	217°48.5	9.7'	14°22.4	-13.2'	59.1'	113°51.3	68°08.1	31°49.4	14°19.6	23°56.6	58°04.8	65°50.0	93°34.8
10	232°17.2	9.7'	14°09.2	-13.3'	59.1'	113°16.0	67°32.9	31°14.6	13°45.3	24°30.6	58°39.3	66°24.8	94°07.5
11	246°45.9	9.8'	13°55.8	-13.4'	59.1'	112°40.6	66°57.6	30°39.7	13°11.0	25°04.6	59° 13.8	66° 59.6	94°40.3
12	261°14.7	9.8'	N13°42.4	-13.5'	59.2'	112°05.3	66°22.3	30°04.9	12°36.9	25°38.7	59°48.4	67°34.4	95°13.1
13	275°43.6	9.9'	13°28.9	-13.6'	59.2'	111°29.9	65°47.0	29°30.1	12°02.8	26°12.9	60°23.0	68°09.2	95°45.9
14	290°12.4	9.9'	13° 15.4	-13.7'	59.2'	110°54.6	65°11.7	28°55.3	11°28.9	26°47.2	60°57.6	68°44.1	96°18.8
15	304°41.4	10.0'	$13^{\circ}01.7$	-13.7'	59.2'	110°19.2	64°36.4	28°20.5	10°55.0	27°21.5	61°32.2	69° 19.0	96°51.6
16	319°10.3	10.0'	12°48.0	-13.8'	59.2'	109°43.8	64°01.0	27°45.7	10°21.4	27°55.9	62°06.8	69°53.9	97°24.5
17	333°39.3	10.1'	12°34.2	-13.9'	59.2'	109°08.3	63°25.6	27°10.9	9°47.9	28°30.3	62°41.5	70°28.8	97°57.4
18	348°08.4	10.1'	$N12^{\circ}20.3$	-14.0'	59.2'	108°32.9	62°50.2	26°36.2	9°14.7	29°04.8	63°16.2	71°03.8	98°30.3
19	2°37.5	10.1'	12°06.3	-14.0'	59.3'	107°57.4	62°14.8	26°01.4	8°41.7	29°39.3	63°50.9	71°38.8	99°03.2
20	17°06.6	10.2'	11°52.3	-14.1'	59.3'	107°21.9	61°39.4	25°26.7	8°09.1	30°13.9	64°25.6	72° 13.8	99°36.1
21	31°35.8	10.2'	11°38.2	-14.2'	59.3'	106°46.4	61°04.0	24°52.0	7°36.8	30°48.5	65°00.4	72°48.8	100°09.1
22	46°05.0	10.3'	11°24.0	-14.2'	59.3'	106°10.9	60°28.5	24°17.3	$7^{\circ}05.1$	31°23.2	65°35.1	73°23.8	100°42.0
23	60°34.3	10.3'	11°09.8	-14.3'	59.3'	105°35.4	59°53.0	23°42.6	6°34.0	31°57.9	66°09.9	73°58.9	101°15.0
2 nd	SD	= 16.1'	Mer. pas	s. 18:49					Sun S	D = 15.9'			

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

Wed	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	±Regulus	+Pollux	+Betelgeuse	+Venus	+Aldebaran
0	75°03.6	10.3'	N 10°55.5	-14.4'	59.3'	104°59.8	59°17.5	23°08.0	6°03.7	32°32.7	56°29.3	66°44.7	74°33.9
1	89°32.9	10.4'	10°41.1	-14.4'	59.3'	104°24.3	58°42.0	22°33.4		33°07.5	57°02.3	67°19.6	75°09.0
2	104°02.3	10.4'	10°26.6	-14.5'	59.3'	103°48.7	58°06.5	21°58.8		33°42.3	57°35.3	67°54.4	75°44.1
3	118°31.7	10.4'	$10^{\circ}12.1$	-14.6'	59.4'	103°13.1	57°31.0	21°24.3		34°17.2	58°08.4	68°29.3	76°19.3
4	133°01.2	10.5'	09°57.6	-14.6'	59.4'	102°37.5	56°55.4	20°49.8		34°52.1	58°41.5	69°04.2	76°54.4
5	147°30.7	10.5'	09°42.9	-14.7'	59.4'	102°01.8	56°19.8	20°15.4		35°27.1	59°14.7	69°39.1	77°29.6
6	162°00.2	10.5'	N09°28.2	-14.7'	59.4'	101°26.2	55°44.3	19°41.0		36°02.1	59°47.9	70°14.0	78°04.8
7	176°29.7	10.6'	09°13.5	-14.8'	59.4'	100°50.5	55°08.7	19°06.7		36°37.1	60°21.1	70°49.0	78°40.0
8	190°59.3	10.6'	08°58.7	-14.9'	59.4'	100°14.8	54°33.0	18°32.5		37°12.2	60°54.4	71°23.9	79°15.2
9	205°28.9	10.6'	08°43.8	-14.9'	59.4'	99°39.1	53°57.4	17°58.4		37°47.3	61°27.8	71°58.9	79°50.4
10	219°58.6	10.7'	08°28.9	-15.0'	59.4'	99°03.4	53°21.8	17°24.3		38°22.4	62°01.2	72°33.9	80°25.7
11	234°28.2	10.7'	$08^{\circ}14.0$	-15.0'	59.5'	98°27.7	52°46.1	16°50.4		38°57.5	62°34.6	73°08.9	81°01.0
12	248°57.9	10.7'	N 07°59.0	-15.1'	59.5'	97°52.0	52°10.5	16°16.5		39°32.7	63°08.0	73°44.0	81°36.3
13	263°27.6	10.7'	07°43.9	-15.1'	59.5'	97° 16.2	51°34.8	15°42.8		40°07.9	63°41.5	74°19.0	82°11.6
14	277°57.4	10.8'	07°28.8	-15.2'	59.5'	96°40.4	50°59.1	15°09.3		40°43.2	64°15.1	74°54.1	82°46.9
15	292°27.1	10.8'	07°13.6	-15.2'	59.5'	96°04.6	50°23.4	14°35.9		41°18.4	64°48.6	75°29.2	83°22.2
16	306°56.9	10.8'	06°58.4	-15.2'	59.5'	95°28.8	49°47.6	14°02.7		41°53.7	65°22.2	76°04.3	83°57.6
17	321°26.8	10.8'	06°43.2	-15.3'	59.5'	94°53.0	49°11.9	13°29.7		42°29.0	65°55.9	76°39.5	84°32.9
18	335°56.6	10.9'	N 06°27.9	-15.3'	59.5'	94° 17.2	48°36.2	12°56.9		43°04.4	66°29.5	77°14.6	85°08.3
19	350°26.5	10.9'	$06^{\circ}12.6$	-15.4'	59.5'	93°41.4	48°00.4	12°24.4	7°01.9	43°39.7	67°03.2	77°49.8	85°43.7
20	4°56.3	10.9'	05°57.2	-15.4'	59.5'	93°05.5	47°24.6	11°52.2	7°33.9	44°15.1	67°36.9	78°25.0	86°19.1
21	19°26.2	10.9'	05°41.8	-15.4'	59.6'	92°29.6	46°48.8	11°20.4	8°06.4	44°50.6	68°10.7	79°00.2	86°54.5
22	33°56.1	10.9'	05°26.4	-15.5'	59.6'	91°53.7	46°13.0	10°49.0	8°39.4	45°26.0	68°44.5	79°35.4	87°30.0
23	48°26.1	10.9'	$05^{\circ}10.9$	-15.5'	59.6'	91°17.8	45°37.2	10°18.1	9°12.8	46°01.4	69°18.3	80°10.6	88°05.4
3 rd	SD	= 16.2	Mer. pas	s. 19:40									

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

- 11		IVIOO	יוו (ד ויום	iy <i>)</i>			Luliai Dis	stance (c	bjects w	itii laigest	. Hourry	LD ucita)
Thu	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Pollux	+Venus	+Aldebaran
0	62°56.0	11.0'	N 04°55.4	-15.5'	59.6'	90°41.9	80°47.6	45°01.4	9°47.8	9°46.4	46°36.9	80°45.9	88°40.9
1	77°26.0	11.0'	04°39.9	-15.6'	59.6'	90°06.0	80° 19.6	44°25.6	9°18.0	10°20.4	47°12.4	81°21.1	89°16.4
2	91°55.9	11.0'	04°24.3	-15.6'	59.6'	89°30.1	79°51.7	43°49.8	8°49.1	10°54.5	47°48.0	81°56.4	89°51.9
3	106°25.9	11.0'	04°08.7	-15.6'	59.6'	88°54.1	79°23.8	43°13.9	8°21.1	11°28.8	48°23.5	82°31.7	90°27.4
4	120°55.9	11.0'	03°53.1	-15.6'	59.6'	88°18.2	78°56.0	42°38.0		12°03.4	48°59.1	83°07.0	91°02.9
5	135°25.9	11.0'	03°37.4	-15.7'	59.6'	87°42.2	78°28.1	42°02.2		12°38.0	49°34.6	83°42.4	91°38.4
6	149°55.9	11.0'	N 03°21.8	-15.7'	59.6'	87°06.2	78°00.3	41°26.3		13° 12.8	50°10.2	84°17.7	92°13.9
7	164°25.9	11.0'	$03^{\circ}06.1$	-15.7'	59.6'	86°30.2	77° 32.4	40°50.4		13°47.7	50°45.8	84°53.1	92°49.5
8	178°56.0	11.0'	$02^{\circ}50.4$	-15.7'	59.6'	85°54.2	77°04.7	40°14.5		14°22.7	51°21.5	85°28.4	93°25.0
9	193°26.0	11.0'	02°34.6	-15.8'	59.7'	85°18.2	76°36.9	39°38.6		14°57.7	51°57.1	86°03.8	94°00.6
10	207°56.0	11.0'	02°18.9	-15.8'	59.7'	84°42.2	76°09.2	39°02.7		15°32.9	52°32.8	86°39.2	94°36.2
11	222°26.1	11.0'	02°03.1	-15.8'	59.7'	84°06.2	75°41.5	38°26.8		16°08.1	53°08.5	87°14.6	95°11.7
12	236°56.1	11.0'	N 01°47.3	-15.8'	59.7'	83°30.1	75° 13.8	37°50.9		16°43.4	53°44.2	87°50.1	95°47.3
13	251°26.1	11.0'	$01^{\circ}31.5$	-15.8'	59.7'	82°54.1	74°46.2	37°15.0		17° 18.8	54°19.9	88°25.5	96°22.9
14	265°56.2	11.0'	$01^{\circ}15.7$	-15.8'	59.7'	82°18.0	74° 18.6	36°39.0		17°54.2	54°55.6	89°01.0	96°58.6
15	280°26.2	11.0'	00°59.9	-15.8'	59.7'	81°41.9	73°51.0	36°03.1		18° 29.7	55°31.3	89°36.4	97°34.2
16	294°56.2	11.0'	00°44.1	-15.8'	59.7'	81°05.8	73°23.5	35°27.2		19°05.2	56°07.1	90°11.9	98°09.8
17	309°26.3	11.0'	00°28.2	-15.8'	59.7'	80°29.8	72°56.0	34°51.2		19°40.7	56°42.9	90°47.4	98°45.4
18	323°56.3	11.0'	N 00°12.4	-15.8'	59.7'	79°53.7	72°28.6	34°15.3		20°16.3	57°18.6	91°22.9	99°21.1
19	338°26.3	11.0'	S 00°03.5	-15.9'	59.7'	79°17.6	72°01.2	33°39.3		20°51.9	57°54.4	91°58.4	99°56.7
20	352°56.3	11.0'	$00^{\circ}19.3$	-15.9'	59.7'	78°41.4	71°33.8	33°03.4		21°27.6	58°30.2	92°34.0	100°32.4
21	7°26.3	11.0'	00°35.2	-15.9'	59.7'	78°05.3	71°06.5	32°27.4		22°03.3	59°06.0	93°09.5	101°08.0
22	21°56.3	11.0'	00°51.0	-15.8'	59.7'	77°29.2	70°39.3	31°51.4		22°39.0	59°41.9	93°45.0	101°43.7
23	36°26.3	11.0'	01°06.9	-15.8'	59.7'	76°53.1	70° 12.1	31°15.5		23° 14.7	60°17.7	94°20.6	102°19.3
∆ th	l SD	- 16.3	Mer nas	s 20·29		1							

h M	loon (5 th May)	Lunar Distance	objects with lar	gest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Venus	+Aldebaran
0	50°56.3	11.0'	S 01°22.7	-15.8'	59.7'		76°16.9	69°44.9	30°39.5	23°50.5	60°53.5	94°56.2	102°55.0
1	65°26.2	10.9'	01°38.6	-15.8'	59.7'		75°40.8	69°17.8	30°03.6	24°26.3	61°29.4	95°31.7	103°30.7
2	79°56.2	10.9'	01°54.4	-15.8'	59.7'		75°04.6	68°50.8	29°27.6	25°02.1	62°05.3	96°07.3	104°06.4
3	94°26.1	10.9'	$02^{\circ}10.2$	-15.8'	59.7'		74°28.5	68°23.9	28°51.6	25°38.0	62°41.1	96°42.9	104°42.0
4	108°56.0	10.9'	02°26.0	-15.8'	59.7'		73°52.3	67°57.0	28°15.7	26° 13.8	63°17.0	97°18.5	105°17.7
5	123°25.9	10.9'	02°41.8	-15.8'	59.7'		73°16.1	67°30.1	27°39.7	26°49.7	63°52.9	97°54.1	105°53.4
6	137°55.8	10.9'	S 02°57.6	-15.8'	59.7'		72°40.0	67°03.4	27°03.8	27°25.6	64°28.8	98°29.8	106°29.1
7	152°25.6	10.8'	03°13.4	-15.8'	59.7'		72°03.8	66°36.7	26°27.9	28°01.5	65°04.7	99°05.4	107°04.8
8	166°55.5	10.8'	03°29.2	-15.7'	59.7'		71°27.6	66°10.0	25°51.9	28° 37.4	65°40.6	99°41.0	107°40.5
9	181°25.3	10.8'	03°44.9	-15.7'	59.7'		70°51.4	65°43.5	25°16.0	29° 13.3	66°16.5	100°16.7	108°16.2
10	195°55.1	10.8'	04°00.6	-15.7'	59.7'		70°15.2	65°17.0	24°40.1	29°49.3	66°52.4	100°52.3	108°51.8
11	210°24.8	10.7'	04°16.3	-15.7'	59.7'	119°53.6	69°39.1	64°50.6	24°04.2	30°25.2	67°28.4	101°28.0	109°27.5
12	224°54.6	10.7'	S 04°32.0	-15.7'	59.7'	119°23.4	69°02.9	64°24.3	23°28.3	31°01.2	68°04.3	102°03.6	110°03.2
13	239°24.3	10.7'	04°47.7	-15.6'	59.7'	118°53.2	68°26.7	63°58.1	22°52.4	31°37.2	68°40.2	102°39.3	110°38.9
14	253°54.0	10.7'	05°03.3	-15.6'	59.7'	118°22.9	67°50.5	63°32.0	22°16.5	32° 13.2	69°16.2	103°15.0	111°14.6
15	268°23.7	10.6'	$05^{\circ}18.9$	-15.6'	59.7'	117°52.5	67°14.3	63°05.9	21°40.7	32°49.1	69°52.1	103°50.6	111°50.3
16	282°53.3	10.6'	05°34.5	-15.5'	59.7'	117°22.0	66°38.1	62°40.0	21°04.9	33°25.1	70°28.0	104°26.3	112°25.9
17	297°22.9	10.6'	$05^{\circ}50.1$	-15.5'	59.7'	116°51.5	66°01.9	62°14.1	20°29.1	34°01.2	71°04.0	105°02.0	113°01.6
18	311°52.5	10.5'	S 06°05.6	-15.5'	59.7'	116°21.0	65°25.7	61°48.4	19°53.3	34°37.2	71°39.9	105°37.7	113°37.3
19	326°22.0	10.5'	$06^{\circ}21.0$	-15.4'	59.7'	115°50.3	64°49.5	61°22.7	19° 17.5	35° 13.2	72°15.9	106°13.4	114°12.9
20	340°51.5	10.5'	06°36.5	-15.4'	59.7'	115°19.7	64°13.3	60°57.2	18°41.8	35°49.2	72°51.8	106°49.1	114°48.6
21	355°21.0	10.4'	$06^{\circ}51.9$	-15.4'	59.7'	114°48.9	63°37.1	60°31.7	18°06.1	36°25.2	73°27.8	107°24.8	115°24.2
22	9°50.5	10.4'	$07^{\circ}07.3$	-15.3'	59.7'	114°18.2	63°00.9	60°06.4	17°30.4	37°01.3	74°03.7	108°00.5	115°59.9
23	24°19.9	10.4'	07°22.6	-15.3'	59.7'	113°47.4	62°24.7	59°41.2	16°54.8	37°37.3	74°39.7	108°36.2	116°35.5
5 th	SD	= 16.3'	Mer. pas	s. 21:19									

h Moon (6th May)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Pollux	+Venus	+Aldebaran
0	38°49.2	10.3'	S 07°37.9	-15.2'	59.7'	113°16.5	61°48.5	59°16.1	16°19.2	38°13.3	75° 15.6	109°11.9	117°11.1
1	53°18.6	10.3'	$07^{\circ}53.1$	-15.2'	59.7'	112°45.6	61°12.3	58°51.1	15°43.6	38°49.4	75°51.6	109°47.6	117°46.8
2	67°47.9	10.3'	08°08.3	-15.2'	59.7'	112°14.7	60°36.2	58°26.2	15°08.1	39°25.4	76° 27.5	110°23.3	118°22.4
3	82°17.1	10.2'	08°23.5	-15.1'	59.7'	111°43.7	60°00.0	58°01.5	14°32.7	40°01.5	77°03.5	110°59.0	118°58.0
4	96°46.3	10.2'	08°38.6	-15.1'	59.7'	111°12.7	59°23.8	57°36.9	13°57.3	40°37.5	77°39.4	111°34.7	119°33.6
5	111°15.5	10.1'	08°53.7	-15.0'	59.7'	110°41.6	58° 47.6	57°12.4	13°22.0	41°13.5	78° 15.4	112°10.4	
6	125°44.7	10.1'	S 09°08.7	-15.0'	59.7'	110°10.5	58°11.5	56°48.1	12°46.8	41°49.6	78°51.3	112°46.1	
7	140°13.7	10.0'	09°23.6	-14.9'	59.7'	109°39.4	57°35.3	56°23.9	12°11.7	42°25.6	79°27.2	113°21.8	
8	154°42.8	10.0'	09°38.5	-14.8'	59.7'	109°08.2	$56^{\circ}59.1$	55°59.9	11°36.7	43°01.7	80°03.2	113°57.5	
9	169°11.8	10.0'	09°53.3	-14.8'	59.7'	108°37.1	56°23.0	55°36.0	11°01.8	43°37.7	80°39.1	114°33.2	
10	183°40.8	9.9'	$10^{\circ}08.1$	-14.7'	59.7'	108°05.9	55°46.8	55°12.2	10°27.1	44°13.7	81°15.0	115°08.9	
11	198°09.7	9.9'	$10^{\circ}22.8$	-14.7'	59.7'	107°34.6	55° 10.7	54°48.6	9°52.6	44°49.7	81°50.9	115°44.6	
12	212°38.5	9.8'	S 10°37.5	-14.6'	59.6'	107°03.4	54°34.6	54°25.2	9°18.3	45°25.8	82°26.8	116°20.3	
13	227°07.4	9.8'	$10^{\circ}52.1$	-14.5'	59.6'	106°32.1	53°58.4	54°01.9	8°44.2	46°01.8	83°02.7	116°56.0	
14	241°36.1	9.7'	$11^{\circ}06.6$	-14.5'	59.6'	106°00.8	53°22.3	53°38.8	8°10.4	46°37.8	83°38.6	117°31.7	
15	256°04.9	9.7'	$11^{\circ}21.1$	-14.4'	59.6'	105°29.4	52°46.2	53°15.9	7°37.0	47°13.8	84° 14.5	118°07.3	
16	270°33.5	9.6'	11°35.5	-14.3'	59.6'	104°58.1	52° 10.1	52°53.2	7°04.0	47°49.8	84°50.4	118°43.0	
17	285°02.2	9.6'	$11^{\circ}49.8$	-14.3'	59.6'	104°26.7	51°34.0	52°30.6	6°31.5	48°25.8	85°26.2	119°18.7	
18	299°30.7	9.5'	S 12°04.1	-14.2'	59.6'	103°55.4	50°57.9	52°08.2	5°59.8	49°01.8	86°02.1	119°54.4	
19	313°59.3	9.5'	12°18.3	-14.1'	59.6'	103°24.0	50°21.9	51°46.0	5°29.0	49°37.7	86°38.0		
20	328°27.7	9.4'	12°32.4	-14.0'	59.6'	102°52.6	49°45.8	51°24.0		50°13.7	87° 13.8		
21	342°56.2	9.4'	12°46.4	-14.0'	59.6'	102°21.2	49°09.8	51°02.2		50°49.7	87°49.6		
22	357°24.5	9.3'	13°00.4	-13.9'	59.6'	101°49.7	48°33.7	50°40.6		51°25.6	88°25.4		
23	11°52.8	9.3'	13°14.3	-13.8'	59.5'	101°18.3	47°57.7	50°19.2		52°01.6	89°01.3		
6 th	SD	= 16.3'	Mer. pas	s. 22:11									

Moon (7th Mav)

Lunar Distance (objects with largest hourly LD delta)

<u>n</u>		IVIOC	on (7° ivia	ay)			Lunar L	istance (ob	jects wit	n iargest	nourly LD	deita)	
Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Jupiter	+Regulus	+Procyon	+Pollux
0	26°21.1	9.2'	S 13°28.1	-13.7'	59.5'		100°46.9	49°58.0	47°21.7	35°34.3	52°37.5	85°12.8	89°37.1
1	40°49.3	9.2'	13°41.8	-13.6'	59.5'		100°15.4	49°37.0	46°45.7	36°09.9	53°13.4	85°47.4	90°12.8
2	55°17.5	9.1'	13°55.4	-13.5'	59.5'		99°43.9	49°16.2	46°09.7	36°45.5	53°49.3	86°22.0	90°48.6
3	69°45.6	9.0'	14°09.0	-13.5'	59.5'		99°12.5	48° 55.7	45°33.7	37°21.1	54°25.2	86°56.6	91°24.4
4	84°13.6	9.0'	14°22.4	-13.4'	59.5'		98°41.0	48°35.4	44°57.7	37°56.7	55°01.1	87°31.2	92°00.1
5	98°41.6	8.9'	14°35.8	-13.3'	59.5'		98°09.6	48°15.3	44°21.8	38°32.3	55°37.0	88°05.8	92°35.8
6	113°09.5	8.9'	S 14°49.1	-13.2'	59.5'		97°38.1	47°55.5	43°45.9	39°07.9	56°12.8	88°40.3	93°11.6
7	127°37.4	8.8'	15°02.3	-13.1'	59.4'		97°06.6	47°35.9	43°09.9	39°43.5	56°48.7	89°14.9	93°47.3
8	142°05.2	8.8'	15°15.4	-13.0'	59.4'		96°35.2	47° 16.6	42°34.0	40°19.1	57°24.5	89°49.4	94°22.9
9	156°33.0	8.7'	15°28.4	-12.9'	59.4'		96°03.7	46° 57.5	41°58.1	40°54.6	58°00.3	90°24.0	94°58.6
10	171°00.7	8.6'	15°41.3	-12.8'	59.4'		95°32.3	46°38.7	41°22.3	41°30.2	58°36.1	90°58.5	95°34.3
11	185°28.3	8.6'	$15^{\circ}54.1$	-12.7'	59.4'		95°00.8	46°20.2	40°46.4	42°05.8	59°11.9	91°33.0	96°09.9
12	199°55.9	8.5'	S 16°06.8	-12.6'	59.4'	119°34.5	94°29.4	46°01.9	40°10.6	42°41.3	59°47.7	92°07.4	96°45.5
13	214°23.5	8.5'	$16^{\circ}19.4$	-12.5'	59.4'	119°02.9	93°57.9	45°43.9	39°34.8	43°16.9	60°23.4	92°41.9	97°21.1
14	228°50.9	8.4'	16°31.9	-12.4'	59.3'	118° 31.2	93°26.5	45°26.2	38°59.0	43°52.4	60°59.2	93°16.3	97°56.7
15	243°18.3	8.4'	16°44.3	-12.3'	59.3'	117° 59.5	92°55.1	45°08.8	38°23.2	44°27.9	61°34.9	93°50.7	98°32.3
16	257°45.7	8.3'	$16^{\circ}56.6$	-12.2'	59.3'	117°27.8	92°23.7	44°51.7	37°47.4	45°03.4	62°10.6	94°25.1	99°07.8
17	272°13.0	8.2'	17°08.8	-12.1'	59.3'	116°56.1	91°52.3	44°34.8	37°11.7	45°38.9	62°46.3	94°59.5	99°43.3
18	286°40.3	8.2'	S 17°20.9	-12.0'	59.3'	116°24.4	91°21.0	44°18.3	36°35.9	46°14.4	63°21.9	95°33.9	100°18.8
19	301°07.4	8.1'	17°32.9	-11.9'	59.3'	115°52.6	90°49.6	44°02.1	36°00.2	46°49.8	63°57.6	96°08.2	100°54.3
20	315°34.6	8.1'	$17^{\circ}44.7$	-11.7'	59.2'	115°20.8	90°18.3	43°46.2	35°24.5	47°25.3	64°33.2	96°42.5	101°29.8
21	330°01.6	8.0'	$17^{\circ}56.5$	-11.6'	59.2'	114°49.0	89°46.9	43°30.6	34°48.9	48°00.7	65°08.8	97°16.8	102°05.2
22	344°28.6	8.0'	$18^{\circ}08.1$	-11.5'	59.2'	114° 17.2	89°15.6	43°15.4	34°13.2	48°36.2	65°44.4	97°51.1	102°40.7
23	358°55.6	7.9'	$18^{\circ}19.6$	-11.4'	59.2'	113°45.3	88°44.3		33°37.6	49°11.6	66°20.0	98°25.3	103°16.1
7 th	SD	= 16.2	' Mer. pas	ss. 23:04					-			-	-

h Moon (8th May)

Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	13°22.5	7.8'	S 18°31.0	-11.3'	59.2'	113° 13.5	108°19.7	88°13.1	33°02.0	13°04.1	49°47.0	66°55.5	103°51.4
1	27°49.3	7.8'	18°42.3	-11.2'	59.1'	112°41.6	108°02.6	87°41.8	32°26.4	13°38.8	50°22.3	67°31.0	104°26.8
2	42°16.1	7.7'	18° 53.5	-11.0'	59.1'	112°09.7	107°45.4	87°10.6	31°50.9	14°13.5	50°57.7	68°06.5	105°02.1
3	56°42.9	7.7'	19°04.5	-10.9'	59.1'	111°37.9	107°28.2	86°39.4	31°15.4	14°48.3	51°33.0	68°42.0	105°37.4
4	71°09.5	7.6'	19° 15.4	-10.8'	59.1'	111°06.0	107°10.9	86°08.2	30°39.9	15°23.1	52°08.3	69°17.5	106°12.7
5	85°36.2	7.6'	19°26.2	-10.7'	59.1'	110°34.1	106°53.5	85°37.1	30°04.4	15°58.0	52°43.6	69°52.9	106°47.9
6	100°02.7	7.5'	S 19°36.9	-10.5'	59.0'	110°02.2	106°36.0	85°06.0	29°28.9	16°32.8	53°18.9	70°28.3	107°23.2
7	114°29.2	7.5'	19°47.4	-10.4'	59.0'	109°30.3	106°18.4	84°34.9	28°53.5	17°07.7	53°54.1	71°03.7	107°58.4
8	128°55.7	7.4'	19°57.8	-10.3'	59.0'	108° 58.4	106°00.8	84°03.8	28°18.1	17°42.6	54°29.4	71°39.1	108°33.6
9	143°22.1	7.3'	20°08.1	-10.2'	59.0'	108°26.4	105°43.2	83°32.8	27°42.7	18°17.5	55°04.6	72°14.4	109°08.7
10	157°48.4	7.3'	20°18.3	-10.0'	59.0'	107°54.5	105°25.4	83°01.8	27°07.3	18°52.4	55°39.8	72°49.7	109°43.8
11	172°14.7	7.2'	20°28.3	-9.9'	58.9'	107°22.6	105°07.6	82°30.8	26°32.0	19°27.3	56°14.9	73°25.0	110°18.9
12	186°41.0	7.2'	S 20°38.2	-9.8'	58.9'	106° 50.7	104°49.7	81°59.9	25°56.7	20°02.2	56°50.1	74°00.3	110°54.0
13	201°07.2	7.1'	20°48.0	-9.6'	58.9'	106° 18.8	104°31.8	81°29.0	25°21.4	20°37.1	57°25.2	74°35.5	111°29.0
14	215°33.3	7.1'	20°57.6	-9.5'	58.9'	105°46.9	104°13.8	80°58.1	24°46.2	21°12.0	58°00.3	75°10.7	112°04.0
15	229°59.4	7.0'	$21^{\circ}07.1$	-9.3'	58.8'	105° 15.1	103°55.8	80°27.3	24°11.0	21°46.9	58°35.4	75°45.9	112°39.0
16	244°25.5	7.0'	21° 16.4	-9.2'	58.8'	104°43.2	103°37.7	79°56.5	23°35.8	22°21.8	59°10.4	76°21.0	113°14.0
17	258°51.5	7.0'	21°25.6	-9.1'	58.8'	104°11.3	103°19.6	79°25.8	23°00.6	22°56.6	59°45.4	76°56.2	113°48.9
18	273°17.4	6.9'	S 21°34.7	-8.9'	58.8'	103°39.4	103°01.4	78°55.1	22°25.5	23°31.5	60°20.4	77°31.3	114°23.8
19	287°43.3	6.9'	21°43.6	-8.8'	58.7'	103°07.6	102°43.2	78°24.4	21°50.4	24°06.3	60°55.4	78°06.3	114°58.6
20	302°09.2	6.8'	21°52.4	-8.6'	58.7'	102°35.8	102°24.9	77°53.8	21°15.4	24°41.1	61°30.3	78°41.4	115°33.5
21	316°35.0	6.8'	22°01.1	-8.5'	58.7'	102°03.9	102°06.6	77°23.2	20°40.3	25°16.0	62°05.2	79°16.4	116°08.3
22	331°00.8	6.7'	22°09.6	-8.4'	58.7'	101°32.1	101°48.2	76°52.7	20°05.3	25°50.7	62°40.1	79°51.4	116°43.0
23	345°26.5	6.7'	22°17.9	-8.2'	58.6'	101°00.3	101°29.8	76°22.2	19°30.3	26°25.5	63°15.0	80°26.3	117°17.8
8 th	SE	0 = 16	.1' Mer. p	ass:-									

Moon (9th May)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	359°52.2	6.6'	S 22°26.2	-8.1'	58.6'	101°11.4	100°28.5	75°51.8	18°55.4	27°00.3	63°49.8	81°01.3	117°52.5
1	14°17.8	6.6'	22°34.2	-7.9'	58.6'	100°52.9	99°56.8	75°21.4	18° 20.5	27°35.0	64°24.6	81°36.2	118°27.1
2	28°43.4	6.6'	22°42.1	-7.8'	58.6'	100°34.4	99°25.0	74°51.0	17°45.6	28°09.7	64°59.4	82°11.0	119°01.8
3	43°09.0	6.5'	22°49.9	-7.6'	58.5'	100°15.9	98°53.3	74°20.7	17° 10.8	28°44.4	65°34.1	82°45.9	119°36.4
4	57°34.6	6.5'	22°57.5	-7.5'	58.5'	99°57.3	98°21.6	73°50.5	16°36.0	29°19.0	66°08.8	83°20.7	
5	72°00.1	6.5'	$23^{\circ}05.0$	-7.3'	58.5'	99°38.7	97°49.9	73°20.3	16°01.2	29°53.7	66°43.5	83°55.4	
6	86°25.5	6.4'	S 23°12.3	-7.2'	58.5'	99°20.1	97°18.2	72°50.2	15°26.5	30°28.3	67°18.2	84°30.2	
7	100°51.0	6.4'	$23^{\circ}19.5$	-7.0'	58.4'	99°01.5	96°46.6	72°20.1	14°51.8	31°02.9	67°52.8	85°04.9	
8	115°16.4	6.4'	23°26.5	-6.9'	58.4'	98°42.8	96°14.9	71°50.1	14° 17.2	31°37.4	68°27.4	85°39.5	
9	129°41.7	6.3'	23°33.4	-6.7'	58.4'	98°24.1	95°43.3	71°20.1	13°42.6	32°12.0	69°01.9	86°14.2	
10	144°07.1	6.3'	23°40.1	-6.6'	58.4'	98°05.4	95°11.7	70°50.2	13°08.0	32°46.5	69°36.4	86°48.8	
11	158°32.4	6.3'	23°46.7	-6.4'	58.3'	97° 46.7	94°40.2	70°20.4	12°33.4	33°20.9	70°10.9	87°23.4	
12	172°57.7	6.3'	S 23°53.1	-6.2'	58.3'	97°28.0	94°08.7	69°50.6	11°59.0	33°55.4	70°45.4	87°57.9	
13	187°23.0	6.2'	23°59.3	-6.1'	58.3'	97°09.2	93°37.2	69°20.8	11°24.5	34°29.8	71°19.8	88°32.4	
14	201°48.2	6.2'	24°05.4	-5.9'	58.2'	96°50.4	93°05.7	68°51.2	10°50.1	35°04.2	71°54.2	89°06.9	
15	216°13.4	6.2'	24°11.3	-5.8'	58.2'	96°31.7	92°34.2	68°21.6	10° 15.8	35°38.6	72°28.6	89°41.3	
16	230°38.6	6.2'	$24^{\circ}17.1$	-5.6'	58.2'	96° 12.9	92°02.8	67°52.1	9°41.5	36°12.9	73°02.9	90°15.7	
17	245°03.8	6.2'	24°22.7	-5.5'	58.2'	95°54.1	91°31.4	67°22.6	9°07.2	36°47.2	73°37.2	90°50.1	
18	259°29.0	6.2'	S 24°28.2	-5.3'	58.1'	95°35.3	91°00.1	66°53.2	8°33.1	37°21.5	74°11.5	91°24.5	
19	273°54.1	6.1'	24°33.5	-5.1'	58.1'	95° 16.5	90°28.7	66°23.9	7°58.9	37°55.7	74°45.7	91°58.8	
20	288°19.3	6.1'	24°38.6	-5.0'	58.1'	94°57.7	89°57.4	65°54.6	7°24.9	38°29.9	75°19.9	92°33.0	
21	302°44.4	6.1'	24°43.6	-4.8'	58.0'	94°38.9	89°26.2	65°25.4	6°50.9	39°04.1	75°54.0	93°07.3	
22	317°09.5	6.1'	24°48.5	-4.7'	58.0'	94°20.0	88°55.0	64°56.3	6° 17.1	39°38.2	76°28.2	93°41.5	
23	331°34.6	6.1'	24°53.1	-4.5'	58.0'	94°01.2	88°23.8	64°27.3	5°43.3	40°12.3	77°02.3	94°15.6	
9 th	SD =	= 16.0′	Mer. pas	s. 00:01									

h		Moon	(10 th M	ay)			Lunar Di	stance (objects wi	th larges	t hourly L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	± Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	345°59.7	6.1'	S 24°57.6	-4.3'	58.0'	93°42.4	87°52.6	63°58.3	5°09.7	40°46.4	51°47.4	77°36.3	94°49.7
1	0°24.8	6.1'	25°02.0	-4.2'	57.9'	93°23.6	87°21.5	63°29.4	4°36.3	41°20.4	52°10.3	78° 10.3	95°23.8
2	14°49.9	6.1'	25°06.2	-4.0'	57.9'	93°04.8	86°50.4	63°00.6	4°03.1	41°54.4	52°33.3	78°44.3	95°57.9
3	29°15.0	6.1'	25°10.2	-3.9'	57.9'	92°46.0	86°19.3	62°31.9	3°30.2	42°28.4	52°56.4	79°18.3	96°31.9
4	43°40.1	6.1'	$25^{\circ}14.0$	-3.7'	57.8'	92°27.3	85°48.3	62°03.3	2°57.8	43°02.3	53°19.7	79°52.2	97°05.9
5	58°05.2	6.1'	25°17.8	-3.5'	57.8'	92°08.5	85°17.3	61°34.7	2°26.2	43°36.2	53°43.0	80°26.0	97°39.8
6	72°30.3	6.1'	S 25°21.3	-3.4'	57.8'	91°49.7	84°46.4	61°06.2		44°10.1	54°06.4	80°59.9	98°13.7
7	86°55.4	6.1'	25°24.7	-3.2'	57.7'	91°31.0	84°15.5	60°37.8		44°43.9	54°30.0	81°33.7	98°47.6
8	101°20.5	6.1'	25°27.9	-3.1'	57.7'	91°12.3	83°44.6	60°09.5		45° 17.7	54°53.6	82°07.4	99°21.4
9	115°45.6	6.1'	25°30.9	-2.9'	57.7'	90°53.5	83°13.8	59°41.3		45°51.5	55° 17.4	82°41.2	99°55.2
10	130°10.7	6.1'	25°33.8	-2.7'	57.7'	90°34.8	82°43.0	59°13.2		46°25.2	55°41.2	83°14.8	100°29.0
11	144°35.8	6.2'	25°36.6	-2.6'	57.6'	90°16.2	82°12.3	58°45.2		46°58.9	56°05.1	83°48.5	101°02.7
12	159°01.0	6.2'	S 25°39.1	-2.4'	57.6'	89°57.5	81°41.6	58°17.2		47°32.6	56°29.1	84°22.1	101°36.4
13	173°26.2	6.2'	25°41.6	-2.3'	57.6'	89°38.9	81°10.9	57°49.4		48°06.2	56°53.2	84°55.7	102°10.0
14	187°51.3	6.2'	25°43.8	-2.1'	57.5'	89°20.2	80°40.3	57°21.6		48°39.7	57° 17.4	85°29.2	102°43.6
15	202°16.5	6.2'	25°45.9	-1.9'	57.5'	89°01.6	80°09.8	56°54.0	3°32.7	49° 13.3	57°41.6	86°02.7	103°17.2
16	216°41.8	6.2'	25°47.8	-1.8'	57.5'	88°43.1	79°39.3	56°26.5	4°05.1	49°46.8	58°05.9	86°36.2	103°50.7
17	231°07.0	6.3'	25°49.6	-1.6'	57.4'	88°24.5	79°08.8	55°59.0	4°37.8	50°20.3	58°30.3	87°09.6	104°24.2
18	245°32.3	6.3'	S 25°51.2	-1.4'	57.4'	88°06.0	78°38.3	55°31.7	5°10.6	50°53.7	58° 54.7	87°43.0	104°57.6
19	259°57.6	6.3'	25°52.6	-1.3'	57.4'	87°47.5	78°08.0	55°04.4	5°43.5	51°27.1	59° 19.2	88°16.3	105°31.0
20	274°22.9	6.4'	25°53.9	-1.1'	57.3'	87°29.1	77°37.6	54°37.3	6°16.5	52°00.5	59°43.8	88°49.6	106°04.4
21	288°48.3	6.4'	$25^{\circ}55.1$	-1.0'	57.3'	87° 10.6	77°07.3	54°10.3	6°49.5	52°33.8	60°08.4	89°22.9	106°37.7
22	303°13.7	6.4'	25°56.0	-0.8'	57.3'	86°52.2	76°37.1	53°43.4	7°22.6	53°07.1	60°33.1	89°56.1	107°11.0
23	317°39.1	6.5'	25°56.8	-0.7'	57.3'	86°33.9	76°06.9	53°16.6	7°55.6	53°40.3	60°57.8	90°29.3	107°44.3
10 th	SD :	= 15.8′	Mer. pas	s. 00:58	3								

h	Moon	(111111	1//12//1	

Thu	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	332°04.6	6.5'	S 25°57.5	-0.5'	57.2'	86°15.5	75°36.8	52°50.0	8°28.6	54°13.5	61°22.6	91°02.5	108°17.5
1	346°30.0	6.5'	25°58.0	-0.3'	57.2'	85°57.2	75°06.7	52°23.4	9°01.7	54°46.7	61°47.4	91°35.6	108°50.7
2	0°55.6	6.6'	25°58.3	-0.2'	57.2'	85°39.0	74°36.6	51°57.0	9°34.7	55°19.8	62°12.3	92°08.7	109°23.8
3	15°21.2	6.6'	25°58.5	-0.0'	57.1'	85°20.8	74°06.7	51°30.7	10°07.7	55°52.9	62°37.3	92°41.7	109°56.9
4	29°46.8	6.7'	25°58.5	0.1'	57.1'	85°02.6	73°36.7	51°04.5	10°40.6	56°26.0	63°02.2	93°14.7	110°30.0
5	44°12.4	6.7'	25°58.4	0.3'	57.1'	84°44.4	73°06.8	50°38.4	11°13.6	56°59.0	63°27.2	93°47.7	111°03.0
6	58°38.1	6.8'	S 25°58.1	0.4'	57.0'	84°26.3	72°37.0	50°12.5	11°46.5	57°32.0	63°52.3	94°20.6	111°36.0
7	73°03.9	6.8'	25°57.7	0.6'	57.0'	84°08.3	72°07.2	49°46.7	12°19.4	58°04.9	64°17.4	94°53.5	112°08.9
8	87°29.7	6.8'	25°57.1	0.7'	57.0'	83°50.3	71°37.5	49°21.1	12°52.3	58°37.9	64°42.5	95°26.3	112°41.8
9	101°55.5	6.9'	25°56.4	0.9'	56.9'	83°32.3	71°07.8	48°55.6	13°25.1	59°10.7	65°07.6	95°59.1	113°14.7
10	116°21.4	7.0'	25°55.5	1.1'	56.9'	83°14.4	70°38.2	48°30.2	13°57.9	59°43.6	65°32.8	96°31.9	113°47.5
11	130°47.4	7.0'	25°54.4	1.2'	56.9'	82°56.5	70°08.6	48°04.9	14°30.7	60°16.4	65°58.0	97°04.6	114°20.3
12	145°13.4	7.1'	S 25°53.2	1.4'	56.8'	82°38.7	69°39.1	47°39.8	15°03.4	60°49.1	66°23.2	97°37.3	114°53.1
13	159°39.5	7.1'	25°51.9	1.5'	56.8'	82°20.9	69°09.7	47° 14.9	15°36.2	61°21.8	66°48.5	98°09.9	115°25.8
14	174°05.6	7.2'	25°50.3	1.7'	56.8'	82°03.2	68°40.3	46°50.1	16°08.8	61°54.5	67°13.8	98°42.5	115°58.4
15	188°31.8	7.2'	25°48.7	1.8'	56.8'	81°45.5	68°11.0	46°25.5	16°41.5	62°27.2	67°39.1	99°15.1	116°31.1
16	202°58.0	7.3'	25°46.9	1.9'	56.7'	81°27.9	67°41.7	46°01.0	$17^{\circ}14.1$	62°59.8	68°04.4	99°47.6	117°03.7
17	217°24.3	7.4'	25°45.0	2.1'	56.7'	81°10.3	67°12.5	45°36.7	17°46.7	63°32.3	68°29.8	100°20.1	117°36.2
18	231°50.7	7.4'	S 25°42.9	2.2'	56.7'	80°52.8	66°43.3	45° 12.5	18°19.2	64°04.9	68°55.1	100°52.6	118°08.7
19	246°17.1	7.5'	25°40.6	2.4'	56.6'	80°35.3	66°14.2	44°48.5	18°51.7	64°37.3	69°20.5	101°25.0	118°41.2
20	260°43.6	7.6'	25°38.2	2.5'	56.6'	80°17.9	65°45.2	44°24.7	19°24.2	65°09.8	69°45.9	101°57.4	119°13.6
21	275°10.2	7.6'	25°35.7	2.7'	56.6'	80°00.6	65°16.3	44°01.1	19°56.6	65°42.2	70°11.3	102°29.7	119°46.0
22	289°36.8	7.7'	25°33.0	2.8'	56.5'	79°43.3	64°47.3	43° 37.6	20°29.0	66°14.6	70°36.8	103°02.0	
23	304°03.5	7.8'	25°30.2	3.0'	56.5'	79°26.1	64°18.5	43°14.3	21°01.3	66°46.9	71°02.2	103°34.3	
11 th	SD =	= 15.6′	Mer. pass	. 01:56	j								

h Moon (12th May)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Mars	-Saturn	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	318°30.3	7.8'	S 25°27.3	3.1'	56.5'			63°49.7	42°51.2	21°33.7	67°19.3	71°27.7	104°06.5
1	332°57.1	7.9'	25°24.2	3.2'	56.4'			63°21.0	42°28.3	22°05.9	67°51.5	71°53.1	104°38.7
2	347°24.0	8.0'	25°20.9	3.4'	56.4'			62°52.4	42°05.6	22°38.2	68°23.8	72°18.6	105°10.8
3	1°51.0	8.1'	25°17.6	3.5'	56.4'			62°23.8	41°43.1	23°10.4	68°55.9	72°44.1	105°42.9
4	16°18.1	8.1'	$25^{\circ}14.1$	3.6'	56.4'		119°46.9	61°55.3	41°20.7	23°42.6	69°28.1	73°09.5	106°15.0
5	30°45.2	8.2'	25°10.4	3.8'	56.3'		119°15.4	61°26.8	40°58.6	24° 14.7	70°00.2	73°35.0	106°47.0
6	45°12.4	8.3'	S 25°06.6	3.9'	56.3'		118°43.9	60°58.5	40°36.7	24°46.8	70°32.3	74°00.5	107°19.0
7	59°39.7	8.4'	25°02.7	4.0'	56.3'		118°12.4	60°30.2	40°15.0	25° 18.9	71°04.4	74°26.0	107°50.9
8	74°07.1	8.4'	24°58.7	4.2'	56.2'		117°41.0	60°01.9	39°53.5	25°50.9	71°36.4	74°51.5	108°22.8
9	88°34.5	8.5'	24°54.5	4.3'	56.2'		117°09.6	59°33.8	39°32.3	26°22.9	72°08.3	75° 17.0	108°54.7
10	103°02.1	8.6'	24°50.2	4.4'	56.2'		116°38.3	59°05.7	39°11.3	26°54.9	72°40.3	75°42.4	109°26.6
11	117°29.7	8.7'	24°45.7	4.6'	56.1'		116°06.9	58°37.7	38°50.5	27°26.8	73°12.2	76°07.9	109°58.4
12	131°57.4	8.8'	S 24°41.2	4.7'	56.1'		115°35.7	58°09.7	38°29.9	27°58.7	73°44.0	76°33.4	110°30.1
13	146°25.1	8.9'	24°36.5	4.8'	56.1'		115°04.4	57°41.8	38°09.6	28°30.6	74°15.9	76°58.9	111°01.8
14	160°53.0	8.9'	24°31.6	5.0'	56.1'		114°33.2	57°14.1	37°49.5	29°02.4	74°47.7	77°24.4	111°33.5
15	175°20.9	9.0'	24°26.7	5.1'	56.0'		114°02.0	56°46.3	37°29.7	29°34.2	75° 19.4	77°49.8	112°05.2
16	189°48.9	9.1'	24°21.6	5.2'	56.0'		113°30.8	56°18.7	37°10.2	30°05.9	75°51.1	78° 15.3	112°36.8
17	204°17.1	9.2'	24°16.4	5.3'	56.0'		112°59.7	55°51.1	36°50.9	30°37.7	76°22.8	78°40.8	113°08.4
18	218°45.3	9.3'	S 24°11.1	5.4'	55.9'	119°51.2	112°28.6	55°23.7	36°31.8	31°09.3	76°54.5	79°06.2	113°39.9
19	233°13.5	9.4'	24°05.6	5.6'	55.9'	119°21.5	111°57.5	54°56.3	36°13.1	31°41.0	77°26.1	79°31.7	114°11.4
20	247°41.9	9.5'	24°00.1	5.7'	55.9'	118°51.9	111°26.5	54°28.9	35°54.6	32° 12.6	77°57.7	79°57.1	114°42.9
21	262°10.4	9.5'	23°54.4	5.8'	55.9'	118°22.4	110°55.5	54°01.7	35°36.4	32°44.2	78° 29.2	80°22.5	115°14.3
22	276°38.9	9.6'	23°48.6	5.9'	55.8'	117°52.8	110°24.5	53°34.6	35°18.5	33° 15.7	79°00.8	80°47.9	115°45.7
23	291°07.5	9.7'	23°42.6	6.0'	55.8'	117°23.3	109°53.6	53°07.5	35°00.9	33°47.2	79°32.2	81°13.3	116°17.1
12 th	SD =	= 15.4′	Mer. pass	s. 02:52	2								

h Moon (13th May)

Lunar Distance (objects with largest hourly LD delta)

			(=0	<i>,</i>					(· · J · · · · ·	. 0	t iidaiij 22 deita)				
Sat	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	-Fomalhaut	+Antares	+Spica	+Arcturus	+Jupiter		
0	305°36.3	9.8'	S 23°36.6	6.2'	55.8'		116°53.8	109°22.7	52°40.5	34°18.7	80°03.7	81°38.7	116°48.4		
1	320°05.1	9.9'	23°30.4	6.3'	55.7'		116°24.4	108°51.8	52°13.6	34°50.2	80°35.1	82°04.1	117°19.7		
2	334°34.0	10.0'	23°24.2	6.4'	55.7'		115°55.0	108°21.0	51°46.8	35°21.6	81°06.5	82°29.5	117°50.9		
3	349°02.9	10.1'	23° 17.8	6.5'	55.7'		115°25.6	107°50.2	51°20.1	35°53.0	81°37.8	82°54.8	118°22.1		
4	3°32.0	10.2'	23°11.3	6.6'	55.7'		114°56.2	107°19.4	50°53.5	36°24.3	82°09.1	83°20.2	118°53.3		
5	18°01.2	10.3'	23°04.7	6.7'	55.6'		114°26.9	106°48.7	50°27.0	36°55.6	82°40.4	83°45.5	119°24.5		
6	32°30.4	10.3'	S 22°58.0	6.8'	55.6'		113°57.6	106°18.0	50°00.5	37°26.9	83°11.7	84°10.8	119°55.6		
7	46°59.8	10.4'	22°51.2	6.9'	55.6'		113°28.4	105°47.3	49°34.2	37°58.1	83°42.9	84°36.1			
8	61°29.2	10.5'	22°44.3	7.0'	55.6'		112°59.1	105°16.6	49°08.0	38°29.4	84°14.1	85°01.3			
9	75°58.7	10.6'	22°37.2	7.1'	55.5'		112°29.9	104°46.0	48°41.8	39°00.5	84°45.2	85°26.6			
10	90°28.4	10.7'	22°30.1	7.2'	55.5'		112°00.8	104°15.4	48°15.8	39°31.7	85°16.3	85°51.8			
11	104°58.1	10.8'	22°22.8	7.3'	55.5'		111°31.6	103°44.9	47°49.9	40°02.8	85°47.4	86°17.0			
12	119°27.9	10.9'	S 22°15.5	7.4'	55.4'		111°02.5	103°14.3	47°24.0	40°33.9	86°18.5	86°42.2			
13	133°57.7	11.0'	22°08.1	7.5'	55.4'		110°33.4	102°43.8	46°58.3	41°05.0	86°49.5	87°07.4			
14	148°27.7	11.1'	22°00.5	7.6'	55.4'		110°04.4	102°13.4	46°32.7	41°36.0	87°20.5	87°32.6			
15	162°57.8	11.2'	$21^{\circ}52.9$	7.7'	55.4'		109°35.4	101°42.9	46°07.2	42°07.0	87°51.5	87°57.7			
16	177°27.9	11.2'	21°45.1	7.8'	55.3'		109°06.4	101°12.5	45°41.8	42°38.0	88°22.4	88°22.8			
17	191°58.2	11.3'	21°37.3	7.9'	55.3'		108°37.4	100°42.1	45°16.5	43°08.9	88°53.3	88°47.9			
18	206°28.5	11.4'	S 21°29.4	8.0'	55.3'	119°50.1	108°08.5	100°11.8	44°51.4	43°39.8	89°24.2	89°13.0			
19	220°58.9	11.5'	21°21.3	8.1'	55.3'	119°21.8	107°39.6	99°41.4	44°26.3	44°10.7	89°55.0	89°38.0			
20	235°29.4	11.6'	21°13.2	8.2'	55.3'	118°53.5	107°10.7	99°11.1	44°01.4	44°41.5	90°25.9	90°03.1			
21	250°00.0	11.7'	$21^{\circ}05.0$	8.3'	55.2'	118°25.2	106°41.9	98°40.9	43°36.6	45°12.4	90°56.6	90°28.1			
22	264°30.7	11.8'	$20^{\circ}56.7$	8.4'	55.2'	117°56.9	106°13.1	98°10.6	43°12.0	45°43.2	91°27.4	90°53.0			
23	279°01.5	11.9'	20°48.3	8.5'	55.2'	117°28.6	105°44.3	97°40.4	42°47.4	46°13.9	91°58.1	91°18.0			
13 th	SD :	= 15.2'	Mer. pass	. 03:45					$Sun\;SD=15.8'$						

h Moon (14th May)

Sun	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	293°32.4	12.0'	S 20°39.8	8.6'	55.2'	117°00.4	105°15.5	97° 10.2	42°23.0	46°44.7	66°23.6	91°42.9	92°28.8
1	308°03.3	12.0'	20°31.2	8.7'	55.1'	116°32.2	104°46.8	96°40.1	41°58.7	47°15.4	66°46.2	92°07.8	92°59.5
2	322°34.4	12.1'	20°22.6	8.7'	55.1'	116°04.1	104°18.0	96°09.9	41°34.6	47°46.1	67°08.9	92°32.7	93°30.2
3	337°05.5	12.2'	20° 13.8	8.8'	55.1'	115°35.9	103°49.4	95°39.8	41°10.6	48°16.7	67°31.6	92°57.6	94°00.8
4	351°36.7	12.3'	20°05.0	8.9'	55.1'	115°07.8	103°20.7	95°09.7	40°46.8	48°47.3	67°54.3	93°22.4	94°31.4
5	6°08.0	12.4'	$19^{\circ}56.1$	9.0'	55.0'	114°39.7	102°52.1	94°39.7	40°23.1	49°17.9	68°17.1	93°47.2	95°01.9
6	20°39.4	12.5'	S 19°47.1	9.1'	55.0'	114°11.7	102°23.5	94°09.6	39°59.5	49°48.5	68°39.9	94°12.0	95°32.5
7	35°10.9	12.6'	19°38.0	9.2'	55.0'	113°43.6	101°54.9	93°39.6	39°36.1	50°19.1	69°02.7	94°36.7	96°03.0
8	49°42.4	12.6'	19°28.8	9.2'	55.0'	113°15.6	101°26.3	93°09.7	39°12.9	50°49.6	69°25.5	95°01.4	96°33.5
9	64°14.1	12.7'	$19^{\circ}19.6$	9.3'	55.0'	112°47.6	100°57.8	92°39.7	38°49.8	51°20.1	69°48.4	95°26.1	97°04.0
10	78°45.8	12.8'	$19^{\circ}10.3$	9.4'	54.9'	112°19.7	100°29.3	92°09.8	38°26.8	51°50.6	70°11.3	95°50.7	97°34.4
11	93°17.6	12.9'	$19^{\circ}00.9$	9.5'	54.9'	111°51.7	100°00.8	91°39.9	38°04.1	52°21.0	70°34.2	96°15.4	98°04.8
12	107°49.5	13.0'	S 18°51.4	9.5'	54.9'	111°23.8	99°32.3	91°10.0	37°41.5	52°51.5	70°57.1	96°40.0	98°35.2
13	122°21.4	13.1'	$18^{\circ}41.8$	9.6'	54.9'	110°55.9	99°03.9	90°40.1	37°19.1	53°21.9	71°20.1	97°04.5	99°05.6
14	136°53.5	13.1'	18° 32.2	9.7'	54.9'	110°28.1	98°35.5	90°10.3	36°56.9	53°52.2	71°43.1	97°29.1	99°35.9
15	151°25.6	13.2'	$18^{\circ}22.5$	9.8'	54.8'	110°00.2	98°07.1	89°40.5	36°34.8	54°22.6	72°06.1	97°53.6	100°06.2
16	165°57.8	13.3'	$18^{\circ}12.8$	9.8'	54.8'	109°32.4	97°38.7	89° 10.7	36°13.0	54°52.9	72°29.1	98°18.0	100°36.5
17	180°30.1	13.4'	18°02.9	9.9'	54.8'	109°04.6	97°10.4	88°40.9	35°51.3	55°23.2	72°52.1	98°42.5	101°06.8
18	195°02.5	13.4'	S 17°53.0	10.0'	54.8'	108°36.8	96°42.1	88° 11.2	35°29.9	55°53.5	73°15.2	99°06.9	101°37.0
19	209°34.9	13.5'	17°43.0	10.1'	54.8'	108°09.0	96°13.8	87°41.5	35°08.6	56°23.8	73°38.2	99°31.3	102°07.3
20	224°07.5	13.6'	17°33.0	10.1'	54.7'	107°41.3	95°45.5	87°11.8	34°47.5	56°54.0	74°01.3	99°55.6	102°37.5
21	238°40.1	13.7'	$17^{\circ}22.9$	10.2'	54.7'	107°13.6	95°17.2	86°42.1	34°26.7	57°24.3	74°24.4	100°19.9	103°07.7
22	253°12.8	13.8'	17° 12.7	10.3'	54.7'	106°45.9	94°49.0	86°12.4	34°06.1	57°54.5	74°47.6	100°44.2	103°37.8
23	267°45.5	13.8'	17°02.4	10.3'	54.7'	106°18.2	94°20.7	85°42.8	33°45.7	58°24.6	75°10.7	101°08.4	104°08.0
14 th	SD	$=15.0^{\prime}$	Mer. pass	s. 04:35					Sun S	D = 15.8'			

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

Mon	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	282°18.3	13.9'	S 16°52.1	10.4'	54.7'	105°50.5	93°52.5	85°13.2	33°25.5	58°54.8	75°33.8	101°32.6	104°38.1
1	296°51.2	14.0'	16°41.7	10.4'	54.7'	105°22.9	93°24.4	84°43.6	33°05.6	59°24.9	75°57.0	101°56.8	105°08.2
2	311°24.2	14.0'	16°31.3	10.5'	54.6'	104°55.3	92°56.2	84°14.0	32°45.9	59°55.1	76°20.2	102°20.9	105°38.3
3	325°57.3	14.1'	16°20.8	10.6'	54.6'	104°27.7	92°28.1	83°44.4	32°26.5	60°25.2	76°43.4	102°45.0	106°08.3
4	340°30.4	14.2'	$16^{\circ}10.2$	10.6'	54.6'	104°00.1	91°59.9	83°14.9	32°07.3	60°55.2	77°06.5	103°09.1	106°38.4
5	355°03.6	14.3'	15°59.6	10.7'	54.6'	103°32.5	91°31.8	82°45.4	31°48.4	61°25.3	77°29.7	103°33.1	107°08.4
6	9°36.8	14.3'	S 15°48.9	10.7'	54.6'	103°05.0	91°03.8	82° 15.9	31°29.8	61°55.3	77°53.0	103°57.1	107°38.4
7	24°10.2	14.4'	15°38.2	10.8'	54.6'	102°37.5	90°35.7	81°46.4	31°11.4	62°25.4	78°16.2	104°21.0	108°08.4
8	38°43.6	14.5'	15°27.3	10.9'	54.5'	102°10.0	90°07.6	81°16.9	30°53.4	62°55.4	78°39.4	104°44.9	108°38.3
9	53°17.0	14.5'	$15^{\circ}16.5$	10.9'	54.5'	101°42.5	89°39.6	80°47.5	30°35.6	63°25.4	79°02.6	105°08.8	109°08.3
10	67°50.5	14.6'	15°05.6	11.0'	54.5'	101°15.0	89°11.6	80°18.1	30°18.1	63°55.3	79°25.9	105°32.6	109°38.2
11	82°24.1	14.7'	14°54.6	11.0'	54.5'	100°47.5	88°43.6	79°48.7	30°00.9	64°25.3	79°49.1	105°56.4	110°08.1
12	96°57.8	14.7'	S 14°43.6	11.1'	54.5'	100°20.1	88°15.6	79° 19.3	29°44.0	64°55.2	80°12.4	106°20.1	110°38.0
13	111°31.5	14.8'	14°32.5	11.1'	54.5'	99°52.6	87°47.6	78°49.9	29°27.5	65°25.2	80°35.7	106°43.9	111°07.9
14	126°05.3	14.9'	14°21.4	11.2'	54.5'	99°25.2	87°19.7	78° 20.5	29°11.3	65°55.1	80°58.9	107°07.5	111°37.8
15	140°39.2	14.9'	14°10.2	11.2'	54.5'	98°57.8	86°51.7	77°51.2	28°55.4	66°25.0	81°22.2	107°31.1	112°07.6
16	155°13.1	15.0'	13°59.0	11.3'	54.4'	98°30.4	86°23.8	77°21.8	28°39.9	66°54.9	81°45.5	107°54.7	112°37.5
17	169°47.1	15.0'	13°47.7	11.3'	54.4'	98°03.1	85°55.9	76°52.5	28°24.8	67°24.7	82°08.8	108°18.3	113°07.3
18	184°21.1	15.1'	S 13°36.3	11.4'	54.4'	97°35.7	85°28.0	76°23.2		67°54.6	82°32.0	108°41.7	113°37.1
19	198°55.2	15.1'	13°25.0	11.4'	54.4'	97°08.4	85°00.1	75°53.9		68°24.4	82°55.3	109°05.2	114°06.9
20	213°29.3	15.2'	13°13.5	11.5'	54.4'	96°41.0	84°32.2	75°24.7		68°54.2	83°18.6	109°28.6	114°36.7
21	228°03.5	15.3'	13°02.1	11.5'	54.4'	96°13.7	84°04.4	74°55.4		69°24.1	83°41.9	109°52.0	115°06.5
22	242°37.8	15.3'	$12^{\circ}50.5$	11.6'	54.4'	95°46.4	83°36.5	74°26.2		69°53.9	84°05.2	110°15.3	115°36.2
23	257°12.1	15.4'	12°39.0	11.6'	54.4'	95°19.1	83°08.7	73°56.9		70°23.7	84°28.5	110°38.5	116°05.9
15 th	SD	= 14.9'	Mer. pass	s. 05:20					Sun S	SD = 15.8'			

h		Moon	(16 th Ma	ay)			Lunar	Distance	e (objects	with largest	hourly I	_D delta)	
Tue	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica
0	271°46.5	15.4'	S 12°27.4	11.7'	54.3'	94°51.8	82°40.9	73°27.7	70°53.4	84°51.8	89°06.3	111°01.8	116°35.7
1	286°20.9	15.5'	12° 15.7	11.7'	54.3'	94°24.5	82°13.1	72°58.5	71°23.2	85° 15.1	89°29.2	111°24.9	117°05.4
2	300°55.4	15.5'	12°04.0	11.7'	54.3'	93°57.3	81°45.3	72°29.3	71°52.9	85° 38.4	89°52.1	111°48.0	117°35.1
3	315°29.9	15.6'	11°52.3	11.8'	54.3'	93°30.0	81° 17.5	72°00.2	72°22.7	86°01.6	90°15.0	112°11.1	118°04.8
4	330°04.5	15.6'	11°40.5	11.8'	54.3'	93°02.8	80°49.7	71°31.0	72°52.4	86° 24.9	90°37.9	112°34.1	118°34.5
5	344°39.1	15.7'	$11^{\circ}28.7$	11.9'	54.3'	92°35.6	80°22.0	71°01.8	73°22.1	86°48.2	91°00.8	112°57.1	119°04.1
6	359°13.8	15.7'	S 11°16.8	11.9'	54.3'	92°08.3	79°54.2	70°32.7	73°51.9	87°11.5	91°23.7	113°20.0	119°33.8
7	13°48.5	15.8'	11°04.9	11.9'	54.3'	91°41.1	79°26.5	70°03.6	74°21.6	87°34.8	91°46.6	113°42.9	
8	28°23.2	15.8'	10°53.0	12.0'	54.3'	91°13.9	78° 58.7	69°34.4	74°51.2	87°58.1	92°09.4	114°05.7	
9	42°58.0	15.9'	$10^{\circ}41.0$	12.0'	54.3'	90°46.7	78°31.0	69°05.3	75°20.9	88°21.4	92°32.3	114°28.5	
10	57°32.9	15.9'	$10^{\circ}29.0$	12.1'	54.3'	90° 19.5	78°03.3	68°36.2	75°50.6	88° 44.6	92°55.1	114°51.2	
11	72°07.8	15.9'	$10^{\circ}16.9$	12.1'	54.3'	89°52.4	77°35.6	68°07.1	76°20.3	89°07.9	93°18.0	115°13.8	
12	86°42.7	16.0'	S 10°04.8	12.1'	54.2'	89°25.2	77°07.9	67°38.0	76°49.9	89°31.2	93°40.8	115°36.4	
13	101°17.7	16.0'	09°52.7	12.2'	54.2'	88°58.0	76°40.2	67°09.0	77°19.6	89°54.4	94°03.6	115°59.0	
14	115°52.7	16.1'	09°40.6	12.2'	54.2'	88°30.9	76° 12.5	66°39.9	77°49.2	90° 17.7	94°26.4	116°21.4	
15	130°27.8	16.1'	09°28.4	12.2'	54.2'	88°03.7	75°44.8	66°10.8	78°18.9	90°40.9	94°49.2	116°43.9	
16	145°02.9	16.1'	$09^{\circ}16.1$	12.3'	54.2'	87°36.6	75° 17.1	65°41.8	78°48.5	91°04.2	95°11.9	117°06.2	
17	159°38.0	16.2'	09°03.9	12.3'	54.2'	87°09.4	74°49.4	65°12.7	79°18.2	91°27.4	95°34.7	117°28.5	
18	174°13.2	16.2'	S 08°51.6	12.3'	54.2'	86° 42.3	74°21.8	64°43.7	79°47.8	91°50.6	95°57.4	117°50.7	
19	188°48.4	16.2'	08°39.3	12.3'	54.2'	86° 15.1	73°54.1	64°14.7	80°17.4	92°13.9	96°20.1	118°12.9	
20	203°23.6	16.3'	$08^{\circ}26.9$	12.4'	54.2'	85°48.0	73°26.5	63°45.7	80°47.0	92°37.1	96°42.8	118°35.0	
21	217°58.9	16.3'	$08^{\circ}14.6$	12.4'	54.2'	85°20.9	72°58.8	63°16.6	81°16.6	93°00.3	97°05.5	118°57.1	
22	232°34.2	16.3'	$08^{\circ}02.1$	12.4'	54.2'	84°53.8	72°31.2	62°47.6	81°46.2	93°23.5	97°28.2	119°19.1	
23	247°09.5	16.4'	$07^{\circ}49.7$	12.5'	54.2'	84°26.7	72°03.5	62°18.6	82°15.8	93°46.7	97°50.9	119°41.0	
16 th	SD	= 14.8'	Mer. pass	. 06:03					Sun	SD = 15.8'			

h	Moon (17 th May)

Wed	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar	+Acrux
0	261°44.9	16.4'	S 07°37.2	12.5'	54.2'	83°59.5	71°35.9	61°49.6	38°59.4	82°45.4	94°09.9	98°13.5	104°39.5
1	276°20.3	16.4'	$07^{\circ}24.8$	12.5'	54.2'	83°32.4	71°08.2	61°20.6	39°18.8	83°15.0	94°33.0	98°36.1	104°58.4
2	290°55.7	16.4'	$07^{\circ}12.2$	12.5'	54.2'	83°05.3	70°40.6	60°51.7	39°38.3	83°44.6	94°56.2	98°58.8	105°17.3
3	305°31.2	16.5'	06°59.7	12.6'	54.2'	82°38.2	70°13.0	60°22.7	39°58.0	84°14.2	95°19.3	99°21.3	105°36.2
4	320°06.6	16.5'	$06^{\circ}47.1$	12.6'	54.2'	82°11.1	69°45.3	59°53.7	40°17.9	84°43.8	95°42.5	99°43.9	105°55.0
5	334°42.1	16.5'	06°34.5	12.6'	54.2'	81°44.0	69°17.7	59°24.7	40°37.9	85°13.4	96°05.6	100°06.5	106°13.8
6	349°17.7	16.5'	S 06°21.9	12.6'	54.2'	81°16.9	68°50.1	58°55.8	40°58.1	85°43.0	96°28.7	100°29.0	106°32.5
7	3°53.2	16.6'	$06^{\circ}09.3$	12.7'	54.2'	80°49.8	68°22.5	58° 26.8	41°18.4	86°12.6	96°51.8	100°51.5	106°51.2
8	18°28.8	16.6'	05°56.6	12.7'	54.2'	80°22.7	67°54.8	57° 57.8	41°38.9	86°42.2	97°14.9	101°14.0	107°09.8
9	33°04.3	16.6'	05°44.0	12.7'	54.2'	79°55.6	67°27.2	57°28.9	41°59.6	87°11.8	97°38.0	101°36.5	107°28.4
10	47°40.0	16.6'	05°31.3	12.7'	54.2'	79°28.5	66°59.6	56°59.9	42°20.3	87°41.4	98°01.1	101°58.9	107°46.9
11	62°15.6	16.6'	$05^{\circ}18.5$	12.7'	54.2'	79°01.4	66°32.0	56°31.0	42°41.3	88°10.9	98°24.2	102°21.4	108°05.4
12	76°51.2	16.7'	S 05°05.8	12.8'	54.2'	78°34.3	66°04.3	56°02.0	43°02.3	88°40.5	98°47.2	102°43.8	108°23.8
13	91°26.9	16.7'	04°53.0	12.8'	54.2'	78°07.2	65°36.7	55°33.1	43°23.5	89°10.1	99°10.2	103°06.1	108°42.2
14	106°02.5	16.7'	04°40.3	12.8'	54.2'	77°40.1	65°09.1	55°04.1	43°44.9	89°39.7	99°33.2	103°28.5	109°00.6
15	120°38.2	16.7'	04°27.5	12.8'	54.2'	77°13.0	64°41.5	54°35.2	44°06.3	90°09.3	99°56.2	103°50.8	109°18.8
16	135°13.9	16.7'	04°14.6	12.8'	54.2'	76°45.8	64°13.8	54°06.2	44°27.9	90°38.9	100°19.2	104°13.1	109°37.1
17	149°49.6	16.7'	04°01.8	12.8'	54.2'	76°18.7	63°46.2	53°37.3	44°49.6	91°08.5	100°42.2	104°35.4	109°55.2
18	164°25.4	16.7'	S 03°49.0	12.9'	54.2'	75°51.6	63°18.6	53°08.4	45°11.4	91°38.1	101°05.2	104°57.7	110°13.4
19	179°01.1	16.7'	$03^{\circ}36.1$	12.9'	54.2'	75°24.5	62°50.9	52°39.4	45°33.4	92°07.8	101°28.1	105°19.9	110°31.4
20	193°36.8	16.7'	03°23.2	12.9'	54.2'	74°57.4	62°23.3	52°10.5	45°55.5	92°37.4	101°51.0	105°42.1	110°49.4
21	208°12.6	16.8'	03°10.3	12.9'	54.2'	74°30.2	61°55.6	51°41.5	46°17.6	93°07.0	102°13.9	106°04.3	111°07.4
22	222°48.3	16.8'	02°57.4	12.9'	54.2'	74°03.1	61°28.0	51°12.6	46°39.9	93°36.6	102°36.8	106°26.4	111°25.3
23	237°24.1	16.8'	02°44.5	12.9'	54.2'	73°35.9	61°00.3	50°43.7	47°02.3	94°06.2	102°59.6	106°48.5	111°43.1
17 th	SD	= 14.8'	Mer. pass	. 06:44					Sun	SD = 15.8'			

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

Thu	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar
0	251°59.9	16.8'	S 02°31.6	12.9'	54.2'	73°08.8	60°32.7	50°14.7		47°24.8	94°35.9	103°22.5	107°10.6
1	266°35.6	16.8'	02°18.6	13.0'	54.2'	72°41.6	60°05.0	49°45.8		47°47.4	95°05.5	103°45.3	107°32.6
2	281°11.4	16.8'	02°05.7	13.0'	54.2'	72°14.5	59° 37.3	49°16.8		48°10.1	95°35.2	104°08.1	107°54.7
3	295°47.2	16.8'	01°52.7	13.0'	54.2'	71°47.3	59°09.7	48° 47.9		48°32.9	96°04.8	104°30.9	108°16.7
4	310°22.9	16.8'	01°39.7	13.0'	54.2'	71°20.2	58°42.0	48°19.0		48°55.8	96°34.5	104°53.6	108°38.6
5	324°58.7	16.8'	$01^{\circ}26.8$	13.0'	54.2'	70°53.0	58° 14.3	47°50.0		49°18.8	97°04.2	105°16.4	109°00.5
6	339°34.5	16.8'	S 01°13.8	13.0'	54.2'	70°25.8	57°46.6	47°21.1		49°41.9	97°33.8	105°39.1	109°22.4
7	354°10.2	16.8'	01°00.8	13.0'	54.2'	69°58.6	57° 18.9	46°52.1		50°05.1	98°03.5	106°01.8	109°44.3
8	8°46.0	16.8'	00°47.8	13.0'	54.2'	69°31.4	56°51.2	46°23.2	28° 48.7	50°28.4	98°33.2	106°24.4	110°06.1
9	23°21.8	16.8'	00°34.8	13.0'	54.3'	69°04.2	56°23.5	45°54.2	29°04.3	50°51.7	99°02.9	106°47.1	110°27.9
10	37°57.5	16.7'	$00^{\circ}21.7$	13.0'	54.3'	68°37.0	55°55.8	45°25.3	29°20.2	51°15.2	99°32.6	107°09.7	110°49.6
11	52°33.3	16.7'	S 00°08.7	13.0'	54.3'	68°09.7	55°28.0	44°56.4	29° 36.5	51°38.7	100°02.3	107°32.3	111°11.3
12	67°09.0	16.7'	N 00°04.3	13.0'	54.3'	67°42.5	55°00.3	44°27.4	29°53.1	52°02.3	100°32.1	107°54.8	111°33.0
13	81°44.7	16.7'	00°17.3	13.0'	54.3'	67°15.3	54°32.6	43°58.5	30° 10.0	52°26.0	101°01.8	108°17.4	111°54.6
14	96°20.4	16.7'	00°30.4	13.0'	54.3'	66°48.0	54°04.8	43°29.5	30° 27.2	52°49.8	101°31.6	108°39.9	112°16.2
15	110°56.2	16.7'	00°43.4	13.0'	54.3'	66°20.7	53°37.1	43°00.5	30°44.7	53°13.7	102°01.3	109°02.3	112°37.7
16	125°31.8	16.7'	00°56.5	13.0'	54.3'	65°53.5	53°09.3	42°31.6	31°02.5	53°37.6	102°31.1	109°24.8	112°59.2
17	140°07.5	16.7'	$01^{\circ}09.5$	13.0'	54.3'	65°26.2	52°41.5	42°02.6	31°20.6	54°01.6	103°00.9	109°47.2	113°20.6
18	154°43.2	16.6'	N01°22.5	13.0'	54.3'	64°58.9	52° 13.7	41°33.7	31°39.0	54°25.7	103°30.7	110°09.6	113°42.0
19	169°18.8	16.6'	01°35.6	13.0'	54.3'	64°31.6	51°45.9	41°04.7	31°57.6	54°49.8	104°00.5	110°31.9	114°03.4
20	183°54.5	16.6'	01°48.6	13.0'	54.3'	64°04.2	51° 18.1	40°35.8	32° 16.4	55°14.1	104°30.3	110°54.2	114°24.7
21	198°30.1	16.6'	02°01.7	13.0'	54.4'	63°36.9	50°50.3	40°06.8	32° 35.6	55°38.4	105°00.1	111°16.5	114°46.0
22	213°05.7	16.6'	$02^{\circ}14.7$	13.0'	54.4'	63°09.5	50°22.4	39°37.8	32°54.9	56°02.8	105°30.0	111°38.8	115°07.2
23	227°41.3	16.6'	02°27.7	13.0'	54.4'	62°42.2	49°54.6	39°08.9	33° 14.5	56°27.2	105°59.8	112°01.0	115°28.3
18 th	SD	$= 14.8^{\prime}$	Mer. pass	. 07:24		-			Sun SI	D = 15.8'			

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

Fri	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.	+Hadar
0	242°16.8	16.5'	N 02°40.8	13.0'	54.4'	62°14.8	49°26.7	38°39.9	33°34.4	56°51.7	106°29.7	112°23.1	115°49.4
1	256°52.3	16.5'	02°53.8	13.0'	54.4'	61°47.4	48°58.9	38°10.9	33°54.4	57°16.3	106°59.6	112°45.3	116°10.5
2	271°27.8	16.5'	03°06.8	13.0'	54.4'	61°20.0	48°31.0	37°42.0	34° 14.7	57°40.9	107°29.5	113°07.4	116°31.5
3	286°03.3	16.5'	03°19.8	13.0'	54.4'	60°52.6	48°03.1	37°13.0	34° 35.2	58°05.6	107°59.4	113°29.4	116°52.4
4	300°38.8	16.4'	03°32.9	13.0'	54.4'	60°25.2	47°35.2	36°44.0	34°55.9	58°30.4	108°29.3	113°51.4	117°13.3
5	315°14.2	16.4'	03°45.9	13.0'	54.4'	59°57.7	47°07.3	36° 15.1	35° 16.8	58°55.2	108°59.3	114°13.4	117°34.1
6	329°49.6	16.4'	N 03°58.9	13.0'	54.5'	59°30.3	46°39.4	35°46.1	35° 37.9	59°20.1	109°29.2	114°35.3	117°54.9
7	344°25.0	16.3'	$04^{\circ}11.8$	13.0'	54.5'	59°02.8	46° 11.4	35°17.1	35° 59.2	59°45.1	109°59.2	114°57.2	118°15.6
8	359°00.4	16.3'	04°24.8	13.0'	54.5'	58°35.3	45°43.5	34°48.2	36°20.7	60°10.1	110°29.2	115°19.0	118°36.3
9	13°35.7	16.3'	04°37.8	13.0'	54.5'	58°07.8	45° 15.5	34°19.2	36°42.4	60°35.2	110°59.2	115°40.8	118°56.8
10	28°11.0	16.3'	04°50.8	13.0'	54.5'	57°40.3	44°47.5	33°50.2	37°04.3	61°00.3	111°29.2	116°02.6	119°17.4
11	42°46.2	16.2'	05°03.7	12.9'	54.5'	57°12.8	44° 19.5	33°21.3	37°26.3	61°25.5	111°59.2	116°24.3	119°37.8
12	57°21.4	16.2'	N 05°16.7	12.9'	54.5'	56°45.2	43°51.5	32°52.3	37°48.5	61°50.7	112°29.3	116°45.9	119°58.2
13	71°56.6	16.1'	05°29.6	12.9'	54.5'	56°17.7	43°23.5	32°23.4	38° 10.8	62°16.0	112°59.4	117°07.5	
14	86°31.8	16.1'	05°42.5	12.9'	54.6'	55°50.1	42°55.5	31°54.5	38° 33.4	62°41.4	113°29.5	117°29.0	
15	101°06.9	16.1'	05°55.4	12.9'	54.6'	55°22.5	42°27.4	31°25.5	38° 56.0	63°06.8	113°59.6	117°50.5	
16	115°41.9	16.0'	06°08.3	12.9'	54.6'	54°54.9	41°59.4	30°56.6	39° 18.9	63°32.3	114°29.7	118°12.0	
17	130°17.0	16.0'	$06^{\circ}21.1$	12.9'	54.6'	54°27.2	41°31.3	30°27.7	39°41.9	63°57.8	114°59.9	118°33.3	
18	144°52.0	16.0'	N 06°34.0	12.8'	54.6'	53°59.6	41°03.2	29°58.8	40°05.0	64°23.4	115°30.0	118°54.6	
19	159°26.9	15.9'	06°46.8	12.8'	54.6'	53°31.9	40°35.1	29°29.9	40°28.3	64°49.0	116°00.2	119°15.9	
20	174°01.8	15.9'	06°59.7	12.8'	54.6'	53°04.2	40°07.0	29°01.0	40°51.7	65°14.7	116°30.4	119°37.1	
21	188°36.7	15.8'	07°12.4	12.8'	54.7'	52°36.5	39°38.8	28°32.1	41° 15.2	65°40.4	117°00.6	119°58.2	
22	203°11.5	15.8'	07°25.2	12.8'	54.7'	52°08.8	39°10.7	28°03.2	41°38.9	66°06.2	117°30.9		
23	217°46.3	15.7'	07°38.0	12.7'	54.7'	51°41.0	38°42.5	27°34.4	42°02.7	66°32.0	118°01.1		
19 th	SD	= 14.8'	Mer. pass	. 08:04					Sun SI	D = 15.8'			

h Moon ((20 th May)	Lunar Distance (objects with	largest hourly L	D delta)
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Sat	GHA	ν	Dec	d	HP	-Sun	-Mars	-Saturn	+Fomalhaut	+Altair	+Antares
0	232°21.0	15.7'	N 07°50.7	12.7'	54.7'	51°13.3	38° 14.3	27°05.6	42°26.7	66°57.8	118°31.4
1	246°55.7	15.6'	08°03.4	12.7'	54.7'	50°45.5	37°46.1	26°36.8	42°50.8	67°23.8	119°01.7
2	261°30.3	15.6'	$08^{\circ}16.1$	12.7'	54.7'	50°17.7	37° 17.9	26°08.0	43°14.9	67°49.7	119°32.0
3	276°04.9	15.5'	08°28.8	12.6'	54.8'	49°49.9	36°49.7	25°39.2	43° 39.3	68°15.8	
4	290°39.5	15.5'	08°41.5	12.6'	54.8'	49°22.0	36°21.4	25°10.5	44°03.7	68°41.8	
5	305°14.0	15.4'	$08^{\circ}54.1$	12.6'	54.8'	48°54.2	35°53.2	24°41.8	44° 28.2	69°07.9	
6	319°48.4	15.4'	N09°06.7	12.6'	54.8'	48°26.3	35°24.9	24°13.1	44°52.9	69°34.1	
7	334°22.8	15.3'	$09^{\circ}19.2$	12.5'	54.8'	47°58.4	34°56.6	23°44.4	45° 17.6	70°00.3	
8	348°57.1	15.3'	09°31.8	12.5'	54.8'	47°30.4	34°28.3	23° 15.8	45° 42.5	70°26.5	
9	3°31.4	15.2'	09°44.3	12.5'	54.9'	47°02.5	34°00.0	22°47.3	46° 07.5	70°52.8	
10	18°05.6	15.2'	09°56.8	12.5'	54.9'	46°34.5	33°31.7	22° 18.8	46° 32.6	71°19.2	
11	32°39.7	15.1'	$10^{\circ}09.2$	12.4'	54.9'	46°06.6	33°03.3	21°50.3	46° 57.8	71°45.5	
12	47°13.8	15.0'	$N10^{\circ}21.6$	12.4'	54.9'	45°38.5	32°35.0	21°21.9	47°23.0	72°12.0	
13	61°47.9	15.0'	10°34.0	12.4'	54.9'	45°10.5	32°06.6	20°53.5	47° 48.4	72°38.4	
14	76°21.8	14.9'	10°46.4	12.3'	55.0'	44°42.5	31°38.2	20°25.2	48° 13.9	73°04.9	
15	90°55.7	14.9'	10°58.7	12.3'	55.0'	44°14.4	31°09.8	19°57.0	48° 39.5	73°31.5	
16	105°29.6	14.8'	$11^{\circ}11.0$	12.3'	55.0'	43°46.3	30°41.4	19°28.9	49°05.1	73°58.1	
17	120°03.4	14.7'	11°23.2	12.2'	55.0'	43°18.2	30°13.0	19°00.8	49°30.9	74°24.7	
18	134°37.1	14.7'	N11°35.5	12.2'	55.0'	42°50.0	29°44.5	18°32.9	49°56.7	74°51.4	
19	149°10.8	14.6'	11°47.6	12.1'	55.1'	42°21.9	29°16.1	18°05.0	50°22.7	75°18.1	
20	163°44.4	14.5'	$11^{\circ}59.8$	12.1'	55.1'	41°53.7	28°47.6	17°37.3	50°48.7	75°44.8	
21	178°17.9	14.5'	$12^{\circ}11.9$	12.1'	55.1'	41°25.5	28° 19.2	17°09.7	51° 14.8	76°11.6	
22	192°51.4	14.4'	$12^{\circ}23.9$	12.0'	55.1'	40°57.3	27°50.7	16°42.2	51°41.0	76°38.4	
23	207°24.7	14.3'	12°35.9	12.0'	55.1'	40°29.0	27°22.2	16°14.9	52°07.2	77°05.3	
20 th			Mer. pass	. 08:45				Sun	SD = 15.8'		

h		Moon	(21 st Ma	ıy)			Lunar	Distance	
Sun	GHA	ν	Dec	d	HP	-Mars	-Saturn	+Fomalhaut	+Altair
0	221°58.1	14.2'	N 12°47.9	11.9'	55.2'	26°53.7	15°47.7	52°33.6	77°32.2
1	236°31.3	14.2'	12°59.8	11.9'	55.2'	26°25.1	15°20.7	53°00.0	77°59.1
2	251°04.5	14.1'	13°11.7	11.8'	55.2'	25°56.6	14°54.0	53°26.5	78°26.1
3	265°37.6	14.0'	13°23.6	11.8'	55.2'	25°28.1	14°27.4	53°53.1	78°53.1
4	280° 10.6	14.0'	13°35.4	11.7'	55.2'	24°59.6	14°01.1	54°19.7	79°20.2
5	294°43.6	13.9'	$13^{\circ}47.1$	11.7'	55.3'	24°31.0	13°35.1	54°46.4	79°47.3
6	309°16.5	13.8'	N13°58.8	11.6'	55.3'	24°02.5	13°09.4	55°13.2	80°14.4
7	323°49.3	13.7'	14°10.4	11.6'	55.3'	23°33.9	12°44.0	55°40.1	80°41.5
8	338°22.0	13.7'	14°22.0	11.5'	55.3'	23°05.4	12°19.0	56°07.1	81°08.7
9	352°54.7	13.6'	14°33.6	11.5'	55.4'	22°36.8	11°54.4	56°34.1	81°36.0
10	7°27.2	13.5'	14°45.1	11.4'	55.4'	22°08.3	11°30.3	57°01.2	82°03.2
11	21°59.7	13.4'	14°56.5	11.4'	55.4'	21°39.8	11°06.8	57°28.3	82°30.5
12	36°32.1	13.3'	N 15°07.9	11.3'	55.4'	21°11.2	10°43.8	57°55.5	82°57.8
13	51°04.5	13.3'	15°19.2	11.3'	55.4'	20°42.7	10°21.4	58°22.8	83°25.2
14	65°36.7	13.2'	15°30.5	11.2'	55.5'	20°14.2	9°59.8	58°50.2	83°52.6
15	80°08.9	13.1'	15°41.7	11.1'	55.5'	19°45.7	9°39.0	59°17.6	84°20.0
16	94°41.0	13.0'	15°52.8	11.1'	55.5'	19°17.2	9°19.1	59°45.1	84°47.4
17	109°13.0	12.9'	$16^{\circ}03.9$	11.0'	55.5'	18°48.7		60°12.6	85°14.9
18	123°44.9	12.8'	$N16^{\circ}14.9$	11.0'	55.6'	18°20.3		60°40.2	85°42.4
19	138° 16.8	12.7'	16°25.9	10.9'	55.6'	17°51.9		61°07.9	86°10.0
20	152°48.5	12.7'	16°36.8	10.8'	55.6'	17°23.5		61°35.6	86°37.6
21	167°20.2	12.6'	16°47.6	10.8'	55.6'	16°55.1		62°03.4	87°05.2
22	181°51.7	12.5'	16°58.3	10.7'	55.7'	16°26.8		62°31.2	87°32.8
23	196°23.2	12.4'	$17^{\circ}09.0$	10.6'	55.7'	15°58.6		62°59.1	88°00.5
21 st	SD	= 15.0'	Mer. pass	09.29				*	*

h		Moon	(22 nd Ma	ay)		Lunar [Distance	(objects witl	n largest	hourly LD delta)
Mon	GHA	ν	Dec	d	HP	-Mars	+Saturn	+Fomalhaut	+Deneb	+Altair
0	210°54.6	12.3'	$N17^{\circ}19.7$	10.6'	55.7'	15°30.4		63°27.0		88°28.1
1	225°25.9	12.2'	17°30.2	10.5'	55.7'	15°02.2		63°55.1		88°55.9
2	239°57.2	12.1'	17°40.7	10.4'	55.7'	14°34.2		64°23.1		89°23.6
3	254°28.3	12.0'	$17^{\circ}51.1$	10.3'	55.8'	14°06.2		64°51.3		89°51.4
4	268°59.3	12.0'	$18^{\circ}01.4$	10.3'	55.8'	13°38.3		65° 19.4		90°19.2
5	283°30.3	11.9'	$18^{\circ}11.7$	10.2'	55.8'	13° 10.6		65° 47.7	71°06.3	90°47.0
6	298°01.2	11.8'	$N18^{\circ}21.9$	10.1'	55.8'	12°42.9		66° 15.9	71°21.4	91°14.8
7	312°31.9	11.7'	18°32.0	10.0'	55.9'	12°15.4		66° 44.3	71°36.6	91°42.7
8	327°02.6	11.6'	18°42.0	9.9'	55.9'	11°48.1		67° 12.7	71°51.9	92°10.6
9	341°33.2	11.5'	18°52.0	9.9'	55.9'	11°20.9		67°41.1	72°07.3	92°38.5
10	356°03.7	11.4'	$19^{\circ}01.8$	9.8'	55.9'	10°54.0		68°09.6	72°22.7	93°06.5
11	10°34.1	11.3'	$19^{\circ}11.6$	9.7'	56.0'	10°27.3		68°38.1	72°38.3	93°34.4
12	25°04.4	11.2'	$N19^{\circ}21.3$	9.6'	56.0'	10°00.9		69°06.7	72°53.9	94°02.4
13	39°34.6	11.1'	19°30.9	9.5'	56.0'	9°34.8		69°35.4	73°09.6	94°30.4
14	54°04.7	11.0'	19°40.4	9.4'	56.0'	9°09.1		70°04.0	73°25.4	94°58.5
15	68°34.7	10.9'	19°49.9	9.3'	56.1'	8°43.8		70°32.8	73°41.3	95°26.5
16	83°04.7	10.8'	19°59.2	9.3'	56.1'	8° 19.1		71°01.6	73°57.2	95°54.6
17	97°34.5	10.7'	$20^{\circ}08.5$	9.2'	56.1'	7°54.9	10°12.9	71°30.4	74°13.3	96°22.7
18	112°04.2	10.6'	N20°17.6	9.1'	56.1'	7°31.4	10°35.5	71°59.3	74°29.4	96°50.8
19	126°33.9	10.5'	$20^{\circ}26.7$	9.0'	56.2'	7°08.8	10°59.0	72°28.2	74°45.6	97°18.9
20	141°03.4	10.5'	20°35.7	8.9'	56.2'		11°23.1	72°57.1	75°01.9	97°47.1
21	155°32.9	10.4'	20°44.6	8.8'	56.2'		11°47.9	73°26.1	75°18.2	98°15.2
22	170°02.2	10.3'	$20^{\circ}53.3$	8.7'	56.2'		12°13.2	73°55.2	75°34.6	98°43.4
23	184°31.5	10.2'	21°02.0	8.6'	56.3'		12°39.0	74°24.3	75°51.1	99°11.6
22 nd	SD	$=15.2^{\prime}$	Mer. pass	. 10:16						

h		Moon	(23 rd Ma	y)		Lunar Distance					
Tue	GHA	ν	Dec	d	HP	+Saturn	+Fomalhaut	+Deneb	+Altair		
0	199°00.6	10.1'	N 21°10.6	8.5'	56.3'	13°05.3	74°53.4	76°07.7	99°39.8		
1	213°29.7	10.0'	21°19.1	8.4'	56.3'	13°32.0	75°22.6	76°24.3	100°08.0		
2	227°58.7	9.9'	21°27.5	8.3'	56.3'	13°59.1	75°51.8	76°41.0	100°36.3		
3	242°27.5	9.8'	21°35.7	8.2'	56.4'	14°26.6	76°21.1	76°57.8	101°04.5		
4	256°56.3	9.7'	21°43.9	8.1'	56.4'	14°54.4	76°50.4	77° 14.6	101°32.8		
5	271°25.0	9.6'	$21^{\circ}52.0$	8.0'	56.4'	15°22.4	77°19.7	77°31.5	102°01.1		
6	285°53.6	9.5'	N21°59.9	7.8'	56.4'	15°50.8	77°49.1	77°48.5	102°29.4		
7	300°22.1	9.4'	22°07.8	7.7'	56.5'	16°19.4	78°18.5	78°05.5	102°57.7		
8	314°50.5	9.3'	22° 15.5	7.6'	56.5'	16°48.2	78°48.0	78°22.6	103°26.0		
9	329°18.8	9.2'	22°23.1	7.5'	56.5'	17°17.3	79°17.5	78°39.8	103°54.3		
10	343°47.0	9.1'	22°30.6	7.4'	56.5'	17°46.6	79°47.0	78°57.0	104°22.6		
11	358°15.1	9.0'	22°38.0	7.3'	56.6'	18°16.0	80°16.6	79°14.3	104°51.0		
12	12°43.2	8.9'	N22°45.3	7.2'	56.6'	18°45.6	80°46.2	79°31.6	105°19.3		
13	27°11.1	8.8'	22°52.5	7.0'	56.6'	19°15.4	81°15.9	79°49.0	105°47.6		
14	41°39.0	8.8'	22°59.5	6.9'	56.6'	19°45.4	81°45.5	80°06.5	106°16.0		
15	56°06.7	8.7'	23°06.4	6.8'	56.7'						
16	70°34.4	8.6'	23° 13.3	6.7'	56.7'			oon ——			
17	85°01.9	8.5'	23°19.9	6.6'	56.7'			oon ——			
18	99°29.4	8.4'	N23°26.5	6.4'	56.7'		New M	oon ——			
19	113°56.8	8.3'	23°32.9	6.3'	56.8'			oon ——	 -		
20	128°24.1	8.2'	23°39.2	6.2'	56.8'			oon ——			
21	142°51.3	8.1'	23°45.4	6.1'	56.8'		New M	oon ———	 -		
22	157°18.4	8.0'	$23^{\circ}51.5$	5.9'	56.8'		New M	oon ———	——-		
23	171°45.5	8.0'	23°57.4	5.8'	56.9'			oon ——			
23 rd	SD	SD = 15.4' Mer. pass. 11:07					-				

	h	Moon	(24 th	May)
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Wed	GHA	ν	Dec	d	HP	
0	186°12.4	7.9'	$N24^{\circ}03.2$	5.7'	56.9'	New Moon
1	200°39.3	7.8'	24°08.8	5.5'	56.9'	New Moon
2	215°06.1	7.7'	24°14.4	5.4'	56.9'	New Moon
3	229°32.8	7.6'	24°19.8	5.3'	57.0'	New Moon
4	243°59.4	7.5'	24°25.0	5.1'	57.0'	New Moon
5	258°26.0	7.5'	24°30.1	5.0'	57.0'	New Moon
6	272°52.4	7.4'	$N24^{\circ}35.1$	4.8'	57.0'	New Moon
7	287°18.8	7.3'	24°40.0	4.7'	57.1'	New Moon
8	301°45.1	7.2'	24°44.7	4.6'	57.1'	New Moon
9	316°11.4	7.2'	24°49.2	4.4'	57.1'	New Moon
10	330°37.5	7.1'	24°53.6	4.3'	57.1'	New Moon
11	345°03.6	7.0'	24°57.9	4.1'	57.2'	New Moon
12	359°29.6	6.9'	$N25^{\circ}02.0$	4.0'	57.2'	New Moon
13	13°55.6	6.9'	25°06.0	3.8'	57.2'	New Moon
14	28°21.4	6.8'	25°09.9	3.7'	57.2'	New Moon
15	42°47.2	6.7'	25°13.6	3.5'	57.3'	New Moon
16	57°13.0	6.7'	$25^{\circ}17.1$	3.4'	57.3'	New Moon
17	71°38.6	6.6'	$25^{\circ}20.5$	3.2'	57.3'	New Moon
18	86°04.2	6.5'	$N25^{\circ}23.7$	3.1'	57.3'	New Moon
19	100°29.8	6.5'	25°26.8	2.9'	57.4'	New Moon
20	114°55.3	6.4'	25°29.8	2.8'	57.4'	New Moon
21	129°20.7	6.4'	25°32.6	2.6'	57.4'	New Moon
22	143°46.1	6.3'	25°35.2	2.5'	57.4'	New Moon
23	158°11.4	6.3'	25°37.7	2.3'	57.5'	New Moon
24 th	SD =	= 15.5'	Mer. pass	. 12:02	2	

h Moon (25 th May) Lunar Distance (objects with largest hourly LD do

Thu	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Jupiter	-Regulus	-Procyon	-Pollux	-Betelgeuse	±Venus
0	172°36.6	6.2'	N 25°40.0	2.2'	57.5'				New	Moon —			
1	187°01.8	6.2'	25°42.2	2.0'	57.5'				New	Moon —			
2	201°27.0	6.1'	25°44.2	1.9'	57.5'				New	Moon			
3	215°52.1	6.1'	25°46.0	1.7'	57.5'			93°30.6	76°05.2	45°50.0	39°27.3	24°22.0	1°50.2
4	230°17.1	6.0'	25°47.7	1.5'	57.6'			92°57.1	75°31.6	45°18.8	38°54.2	24°00.0	
5	244°42.2	6.0'	25°49.3	1.4'	57.6'			92°23.6	74°57.9	44° 47.7	38°21.0	23°38.5	
6	259°07.1	5.9'	N 25°50.7	1.2'	57.6'			91°50.1	74°24.2	44°16.5	37°47.8	23°17.5	
7	273°32.1	5.9'	25°51.9	1.1'	57.6'			91°16.5	73°50.4	43°45.4	37° 14.6	22°56.8	
8	287°56.9	5.8'	25°52.9	0.9'	57.7'		119°48.9	90°42.9	73° 16.7	43°14.4	36°41.4	22°36.7	
9	302°21.8	5.8'	25°53.8	0.7'	57.7'		119°23.9	90°09.3	72°42.9	42°43.3	36°08.2	22°17.1	
10	316°46.6	5.8'	25°54.6	0.6'	57.7'		118°58.8	89°35.7	72°09.1	42°12.3	35°35.0	21°58.0	
11	331°11.4	5.7'	25°55.1	0.4'	57.7'		118°33.5	89°02.0	71°35.3	41°41.3	35°01.8	21°39.5	3°06.6
12	345°36.1	5.7'	N25°55.5	0.2'	57.7'		118°08.2	88°28.3	71°01.4	41°10.4	34°28.5	21°21.6	3°40.9
13	0°00.8	5.7'	25°55.8	0.1'	57.8'		117°42.8	87°54.6	70°27.5	40°39.5	33°55.3	21°04.2	4°15.5
14	14°25.5	5.7'	25°55.9	-0.1'	57.8'		117°17.3	87°20.9	69°53.6	40°08.7	33°22.1	20°47.5	4°50.2
15	28°50.2	5.6'	25°55.8	-0.2'	57.8'		116°51.6	86°47.2	69° 19.7	39°37.9	32°48.8	20°31.5	5°25.1
16	43°14.8	5.6'	25°55.5	-0.4'	57.8'		116°25.9	86°13.4	68° 45.7	39°07.2	32° 15.6	20°16.2	6°00.1
17	57°39.4	5.6'	$25^{\circ}55.1$	-0.6'	57.8'		116°00.1	85°39.6	68°11.8	38°36.5	31°42.4		6°35.2
18	72°04.0	5.6'	N25°54.6	-0.7'	57.9'		115°34.3	85°05.8	67°37.8	38°05.9	31°09.2		7°10.4
19	86°28.6	5.6'	25°53.8	-0.9'	57.9'		115°08.3	84°31.9	67°03.8	37°35.3	30°35.9		7°45.6
20	100°53.2	5.5'	25°52.9	-1.1'	57.9'		114°42.2	83°58.0	66°29.7	37°04.8	30°02.7		8°20.9
21	115°17.7	5.5'	$25^{\circ}51.9$	-1.2'	57.9'	119°59.7	114°16.1	83°24.2	65°55.7	36°34.4	29°29.5		8°56.2
22	129°42.2	5.5'	25°50.6	-1.4'	57.9'	119°25.6	113° 49.9	82°50.2	65°21.6	36°04.0	28°56.3		9°31.6
23	144°06.8	5.5'	25°49.2	-1.6'	58.0'	118°51.4	113°23.6	82°16.3	64°47.5	35°33.8	28°23.1		10°07.0
25 th	SD	= 15.7'	Mer. pass	s. 13:00	1								

h	Moon (26th May)	Lunar Distance (objects with largest hourly ID delta)

Fri	GHA	ν	Dec	d	HP	-Spica	-Arcturus	-Jupiter	-Regulus	-Procyon	-Pollux	+Venus	+Capella
0	158°31.3	5.5'	N 25°47.7	-1.7'	58.0'	118°17.3	112°57.2	81°42.4	64° 13.3	35°03.6	27°50.0	10°42.4	
1	172°55.8	5.5'	25°45.9	-1.9'	58.0'	117°43.1	112°30.8	81°08.4	63°39.2	34°33.5	27° 16.8	11°17.9	
2	187°20.3	5.5'	25°44.0	-2.1'	58.0'	117°09.0	112°04.3	80°34.4	63°05.0	34°03.5	26°43.7	11°53.4	
3	201°44.8	5.5'	25°42.0	-2.2'	58.0'	116°34.7	111°37.7	80°00.4	62°30.8	33°33.6	26° 10.6	12°28.9	
4	216°09.3	5.5'	25°39.7	-2.4'	58.1'	116°00.5	111°11.0	79°26.3	61°56.6	33°03.8	25° 37.5	13°04.5	
5	230°33.8	5.5'	25°37.4	-2.6'	58.1'	115°26.3	110°44.3	78°52.3	61°22.4	32°34.1	25°04.5		
6	244°58.3	5.5'	N 25°34.8	-2.7'	58.1'	114°52.0	110° 17.5	78° 18.2	60°48.1	32°04.5	24°31.5		
7	259°22.8	5.5'	25°32.1	-2.9'	58.1'	114°17.7	109°50.7	77°44.1	60°13.9	31°35.1	23°58.5		
8	273°47.3	5.5'	25°29.2	-3.1'	58.1'	113°43.4	109°23.7	77° 10.0	59°39.6	31°05.8	23°25.6		
9	288°11.8	5.5'	$25^{\circ}26.1$	-3.2'	58.2'	113°09.1	108°56.8	76°35.9	59°05.3	30°36.6	22°52.7		22°34.4
10	302°36.3	5.5'	25°22.9	-3.4'	58.2'	112°34.7	108°29.7	76°01.7	58°31.0	30°07.6	22°19.8		22°50.1
11	317°00.9	5.6'	25°19.5	-3.5'	58.2'	112°00.3	108°02.6	75°27.5	57°56.6	29°38.8	21°47.1		23°06.5
12	331°25.4	5.6'	N25°16.0	-3.7'	58.2'	111°25.9	107°35.4	74°53.3	57°22.2	29°10.1	21°14.4		23°23.4
13	345°50.0	5.6'	25°12.3	-3.9'	58.2'	110°51.5	107°08.2	74° 19.1	56° 47.9	28°41.6	20°41.7		23°41.0
14	0°14.6	5.6'	25°08.4	-4.0'	58.3'	110°17.1	106°41.0	73°44.9	56° 13.5	28°13.2	20°09.2		23°59.1
15	14°39.2	5.6'	25°04.4	-4.2'	58.3'	109°42.6	106° 13.6	73° 10.7	55°39.0	27°45.1	19°36.7		24°17.9
16	29°03.9	5.7'	25°00.2	-4.4'	58.3'	109°08.1	105°46.2	72°36.4	55°04.6	27° 17.2	19°04.3		24°37.1
17	43°28.5	5.7'	24°55.8	-4.5'	58.3'	108°33.7	105°18.8	72°02.1	54°30.2	26°49.5	18°32.1		24°56.9
18	57°53.2	5.7'	N24°51.3	-4.7'	58.3'	107°59.1	104°51.3	71°27.8	53°55.7	26°22.0	17°59.9		25°17.2
19	72°17.9	5.7'	24°46.6	-4.8'	58.3'	107°24.6	104°23.8	70°53.5	53°21.2	25°54.8	17°27.9		25°38.0
20	86°42.7	5.8'	24°41.8	-5.0'	58.4'	106°50.1	103°56.2	70° 19.2	52°46.7	25°27.8	16°56.1		25°59.3
21	101°07.4	5.8'	24°36.8	-5.2'	58.4'	106°15.5	103°28.6	69°44.9	52° 12.2	25°01.2	16°24.4		26°21.0
22	115°32.2	5.8'	24°31.6	-5.3'	58.4'	105°40.9	103°00.9	69° 10.5	51°37.7	24°34.8	15°52.8		26°43.1
23	129°57.1	5.9'	24°26.3	-5.5'	58.4'	105°06.3	102°33.2	68°36.1	51°03.1	24°08.7	15°21.5		27°05.7
26 th	SD :	= 15.8'	Mer. pas	s. 13:59									

h Moon (27th May)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Betelgeuse	+Capella	+Rigel	+Sun
0	144°21.9	5.9'	N 24°20.8	-5.6'	58.4'	104°31.7	68°01.7	50°28.5	14°50.4		27°28.6	38°49.3	
1	158°46.8	5.9'	24°15.2	-5.8'	58.4'	103°57.1	67°27.3	49°54.0	14° 19.6	20°28.6	27°52.0	39°05.0	
2	173°11.8	6.0'	24°09.4	-5.9'	58.5'	103°22.4	66°52.9	49°19.4	13°49.0	20°44.8	28°15.7	39°21.0	
3	187°36.8	6.0'	24°03.4	-6.1'	58.5'	102°47.7	66°18.5	48°44.8	13°18.8	21°01.8	28°39.8	39°37.4	
4	202°01.8	6.1'	23°57.3	-6.3'	58.5'	102°13.1	65°44.0	48°10.1	12°48.9	21°19.4	29°04.2	39°54.1	
5	216°26.9	6.1'	23°51.1	-6.4'	58.5'	101°38.4	65°09.6	47°35.5	12°19.4	21°37.7	29°28.9	40°11.2	
6	230°52.0	6.2'	N23°44.7	-6.6'	58.5'	101°03.6	64°35.1	47°00.8	11°50.4	21°56.7	29°54.0	40°28.5	
7	245°17.1	6.2'	23°38.1	-6.7'	58.5'	100°28.9	64°00.6	46°26.2	11°21.9	22° 16.2	30°19.3	40°46.2	
8	259°42.4	6.3'	23°31.4	-6.9'	58.5'	99°54.2	63°26.1	45°51.5	10°54.0	22°36.4	30°44.9	41°04.2	
9	274°07.6	6.3'	23°24.5	-7.0'	58.6'	99°19.4	62°51.6	45°16.8	10°26.8	22°57.1	31°10.9	41°22.5	
10	288°32.9	6.4'	23°17.5	-7.2'	58.6'	98°44.6	62°17.0	44°42.1	10°00.3	23° 18.4	31°37.1	41°41.1	
11	302°58.3	6.4'	23°10.4	-7.3'	58.6'	98°09.8	61°42.5	44°07.4	9°34.7	23°40.1	32°03.5	42°00.0	
12	317°23.7	6.5'	N23°03.1	-7.5'	58.6'	97°35.0	61°08.0	43°32.7		24°02.4	32°30.2	42°19.1	
13	331°49.1	6.5'	22°55.6	-7.6'	58.6'	97°00.2	60°33.4	42°57.9		24°25.1	32°57.1	42°38.6	
14	346°14.6	6.6'	22°48.0	-7.7'	58.6'	96°25.3	59°58.8	42°23.2		24°48.3	33°24.3	42°58.3	
15	0°40.2	6.6'	22°40.2	-7.9'	58.6'	95°50.5	59°24.2	41°48.4		25°11.9	33°51.7	43°18.2	41°34.7
16	15°05.8	6.7'	22°32.3	-8.0'	58.7'	95°15.6	58°49.6	41°13.7		25°36.0	34°19.3	43°38.5	42°07.1
17	29°31.5	6.7'	22°24.3	-8.2'	58.7'	94°40.7	58°15.0	40°38.9		26°00.4	34°47.1	43°58.9	42°39.4
18	43°57.2	6.8'	$N22^{\circ}16.1$	-8.3'	58.7'	94°05.9	57°40.4	40°04.1		26°25.2	35°15.0	44°19.7	43°11.8
19	58°23.0	6.9'	22°07.8	-8.5'	58.7'	93°30.9	57°05.8	39°29.3		26°50.3	35°43.2	44°40.7	43°44.2
20	72°48.9	6.9'	21°59.4	-8.6'	58.7'	92°56.0	56°31.1	38°54.5		27° 15.8	36°11.6	45°01.9	44°16.6
21	87°14.8	7.0'	21°50.8	-8.7'	58.7'	92°21.1	55°56.5	38°19.7		27°41.7	36°40.1	45°23.3	44°49.0
22	101°40.8	7.0'	21°42.0	-8.9'	58.7'	91°46.2	55°21.8	37°44.9		28°07.8	37°08.8	45°45.0	45°21.5
23	116°06.8	7.1'	21°33.2	-9.0'	58.8'	91°11.2	54°47.2	37°10.0		28°34.2	37°37.7	46°06.9	45°53.9
27 th	SD = 15.9' Mer. pass. 14:57 $Sun SD = 15.8'$												

h Moon (28th May)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Arcturus	-Spica	-Jupiter	-Regulus	+Pollux	+Betelgeuse	+Capella	+Sun
0	130°32.9	7.2'	N21°24.1	-9.1'	58.8'	90°50.3	90°36.2	54° 12.5	36° 35.2		29°01.0	38°06.7	46°26.4
1	144°59.1	7.2'	21°15.0	-9.3'	58.8'	90°21.9	90°01.2	53°37.8	36°00.3		29°28.0	38°35.9	46°58.9
2	159°25.3	7.3'	21°05.7	-9.4'	58.8'	89°53.5	89°26.3	53°03.1	35°25.5		29°55.2	39°05.2	47°31.4
3	173°51.6	7.4'	20°56.3	-9.5'	58.8'	89°25.1	88°51.3	52°28.5	34°50.6		30°22.7	39°34.7	48°03.9
4	188°17.9	7.4'	20°46.8	-9.7'	58.8'	88°56.7	88° 16.2	51°53.8	34° 15.8		30°50.5	40°04.3	48°36.5
5	202°44.3	7.5'	20°37.1	-9.8'	58.8'	88°28.2	87°41.2	51°19.0	33°40.9		31°18.5	40°34.0	49°09.0
6	217°10.8	7.5'	N20°27.3	-9.9'	58.8'	87°59.8	87°06.2	50°44.3	33°06.0		31°46.7	41°03.9	49°41.6
7	231°37.4	7.6'	20°17.4	-10.0'	58.8'	87°31.4	86°31.1	50°09.6	32°31.2		32°15.1	41°33.8	50°14.1
8	246°04.0	7.7'	20°07.4	-10.2'	58.9'	87°03.0	85°56.1	49°34.9	31°56.3		32°43.7	42°03.9	50°46.7
9	260°30.7	7.7'	19°57.2	-10.3'	58.9'	86°34.5	85°21.0	49°00.2	31°21.4		33°12.5	42°34.1	51°19.3
10	274°57.4	7.8'	19°46.9	-10.4'	58.9'	86°06.1	84°45.9	48°25.4	30°46.5		33°41.5	43°04.5	51°51.9
11	289°24.2	7.9'	19°36.5	-10.5'	58.9'	85°37.6	84° 10.8	47°50.7	30°11.6		34°10.7	43°34.9	52°24.6
12	303°51.1	8.0'	$N19^{\circ}26.0$	-10.6'	58.9'	85°09.2	83°35.7	47° 15.9	29°36.8		34°40.0	44°05.4	52°57.2
13	318°18.1	8.0'	19°15.4	-10.8'	58.9'	84°40.8	83°00.6	46°41.2	29°01.9	10°33.3	35°09.5	44°36.0	53°29.8
14	332°45.1	8.1'	19°04.6	-10.9'	58.9'	84°12.4	82°25.5	46°06.4	28°27.0	11°01.0	35°39.2	45°06.7	54°02.5
15	347°12.2	8.2'	18°53.7	-11.0'	58.9'	83°43.9	81°50.4	45°31.7	27°52.1	11°29.4	36°09.0	45°37.6	54°35.2
16	1°39.3	8.2'	18°42.7	-11.1'	58.9'	83°15.5	81°15.3	44° 56.9	27° 17.2	11°58.4	36°38.9	46°08.5	55°07.8
17	16°06.5	8.3'	18°31.6	-11.2'	58.9'	82°47.1	80°40.1	44°22.2	26°42.4	12°27.9	37°09.0	46°39.4	55°40.5
18	30°33.8	8.4'	N 18°20.4	-11.3'	59.0'	82°18.7	80°05.0	43°47.4	26°07.5	12°57.9	37°39.3	47°10.5	56°13.2
19	45°01.2	8.4'	$18^{\circ}09.1$	-11.4'	59.0'	81°50.3	79°29.8	43° 12.7	25°32.6	13°28.3	38°09.6	47°41.7	56°45.9
20	59°28.6	8.5'	17°57.6	-11.5'	59.0'	81°21.9	78°54.6	42°37.9	24°57.8	13°59.1	38°40.1	48°12.9	57°18.6
21	73°56.1	8.6'	17°46.1	-11.7'	59.0'	80°53.6	78° 19.5	42°03.1	24°22.9	14°30.2	39°10.7	48°44.2	57°51.4
22	88°23.7	8.6'	17°34.4	-11.8'	59.0'	80°25.2	77°44.3	41°28.4	23°48.1	15°01.6	39°41.4	49°15.6	58°24.1
23	102°51.3	8.7'	17°22.7	-11.9'	59.0'	79°56.9	77°09.1	40°53.6	23° 13.2	15°33.3	40°12.3	49°47.0	58°56.9
28 th	SD = 16.0' Mer. pass. 15:53					$Sun\;SD=15.8'$							

h Moon (20th May)

Mon	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Betelgeuse	+Capella	+Sun
0	117°19.0	8.8'	$N17^{\circ}10.8$	-12.0'	59.0'		76°33.9	40°18.9	22°38.4	16°05.3	40°43.2	50° 18.5	59°29.6
1	131°46.8	8.8'	$16^{\circ}58.9$	-12.1'	59.0'		75°58.7	39°44.1	22°03.6	16°37.4	41°14.2	50°50.1	60°02.4
2	146°14.6	8.9'	16°46.8	-12.2'	59.0'		75°23.5	39°09.3	21°28.8	17°09.8	41°45.4	51°21.8	60°35.1
3	160°42.5	9.0'	16°34.6	-12.3'	59.0'		74°48.2	38°34.6	20°54.1	17°42.4	42°16.6	51°53.5	61°07.9
4	175°10.4	9.0'	16°22.4	-12.4'	59.0'	119°55.8	74°13.0	37° 59.8	20° 19.3	18°15.1	42°47.9	52°25.3	61°40.7
5	189°38.5	9.1'	$16^{\circ}10.0$	-12.4'	59.0'	119°20.5	73°37.8	37°25.1	19°44.6	18°48.0	43°19.3	52°57.1	62°13.5
6	204°06.6	9.2'	N 15°57.6	-12.5'	59.1'	118°45.2	73°02.5	36°50.4	19°09.9	19°21.0	43°50.8	53°29.0	62°46.3
7	218°34.7	9.2'	15°45.0	-12.6'	59.1'	118°09.9	72°27.3	36° 15.6	18° 35.2	19°54.2	44°22.4	54°00.9	63°19.1
8	233°02.9	9.3'	15°32.4	-12.7'	59.1'	117°34.6	71°52.0	35°40.9	18°00.6	20°27.4	44°54.0	54°32.9	63°52.0
9	247°31.2	9.4'	$15^{\circ}19.7$	-12.8'	59.1'	116°59.3	71°16.8	35°06.2	17°26.0	21°00.8	45°25.8	55°05.0	64°24.8
10	261°59.6	9.4'	$15^{\circ}06.9$	-12.9'	59.1'	116°24.0	70°41.5	34°31.5	16°51.5	21°34.3	45°57.6	55°37.1	64°57.6
11	276°28.0	9.5'	14°54.0	-13.0'	59.1'	115°48.7	70°06.3	33°56.8	16° 16.9	22°07.9	46°29.5	56°09.2	65°30.5
12	290°56.5	9.5'	N 14°41.0	-13.1'	59.1'	115°13.4	69°31.0	33°22.1	15°42.5	22°41.6	47°01.4	56°41.4	66°03.3
13	305°25.0	9.6'	14°27.9	-13.2'	59.1'	114°38.0	68°55.7	32°47.4	15°08.1	23°15.4	47°33.4	57° 13.6	66°36.2
14	319°53.6	9.7'	14° 14.8	-13.2'	59.1'	114°02.7	68°20.4	32° 12.8	14°33.8	23°49.2	48°05.5	57° 45.9	67°09.0
15	334°22.3	9.7'	$14^{\circ}01.5$	-13.3'	59.1'	113°27.4	67°45.1	31°38.1	13°59.5	24°23.1	48°37.6	58° 18.3	67°41.9
16	348°51.0	9.8'	13°48.2	-13.4'	59.1'	112°52.0	67°09.8	31°03.5	13°25.4	24°57.1	49°09.8	58°50.6	68°14.8
17	3°19.8	9.8'	13°34.8	-13.5'	59.1'	112°16.7	66°34.5	30°28.9	12°51.3	25°31.1	49°42.1	59°23.0	68°47.6
18	17°48.6	9.9'	N13°21.4	-13.5'	59.1'	111°41.3	65°59.2	29°54.3	12° 17.4	26°05.2	50°14.4	59°55.5	69°20.5
19	32°17.5	10.0'	13°07.8	-13.6'	59.1'	111°05.9	65°23.9	29° 19.7	11°43.6	26°39.4	50°46.7	60°28.0	69°53.4
20	46°46.5	10.0'	12°54.2	-13.7'	59.1'	110°30.6	64°48.6	28°45.1	11°09.9	27°13.6	51°19.2	61°00.5	70°26.3
21	61°15.5	10.1'	12°40.5	-13.8'	59.1'	109°55.2	64°13.3	28° 10.6	10°36.5	27°47.9	51°51.6	61°33.0	70°59.2
22	75°44.6	10.1'	12°26.8	-13.8'	59.1'	109°19.8	63°38.0	27°36.1	10°03.2	28°22.2	52°24.1	62°05.6	71°32.1
23	90°13.7	10.2'	12°12.9	-13.9'	59.1'	108°44.4	63°02.7	27°01.6	9°30.2	28°56.5	52°56.7	62°38.2	72°05.0
29 th	SD = 16.1' Mer. pass. 16:46						Sun SD = 15.8'						

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

Tue	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Betelgeuse	+Capella	+Sun
0	104°42.9	10.2'	N 11°59.0	-14.0'	59.2'	108°09.1	62°27.3	26°27.1	8°57.5	29°30.9	53°29.3	63°10.9	72°38.0
1	119°12.1	10.3'	11°45.1	-14.0'	59.2'	107°33.7	61°52.0	25°52.7	8°25.1	30°05.3	54°02.0	63°43.6	73°10.9
2	133°41.4	10.3'	11°31.0	-14.1'	59.2'	106°58.3	61°16.7	25°18.3	7°53.2	30°39.8	54°34.6	64°16.3	73°43.8
3	148°10.7	10.4'	$11^{\circ}16.9$	-14.2'	59.2'	106°22.9	60°41.3	24°43.9	7°21.8	31°14.3	55°07.4	64°49.0	74°16.7
4	162°40.1	10.4'	11°02.8	-14.2'	59.2'	105°47.5	60°06.0	24°09.6	6°51.0	31°48.8	55°40.2	65°21.8	74°49.7
5	177°09.6	10.5'	10°48.5	-14.3'	59.2'	105°12.1	59°30.7	23°35.3	6°21.1	32°23.4	56°13.0	65°54.6	75°22.6
6	191°39.0	10.5'	N 10°34.3	-14.3'	59.2'	104°36.7	58°55.3	23°01.1		32°58.0	56°45.8	66°27.4	75°55.5
7	206°08.6	10.6'	$10^{\circ}19.9$	-14.4'	59.2'	104°01.3	58°20.0	22°26.9		33°32.6	57°18.7	67°00.3	76°28.5
8	220°38.2	10.6'	10°05.5	-14.5'	59.2'	103°25.9	57°44.6	21°52.8		34°07.3	57°51.6	67°33.1	77°01.4
9	235°07.8	10.7'	09°51.1	-14.5'	59.2'	102°50.4	57°09.3	21°18.7		34°41.9	58°24.6	68°06.0	77°34.4
10	249°37.5	10.7'	09°36.6	-14.6'	59.2'	102°15.0	56°33.9	20°44.7		35° 16.6	58°57.6	68°39.0	78°07.3
11	264°07.2	10.8'	09°22.0	-14.6'	59.2'	101°39.6	55°58.6	20°10.7		35°51.4	59°30.6	69°11.9	78°40.3
12	278°37.0	10.8'	N 09°07.4	-14.7'	59.2'	101°04.2	55°23.2	19°36.8		36°26.1	60°03.6	69°44.9	79°13.3
13	293°06.8	10.8'	08°52.7	-14.7'	59.2'	100°28.8	54°47.9	19°03.0		37°00.9	60°36.7	70°17.8	79°46.2
14	307°36.6	10.9'	08°38.0	-14.8'	59.2'	99°53.3	54°12.5	18°29.3		37°35.7	61°09.8	70°50.8	80° 19.2
15	322°06.5	10.9'	08°23.3	-14.8'	59.2'	99°17.9	53°37.2	17°55.7		38° 10.5	61°42.9	71°23.9	80°52.1
16	336°36.4	11.0'	08°08.5	-14.8'	59.2'	98°42.5	53°01.8	17°22.2		38°45.3	62°16.1	71°56.9	81°25.1
17	351°06.4	11.0'	07°53.6	-14.9'	59.2'	98°07.0	52°26.5	16°48.8		39°20.1	62°49.3	72°30.0	81°58.1
18	5°36.4	11.0'	N 07°38.7	-14.9'	59.2'	97°31.6	51°51.1	16°15.6		39°55.0	63°22.5	73°03.0	82°31.1
19	20°06.4	11.1'	07°23.8	-15.0'	59.2'	96°56.2	51°15.8	15°42.5		40°29.8	63°55.7	73°36.1	83°04.0
20	34°36.5	11.1'	07°08.9	-15.0'	59.2'	96°20.7	50°40.4	15°09.5		41°04.7	64°29.0	74°09.2	83°37.0
21	49°06.6	11.1'	06°53.9	-15.0'	59.2'	95°45.3	50°05.1	14°36.8		41°39.6	65°02.3	74°42.3	84°10.0
22	63°36.8	11.2'	06°38.8	-15.1'	59.2'	95°09.9	49°29.7	14°04.2		42°14.5	65°35.6	75° 15.5	84°43.0
23	78°06.9	11.2'	06°23.7	-15.1'	59.2'	94°34.4	48°54.3	13°31.9		42°49.5	66°08.9	75°48.6	85°16.0
30 th	SD = $16.1'$ Mer. pass. 17:37								Sun S	D = 15.8'			

	Widdii (31 Widy)					Landi Distance (e (objects with largest hourly LD den				
Wed	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	92°37.1	11.2'	N 06°08.6	-15.1'	59.2'	93°59.0	83°13.4	48°19.0	12°59.8		41°00.4	43°24.4	66°42.2
1	107°07.4	11.3'	05°53.5	-15.2'	59.2'	93°23.5	82°45.7	47°43.6	12°28.0	7°23.6	41°32.7	43°59.4	67° 15.6
2	121°37.7	11.3'	05°38.3	-15.2'	59.2'	92°48.1	82°18.0	47°08.3	11°56.5	7°55.1	42°05.1	44°34.3	67°48.9
3	136°07.9	11.3'	05°23.1	-15.2'	59.2'	92° 12.7	81°50.4	46°32.9	11°25.4	8°27.1	42°37.5	45°09.3	68°22.3
4	150°38.3	11.3'	05°07.9	-15.3'	59.2'	91°37.2	81°22.8	45°57.6	10°54.7	8°59.5	43°10.0	45°44.3	68° 55.7
5	165°08.6	11.4'	04°52.6	-15.3'	59.2'	91°01.8	80°55.2	45°22.2	10°24.5	9°32.3	43°42.6	46°19.3	69°29.2
6	179°39.0	11.4'	N 04°37.3	-15.3'	59.2'	90°26.3	80°27.6	44°46.9	9°54.8	10°05.4	44°15.2	46°54.3	70°02.6
7	194°09.4	11.4'	04°22.0	-15.3'	59.2'	89°50.9	80°00.1	44°11.5	9°25.8	10°38.7	44°47.9	47°29.3	70°36.1
8	208°39.8	11.4'	04°06.7	-15.4'	59.2'	89° 15.4	79°32.6	43°36.2	8°57.5	11°12.3	45°20.6	48°04.3	71°09.5
9	223°10.2	11.5'	03°51.3	-15.4'	59.2'	88°40.0	79°05.1	43°00.9	8°30.2	11°46.0	45°53.4	48°39.3	71°43.0
10	237°40.7	11.5'	03°36.0	-15.4'	59.2'	88°04.5	78°37.6	42°25.5		12°19.9	46°26.2	49°14.4	72°16.5
11	252°11.1	11.5'	03°20.6	-15.4'	59.2'	87°29.1	78°10.2	41°50.2		12°53.9	46°59.1	49°49.4	72°50.0
12	266°41.6	11.5'	N03°05.2	-15.4'	59.2'	86° 53.7	77°42.8	41°14.9		13°28.1	47°32.0	50°24.4	73°23.5
13	281°12.1	11.5'	02°49.7	-15.4'	59.2'	86° 18.2	77°15.4	40°39.5		14°02.3	48°05.0	50°59.5	73°57.1
14	295°42.7	11.5'	02°34.3	-15.5'	59.2'	85°42.8	76°48.1	40°04.2		14°36.7	48°38.0	51°34.6	74°30.6
15	310°13.2	11.5'	02°18.9	-15.5'	59.2'	85°07.3	76°20.8	39°28.9		15°11.1	49°11.1	52°09.6	75°04.2
16	324°43.7	11.6'	02°03.4	-15.5'	59.2'	84°31.9	75°53.6	38°53.6		15°45.6	49°44.2	52°44.7	75°37.7
17	339°14.3	11.6'	01°47.9	-15.5'	59.2'	83°56.5	75°26.3	38°18.3		16°20.2	50°17.3	53°19.8	76°11.3
18	353°44.9	11.6'	N01°32.4	-15.5'	59.2'	83°21.0	74°59.2	37°43.0		16°54.8	50°50.5	53°54.8	76°44.9
19	8°15.5	11.6'	01°17.0	-15.5'	59.2'	82°45.6	74°32.0	37°07.7		17°29.5	51°23.7	54°29.9	77° 18.4
20	22°46.0	11.6'	01°01.5	-15.5'	59.2'	82°10.2	74°04.9	36°32.4		18°04.2	51°56.9	55°05.0	77°52.0
21	37°16.6	11.6'	00°46.0	-15.5'	59.2'	81°34.7	73°37.9	35°57.1		18°39.0	52°30.2	55°40.1	78°25.6
22	51°47.2	11.6'	00°30.5	-15.5'	59.2'	80°59.3	73°10.9	35°21.8		19°13.8	53°03.5	56°15.2	78°59.2
23	66°17.8	11.6'	00°15.0	-15.5'	59.2'	80°23.9	72°43.9	34°46.5	L	19°48.6	53°36.9	56°50.3	79°32.8
31st	l SD	$= 16.2^{\circ}$	Mer. pas:	s. 18:26									

ŀ	h Moon (1 st Jun)	Lunar Distance (objects with largest hourly LD delta)	
- [n ivioon (1° Jun)	Lunar Distance robjects with largest hourly LD deltar	

Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	80°48.4	11.6'	S 00°00.5	-15.5'	59.2'		79°48.5	72° 17.0	34°11.3	20°23.5	54°10.2	57°25.4	80°06.4
1	95°19.0	11.6'	$00^{\circ}16.0$	-15.5'	59.2'		79°13.0	71°50.1	33°36.0	20°58.4	54°43.6	58°00.5	80°40.1
2	109°49.6	11.6'	00°31.5	-15.5'	59.2'		78°37.6	71°23.3	33°00.8	21°33.3	55°17.0	58°35.6	81°13.7
3	124°20.3	11.6'	00°47.0	-15.5'	59.2'		78°02.2	70°56.6	32°25.5	22°08.2	55°50.5	59°10.7	81°47.3
4	138°50.9	11.6'	$01^{\circ}02.5$	-15.5'	59.2'		77°26.8	70°29.9	31°50.3	22°43.2	56°24.0	59°45.8	82°20.9
5	153°21.5	11.6'	$01^{\circ}18.0$	-15.5'	59.2'		76°51.4	70°03.3	31°15.0	23°18.2	56°57.5	60°20.9	82°54.5
6	167°52.1	11.6'	S 01°33.5	-15.5'	59.2'		76°15.9	69°36.7	30°39.8	23°53.2	57°31.0	60°56.0	83°28.2
7	182°22.7	11.6'	$01^{\circ}49.0$	-15.5'	59.2'		75°40.5	69° 10.2	30°04.6	24°28.2	58°04.5	61°31.1	84°01.8
8	196°53.2	11.6'	02°04.4	-15.4'	59.2'		75°05.1	68°43.7	29°29.4	25°03.2	58°38.1	62°06.2	84°35.4
9	211°23.8	11.6'	$02^{\circ}19.9$	-15.4'	59.2'		74°29.7	68° 17.3	28° 54.2	25°38.3	59°11.6	62°41.3	85°09.1
10	225°54.4	11.6'	02°35.3	-15.4'	59.2'		73°54.3	67°51.0	28° 19.1	26°13.3	59°45.2	63°16.4	85°42.7
11	240°25.0	11.6'	02°50.7	-15.4'	59.2'		73°18.9	67°24.8	27°43.9	26°48.4	60°18.8	63°51.5	86°16.3
12	254°55.5	11.5'	S 03°06.1	-15.4'	59.2'		72°43.6	66° 58.6	27°08.7	27°23.4	60°52.5	64°26.6	86°50.0
13	269°26.0	11.5'	03°21.5	-15.4'	59.2'		72°08.2	66° 32.5	26°33.6	27°58.5	61°26.1	65°01.7	87°23.6
14	283°56.6	11.5'	03°36.9	-15.3'	59.2'		71°32.8	66°06.5	25°58.5	28°33.6	61°59.8	65°36.8	87° 57.2
15	298°27.1	11.5'	03°52.2	-15.3'	59.1'		70°57.4	65°40.5	25°23.4	29°08.7	62°33.5	66°11.9	88° 30.8
16	312°57.6	11.5'	04°07.5	-15.3'	59.1'		70°22.0	65° 14.7	24°48.3	29°43.8	63°07.1	66°47.0	89°04.5
17	327°28.1	11.5'	04°22.8	-15.3'	59.1'		69°46.7	64°48.9	24°13.2	30°18.9	63°40.8	67°22.1	89°38.1
18	341°58.5	11.4'	S 04°38.1	-15.2'	59.1'	119°36.7	69°11.3	64°23.2	23°38.2	30°54.1	64°14.6	67°57.2	90°11.7
19	356°29.0	11.4'	04°53.3	-15.2'	59.1'	119°07.1	68°35.9	63° 57.5	23°03.1	31°29.2	64°48.3	68°32.3	90°45.3
20	10°59.4	11.4'	05°08.5	-15.2'	59.1'	118°37.4	68°00.6	63°32.0	22°28.1	32°04.3	65°22.0	69°07.4	91°18.9
21	25°29.8	11.4'	05°23.7	-15.2'	59.1'	118°07.7	67°25.2	63°06.6	21°53.1	32°39.4	65°55.8	69°42.5	91°52.5
22	40°00.2	11.4'	05°38.9	-15.1'	59.1'	117°37.9	66°49.9	62°41.2	21°18.1	33°14.5	66°29.5	70°17.6	92°26.1
23	54°30.5	11.3'	05°54.0	-15.1'	59.1'	117°08.1	66°14.5	62°16.0	20°43.2	33°49.7	67°03.3	70°52.6	92°59.7
1 st	SD	= 16.1'	Mer. pas	s. 19:15									

Moon (2nd Jun)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	69°00.8	11.3'	S 06°09.1	-15.1'	59.1'	116°38.2	65°39.2	61°50.8	20°08.3	17° 18.2	34°24.8	67°37.1	71°27.7
1	83°31.1	11.3'	$06^{\circ}24.2$	-15.0'	59.1'	116°08.2	65°03.9	61°25.8	19°33.4	17°51.5	34°59.9	68°10.9	72°02.8
2	98°01.4	11.3'	06°39.2	-15.0'	59.1'	115°38.3	64°28.5	61°00.8	18°58.6	18°25.0	35°35.1	68°44.6	72°37.9
3	112°31.7	11.2'	06°54.2	-14.9'	59.1'	115°08.3	63°53.2	60°36.0	18°23.7	18°58.6	36°10.2	69°18.4	73°12.9
4	127°01.9	11.2'	$07^{\circ}09.1$	-14.9'	59.1'	114°38.2	63°17.9	60°11.2	17°49.0	19°32.3	36°45.3	69°52.2	73°48.0
5	141°32.1	11.2'	$07^{\circ}24.0$	-14.9'	59.1'	114°08.1	62°42.6	59°46.6	17°14.2	20°06.0	37°20.5	70°26.1	74°23.1
6	156°02.2	11.1'	S 07°38.9	-14.8'	59.1'	113°38.0	62°07.3	59°22.1	16°39.5	20°39.8	37°55.6	70°59.9	74°58.1
7	170°32.4	11.1'	07°53.7	-14.8'	59.1'	113°07.8	61°32.0	58° 57.7	16°04.9	21°13.7	38°30.7	71°33.7	75°33.2
8	185°02.5	11.1'	08°08.5	-14.7'	59.0'	112°37.6	60°56.7	58° 33.4	15°30.3	21°47.6	39°05.9	72°07.5	76°08.2
9	199°32.5	11.0'	08°23.3	-14.7'	59.0'	112°07.3	60°21.4	58° 09.2	14°55.8	22°21.6	39°41.0	72°41.3	76°43.3
10	214°02.6	11.0'	08°37.9	-14.6'	59.0'	111°37.0	59°46.2	57° 45.2	14°21.3	22°55.6	40°16.1	73°15.2	77°18.3
11	228°32.6	11.0'	08°52.6	-14.6'	59.0'	111°06.7	59°10.9	57°21.3	13°46.9	23°29.7	40°51.2	73°49.0	77°53.3
12	243°02.5	10.9'	S 09°07.2	-14.5'	59.0'	110°36.4	58°35.6	56° 57.5	13°12.6	24°03.8	41°26.3	74°22.8	78°28.3
13	257°32.4	10.9'	$09^{\circ}21.7$	-14.5'	59.0'	110°06.0	58°00.4	56° 33.9	12°38.4	24°38.0	42°01.4	74°56.6	79°03.4
14	272°02.3	10.8'	09°36.2	-14.4'	59.0'	109°35.6	57°25.1	56° 10.4	12°04.3	25°12.1	42°36.5	75°30.5	79°38.4
15	286°32.1	10.8'	09°50.6	-14.4'	59.0'	109°05.2	56°49.9	55° 47.0	11°30.3	25°46.4	43°11.7	76°04.3	80°13.4
16	301°01.9	10.8'	$10^{\circ}05.0$	-14.3'	59.0'	108°34.7	56°14.7	55°23.8	10°56.5	26°20.6	43°46.7	76°38.1	80°48.4
17	315°31.7	10.7'	$10^{\circ}19.3$	-14.3'	59.0'	108°04.3	55°39.5	55°00.7	10°22.8	26°54.9	44°21.8	77°12.0	81°23.3
18	330°01.4	10.7'	S 10°33.6	-14.2'	59.0'	107°33.8	55°04.2	54° 37.8	9°49.3	27°29.2	44°56.9	77°45.8	81°58.3
19	344°31.1	10.6'	10°47.8	-14.1'	59.0'	107°03.2	54°29.0	54° 15.0	9°16.0	28°03.5	45°32.0	78°19.6	82°33.3
20	359°00.7	10.6'	$11^{\circ}01.9$	-14.1'	58.9'	106°32.7	53°53.8	53° 52.4	8°43.0	28° 37.8	46°07.1	78°53.5	83°08.3
21	13°30.3	10.5'	$11^{\circ}16.0$	-14.0'	58.9'	106°02.1	53°18.7	53°30.0	8°10.3	29°12.2	46°42.2	79°27.3	83°43.2
22	27°59.9	10.5'	11°30.0	-13.9'	58.9'	105°31.6	52°43.5	53°07.7	7°37.9	29°46.6	47°17.2	80°01.1	84°18.2
23	42°29.3	10.4'	11°43.9	-13.9'	58.9'	105°01.0	52°08.3	52°45.6	7°06.0	30°20.9	47°52.3	80°34.9	84°53.1
2 nd	SD	= 16.1'	Mer. pas	s. 20:04									

Lunar Distanc	e (objects with	largest hourly	y LD delta)
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h		Моо	n (3 rd Ju	n)		Lunar Distance (objects with largest hourly LD delta)							
Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Antares	±Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	56°58.8	10.4'	S 11°57.8	-13.8'	58.9'		104°30.4	51°33.2	6°34.7	30°55.3	48°27.3	81°08.7	85°28.0
1	71°28.2	10.4'	$12^{\circ}11.6$	-13.7'	58.9'		103°59.8	50°58.0	6°04.1	31°29.7	49°02.4	81°42.5	86°03.0
2	85°57.5	10.3'	12°25.4	-13.7'	58.9'		103°29.1	50°22.9	5°34.4	32°04.2	49°37.4	82°16.3	86°37.9
3	100°26.8	10.3'	$12^{\circ}39.1$	-13.6'	58.9'		102°58.5	49°47.7		32°38.6	50° 12.4	82°50.1	87°12.8
4	114°56.1	10.2'	12°52.7	-13.5'	58.9'		102°27.8	49°12.6		33°13.0	50°47.5	83°23.9	87°47.7
5	129°25.3	10.2'	13°06.2	-13.4'	58.9'		101°57.1	48°37.5		33°47.4	51°22.5	83°57.7	88°22.6
6	143°54.5	10.1'	S 13°19.6	-13.4'	58.8'		101°26.5	48°02.4		34°21.9	51°57.5	84°31.5	88°57.4
7	158°23.5	10.0'	13°33.0	-13.3'	58.8'		100°55.8	47°27.3		34°56.3	52°32.5	85°05.2	89°32.3
8	172°52.6	10.0'	13°46.3	-13.2'	58.8'		100°25.1	46°52.2		35°30.8	53°07.4	85°39.0	90°07.2
9	187°21.6	9.9'	$13^{\circ}59.5$	-13.1'	58.8'		99°54.4	46°17.2		36°05.2	53°42.4	86°12.8	90°42.0
10	201°50.5	9.9'	$14^{\circ}12.6$	-13.1'	58.8'		99°23.7	45°42.1		36°39.7	54° 17.4	86°46.5	91°16.8
11	216°19.4	9.8'	$14^{\circ}25.7$	-13.0'	58.8'		98°53.0	45°07.1		37°14.2	54°52.3	87°20.2	91°51.7
12	230°48.2	9.8'	S 14°38.7	-12.9'	58.8'		98°22.3	44°32.0		37°48.6	55°27.3	87°54.0	92°26.5
13	245°17.0	9.7'	$14^{\circ}51.5$	-12.8'	58.8'		97°51.5	43°57.0		38°23.1	56°02.2	88°27.7	93°01.3
14	259°45.7	9.7'	15°04.3	-12.7'	58.8'		97°20.8	43°22.0		38°57.5	56° 37.2	89°01.4	93°36.1
15	274°14.4	9.6'	$15^{\circ}17.1$	-12.6'	58.7'		96°50.1	42°47.0		39°32.0	57° 12.1	89°35.1	94°10.8
16	288°43.0	9.6'	$15^{\circ}29.7$	-12.5'	58.7'		96°19.4	42°12.0		40°06.4	57° 47.0	90°08.8	94°45.6
17	303°11.6	9.5'	15°42.2	-12.4'	58.7'		95°48.7	41°37.0		40°40.9	58°21.9	90°42.4	95°20.3
18	317°40.1	9.4'	S 15°54.6	-12.3'	58.7'		95°18.0	41°02.1		41°15.3	58° 56.7	91°16.1	95°55.1
19	332°08.5	9.4'	$16^{\circ}07.0$	-12.2'	58.7'	119°46.3	94°47.3	40°27.1		41°49.8	59°31.6	91°49.7	96°29.8
20	346°36.9	9.3'	$16^{\circ}19.2$	-12.2'	58.7'	119° 15.5	94°16.6	39°52.2	6°38.9	42°24.2	60°06.5	92°23.4	97°04.5
21	1°05.2	9.3'	16°31.4	-12.1'	58.7'	118°44.7	93°45.9	39°17.3	7°10.0	42°58.6	60°41.3	92°57.0	97°39.2
22	15°33.4	9.2'	16°43.4	-12.0'	58.7'	118° 13.9	93°15.2	38°42.4	7°41.8	43°33.1	61°16.2	93°30.6	98°13.9
23	30°01.6	9.1'	16°55.4	-11.9'	58.6'	117°43.1	92°44.5	38°07.5	8°13.9	44°07.5	61°51.0	94°04.2	98°48.6
3 rd	SD	= 16.1'	Mer. pas	s. 20:55									

	N 4	(a+h		
h	Moon	(4111	lun)	

Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	44°29.8	9.1'	S 17°07.3	-11.8'	58.6'	117° 12.2	110°31.9	92°13.8	37°32.6	8°46.4	44°41.9	62°25.8	99°23.2
1	58°57.9	9.0'	$17^{\circ}19.0$	-11.7'	58.6'	116°41.3	110°15.8	91°43.1	36°57.7	9°19.1	45°16.3	63°00.6	99°57.9
2	73°25.9	9.0'	17°30.7	-11.5'	58.6'	116° 10.4	109°59.6	91°12.5	36°22.9	9°52.1	45°50.7	63°35.4	100°32.5
3	87°53.9	8.9'	17°42.2	-11.4'	58.6'	115°39.4	109°43.3	90°41.8	35°48.0	10°25.2	46°25.1	64° 10.1	101°07.1
4	102°21.8	8.8'	17°53.7	-11.3'	58.6'	115°08.5	109°26.9	90°11.2	35°13.2	10°58.6	46°59.5	64°44.9	101°41.7
5	116°49.6	8.8'	18°05.0	-11.2'	58.6'	114° 37.5	109°10.5	89°40.6	34°38.4	11°32.0	47°33.8	65° 19.6	102°16.3
6	131°17.4	8.7'	S 18°16.2	-11.1'	58.5'	114°06.4	108°53.9	89°10.0	34°03.6	12°05.6	48°08.2	65°54.4	102°50.8
7	145°45.1	8.7'	18°27.3	-11.0'	58.5'	113°35.4	108°37.3	88°39.4	33°28.9	12°39.2	48°42.5	66°29.1	103°25.4
8	160°12.8	8.6'	18°38.4	-10.9'	58.5'	113°04.4	108°20.6	8.80°88	32°54.1	13°13.0	49°16.9	67°03.8	103°59.9
9	174°40.4	8.6'	18°49.2	-10.8'	58.5'	112°33.3	108°03.7	87°38.2	32°19.4	13°46.8	49°51.2	67° 38.5	104°34.4
10	189°08.0	8.5'	19°00.0	-10.7'	58.5'	112°02.2	107°46.9	87°07.7	31°44.6	14°20.7	50°25.5	68° 13.1	105°08.9
11	203°35.5	8.4'	$19^{\circ}10.7$	-10.6'	58.5'	111°31.1	107°29.9	86°37.2	31°09.9	14°54.6	50°59.8	68° 47.8	105°43.4
12	218°02.9	8.4'	S 19°21.3	-10.4'	58.5'	111°00.0	107°12.9	86°06.7	30°35.2	15°28.6	51°34.1	69°22.4	106°17.8
13	232°30.3	8.3'	19°31.7	-10.3'	58.4'	110°28.9	106°55.7	85°36.2	30°00.5	16°02.6	52°08.4	69°57.0	106°52.3
14	246°57.6	8.3'	19°42.0	-10.2'	58.4'	109°57.8	106°38.6	85°05.7	29°25.9	16°36.6	52°42.6	70°31.6	107°26.7
15	261°24.8	8.2'	19°52.2	-10.1'	58.4'	109°26.6	106°21.3	84°35.2	28°51.2	17°10.6	53°16.9	71°06.2	108°01.1
16	275°52.0	8.1'	20°02.3	-10.0'	58.4'	108° 55.5	106°04.0	84°04.8	28°16.6	17°44.7	53°51.1	71°40.8	108°35.5
17	290°19.2	8.1'	20°12.2	-9.8'	58.4'	108°24.3	105°46.6	83°34.4	27°42.0	18°18.8	54°25.4	72° 15.4	109°09.9
18	304°46.3	8.0'	S 20°22.1	-9.7'	58.4'	107°53.2	105°29.1	83°04.0	27°07.4	18°52.9	54°59.6	72°49.9	109°44.2
19	319°13.3	8.0'	20°31.8	-9.6'	58.3'	107°22.0	105°11.6	82°33.7	26°32.9	19°27.0	55°33.8	73°24.4	110°18.6
20	333°40.3	7.9'	20°41.4	-9.5'	58.3'	106°50.8	104°54.0	82°03.4	25°58.3	20°01.2	56°08.0	73°58.9	110°52.9
21	348°07.2	7.9'	20°50.8	-9.3'	58.3'	106° 19.6	104°36.4	81°33.1	25°23.8	20°35.3	56°42.1	74°33.4	111°27.2
22	2°34.0	7.8'	$21^{\circ}00.1$	-9.2'	58.3'	105°48.5	104°18.7	81°02.8	24°49.3	21°09.4	57°16.3	75°07.9	112°01.4
23	17°00.8	7.8'	21°09.3	-9.1'	58.3'	105° 17.3	104°00.9	80°32.5	24°14.8	21°43.6	57°50.4	75°42.3	112°35.7
4 th	SD	= 16.0	Mer. pas	ss. 21:49									

Moon (5th Jun)

Mon	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	31°27.6	7.7'	S 21°18.4	-8.9'	58.3'	104°46.1	103°43.1	80°02.3	23°40.3	22°17.7	58°24.5	76°16.8	113°09.9
1	45°54.3	7.6'	21°27.4	-8.8'	58.2'	104°14.9	103°25.2	79°32.2	23°05.9	22°51.9	58°58.6	76°51.2	113°44.1
2	60°20.9	7.6'	21°36.2	-8.7'	58.2'	103°43.8	103°07.3	79°02.0	22°31.4	23°26.0	59°32.7	77°25.6	114°18.3
3	74°47.5	7.5'	$21^{\circ}44.8$	-8.5'	58.2'	103°12.6	102°49.4	78°31.9	21°57.0	24°00.1	60°06.8	78°00.0	114°52.5
4	89°14.1	7.5'	21°53.4	-8.4'	58.2'	102°41.4	102°31.3	78°01.8	21°22.6	24°34.3	60°40.9	78°34.3	115°26.6
5	103°40.5	7.4'	22°01.8	-8.3'	58.2'	102°10.2	102°13.3	77°31.7	20°48.3	25°08.4	61°14.9	79°08.7	116°00.7
6	118°07.0	7.4'	S 22°10.0	-8.1'	58.1'	101°39.1	101°55.2	77°01.7	20°13.9	25°42.5	61°48.9	79°43.0	116°34.8
7	132°33.4	7.3'	22°18.2	-8.0'	58.1'	101°07.9	101°37.1	76°31.8	19°39.6	26°16.6	62°22.9	80° 17.3	117°08.9
8	146°59.7	7.3'	22°26.2	-7.9'	58.1'	100°36.8	101°18.9	76°01.8	19°05.3	26°50.7	62°56.9	80°51.6	117°43.0
9	161°26.0	7.2'	22°34.0	-7.7'	58.1'	100°05.6	101°00.6	75°31.9	18°31.0	27°24.8	63°30.9	81°25.8	118°17.0
10	175°52.3	7.2'	22°41.7	-7.6'	58.1'	99°34.5	100°42.4	75°02.0	17°56.8	27°58.8	64°04.8	82°00.1	118°51.0
11	190°18.5	7.2'	22°49.3	-7.4'	58.0'	99°03.4	100°24.1	74°32.2	17°22.6	28°32.9	64°38.7	82°34.3	119°25.0
12	204°44.6	7.1'	S 22°56.7	-7.3'	58.0'	98°32.3	100°05.8	74°02.4	16°48.4	29°06.9	65°12.6	83°08.5	119°58.9
13	219°10.7	7.1'	23°04.0	-7.1'	58.0'	98°01.2	99°47.4	73°32.7	16° 14.2	29°41.0	65°46.5	83°42.7	
14	233°36.8	7.0'	23°11.2	-7.0'	58.0'	97°30.1	99°29.0	73°03.0	15°40.0	30°15.0	66°20.4	84°16.8	
15	248°02.9	7.0'	23° 18.2	-6.9'	58.0'	96°59.0	99°10.6	72°33.3	15°05.9	30°49.0	66°54.2	84°50.9	
16	262°28.8	7.0'	23°25.0	-6.7'	57.9'	96°27.9	98°52.2	72°03.7	14°31.8	31°23.0	67°28.0	85°25.0	
17	276°54.8	6.9'	23°31.7	-6.6'	57.9'	95°56.9	98°33.7	71°34.2	13°57.8	31°57.0	68°01.8	85°59.1	
18	291°20.7	6.9'	S 23°38.3	-6.4'	57.9'	95°25.8	98°15.2	71°04.7	13°23.7	32°30.9	68°35.6	86°33.2	
19	305°46.6	6.8'	23°44.7	-6.3'	57.9'	94°54.8	97°56.7	70°35.2	12°49.7	33°04.8	69°09.4	87°07.2	
20	320°12.4	6.8'	23°51.0	-6.1'	57.9'	94°23.8	97°38.1	70°05.8	12° 15.7	33°38.8	69°43.1	87°41.3	
21	334°38.3	6.8'	23°57.1	-6.0'	57.8'	93°52.8	97°19.6	69°36.4	11°41.8	34°12.7	70°16.8	88° 15.3	
22	349°04.0	6.7'	$24^{\circ}03.1$	-5.8'	57.8'	93°21.8	97°01.0	69°07.1	11°07.9	34°46.6	70°50.5	88°49.2	
23	3°29.8	6.7'	24°08.9	-5.7'	57.8'	92°50.8	96°42.4	68°37.8	10°34.0	35°20.4	71°24.2	89°23.2	
5 th	SD =	= 15.9'	Mer. pas	s. 22:45	,								

h		Моо	n (6 th Ju	n)			Lunar Dis	stance (d	objects w	ith large	st hourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	17°55.5	6.7'	S 24°14.6	-5.5'	57.8'	96°23.8	92° 19.9	68°08.6	10°00.2	35°54.3	48° 37.8	71°57.9	89°57.1
1	32°21.2	6.7'	$24^{\circ}20.1$	-5.4'	57.8'	96°05.2	91°49.0	67°39.5	9°26.4	36°28.1	48°59.1	$72^{\circ}31.5$	90°31.0
2	46°46.9	6.6'	24°25.5	-5.2'	57.7'	95°46.5	91°18.1	67° 10.4	8°52.7	37°01.9	49°20.6	$73^{\circ}05.1$	91°04.9
3	61°12.5	6.6'	24°30.7	-5.1'	57.7'	95°27.9	90°47.2	66°41.4	8°19.0	37°35.7	49°42.2	73°38.7	91°38.8
4	75°38.1	6.6'	24°35.7	-4.9'	57.7'	95°09.3	90°16.3	66°12.4	7°45.3	38°09.5	50°03.9	74° 12.2	92°12.6
5	90°03.7	6.6'	24°40.6	-4.8'	57.7'	94°50.6	89°45.5	65°43.5	7°11.8	38°43.2	50°25.9	74°45.8	92°46.4
6	104°29.3	6.6'	S 24°45.4	-4.6'	57.7'	94°31.9	89°14.7	65°14.6	6°38.3	39°16.9	50°47.9	$75^{\circ}19.3$	93°20.2
7	118°54.8	6.5'	24°50.0	-4.4'	57.6'	94°13.2	88°43.9	64°45.8	6°04.9	39°50.6	51°10.1	75°52.8	93°54.0
8	133°20.3	6.5'	24°54.4	-4.3'	57.6'	93°54.6	88°13.1	64° 17.1	5°31.6	40°24.3	51°32.5	76°26.2	94°27.7
9	147°45.9	6.5'	24°58.7	-4.1'	57.6'	93°35.9	87°42.4	63°48.5	4°58.5	40°58.0	51°54.9	76° 59.7	95°01.4
10	162°11.4	6.5'	25°02.9	-4.0'	57.6'	93°17.2	87°11.7	63° 19.9	4°25.5	41°31.6	52°17.5	77°33.1	95°35.1
11	176°36.9	6.5'	25°06.8	-3.8'	57.5'	92°58.5	86°41.0	62°51.3	3°52.8	42°05.2	52°40.2	78°06.5	96°08.8
12	191°02.3	6.5'	S 25°10.7	-3.7'	57.5'	92°39.9	86°10.3	62°22.9	3°20.5	42°38.8	53°03.1	78°39.8	96°42.4
13	205°27.8	6.5'	25°14.3	-3.5'	57.5'	92°21.2	85°39.7	61°54.5	2°48.7	43°12.4	53°26.0	79° 13.2	97°16.0
14	219°53.3	6.5'	25°17.8	-3.4'	57.5'	92°02.5	85°09.1	61°26.2	2°17.8	43°45.9	53°49.1	79°46.5	97°49.6
15	234°18.7	6.4'	$25^{\circ}21.2$	-3.2'	57.5'	91°43.8	84°38.5	60°58.0		44° 19.4	54°12.3	$80^{\circ}19.8$	98°23.1
16	248°44.2	6.4'	25°24.4	-3.0'	57.4'	91°25.2	84°07.9	60°29.8		44°52.9	54°35.5	80°53.1	98°56.7
17	263°09.6	6.4'	25°27.4	-2.9'	57.4'	91°06.5	83°37.4	60°01.7		45°26.4	54°58.9	81°26.3	99°30.2
18	277°35.1	6.4'	S 25°30.3	-2.7'	57.4'	90°47.9	83°06.9	59°33.7		45°59.8	55°22.4	81°59.5	100°03.6
19	292°00.5	6.4'	25°33.0	-2.6'	57.4'	90°29.3	82°36.5	59°05.8		46°33.3	55°46.0	82°32.7	100°37.1
20	306°25.9	6.5'	25°35.6	-2.4'	57.3'	90°10.7	82°06.0	58° 37.9		47°06.6	56°09.7	83°05.8	101°10.5
21	320°51.4	6.5'	25°38.0	-2.3'	57.3'	89°52.1	81°35.6	58° 10.2		47°40.0	56°33.4	83°39.0	101°43.9
22	335°16.9	6.5'	25°40.2	-2.1'	57.3'	89°33.5	81°05.3	57° 42.5		48° 13.4	56° 57.3	84°12.1	102°17.3
23	349°42.3	6.5'	25°42.3	-1.9'	57.3'	89°14.9	80°34.9	57° 14.9		48°46.7	57°21.2	84°45.2	102°50.6
6 th	SD :	= 15.8'	Mer. pas	s. 23:43	3								

Wed	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	4°07.8	6.5'	S 25°44.3	-1.8'	57.2'	88°56.4	80°04.7	56°47.4	3°39.7	49°20.0	57°45.2	85° 18.2	103°23.9
1	18°33.3	6.5'	25°46.0	-1.6'	57.2'	88°37.8	79°34.4	56°20.0	4° 11.9	49°53.3	58°09.3	85°51.2	103°57.2
2	32°58.8	6.5'	25°47.7	-1.5'	57.2'	88° 19.3	79°04.2	55°52.7	4°44.4	50°26.5	58°33.4	86°24.2	104°30.5
3	47°24.3	6.5'	25°49.1	-1.3'	57.2'	88°00.8	78°34.0	55°25.5	5° 17.0	50° 59.7	58°57.7	86°57.2	105°03.7
4	61°49.8	6.5'	25°50.4	-1.1'	57.1'	87°42.4	78°03.8	54°58.4	5°49.7	51°32.9	59°22.0	87°30.1	105°36.9
5	76°15.4	6.6'	$25^{\circ}51.6$	-1.0'	57.1'	87°23.9	77°33.7	54°31.4	6°22.5	52°06.1	59°46.4	88°03.0	106°10.1
6	90°40.9	6.6'	S 25°52.6	-0.8'	57.1'	87°05.5	77°03.6	54°04.4	6°55.3	52°39.2	60°10.8	88° 35.9	106°43.2
7	105°06.5	6.6'	25°53.4	-0.7'	57.1'	86°47.1	76°33.6	53°37.6	7°28.2	53° 12.3	60°35.3	89°08.8	107°16.3
8	119°32.1	6.6'	25°54.1	-0.5'	57.0'	86°28.8	76°03.6	53°10.9	8°01.1	53°45.4	60°59.9	89°41.6	107°49.4
9	133°57.8	6.7'	25°54.6	-0.4'	57.0'	86° 10.4	75°33.7	52°44.3	8°33.9	54° 18.4	61°24.5	90°14.4	108°22.5
10	148°23.4	6.7'	25°55.0	-0.2'	57.0'	85°52.1	75°03.7	52°17.8	9°06.8	54°51.5	61°49.2	90°47.2	108°55.5
11	162°49.1	6.7'	25°55.2	-0.1'	57.0'	85°33.9	74°33.9	51°51.4	9°39.7	55°24.5	62°13.9	91° 19.9	109°28.5
12	177°14.9	6.8'	S 25°55.3	0.1'	57.0'	85° 15.6	74°04.0	51°25.2	10° 12.6	55° 57.4	62°38.7	91°52.6	110°01.5
13	191°40.6	6.8'	25°55.2	0.3'	56.9'	84°57.4	73°34.2	50°59.0	10°45.4	56° 30.4	63°03.5	92°25.3	110°34.4
14	206°06.4	6.8'	25°54.9	0.4'	56.9'	84°39.3	73°04.5	50°33.0	11° 18.3	57°03.3	63°28.4	92°57.9	111°07.3
15	220°32.2	6.9'	25°54.5	0.6'	56.9'	84°21.1	72°34.8	50°07.1	11°51.1	57°36.2	63°53.3	93°30.6	111°40.2
16	234°58.1	6.9'	25°53.9	0.7'	56.9'	84°03.0	72°05.1	49°41.3	12°23.9	58°09.0	64°18.3	94°03.2	112°13.1
17	249°24.0	6.9'	25°53.2	0.9'	56.8'	83°45.0	71°35.5	49°15.6	12°56.7	58°41.9	64°43.3	94°35.7	112°45.9
18	263°49.9	7.0'	S 25°52.4	1.0'	56.8'	83°27.0	71°06.0	48°50.1	13°29.5	59° 14.7	65°08.4	95°08.3	113°18.7
19	278°15.9	7.0'	25°51.4	1.2'	56.8'	83°09.0	70°36.4	48°24.7	14°02.2	59°47.4	65°33.5	95°40.8	113°51.5
20	292°42.0	7.1'	25°50.2	1.3'	56.8'	82°51.1	70°07.0	47°59.4	14°35.0	60°20.2	65°58.6	96°13.2	114°24.2
21	307°08.0	7.1'	25°48.9	1.5'	56.7'	82°33.2	69°37.6	47°34.3	15°07.7	60°52.9	66°23.7	96°45.7	114°56.9
22	321°34.2	7.2'	25°47.4	1.6'	56.7'	82°15.3 81°57.5	69°08.2	47°09.3	15°40.3	61°25.6	66°48.9	97°18.1	115°29.6
23	3 336°00.3 7.2' 25°45.8 1.8' 56.7'						68°38.9	46°44.4	16°13.0	61°58.3	67°14.2	97°50.5	116°02.2
7 th	SD	= 15.6	5' Mer. pa	ss:-									

h Moon (8th Jun)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Jupiter	+Regulus
0	350°26.6	7.3'	S 25°44.0	1.9'	56.7'		81°39.8	68°09.6	46°19.7	16°45.6	62°30.9	98°22.8	116°34.8
1	4°52.8	7.3'	$25^{\circ}42.1$	2.1'	56.6'		81°22.1	67°40.4	45°55.2	17°18.2	63°03.5	98°55.2	117°07.4
2	19°19.1	7.4'	$25^{\circ}40.1$	2.2'	56.6'		81°04.4	67°11.2	45°30.8	17°50.8	63°36.1	99°27.5	117°40.0
3	33°45.5	7.4'	25° 37.9	2.3'	56.6'		80°46.8	66°42.1	45°06.6	18°23.4	64°08.6	99°59.7	118°12.5
4	48°12.0	7.5'	25°35.5	2.5'	56.6'		80°29.3	66°13.0	44°42.5	18°55.9	64°41.1	100°32.0	118°45.0
5	62°38.5	7.6'	25°33.0	2.6'	56.5'		80°11.8	65°44.0	44°18.6	19°28.4	65°13.6	101°04.2	119°17.4
6	77°05.0	7.6'	S 25°30.4	2.8'	56.5'		79°54.3	65°15.1	43°54.8	20°00.9	65°46.1	101°36.3	119°49.9
7	91°31.6	7.7'	25°27.6	2.9'	56.5'		79°36.9	64°46.2	43°31.3	20°33.3	66° 18.5	102°08.5	l l
8	105°58.3	7.7'	25°24.7	3.1'	56.5'		79°19.6	64°17.4	43°07.9	21°05.7	66° 50.9	102°40.6	
9	120°25.0	7.8'	$25^{\circ}21.6$	3.2'	56.4'		79°02.3	63°48.6	42°44.7	21°38.1	67°23.2	103°12.7	
10	134°51.8	7.9'	$25^{\circ}18.4$	3.3'	56.4'		78°45.1	63°19.9	42°21.6	22°10.5	67°55.6	103°44.7	
11	149°18.7	7.9'	$25^{\circ}15.1$	3.5'	56.4'		78°28.0	62°51.2	41°58.8	22°42.8	68°27.9	104°16.7	
12	163°45.6	8.0'	S 25°11.6	3.6'	56.4'		78°10.9	62°22.6	41°36.1	23°15.1	69°00.2	104°48.7	
13	178°12.6	8.1'	25°08.0	3.8'	56.3'		77°53.8	61°54.1	41°13.7	23°47.4	69°32.4	105°20.7	i i
14	192°39.7	8.1'	25°04.2	3.9'	56.3'		77°36.8	61°25.6	40°51.4	24°19.6	70°04.6	105°52.6	
15	207°06.8	8.2'	25°00.3	4.0'	56.3'		77° 19.9	60°57.2	40°29.4	24°51.8	70°36.8	106°24.5	
16	221°34.0	8.3'	24°56.3	4.2'	56.3'		77°03.1	60°28.8	40°07.5	25°24.0	71°09.0	106°56.4	
17	236°01.3	8.4'	$24^{\circ}52.1$	4.3'	56.2'		76°46.3	60°00.5	39°45.9	25°56.2	71°41.1	107°28.2	
18	250°28.7	8.4'	S 24°47.8	4.4'	56.2'		76°29.6	59°32.3	39°24.5	26°28.3	72°13.2	108°00.0	
19	264°56.1	8.5'	24°43.4	4.6'	56.2'	119°43.5	76°12.9	59°04.2	39°03.3	27°00.4	72°45.3	108°31.8	
20	279°23.6	8.6'	24°38.8	4.7'	56.2'	119°12.0	75°56.4	58°36.1	38°42.4	27°32.4	73° 17.3	109°03.5	
21	293°51.2	8.7'	$24^{\circ}34.1$	4.8'	56.1'	118°40.6	75°39.8	58°08.1	38°21.6	28°04.5	73°49.3	109°35.2	
22	308°18.8	8.7'	$24^{\circ}29.3$	5.0'	56.1'	118°09.1	75°23.4	57°40.1	38°01.2	28°36.5	74°21.3	110°06.9	
23	23 322°46.6 8.8' 24°24.3 5.1' 56.1'					117°37.7	75°07.0	57°12.3	37°40.9	29°08.5	74°53.3	110°38.5	
8 th	SD = 15.5' Mer. pass. 00:40												

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

			(
Fri	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	337°14.4	8.9'	S 24°19.2	5.2'	56.1'	117°06.3	74°50.8	56° 44.5	37°21.0	29°40.4	75°25.2	77°50.9	111°10.1
1	351°42.3	9.0'	24°14.0	5.3'	56.0'	116°35.0	74°34.6	56° 16.7	37°01.2	30°12.4	75°57.1	78°16.4	111°41.7
2	6°10.2	9.1'	24°08.7	5.5'	56.0'	116°03.7	74°18.4	55°49.1	36°41.8	30°44.3	76°28.9	78°42.0	112°13.3
3	20°38.3	9.1'	24°03.3	5.6'	56.0'	115°32.4	74°02.3	55°21.5	36°22.6	31°16.1	77°00.8	79°07.6	112°44.8
4	35°06.4	9.2'	23°57.7	5.7'	56.0'	115°01.1	73°46.4	54°54.0	36°03.7	31°48.0	77°32.6	79°33.1	113°16.3
5	49°34.6	9.3'	23°52.0	5.8'	55.9'	114°29.9	73°30.5	54°26.6	35°45.0	32°19.8	78°04.4	79°58.7	113°47.7
6	64°02.9	9.4'	S 23°46.2	5.9'	55.9'	113°58.6	73°14.6	53°59.3	35°26.7	32°51.5	78°36.1	80°24.2	114°19.2
7	78°31.3	9.5'	23°40.2	6.1'	55.9'	113°27.4	72°58.9	53°32.0	35°08.7	33°23.3	79°07.8	80°49.8	114°50.6
8	92°59.8	9.5'	23°34.2	6.2'	55.9'	112°56.3	72°43.2	53°04.9	34°50.9	33°55.0	79°39.5	81°15.3	115°21.9
9	107°28.3	9.6'	23°28.0	6.3'	55.8'	112°25.1	72°27.6	52°37.8	34°33.5	34°26.7	80°11.2	81°40.8	115°53.3
10	121°57.0	9.7'	23°21.7	6.4'	55.8'	111°54.0	72°12.2	52°10.8	34°16.3	34°58.4	80°42.8	82°06.3	116°24.6
11	136°25.7	9.8'	23°15.3	6.5'	55.8'	111°22.9	71°56.7	51°43.9	33°59.5	35°30.0	81°14.4	82°31.8	116°55.8
12	150°54.5	9.9'	S 23°08.8	6.6'	55.8'	110°51.9	71°41.4	51°17.0	33°43.1	36°01.6	81°46.0	82°57.3	117°27.1
13	165°23.4	10.0'	23°02.1	6.7'	55.7'	110°20.9	71°26.2	50° 50.3	33°26.9	36°33.2	82°17.5	83°22.8	117°58.3
14	179°52.4	10.1'	22°55.4	6.9'	55.7'	109°49.9	71°11.0	50°23.7	33°11.1	37°04.7	82°49.0	83°48.3	118°29.5
15	194°21.4	10.2'	22°48.5	7.0'	55.7'	109°18.9	70°56.0	49°57.1	32°55.6	37°36.2	83°20.5	84°13.8	119°00.6
16	208°50.6	10.2'	22°41.5	7.1'	55.7'	108°47.9		49°30.7	32°40.5	38°07.7	83°51.9	84°39.2	119°31.7
17	223°19.8	10.3'	22°34.5	7.2'	55.6'	108°17.0		49°04.3		38°39.2	84°23.4	85°04.6	
18	237°49.1	10.4'	S 22°27.3	7.3'	55.6'	107°46.1		48°38.0		39°10.6	84°54.8	85°30.1	
19	252°18.6	10.5'	22°20.0	7.4'	55.6'	107°15.2		48°11.9		39°42.0	85°26.1	85°55.5	
20	266°48.1	10.6'	$22^{\circ}12.6$	7.5'	55.6'	106°44.4		47° 45.8		40°13.4	85°57.5	86°20.9	
21	281°17.6	10.7'	22°05.1	7.6'	55.5'	106°13.6		47° 19.9		40°44.7	86°28.8	86°46.2	
22	295°47.3	10.8'	21°57.5	7.7'	55.5'	105°42.8		46°54.1		41°16.1	87°00.1	87°11.6	
23	310°17.1	10.9'	21°49.8	7.8'	55.5'	105°12.0		46°28.3		41°47.3	87°31.3	87°36.9	
9 th	SD	= 15.3 [']	Mer. pass.	01:34									

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

Sat	GHA	ν	Dec	d	HP	-Mars	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica
0	324°46.9	10.9'	S 21°42.0	7.9'	55.5'		104°41.3	46°02.7	42°18.6	63°15.7	67°37.7	88°02.2	88°02.5
1	339°16.9	11.0'	21°34.1	8.0'	55.5'		104°10.6	45°37.2	42°49.8	63°38.2	68°00.4	88°27.5	88°33.7
2	353°46.9	11.1'	$21^{\circ}26.1$	8.1'	55.4'		103°39.9	45°11.8	43°21.1	64°00.7	68°23.0	88°52.8	89°04.9
3	8°17.0	11.2'	$21^{\circ}18.0$	8.2'	55.4'		103°09.2	44°46.6	43°52.2	64°23.3	68°45.8	$89^{\circ}18.1$	89°36.1
4	22°47.2	11.3'	$21^{\circ}09.8$	8.3'	55.4'		102°38.6	44°21.4	44°23.4	64°46.0	69°08.5	89°43.3	90°07.2
5	37°17.5	11.4'	$21^{\circ}01.5$	8.4'	55.4'		102°08.0	43°56.4	44° 54.5	65°08.7	69°31.3	90°08.5	90°38.3
6	51°47.9	11.5'	S 20°53.2	8.5'	55.3'		101°37.4	43°31.5	45°25.6	65°31.4	69°54.1	90°33.7	91°09.3
7	66°18.4	11.6'	20°44.7	8.6'	55.3'		101°06.9	43°06.7	45°56.7	65°54.2	70°17.0	90°58.9	91°40.4
8	80°49.0	11.6'	$20^{\circ}36.1$	8.7'	55.3'		100°36.3	42°42.1	46°27.7	66°17.0	70°39.8	91°24.0	92°11.4
9	95°19.6	11.7'	20°27.5	8.7'	55.3'		100°05.8	42°17.6	46°58.7	66°39.8	71°02.7	$91^{\circ}49.1$	92°42.3
10	109°50.3	11.8'	$20^{\circ}18.7$	8.8'	55.3'		99°35.4	41°53.2	47° 29.7	67°02.7	71°25.7	92°14.2	93°13.3
11	124°21.2	11.9'	$20^{\circ}09.9$	8.9'	55.2'		99°04.9	41°29.0	48°00.7	67°25.6	71°48.6	92°39.3	93°44.2
12	138°52.1	12.0'	S 20°01.0	9.0'	55.2'		98°34.5	41°04.9	48°31.6	67°48.6	72°11.6	93°04.3	94°15.1
13	153°23.1	12.1'	19°52.0	9.1'	55.2'		98°04.1	40°41.0	49°02.6	68°11.6	72°34.5	93°29.4	94°46.0
14	167°54.1	12.2'	19°42.9	9.2'	55.2'		97°33.7	40°17.2	49°33.4	68°34.6	72°57.5	93°54.4	95°16.8
15	182°25.3	12.3'	19°33.7	9.3'	55.2'		97°03.4	39°53.6	50°04.3	68°57.6	73°20.6	94°19.3	95°47.7
16	196°56.6	12.3'	19°24.5	9.3'	55.1'		96°33.0	39°30.1	50°35.1	69°20.7	73°43.6	94°44.2	96°18.5
17	211°27.9	12.4'	$19^{\circ}15.1$	9.4'	55.1'		96°02.7	39°06.8	51°05.9	69°43.8	74°06.7	95°09.2	96°49.2
18	225°59.3	12.5'	S 19°05.7	9.5'	55.1'		95°32.5	38°43.6	51°36.7	70°06.9	74°29.7	95°34.0	97°20.0
19	240°30.8	12.6'	18°56.2	9.6'	55.1'		95°02.2	38°20.7	52°07.5	70°30.0	74°52.8	95°58.9	97°50.7
20	255°02.4	12.7'	$18^{\circ}46.7$	9.6'	55.1'	119°36.7	94°32.0	37°57.9	52°38.2	70°53.2	75°15.9	96°23.7	98°21.4
21	269°34.1	12.8'	$18^{\circ}37.0$	9.7'	55.0'	119°07.9	94°01.8	37°35.3	53°08.9	71°16.4	75°39.0	96°48.5	98°52.1
22	284°05.9	12.8'	$18^{\circ}27.3$	9.8'	55.0'	118°39.1	93°31.6	37°12.8	53°39.6	71°39.6	76°02.2	97°13.2	99°22.7
23	298°37.7	12.9'	$18^{\circ}17.5$	9.9'	55.0'	118° 10.3	93°01.4	36°50.6	54°10.3	72°02.9	76°25.3	97°38.0	99°53.3
10 th	SD :	= 15.1'	Mer. pass	02:26				-				-	

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

Sun	GHA	ν	Dec	d	HP	-Venus	-Aldebaran	-Mars	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	313°09.6	13.0'	S 18°07.6	9.9'	55.0'			117°41.5	92°31.3	54°40.9	72°26.1	98°02.7	100°23.9
1	327°41.6	13.1'	17° 57.7	10.0'	55.0'			117°12.8	92°01.2	55°11.5	72°49.4	98°27.3	100°54.5
2	342°13.7	13.2'	17° 47.7	10.1'	54.9'			116°44.0	91°31.1	55°42.1	73°12.7	98°51.9	101°25.1
3	356°45.9	13.2'	17° 37.6	10.2'	54.9'	119°47.6		116°15.4	91°01.0	56°12.7	73°36.0	99°16.5	101°55.6
4	11°18.1	13.3'	17° 27.4	10.2'	54.9'	119°16.1		115°46.7	90°31.0	56°43.3	73°59.3	99°41.1	102°26.1
5	25°50.4	13.4'	$17^{\circ}17.2$	10.3'	54.9'	118°44.6		115°18.0	90°01.0	57°13.8	74°22.6	100°05.6	102°56.6
6	40°22.8	13.5'	S 17°06.9	10.4'	54.9'	118°13.1		114°49.4	89°31.0	57°44.3	74°46.0	100°30.1	103°27.0
7	54°55.3	13.6'	$16^{\circ}56.6$	10.4'	54.8'	117°41.7		114°20.8	89°01.0	58°14.7	75°09.3	100°54.5	103°57.5
8	69°27.9	13.6'	$16^{\circ}46.1$	10.5'	54.8'	117°10.3		113°52.2	88°31.1	58°45.2	75°32.7	101°19.0	104°27.9
9	84°00.5	13.7'	16°35.7	10.5'	54.8'	116°38.9		113°23.6	88°01.1	59°15.6	75°56.1	101°43.3	104°58.3
10	98°33.2	13.8'	$16^{\circ}25.1$	10.6'	54.8'	116°07.6		112°55.1	87°31.2	59°46.0	76° 19.5	102°07.7	105°28.6
11	113°06.0	13.9'	$16^{\circ}14.5$	10.7'	54.8'	115°36.2		112°26.6	87°01.3	60°16.4	76°42.9	102°32.0	105°59.0
12	127°38.9	13.9'	S 16°03.8	10.7'	54.8'	115°04.9	119°30.1	111°58.0	86°31.5	60°46.8	77°06.3	102°56.2	106°29.3
13	142°11.8	14.0'	$15^{\circ}53.1$	10.8'	54.7'	114°33.6	119°00.3	111°29.6	86°01.6	61°17.1	77°29.8	103°20.4	106°59.6
14	156°44.8	14.1'	15° 42.3	10.8'	54.7'	114°02.4	118°30.5	$111^{\circ}01.1$	85°31.8	61°47.5	77°53.2	103°44.6	107°29.9
15	171°17.9	14.1'	15°31.4	10.9'	54.7'	113°31.1	118°00.6	110°32.7	85°02.0	62°17.8	78°16.6	104°08.8	108°00.1
16	185°51.0	14.2'	15° 20.5	11.0'	54.7'	112°59.9	117°30.8	110°04.2	84°32.2	62°48.1	78°40.1	104°32.9	108°30.4
17	200°24.2	14.3'	$15^{\circ}09.6$	11.0'	54.7'	112°28.7	117°01.0	109°35.8	84°02.5	63°18.3	79°03.5	104°56.9	109°00.6
18	214°57.5	14.4'	S 14°58.6	11.1'	54.7'	111°57.6	116°31.2	109°07.4	83°32.7	63°48.6	79°27.0	105°20.9	109°30.8
19	229°30.9	14.4'	14° 47.5	11.1'	54.6'	111°26.4	116°01.5	108°39.1	83°03.0	64°18.8	79°50.5	105°44.9	110°01.0
20	244°04.3	14.5'	14°36.4	11.2'	54.6'	110°55.3	115°31.7	108°10.7	82°33.3	64°49.0	80°13.9	106°08.9	110°31.1
21	258°37.8	14.6'	14°25.2	11.2'	54.6'	110°24.2	115°02.0	107°42.4	82°03.6	65°19.2	80°37.4	106°32.7	111°01.3
22	273°11.4	14.6'	$14^{\circ}13.9$	11.3'	54.6'	109°53.1	114°32.3	107°14.1	81°34.0	65°49.4	81°00.9	106°56.6	111°31.4
23	287°45.0	14.7'	14°02.7	11.3'	54.6'	109°22.1	114°02.6	106°45.8	81°04.3	66°19.5	81°24.4	107°20.4	112°01.5
11 th	SD	$=15.0^{\prime}$	Mer. pass	s. 03:13									

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

n		ivioon	i (12" Ju	n)			Lunar L	Jistance (objects	with large	st nourly LD	deita)	
Mon	GHA	ν	Dec	d	HP	-Aldebaran	-Venus	-Mars	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	302°18.7	14.8'	S 13°51.3	11.4'	54.6'	113°32.9	108°51.0	106°17.5	80°34.7	66° 49.6	81°47.8	107°44.1	112°31.6
1	316°52.4	14.8'	13°39.9	11.4'	54.6'	113°03.2	108°20.0	105°49.2	80°05.1	67° 19.7	82°11.3	108°07.8	113°01.6
2	331°26.3	14.9'	13°28.5	11.5'	54.5'	112°33.6	107°49.0	105°21.0	79°35.5	67°49.8	82°34.8	108°31.5	113°31.7
3	346°00.2	14.9'	13°17.0	11.5'	54.5'	112°03.9	107°18.1	104°52.8	79°05.9	68° 19.9	82°58.3	108°55.1	114°01.7
4	0°34.1	15.0'	$13^{\circ}05.5$	11.6'	54.5'	111°34.3	106°47.1	104°24.6	78°36.4	68° 50.0	83°21.8	109°18.7	114°31.7
5	15°08.1	15.1'	12°53.9	11.6'	54.5'	111°04.7	106°16.2	103°56.4	78°06.9	69°20.0	83°45.2	109°42.2	115°01.7
6	29°42.2	15.1'	S 12°42.3	11.7'	54.5'	110°35.1	105°45.3	103°28.2	77°37.3	69°50.1	84°08.7	110°05.6	115°31.7
7	44°16.3	15.2'	12°30.7	11.7'	54.5'	110°05.5	105°14.4	103°00.0	77°07.9	70°20.1	84°32.2	$110^{\circ}29.1$	116°01.7
8	58°50.5	15.2'	$12^{\circ}19.0$	11.7'	54.5'	109°35.9	104°43.6	102°31.9	76°38.4	70°50.1	84°55.6	110°52.4	116°31.6
9	73°24.7	15.3'	12°07.2	11.8'	54.5'	109°06.3	104°12.7	102°03.8	76°08.9	71°20.0	85°19.1	111°15.7	117°01.5
10	87°59.0	15.3'	11°55.4	11.8'	54.4'	108°36.8	103°41.9	101°35.6	75°39.5	71°50.0	85°42.6	111°39.0	117°31.4
11	102°33.3	15.4'	11°43.6	11.9'	54.4'	108°07.2	103°11.1	101°07.5	75°10.0	72°19.9	86°06.0	112°02.2	118°01.3
12	117°07.7	15.5'	S 11°31.7	11.9'	54.4'	107°37.7	102°40.3	100°39.5	74°40.6	72°49.9	86°29.5	112°25.3	118°31.2
13	131°42.2	15.5'	$11^{\circ}19.8$	11.9'	54.4'	107°08.2	102°09.5	100°11.4	74°11.2	73° 19.8	86°52.9	112°48.4	119°01.1
14	146°16.7	15.6'	$11^{\circ}07.9$	12.0'	54.4'	106°38.7	101°38.8	99°43.3	73°41.8	73°49.7	87°16.4	$113^{\circ}11.5$	119°30.9
15	160°51.3	15.6'	10°55.9	12.0'	54.4'	106°09.2	101°08.0	99°15.3	73°12.4	74° 19.6	87°39.8	113°34.5	
16	175°25.9	15.7'	10°43.9	12.1'	54.4'	105°39.7	100°37.3	98°47.3	72°43.1	74°49.5	88°03.2	113°57.4	
17	190°00.5	15.7'	10°31.8	12.1'	54.4'	105°10.2	100°06.6	98°19.2	72°13.8	75° 19.3	88°26.7	114°20.3	
18	204°35.2	15.8'	S 10°19.7	12.1'	54.4'	104°40.8	99°35.9	97°51.2	71°44.4	75°49.2	88°50.1	114°43.1	
19	219°10.0	15.8'	10°07.6	12.2'	54.3'	104°11.3	99°05.3	97°23.2	71°15.1	76° 19.0	89°13.5	115°05.8	
20	233°44.8	15.8'	09°55.5	12.2'	54.3'	103°41.9	98°34.6	96°55.3	70°45.8	76°48.8	89°36.9	115°28.5	
21	248°19.7	15.9'	09°43.3	12.2'	54.3'	103°12.5	98°04.0	96°27.3	70°16.5	77° 18.7	90°00.3	$115^{\circ}51.1$	
22	262°54.5	15.9'	09°31.0	12.3'	54.3'	102°43.1	97°33.4	95°59.3	69°47.3	77°48.5	90°23.7	$116^{\circ}13.7$	
23	277°29.5	16.0'	09°18.8	12.3'	54.3'	102°13.6	97°02.8	95°31.4	69°18.0	78° 18.2	90°47.0	116°36.2	
12 th	SD	= 14.9'	Mer. pass	s. 03:58									

Tue	GHA	ν	Dec	d	HP	-Aldebaran	-Venus	-Mars	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	292°04.5	16.0'	S 09°06.5	12.3'	54.3'	101°44.3	96°32.2	95°03.4	68°48.8	78°48.0	91°10.4	95°18.4	116°58.6
1	306°39.5	16.1'	08°54.2	12.3'	54.3'	101° 14.9	96°01.6	94°35.5	68°19.5	79° 17.8	91°33.8	95°41.3	117°21.0
2	321°14.5	16.1'	08°41.8	12.4'	54.3'	100°45.5	95°31.1	94°07.6	67°50.3	79°47.6	91°57.1	96°04.1	117°43.3
3	335°49.6	16.1'	08° 29.5	12.4'	54.3'	100° 16.1	95°00.5	93°39.7	67°21.1	80° 17.3	92°20.4	96°26.9	118°05.6
4	350°24.8	16.2'	$08^{\circ}17.1$	12.4'	54.3'	99°46.8	94°30.0	93°11.8	66°51.9	80°47.0	92°43.7	96°49.7	118°27.7
5	4°59.9	16.2'	08°04.6	12.5'	54.3'	99° 17.4	93°59.5	92°43.9	66°22.7	81°16.8	93°07.0	97° 12.5	118°49.8
6	19°35.2	16.2'	S 07°52.2	12.5'	54.3'	98°48.1	93°29.0	92°16.0	65°53.5	81°46.5	93°30.3	97°35.3	119°11.9
7	34°10.4	16.3'	07°39.7	12.5'	54.3'	98° 18.7	92°58.5	91°48.2	65°24.4	82°16.2	93°53.6	97°58.1	119°33.8
8	48°45.7	16.3'	07°27.2	12.5'	54.2'	97°49.4	92°28.0	91°20.3	64°55.2	82°45.9	94°16.9	98° 20.8	119°55.7
9	63°21.0	16.3'	$07^{\circ}14.7$	12.6'	54.2'	97°20.1	91°57.6	90°52.5	64°26.1	83° 15.6	94°40.1	98°43.5	
10	77°56.4	16.4'	$07^{\circ}02.1$	12.6'	54.2'	96°50.8	91°27.1	90°24.6	63°56.9	83°45.3	95°03.4	99°06.2	
11	92°31.7	16.4'	06°49.6	12.6'	54.2'	96°21.4	90°56.7	89°56.8	63°27.8	84°14.9	95°26.6	99°28.8	
12	107°07.1	16.4'	S 06°37.0	12.6'	54.2'	95°52.1	90°26.3	89°28.9	62°58.7	84°44.6	95°49.8	99°51.5	
13	121°42.6	16.5'	06°24.3	12.6'	54.2'	95°22.8	89°55.9	89°01.1	62°29.6	85°14.3	96°13.0	100°14.1	
14	136°18.0	16.5'	$06^{\circ}11.7$	12.7'	54.2'	94°53.6	89°25.5	88°33.3	62°00.5	85°43.9	96°36.2	100°36.7	
15	150°53.5	16.5'	05°59.0	12.7'	54.2'	94°24.3	88°55.1	88°05.5	61°31.4	86° 13.6	96°59.3	100°59.3	
16	165°29.1	16.5'	05°46.4	12.7'	54.2'	93°55.0	88°24.7	87°37.7	61°02.3	86°43.2	97°22.5	101°21.8	
17	180°04.6	16.6'	05°33.7	12.7'	54.2'	93°25.7	87°54.3	87°09.9	60°33.3	87°12.9	97°45.6	101°44.3	
18	194°40.2	16.6'	S 05°21.0	12.7'	54.2'	92°56.4	87°24.0	86°42.1	60°04.2	87°42.5	98°08.7	102°06.8	
19	209°15.8	16.6'	05°08.2	12.8'	54.2'	92°27.2	86°53.6	86°14.3	59°35.2	88° 12.1	98°31.8	102°29.3	
20	223°51.4	16.6'	04°55.5	12.8'	54.2'	91°57.9	86°23.3	85°46.5	59°06.1	88°41.8	98°54.9	102°51.7	
21	238°27.0	16.7'	04°42.7	12.8'	54.2'	91°28.7	85°53.0	85°18.7	58°37.1	89°11.4	99°17.9	103°14.1	
22	253°02.7	16.7'	04°29.9	12.8'	54.2'	90°59.4	85°22.7	84°50.9	58°08.0	89°41.0	99°41.0	103°36.5	
23	267°38.3	16.7'	04° 17.1	12.8'	54.2'	90°30.2	84°52.3	84°23.1	57°39.0	90°10.6	100°04.0	103°58.8	
13 th	SD	= 14.8'	Mer. pass	s. 04:39							-		

Moon (14th Jun)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Capella	-Aldebaran	-Venus	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	282°14.0	16.7'	S 04°04.3	12.8'	54.2'	99°15.1	90°00.9	84°22.0	57°10.0	44°21.2	90°40.2	100°27.0	104°21.2
1	296°49.7	16.7'	03°51.5	12.8'	54.2'	98°47.3	89°31.7	83°51.7	56°41.0	44°43.0	91°09.8	100°50.0	104°43.4
2	311°25.5	16.7'	03°38.6	12.9'	54.2'	98° 19.6	89°02.4	83°21.5	56°12.0	45°04.9	91°39.5	101°12.9	105°05.7
3	326°01.2	16.8'	03°25.8	12.9'	54.2'	97°51.8	88°33.2	82°51.2	55°43.0	45°26.9	92°09.1	101°35.9	105°27.9
4	340°37.0	16.8'	03°12.9	12.9'	54.2'	97°24.0	88°03.9	82°20.9	55°14.0	45°49.0	92°38.7	101°58.8	105°50.1
5	355°12.7	16.8'	03°00.1	12.9'	54.2'	96°56.3	87°34.7	81°50.6	54°45.0	46°11.2	93°08.3	102°21.7	106°12.3
6	9°48.5	16.8'	S 02°47.2	12.9'	54.2'	96°28.5	87°05.5	81°20.4	54°16.0	46°33.5	93°37.9	102°44.5	106°34.4
7	24°24.3	16.8'	02°34.3	12.9'	54.2'	96°00.7	86°36.2	80°50.1	53°47.0	46°56.0	94°07.5	103°07.4	106°56.5
8	39°00.1	16.8'	02°21.4	12.9'	54.2'	95°32.9	86°07.0	80°19.9	53°18.0	47°18.5	94°37.1	103°30.2	107°18.6
9	53°35.9	16.8'	02°08.5	12.9'	54.2'	95°05.1	85°37.8	79°49.6	52°49.1	47°41.1	95°06.7	103°53.0	107°40.6
10	68°11.7	16.8'	$01^{\circ}55.6$	12.9'	54.2'	94°37.3	85°08.5	79°19.4	52°20.1	48°03.8	95°36.3	104°15.7	108°02.6
11	82°47.5	16.8'	01°42.6	12.9'	54.2'	94°09.5	84°39.3	78°49.1	51°51.2	48°26.7	96°05.9	104°38.5	108°24.5
12	97°23.3	16.8'	S 01°29.7	12.9'	54.2'	93°41.7	84°10.1	78°18.9	51°22.2	48°49.6	96°35.5	105°01.2	108°46.5
13	111°59.2	16.8'	$01^{\circ}16.8$	12.9'	54.2'	93°13.9	83°40.8	77°48.7	50°53.2	49°12.6	97°05.1	105°23.9	109°08.3
14	126°35.0	16.8'	01°03.8	13.0'	54.2'	92°46.1	83°11.6	77°18.4	50°24.3	49°35.6	97°34.7	105°46.5	109°30.2
15	141°10.8	16.8'	00°50.9	13.0'	54.2'	92°18.3	82°42.3	76°48.2	49°55.3	49°58.8	98°04.3	106°09.2	109°52.0
16	155°46.6	16.8'	00°37.9	13.0'	54.2'	91°50.5	82°13.1	76°18.0	49°26.4	50°22.1	98°33.9	106°31.8	110°13.7
17	170°22.5	16.8'	00°24.9	13.0'	54.2'	91°22.7	81°43.9	75°47.8	48°57.5	50°45.4	99°03.5	106°54.3	110°35.5
18	184°58.3	16.8'	S 00°12.0	13.0'	54.2'	90°54.8	81°14.6	75°17.6	48° 28.5	51°08.8	99°33.1	107°16.9	110°57.1
19	199°34.1	16.8'	N00°01.0	13.0'	54.2'	90°27.0	80°45.4	74°47.4	47°59.6	51°32.3	100°02.8	107°39.4	111°18.8
20	214°09.9	16.8'	00°13.9	13.0'	54.2'	89°59.2	80°16.1	74°17.1	47°30.6	51°55.9	100°32.4	108°01.9	111°40.4
21	228°45.7	16.8'	$00^{\circ}26.9$	13.0'	54.2'	89°31.4	79°46.8	73°46.9	47°01.7	52°19.6	101°02.0	108°24.3	112°01.9
22	243°21.6	16.8'	00°39.9	13.0'	54.2'	89°03.5	79°17.6	73°16.7	46°32.8	52°43.3	101°31.7	108°46.7	112°23.4
23	257°57.4	16.8'	00°52.8	13.0'	54.2'	88°35.7	78°48.3	72°46.5	46°03.9	53°07.1	102°01.3	109°09.1	112°44.9
14 th	SD	$= 14.8^{\prime}$	Mer. pass	. 05:20									

Moon (15th Jun)

									(11.11.11.14.1600			
Thu	GHA	ν	Dec	d	HP	-Aldebaran	-Mars	-Venus	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	272°33.1	16.8'	$N01^{\circ}05.8$	13.0'	54.2'	78° 19.1	72°48.7	72°16.3	45°34.9	31°10.7	53°31.0	102°30.9	109°31.5
1	287°08.9	16.8'	$01^{\circ}18.8$	13.0'	54.2'	77°49.8	72°20.9	71°46.1	45°06.0	31°28.6	53°54.9	103°00.6	109°53.8
2	301°44.7	16.8'	01°31.7	13.0'	54.3'	77° 20.5	71°53.1	71°15.9	44°37.1	31°46.7	54°19.0	103°30.3	110°16.1
3	316°20.5	16.7'	01°44.7	13.0'	54.3'	76°51.2	71°25.2	70°45.7	44°08.2	32°05.2	54°43.1	103°59.9	110°38.3
4	330°56.2	16.7'	01°57.7	13.0'	54.3'	76°21.9	70°57.4	70°15.5	43°39.2	32°23.8	55°07.2	104°29.6	111°00.5
5	345°32.0	16.7'	$02^{\circ}10.6$	12.9'	54.3'	75°52.6	70°29.5	69°45.3	43°10.3	32°42.8	55°31.4	104°59.3	111°22.7
6	0°07.7	16.7'	$N02^{\circ}23.6$	12.9'	54.3'	75°23.3	70°01.7	69°15.1	42°41.4	33°01.9	55°55.7	105°29.0	111°44.8
7	14°43.4	16.7'	02°36.5	12.9'	54.3'	74°54.0	69°33.8	68°44.8	42°12.5	33°21.3	56°20.1	105°58.7	112°06.9
8	29°19.1	16.7'	02°49.4	12.9'	54.3'	74°24.7	69°06.0	68°14.6	41°43.6	33°41.0	56°44.5	106°28.4	112°29.0
9	43°54.7	16.7'	03°02.4	12.9'	54.3'	73°55.4	68°38.1	67°44.4	41°14.7	34°00.8	57°09.0	106°58.1	112°51.0
10	58°30.4	16.6'	03°15.3	12.9'	54.3'	73°26.1	68° 10.2	67°14.2	40°45.8	34°20.9	57°33.5	107°27.8	113°12.9
11	73°06.0	16.6'	03°28.2	12.9'	54.3'	72°56.7	67°42.3	66°44.0	40°16.9	34°41.2	57°58.1	107°57.6	113°34.9
12	87°41.6	16.6'	N03°41.1	12.9'	54.3'	72°27.4	67°14.4	66°13.7	39°48.0	35°01.7	58°22.7	108°27.3	113°56.7
13	102°17.2	16.6'	03°54.0	12.9'	54.3'	71°58.0	66°46.5	65°43.5	39°19.0	35°22.3	58°47.5	108°57.1	114°18.6
14	116°52.8	16.5'	04°06.9	12.9'	54.3'	71°28.7	66° 18.5	65°13.3	38°50.1	35°43.2	59°12.2	109°26.8	114°40.4
15	131°28.3	16.5'	$04^{\circ}19.8$	12.9'	54.4'	70°59.3	65°50.6	64°43.0	38°21.2	36°04.3	59°37.1	109°56.6	115°02.1
16	146°03.8	16.5'	04°32.7	12.9'	54.4'	70°29.9	65°22.6	64°12.8	37°52.3	36°25.5	60°01.9	110°26.4	115°23.8
17	160°39.3	16.5'	04°45.5	12.8'	54.4'	70°00.5	64°54.7	63°42.5	37°23.5	36°46.9	60°26.9	110°56.2	115°45.5
18	175°14.8	16.4'	N 04°58.4	12.8'	54.4'	69°31.1	64°26.7	63°12.3	36°54.6	37°08.5	60°51.9	111°26.0	116°07.0
19	189°50.2	16.4'	$05^{\circ}11.2$	12.8'	54.4'	69°01.7	63°58.7	62°42.0	36°25.7	37°30.3	61°16.9	111°55.8	116°28.6
20	204°25.6	16.4'	05°24.0	12.8'	54.4'	68° 32.3	63°30.7	62°11.7	35°56.8	37°52.2	61°42.0	112°25.7	116°50.1
21	219°01.0	16.3'	05°36.8	12.8'	54.4'	68°02.9	63°02.7	61°41.5	35°27.9	38°14.3	62°07.2	112°55.5	117°11.5
22	233°36.3	16.3'	05°49.6	12.8'	54.4'	67°33.5	62°34.7	61°11.2	34°59.0	38°36.6	62°32.4	113°25.4	117°32.9
23	248°11.6	16.3'	06°02.4	12.8'	54.4'	67°04.0	62°06.6	60°40.9	34°30.1	38°59.0	62°57.6	113°55.3	117°54.2
15 th	SD	$=14.8^{\prime}$	Mer. pass	. 05:59									

h Moon (16 th Jun)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Aldebaran	-Mars	-Venus	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	262°46.9	16.2'	N 06°15.2	12.7'	54.5'	66°34.6	61°38.6	60°10.6	34°01.3	39°21.6	63°22.9	114°25.2	118° 15.5
1	277°22.1	16.2'	06°27.9	12.7'	54.5'	66°05.1	61°10.5	59°40.3	33°32.4	39°44.3	63°48.3	114°55.1	118°36.7
2	291°57.3	16.2'	06°40.6	12.7'	54.5'	65° 35.6	60°42.4	59°10.0	33°03.6	40°07.1	64°13.7	115°25.0	118°57.9
3	306°32.5	16.1'	06°53.3	12.7'	54.5'	65°06.1	60°14.3	58°39.7	32°34.7	40°30.1	64°39.1	115°54.9	119°18.9
4	321°07.6	16.1'	07°06.0	12.7'	54.5'	64°36.6	59°46.2	58°09.4	32°05.9	40°53.2	65°04.6	116°24.9	119°40.0
5	335°42.6	16.0'	$07^{\circ}18.7$	12.6'	54.5'	64°07.1	59° 18.1	57°39.1	31°37.0	41°16.5	65°30.1	116°54.9	
6	350°17.7	16.0'	$N07^{\circ}31.3$	12.6'	54.5'	63°37.5	58°50.0	57°08.7	31°08.2	41°39.9	65°55.7	117°24.8	
7	4°52.7	16.0'	07°43.9	12.6'	54.6'	63°08.0	58°21.8	56°38.4	30°39.4	42°03.4	66°21.4	117° 54.8	
8	19°27.6	15.9'	07°56.6	12.6'	54.6'	62°38.4	57°53.6	56°08.0	30°10.6	42°27.1	66°47.1	118° 24.9	
9	34°02.5	15.9'	$08^{\circ}09.1$	12.6'	54.6'	62°08.9	57°25.4	55°37.7	29°41.8	42°50.8	67°12.8	118° 54.9	
10	48°37.4	15.8'	08°21.7	12.5'	54.6'	61°39.3	56° 57.2	55°07.3	29°13.0	43°14.7	67°38.6	119°25.0	
11	63°12.2	15.8'	08°34.2	12.5'	54.6'	61°09.7	56°29.0	54°36.9	28°44.2	43°38.7	68°04.4	119°55.0	
12	77°47.0	15.7'	N 08°46.7	12.5'	54.6'	60°40.1	56°00.7	54°06.5	28°15.5	44°02.8	68°30.2		
13	92°21.7	15.7'	08°59.2	12.5'	54.7'	60° 10.5	55° 32.5	53°36.1	27°46.7	44°27.0	68°56.1		
14	106°56.4	15.6'	$09^{\circ}11.7$	12.4'	54.7'	59° 40.8	55°04.2	53°05.7	27°18.0	44°51.4	69°22.1		
15	121°31.0	15.6'	09°24.1	12.4'	54.7'	59°11.2	54°35.9	52°35.3	26°49.3	45°15.8	69°48.1		
16	136°05.6	15.5'	09°36.5	12.4'	54.7'	58°41.5	54°07.6	52°04.8	26°20.6	45°40.4	70°14.1		
17	150°40.1	15.5'	09°48.9	12.3'	54.7'	58° 11.8	53°39.2	51°34.4	25°52.0	46°05.0	70°40.2		
18	165°14.5	15.4'	$N10^{\circ}01.2$	12.3'	54.7'	57°42.1	53° 10.8	51°04.0	25°23.4	46°29.8	71°06.3		
19	179°48.9	15.3'	10°13.5	12.3'	54.8'	57° 12.4	52°42.5	50°33.5	24°54.8	46°54.7	71°32.5		
20	194°23.3	15.3'	$10^{\circ}25.8$	12.2'	54.8'	56° 42.7	52°14.1	50°03.0	24°26.2	47°19.6	71°58.7		
21	208°57.6	15.2'	10°38.0	12.2'	54.8'	56° 13.0	51°45.6	49°32.5	23°57.7	47°44.7	72°24.9		
22	223°31.8	15.2'	$10^{\circ}50.2$	12.2'	54.8'	55°43.2	51° 17.2	49°02.0	23°29.2	48°09.8	72°51.2		
23	238°06.0	15.1'	11°02.4	12.1'	54.8'	55° 13.4	50°48.7	48°31.5	23°00.7	48°35.0	73°17.5		
16 th	SD	$=14.9^{\prime}$	Mer. pass	. 06:40			<u> </u>	<u> </u>					

Lunar [Distance (d	bjects w	ith large:	st hourly	LD delta)
-Capella	-Aldebaran	-Mars	-Venus	-Saturn	+Fomalhaut
65°44.3	54°43.6	50°20.2	48°01.0	22°32.3	49°00.4

		IVIOOI	i (17. Ju	'' <i>)</i>			Luliai L	distance (o	DJECTS W	itii laige	st noung	LD delta)	
Sat	GHA	ν	Dec	d	HP	-Sun	-Capella	-Aldebaran	-Mars	-Venus	-Saturn	+Fomalhaut	+Altair
0	252°40.1	15.1'	$N11^{\circ}14.6$	12.1'	54.8'	69°59.9	65°44.3	54°43.6	50°20.2	48°01.0	22°32.3	49°00.4	73°43.8
1	267°14.1	15.0'	11°26.7	12.1'	54.9'	69°31.9	65°16.2	54° 13.8	49°51.7	47°30.5	22°04.0	49°25.8	74°10.2
2	281°48.1	14.9'	11°38.7	12.0'	54.9'	69°03.9	64°48.1	53°44.0	49°23.2	46°59.9	21°35.7	49°51.3	74°36.7
3	296°22.1	14.9'	11°50.8	12.0'	54.9'	68°35.9	64°19.9	53° 14.2	48°54.6	46°29.4	21°07.4	50°16.9	75°03.2
4	310°55.9	14.8'	12°02.8	12.0'	54.9'	68°07.9	63°51.8	52°44.3	48°26.1	45°58.8	20°39.2	50°42.6	75°29.7
5	325°29.7	14.7'	$12^{\circ}14.7$	11.9'	54.9'	67°39.8	63°23.6	52° 14.5	47°57.5	45°28.2	20°11.1	51°08.3	75°56.2
6	340°03.4	14.7'	$N12^{\circ}26.6$	11.9'	55.0'	67°11.7	62°55.5	51°44.6	47°28.8	44°57.7	19°43.1	51°34.2	76°22.8
7	354°37.1	14.6'	12°38.5	11.8'	55.0'	66°43.6	62°27.3	51° 14.7	47°00.2	44°27.1	19°15.2	52°00.1	76°49.4
8	9°10.7	14.5'	12°50.3	11.8'	55.0'	66°15.5	61°59.2	50°44.8	46°31.5	43°56.4	18°47.3	52°26.1	77°16.1
9	23°44.2	14.5'	13°02.1	11.7'	55.0'	65°47.3	61°31.0	50° 14.8	46°02.8	43°25.8	18°19.5	52°52.2	77°42.8
10	38°17.7	14.4'	13°13.9	11.7'	55.1'	65°19.1	61°02.9	49°44.9	45°34.1	42°55.2	17°51.9	53°18.4	78°09.5
11	52°51.0	14.3'	13°25.6	11.7'	55.1'	64°50.9	60°34.7	49° 14.9	45°05.4	42°24.5	17°24.4	53°44.6	78°36.3
12	67°24.4	14.2'	N13°37.2	11.6'	55.1'	64°22.6	60°06.6	48° 44.9	44°36.6	41°53.9	16°57.0	54°10.9	79°03.1
13	81°57.6	14.2'	13°48.8	11.6'	55.1'	63°54.4	59°38.4	48° 14.9	44°07.8	41°23.2	16°29.7	54°37.3	79°30.0
14	96°30.8	14.1'	14°00.4	11.5'	55.1'	63°26.1	59°10.3	47° 44.9	43°39.0	40°52.5	16°02.7	55°03.8	79°56.9
15	111°03.8	14.0'	$14^{\circ}11.9$	11.5'	55.2'	62°57.7	58°42.1	47° 14.9	43°10.1	40°21.9	15°35.8	55°30.3	80°23.8
16	125°36.8	13.9'	14°23.4	11.4'	55.2'	62°29.4	58°14.0	46°44.9	42°41.3	39°51.2	15°09.0	55°56.9	80°50.7
17	140°09.8	13.9'	14°34.8	11.4'	55.2'	62°01.0	57°45.8	46°14.8	42°12.4	39°20.4	14°42.6	56°23.6	81°17.7
18	154°42.6	13.8'	N14°46.2	11.3'	55.2'	61°32.6	57°17.7	45° 44.7	41°43.4	38°49.7	14°16.3	56°50.3	81°44.7
19	169°15.4	13.7'	14°57.5	11.3'	55.3'	61°04.2	56°49.5	45° 14.7	41°14.5	38°19.0	13°50.3	57°17.2	82°11.8
20	183°48.1	13.6'	15°08.7	11.2'	55.3'	60°35.7	56°21.4	44° 44.6	40°45.5	37°48.2	13°24.6	57°44.0	82°38.9
21	198°20.7	13.5'	$15^{\circ}19.9$	11.1'	55.3'	60°07.2	55°53.2	44° 14.4	40°16.5	37°17.5	12°59.2	58°11.0	83°06.0
22	212°53.2	13.4'	$15^{\circ}31.1$	11.1'	55.3'	59°38.7	55°25.1	43°44.3	39°47.5	36°46.7	12°34.2	58°38.0	83°33.2
23	227°25.7	13.4'	15°42.2	11.0'	55.4'	59°10.1	54°57.0	43°14.2	39°18.4	36°16.0	12°09.6	59°05.1	84°00.4
17 th	SD	$=15.0^{\prime}$	Mer. pass	. 07:22					Sun SD	= 15.7'			

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

Sun	GHA	ν	Dec	d	HP	-Sun	-Capella	-Aldebaran	-Mars	-Venus	+Fomalhaut	+Deneb	+Altair
0	241°58.1	13.3'	N 15°53.2	11.0'	55.4'	58°41.5	54°28.9	42° 44.0	38°49.3	35°45.2	59°32.2		84°27.6
1	256°30.3	13.2'	16°04.2	10.9'	55.4'	58°12.9	54°00.8	42°13.8	38°20.2	35°14.4	59°59.5		84°54.8
2	271°02.5	13.1'	$16^{\circ}15.1$	10.9'	55.4'	57°44.3	53°32.7	41°43.7	37°51.1	34°43.6	60°26.7		85°22.1
3	285°34.6	13.0'	16°25.9	10.8'	55.5'	57°15.6	53°04.6	41°13.5	37°21.9	34°12.8	60°54.1		85°49.5
4	300°06.7	12.9'	16°36.7	10.7'	55.5'	56°46.9	52°36.5	40°43.3	36°52.7	33°42.0	61°21.5		86°16.8
5	314°38.6	12.8'	$16^{\circ}47.4$	10.7'	55.5'	56°18.2	52°08.4	40°13.0	36°23.5	33°11.2	61°49.0		86°44.2
6	329°10.5	12.8'	$N16^{\circ}58.1$	10.6'	55.5'	55°49.4	51°40.4	39° 42.8	35°54.3	32°40.4	62°16.5		87°11.6
7	343°42.2	12.7'	17°08.7	10.5'	55.6'	55°20.6	51°12.3	39°12.6	35°25.0	32°09.6	62°44.1		87°39.1
8	358°13.9	12.6'	$17^{\circ}19.2$	10.5'	55.6'	54°51.8	50°44.3	38°42.3	34°55.7	31°38.8	63°11.7		88°06.5
9	12°45.5	12.5'	17°29.7	10.4'	55.6'	54°22.9	50°16.3	38° 12.1	34°26.4	31°08.0	63°39.4		88°34.0
10	27°16.9	12.4'	$17^{\circ}40.1$	10.3'	55.6'	53°54.0	49°48.3	37°41.8	33°57.0	30°37.2	64°07.2		89°01.6
11	41°48.3	12.3'	17°50.4	10.2'	55.7'	53°25.1	49°20.4	37°11.5	33°27.6	30°06.3	64°35.0		89°29.2
12	56°19.6	12.2'	N 18°00.6	10.2'	55.7'	52°56.1	48°52.4	36°41.2	32°58.2	29°35.5	65°02.9		89°56.8
13	70°50.9	12.1'	$18^{\circ}10.8$	10.1'	55.7'	52°27.1	48°24.5	36° 10.9	32°28.7	29°04.7	65°30.9		90°24.4
14	85°22.0	12.0'	18°20.9	10.0'	55.8'	51°58.1	47°56.6	35°40.7	31°59.3	28°33.9	65°58.9		90°52.0
15	99°53.0	11.9'	18°30.9	10.0'	55.8'	51°29.1	47°28.7	35°10.4	31°29.8	28°03.1	66°26.9	71°20.1	91°19.7
16	114°23.9	11.8'	18°40.9	9.9'	55.8'	51°00.0	47°00.9	34°40.1	31°00.2	27°32.4	66°55.0	71°35.2	91°47.4
17	128°54.7	11.7'	18°50.8	9.8'	55.8'	50°30.8	46°33.1	34°09.8	30°30.7	27°01.6	67°23.2	71°50.5	92°15.2
18	143°25.5	11.6'	N19°00.6	9.7'	55.9'	50°01.7	46°05.3	33°39.5	30°01.1	26°30.8	67°51.4	72°05.9	92°43.0
19	157°56.1	11.5'	19°10.3	9.6'	55.9'	49°32.5	45°37.5	33°09.2	29°31.5	26°00.1	68°19.7	72°21.3	93°10.8
20	172°26.7	11.4'	19°19.9	9.6'	55.9'	49°03.3	45°09.8	32°38.9	29°01.8	25°29.4	68°48.0	72°36.8	93°38.6
21	186°57.1	11.3'	19°29.5	9.5'	55.9'	48°34.0	44°42.1	32°08.6	28°32.2	24°58.7	69°16.4	72°52.5	94°06.4
22	201°27.4	11.2'	19°38.9	9.4'	56.0'	48°04.7	44°14.5	31°38.3	28°02.5	24°28.0	69°44.8	73°08.2	94°34.3
23	215°57.7	11.1'	19°48.3	9.3'	56.0'	47°35.4	43°46.9	31°08.1	27°32.8	23°57.4	70°13.3	73°24.0	95°02.2
18 th	SD	= 15.1'	Mer. pass	. 08:07					Sun SE	0 = 15.7'			

h Moon (19 th Ju	n) Lunar Distance	(objects with largest hourly LI	D delta)
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Mon	GHA	ν	Dec	d	HP	-Sun	-Aldebaran	-Mars	-Venus	+Saturn	+Fomalhaut	+Deneb	+Altair
0	230°27.8	11.0'	N 19°57.6	9.2'	56.0'	47°06.0	30°37.8	27°03.0	23°26.8		70°41.8	73°39.8	95°30.1
1	244°57.9	10.9'	20°06.8	9.1'	56.1'	46°36.6	30°07.6	26°33.2	22°56.2		71°10.4	73°55.8	95°58.1
2	259°27.8	10.8'	20° 15.9	9.0'	56.1'	46°07.1	29° 37.3	26°03.4	22°25.7		71°39.1	74°11.8	96°26.1
3	273°57.7	10.7'	20°25.0	8.9'	56.1'	45°37.7	29°07.1	25°33.6	21°55.2		72°07.8	74°27.9	96°54.1
4	288°27.4	10.6'	20°33.9	8.8'	56.2'	45°08.2	28°36.9	25°03.8	21°24.7		72°36.5	74°44.1	97°22.1
5	302°57.1	10.5'	20°42.7	8.8'	56.2'	44°38.6	28°06.8	24°33.9	20°54.4		73°05.3	75°00.4	97°50.1
6	$317^{\circ}26.6$	10.4'	N20°51.5	8.7'	56.2'	44°09.0	27°36.6	24°04.0	20°24.0		73°34.2	75°16.8	98°18.2
7	331°56.0	10.3'	21°00.2	8.6'	56.2'	43°39.4	27°06.5	23°34.1	19°53.8		74°03.1	75°33.2	98°46.3
8	346°25.4	10.2'	21°08.7	8.5'	56.3'	43°09.8	26°36.4	23°04.1	19°23.7	10°29.4	74°32.0	75°49.7	99°14.4
9	0°54.6	10.1'	21° 17.2	8.4'	56.3'	42°40.1	26°06.4	22°34.2	18°53.6	10°52.4	75°01.0	76°06.3	99°42.6
10	15°23.8	10.0'	21°25.5	8.3'	56.3'	42°10.4	25°36.4	22°04.2	18°23.6	11°16.2	75°30.0	76°22.9	100°10.7
11	29°52.8	9.9'	21°33.8	8.2'	56.4'	41°40.6	25°06.5	21°34.2	17°53.8	11°40.6	75°59.1	76°39.7	100°38.9
12	44°21.7	9.8'	N21°42.0	8.1'	56.4'	41°10.8	24°36.6	21°04.2	17°24.0	12°05.6	76°28.2	76°56.5	101°07.1
13	58°50.6	9.7'	21°50.0	8.0'	56.4'	40°41.0	24°06.8	20°34.1	16°54.4	12°31.2	76°57.4	77° 13.3	101°35.3
14	73°19.3	9.6'	21°58.0	7.8'	56.5'	40°11.1	23°37.0	20°04.1	16°25.0	12°57.3	77°26.7	77°30.3	102°03.5
15	87°47.9	9.5'	22°05.8	7.7'	56.5'		23°07.3	19°34.0	15°55.7	13°23.8	77°55.9	77°47.3	102°31.8
16	102°16.5	9.4'	22°13.5	7.6'	56.5'		22°37.7	19°03.9	15°26.6	13°50.8	78°25.2	78°04.3	103°00.0
17	116°44.9	9.3'	22°21.2	7.5'	56.5'		22°08.2	18°33.8	14°57.7	14°18.1	78°54.6	78°21.5	103°28.3
18	131°13.2	9.2'	N22°28.7	7.4'	56.6'		21°38.7	18°03.8	14°29.1	14°45.8	79°24.0	78°38.7	103°56.6
19	145°41.4	9.1'	22°36.1	7.3'	56.6'		21°09.4	17°33.7	14°00.7	15°13.8	79°53.5	78°56.0	104°24.9
20	$160^{\circ}09.5$	9.0'	22°43.4	7.2'	56.6'		20°40.2	17°03.6	13°32.7	15°42.1	80°23.0	79° 13.3	104°53.3
21	174°37.6	8.9'	22°50.6	7.1'	56.7'		20°11.1	16°33.5	13°04.9	16°10.7	80°52.5	79°30.7	105°21.6
22	189°05.5	8.8'	22°57.6	6.9'	56.7'		19°42.2	16°03.4	12°37.5	16°39.5	81°22.1	79°48.1	105°49.9
23	203°33.3	8.7'	23°04.6	6.8'	56.7'		19° 13.4	15°33.3	12°10.6	17°08.6	81°51.7	80°05.7	106°18.3
19 th	SD :	= 15.3'	Mer. pass.	. 08:56		$Sun\;SD=15.7'$							

h Moon (20th Jun)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Betelgeuse	-Aldebaran	-Mars	-Venus	+Saturn	+Deneb	+Fomalhaut	+Altair
0	218°01.0	8.6'	N23°11.4	6.7'	56.8'		18°44.8	15°03.2	11°44.1	17°37.9	80°23.2	82°21.4	106°46.7
1	232°28.6	8.5'	23°18.1	6.6'	56.8'		18°16.4	14°33.2	11° 18.1	18°07.4	80°40.9	82°51.1	107°15.1
2	246°56.2	8.4'	23°24.7	6.5'	56.8'	39° 10.8	17°48.1	14°03.1	10°52.8	18°37.1	80°58.6	83°20.9	107°43.5
3	261°23.6	8.3'	23°31.2	6.3'	56.9'	38°42.3	17°20.1	13°33.2	10°28.1	19°07.0	81°16.3	83°50.7	108°11.9
4	275°50.9	8.2'	23°37.5	6.2'	56.9'	38° 13.9	16°52.4	13°03.2	10°04.2	19°37.0	81°34.1	84°20.5	108°40.3
5	290°18.1	8.1'	23°43.7	6.1'	56.9'	37° 45.5	16°24.9	12°33.3	9°41.1	20°07.3	81°52.0	84°50.4	109°08.7
6	304°45.3	8.0'	N23°49.8	6.0'	56.9'	37° 17.2	15°57.7	12°03.5		20°37.6	82°09.9	85°20.3	109°37.1
7	319°12.3	7.9'	23°55.8	5.8'	57.0'	36°49.0	15°30.8	11°33.7		21°08.1	82°27.8	85°50.2	110°05.6
8	333°39.2	7.8'	24°01.6	5.7'	57.0'	36°20.9	15°04.3	11°04.1		21°38.8	82°45.9	86°20.2	110°34.0
9	348°06.1	7.7'	24°07.3	5.6'	57.0'	35°52.8	14°38.2	10°34.5		22°09.6	83°03.9	86°50.3	111°02.4
10	2°32.8	7.7'	24°12.9	5.4'	57.1'	35°24.9	14°12.6	10°05.1		22°40.5	83°22.0	87°20.3	111°30.9
11	16°59.5	7.6'	24°18.3	5.3'	57.1'	34°57.0	13°47.4	9°35.8		23°11.5	83°40.2	87°50.4	111°59.3
12	31°26.0	7.5'	N24°23.6	5.2'	57.1'	34°29.2	13°22.7	9°06.8		23°42.6	83°58.4	88°20.6	112°27.7
13	45°52.5	7.4'	24°28.8	5.0'	57.2'	34°01.6	12°58.7	8°37.9		24°13.9	84°16.6	88°50.8	112°56.2
14	60°18.9	7.3'	24°33.8	4.9'	57.2'	33°34.0	12°35.3	8°09.4		24°45.3	84°34.9	89°21.0	113°24.6
15	74°45.2	7.2'	24°38.7	4.8'	57.2'	33°06.6	12°12.6	7°41.2		25°16.7	84°53.3	89°51.3	113°53.0
16	89°11.4	7.1'	24°43.5	4.6'	57.3'	32°39.3	11°50.7	7°13.4		25°48.3	85°11.6	90°21.5	114°21.4
17	103°37.5	7.0'	24°48.1	4.5'	57.3'	32° 12.2	11°29.7	6°46.1		26°19.9	85°30.1	90°51.9	114°49.9
18	118°03.5	6.9'	N24°52.6	4.3'	57.3'	31°45.1		6°19.4		26°51.7	85°48.5	91°22.2	115°18.3
19	132°29.5	6.9'	24°56.9	4.2'	57.4'	31° 18.3		5°53.6		27°23.5	86°07.0	91°52.6	115°46.7
20	146°55.3	6.8'	$25^{\circ}01.1$	4.0'	57.4'	30°51.6				27°55.4	86°25.5	92°23.0	116°15.1
21	161°21.1	6.7'	$25^{\circ}05.1$	3.9'	57.4'	30°25.0				28°27.4	86°44.1	92°53.5	116°43.4
22	175°46.8	6.6'	$25^{\circ}09.0$	3.7'	57.5'	29°58.7				28°59.5	87°02.7	93°24.0	117°11.8
23	190°12.4	6.5'	25°12.8	3.6'	57.5'	29°32.5				29°31.6	87°21.3	93°54.5	117°40.1
20 th	SD =	= 15.5'	Mer. pass	. 09:49)								

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

		IVIOU	II (ZI Ju	111)			Luliai L	ristance	(ODJects	with largest	. Hourry L	D delta)	
Wed	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	+Mars	+Venus	+Aldebaran	+Saturn	+Fomalhaut	+Altair
0	204°38.0	6.5'	N 25°16.4	3.4'	57.5'	29°06.6	23°49.2				30°03.8	94°25.1	118°08.5
1	219°03.4	6.4'	$25^{\circ}19.8$	3.3'	57.5'	28°40.8	23°31.8				30°36.1	94°55.6	118°36.8
2	233°28.8	6.3'	25°23.1	3.1'	57.6'	28° 15.3	23°14.9				31°08.5	95°26.2	119°05.1
3	247°54.1	6.2'	25°26.2	3.0'	57.6'	27°50.0	22°58.6				31°41.0	95° 56.9	119°33.3
4	262°19.3	6.2'	25°29.2	2.8'	57.6'	27°24.9	22°42.9				32° 13.5	96° 27.5	
5	276°44.5	6.1'	25°32.1	2.7'	57.7'	27°00.2	22°27.8				32°46.0	96°58.2	
6	291°09.6	6.0'	N 25°34.8	2.5'	57.7'	26°35.7					33°18.7	97°29.0	
7	305°34.6	6.0'	25°37.3	2.4'	57.7'	26°11.5			10°35.8		33°51.4	97° 59.7	
8	319°59.6	5.9'	25°39.7	2.2'	57.8'	25°47.6			11°01.5		34°24.2	98° 30.5	
9	334°24.5	5.8'	25°41.9	2.1'	57.8'	25°24.0			11°27.9		34°57.0	99°01.3	
10	348°49.3	5.8'	25°43.9	1.9'	57.8'	25°00.8			11°54.9		35°29.9	99°32.1	
11	3°14.1	5.7'	25°45.8	1.7'	57.8'	24°37.9			12°22.6		36°02.8	100°03.0	
12	17°38.8	5.6'	N 25°47.6	1.6'	57.9'	24° 15.4			12°50.8		36°35.8	100°33.8	
13	32°03.4	5.6'	$25^{\circ}49.1$	1.4'	57.9'	23°53.4			13° 19.5		$37^{\circ}08.9$	101°04.7	
14	46°28.0	5.5'	25°50.6	1.3'	57.9'	23°31.7			13°48.6		37°42.0	101°35.6	
15	60°52.5	5.5'	25°51.8	1.1'	58.0'	23° 10.5		6°53.9	14° 18.1		38° 15.2	102°06.6	
16	75°17.0	5.4'	25°52.9	0.9'	58.0'	22°49.8		7°22.1	14°48.0		38°48.4	102°37.5	
17	89°41.5	5.4'	25°53.8	0.8'	58.0'	22°29.6		7°50.9	15° 18.2		39°21.7	103°08.5	
18	104°05.9	5.3'	N 25°54.6	0.6'	58.1'	22°09.8		8°20.2	15°48.7		39°55.0	103°39.5	
19	118°30.2	5.3'	25°55.2	0.4'	58.1'	21°50.7		8°49.9	16° 19.5		40°28.4	104° 10.5	
20	132°54.5	5.3'	25°55.6	0.3'	58.1'	21°32.1		9°19.9	16°50.6		41°01.8	104°41.5	
21	147°18.7	5.2'	25°55.9	0.1'	58.1'	21°14.1		9°50.2	17°21.8	12°29.4	41°35.3	105° 12.5	
22	161°42.9	5.2'	25°55.9	-0.1'	58.2'	20°56.8		10°20.8	17°53.3	12°53.4	42°08.8	105°43.6	
23	176°07.1	5.1'	25°55.9	-0.2'	58.2'	20°40.1		10°51.6	18°25.0	13°18.3	42°42.4	106° 14.6	
21 st	SD	= 15.7	Mer. pas	s. 10:47	,								

h		Мооі	า (22 nd Jเ	ın)			Lunar	Distance (o	bjects w	ith larges	t hourly L	O delta)	
Thu	GHA	ν	Dec	d	HP	-Betelgeuse	+Mars	+Aldebaran	+Venus	+Saturn	+Achernar	+Deneb	+Fomalhaut
0	190°31.3	5.1'	N 25°55.6	-0.4'	58.2'	20°24.1	11°22.7	13°43.8	18°56.9	43°16.0	95°10.5	95°14.0	106°45.7
1	204°55.4	5.1'	25°55.2	-0.6'	58.3'			·		Moon ——		·	
2	219°19.4	5.0'	25°54.6	-0.8'	58.3'				New	Moon			
3	233°43.5	5.0'	25°53.9	-0.9'	58.3'								
4	248°07.5	5.0'	25°53.0	-1.1'	58.3'								
5	262°31.5	5.0'	$25^{\circ}51.9$	-1.3'	58.4'				New	Moon ——			
6	276°55.4	4.9'	N 25°50.6	-1.4'	58.4'				New	Moon ——			
7	291°19.4	4.9'	25°49.2	-1.6'	58.4'				New	Moon			
8	305°43.3	4.9'	25°47.6	-1.8'	58.4'				New	Moon			
9	320°07.2	4.9'	25°45.8	-1.9'	58.5'								
10	334°31.1	4.9'	25°43.9	-2.1'	58.5'				New	Moon			
11	348°54.9	4.9'	25°41.7	-2.3'	58.5'				New	Moon ——			
12	3°18.8	4.9'	N25°39.5	-2.5'	58.6'				New	Moon ——			
13	17°42.6	4.8'	25°37.0	-2.6'	58.6'				New	Moon			
14	32°06.5	4.8'	25°34.4	-2.8'	58.6'								
15	46°30.3	4.8'	25°31.6	-3.0'	58.6'				New	Moon			
16	60°54.2	4.8'	25°28.6	-3.1'	58.7'								
17	75°18.0	4.8'	25°25.4	-3.3'	58.7'				New	Moon ——			
18	89°41.8	4.8'	$N25^{\circ}22.1$	-3.5'	58.7'				New	Moon ——			
19	104°05.7	4.8'	25°18.6	-3.7'	58.7'				New	Moon			
20	118°29.5	4.9'	25° 15.0	-3.8'	58.8'								
21	132°53.4	4.9'	$25^{\circ}11.2$	-4.0'	58.8'				New	Moon ——			
22	147°17.3	4.9'	25°07.2	-4.2'	58.8'				New	Moon			
23	161°41.1	4.9'	25°03.0	-4.3'	58.8'				New	Moon ——			
22 nd	SD	= 15.9	Mer. pas	s. 11:46	j								·

h Moon (23rd Jun)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Rigil Kent.	-Hadar	-Spica	-Arcturus	-Jupiter	-Regulus	-Procyon	-Pollux
0	176°05.0	4.9'	N 24°58.6	-4.5'	58.8'				New Mo	on ———			
1	190°28.9	4.9'	24°54.1	-4.7'	58.9'				New Mo	on ———			
2	204°52.9	4.9'	24°49.5	-4.8'	58.9'								
3	219°16.8	5.0'	24°44.6	-5.0'	58.9'				New Mo	on ———			
4	233°40.8	5.0'	24°39.6	-5.2'	58.9'								
5	248°04.8	5.0'	24°34.4	-5.3'	59.0'				— New Mo	on ———			
6	262°28.8	5.0'	$N24^{\circ}29.1$	-5.5'	59.0'				New Mo	on ———			
7	276°52.8	5.1'	24°23.6	-5.7'	59.0'								
8	291°16.9	5.1'	24°17.9	-5.8'	59.0'								
9	305°41.0	5.1'	24°12.0	-6.0'	59.0'								
10	320°05.2	5.2'	24°06.0	-6.2'	59.1'								
11	334°29.3	5.2'	23°59.9	-6.3'	59.1'				— New Mo	on ———			
12	348°53.5	5.3'	N23°53.5	-6.5'	59.1'				New Mo				
13	3°17.8	5.3'	23°47.0	-6.7'	59.1'		119°08.0	101°32.8	99°43.3	67°09.9	47°30.0	21°33.8	12°16.3
14	17°42.1	5.3'	23°40.4	-6.8'	59.1'		118°43.6	100°57.2	99°14.7	66°34.8	46°54.5	21°10.0	11°46.8
15	32°06.4	5.4'	23°33.6	-7.0'	59.2'		$118^{\circ}19.1$	100°21.7	98°46.1	65°59.7	46°19.1	20°46.7	11°17.9
16	46°30.8	5.4'	23°26.6	-7.1'	59.2'		117°54.5	99°46.1	98°17.5	65°24.6	45°43.6	20°23.9	10°49.6
17	60°55.2	5.5'	23°19.5	-7.3'	59.2'		117°29.8	99°10.6	97°48.8	64°49.4	45°08.1	20°01.7	10°22.0
18	75°19.7	5.5'	$N23^{\circ}12.2$	-7.4'	59.2'		117°04.9	98°34.9	97°20.0	64°14.3	44°32.6	19°40.2	9°55.3
19	89°44.2	5.6'	23°04.7	-7.6'	59.2'		116°39.9	97°59.3	96°51.3	63°39.1	43°57.0	19°19.3	9°29.5
20	104°08.8	5.6'	22°57.1	-7.8'	59.3'		116°14.9	97°23.7	96°22.5	63°03.9	43°21.5	18°59.0	
21	118°33.4	5.7'	22°49.4	-7.9'	59.3'		115°49.7	96°48.0	95°53.7	62°28.6	42°45.9	18°39.6	
22	132°58.0	5.7'	22°41.4	-8.1'	59.3'	119°44.6	115°24.4	96°12.3	95°24.8	61°53.4	42°10.3	18°20.9	
23	147°22.8	5.8'	22°33.4	-8.2'	59.3'	119°19.6	114°59.0	95°36.6	94°55.9	61°18.1	41°34.7	18°03.0	
23 rd	SD :	= 16.0'	Mer. pass	s. 12:46	i				*				

h Moon (24th Jun)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Rigil Kent.	-Hadar	-Acrux	-Spica	-Arcturus	-Jupiter	-Regulus	+Pollux
0	161°47.5	5.8'	N22°25.2	-8.4'	59.3'	118°54.3	114°33.5	103°57.5	95°00.9	94°27.0	60°42.8	40°59.1	
1	176°12.4	5.9'	22°16.8	-8.5'	59.3'	118°29.0	114°07.9	103°34.4	94°25.1	93°58.1	60°07.6	40°23.5	
2	190°37.2	5.9'	22°08.3	-8.7'	59.4'	118°03.6	113°42.2	103°11.2	93°49.4	93°29.1	59°32.2	39°47.8	
3	205°02.2	6.0'	21°59.6	-8.8'	59.4'	117°38.0	113°16.5	102°47.9	93°13.6	93°00.1	58°56.9	39°12.2	
4	219°27.2	6.1'	21°50.8	-9.0'	59.4'	117° 12.4	112°50.6	102°24.7	92°37.8	92°31.2	58°21.6	38°36.5	
5	233°52.3	6.1'	21°41.9	-9.1'	59.4'	116°46.6	112°24.6	102°01.3	92°02.0	92°02.1	57°46.2	38°00.8	
6	248°17.4	6.2'	N21°32.8	-9.2'	59.4'	116°20.8	111°58.6	101°37.9	91°26.2	91°33.1	57°10.9	37°25.1	
7	262°42.6	6.2'	21°23.5	-9.4'	59.4'	115°54.8	111°32.5	101°14.4	90°50.3	91°04.0	56°35.5	36°49.4	
8	277°07.8	6.3'	$21^{\circ}14.2$	-9.5'	59.4'	115°28.7	111°06.3	100°50.9	90°14.5	90°35.0	56°00.1	36°13.7	
9	291°33.1	6.4'	21°04.6	-9.7'	59.5'	115°02.6	110°40.0	100°27.3	89°38.6	90°05.9	55°24.7	35°38.0	
10	305°58.5	6.4'	20°55.0	-9.8'	59.5'	114°36.3	110°13.6	100°03.7	89°02.7	89°36.8	54°49.3	35°02.3	
11	320°23.9	6.5'	20°45.2	-9.9'	59.5'	114° 10.0	109°47.2	99°40.1	88°26.8	89°07.7	54°13.9	34°26.5	
12	334°49.4	6.6'	N20°35.3	-10.1'	59.5'	113°43.6	109°20.7	99°16.4	87°50.9	88°38.6	53°38.5	33°50.8	
13	349°15.0	6.6'	20°25.2	-10.2'	59.5'	113° 17.0	108°54.1	98°52.6	87°14.9	88°09.5	53°03.0	33°15.0	
14	3°40.7	6.7'	$20^{\circ}15.0$	-10.3'	59.5'	112°50.4	108°27.5	98°28.8	86°39.0	87°40.4	52°27.6	32°39.3	
15	18°06.4	6.8'	20°04.7	-10.5'	59.5'	112°23.8	108°00.8	98°05.0	86°03.0	87°11.2	51°52.1	32°03.5	
16	32°32.2	6.8'	19°54.2	-10.6'	59.5'	111°57.0	107°34.0	97°41.1	85°27.1	86°42.1	51°16.7	31°27.7	
17	46°58.0	6.9'	19°43.6	-10.7'	59.6'	111°30.2	107°07.2	97°17.2	84°51.1	86°13.0	50°41.2	30°52.0	
18	61°23.9	7.0'	N19°32.9	-10.8'	59.6'	111°03.3	106°40.3	96°53.2	84°15.1	85°43.8	50°05.7	30°16.2	
19	75°49.9	7.1'	$19^{\circ}22.1$	-11.0'	59.6'	110°36.3	106°13.3	96°29.3	83°39.1	85°14.7	49°30.3	29°40.4	
20	90°16.0	7.1'	$19^{\circ}11.1$	-11.1'	59.6'	110°09.2	105°46.3	96°05.3	83°03.1	84°45.5	48°54.8	29°04.7	10°34.9
21	104°42.1	7.2'	19°00.0	-11.2'	59.6'	109°42.1	105°19.3	95°41.2	82°27.0	84°16.4	48°19.3	28°28.9	11°03.2
22	119°08.3	7.3'	18°48.8	-11.3'	59.6'	109° 14.9	104°52.2	95° 17.1	81°51.0	83°47.3	47°43.8	27°53.1	11°32.2
23	133°34.6	7.3'	18°37.5	-11.4'	59.6'	108°47.6	104°25.0	94°53.1	81°15.0	83°18.2	47°08.3	27°17.4	12°01.8
24 th	SD	= 16.2	2' Mer. pas	ss. 13:45									

h	Moon (25 th 1	un l

Sun	GHA	ν	Dec	d	HP	-Antares	-Spica	-Jupiter	-Regulus	+Pollux	+Procyon	+Sun	+Sirius
0	148°00.9	7.4'	N 18°26.0	-11.6'	59.6'		80°38.9	46°32.8	26°41.6	12°32.0			
1	162°27.3	7.5'	$18^{\circ}14.5$	-11.7'	59.6'		80°02.9	45°57.3	26°05.8	13°02.7			
2	176°53.8	7.6'	18°02.8	-11.8'	59.6'		79°26.8	45°21.8	25°30.1	13°33.9			
3	191°20.4	7.6'	$17^{\circ}51.0$	-11.9'	59.6'		78° 50.7	44°46.3	24°54.4	14°05.4			
4	205°47.0	7.7'	$17^{\circ}39.1$	-12.0'	59.7'		78°14.6	44°10.8	24°18.6	14°37.3			
5	220°13.7	7.8'	$17^{\circ}27.1$	-12.1'	59.7'		77°38.5	43°35.3	23°42.9	15°09.5	18°00.5		
6	234°40.5	7.9'	$N17^{\circ}15.0$	-12.2'	59.7'		77°02.4	42°59.8	23°07.2	15°42.0	18°18.4		
7	249°07.3	7.9'	17°02.7	-12.3'	59.7'		76°26.3	42°24.3	22°31.6	16°14.8	18°37.2		
8	263°34.3	8.0'	16°50.4	-12.4'	59.7'		75°50.2	41°48.9	21°55.9	16°47.8	18°56.9		
9	278°01.3	8.1'	16°38.0	-12.5'	59.7'		75°14.1	41°13.4	21°20.3	17°21.0	19°17.3		
10	292°28.3	8.1'	16°25.4	-12.6'	59.7'		74°38.0	40°37.9	20°44.7	17°54.4	19°38.4		
11	306°55.5	8.2'	$16^{\circ}12.8$	-12.7'	59.7'	119°44.3	74°01.9	40°02.4	20°09.1	18°27.9	20°00.2		
12	321°22.7	8.3'	$N16^{\circ}00.1$	-12.8'	59.7'	119°08.1	73°25.8	39°26.9	19°33.5	19°01.6	20°22.7		
13	335°50.0	8.4'	15°47.2	-12.9'	59.7'	118°32.0	72°49.6	38°51.5	18°58.0	19°35.5	20°45.8		
14	350°17.3	8.4'	15°34.3	-13.0'	59.7'	117°55.8	72°13.5	38°16.0	18°22.5	20°09.5	21°09.5		45°25.5
15	4°44.8	8.5'	15°21.3	-13.1'	59.7'	117° 19.6	71°37.4	37°40.6	17°47.1	20°43.6	21°33.8		45°40.9
16	19°12.2	8.6'	$15^{\circ}08.1$	-13.2'	59.7'	116°43.4	71°01.2	37°05.2	$17^{\circ}11.7$	21°17.9	21°58.5		45°56.7
17	33°39.8	8.6'	14°54.9	-13.3'	59.7'	116°07.2	70°25.1	36°29.7	16°36.4	21°52.2	22°23.8		46°12.7
18	48°07.5	8.7'	N 14°41.6	-13.4'	59.7'	115°31.0	69°49.0	35°54.3	16°01.1	22°26.6	22°49.5		46°29.0
19	62°35.2	8.8'	14°28.3	-13.5'	59.7'	114°54.8	69°12.8	35°18.9	15°25.9	23°01.1	23°15.7	40°17.5	46°45.7
20	77°02.9	8.8'	14°14.8	-13.6'	59.7'	114° 18.6	68°36.7	34°43.6	14°50.8	23°35.7	23°42.3	40°51.3	47°02.6
21	91°30.8	8.9'	14°01.2	-13.6'	59.7'	113°42.4	68°00.6	34°08.2	14°15.8	24°10.4	24°09.3	41°25.1	47° 19.7
22	105°58.7	9.0'	13°47.6	-13.7'	59.7'	113°06.2	67°24.4	33°32.9	13°40.8	24°45.1	24°36.6	41°58.8	47°37.2
23	120°26.7	9.0'	13°33.9	-13.8'	59.7'	112°30.0	66°48.3	32°57.5	13°06.0	25°19.9	25°04.3	42°32.6	47°54.9
25 th	SD	= 16.3	S' Mer. pas	s. 14:40					Sun SD	$=15.7^{\prime}$			

Mer. pass. 15:33

h

26th

SD = 16.3'

Moon (26th Jun) Lunar Distance (objects with largest hourly LD delta) +Pollux Mon **GHA** Dec d HP -Antares -Spica -Jupiter -Regulus +Procyon +Sun +Sirius 134°54.7 N13°20.1 111°53.8 25°32.4 48°12.9 9.1 -13.959.7 66°12.2 32°22.2 12°31.3 25°54.8 43°06.4 0 31°46.9 11°56.7 43°40.2 48°31.1 149°22.8 9.2 13°06.2 59.7 111°17.6 65°36.0 26°00.7 26°29.7 -13.91 163°51.0 $110^{\circ}41.4$ 64°59.9 $31^{\circ}\,11.7$ 11°22.4 $27^{\circ}04.7$ $44^{\circ}14.0$ 48°49.6 9.2 $12^{\circ}52.3$ -14.0' 59.7' $26^{\circ}29.4$ 30°36.4 27°39.7 $178^{\circ}19.3$ 9.3' 12°38.3 -14.1 59.7' $110^{\circ}05.2$ 64°23.8 $10^{\circ}48.2$ $26^{\circ}58.3$ $44^{\circ}47.8$ 49°08.3 192°47.6 28°14.8 4 9 4 12°24.2 -14.2 59.7 109°29.1 63°47.6 $30^{\circ}01.2$ $10^{\circ}14.2$ 27°27.5 45°21.6 49°27 3 207°15.9 108°52.9 49°46.5 5 9.4 12°10.0 -14.2' 59.7 63°11.5 29°26.0 9°40.5 27°56.9 28°49.9 45°55.4 6 $221^{\circ}44.4$ 9.5' $\text{N}11^{\circ}55.8$ -14.3 59.7' $108^{\circ}16.7$ $62^{\circ}35.4$ $28^{\circ}50.9$ $9^{\circ}07.2$ $28^{\circ}26.6$ $29^{\circ}25.0$ $46^{\circ}29.1$ 50°05.9 47°02.9 47°36.7 236°12.9 $11^{\circ}41.5$ $107^{\circ}40.5$ $61^{\circ}59.3$ $28^{\circ}15.8$ 8°34.2 $28^{\circ}56.5$ $30^{\circ}00.2$ 50°25.6 9.6 -14.4' 59.7' 8 250°41.4 9.6 $11^{\circ}27.2$ -14.4 59.7' $107^{\circ}04.3$ $61^{\circ}23.2$ $27^{\circ}40.7$ $8^{\circ}01.7$ $29^{\circ}26.6$ $30^{\circ}35.4$ 50°45.5 29°56.9 31°10.6 51°05.5 51°25.8 106°28.1 60°47.1 27°05.6 48°10.5 265°10.1 9 9.7 11°12.7 -14.5 59.7 7°297 279°38.7 10°58.2 105°52.0 60°11.0 26°30.6 6°58.4 30°27.4 31°45.9 48°44.2 59.7 10 9.7 -14.510°43.7 105°15.8 59°34.9 30°58.1 32°21.2 49°18.0 294°07.5 9.8 59.7 25°55.6 $6^{\circ}28.0$ 51°46.3 11 -14.649°51.8 N10°29.1 31°29.0 12 $308^{\circ}36.3$ 9.9 -14.7 59.7' $104^{\circ}39.6$ $58^{\circ}58.8$ $25^{\circ}20.7$ $32^{\circ}56.5$ $52^{\circ}07.0$ 10°14.4 104°03.5 24°45.8 50°25.5 13 323°05.2 9.9 -14.7 59.7 58°22.7 $32^{\circ}00.0$ 33°31.8 52°27.9 09°59.7 57°46 6 50°593 52°49 0 103°27.3 24°11.0 32°31.2 34°07.2 14 337°34.1 10.0 -14.8 59.7 352°03.0 09°44.9 102°51.2 57°10.5 33°02.5 34°42.6 51°33.0 53°10.3 23°36.2 15 10.0 -14.859.7 09°30.1 102°15.1 56°34.5 23°01.5 33°33.9 35° 18.0 52°06.8 53°31.7 6°32.1 10.1 -14.9 59.7 16 17 $21^{\circ}01.1$ 10.1 $09^{\circ}15.3$ -14.9 59.7' $101^{\circ}38.9$ $55^{\circ}58.4$ $22^{\circ}26.8$ $34^{\circ}05.5$ $35^{\circ}53.4$ $52^{\circ}40.5$ $53^{\circ}53.4$ 34°37 2 53°14 2 35°30.3 N09°003 101°028 55°22 4 21°52 2 36°28.8 54°15 2 18 10.2 -15.0 59 7 37°04.2 54°37.1 49°59.5 $08^{\circ}45.4$ $100^{\circ}26.7$ 54°46.3 21°17.7 35°09.1 53°48.0 19 10.2 -15.0'59.7 08°30.4 99°50.6 35°41.0 37°39.7 54°59.3 64°28.7 54°10.3 20°43.3 54°21.7 10.3 -15.159.7 20 21 78°58.0 10.3 $08^{\circ}15.3$ -15.1 59.7 99°14.5 53°34.3 20°08.9 36°13.1 38° 15.1 54°55.4 55°21.6 93°27.3 $08^{\circ}00.2$ 98°38.4 52°58.2 19°34.6 36°45.2 38°50.6 55°29.1 55°44.0 10.4' -15.1' 59.7 23 107°56.7 10.4 $07^{\circ}45.1$ -15.2 59.7 98°02.3 $52^{\circ}22.2$ $19^{\circ}00.5$ $37^{\circ}17.5$ $39^{\circ}26.1$ $56^{\circ}02.8$ $56^{\circ}06.6$

h		Моо	n (27 th Ju	ın)			Lunar Dist	tance (ol	ojects wi	th largest	hourly LD	delta)	
Tue	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Spica	-Jupiter	+Regulus	+Procyon	+Pollux	+Sun
0	122°26.2	10.5'	N 07°29.9	-15.2'	59.7'	97°26.2	85°50.9	51°46.2	18°26.4		37°49.8	40°01.5	56°36.5
1	136°55.6	10.5'	$07^{\circ}14.7$	-15.3'	59.7'	96°50.1	85°22.7	51°10.3	17°52.5		38°22.2	40°37.0	57°10.2
2	151°25.2	10.6'	06°59.4	-15.3'	59.7'	96°14.1	84°54.4	50°34.3	17°18.7		38°54.7	41°12.5	57°43.8
3	165°54.7	10.6'	06°44.1	-15.3'	59.7'	95°38.0	84°26.2	49°58.3	16°45.0		39°27.3	41°48.0	58°17.5
4	180°24.3	10.7'	06°28.8	-15.3'	59.7'	95°02.0	83°58.0	49°22.4	16°11.5		40°00.0	42°23.5	58°51.1
5	194°54.0	10.7'	$06^{\circ}13.5$	-15.4'	59.7'	94°25.9	83°29.8	48°46.4	15°38.1		40°32.7	42°59.0	59°24.8
6	209°23.7	10.7'	N05°58.1	-15.4'	59.7'	93°49.9	83°01.7	48°10.5	15°05.0		41°05.5	43°34.5	59°58.4
7	223°53.4	10.8'	05°42.7	-15.4'	59.6'	93°13.9	82°33.6	47°34.6	14°32.0	7°35.6	41°38.4	44°10.0	60°32.0
8	238°23.2	10.8'	05°27.2	-15.5'	59.6'	92°37.9	82°05.5	46°58.7	13°59.3	8°07.5	42°11.3	44°45.5	61°05.6
9	252°53.0	10.9'	$05^{\circ}11.8$	-15.5'	59.6'	92°01.9	81°37.4	46°22.8	13°26.8	8°40.0	42°44.3	45°21.1	61°39.2
10	267°22.9	10.9'	04°56.3	-15.5'	59.6'	91°25.9	81°09.4	45°46.9	12°54.6	9°12.8	43°17.3	45°56.6	62°12.8
11	281°52.8	10.9'	04°40.8	-15.5'	59.6'	90°49.9	80°41.4	45°11.1	12°22.8	9°46.1	43°50.4	46°32.1	62°46.4
12	296°22.7	11.0'	N04°25.3	-15.5'	59.6'	90°14.0	80°13.4	44°35.2	11°51.3	10° 19.6	44°23.6	47°07.6	63°20.0
13	310°52.6	11.0'	04°09.7	-15.6'	59.6'	89°38.0	79°45.5	43°59.4	11°20.2	10°53.3	44°56.8	47°43.1	63°53.5
14	325°22.6	11.0'	03°54.2	-15.6'	59.6'	89°02.1	79°17.6	43°23.5	10°49.7	11°27.3	45°30.0	48°18.6	64°27.1
15	339°52.6	11.0'	03°38.6	-15.6'	59.6'	88°26.2	78°49.7	42°47.7	10°19.6	12°01.5	46°03.3	48°54.0	65°00.6
16	354°22.7	11.1'	03°23.0	-15.6'	59.6'	87°50.3	78°21.9	42°12.0	9°50.2	12°35.7	46°36.6	49°29.5	65°34.1
17	8°52.8	11.1'	03°07.4	-15.6'	59.6'	87°14.4	77°54.1	41°36.2	9°21.5	13° 10.2	47°09.9	50°05.0	66°07.7
18	23°22.9	11.1'	N02°51.8	-15.6'	59.6'	86°38.5	77°26.4	41°00.4	8°53.6	13°44.7	47°43.3	50° 40.5	66°41.2
19	37°53.0	11.2'	02°36.2	-15.6'	59.5'	86°02.6	76°58.7	40°24.7		14° 19.3	48°16.7	51°16.0	67°14.6
20	52°23.2	11.2'	02°20.5	-15.6'	59.5'	85°26.8	76°31.0	39°48.9		14°54.1	48°50.2	51°51.4	67°48.1
21	66°53.3	11.2'	02°04.9	-15.6'	59.5'	84°50.9	76°03.4	39°13.2		15°28.8	49°23.6	52°26.9	68°21.6
22	81°23.5	11.2'	01°49.3	-15.6'	59.5'	84°15.1	75°35.9	38° 37.5		16°03.7	49°57.1	53°02.3	68°55.0
23	95°53.8	11.2'	01°33.6	-15.6'	59.5'	83°39.3	75°08.3	38°01.9		16°38.6	50°30.7	53°37.8	69°28.4
27 th	SD	= 16.3	Mer. pas	s. 16:23					Sun SD	= 15.7'			

Sun SD = 15.7

h		Моо	n (28 th Ju	ın)			Lunar Dist	tance (ol	ojects wi	th largest	hourly LD	delta)	
Wed	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Spica	+Regulus	+Procyon	+Pollux	+Sun
0	110°24.0	11.3'	$N01^{\circ}18.0$	-15.6'	59.5'	83°03.5	74°40.9	70°56.1	37°26.2	17°13.6	51°04.2	54°13.2	70°01.9
1	124°54.3	11.3'	$01^{\circ}02.3$	-15.6'	59.5'	82°27.7	74°13.5	70°29.7	36°50.6	17°48.5	51°37.8	54°48.6	70°35.3
2	139°24.6	11.3'	00°46.7	-15.6'	59.5'	81°51.9	73°46.1	70°03.3	36° 15.0	18°23.6	52°11.4	55°24.0	71°08.6
3	153°54.9	11.3'	00°31.0	-15.6'	59.5'	81°16.2	73°18.9	69°37.1	35°39.4	18°58.6	52°45.0	55°59.5	71°42.0
4	168°25.2	11.3'	N00°15.4	-15.6'	59.5'	80°40.4	72°51.6	69°10.9	35°03.8	19°33.7	53°18.6	56°34.8	72°15.4
5	182°55.5	11.3'	S 00°00.2	-15.6'	59.4'	80°04.7	72°24.5	68°44.8	34°28.2	20°08.8	53°52.3	57°10.2	72°48.7
6	197°25.9	11.4'	S 00°15.9	-15.6'	59.4'	79°29.0	71°57.3	68°18.7	33°52.7	20°44.0	54°26.0	57°45.6	73°22.0
7	211°56.2	11.4'	00°31.5	-15.6'	59.4'	78°53.3	71°30.3	67°52.8	33° 17.2	21°19.1	54°59.7	58°21.0	73°55.4
8	226°26.6	11.4'	00°47.1	-15.6'	59.4'	78° 17.6	71°03.3	67°26.9	32°41.7	21°54.3	55°33.4	58°56.3	74°28.7
9	240°57.0	11.4'	$01^{\circ}02.7$	-15.6'	59.4'	77°41.9	70°36.4	67°01.1	32°06.2	22°29.4	56°07.1	59°31.7	75°01.9
10	255°27.4	11.4'	$01^{\circ}18.3$	-15.6'	59.4'	77°06.3	70°09.6	66°35.4	31°30.7	23°04.6	56°40.8	60°07.0	75°35.2
11	269°57.8	11.4'	01°33.9	-15.6'	59.4'	76°30.6	69°42.8	66°09.8	30°55.3	23°39.8	57°14.5	60°42.3	76°08.5
12	284°28.2	11.4'	S 01°49.4	-15.5'	59.4'	75°55.0	69°16.1	65°44.3	30° 19.9	24°15.0	57°48.3	61°17.6	76°41.7
13	298°58.6	11.4'	$02^{\circ}05.0$	-15.5'	59.3'	75° 19.4	68°49.4	65°18.8	29°44.5	24°50.2	58°22.0	61°52.9	77°14.9
14	313°29.0	11.4'	02°20.5	-15.5'	59.3'	74°43.8	68°22.9	64°53.5	29°09.1	25°25.4	58°55.8	62°28.2	77°48.1
15	327°59.4	11.4'	02°36.0	-15.5'	59.3'	74°08.3	67°56.4	64°28.2	28°33.8	26°00.5	59°29.5	63°03.5	78°21.3
16	342°29.8	11.4'	$02^{\circ}51.5$	-15.5'	59.3'	73°32.7	67°30.0	64°03.1	27°58.5	26°35.7	60°03.3	63°38.7	78°54.5
17	357°00.3	11.4'	03°06.9	-15.4'	59.3'	72°57.2	67°03.7	63°38.1	27°23.2	27°10.9	60°37.1	64°14.0	79°27.6
18	11°30.7	11.4'	S 03°22.4	-15.4'	59.3'	72°21.7	66°37.4	63°13.1	26°48.0	27°46.1	61°10.9	64°49.2	80°00.8
19	26°01.1	11.4'	03°37.8	-15.4'	59.3'	71°46.2	66°11.3	62°48.3	26° 12.7	28°21.3	61°44.6	65°24.4	80°33.9
20	40°31.5	11.4'	03°53.2	-15.4'	59.2'	71° 10.7	65°45.2	62°23.6	25°37.6	28°56.5	62°18.4	65°59.6	81°07.0
21	55°01.9	11.4'	04°08.5	-15.3'	59.2'	70°35.2	65°19.3	61°59.0	25°02.4	29°31.6	62°52.2	66°34.8	81°40.1
22	69°32.3	11.4'	04°23.9	-15.3'	59.2'	69°59.8	64°53.4	61°34.5	24°27.3	30°06.8	63°26.0	67°09.9	82°13.1
23	84°02.7	11.4'	04°39.2	-15.3'	59.2'	69°24.3	64°27.6	61°10.1	23°52.1	30°42.0	63°59.8	67°45.1	82°46.2
28 th	SD	= 16.2	['] Mer. pas:	s. 17:12	SunSD=15.7'								

h		Мооі	ո (29 th Ju	ın)			Lunar [Distance (ol	ojects wi	th largest	hourly LI	O delta)	
Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	98°33.1	11.4'	S 04°54.4	-15.2'	59.2'	119°22.3	68°48.9	64°01.9	23°17.1	12°10.8	31°17.1	64°33.6	68°20.2
1	113°03.5	11.4'	05°09.7	-15.2'	59.2'	118°52.6	68° 13.5	63°36.3	22°42.0	12°42.0	31°52.3	65°07.3	68°55.4
2	127°33.9	11.4'	05°24.9	-15.2'	59.2'	118°22.8	67°38.2	63°10.8	22°07.0	13°13.5	32°27.4	65°41.1	69°30.5
3	142°04.3	11.4'	05°40.0	-15.1'	59.1'	117°53.0	67°02.8	62°45.4	21°32.1	13°45.3	33°02.5	66° 14.9	70°05.6
4	156°34.6	11.3'	05°55.2	-15.1'	59.1'	117°23.2	66°27.5	62°20.1	20°57.2	14°17.3	33°37.6	66°48.7	70°40.6
5	171°04.9	11.3'	$06^{\circ}10.2$	-15.0'	59.1'	116°53.3	65°52.1	61°54.9	20°22.3	14°49.5	34°12.7	67°22.4	71°15.7
6	185°35.3	11.3'	S 06°25.3	-15.0'	59.1'	116°23.4	65° 16.8	61°29.8	19°47.4	15°21.9	34°47.8	67°56.2	71°50.7
7	200°05.6	11.3'	06°40.3	-15.0'	59.1'	115°53.4	64°41.5	61°04.9	19°12.7	15°54.5	35°22.9	68°30.0	72°25.8
8	214°35.9	11.3'	06°55.3	-14.9'	59.1'	115°23.5	64°06.3	60°40.0	18°37.9	16°27.2	35°58.0	69°03.7	73°00.8
9	229°06.2	11.3'	$07^{\circ}10.2$	-14.9'	59.1'	114°53.4	63°31.0	60°15.3	18°03.2	17°00.0	36°33.0	69°37.5	73°35.8

114°23.4 243°36.4 07°25.1 62°55.8 59°50.6 17°28.6 17°32.9 37°08.1 70°11.2 74°10.7 11.2 -14.8' 10 59.0 16°54.0 07°39.9 113°53.3 18°06.0 70°45.0 74°45.7 258°06.7 11.2' 62°20.6 59°26.1 37°43.1 11 -14.8' 59.0' 272°36.9 **S**07°54.7 16°19.5 15°45.0 15°10.7 71°18.7 75°20.6 113°23.2 61°45.4 $59^{\circ}01.8$ 18°39.1 $38^{\circ}18.1$ 12 11.2' -14.7' 59.0' 287°07.1 38°53.1 71°52.4 08°09.4 112°53.1 61°10.2 19°12.3 $58^{\circ}37.5$ $75^{\circ}55.6$ 13 11.2' -14.7' 59.0' 301°37.3 39°28.1 08°24.1 112°23.0 19°45.6 72°26.1 76°30.5 -14.6 60°35.1 58°13.4 14 11.2' 59.0 57°49.4 57°25.6 72°59.8 73°33.5 14°36.4 20°19.0 316°07.4 08°38.7 111°52.8 59°59.9 40°03.0 11.1' -14.6 59.0' 77°05.4 15 330°37.6 08°53.3 111°22.6 59°24.8 14°02.2 20°52.4 40°38.0 77°40.2 11.1' -14.5' 58.9 16 17 $345^{\circ}07.7$ 11.1' $09^{\circ}07.8$ -14.5' 58.9' 110°52.4 58°49.7 $57^{\circ}01.8$ 13°28.0 21°25.9 $41^{\circ}12.9$ 74°07.2 $78^{\circ}15.1$ 359°37.7 **S**09°22.3 110°22.2 56°38.3 12°54.0 21°59.4 41°47.9 74°40.9 58°14.7 78°49.9 18 11.1' -14.4 58.9 12°20.1 11°46.4 75°14.5 75°48.2 14°07.8 09°36.7 -14.4 109°51.9 57°39.6 $56^{\circ}14.8$ 22°33.0 42°22.8 79°24.7 58.9 19 11.0' 28°37.8 09°51.0 109°21.6 57°04.6 55°51.5 23°06.5 42°57.7 79°59.5 -14.3 58.9 20 11.0 80°34.3 81°09.1 21 43°07.8 11.0' 10°05.3 -14.2 58.9' 108°51.4 56°29.5 55°28.4 11°12.8 23°40.2 43°32.5 76°21.8 57°37.8 10.9' $10^{\circ}19.6$ -14.2' 58.8' $108^{\circ}21.1$ 55°54.5 55°05.4 10°39.3 $24^{\circ}13.8$ 44°07.4 $76^{\circ}55.4$ 23 $72^{\circ}07.7$ 10.9' $10^{\circ}33.7$ -14.1' 58.8' $107^{\circ}50.8$ $55^{\circ}19.6$ 54°42.6 $10^{\circ}06.1$ $24^{\circ}47.5$ $44^{\circ}42.2$ $77^{\circ}29.1$ $81^{\circ}43.8$ 29th SD = 16.1'Mer. pass. 18:02

h Moon (30 th Jun) Lunar Distance (objects with largest hourly LD of

	meen (ee san) Lanar Sistantes (esjects man largest nearly 12 actual)												
Fri	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Spica	+Jupiter	+Regulus	+Procyon	+Pollux
0	86°37.6	10.9'	S 10°47.8	-14.0'	58.8'	107°20.5	54° 44.6	54°19.9	9°33.0	25°21.2	45° 17.1	78°02.7	82°18.5
1	101°07.5	10.8'	11°01.9	-14.0'	58.8'	106°50.1	54°09.7	53°57.4	9°00.3	25°54.9	45°51.9	78°36.2	82°53.3
2	115°37.3	10.8'	$11^{\circ}15.8$	-13.9'	58.8'	106°19.8	53°34.7	53°35.0	8°27.8	26°28.7	46° 26.7	79°09.8	83°27.9
3	130°07.1	10.8'	11°29.7	-13.8'	58.8'	105°49.4	52°59.8	53°12.8	7°55.7	27°02.4	47°01.5	79°43.4	84°02.6
4	144°36.9	10.7'	11°43.6	-13.8'	58.7'	105°19.1	52°25.0	52°50.8	7°24.0	27°36.2	47°36.2	80°16.9	84°37.3
5	159°06.6	10.7'	11°57.4	-13.7'	58.7'	104°48.7	51°50.1	52°29.0	6°52.9	28°10.0	48°11.0	80°50.5	85°11.9
6	173°36.3	10.7'	S 12°11.1	-13.6'	58.7'	104°18.4	51° 15.3	52°07.3	6°22.4	28°43.8	48° 45.7	81°24.0	85°46.5
7	188°06.0	10.6'	12°24.7	-13.6'	58.7'	103°48.0	50°40.4	51°45.8	5°52.8	29°17.6	49° 20.4	81°57.5	86°21.1
8	202°35.6	10.6'	12°38.2	-13.5'	58.7'	103°17.6	50°05.6	51°24.6		29°51.4	49°55.1	82°31.0	86°55.7
9	217°05.2	10.5'	12°51.7	-13.4'	58.7'	102°47.2	49°30.9	51°03.4		30°25.2	50°29.7	83°04.4	87°30.2
10	231°34.7	10.5'	$13^{\circ}05.1$	-13.3'	58.6'	102°16.9	48°56.1	50°42.5		30°59.0	51°04.4	83°37.9	88°04.7
11	246°04.2	10.5'	13° 18.4	-13.2'	58.6'	101°46.5	48°21.4	50°21.8		31°32.8	51°39.0	84°11.3	88°39.3
12	260°33.7	10.4'	S 13°31.7	-13.2'	58.6'	101°16.1	47°46.6	50°01.3		32°06.6	52° 13.6	84°44.8	89°13.7
13	275°03.1	10.4'	13° 44.8	-13.1'	58.6'	100°45.7	47°11.9	49°41.0		32°40.4	52°48.2	85°18.2	89°48.2
14	289°32.5	10.3'	13° 57.9	-13.0'	58.6'	100°15.4	46°37.3	49°20.9		33°14.2	53°22.8	85°51.5	90°22.7
15	304°01.8	10.3'	$14^{\circ}10.9$	-12.9'	58.6'	99°45.0	46°02.6	49°01.0		33°48.0	53°57.4	86°24.9	90°57.1
16	318°31.1	10.2'	14°23.8	-12.8'	58.5'	99°14.6	45°28.0	48°41.3		34°21.8	54°31.9	86°58.3	91°31.5
17	333°00.3	10.2'	14°36.7	-12.7'	58.5'	98°44.3	44°53.3	48°21.9		34°55.6	55°06.5	87°31.6	92°05.9
18	347°29.5	10.2'	S 14°49.4	-12.7'	58.5'	98°13.9	44°18.7	48°02.6		35°29.4	55°41.0	88°04.9	92°40.3
19	1°58.7	10.1'	$15^{\circ}02.1$	-12.6'	58.5'	97°43.6	43°44.2	47°43.6		36°03.1	56° 15.4	88°38.2	93°14.6
20	16°27.8	10.1'	$15^{\circ}14.7$	-12.5'	58.5'	97°13.2	43°09.6	47°24.9		36°36.9	56°49.9	89°11.5	93°49.0
21	30°56.9	10.0'	15° 27.1	-12.4'	58.4'	96°42.9	42°35.1	47°06.4		37°10.7	57°24.4	89°44.8	94°23.3
22	45°25.9	10.0'	15° 39.5	-12.3'	58.4'	96°12.6	42°00.5	46°48.1		37°44.4	57°58.8	90°18.0	94°57.6
23	59°54.8	9.9'	15°51.8	-12.2'	58.4'	95°42.2	41°26.1	46°30.0		38°18.2	58° 33.2	90°51.2	95°31.8
30 th	SD	= 16.0'	Mer. pas	s. 18:52									

h		Моо	n (1 st Ju	ıl)			Lunar D	istance (ob	jects with	n largest	hourly LI	O delta)	
Sat	GHA	1/	Dec	- d	HP	-Fomalhaut	- Altair	-Rigil Kent	- Antaros	⊥Spica	↓ luniter	+Regulus	+Pollux

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	74°23.8	9.9'	S 16°04.0	-12.1'	58.4'		95°11.9	46°12.2	40°51.6		38°51.9	59°07.6	96°06.1
1	88°52.6	9.8'	$16^{\circ}16.2$	-12.0'	58.4'	119°34.9	94°41.6	45°54.7	40°17.1		39°25.6	59°42.0	96°40.3
2	103°21.4	9.8'	$16^{\circ}28.2$	-11.9'	58.3'	119°04.6	94°11.4	45°37.4	39°42.7	6°50.0	39°59.4	60°16.3	97°14.5
3	117°50.2	9.7'	$16^{\circ}40.1$	-11.8'	58.3'	118°34.3	93°41.1	45°20.4	39°08.3	7°20.7	40°33.1	60°50.7	97°48.7
4	132°18.9	9.7'	$16^{\circ}51.9$	-11.7'	58.3'	118°03.9	93°10.8	45°03.7	38°33.9	7°51.9	41°06.8	61°25.0	98°22.9
5	146°47.6	9.6'	$17^{\circ}03.6$	-11.6'	58.3'	117°33.6	92°40.6	44°47.2	37°59.5	8°23.4	41°40.5	61°59.3	98°57.0
6	161°16.2	9.6'	S 17°15.3	-11.5'	58.3'	117°03.2	92°10.3	44°31.0	37°25.2	8°55.3	42°14.1	62°33.6	99°31.1
7	175°44.8	9.5'	17°26.8	-11.4'	58.3'	116°32.8	91°40.1	44°15.1	36°50.8	9°27.5	42°47.8	63°07.8	100°05.2
8	190°13.3	9.5'	17°38.2	-11.3'	58.2'	116°02.4	91°09.9	43°59.5	36° 16.5	9°59.9	43°21.4	63°42.0	100°39.3
9	204°41.8	9.4'	17°49.5	-11.2'	58.2'	115°31.9	90°39.7	43°44.1	35°42.2	10°32.4	43°55.1	64°16.3	101°13.4
10	219°10.2	9.4'	18°00.7	-11.1'	58.2'	115°01.5	90°09.6	43°29.1	35°08.0	11°05.2	44°28.7	64°50.5	101°47.4
11	233°38.5	9.3'	$18^{\circ}11.8$	-11.0'	58.2'	114°31.0	89°39.4		34°33.7	11°38.0	45°02.3	65°24.6	102°21.4
12	248°06.9	9.3'	S 18°22.8	-10.9'	58.2'	114°00.5	89°09.3		33° 59.5	12°11.0	45°35.9	65°58.8	102°55.4
13	262°35.1	9.2'	18°33.7	-10.8'	58.1'	113°30.0	88°39.2		33°25.3	12°44.0	46°09.5	66°32.9	103°29.4
14	277°03.3	9.2'	18°44.5	-10.7'	58.1'	112°59.5	88°09.1		32°51.1	13°17.1	46°43.0	67°07.0	104°03.4
15	291°31.5	9.1'	$18^{\circ}55.1$	-10.6'	58.1'	112°29.0	87°39.0		32°16.9	13°50.3	47°16.6	67°41.1	104°37.3
16	305°59.6	9.1'	19°05.7	-10.4'	58.1'	111°58.5	87°09.0		31°42.8	14°23.6	47°50.1	68°15.2	105°11.2
17	320°27.6	9.0'	$19^{\circ}16.1$	-10.3'	58.1'	111°28.0	86°38.9		31°08.7	14°56.9	48°23.6	68°49.3	105°45.1
18	334°55.6	8.9'	S 19°26.5	-10.2'	58.0'	110°57.4	86°08.9		30°34.6	15°30.2	48°57.1	69°23.3	106°19.0
19	349°23.6	8.9'	19°36.7	-10.1'	58.0'	110°26.9	85°38.9		30°00.5	16°03.6	49°30.6	69°57.3	106°52.8
20	3°51.5	8.8'	19°46.8	-10.0'	58.0'	109°56.3	85°09.0		29°26.5	16°36.9	50°04.1	70°31.3	107°26.6
21	18°19.3	8.8'	$19^{\circ}56.8$	-9.9'	58.0'	109°25.7	84°39.1		28° 52.4	17°10.4	50°37.5	71°05.3	108°00.4
22	32°47.1	8.7'	20°06.6	-9.7'	58.0'	108°55.2	84°09.1		28° 18.4	17°43.8	51°11.0	71°39.3	108°34.2
23	47°14.9	8.7'	20°16.4	-9.6'	57.9'	108°24.6	83°39.3		27°44.4	18°17.2	51°44.4	72°13.2	109°08.0
1 st	SD	= 15.9'	Mer. pas	s. 19:44									

h	Moon	(2 nd	(luL	

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Pollux
0	61°42.6	8.6'	S 20°26.0	-9.5'	57.9'	107°54.0	105°35.2	83°09.4	27° 10.4	18°50.7	52° 17.8	72°47.1	109°41.7
1	76°10.2	8.6'	20°35.5	-9.4'	57.9'	107°23.5	105°18.0	82°39.6	26°36.5	19°24.2	52°51.2	73°21.0	110°15.4
2	90°37.8	8.5'	20°44.9	-9.3'	57.9'	106°52.9	105°00.7	82°09.8	26°02.6	19°57.7	53°24.6	73°54.9	110°49.1
3	105°05.3	8.5'	20°54.1	-9.1'	57.9'	106°22.3	104°43.3	81°40.0	25°28.7	20°31.1	53°57.9	74°28.8	111°22.7
4	119°32.8	8.4'	21°03.3	-9.0'	57.8'	105°51.7	104°25.9	81°10.3	24°54.8	21°04.6	54°31.2	75°02.6	111°56.4
5	134°00.3	8.4'	21°12.3	-8.9'	57.8'	105°21.1	104°08.4	80°40.6	24°20.9	21°38.1	55°04.6	75°36.4	112°30.0
6	148°27.7	8.3'	S 21°21.2	-8.8'	57.8'	104°50.6	103°50.9	80°10.9	23°47.1	22°11.6	55° 37.9	76°10.2	113°03.6
7	162°55.0	8.3'	$21^{\circ}29.9$	-8.6'	57.8'	104°20.0	103°33.3	79°41.2	23°13.3	22°45.1	56°11.1	76°44.0	113°37.2
8	177°22.3	8.2'	21°38.6	-8.5'	57.8'	103°49.4	103°15.7	79°11.6	22°39.5	23°18.6	56°44.4	77°17.7	114°10.7
9	191°49.5	8.2'	$21^{\circ}47.1$	-8.4'	57.7'	103°18.9	102°58.1	78°42.0	22°05.7	23°52.0	57° 17.7	77°51.5	114°44.2
10	206°16.7	8.2'	21°55.4	-8.2'	57.7'	102°48.3	102°40.4	78°12.5	21°32.0	24°25.5	57°50.9	78°25.2	115°17.8
11	220°43.9	8.1'	22°03.7	-8.1'	57.7'	102°17.8	102°22.6	77°43.0	20°58.2	24°58.9	58°24.1	78°58.9	115°51.2
12	235°11.0	8.1'	S 22°11.8	-8.0'	57.7'	101°47.2	102°04.8	77°13.5	20°24.5	25°32.4	58° 57.3	79°32.5	116°24.7
13	249°38.1	8.0'	22°19.7	-7.8'	57.7'	101°16.7	101°47.0	76°44.0	19°50.9	26°05.8	59°30.5	80°06.2	116°58.1
14	264°05.1	8.0'	22°27.6	-7.7'	57.6'	100°46.1	101°29.1	76°14.6	19° 17.2	26°39.3	60°03.6	80°39.8	117°31.5
15	278°32.1	7.9'	22°35.3	-7.6'	57.6'	100°15.6	101°11.2	75°45.3	18°43.6	27° 12.7	60°36.7	81°13.4	118°04.9
16	292°59.0	7.9'	22°42.9	-7.4'	57.6'	99°45.1	100°53.3	75°15.9	18° 10.0	27°46.1	61°09.9	81°47.0	118°38.3
17	307°25.9	7.8'	22°50.3	-7.3'	57.6'	99°14.6	100°35.3	74°46.6	17°36.4	28° 19.5	61°43.0	82°20.6	119°11.6
18	321°52.7	7.8'	S 22°57.6	-7.2'	57.6'	98°44.1	100°17.3	74°17.4	17°02.8	28°52.9	62°16.0	82°54.1	119°44.9
19	336°19.5	7.8'	23°04.8	-7.0'	57.5'	98°13.6	99°59.2	73°48.2	16°29.3	29°26.2	62°49.1	83°27.7	
20	350°46.3	7.7'	23°11.8	-6.9'	57.5'	97°43.1	99°41.2	73°19.0	15°55.8	29°59.6	63°22.1	84°01.2	
21	5°13.0	7.7'	$23^{\circ}18.7$	-6.7'	57.5'	97°12.6	99°23.1	72°49.9	15°22.3	30°33.0	63°55.2	84°34.6	
22	19°39.7	7.6'	23°25.4	-6.6'	57.5'	96°42.2	99°04.9	72°20.8	14°48.8	31°06.3	64°28.2	85°08.1	
23	34°06.3	7.6'	23°32.0	-6.5'	57.5'	96°11.7	98°46.8	71°51.8	14°15.4	31°39.6	65°01.2	85°41.6	
2 nd	SD =	= 15.8′	Mer. pas	s. 20:38	3								

Moon (3rd Jul)

h

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Procyon
0	48°32.9	7.6'	S 23°38.5	-6.3'	57.4'	98°28.6	95°41.3	71°22.8	13°42.0	32°12.9	65°34.1	86°15.0	117°29.1
1	62°59.5	7.5'	23°44.8	-6.2'	57.4'	98°10.4	95°10.9	70°53.8	13°08.6	32°46.2	66°07.1	86°48.4	118°01.0
2	77°26.1	7.5'	23°51.0	-6.0'	57.4'	97°52.2	94°40.5	70°24.9	12°35.2	33° 19.5	66°40.0	87°21.8	118° 32.8
3	91°52.6	7.5'	23°57.0	-5.9'	57.4'	97°34.0	94°10.1	69°56.1	12°01.9	33°52.7	67° 12.9	87°55.1	119°04.6
4	106°19.0	7.4'	24°02.9	-5.8'	57.4'	97°15.7	93°39.7	69°27.3	11°28.6	34°25.9	67°45.8	88°28.5	119°36.4
5	120°45.5	7.4'	24°08.7	-5.6'	57.3'	96°57.4	93°09.4	68°58.5	10°55.4	34°59.2	68° 18.6	89°01.8	
6	135°11.9	7.4'	S 24°14.3	-5.5'	57.3'	96°39.1	92°39.0	68°29.8	10°22.2	35°32.4	68°51.5	89°35.1	
7	149°38.3	7.4'	$24^{\circ}19.7$	-5.3'	57.3'	96°20.8	92°08.7	68°01.2	9°49.0	36°05.6	69°24.3	90°08.3	
8	164°04.6	7.3'	$24^{\circ}25.1$	-5.2'	57.3'	96°02.5	91°38.4	67°32.6	9°15.8	36°38.7	69°57.1	90°41.6	
9	178°30.9	7.3'	24°30.2	-5.0'	57.3'	95°44.2	91°08.1	67°04.0	8°42.7	37°11.9	70°29.9	91°14.8	
10	192°57.3	7.3'	24°35.2	-4.9'	57.2'	95°25.8	90°37.9	66°35.5	8°09.7	37°45.0	71°02.7	91°48.0	
11	207°23.5	7.3'	$24^{\circ}40.1$	-4.7'	57.2'	95°07.5	90°07.6	66°07.1	7°36.7	38° 18.1	71°35.4	92°21.2	
12	221°49.8	7.2'	S 24°44.8	-4.6'	57.2'	94°49.1	89°37.4	65°38.7	7°03.7	38°51.2	72°08.1	92°54.4	
13	236°16.0	7.2'	24°49.4	-4.4'	57.2'	94°30.8	89°07.2	65°10.4	6°30.9	39°24.3	72°40.8	93°27.5	
14	250°42.2	7.2'	24°53.9	-4.3'	57.2'	94°12.4	88°37.0	64°42.1	5°58.1	39°57.4	73°13.5	94°00.6	
15	265°08.4	7.2'	$24^{\circ}58.1$	-4.1'	57.1'	93°54.0	88°06.8	64°13.9	5°25.4	40°30.4	73°46.2	94°33.7	
16	279°34.6	7.2'	$25^{\circ}02.3$	-4.0'	57.1'	93°35.6	87°36.7	63°45.8	4°52.8	41°03.4	74°18.8	95°06.8	
17	294°00.8	7.1'	25°06.3	-3.8'	57.1'	93°17.3	87°06.5	63°17.7	4°20.5	41°36.4	74°51.4	95°39.9	
18	308°26.9	7.1'	S 25°10.1	-3.7'	57.1'	92°58.9	86°36.4	62°49.7	3°48.3	42°09.4	75°24.0	96°12.9	
19	322°53.0	7.1'	$25^{\circ}13.8$	-3.5'	57.1'	92°40.5	86°06.4	62°21.7	3°16.5	42°42.4	75°56.6	96°45.9	
20	$337^{\circ}19.1$	7.1'	$25^{\circ}17.3$	-3.4'	57.0'	92°22.1	85°36.3	61°53.8	2°45.2	43° 15.3	76° 29.2	97°18.9	
21	351°45.3	7.1'	25°20.7	-3.2'	57.0'	92°03.7	85°06.3	61°26.0	2°14.8	43°48.3	77°01.7	97°51.9	
22	6°11.3	7.1'	$25^{\circ}23.9$	-3.1'	57.0'	91°45.4	84°36.3	60°58.3		44°21.2	77°34.2	98°24.8	
23	20°37.4	7.1'	25°27.0	-2.9'	57.0'	91°27.0	84°06.3	60°30.6		44°54.1	78°06.7	98°57.8	
3 rd	SD =	= 15.7'	Mer. pas	s. 21:34									

h Moon (4th Iul)

Tue	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	35°03.5	7.1'	S 25°29.9	-2.8'	57.0'	91°08.6	83°36.3	60°03.0		45°26.9	55°01.0	78°39.2	99°30.7
1	49°29.6	7.1'	25°32.7	-2.6'	56.9'	90°50.3	83°06.4	59° 35.5		45°59.8	55°24.0	79°11.7	100°03.6
2	63°55.7	7.1'	25°35.3	-2.5'	56.9'	90°31.9	82° 36.5	59°08.0		46°32.6	55°47.1	79°44.1	100°36.4
3	78°21.8	7.1'	25°37.8	-2.3'	56.9'	90°13.6	82°06.6	58° 40.6		47°05.4	56°10.3	80°16.5	101°09.3
4	92°47.8	7.1'	$25^{\circ}40.1$	-2.2'	56.9'	89°55.3	81°36.7	58° 13.3		47°38.2	56°33.6	80°48.9	101°42.1
5	107°13.9	7.1'	25°42.3	-2.0'	56.9'	89°37.0	81°06.9	57°46.1		48°11.0	56°57.0	81°21.2	102°14.9
6	121°40.0	7.1'	S 25°44.3	-1.9'	56.8'	89°18.7	80°37.1	57° 18.9		48°43.7	57°20.5	81°53.6	102°47.7
7	136°06.1	7.1'	25°46.1	-1.7'	56.8'	89°00.4	80°07.4	56°51.9	3°35.5	49°16.5	57°44.0	82°25.9	103°20.4
8	150°32.2	7.1'	25°47.9	-1.6'	56.8'	88°42.1	79° 37.6	56°24.9	4°07.3	49°49.2	58°07.7	82°58.2	103°53.1
9	164°58.2	7.1'	25°49.4	-1.4'	56.8'	88°23.9	79°07.9	55° 58.0	4°39.2	50°21.9	58°31.4	83°30.5	104°25.8
10	179°24.4	7.1'	25°50.8	-1.3'	56.7'	88°05.6	78°38.2	55°31.2	5°11.3	50°54.5	58°55.2	84°02.8	104°58.5
11	193°50.5	7.1'	$25^{\circ}52.1$	-1.1'	56.7'	87°47.4	78°08.6	55°04.4	5°43.6	51°27.2	59°19.0	84°35.0	105°31.2
12	208°16.6	7.1'	S 25°53.2	-1.0'	56.7'	87°29.2	77°39.0	54°37.8	6°15.8	51°59.8	59°42.9	85°07.2	106°03.8
13	222°42.7	7.2'	25°54.1	-0.8'	56.7'	87°11.0	77°09.4	54°11.3	6°48.2	52°32.4	60°06.9	85°39.4	106°36.4
14	237°08.9	7.2'	25°54.9	-0.7'	56.7'	86°52.9	76° 39.9	53°44.8	7°20.5	53°05.0	60°31.0	86°11.6	107°09.0
15	251°35.1	7.2'	25°55.6	-0.5'	56.6'	86°34.8	76° 10.3	53° 18.5	7°52.9	53°37.6	60°55.1	86°43.7	107°41.6
16	266°01.3	7.2'	$25^{\circ}56.1$	-0.3'	56.6'	86°16.7	75° 40.9	52°52.2	8°25.3	54°10.1	61°19.3	87°15.8	108°14.2
17	280°27.5	7.2'	25°56.4	-0.2'	56.6'	85°58.6	75°11.4	52°26.1	8°57.7	54°42.6	61°43.6	87°47.9	108°46.7
18	294°53.7	7.3'	S 25°56.6	-0.0'	56.6'	85°40.6	74°42.0	52°00.1	9°30.1	55°15.1	62°07.9	88°20.0	109°19.2
19	309°20.0	7.3'	25°56.7	0.1'	56.6'	85°22.5	74° 12.6	51°34.1	10°02.5	55°47.6	62°32.2	88°52.1	109°51.7
20	323°46.3	7.3'	25°56.6	0.3'	56.5'	85°04.5	73°43.3	51°08.3	10°34.9	56°20.1	62°56.6	89°24.1	110°24.1
21	338°12.6	7.3'	25°56.3	0.4'	56.5'	84°46.6	73° 14.0	50°42.6	11°07.2	56°52.5	63°21.1	89°56.1	110°56.6
22	352°38.9	7.4'	25°55.9	0.6'	56.5'	84°28.7	72°44.7	50° 17.0	11°39.6	57°24.9	63°45.6	90°28.1	111°29.0
23	7°05.3	7.4'	25°55.4	0.7'	56.5'	84°10.8	72°15.5	49°51.5	12°12.0	57°57.3	64°10.2	91°00.1	112°01.4
4 th	SD =	= 15.5'	Mer. pas	s. 22:31	l								

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

Wed	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	21°31.7	7.4'	S 25°54.7	0.8'	56.5'	83°52.9	71°46.3	49°26.1	12°44.3	58° 29.7	64°34.8	91°32.1	112°33.7
1	35°58.1	7.5'	25°53.8	1.0'	56.4'	83°35.1	71°17.2	49°00.8	13°16.6	59°02.1	64°59.4	92°04.0	113°06.1
2	50°24.6	7.5'	25°52.8	1.1'	56.4'	83° 17.3	70°48.1	48°35.7	13°49.0	59°34.4	65°24.1	92°35.9	113°38.4
3	64°51.1	7.5'	25°51.7	1.3'	56.4'	82°59.6	70°19.0	48°10.7	14°21.3	60°06.7	65°48.8	93°07.8	114°10.7
4	79°17.6	7.6'	25°50.4	1.4'	56.4'	82°41.8	69°50.0	47°45.8	14°53.5	60°39.0	66°13.6	93°39.6	114°43.0
5	93°44.2	7.6'	25°49.0	1.6'	56.3'	82°24.2	69°21.0	$47^{\circ}21.1$	15°25.8	61°11.3	66°38.4	94°11.5	115° 15.2
6	108°10.8	7.7'	S 25°47.4	1.7'	56.3'	82°06.5	68°52.1	46°56.4	15°58.0	61°43.5	67°03.3	94°43.3	115°47.5
7	122°37.5	7.7'	25°45.7	1.9'	56.3'	81°49.0	68°23.2	46°32.0	16°30.3	62° 15.7	67°28.2	95°15.1	116° 19.7
8	137°04.2	7.7'	25°43.8	2.0'	56.3'	81°31.4	67°54.3	46°07.6	17°02.5	62°47.9	67°53.1	95°46.8	116°51.9
9	151°30.9	7.8'	25°41.8	2.2'	56.3'	81°13.9	67°25.5	45°43.4	17°34.7	63°20.1	68°18.0	96°18.6	117°24.0
10	165°57.7	7.8'	25°39.6	2.3'	56.2'	80°56.4	66°56.7	$45^{\circ}19.4$	18°06.8	63°52.3	68°43.0	96°50.3	117°56.2
11	180°24.6	7.9'	25°37.3	2.4'	56.2'	80°39.0	66°28.0	44°55.5	18°39.0	64°24.4	69°08.0	97°22.0	118°28.3
12	194°51.5	7.9'	S 25°34.9	2.6'	56.2'	80°21.7	65°59.4	44°31.7	19°11.1	64°56.5	69°33.1	97°53.7	119°00.4
13	209°18.4	8.0'	25°32.3	2.7'	56.2'	80°04.4	65°30.7	$44^{\circ}08.1$	19°43.2	65°28.6	69°58.1	98°25.3	119°32.4
14	223°45.4	8.0'	25°29.6	2.9'	56.2'	79°47.1	65°02.2	43°44.7	20°15.3	66°00.7	70°23.2	98°56.9	
15	238°12.4	8.1'	25°26.7	3.0'	56.1'	79°29.9	64°33.6	43°21.4	20°47.4	66°32.7	70°48.3	99°28.5	
16	252°39.5	8.2'	25°23.7	3.1'	56.1'	79°12.7	64°05.2	42°58.3	21°19.4	67°04.7	71°13.5	$100^{\circ}00.1$	
17	267°06.7	8.2'	25°20.6	3.3'	56.1'	78°55.6	63°36.8	42°35.4	21°51.5	67°36.7	71°38.6	100°31.7	
18	281°33.9	8.3'	S 25°17.3	3.4'	56.1'	78° 38.5	63°08.4	$42^{\circ}12.7$	22°23.5	68°08.7	72°03.8	101°03.2	
19	296°01.2	8.3'	25°13.9	3.6'	56.1'	78°21.5	62°40.1	$41^{\circ}50.1$	22°55.5	68° 40.7	72°29.0	101°34.7	
20	310°28.5	8.4'	25°10.3	3.7'	56.0'	78°04.6	62°11.8	41°27.7	23°27.4	69°12.6	72°54.2	102°06.2	
21	324°55.9	8.4'	25°06.6	3.8'	56.0'	77° 47.7	61°43.6	$41^{\circ}05.5$	23°59.4	69°44.5	73°19.4	102°37.7	
22	339°23.3	8.5'	25°02.8	4.0'	56.0'	77°30.9	61°15.4	40°43.5	24°31.3	70°16.4	73°44.7	103°09.1	
23	353°50.8	8.6'	24°58.8	4.1'	56.0'	77°14.1	60°47.3	40°21.7	25°03.2	70°48.3	74°09.9	103°40.5	
5 th	SD =	= 15.4′	Mer. pass	s. 23:26	6								

h Moon (6 th Jul)	Lunar Distance (objects with largest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	8°18.4	8.6'	S 24°54.7	4.2'	56.0'		76°57.4	60°19.3	40°00.1	25°35.1	71°20.1	74°35.2	104°11.9
1	22°46.0	8.7'	24°50.5	4.4'	55.9'		76°40.7	59°51.3	39°38.7	26°06.9	71°52.0	75°00.5	104°43.3
2	37°13.7	8.8'	24°46.2	4.5'	55.9'		76°24.2	59°23.4	39° 17.5	26°38.8	72°23.8	75°25.8	105°14.7
3	51°41.5	8.8'	$24^{\circ}41.7$	4.6'	55.9'		76°07.6	58°55.5	38° 56.6	27°10.6	72°55.5	75°51.1	105°46.0
4	66°09.3	8.9'	24°37.1	4.7'	55.9'		75°51.2	58°27.7	38°35.8	27°42.4	73°27.3	76°16.4	106°17.3
5	80°37.2	9.0'	24°32.3	4.9'	55.9'		75°34.8	58°00.0	38° 15.3	28°14.1	73°59.0	76°41.8	106°48.6
6	95°05.2	9.0'	S 24°27.5	5.0'	55.8'		75°18.5	57°32.3	37°55.0	28°45.9	74°30.7	77°07.1	107°19.8
7	109°33.2	9.1'	24°22.5	5.1'	55.8'	119°59.3	75°02.2	57°04.7	37°35.0	29°17.6	75°02.4	77°32.4	107°51.0
8	124°01.3	9.2'	24°17.3	5.2'	55.8'	119°28.2	74°46.0	56°37.2	37° 15.2	29°49.3	75°34.1	77°57.8	108°22.3
9	138°29.5	9.2'	$24^{\circ}12.1$	5.4'	55.8'	118°57.0	74°29.9	56°09.7	36°55.7	30°21.0	76°05.8	78°23.1	108°53.4
10	152°57.7	9.3'	24°06.7	5.5'	55.8'	118°25.9	74°13.8	55°42.3	36°36.4	30°52.7	76°37.4	78°48.5	109°24.6
11	167°26.1	9.4'	$24^{\circ}01.2$	5.6'	55.7'	117°54.7	73°57.9	55°15.0	36°17.3	31°24.3	77°09.0	79°13.8	109°55.7
12	181°54.5	9.5'	S 23°55.6	5.7'	55.7'	117°23.6	73°42.0	54°47.7	35°58.6	31°55.9	77°40.6	79°39.2	110°26.8
13	196°22.9	9.5'	23°49.9	5.9'	55.7'	116°52.6	73°26.1	54°20.5	35°40.1	32°27.5	78°12.1	80°04.5	110°57.9
14	210°51.5	9.6'	23°44.0	6.0'	55.7'	116°21.5	73°10.4	53°53.4	35°21.9	32°59.1	78°43.7	80°29.9	111°29.0
15	225°20.1	9.7'	23°38.0	6.1'	55.7'	115°50.4	72°54.7	53°26.4	35°04.0	33°30.6	79°15.2	80°55.3	112°00.0
16	239°48.8	9.8'	23°31.9	6.2'	55.6'	115°19.4	72°39.1	52°59.4	34°46.4	34°02.2	79°46.7	81°20.6	112°31.0
17	254°17.6	9.9'	23°25.7	6.3'	55.6'	114°48.4	72°23.6	52°32.5	34°29.0	34°33.7	80°18.1	81°46.0	113°02.0
18	268°46.4	9.9'	S 23°19.4	6.4'	55.6'	114°17.4	72°08.2	52°05.7	34°12.0	35°05.1	80°49.6	82°11.3	113°33.0
19	283°15.3	10.0'	$23^{\circ}12.9$	6.6'	55.6'	113°46.4	71°52.8	51°39.0	33°55.3	35°36.6	81°21.0	82°36.7	114°04.0
20	297°44.3	10.1'	23°06.4	6.7'	55.6'	113°15.5	71°37.6	51°12.3	33°39.0	36°08.0	81°52.4	83°02.0	114°34.9
21	312°13.4	10.2'	22°59.7	6.8'	55.5'	112°44.6	71°22.4	50°45.8	33°22.9	36°39.5	82°23.8	83°27.3	115°05.8
22	326°42.6	10.2'	22°52.9	6.9'	55.5'	112°13.6	71°07.3	50°19.3	33°07.2	37°10.9	82°55.1	83°52.7	115°36.6
23	341°11.8	10.3'	22°46.1	7.0'	55.5'	111°42.8	70°52.3	49°52.9	32°51.8	37°42.2	83°26.5	84°18.0	116°07.5
6 th	SD	= 15.3'	Mer. pas	s:-									

h	Moon (7 th Jul)	Lunar Distance (objects with largest hourly LD delta)
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Fri	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Jupiter
0	355°41.2	10.4'	S 22°39.1	7.1'	55.5'	111°11.9	49°26.6	38° 13.6	60°22.6	64°42.9	83°57.8	84°43.3	116°38.3
1	10° 10.6	10.5'	22°31.9	7.2'	55.5'	110°41.0	49°00.4	38°44.9	60°44.6	65°05.2	84°29.1	85°08.6	117°09.1
2	24°40.0	10.6'	22°24.7	7.3'	55.4'	110°10.2	48°34.3	39° 16.2	61°06.7	65°27.5	85°00.3	85°33.9	117°39.9
3	39°09.6	10.6'	22°17.4	7.4'	55.4'	109°39.4	48°08.3	39°47.5	61°28.8	65°49.9	85°31.6	85°59.2	118°10.6
4	53°39.3	10.7'	$22^{\circ}10.0$	7.5'	55.4'	109°08.6	47° 42.4	40°18.8	61°51.0	66°12.3	86°02.8	86°24.5	118°41.4
5	68°09.0	10.8'	22°02.4	7.6'	55.4'	108°37.8	47° 16.6	40°50.0	62°13.3	66°34.8	86°34.0	86°49.7	119°12.1
6	82°38.8	10.9'	S 21°54.8	7.7'	55.4'	108°07.1	46°50.9	41°21.2	62°35.6	66°57.3	87°05.2	87° 15.0	119°42.7
7	97°08.7	11.0'	$21^{\circ}47.1$	7.8'	55.3'	107°36.3	46°25.3	41°52.4	62°58.0	67°19.8	87°36.4	87°40.2	
8	111°38.7	11.1'	21°39.2	7.9'	55.3'	107°05.6	45°59.7	42°23.6	63°20.4	67°42.4	88°07.5	88°05.4	
9	126°08.7	11.1'	21°31.3	8.0'	55.3'	106°34.9	45°34.4	42°54.8	63°42.9	68°05.1	88°38.6	88°30.6	
10	140°38.8	11.2'	21°23.3	8.1'	55.3'	106°04.3	45°09.1	43°25.9	64°05.4	68°27.7	89°09.7	88°55.8	
11	155°09.1	11.3'	$21^{\circ}15.1$	8.2'	55.3'	105°33.6	44°43.9	43°57.0	64°28.0	68°50.4	89°40.8	89°21.0	
12	169°39.4	11.4'	S 21°06.9	8.3'	55.2'	105°03.0	44°18.9	44°28.1	64°50.7	69°13.2	90°11.8	89°46.2	
13	184°09.7	11.5'	20°58.6	8.4'	55.2'	104°32.4	43°53.9	44°59.2	65°13.3	69°36.0	90°42.8	90°11.3	
14	198°40.2	11.5'	20°50.2	8.5'	55.2'	104°01.8	43°29.1	45°30.2	65°36.1	69°58.8	91°13.8	90°36.4	
15	213° 10.8	11.6'	20°41.7	8.6'	55.2'	103°31.2	43°04.4	46°01.2	65°58.8	70°21.6	91°44.8	91°01.5	
16	227°41.4	11.7'	20°33.1	8.7'	55.2'	103°00.7	42°39.9	46°32.2	66°21.6	70°44.5	92°15.8	91°26.6	
17	242°12.1	11.8'	20°24.4	8.8'	55.2'	102°30.1	42° 15.4	47°03.2	66°44.5	71°07.4	92°46.7	91°51.7	
18	256° 42.9	11.9'	S 20°15.6	8.9'	55.1'	101°59.6	41°51.2	47°34.2	67°07.4	71°30.3	93° 17.7	92°16.7	
19	271°13.8	12.0'	20°06.7	9.0'	55.1'	101°29.1	41°27.0	48°05.1	67°30.3	71°53.3	93°48.6	92°41.8	
20	285°44.7	12.0'	19°57.8	9.0'	55.1'	100°58.7	41°03.0	48°36.0	67°53.3	72°16.2	94° 19.4	93°06.8	
21	300°15.8	12.1'	19°48.7	9.1'	55.1'	100°28.2	40°39.1	49°06.9	68°16.3	72°39.2	94°50.3	93°31.7	
22	314°46.9	12.2'	19°39.6	9.2'	55.1'	99°57.8	40° 15.4	49°37.8	68°39.3	73°02.2	95°21.1	93°56.7	
23	329°18.1	12.3'	19°30.4	9.3'	55.0'	99°27.4	39°51.8	50°08.7	69°02.3	73°25.3	95°51.9	94°21.6	
7 th	SD :	= 15.1'	Mer. pass	. 00:18									

h Moon (8th Jul)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Aldebaran	-Venus	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	343°49.4	12.4'	S 19°21.1	9.4'	55.0'			98°57.0	39°28.4	50°39.5	69°25.4	94°46.5	96°22.7
1	358°20.7	12.4'	$19^{\circ}11.7$	9.5'	55.0'			98°26.6	39°05.2	51°10.3	69°48.6	95°11.4	96°53.5
2	12°52.2	12.5'	19°02.2	9.5'	55.0'			97°56.2	38°42.1	51°41.1	70°11.7	95°36.3	97°24.3
3	27°23.7	12.6'	18°52.7	9.6'	55.0'			97°25.9	38° 19.2	52°11.9	70°34.9	96°01.1	97°55.0
4	41°55.3	12.7'	18°43.1	9.7'	55.0'			96°55.6	37°56.4	52°42.6	70°58.1	96°25.9	98°25.7
5	56°27.0	12.8'	18°33.4	9.8'	54.9'			96°25.3	37°33.8	53°13.4	71°21.3	96°50.7	98°56.4
6	70°58.7	12.8'	S 18°23.6	9.8'	54.9'			95°55.0	37°11.4	53°44.1	71°44.6	97°15.5	99°27.1
7	85°30.6	12.9'	18°13.8	9.9'	54.9'			95°24.8	36°49.2	54°14.8	72°07.9	97°40.2	99°57.7
8	100°02.5	13.0'	18°03.8	10.0'	54.9'			94°54.5	36° 27.2	54°45.4	72°31.2	98°04.9	100°28.3
9	114°34.5	13.1'	17°53.8	10.1'	54.9'			94°24.3	36°05.4	55°16.1	72°54.5	98°29.5	100°58.9
10	129°06.5	13.1'	17°43.8	10.1'	54.9'			93°54.1	35°43.8	55°46.7	73°17.8	98°54.2	101°29.5
11	143°38.7	13.2'	17°33.6	10.2'	54.8'			93°24.0	35°22.3	56°17.3	73°41.2	99°18.8	102°00.1
12	158°10.9	13.3'	S 17°23.4	10.3'	54.8'			92°53.8	35°01.1	56°47.9	74°04.6	99°43.4	102°30.6
13	172°43.2	13.4'	$17^{\circ}13.2$	10.3'	54.8'			92°23.7	34°40.1	57°18.5	74°28.0	100°07.9	103°01.2
14	187°15.6	13.4'	$17^{\circ}02.8$	10.4'	54.8'		119°37.9	91°53.5	34° 19.4	57°49.1	74°51.4	100°32.4	103°31.7
15	201°48.0	13.5'	16°52.4	10.5'	54.8'		119°09.0	91°23.4	33°58.8	58°19.6	75°14.8	100°56.9	104°02.2
16	216°20.5	13.6'	16°41.9	10.5'	54.8'		118°40.1	90°53.4	33° 38.5	58°50.1	75°38.3	101°21.3	104°32.6
17	230°53.1	13.7'	16°31.4	10.6'	54.7'		118°11.2	90°23.3	33° 18.5	59°20.6	76°01.7	101°45.7	105°03.1
18	245°25.8	13.7'	S 16°20.8	10.7'	54.7'		117°42.4	89°53.2	32°58.7	59°51.1	76°25.2	102°10.1	105°33.5
19	259°58.6	13.8'	$16^{\circ}10.1$	10.7'	54.7'	119°55.7	117°13.6	89°23.2	32°39.1	60°21.5	76°48.7	102°34.4	106°03.9
20	274°31.4	13.9'	15°59.4	10.8'	54.7'	119°25.7	116°44.8	88°53.2	32°19.8	60°52.0	77°12.2	102°58.7	106°34.3
21	289°04.3	14.0'	15°48.6	10.9'	54.7'	118°55.8	116°16.0	88°23.2	32°00.8	61°22.4	77°35.7	103°23.0	107°04.7
22	303°37.2	14.0'	15°37.7	10.9'	54.7'	118°25.9	115°47.2	87°53.3	31°42.0	61°52.8	77°59.2	103°47.2	107°35.1
23	318°10.2	14.1'	15°26.8	11.0'	54.7'	117°56.0	115°18.4	87°23.3	31°23.6	62°23.2	78°22.7	104°11.3	108°05.4
8 th	SD	= 15.0'	Mer. pass	. 01:07									

Moon (9th Jul)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOO	n (9 Ju	1)			Lunar L	distance	objects	with large	St nourly LD	deita)	
Sun	GHA	ν	Dec	d	HP	-Mars	-Aldebaran	-Venus	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	332°43.3	14.2'	S 15°15.8	11.0'	54.6'		117°26.1	114°49.7	86°53.4	62°53.6	78°46.2	104°35.5	108°35.7
1	347°16.5	14.2'	15°04.8	11.1'	54.6'		116°56.2	114°21.0	86°23.5	63°23.9	79°09.8	104°59.6	109°06.0
2	1°49.7	14.3'	14°53.7	11.1'	54.6'		116°26.4	113°52.3	85°53.6	63°54.2	79°33.3	105°23.7	109°36.3
3	16°23.0	14.4'	14°42.6	11.2'	54.6'		115°56.5	113°23.6	85°23.7	64°24.5	79°56.9	105°47.7	110°06.6
4	30°56.4	14.4'	14°31.4	11.2'	54.6'		115°26.7	112°54.9	84°53.8	64°54.8	80°20.4	106°11.6	110°36.8
5	45°29.8	14.5'	$14^{\circ}20.1$	11.3'	54.6'		114°56.9	112°26.3	84°24.0	65°25.1	80°44.0	106°35.6	111°07.0
6	60°03.3	14.6'	S 14°08.8	11.4'	54.6'		114°27.1	111°57.6	83°54.1	65°55.4	81°07.5	106°59.5	111°37.2
7	74°36.9	14.6'	13°57.5	11.4'	54.5'		113°57.3	111°29.0	83°24.3	66°25.6	81°31.1	107°23.3	112°07.4
8	89°10.5	14.7'	13°46.1	11.5'	54.5'		113°27.5	111°00.4	82°54.5	66°55.8	81°54.7	107°47.1	112°37.6
9	103°44.2	14.8'	13°34.6	11.5'	54.5'		112°57.7	110°31.8	82°24.8	67°26.0	82°18.2	108°10.9	113°07.8
10	118°18.0	14.8'	13°23.1	11.5'	54.5'		112°28.0	110°03.3	81°55.0	67°56.2	82°41.8	108°34.6	113°37.9
11	132°51.8	14.9'	$13^{\circ}11.6$	11.6'	54.5'		111°58.2	109°34.7	81°25.3	68°26.4	83°05.4	108°58.2	114°08.0
12	147°25.7	14.9'	S 13°00.0	11.6'	54.5'		111°28.5	109°06.2	80°55.6	68°56.6	83°28.9	109°21.8	114°38.1
13	161°59.6	15.0'	12°48.4	11.7'	54.5'		110°58.8	108°37.7	80°25.8	69°26.7	83°52.5	109°45.4	115°08.2
14	176°33.6	15.1'	12°36.7	11.7'	54.5'		110°29.1	108°09.2	79°56.2	69°56.8	84°16.1	110°08.9	115°38.3
15	191°07.6	15.1'	$12^{\circ}24.9$	11.8'	54.4'		109°59.4	107°40.7	79°26.5	70°26.9	84°39.6	110°32.4	116°08.3
16	205°41.7	15.2'	12° 13.2	11.8'	54.4'		109°29.7	107°12.2	78°56.8	70°57.0	85°03.2	110°55.8	116°38.4
17	220°15.9	15.2'	$12^{\circ}01.4$	11.9'	54.4'		109°00.1	106°43.8	78°27.2	71°27.1	85°26.8	111°19.1	117°08.4
18	234°50.1	15.3'	S 11°49.5	11.9'	54.4'		108°30.4	106°15.3	77°57.6	71°57.2	85° 50.3	111°42.4	117°38.4
19	249°24.4	15.3'	11°37.6	11.9'	54.4'		108°00.8	105°46.9	77°28.0	72°27.2	86°13.9	112°05.7	118°08.4
20	263°58.7	15.4'	$11^{\circ}25.7$	12.0'	54.4'	119°36.9	107°31.2	105°18.5	76°58.4	72°57.3	86°37.4	112°28.9	118°38.4
21	278°33.1	15.4'	$11^{\circ}13.7$	12.0'	54.4'	119°08.6	107°01.6	104°50.1	76°28.8	73°27.3	87°01.0	112°52.0	119°08.3
22	293°07.6	15.5'	11°01.7	12.0'	54.4'	118°40.4	106°32.0	104°21.8	75°59.2	73°57.3	87°24.5	113°15.1	119°38.3
23	307°42.1	15.5'	10°49.6	12.1'	54.4'	118°12.1	106°02.4	103°53.4	75°29.7	74°27.3	87°48.0	113°38.1	
9 th	SD	= 14.9'	Mer. pass	s. 01:52									

		(+ -	
h	Moon	(1000	Titl)

Mon	GHA	ν	Dec	d	HP	-Mars	-Aldebaran	-Venus	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	322°16.6	15.6'	S 10°37.6	12.1'	54.3'	117°43.9	105°32.8	103°25.1	75°00.1	74°57.2	88°11.5	92°23.1	114°01.1
1	336°51.2	15.6'	10°25.4	12.2'	54.3'	117°15.6	105°03.2	102°56.7	74°30.6	75°27.2	88°35.0	92°46.1	114°24.0
2	351°25.8	15.7'	10°13.3	12.2'	54.3'	116°47.4	104°33.7	102°28.4	74°01.1	75°57.2	88°58.6	93°09.2	114°46.9
3	6°00.5	15.7'	$10^{\circ}01.1$	12.2'	54.3'	116°19.2	104°04.1	102°00.1	73°31.6	76°27.1	89°22.0	93°32.3	115°09.7
4	20°35.2	15.8'	09°48.9	12.3'	54.3'	115°51.1	103°34.6	101°31.8	73°02.2	76°57.0	89°45.5	93°55.3	115°32.4
5	35°10.0	15.8'	09°36.6	12.3'	54.3'	115°22.9	103°05.1	101°03.6	72°32.7	77°26.9	90°09.0	94°18.3	115°55.1
6	49°44.8	15.9'	S 09°24.3	12.3'	54.3'	114°54.7	102°35.6	100°35.3	72°03.3	77°56.8	90°32.5	94°41.3	116° 17.7
7	64°19.7	15.9'	09°12.0	12.3'	54.3'	114°26.6	102°06.1	100°07.1	71°33.8	78°26.7	90°55.9	95°04.3	116°40.2
8	78°54.6	16.0'	08°59.7	12.4'	54.3'	113°58.5	101°36.6	99°38.8	71°04.4	78°56.6	91°19.4	95°27.3	117°02.7
9	93°29.6	16.0'	08°47.3	12.4'	54.3'	113°30.3	101°07.1	99°10.6	70°35.0	79°26.4	91°42.8	95°50.2	117°25.1
10	108°04.6	16.0'	08°34.9	12.4'	54.2'	113°02.2	100°37.7	98°42.4	70°05.6	79°56.3	92°06.2	96°13.2	117°47.4
11	122°39.6	16.1'	08°22.5	12.5'	54.2'	112°34.1	100°08.2	98°14.2	69°36.2	80°26.1	92°29.6	96°36.1	118°09.7
12	137°14.7	16.1'	S 08°10.0	12.5'	54.2'	112°06.0	99°38.8	97°46.1	69°06.9	80°55.9	92°53.0	96°58.9	118°31.9
13	151°49.8	16.2'	07°57.5	12.5'	54.2'	111°38.0	99°09.3	97°17.9	68°37.5	81°25.7	93°16.4	97°21.8	118°54.0
14	166°25.0	16.2'	07°45.0	12.5'	54.2'	111°09.9	98° 39.9	96°49.8	68°08.2	81°55.5	93°39.8	97°44.6	119° 16.1
15	181°00.2	16.2'	07°32.5	12.6'	54.2'	110°41.8	98° 10.5	96°21.6	67°38.9	82°25.3	94°03.1	98°07.5	119°38.0
16	195°35.4	16.3'	$07^{\circ}19.9$	12.6'	54.2'	110°13.8	97°41.1	95°53.5	67°09.6	82°55.1	94°26.4	98°30.3	119°59.9
17	210°10.7	16.3'	07°07.4	12.6'	54.2'	109°45.8	97° 11.7	95°25.4	66°40.3	83°24.9	94°49.7	98°53.0	
18	224°46.0	16.3'	S 06°54.8	12.6'	54.2'	109°17.7	96°42.3	94°57.3	66°11.0	83°54.6	95°13.0	99° 15.8	
19	239°21.3	16.4'	06°42.1	12.6'	54.2'	108°49.7	96°13.0	94°29.2	65°41.7	84°24.4	95°36.3	99°38.5	
20	253°56.7	16.4'	06°29.5	12.7'	54.2'	108°21.7	95°43.6	94°01.1	65°12.4	84°54.1	95°59.6	100°01.2	
21	268°32.1	16.4'	$06^{\circ}16.8$	12.7'	54.2'	107°53.7	95°14.2	93°33.1	64°43.2	85°23.8	96°22.8	100°23.8	
22	283°07.5	16.5'	06°04.2	12.7'	54.2'	107°25.7	94°44.9	93°05.0	64°14.0	85°53.5	96°46.1	100°46.5	
23	297°43.0	16.5'	05°51.5	12.7'	54.2'	106°57.8	94° 15.5	92°37.0	63°44.7	86°23.2	97°09.3	101°09.1	
10 th	SD	= 14.8'	Mer. pass	. 02:35							·		

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

Tue	GHA	ν	Dec	d	HP	-Betelgeuse	-Aldebaran	-Venus	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	312°18.4	16.5'	S 05°38.7	12.7'	54.1'	112°32.0	93°46.2	92°08.9	63° 15.5	41°35.5	86°52.9	97°32.5	101°31.7
1	326°53.9	16.5'	$05^{\circ}26.0$	12.8'	54.1'	112°04.0	93°16.9	91°40.9	62°46.3	41°56.3	87°22.6	97°55.6	101°54.2
2	341°29.5	16.6'	$05^{\circ}13.3$	12.8'	54.1'	111°36.1	92°47.6	91°12.9	62°17.1	42°17.3	87°52.3	98°18.8	102°16.8
3	356°05.1	16.6'	$05^{\circ}00.5$	12.8'	54.1'	111°08.1	92°18.3	90°44.9	61°47.9	42°38.4	88°22.0	98°41.9	102°39.3
4	10°40.6	16.6'	04°47.7	12.8'	54.1'	110°40.1	91°49.0	90°16.9	61°18.8	42°59.6	88°51.7	99°05.0	103°01.7
5	25°16.3	16.6'	04°34.9	12.8'	54.1'	110°12.1	91°19.7	89°48.9	60°49.6	43°21.0	89°21.3	99°28.1	103°24.2
6	39°51.9	16.7'	$$04^{\circ}22.1$	12.8'	54.1'	109°44.1	90°50.4	89°20.9	60°20.4	43°42.5	89°51.0	99°51.2	103°46.6
7	54°27.5	16.7'	$04^{\circ}09.3$	12.8'	54.1'	109° 16.2	90°21.1	88°53.0	59°51.3	44°04.1	90°20.6	100°14.2	104°08.9
8	69°03.2	16.7'	03°56.4	12.8'	54.1'	108°48.2	89°51.8	88°25.0	59°22.2	44°25.8	90°50.3	100°37.2	104°31.3
9	83°38.9	16.7'	03°43.6	12.9'	54.1'	108°20.2	89°22.6	87°57.1	58°53.0	44°47.6	91°19.9	101°00.2	104°53.6
10	98°14.6	16.7'	03°30.7	12.9'	54.1'	107°52.2	88°53.3	87°29.1	58°23.9	45°09.6	91°49.5	101°23.2	105°15.9
11	112°50.4	16.7'	03°17.9	12.9'	54.1'	107°24.2	88°24.1	87°01.2	57°54.8	45°31.6	92°19.1	101°46.2	105°38.1
12	127°26.1	16.8'	S 03°05.0	12.9'	54.1'	106° 56.2	87°54.8	86°33.3	57°25.7	45°53.8	92°48.7	102°09.1	106°00.3
13	142°01.9	16.8'	$02^{\circ}52.1$	12.9'	54.1'	106°28.2	87°25.6	86°05.4	56°56.6	46°16.1	93°18.4	102°32.0	106°22.5
14	156°37.7	16.8'	$02^{\circ}39.2$	12.9'	54.1'	106°00.1	86°56.3	85°37.5	56°27.6	46°38.4	93°48.0	102°54.8	106°44.6
15	171°13.5	16.8'	02°26.3	12.9'	54.1'	105°32.1	86°27.1	85°09.6	55°58.5	47°00.9	94°17.6	103°17.7	107°06.7
16	185°49.3	16.8'	$02^{\circ}13.4$	12.9'	54.1'	105°04.1	85°57.9	84°41.7	55°29.4	47°23.5	94°47.1	103°40.5	107°28.7
17	200°25.1	16.8'	$02^{\circ}00.5$	12.9'	54.1'	104°36.1	85°28.6	84°13.8	55°00.4	47°46.1	95°16.7	104°03.3	107°50.8
18	215°00.9	16.8'	S 01°47.6	12.9'	54.1'	104°08.1	84°59.4	83°45.9	54°31.3	48°08.9	95°46.3	104°26.0	108°12.7
19	229°36.7	16.8'	$01^{\circ}34.7$	12.9'	54.1'	103°40.0	84°30.2	83°18.0	54°02.3	48°31.7	96°15.9	104°48.7	108°34.7
20	244°12.6	16.9'	$01^{\circ}21.7$	12.9'	54.1'	103°12.0	84°01.0	82°50.1	53°33.3	48°54.7	96°45.5	105°11.4	108°56.6
21	258°48.4	16.9'	$01^{\circ}08.8$	12.9'	54.1'	102°44.0	83°31.8	82°22.3	53°04.2	49°17.7	97°15.1	105°34.1	109°18.4
22	273°24.3	16.9'	$00^{\circ}55.9$	12.9'	54.1'	102° 15.9	83°02.6	81°54.4	52°35.2	49°40.8	97°44.6	105°56.7	109°40.2
23	288°00.2	16.9'	00°42.9	12.9'	54.1'	101°47.9	82°33.4	81°26.6	52°06.2	50°04.0	98°14.2	106°19.3	110°02.0
11 th	SD	= 14.8'	Mer. pass	s. 03:16									

h		Moor	n (12 th Ju	I)			Lunar E	Distance (o	bjects w	ith larges	st hourly I	_D delta)	
Wed	GHA	ν	Dec	d	HP	-Betelgeuse	-Mars	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	302°36.0	16.9'	S 00°30.0	12.9'	54.1'	101°19.8	95°20.4	82°04.2	51°37.2	50°27.2	98°43.8	106°41.9	110°23.7
1	317°11.9	16.9'	00°17.0	12.9'	54.1'	100°51.8	94°52.5	81°35.0	51°08.2	50°50.6	99°13.4	107°04.4	110°45.4
2	331°47.8	16.9'	S 00°04.1	12.9'	54.1'	100°23.7	94°24.7	81°05.8	50°39.2	51°14.0	99°42.9	107°26.9	111°07.0
3	346°23.7	16.9'	N 00°08.8	12.9'	54.1'	99°55.7	93°56.9	80°36.6	50°10.3	51°37.5	100°12.5	107°49.4	111°28.6
4	0°59.5	16.9'	$00^{\circ}21.8$	12.9'	54.1'	99°27.6	93°29.0	80°07.4	49°41.3	52°01.0	100°42.0	108°11.8	111°50.1
5	15°35.4	16.9'	00°34.7	12.9'	54.1'	98°59.6	93°01.2	79°38.2	49°12.3	52°24.7	101°11.6	108°34.2	112°11.6
6	30°11.3	16.9'	N00°47.7	12.9'	54.1'	98°31.5	92°33.3	79°09.0	48°43.4	52°48.4	101°41.2	108°56.6	112°33.1
7	44°47.2	16.9'	$01^{\circ}00.6$	12.9'	54.1'	98°03.4	92°05.5	78°39.9	48°14.4	53°12.2	102° 10.7	109°18.9	112°54.5
8	59°23.0	16.9'	01°13.5	12.9'	54.1'	97°35.4	91°37.7	78°10.7	47°45.5	53°36.0	102°40.3	109°41.2	113°15.8
9	73°58.9	16.9'	01°26.4	12.9'	54.1'	97°07.3	91°09.8	77°41.5	47°16.5	53°59.9	103°09.9	110°03.4	113°37.1
10	88°34.8	16.8'	01°39.4	12.9'	54.1'	96°39.2	90°42.0	77°12.3	46°47.6	54°23.9	103°39.4	110°25.6	113°58.3
11	103°10.6	16.8'	$01^{\circ}52.3$	12.9'	54.1'	96°11.1	90°14.1	76°43.1	46°18.7	54°47.9	104°09.0	110°47.8	114°19.5
12	117°46.4	16.8'	N02°05.2	12.9'	54.1'	95°43.0	89°46.3	76°13.9	45°49.7	55°12.0	104°38.6	111°09.9	114°40.6
13	132°22.3	16.8'	02°18.1	12.9'	54.1'	95°14.9	89°18.4	75°44.8	45°20.8	55°36.2	105°08.1	111°32.0	115°01.7
14	146°58.1	16.8'	02°31.0	12.9'	54.1'	94°46.8	88°50.6	75°15.6	44°51.9	56°00.4	105°37.7	111°54.0	115°22.7
15	161°33.9	16.8'	02°43.9	12.9'	54.1'	94°18.7	88°22.7	74°46.4	44°23.0	56°24.7	106°07.3	112°16.0	115°43.6
16	176°09.7	16.8'	02°56.8	12.9'	54.1'	93°50.6	87°54.9	74°17.2	43°54.1	56°49.0	106°36.9	112°37.9	116°04.5
17	190°45.5	16.8'	03°09.6	12.9'	54.1'	93°22.5	87°27.0	73°48.0	43°25.2	57°13.4	107°06.4	112°59.8	116°25.4
18	205°21.3	16.8'	N03°22.5	12.8'	54.1'	92°54.4	86°59.1	73°18.8	42°56.3	57°37.8	107°36.0	113°21.7	116°46.1
19	219°57.0	16.7'	03°35.3	12.8'	54.1'	92°26.3	86°31.3	72°49.6	42°27.5	58°02.3	108°05.6	113°43.5	117°06.8
20	234°32.8	16.7'	03°48.2	12.8'	54.1'	91°58.1	86°03.4	72°20.5	41°58.6	58°26.9	108°35.2	114°05.3	117°27.5
21	249°08.5	16.7'	$04^{\circ}01.0$	12.8'	54.2'	91°30.0	85°35.5	71°51.3	41°29.7	58°51.5	109°04.8	114°27.0	117°48.1
22	263°44.2	16.7'	04°13.8	12.8'	54.2'	91°01.9	85°07.6	71°22.1	41°00.8	59°16.2	109°34.4	114°48.6	118°08.6
23	278°19.9	16.7'	04°26.6	12.8'	54.2'	90°33.7	84°39.7	70°52.9	40°32.0	59°40.9	110°04.0	115°10.2	118°29.0
12 th	SD	= 14.8'	Mer. pass	. 03:56									

h Moon ((13 th Jul) – I	Lunar Distance (o	bjects with larg	gest hourly LD delta)
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Thu	GHA	ν	Dec	d	HP	-Betelgeuse	-Mars	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	292°55.5	16.6'	N 04°39.4	12.8'	54.2'	90°05.6	84°11.8	70°23.7	40°03.1	36°33.3	60°05.6	110°33.6	115°31.8
1	307°31.2	16.6'	04°52.2	12.8'	54.2'	89° 37.4	83°43.9	69°54.5	39°34.3	36°54.6	60°30.4	111°03.3	115°53.3
2	322°06.8	16.6'	05°04.9	12.7'	54.2'	89°09.3	83°16.0	69°25.3	39°05.5	37°16.1	60°55.3	111°32.9	116°14.8
3	336°42.4	16.6'	05°17.7	12.7'	54.2'	88°41.1	82°48.1	68°56.0	38°36.6	37°37.7	61°20.2	112°02.5	116°36.2
4	351°18.0	16.5'	05°30.4	12.7'	54.2'	88°12.9	82°20.2	68°26.8	38°07.8	37°59.5	61°45.1	112°32.2	116°57.5
5	5°53.5	16.5'	$05^{\circ}43.1$	12.7'	54.2'	87°44.7	81°52.3	67°57.6	37°39.0	38°21.5	62°10.1	113°01.8	117°18.8
6	20°29.0	16.5'	N 05°55.8	12.7'	54.2'	87° 16.5	81°24.3	67°28.4	37°10.2	38°43.6	62°35.2	113°31.5	117°40.0
7	35°04.5	16.5'	$06^{\circ}08.5$	12.7'	54.2'	86°48.4	80°56.4	66°59.1	36°41.4	39°05.8	63°00.3	114°01.1	118°01.2
8	49°40.0	16.4'	$06^{\circ}21.1$	12.6'	54.2'	86°20.2	80°28.4	66°29.9	36°12.6	39°28.2	63°25.4	114°30.8	118°22.3
9	64°15.4	16.4'	06°33.8	12.6'	54.2'	85°52.0	80°00.4	66°00.7	35°43.8	39°50.8	63°50.6	115°00.5	118°43.3
10	78°50.8	16.4'	06°46.4	12.6'	54.3'	85°23.7	79°32.5	65°31.4	35°15.0	40°13.4	64° 15.8	115°30.2	119°04.3
11	93°26.2	16.3'	06°59.0	12.6'	54.3'	84°55.5	79°04.5	65°02.2	34°46.2	40°36.2	64°41.0	115°59.8	119°25.2
12	108°01.5	16.3'	$N07^{\circ}11.5$	12.5'	54.3'	84°27.3	78°36.5	64°32.9	34°17.5	40°59.2	65°06.3	116°29.6	119°46.0
13	122°36.8	16.3'	$07^{\circ}24.1$	12.5'	54.3'	83°59.1	78°08.5	64°03.6	33°48.7	41°22.2	65°31.7	116°59.3	
14	137°12.1	16.2'	07°36.6	12.5'	54.3'	83°30.8	77°40.5	63°34.4	33°20.0	41°45.4	65°57.1	117°29.0	
15	151°47.3	16.2'	$07^{\circ}49.1$	12.5'	54.3'	83°02.6	$77^{\circ}12.5$	63°05.1	32°51.2	42°08.7	66°22.5	117°58.7	
16	166°22.5	16.2'	$08^{\circ}01.6$	12.5'	54.3'	82°34.3	76°44.4	62°35.8	32°22.5	42°32.1	66°47.9	118°28.5	
17	180°57.7	16.1'	08°14.1	12.4'	54.3'	82°06.1	76°16.4	62°06.5	31°53.8	42°55.6	67° 13.5	118°58.3	
18	195°32.8	16.1'	N08°26.5	12.4'	54.3'	81°37.8	75°48.3	61°37.2	31°25.1	43°19.3	67°39.0	119°28.0	
19	210°07.8	16.0'	08°38.9	12.4'	54.4'	81°09.5	75°20.3	61°07.9	30°56.4	43°43.0	68°04.6	119°57.8	
20	224°42.9	16.0'	08°51.3	12.3'	54.4'	80°41.2	74°52.2	60°38.6	30°27.8	44°06.9	68°30.2		
21	239°17.9	15.9'	09°03.6	12.3'	54.4'	80°12.9	74°24.1	60°09.3	29°59.1	44°30.9	68° 55.8		
22	253°52.8	15.9'	$09^{\circ}15.9$	12.3'	54.4'	79°44.6	73°56.0	59°39.9	29°30.5	44°55.0	69°21.5		
23	268°27.7	15.9'	09°28.2	12.3'	54.4'	79°16.3	73°27.8	59°10.6	29°01.9	45°19.1	69°47.3		
13 th	SD	$= 14.8^{\prime}$	Mer. pass	. 04:36									

h Moon (14th Jul)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sun	-Betelgeuse	-Mars	-Venus	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	283°02.6	15.8'	N 09°40.5	12.2'	54.4'	99°39.5	78°48.0	72°59.7	58°42.1	58°41.2	28°33.3	45°43.4	70°13.0
1	297°37.4	15.8'	09°52.7	12.2'	54.4'	99°12.0	78° 19.7	72°31.5	58°14.2	58° 11.9	28°04.7	46°07.8	70°38.8
2	312°12.1	15.7'	10°04.9	12.2'	54.5'	98°44.4	77°51.3	72°03.4	57°46.2	57° 42.5	27°36.1	46° 32.2	71°04.7
3	326°46.8	15.7'	$10^{\circ}17.0$	12.1'	54.5'	98°16.9	77°23.0	71°35.2	57°18.2	57° 13.1	27°07.6	46° 56.8	71°30.5
4	341°21.5	15.6'	10°29.2	12.1'	54.5'	97°49.4	76°54.6	71°07.0	56°50.3	56°43.8	26°39.1	47°21.4	71°56.5
5	355°56.1	15.6'	$10^{\circ}41.3$	12.1'	54.5'	97°21.8	76°26.3	70°38.8	56°22.3	56° 14.4	26°10.6	47° 46.2	72°22.4
6	10°30.7	15.5'	$N10^{\circ}53.3$	12.0'	54.5'	96°54.2	75°57.9	70°10.5	55°54.3	55° 45.0	25°42.2	48°11.0	72°48.4
7	25°05.2	15.4'	11°05.4	12.0'	54.5'	96°26.6	75° 29.5	69°42.3	55°26.2	55° 15.5	25°13.8	48° 35.9	73°14.4
8	39°39.6	15.4'	11°17.3	12.0'	54.5'	95°59.0	75°01.1	69°14.0	54°58.2	54°46.1	24°45.4	49°00.9	73°40.4
9	54°14.0	15.3'	11°29.3	11.9'	54.6'	95°31.4	74°32.7	68°45.8	54°30.2	54° 16.7	24°17.0	49°26.0	74°06.5
10	68°48.4	15.3'	11°41.2	11.9'	54.6'	95°03.8	74°04.3	68°17.5	54°02.1	53°47.2	23°48.7	49°51.2	74°32.6
11	83°22.6	15.2'	11°53.1	11.8'	54.6'	94°36.1	73°35.9	67°49.1	53°34.1	53° 17.8	23°20.5	50° 16.4	74°58.8
12	97°56.9	15.2'	$N12^{\circ}04.9$	11.8'	54.6'	94°08.4	73°07.4	67°20.8	53°06.0	52°48.3	22°52.3	50°41.7	75°25.0
13	112°31.0	15.1'	$12^{\circ}16.7$	11.8'	54.6'	93°40.7	72°39.0	66°52.4	52°37.9	52° 18.8	22°24.1	51°07.1	75°51.2
14	127°05.1	15.0'	12°28.5	11.7'	54.6'	93°13.0	72° 10.6	66°24.1	52°09.8	51°49.3	21°56.0	51°32.6	76°17.4
15	141°39.2	15.0'	12°40.2	11.7'	54.7'	92°45.3	71°42.1	65°55.7	51°41.7	51° 19.8	21°27.9	51°58.1	76°43.7
16	156°13.1	14.9'	12°51.9	11.6'	54.7'	92°17.5	71°13.6	65°27.3	51°13.6	50°50.3	21°00.0	52°23.8	77°10.0
17	170°47.1	14.9'	13°03.5	11.6'	54.7'	91°49.7	70°45.2	64°58.8	50°45.5	50°20.8	20°32.0	52°49.5	77°36.4
18	185°20.9	14.8'	N13°15.1	11.5'	54.7'	91°21.9	70° 16.7	64°30.4	50°17.3	49°51.3	20°04.2	53° 15.2	78°02.7
19	199°54.7	14.7'	13°26.6	11.5'	54.7'	90°54.1	69°48.2	64°01.9	49°49.2	49°21.7	19°36.4	53°41.1	78°29.1
20	214°28.4	14.7'	13°38.1	11.4'	54.8'	90°26.3	69° 19.7	63°33.4	49°21.0	48°52.2	19°08.8	54°07.0	78°55.6
21	229°02.1	14.6'	$13^{\circ}49.5$	11.4'	54.8'	89°58.4	68°51.2	63°04.9	48°52.8	48°22.6	18°41.2	54°33.0	79°22.0
22	243°35.7	14.5'	$14^{\circ}00.9$	11.3'	54.8'	89°30.5	68°22.7	62°36.3	48°24.6	47°53.1	18° 13.8	54° 59.0	79°48.5
23	258°09.2	14.4'	14°12.3	11.3'	54.8'	89°02.6	67°54.1	62°07.8	47°56.4	47°23.5	17°46.4	55°25.2	80°15.1
14 th	SD	= 14.8'	Mer. pass	. 05:17					Sun S	D = 15.7'			

h Moon (15th Jul)

oon (15th Jul) Lunar Distance (objects with largest hourly LD delta)

						Tana Distance (Expess than largest nearly 12 denta)							
Sat	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Betelgeuse	-Mars	-Venus	-Aldebaran	+Fomalhaut	+Altair
0	272°42.6	14.4'	N 14°23.6	11.2'	54.8'		88°34.7	67°25.6	61°39.2	47°28.2	46°53.9	55°51.3	80°41.6
1	287°16.0	14.3'	14°34.8	11.2'	54.9'		88°06.7	66° 57.0	61°10.6	47°00.0	46°24.3	56° 17.6	81°08.2
2	301°49.3	14.2'	14°46.0	11.1'	54.9'		87°38.8	66°28.5	60°42.0	46°31.7	45°54.7	56°43.9	81°34.8
3	316°22.5	14.2'	14°57.2	11.1'	54.9'		87°10.8	65° 59.9	60°13.3	46°03.5	45° 25.0	57° 10.3	82°01.5
4	330°55.7	14.1'	15°08.3	11.0'	54.9'		86°42.7	65°31.3	59°44.6	45°35.2	44°55.4	57° 36.7	82°28.2
5	345°28.8	14.0'	$15^{\circ}19.3$	11.0'	54.9'		86°14.7	65°02.7	59°15.9	45°06.9	44°25.7	58°03.2	82°54.9
6	0°01.8	13.9'	N 15°30.3	10.9'	55.0'		85°46.6	64°34.2	58°47.2	44°38.6	43°56.1	58° 29.8	83°21.6
7	14°34.7	13.9'	15°41.2	10.9'	55.0'		85°18.5	64°05.6	58°18.4	44°10.3	43°26.4	58° 56.4	83°48.4
8	29°07.6	13.8'	15°52.1	10.8'	55.0'	89°11.3	84°50.4	63°36.9	57°49.6	43°41.9	42°56.7	59°23.1	84°15.2
9	43°40.3	13.7'	$16^{\circ}02.9$	10.8'	55.0'	88°41.9	84°22.2	63°08.3	57°20.8	43°13.6	42°27.0	59° 49.9	84°42.0
10	58°13.0	13.6'	$16^{\circ}13.6$	10.7'	55.1'	88°12.5	83°54.1	62°39.7	56°52.0	42°45.2	41°57.3	60° 16.7	85°08.9
11	72°45.6	13.5'	$16^{\circ}24.3$	10.6'	55.1'	87°43.0	83°25.9	62°11.1	56°23.1	42°16.9	41°27.6	60°43.5	85°35.8
12	87°18.2	13.5'	$N16^{\circ}35.0$	10.6'	55.1'	87°13.6	82°57.6	61°42.4	55°54.3	41°48.5	40°57.9	61° 10.5	86°02.7
13	101°50.6	13.4'	16°45.5	10.5'	55.1'	86°44.1	82°29.4	61°13.8	55°25.3	41°20.1	40°28.2	61°37.5	86°29.6
14	116°23.0	13.3'	$16^{\circ}56.0$	10.4'	55.2'	86°14.6	82°01.1	60°45.1	54°56.4	40°51.7	39°58.4	62°04.5	86°56.6
15	130°55.3	13.2'	$17^{\circ}06.5$	10.4'	55.2'	85°45.0	81°32.8	60° 16.5	54°27.4	40°23.2	39°28.7	62°31.6	87°23.6
16	145°27.5	13.1'	$17^{\circ}16.9$	10.3'	55.2'	85°15.4	81°04.4	59°47.8	53°58.4	39°54.8	38°58.9	62°58.8	87°50.6
17	159°59.6	13.0'	$17^{\circ}27.2$	10.2'	55.2'	84°45.9	80°36.1	59° 19.1	53°29.4	39°26.3	38°29.2	63°26.0	88°17.7
18	174°31.6	12.9'	$N17^{\circ}37.4$	10.2'	55.3'	84°16.2	80°07.7	58° 50.4	53°00.4	38°57.8	37° 59.4	63°53.2	88°44.8
19	189°03.6	12.9'	17°47.6	10.1'	55.3'	83°46.6	79°39.2	58°21.7	52°31.3	38°29.4	37° 29.7	64°20.6	89°11.9
20	203°35.4	12.8'	17°57.7	10.0'	55.3'	83°16.9	79°10.8	57° 53.0	52°02.2	38°00.9	36° 59.9	64°47.9	89°39.0
21	218°07.2	12.7'	18°07.7	10.0'	55.3'	82°47.2	78°42.3	57°24.3	51°33.0	37°32.4	36°30.1	65° 15.4	90°06.2
22	232°38.9	12.6'	18°17.7	9.9'	55.4'	82°17.5	78°13.8	56° 55.6	51°03.8	37°03.8	36°00.3	65° 42.8	90°33.4
23	247°10.4	12.5'	$18^{\circ}27.6$	9.8'	55.4'	81°47.8	77°45.2	56° 26.9	50°34.6	36°35.3	35°30.5	66° 10.4	91°00.6
15 th	SD	= 15.0'	Mer. pass	. 06:00					Sun SI	D = 15.7'			

		/ l.	
h	Moon	(Thun	Tril)

Sun	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Mars	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	261°41.9	12.4'	N 18°37.4	9.7'	55.4'	81° 18.0	77°16.6	50°05.4	35°00.8		66°38.0		91°27.8
1	276°13.4	12.3'	18°47.1	9.7'	55.4'	80°48.2	76°48.0	49°36.1	34°31.0		67°05.6		91°55.1
2	290°44.7	12.2'	18°56.8	9.6'	55.5'	80°18.3	76°19.4	49°06.8	34°01.2		67°33.3	71°52.5	92°22.4
3	305°15.9	12.1'	19°06.4	9.5'	55.5'	79°48.5	75°50.7	48°37.5	33°31.4		68°01.1	72°07.7	92°49.7
4	319°47.0	12.0'	$19^{\circ}15.9$	9.4'	55.5'	79°18.6	75°22.0	48°08.1	33°01.6		68° 28.9	72°22.9	93°17.0
5	334°18.1	11.9'	19°25.3	9.4'	55.6'	78°48.7	74°53.3	47°38.7	32°31.9		68° 56.7	72°38.2	93°44.4
6	348°49.0	11.8'	N 19°34.7	9.3'	55.6'	78° 18.7	74°24.5	47°09.3	32°02.1		69°24.6	72°53.6	94°11.8
7	3°19.9	11.8'	19°44.0	9.2'	55.6'	77°48.8	73°55.7	46°39.8	31°32.3		69°52.6	73°09.1	94°39.2
8	17°50.6	11.7'	19°53.2	9.1'	55.6'	77° 18.8	73°26.8	46°10.4	31°02.6		70° 20.6	73°24.7	95°06.7
9	32°21.3	11.6'	20°02.3	9.0'	55.7'	76°48.7	72°58.0	45°40.8	30°32.9		70°48.6	73°40.3	95°34.1
10	46°51.8	11.5'	20°11.3	8.9'	55.7'	76° 18.7	72°29.0	45°11.3	30°03.1		71° 16.7	73°56.0	96°01.6
11	61°22.3	11.4'	20°20.2	8.8'	55.7'	75°48.6	72°00.1	44°41.7	29°33.4		71°44.9	74°11.8	96°29.1
12	75°52.7	11.3'	N20°29.1	8.8'	55.8'	75°18.5	71°31.1	44°12.0	29°03.7		72°13.1	74°27.7	96°56.7
13	90°22.9	11.2'	20°37.8	8.7'	55.8'	74°48.4	71°02.1	43°42.4	28°34.1		72°41.3	74°43.7	97°24.2
14	104°53.1	11.1'	20°46.5	8.6'	55.8'	74°18.2	70°33.1	43°12.7	28°04.4		73°09.6	74°59.7	97°51.8
15	119°23.2	11.0'	20°55.1	8.5'	55.9'	73°48.0	70°04.0	42°42.9	27°34.8		73°38.0	75°15.8	98° 19.4
16	133°53.1	10.9'	21°03.5	8.4'	55.9'	73°17.8	69°34.8	42°13.2	27°05.2		74°06.4	75°32.0	98°47.1
17	148°23.0	10.8'	$21^{\circ}11.9$	8.3'	55.9'	72°47.5	69°05.7	41°43.3	26°35.7		74°34.8	75°48.2	99°14.7
18	162°52.8	10.7'	N21°20.2	8.2'	55.9'	72°17.3	68°36.5	41°13.5	26°06.1		75°03.3	76°04.6	99°42.4
19	177°22.5	10.6'	21°28.4	8.1'	56.0'	71°47.0	68°07.3	40°43.6	25°36.7		75°31.9	76°20.9	100°10.1
20	191°52.1	10.5'	21°36.5	8.0'	56.0'	71°16.6	67°38.0	40°13.7	25°07.2		76°00.5	76°37.4	100°37.8
21	206°21.5	10.4'	21°44.5	7.9'	56.0'	70°46.3	67°08.7	39°43.7	24°37.9	$10^{\circ}29.6$	76°29.1	76°54.0	101°05.5
22	220°50.9	10.3'	$21^{\circ}52.4$	7.8'	56.1'	70°15.9	66°39.3	39°13.8	24°08.5	$10^{\circ}52.2$	76° 57.8	$77^{\circ}10.6$	101°33.3
23	235°20.2	10.2'	22°00.2	7.7'	56.1'	69°45.5	66°10.0	38°43.7	23°39.3	11° 15.5	77°26.5	77°27.2	102°01.1
16 th	SD	= 15.1'	Mer. pass.	06:46					Sun SI	0 = 15.7'			

NA (17th I I)	

h		Moon	(17 th Ju	I)			Lunar	Distance	(objects w	ith large	st hourly	LD delta)	
Mon	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Mars	-Aldebaran	+Saturn	+Deneb	+Fomalhaut	+Altair
0	249°49.4	10.1'	N 22°07.9	7.6'	56.1'	69°15.0	65°40.5	38°13.7	23°10.1	11°39.4	77°44.0	77°55.3	102°28.9
1	264°18.4	10.0'	22°15.5	7.5'	56.2'	68°44.5	65°11.1	37°43.5	22°41.0	12°04.0	78°00.8	78°24.1	102°56.7
2	278°47.4	9.9'	22°23.0	7.4'	56.2'	68°14.0	64°41.6	37°13.4	22°11.9	12°29.2	78°17.7	78°53.0	103°24.5
3	293°16.3	9.8'	22°30.4	7.3'	56.2'	67°43.5	64°12.0	36°43.2	21°43.0	12°54.8	78°34.6	79°21.9	103°52.3
4	307°45.0	9.7'	22°37.7	7.2'	56.3'	67°13.0	63°42.5	36°13.0	21° 14.1	13°20.9	78°51.6	79°50.9	104°20.2
5	$322^{\circ}13.7$	9.6'	22°44.9	7.1'	56.3'	66°42.4	63°12.8	35°42.7	20°45.4	$13^{\circ}47.5$	79°08.7	80°19.9	104°48.1
6	336°42.3	9.5'	N22°51.9	6.9'	56.3'	66°11.8	62°43.2	35°12.4	20°16.8	14°14.4	79°25.8	80°48.9	105°16.0
7	351°10.7	9.4'	22°58.9	6.8'	56.4'	65°41.1	62°13.5	34°42.1	19°48.3	14°41.7	79°43.0	81°18.0	105°43.9
8	5°39.1	9.3'	23°05.7	6.7'	56.4'	65°10.5	61°43.7	34°11.7	19° 19.9	15°09.3	80°00.3	81°47.2	106°11.8
9	20°07.4	9.2'	23°12.4	6.6'	56.4'	64°39.8	61°14.0	33°41.3	18°51.7	15°37.2	80°17.6	82°16.4	106°39.7
10	34°35.5	9.1'	23°19.0	6.5'	56.5'	64°09.1	60°44.1	33°10.8	18°23.7	16°05.4	80°34.9	82°45.6	107°07.7
11	49°03.6	9.0'	23°25.5	6.4'	56.5'	63°38.3	60°14.3	32°40.3	17°55.9	16°33.9	80°52.4	83°14.9	107°35.7
12	63°31.6	8.9'	N23°31.9	6.3'	56.5'	63°07.6	59°44.4	32°09.8	17°28.3	17°02.6	81°09.9	83°44.2	108°03.6
13	77°59.4	8.8'	23°38.2	6.1'	56.6'	62°36.8	59°14.4	31°39.2	17°00.9	17°31.6	81°27.4	84°13.5	108°31.6
14	92°27.2	8.7'	23°44.3	6.0'	56.6'	62°05.9	58°44.5	31°08.6	16°33.8	18°00.7	81°45.0	84°43.0	108°59.6
15	106°54.9	8.6'	23°50.3	5.9'	56.6'	61°35.1	58°14.4	30°38.0	16°06.9	18°30.1	82°02.6	85°12.4	109°27.6
16	121°22.4	8.5'	23°56.2	5.8'	56.7'	61°04.2	57°44.4	30°07.3	15°40.4	18°59.6	82°20.3	85°41.9	109°55.6
17	135°49.9	8.4'	24°02.0	5.6'	56.7'	60°33.4	57°14.3	29°36.5	15° 14.2	19°29.4	82°38.1	86°11.4	110°23.7
18	150°17.3	8.3'	N24°07.6	5.5'	56.7'	60°02.4	56°44.1	29°05.7	14°48.3	19°59.3	82°55.9	86°41.0	110°51.7
19	164°44.6	8.2'	$24^{\circ}13.1$	5.4'	56.8'	59°31.5	56°13.9	28°34.9	14°22.9	20°29.3	83°13.8	87°10.6	111°19.7
20	$179^{\circ}11.7$	8.1'	$24^{\circ}18.5$	5.3'	56.8'	59°00.5	55°43.7	28°04.1	13°57.9	20°59.5	83°31.7	87°40.3	111°47.8
21	193°38.8	8.0'	24°23.8	5.1'	56.9'	58°29.6	55°13.4	27°33.1	13°33.4	21°29.9	83°49.6	88°10.0	112°15.8
22	208°05.8	7.9'	24°28.9	5.0'	56.9'	57°58.6	54°43.1	27°02.2	13°09.5	22°00.4	84°07.6	88°39.7	112°43.9
23	222°32.7	7.8'	24°33.9	4.9'	56.9'	57°27.5	54°12.7	26°31.2	12°46.2	22°31.0	84°25.7	89°09.5	113°11.9
17 th	SD	= 15.3'	Mer. pass.	. 07:37		Sun SD = 15.7'							

Moon (18th Jul)

	The state (10 state)												
Tue	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Betelgeuse	-Mars	+Saturn	+Deneb	+Fomalhaut	+Altair
0	236°59.5	7.7'	N 24°38.7	4.7'	57.0'	56°56.5	53°42.3	33°19.2	26°00.2	23°01.8	84°43.8	89°39.3	113°40.0
1	251°26.2	7.6'	24°43.5	4.6'	57.0'	56°25.4	53°11.8	32°52.2	25°29.1	23°32.6	85°01.9	90°09.2	114°08.1
2	265°52.8	7.5'	24°48.1	4.5'	57.0'	55°54.3	52°41.3	32°25.4	24°58.0	24°03.6	85°20.1	90°39.1	114°36.1
3	280°19.4	7.4'	24°52.5	4.3'	57.1'	55°23.2	52°10.8	31°58.6	24°26.9	24°34.7	85°38.3	91°09.0	115°04.2
4	294°45.8	7.3'	24°56.8	4.2'	57.1'	54°52.1	51°40.2	31°32.1	23°55.7	25°05.9	85°56.6	91°39.0	115°32.2
5	309°12.1	7.3'	$25^{\circ}01.0$	4.0'	57.1'	54°21.0	51°09.6	31°05.6	23°24.4	25°37.3	86° 14.9	92°09.0	116°00.3
6	323°38.4	7.2'	N 25°05.0	3.9'	57.2'	53°49.8	50°38.9	30°39.3	22°53.2	26°08.7	86°33.2	92°39.1	116°28.3
7	338°04.5	7.1'	25°08.9	3.8'	57.2'	53°18.6	50°08.2	30°13.2	22°21.8	26°40.2	86°51.6	93°09.2	116°56.3
8	352°30.6	7.0'	25°12.7	3.6'	57.3'	52°47.4	49°37.4	29°47.2	21°50.5	27°11.8	87° 10.0	93°39.3	117°24.4
9	6°56.6	6.9'	25°16.3	3.5'	57.3'	52°16.2	49°06.6	29°21.5	21°19.1	27°43.5	87°28.4	94°09.5	117°52.4
10	21°22.5	6.8'	25°19.8	3.3'	57.3'	51°45.0	48°35.7	28°55.9	20°47.7	28°15.3	87°46.9	94°39.7	118°20.4
11	35°48.3	6.7'	25°23.1	3.2'	57.4'	51°13.8	48°04.8	28°30.5	20°16.2	28°47.2	88°05.5	95°10.0	118°48.4
12	50°14.1	6.7'	$N25^{\circ}26.3$	3.0'	57.4'	50°42.5	47°33.9	28°05.4	19°44.7	29°19.2	88°24.0	95°40.2	119°16.4
13	64°39.7	6.6'	25°29.3	2.9'	57.4'	50°11.3	47°02.9	27°40.4	19°13.1	29°51.2	88°42.6	96° 10.6	119°44.3
14	79°05.3	6.5'	25°32.2	2.7'	57.5'	49°40.0	46°31.9	27°15.8	18°41.5	30°23.3	89°01.2	96° 40.9	
15	93°30.8	6.4'	25°34.9	2.6'	57.5'	49°08.8	46°00.8	26°51.3	18°09.9	30°55.6	89° 19.8	97°11.3	
16	107°56.2	6.3'	25°37.5	2.4'	57.5'	48°37.5	45°29.7	26°27.2	17°38.2	31°27.9	89°38.5	97°41.7	
17	122°21.6	6.3'	25°39.9	2.3'	57.6'	48°06.2	44°58.5	26°03.3	17°06.5	32°00.2	89° 57.2	98° 12.2	
18	136°46.9	6.2'	N 25°42.1	2.1'	57.6'	47°34.9	44°27.3	25°39.8	16°34.8	32°32.7	90°15.9	98° 42.7	
19	151°12.1	6.1'	25°44.2	2.0'	57.7'	47°03.7	43°56.0	25°16.6	16°03.0	33°05.2	90°34.7	99° 13.2	
20	165°37.2	6.1'	25°46.2	1.8'	57.7'	46°32.4	43°24.7	24°53.7	15°31.2	33°37.8	90°53.5	99°43.7	
21	180°02.2	6.0'	25°48.0	1.6'	57.7'	46°01.1	42°53.4	24°31.1	14°59.4	34°10.4	91°12.3	100°14.3	
22	194°27.2	5.9'	25°49.6	1.5'	57.8'	45°29.8	42°22.0	24°09.0	14°27.5	34°43.2	91°31.1	100°44.9	
23	208°52.1	5.9'	25°51.1	1.3'	57.8'	44°58.5	41°50.5	23°47.2	13°55.6	35°16.0	91°49.9	101°15.6	
18 th	SD = $15.5'$ Mer. pass. 08:31					SunSD=15.7'							

h	Moon	(10 th	hull

Lunar Distance	(objects with	largest hourly	/ LD delta))
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Wed	GHA	ν	Dec	d	HP	-Procyon	-Sun	-Betelgeuse	-Mars	+Venus	+Aldebaran	+Saturn	+Fomalhaut
0	223°17.0	5.8'	N 25°52.5	1.2'	57.8'	44°27.3	41°19.0	23°25.9	13°23.7			35°48.8	101°46.2
1	237°41.8	5.7'	25°53.6	1.0'	57.9'	43°56.0	40°47.5	23°05.0	12°51.7			36°21.8	102°16.9
2	252°06.5	5.7'	25°54.6	0.8'	57.9'	43°24.8	40°15.9	22°44.5	12°19.8			36°54.8	102°47.7
3	266°31.2	5.6'	25°55.5	0.7'	57.9'	42°53.5		22°24.6	11°47.8			37°27.9	103°18.4
4	280°55.8	5.6'	$25^{\circ}56.1$	0.5'	58.0'	42°22.3		22°05.2	11°15.8			38°01.0	103°49.2
5	295°20.4	5.5'	25°56.7	0.4'	58.0'	41°51.1		21°46.3	10°43.8			38°34.2	104°20.0
6	309°44.9	5.4'	N25°57.0	0.2'	58.1'	41°19.9		21°28.0	10°11.8			39°07.5	104°50.8
7	324°09.3	5.4'	25°57.2	0.0'	58.1'	40°48.8		21°10.3	9°39.7		12°36.9	39°40.8	105°21.7
8	338°33.7	5.3'	25°57.2	-0.1'	58.1'	40°17.6		20°53.2	9°07.7		13°01.0	40°14.2	105°52.6
9	352°58.0	5.3'	25°57.1	-0.3'	58.2'	39°46.5		20°36.8	8°35.8		13°25.9	40°47.6	106°23.5
10	7°22.3	5.2'	25°56.8	-0.5'	58.2'	39°15.5		20°21.1	8°03.8		13°51.4	41°21.1	106°54.4
11	21°46.6	5.2'	25°56.3	-0.6'	58.2'	38°44.4		20°06.0	7°31.9		14°17.6	41°54.7	107°25.4
12	36°10.8	5.2'	N 25°55.6	-0.8'	58.3'	38°13.4			7°00.1	11°00.2	14°44.4	42°28.3	107°56.3
13	50°35.0	5.1'	25°54.8	-1.0'	58.3'	37°42.5			6°28.4	11°23.8	15°11.7	43°02.0	108°27.3
14	64°59.1	5.1'	25°53.8	-1.2'	58.3'	37°11.6			5°56.8	11°48.1	15°39.5	43°35.7	108°58.3
15	79°23.2	5.0'	25°52.7	-1.3'	58.4'	36°40.7			5°25.5	12° 13.1	16°07.8	44°09.5	109°29.3
16	93°47.2	5.0'	25°51.4	-1.5'	58.4'	36°09.9			4°54.4	12°38.7	16°36.5	44°43.4	110°00.4
17	108°11.2	5.0'	25°49.9	-1.7'	58.5'	35°39.2			4°23.7	13°04.9	17°05.6	45°17.3	110°31.4
18	122°35.2	5.0'	N 25°48.2	-1.8'	58.5'	35°08.5			3°53.7	13°31.5	17°35.0	45°51.2	111°02.5
19	136°59.2	4.9'	25°46.4	-2.0'	58.5'	34°37.9			3°24.4	13°58.7	18°04.8	46°25.2	111°33.6
20	151°23.1	4.9'	25°44.3	-2.2'	58.6'	34°07.4				14°26.3	18°34.9	46°59.3	112°04.7
21	165°47.0	4.9'	25°42.2	-2.4'	58.6'	33°37.0				14°54.2	19°05.3	47°33.4	112°35.8
22	180°10.8	4.9'	25°39.8	-2.5'	58.6'	33°06.6				15°22.6	19°36.0	48°07.6	113°06.9
23	194°34.7	4.8'	25°37.3	-2.7'	58.7'	32°36.3				15°51.2	20°06.9	48°41.9	113°38.0
19 th	SD :	= 15.8'	Mer. pas	s. 09:29					Sun S	5D = 15.7'			

n Moon (20th Jul)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Procyon	+Mars	+Venus	+Betelgeuse	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	208°58.5	4.8'	N 25°34.6	-2.9'	58.7'	32°06.2		16°20.2		20°38.1		49°16.1	114°09.1
1	223°22.3	4.8'	25°31.7	-3.0'	58.7'	31°36.1		16°49.5		21°09.5		49°50.5	114°40.3
2	237°46.1	4.8'	25°28.7	-3.2'	58.8'	31°06.2		17°19.0		21°41.1		50°24.9	115°11.4
3	252°09.9	4.8'	25°25.5	-3.4'	58.8'	30°36.4		17°48.8		22° 12.9	22°34.8	50°59.3	115°42.5
4	266°33.7	4.8'	$25^{\circ}22.1$	-3.6'	58.8'	30°06.7		18°18.8		22°44.9	22°50.9	51°33.8	116°13.7
5	280°57.5	4.8'	$25^{\circ}18.5$	-3.7'	58.9'	29°37.2		18°49.1		23° 17.1	23°07.7	52°08.3	116°44.8
6	295°21.2	4.7'	N 25°14.8	-3.9'	58.9'	29°07.8		19°19.5		23°49.4	23°25.1	52°42.9	117°16.0
7	309°45.0	4.7'	25°10.9	-4.1'	58.9'	28°38.6		19°50.1		24°21.9	23°43.2	53°17.5	117°47.1
8	324°08.7	4.7'	25°06.8	-4.3'	59.0'	28°09.6	4°35.6	20°20.9		24°54.6	24°01.9	53°52.2	118°18.2
9	338°32.5	4.7'	25°02.6	-4.4'	59.0'	27°40.7	5°07.2	20°51.9		25°27.4	24°21.2	54°27.0	118°49.4
10	352°56.2	4.7'	$24^{\circ}58.1$	-4.6'	59.0'	27°12.1	5°39.1	21°23.0		26°00.4	24°41.1	55°01.7	119°20.5
11	7°19.9	4.8'	24°53.5	-4.8'	59.1'	26°43.7	6°11.4	21°54.3		26°33.5	25°01.5	55°36.6	119°51.6
12	21°43.7	4.8'	N 24°48.8	-4.9'	59.1'	26° 15.5	6°44.0	22°25.7		27°06.7	25°22.5	56°11.4	
13	36°07.4	4.8'	24°43.8	-5.1'	59.1'	25°47.5	$7^{\circ}16.8$	22°57.3		27°40.1	25°44.0	56°46.4	
14	50°31.2	4.8'	24°38.7	-5.3'	59.2'	25° 19.8	7°49.8	23°29.0		28° 13.5	26°06.0	57°21.3	
15	64°55.0	4.8'	24°33.4	-5.5'	59.2'	24°52.4	8°22.9	24°00.8		28°47.1	26°28.5	57°56.3	
16	79°18.8	4.8'	24°28.0	-5.6'	59.2'	24°25.3	8°56.2	24°32.7		29°20.8	26°51.4	58°31.4	
17	93°42.6	4.8'	24°22.4	-5.8'	59.3'	23°58.5	9°29.5	25°04.7		29°54.6	27°14.8	59°06.5	
18	108°06.4	4.8'	N 24°16.6	-6.0'	59.3'	23°32.1	10°03.0	25°36.9	20°16.6	30°28.5	27°38.6	59°41.6	
19	122°30.2	4.9'	$24^{\circ}10.6$	-6.1'	59.3'	23°06.0	10°36.6	26°09.1	20°32.8	31°02.5	28°02.8	60°16.8	
20	136°54.1	4.9'	24°04.5	-6.3'	59.4'	22°40.3	11°10.3	26°41.5	20°49.7	31°36.6	28°27.5	60°52.0	
21	151°18.0	4.9'	23°58.2	-6.5'	59.4'	22°15.0	11°44.0	27°13.9	21°07.5	32° 10.7	28°52.5	61°27.3	
22	165°41.9	4.9'	23°51.7	-6.6'	59.4'	21°50.1	12° 17.8	27°46.5	21°25.9	32°45.0	29°17.9	62°02.6	
23	180°05.8	5.0'	23°45.1	-6.8'	59.4'	21°25.7	12°51.7	28°19.1	21°45.1	33° 19.4	29°43.6	62°38.0	
20 th	SD :	= 16.0'	Mer. pas	s. 10:29									

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

Fri	GHA	ν	Dec	d	HP	-Procyon	+Mars	+Betelgeuse	+Venus	+Capella	+Aldebaran	+Rigel	+Saturn
0	194°29.7	5.0'	N23°38.3	-7.0'	59.5'	21°01.8	13°25.6	22°05.0	28°51.8	30°09.7	33°53.8	40°35.6	63°13.4
1	208°53.7	5.0'	23°31.3	-7.1'	59.5'	20°38.5	13°59.6	22°25.5	29°24.6	30°36.1	34°28.3	40°54.0	63°48.8
2	223°17.7	5.0'	23°24.2	-7.3'	59.5'	20°15.7	14°33.7	22°46.6	29°57.5	31°02.8	35°02.9	41°12.7	64°24.3
3	237°41.8	5.1'	23° 16.9	-7.5'	59.6'	19°53.5	15°07.8	23°08.4	30°30.4	31°29.8	35°37.5	41°31.8	64°59.8
4	252°05.8	5.1'	23°09.5	-7.6'	59.6'	19°31.9	15°42.0	23°30.7	31°03.4	31°57.2	36°12.3	41°51.2	65°35.3
5	266°30.0	5.1'	23°01.9	-7.8'	59.6'	$19^{\circ}11.1$	16°16.2	23°53.6	31°36.5	32°24.8	36°47.1	42°10.9	66°10.9
6	280°54.1	5.2'	N 22°54.1	-7.9'	59.6'	18°50.9	16°50.4	24°17.0	32°09.7	32°52.6	37°22.0	42°30.9	66°46.6
7	295°18.3	5.2'	22°46.1	-8.1'	59.7'	18°31.5	17°24.7	24°40.9	32°42.9	33°20.8	37°56.9	42°51.2	67°22.2
8	309°42.5	5.3'	22°38.0	-8.3'	59.7'	18°12.9	17°59.1	25°05.2	33°16.2	33°49.1	38°31.9	43°11.8	67°57.9
9	324°06.8	5.3'	22°29.8	-8.4'	59.7'	17°55.2	18° 33.5	25°30.1	33°49.5	34°17.8	39°07.0	43°32.7	68°33.7
10	338°31.1	5.3'	22°21.4	-8.6'	59.7'					Moon ——		<u> </u>	
11	352°55.4	5.4'	22°12.8	-8.7'	59.8'	.8' New Moon ————							
12	7°19.8	5.4'	N22°04.1	-8.9'	59.8'	.8' New Moon ———							
13	21°44.3	5.5'	21°55.2	-9.0'	59.8'								
14	36°08.7	5.5'	21°46.2	-9.2'	59.8'								
15	50°33.3	5.6'	21°37.0	-9.3'	59.9'								
16	64°57.9	5.6'	21°27.7	-9.5'	59.9'								
17	79°22.5	5.7'	21° 18.2	-9.6'	59.9'				New	Moon ———			
18	93°47.2	5.7'	N 21°08.6	-9.8'	59.9'				New	Moon ——			
19	108°11.9	5.8'	20°58.8	-9.9'	60.0'								
20	122°36.7	5.8'	20°48.8	-10.1'	60.0'								
21	137°01.6	5.9'	20°38.8	-10.2'	60.0'								
22	151°26.5	6.0'	20°28.6	-10.4'	60.0'								
23	165°51.4	6.0'	20° 18.2	-10.5'	60.0'				New	Moon ——			
21 st	SD	= 16.2	.' Mer. pas	ss. 11:29									

h		Moor	า (22 ^{na} J	ul)		.	Lunar Dista	ance (ob	jects wit	h largest l	nourly Ll	D delta)	
Sat	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Jupiter	-Regulus

0	180°16.5	6.1'	N 20°07.7	-10.6'	60.1'					loon ———			
1	194°41.5	6.1'	$19^{\circ}57.1$	-10.8'	60.1'					loon ———			
2	209°06.7	6.2'	19°46.3	-10.9'	60.1'					loon			
3	223°31.9	6.3'	19°35.4	-11.0'	60.1'					loon			
4	237°57.1	6.3'	19°24.4	-11.2'	60.1'					loon			
5	252°22.5	6.4'	19°13.2	-11.3'	60.2'				—— New M	loon ———			
6	266°47.8	6.4'	$N19^{\circ}01.9$	-11.4'	60.2'				—– New M	loon			
7	281°13.3	6.5'	18°50.5	-11.6'	60.2'				— New M	loon			
8	295°38.8	6.6'	18°38.9	-11.7'	60.2'				—— New M	loon ———			
9	310°04.3	6.6'	18°27.2	-11.8'	60.2'				—— New M	loon ———			
10	324°30.0	6.7'	$18^{\circ}15.4$	-11.9'	60.3'				—— New M	loon			
11	338°55.7	6.8'	18°03.5	-12.1'	60.3'				—— New N	loon			ļ
12	353°21.4	6.8'	N17°51.4	-12.2'	60.3'				— New M	loon			
13	7°47.3	6.9'	17°39.2	-12.3'	60.3				— New M	loon			
14	22°13.2	7.0'	17°26.9	-12.4'	60.3'				— New M	loon			
15	36°39.1	7.0'	$17^{\circ}14.5$	-12.5'	60.3'				— New M	loon			
16	51°05.1	7.1'	$17^{\circ}02.0$	-12.6'	60.3'				—— New M	loon ———			
17	65°31.2	7.2'	16°49.3	-12.8'	60.4'				—— New M	loon			
18	79°57.4	7.2'	N16°36.6	-12.9'	60.4				— New M	loon			
19	94°23.6	7.3'	16°23.7	-13.0'	60.4				— New M	loon			
20	108°49.9	7.4'	$16^{\circ}10.7$	-13.1'	60.4'				—– New M	loon ———			
21	123°16.2	7.4'	15°57.7	-13.2'	60.4'	119°02.4	102°43.7	98°23.3	89°34.1	76°56.6	73°20.0	43°13.2	19°28.0
22	137°42.6	7.5'	15°44.5	-13.3'	60.4'	118°25.3	$102^{\circ}15.0$	97°54.9	89°09.2	76°27.0	72°43.0	42°36.9	18°51.6
23	152°09.1	7.5'	15°31.2	-13.4'	60.4'	117°48.2	101°46.3	97°26.5	88°44.3	75°57.5	$72^{\circ}05.9$	42°00.6	18°15.2
22 nd	SD	= 16.4	1' Mer. pas	s. 12:28									

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

Sun	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Jupiter	-Regulus
0	166°35.7	7.6'	N 15°17.8	-13.5'	60.4'	117°11.1	101°17.5	96°58.0	88° 19.4	75°28.0	71°28.9	41°24.4	17°38.9
1	181°02.3	7.7'	15°04.3	-13.6'	60.5'	116°34.0	100°48.7	96°29.5	87°54.5	74°58.5	70°51.8	40°48.1	17°02.6
2	195°29.0	7.7'	14°50.7	-13.7'	60.5'	115°56.8	100°19.9	96°01.0	87°29.6	74°29.0	70°14.7	40°11.8	16°26.4
3	209°55.7	7.8'	14°37.0	-13.8'	60.5'	115°19.7	99°51.0	95°32.4	87°04.7	73°59.6	69°37.6	39°35.5	15°50.2
4	224°22.5	7.9'	14°23.3	-13.9'	60.5'	114°42.5	99°22.1	95°03.9	86°39.8	73°30.2	69°00.5	38°59.2	15°14.1
5	238°49.4	7.9'	14°09.4	-14.0'	60.5'	114°05.3	98°53.2	94°35.3	86° 15.0	73°00.9	68°23.4	38°22.9	14°38.0
6	253°16.3	8.0'	N 13°55.4	-14.0'	60.5'	113°28.2	98°24.2	94°06.7	85°50.1	72°31.6	67°46.3	37°46.7	14°02.1
7	267°43.3	8.1'	13°41.4	-14.1'	60.5'	112°51.0	97°55.2	93°38.0	85°25.2	72°02.3	67°09.2	37° 10.4	13°26.3
8	282°10.4	8.1'	13°27.3	-14.2'	60.5'	112°13.8	97°26.2	93°09.4	85°00.4	71°33.1	66°32.1	36°34.1	12°50.5
9	296°37.5	8.2'	13°13.0	-14.3'	60.5'	111°36.6	96°57.1	92°40.7	84°35.5	71°03.9	65°54.9	35°57.9	12°15.0
10	311°04.7	8.3'	12°58.7	-14.4'	60.5'	110°59.4	96°28.1	92°12.1	84°10.7	70°34.8	65°17.8	35°21.6	11°39.5
11	325°32.0	8.3'	12°44.4	-14.5'	60.5'	110°22.2	95°59.0	91°43.4	83°45.9	70°05.7	64°40.6	34°45.4	11°04.3
12	339°59.3	8.4'	N 12°29.9	-14.5'	60.5'	109°44.9	95°29.8	91°14.7	83°21.2	69°36.6	64°03.5	34°09.2	10°29.3
13	354°26.7	8.4'	12°15.4	-14.6'	60.5'	109°07.7	95°00.7	90°46.0	82°56.4	69°07.7	63°26.3	33°33.0	9°54.5
14	8°54.1	8.5'	12°00.7	-14.7'	60.5'	108°30.5	94°31.6	90°17.3	82°31.7	68°38.8	62°49.2	32°56.8	9°20.1
15	23°21.6	8.6'	11°46.0	-14.8'	60.5'	107°53.3	94°02.4	89°48.6	82°07.0	68°09.9	62°12.0	32°20.7	8°46.0
16	37°49.2	8.6'	11°31.3	-14.8'	60.5'	107°16.0	93°33.2	89° 19.9	81°42.3	67°41.1	61°34.9	31°44.5	8°12.4
17	52°16.8	8.7'	$11^{\circ}16.5$	-14.9'	60.5'	106°38.8	93°04.0	88°51.2	81° 17.7	67°12.4	60°57.7	31°08.4	7°39.4
18	66°44.5	8.7'	$N11^{\circ}01.6$	-15.0'	60.6'	106°01.6	92°34.8	88°22.5	80°53.1	66°43.7	60°20.5	30°32.3	7°07.0
19	81°12.2	8.8'	10°46.6	-15.0'	60.6'	105°24.3	92°05.6	87°53.8	80°28.5	66°15.2	59°43.4	29°56.2	6°35.5
20	95°40.0	8.9'	10°31.6	-15.1'	60.6'	104°47.1	91°36.4	$87^{\circ}25.1$	80°04.0	65°46.6	59°06.2	29°20.2	
21	110°07.8	8.9'	$10^{\circ}16.5$	-15.2'	60.6'	104°09.9	91°07.2	86°56.4	79°39.5	65°18.2	58°29.1	28°44.1	
22	124°35.8	9.0'	10°01.3	-15.2'	60.6'	103°32.6	90°37.9	86°27.7	79° 15.0	64°49.9	57°51.9	28°08.2	
23	139°03.7	9.0'	09°46.1	-15.3'	60.6'	102°55.4	90°08.7	85°59.1	78°50.6	64°21.6	57°14.7	27°32.2	
23 rd	SD	= 16.5	' Mer. pas	ss. 13:23									

Moon (24th Jul) h

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Jupiter	+Regulus
0	153°31.7	9.1'	N 09°30.8	-15.3'	60.6'	102°18.2	89°39.5	85°30.4	78°26.3	63°53.4	56°37.6	26°56.3	
1	167°59.8	9.1'	$09^{\circ}15.5$	-15.4'	60.6'	101°41.0	89° 10.3	85°01.8	78°02.0	63°25.3	56°00.4	26°20.4	
2	182°27.9	9.2'	$09^{\circ}00.1$	-15.4'	60.6'	101°03.7	88°41.1	84°33.2	77°37.7	62°57.3	55°23.3	25°44.6	
3	196°56.1	9.2'	08°44.7	-15.5'	60.5'	100°26.5	88°11.9	84°04.6	77°13.5	62°29.3	54°46.2	25°08.8	
4	211°24.3	9.3'	08° 29.2	-15.5'	60.5'	99°49.3	87°42.7	83°36.0	76°49.4	62°01.5	54°09.0	24°33.1	
5	225°52.6	9.3'	$08^{\circ}13.7$	-15.6'	60.5'	99°12.1	87° 13.5	83°07.4	76°25.3	61°33.8	53°31.9	23°57.5	
6	240°20.9	9.4'	N 07°58.2	-15.6'	60.5'	98°34.9	86°44.3	82°38.9	76°01.3	61°06.2	52°54.8	23°21.8	
7	254°49.3	9.4'	$07^{\circ}42.5$	-15.7'	60.5'	97°57.7	86° 15.2	82°10.4	75°37.3	60°38.6	52°17.7	22°46.3	
8	269°17.8	9.5'	07°26.9	-15.7'	60.5'	97°20.5	85°46.0	81°41.9	75°13.4	60°11.2	51°40.6	22°10.8	
9	283°46.2	9.5'	$07^{\circ}11.2$	-15.7'	60.5'	96°43.3	85° 16.9	81°13.5	74°49.6	59°43.9	51°03.5	21°35.4	
10	298°14.7	9.6'	06°55.5	-15.8'	60.5'	96°06.2	84°47.8	80°45.1	74°25.8	59°16.7	50°26.4	21°00.1	
11	312°43.3	9.6'	06°39.7	-15.8'	60.5'	95°29.0	84°18.7	80°16.7	74°02.1	58°49.7	49°49.3	20°24.9	
12	327°11.9	9.7'	N06°23.9	-15.8'	60.5'	94°51.8	83°49.6	79°48.3	73°38.5	58°22.7	49°12.3	19°49.8	
13	341°40.6	9.7'	$06^{\circ}08.1$	-15.9'	60.5'	94°14.7	83°20.6	79°20.0	73°15.0	57°55.9	48°35.2	19°14.8	
14	356°09.3	9.7'	05°52.2	-15.9'	60.5'	93°37.6	82°51.6	78°51.8	72°51.5	57°29.2	47°58.2	18°39.9	
15	10°38.0	9.8'	05°36.3	-15.9'	60.5'	93°00.4	82°22.6	78°23.5	72°28.1	57°02.6	47°21.2	18°05.1	7°47.8
16	25°06.8	9.8'	05°20.4	-15.9'	60.5	92°23.3	81°53.6	77°55.3	72°04.8	56°36.2	46°44.2	17°30.5	8°20.9
17	39°35.6	9.9'	05°04.4	-16.0'	60.5'	91°46.2	81°24.7	77°27.2	71°41.6	56°09.9	46°07.2	16°56.0	8°54.5
18	54°04.5	9.9'	N 04°48.4	-16.0'	60.5'	91°09.1	80°55.8	76°59.1	71°18.5	55°43.8	45°30.2	16°21.6	9°28.6
19	68°33.4	9.9'	04°32.4	-16.0'	60.5'	90°32.1	80°27.0	76°31.1	70°55.5	55°17.8	44°53.2	15°47.5	10°02.9
20	83°02.3	10.0'	$04^{\circ}16.4$	-16.0'	60.5'	89°55.0	79°58.1	76°03.1	70°32.5	54°51.9	44°16.3	15°13.6	10°37.6
21	97°31.3	10.0'	$04^{\circ}00.4$	-16.0'	60.4'	89°17.9	79°29.4	75°35.2	70°09.7	54°26.2	43°39.4	14°39.9	11°12.5
22	112°00.3	10.0'	03°44.4	-16.1'	60.4	88°40.9	79°00.6	75°07.3	69°47.0	54°00.7	43°02.4	14°06.4	11°47.6
23	126°29.3	10.1'	03°28.3	-16.1'	60.4'	88°03.9	78°31.9	74°39.5	69°24.3	53°35.3	42°25.5	13°33.2	12°22.9
24 th	SD	= 16.5	' Mer. pas	s. 14:16									

h	Moon (25	ith hill

Moon (25th Jul) Lunar Distance (objects with largest hourly LD delta) GHA When the state of

Tue	GHA	ν	Dec	d	HP	-Antares	-Rigil Kent.	-Hadar	-Arcturus	-Spica	-Jupiter	+Regulus	+Sun
0	140°58.4	10.1'	N03°12.2	-16.1'	60.4'	87°26.9	78°03.3	74° 11.7	53°10.1	41°48.7	13°00.3	12°58.4	
1	155°27.5	10.1'	$02^{\circ}56.1$	-16.1'	60.4'	86°49.9	77°34.7	73°44.0	52°45.1	41°11.8	12°27.8	13°33.9	
2	169°56.6	10.2'	02°40.0	-16.1'	60.4'	86°12.9	77°06.1	73°16.3	52°20.2	40°35.0	11°55.7	14°09.6	
3	184°25.8	10.2'	02°23.9	-16.1'	60.4'	85°36.0	76°37.6	72°48.8	51°55.5	39°58.1	11°24.1	14°45.3	41°43.2
4	198°55.0	10.2'	02°07.8	-16.1'	60.4'	84°59.0	76°09.2	72°21.3	51°31.0	39°21.3	10°52.9	15°21.1	42°17.8
5	213°24.2	10.2'	$01^{\circ}51.7$	-16.1'	60.4'	84°22.1	75°40.8	71°53.8	51°06.7	38°44.6	10°22.4	15°57.0	42°52.3
6	227°53.5	10.3'	N01°35.6	-16.1'	60.3'	83°45.2	75°12.4	71°26.5	50°42.6	38°07.8	9°52.5	16°33.0	43°26.8
7	242°22.7	10.3'	$01^{\circ}19.5$	-16.1'	60.3'	83°08.3	74°44.1	70°59.2	50°18.7	37°31.1	9°23.4	17°09.0	44°01.3
8	256°52.0	10.3'	01°03.3	-16.1'	60.3'	82°31.5	74°15.9	70°32.0	49°55.0	36°54.4	8°55.2	17°45.0	44°35.8
9	271°21.3	10.3'	00°47.2	-16.1'	60.3'	81°54.6	73°47.7	70°04.8	49°31.5	36°17.7		18°21.1	45°10.3
10	285°50.7	10.4'	00°31.1	-16.1'	60.3'	81°17.8	73°19.6	69°37.8	49°08.2	35°41.0		18°57.2	45°44.7
11	300°20.1	10.4'	N 00°15.0	-16.1'	60.3'	80°41.0	72°51.6	69°10.8	48°45.2	35°04.4		19°33.3	46°19.2
12	314°49.4	10.4'	S 00°01.1	-16.1'	60.3'	80°04.2	72°23.6	68°43.9	48°22.3	34°27.8		20°09.4	46°53.6
13	329°18.8	10.4'	$00^{\circ}17.2$	-16.1'	60.2'	79°27.4	71°55.7	68° 17.1	47°59.7	33°51.2		20°45.6	47°28.0
14	343°48.3	10.4'	00°33.2	-16.1'	60.2'	78°50.7	71°27.9	67°50.4	47°37.3	33°14.6		21°21.8	48°02.3
15	358°17.7	10.5'	00°49.3	-16.0'	60.2'	78°14.0	71°00.1	67°23.8	47°15.2	32°38.1		21°57.9	48°36.7
16	12°47.1	10.5'	$01^{\circ}05.3$	-16.0'	60.2'	77°37.3	70°32.4	66°57.2	46°53.3	32°01.6		22°34.1	49°11.0
17	27°16.6	10.5'	$01^{\circ}21.4$	-16.0'	60.2'	77°00.6	70°04.8	66°30.8	46°31.7	31°25.1		23°10.3	49°45.3
18	41°46.1	10.5'	S 01°37.4	-16.0'	60.2'	76°23.9	69°37.3	66°04.5	46°10.3	30°48.7		23°46.5	50°19.5
19	56°15.6	10.5'	01°53.4	-16.0'	60.1'	75°47.3	69°09.8	65°38.2	45°49.2	30°12.3		24°22.7	50°53.8
20	70°45.1	10.5'	02°09.4	-16.0'	60.1'	75°10.7	68°42.4	65°12.1	45°28.3	29°35.9		24°58.9	51°28.0
21	85°14.6	10.5'	02°25.3	-15.9'	60.1'	74°34.1	68°15.2	64°46.1	45°07.7	28°59.5		25°35.0	52°02.2
22	99°44.1	10.5'	$02^{\circ}41.2$	-15.9'	60.1'	73°57.6	67°48.0	64°20.2	44°47.4	28°23.2		26°11.2	52°36.4
23	114°13.6	10.5'	02°57.2	-15.9'	60.1'	73°21.0	67°20.9	63°54.4	44°27.4	27°47.0		26°47.4	53°10.6
25 th	SD	= 16.5	Mer. pas	s. 15:07					Sun SD =	15.7'			

h

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

Wed	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Spica	+Jupiter	+Regulus	+Sun
0	128°43.2	10.5'	S 03°13.0	-15.8'	60.0'		72°44.5	66°53.9	63°28.7	27°10.7		27°23.5	53°44.7
1	143°12.7	10.5'	03°28.9	-15.8'	60.0'		72°08.1	66°26.9	63°03.1	26°34.5		27°59.7	54°18.8
2	157°42.3	10.6'	03°44.7	-15.8'	60.0'		71°31.6	66°00.1	62°37.6	25°58.3		28°35.8	54°52.9
3	172°11.8	10.6'	04°00.5	-15.8'	60.0'		70°55.2	65°33.4	62°12.3	25°22.2		29°11.9	55°26.9
4	186°41.4	10.6'	04°16.2	-15.7'	60.0'		70°18.8	65°06.8	61°47.1	24°46.1		29°48.0	56°00.9
5	201°10.9	10.6'	04°31.9	-15.7'	59.9'		69°42.4	64°40.2	61°22.0	24°10.1		30°24.1	56°34.9
6	215°40.5	10.6'	S 04°47.6	-15.6'	59.9'	119°37.1	69°06.0	64°13.8	60°57.1	23°34.1		31°00.2	57°08.9
7	230°10.0	10.6'	05°03.3	-15.6'	59.9'	119°06.6	68°29.7	63°47.5	60°32.2	22°58.1		31°36.3	57°42.8
8	244°39.6	10.6'	05°18.9	-15.6'	59.9'	118°36.1	67°53.4	63°21.3	60°07.5	22°22.2	9°35.9	32°12.3	58°16.8
9	259°09.2	10.5'	05°34.4	-15.5'	59.9'	118°05.6	67°17.2	62°55.2	59°43.0	21°46.3	10°04.8	32°48.3	58°50.6
10	273°38.7	10.5'	05°49.9	-15.5'	59.8'	117°35.0	66°40.9	62°29.3	59°18.6	21°10.5	10°34.4	33°24.3	59°24.5
11	288°08.2	10.5'	06°05.4	-15.4'	59.8'	117°04.4	66°04.7	62°03.4	58°54.3	20°34.8	11°04.6	34°00.3	59°58.3
12	302°37.8	10.5'	S 06°20.8	-15.4'	59.8'	116°33.7	65°28.5	61°37.7	58°30.2	19°59.1	11°35.3	34°36.2	60°32.1
13	317°07.3	10.5'	06°36.2	-15.3'	59.8'	116°03.1	64°52.4	61°12.1	58°06.2	19°23.4	12°06.4	35°12.2	61°05.9
14	331°36.8	10.5'	$06^{\circ}51.6$	-15.3'	59.8'	115°32.4	64°16.3	60°46.6	57°42.4	18°47.8	12°37.9	35°48.1	61°39.7
15	346°06.4	10.5'	07°06.8	-15.2'	59.7'	115°01.7	63°40.2	60°21.2	57°18.7	18°12.3	13°09.7	36°24.0	62°13.4
16	0°35.9	10.5'	$07^{\circ}22.1$	-15.2'	59.7'	114°30.9	63°04.1	59°56.0	56°55.2	17°36.8	13°41.8	36°59.8	62°47.1
17	15°05.4	10.5'	07°37.3	-15.1'	59.7'	114°00.1	62°28.1	59°30.9	56°31.9	17°01.4	14°14.1	37°35.7	63°20.7
18	29°34.8	10.5'	S 07°52.4	-15.1'	59.7'	113°29.4	61°52.1	59°05.9	56°08.7	16°26.1	14°46.7	38°11.5	63°54.3
19	44°04.3	10.5'	08°07.5	-15.0'	59.6'	112°58.6	61°16.1	58°41.1	55°45.7	15°50.9	$15^{\circ}19.5$	38°47.3	64°27.9
20	58°33.8	10.4'	08°22.5	-15.0'	59.6'	112°27.7	60°40.2	58°16.4	55°22.9	15°15.7	15°52.4	39°23.1	65°01.5
21	73°03.2	10.4'	08°37.4	-14.9'	59.6'	111°56.9	60°04.2	57°51.9	55°00.2	14°40.6	16°25.5	39°58.8	65°35.0
22	87°32.6	10.4'	08°52.3	-14.8'	59.6'	111°26.0	59°28.4	57°27.5	54°37.7	14°05.7	16°58.7	40°34.5	66°08.5
23	102°02.0	10.4'	09°07.2	-14.8'	59.5'	110°55.2	58°52.5	57°03.3	54°15.4	13°30.8	17°32.0	41°10.2	66°42.0
26 th	SD	= 16.4'	Mer. pas	s. 15:58					Sun SD =	= 15.7′			

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

Thu	GHA	ν	Dec	d	HP	-Altair	-Antares	-Rigil Kent.	-Hadar	-Spica	+Jupiter	+Regulus	+Sun
0	116°31.4	10.4'	S 09°21.9	-14.7'	59.5'	110°24.3	58° 16.7	56°39.2	53°53.3	12°56.1	18°05.4	41°45.9	67°15.5
1	131°00.8	10.4'	09°36.6	-14.6'	59.5'	109°53.4	57° 40.9	56°15.3	53°31.4	12°21.5	18°38.9	42°21.5	67°48.9
2	145°30.2	10.3'	09°51.3	-14.6'	59.5'	109°22.5	57°05.1	55°51.5	53°09.6	11°47.0	19° 12.5	42°57.1	68°22.2
3	159°59.5	10.3'	10°05.8	-14.5'	59.4'	108°51.6	56°29.4	55°27.9	52°48.1	11°12.8	19°46.1	43°32.7	68°55.6
4	174°28.8	10.3'	10°20.4	-14.4'	59.4'	108°20.8	55° 53.7	55°04.5	52°26.7	10°38.7	20°19.8	44°08.2	69°28.9
5	188°58.1	10.3'	$10^{\circ}34.8$	-14.4'	59.4'	107°49.8	55° 18.1	54°41.2	52°05.6	10°04.8	20°53.6	44°43.8	70°02.2
6	203°27.4	10.3'	S 10°49.2	-14.3'	59.4'	107°18.9	54°42.4	54°18.1	51°44.7	9°31.1	21°27.4	45°19.3	70°35.4
7	217°56.6	10.2'	11°03.5	-14.2'	59.3'	106°48.0	54°06.8	53°55.2	51°23.9	8°57.8	22°01.2	45°54.7	71°08.7
8	232°25.9	10.2'	$11^{\circ}17.7$	-14.1'	59.3'	106°17.1	53°31.3	53°32.4	51°03.4	8°24.7	22°35.1	46°30.2	71°41.9
9	246°55.1	10.2'	11°31.8	-14.1'	59.3'	105°46.2	52°55.7	53°09.8	50°43.1	7°52.1	23°09.0	47°05.6	72°15.0
10	261°24.3	10.2'	11°45.9	-14.0'	59.3'	105°15.3	52°20.2	52°47.5	50°23.1	7°20.0	23°42.9	47°40.9	72°48.1
11	275°53.4	10.1'	$11^{\circ}59.9$	-13.9'	59.2'	104°44.4	51°44.8	52°25.3	50°03.2	6°48.4	24°16.9	48°16.3	73°21.2
12	290°22.5	10.1'	S 12°13.8	-13.8'	59.2'	104°13.6	51°09.3	52°03.3	49°43.6	6° 17.5	24°50.9	48°51.6	73°54.3
13	304°51.6	10.1'	12°27.6	-13.8'	59.2'	103°42.7	50°33.9	51°41.5	49°24.2	5°47.6	25°24.8	49°26.9	74°27.3
14	319°20.7	10.0'	12°41.4	-13.7'	59.2'	103°11.8	49°58.6	51°19.9	49°05.1		25°58.8	50°02.1	75°00.3
15	333°49.7	10.0'	$12^{\circ}55.1$	-13.6'	59.1'	102°40.9	49°23.2	50°58.5	48°46.2		26°32.8	50°37.4	75°33.3
16	348°18.7	10.0'	13°08.6	-13.5'	59.1'	102°10.1	48°47.9	50°37.3	48°27.5		27°06.8	51°12.6	76°06.2
17	2°47.7	9.9'	13°22.1	-13.4'	59.1'	101°39.2	48°12.6	50°16.3	48°09.1		27°40.8	51°47.7	76°39.1
18	17°16.7	9.9'	S 13°35.6	-13.3'	59.1'	101°08.4	47°37.4	49°55.5	47°51.0		28°14.8	52°22.9	77°11.9
19	31°45.6	9.9'	13°48.9	-13.2'	59.0'	100°37.6	47°02.2	49°35.0	47°33.1		28°48.8	52°58.0	77°44.8
20	46°14.5	9.9'	$14^{\circ}02.1$	-13.2'	59.0'	100°06.7	46°27.0	49°14.7	47°15.4		29°22.8	53°33.0	78°17.6
21	60°43.3	9.8'	14° 15.3	-13.1'	59.0'	99°36.0	45°51.9	48°54.6	46°58.1		29°56.8	54°08.1	78°50.3
22	75°12.1	9.8'	$14^{\circ}28.4$	-13.0'	58.9'	99°05.2	45° 16.8	48°34.7	46°41.0		30°30.8	54°43.1	79°23.1
23	89°40.9	9.7'	14°41.3	-12.9'	58.9'	98°34.4	44°41.7	48°15.1	46°24.2		31°04.7	55°18.0	79°55.7
27 th	SD = 16.2' Mer. pass. 16:48				$Sun\;SD=15.7'$								

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

Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	+Spica	+Jupiter	+Regulus	+Sun
0	104°09.7	9.7'	S 14°54.2	-12.8'	58.9'		98°03.7	47°55.7	44°06.7		31°38.7	55°53.0	80°28.4
1	118°38.4	9.7'	$15^{\circ}07.0$	-12.7'	58.9'		97°32.9	47°36.5	43°31.7		32°12.6	56° 27.9	81°01.0
2	133°07.1	9.6'	15°19.7	-12.6'	58.8'		97°02.2	47°17.6	42°56.7		32°46.6	57° 02.8	81°33.6
3	147°35.7	9.6'	15°32.2	-12.5'	58.8'		96°31.5	46°59.0	42°21.8		33°20.5	57° 37.6	82°06.2
4	162°04.3	9.6'	15°44.7	-12.4'	58.8'		96°00.8	46°40.6	41°46.9		33°54.4	58° 12.5	82°38.7
5	176°32.9	9.5'	$15^{\circ}57.1$	-12.3'	58.8'		95°30.2	46°22.5	41°12.0		34°28.3	58°47.2	83°11.2
6	191°01.4	9.5'	S 16°09.4	-12.2'	58.7'	119°52.5	94°59.6	46°04.6	40°37.2		35°02.1	59°22.0	83°43.7
7	205°29.9	9.5'	$16^{\circ}21.6$	-12.1'	58.7'	119°21.9	94°28.9	45°47.0	40°02.4	6°33.0	35°36.0	59° 56.7	84°16.1
8	219°58.4	9.4'	16°33.7	-12.0'	58.7'	118°51.3	93°58.4	45°29.7	39°27.6	7°03.6	36°09.8	60°31.4	84°48.5
9	234°26.8	9.4'	16°45.7	-11.9'	58.6'	118°20.7	93°27.8	45°12.6	38°52.9	7°34.8	36°43.6	61°06.0	85°20.9
10	248°55.2	9.3'	16°57.6	-11.8'	58.6'	117°50.1	92°57.3	44°55.8	38°18.2	8°06.4	37°17.4	61°40.7	85°53.2
11	263°23.5	9.3'	$17^{\circ}09.3$	-11.7'	58.6'	117° 19.5	92°26.7	44°39.4	37°43.5	8°38.4	37°51.2	62° 15.3	86°25.5
12	277°51.8	9.3'	S 17°21.0	-11.6'	58.6'	116°48.8	91°56.3	44°23.2	37°08.9	9°10.7	38°24.9	62°49.8	86°57.7
13	292°20.1	9.2'	17°32.6	-11.4'	58.5'	116° 18.2	91°25.8	44°07.3	36°34.3	9°43.2	38°58.7	63°24.3	87°30.0
14	306°48.3	9.2'	17°44.0	-11.3'	58.5'	115°47.5	90°55.4	43°51.7	35°59.7	10°16.0	39°32.4	63°58.8	88°02.2
15	321°16.5	9.1'	17°55.3	-11.2'	58.5'	115° 16.8	90°25.0	43°36.4	35°25.2	10°48.8	40°06.1	64°33.3	88°34.3
16	335°44.6	9.1'	18°06.6	-11.1'	58.4'	114°46.2	89°54.6		34°50.7	11°21.9	40°39.7	65°07.7	89°06.4
17	350°12.7	9.1'	18°17.7	-11.0'	58.4'	114° 15.5	89°24.2		34°16.2	11°55.0	41°13.4	65°42.1	89°38.5
18	4°40.8	9.0'	S 18°28.7	-10.9'	58.4'	113°44.8	88°53.9		33°41.8	12°28.2	41°47.0	66° 16.5	90°10.6
19	19°08.8	9.0'	18°39.6	-10.8'	58.4'	113° 14.1	88°23.6		33°07.4	13°01.5	42°20.6	66° 50.8	90°42.6
20	33°36.8	8.9'	18°50.4	-10.7'	58.3'	112°43.4	87°53.4		32°33.0	13°34.8	42°54.1	67°25.1	91°14.6
21	48°04.8	8.9'	19°01.0	-10.5'	58.3'	112°12.8	87°23.2		31°58.7	14°08.2	43°27.7	67°59.4	91°46.6
22	62°32.7	8.9'	19°11.6	-10.4'	58.3'	111°42.1	86°53.0		31°24.4	14°41.6	44°01.2	68°33.6	92°18.5
23	77°00.5	8.8'	19°22.0	-10.3'	58.3'	111°11.4	86°22.8		30°50.1	15°15.1	44°34.7	69°07.8	92°50.4
28 th	SD = 16.1′ Mer. pass. 17:41						$Sun\;SD=15.7'$						

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

Sat	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Sun
0	91°28.3	8.8'	S 19°32.3	-10.2'	58.2'	110°40.7	107°08.4	85°52.7	30°15.9	15°48.6	45°08.2	69°42.0	93°22.3
1	105°56.1	8.7'	19°42.5	-10.1'	58.2'	110° 10.1	106°51.5	85°22.6	29°41.7	16°22.1	45°41.6	70°16.1	93°54.1
2	120°23.9	8.7'	19°52.5	-9.9'	58.2'	109°39.4	106°34.4	84°52.5	29°07.5	16°55.6	46°15.0	70°50.3	94°25.9
3	134°51.6	8.7'	20°02.5	-9.8'	58.1'	109°08.7	106°17.3	84°22.5	28°33.4	17°29.2	46°48.4	71°24.3	94°57.7
4	149°19.2	8.6'	20°12.3	-9.7'	58.1'	108°38.1	106°00.2	83°52.5	27°59.3	18°02.7	47°21.8	71°58.4	95°29.4
5	163°46.9	8.6'	20°22.0	-9.6'	58.1'	108°07.4	105°43.0	83°22.6	27°25.2	18°36.2	47°55.1	72°32.4	96°01.1
6	178°14.4	8.5'	S 20°31.6	-9.4'	58.1'	107°36.8	105°25.7	82°52.7	26°51.2	19°09.8	48°28.4	73°06.4	96°32.7
7	192°42.0	8.5'	20°41.0	-9.3'	58.0'	107°06.2	105°08.4	82°22.8	26°17.2	19°43.3	49°01.7	73°40.3	97°04.4
8	207°09.5	8.5'	20°50.3	-9.2'	58.0'	106°35.5	104°51.0	81°53.0	25°43.2	20°16.8	49°34.9	74° 14.2	97°36.0
9	221°37.0	8.4'	20°59.5	-9.1'	58.0'	106°04.9	104°33.6	81°23.2	25°09.3	20°50.4	50°08.2	74°48.1	98°07.6
10	236°04.4	8.4'	$21^{\circ}08.6$	-8.9'	57.9'	105°34.3	104°16.1	80°53.4	24°35.4	21°23.9	50°41.4	75°22.0	98°39.1
11	250°31.8	8.4'	$21^{\circ}17.5$	-8.8'	57.9'	105°03.7	103°58.6	80°23.7	24°01.5	21°57.4	51°14.5	75°55.8	99°10.6
12	264°59.1	8.3'	S 21°26.3	-8.7'	57.9'	104°33.2	103°41.1	79°54.0	23°27.7	22°30.9	51°47.7	76°29.6	99°42.1
13	279°26.4	8.3'	21°35.0	-8.5'	57.9'	104°02.6	103°23.5	79°24.4	22°53.9	23°04.3	52°20.8	77°03.3	100°13.5
14	293°53.7	8.2'	21°43.5	-8.4'	57.8'	103°32.1	103°05.8	78°54.8	22°20.1	23°37.8	52°53.9	77°37.1	100°44.9
15	308°21.0	8.2'	$21^{\circ}52.0$	-8.3'	57.8'	103°01.5	102°48.2	78°25.3	21°46.4	24°11.2	53°26.9	78° 10.8	101°16.3
16	322°48.2	8.2'	22°00.2	-8.1'	57.8'	102°31.0	102°30.4	77°55.8	21°12.7	24°44.7	54°00.0	78° 44.4	101°47.7
17	337°15.3	8.1'	22°08.4	-8.0'	57.8'	102°00.5	102°12.7	77°26.3	20°39.0	25°18.1	54°33.0	79° 18.1	102°19.0
18	351°42.5	8.1'	S 22°16.4	-7.9'	57.7'	101°30.0	101°54.9	76°56.9	20°05.4	25°51.5	55°06.0	79°51.7	102°50.3
19	6°09.6	8.1'	22°24.3	-7.7'	57.7'	100°59.5	101°37.1	76°27.5	19°31.8	26°24.8	55°38.9	80°25.2	103°21.5
20	20°36.6	8.0'	22°32.0	-7.6'	57.7'	100°29.1	101°19.2	75°58.2	18°58.2	26°58.2	56°11.8	80°58.8	103°52.7
21	35°03.7	8.0'	22°39.6	-7.5'	57.6'	99°58.6	101°01.3	75°28.9	18°24.7	27°31.5	56°44.7	81°32.3	104°23.9
22	49°30.7	8.0'	22°47.1	-7.3'	57.6'	99°28.2	100°43.4	74°59.7	17°51.2	28°04.8	57°17.6	82°05.8	104°55.1
23	63°57.7	7.9'	22°54.4	-7.2'	57.6'	98°57.8	100°25.5	74°30.5	17°17.7	28°38.1	57°50.5	82°39.2	105°26.2
29 th	SD	= 15.9	Mer. pas	ss. 18:34					Sun SD	= 15.7'			

h		Моо	n (30 th Ji	(اد			Lunar Dist	ance (ol	bjects wit	h largest	t hourly L	D delta)	
Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Jupiter	+Regulus	+Sun
0	78°24.6	7.9'	S 23°01.6	-7.1'	57.6'	100°07.5	98°27.4	74°01.4	16°44.3	29°11.4	58°23.3	83°12.7	105°57.3
1	92°51.5	7.9'	23°08.7	-6.9'	57.5'	99°49.5	97°57.0	73°32.3	16° 10.9	29°44.6	58°56.1	83°46.0	106°28.4
2	107°18.4	7.9'	$23^{\circ}15.6$	-6.8'	57.5'	99°31.5	97° 26.7	73°03.3	15°37.5	30°17.8	59° 28.8	84°19.4	106°59.4
3	121°45.2	7.8'	23°22.4	-6.6'	57.5'	99°13.4	96° 56.3	72°34.3	15°04.2	30°51.0	60°01.5	84°52.7	107°30.4
4	136°12.1	7.8'	23°29.0	-6.5'	57.5'	98°55.4	96° 26.0	72°05.4	14°30.9	31°24.2	60°34.3	85°26.0	108°01.4
5	150°38.9	7.8'	23°35.5	-6.4'	57.4'	98°37.3	95° 55.7	71°36.5	13°57.6	31°57.4	$61^{\circ}06.9$	85°59.3	108°32.3
6	165°05.6	7.7'	S 23°41.9	-6.2'	57.4'	98°19.2	95°25.5	71°07.7	13°24.4	32°30.5	61°39.6	86°32.6	109°03.3
7	179°32.4	7.7'	23°48.1	-6.1'	57.4'	98°01.1	94°55.2	70°38.9	12°51.2	33°03.6	62°12.2	87°05.8	109°34.2
8	193°59.1	7.7'	23°54.1	-5.9'	57.3'	97°43.0	94°25.0	70°10.2	12° 18.0	33°36.7	62°44.8	87°39.0	110°05.0
9	208°25.8	7.7'	24°00.1	-5.8'	57.3'	97°24.8	93°54.8	69°41.5	11°44.9	34°09.7	63° 17.4	88°12.1	110°35.8
10	222°52.5	7.7'	24°05.8	-5.6'	57.3'	97°06.6	93°24.6	69°12.9	11°11.9	34°42.7	63°49.9	88°45.2	111°06.6
11	237°19.1	7.6'	$24^{\circ}11.5$	-5.5'	57.3'	96°48.5	92°54.5	68°44.3	10°38.8	35° 15.7	64°22.4	89°18.3	111°37.4
12	251°45.7	7.6'	S 24°17.0	-5.3'	57.2'	96°30.3	92°24.3	68°15.9	10°05.8	35°48.7	64°54.9	89°51.4	112°08.1
13	266°12.3	7.6'	24°22.3	-5.2'	57.2'	96°12.1	91°54.2	67°47.4	9°32.9	36°21.7	65°27.4	90°24.4	112°38.9
14	280°38.9	7.6'	24°27.5	-5.1'	57.2'	95°53.9	91°24.1	67°19.0	9°00.0	36°54.6	65°59.8	90°57.4	113°09.5
15	295°05.5	7.6'	24°32.6	-4.9'	57.2'	95°35.7	90°54.1	66°50.7	8°27.2	37°27.5	66° 32.2	91°30.4	113°40.2
16	309°32.1	7.5'	24°37.5	-4.8'	57.1'	95°17.5	90°24.1	66°22.5	7°54.4	38°00.4	67°04.6	92°03.4	114°10.8
17	323°58.6	7.5'	24°42.3	-4.6'	57.1'	94°59.3	89°54.0	65°54.3	7°21.7	38°33.2	67°36.9	92°36.3	114°41.4
18	338°25.1	7.5'	S 24°46.9	-4.5'	57.1'	94°41.0	89°24.1	65°26.1	6°49.0	39°06.1	68°09.3	93°09.2	115°12.0
19	352°51.7	7.5'	24°51.4	-4.3'	57.1'	94°22.8	88°54.1	64°58.1	6° 16.4	39°38.9	68°41.6	93°42.1	115°42.5
20	7°18.2	7.5'	24°55.7	-4.2'	57.0'	94°04.6	88° 24.2	64°30.1	5°44.0	40°11.7	69° 13.8	94°14.9	116°13.0
21	21°44.7	7.5'	24°59.9	-4.0'	57.0'	93°46.4	87°54.3	64°02.1	5°11.6	40°44.4	69°46.1	94°47.7	116°43.5
22	36°11.1	7.5'	25°03.9	-3.9'	57.0'	93°28.1	87°24.4	63°34.2	4°39.4	41°17.1	70°18.3	95°20.5	117°14.0
23	50°37.6	7.5'	25°07.8	-3.7'	57.0'	93°09.9	86° 54.5	63°06.4	4°07.4	41°49.9	70°50.5	95°53.3	117°44.4
30 th	SD =	= 15.7′	Mer. pas	s. 19:30)				Sun SD	= 15.7'			

h		Моо	n (31 st Ju	(ای			Lunar Dis	stance (c	bjects wit	th larges	t hourly L	D delta)	,
Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	± Antares	+Spica	+Jupiter	+Regulus	+Sun
0	65°04.1	7.5'	$S25^{\circ}11.5$	-3.6'	56.9'	92°51.7	86°24.7	62°38.7	3°35.7	42°22.5	71°22.7	96°26.0	118°14.8
1	79°30.5	7.5'	25° 15.1	-3.4'	56.9'	92°33.5	85°54.9	62°11.0	3°04.3	42°55.2	71°54.8	96°58.7	118°45.2
2	93°57.0	7.5	25° 18.5	-3.3'	56.9'	92°15.3	85°25.2	61°43.4	2°33.6	43°27.8	72°26.9	97°31.4	119°15.5
3	108°23.4 122°49.9	7.4'	25°21.8	-3.1'	56.8'	91°57.1 91°38.9	84°55.4	61°15.9		44°00.4	72°59.0	98°04.0	119°45.8
4 5	122 49.9 137°16.3	7.4' 7.4'	25°25.0 25°28.0	-3.0' -2.8'	56.8' 56.8'	91 38.9 91°20.7	84°25.7 83°56.1	60°48.4 60°21.1		44°33.0 45°05.6	73°31.1 74°03.1	98°36.6 99°09.2	
1						91°02.5				45°38.1		99°41.8	
6 7	151°42.8 166°09.2	7.4' 7.5'	S 25°30.8 25°33.5	-2.7' -2.5'	56.8' 56.7'	91 02.5 90°44.4	83°26.4 82°56.8	59°53.8 59°26.5		45 38.1 46°10.6	74°35.1 75°07.1	99 41.8 100°14.3	
8	180°35.7	7.5'	25° 36.0	-2.3 -2.4'	56.7	90°44.4	82°27.2	59° 20.5 58° 59.4		46°43.1	75°39.1	100°14.3	
9	195°02.1	7.5	25°38.4	-2.2'	56.7'	90°08.1	81°57.6	58°32.3		47°15.6	76°11.0	101° 19.3	
10	209°28.6	7.5'	25°40.7	-2.1'	56.7'	89°49.9	81°28.1	58°05.3		47°48.0	76°42.9	101°51.8	
11	223°55.1	7.5'	25°42.8	-2.0'	56.6'	89°31.8	80°58.6	57°38.4		48°20.4	77°14.8	102°24.2	
12	238°21.6	7.5'	S 25°44.7	-1.8'	56.6'	89°13.7	80°29.2	57°11.6	3°12.7	48°52.8	77°46.6	102°56.6	
13	252°48.0	7.5'	25°46.5	-1.7'	56.6'	88°55.7	79°59.7	56°44.8	3°43.9	49°25.1	78°18.5	103°29.0	
14	267°14.5	7.5'	25°48.2	-1.5'	56.6'	88°37.6	79°30.3	56°18.2	4°15.3	49°57.5	78°50.3	104°01.4	
15	281°41.1	7.5'	25°49.7	-1.4'	56.6	88°19.6	79°01.0	55°51.6	4°47.0	50°29.8	79°22.1	104°33.7	
16	296°07.6	7.5'	25°51.1	-1.2'	56.5	88°01.5	78°31.7	55°25.1	5°18.8	51°02.1	79°53.8	105°06.0	
17	310°34.1	7.6'	25°52.3	-1.1'	56.5'	87°43.5	78°02.4	54°58.7	5°50.6	51°34.4	80°25.6	105°38.3	
18	325°00.7	7.6'	S 25°53.3	-0.9'	56.5	87°25.6	77°33.1	54°32.4	6°22.5	52°06.6	80°57.3	106° 10.5	
19 20	339°27.2 353°53.8	7.6' 7.6'	25°54.2 25°55.0	-0.8' -0.6'	56.5' 56.4'	87°07.6 86°49.7	77°03.9 76°34.7	54°06.2 53°40.1	6°54.5 7°26.5	52°38.8 53°11.0	81°29.0 82°00.6	106° 42.8 107° 15.0	
20	8°20.4	7.6'	25°55.0 25°55.6	-0.6 -0.5'	56.4'	86°31.8	76°34.7 76°05.5	53°14.1	7 20.5 7°58.4	53°43.2	82 00.6 82°32.3	107 15.0 107°47.2	
22	22°47.1	7.7'	25°56.1	-0.3'	56.4	86°13.9	75°36.4	52°48.2	8°30.4	54°15.3	83°03.9	107 47.2 108°19.3	
23	37°13.7	7.7'	25°56.4	-0.2	56.4	85°56.1	75°07.3	52°22.4	9°02.5	54°47.5	83°35.5	108°51.4	
31 st	SD :	= 15.5	Mer. pas	s. 20:25	5				Sun SD	= 15.7'	1		'

h Moon (1st Aug)

h

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Regulus
0	51°40.4	7.7'	S 25°56.6	-0.0'	56.3'	85°38.2	74°38.3	51°56.6	9°34.5	55°19.6	62°11.1	84°07.0	109°23.5
1	66°07.1	7.7'	25°56.6	0.1'	56.3'	85°20.4	74°09.3	51°31.0	10°06.5	55°51.6	62°35.2	84°38.6	109°55.6
2	80°33.9	7.8'	25°56.5	0.3'	56.3'	85°02.7	73°40.3	51°05.5	10°38.4	56°23.7	62°59.3	$85^{\circ}10.1$	110°27.7
3	95°00.6	7.8'	25°56.2	0.4'	56.3'	84°45.0	73°11.4	50°40.2	11°10.4	56°55.7	63°23.5	85°41.6	110°59.7
4	109°27.4	7.8'	25°55.8	0.6'	56.2'	84°27.3	72°42.5	50° 14.9	11°42.4	57°27.7	63°47.7	86°13.0	111°31.7
5	123°54.2	7.9'	25°55.3	0.7'	56.2'	84°09.6	72°13.6	49°49.7	12°14.3	57°59.7	64°12.0	86°44.5	112°03.7
6	138°21.1	7.9'	S 25°54.6	0.8'	56.2'	83°52.0	71°44.8	49°24.7	12°46.3	58°31.7	64°36.3	$87^{\circ}15.9$	112°35.7
7	152°48.0	7.9'	25°53.7	1.0'	56.2'	83°34.4	71°16.0	48° 59.7	13°18.2	59°03.6	65°00.6	87°47.3	113°07.6
8	167°14.9	8.0'	25°52.7	1.1'	56.2'	83°16.8	70°47.3	48°34.9	13°50.1	59°35.6	65°25.0	88°18.7	113°39.5
9	181°41.9	8.0'	$25^{\circ}51.6$	1.3'	56.1'	82°59.3	70°18.6	48° 10.2	14°22.0	60°07.5	65°49.4	88°50.1	114°11.4
10	196°08.9	8.0'	25°50.3	1.4'	56.1'	82°41.8	69°49.9	47°45.7	14°53.9	60°39.3	66°13.9	89°21.4	114°43.3
11	210°35.9	8.1'	25°48.9	1.6'	56.1'	82°24.4	69°21.3	47°21.2	15°25.7	61°11.2	66°38.4	89°52.7	115°15.1
12	225°03.0	8.1'	S 25°47.4	1.7'	56.1'	82°07.0	68°52.8	46° 56.9	15°57.5	61°43.0	67°02.9	90°24.0	115°46.9
13	239°30.1	8.2'	25°45.7	1.8'	56.0'	81°49.6	68°24.2	46°32.8	16°29.4	62°14.8	67°27.5	90°55.2	116°18.7
14	253°57.3	8.2'	25°43.8	2.0'	56.0'	81°32.3	67° 55.7	46°08.7	17°01.1	62°46.6	67°52.1	$91^{\circ}26.5$	116°50.5
15	268°24.5	8.3'	25°41.9	2.1'	56.0'	81°15.0	67°27.3	45°44.9	17°32.9	63°18.4	68°16.7	91°57.7	117°22.2
16	282°51.7	8.3'	25°39.7	2.3'	56.0'	80°57.8	66°58.9	45°21.1	18°04.7	63°50.1	68°41.4	92°28.9	117°54.0
17	297°19.0	8.3'	25°37.5	2.4'	56.0'	80°40.6	66°30.6	44°57.5	18°36.4	64°21.8	69°06.0	93°00.1	118°25.7
18	311°46.4	8.4'	S 25°35.1	2.5'	55.9'	80°23.4	66°02.2	44°34.0	19°08.1	64°53.5	69°30.8	93°31.2	118°57.3
19	326°13.8	8.4'	25°32.6	2.7'	55.9'	80°06.3	65°34.0	44° 10.7	19°39.8	65°25.2	69°55.5	94°02.3	119°29.0
20	340°41.2	8.5'	25°29.9	2.8'	55.9'	79°49.3	65°05.8	43°47.6	20°11.5	65°56.9	70°20.3	94°33.5	
21	355°08.7	8.5'	$25^{\circ}27.1$	2.9'	55.9'	79°32.3	64°37.6	43°24.6	20°43.2	66°28.5	70°45.1	95°04.5	
22	9°36.2	8.6'	$25^{\circ}24.1$	3.1'	55.9'	79°15.4	64°09.5	43°01.8	21°14.8	67°00.1	71°09.9	95°35.6	
23	24°03.8	8.6'	25°21.1	3.2'	55.8'	78°58.5	63°41.4	42°39.1	21°46.4	67°31.7	71°34.7	96°06.6	
1 st	SD =	= 15.4′	Mer. pas	s. 21:20)								

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

Wed	GHA	ν	Dec	<i>d</i>	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	38°31.5	8.7'	S 25°17.8	3.3'	55.8'		78°41.6	63°13.4	42°16.7	22°18.0	68°03.3	71°59.6	96°37.7
1	52°59.2	8.8'	25°14.5	3.5'	55.8'		78° 24.8	62° 45.5	41°54.4	22°49.6	68°34.9	72°24.4	97°08.7
2	67°26.9	8.8'	25°11.0	3.6'	55.8'		78°08.1	62° 17.5	41°32.2	23°21.2	69°06.4	72°49.3	97°39.6
3	81°54.8	8.9'	25°07.4	3.7'	55.7'		77°51.4	61°49.7	41°10.3	23°52.7	69°37.9	73° 14.2	98°10.6
4	96°22.6	8.9'	25°03.7	3.9'	55.7'		77°34.8	61°21.9	40°48.5	24°24.2	70°09.4	73°39.2	98°41.5
5	110°50.6	9.0'	24°59.8	4.0'	55.7'		77° 18.2	60°54.1	40°26.9	24°55.7	70°40.9	74°04.1	99°12.4
6	125°18.6	9.1'	S 24°55.8	4.1'	55.7'		77°01.7	60°26.4	40°05.6	25°27.2	71°12.3	74°29.1	99°43.3
7	139°46.6	9.1'	24°51.7	4.3'	55.7'		76°45.3	59°58.8	39°44.4	25°58.7	71°43.8	74°54.0	100°14.2
8	154°14.7	9.2'	24°47.4	4.4'	55.6'		76°28.9	59°31.2	39°23.4	26°30.1	72°15.2	75° 19.0	100°45.0
9	168°42.9	9.2'	24°43.0	4.5'	55.6'		76° 12.5	59°03.6	39°02.7	27°01.5	72°46.6	75°44.0	101°15.9
10	183°11.1	9.3'	24°38.5	4.6'	55.6'		75°56.3	58° 36.2	38°42.1	27°32.9	73°17.9	76°09.0	101°46.7
11	197°39.4	9.4'	24°33.9	4.8'	55.6'		75°40.1	58°08.7	38°21.8	28°04.3	73°49.3	76°34.0	102°17.5
12	212°07.8	9.4'	S 24°29.1	4.9'	55.6'		75°23.9	57°41.4	38°01.7	28°35.7	74°20.6	76°59.0	102°48.2
13	226°36.3	9.5'	24°24.2	5.0'	55.5'		75°07.9	57° 14.1	37°41.8	29°07.0	74°51.9	77°24.1	103°19.0
14	241°04.7	9.6'	24°19.2	5.1'	55.5'		74°51.8	56° 46.9	37°22.2	29°38.4	75°23.2	77°49.1	103°49.7
15	255°33.3	9.6'	24°14.1	5.3'	55.5'		74°35.9	56° 19.7	37°02.8	30°09.7	75°54.5	78° 14.2	104°20.4
16	270°01.9	9.7'	24°08.8	5.4'	55.5'		74°20.0	55°52.6	36°43.7	30°41.0	76°25.7	78°39.2	104°51.1
17	284°30.6	9.8'	24°03.4	5.5'	55.5'	119°38.5	74°04.2	55°25.6	36°24.8	31°12.2	76°57.0	79°04.3	105°21.7
18	298°59.4	9.8'	S 23°57.9	5.6'	55.4'	119°07.6	73°48.5	54°58.6	36°06.1	31°43.5	77°28.2	79°29.3	105°52.4
19	313°28.3	9.9'	23°52.3	5.7'	55.4'	118°36.8	73°32.8	54°31.7	35°47.8	32°14.7	77°59.4	79°54.4	106°23.0
20	327°57.2	10.0'	23°46.6	5.8'	55.4'	118°06.0	73° 17.2	54°04.8	35°29.7	32°45.9	78°30.6	80° 19.5	106°53.6
21	342°26.1	10.0'	23°40.7	6.0'	55.4'	117°35.2	73°01.7	53°38.1	35°11.9	33°17.1	79°01.7	80°44.5	107°24.2
22	356°55.2	10.1'	23°34.8	6.1'	55.4'	117°04.5	72°46.3	53°11.4	34°54.3	33°48.3	79°32.8	81°09.6	107°54.7
23	11°24.3	10.2'	23°28.7	6.2'	55.4'	116°33.7	72°30.9	52°44.8	34°37.1	34°19.4	80°04.0	81°34.7	108°25.3
2 nd	SD :	= 15.2'	Mer. pass	. 22:13	3								

h		Moor	n (3 rd Aug	g)			Lunar I	Distance (o	bjects w	ith largest	hourly I	_D delta)	
Thu	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	25°53.5	10.3'	S 23°22.5	6.3'	55.3'	116°03.0	72°15.6	52°18.2	34°20.1	34°50.6	80°35.1	81°59.7	108°55.8
1	40°22.8	10.3'	23°16.2	6.4'	55.3'	115°32.3	72°00.4	51°51.7	34°03.5	35°21.7	81°06.2	82°24.8	109°26.3
2	54°52.1	10.4'	23°09.8	6.5'	55.3'	115°01.6	71°45.3	51°25.4	33°47.1	35°52.8	81°37.2	82°49.9	109°56.8
3	69°21.5	10.5'	23°03.2	6.6'	55.3'	114°30.9	71°30.3	50°59.0	33°31.1	36°23.9	82°08.3	83°14.9	110°27.2
4	83°51.0	10.6'	22°56.6	6.8'	55.3'	114°00.2		50°32.8	33°15.4	36°54.9	82°39.3	83°40.0	110°57.7
5	98°20.6	10.6'	22°49.8	6.9'	55.2'	113°29.6		50°06.7	33°00.1	37°26.0	83°10.3	84°05.1	111°28.1
6	112°50.2	10.7'	S 22°43.0	7.0'	55.2'	112°58.9		49°40.6	32°45.0	37°57.0	83°41.3	84°30.1	111°58.5
7	127°19.9	10.8'	22°36.0	7.1'	55.2'	112°28.3		49°14.6		38°28.0	84°12.3	84°55.2	112°28.9
8	141°49.7	10.9'	22°28.9	7.2'	55.2'	111°57.7		48°48.7		38°59.0	84°43.2	85°20.2	112°59.3
9	156°19.5	10.9'	22°21.8	7.3'	55.2'	111°27.1		48°22.9		39°30.0	85°14.1	85°45.2	113°29.6
10	170°49.5	11.0'	22°14.5	7.4'	55.2'	110°56.5		47°57.2		40°00.9	85°45.1	86°10.3	113°59.9
11	185°19.5	11.1'	22°07.1	7.5'	55.1'	110°25.9		47°31.6		40°31.9	86°16.0	86°35.3	114°30.2
12	199°49.6	11.2'	S 21°59.6	7.6'	55.1'	109°55.4		47°06.1		41°02.8	86°46.8	87°00.3	115°00.5
13	214°19.7	11.2'	21°52.0	7.7'	55.1'	109°24.9		46°40.6		41°33.7	87°17.7	87°25.3	115°30.8
14	228°50.0	11.3'	21°44.3	7.8'	55.1'	108°54.3		46°15.3		42°04.6	87°48.6	87°50.3	116°01.0
15	243°20.3	11.4'	21°36.5	7.9'	55.1'	108°23.8		45°50.1		42°35.5	88°19.4	88°15.3	116°31.3
16	257°50.7	11.5'	21°28.7	8.0'	55.1'	107°53.3		45°25.0		43°06.3	88°50.2	88°40.2	117°01.5
17	272°21.1	11.5'	21°20.7	8.1'	55.0'	107°22.9		45°00.0		43°37.1	89°21.0	89°05.2	117°31.6
18	286°51.7	11.6'	S 21°12.6	8.2'	55.0'	106°52.4		44°35.1		44°08.0	89°51.8	89°30.1	118°01.8
19	301°22.3	11.7'	21°04.4	8.3'	55.0'	106°22.0		44°10.3		44°38.8	90°22.5	89°55.1	118°32.0
20	315°53.0	11.8'	20°56.2	8.4'	55.0'	105°51.5		43°45.6		45°09.5	90°53.3	90°20.0	119°02.1
21	330°23.7	11.8'	20°47.8	8.5'	55.0'	105°21.1		43°21.0		45°40.3	91°24.0	90°44.9	119°32.2
22	344°54.6	11.9'	20°39.3	8.5'	55.0'	104°50.7		42°56.6		46°11.1	91°54.7	91°09.8	
23	359°25.5	12.0'	20°30.8	8.6'	54.9'	104°20.4		42°32.3		46°41.8	92°25.4	91°34.7	
3 rd	SD	= 15.1'	Mer. pass	. 23:02	!								

Moon (4th Aug)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Acrux	+Arcturus	+Spica
0	13°56.5	12.1'	S 20°22.2	8.7'	54.9'	103°50.0	42°08.1	47°12.5	66°51.1	71°14.0	81°14.7	91°59.5	92°56.1
1	28° 27.6	12.1'	20°13.4	8.8'	54.9'	103°19.6	41°44.0	47°43.2	67°13.8	71°36.8	81°35.0	92°24.4	93°26.8
2	42°58.7	12.2'	20°04.6	8.9'	54.9'	102°49.3	41°20.1	48°13.9	67°36.6	71°59.5	81°55.4	92°49.2	93°57.4
3	57°29.9	12.3'	19°55.7	9.0'	54.9'	102°19.0	40°56.3	48°44.6	67°59.4	72°22.3	82°15.7	93°14.0	94°28.0
4	72°01.2	12.4'	19°46.7	9.1'	54.9'	101°48.7	40°32.6	49°15.2	68°22.2	72°45.2	82°36.0	93°38.8	94°58.6
5	86°32.6	12.4'	19°37.7	9.2'	54.8'	101°18.4	40°09.1	49°45.8	68°45.0	73°08.0	82°56.4	94°03.5	95°29.2
6	101°04.1	12.5'	S 19°28.5	9.2'	54.8'	100°48.1	39°45.8	50°16.5	69°07.9	73°30.9	83°16.7	94°28.3	95°59.8
7	115°35.6	12.6'	$19^{\circ}19.3$	9.3'	54.8'	100°17.9	39°22.5	50°47.1	69°30.8	73°53.8	83°37.1	94°53.0	96°30.4
8	130°07.2	12.7'	$19^{\circ}10.0$	9.4'	54.8'	99°47.6	38°59.5	51°17.7	69°53.8	74° 16.7	83°57.4	95°17.7	97°00.9
9	144°38.9	12.7'	$19^{\circ}00.6$	9.5'	54.8'	99°17.4	38°36.6	51°48.2	70°16.8	74°39.6	84°17.8	95°42.4	97°31.4
10	159°10.6	12.8'	$18^{\circ}51.1$	9.6'	54.8'	98°47.2	38°13.8	52°18.8	70°39.8	75°02.6	84°38.2	96°07.1	98°02.0
11	173°42.4	12.9'	18°41.5	9.6'	54.8'	98°17.0	37°51.3	52°49.3	71°02.8	75° 25.5	84°58.6	96°31.7	98°32.5
12	188°14.3	13.0'	S 18°31.9	9.7'	54.7'	97°46.8	37°28.9	53°19.8	71°25.9	75°48.5	85°19.0	96°56.3	99°02.9
13	202°46.3	13.0'	18°22.2	9.8'	54.7'	97°16.6	37°06.6	53°50.4	71°49.0	$76^{\circ}11.5$	85°39.3	97°20.9	99°33.4
14	217°18.3	13.1'	18°12.4	9.9'	54.7'	96°46.5	36°44.6	54°20.8	72°12.1	76°34.6	85°59.7	97°45.5	100°03.9
15	231°50.4	13.2'	$18^{\circ}02.5$	9.9'	54.7'	96°16.3	36°22.7	54°51.3	72°35.3	76°57.6	86°20.1	98°10.1	100°34.3
16	246°22.6	13.3'	$17^{\circ}52.6$	10.0'	54.7'	95°46.2	36°01.1	55°21.8	72°58.5	77°20.7	86°40.5	98°34.6	101°04.7
17	260°54.9	13.3'	17°42.6	10.1'	54.7'	95°16.1	35°39.6	55°52.2	73°21.7	77°43.8	87°00.9	98°59.1	101°35.1
18	275°27.2	13.4'	S 17°32.5	10.1'	54.7'	94°46.0	35°18.3	56°22.7	73°44.9	78°06.8	87°21.2	99°23.5	102°05.5
19	289°59.6	13.5'	$17^{\circ}22.4$	10.2'	54.6'	94°15.9	34°57.3	56°53.1	74°08.1	78° 29.9	87°41.6	99°48.0	102°35.9
20	304°32.1	13.5'	$17^{\circ}12.2$	10.3'	54.6'	93°45.8	34°36.4	57°23.5	74°31.4	78°53.1	88°02.0	100°12.4	103°06.2
21	319°04.6	13.6'	$17^{\circ}01.9$	10.4'	54.6'	93°15.8	34°15.8	57°53.9	74°54.7	79°16.2	88°22.4	100°36.8	103°36.6
22	333°37.2	13.7'	$16^{\circ}51.5$	10.4'	54.6'	92°45.7	33°55.3	58°24.2	75°18.0	79°39.3	88°42.7	101°01.1	104°06.9
23	348°09.9	13.7'	16°41.1	10.5'	54.6'	92°15.7	33°35.2	58°54.6	75°41.3	80°02.5	89°03.1	101°25.4	104°37.2
4 th	SD	= 15.0'	Mer. pass	. 23:49									

h		Moo	n (5 th Au	g)			Lunar	Distance (objects	with large	st hourly LD	delta)	
Sat	GHA	ν	Dec	d	HP	-Rigel	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	2°42.7	13.8'	S 16°30.6	10.6'	54.6'				91°45.7	59°25.0	76°04.6	101°49.7	105°07.5
1	17° 15.5	13.9'	$16^{\circ}20.1$	10.6'	54.6'				91°15.7	59°55.3	76°28.0	102°14.0	105°37.8
2	31°48.3	13.9'	$16^{\circ}09.4$	10.7'	54.5'			119°51.8	90°45.7	60°25.6	76°51.4	102°38.2	106°08.1
3	46°21.3	14.0'	15°58.8	10.7'	54.5'			119°22.0	90°15.7	60°55.9	77° 14.7	103°02.4	106°38.3
4	60°54.3	14.1'	15°48.0	10.8'	54.5'			118°52.2	89°45.8	61°26.2	77°38.1	103°26.5	107°08.6
5	75°27.4	14.1'	15°37.2	10.9'	54.5'			118°22.4	89°15.8	61°56.5	78°01.5	103°50.7	107°38.8
6	90°00.5	14.2'	S 15°26.4	10.9'	54.5'			117°52.6	88°45.9	62°26.7	78°24.9	104°14.8	108°09.0
7	104°33.7	14.3'	15°15.4	11.0'	54.5'	119°56.5		117°22.8	88°16.0	62°57.0	78°48.4	104°38.8	108°39.2
8	119°07.0	14.3'	15°04.5	11.0'	54.5'	119°33.4		116°53.1	87°46.1	63°27.2	79°11.8	105°02.8	109°09.4
9	133°40.4	14.4'	14°53.4	11.1'	54.5'	119° 10.3		116°23.3	87°16.2	63°57.4	79°35.3	105°26.8	109°39.6
10	148°13.8	14.5'	14°42.3	11.1'	54.4'	118°47.1		115°53.6	86°46.3	64°27.6	79°58.7	105°50.7	110°09.7
11	162°47.2	14.5'	14°31.2	11.2'	54.4'	118°23.9		115°23.8	86°16.4	64°57.8	80°22.2	106° 14.6	110°39.9
12	177°20.7	14.6'	S 14°20.0	11.3'	54.4'	118°00.6		114°54.1	85°46.6	65°28.0	80°45.7	106°38.5	111°10.0
13	191°54.3	14.6'	14°08.7	11.3'	54.4'	117°37.2		114°24.4	85°16.7	65°58.1	81°09.1	107°02.3	111°40.1
14	206°28.0	14.7'	13°57.4	11.4'	54.4'	117°13.9		113°54.7	84°46.9	66°28.3	81°32.6	107°26.1	112°10.2
15	221°01.7	14.8'	13°46.1	11.4'	54.4'	116°50.4		113°25.0	84°17.1	66°58.4	81°56.1	107°49.9	112°40.3
16	235°35.4	14.8'	13°34.7	11.5'	54.4'	116°27.0		112°55.3	83°47.3	67°28.6	82° 19.6	108° 13.6	113°10.4
17	250°09.3	14.9'	13°23.2	11.5'	54.4'	116°03.5		112°25.6	83°17.5	67°58.7	82°43.1	108°37.2	113°40.4
18	264°43.1	14.9'	S 13°11.7	11.6'	54.4'	115°39.9	119°53.2	111°55.9	82°47.8	68°28.8	83°06.6	109°00.8	114°10.5
19	279°17.1	15.0'	13°00.2	11.6'	54.3'	115°16.3	119°25.6	111°26.3	82°18.0	68°58.9	83°30.1	109°24.4	114°40.5
20	293°51.1	15.0'	12°48.6	11.6'	54.3'	114°52.7	118°57.9	110°56.6	81°48.3	69°28.9	83°53.6	109°47.9	115°10.5
21	308°25.1	15.1'	12°36.9	11.7'	54.3'	114°29.0	118°30.2	110°27.0	81°18.5	69°59.0	84°17.1	110°11.4	115°40.6
22	322°59.2	15.2'	12°25.2	11.7'	54.3'	114°05.3	118°02.6	109°57.4	80°48.8	70°29.0	84°40.6	110°34.8	116°10.6
23	337°33.4	15.2'	12°13.5	11.8'	54.3'	113°41.6	117°34.9	109°27.7	80°19.1	70°59.1	85°04.1	110°58.2	116°40.5
5 th	SD	= 14.9	Mer. pa	ss:-				-					

Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	352°07.6	15.3'	S 12°01.7	11.8'	54.3'		117°07.2	108°58.1	79°49.4	71°29.1	85°27.6	111°21.5	117°10.5
1	6°41.8	15.3'	11°49.9	11.9'	54.3'		116°39.5	108°28.5	79°19.7	71°59.1	85°51.1	111°44.8	117°40.5
2	21°16.2	15.4'	11°38.0	11.9'	54.3'		116°11.8	107°58.9	78°50.1	72°29.1	86°14.6	112°08.0	118°10.4
3	35°50.5	15.4'	$11^{\circ}26.1$	11.9'	54.3'		115°44.1	107°29.4	78°20.4	72°59.1	86°38.1	112°31.2	118°40.4
4	50°24.9	15.5'	$11^{\circ}14.2$	12.0'	54.3'		115°16.4	106°59.8	77°50.8	73°29.1	87°01.6	112°54.3	119°10.3
5	64°59.4	15.5'	11°02.2	12.0'	54.2'		114°48.6	106°30.2	77°21.1	73°59.1	87°25.1	113° 17.4	119°40.2
6	79°33.9	15.6'	S 10°50.2	12.1'	54.2'		114°20.9	106°00.7	76°51.5	74°29.0	87°48.6	113°40.4	
7	94°08.5	15.6'	10°38.1	12.1'	54.2'		113°53.1	105°31.1	76°21.9	74°58.9	88°12.1	114°03.4	
8	108°43.1	15.7'	$10^{\circ}26.0$	12.1'	54.2'		113°25.4	105°01.6	75°52.3	75°28.9	88°35.6	114°26.3	
9	123°17.7	15.7'	10°13.9	12.2'	54.2'		112°57.6	104°32.0	75°22.7	75°58.8	88°59.1	114°49.1	
10	137°52.4	15.7'	$10^{\circ}01.7$	12.2'	54.2'		112°29.9	104°02.5	74°53.2	76°28.7	89°22.5	115° 11.9	
11	152°27.2	15.8'	09°49.5	12.2'	54.2'		112°02.1	103°33.0	74°23.6	76°58.6	89°46.0	115°34.6	
12	167°02.0	15.8'	S 09°37.3	12.3'	54.2'		111°34.3	103°03.5	73°54.0	77°28.5	90°09.4	115° 57.3	
13	181°36.8	15.9'	09°25.0	12.3'	54.2'		111°06.6	102°34.0	73°24.5	77°58.4	90°32.9	116° 19.9	
14	196°11.7	15.9'	$09^{\circ}12.7$	12.3'	54.2'		110°38.8	102°04.5	72°55.0	78°28.2	90°56.3	116°42.4	
15	210°46.6	16.0'	09°00.4	12.4'	54.2'	119°57.0	110°11.0	101°35.0	72°25.5	78°58.1	91° 19.7	117°04.9	
16	225°21.6	16.0'	08°48.1	12.4'	54.1'	119°29.1	109°43.2	101°05.6	71°56.0	79°28.0	91°43.1	117°27.3	
17	239°56.6	16.0'	08°35.7	12.4'	54.1'	119°01.2	109°15.4	100°36.1	71°26.5	79°57.8	92°06.5	117°49.7	
18	254°31.6	16.1'	S 08°23.3	12.4'	54.1'	118°33.4	108°47.6	100°06.7	70°57.0	80°27.6	92°29.9	118° 11.9	
19	269°06.7	16.1'	$08^{\circ}10.8$	12.5'	54.1'	118°05.4	108°19.8	99°37.2	70°27.5	80°57.4	92°53.3	118°34.2	
20	283°41.8	16.1'	07°58.4	12.5'	54.1'	117°37.5	107°52.0	99°07.8	69°58.1	81°27.2	93°16.6	118°56.3	
21	298°16.9	16.2'	$07^{\circ}45.9$	12.5'	54.1'	117°09.6	107°24.2	98°38.4	69°28.6	81°57.0	93°40.0	119° 18.4	
22	312°52.1	16.2'	07°33.4	12.5'	54.1'	116°41.7	106°56.4	98°09.0	68°59.2	82°26.8	94°03.3	119°40.4	
23	327°27.3	16.3'	$07^{\circ}20.8$	12.6'	54.1'	116°13.7	106°28.6	97°39.5	68°29.8	82°56.6	94°26.7		
6 th	SD	= 14.8'	Mer. pass	s. 00:32							-		

h Moon (7th Aug)

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Mars	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	342°02.6	16.3'	S 07°08.3	12.6'	54.1'		115° 45.8	97°10.1	68°00.4	39°16.2	83°26.4	94°50.0	98°53.2
1	356°37.9	16.3'	06°55.7	12.6'	54.1'		115° 17.9	96°40.8	67°31.0	39°35.9	83°56.1	95°13.3	99° 15.9
2	11°13.2	16.3'	06°43.1	12.6'	54.1'		114°49.9	96°11.4	67°01.6	39°55.9	84°25.9	95°36.5	99°38.6
3	25°48.5	16.4'	06°30.4	12.6'	54.1'		114°21.9	95°42.0	66°32.2	40°16.0	84°55.6	95°59.8	100°01.3
4	40°23.9	16.4'	06°17.8	12.7'	54.1'		113°54.0	95°12.6	66°02.8	40°36.2	85°25.4	96°23.0	100°24.0
5	54°59.3	16.4'	$06^{\circ}05.1$	12.7'	54.1'		113°26.0	94°43.3	65°33.5	40°56.6	85°55.1	96°46.3	100°46.6
6	69°34.7	16.5'	S 05°52.4	12.7'	54.0'		112°58.0	94°13.9	65°04.1	41°17.2	86°24.8	97°09.5	101°09.2
7	84°10.2	16.5'	05°39.7	12.7'	54.0'		112°30.1	93°44.6	64°34.8	41°37.9	86° 54.5	97°32.6	101°31.8
8	98°45.7	16.5'	05°27.0	12.7'	54.0'		112°02.1	93°15.2	64°05.4	41°58.8	87°24.2	97°55.8	101°54.3
9	113°21.2	16.5'	05°14.3	12.8'	54.0'		111°34.1	92°45.9	63°36.1	42°19.7	87°53.9	98°19.0	102°16.8
10	127°56.8	16.6'	$05^{\circ}01.5$	12.8'	54.0'		111°06.1	92°16.6	63°06.8	42°40.9	88°23.6	98°42.1	102°39.3
11	142°32.3	16.6'	04°48.7	12.8'	54.0'		110°38.1	91°47.2	62°37.5	43°02.1	88°53.3	99°05.2	103°01.8
12	157°07.9	16.6'	S 04°36.0	12.8'	54.0'		110°10.1	91°17.9	62°08.2	43°23.5	89°23.0	99°28.3	103°24.2
13	171°43.5	16.6'	04°23.2	12.8'	54.0'		109°42.1	90°48.6	61°38.9	43°45.0	89°52.7	99°51.3	103°46.6
14	186°19.2	16.7'	04°10.4	12.8'	54.0'		109° 14.1	90°19.3	61°09.7	44°06.6	90°22.3	100°14.4	104°09.0
15	200°54.8	16.7'	03°57.5	12.8'	54.0'		108°46.0	89°50.0	60°40.4	44°28.4	90°52.0	100°37.4	104°31.3
16	215°30.5	16.7'	03°44.7	12.8'	54.0'		108° 18.0	89°20.7	60°11.1	44°50.2	91°21.6	101°00.4	104°53.6
17	230°06.2	16.7'	03°31.9	12.9'	54.0'		107°50.0	88°51.5	59°41.9	45°12.2	91°51.3	101°23.3	105°15.9
18	244°41.9	16.7'	S 03°19.0	12.9'	54.0'	119°37.6	107°22.0	88°22.2	59°12.7	45°34.3	92°20.9	101°46.3	105°38.1
19	259°17.6	16.7'	$03^{\circ}06.1$	12.9'	54.0'	119°09.6	106°54.0	87°52.9	58°43.4	45°56.5	92°50.5	102°09.2	106°00.3
20	273°53.4	16.8'	02°53.3	12.9'	54.0'	118°41.6	106°25.9	87°23.7	58°14.2	46°18.8	93°20.1	102°32.1	106°22.5
21	288°29.1	16.8'	02°40.4	12.9'	54.0'	118°13.6	105° 57.9	86°54.4	57°45.0	46°41.2	93°49.8	102°54.9	106°44.6
22	303°04.9	16.8'	02°27.5	12.9'	54.0'	117°45.7	105° 29.9	86°25.2	57°15.8	47°03.7	94° 19.4	103°17.8	107°06.7
23	317°40.7	16.8'	02°14.6	12.9'	54.0'	117°17.7	105°01.8	85°55.9	56°46.6	47°26.2	94°49.0	103°40.6	107°28.7
7 th	SD	= 14.8'	Mer. pass	01:14									

Moon (8th Aug)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOOR	ı (ö Au	g)			Lunar D	istance (or	ojects wi	th larges	st nourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	332°16.5	16.8'	S 02°01.7	12.9'	54.0'		104°33.8	85°26.7	56°17.5	47°48.9	95°18.6	104°03.3	107°50.7
1	346°52.3	16.8'	01°48.8	12.9'	54.0'		104°05.8	84°57.5	55°48.3	48°11.7	95°48.2	104°26.1	108°12.7
2	1°28.1	16.8'	01°35.9	12.9'	54.0'		103°37.7	84°28.2	55°19.1	48°34.6	96°17.8	104°48.8	108°34.6
3	16°03.9	16.8'	$01^{\circ}23.0$	12.9'	54.0'		103°09.7	83°59.0	54°50.0	48°57.5	96°47.4	105°11.5	108°56.5
4	30°39.8	16.8'	$01^{\circ}10.1$	12.9'	54.0'		102°41.6	83°29.8	54°20.8	49°20.5	97°16.9	105°34.1	109°18.3
5	45°15.6	16.9'	$00^{\circ}57.1$	12.9'	54.0'		102°13.6	83°00.6	53°51.7	49°43.7	97°46.5	105° 56.7	109°40.1
6	59°51.5	16.9'	S 00°44.2	12.9'	54.0'		101°45.5	82°31.4	53°22.6	50°06.8	98°16.1	106° 19.3	110°01.8
7	74°27.3	16.9'	00°31.3	12.9'	54.0'		101°17.5	82°02.2	52°53.4	50°30.1	98°45.7	106°41.9	110°23.5
8	89°03.2	16.9'	$00^{\circ}18.4$	12.9'	54.0'		100°49.4	81°33.0	52°24.3	50°53.5	99°15.2	107°04.4	110°45.2
9	103°39.1	16.9'	S 00°05.5	12.9'	54.0'		100°21.4	81°03.8	51°55.2	51°16.9	99°44.8	107°26.8	111°06.8
10	118°14.9	16.9'	N 00°07.5	12.9'	54.0'		99°53.3	80°34.6	51°26.1	51°40.4	100°14.3	107°49.3	111°28.4
11	132°50.8	16.9'	00°20.4	12.9'	54.0'		99°25.3	80°05.4	50°57.1	52°04.0	100°43.9	108° 11.7	111°49.9
12	147°26.7	16.9'	N 00°33.3	12.9'	54.0'		98°57.2	79°36.2	50°28.0	52°27.6	101°13.5	108°34.1	112°11.3
13	162°02.6	16.9'	00°46.2	12.9'	54.0'		98°29.1	79°07.0	49°58.9	52°51.3	101°43.0	108°56.4	112°32.7
14	176°38.4	16.9'	$00^{\circ}59.1$	12.9'	54.0'		98°01.1	78° 37.9	49°29.9	53°15.1	102°12.6	109° 18.7	112°54.1
15	191°14.3	16.9'	$01^{\circ}12.0$	12.9'	54.0'		97°33.0	78° 08.7	49°00.8	53°38.9	102°42.1	109°40.9	113°15.4
16	205°50.2	16.9'	01°24.9	12.9'	54.0'	119°35.6	97°04.9	77° 39.5	48°31.8	54°02.8	103°11.7	110°03.1	113°36.6
17	220°26.0	16.9'	$01^{\circ}37.8$	12.9'	54.0'	119°06.3	96°36.9	77° 10.4	48°02.7	54°26.8	103°41.2	110°25.3	113°57.8
18	235°01.9	16.9'	N01°50.7	12.9'	54.0'	118°37.0	96°08.8	76°41.2	47°33.7	54°50.8	104°10.7	110°47.4	114°19.0
19	249°37.8	16.9'	02°03.6	12.9'	54.0'	118°07.7	95°40.7	76° 12.0	47°04.7	55°14.9	104°40.3	111°09.5	114°40.1
20	264°13.6	16.8'	$02^{\circ}16.4$	12.9'	54.0'	117°38.4	95°12.7	75°42.9	46°35.7	55°39.0	105°09.8	111°31.5	115°01.1
21	278°49.5	16.8'	$02^{\circ}29.3$	12.9'	54.0'	117°09.1	94°44.6	75° 13.7	46°06.7	56°03.2	105°39.4	111°53.5	115°22.0
22	293°25.3	16.8'	$02^{\circ}42.1$	12.8'	54.0'	116°39.9	94°16.5	74° 44.6	45°37.7	56°27.5	106°08.9	112° 15.4	115°42.9
23	308°01.1	16.8'	02°55.0	12.8'	54.0'	116°10.6	93°48.4	74° 15.4	45°08.7	56°51.8	106°38.4	112°37.3	116°03.8
8 th	SD	= 14.7'	Mer. pass	s. 01:54				-			-	-	

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

Wed	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	322°36.9	16.8'	N 03°07.8	12.8'	54.0'	119° 17.7	115°41.3	73°46.3	44°39.7	34°08.2	57°16.2	107°08.0	112°59.2
1	337°12.7	16.8'	03°20.6	12.8'	54.0'	118°49.6	115°12.0	73° 17.1	44°10.7	34°28.2	57°40.6	107°37.5	113°21.0
2	351°48.5	16.8'	03°33.4	12.8'	54.0'	118°21.5	114°42.7	72°48.0	43°41.8	34°48.4	58°05.0	108°07.0	113°42.7
3	6°24.3	16.8'	03°46.2	12.8'	54.0'	117°53.4	114°13.4	72° 18.8	43°12.8	35°08.7	58°29.6	108°36.6	114°04.4
4	21°00.1	16.8'	03°59.0	12.8'	54.0'	117°25.2	113°44.1	71°49.7	42°43.9	35°29.3	58°54.1	109°06.1	114°26.1
5	35°35.8	16.7'	04°11.8	12.8'	54.0'	116°57.1	113°14.8	71°20.6	42°14.9	35°50.0	59°18.7	109°35.7	114°47.7
6	50°11.6	16.7'	N04°24.5	12.7'	54.0'	116°28.9	112°45.5	70°51.4	41°46.0	36°11.0	59°43.4	110°05.2	115°09.2
7	64°47.3	16.7'	04°37.3	12.7'	54.0'	116°00.7	112°16.2	70°22.3	41°17.1	36°32.0	60°08.1	110°34.7	115°30.7
8	79°23.0	16.7'	04°50.0	12.7'	54.0'	115°32.5	111°46.9	69°53.1	40°48.2	36°53.3	60°32.8	111°04.3	115°52.1
9	93°58.7	16.7'	05°02.7	12.7'	54.0'	115°04.3	111°17.5	69°24.0	40°19.3	37°14.7	60°57.6	111°33.8	116° 13.5
10	108°34.3	16.6'	05°15.4	12.7'	54.0'	114°36.1	110°48.2	68°54.9	39°50.4	37°36.3	61°22.5	112°03.4	116°34.8
11	123°10.0	16.6'	05°28.1	12.6'	54.0'	114°07.9	110°18.9	68°25.7	39°21.5	37°58.0	61°47.4	112°32.9	116°56.1
12	137°45.6	16.6'	N05°40.7	12.6'	54.0'	113°39.7	109°49.6	67°56.6	38°52.7	38°19.9	62°12.3	113°02.5	117° 17.3
13	152°21.2	16.6'	05°53.3	12.6'	54.0'	113°11.4	109°20.2	67° 27.5	38°23.8	38°42.0	62°37.2	113°32.0	117°38.4
14	166°56.8	16.6'	06°05.9	12.6'	54.0'	112°43.1	108°50.9	66°58.3	37°55.0	39°04.1	63°02.3	114°01.6	$117^{\circ}59.5$
15	181°32.3	16.5'	$06^{\circ}18.5$	12.6'	54.0'	112°14.9	108°21.5	66°29.2	37°26.1	39°26.5	63°27.3	114°31.2	118° 20.5
16	196°07.9	16.5'	06°31.1	12.5'	54.0'	111°46.6	107°52.2	66°00.0	36°57.3	39°48.9	63°52.4	115°00.7	118°41.4
17	210°43.4	16.5'	06°43.6	12.5'	54.0'	111°18.3	107°22.8	65°30.9	36°28.5	40°11.5	64°17.5	115°30.3	119°02.3
18	225°18.8	16.4'	N06°56.2	12.5'	54.1'	110°50.0	106°53.5	65°01.8	35°59.7	40°34.2	64°42.7	115°59.9	119°23.1
19	239°54.3	16.4'	07°08.7	12.5'	54.1'	110°21.6	106°24.1	64°32.6	35°30.9	40°57.0	65°07.9	116°29.5	119°43.8
20	254°29.7	16.4'	$07^{\circ}21.1$	12.4'	54.1'	109°53.3	105°54.8	64°03.5	35°02.1	41°20.0	65°33.1	116°59.0	
21	269°05.1	16.4'	07°33.6	12.4'	54.1'	109°24.9	105°25.4	63°34.3	34°33.4	41°43.1	65°58.4	117°28.6	
22	283°40.4	16.3'	07°46.0	12.4'	54.1'	108°56.6	104°56.0	63°05.2	34°04.6	42°06.2	66°23.7	117°58.2	
23	298°15.8	16.3'	07°58.4	12.4'	54.1'	108°28.2	104°26.6	62°36.1	33°35.9	42°29.5	66°49.0	118°27.8	
9 th	SD	= 14.7'	Mer. pass	. 02:34				-		-			-

h Moon (10th Aug)

Thu	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Mars	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares
0	312°51.0	16.3'	N 08°10.8	12.3'	54.1'	107°59.8	103°57.2	94°29.3	62°06.9	33°07.1	42°52.9	67°14.4	118°57.4
1	327°26.3	16.2'	$08^{\circ}23.1$	12.3'	54.1'	107°31.4	103°27.8	94°01.3	61°37.8	32°38.4	43°16.5	67°39.8	119°27.1
2	342°01.5	16.2'	08°35.4	12.3'	54.1'	107°03.0	102°58.4	93°33.3	61°08.6	32°09.8	43°40.1	68°05.2	119°56.7
3	356°36.7	16.1'	08°47.7	12.3'	54.1'	106°34.6	102°29.0	93°05.3	60°39.5	31°41.1	44°03.8	68°30.7	
4	11°11.9	16.1'	09°00.0	12.2'	54.1'	106°06.1	101°59.6	92°37.3	60°10.3	31°12.4	44°27.6	68° 56.2	
5	25°47.0	16.1'	$09^{\circ}12.2$	12.2'	54.1'	105°37.7	101°30.1	92°09.3	59°41.1	30°43.8	44°51.6	69°21.7	
6	40°22.0	16.0'	N 09°24.4	12.2'	54.1'	105°09.2	101°00.7	91°41.3	59°12.0	30°15.2	45°15.6	69°47.3	
7	54°57.1	16.0'	09°36.6	12.1'	54.2'	104°40.7	100°31.2	91°13.3	58°42.8	29°46.6	45°39.7	70°12.9	
8	69°32.1	16.0'	09°48.7	12.1'	54.2'	104°12.2	100°01.8	90°45.2	58°13.7	29°18.0	46°03.9	70°38.5	
9	84°07.0	15.9'	10°00.8	12.1'	54.2'	103°43.7	99°32.3	90°17.2	57°44.5	28°49.5	46°28.2	71°04.2	
10	98°41.9	15.9'	10°12.8	12.0'	54.2'	103°15.2	99°02.8	89°49.1	57°15.3	28°21.0	46°52.5	71°29.9	
11	113°16.8	15.8'	$10^{\circ}24.9$	12.0'	54.2'	102°46.7	98°33.3	89°21.1	56°46.1	27°52.5	47°17.0	71°55.6	
12	127°51.6	15.8'	N 10°36.9	12.0'	54.2'	102°18.1	98°03.8	88°53.0	56°17.0	27°24.0	47°41.6	72°21.4	
13	142°26.4	15.7'	10°48.8	11.9'	54.2'	101°49.6	97°34.3	88°24.9	55°47.8	26°55.6	48°06.2	72°47.1	
14	157°01.1	15.7'	$11^{\circ}00.7$	11.9'	54.2'	101°21.0	97°04.8	87° 56.8	55°18.6	26°27.2	48°30.9	73°12.9	
15	171°35.8	15.6'	$11^{\circ}12.6$	11.8'	54.2'	100°52.4	96°35.3	87°28.7	54°49.4	25°58.8	48°55.7	73°38.8	
16	186°10.4	15.6'	11°24.4	11.8'	54.3'	100°23.8	96°05.7	87°00.6	54°20.2	25°30.5	49°20.5	74°04.6	
17	200°45.0	15.5'	$11^{\circ}36.2$	11.8'	54.3'	99°55.2	95°36.2	86°32.5	53°51.0	25°02.2	49°45.5	74°30.5	
18	215°19.6	15.5'	N 11°48.0	11.7'	54.3'	99°26.5	95°06.6	86°04.4	53°21.8	24°33.9	50°10.5	74°56.4	
19	229°54.0	15.4'	11°59.7	11.7'	54.3'	98°57.9	94°37.1	85°36.2	52°52.6	24°05.7	50°35.6	75°22.4	
20	244°28.5	15.4'	12°11.4	11.6'	54.3'	98°29.2	94°07.5	85°08.1	52°23.4	23°37.5	51°00.7	75°48.4	
21	259°02.9	15.3'	12°23.0	11.6'	54.3'	98°00.6	93°37.9	84°39.9	51°54.2	23°09.4	51°25.9	76°14.4	
22	273°37.2	15.3'	12°34.6	11.5'	54.3'	97°31.9	93°08.3	84°11.7	51°25.0	22°41.4	51°51.2	76°40.4	
23	288°11.5	15.2'	12°46.2	11.5'	54.3'	97°03.2	92°38.6	83°43.5	50°55.7	22°13.3	52°16.6	77°06.4	
10 th	SD	= 14.8'	Mer. pass	. 03:14						-			

h	Moon (11 th Aug)	Lunar Distance (objects with la	rgest hourly LD delt	a)

Fri	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Mars	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	302°45.7	15.2'	N12°57.7	11.5'	54.4'	96°34.5	92°09.0	83°15.3	70°50.2	50°26.5	21°45.4	52° 42.0	77°32.5
1	317°19.8	15.1'	13°09.1	11.4'	54.4'	96°05.7	91°39.4	82°47.1	70°22.0	49°57.3	21°17.5	53°07.5	77°58.6
2	331°53.9	15.0'	13°20.5	11.4'	54.4'	95°37.0	91°09.7	82°18.8	69°53.8	49°28.1	20°49.7	53°33.1	78°24.7
3	346°28.0	15.0'	13°31.9	11.3'	54.4'	95°08.2	90°40.0	81°50.6	69°25.6	48°58.8	20°22.0	53° 58.7	78°50.9
4	1°02.0	14.9'	13°43.2	11.3'	54.4'	94°39.4	90°10.3	81°22.3	68°57.4	48°29.6	19°54.4	54°24.4	79°17.0
5	15°35.9	14.9'	13°54.5	11.2'	54.4'	94°10.6	89°40.6	80°54.1	68°29.1	48°00.3	19°26.8	54°50.1	79°43.2
6	30°09.8	14.8'	N 14°05.7	11.2'	54.4'	93°41.8	89°10.9	80°25.8	68°00.9	47°31.1	18°59.4	55° 15.9	80°09.5
7	44°43.6	14.7'	14°16.8	11.1'	54.5'	93°13.0	88°41.2	79°57.5	67°32.7	47°01.8	18°32.0	55°41.8	80°35.7
8	59°17.3	14.7'	14°27.9	11.1'	54.5'	92°44.2	88°11.4	79°29.1	67°04.5	46°32.6	18°04.8	56° 07.7	81°02.0
9	73°51.0	14.6'	14°39.0	11.0'	54.5'	92°15.3	87°41.6	79°00.8	66°36.3	46°03.3	17°37.7	56° 33.7	81°28.3
10	88°24.6	14.6'	14°50.0	11.0'	54.5'	91°46.4	87°11.9	78°32.4	66°08.1	45°34.0	17° 10.7	56° 59.7	81°54.6
11	102°58.2	14.5'	15°01.0	10.9'	54.5'	91°17.5	86°42.1	78°04.1	65°39.9	45°04.8	16°43.9	57°25.8	82°20.9
12	117°31.7	14.4'	N 15°11.9	10.8'	54.5'	90°48.6	86°12.3	77°35.7	65°11.6	44°35.5	16°17.2	57°51.9	82°47.3
13	132°05.1	14.4'	15°22.7	10.8'	54.6'	90°19.7	85°42.4	77°07.3	64°43.4	44°06.2	15°50.7	58° 18.1	83°13.7
14	146°38.4	14.3'	15°33.5	10.7'	54.6'	89°50.8	85°12.6	76°38.8	64°15.2	43°36.9	15°24.4	58° 44.4	83°40.1
15	161°11.7	14.2'	15°44.2	10.7'	54.6'	89°21.8	84°42.7	76°10.4	63°46.9	43°07.6	14°58.3	59° 10.7	84°06.5
16	175°44.9	14.1'	15°54.9	10.6'	54.6'	88°52.8	84°12.8	75°41.9	63°18.7	42°38.3	14°32.5	59°37.0	84°32.9
17	190°18.1	14.1'	$16^{\circ}05.5$	10.5'	54.6'	88°23.8	83°42.9	75°13.5	62°50.5	42°09.1	14°06.9	60°03.4	84°59.4
18	204°51.2	14.0'	$N16^{\circ}16.0$	10.5'	54.7'	87°54.8	83°13.0	74°45.0	62°22.3	41°39.8	13°41.6	60°29.9	85°25.9
19	219°24.2	13.9'	$16^{\circ}26.5$	10.4'	54.7'	87°25.8	82°43.1	74°16.4	61°54.0	41°10.5	13°16.6	60°56.4	85°52.4
20	233°57.1	13.9'	16°37.0	10.4'	54.7'	86°56.7	82°13.1	73°47.9	61°25.8	40°41.2	12°51.9	61°23.0	86°19.0
21	248°30.0	13.8'	16°47.3	10.3'	54.7'	86°27.7	81°43.1	73°19.3	60°57.5	40°11.9	12°27.6	61°49.6	86°45.5
22	263°02.8	13.7'	16°57.6	10.2'	54.7'	85°58.6	81°13.1	72°50.8	60°29.3	39°42.6	12°03.7	62°16.3	87°12.1
23	277°35.5	13.6'	17°07.9	10.2'	54.8'	85°29.5	80°43.1	72°22.2	60°01.1	39°13.3	11°40.3	62°43.0	87°38.7
11 th	SD	= 14.8'	Mer. pass	. 03:56									

h Moon (12 th Aug)	Lunar Distance (ob	bjects with larg	est hourly LD de	:lta)
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Sat	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Mars	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	292°08.1	13.6'	N 17°18.0	10.1'	54.8'	106°51.7	85°00.4	80°13.1	71°53.5	38°44.0	63°09.7		88°05.3
1	306°40.7	13.5'	$17^{\circ}28.1$	10.0'	54.8'	106°23.9	84°31.2	79°43.0	71°24.9	38°14.7	63°36.5		88°32.0
2	321°13.1	13.4'	17°38.2	10.0'	54.8'	105°56.0	84°02.1	79° 12.9	70°56.2	37°45.4	64°03.4		88°58.6
3	335°45.6	13.3'	17°48.1	9.9'	54.8'	105°28.1	83°32.9	78°42.8	70°27.6	37°16.1	64°30.3		89°25.3
4	350°17.9	13.3'	17°58.0	9.8'	54.9'	105°00.2	83°03.7	78°12.7	69°58.9	36°46.8	64°57.2		89°52.0
5	4°50.1	13.2'	18°07.8	9.8'	54.9'	104°32.2	82°34.5	77°42.6	69°30.1	36°17.5	65°24.2		90°18.8
6	19°22.3	13.1'	N 18°17.6	9.7'	54.9'	104°04.3	82°05.2	77°12.4	69°01.4	35°48.2	65°51.3		90°45.5
7	33°54.4	13.0'	18°27.3	9.6'	54.9'	103°36.3	81°36.0	76°42.2	68°32.6	35°18.9	66°18.4		91°12.3
8	48°26.4	12.9'	18°36.9	9.5'	54.9'	103°08.3	81°06.7	76° 12.0	68°03.8	34°49.6	66°45.5		91°39.0
9	62°58.3	12.8'	18°46.4	9.5'	55.0'	102°40.2	80°37.4	75°41.8	67°35.0	34°20.3	67°12.7		92°05.9
10	77°30.2	12.8'	18°55.9	9.4'	55.0'	102°12.2	80°08.1	75°11.5	67°06.1	33°51.1	67°39.9		92°32.7
11	92°02.0	12.7'	19°05.3	9.3'	55.0'	101°44.1	79°38.8	74°41.2	66°37.2	33°21.8	68°07.2		92°59.5
12	106°33.6	12.6'	N19°14.6	9.2'	55.0'	101°16.0	79°09.4	74°10.9	66°08.3	32°52.5	68°34.5		93°26.4
13	121°05.2	12.5'	19°23.8	9.1'	55.1'	100°47.8	78°40.0	73°40.6	65°39.4	32°23.3	69°01.8	72°45.6	93°53.3
14	135°36.7	12.4'	19°33.0	9.1'	55.1'	100°19.7	78° 10.6	73°10.3	65°10.5	31°54.1	69°29.2	73°00.8	94°20.2
15	150°08.2	12.3'	19°42.0	9.0'	55.1'	99°51.5	77°41.2	72°39.9	64°41.5	31°24.8	69°56.7	73°16.0	94°47.1
16	164°39.5	12.3'	19°51.0	8.9'	55.1'	99°23.3	77°11.8	72°09.5	64°12.5	30°55.6	70°24.2	73°31.3	95°14.0
17	179°10.8	12.2'	19°59.9	8.8'	55.2'	98°55.0	76°42.3	71°39.1	63°43.5	30°26.5	70°51.7	73°46.6	95°41.0
18	193°42.0	12.1'	N 20°08.7	8.7'	55.2'	98°26.8	76°12.8	71°08.6	63°14.4	29°57.3	71°19.3	74°02.0	96°07.9
19	208°13.0	12.0'	20°17.5	8.7'	55.2'	97°58.5	75°43.3	70°38.1	62°45.3	29°28.1	71°46.9	74°17.5	96°34.9
20	222°44.0	11.9'	20°26.1	8.6'	55.2'	97°30.1	75° 13.8	70°07.6	62°16.2	28°59.0	72°14.5	74°33.1	97°01.9
21	237°14.9	11.8'	20°34.7	8.5'	55.3'	97°01.8	74°44.3	69°37.1	61°47.1	28°29.9	72°42.2	74°48.8	97°28.9
22	251°45.8	11.7'	20°43.2	8.4'	55.3'	96°33.4	74° 14.7	69°06.6	61°17.9	28°00.9	73°10.0	75°04.5	97°56.0
23	266°16.5	11.6'	20°51.6	8.3'	55.3'	96°05.0	73°45.1	68°36.0	60°48.7	27°31.8	73°37.8	75°20.3	98°23.0
12 th	SD	$= 14.9^{\prime}$	Mer. pass	. 04:40					Sun S	SD = 15.8'			

h Moon (13th Aug)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Mars	+Saturn	+Fomalhaut	+Deneb	+Altair
0	280°47.1	11.6'	N 20°59.8	8.2'	55.3'	95°36.6	73°15.5	68°05.4	60°19.5		74°05.6	75°36.1	98°50.1
1	295°17.7	11.5'	21°08.1	8.1'	55.4'	95°08.1	72°45.9	67°34.7	59°50.2		74°33.4	75°52.0	99°17.2
2	309°48.2	11.4'	21°16.2	8.0'	55.4'	94°39.6	72°16.2	67°04.1	59°20.9		75°01.3	76°08.0	99°44.3
3	324°18.5	11.3'	21°24.2	7.9'	55.4'	94°11.1	71°46.6	66°33.4	58°51.6		75°29.3	76°24.1	100°11.4
4	338°48.8	11.2'	21°32.1	7.8'	55.5'	93°42.5	71°16.9	66°02.6	58°22.3		75°57.3	76°40.2	100°38.5
5	353°19.0	11.1'	21°40.0	7.7'	55.5'	93°13.9	70°47.1	65°31.9	57°52.9		76°25.3	76°56.4	101°05.7
6	7°49.1	11.0'	N 21°47.7	7.6'	55.5'	92°45.3	70°17.4	65°01.1	57°23.5		76°53.4	$77^{\circ}12.6$	101°32.8
7	22°19.1	10.9'	21°55.3	7.5'	55.5'	92°16.7	69°47.6	64°30.3	56°54.0	10°25.5	77°21.5	77°28.9	102°00.0
8	36°49.1	10.8'	22°02.9	7.4'	55.6'	91°48.0	69°17.9	63°59.5	56°24.6	10°47.5	77°49.6	77°45.3	102°27.2
9	51°18.9	10.7'	22°10.3	7.3'	55.6'	91°19.3	68°48.1	63°28.6	55°55.1	11°10.3	78°17.8	78°01.7	102°54.4
10	65°48.6	10.6'	22°17.6	7.2'	55.6'	90°50.5	68°18.2	62°57.7	55°25.5	11°33.7	78°46.1	78°18.2	103°21.6
11	80°18.3	10.6'	22°24.9	7.1'	55.7'	90°21.8	67°48.4	62°26.8	54°56.0	11°57.7	79°14.3	78°34.8	103°48.9
12	94°47.9	10.5'	N22°32.0	7.0'	55.7'	89°53.0	67°18.5	61°55.8	54°26.4	12°22.3	79°42.6	78°51.4	104°16.1
13	109°17.3	10.4'	22°39.0	6.9'	55.7'	89°24.1	66°48.6	61°24.8	53°56.7	12°47.4	80°11.0	79°08.0	104°43.4
14	123°46.7	10.3'	22°46.0	6.8'	55.7'	88°55.2	66°18.7	60°53.8	53°27.0	13°12.9	80°39.4	79°24.8	105°10.6
15	138°16.0	10.2'	22°52.8	6.7'	55.8'	88°26.3	65°48.8	60°22.8	52°57.3	13°38.9	81°07.8	79°41.5	105°37.9
16	152°45.2	10.1'	22°59.5	6.6'	55.8'	87°57.4	65°18.8	59°51.7	52°27.6	14°05.2	81°36.3	79°58.4	106°05.2
17	167°14.3	10.0'	23°06.1	6.5'	55.8'	87°28.4	64°48.8	59°20.6	51°57.8	14°31.9	82°04.8	80°15.3	106°32.5
18	181°43.3	9.9'	N23°12.6	6.4'	55.9'	86°59.4	64°18.8	58°49.4	51°28.0	14°58.9	82°33.3	80°32.2	106°59.8
19	196°12.2	9.8'	23°19.0	6.3'	55.9'	86°30.3	63°48.8	58°18.2	50°58.2	15°26.2	83°01.9	80°49.2	107°27.1
20	210°41.0	9.7'	23°25.2	6.2'	55.9'	86°01.2	63°18.7	57°47.0	50°28.3	15°53.8	83°30.5	81°06.3	107°54.4
21	225°09.7	9.6'	23°31.4	6.0'	56.0'	85°32.1	62°48.7	57°15.8	49°58.4	16°21.7	83°59.2	81°23.4	108°21.8
22	239°38.4	9.5'	23°37.4	5.9'	56.0'	85°03.0	62°18.6	56°44.5	49°28.4	16°49.8	84°27.9	81°40.5	108°49.1
23	254°06.9	9.5'	23°43.4	5.8'	56.0'	84°33.8	61°48.5	56°13.2	48°58.4	17°18.1	84°56.6	81°57.7	109°16.5
13 th	SD	= 15.1'	Mer. pass.	05:28					Sun	SD = 15.8'			

h Moon (14th Aug)

Lunar Distance (objects with largest hourly LD delta)

n		ivioon	(14" Au	ig)			Lunar L	istance	(objects	with larg	est nouri	y LD deita)	
Mon	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Mars	+Saturn	+Deneb	+Fomalhaut	+Altair
0	268°35.4	9.4'	N 23°49.2	5.7'	56.1'	84°04.5	61° 18.3	55°41.9	48°28.4	17°46.7	82°15.0	85°25.4	109°43.8
1	283°03.8	9.3'	23°54.9	5.6'	56.1'	83°35.3	60°48.2	55°10.5	47°58.3	18° 15.4	82°32.3	85°54.2	110°11.2
2	297°32.0	9.2'	24°00.4	5.5'	56.1'	83°06.0	60°18.0	54°39.1	47°28.2	18°44.3	82°49.6	86°23.1	110°38.5
3	312°00.2	9.1'	24°05.9	5.3'	56.2'	82°36.6	59°47.8	54°07.7	46°58.1	19°13.4	83°07.0	86°52.0	111°05.9
4	326°28.3	9.0'	24°11.2	5.2'	56.2'	82°07.2	59°17.6	53°36.2	46°27.9	19°42.7	83°24.5	87°20.9	111°33.3
5	340°56.3	8.9'	24°16.4	5.1'	56.2'	81°37.8	58°47.4	53°04.7	45°57.7	20°12.1	83°41.9	87°49.9	112°00.7
6	355°24.3	8.8'	N 24°21.5	5.0'	56.3'	81°08.3	58° 17.1	52°33.1	45°27.4	20°41.7	83°59.5	88°18.9	112°28.0
7	9°52.1	8.7'	24°26.5	4.8'	56.3'	80°38.8	57°46.9	52°01.6	44°57.1	21°11.4	84°17.1	88°47.9	112°55.4
8	24°19.8	8.7'	24°31.3	4.7'	56.3'	80°09.3	57° 16.6	51°30.0	44°26.8	21°41.2	84°34.7	89°17.0	113°22.8
9	38°47.5	8.6'	24°36.0	4.6'	56.4'	79°39.7	56°46.3	50°58.3	43°56.4	22°11.2	84°52.3	89°46.1	113°50.2
10	53°15.1	8.5'	24°40.6	4.5'	56.4'	79°10.1	56°16.0	50°26.6	43°26.0	22°41.3	85°10.0	90°15.2	114°17.5
11	67°42.5	8.4'	24°45.1	4.3'	56.4'	78°40.4	55°45.6	49°54.9	42°55.5	23°11.5	85°27.8	90°44.4	114°44.9
12	82°09.9	8.3'	N 24°49.4	4.2'	56.5'	78°10.8	55°15.3	49°23.2	42°25.0	23°41.8	85°45.5	91°13.7	115°12.3
13	96°37.2	8.2'	24°53.6	4.1'	56.5'	77°41.0	54°44.9	48°51.4	41°54.5	24°12.3	86°03.4	91°42.9	115°39.7
14	111°04.5	8.1'	24°57.6	3.9'	56.5'	77°11.2	54°14.5	48°19.6	41°23.9	24°42.8	86°21.2	92°12.2	116°07.0
15	125°31.6	8.1'	25°01.6	3.8'	56.6'	76°41.4	53°44.1	47°47.7	40°53.2	25°13.5	86°39.1	92°41.5	116°34.4
16	139°58.7	8.0'	25°05.3	3.7'	56.6'	76°11.5	53°13.7	47°15.8	40°22.6	25°44.2	86°57.0	93°10.9	117°01.7
17	154°25.7	7.9'	25°09.0	3.5'	56.6'	75°41.6	52°43.2	46°43.9	39°51.9	26°15.1	87°15.0	93°40.3	117°29.1
18	168°52.6	7.8'	N 25°12.5	3.4'	56.7'	75°11.7	52°12.8	46°12.0	39°21.1	26°46.0	87°33.0	94°09.8	117°56.4
19	183°19.4	7.7'	25°15.9	3.2'	56.7'	74°41.7	51°42.3	45°40.0	38°50.3	27°17.1	87°51.0	94°39.2	118°23.7
20	197°46.1	7.7'	$25^{\circ}19.1$	3.1'	56.8'	74°11.7	51°11.9	45°08.0	38°19.5	27°48.2	88°09.1	95°08.7	118°51.1
21	212°12.8	7.6'	25°22.2	3.0'	56.8'	73°41.6	50°41.4	44°35.9	37°48.6	28°19.4	88°27.1	95°38.3	119°18.4
22	226°39.3	7.5'	25°25.2	2.8'	56.8'	73°11.5	50°10.9	44°03.8	37°17.7	28°50.7	88°45.3	96°07.9	119°45.6
23	241°05.9	7.4'	25°28.0	2.7'	56.9'	72°41.3	49°40.4	43°31.7	36°46.7	29°22.1	89°03.4	96°37.5	
14 th	SD =	= 15.3'	Mer. pass	. 06:19	<u> </u>				Sun :	SD = 15.8'			

h Moon (15th Aug)

Tue	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Mars	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	255°32.3	7.4'	N25°30.7	2.5'	56.9'	72°11.1	49°09.9	42°59.5	36°15.7		29°53.6	89°21.6	97°07.1
1	269°58.6	7.3'	25°33.2	2.4'	56.9'	71°40.9	48°39.4	42°27.3	35°44.6		30°25.1	89°39.8	97°36.8
2	284°24.9	7.2'	25°35.6	2.2'	57.0'	71°10.6	48°08.8	41°55.1	35°13.5		30°56.7	89°58.0	98°06.5
3	298°51.1	7.1'	25°37.9	2.1'	57.0'	70°40.2	47°38.3	41°22.9	34°42.4		31°28.4	90°16.3	98°36.3
4	313°17.2	7.1'	25°40.0	2.0'	57.1'	70°09.8	47°07.8	40°50.6	34°11.2		32°00.2	90°34.5	99°06.0
5	327°43.3	7.0'	25°41.9	1.8'	57.1'	69°39.4	46°37.2	40°18.2	33°39.9		32°32.0	90°52.8	99°35.9
6	342°09.3	6.9'	N25°43.7	1.7'	57.1'	69°09.0	46°06.7	39°45.9	33°08.7		33°03.9	91°11.2	100°05.7
7	356°35.2	6.9'	25°45.4	1.5'	57.2'	68°38.4	45°36.2	39°13.5	32°37.3		33°35.9	91°29.5	100°35.6
8	11°01.1	6.8'	25°46.9	1.4'	57.2'	68°07.9	45°05.6	38°41.1	32°06.0		34°08.0	91°47.9	101°05.5
9	25°26.9	6.7'	25°48.2	1.2'	57.2'	67°37.3	44°35.1	38°08.6	31°34.5		34°40.1	92°06.3	101°35.4
10	39°52.6	6.7'	25°49.4	1.0'	57.3'	67°06.6	44°04.6	37°36.1	31°03.1		35°12.3	92°24.7	102°05.4
11	54°18.3	6.6'	25°50.5	0.9'	57.3'	66°35.9	43°34.1	37°03.6	30°31.6		35°44.6	92°43.1	102°35.4
12	68°43.9	6.5'	N25°51.4	0.7'	57.4'	66°05.2	43°03.6	36°31.1	30°00.0		36°16.9	93°01.5	103°05.4
13	83°09.4	6.5'	$25^{\circ}52.1$	0.6'	57.4'	65°34.4	42°33.1	35°58.5	29°28.4		36°49.3	93°19.9	103°35.5
14	97°34.9	6.4'	25°52.7	0.4'	57.4'	65°03.5	42°02.6	35°25.9	28°56.7		37°21.8	93°38.4	104°05.5
15	112°00.3	6.4'	25°53.1	0.3'	57.5'	64°32.7	41°32.1	34°53.3	28°25.0		37°54.3	93°56.9	104°35.6
16	126°25.7	6.3'	25°53.4	0.1'	57.5'	64°01.7	41°01.6	34°20.6	27°53.3	12°23.2	38°26.9	94°15.4	105°05.8
17	140°51.0	6.3'	25°53.5	-0.0'	57.6'	63°30.7	40°31.2	33°47.9	27°21.5	12°46.5	38°59.6	94°33.8	105°35.9
18	155°16.3	6.2'	N25°53.5	-0.2'	57.6'	62°59.7	40°00.8	33°15.2	26°49.7	13°10.5	39°32.3	94°52.3	106°06.1
19	169°41.5	6.2'	25°53.3	-0.4'	57.6'	62°28.7	39°30.4	32°42.5	26°17.8	13°35.3	40°05.1	95°10.8	106°36.3
20	184°06.6	6.1'	25°52.9	-0.5'	57.7'	61°57.5	39°00.1	32°09.7	25°45.8	14°00.6	40°37.9	95°29.4	107°06.6
21	198°31.8	6.1'	25°52.4	-0.7'	57.7'	61°26.4	38° 29.7	31°36.9	25°13.8	14°26.5	41°10.8	95°47.9	107°36.9
22	212°56.8	6.0'	$25^{\circ}51.7$	-0.8'	57.8'	60°55.2	37°59.4	31°04.2	24°41.8	14°53.0	41°43.8	96°06.4	108°07.1
23	227°21.8	6.0'	25°50.9	-1.0'	57.8'	60°23.9	37°29.2	30°31.3	24°09.7	15°20.0	42°16.9	96°24.9	108°37.5
15 th	SD	= 15.5	Mer. pas	s. 07:14					Sun	SD = 15.8'			

h Moon (16th Aug)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	-Mars	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	241°46.8	5.9'	N 25°49.9	-1.2'	57.8'	59°52.6	36°59.0	29°58.5	23°37.6	15°47.4		42°50.0	109°07.8
1	256°11.7	5.9'	25°48.7	-1.3'	57.9'	59°21.2	36°28.8	29° 25.7	23°05.4	16°15.3		43°23.1	109°38.1
2	270°36.6	5.8'	25°47.4	-1.5'	57.9'	58° 49.8	35°58.7	28° 52.8	22°33.2	16°43.6		43°56.3	110°08.5
3	285°01.5	5.8'	25°45.9	-1.7'	57.9'	58° 18.4	35°28.6	28° 19.9	22°00.9	17°12.2		44°29.6	110°38.9
4	299°26.3	5.8'	25°44.3	-1.8'	58.0'	57°46.9	34°58.6	27°47.0	21°28.6	17°41.2		45°03.0	111°09.3
5	313°51.1	5.7'	25°42.5	-2.0'	58.0'	57° 15.3	34°28.7	27°14.1	20°56.2	18°10.5		45°36.4	111°39.8
6	328°15.8	5.7'	N 25°40.5	-2.1'	58.1'	56°43.7	33°58.8	26°41.2	20°23.8	18°40.1		46°09.8	112°10.2
7	342°40.5	5.7'	25°38.3	-2.3'	58.1'	56° 12.1	33°29.0	26°08.4	19°51.3	19°09.9		46°43.3	112°40.7
8	357°05.2	5.6'	25°36.0	-2.5'	58.1'	55°40.4	32°59.3	25°35.5	19°18.8	19°40.1		47°16.9	113°11.2
9	11°29.8	5.6'	25°33.6	-2.6'	58.2'	55°08.6	32°29.6	25°02.6	18°46.2	20°10.5		47°50.6	113°41.6
10	25°54.5	5.6'	25°30.9	-2.8'	58.2'	54°36.9	32°00.1	24°29.7	18°13.6	20°41.1		48°24.2	114°12.2
11	40°19.1	5.6'	25°28.1	-3.0'	58.3'	54°05.0	31°30.7	23°56.8	17°40.9	21°11.9		48°58.0	114°42.7
12	54°43.6	5.5'	$N25^{\circ}25.1$	-3.1'	58.3'	53°33.1	31°01.3	23°24.0	17°08.2	21°43.0		49°31.8	115°13.2
13	69°08.2	5.5'	25°22.0	-3.3'	58.3'	53°01.2	30°32.1	22°51.1	16°35.4	22°14.2	22°38.9	50°05.7	115°43.8
14	83°32.7	5.5'	25°18.7	-3.5'	58.4'	52°29.2	30°03.0	22°18.3	16°02.6	22°45.7	22°54.7	50°39.6	116°14.3
15	97°57.2	5.5'	25°15.2	-3.6'	58.4'	51°57.2	29°34.0	21°45.5	15°29.8	23°17.3	23°11.1	51°13.6	116°44.9
16	112°21.7	5.5'	$25^{\circ}11.6$	-3.8'	58.5'	51°25.1	29°05.2	21°12.8	14°56.8	23°49.1	23°28.2	51°47.6	117°15.4
17	126°46.2	5.5'	$25^{\circ}07.8$	-4.0'	58.5'	50°53.0	28°36.5	20°40.1	14°23.9	24°21.0	23°45.9	52°21.7	117°46.0
18	141°10.6	5.4'	N25°03.8	-4.1'	58.5'	50°20.8	28°08.0	20°07.5	13°50.9	24°53.2	24°04.2	52°55.9	118°16.6
19	155°35.1	5.4'	24°59.7	-4.3'	58.6'	49°48.6	27°39.7	19°34.9	13°17.8	25°25.4	24°23.1	53°30.1	118°47.1
20	169°59.5	5.4'	24°55.4	-4.5'	58.6'	49°16.3	27°11.5	19°02.4	12°44.7	25°57.8	24°42.6	54°04.3	119°17.7
21	184°24.0	5.4'	24°50.9	-4.6'	58.7'	48°44.0	26°43.6	18°30.0	12°11.5	26°30.4	25°02.6	54°38.6	119°48.3
22	198°48.4	5.4'	24°46.3	-4.8'	58.7'	48°11.6	26° 15.9	17°57.7	11°38.3	27°03.1	25°23.1	55°13.0	
23	213°12.8	5.4'	24°41.5	-5.0'	58.7'	47°39.2	25°48.3	17°25.5	11°05.1	27°35.9	25°44.1	55°47.4	
16 th	SD :	= 15.8'	Mer. pass	s. 08:12					Sui	n SD = 15.8'			

Moon (17th Aug)

h

Lunar Distance (objects with largest hourly LD delta)

				Ο,					` •				
Thu	GHA	ν	Dec	d	HP	-Sun	-Procyon	-Pollux	± Mars	+Venus	+Capella	+Aldebaran	+Saturn
0	227°37.2	5.4'	N 24°36.5	-5.1'	58.8'	47°06.7	25°21.1	16°53.5	10°31.8		26°05.6	28°08.8	56°21.9
1	242°01.6	5.4'	24°31.4	-5.3'	58.8'	46°34.2	24°54.1	16°21.5	9°58.4		26°27.6	28°41.8	56° 56.5
2	256°26.0	5.4'	24°26.1	-5.5'	58.9'	46°01.7	24°27.3	15°49.8	9°25.0		26°50.1	29° 15.0	57°31.1
3	270°50.5	5.4'	24°20.6	-5.6'	58.9'	45°29.1	24°00.9	15°18.2	8°51.6		27°13.0	29°48.3	58°05.7
4	285°14.9	5.4'	24°14.9	-5.8'	58.9'	44°56.4	23°34.8	14°46.8	8°18.1		27°36.3	30°21.7	58°40.4
5	299°39.3	5.4'	24°09.1	-6.0'	59.0'	44°23.7	23°09.0	14°15.7	7°44.6		28°00.1	30°55.1	59° 15.1
6	314°03.7	5.4'	N 24°03.2	-6.1'	59.0'	43°51.0	22°43.6	13°44.9	7°11.0		28°24.2	31°28.7	59°50.0
7	328°28.1	5.4'	23°57.0	-6.3'	59.1'	43°18.2	22°18.6	13°14.4	6°37.4		28°48.7	32°02.4	60°24.8
8	342°52.6	5.5'	23°50.7	-6.5'	59.1'	42°45.4	21°54.0	12°44.2	6°03.7		29°13.6	32° 36.2	60°59.7
9	357°17.0	5.5'	23°44.3	-6.6'	59.1'	42°12.5	21°29.8	12°14.5	5°30.0		29°38.9	33° 10.1	61°34.7
10	11°41.5	5.5'	23°37.7	-6.8'	59.2'	41°39.6	21°06.1	11°45.2	4°56.3		30°04.5	33°44.1	62°09.7
11	26°06.0	5.5'	23°30.9	-6.9'	59.2'	41°06.6	20°42.9	11°16.5	4°22.5		30°30.4	34°18.1	62°44.8
12	40°30.5	5.5'	N23°23.9	-7.1'	59.2'	40°33.6	20°20.2	10°48.4	3°48.8		30°56.7	34°52.3	63°19.9
13	54°55.0	5.5'	23°16.8	-7.3'	59.3'	40°00.5	19°58.1	10°21.0	3°15.0		31°23.2	35° 26.5	63°55.0
14	69°19.5	5.5'	23°09.5	-7.4'	59.3'		19°36.7	9°54.4	2°41.2		31°50.1	36°00.8	64°30.3
15	83°44.0	5.6'	$23^{\circ}02.1$	-7.6'	59.4'		19° 15.8	9°28.8	2°07.6	7°30.5	32°17.2	36°35.2	65°05.5
16	98°08.6	5.6'	22°54.5	-7.8'	59.4'		18°55.6		1°34.1	7°58.6	32°44.6	37°09.7	65°40.9
17	112°33.2	5.6'	22°46.8	-7.9'	59.4'		18°36.2		1°01.3	8°27.3	33°12.3	37°44.3	66° 16.2
18	126°57.8	5.6'	N22°38.9	-8.1'	59.5'		18° 17.5			8°56.6	33°40.3	38° 18.9	66°51.6
19	141°22.4	5.7'	22°30.8	-8.2'	59.5'		17°59.7			9°26.3	34°08.5	38°53.6	67°27.1
20	155°47.1	5.7'	22°22.6	-8.4'	59.5'		17° 42.7			9°56.5	34°37.0	39°28.4	68°02.6
21	170°11.8	5.7'	22°14.2	-8.5'	59.6'		17°26.6			10°27.1	35°05.6	40°03.2	68°38.2
22	184°36.5	5.7'	22°05.6	-8.7'	59.6'		17°11.4			10°57.9	35°34.6	40°38.2	69°13.8
23	199°01.3	5.8'	21°56.9	-8.8'	59.6'				2°29.7	11°29.1	36°03.7	41°13.2	69°49.5
17 th	SD	= 16.0	Mer. pas	s. 09:11					Sun S	5D = 15.8'			

h Moon (18th Aug)

Fri	GHA	ν	Dec	d	HP	+Mars	+Pollux	+Venus	+Betelgeuse	+Capella	+Aldebaran	+Rigel	+Saturn
0	213°26.0	5.8'	N 21°48.1	-9.0'	59.7'	3°03.9		12°00.5	27°28.2	36°33.0	41°48.2	45°10.6	70°25.2
1	227°50.8	5.8'	21°39.1	-9.2'	59.7'	3°38.2		12°32.1	27°55.1	37°02.6	42°23.3	45°32.9	71°00.9
2	242°15.7	5.9'	21°29.9	-9.3'	59.7'	4°12.6		13°04.0	28°22.4	37°32.4	42°58.5	45°55.5	71°36.7
3	256°40.6	5.9'	21°20.6	-9.5'	59.8'	4°47.1		13°36.0	28°50.0	38°02.3	43°33.8	46°18.3	72°12.6
4	271°05.5	5.9'	$21^{\circ}11.2$	-9.6'	59.8'	5°21.6		14°08.2	29°17.9	38°32.5	44°09.1	46°41.3	72°48.5
5	285°30.4	6.0'	$21^{\circ}01.6$	-9.8'	59.8'	5°56.3		14°40.6	29°46.1	39°02.8	44°44.5	47°04.6	73°24.4
6	299°55.4	6.0'	N 20°51.8	-9.9'	59.9'	6°30.9		15°13.1	30°14.6	39°33.3	45°19.9	47°28.1	74°00.4
7	314°20.4	6.1'	20°41.9	-10.0'	59.9'	7°05.6		15°45.7	30°43.4	40°04.0	45°55.4	47°51.9	74°36.4
8	328°45.5	6.1'	20°31.9	-10.2'	59.9'	7°40.4		16°18.5	31°12.5	40°34.8	46°31.0	48°15.8	75° 12.5
9	343°10.6	6.1'	20°21.7	-10.3'	60.0'	8°15.2		16°51.3	31°41.8	41°05.8	47°06.6	48°40.0	75°48.6
10	357°35.7	6.2'	20°11.3	-10.5'	60.0'	8°50.1		17°24.3	32°11.4	41°37.0	47°42.3	49°04.4	76°24.8
11	12°00.9	6.2'	20°00.9	-10.6'	60.0'	9°25.0		17°57.4	32°41.2	42°08.3	48°18.0	49°29.1	77°01.0
12	26°26.1	6.3'	N 19°50.2	-10.8'	60.1'	9°59.9		18°30.6	33°11.3	42°39.7	48°53.8	49°53.9	77°37.2
13	40°51.4	6.3'	19°39.5	-10.9'	60.1'	10°34.9		19°03.9	33°41.5	43°11.3	49°29.7	50°19.0	78° 13.5
14	55°16.7	6.3'	19°28.6	-11.0'	60.1'	11°10.0		19°37.2	34°12.0	43°43.1	50°05.5	50°44.2	78°49.8
15	69°42.0	6.4'	$19^{\circ}17.6$	-11.2'	60.2'	11°45.0		20°10.7	34°42.8	44°15.0	50°41.5	51°09.6	79°26.2
16	84°07.4	6.4'	19°06.4	-11.3'	60.2'	12°20.2		20°44.2	35°13.7	44°47.0	51°17.5	51°35.3	80°02.6
17	98°32.9	6.5'	18°55.1	-11.4'	60.2'	12°55.3	11°13.6	21°17.8	35°44.8	45°19.1	51°53.5	52°01.1	80°39.1
18	112°58.3	6.5'	N 18°43.6	-11.6'	60.3'	13°30.5	11°43.3	21°51.5	36°16.0	45°51.4	52°29.6	52°27.1	81°15.5
19	127°23.9	6.6'	18°32.1	-11.7'	60.3'	14°05.7	12°13.8	22°25.2	36°47.5	46°23.8	53°05.8	52°53.2	81°52.1
20	141°49.4	6.6'	18°20.4	-11.8'	60.3'	14°41.0	12°44.8	22°59.0	37°19.2	46°56.3	53°42.0	53°19.6	82°28.6
21	156°15.1	6.7'	18°08.5	-12.0'	60.3'	15°16.3	13°16.3	23°32.9	37°51.0	47°28.9	54°18.2	53°46.1	83°05.2
22	170°40.7	6.7'	17°56.6	-12.1'	60.4'	15°51.7	13°48.4	24°06.8	38°22.9	48°01.6	54°54.5	54°12.8	83°41.9
23	185°06.5	6.8'	$17^{\circ}44.5$	-12.2'	60.4'	16°27.0	14°20.8	24°40.8	38°55.1	48°34.4	55°30.8	54°39.6	84° 18.5
18 th	SD	= 16.3	Mer. pas	ss. 10:10			-	-	-	-	-		

h Moon (19th Aug)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	+Pollux	+Mars	+Venus	+Betelgeuse	+Capella	+Rigel	+Aldebaran	+Saturn	
0	199°32.2	6.8'	N17°32.3	-12.3'	60.4'	14°53.6	17°02.5	25°14.8	39°27.3	49°07.4	55°06.6	56°07.2	84°55.2	
1	213°58.0	6.9'	$17^{\circ}19.9$	-12.5'	60.5'	15°26.8	17° 37.9	25°48.9	39°59.8	49°40.4	55°33.8	56°43.6	85°32.0	
2	228°23.9	6.9'	$17^{\circ}07.5$	-12.6'	60.5'	16°00.2	18° 13.4	26°23.1	40°32.3	50°13.6	56°01.1	57°20.1	86°08.8	
3	242°49.8	7.0'	16°54.9	-12.7'	60.5'	16°34.0	18°48.9	26°57.3	41°05.0	50°46.8	56°28.5	57°56.6	86°45.6	
4	257°15.8	7.0'	16°42.2	-12.8'	60.5'	17°08.0	19°24.5	27°31.5	41°37.9	51°20.1	56°56.2	58°33.2	87°22.4	
5	271°41.8	7.1'	16°29.4	-12.9'	60.6'	17°42.3	20°00.1	28°05.8	42°10.8	51°53.6	57°23.9	59°09.7	87°59.3	
6	286°07.9	7.1'	$N16^{\circ}16.4$	-13.0'	60.6'	18° 16.7	20°35.7	28°40.2	42°43.9	52°27.1	57°51.8	59°46.4	88°36.2	
7	300°34.0	7.2'	16°03.4	-13.2'	60.6'	18°51.4	21°11.4	29°14.6	43°17.1	53°00.7	58°19.8	60°23.0	89°13.2	
8	315°00.1	7.2'	15°50.2	-13.3'	60.6'	19°26.2	21°47.0	29°49.0	43°50.4	53°34.4	58°48.0	60°59.7	89°50.1	
9	329°26.3	7.3'	15°37.0	-13.4'	60.6'	20°01.2	22°22.8	30°23.5	44°23.9	54°08.2	59°16.2	61°36.5	90°27.1	
10	343°52.6	7.3'	15°23.6	-13.5'	60.7'									
11	358°18.9	7.4'	$15^{\circ}10.1$	-13.6'	60.7'	$0.7'$ $21^{\circ}11.7$ $23^{\circ}34.3$ $31^{\circ}32.5$ $45^{\circ}31.0$ $55^{\circ}15.9$ $60^{\circ}13.2$ $62^{\circ}50.1$ 91°								
12	12°45.3	7.4'	N 14°56.5	-13.7'	60.7'	21°47.2	24°10.1	32°07.1	46°04.8	55°49.9	60°41.8	63°26.9	92°18.3	
13	27°11.7	7.5'	14°42.8	-13.8'	60.7'	22°22.8	24°45.9	32°41.8	46°38.6	56°24.0	61°10.6	64°03.8	92°55.4	
14	41°38.1	7.5'	14°29.0	-13.9'	60.8'	22°58.5	25°21.8	33°16.5	47°12.6	56°58.1	61°39.4	64°40.7	93°32.6	
15	56°04.7	7.6'	$14^{\circ}15.1$	-14.0'	60.8'	23°34.3	25°57.6	33°51.2	47°46.6	57°32.4	62°08.4	65°17.6	94°09.7	
16	70°31.2	7.6'	$14^{\circ}01.1$	-14.1'	60.8'	24° 10.2	26°33.6	34°25.9	48°20.7	58°06.6	62°37.5	65°54.6	94°46.9	
17	84°57.8	7.7'	13°47.0	-14.2'	60.8'	24°46.3	27°09.5	35°00.7	48°54.9	58°41.0	63°06.7	66°31.6	95°24.1	
18	99°24.5	7.7'	N 13°32.8	-14.3'	60.8'	25°22.4	27°45.4	35°35.5	49°29.2	59°15.4	63°36.0	67°08.6	96°01.4	
19	113°51.2	7.8'	$13^{\circ}18.5$	-14.4'	60.9'					Moon ——		·		
20	128°17.9	7.8'	$13^{\circ}04.1$	-14.5'	60.9'					Moon				
21	142°44.7	7.8'	12°49.7	-14.6'	60.9'					Moon				
22	157°11.6	7.9'	12°35.1	-14.6'	60.9'					Moon ——				
23	171°38.5	7.9'	12°20.5	-14.7'	60.9'				New	Moon ——				
19 th	SD	= 16.5	' Mer. pas	s. 11:07										

h Moon (20th Aug)

		11100	11 (20 /1)	46 <i>)</i>		
Sun	GHA	ν	Dec	d	HP	
0	186°05.4	8.0'	N 12°05.8	-14.8'	60.9'	New Moon
1	200°32.4	8.0'	11°50.9	-14.9'	61.0'	New Moon
2 3	214°59.4	8.1'	$11^{\circ}36.1$	-15.0'	61.0'	New Moon
3	229°26.5	8.1'	$11^{\circ}21.1$	-15.0'	61.0'	New Moon
4	243°53.7	8.2'	$11^{\circ}06.0$	-15.1'	61.0'	New Moon
5	258°20.8	8.2'	10°50.9	-15.2'	61.0'	New Moon
6	272°48.0	8.3'	N 10°35.7	-15.3'	61.0'	New Moon
7	287°15.3	8.3'	10°20.5	-15.3'	61.0'	New Moon
8	301°42.6	8.3'	$10^{\circ}05.1$	-15.4'	61.0'	New Moon
9	316°10.0	8.4'	09°49.7	-15.5'	61.1'	New Moon
10	330°37.3	8.4'	09°34.3	-15.5'	61.1'	New Moon
11	345°04.8	8.5'	09°18.7	-15.6'	61.1'	New Moon
12	359°32.2	8.5'	$N09^{\circ}03.1$	-15.7'	61.1'	New Moon
13	13°59.8	8.6'	08°47.5	-15.7'	61.1'	New Moon
14	28°27.3	8.6'	08°31.8	-15.8'	61.1'	New Moon
15	42°54.9	8.6'	$08^{\circ}16.0$	-15.8'	61.1'	New Moon
16	57°22.5	8.7'	08°00.2	-15.9'	61.1'	New Moon
17	71°50.2	8.7'	07°44.3	-15.9'	61.1'	New Moon
18	86°17.9	8.7'	N 07°28.4	-16.0'	61.1'	New Moon
19	100°45.6	8.8'	$07^{\circ}12.4$	-16.0'	61.1'	New Moon
20	115°13.4	8.8'	06°56.4	-16.1'	61.1'	New Moon
21	129°41.2	8.8'	06°40.4	-16.1'	61.1'	New Moon
22	144°09.0	8.9'	06°24.3	-16.1'	61.1'	New Moon
23	158°36.9	8.9'	06°08.1	-16.2'	61.2'	New Moon
20 th	SD	= 16.6	6' Mer. pas	s. 12:02		

h		Мос	on (21 st Ai	ug)			_ Lunar Di	stance (obj	ects with	n largest	hourly LE	delta)	
Mon	GHA	ν	Dec	d	HP	-Vega	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica	-Jupiter
0	173°04.8	8.9'	N 05°51.9	-16.2'	61.2'				— New M	oon ———			
1	187°32.8	9.0'	05°35.7	-16.2'	61.2'				— New M				
2	202°00.7	9.0'	05°19.5	-16.3'	61.2'				— New M				
3	216°28.7	9.0'	05°03.2	-16.3'	61.2'		91°38.2	81°19.9	77°22.7	71°38.4	56°02.4	45°58.9	21°41.1
4	230°56.7	9.1'	04°46.9	-16.3'	61.2'		91°00.2	80°50.4	76°53.9	71°14.8	55°35.6	45°21.1	21°05.1
5	245°24.8	9.1'	04°30.5	-16.4'	61.2'		90°22.2	80°20.9	76°25.3	70°51.3	55°09.0	44°43.2	20°29.2
6	259°52.9	9.1'	N04°14.2	-16.4'	61.2'		89°44.3	79°51.4	75°56.6	70°27.9	54° 42.5	44°05.3	19°53.4
7	274°21.0	9.1'	03°57.8	-16.4	61.2'		89°06.3	79°21.9	75°28.1	70°04.6	54°16.1	43°27.4	19°17.7
8 9	288°49.1 303°17.3	9.2' 9.2'	03°41.4 03°24.9	-16.4'	61.2'		88°28.3 87°50.3	78°52.5 78°23.1	74°59.5 74°31.0	69°41.3 69°18.2	53°49.9 53°23.9	42°49.6 42°11.7	18°42.1 18°06.7
10	303 17.3 317°45.5	9.2 9.2'	03 24.9 03°08.5	-16.4' -16.5'	61.2' 61.1'		87°12.4	78 23.1 77°53.8	74 31.0 74°02.6	68°55.2	53 23.9 52°58.1	42 11.7 41°33.9	18 00.7 17°31.4
11	332°13.7	9.2	03 08.5 02°52.0	-16.5'	61.1		86°34.4	77°24.5	73°34.3	68°32.2	52°32.4	41 33.9 40°56.0	16°56.2
12	346°41.9	9.2'	N02°35.6	-16.5	61.1		85°56.4	76°55.2	73°05.9	68°09.4	52°06.9	40°18.2	16°21.2
13	1°10.1	9.3'	02°19.1	-16.5'	61.1'		85°18.5	76°26.0	72°37.7	67°46.7	51°41.6	39°40.4	15°46.5
14	15°38.4	9.3'	02°02.6	-16.5'	61.1'		84°40.5	75°56.8	72°09.5	67°24.1	51° 16.4	39°02.6	15°11.9
15	30°06.7	9.3'	$01^{\circ}46.0$	-16.5'	61.1'		84°02.6	75°27.7	71°41.4	67°01.6	50°51.5	38°24.8	14°37.5
16	44°35.0	9.3'	$01^{\circ}29.5$	-16.5'	61.1'		83°24.7	74°58.6	71°13.4	66°39.3	50°26.8	37°47.0	14°03.5
17	59°03.3	9.3'	01°13.0	-16.5'	61.1'		82°46.8	74°29.6	70°45.4	66°17.1	50°02.2	37°09.2	13°29.7
18	73°31.6	9.4'	N 00°56.5	-16.5'	61.1'		82°08.9	74°00.7	70°17.5	65°55.0	49°37.9	36°31.5	12°56.2
19	88°00.0	9.4'	00°40.0	-16.5'	61.1'		81°31.0	73°31.8	69°49.7	65°33.0	49°13.8	35°53.7	12°23.2
20	102°28.4	9.4'	00°23.4	-16.5'	61.1'		80°53.1	73°02.9	69°21.9	65°11.2	48°49.9	35°16.0	11°50.6
21	116°56.7	9.4	N 00°06.9	-16.5'	61.1'	105°55.8	80°15.2	72°34.2	68°54.3	64°49.5	48°26.3	34°38.3	11°18.4
22	131°25.1	9.4	S 00°09.6	-16.5'	61.1'	105°40.7	79°37.3	72°05.5	68°26.7	64°27.9	48°02.9	34°00.6	10°46.9
23	145°53.5	9.4'	00°26.1	-16.5'	61.1'	105°25.5	78°59.5	71°36.8	67°59.2	64°06.5	47°39.7	33°22.9	10°16.0
21 st	SD	= 16.7	7' Mer. pas	ss. 12:55									

h Moon (22nd Aug)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Altair	-Vega	-Antares	-Rigil Kent.	-Hadar	-Acrux	-Arcturus	-Spica
0	160°21.9	9.4'	S 00°42.6	-16.5'	61.0'		105°10.2	78°21.7	71°08.2	67°31.8	63°45.2	47°16.8	32°45.3
1	174°50.4	9.4'	$00^{\circ}59.1$	-16.5'	61.0'		104°54.8	77°43.9	70°39.7	67°04.5	63°24.1	46°54.1	32°07.7
2	189°18.8	9.4'	$01^{\circ}15.6$	-16.5'	61.0'		104°39.4	77°06.1	70°11.3	66°37.3	63°03.1	46°31.7	31°30.1
3	203°47.2	9.4'	$01^{\circ}32.0$	-16.4'	61.0'		104°23.8	76°28.3	69°43.0	66°10.2	62°42.3	46°09.6	30°52.5
4	218°15.7	9.4'	$01^{\circ}48.5$	-16.4'	61.0'		104°08.2	75°50.5	69°14.7	65°43.2	62°21.6	45°47.7	30°14.9
5	232°44.1	9.5'	02°04.9	-16.4'	61.0'		103°52.5	75°12.8	68°46.5	65°16.3	62°01.1	45°26.1	29°37.4
6	247°12.6	9.5'	S 02°21.3	-16.4'	61.0'		103°36.7	74°35.0	68°18.4	64°49.5	61°40.8	45°04.8	28°59.9
7	261°41.0	9.5'	02°37.7	-16.4'	61.0'		103°20.9	73°57.3	67°50.4	64°22.8	61°20.7	44°43.8	28°22.4
8	276°09.5	9.5'	$02^{\circ}54.0$	-16.3'	60.9'		103°05.0	73°19.6	67°22.5	63°56.2	61°00.7	44°23.1	27°45.0
9	290°38.0	9.5'	03°10.4	-16.3'	60.9'		102°49.0	72°42.0	66°54.7	63°29.8	60°40.9	44°02.7	27°07.6
10	305°06.4	9.5'	03°26.7	-16.3'	60.9'		102°32.9	72°04.3	66°27.0	63°03.4	60°21.3	43°42.6	26°30.2
11	319°34.9	9.5'	03°42.9	-16.2'	60.9'		102°16.8	71°26.7	65°59.3	62°37.2	60°01.8	43°22.8	25°52.8
12	334°03.3	9.5'	S 03°59.2	-16.2'	60.9'		102°00.6	70°49.1	65°31.8	62°11.1	59°42.5	43°03.4	25°15.5
13	348°31.8	9.5'	04°15.4	-16.2'	60.9'		101°44.3	70°11.5	65°04.4	61°45.2	59°23.5	42°44.3	24°38.2
14	3°00.3	9.5'	04°31.6	-16.1'	60.8'	119°58.0	101°28.0	69°33.9	64°37.1	61°19.4	59°04.6	42°25.5	24°01.0
15	17°28.7	9.5'	04°47.7	-16.1'	60.8'	119°26.5	101°11.6	68°56.4	64°09.9	60°53.7	58°45.9	42°07.1	23°23.8
16	31°57.2	9.4'	05°03.8	-16.1'	60.8'	118°55.0	100°55.2	68°18.9	63°42.8	60°28.1	58°27.4	41°49.1	22°46.7
17	46°25.6	9.4'	$05^{\circ}19.9$	-16.0'	60.8'	118°23.5	100°38.7	67°41.4	63°15.8	60°02.7	58°09.2	41°31.4	22°09.5
18	60°54.1	9.4'	S 05°35.9	-16.0'	60.8'	117°51.9	100°22.2	67°04.0	62°48.9	59°37.4	57°51.1	41°14.1	21°32.5
19	75°22.5	9.4'	$05^{\circ}51.8$	-15.9'	60.8'	117°20.3	100°05.6	66°26.5	62°22.2	59°12.3	57°33.2	40°57.1	20°55.5
20	89°50.9	9.4'	06°07.8	-15.9'	60.7'	116°48.6	99°49.0	65°49.1	61°55.6	58°47.4	57° 15.6	40°40.6	20°18.5
21	104°19.3	9.4'	06°23.6	-15.8'	60.7'	116° 16.9	99°32.3	65°11.7	61°29.1	58°22.6	56°58.2	40°24.5	19°41.6
22	118°47.7	9.4'	$06^{\circ}39.5$	-15.8'	60.7'	115°45.2	99°15.6	64°34.4	61°02.7	57°57.9	56°41.0	40°08.7	19°04.7
23	133°16.1	9.4'	06°55.2	-15.7'	60.7'	115°13.4	98°58.8	63°57.1	60°36.5	57°33.4	56°24.0	39°53.4	18°27.9
22 nd	SD	= 16.6	Mer. pa	ss. 13:48									

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

Wed	GHA	ν	Dec	d	HP	-Altair	-Vega	-Antares	-Rigil Kent.	-Hadar	-Spica	+Jupiter	+Sun
0	147°44.5	9.4'	S 07°11.0	-15.7'	60.6'	114°41.7	98°42.0	63°19.8	60°10.4	57°09.1	17°51.2		
1	162°12.9	9.4'	07°26.6	-15.6'	60.6'	114°09.8	98°25.2	62°42.5	59°44.4	56°45.0	17°14.6		
2	176°41.2	9.3'	07°42.2	-15.6'	60.6'	113°38.0	98°08.4	62°05.3	59°18.6	56°21.0	16°38.0	10°07.2	
3	191°09.6	9.3'	07°57.8	-15.5'	60.6'	113°06.2	97°51.5	61°28.1	58°53.0	55°57.2	16°01.5	10°37.4	
4	205°37.9	9.3'	08°13.3	-15.4'	60.6'	112°34.3	97°34.5	60°50.9	58°27.5	55°33.6	15°25.0	11°08.2	
5	220°06.2	9.3'	08°28.7	-15.4'	60.5'	112°02.4	97°17.6	60°13.8	58°02.1	55°10.2	14°48.7	11°39.5	
6	234°34.5	9.3'	S 08°44.1	-15.3'	60.5'	111°30.5	97°00.6	59°36.7	57°36.9	54°46.9	14°12.5	12°11.3	
7	249°02.8	9.3'	08°59.4	-15.2'	60.5'	110°58.6	96°43.6	58°59.6	57°11.9	54°23.9	13°36.4	12°43.5	
8	263°31.1	9.2'	09°14.6	-15.2'	60.5'	110°26.6	96°26.6	58°22.5	56°47.0	54°01.0	13°00.4	13°16.0	
9	277°59.3	9.2'	09°29.8	-15.1'	60.4'	109°54.7	96°09.5	57°45.5	56°22.3	53°38.4	12°24.5	13°48.9	41°40.7
10	292°27.5	9.2'	09°44.9	-15.0'	60.4'	109°22.7	95°52.5	57°08.6	55°57.7	53°15.9	11°48.8	14°21.9	42°15.2
11	306°55.7	9.2'	09°59.9	-15.0'	60.4'	108°50.8	95°35.4	56°31.6	55°33.4	52°53.7	11°13.2	14°55.3	42°49.6
12	321°23.9	9.2'	S 10°14.9	-14.9'	60.4'	108° 18.8	95°18.3	55°54.7	55°09.2	52°31.7	10°37.8	15°28.8	43°24.0
13	335°52.1	9.1'	10°29.8	-14.8'	60.3'	107°46.9	95°01.2	55°17.9	54°45.2	52°09.9	10°02.7	16°02.4	43°58.4
14	350°20.2	9.1'	10°44.6	-14.7'	60.3'	107°14.9	94°44.1	54°41.0	54°21.3	51°48.3	9°27.8	16°36.3	44°32.7
15	4°48.3	9.1'	10°59.3	-14.7'	60.3'	106°42.9	94°26.9	54°04.2	53°57.7	51°26.9	8°53.2	17°10.3	45°07.0
16	19°16.4	9.1'	11°14.0	-14.6'	60.2'	106°11.0	94°09.8	53°27.5	53°34.3	51°05.8	8°18.9	17°44.3	45°41.3
17	33°44.5	9.0'	$11^{\circ}28.6$	-14.5'	60.2'	105°39.0	93°52.7	52°50.7	53°11.0	50°44.9	7°45.1	18°18.5	46°15.5
18	48°12.5	9.0'	S 11°43.0	-14.4'	60.2'	105°07.1	93°35.5	52°14.0	52°48.0	50°24.3	7°11.8	18°52.8	46°49.7
19	62°40.5	9.0'	11°57.5	-14.3'	60.2'	104°35.1	93°18.4	51°37.4	52°25.1	50°03.9	6°39.0	19°27.1	47°23.8
20	77°08.5	9.0'	$12^{\circ}11.8$	-14.2'	60.1'	104°03.2	93°01.2	51°00.8	52°02.5	49°43.7	6°07.1	20°01.6	47°58.0
21	91°36.5	8.9'	$12^{\circ}26.0$	-14.1'	60.1'	103°31.3	92°44.1	50°24.2	51°40.1	49°23.8		20°36.0	48°32.1
22	106°04.4	8.9'	12°40.2	-14.1'	60.1'	102°59.3	92°26.9	49°47.7	51°17.9	49°04.1		21°10.5	49°06.1
23	120°32.4	8.9'	12°54.2	-14.0'	60.0'	102°27.4	92°09.8	49°11.2	50°55.9	48°44.7		21°45.1	49°40.1
23 rd	SD	= 16.5	['] Mer. pas	ss. 14:40					Sun SD =	15.8'			

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

Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Altair	-Rigil Kent.	-Antares	-Hadar	+Spica	+Jupiter	+Sun
0	135°00.2	8.9'	S 13°08.2	-13.9'	60.0'		101°55.6	50°34.1	48°34.7	48°25.6		22° 19.7	50°14.1
1	149°28.1	8.8'	13°22.1	-13.8'	60.0'		101°23.7	50° 12.6	47°58.3	48°06.8		22°54.3	50°48.0
2	163°55.9	8.8'	13°35.8	-13.7'	60.0'		100°51.8	49°51.3	47°21.9	47°48.2		23°29.0	51°21.9
3	178°23.7	8.8'	13°49.5	-13.6'	59.9'		100°20.0	49°30.2	46°45.6	47°29.9		24°03.6	51°55.8
4	192°51.5	8.7'	14°03.1	-13.5'	59.9'		99°48.2	49°09.4	46°09.3	47°11.9		24°38.3	52°29.6
5	207°19.2	8.7'	14°16.6	-13.4'	59.9'		99°16.4	48° 48.8	45°33.0	46°54.1		25°13.0	53°03.4
6	221°46.9	8.7'	S 14°30.0	-13.3'	59.8'		98°44.6	48° 28.5	44°56.8	46°36.7		25°47.7	53°37.2
7	236°14.6	8.6'	14°43.3	-13.2'	59.8'		98°12.8	48° 08.5	44°20.6	46°19.6		26°22.4	54°10.9
8	250°42.3	8.6'	14°56.5	-13.1'	59.8'		97°41.1	47° 48.7	43°44.5	46°02.7		26°57.1	54°44.5
9	265°09.9	8.6'	$15^{\circ}09.6$	-13.0'	59.7'		97°09.4	47°29.1	43°08.4	45°46.2		27°31.8	55°18.2
10	279°37.5	8.6'	15°22.6	-12.9'	59.7'		96°37.7	47°09.8	42°32.3	45°30.0		28°06.5	55°51.7
11	294°05.0	8.5'	15°35.4	-12.8'	59.7'		96°06.0	46°50.9	41°56.3	45°14.1		28°41.2	56°25.3
12	308°32.5	8.5'	S 15°48.2	-12.7'	59.6'		95°34.4	46°32.1	41°20.3	44°58.5		29°15.9	56°58.8
13	323°00.0	8.5'	$16^{\circ}00.9$	-12.6'	59.6'		95°02.8	46°13.7	40°44.4	44°43.3		29°50.5	57°32.3
14	337°27.5	8.4'	16°13.4	-12.4'	59.6'	119°30.4	94°31.2	45° 55.6	40°08.5			30°25.2	58°05.7
15	351°54.9	8.4'	16°25.9	-12.3'	59.5'	118°58.9	93°59.7	45°37.7	39°32.7		6°56.3	30°59.8	58°39.1
16	6°22.3	8.4'	16°38.2	-12.2'	59.5'	118°27.3	93°28.1	45°20.1	38°56.9		7°28.6	31°34.4	59°12.4
17	20°49.6	8.3'	16°50.4	-12.1'	59.5'	117°55.8	92°56.7	45°02.9	38°21.1		8°01.3	32°09.0	59°45.7
18	35°16.9	8.3'	S 17°02.5	-12.0'	59.4'	117°24.2	92°25.2	44° 45.9	37°45.4		8°34.4	32°43.6	60°18.9
19	49°44.2	8.3'	17°14.5	-11.9'	59.4'	116° 52.6	91°53.8	44°29.3	37°09.7		9°07.8	33°18.1	60°52.2
20	64°11.5	8.2'	17°26.4	-11.8'	59.4'	116°21.1	91°22.4	44°13.0	36°34.1		9°41.4	33°52.7	61°25.3
21	78°38.7	8.2'	17°38.2	-11.6'	59.3'	115°49.5	90°51.1	43°57.0	35°58.5		10°15.2	34°27.2	61°58.5
22	93°05.9	8.2'	17°49.8	-11.5'	59.3'	115° 17.9	90°19.8	43°41.3	35°23.0		10°49.2	35°01.6	62°31.5
23	107°33.0	8.1'	18°01.3	-11.4'	59.3'	114°46.4	89°48.5	43°26.0	34°47.5		11°23.2	35°36.1	63°04.6
24 th	SD	= 16.4	' Mer. pas	ss. 15:34				- :	Sun SD = 1	5.8'			

h	Moon	(25 th	Aug)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Antares	+Spica	+Jupiter	+Arcturus	+Sun
0	122°00.2	8.1'	S 18°12.7	-11.3'	59.2'	114°14.8	108°57.5	89°17.3	34°12.0	11°57.4	36°10.5		63°37.6
1	136°27.3	8.1'	18°24.0	-11.2'	59.2'	113°43.2	108°40.5	88°46.1	33°36.6	12°31.7	36°44.9		64°10.5
2	150°54.3	8.0'	18°35.1	-11.0'	59.2'	113°11.7	108°23.4	88°14.9	33°01.2	13°06.0	37°19.3		64°43.4
3	165°21.3	8.0'	18°46.2	-10.9'	59.1'	112°40.1	108°06.3	87°43.8	32°25.9	13°40.3	37°53.6		65°16.3
4	179°48.3	8.0'	$18^{\circ}57.1$	-10.8'	59.1'	112°08.6	107°49.1	87°12.8	31°50.6	14°14.7	38°27.9		65°49.1
5	194°15.3	7.9'	19°07.8	-10.6'	59.1'	111°37.1	107°31.8	86°41.7	31°15.4	14°49.1	39°02.2		66°21.9
6	208°42.2	7.9'	S 19°18.5	-10.5'	59.0'	111°05.6	107°14.5	86°10.7	30°40.2	15°23.6	39°36.5		66°54.7
7	223°09.1	7.9'	19°29.0	-10.4'	59.0'	110°34.0	106°57.1	85°39.8	30°05.1	15°58.0	40°10.7		67°27.4
8	237°35.9	7.8'	19°39.4	-10.3'	59.0'	110°02.6	106°39.6	85°08.9	29°30.0	16°32.5	40°44.8		68°00.0
9	252°02.8	7.8'	19°49.7	-10.1'	58.9'	109°31.1	106°22.1	84°38.1	28°54.9	17°06.9	41°19.0		68°32.6
10	266°29.6	7.8'	19°59.8	-10.0'	58.9'	108°59.6	106°04.5	84°07.3	28°19.9	17°41.4	41°53.1		69°05.2
11	280°56.3	7.7'	20°09.8	-9.9'	58.8'	108°28.2	105°46.9	83°36.5	27°45.0	18°15.8	42°27.2		69°37.7
12	295°23.0	7.7'	S 20°19.7	-9.7'	58.8'	107°56.7	105°29.2	83°05.8	27°10.0	18°50.3	43°01.2		70°10.2
13	309°49.7	7.7'	20°29.4	-9.6'	58.8'	107°25.3	105°11.5	82°35.1	26°35.2	19°24.7	43°35.2		70°42.6
14	324°16.4	7.6'	20°39.0	-9.5'	58.7'	106°53.9	104°53.7	82°04.5	26°00.3	19°59.1	44°09.2		71°15.0
15	338°43.1	7.6'	20°48.4	-9.3'	58.7'	106°22.5	104°35.9	81°34.0	25°25.6	20°33.5	44°43.1		71°47.3
16	353°09.7	7.6'	20°57.8	-9.2'	58.7'	105°51.2	104°18.0	81°03.5	24°50.8	21°07.8	45°17.0		72°19.6
17	7°36.2	7.6'	21°07.0	-9.1'	58.6'	105°19.9	104°00.1	80°33.0	24°16.1	21°42.2	45°50.9	40°50.5	72°51.9
18	22°02.8	7.5'	S 21°16.0	-8.9'	58.6'	104°48.5	103°42.1	80°02.6	23°41.5	22°16.5	46°24.7	41°06.0	73°24.1
19	36°29.3	7.5'	21°24.9	-8.8'	58.6'	104°17.3	103°24.2	79°32.2	23°06.9	22°50.8	46°58.5	41°21.9	73°56.3
20	50°55.8	7.5'	21°33.7	-8.6'	58.5'	103°46.0	103°06.1	79°01.9	22°32.3	23°25.0	47°32.3	41°38.0	74°28.4
21	65°22.3	7.4'	21°42.3	-8.5'	58.5'	103°14.7	102°48.0	78°31.7	21°57.8	23°59.3	48°06.0	41°54.4	75°00.5
22	79°48.7	7.4'	$21^{\circ}50.8$	-8.4'	58.5'	102°43.5	102°29.9	78°01.5	21°23.4	24°33.5	48°39.6	42°11.1	75°32.5
23	94°15.2	7.4'	21°59.2	-8.2'	58.4'	102°12.3	102°11.8	77°31.4	20°48.9	25°07.7	49°13.3	42°28.1	76°04.5
25 th	SD	= 16.2	' Mer. pas	ss. 16:28	-				Sun SD :	= 15.8'			

Moon (26th Aug)

h

Sat	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	-Antares	+Spica	+Arcturus	+Jupiter	+Sun
										-			
0	108°41.6	7.4'	S 22°07.4	-8.1'	58.4'	101°53.6	101°41.2	77°01.3	20°14.6	25°41.8	42°45.3	49°46.9	76°36.5
1	123°07.9	7.3'	22°15.5	-7.9'	58.3'	101°35.4	101°10.0	76°31.2	19°40.2	26°15.9	43°02.7	50°20.4	77°08.4
2	137°34.3	7.3'	22°23.4	-7.8'	58.3'	101°17.2	100°38.9	76°01.3	19°06.0	26°50.0	43°20.5	50°54.0	77°40.3
3	152°00.6	7.3'	22°31.2	-7.6'	58.3'	100°59.0	100°07.8	75°31.4	18°31.7	27°24.0	43°38.4	51°27.5	78°12.1
4	166°26.9	7.3'	22°38.8	-7.5'	58.2'	100°40.7	99°36.8	75°01.5	17°57.5	27°58.1	43°56.6	52°00.9	78°43.9
5	180°53.2	7.3'	22°46.3	-7.3'	58.2'	100°22.4	99°05.7	74°31.7	17°23.4	28°32.0	44°15.1	52°34.3	79°15.6
6	195°19.5	7.2'	S 22°53.7	-7.2'	58.2'	100°04.1	98°34.7	74°02.0	16°49.3	29°06.0	44°33.7	53°07.7	79°47.3
7	209°45.7	7.2'	23°00.9	-7.1'	58.1'	99°45.7	98°03.8	73°32.3	16° 15.3	29°39.9	44°52.6	53°41.0	80°19.0
8	224°11.9	7.2'	23°07.9	-6.9'	58.1'	99°27.4	97°32.8	73°02.7	15°41.3	30°13.8	45°11.7	54° 14.3	80°50.6
9	238°38.2	7.2'	23°14.8	-6.8'	58.1'	99°09.0	97°01.9	72°33.2	15°07.3	30°47.6	45°31.0	54° 47.6	81°22.1
10	253°04.3	7.2'	23°21.6	-6.6'	58.0'	98°50.6	96°31.0	72°03.7	14°33.4	31°21.4	45°50.4	55°20.8	81°53.7
11	267°30.5	7.2'	23°28.2	-6.5'	58.0'	98°32.2	96°00.2	71°34.3	13°59.6	31°55.2	46°10.1	55°54.0	82°25.2
12	281°56.7	7.1'	S 23°34.7	-6.3'	58.0'	98°13.8	95°29.4	71°04.9	13°25.8	32°28.9	46°30.0	56°27.1	82°56.6
13	296°22.8	7.1'	23°41.0	-6.2'	57.9'	97°55.4	94°58.6	70°35.6	12°52.0	33°02.6	46°50.0	57°00.2	83°28.0
14	310°49.0	7.1'	23°47.2	-6.0'	57.9'	97°36.9	94°27.9	70°06.4	12° 18.3	33°36.3	47° 10.3	57°33.3	83°59.3
15	325°15.1	7.1'	23°53.2	-5.9'	57.8'	97°18.5	93°57.1	69°37.2	11°44.7	34°09.9	47°30.6	58°06.3	84°30.7
16	339°41.2	7.1'	23°59.0	-5.7'	57.8'	97°00.0	93°26.5	69°08.2	11°11.1	34°43.5	47°51.2	58°39.3	85°01.9
17	354°07.3	7.1'	24°04.8	-5.6'	57.8'	96°41.6	92°55.8	68°39.1	10°37.6	35°17.0	48°11.9	59° 12.2	85°33.2
18	8°33.4	7.1'	S 24°10.3	-5.4'	57.7'	96°23.1	92°25.2	68°10.2	10°04.1	35°50.5	48° 32.8	59°45.1	86°04.4
19	22°59.5	7.1'	24°15.8	-5.3'	57.7'	96°04.6	91°54.6	67°41.3	9°30.7	36°24.0	48°53.8	60° 18.0	86°35.5
20	37°25.6	7.1'	$24^{\circ}21.0$	-5.1'	57.7'	95°46.2	91°24.1	67°12.5	8°57.4	36°57.4	49°15.0	60°50.8	87°06.6
21	51°51.6	7.1'	$24^{\circ}26.1$	-5.0'	57.6'	95°27.7	90°53.6	66°43.7	8°24.1	37°30.8	49°36.4	61°23.6	87°37.7
22	66°17.7	7.1'	24°31.1	-4.8'	57.6'	95°09.2	90°23.1	66°15.1	7°50.9	38°04.2	49°57.8	61°56.4	88°08.7
23	80°43.8	7.1'	24°35.9	-4.7'	57.6'	94°50.7	89°52.7	65°46.5	7°17.8	38° 37.5	50° 19.4	62°29.1	88°39.7
26 th	SD =	= 15.9'	Mer. pas	s. 17:24	ļ				Sun SD :	= 15.8'			

		(a=th	. \	
h	Moon	(2) / uii	Αιισι	

Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	± Antares	+Spica	+Arcturus	+Jupiter	+Sun
0	95°09.8	7.1'	S 24°40.6	-4.5'	57.5'	94°32.3	89°22.3	65°18.0	6°44.8	39°10.8	50°41.1	63°01.8	89°10.6
1	109°35.9	7.1'	24°45.1	-4.4'	57.5'	94°13.8	88°51.9	64°49.5	6°11.9	39°44.0	51°03.0	63°34.4	89°41.5
2	124°02.0	7.1'	24°49.5	-4.2'	57.5'	93°55.4	88°21.6	64°21.1	5°39.1	40°17.3	51°25.0	64°07.0	90°12.4
3	138°28.0	7.1'	24°53.7	-4.1'	57.4'	93°36.9	87°51.3	63°52.8	5°06.5	40°50.4	51°47.1	64°39.6	90°43.2
4	152°54.1	7.1'	24°57.7	-3.9'	57.4'	93°18.5	87°21.1	63°24.6	4°34.1	41°23.6	52°09.3	65°12.1	91°14.0
5	167°20.2	7.1'	25°01.6	-3.8'	57.4'	93°00.0	86°50.9	62°56.5	4°02.0	41°56.7	52°31.6	65°44.6	91°44.7
6	181°46.3	7.1'	S 25°05.4	-3.6'	57.3'	92°41.6	86°20.7	62°28.4	3°30.2	42°29.7	52°54.0	66°17.1	92°15.5
7	196°12.3	7.1'	25°09.0	-3.4'	57.3'	92°23.2	85°50.6	62°00.4	2°59.0	43°02.8	53°16.6	66°49.5	92°46.1
8	210°38.4	7.1'	25°12.4	-3.3'	57.3'	92°04.8	85°20.5	61°32.6	2°28.7	43°35.8	53°39.2	67°21.9	93°16.7
9	225°04.5	7.1'	25°15.7	-3.1'	57.2'	91°46.4	84°50.4	61°04.7		44°08.7	54°01.9	67°54.2	93°47.3
10	239°30.6	7.1'	25°18.9	-3.0'	57.2'	91°28.1	84°20.4	60°37.0		44°41.6	54°24.7	68°26.5	94°17.9
11	253°56.8	7.1'	$25^{\circ}21.8$	-2.8'	57.2'	91°09.7	83°50.5	60°09.4		45°14.5	54°47.7	68°58.8	94°48.4
12	268°22.9	7.1'	S 25°24.7	-2.7'	57.1'	90°51.4	83°20.5	59°41.8		45°47.4	55°10.7	69°31.0	95°18.9
13	282°49.0	7.2'	25°27.4	-2.5'	57.1'	90°33.1	82°50.7	59°14.3		46°20.2	55°33.8	70°03.2	95°49.3
14	297°15.2	7.2'	25°29.9	-2.4'	57.1'	90°14.8	82°20.8	58°46.9		46°53.0	55°56.9	70°35.4	96°19.7
15	311°41.4	7.2'	25°32.3	-2.2'	57.0'	89°56.5	81°51.0	58° 19.7		47°25.7	56°20.2	71°07.5	96°50.1
16	326°07.6	7.2'	25°34.5	-2.1'	57.0'	89°38.2	81°21.2	57°52.5		47°58.4	56°43.5	71°39.6	97°20.4
17	340°33.8	7.2'	25°36.6	-1.9'	57.0'	89°20.0	80°51.5	57°25.3		48°31.1	57°06.9	72°11.6	97°50.7
18	355°00.0	7.3'	S 25°38.5	-1.8'	56.9'	89°01.8	80°21.8	56°58.3	3°25.8	49°03.7	57°30.4	72°43.7	98°20.9
19	9°26.3	7.3'	25°40.3	-1.6'	56.9'	88°43.6	79°52.2	56°31.4	3°57.0	49°36.3	57°53.9	73°15.6	98°51.1
20	23°52.6	7.3'	25°41.9	-1.5'	56.9'	88°25.4	79°22.6	56°04.6	4°28.5	50°08.9	58°17.6	73°47.6	99°21.3
21	$38^{\circ}18.9$	7.3'	25°43.4	-1.3'	56.8'	88°07.3	78°53.0	55°37.8	5°00.3	50°41.4	58°41.2	74°19.5	99°51.4
22	52°45.2	7.4'	25°44.7	-1.2'	56.8'	87°49.2	78°23.5	55°11.2	5°32.2	51°13.9	59°05.0	74°51.4	100°21.5
23	67°11.6	7.4'	25°45.9	-1.0'	56.8'	87°31.1	77°54.1	54°44.7	6°04.1	51°46.4	59°28.8	75°23.2	100°51.6
27 th	SD =	= 15.7'	Mer. pas	s. 18:21			-		Sun SD	= 15.8'			

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

Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Sun
0	81°38.0	7.4'	S 25°46.9	-0.9'	56.7'	87°13.0	77°24.6	54°18.3	6°36.1	52°18.8	59°52.6	75°55.0	101°21.6
1	96°04.4	7.4'	25°47.8	-0.7'	56.7'	86°55.0	76°55.3	53°51.9	7°08.2	52°51.2	60°16.6	76°26.8	101°51.6
2	110°30.8	7.5'	25°48.6	-0.6'	56.7'	86°37.0	76°25.9	53°25.7	7°40.3	53°23.6	60°40.5	76°58.6	102°21.6
3	124°57.3	7.5'	$25^{\circ}49.1$	-0.4'	56.6'	$86^{\circ}19.0$	75°56.6	52°59.6	8°12.4	53°55.9	61°04.6	77°30.3	102°51.5
4	139°23.8	7.5'	25°49.6	-0.3'	56.6'	86°01.1	75°27.4	52°33.6	8°44.5	54°28.2	61°28.6	78°01.9	103°21.4
5	153°50.4	7.6'	25°49.9	-0.1'	56.6'	85°43.2	74°58.2	52°07.7	9°16.6	55°00.4	61°52.7	78°33.6	103°51.3
6	$168^{\circ}16.9$	7.6'	S 25°50.0	0.0'	56.6'	85°25.3	74°29.0	51°41.9	9°48.7	55°32.7	62°16.9	79°05.2	104°21.1
7	182°43.5	7.7'	25°50.0	0.2'	56.5'	85°07.5	73°59.9	51°16.3	10°20.7	56°04.9	62°41.1	79°36.8	104°50.9
8	$197^{\circ}10.2$	7.7'	25°49.8	0.3'	56.5'	84°49.7	73°30.9	50°50.7	10°52.8	56°37.0	63°05.4	80°08.3	105°20.6
9	211°36.9	7.7'	25°49.5	0.4'	56.5'	84°32.0	73°01.9	50°25.3	11°24.8	57°09.2	63°29.7	80°39.8	105°50.4
10	226°03.6	7.8'	$25^{\circ}49.1$	0.6'	56.4'	84°14.3	72°32.9	50°00.0	11°56.9	57°41.3	63°54.0	81°11.3	106°20.0
11	240°30.4	7.8'	25°48.5	0.7'	56.4'	83°56.6	72°04.0	49°34.8	12°28.9	58°13.3	64°18.4	81°42.8	106°49.7
12	254°57.2	7.9'	S 25°47.8	0.9'	56.4'	83°38.9	71°35.1	49°09.7	13°00.9	58°45.4	64°42.8	82°14.2	107°19.3
13	269°24.1	7.9'	25°46.9	1.0'	56.3'	83°21.4	71°06.3	48°44.8	13°32.8	59°17.4	65°07.2	82°45.5	107°48.9
14	283°51.0	8.0'	25°45.9	1.2'	56.3'	83°03.8	70°37.5	48°20.0	14°04.8	59°49.3	65°31.7	83°16.9	108°18.5
15	298°17.9	8.0'	25°44.7	1.3'	56.3'	82°46.3	70°08.8	47°55.3	14°36.7	60°21.3	65°56.2	83°48.2	108°48.0
16	312°44.9	8.0'	25°43.4	1.4'	56.3'	82°28.8	69°40.1	47°30.7	15°08.5	60°53.2	66°20.8	84°19.5	109°17.5
17	$327^{\circ}12.0$	8.1'	25°41.9	1.6'	56.2'	82°11.4	69°11.5	47°06.3	15°40.4	61°25.1	66°45.3	84°50.8	109°46.9
18	341°39.1	8.1'	S 25°40.4	1.7'	56.2'	81°54.0	68°42.9	46°42.1	16°12.2	61°56.9	67°09.9	85°22.0	110°16.4
19	356°06.2	8.2'	25°38.6	1.9'	56.2'	81°36.7	68° 14.4	46°17.9	16°44.1	62°28.7	67°34.6	85°53.2	110°45.8
20	10°33.4	8.3'	25° 36.8	2.0'	56.1'	81°19.4	67°45.9	45°54.0	17°15.8	63°00.5	67°59.2	86°24.4	111°15.1
21	25°00.7	8.3'	25°34.8	2.1'	56.1'	81°02.2	67° 17.5	45°30.1	17°47.6	63°32.3	68°23.9	86°55.5	111°44.5
22	39°28.0	8.4'	25°32.6	2.3'	56.1'	80°45.0	66°49.1	45°06.4	18°19.3	64°04.0	68°48.6	87°26.6	112°13.8
23	53°55.3	8.4'	25°30.3	2.4'	56.1'	80°27.9	66°20.8	44°42.9	18°51.0	64°35.7	69°13.3	87°57.7	112°43.1
28 th	SD =	= 15.5′	Mer. pass	s. 19:16	i				Sun SD	= 15.8'			

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

h		IVIoon	(29 th Au	g)			Lunar Di	stance (d	objects wi	th larges	t hourly Li	D delta)	
Tue	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter	+Sun
0	68°22.8	8.5'	S 25°27.9	2.6'	56.0'	80°10.8	65°52.5	44° 19.5	19°22.7	65°07.4	69°38.1	88°28.7	113°12.3
1	82°50.2	8.5'	25°25.4	2.7'	56.0'	79°53.7	65°24.3	43°56.3	19°54.4	65°39.1	70°02.8	88°59.8	113°41.5
2	97°17.8	8.6'	25°22.7	2.8'	56.0'	79°36.8	64°56.1	43°33.3	20°26.0	66°10.7	70°27.6	89°30.8	114°10.7
3	111°45.3	8.6'	$25^{\circ}19.8$	3.0'	55.9'	79°19.8	64°28.0	43° 10.4	20°57.6	66°42.3	70°52.4	90°01.7	114°39.9
4	126°13.0	8.7'	$25^{\circ}16.9$	3.1'	55.9'	79°03.0	63°59.9	42°47.7	21°29.2	67°13.8	71°17.2	90°32.6	115°09.0
5	140°40.7	8.8'	$25^{\circ}13.8$	3.2'	55.9'	78°46.1	63°31.9	42°25.1	22°00.7	67°45.4	71°42.1	91°03.6	115°38.1
6	155°08.5	8.8'	S 25°10.6	3.4'	55.9'	78°29.4	63°04.0	42°02.8	22°32.2	68°16.9	72°06.9	91°34.4	116°07.2
7	169°36.3	8.9'	25°07.2	3.5'	55.8'	78°12.7	62°36.1	41°40.6	23°03.7	68°48.3	72°31.8	92°05.3	116°36.2
8	184°04.2	9.0'	25°03.7	3.6'	55.8'	77°56.0	62°08.3	41°18.6	23°35.2	69°19.8	72°56.6	92°36.1	117°05.2
9	198°32.1	9.0'	$25^{\circ}00.1$	3.7'	55.8'	77°39.5	61°40.5	40°56.8	24°06.6	69°51.2	73°21.5	93°06.9	117°34.2
10	213°00.1	9.1'	24°56.4	3.9'	55.8'	77°22.9	61°12.8	40°35.1	24°38.1	70°22.6	73°46.4	93°37.7	118°03.2
11	227°28.2	9.1'	24°52.5	4.0'	55.7'	77°06.5	60°45.1	40° 13.7	25°09.5	70°54.0	74°11.3	94°08.4	118°32.1
12	241°56.4	9.2'	S 24°48.5	4.1'	55.7'	76°50.1	60°17.5	39°52.5	25°40.8	71°25.3	74°36.2	94°39.1	119°01.0
13	256°24.6	9.3'	24°44.3	4.3'	55.7'	76°33.7	59°50.0	39°31.5	26°12.2	71°56.7	75°01.2	95°09.8	119°29.9
14	270°52.9	9.3'	24°40.1	4.4'	55.7'	76°17.4	59°22.5	39° 10.7	26°43.5	72°28.0	75°26.1	95°40.5	119°58.7
15	285°21.2	9.4'	24°35.7	4.5'	55.6'	76°01.2	58°55.1	38°50.1	27°14.8	72°59.2	75°51.0	$96^{\circ}11.1$	
16	299°49.6	9.5'	24°31.2	4.6'	55.6'	75°45.1	58°27.7	38° 29.7	27°46.0	73°30.5	76°16.0	96°41.7	
17	314°18.1	9.6'	24°26.6	4.7'	55.6'	75°29.0	58°00.5	38°09.5	28°17.3	74°01.7	76°40.9	97° 12.3	
18	328°46.7	9.6'	S 24°21.8	4.9'	55.6'	75°13.0	57°33.2	37°49.6	28°48.5	74°32.9	77°05.9	97°42.9	
19	343°15.3	9.7'	24° 17.0	5.0'	55.5'	74°57.0	57°06.1	37°29.9	29°19.7	75°04.1	77°30.8	98°13.4	i i
20	357°44.0	9.8'	24°12.0	5.1'	55.5'	74°41.2	56°39.0	37° 10.5	29°50.9	75°35.2	77°55.8	98°43.9	
21	12°12.7	9.8'	24°06.9	5.2'	55.5'	74°25.4	56°12.0	36°51.3	30°22.0	76°06.3	78°20.8	99°14.4	
22	26°41.6	9.9'	$24^{\circ}01.6$	5.3'	55.5'	74°09.6	55°45.0	36° 32.3	30°53.1	76°37.4	78°45.7	99°44.9	
23	41°10.5	10.0'	23°56.3	5.5'	55.4'	73°54.0	55°18.1	36° 13.6	31°24.2	77°08.5	79°10.7	100° 15.3	
29 th	SD	= 15.3'	Mer. pass	. 20:09)				Sun SD	= 15.8'			

h		Moon	(30 th Aı	ug)			Lunar I	Distance (objects w	ith largest	: hourly	LD delta)	į
Wod	CHA		Daa	-4	ЦΒ	Caturn	Donob	Eomalhau	Altain	I Amtoros	I Cuisa	I A waterway	_

		IVIOOII	(30° Au	<u>8)</u>			Lunai	distance (o	DJECIS W	itii laigest	Hourry I	_D delta)	
Wed	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Jupiter
0	55°39.5	10.1'	S 23°50.8	5.6'	55.4'	119°15.5	73°38.4	54°51.3	35°55.2	31°55.3	77°39.5	79°35.7	100°45.7
1	70°08.5	10.1'	23°45.2	5.7'	55.4'	118°44.7	73°22.8	54°24.5	35°37.0	32°26.4	78°10.6	80°00.6	101°16.1
2	84°37.6	10.2'	23°39.5	5.8'	55.4'	118°14.0	73°07.4	53°57.9	35°19.1	32°57.4	78°41.6	80°25.6	101°46.5
3	99°06.8	10.3'	23°33.7	5.9'	55.4'	117°43.2	72°52.0	53°31.3	35°01.5	33°28.4	79°12.6	80°50.5	102°16.8
4	113°36.1	10.3'	23°27.8	6.0'	55.3'	117°12.5	72°36.7	53°04.7	34°44.2	33°59.4	79°43.5	81° 15.5	102°47.1
5	128°05.5	10.4'	23°21.8	6.1'	55.3'	116°41.8	72°21.5	52°38.3	34°27.2	34°30.4	80°14.5	81°40.5	103°17.4
6	142°34.9	10.5'	S 23°15.6	6.3'	55.3'	116°11.2	72°06.4	52°11.9	34°10.4	35°01.3	80°45.4	82°05.4	103°47.7
7	157°04.4	10.6'	23°09.4	6.4'	55.3'	115°40.5	71°51.3	51°45.6	33°54.0	35°32.3	81°16.3	82°30.4	104°18.0
8	171°33.9	10.6'	23°03.0	6.5'	55.2'	115°09.9		51° 19.4	33°37.9	36°03.2	81°47.1	82°55.3	104°48.2
9	186°03.6	10.7'	22°56.5	6.6'	55.2'	114°39.3		50°53.3	33°22.1	36°34.0	82°18.0	83°20.3	105°18.4
10	200°33.3	10.8'	22°50.0	6.7'	55.2'	114°08.7		50°27.2	33°06.6	37°04.9	82°48.8	83°45.2	105°48.6
11	215°03.1	10.9'	22°43.3	6.8'	55.2'	113°38.1		50°01.2	32°51.4	37°35.7	83°19.6	84° 10.1	106°18.7
12	229°33.0	10.9'	S 22°36.5	6.9'	55.2'	113°07.5		49°35.3		38°06.6	83°50.4	84°35.0	106°48.9
13	244°02.9	11.0'	22°29.6	7.0'	55.1'	112°37.0		49°09.6		38°37.4	84°21.2	85°00.0	107°19.0
14	258°32.9	11.1'	22°22.6	7.1'	55.1'	112°06.5		48°43.8		39°08.1	84°51.9	85°24.9	107°49.1
15	273°03.0	11.2'	22°15.5	7.2'	55.1'	111°36.0		48° 18.2		39°38.9	85°22.7	85°49.8	108°19.2
16	287°33.2	11.3'	22°08.3	7.3'	55.1'	111°05.5		47°52.7		40°09.6	85°53.4	86° 14.6	108°49.2
17	302°03.5	11.3'	22°00.9	7.4'	55.1'	110°35.0		47°27.3		40°40.4	86°24.1	86°39.5	109°19.3
18	316°33.8	11.4'	S 21°53.5	7.5'	55.0'	110°04.6		47°01.9		41°11.1	86°54.7	87°04.4	109°49.3
19	331°04.2	11.5'	21°46.0	7.6'	55.0'	109°34.1		46°36.7		41°41.7	87°25.4	87° 29.2	110°19.3
20	345°34.7	11.6'	21°38.4	7.7'	55.0'	109°03.7		46°11.6		42°12.4	87°56.0	87°54.1	110°49.2
21	0°05.2	11.6'	21°30.7	7.8'	55.0'	108°33.3		45° 46.5		42°43.0	88°26.6	88° 18.9	111°19.2
22	14°35.9	11.7'	$21^{\circ}22.9$	7.9'	55.0'	108°02.9		45°21.6		43°13.7	88°57.2	88°43.8	111°49.1
23	29°06.6	11.8'	21°15.0	8.0'	54.9'	107°32.6		44°56.8		43°44.3	89°27.8	89°08.6	112°19.0
30 th	SD :	= 15.1'	Mer. pass	. 21:00									

Moon (31st Aug)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Arcturus	+Spica	+Jupiter
0	43°37.3	11.9'	S 21°07.1	8.1'	54.9'	107°02.2	44°32.0	44°14.9	64° 43.5	69°06.0	89°33.4	89°58.3	112°48.9
1	58°08.2	11.9'	20°59.0	8.2'	54.9'	106°31.9	44°07.4	44°45.4	65°05.8	69°28.3	89°58.1	90°28.9	113°18.8
2	72°39.1	12.0'	20°50.8	8.3'	54.9'	106°01.5	43°43.0	45°16.0	65°28.0	69°50.7	90°22.9	90°59.4	113°48.7
3	87°10.1	12.1'	20°42.5	8.4'	54.9'	105°31.2	43°18.6	45°46.5	65° 50.4	70°13.1	90°47.7	91°29.9	114°18.5
4	101°41.2	12.2'	20°34.2	8.4'	54.9'	105°01.0	42°54.3	46°17.1	66° 12.7	70°35.5	91°12.4	92°00.4	114°48.3
5	116°12.4	12.2'	$20^{\circ}25.8$	8.5'	54.8'	104°30.7	42°30.2	46°47.6	66°35.2	70°58.0	91°37.1	92°30.9	115°18.1
6	130°43.6	12.3'	S 20°17.2	8.6'	54.8'	104°00.4	42°06.2	47°18.0	66° 57.6	71°20.5	92°01.8	93°01.3	115°47.9
7	145°14.9	12.4'	20°08.6	8.7'	54.8'	103°30.2	41°42.3	47°48.5	67°20.1	71°43.0	92°26.5	93°31.7	116°17.7
8	159°46.3	12.5'	$19^{\circ}59.9$	8.8'	54.8'	103°00.0	41°18.5	48°19.0	67° 42.6	72°05.6	92°51.2	94°02.2	116°47.4
9	174°17.8	12.5'	$19^{\circ}51.1$	8.9'	54.8'	102°29.7	40°54.9	48°49.4	68°05.2	72°28.2	93°15.8	94°32.6	117°17.1
10	188°49.3	12.6'	19°42.3	9.0'	54.8'	101°59.5	40°31.5	49°19.8	68°27.8	72°50.8	93°40.5	95°02.9	117°46.8
11	203°20.9	12.7'	19°33.3	9.0'	54.7'	101°29.4	40°08.1	49°50.2	68° 50.5	73°13.4	94°05.1	95°33.3	118°16.5
12	217°52.6	12.8'	S 19°24.3	9.1'	54.7'	100°59.2	39°44.9	50°20.6	69°13.1	73°36.1	94°29.7	96°03.7	118°46.2
13	232°24.4	12.8'	$19^{\circ}15.1$	9.2'	54.7'	100°29.0	39°21.9	50°51.0	69°35.9	73°58.8	94°54.3	96°34.0	119°15.8
14	246°56.2	12.9'	$19^{\circ}05.9$	9.3'	54.7'	99°58.9	38°59.0	51°21.3	69° 58.6	74°21.5	95°18.8	97°04.3	119°45.5
15	261°28.1	13.0'	$18^{\circ}56.7$	9.4'	54.7'	99°28.8	38°36.2	51°51.7	70°21.4	74°44.2	95°43.4	97°34.6	
16	276°00.0	13.0'	18°47.3	9.4'	54.7'	98°58.7	38°13.7	52°22.0	70°44.2	75°06.9	96°07.9	98°04.9	
17	290°32.1	13.1'	18°37.9	9.5'	54.6'	98°28.6	37°51.2	52°52.3	71°07.0	75°29.7	96°32.4	98°35.2	
18	305°04.2	13.2'	S 18°28.4	9.6'	54.6'	97°58.5	37°29.0	53°22.6	71°29.9	75°52.5	96°56.8	99°05.5	
19	319°36.4	13.3'	18°18.8	9.7'	54.6'	97°28.4	37°06.9	53°52.9	71°52.8	76°15.3	97°21.3	99°35.7	
20	334°08.6	13.3'	$18^{\circ}09.1$	9.7'	54.6'	96°58.4	36°45.0	54°23.2	72° 15.7	76°38.1	97°45.7	100°05.9	
21	348°41.0	13.4'	17°59.4	9.8'	54.6'	96°28.3	36°23.3	54°53.4	72°38.6	77°00.9	98°10.1	100°36.1	
22	3°13.3	13.5'	17°49.6	9.9'	54.6'	95°58.3	36°01.8	55°23.6	73°01.6	77°23.8	98°34.5	101°06.4	
23	17°45.8	13.5'	17°39.7	9.9'	54.5'	95°28.3	35°40.4	55°53.9	73°24.6	77°46.7	98°58.8	101°36.5	
31 st	SD	= 15.0'	Mer. pass	. 21:47	•								

h		Моо	n (1 st Sep	o)			Lunar	Distance	e (objects w	ith larges	t hourly LD	delta)	
Fri	GHA	ν	Dec	d	HP	-Rigel	-Aldebaran	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	32°18.3	13.6'	S 17°29.8	10.0'	54.5'			94°58.3	35°19.3	56°24.1	73° 47.6	99°23.2	102°06.7
1	46°50.9	13.7'	$17^{\circ}19.7$	10.1'	54.5'			94°28.3	34°58.4	56°54.3	74° 10.6	99° 47.5	102°36.9
2	61°23.6	13.7'	$17^{\circ}09.7$	10.2'	54.5'			93°58.3	34°37.6	57°24.5	74°33.7	100°11.7	103°07.0
3	75°56.3	13.8'	$16^{\circ}59.5$	10.2'	54.5'			93°28.3	34°17.1	57°54.6	74° 56.8	100°36.0	103°37.2
4	90°29.1	13.9'	$16^{\circ}49.3$	10.3'	54.5'			92°58.4	33°56.8	58°24.8	75° 19.8	101°00.2	104°07.3
5	105°02.0	13.9'	$16^{\circ}39.0$	10.4'	54.5'			92°28.5	33°36.7	58°55.0	75°43.0	101°24.4	104°37.4
6	119°34.9	14.0'	S 16°28.6	10.4'	54.5'			91°58.5	33°16.9	59°25.1	76°06.1	101°48.6	105°07.5
7	134°07.9	14.1'	$16^{\circ}18.2$	10.5'	54.4'			91°28.6	32°57.3	59°55.2	76°29.2	102° 12.7	105°37.6
8	148°41.0	14.1'	$16^{\circ}07.7$	10.5'	54.4'		119°52.7	90°58.7	32°37.9	60°25.3	76°52.4	102°36.8	106°07.6
9	163°14.1	14.2'	15°57.2	10.6'	54.4'		119°23.1	90°28.8	32°18.8	60°55.4	77° 15.6	103°00.8	106°37.7
10	177°47.3	14.2'	15°46.6	10.7'	54.4'		118°53.5	89°58.9	32°00.0	61°25.5	77° 38.8	103°24.9	107°07.7
11	192°20.5	14.3'	15°35.9	10.7'	54.4'		118°23.9	89°29.1	31°41.4	61°55.6	78°02.0	103°48.9	107°37.8
12	206°53.9	14.4'	S 15°25.2	10.8'	54.4'		117°54.3	88°59.2	31°23.1	62°25.6	78°25.2	104° 12.9	108°07.8
13	221°27.2	14.4'	$15^{\circ}14.4$	10.8'	54.4'	119°58.8	117°24.7	88°29.4	31°05.1	62°55.7	78° 48.4	104°36.8	108°37.8
14	236°00.7	14.5'	15°03.6	10.9'	54.4'	119°35.8	116°55.1	87°59.5	30°47.3	63°25.7	79° 11.7	105°00.7	109°07.8
15	250°34.2	14.6'	$14^{\circ}52.7$	11.0'	54.3'	119°12.8	116°25.5	87°29.7	30°29.9	63°55.7	79°34.9	105°24.6	109°37.8
16	265°07.7	14.6'	$14^{\circ}41.7$	11.0'	54.3'	118°49.7	115°56.0	86°59.9	30°12.7	64°25.8	79°58.2	105°48.4	110°07.8
17	279°41.3	14.7'	14°30.7	11.1'	54.3'	118°26.6	115°26.4	86°30.1	29°55.9	64°55.8	80°21.5	106° 12.2	110°37.7
18	294°15.0	14.7'	S 14°19.7	11.1'	54.3'	118°03.4	114°56.8	86°00.3	29°39.4	65°25.8	80°44.8	106°36.0	111°07.7
19	308°48.7	14.8'	14°08.5	11.2'	54.3'	117°40.1	114°27.3	85°30.5	29°23.2	65°55.7	81°08.1	106° 59.7	111°37.6
20	323°22.5	14.8'	13°57.4	11.2'	54.3'	117°16.9	113°57.7	85°00.8	29°07.4	66°25.7	81°31.4	107°23.4	112°07.5
21	337°56.3	14.9'	13°46.1	11.3'	54.3'	116°53.5	113°28.2	84°31.0	28°51.9	66°55.7	81°54.7	107°47.0	112°37.5
22	352°30.2	15.0'	13°34.9	11.3'	54.3'	116°30.2	112°58.7	84°01.3	28°36.7	67°25.6	82°18.0	108° 10.6	113°07.4
23	7°04.2	15.0'	13°23.6	11.4'	54.3'	116°06.7	112°29.1	83°31.5		67°55.6	82°41.3	108°34.2	113°37.3
1 st	SD	= 14.9'	Mer. pass	s. 22:31									

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

Sat	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica	
0	21°38.2	15.1'	S 13°12.2	11.4'	54.2'	119° 56.1	115°43.3	111°59.6	83°01.8	68°25.5	83°04.6	108° 57.7	114°07.2	
1	36°12.3	15.1'	13°00.8	11.5'	54.2'	119°28.7	115°19.8	111°30.1	82°32.1	68°55.4	83°28.0	109°21.2	114°37.0	
2	50°46.4	15.2'	12°49.3	11.5'	54.2'	119°01.2	114°56.2	111°00.6	82°02.4	69°25.4	83°51.3	109°44.7	115°06.9	
3	65°20.5	15.2'	12°37.8	11.6'	54.2'	118°33.7	114°32.7	110°31.1	81°32.7	69°55.3	84°14.7	110°08.1	115°36.8	
4	79°54.7	15.3'	12°26.2	11.6'	54.2'	118°06.2	114°09.0	110°01.6	81°03.0	70°25.2	84°38.0	110°31.4	116°06.6	
5	94°29.0	15.3'	12°14.6	11.6'	54.2'	117°38.7	113°45.4	109°32.1	80°33.3	70°55.0	85°01.3	110°54.7	116°36.5	
6	109°03.3	15.4'	S 12°03.0	11.7'	54.2'	117°11.2	113°21.7	109°02.6	80°03.6	71°24.9	85°24.7	111°18.0	117°06.3	
7	123°37.7	15.4'	$11^{\circ}51.3$	11.7'	54.2'	116°43.6	112°58.0	108°33.2	79°34.0	71°54.8	85°48.0	111°41.2	117°36.1	
8	138°12.1	15.5'	$11^{\circ}39.5$	11.8'	54.2'	116° 16.1	112°34.2	108°03.7	79°04.3	72°24.7	86°11.4	112°04.4	118°05.9	
9	152°46.6	15.5'	$11^{\circ}27.8$	11.8'	54.2'	115°48.5	112°10.4	107°34.2	78°34.7	72°54.5	86°34.7	112°27.5	118°35.7	
10	167°21.1	15.6'	$11^{\circ}15.9$	11.9'	54.1'	115°21.0	111°46.6	107°04.8	78°05.0	73°24.3	86°58.1	112°50.6	119°05.5	
11	181°55.6	15.6'	$11^{\circ}04.1$	11.9'	54.1'	114°53.4	111°22.8	106°35.3	77°35.4	73°54.2	87°21.4	113°13.6	119°35.3	
12	196°30.2	15.6'	S 10°52.2	11.9'	54.1'	114°25.8	110°58.9	106°05.9	77°05.8	74°24.0	87° 44.8	113°36.6		
13	211°04.9	15.7'	10°40.3	12.0'	54.1'	113°58.2	110°35.0	105°36.5	76°36.2	74°53.8	88°08.1	113° 59.5		
14	225°39.5	15.7'	10°28.3	12.0'	54.1'	113°30.6	110°11.0	105°07.0	76°06.6	75°23.6	88°31.4	114°22.3		
15	240°14.3	15.8'	$10^{\circ}16.3$	12.0'	54.1'	113°03.0	109°47.1	104°37.6	75°37.0	75°53.4	88°54.8	114°45.2		
16	254°49.0	15.8'	10°04.2	12.1'	54.1'	112°35.3	109°23.1	104°08.2	75°07.4	76°23.2	89° 18.1	115°07.9		
17	269°23.8	15.9'	09°52.2	12.1'	54.1'	112°07.7	108°59.0	103°38.8	74°37.9	76°53.0	89°41.4	115°30.6		
18	283°58.7	15.9'	S 09°40.0	12.1'	54.1'	111°40.1	108°35.0	103°09.4	74°08.3	77°22.8	90°04.7	115°53.3		
19	298°33.6	15.9'	09°27.9	12.2'	54.1'	111°12.4	108°10.9	102°40.0	73°38.7	77°52.6	90°28.1	116° 15.8		
20	313°08.5	16.0'	09°15.7	12.2'	54.1'	110°44.7	107°46.8	102°10.6	73°09.2	78°22.3	90°51.4	116°38.4		
21	327°43.5	16.0'	09°03.5	12.2'	54.1'	110°17.1	107°22.7	101°41.2	72°39.7	78°52.1	91°14.7	117°00.8	1	
22	342°18.5	16.0'	08°51.3	12.3'	54.0'	109°49.4	106°58.6	101°11.8	72°10.1	79°21.8	91°38.0	117°23.2		
23	356°53.5	16.1'	08°39.0	12.3'	54.0'	109°21.7	106°34.4	100°42.4	71°40.6	79°51.6	92°01.2	117°45.6		
2 nd	SD	= 14.8'	Mer. pass	. 23:13										

h	Moon	(3 rd	Sep`)
11	1010011	ľ	JCP	,

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	11°28.6	16.1'	S 08°26.7	12.3'	54.0'	118°39.2	108°54.1	100°13.0	71°11.1	80°21.3	92°24.5	96°31.0	118°07.9
1	26°03.7	16.1'	08°14.4	12.4'	54.0'	118°11.4	108°26.4	99°43.7	70°41.6	80°51.1	92°47.8	96°53.7	118°30.1
2	40°38.9	16.2'	$08^{\circ}02.0$	12.4'	54.0'	117°43.5	107°58.7	99°14.3	70°12.1	81°20.8	93°11.0	97°16.5	118°52.2
3	55°14.1	16.2'	07°49.6	12.4'	54.0'	117°15.6	107°31.0	98°44.9	69°42.6	81°50.5	93°34.3	97°39.2	119°14.3
4	69°49.3	16.2'	07°37.2	12.4'	54.0'	116°47.7	107°03.3	98°15.6	69°13.1	82°20.2	93°57.5	98°01.9	119°36.3
5	84°24.5	16.3'	07°24.8	12.5'	54.0'	116°19.9	106°35.6	97°46.2	68°43.6	82°49.9	94°20.7	98°24.6	119°58.2
6	98°59.8	16.3'	S 07°12.3	12.5'	54.0'	115°52.0	106°07.9	97°16.9	68°14.2	83°19.6	94°44.0	98°47.2	
7	113°35.1	16.3'	06°59.8	12.5'	54.0'	115°24.1	105°40.2	96°47.5	67°44.7	83°49.3	95°07.1	99°09.9	
8	128°10.4	16.4'	06°47.3	12.5'	54.0'	114°56.1	105°12.4	96°18.2	67°15.3	84°19.0	95°30.3	99°32.5	
9	142°45.8	16.4'	06°34.8	12.6'	54.0'	114°28.2	104°44.7	95°48.9	66°45.8	84°48.7	95°53.5	99°55.1	
10	157°21.2	16.4'	06°22.2	12.6'	54.0'	114°00.3	104°17.0	95°19.6	66°16.4	85°18.4	96° 16.7	100°17.7	
11	171°56.6	16.4'	06°09.6	12.6'	54.0'	113°32.3	103°49.3	94°50.2	65°46.9	85°48.1	96°39.8	100°40.2	
12	186°32.0	16.5'	S 05°57.1	12.6'	54.0'	113°04.4	103°21.5	94°20.9	65°17.5	86°17.7	97°02.9	101°02.7	
13	201°07.5	16.5'	05°44.4	12.6'	54.0'	112°36.4	102°53.8	93°51.6	64°48.1	86°47.4	97°26.0	101°25.2	
14	215°43.0	16.5'	$05^{\circ}31.8$	12.7'	54.0'	112°08.5	102°26.1	93°22.3	64°18.7	87°17.1	97°49.1	101°47.7	
15	230°18.5	16.5'	$05^{\circ}19.2$	12.7'	54.0'	111°40.5	101°58.3	92°53.0	63°49.3	87°46.7	98°12.2	102°10.2	
16	244°54.1	16.6'	05°06.5	12.7'	53.9'	111°12.5	101°30.6	92°23.7	63°19.9	88°16.4	98°35.2	102°32.6	
17	259°29.6	16.6'	04°53.8	12.7'	53.9'	110°44.5	101°02.8	91°54.4	62°50.5	88°46.0	98°58.3	102°55.0	
18	274°05.2	16.6'	S 04°41.1	12.7'	53.9'	110°16.5	100°35.1	91°25.1	62°21.1	89°15.7	99°21.3	103°17.3	
19	288°40.8	16.6'	04°28.4	12.7'	53.9'	109°48.5	100°07.3	90°55.8	61°51.7	89°45.3	99°44.3	103°39.7	
20	303°16.4	16.6'	$04^{\circ}15.7$	12.7'	53.9'	109°20.5	99°39.6	90°26.5	61°22.4	90°14.9	100°07.2	104°02.0	
21	317°52.1	16.7'	$04^{\circ}02.9$	12.8'	53.9'	108°52.5	99°11.8	89°57.2	60°53.0	90°44.6	100°30.2	104°24.2	
22	332°27.7	16.7'	03°50.2	12.8'	53.9'	108°24.5	98°44.1	89°28.0	60°23.6	91°14.2	100°53.1	104°46.5	
23	347°03.4	16.7'	03°37.4	12.8'	53.9'	107°56.5	98°16.3	88°58.7	59°54.3	91°43.8	101°16.0	105°08.7	
3 rd	SD	$= 14.7^{\prime}$	Mer. pass	s. 23:53									

Moon (4th Sep)

h

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	1°39.1	16.7'	S 03°24.6	12.8'	53.9'	107°28.4	97°48.6	88°29.4	59°25.0	45° 30.5	92°13.4	101°38.9	105°30.9
1	16°14.8	16.7'	03°11.8	12.8'	53.9'	107°00.4	97°20.8	88°00.2	58°55.6	45°52.7	92°43.0	102°01.8	105°53.0
2	30°50.5	16.7'	02°59.0	12.8'	53.9'	106°32.4	96°53.0	87°30.9	58°26.3	46° 15.0	93°12.7	102°24.6	106°15.1
3	45°26.2	16.7'	02°46.2	12.8'	53.9'	106°04.3	96°25.3	87°01.6	57°57.0	46°37.4	93°42.3	102°47.4	106°37.2
4	60°02.0	16.8'	02°33.4	12.8'	53.9'	105°36.3	95° 57.5	86°32.4	57°27.6	46°59.9	94°11.9	103°10.2	106°59.2
5	74°37.7	16.8'	02°20.6	12.8'	53.9'	105°08.2	95°29.8	86°03.1	56°58.3	47°22.5	94°41.5	103°33.0	107°21.2
6	89°13.5	16.8'	S 02°07.7	12.8'	53.9'	104°40.2	95°02.0	85°33.9	56°29.0	47°45.1	95°11.1	103°55.7	107°43.2
7	103°49.2	16.8'	01°54.9	12.8'	53.9'	104° 12.1	94°34.2	85°04.6	55°59.7	48°07.9	95°40.7	104°18.4	108°05.1
8	118°25.0	16.8'	$01^{\circ}42.1$	12.8'	53.9'	103°44.0	94°06.5	84°35.4	55°30.4	48°30.8	96°10.3	104°41.1	108°27.0
9	133°00.8	16.8'	$01^{\circ}29.2$	12.9'	53.9'	103° 16.0	93°38.7	84°06.1	55°01.2	48°53.8	96°39.9	105°03.7	108°48.8
10	147°36.6	16.8'	$01^{\circ}16.4$	12.9'	53.9'	102°47.9	93°11.0	83°36.9	54°31.9	49°16.8	97°09.4	105°26.3	109°10.6
11	162°12.4	16.8'	$01^{\circ}03.5$	12.9'	53.9'	102° 19.8	92°43.2	83°07.7	54°02.6	49°40.0	97°39.0	105°48.9	109°32.4
12	176°48.2	16.8'	S 00°50.6	12.9'	53.9'	101°51.7	92°15.4	82°38.4	53°33.3	50°03.2	98°08.6	106°11.4	109°54.1
13	191°24.0	16.8'	00°37.8	12.9'	53.9'	101°23.6	91°47.7	82°09.2	53°04.1	50° 26.5	98°38.2	106°34.0	110°15.7
14	205°59.9	16.8'	00°24.9	12.9'	53.9'	100°55.5	91°19.9	81°40.0	52°34.8	50°49.8	99°07.8	106°56.4	110°37.4
15	220°35.7	16.8'	S 00° 12.1	12.9'	53.9'	100°27.5	90°52.2	81°10.7	52°05.6	51°13.3	99°37.4	107°18.9	110°58.9
16	235°11.5	16.8'	N 00°00.8	12.9'	53.9'	99°59.4	90°24.4	80°41.5	51°36.4	51°36.8	100°06.9	107°41.3	111°20.5
17	249°47.3	16.8'	$00^{\circ}13.7$	12.9'	53.9'	99°31.3	89°56.7	80°12.3	51°07.1	52°00.4	100°36.5	108°03.7	111°41.9
18	264°23.1	16.8'	N00°26.5	12.9'	53.9'	99°03.2	89°28.9	79°43.1	50°37.9	52°24.1	101°06.1	108°26.0	112°03.4
19	278°59.0	16.8'	00°39.4	12.9'	53.9'	98° 35.0	89°01.2	79°13.9	50°08.7	52°47.8	101°35.7	108°48.3	112°24.8
20	293°34.8	16.8'	00°52.2	12.8'	53.9'	98°06.9	88°33.4	78°44.6	49°39.5	53°11.6	102°05.3	109°10.6	112°46.1
21	308°10.6	16.8'	$01^{\circ}05.1$	12.8'	53.9'	97° 38.8	88°05.7	78°15.4	49°10.3	53°35.5	102°34.8	109°32.8	113°07.4
22	322°46.4	16.8'	$01^{\circ}17.9$	12.8'	53.9'	97° 10.7	87°37.9	77°46.2	48°41.1	53°59.5	103°04.4	109°55.0	113°28.6
23	337°22.2	16.8'	01°30.8	12.8'	53.9'	96° 42.6	87°10.2	77°17.0	48°11.9	54°23.5	103°34.0	110°17.1	113°49.8
4 th	SE	0 = 14.7	7' Mer. pas	ss:-							-		

h Moon (5th Sep)

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	351°58.0	16.8'	N 01°43.6	12.8'	53.9'		118°44.9	76°47.8	47°42.7	32°04.9	54° 47.5	104°03.5	110°39.2
1	6°33.8	16.8'	$01^{\circ}56.4$	12.8'	53.9'		118° 15.6	76°18.6	47°13.5	32°23.5	55°11.7	104°33.1	111°01.3
2	21°09.6	16.8'	$02^{\circ}09.3$	12.8'	53.9'		117°46.3	75°49.4	46°44.3	32°42.3	55° 35.8	105°02.7	111°23.3
3	35°45.4	16.8'	$02^{\circ}22.1$	12.8'	53.9'		$117^{\circ}16.9$	75°20.2	46°15.2	33°01.4	$56^{\circ}00.1$	105°32.3	111°45.3
4	50°21.2	16.8'	02°34.9	12.8'	53.9'		116°47.6	74°51.0	45°46.0	33°20.7	56°24.4	106°01.8	112°07.2
5	64°56.9	16.8'	02°47.7	12.8'	53.9'	119°51.1	116° 18.3	74°21.8	45°16.9	33°40.2	56°48.7	106°31.4	112°29.1
6	79°32.7	16.7'	N03°00.4	12.8'	53.9'	119°23.0	115°49.0	73°52.6	44°47.7	33°59.9	57°13.1	107°01.0	112°50.9
7	94°08.4	16.7'	03°13.2	12.8'	53.9'	118°54.9	$115^{\circ}19.7$	73°23.4	44°18.6	34°19.9	57° 37.6	107°30.5	113°12.7
8	108°44.2	16.7'	03°26.0	12.7'	53.9'	118°26.7	114°50.3	72°54.2	43°49.5	34°40.0	58°02.1	108°00.1	113°34.4
9	123°19.9	16.7'	03°38.7	12.7'	53.9'	117°58.5	114°21.0	72°25.0	43°20.4	35°00.3	58°26.7	108°29.7	113°56.1
10	137°55.6	16.7'	03°51.5	12.7'	53.9'	117°30.4	113°51.7	71°55.8	42°51.3	35°20.9	58°51.3	108°59.3	114°17.7
11	152°31.3	16.7'	04°04.2	12.7'	53.9'	117°02.2	113°22.3	71°26.6	42°22.2	35°41.6	59° 15.9	109°28.8	114°39.3
12	167°07.0	16.7'	$N04^{\circ}16.9$	12.7'	53.9'	116°33.9	112°53.0	70°57.4	41°53.1	36°02.4	59°40.6	109°58.4	115°00.8
13	181°42.6	16.6'	$04^{\circ}29.6$	12.7'	53.9'	116°05.7	112°23.7	70°28.3	41°24.0	36°23.5	60°05.4	110°28.0	115°22.3
14	196°18.3	16.6'	04°42.3	12.7'	53.9'	115°37.5	111°54.3	69°59.1	40°54.9	36°44.7	60°30.2	110°57.6	115°43.7
15	210°53.9	16.6'	04°54.9	12.6'	53.9'	115°09.2	111°25.0	69°29.9	40°25.9	37°06.1	60°55.0	111°27.2	116°05.0
16	225°29.5	16.6'	05°07.6	12.6'	53.9'	114°41.0	110°55.6	69°00.7	39°56.8	37°27.7	$61^{\circ}19.9$	111°56.7	116°26.3
17	240°05.1	16.6'	05°20.2	12.6'	53.9'	114°12.7	110°26.3	68°31.5	39°27.8	37°49.4	61°44.9	112°26.3	116°47.6
18	254°40.7	16.5'	N05°32.8	12.6'	53.9'	113°44.4	109°56.9	68°02.3	38°58.7	38°11.3	62°09.8	112°55.9	117°08.7
19	269°16.2	16.5'	05°45.4	12.6'	53.9'	113°16.1	109°27.6	67°33.1	38°29.7	38°33.3	62°34.8	113°25.5	117°29.8
20	283°51.7	16.5'	05°57.9	12.5'	53.9'	112°47.8	108°58.2	67°03.9	38°00.7	38°55.4	62°59.9	113°55.1	117°50.9
21	298°27.2	16.5'	$06^{\circ}10.5$	12.5'	53.9'	112°19.5	108°28.8	66°34.8	37°31.7	39°17.7	63°25.0	114°24.7	118°11.9
22	313°02.7	16.5'	$06^{\circ}23.0$	12.5'	53.9'	111°51.1	107°59.4	66°05.6	37°02.7	39°40.2	63°50.1	114°54.3	118°32.8
23	327°38.2	16.4'	06°35.5	12.5'	53.9'	111°22.8	107°30.1	65°36.4	36°33.8	40°02.7	64° 15.3	115°23.9	118°53.6
5 th	SD	$= 14.7^{\prime}$	Mer. pass	. 00:33									

Moon (6th Sep)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	342°13.6	16.4'	N 06°48.0	12.5'	54.0'	110°54.4	107°00.7	65°07.2	36°04.8	40°25.4	64°40.5	115°53.5	119° 14.4
1	356°49.0	16.4'	07°00.4	12.4'	54.0'	110°26.1	106°31.3	64°38.0	35°35.9	40°48.2	65°05.7	116°23.1	119°35.1
2	11°24.4	16.3'	$07^{\circ}12.9$	12.4'	54.0'	109°57.7	106°01.9	64°08.8	35°06.9	41°11.2	65°31.0	116°52.7	119°55.7
3	25°59.7	16.3'	07°25.3	12.4'	54.0'	109°29.3	105°32.5	63°39.7	34°38.0	41°34.2	65°56.3	117°22.3	
4	40°35.0	16.3'	07°37.6	12.3'	54.0'	109°00.9	105°03.1	63° 10.5	34°09.1	41°57.4	66°21.6	117°51.9	
5	55°10.3	16.3'	$07^{\circ}50.0$	12.3'	54.0'	108°32.5	104°33.7	62°41.3	33°40.2	42°20.7	66°47.0	118°21.6	
6	69°45.5	16.2'	N08°02.3	12.3'	54.0'	108°04.1	104°04.3	62°12.1	33°11.3	42°44.1	67°12.4	118°51.2	
7	84°20.8	16.2'	08°14.6	12.3'	54.0'	107°35.6	103°34.9	61°42.9	32°42.5	43°07.6	67°37.9	119°20.8	
8	98°56.0	16.2'	08°26.9	12.2'	54.0'	107°07.2	103°05.5	61°13.7	32°13.7	43°31.2	68°03.3	119°50.5	
9	113°31.1	16.1'	08°39.1	12.2'	54.0'	106°38.7	102°36.0	60°44.5	31°44.8	43°54.9	68°28.8		
10	128°06.2	16.1'	08°51.3	12.2'	54.0'	106°10.3	102°06.6	60° 15.4	31°16.0	44°18.7	68°54.4		
11	142°41.3	16.1'	09°03.5	12.1'	54.0'	105°41.8	101°37.2	59°46.2	30°47.3	44°42.6	69°19.9		
12	157°16.4	16.0'	N09°15.6	12.1'	54.0'	105°13.3	101°07.7	59° 17.0	30°18.5	45°06.6	69°45.5		
13	171°51.4	16.0'	09°27.7	12.1'	54.0'	104°44.8	100°38.3	58° 47.8	29°49.8	45°30.6	70°11.2		
14	186°26.4	15.9'	09°39.8	12.0'	54.0'	104°16.3	100°08.8	58° 18.6	29°21.1	45°54.8	70°36.8		
15	201°01.3	15.9'	09°51.8	12.0'	54.0'	103°47.8	99°39.4	57°49.4	28°52.4	46°19.1	71°02.5		
16	215°36.2	15.9'	10°03.8	12.0'	54.1'	103°19.3	99°09.9	57° 20.2	28°23.8	46°43.4	71°28.2		
17	230°11.1	15.8'	$10^{\circ}15.8$	11.9'	54.1'	102°50.7	98°40.4	56°51.0	27°55.1	47°07.9	71°53.9		
18	244°45.9	15.8'	N10°27.7	11.9'	54.1'	102°22.2	98°10.9	56°21.8	27°26.5	47°32.4	72°19.7		
19	259°20.7	15.7'	10°39.6	11.9'	54.1'	101°53.6	97°41.5	55° 52.7	26°58.0	47°57.0	72°45.5		
20	273°55.4	15.7'	$10^{\circ}51.5$	11.8'	54.1'	101°25.0	97°12.0	55°23.5	26°29.5	48°21.6	73°11.3		
21	288°30.1	15.6'	11°03.3	11.8'	54.1'	100°56.4	96°42.5	54° 54.3	26°01.0	48°46.4	73°37.1		
22	303°04.7	15.6'	11°15.1	11.7'	54.1'	100°27.9	96°13.0	54° 25.1	25°32.5	49°11.2	74°03.0		
23	317°39.3	15.6'	11°26.8	11.7'	54.1'	99°59.2	95°43.4	53°55.9	25°04.1	49°36.1	74°28.8		
6 th	SD	= 14.7'	Mer. pass	. 01:13									

Moon (7th Sep)

h

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Mars	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	332°13.9	15.5'	N 11°38.5	11.7'	54.1'	103°38.5	99°30.6	95°13.9	73°42.9	53°26.7	24°35.8	50°01.0	74°54.8
1	346°48.4	15.5'	11°50.2	11.6'	54.1'	103°10.4	99°02.0	94°44.4	73°14.8	52°57.5	24°07.4	50°26.1	75°20.7
2	1°22.9	15.4'	12°01.8	11.6'	54.1'	102°42.2	98°33.4	94°14.8	72°46.6	52°28.3	23°39.2	50°51.2	75°46.6
3	15°57.3	15.4'	12° 13.4	11.5'	54.1'	102°14.0	98°04.7	93°45.3	72°18.4	51°59.1	23°11.0	51°16.3	76°12.6
4	30°31.7	15.3'	12°24.9	11.5'	54.2'	101°45.9	97°36.1	93°15.7	71°50.2	51°29.9	22°42.8	51°41.6	76°38.6
5	45°06.0	15.3'	12°36.3	11.4'	54.2'	101°17.7	97°07.4	92°46.2	71°22.1	51°00.7	22°14.7	52°06.9	77°04.6
6	59°40.3	15.2'	N12°47.8	11.4'	54.2'	100°49.5	96°38.7	92°16.6	70°53.9	50°31.5	21°46.7	52°32.2	77°30.7
7	74°14.5	15.2'	12°59.2	11.3'	54.2'	100°21.3	96°10.0	91°47.0	70°25.7	50°02.3	21°18.7	52°57.7	77°56.7
8	88°48.6	15.1'	13° 10.5	11.3'	54.2'	99°53.0	95°41.4	91°17.4	69°57.6	49°33.1	20°50.8	53°23.1	78°22.8
9	103°22.8	15.1'	13°21.8	11.2'	54.2'	99°24.8	95°12.6	90°47.8	69°29.4	49°03.9	20°23.0	53°48.7	78°48.9
10	117°56.8	15.0'	13°33.0	11.2'	54.2'	98°56.6	94°43.9	90°18.2	69°01.2	48°34.8	19°55.3	54°14.3	79°15.1
11	132°30.8	15.0'	13°44.2	11.1'	54.2'	98°28.3	94°15.2	89°48.6	68°33.1	48°05.6	19°27.7	54°39.9	79°41.2
12	147°04.8	14.9'	N13°55.3	11.1'	54.2'	98°00.1	93°46.4	89°19.0	68°04.9	47°36.4	19°00.2	55°05.6	80°07.4
13	161°38.7	14.8'	14°06.4	11.0'	54.3'	97°31.8	93°17.7	88°49.3	67°36.8	47°07.2	18°32.7	55°31.4	80°33.6
14	176°12.5	14.8'	14° 17.5	11.0'	54.3'	97°03.5	92°48.9	88°19.7	67°08.6	46°38.0	18°05.4	55°57.2	80°59.8
15	190°46.3	14.7'	14°28.4	10.9'	54.3'	96°35.2	92°20.2	87°50.0	66°40.5	46°08.8	17°38.3	56°23.1	81°26.0
16	205°20.0	14.7'	14°39.4	10.9'	54.3'	96°06.9	91°51.4	87°20.3	66°12.3	45°39.6	17°11.2	56°49.0	81°52.2
17	219°53.7	14.6'	14°50.2	10.8'	54.3'	95°38.6	91°22.6	86°50.7	65°44.2	45°10.4	16°44.4	57°15.0	82°18.5
18	234°27.3	14.5'	$N15^{\circ}01.0$	10.8'	54.3'	95°10.3	90°53.8	86°21.0	65°16.0	44°41.2	16°17.7	57°41.0	82°44.8
19	249°00.9	14.5'	$15^{\circ}11.8$	10.7'	54.3'	94°42.0	90°24.9	85°51.3	64°47.9	44°12.0	15°51.1	58°07.1	83°11.1
20	263°34.3	14.4'	15°22.5	10.6'	54.3'	94°13.6	89°56.1	85°21.6	64°19.7	43°42.8	15°24.8	58°33.2	83°37.4
21	278°07.8	14.4'	15°33.1	10.6'	54.3'	93°45.3	89°27.3	84°51.8	63°51.6	43°13.6	14°58.6	58°59.4	84°03.7
22	292°41.1	14.3'	15°43.7	10.5'	54.4'	93°16.9	88°58.4	84°22.1	63°23.5	42°44.4	14°32.7	59°25.6	84°30.0
23	307°14.4	14.2'	15°54.2	10.5'	54.4'	92°48.5	88°29.6	83°52.4	62°55.3	42°15.3	14°07.1	59°51.9	84°56.4
7 th	SD	= 14.8'	Mer. pass	. 01:54						-		-	

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Fri	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	321°47.7	14.2'	N 16°04.7	10.4'	54.4'		92°20.1	88°00.7	83°22.6	41°46.1	60°18.2		85°22.8
1	336°20.9	14.1'	$16^{\circ}15.1$	10.3'	54.4'	119°50.3	91°51.7	87°31.8	82°52.8	41°16.9	60°44.5		85°49.2
2	350°54.0	14.0'	16°25.4	10.3'	54.4'	119°20.4	91°23.3	87°02.9	82°23.0	40°47.7	61°10.9		86°15.6
3	5°27.0	14.0'	16°35.7	10.2'	54.4'	118°50.4	90°54.9	86°34.0	81°53.2	40°18.6	61°37.4		86°42.0
4	20°00.0	13.9'	16°45.9	10.1'	54.4'	118°20.5	90°26.5	86°05.1	81°23.4	39°49.4	62°03.9		87°08.5
5	34°32.9	13.9'	16°56.0	10.1'	54.5'	117°50.5	89°58.0	85°36.1	80°53.6	39°20.3	62°30.4		87°34.9
6	49°05.8	13.8'	$N17^{\circ}06.1$	10.0'	54.5'	117°20.5	89°29.5	85°07.2	80°23.8	38°51.1	62°57.0		88°01.4
7	63°38.6	13.7'	$17^{\circ}16.1$	9.9'	54.5'	116°50.5	89°01.0	84°38.2	79°53.9	38°21.9	63°23.6		88°27.9
8	78°11.3	13.6'	17°26.0	9.9'	54.5'	116°20.5	88° 32.5	84°09.2	79°24.1	37°52.8	63°50.2		88°54.4
9	92°43.9	13.6'	17°35.9	9.8'	54.5'	115°50.5	88°04.0	83°40.3	78°54.2	37°23.7	64°16.9		89°20.9
10	107°16.5	13.5'	17°45.7	9.7'	54.5'	115°20.5	87°35.5	83°11.3	78°24.3	36°54.5	64°43.7		89°47.4
11	121°49.0	13.4'	17°55.4	9.7'	54.6'	114°50.4	87°07.0	82°42.3	77°54.4	36°25.4	65°10.4		90°13.9
12	136°21.4	13.4'	$N18^{\circ}05.1$	9.6'	54.6'	114°20.3	86°38.4	82°13.2	77°24.5	35°56.3	65°37.2		90°40.5
13	150°53.8	13.3'	18°14.7	9.5'	54.6'	113°50.3	86°09.8	81°44.2	76°54.6	35°27.2	66°04.1		91°07.1
14	165°26.1	13.2'	18°24.2	9.4'	54.6'	113°20.2	85°41.2	81°15.2	76°24.6	34°58.1	66°31.0		91°33.7
15	179°58.3	13.2'	18°33.6	9.4'	54.6'	112°50.0	85° 12.6	80°46.1	75°54.6	34°29.0	66°57.9		92°00.2
16	194°30.5	13.1'	18°43.0	9.3'	54.6'	$112^{\circ}19.9$	84°44.0	80°17.0	75°24.7	34°00.0	67°24.9		92°26.9
17	209°02.6	13.0'	18°52.2	9.2'	54.7'	111°49.7	84°15.4	79°47.9	74°54.7	33°30.9	67°51.9		92°53.5
18	223°34.6	12.9'	$N19^{\circ}01.5$	9.1'	54.7'	111°19.6	83°46.7	79°18.8	74°24.7	33°01.9	68°18.9		93°20.1
19	238°06.5	12.9'	$19^{\circ}10.6$	9.0'	54.7'	110°49.4	83° 18.0	78°49.7	73°54.6	32°32.9	68°46.0		93°46.7
20	252°38.4	12.8'	$19^{\circ}19.6$	9.0'	54.7'	110°19.2	82°49.3	78°20.6	73°24.6	32°03.9	69°13.1		94°13.4
21	267°10.1	12.7'	19°28.6	8.9'	54.7'	109°49.0	82°20.6	77°51.5	72°54.5	31°34.9	69°40.3	73°18.0	94°40.1
22	281°41.9	12.6'	19°37.5	8.8'	54.7'	109°18.7	81°51.9	77°22.3	72°24.5	31°05.9	70°07.4	73°33.1	95°06.7
23	296°13.5	12.6'	19°46.3	8.7'	54.8'	108°48.5	81°23.2	76°53.2	71°54.4	30°37.0	70°34.7	73°48.3	95°33.4
8 th	SD	= 14.8'	Mer. pass	. 02:38									

Moon (9th Sep)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	+Saturn	+Fomalhaut	+Deneb	+Altair
0	310°45.1	12.5'	N 19°55.0	8.6'	54.8'	108°18.2	80°54.4	76°24.0	71°24.3		71°01.9	74°03.5	96°00.1
1	325°16.5	12.4'	20°03.6	8.6'	54.8'	107°47.9	80°25.6	75°54.8	70°54.1		71°29.2	74°18.8	96°26.8
2	339°47.9	12.3'	20°12.2	8.5'	54.8'	107°17.6	79°56.8	75°25.6	70°24.0		71°56.5	74°34.2	96°53.5
3	354°19.3	12.3'	20°20.6	8.4'	54.8'	106°47.2	79°28.0	74°56.4	69°53.8		72°23.9	74°49.7	97°20.3
4	8°50.5	12.2'	$20^{\circ}29.0$	8.3'	54.9'	106°16.9	78°59.2	74°27.2	69°23.7		72°51.3	75°05.2	97°47.0
5	23°21.7	12.1'	20°37.3	8.2'	54.9'	105°46.5	78°30.3	73°57.9	68°53.5		73° 18.7	75°20.8	98°13.8
6	37°52.8	12.0'	N 20°45.5	8.1'	54.9'	105°16.1	78°01.4	73°28.7	68°23.3		73°46.2	75°36.4	98°40.5
7	52°23.8	11.9'	20°53.6	8.0'	54.9'	104°45.7	77°32.5	72°59.4	67°53.0		74°13.6	75°52.1	99°07.3
8	66°54.8	11.9'	$21^{\circ}01.6$	7.9'	54.9'	104°15.2	77°03.6	72°30.1	67°22.8		74°41.2	76°07.9	99°34.0
9	81°25.7	11.8'	21°09.6	7.8'	55.0'	103°44.8	76°34.7	72°00.8	66°52.5		75°08.7	76°23.7	100°00.8
10	95°56.4	11.7'	21°17.4	7.7'	55.0'	103°14.3	76°05.7	71°31.5	66°22.2		75°36.3	76°39.6	100°27.6
11	110°27.2	11.6'	21°25.1	7.6'	55.0'	102°43.8	75°36.7	71°02.2	65°51.9		76°03.9	76°55.5	100°54.4
12	124°57.8	11.6'	N21°32.8	7.6'	55.0'	102°13.3	75°07.7	70°32.9	65°21.6		76°31.6	77°11.5	101°21.2
13	139°28.3	11.5'	21°40.3	7.5'	55.1'	101°42.7	74°38.7	70°03.5	64°51.2	10° 17.0	76° 59.3	77°27.6	101°48.0
14	153°58.8	11.4'	21°47.8	7.4'	55.1'	101°12.1	74°09.6	69°34.2	64°20.9	10°38.6	77° 27.0	77°43.7	102°14.8
15	168°29.2	11.3'	21°55.2	7.3'	55.1'	100°41.6	73°40.6	69°04.8	63°50.5	11°01.0	77°54.7	77°59.9	102°41.6
16	182°59.5	11.2'	22°02.4	7.2'	55.1'	100°10.9	73°11.5	68°35.4	63°20.1	11°24.0	78° 22.5	78°16.1	103°08.5
17	197°29.8	11.2'	22°09.6	7.1'	55.1'	99°40.3	72°42.3	68°06.0	62°49.6	11°47.7	78°50.3	78°32.4	103°35.3
18	211°59.9	11.1'	$N22^{\circ}16.6$	7.0'	55.2'	99°09.6	72°13.2	67°36.6	62°19.2	12°11.8	79°18.1	78°48.7	104°02.1
19	226°30.0	11.0'	22°23.6	6.9'	55.2'	98°38.9	71°44.0	67°07.1	61°48.7	12°36.5	79°46.0	79°05.1	104°29.0
20	241°00.0	10.9'	22°30.4	6.8'	55.2'	98°08.2	71°14.8	66°37.7	61°18.2	13°01.6	80°13.9	79°21.5	104°55.8
21	255°29.9	10.8'	22°37.2	6.6'	55.2'	97°37.5	70°45.6	66°08.3	60°47.7	13°27.1	80°41.9	79°38.0	105°22.7
22	269°59.8	10.8'	22°43.8	6.5'	55.3'	97°06.7	70°16.4	65°38.8	60°17.2	13°53.0	81°09.8	79°54.5	105°49.5
23	284°29.5	10.7'	22°50.4	6.4'	55.3'	96°35.9	69°47.1	65°09.3	59°46.6	14°19.3	81°37.8	80°11.1	106°16.4
9 th	SD	= 14.9'	Mer. pass.	03:23									

Moon (10th Sep)

Sun	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	298°59.2	10.6'	N 22°56.8	6.3'	55.3'	96°05.1	69°17.8	64°39.8	59°16.1	14°45.8	80°27.7	82°05.8	106°43.2
1	313°28.8	10.5'	23°03.1	6.2'	55.3'	95°34.3	68°48.5	64°10.3	58°45.5	15°12.7	80°44.4	82°33.9	107°10.1
2	327°58.4	10.4'	23°09.4	6.1'	55.4'	95°03.4	$68^{\circ}19.2$	63°40.8	58°14.8	15°39.8	81°01.1	83°02.0	107°37.0
3	342°27.8	10.4'	23°15.5	6.0'	55.4'	94°32.5	67°49.8	63°11.3	57°44.2	16°07.2	81°17.9	83°30.1	108°03.8
4	356°57.2	10.3'	23°21.5	5.9'	55.4'	94°01.6	67°20.4	62°41.7	57°13.5	16°34.8	81°34.7	83°58.2	108°30.7
5	11°26.5	10.2'	23°27.4	5.8'	55.4'	93°30.7	66°51.0	62°12.2	56°42.8	17°02.6	81°51.5	84°26.4	108°57.5
6	25°55.7	10.1'	N23°33.1	5.7'	55.5'	92°59.7	66°21.6	61°42.6	56°12.1	17°30.7	82°08.4	84° 54.6	109°24.4
7	40°24.8	10.1'	23°38.8	5.5'	55.5'	92°28.7	65°52.1	61°13.0	55°41.4	17°58.9	82°25.4	85°22.8	109°51.3
8	54°53.9	10.0'	23°44.4	5.4'	55.5'	91°57.7	65°22.6	60°43.4	55°10.6	18°27.3	82°42.3	85°51.1	110°18.1
9	69°22.9	9.9'	23°49.8	5.3'	55.5'	91°26.6	64°53.1	60°13.8	54°39.9	18°55.8	82°59.4	86° 19.4	110°45.0
10	83°51.8	9.8'	23°55.1	5.2'	55.6'	90°55.6	64°23.5	59°44.2	54°09.0	19°24.6	83°16.4	86°47.7	111°11.8
11	98°20.6	9.8'	24°00.3	5.1'	55.6'	90°24.5	63°53.9	59°14.6	53°38.2	19°53.4	83°33.5	87° 16.0	111°38.7
12	112°49.4	9.7'	N 24°05.4	5.0'	55.6'	89°53.3	63°24.3	58° 44.9	53°07.4	20°22.4	83°50.6	87° 44.4	112°05.5
13	127°18.0	9.6'	24°10.4	4.8'	55.6'	89°22.2	62°54.7	58° 15.3	52°36.5	20°51.6	84°07.8	88° 12.8	112°32.4
14	141°46.6	9.5'	24°15.2	4.7'	55.7'	88°51.0	62°25.0	57° 45.6	52°05.6	21°20.8	84°25.0	88°41.2	112°59.2
15	156°15.2	9.5'	24°19.9	4.6'	55.7'	88° 19.7	61°55.3	57° 15.9	51°34.7	21°50.2	84°42.3	89°09.7	113°26.0
16	170°43.6	9.4'	24°24.5	4.5'	55.7'	87°48.5	61°25.6	56°46.2	51°03.7	22°19.7	84°59.6	89°38.2	113°52.9
17	185°12.0	9.3'	24°29.0	4.4'	55.8'	87°17.2	60°55.8	56°16.6	50°32.7	22°49.3	85°16.9	90°06.7	114°19.7
18	199°40.3	9.2'	N24°33.4	4.2'	55.8'	86°45.9	60°26.1	55°46.9	50°01.7	23°19.0	85°34.2	90°35.2	114°46.5
19	214°08.5	9.2'	24°37.6	4.1'	55.8'	86° 14.5	59°56.2	55° 17.1	49°30.7	23°48.8	85°51.6	91°03.8	115°13.3
20	228°36.7	9.1'	24°41.7	4.0'	55.8'	85°43.1	59°26.4	54° 47.4	48°59.7	24°18.7	86°09.0	91°32.4	115°40.1
21	243°04.8	9.0'	24°45.7	3.9'	55.9'	85°11.7	58°56.5	54° 17.7	48°28.6	24°48.7	86°26.5	92°01.0	116°06.8
22	257°32.8	8.9'	24°49.5	3.7'	55.9'	84°40.3	58°26.6	53°48.0	47°57.5	25°18.8	86°43.9	92°29.7	116°33.6
23	272°00.8	8.9'	24°53.3	3.6'	55.9'	84°08.8	57°56.6	53°18.2	47°26.4	25°49.0	87°01.5	92°58.3	117°00.3
10 th	SD	= 15.1'	Mer. pass.	04:13									

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h	Moon	(11 th Sep)	Lunar D	istance	(objects v	with larg	est hourly	≀ LD d∉	elta)	

Mon	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Mars	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	286°28.6	8.8'	N 24°56.9	3.5'	56.0'	102°10.6	83°37.3	57°26.7	46°55.2	26°19.3	87°19.0	93°27.0	117°27.1
1	300°56.4	8.7'	25°00.3	3.3'	56.0'	101°41.5	83°05.8	56°56.7	46°24.0	26°49.6	87°36.5	93°55.8	117°53.8
2	315°24.2	8.7'	25°03.7	3.2'	56.0'	101°12.4	82°34.2	56°26.6	45°52.8	27°20.0	87°54.1	94°24.5	118°20.5
3	329°51.9	8.6'	25°06.9	3.1'	56.1'	100°43.2	82°02.6	55°56.5	45°21.6	27°50.5	88°11.7	94°53.3	118°47.2
4	$344^{\circ}19.5$	8.5'	25°09.9	2.9'	56.1'	100°14.0	81°31.0	55°26.4	44°50.4	28°21.1	88°29.4	95°22.1	119°13.9
5	358°47.0	8.5'	$25^{\circ}12.9$	2.8'	56.1'	99°44.8	80°59.3	54°56.3	44°19.1	28°51.8	88°47.1	95°51.0	119°40.5
6	13°14.5	8.4'	N25°15.7	2.7'	56.1'	99°15.6	80°27.6	54°26.1	43°47.8	29°22.5	89°04.7	96°19.8	
7	27°41.9	8.3'	25°18.3	2.5'	56.2'	98°46.3	79°55.9	53°55.9	43°16.5	29°53.3	89°22.4	96°48.7	
8	42°09.2	8.3'	25°20.9	2.4'	56.2'	98°17.0	79°24.1	53°25.7	42°45.1	30°24.1	89°40.2	97°17.6	
9	56°36.5	8.2'	25°23.3	2.3'	56.2'	97°47.6	78°52.3	52°55.4	42°13.7	30°55.0	89°57.9	97°46.6	
10	71°03.8	8.2'	25°25.5	2.1'	56.3'	97°18.2	78°20.4	52°25.1	41°42.3	31°26.0	90°15.7	98°15.5	
11	85°30.9	8.1'	25°27.7	2.0'	56.3'	96°48.8	77°48.5	51°54.7	41°10.9	31°57.1	90°33.5	98°44.5	
12	99°58.0	8.0'	N25°29.6	1.8'	56.3'	96°19.3	77°16.6	51°24.3	40°39.5	32°28.2	90°51.3	99°13.5	
13	114°25.1	8.0'	25°31.5	1.7'	56.4'	95°49.8	76°44.7	50°53.9	40°08.0	32°59.4	91°09.1	99°42.6	
14	128°52.1	7.9'	25°33.2	1.6'	56.4'	95°20.3	76°12.7	50°23.5	39°36.5	33°30.6	91°27.0	100°11.6	
15	$143^{\circ}19.0$	7.9'	25°34.8	1.4'	56.4'	94°50.7	75°40.7	49°53.0	39°05.0	34°01.9	91°44.8	100°40.7	
16	157°45.9	7.8'	25°36.2	1.3'	56.5'	94°21.1	75°08.6	49°22.5	38°33.4	34°33.3	92°02.7	101°09.8	
17	172°12.7	7.8'	25°37.5	1.1'	56.5'	93°51.4	74°36.5	48°51.9	38°01.9	35°04.7	92°20.6	101°39.0	
18	186°39.4	7.7'	N 25°38.6	1.0'	56.5'	93°21.8	74°04.4	48°21.3	37°30.3	35°36.2	92°38.5	102°08.1	
19	201°06.2	7.7'	25°39.6	0.8'	56.6'	92°52.0	73°32.2	47°50.7	36° 58.7	36°07.7	92°56.4	102°37.3	
20	215°32.8	7.6'	25°40.4	0.7'	56.6'	92°22.3	73°00.0	47°20.0	36°27.1	36°39.3	93°14.3	103°06.5	
21	229°59.4	7.6'	$25^{\circ}41.1$	0.6'	56.6'	91°52.5	72°27.7	46°49.3	35°55.4	37°10.9	93°32.2	103°35.7	
22	244°26.0	7.5'	25°41.7	0.4'	56.7'	91°22.6	71°55.5	46°18.5	35°23.7	37°42.7	93°50.2	104°05.0	
23	258°52.5	7.5'	25°42.1	0.3'	56.7'	90°52.8	71°23.1	45°47.7	34°52.0	38°14.4	94°08.1	104°34.2	
11 th	SD =	= 15.3′	Mer. pass	. 05:05	5				Sun S	5D = 15.9'			

h Moon (12th Sep)

Lunar Distance (objects with largest hourly LD delta)

HP -Sun -Regulus -Mars -Pollux +Aldebaran +Saturn +Deneb

Tue	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Mars	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	273°19.0	7.4'	N 25°42.4	0.1'	56.7'	90°22.9	70°50.8	45°16.9	34°20.3	12°17.0	38°46.2	94°26.1	105°03.5
1	287°45.4	7.4'	25°42.5	-0.0'	56.8'	89°52.9	70° 18.4	44°46.0	33°48.6	12°39.9	39° 18.1	94°44.0	105°32.8
2	302°11.8	7.3'	25°42.5	-0.2'	56.8'	89°22.9	69°45.9	44°15.1	33°16.9	13°03.5	39°50.0	95°02.0	106°02.1
3	316°38.1	7.3'	25°42.3	-0.3	56.8'	88°52.9	69°13.4	43°44.2	32°45.1	13°27.8	40°22.0	95°19.9	106°31.5
4	331°04.4	7.2'	25°42.0	-0.5'	56.9'	88°22.8	68°40.9	43°13.2	32°13.3	13°52.6	40°54.1	95°37.9	107°00.8
5	345°30.6	7.2'	25°41.5	-0.6'	56.9'	87°52.7	68°08.4	42°42.2	31°41.5	14°18.0	41°26.2	95°55.9	107°30.2
6	359°56.8	7.2'	N 25°40.9	-0.8'	57.0'	87°22.5	67°35.8	42°11.1	31°09.7	14°43.9	41°58.3	96°13.9	107°59.6
7	14°23.0	7.1'	25°40.1	-0.9'	57.0'	86°52.3	67°03.1	41°40.0	30°37.9	15°10.2	42°30.5	96°31.8	108°29.1
8	28°49.1	7.1'	25°39.2	-1.1'	57.0'	86°22.1	66°30.4	41°08.9	30°06.1	15°37.0	43°02.7	96°49.8	108°58.5
9	43°15.2	7.1'	25°38.1	-1.2'	57.1'	85°51.8	65° 57.7	40°37.7	29°34.2	16°04.1	43°35.1	97°07.7	109°27.9
10	57°41.3	7.0'	25°36.9	-1.4'	57.1'	85°21.5	65°25.0	40°06.5	29°02.4	16°31.6	44°07.4	97°25.7	109°57.4
11	72°07.3	7.0'	25°35.5	-1.5'	57.1'	84°51.1	64°52.1	39°35.2	28°30.5	16°59.5	44°39.8	97°43.6	110°26.9
12	86°33.3	7.0'	N25°33.9	-1.7'	57.2'	84°20.7	64° 19.3	39°03.9	27°58.6	17°27.7	45° 12.3	98°01.6	110°56.4
13	100°59.3	6.9'	25°32.2	-1.8'	57.2'	83°50.3	63°46.4	38°32.5	27°26.8	17°56.2	45°44.8	98°19.5	111°25.9
14	115°25.2	6.9'	25°30.4	-2.0'	57.2'	83°19.8	63° 13.5	38°01.2	26°54.9	18°25.0	46° 17.4	98°37.5	111°55.4
15	129°51.1	6.9'	25°28.4	-2.1'	57.3'	82°49.3	62°40.5	37°29.7	26°23.0	18°54.0	46°50.0	98°55.4	112°25.0
16	144°17.0	6.9'	25°26.3	-2.3'	57.3'	82°18.7	62°07.5	36°58.3	25°51.2	19°23.3	47°22.7	99°13.3	112°54.5
17	158°42.9	6.8'	25°24.0	-2.5'	57.4'	81°48.1	61°34.4	36°26.7	25°19.3	19°52.8	47°55.4	99°31.2	113°24.1
18	173°08.7	6.8'	N25°21.5	-2.6'	57.4'	81°17.4	61°01.3	35°55.2	24°47.5	20°22.5	48°28.2	99°49.0	113°53.7
19	187°34.5	6.8'	25°18.9	-2.8'	57.4'	80°46.7	60°28.2	35°23.6	24°15.7	20°52.4	49°01.0	100°06.9	114°23.3
20	202°00.3	6.8'	$25^{\circ}16.1$	-2.9'	57.5'	80°16.0	59°55.0	34°52.0	23°43.9	21°22.6	49°33.9	100°24.7	114°52.9
21	216°26.0	6.7'	25°13.2	-3.1'	57.5'	79°45.2	59°21.8	34°20.3	23°12.1	21°52.9	50°06.8	100°42.6	115°22.5
22	230°51.8	6.7'	25°10.1	-3.2'	57.5'	79°14.4	58° 48.5	33°48.6	22°40.3	22°23.4	50°39.8	101°00.4	115°52.1
23	245°17.5	6.7'	25°06.9	-3.4'	57.6'	78°43.5	58° 15.2	33°16.8	22°08.6	22°54.0	51°12.8	101°18.2	116°21.7
12 th	SD	= 15.5'	Mer. pas	s. 06:00)				Sui	n SD $= 15.9'$			

h Moon (13th Sep)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Venus	-Mars	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	259°43.2	6.7'	N25°03.5	-3.5'	57.6'	78°12.6	57°41.8	35° 19.7	32°45.0	23°24.8	23°26.4	51°45.9	116°51.3
1	274°08.9	6.7'	25°00.0	-3.7'	57.7'	77°41.6	57°08.4	34°49.0	32°13.1	23°55.8	23°43.0	52°19.1	117°20.9
2	288°34.6	6.7'	24°56.3	-3.9'	57.7'	77° 10.6	56° 35.0	34° 18.2	31°41.3	24°26.9	24°00.3	52°52.2	117°50.6
3	303°00.3	6.7'	24°52.4	-4.0'	57.7'	76°39.5	56°01.5	33°47.4	31°09.3	24°58.2	24° 18.0	53°25.5	118°20.2
4	317°25.9	6.7'	24°48.4	-4.2'	57.8'	76°08.4	55°27.9	33°16.5	30°37.3	25°29.6	24°36.3	53°58.8	118°49.8
5	331°51.6	6.6'	24°44.3	-4.3'	57.8'	75°37.3	54°54.3	32°45.6	30°05.3	26°01.1	24°55.2	54°32.1	119°19.4
6	346°17.2	6.6'	N 24°39.9	-4.5'	57.8'	75°06.1	54°20.7	32°14.7	29°33.3	26°32.8	25° 14.5	55°05.5	119°49.1
7	0°42.9	6.6'	24°35.5	-4.6'	57.9'	74°34.9	53°47.1	31°43.7	29°01.2	27°04.5	25°34.4	55°39.0	
8	15°08.5	6.6'	24°30.8	-4.8'	57.9'	74°03.6	53° 13.3	31°12.7	28°29.0	27°36.4	25°54.7	56°12.5	
9	29°34.1	6.6'	$24^{\circ}26.1$	-4.9'	58.0'	73°32.2	52°39.6	30°41.6	27°56.8	28°08.4	26° 15.5	56°46.0	
10	43°59.7	6.6'	24°21.1	-5.1'	58.0'	73°00.9	52°05.8	30°10.4	27°24.6	28°40.5	26°36.7	57°19.6	
11	58°25.4	6.6'	24°16.0	-5.3'	58.0'	72°29.5	51°31.9	29°39.3	26°52.3	29°12.7	26°58.3	57°53.3	
12	72°51.0	6.6'	N 24°10.8	-5.4'	58.1'	71°58.0	50°58.0	29°08.0	26°20.0	29°45.1	27°20.4	58°27.0	
13	87°16.6	6.6'	24°05.4	-5.6'	58.1'	71°26.5	50°24.1	28°36.8	25°47.7	30°17.5	27°42.9	59°00.7	
14	101°42.2	6.6'	23°59.8	-5.7'	58.2'	70°54.9	49°50.1	28°05.5	25°15.3	30°50.0	28°05.8	59°34.6	
15	116°07.8	6.6'	23°54.1	-5.9'	58.2'	70°23.3	49° 16.1	27°34.1	24°42.8	31°22.6	28°29.0	60°08.4	
16	130°33.5	6.6'	23°48.2	-6.0'	58.2'	69°51.7	48°42.0	27°02.7	24°10.4	31°55.4	28°52.6	60°42.3	
17	144°59.1	6.6'	23°42.2	-6.2'	58.3'	69°20.0	48°07.9	26°31.2	23°37.9	32°28.2	29°16.6	61°16.3	
18	159°24.7	6.6'	N 23°36.0	-6.3'	58.3'	68°48.2	47°33.7	25°59.7	23°05.3	33°01.0	29°40.9	61°50.3	
19	173°50.4	6.7'	23°29.7	-6.5'	58.4'	68°16.4	46°59.5	25°28.2	22°32.7	33°34.0	30°05.5	62°24.4	
20	188°16.0	6.7'	23°23.2	-6.6'	58.4'	67°44.6	46°25.2	24°56.6	22°00.1	34°07.1	30°30.5	62°58.5	
21	202°41.7	6.7'	23°16.6	-6.8'	58.4'	67°12.7	45°50.9	24°25.0	21°27.4	34°40.2	30°55.7	63°32.7	
22	217°07.4	6.7'	23°09.8	-6.9'	58.5'	66°40.8	45° 16.6	23°53.3	20°54.7	35°13.5	31°21.3	64°06.9	
23	231°33.1	6.7'	23°02.9	-7.1'	58.5'	66°08.8	44° 42.2	23°21.5	20°22.0	35°46.8	31°47.1	64°41.2	
13 th	SD	= 15.7'	Mer. pas	s. 06:57	•				Su	n SD $= 15.9'$			

h Moon (14th Sep)

Thu	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Venus	-Mars	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	245°58.7	6.7'	N 22°55.8	-7.2'	58.5'	65°36.8	44°07.8	22°49.8	19°49.2	23°28.9	32°13.2	36°20.2	65° 15.5
1	260°24.5	6.7'	22°48.5	-7.4'	58.6'	65°04.7	43°33.3	22°17.9	19°16.4	23°51.2	32°39.6	36°53.6	65°49.8
2	274°50.2	6.7'	22°41.1	-7.5'	58.6'	64°32.6	42°58.8	21°46.1	18°43.5	24° 14.0	33°06.3	37°27.2	66°24.3
3	289°15.9	6.8'	22°33.6	-7.7'	58.7'	64°00.5	42°24.2	21°14.2	18° 10.7	24°37.2	33°33.2	38°00.8	66°58.7
4	303°41.7	6.8'	22°25.9	-7.8'	58.7'	63°28.2	41°49.6	20°42.2	17°37.7	25°00.9	34°00.3	38°34.5	67°33.3
5	318°07.5	6.8'	22°18.1	-8.0'	58.7'	62°56.0	41°14.9	20°10.2	17°04.8	25°25.0	34°27.7	39°08.3	68°07.8
6	332°33.3	6.8'	$N22^{\circ}10.1$	-8.1'	58.8'	62°23.7	40°40.2	19°38.1	16°31.9	25°49.6	34°55.4	39°42.1	68°42.5
7	346°59.1	6.8'	22°01.9	-8.3'	58.8'	61°51.3	40°05.5	19°06.0	15°58.9	26° 14.5	35°23.2	40°16.0	69° 17.2
8	1°24.9	6.9'	21°53.7	-8.4'	58.9'	61°18.9	39°30.7	18°33.9	15°25.9	26°39.9	35°51.3	40°50.0	69°51.9
9	15°50.8	6.9'	21°45.2	-8.6'	58.9'	60°46.5	38°55.8	18°01.7	14°52.8	27°05.6	36°19.6	41°24.1	70°26.7
10	30°16.6	6.9'	21°36.7	-8.7'	58.9'	60°14.0	38°20.9	17°29.5	14°19.8	27°31.6	36°48.1	41°58.2	71°01.5
11	44°42.5	6.9'	21°28.0	-8.9'	59.0'	59°41.5	37°46.0	16°57.2	13°46.8	27°58.0	37°16.8	42°32.4	71°36.4
12	59°08.5	6.9'	$N21^{\circ}19.1$	-9.0'	59.0'	59°08.9	37°11.1	16°24.9	13°13.7	28°24.7	37°45.6	43°06.6	72°11.3
13	73°34.4	7.0'	$21^{\circ}10.1$	-9.1'	59.1'	58°36.3	36°36.1	15°52.5	12°40.7	28°51.7	38°14.7	43°41.0	72°46.3
14	88°00.4	7.0'	21°00.9	-9.3'	59.1'	58°03.6	36°01.0	15°20.1	12°07.6	29° 19.1	38°44.0	44°15.4	73°21.3
15	102°26.4	7.0'	20°51.6	-9.4'	59.1'	57°30.9	35°25.9	14°47.6	11°34.6	29°46.7	39°13.4	44°49.8	73°56.4
16	116°52.4	7.1'	20°42.2	-9.6'	59.2'	56°58.1	34°50.8	14°15.1	11°01.6	30° 14.6	39°43.0	45°24.3	74°31.5
17	131°18.4	7.1'	20°32.6	-9.7'	59.2'	56°25.3	34°15.6	13°42.6	10°28.6	30°42.8	40°12.8	45°58.9	75°06.7
18	145°44.5	7.1'	N20°22.9	-9.8'	59.2'	55°52.5	33°40.4	13°10.0	9°55.7	31°11.2	40°42.7	46°33.5	75°41.9
19	160°10.6	7.1'	20°13.1	-10.0'	59.3'	55°19.6	33°05.1	12°37.4	9°22.8	31°39.9	41°12.8	47°08.3	76° 17.2
20	174°36.8	7.2'	20°03.1	-10.1'	59.3'	54°46.6	32°29.8	12°04.7	8°50.1	32°08.8	41°43.1	47°43.0	76°52.5
21	189°02.9	7.2'	19°53.0	-10.3'	59.4'	54°13.6	31°54.5	11°32.0	8°17.4	32° 38.0	42°13.5	48°17.8	77° 27.9
22	203°29.1	7.2'	19°42.7	-10.4'	59.4'	53°40.6	31°19.1	10°59.3	7°44.9	33°07.3	42°44.1	48°52.7	78°03.3
23	217°55.3	7.3'	19°32.3	-10.5'	59.4'	53°07.5	30°43.7	10°26.6	7°12.7	33°37.0	43°14.8	49°27.7	78°38.8
14 th	SD	= 16.0	Mer na	s 07·54					Su	n SD = 15 9'		-	

h Moon (15th Sep)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Venus	±Mars	+Pollux	+Capella	+Aldebaran	+Saturn
0	232°21.6	7.3'	N 19°21.8	-10.7'	59.5'	52°34.4	30°08.3	9°53.8	6°40.6		43°45.6	50°02.7	79°14.3
1	246°47.9	7.3'	$19^{\circ}11.1$	-10.8'	59.5'	52°01.2	29°32.8	9°20.9	6°09.0		44°16.6	50°37.7	79°49.9
2	261°14.2	7.3'	19°00.3	-10.9'	59.5'	51°28.0	28°57.3	8°48.1	5°37.7	10°46.7	44°47.7	51°12.9	80°25.5
3	275°40.5	7.4'	18°49.4	-11.1'	59.6'	50°54.8	28°21.7	8°15.2	5°07.1	11°14.7	45°19.0	51°48.1	81°01.1
4	290°06.9	7.4'	18°38.4	-11.2'	59.6'	50°21.5	27°46.1	7°42.4	4°37.3	11°43.4	45°50.4	52°23.3	81°36.8
5	304°33.3	7.4'	18°27.2	-11.3'	59.6'	49°48.1	27°10.5	7°09.5		12°12.8	46°21.9	52°58.6	82°12.6
6	318°59.8	7.5'	$N18^{\circ}15.9$	-11.4'	59.7'	49°14.7	26°34.9	6°36.6		12°42.8	46°53.5	53°33.9	82°48.4
7	333°26.3	7.5'	18°04.4	-11.6'	59.7'	48°41.3	25°59.2	6°03.7		13°13.3	47°25.3	54°09.3	83°24.2
8	347°52.8	7.5'	17°52.9	-11.7'	59.8'	48°07.8	25°23.5	5°30.9		13°44.3	47°57.2	54°44.8	84°00.1
9	2°19.3	7.6'	17°41.2	-11.8'	59.8'	47°34.3	24°47.8	4°58.1		14°15.7	48°29.1	55°20.3	84°36.1
10	16°45.9	7.6'	17°29.4	-11.9'	59.8'	47°00.8	24°12.0	4°25.5		14°47.6	49°01.2	55°55.9	85°12.1
11	31°12.5	7.6'	$17^{\circ}17.4$	-12.1'	59.9'	46°27.2	23°36.2	3°53.0		15°19.7	49°33.4	56°31.5	85°48.1
12	45°39.1	7.7'	N 17°05.4	-12.2'	59.9'	45°53.6	23°00.4	3°20.8		15°52.2	50°05.8	57°07.2	86°24.2
13	60°05.8	7.7'	16°53.2	-12.3'	59.9'	45°19.9	22°24.6	2°49.0		16°25.0	50°38.2	57°42.9	87°00.3
14	74°32.5	7.7'	16°40.9	-12.4'	60.0'	44°46.2	21°48.7	2°18.1		16°58.1	51°10.7	58°18.6	87°36.5
15	88°59.3	7.8'	$16^{\circ}28.5$	-12.5'	60.0'	44°12.4	21°12.9			17°31.4	51°43.3	58°54.5	88°12.7
16	103°26.0	7.8'	$16^{\circ}16.0$	-12.6'	60.0'	43°38.6	20°37.0			18°05.0	52°16.0	59°30.3	88°48.9
17	117°52.9	7.8'	16°03.4	-12.7'	60.1'	43°04.8	20°01.1			18°38.8	52°48.9	60°06.3	89°25.2
18	132°19.7	7.9'	N 15°50.6	-12.9'	60.1'	42°31.0	19°25.2			19°12.7	53°21.8	60°42.2	90°01.5
19	146°46.6	7.9'	15°37.8	-13.0'	60.1'	41°57.1	18°49.4			19°46.9	53°54.8	61°18.3	90°37.9
20	161°13.5	7.9'	15°24.8	-13.1'	60.2'	41°23.1	18°13.5		5°50.9	20°21.2	54°27.9	61°54.3	91°14.3
21	175°40.4	8.0'	$15^{\circ}11.7$	-13.2'	60.2'	40°49.1	17°37.6		6°23.1	20°55.7	55°01.1	62°30.5	91°50.8
22	190°07.4	8.0'	14°58.5	-13.3'	60.2'	40°15.1	17°01.7		6°55.9	21°30.4	55°34.3	63°06.6	92°27.3
23	204°34.4	8.0'	14°45.2	-13.4'	60.3'		16°25.9		7°29.0	22°05.2	56°07.7	63°42.8	93°03.9
15 th	SD	= 16.2	Mer. pas	s. 08:50					Sun	SD = 15.9	,		

h Moon (16th Sep)

Lunar Distance (objects with largest hourly LD delta)

		IVIOU	ui (10, 2	ep)			Lunar	Distanc	e (object	s with larges	st nourly	LD delta)	
Sat	GHA	ν	Dec	d	HP	-Regulus	+Venus	+Mars	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	219°01.5	8.1'	N 14°31.8	-13.5'	60.3'	15°50.1	3°41.4	8°02.5	22°40.1	46°51.3	56°41.1	64°19.1	93°40.4
1	233°28.6	8.1'	14°18.4	-13.6'	60.3'	15°14.3	4°14.4	8°36.2	23°15.1	47°24.8	57°14.6	64°55.4	94° 17.1
2	247°55.7	8.1'	14°04.8	-13.7'	60.3'	14°38.6	4°47.7	9° 10.2	23°50.3	47°58.3	57°48.2	65°31.7	94°53.7
3	262°22.8	8.2'	13°51.1	-13.8'	60.4'	14°02.9	5°21.1	9°44.4	24°25.6	48°31.9	58°21.9	66°08.1	95°30.4
4	276°50.0	8.2'	13°37.3	-13.9'	60.4'	13°27.3	5°54.8	10°18.7	25°01.0	49°05.7	58°55.7	66°44.6	96°07.2
5	291°17.2	8.2'	13°23.4	-14.0'	60.4'	12°51.8	6°28.5	10°53.2	25°36.5	49°39.5	59°29.5	67°21.0	96°44.0
6	305°44.5	8.3'	N 13°09.4	-14.1'	60.5'	12°16.4	7°02.4	11°27.9	26°12.2	50°13.4	60°03.4	67°57.5	97°20.8
7	320°11.7	8.3'	12°55.3	-14.2'	60.5'	11°41.1	7°36.3	12°02.6	26°47.9	50°47.4	60°37.4	68°34.1	97°57.6
8	334°39.0	8.3'	12°41.1	-14.3'	60.5'	11°06.0	8°10.4	12°37.5	27°23.7	51°21.5	61°11.4	69°10.7	98°34.5
9	349°06.4	8.4'	12°26.8	-14.4'	60.6'	10°31.1	8°44.5	13° 12.4	27°59.6	51°55.7	61°45.5	69°47.4	99°11.4
10	3°33.7	8.4'	$12^{\circ}12.5$	-14.4'	60.6'	9°56.4	9°18.7	13°47.4	28°35.5	52°30.0	62°19.7	70°24.0	99°48.4
11	18°01.1	8.4'	$11^{\circ}58.0$	-14.5'	60.6'	9°21.9	9°52.9	14°22.6	29°11.6	53°04.3	62°54.0	71°00.8	100°25.4
12	32°28.5	8.4'	N11°43.5	-14.6'	60.6'	8°47.9	10°27.2	14°57.8	29°47.7	53°38.7	63°28.3	71°37.5	101°02.4
13	46°56.0	8.5'	11°28.9	-14.7'	60.7'	8°14.2	11°01.5	15°33.0	30°23.9	54°13.2	64°02.6	72°14.3	101°39.5
14	61°23.5	8.5'	11°14.2	-14.8'	60.7'	7°41.1	11°35.9	16°08.4	31°00.2	54°47.8	64°37.1	72°51.2	102°16.6
15	75°51.0	8.5'	10°59.4	-14.9'	60.7'	7°08.6	12°10.3	16°43.8	31°36.6	55°22.4	65°11.6	73°28.0	102°53.7
16	90°18.5	8.6'	10°44.6	-14.9'	60.7'	6°36.9	12°44.8	17° 19.2	32°13.0	55°57.1	65°46.1	74°04.9	103°30.9
17	104°46.1	8.6'	$10^{\circ}29.6$	-15.0'	60.8'		13°19.3	17°54.8	32°49.5	56°31.9	66°20.7	74°41.9	104°08.1
18	119°13.6	8.6'	N 10°14.6	-15.1'	60.8'		13°53.9	18°30.3	33°26.0	57°06.7	66°55.4	75°18.9	104°45.3
19	133°41.3	8.6'	09°59.5	-15.2'	60.8'		14°28.5	19°05.9	34°02.6	57°41.6	67°30.1	75°55.9	105°22.5
20	148°08.9	8.7'	09°44.4	-15.2'	60.8'		15°03.1	19°41.6	34°39.3	58°16.6	68°04.9	76°32.9	105°59.8
21	162°36.6	8.7'	09°29.1	-15.3'	60.9'		15°37.8	20° 17.3	35°16.0	58°51.6	68°39.7	77°10.0	106°37.1
22	177°04.2	8.7'	09°13.8	-15.4'	60.9'		16°12.5	20°53.1	35°52.7	59°26.7	69°14.5	77°47.1	107°14.4
23	191°31.9	8.7'	08°58.5	-15.4'	60.9'		16°47.2	21°28.9	36°29.6	60°01.9	69°49.5	78°24.2	107°51.8
16 th	SD	= 16.4	Mer. pas	ss. 09:45							-	-	

h Moon (17th Sen)

Sun	GHA	ν	Dec	d	HP	+Regulus	+Mars	+Procyon	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	205°59.7	8.8'	N 08°43.0	-15.5'	60.9'		22°04.7	35°10.1	37°06.4	60°37.1	70°24.4	79°01.4	108°29.2
1	220°27.4	8.8'	08°27.5	-15.6'	60.9'		22°40.6	35°43.5	37°43.4	61°12.3	70°59.4	79°38.6	109°06.6
2	234°55.2	8.8'	08°12.0	-15.6'	61.0'		23°16.6	36°17.0	38°20.3	61°47.7	71°34.5	80°15.9	109°44.0
3	249°23.0	8.8'	07°56.4	-15.7'	61.0'		23°52.5	36°50.7	38°57.3	62°23.0	72°09.6	80°53.1	110°21.5
4	263°50.8	8.8'	07°40.7	-15.7'	61.0'		24°28.5	37°24.6	39°34.4	62°58.4	72°44.7	81°30.4	110°59.0
5	278°18.6	8.8'	$07^{\circ}25.0$	-15.8'	61.0'		25°04.6	37°58.5	40°11.5	63°33.9	73° 19.9	82°07.7	111°36.5
6	292°46.5	8.9'	N 07°09.2	-15.8'	61.0'		25°40.6	38°32.6	40°48.6	64°09.4	73°55.1	82°45.1	112°14.0
7	307°14.4	8.9'	06°53.3	-15.9'	61.1'		26°16.7	39°06.8	41°25.8	64°45.0	74°30.4	83°22.4	112°51.6
8	321°42.2	8.9'	06°37.4	-15.9'	61.1'		26°52.8	39°41.1	42°03.1	65°20.6	75°05.7	83°59.8	113°29.2
9	336°10.1	8.9'	$06^{\circ}21.5$	-16.0'	61.1'		27°29.0	40°15.5	42°40.3	65°56.2	75°41.0	84°37.2	114°06.7
10	350°38.0	8.9'	06°05.5	-16.0'	61.1'		28°05.2	40°50.0	43°17.6	66°31.9	76° 16.4	85°14.7	114°44.3
11	5°06.0	8.9'	05°49.5	-16.1'	61.1'		28°41.4	41°24.7	43°54.9	67°07.7	76°51.8	85°52.1	115°22.0
12	19°33.9	9.0'	N 05°33.4	-16.1'	61.1'	7°55.6	29°17.6	41°59.4	44°32.3	67°43.4	77°27.2	86°29.6	115°59.6
13	34°01.9	9.0'	05°17.3	-16.2'	61.2'	8°29.6	29°53.9	42°34.2	45°09.7	68°19.3	78°02.7	87°07.1	116°37.3
14	48°29.8	9.0'	$05^{\circ}01.1$	-16.2'	61.2'	9°04.1	30°30.2	43°09.1	45°47.1	68°55.1	78°38.2	87°44.6	117°15.0
15	62°57.8	9.0'	04°44.9	-16.2'	61.2'	9°39.0	31°06.5	43°44.1	46°24.6	69°31.0	79°13.7	88°22.2	117°52.6
16	77°25.8	9.0'	04°28.7	-16.3'	61.2'	10° 14.3	31°42.8	44°19.2	47°02.1	70°06.9	79°49.2	88°59.7	118°30.3
17	91°53.8	9.0'	04°12.4	-16.3'	61.2'	10°50.0	32°19.2	44°54.3	47°39.6	70°42.9	80°24.8	89°37.3	119°08.1
18	106°21.8	9.0'	N 03°56.2	-16.3'	61.2'	11°25.9	32°55.6	45°29.6	48°17.1	71°18.8	81°00.4	90°14.9	119°45.8
19	120°49.8	9.0'	03°39.8	-16.4'	61.2'	12°02.0	33°32.0	46°04.9	48°54.7	71°54.9	81°36.0	90°52.5	
20	135°17.9	9.0'	03°23.5	-16.4'	61.2'	12°38.4	34°08.4	46°40.2	49°32.3	72°30.9	82°11.7	91°30.1	
21	149°45.9	9.0'	$03^{\circ}07.1$	-16.4'	61.2'	13° 14.9	34°44.8	47°15.7	50°09.9	73°07.0	82°47.3	92°07.8	
22	164°13.9	9.0'	02°50.7	-16.4'	61.3'	13°51.5	35°21.3	47°51.2	50°47.5	73°43.1	83°23.0	92°45.4	
23	178°42.0	9.0'	02°34.3	-16.4'	61.3'	14°28.3	35°57.7	48°26.8	51°25.2	74°19.2	83°58.7	93°23.1	
17 th	SD	= 16.6	5' Mer. pas	ss. 10:39									

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

Mon	GHA	ν	Dec	d	HP	+Regulus	+Venus	+Mars	+Procyon	+Pollux	+Betelgeuse	+Capella	+Aldebaran
0	193°10.0	9.0'	N 02°17.8	-16.5'	61.3'	15°05.2	31°24.0	36°34.2	49°02.4	52°02.8	74°55.3	84°34.4	94°00.7
1	207°38.1	9.0'	$02^{\circ}01.3$	-16.5'	61.3'	15°42.3	31°59.3	37° 10.7	49°38.1	52°40.5	75°31.5	85° 10.2	94°38.4
2	222°06.1	9.0'	$01^{\circ}44.9$	-16.5'	61.3'	16°19.4	32°34.6	37°47.2	50°13.8	53°18.2	76°07.7	85°45.9	95°16.1
3	236°34.2	9.0'	01°28.4	-16.5'	61.3'	16°56.6	33°09.9	38°23.7	50°49.6	53°56.0	76°43.9	86°21.7	95°53.8
4	251°02.2	9.0'	$01^{\circ}11.8$	-16.5'	61.3'					ew Moon —			
5	265°30.2	9.0'	00°55.3	-16.5'	61.3'								
6	279°58.3	9.0'	N 00°38.8	-16.5'	61.3'								
7	294°26.3	9.0'	00°22.3	-16.5'	61.3'								
8	308°54.4	9.0'	N 00°05.7	-16.5'	61.3'		_						
9	323°22.4	9.0'	S 00°10.8	-16.5'	61.3'								
10	337°50.4	9.0'	00°27.4	-16.5'	61.3'								
11	352°18.5	9.0'	00°43.9	-16.5'	61.3'								
12	6°46.5	9.0'	S 01°00.4	-16.5'	61.3'								
13	21°14.5	9.0'	$01^{\circ}17.0$	-16.5'	61.3'		_						
14	35°42.5	9.0'	01°33.5	-16.5'	61.3'		_						
15	50°10.5	9.0'	01°50.0	-16.5'	61.3'								
16	64°38.5	9.0'	02°06.5	-16.5'	61.3'								
17	79°06.4	9.0'	02°23.0	-16.5'	61.3'								
18	93°34.4	8.9'	S 02°39.5	-16.5'	61.3'		_						
19	108°02.3	8.9'	02°55.9	-16.4'	61.3'								
20	122°30.3	8.9'	03°12.4	-16.4'	61.3'		_						
21	136°58.2	8.9'	03°28.8	-16.4'	61.3'								
22	151°26.1	8.9'	03°45.2	-16.4	61.3'								
23	165°54.0	8.9'	04°01.5	-16.3'	61.3'		_		Ne	ew Moon —			
18 th	SD	= 16.7	" Mer. pas	s. 11:32									

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

h		IVIOO	n (19" S	ep)			Lunar D	istance (objects with	i largest	hourly L	.D delta)	
Tue	GHA	ν	Dec	d	HP	-Altair	-Vega	-Antares	-Rigil Kent.	-Hadar	± A crux	-Arcturus	-Spica
0	180°21.8	8.8'	S 04°17.9	-16.3'	61.3'				New M	oon ——			
1	194°49.7	8.8'	04°34.2	-16.3'	61.3'				New M	oon ——			
2	209°17.5	8.8'	04°50.5	-16.2'	61.3'				New M				
3	223°45.3	8.8'	$05^{\circ}06.7$	-16.2'	61.3'								
4	238°13.1	8.8'	05°22.9	-16.2'	61.3'								
5	252°40.9	8.7'	$05^{\circ}39.1$	-16.1'	61.3'				New M	oon ——			
6	267°08.6	8.7'	S 05°55.2	-16.1'	61.3'								
7	281°36.3	8.7'	$06^{\circ}11.3$	-16.0'	61.3'				New M	oon ——			
8	296°04.0	8.7'	06°27.4	-16.0'	61.2'				New M	oon ———			
9	310°31.7	8.6'	06°43.4	-16.0'	61.2'					oon ———			
10	324°59.4	8.6'	06°59.3	-15.9'	61.2'	114°53.5	98°45.2	63°36.8	60°25.7			39°40.6	18°07.1
11	339°27.0	8.6'	$07^{\circ}15.2$	-15.9'	61.2'	114°21.0	98°27.9	62°58.8	59°59.3	56°59.2	56°02.3	39°25.5	17°29.6
12	353°54.6	8.6'	S 07°31.1	-15.8'	61.2'	113°48.5	98°10.6	62°20.7	59°32.9	56°34.8	55° 45.7		16°52.1
13	8°22.1	8.5'	07°46.9	-15.7'	61.2'	113° 15.9	97°53.3	61°42.7	59°06.8	56°10.5	55°29.3		16°14.8
14	22°49.7	8.5'	$08^{\circ}02.6$	-15.7'	61.2'	112°43.3	97°35.9	61°04.7	58°40.8	55°46.4	55° 13.2		15°37.4
15	37°17.2	8.5'	08°18.3	-15.6'	61.2'	112°10.6	97°18.5	60°26.8	58°14.9	55°22.5	54°57.3		15°00.2
16	51°44.7	8.5'	08°33.9	-15.6'	61.1'	111°37.9	97°01.0	59°48.8	57°49.2	54°58.8	54°41.7		14°23.0
17	66°12.1	8.4'	08°49.5	-15.5'	61.1'	111°05.2	96°43.5	59°10.9	57°23.6	54°35.3	54°26.3		13°46.0
18	80°39.6	8.4'	S 09°05.0	-15.4'	61.1'	110°32.5	96°26.0	58°32.9	56°58.2	54°11.9	54°11.2		13°09.0
19	95°07.0	8.4'	09°20.4	-15.4'	61.1'	109°59.8	96°08.5	57°55.1	56°33.0	53°48.8			12°32.1
20	109°34.3	8.3'	09°35.8	-15.3'	61.1'	109°27.0	95°50.9	57° 17.2	56°07.9	53°25.9			11°55.4
21	124°01.6	8.3'	$09^{\circ}51.1$	-15.2'	61.1'	108°54.2	95°33.3	56°39.3	55°43.0	53°03.2			11°18.8
22	138°28.9	8.3'	$10^{\circ}06.4$	-15.2'	61.0'	108°21.4	95°15.7	56°01.5	55°18.3	52°40.7			10°42.4
23	152°56.2	8.2'	$10^{\circ}21.5$	-15.1'	61.0'	107°48.6	94°58.0	55°23.7	54°53.8	52°18.4			10°06.2
19 th	SD	= 16.7	Mer. pas	ss. 12:25									

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

Wed	GHA	ν	Dec	d	HP	-Deneb	-Altair	-Vega	-Antares	-Rigil Kent.	-Hadar	-Spica
0	167°23.4	8.2'	S 10°36.6	-15.0'	61.0'		107°15.8	94°40.4	54°45.9	54°29.4	51°56.4	9°30.2
1	181°50.6	8.2'	$10^{\circ}51.6$	-14.9'	61.0'		106°42.9	94°22.7	54°08.2	54°05.2	51°34.5	8°54.5
2	196°17.8	8.1'	$11^{\circ}06.6$	-14.9'	61.0'		$106^{\circ}10.1$	94°05.0	53°30.4	53°41.3	51°13.0	8°19.1
3	210°44.9	8.1'	11°21.4	-14.8'	60.9'		105°37.2	93°47.3	52°52.7	53°17.5	50°51.6	7°44.1
4	225°12.0	8.0'	11°36.2	-14.7'	60.9'		105°04.4	93°29.6	52°15.1	52°54.0	50°30.5	7°09.6
5	239°39.0	8.0'	$11^{\circ}50.9$	-14.6'	60.9'		104°31.5	93°11.9	51°37.4	52°30.6	50°09.7	6°35.6
6	254°06.0	8.0'	S 12°05.5	-14.5'	60.9'		103°58.7	92°54.2	50°59.8	52°07.5	49°49.1	6°02.5
7	268°33.0	7.9'	12°20.0	-14.4'	60.9'		103°25.8	92°36.5	50°22.2	51°44.6	49° 28.8	
8	282°59.9	7.9'	12°34.4	-14.3'	60.8'		102°52.9	92°18.8	49°44.7	51°21.9	49°08.7	
9	297°26.8	7.9'	12°48.8	-14.3'	60.8'		102°20.1	92°01.0	49°07.1	50°59.4	48°48.9	
10	311°53.7	7.8'	13°03.0	-14.2'	60.8'		101°47.2	91°43.3	48°29.6	50°37.2	48°29.4	
11	326°20.5	7.8'	13°17.2	-14.1'	60.8'		101°14.4	91°25.6	47°52.2	50°15.2	48°10.2	
12	340°47.3	7.7'	S 13°31.3	-14.0'	60.7'	114°37.3	100°41.6	91°07.9	47°14.7	49°53.4	47°51.2	
13	355°14.1	7.7'	13°45.2	-13.9'	60.7'	114°22.0	100°08.8	90°50.2	46°37.3	49°31.9	47°32.6	
14	9°40.8	7.7'	13°59.1	-13.8'	60.7'	114°06.6	99°35.9	90°32.5	46°00.0	49°10.6	47° 14.2	
15	24°07.4	7.6'	14°12.9	-13.7'	60.7'	113°51.0	99°03.2	90°14.9	45°22.6	48°49.6	46° 56.2	
16	38°34.1	7.6'	14°26.5	-13.6'	60.6'	113°35.3	98°30.4	89°57.2	44°45.4	48°28.9	46°38.4	
17	53°00.6	7.5'	14°40.1	-13.5'	60.6'	113° 19.5	97°57.6	89°39.6	44°08.1	48°08.5	46°21.0	
18	67°27.2	7.5'	S 14°53.5	-13.3'	60.6'	113°03.6	97°24.9	89°21.9	43°30.9	47°48.3	46°03.9	
19	81°53.7	7.5'	15°06.9	-13.2'	60.6'	112°47.5	96°52.1	89°04.3	42°53.7	47°28.3	45°47.1	
20	96°20.2	7.4'	$15^{\circ}20.1$	-13.1'	60.5'	112°31.3	96°19.4	88°46.8	42°16.5	47°08.7	45°30.6	
21	110°46.6	7.4'	15°33.3	-13.0'	60.5'	112° 15.0	95°46.8	88°29.2	41°39.4	46°49.4	45° 14.5	
22	125°13.0	7.3'	15°46.3	-12.9'	60.5'	111°58.6	95°14.1	88°11.7	41°02.3	46°30.3	44°58.8	
23	139°39.3	7.3'	15°59.2	-12.8'	60.4'	111°42.0	94°41.5	87°54.2	40°25.3	46°11.6	44°43.3	
20 th	SD	= 16.6	' Mer. pas	ss. 13:20								

h Moon (21st Sep)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Vega	-Rigil Kent.	-Antares	+Spica	+Sun
0	154°05.6	7.3'	S 16° 12.0	-12.7'	60.4'	119° 16.8	111°25.4	94°08.9	87°36.7	45°53.2	39°48.3	6°38.4	
1	168°31.9	7.2'	$16^{\circ}24.7$	-12.6'	60.4'	118°44.3	111°08.6	93°36.3	87° 19.3	45°35.0	39°11.3	7°11.8	
2	182°58.1	7.2'	16°37.2	-12.4'	60.4'	118° 11.7	110°51.7	93°03.7	87°01.8	45°17.2	38°34.4	7°45.7	
3	197°24.3	7.1'	16°49.7	-12.3'	60.3'	117°39.1	110°34.8	92°31.2	86°44.5	44°59.7	37°57.5	8°19.9	
4	211°50.4	7.1'	$17^{\circ}02.0$	-12.2'	60.3'	117°06.6	110°17.7	91°58.7	86°27.1	44°42.6	37°20.7	8°54.5	
5	226°16.6	7.1'	$17^{\circ}14.2$	-12.1'	60.3'	116°34.0	110°00.5	91°26.3	86°09.8	44°25.8	36°43.9	9°29.3	
6	240°42.6	7.0'	S 17°26.3	-12.0'	60.2'	116°01.4	109°43.3	90°53.8	85°52.6	44°09.3	36°07.1	10°04.3	
7	255°08.6	7.0'	17°38.2	-11.8'	60.2'	115°28.8	109°25.9	90°21.5	85°35.3	43°53.1	35°30.4	10°39.5	
8	269°34.6	7.0'	17°50.0	-11.7'	60.2'	114°56.2	109°08.5	89°49.1	85° 18.2	43°37.4	34°53.7	11°14.8	
9	284°00.6	6.9'	18°01.7	-11.6'	60.1'	114°23.6	108°51.0	89° 16.8	85°01.0	43°21.9	34°17.1	11°50.2	
10	298°26.5	6.9'	18° 13.3	-11.4'	60.1'	113°51.0	108°33.4	88°44.5	84°43.9	43°06.8	33°40.5	12°25.7	
11	312°52.4	6.8'	$18^{\circ}24.8$	-11.3'	60.1'	113° 18.5	108°15.7	88°12.3	84°26.9		33°04.0	13°01.2	
12	327°18.2	6.8'	S 18°36.1	-11.2'	60.0'	112°45.9	107°58.0	87°40.1	84°09.9		32°27.5	13°36.8	
13	341°44.0	6.8'	18°47.3	-11.0'	60.0'	112°13.3	107°40.1	87°07.9	83°53.0		31°51.0	14°12.4	
14	356°09.8	6.7'	18°58.3	-10.9'	60.0'	111°40.7	107°22.2	86°35.8	83°36.1		31°14.6	14°48.1	
15	10°35.5	6.7'	19°09.2	-10.8'	59.9'	111°08.2	107°04.2	86°03.7	83° 19.2		30°38.3	15°23.8	40°30.3
16	25°01.2	6.7'	19°20.0	-10.6'	59.9'	110°35.6	106°46.2	85°31.7	83°02.5		30°02.0	15°59.4	41°03.9
17	39°26.8	6.6'	$19^{\circ}30.6$	-10.5'	59.9'	110°03.1	106°28.1	84°59.7	82°45.8		29°25.7	16°35.1	41°37.5
18	53°52.5	6.6'	S 19°41.1	-10.4'	59.8'	109°30.5	106°09.9	84°27.8	82°29.1		28°49.5	17°10.8	42°11.1
19	68°18.1	6.6'	$19^{\circ}51.5$	-10.2'	59.8'	108°58.0	105°51.7	83°55.9	82° 12.5		28°13.3	17°46.5	42°44.6
20	82°43.6	6.5'	20°01.7	-10.1'	59.8'	108° 25.5	105°33.4	83°24.1	81°56.0		27°37.2	18°22.1	43°18.1
21	97°09.1	6.5'	$20^{\circ}11.8$	-9.9'	59.7'	107°53.1	105°15.1	82°52.3	81°39.5		27°01.1	18°57.8	43°51.5
22	111°34.6	6.5'	$20^{\circ}21.8$	-9.8'	59.7'	107°20.6	104°56.7	82°20.6	81°23.1		26°25.0	19°33.4	44°24.9
23	126°00.1	6.4'	20°31.6	-9.7'	59.6'	106°48.2	104°38.2	81°48.9	81°06.7		25°49.1	20°09.0	44°58.3
21 st	SD	= 16.5	' Mer. pas	ss. 14:16					Sun SD	= 15.9'			

Moon (22nd Sep)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Vega	-Antares	+Spica	+Arcturus	+Sun
0	140°25.5	6.4'	S 20°41.2	-9.5'	59.6'	106°15.7	104°19.7	81°17.3	80°50.4	25°13.1	20°44.6	40° 15.8	45°31.6
1	154°50.9	6.4'	20°50.7	-9.4'	59.6'	105°43.3	104°01.2	80°45.7	80°34.2	24°37.2	21°20.1	40°31.3	46°04.8
2	169°16.3	6.3'	$21^{\circ}00.1$	-9.2'	59.5'	105°11.0	103°42.6	80° 14.2	80°18.1	24°01.4	21°55.7	40°47.2	46°38.1
3	183°41.6	6.3'	$21^{\circ}09.3$	-9.1'	59.5'	104°38.6	103°24.0	79°42.7	80°02.0	23°25.6	22°31.2	41°03.4	47°11.3
4	198°06.9	6.3'	21°18.4	-8.9'	59.5'	104°06.3	103°05.3	79°11.3	79°46.0	22°49.9	23°06.7	41°19.9	47°44.4
5	212°32.2	6.3'	21°27.3	-8.8'	59.4'	103°34.0	102°46.6	78°40.0	79°30.1	22°14.2	23°42.1	41°36.8	48°17.5
6	226°57.5	6.2'	S 21°36.1	-8.6'	59.4'	103°01.7	102°27.8	78°08.7	79°14.3	21°38.5	24° 17.5	41°53.9	48°50.6
7	241°22.7	6.2'	21°44.7	-8.5'	59.3'	102°29.5	102°09.1	77° 37.5	78°58.5	21°03.0	24°52.9	42°11.3	49°23.6
8	255°47.9	6.2'	21°53.2	-8.3'	59.3'	101°57.2	101°50.2	77°06.3	78°42.8	20°27.4	25°28.2	42°29.0	49°56.5
9	270°13.1	6.2'	22°01.5	-8.2'	59.3'	101°25.0	101°31.4	76°35.2	78°27.2	19°52.0	26°03.5	42°47.0	50°29.4
10	284°38.3	6.1'	22°09.7	-8.0'	59.2'	100°52.9	101°12.5	76°04.2	$78^{\circ}11.7$	19°16.5	26°38.8	43°05.3	51°02.3
11	299°03.4	6.1'	$22^{\circ}17.7$	-7.9'	59.2'	100°20.8	100°53.6	75°33.2	77°56.3	18°41.2	27°14.0	43°23.8	51°35.1
12	313°28.6	6.1'	S 22°25.6	-7.7'	59.2'	99°48.7	100°34.7	75°02.3	77°40.9	18°05.8	27°49.2	43°42.5	52°07.9
13	327°53.7	6.1'	22°33.3	-7.6'	59.1'	99°16.6	100°15.8	74°31.5	77°25.7	17°30.6	28°24.3	44°01.5	52°40.7
14	342°18.8	6.1'	22°40.8	-7.4'	59.1'	98°44.6	99°56.8	74°00.7	$77^{\circ}10.5$	16°55.4	28°59.4	44°20.8	53°13.3
15	356°43.9	6.1'	22°48.2	-7.2'	59.0'	98°12.6	99°37.8	73°30.0	76°55.4	16°20.2	29°34.5	44°40.3	53°46.0
16	11°08.9	6.0'	22°55.5	-7.1'	59.0'	97°40.6	99°18.8	72°59.3	76°40.4	15°45.1	30°09.5	45°00.0	54°18.6
17	25°34.0	6.0'	23°02.6	-6.9'	59.0'	97°08.7	98°59.8	72°28.8		15°10.1	30°44.5	45° 19.9	54°51.1
18	39°59.0	6.0'	S 23°09.5	-6.8'	58.9'	96°36.8	98°40.8	71°58.3		14°35.1	31° 19.4	45°40.0	55°23.6
19	54°24.0	6.0'	23°16.3	-6.6'	58.9'	96°05.0	98°21.7	71°27.8		14°00.2	31°54.3	46°00.4	55°56.1
20	68°49.1	6.0'	23°22.9	-6.5'	58.8'	95°33.2	98°02.7	70°57.5		13°25.3	32°29.2	46°20.9	56°28.5
21	83°14.1	6.0'	23°29.4	-6.3'	58.8'	95°01.4	97°43.6	70°27.2		12°50.5	33°04.0	46°41.7	57°00.8
22	97°39.1	6.0'	23°35.7	-6.1'	58.8'	94°29.7	97°24.5	69°57.0		12°15.8	33°38.8	47°02.6	57°33.2
23	112°04.1	6.0'	23°41.8	-6.0'	58.7'	93°58.0	97°05.5	69°26.8		11°41.1	34° 13.5	47°23.7	58°05.4
22 nd	SD =	= 16.3'	Mer. pas	s. 15:14	ļ		-		Sun SD :	= 15.9'			

h Moon (23rd Sep)

Sat	GHA	ν	Dec	d	HP	-Deneb	-Achernar	-Fomalhaut	-Altair	-Antares	+Spica	+Arcturus	+Sun
0	126°29.0	6.0'	S 23°47.8	-5.8'	58.7'	96°46.4	94°58.2	93°26.3	68°56.8	11°06.5	34°48.2	47°45.0	58°37.6
1	140°54.0	6.0'	23°53.6	-5.7'	58.6'	96°27.3	94°42.9	92°54.7	68°26.8	10°32.0	35°22.8	48°06.4	59°09.8
2	155°19.0	6.0'	23°59.3	-5.5'	58.6'	96°08.2	94°27.5	92°23.2	67°56.9	9°57.6	35°57.4	48°28.0	59°41.9
3	169°44.0	6.0'	24°04.8	-5.3'	58.6'	95°49.2	94°12.2	91°51.7	67°27.1	9°23.2	36°31.9	48°49.8	60°14.0
4	184°09.0	6.0'	$24^{\circ}10.1$	-5.2'	58.5'	95°30.1	93°56.8	91°20.2	66°57.3	8°49.0	37°06.4	49°11.7	60°46.0
5	198°34.0	6.0'	$24^{\circ}15.3$	-5.0'	58.5'	95°11.0	93°41.5	90°48.7	66°27.7	8°14.8	37°40.8	49°33.7	61°18.0
6	212°58.9	6.0'	S 24°20.3	-4.9'	58.4'	94°51.9	93°26.2	90°17.4	65°58.1	7°40.8	38°15.2	49°56.0	61°49.9
7	227°23.9	6.0'	24°25.2	-4.7'	58.4'	94°32.9	93°10.8	89°46.0	65°28.6	7°06.8	38°49.6	50°18.3	62°21.8
8	241°48.9	6.0'	$24^{\circ}29.9$	-4.5'	58.4'	94°13.8	92°55.5	89°14.7	64°59.2	6°33.0	39°23.9	50°40.8	62°53.6
9	256°13.9	6.0'	24°34.4	-4.4'	58.3'	93°54.8	92°40.2	88°43.4	64°29.8	5°59.4	39°58.2	51°03.4	63°25.4
10	270°39.0	6.0'	24°38.8	-4.2'	58.3'	93°35.7	92°24.9	88°12.2	64°00.6	5°26.0	40°32.4	51°26.1	63°57.2
11	285°04.0	6.0'	24°43.0	-4.1'	58.2'	93°16.7	92°09.6	87°41.1	63°31.4	4°52.8	41°06.5	51°49.0	64°28.9
12	299°29.0	6.1'	S 24°47.1	-3.9'	58.2'	92°57.7	91°54.3	87°10.0	63°02.4	4°20.0	41°40.7	52°11.9	65°00.5
13	313°54.1	6.1'	$24^{\circ}51.0$	-3.7'	58.2'	92°38.7	91°39.0	86°38.9	62°33.4	3°47.6	42°14.7	52°35.0	65°32.1
14	328°19.1	6.1'	24°54.7	-3.6'	58.1'	92°19.7	91°23.7	86°07.9	62°04.5	3°15.9	42°48.8	52°58.2	66°03.6
15	342°44.2	6.1'	24°58.3	-3.4'	58.1'	92°00.8	91°08.5	85°36.9	61°35.7		43°22.8	53°21.5	66°35.1
16	357°09.3	6.1'	25°01.7	-3.3'	58.0'	91°41.8	90°53.3	85°06.0	61°07.0		43°56.7	53°44.9	67°06.6
17	11°34.4	6.1'	25°05.0	-3.1'	58.0'	91°22.9	90°38.1	84°35.1	60°38.4		44°30.6	54°08.4	67°38.0
18	25°59.6	6.2'	S 25°08.1	-2.9'	58.0'	91°04.0	90°22.9	84°04.3	60°09.9		45°04.4	54°31.9	68°09.3
19	40°24.7	6.2'	$25^{\circ}11.0$	-2.8'	57.9'	90°45.1	90°07.7	83°33.5	59°41.5		45°38.2	54°55.6	68°40.7
20	54°49.9	6.2'	$25^{\circ}13.8$	-2.6'	57.9'	90°26.3	89°52.5	83°02.8	59°13.2		46°12.0	55°19.3	69°11.9
21	69°15.1	6.2'	$25^{\circ}16.4$	-2.5'	57.8'	90°07.4	89°37.4	82°32.1	58°45.0		46°45.7	55°43.2	69°43.1
22	83°40.4	6.3'	25°18.8	-2.3'	57.8'	89°48.6	89°22.3	82°01.5	58°16.9		47°19.3	56°07.1	70°14.3
23	98°05.7	6.3'	$25^{\circ}21.1$	-2.1'	57.8'	89°29.9	89°07.2	81°30.9	57°48.9		47°53.0	56°31.1	70°45.4
23 rd	SD :	= 16.0'	Mer. pas	s. 16:12	2				Sun SD =	= 15.9'		-	

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

Sun	GHA	ν	Dec	d	HP	-Deneb	-Achernar	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Sun
0	112°30.9	6.3'	S 25°23.3	-2.0'	57.7'	89°11.1	88°52.2	81°00.4	57°21.0		48°26.5	56°55.1	71°16.5
1	126°56.3	6.4'	25°25.2	-1.8'	57.7'	88°52.4	88°37.1	80°29.9	56°53.2		49°00.1	57° 19.3	71°47.5
2	141°21.6	6.4'	25°27.1	-1.7'	57.6'	88°33.7	88°22.1	79°59.5	56°25.5	3°59.3	49°33.5	57°43.5	72° 18.5
3	155°47.0	6.4'	25°28.7	-1.5'	57.6'	88°15.1		79°29.1	55°57.9	4°31.1	50°07.0	58° 07.7	72°49.4
4	170°12.5	6.5'	25°30.2	-1.3'	57.6'	87°56.4		78°58.8	55°30.4	5°03.3	50°40.3	58°32.1	73°20.3
5	184°37.9	6.5'	25°31.6	-1.2'	57.5'	87°37.8		78°28.6	55°03.0	5°35.7	51°13.7	58° 56.5	73°51.2
6	199°03.4	6.5'	S 25°32.8	-1.0'	57.5'	87°19.3		77°58.4	54°35.8	6°08.3	51°47.0	59°20.9	74°22.0
7	213°29.0	6.6'	25°33.8	-0.9'	57.5'	87°00.8		77°28.2	54°08.7	6°40.9	52°20.2	59°45.4	74°52.7
8	227°54.6	6.6'	25°34.7	-0.7'	57.4'	86°42.3		76°58.1	53°41.6	7°13.6	52°53.4	60°09.9	75°23.4
9	242°20.2	6.7'	25°35.4	-0.6'	57.4'	86°23.8		76°28.1	53°14.7	7°46.3	53°26.6	60°34.5	75°54.1
10	256°45.9	6.7'	25°36.0	-0.4'	57.3'	86°05.4		75°58.1	52°47.9	8°19.0	53°59.7	60°59.2	76°24.7
11	271°11.6	6.8'	25°36.4	-0.3'	57.3'	85°47.1		75°28.2	52°21.3	8°51.8	54°32.8	61°23.9	76°55.3
12	285°37.4	6.8'	S 25°36.6	-0.1'	57.3'	85°28.8		74°58.3	51°54.8	9°24.5	55°05.8	61°48.6	77°25.8
13	300°03.2	6.9'	25°36.7	0.0'	57.2'	85°10.5		74°28.5	51°28.3	9°57.3	55°38.8	62°13.4	77°56.3
14	314°29.0	6.9'	25°36.7	0.2'	57.2'	84°52.2		73°58.7	51°02.1	10°30.0	56°11.7	62°38.2	78°26.7
15	328°54.9	7.0'	25°36.5	0.3'	57.1'	84°34.0		73°29.0	50°35.9	11°02.7	56°44.6	63°03.1	78°57.1
16	343°20.9	7.0'	25°36.2	0.5'	57.1'	84°15.9		72°59.4	50°09.9	11°35.4	57° 17.5	63°27.9	79°27.5
17	357°46.9	7.1'	25°35.7	0.6'	57.1'	83°57.8		72°29.8	49°44.0	12°08.1	57°50.3	63°52.9	79°57.8
18	12°13.0	7.1'	S 25°35.0	0.8'	57.0'	83°39.7		72°00.3	49°18.2	12°40.7	58°23.1	64° 17.8	80°28.0
19	26°39.1	7.2'	25°34.2	0.9'	57.0'	83°21.7		71°30.8	48°52.6	13°13.4	58° 55.8	64° 42.8	80°58.3
20	41°05.3	7.2'	25°33.3	1.1'	57.0'	83°03.8		71°01.4	48°27.2	13°45.9	59°28.5	65°07.8	81°28.4
21	55°31.6	7.3'	25°32.2	1.2'	56.9'	82°45.9		70°32.1	48°01.8	14°18.5	60°01.1	65°32.9	81°58.6
22	69°57.9	7.4'	25°31.0	1.4'	56.9'	82°28.0		70°02.8	47°36.6	14°51.0	60°33.7	65°57.9	82°28.7
23	84°24.2	7.4'	25°29.6	1.5'	56.9'	82°10.2		69°33.6	47°11.6	15°23.5	61°06.3	66°23.0	82°58.7
24 th	SD :	= 15.7'	Mer. pas	s. 17:09)				Sun SD	= 15.9 [']			

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

			. (=0	r /					250000			,	
Mon	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Hadar	+Spica	+Arcturus	+Sun
0	98°50.6	7.5'	S 25°28.0	1.7'	56.8'	81°52.5	69°04.4	46°46.7	15°56.0	50°33.4	61°38.8	66°48.1	83°28.7
1	113°17.1	7.5'	25°26.4	1.8'	56.8'	81°34.8	68°35.3	46°22.0	16°28.4	50°51.7	62°11.2	67°13.3	83°58.7
2	127°43.7	7.6'	25°24.6	2.0'	56.7'	81°17.1	68°06.2	45°57.4	17°00.8	51°10.0	62°43.7	67°38.4	84°28.6
3	142°10.3	7.7'	$25^{\circ}22.6$	2.1'	56.7'	80°59.5	67°37.3	45°33.0	17°33.1	51°28.5	63°16.1	68°03.6	84°58.5
4	156°37.0	7.7'	$25^{\circ}20.5$	2.2'	56.7'	80°42.0	67°08.3	45°08.7	18°05.4	51°47.2	63°48.4	68°28.8	85°28.3
5	171°03.7	7.8'	$25^{\circ}18.3$	2.4'	56.6'	80°24.5	66°39.5	44°44.6	18°37.7	52°06.0	64°20.7	68°54.0	85°58.1
6	185°30.5	7.9'	S 25°15.9	2.5'	56.6'	80°07.1	66°10.7	44°20.7	19°10.0	52°24.9	64°53.0	69°19.2	86°27.9
7	199°57.4	8.0'	25°13.3	2.7'	56.6'	79°49.8	65°42.0	43°57.0	19°42.2	52°43.9	65°25.2	69°44.4	86°57.6
8	214°24.4	8.0'	$25^{\circ}10.7$	2.8'	56.5'	79°32.5	65°13.3	43°33.4	20°14.3	53°03.1	65°57.4	70°09.7	87°27.3
9	228°51.4	8.1'	25°07.9	2.9'	56.5'	79°15.2	64°44.7	43°10.0	20°46.5	53°22.4	66°29.6	70°34.9	87°56.9
10	243°18.5	8.2'	25°05.0	3.1'	56.5'	78°58.1	64°16.2	42°46.8	21°18.6	53°41.8	67°01.7	71°00.2	88°26.5
11	257°45.7	8.2'	$25^{\circ}01.9$	3.2'	56.4'	78°41.0	63°47.7	42°23.7	21°50.6	54°01.3	67°33.7	71°25.4	88°56.1
12	272°12.9	8.3'	S 24°58.7	3.3'	56.4'	78°23.9	63°19.3	42°00.9	22°22.7	54°21.0	68°05.8	71°50.7	89°25.6
13	286°40.2	8.4'	24°55.3	3.5'	56.4'	78°06.9	62°50.9	41°38.2	22°54.6	54°40.7	68°37.8	72°16.0	89°55.1
14	301°07.6	8.5'	$24^{\circ}51.9$	3.6'	56.3'	77°50.0	62°22.7	41°15.8	23°26.6	55°00.6	69°09.7	72°41.3	90°24.5
15	315°35.1	8.5'	24°48.3	3.7'	56.3'	77°33.2	61°54.5	40°53.5	23°58.5	55°20.6	69°41.6	73°06.6	90°53.9
16	330°02.6	8.6'	24°44.5	3.9'	56.3'	77°16.4	61°26.3	40°31.5	24°30.4	55°40.6	70°13.5	73°31.9	91°23.3
17	344°30.2	8.7'	24°40.7	4.0'	56.2'	76°59.7	60°58.3	40°09.6	25°02.3	56°00.8	70°45.4	73°57.2	91°52.6
18	358°57.9	8.8'	S 24°36.7	4.1'	56.2'	76°43.0	60°30.3	39°48.0	25°34.1	56°21.0	71°17.2	74°22.5	92°21.9
19	13°25.7	8.8'	$24^{\circ}32.5$	4.3'	56.2'	76°26.5	60°02.4	39°26.6	26°05.8	56°41.4	71°48.9	74°47.8	92°51.2
20	27°53.5	8.9'	24°28.3	4.4'	56.1'	76°10.0	59°34.5	39°05.4	26°37.6	57°01.8	72°20.7	75°13.1	93°20.4
21	42°21.4	9.0'	24°23.9	4.5'	56.1'	75°53.5	59°06.7	38°44.4	27°09.3	57°22.4	72°52.4	75°38.4	93°49.6
22	56°49.4	9.1'	$24^{\circ}19.4$	4.6'	56.1'	75°37.2	58°39.0	38°23.7	27°41.0	57°43.0	73°24.0	76°03.7	94°18.7
23	71°17.5	9.2'	24°14.8	4.7'	56.0'	75°20.9	58°11.4	38°03.2	28°12.6	58°03.7	73°55.7	76°29.0	94°47.8
25 th	SD =	= 15.5′	Mer. pass	s. 18:0	4				Sun SD =	= 15.9'			

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I_	Moon (26th Sen)	Lunar Distance (objects with largest hourly LD delta)
n	IVIOON LZD Sen L	I linar i listance i oniects with largest nollriv i i l'ideita i

Tue	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Spica	+Arcturus	+Sun
0	85°45.7	9.2'	S 24°10.0	4.9'	56.0'		75°04.7	57°43.8	37°43.0	28°44.2	74°27.3	76°54.3	95°16.9
1	100°13.9	9.3'	24°05.2	5.0'	56.0'		74°48.5	57°16.3	37°22.9	29° 15.8	74°58.8	77° 19.6	95°45.9
2	114°42.3	9.4'	24°00.2	5.1'	55.9'		74°32.5	56°48.9	37°03.2	29°47.3	75°30.4	77° 44.9	96°15.0
3	129°10.7	9.5'	23°55.1	5.2'	55.9'	119°56.4	74°16.5	56°21.6	36°43.7	30° 18.8	76°01.8	78° 10.2	96°43.9
4	143°39.2	9.6'	23°49.8	5.3'	55.9'	119°25.1	74°00.6	55°54.3	36°24.4	30°50.3	76°33.3	78° 35.5	97°12.9
5	158°07.7	9.7'	23°44.5	5.5'	55.8'	118°53.9	73°44.8	55°27.2	36°05.5	31°21.7	77°04.7	79°00.7	97°41.8
6	172°36.4	9.7'	S 23°39.0	5.6'	55.8'	118°22.6	73°29.0	55°00.1	35°46.8	31°53.1	77°36.1	79°26.0	98°10.6
7	187°05.1	9.8'	23°33.4	5.7'	55.8'	117°51.4	73°13.3	54°33.0	35°28.3	32°24.5	78°07.5	79°51.3	98°39.5
8	201°34.0	9.9'	23°27.7	5.8'	55.8'	117°20.2	72°57.8	54°06.1	35°10.2	32°55.9	78°38.8	80° 16.5	99°08.3
9	216°02.9	10.0'	23°21.9	5.9'	55.7'	116°49.1	72°42.2	53°39.3	34°52.4	33°27.2	79°10.1	80°41.8	99°37.0
10	230°31.9	10.1'	23°16.0	6.0'	55.7'	116°18.0	72°26.8	53°12.5	34°34.8	33°58.4	79°41.4	81°07.0	100°05.8
11	245°00.9	10.2'	23°10.0	6.1'	55.7'	115°46.9	72°11.5	52°45.8	34°17.6	34°29.7	80°12.6	81°32.2	100°34.5
12	259°30.1	10.2'	S 23°03.8	6.3'	55.6'	115° 15.8	71°56.2	52°19.2	34°00.6	35°00.9	80°43.8	81°57.4	101°03.2
13	273°59.3	10.3'	22°57.6	6.4'	55.6'	114°44.8	71°41.1	51°52.7	33°44.0	35°32.1	81°14.9	82°22.6	101°31.8
14	288°28.7	10.4'	22°51.2	6.5'	55.6'	114° 13.8	71°26.0	51°26.3	33°27.7	36°03.3	81°46.1	82°47.8	102°00.4
15	302°58.1	10.5'	22° 44.7	6.6'	55.6'	113°42.8		50°59.9	33°11.7	36°34.4	82°17.2	83°13.0	102°29.0
16	317°27.6	10.6'	22°38.2	6.7'	55.5'	113°11.9		50°33.7	32°56.1	37°05.5	82°48.3	83°38.2	102°57.5
17	331°57.2	10.7'	22°31.5	6.8'	55.5'	112°40.9		50°07.5	32°40.8	37°36.5	83°19.3	84°03.3	103°26.1
18	346°26.8	10.8'	S 22°24.7	6.9'	55.5'	112° 10.0		49°41.5		38° 07.6	83°50.3	84°28.4	103°54.6
19	0°56.6	10.8'	22° 17.8	7.0'	55.4'	111°39.2		49°15.5		38°38.6	84°21.3	84°53.6	104°23.0
20	15°26.4	10.9'	22° 10.8	7.1'	55.4'	111°08.3		48°49.6		39°09.6	84°52.3	85° 18.7	104°51.4
21	29°56.3	11.0'	22°03.7	7.2'	55.4'	110°37.5		48°23.9		39°40.5	85°23.2	85°43.8	105°19.8
22	44°26.3	11.1'	21°56.5	7.3'	55.4'	110°06.7		47°58.2		40°11.4	85°54.1	86°08.9	105°48.2
23	58°56.4	11.2'	21°49.2	7.4'	55.3'	109°36.0		47°32.7		40°42.3	86°25.0	86°33.9	106°16.6
26 th	SD :	= 15.3'	Mer. pass	. 18:56	i			Sun S	D=15.9' a	at 0h; 16.0^{\prime} a	t 23h		

h		Moon	(27 th Se _l	p)			Lunar D	istance (c	bjects with	largest h	ourly LD	delta)	
Wed	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Spica	+Arcturus	+Sun
0	73°26.6	11.3'	S 21°41.8	7.5'	55.3'	109°05.2	47°07.2	41°13.2	62°40.6	67°02.1	86°55.8	86°59.0	106°44.9
1	87°56.8	11.3'	21°34.3	7.6'	55.3'	108°34.5	46°41.8	41°44.1	63°02.6	67°24.3	87°26.7	87°24.0	107°13.2
2	102°27.2	11.4'	21°26.7	7.7'	55.3'	108°03.8	46°16.6	42°14.9	63°24.6	67°46.5	87° 57.4	87°49.0	107°41.4
3	116°57.6	11.5'	21°19.0	7.8'	55.2'	107°33.1	45°51.4	42°45.7	63°46.7	68°08.8	88° 28.2	88° 14.0	108°09.7
4	131°28.1	11.6'	21°11.3	7.9'	55.2'	107°02.5	45°26.4	43°16.4	64°08.9	68°31.0	88°59.0	88° 39.0	108°37.9
5	145°58.7	11.7'	21°03.4	8.0'	55.2'	106°31.9	45°01.5	43°47.2	64°31.0	68°53.4	89°29.7	89°03.9	109°06.1
6	160°29.4	11.8'	S 20°55.4	8.1'	55.2'	106°01.3	44°36.7	44°17.9	64°53.3	69°15.7	90°00.4	89°28.9	109°34.2
7	175°00.1	11.8'	20°47.4	8.1'	55.1'	105°30.7	44°12.0	44°48.6	65°15.5	69°38.1	90°31.0	89°53.8	110°02.3
8	189°31.0	11.9'	20°39.2	8.2'	55.1'	105°00.2	43°47.5	45°19.2	65°37.9	70°00.5	91°01.7	90° 18.7	110°30.4
9	204°01.9	12.0'	20°31.0	8.3'	55.1'	104°29.6	43°23.0	45°49.9	66°00.2	70°22.9	91°32.3	90°43.5	110°58.5
10	218°32.9	12.1'	20°22.7	8.4'	55.1'	103°59.1	42°58.7	46°20.5	66°22.6	70°45.4	92°02.9	91°08.4	111°26.6
11	233°04.0	12.2'	$20^{\circ}14.3$	8.5'	55.0'	103°28.7	42°34.5	46°51.1	66°45.0	71°07.9	92°33.4	91°33.2	111°54.6
12	247°35.1	12.2'	S 20°05.8	8.6'	55.0'	102°58.2	42° 10.5	47°21.7	67°07.5	71°30.4	93°04.0	91°58.0	112°22.6
13	262°06.4	12.3'	19°57.2	8.7'	55.0'	102°27.8	41°46.6	47°52.2	67°30.0	71°52.9	93°34.5	92°22.8	112°50.6
14	276°37.7	12.4'	19°48.5	8.7'	55.0'	101°57.4	41°22.8	48°22.7	67°52.5	72°15.5	94°05.0	92°47.6	113°18.5
15	291°09.1	12.5'	19°39.8	8.8'	55.0'	101°27.0	40°59.2	48°53.2	68°15.1	72°38.1	94°35.5	93° 12.3	113°46.5
16	305°40.6	12.6'	19°31.0	8.9'	54.9'	100°56.6	40°35.7	49°23.7	68°37.7	73°00.7	95°05.9	93°37.1	114°14.4
17	320°12.2	12.6'	$19^{\circ}22.1$	9.0'	54.9'	100°26.3	40°12.3	49°54.2	69°00.3	73°23.3	95°36.3	94°01.8	114°42.2
18	334°43.8	12.7'	S 19°13.1	9.1'	54.9'	99°55.9	39°49.1	50°24.6	69°23.0	73°45.9	96°06.7	94°26.4	115°10.1
19	349°15.5	12.8'	19°04.0	9.1'	54.9'	99°25.6	39°26.0	50°55.0	69°45.7	74°08.6	96°37.1	94°51.1	115°37.9
20	3°47.3	12.9'	$18^{\circ}54.9$	9.2'	54.9'	98°55.3	39°03.2	51°25.4	70°08.4	74°31.3	97°07.5	95° 15.7	116°05.8
21	18°19.2	13.0'	18°45.6	9.3'	54.8'	98°25.1	38°40.4	51°55.8	70°31.1	74°54.0	97°37.8	95°40.3	116°33.5
22	32°51.2	13.0'	$18^{\circ}36.3$	9.4'	54.8'	97°54.8	38° 17.8	52°26.1	70°53.9	75°16.7	98°08.1	96°04.9	117°01.3
23	47°23.2	13.1'	18°27.0	9.4'	54.8'	97°24.6	37°55.4	52°56.5	71°16.7	75°39.4	98°38.4	96°29.4	117°29.1
27 th	SD :	= 15.1'	Mer. pass	. 19:44					Sun SD = 1	6.0'	-		

Moon (28th Sep)

h

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Antares	+Arcturus	+Spica	+Sun
0	61°55.3	13.2'	S 18° 17.5	9.5'	54.8'			96°54.4	37°33.2	53°26.8	96°54.0	99°08.7	117°56.8
1	76°27.5	13.3'	$18^{\circ}08.0$	9.6'	54.7'			96°24.2	37°11.2	53°57.1	97°18.4	99°39.0	118°24.5
2	90°59.7	13.3'	17°58.4	9.7'	54.7'			95°54.0	36°49.3	54°27.3	97°42.9	100°09.2	118°52.2
3	105°32.1	13.4'	$17^{\circ}48.7$	9.7'	54.7'			95°23.9	36°27.6	54°57.6	98°07.3	100°39.5	119°19.9
4	120°04.5	13.5'	$17^{\circ}39.0$	9.8'	54.7'			94°53.7	36°06.1	55°27.8	98°31.8	101°09.7	119°47.5
5	134°36.9	13.5'	$17^{\circ}29.2$	9.9'	54.7'			94°23.6	35°44.8	55°58.0	98°56.1	101°39.8	
6	149°09.5	13.6'	S 17°19.3	9.9'	54.7'			93°53.5	35°23.7	56°28.2	99°20.5	102°10.0	
7	163°42.1	13.7'	$17^{\circ}09.4$	10.0'	54.6'			93°23.4	35°02.8	56°58.4	99°44.8	102°40.2	İ
8	178°14.8	13.8'	$16^{\circ}59.4$	10.1'	54.6'			92°53.4	34°42.1	57°28.6	100°09.1	103°10.3	
9	192°47.5	13.8'	$16^{\circ}49.3$	10.1'	54.6'			92°23.3	34°21.6	57°58.7	100°33.4	103°40.4	
10	207°20.4	13.9'	$16^{\circ}39.1$	10.2'	54.6'			91°53.3	34°01.4	58°28.8	100°57.6	104°10.5	
11	221°53.3	14.0'	$16^{\circ}28.9$	10.3'	54.6'			91°23.3	33°41.4	58°59.0	101°21.8	104°40.6	
12	236°26.2	14.0'	$$16^{\circ}18.7$	10.3'	54.6'			90°53.3	33°21.6	59°29.0	101°46.0	105°10.6	
13	250°59.3	14.1'	$16^{\circ}08.3$	10.4'	54.5'			90°23.3	33°02.0	59°59.1	102°10.1	105°40.7	
14	265°32.4	14.2'	$15^{\circ}58.0$	10.5'	54.5'	119°51.1		89°53.3	32°42.7	60°29.2	102°34.2	106° 10.7	
15	280°05.5	14.2'	15° 47.5	10.5'	54.5'	119°21.5		89°23.3	32°23.7	60°59.2	102°58.3	106°40.7	
16	294°38.8	14.3'	15° 37.0	10.6'	54.5'	118°51.9		88°53.4	32°04.9	61°29.3	103°22.3	107°10.7	
17	309°12.0	14.4'	15°26.4	10.6'	54.5'	118°22.3		88°23.5	31°46.4	61°59.3	103°46.3	107°40.7	
18	323°45.4	14.4'	S 15°15.8	10.7'	54.5'	117°52.7		87°53.6	31°28.1	62°29.3	104°10.3	108° 10.7	
19	338°18.8	14.5'	$15^{\circ}05.1$	10.7'	54.4'	117°23.2		87°23.7	31°10.2	62°59.3	104°34.2	108°40.6	
20	352°52.3	14.5'	14°54.4	10.8'	54.4'	116°53.6	119°39.1	86°53.8	30°52.5	63°29.2	104°58.1	109°10.6	
21	7°25.9	14.6'	14° 43.6	10.9'	54.4'	116°24.1	119°16.0	86°23.9	30°35.1	63°59.2	105°21.9	109°40.5	
22	21°59.5	14.7'	14°32.7	10.9'	54.4'	115°54.6	118°52.9	85°54.1	30°18.0	64°29.2	105°45.8	110°10.4	
23	36°33.1	14.7'	14°21.8	11.0'	54.4'	115°25.0	118°29.7	85°24.2	30°01.2	64°59.1	106°09.5	110°40.3	
28 th	SD	= 14.9'	Mer. pass	s. 20:29					Sun SD	= 16.0'			

Moon (29th Sep) h

			(== ==	'F'/				(
Fri	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Arcturus	+Spica
0	51°06.8	14.8'	S 14°10.9	11.0'	54.4'		118°06.5	114°55.5	84°54.4	65°29.0	80°52.4	106°33.3	111°10.2
1	65°40.6	14.8'	$13^{\circ}59.8$	11.1'	54.4'		117°43.3	114°26.0	84°24.6	65°58.9	81° 15.6	106°57.0	111°40.0
2	80°14.5	14.9'	13°48.8	11.1'	54.3'		117°20.0	113°56.5	83°54.8	66°28.8	81°38.8	107°20.7	112°09.9
3	94°48.4	15.0'	13°37.7	11.2'	54.3'		116°56.6	113°27.1	83°25.0	66°58.7	82°02.0	107°44.3	112°39.7
4	109°22.3	15.0'	13°26.5	11.2'	54.3'		116°33.2	112°57.6	82°55.2	67°28.6	82°25.2	108°07.9	113°09.6
5	123°56.3	15.1'	13°15.3	11.3'	54.3'		116°09.8	112°28.1	82°25.5	67°58.4	82°48.4	108°31.4	113°39.4
6	138°30.4	15.1'	S 13°04.0	11.3'	54.3'	119°50.9	115°46.3	111°58.7	81°55.7	68°28.3	83°11.6	108°54.9	114°09.2
7	153°04.5	15.2'	$12^{\circ}52.7$	11.4'	54.3'	119°23.6	115°22.8	111°29.2	81°26.0	68°58.1	83°34.8	109° 18.4	114°39.0
8	167°38.7	15.2'	12°41.4	11.4'	54.3'	118°56.3	114°59.3	110°59.8	80°56.3	69°27.9	83°58.0	109°41.8	115°08.8
9	182°12.9	15.3'	12°30.0	11.4'	54.2'	118°28.9	114°35.7	110°30.3	80°26.5	69°57.7	84°21.2	110°05.2	115°38.6
10	196°47.2	15.3'	12° 18.6	11.5'	54.2'	118°01.5	114°12.1	110°00.9	79°56.8	70°27.6	84°44.4	110°28.5	116°08.3
11	211°21.5	15.4'	$12^{\circ}07.1$	11.5'	54.2'	117°34.1	113°48.4	109°31.5	79°27.1	70°57.3	85°07.6	110°51.8	116°38.1
12	225°55.9	15.4'	S 11°55.5	11.6'	54.2'	117°06.7	113°24.7	109°02.1	78°57.5	71°27.1	85°30.8	111° 15.0	117°07.8
13	240°30.3	15.5'	$11^{\circ}44.0$	11.6'	54.2'	116°39.3	113°01.0	108°32.7	78°27.8	71°56.9	85°54.0	111°38.2	117°37.6
14	255°04.8	15.5'	11°32.4	11.7'	54.2'	116°11.9	112°37.3	108°03.3	77°58.1	72°26.7	86°17.3	112°01.4	118°07.3
15	269°39.3	15.6'	11°20.7	11.7'	54.2'	115°44.5	112°13.5	107°33.9	77°28.5	72°56.4	86° 40.5	112°24.4	118°37.0
16	284°13.9	15.6'	11°09.0	11.7'	54.2'	115°17.1	111°49.7	107°04.5	76°58.8	73°26.2	87°03.7	112°47.5	119°06.7
17	298°48.5	15.7'	10°57.3	11.8'	54.2'	114°49.6	111°25.8	106°35.2	76°29.2	73°55.9	87°26.9	113° 10.5	119°36.4
18	313°23.1	15.7'	S 10°45.5	11.8'	54.2'	114°22.2	111°01.9	106°05.8	75°59.6	74°25.6	87°50.1	113°33.4	
19	327°57.8	15.7'	$10^{\circ}33.7$	11.8'	54.1'	113°54.7	110°38.0	105°36.4	75°30.0	74°55.4	88°13.3	113°56.3	
20	342°32.6	15.8'	$10^{\circ}21.9$	11.9'	54.1'	113°27.2	110°14.1	105°07.1	75°00.3	75°25.1	88°36.5	114° 19.2	
21	357°07.4	15.8'	10°10.0	11.9'	54.1'	112°59.7	109°50.1	104°37.7	74°30.7	75°54.8	88°59.7	114°41.9	
22	11°42.2	15.9'	09°58.1	11.9'	54.1'	112°32.2	109°26.2	104°08.4	74°01.2	76°24.5	89°22.9	115°04.7	
23	26°17.1	15.9'	09°46.1	12.0'	54.1'	112°04.7	109°02.1	103°39.1	73°31.6	76°54.2	89°46.1	115°27.4	
29 th	SD	$=14.8^{\prime}$	Mer. pass	s. 21:12									

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

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Hadar	+Arcturus
0	40°52.0	15.9'	S 09°34.1	12.0'	54.1'		111°37.2	103°09.7	73°02.0	77°23.8	90°09.3	94°18.7	115°50.0
1	55°26.9	16.0'	$09^{\circ}22.1$	12.0'	54.1'		111°09.7	102°40.4	72°32.4	77°53.5	90°32.5	94°41.5	116°12.5
2	70°01.9	16.0'	$09^{\circ}10.1$	12.1'	54.1'		110°42.2	102°11.1	72°02.9	78°23.2	90°55.6	95°04.2	116°35.0
3	84°36.9	16.1'	08°58.0	12.1'	54.1'		110°14.7	101°41.8	71°33.3	78°52.9	91°18.8	95°26.8	116°57.5
4	99°12.0	16.1'	08°45.9	12.1'	54.1'	119°36.7	109°47.1	101°12.4	71°03.8	79°22.5	91°42.0	95°49.5	117°19.9
5	113°47.1	16.1'	08°33.8	12.2'	54.1'	119°08.9	109°19.6	100°43.1	70°34.3	79°52.2	92°05.1	96°12.2	117°42.2
6	128°22.2	16.2'	S 08°21.6	12.2'	54.0'	118°41.1	108°52.0	100°13.8	70°04.7	80°21.8	92°28.3	96°34.8	118°04.5
7	142°57.4	16.2'	08°09.4	12.2'	54.0'	118° 13.3	108°24.5	99°44.5	69°35.2	80°51.4	92°51.4	96°57.4	118°26.7
8	157°32.6	16.2'	07°57.2	12.3'	54.0'	117° 45.5	107°56.9	99°15.3	69°05.7	81°21.1	93°14.5	97°20.1	118°48.8
9	172°07.8	16.3'	$07^{\circ}44.9$	12.3'	54.0'	117° 17.6	107°29.3	98°46.0	68°36.2	81°50.7	93°37.6	97°42.6	119°10.8
10	186°43.0	16.3'	07°32.6	12.3'	54.0'	116°49.8	107°01.7	98° 16.7	68°06.7	82°20.3	94°00.7	98°05.2	119°32.8
11	201°18.3	16.3'	$07^{\circ}20.3$	12.3'	54.0'	116°22.0	106°34.2	97°47.4	67°37.2	82°49.9	94°23.8	98°27.8	119°54.8
12	215°53.6	16.3'	S 07°08.0	12.4'	54.0'	115°54.1	106°06.6	97° 18.1	67°07.7	83°19.6	94°46.9	98°50.3	
13	230°29.0	16.4'	$06^{\circ}55.6$	12.4'	54.0'	115°26.2	105°39.0	96°48.8	66°38.3	83°49.2	95°10.0	99°12.8	
14	245°04.3	16.4'	06°43.3	12.4'	54.0'	114°58.3	105°11.4	96° 19.6	66°08.8	84°18.8	95°33.0	99°35.3	
15	259°39.7	16.4'	06°30.9	12.4'	54.0'	114°30.5	104°43.8	95°50.3	65°39.3	84°48.4	95°56.1	99°57.8	
16	274°15.2	16.4'	$06^{\circ}18.4$	12.4'	54.0'	114°02.6	104°16.2	95°21.0	65°09.9	85°18.0	96°19.1	100°20.2	
17	288°50.6	16.5'	06°06.0	12.5'	54.0'	113°34.6	103°48.5	94°51.8	64°40.4	85°47.6	96°42.1	100°42.6	
18	303°26.1	16.5'	S 05°53.5	12.5'	54.0'	113°06.7	103°20.9	94°22.5	64°10.9	86°17.2	97°05.1	101°05.1	
19	318°01.6	16.5'	$05^{\circ}41.0$	12.5'	54.0'	112°38.8	102°53.3	93°53.3	63°41.5	86°46.8	97°28.1	101°27.4	
20	332°37.1	16.5'	05°28.5	12.5'	54.0'	112° 10.9	102°25.7	93°24.0	63°12.1	87°16.3	97°51.1	101°49.8	
21	347°12.6	16.6'	$05^{\circ}16.0$	12.5'	54.0'	111°42.9	101°58.0	92°54.8	62°42.6	87°45.9	98°14.0	102°12.1	
22	1°48.2	16.6'	$05^{\circ}03.5$	12.6'	54.0'	111°15.0	101°30.4	92°25.5	62°13.2	88°15.5	98°36.9	102°34.4	
23	16°23.8	16.6'	04°50.9	12.6'	54.0'	110°47.0	101°02.7	91°56.3	61°43.8	88°45.1	98°59.9	102°56.7	
30 th	SD	= 14.8'	Mer. pass	s. 21:53									

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

		IVIOO	11 (1 00	١)			Luliai D	istalice (OI	Jects Wi	til larges	t Hourry L	D ucita)	
Sun	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.	+Hadar
0	30°59.3	16.6'	S 04°38.3	12.6'	53.9'	110° 19.0	100°35.1	91°27.0	61°14.4	43°16.5	89°14.7	99°22.8	103°18.9
1	45°35.0	16.6'	04°25.7	12.6'	53.9'	109°51.1	100°07.4	90°57.8	60°45.0	43°38.0	89°44.2	99°45.6	103°41.2
2	60°10.6	16.6'	04°13.1	12.6'	53.9'	109°23.1	99°39.8	90°28.5	60°15.5	43°59.6	90°13.8	100°08.5	104°03.4
3	74°46.2	16.7'	04°00.5	12.6'	53.9'	108°55.1	99°12.1	89°59.3	59°46.1	44°21.4	90°43.4	100°31.4	104°25.5
4	89°21.9	16.7'	03°47.9	12.6'	53.9'	108°27.1	98°44.5	89°30.1	59°16.7	44°43.3	91°12.9	100°54.2	104°47.6
5	103°57.6	16.7'	03°35.2	12.7'	53.9'	107°59.1	98°16.8	89°00.8	58°47.3	45°05.3	91°42.5	101°17.0	105°09.7
6	118°33.2	16.7'	S 03°22.6	12.7'	53.9'	107°31.0	97°49.1	88°31.6	58°18.0	45°27.5	92°12.1	101°39.8	105°31.8
7	133°08.9	16.7'	03°09.9	12.7'	53.9'	107°03.0	97°21.5	88°02.3	57°48.6	45°49.7	92°41.6	102°02.5	105°53.9
8	147°44.7	16.7'	02°57.2	12.7'	53.9'	106°35.0	96°53.8	87°33.1	57°19.2	46°12.0	93°11.2	102°25.2	106°15.9
9	162°20.4	16.7'	02°44.5	12.7'	53.9'	106°06.9	96°26.1	87°03.9	56°49.8	46°34.5	93°40.8	102°48.0	106°37.8
10	176°56.1	16.7'	02°31.8	12.7'	53.9'	105°38.9	95°58.4	86°34.6	56°20.4	46°57.0	94°10.3	103°10.6	106°59.8
11	191°31.8	16.7'	$02^{\circ}19.1$	12.7'	53.9'	105°10.8	95°30.7	86°05.4	55°51.1	47°19.7	94°39.9	103°33.3	107°21.7
12	206°07.6	16.8'	S 02°06.4	12.7'	53.9'	104°42.8	95°03.1	85°36.2	55°21.7	47°42.4	95°09.5	103°55.9	107°43.5
13	220°43.3	16.8'	01°53.7	12.7'	53.9'	104°14.7	94°35.4	85°06.9	54°52.3	48°05.2	95°39.0	104° 18.5	108°05.4
14	235°19.1	16.8'	$01^{\circ}41.0$	12.7'	53.9'	103°46.6	94°07.7	84°37.7	54°23.0	48°28.1	96°08.6	104°41.1	108°27.1
15	249°54.9	16.8'	01°28.2	12.7'	53.9'	103° 18.6	93°40.0	84°08.5	53°53.6	48°51.2	96°38.1	105°03.7	108°48.9
16	264°30.6	16.8'	$01^{\circ}15.5$	12.7'	53.9'	102°50.5	93°12.3	83°39.2	53°24.3	49°14.3	97°07.7	105°26.2	109°10.6
17	279°06.4	16.8'	01°02.7	12.8'	53.9'	102°22.4	92°44.6	83°10.0	52°54.9	49°37.5	97°37.3	105°48.7	109°32.3
18	293°42.2	16.8'	S 00°50.0	12.8'	53.9'	101°54.3	92°16.9	82°40.8	52°25.6	50°00.7	98°06.8	106°11.2	109°53.9
19	308°18.0	16.8'	00°37.2	12.8'	53.9'	101°26.2	91°49.2	82°11.5	51°56.3	50°24.1	98°36.4	106°33.6	110°15.5
20	322°53.8	16.8'	00°24.5	12.8'	53.9'	100°58.0	91°21.5	81°42.3	51°26.9	50°47.5	99°06.0	106°56.0	110°37.0
21	337°29.5	16.8'	S 00°11.7	12.8'	53.9'	100°29.9	90°53.7	81°13.1	50°57.6	51°11.0	99°35.5	107° 18.4	110°58.5
22	352°05.3	16.8'	N 00°01.0	12.8'	53.9'	100°01.8	90°26.0	80°43.8	50°28.3	51°34.6	100°05.1	107°40.7	111°20.0
23	6°41.1	16.8'	00°13.8	12.8'	53.9'	99°33.7	89°58.3	80°14.6	49°59.0	51°58.3	100°34.7	108°03.0	111°41.4
1 st	SD	= 14.7'	Mer. pass	s. 22:33									

h	Moon (2 nd Oct)	Lunar Distance (objects with largest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	21°16.9	16.8'	N 00°26.6	12.8'	53.9'			79°45.4	49°29.6	30°18.6	52°22.0	101°04.3	108°25.3
1	35°52.6	16.8'	00°39.3	12.8'	53.9'			79°16.1	49°00.3	30° 35.5	52°45.8	101°33.8	108°47.5
2	50°28.4	16.8'	$00^{\circ}52.1$	12.8'	53.9'			78°46.9	48°31.0	30°52.6	53°09.7	102°03.4	109°09.7
3	65°04.2	16.8'	$01^{\circ}04.8$	12.7'	53.9'			78°17.7	48°01.7	31°10.1	53°33.7	102°33.0	109°31.9
4	79°39.9	16.7'	01° 17.6	12.7'	53.9'		119°45.5	77°48.4	47°32.4	31°27.8	53°57.7	103°02.6	109°54.0
5	94°15.7	16.7'	01°30.3	12.7'	53.9'		119°16.2	77°19.2	47°03.1	31°45.8	54°21.8	103°32.2	110°16.1
6	108°51.4	16.7'	N 01°43.1	12.7'	53.9'		118°46.9	76°49.9	46°33.8	32°04.0	54°45.9	104°01.8	110°38.1
7	123°27.1	16.7'	$01^{\circ}55.8$	12.7'	53.9'		118°17.6	76°20.7	46°04.6	32°22.5	55° 10.1	104°31.3	111°00.1
8	138°02.8	16.7'	02°08.5	12.7'	53.9'		117°48.3	75°51.4	45°35.3	32°41.3	55°34.4	105°00.9	111°22.1
9	152°38.6	16.7'	02°21.2	12.7'	53.9'		117°18.9	75°22.2	45°06.0	33°00.2	55°58.7	105°30.5	111°44.0
10	167°14.3	16.7'	02°34.0	12.7'	53.9'		116°49.6	74°53.0	44°36.7	33°19.5	56°23.1	106°00.1	112°05.9
11	181°49.9	16.7'	02°46.7	12.7'	53.9'	119°52.9	116°20.3	74°23.7	44°07.5	33°38.9	56°47.5	106°29.7	112°27.7
12	196°25.6	16.7'	N 02°59.4	12.7'	53.9'	119°24.7	115°50.9	73°54.4	43°38.2	33°58.5	57° 12.0	106°59.3	112°49.5
13	211°01.3	16.6'	03°12.1	12.7'	53.9'	118°56.5	115°21.6	73°25.2	43°08.9	34°18.4	57° 36.6	107°29.0	113°11.2
14	225°36.9	16.6'	03°24.7	12.7'	53.9'	118°28.3	114°52.2	72°55.9	42°39.7	34°38.5	58°01.2	107°58.6	113°32.9
15	240°12.5	16.6'	03°37.4	12.7'	53.9'	118°00.0	114°22.9	72°26.7	42°10.5	34°58.8	58° 25.8	108°28.2	113°54.5
16	254°48.2	16.6'	03°50.0	12.6'	53.9'	117°31.8	113°53.5	71°57.4	41°41.2	35°19.2	58° 50.5	108°57.8	114°16.1
17	269°23.8	16.6'	04°02.7	12.6'	53.9'	117°03.5	113°24.1	71°28.2	41°12.0	35°39.9	59°15.3	109°27.4	114°37.7
18	283°59.3	16.6'	N 04° 15.3	12.6'	53.9'	116°35.2	112°54.8	70°58.9	40°42.8	36°00.7	59°40.1	109°57.1	114°59.2
19	298°34.9	16.5'	04°27.9	12.6'	53.9'	116°06.9	112°25.4	70°29.6	40°13.6	36°21.7	60°05.0	110°26.7	115°20.6
20	313°10.4	16.5'	04°40.5	12.6'	53.9'	115°38.5	111°56.0	70°00.3	39°44.3	36°42.9	60°29.9	110°56.3	115°42.0
21	327°46.0	16.5'	04°53.1	12.6'	54.0'	115°10.2	111°26.6	69°31.1	39°15.1	37°04.3	60°54.8	111°26.0	116°03.3
22	342°21.4	16.5'	05°05.7	12.6'	54.0'	114°41.8	110°57.2	69°01.8	38°45.9	37°25.8	61°19.8	111°55.6	116°24.5
23	356°56.9	16.5'	05°18.2	12.5'	54.0'	114°13.5	110°27.8	68°32.5	38°16.8	37°47.5	61°44.9	112°25.3	116°45.7
2 nd	SD	= 14.7'	Mer. pass	. 23:13									

Moon (3rd Oct)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	11°32.4	16.4'	N 05°30.8	12.5'	54.0'	113°45.1	109°58.4	68°03.2	37°47.6	38°09.4	62°10.0	112°55.0	117°06.9
1	26°07.8	16.4'	05°43.3	12.5'	54.0'	113°16.7	109°28.9	67°34.0	37°18.4	38°31.4	62°35.1	113°24.6	117°28.0
2	40°43.2	16.4'	05°55.8	12.5'	54.0'	112°48.2	108°59.5	67°04.7	36°49.3	38°53.5	63°00.3	113°54.3	117°49.0
3	55°18.6	16.4'	06°08.3	12.5'	54.0'	112°19.8	108°30.1	66°35.4	36°20.1	39°15.8	63°25.5	114°24.0	118°09.9
4	69°53.9	16.3'	06°20.7	12.4'	54.0'	111°51.4	108°00.6	66°06.1	35°51.0	39°38.2	63°50.8	114°53.6	118°30.8
5	84°29.3	16.3'	$06^{\circ}33.1$	12.4'	54.0'	111°22.9	107°31.2	65°36.8	35°21.9	40°00.8	64°16.1	115°23.3	118°51.7
6	99°04.6	16.3'	N 06°45.6	12.4'	54.0'	110°54.4	107°01.7	65°07.5	34°52.7	40°23.5	64°41.4	115°53.0	119°12.4
7	113°39.8	16.2'	06°57.9	12.4'	54.0'	110°25.9	106°32.2	64°38.2	34°23.6	40°46.3	65°06.8	116°22.7	119°33.1
8	$128^{\circ}15.1$	16.2'	$07^{\circ}10.3$	12.3'	54.0'	109°57.4	106°02.8	64°08.9	33°54.6	41°09.3	65°32.2	116°52.4	119°53.7
9	142°50.3	16.2'	$07^{\circ}22.6$	12.3'	54.0'	109°28.9	105°33.3	63°39.6	33°25.5	41°32.3	65°57.6	117°22.1	
10	157°25.4	16.1'	07°35.0	12.3'	54.0'	109°00.4	105°03.8	63°10.3	32°56.4	41°55.5	66°23.1	117°51.8	
11	172°00.6	16.1'	07°47.2	12.3'	54.0'	108°31.9	104°34.3	62°41.0	32°27.4	42°18.8	66°48.6	118°21.6	
12	186°35.7	16.1'	N 07°59.5	12.2'	54.0'	108°03.3	104°04.8	62°11.7	31°58.4	42°42.3	67° 14.2	118°51.3	
13	201°10.8	16.0'	$08^{\circ}11.7$	12.2'	54.0'	107°34.7	103°35.3	61°42.4	31°29.4	43°05.8	67°39.8	119°21.0	
14	215°45.8	16.0'	08°23.9	12.2'	54.0'	107°06.1	103°05.8	61°13.0	31°00.4	43°29.4	68°05.4	119°50.8	
15	230°20.8	16.0'	08°36.1	12.1'	54.0'	106°37.6	102°36.2	60°43.7	30°31.4	43°53.2	68°31.0		
16	244°55.8	15.9'	08°48.3	12.1'	54.1'	106°08.9	102°06.7	60°14.4	30°02.5	44°17.0	68°56.7		
17	259°30.7	15.9'	09°00.4	12.1'	54.1'	105°40.3	101°37.2	59°45.1	29°33.5	44°41.0	69°22.5		
18	274°05.6	15.9'	$N09^{\circ}12.5$	12.1'	54.1'	105°11.7	101°07.6	59°15.7	29°04.6	45°05.0	69°48.2		
19	288°40.5	15.8'	09°24.5	12.0'	54.1'	104°43.0	100°38.1	58°46.4	28°35.8	45°29.1	70°14.0		
20	303°15.3	15.8'	09°36.5	12.0'	54.1'	104°14.4	100°08.5	58°17.1	28°06.9	45°53.4	70°39.8		
21	317°50.1	15.7'	09°48.5	11.9'	54.1'	103°45.7	99°38.9	57°47.7	27°38.1	46°17.7	71°05.6		
22	332°24.8	15.7'	$10^{\circ}00.5$	11.9'	54.1'	103°17.0	99°09.3	57°18.4	27°09.3	46°42.1	71°31.5		
23	346°59.5	15.7'	$10^{\circ}12.4$	11.9'	54.1'	102°48.3	98°39.7	56°49.1	26°40.5	47°06.6	71°57.4		
3 rd	SD	= 14.7'	Mer. pass	. 23:54									

Moon (4th Oct)

h

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Mars	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	1°34.1	15.6'	N10°24.3	11.8'	54.1'		102°19.6	98° 10.1	76°29.3	56°19.7	26°11.8	47°31.2	72°23.3
1 1	1 34.1 16°08.8	15.6'	10° 36.1	11.8'	54.1'		102 19.0 101°50.9	96 10.1 97°40.5	76°29.3	55°50.4	25°43.1	47°55.8	72°49.3
2	30°43.3	15.5'	10° 30.1 10° 47.9	11.8	54.1'		101 50.9 101°22.2	97 40.5 97°10.9	75°32.6	55°21.0	25° 14.5	47 55.6 48°20.6	72 49.3 73°15.3
3	45°17.8	15.5'	10°47.9	11.7	54.1		101 22.2 100°53.4	96°41.3	75°04.3	54°51.7	24°45.9	48°45.4	73°41.3
4	59°52.3	15.4'	10° 39.7 11° 11.4	11.7'	54.1'		100°33.4	96°11.7	74°35.9	54°22.3	24° 17.3	49° 10.3	74°07.3
5	74°26.8	15.4'	11°23.1	11.6'	54.1'		99°55.9	95°42.0	74°07.6	53°53.0	23°48.8	49°35.3	74° 33.4
6	89°01.1	15.3'	N11°34.7	11.6'	54.2'	4400400	99°27.1	95°12.4	73°39.2	53°23.6	23°20.4	50°00.3	74°59.4
7	103°35.5	15.3'	11°46.3	11.6'	54.2'	119°49.9	98°58.4	94°42.7	73°10.9	52°54.2	22°52.0	50°25.4	75°25.5
8	118°09.8	15.2'	11°57.9	11.5'	54.2'	119°21.5	98°29.6	94°13.0	72°42.5	52°24.9	22°23.6	50°50.6	75°51.7
9	132°44.0	15.2'	12°09.4	11.5'	54.2'	118°53.2	98°00.7	93°43.4	72°14.2	51°55.5	21°55.3	51°15.8	76°17.8
10	147°18.2	15.1'	12°20.8	11.4'	54.2'	118°24.9	97°31.9	93°13.7	71°45.8	51°26.1	21°27.1	51°41.2	76°44.0
11	161°52.3	15.1'	12°32.3	11.4'	54.2'	117°56.5	97°03.1	92°44.0	71°17.5	50°56.8	20°59.0	52°06.5	77°10.2
12	176°26.4	15.0'	N12°43.6	11.3'	54.2'	117°28.1	96°34.2	92°14.3	70°49.1	50°27.4	20°30.9	52°32.0	77°36.4
13	191°00.5	15.0'	12°55.0	11.3'	54.2'	116°59.8	96°05.4	91°44.5	70°20.8	49°58.0	20°03.0	52° 57.5	78°02.7
14	205°34.5	14.9'	13°06.3	11.2'	54.2'	116°31.4	95°36.5	91°14.8	69°52.5	49°28.7	19°35.1	53°23.1	78°28.9
15	220°08.4	14.9'	13° 17.5	11.2'	54.2'	116°03.0	95°07.6	90°45.1	69°24.1	48°59.3	19°07.3	53° 48.7	78°55.2
16	234°42.3	14.8'	13°28.7	11.1'	54.2'	115°34.6	94°38.7	90°15.3	68°55.8	48°29.9	18°39.6	54° 14.4	79°21.5
17	249°16.1	14.8'	13°39.8	11.1'	54.3'	115°06.2	94°09.8	89°45.6	68°27.4	48°00.5	18°12.0	54°40.2	79°47.9
18	263°49.9	14.7'	N13°50.9	11.0'	54.3'	114°37.8	93°40.9	89°15.8	67°59.1	47°31.2	17°44.6	55°06.0	80°14.2
19	278°23.6	14.7'	14°01.9	11.0'	54.3'	114°09.3	93°12.0	88°46.0	67°30.7	47°01.8	17° 17.3	55° 31.8	80°40.6
20	292°57.2	14.6'	14°12.9	10.9'	54.3'	113°40.9	92°43.0	88°16.2	67°02.4	46°32.4	16°50.2	55° 57.8	81°06.9
21	307°30.8	14.5'	14°23.8	10.9'	54.3'	113°12.4	92°14.1	87°46.5	66°34.1	46°03.0	16°23.2	56°23.7	81°33.4
22	322°04.4	14.5'	14°34.7	10.8'	54.3'	112°44.0	91°45.1	87°16.6	66°05.7	45°33.7	15°56.4	56° 49.8	81°59.8
23	336°37.9	14.4'	14°45.5	10.8'	54.3'	112°15.5	91°16.2	86°46.8	65°37.4	45°04.3	15°29.8	57° 15.8	82°26.2
4 th	SE	0 = 14.8	3' Mer. pas	ss:-									

Moon (5th Oct) h

Thu	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Altair
0	351°11.3	14.4'	N 14°56.2	10.7'	54.3'		111°47.0	90°47.2	86°17.0	65°09.1	44°34.9	57° 42.0	82°52.7
1	5°44.7	14.3'	15°06.9	10.6'	54.3'		111° 18.5	90°18.2	85°47.2	64°40.7	44°05.6	58°08.1	83°19.2
2	20°18.0	14.2'	$15^{\circ}17.6$	10.6'	54.4'		110°50.0	89°49.2	85° 17.3	64°12.4	43°36.2	58° 34.4	83°45.6
3	34°51.2	14.2'	$15^{\circ}28.1$	10.5'	54.4'		110°21.5	89°20.2	84°47.5	63°44.1	43°06.8	59°00.6	84°12.1
4	49°24.4	14.1'	15°38.6	10.5'	54.4'		109°52.9	88°51.1	84° 17.6	63°15.8	42°37.5	59°27.0	84°38.7
5	63°57.5	14.1'	$15^{\circ}49.1$	10.4'	54.4'		109°24.4	88°22.1	83°47.7	62°47.5	42°08.1	59°53.3	85°05.2
6	78°30.6	14.0'	N15°59.5	10.3'	54.4'		108°55.8	87°53.1	83° 17.8	62°19.2	41°38.7	60°19.7	85°31.8
7	93°03.6	13.9'	16°09.8	10.3'	54.4'	119°44.9	108° 27.2	87°24.0	82°47.9	61°50.9	41°09.4	60°46.2	85°58.3
8	107°36.6	13.9'	$16^{\circ}20.1$	10.2'	54.4'	119°14.8	107°58.7	86°54.9	82°18.0	61°22.6	40°40.0	61°12.7	86°24.9
9	122°09.4	13.8'	16°30.3	10.1'	54.4'	118°44.8	107°30.1	86°25.9	81°48.1	60°54.3	40°10.7	61°39.2	86°51.5
10	136°42.2	13.7'	16°40.4	10.1'	54.4'	118°14.7	107°01.5	85°56.8	81°18.1	60°26.0	39°41.3	62°05.8	87°18.1
11	151°15.0	13.7'	$16^{\circ}50.5$	10.0'	54.5'	117°44.6	106°32.8	85°27.7	80°48.2	59°57.7	39°12.0	62°32.4	87°44.8
12	165°47.7	13.6'	$N17^{\circ}00.5$	9.9'	54.5'	117°14.5	106°04.2	84°58.6	80° 18.2	59°29.5	38°42.7	62°59.1	88°11.4
13	180°20.3	13.6'	$17^{\circ}10.4$	9.9'	54.5'	116°44.3	105°35.6	84°29.5	79°48.3	59°01.2	38° 13.3	63°25.8	88°38.1
14	194°52.9	13.5'	17°20.3	9.8'	54.5'	116°14.2	105°06.9	84°00.3	79°18.3	58°32.9	37°44.0	63°52.6	89°04.7
15	209°25.3	13.4'	$17^{\circ}30.1$	9.7'	54.5'	115°44.1	104°38.2	83°31.2	78°48.3	58°04.7	37° 14.7	64°19.4	89°31.4
16	223°57.8	13.4'	$17^{\circ}39.8$	9.6'	54.5'	115°13.9	104°09.6	83°02.0	78° 18.3	57°36.5	36°45.4	64°46.2	89°58.1
17	238°30.1	13.3'	17°49.4	9.6'	54.5'	114°43.7	103°40.9	82°32.9	77°48.3	57°08.2	36°16.1	65°13.0	90°24.8
18	253°02.4	13.2'	N17°59.0	9.5'	54.6'	114°13.5	103°12.2	82°03.7	77° 18.3	56°40.0	35°46.9	65°39.9	90°51.5
19	267°34.6	13.2'	18°08.5	9.4'	54.6'	113°43.3	102°43.4	81°34.5	76°48.2	56°11.8	35°17.6	66°06.9	91°18.2
20	282°06.8	13.1'	$18^{\circ}17.9$	9.3'	54.6'	113°13.1	102°14.7	81°05.3	76° 18.2	55°43.6	34°48.3	66°33.9	91°45.0
21	296°38.9	13.0'	18°27.3	9.3'	54.6'	112°42.9	101°46.0	80°36.1	75°48.1	55°15.5	34°19.1	67°00.9	92°11.7
22	311°10.9	12.9'	$18^{\circ}36.5$	9.2'	54.6'	112°12.6	101°17.2	80°06.9	75° 18.0	54°47.3	33°49.9	67°27.9	92°38.5
23	325°42.8	12.9'	18°45.7	9.1'	54.6'	111°42.4	100°48.4	79°37.7	74°47.9	54°19.1	33°20.7	67°55.0	93°05.2
5 th	SD	$= 14.8^{\prime}$	Mer. pass.	00:36									

h Moon (6th Oct)

Lunar Distance (objects with largest hourly LD delta)

HP -Regulus -Procyon -Pollux -Aldebaran +Saturn +Fomalhaut +Deneb

Fri	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	340°14.7	12.8'	N 18°54.9	9.0'	54.6'	111°12.1	79°08.5	74°17.8	32°51.5		68°22.1		93°32.0
1	354°46.5	12.7'	19°03.9	9.0'	54.7'	110°41.8	78°39.2	73°47.7	32°22.3		68°49.2	73°00.5	93°58.8
2	9°18.2	12.7'	19°12.8	8.9'	54.7'	110°11.5	78°10.0	73°17.6	31°53.1		69° 16.4	73°15.6	94°25.6
3	23°49.9	12.6'	19°21.7	8.8'	54.7'	109°41.2	77°40.7	72°47.5	31°24.0		69°43.6	73°30.8	94°52.4
4	38°21.5	12.5'	19°30.5	8.7'	54.7'	109°10.9	77°11.5	72°17.3	30°54.9		70° 10.9	73°46.1	95° 19.2
5	52°53.0	12.5'	19°39.2	8.6'	54.7'	108°40.5	76°42.2	71°47.1	30°25.8		70°38.2	74°01.4	95°46.0
6	67°24.5	12.4'	N 19°47.8	8.5'	54.7'	108°10.1	76°12.9	71°17.0	29°56.7		71°05.5	74°16.8	96°12.8
7	81°55.9	12.3'	19°56.4	8.4'	54.7'	107°39.8	75°43.6	70°46.8	29°27.7		71°32.8	74°32.2	96°39.6
8	96°27.2	12.2'	20°04.8	8.4'	54.8'	107°09.4	75°14.3	70°16.6	28°58.7		72°00.2	74°47.7	97°06.5
9	110°58.4	12.2'	20°13.2	8.3'	54.8'	106°39.0	74°45.0	69°46.3	28° 29.7		72°27.6	75°03.3	97°33.3
10	125°29.6	12.1'	20°21.4	8.2'	54.8'	106°08.5	74°15.6	69°16.1	28°00.8		72°55.0	75°18.9	98°00.1
11	140°00.7	12.0'	$20^{\circ}29.6$	8.1'	54.8'	105°38.1	73°46.3	68°45.9	27°31.9		73°22.5	75°34.6	98°27.0
12	154°31.7	12.0'	N 20°37.7	8.0'	54.8'	105°07.7	73°17.0	68°15.6	27°03.0		73°50.0	75°50.4	98°53.8
13	169°02.7	11.9'	20°45.7	7.9'	54.8'	104°37.2	72°47.6	67°45.3	26°34.2		74° 17.5	76°06.2	99°20.7
14	183°33.6	11.8'	20°53.6	7.8'	54.9'	104°06.7	72°18.3	67°15.1	26°05.4		74°45.0	76°22.1	99°47.6
15	198°04.4	11.7'	21°01.4	7.7'	54.9'	103°36.2	71°48.9	66°44.8	25°36.7		75° 12.6	76°38.0	100°14.4
16	212°35.1	11.7'	$21^{\circ}09.2$	7.6'	54.9'	103°05.7	71°19.5	66°14.5	25°08.0	10°14.6	75°40.2	76°54.0	100°41.3
17	227°05.8	11.6'	21°16.8	7.5'	54.9'	102°35.1	70°50.1	65°44.1	24°39.4	10°36.4	76°07.8	77°10.0	101°08.2
18	241°36.4	11.5'	N21°24.3	7.4'	54.9'	102°04.6	70°20.7	65°13.8	24° 10.8	10°58.8	76° 35.5	77°26.1	101°35.0
19	256°06.9	11.5'	21°31.8	7.3'	54.9'	101°34.0	69°51.3	64°43.4	23°42.3	11°21.9	77°03.2	77°42.3	102°01.9
20	270°37.4	11.4'	$21^{\circ}39.1$	7.2'	55.0'	101°03.4	69°21.9	64°13.1	23°13.9	11°45.6	77° 30.9	77°58.4	102°28.8
21	285°07.8	11.3'	21°46.3	7.1'	55.0'	100°32.8	68°52.5	63°42.7	22°45.5	12°09.9	77°58.6	78°14.7	102°55.7
22	299°38.1	11.2'	21°53.5	7.0'	55.0'	100°02.2	68°23.1	63°12.3	22°17.3	12°34.6	78°26.4	78°31.0	103°22.5
23	314°08.3	11.2'	22°00.5	6.9'	55.0'	99°31.6	67°53.6	62°41.9	21°49.1	12°59.8	78°54.1	78°47.3	103°49.4
6 th	SD	= 14.9'	Mer. pass.	01:22									

h Moon (7 th Oct)	Lunar Distance	(objects w	ith largest h	ourly LD	delta)	

n		IVIOOR	1 (<i>1</i> Oct	.)			Lunar L	Jistance (objects	with large	est nourly	/ LD deita)	
Sat	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	328°38.5	11.1'	N22°07.4	6.8'	55.0'	99°00.9	88°44.2	67°24.2	62°11.5	13°25.4	79°03.7	79°22.0	104°16.3
1	343°08.6	11.0'	22°14.3	6.7'	55.0'	98°30.3	88°15.0	66°54.7	61°41.0	13°51.3	79°20.2	79°49.8	104°43.2
2	357°38.6	11.0'	22°21.0	6.6'	55.1'	97°59.6	87°45.8	66°25.3	61°10.6	14°17.6	79°36.7	80° 17.7	105°10.0
3	12°08.6	10.9'	22°27.6	6.5'	55.1'	97°28.9	87° 16.6	65°55.8	60°40.1	14°44.2	79°53.2	80°45.5	105°36.9
4	26°38.4	10.8'	22°34.2	6.4'	55.1'	96°58.1	86°47.4	65°26.4	60°09.6	15°11.1	80°09.8	81°13.4	106°03.8
5	41°08.3	10.7'	22°40.6	6.3'	55.1'	96°27.4	$86^{\circ}18.1$	64°56.9	59°39.1	15°38.2	80°26.4	81°41.4	106°30.7
6	55°38.0	10.7'	N 22°46.9	6.2'	55.1'	95° 56.6	85°48.9	64°27.4	59°08.6	16°05.6	80°43.1	82°09.3	106°57.5
7	70°07.7	10.6'	$22^{\circ}53.1$	6.1'	55.2'	95°25.8	85° 19.6	63°57.9	58°38.1	16°33.2	80°59.8	82° 37.3	107°24.4
8	84°37.3	10.5'	22°59.2	6.0'	55.2'	94°55.1	84°50.3	63°28.4	58°07.5	17°01.0	81°16.5	83°05.3	107°51.2
9	99°06.8	10.5'	23°05.1	5.9'	55.2'	94°24.2	84°21.0	62°58.9	57°37.0	17°29.0	81°33.3	83°33.3	108°18.1
10	113°36.3	10.4	23°11.0	5.8'	55.2'	93°53.4	83°51.6	62°29.4	57°06.4	17°57.2	81°50.2	84°01.4	108°44.9
11	128°05.7	10.3'	23°16.8	5.6'	55.2'	93°22.5	83°22.3	61°59.9	56°35.8	18°25.6	82°07.0	84°29.5	109°11.8
12	142°35.0	10.3'	N23°22.4	5.5'	55.2'	92°51.7	82°52.9	61°30.4	56°05.2	18°54.1	82°23.9	84°57.6	109°38.6
13	157°04.3	10.2'	23°27.9	5.4'	55.3'	92°20.8	82°23.5	61°00.8	55°34.6	19°22.8	82°40.9	85°25.7	110°05.4
14	171°33.5	10.1'	23°33.4	5.3'	55.3'	91°49.9	81°54.1	60°31.3	55°04.0	19°51.6	82°57.9	85° 53.8	110°32.2
15	186°02.6	10.1'	23°38.7	5.2'	55.3'	91°18.9	81°24.6	60°01.8	54°33.3	20°20.5	83°14.9	86°22.0	110°59.0
16	200°31.7	10.0'	23°43.9	5.1'	55.3'	90°48.0	80°55.2	59°32.2	54°02.7	20°49.5	83°31.9	86°50.1	111°25.8
17	215°00.7	9.9'	23°48.9	5.0'	55.3'	90°17.0	80°25.7	59°02.7	53°32.0	21°18.7	83°49.0	87° 18.3	111°52.6
18	229°29.6	9.9'	N 23°53.9	4.8'	55.4'	89°46.0	79°56.2	58°33.1	53°01.3	21°48.0	84°06.1	87°46.6	112°19.4
19	243°58.5	9.8'	23°58.7	4.7'	55.4'	89° 15.0	79°26.7	58°03.6	52°30.6	22°17.3	84°23.3	88° 14.8	112°46.1
20	258°27.3	9.7'	24°03.4	4.6'	55.4'	88°43.9	78°57.1	57°34.0	51°59.9	22°46.8	84°40.5	88°43.1	113°12.9
21	272°56.0	9.7'	24°08.0	4.5'	55.4'	88°12.9	78°27.6	57°04.5	51°29.1	23°16.4	84°57.7	89°11.3	113°39.6
22	287°24.7	9.6'	$24^{\circ}12.5$	4.4'	55.5'	87°41.8	77°58.0	56°34.9	50°58.4	23°46.1	85°14.9	89° 39.6	114°06.3
23	301°53.3	9.6'	24°16.8	4.2'	55.5'	87°10.7	77°28.4	56°05.4	50°27.6	24°15.8	85°32.2	90°08.0	114°33.1
7 th	SD	= 15.0'	Mer. pass.	02:10									

h Moon (8 th Oct)	Lunar Distance (objects with largest ho	urly LD delta)
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Sun	GHA	ν	Dec	d	HP	-Regulus	-Mars	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	316°21.9	9.5'	N 24°21.1	4.1'	55.5'	86°39.6	76°58.8	55° 35.8	49°56.8	24°45.6	85°49.5	90°36.3	114°59.7
1	330°50.4	9.4'	24°25.2	4.0'	55.5'	86°08.5	76°29.1	55°06.3	49°26.0	25°15.5	86°06.8	91°04.7	115°26.4
2	345°18.8	9.4'	24°29.2	3.9'	55.5'	85°37.3	75°59.5	54°36.7	48°55.2	25°45.5	86°24.1	91°33.0	115°53.1
3	359°47.2	9.3'	24°33.0	3.7'	55.6'	85°06.1	75°29.8	54°07.1	48°24.4	26°15.6	86°41.5	92°01.4	116°19.7
4	14°15.5	9.3'	24°36.7	3.6'	55.6'	84°34.9	75°00.1	53°37.6	47°53.6	26°45.7	86°58.9	92°29.9	116°46.3
5	28°43.8	9.2'	24°40.3	3.5'	55.6'	84°03.7	74°30.3	53°08.0	47°22.7	27°15.9	87°16.3	92°58.3	117°12.9
6	43°12.0	9.1'	N 24°43.8	3.4'	55.6'	83°32.4	74°00.6	52°38.5	46°51.8	27°46.1	87°33.8	93°26.7	117°39.5
7	57°40.1	9.1'	24°47.2	3.2'	55.7'	83°01.1	73°30.8	52°08.9	46°20.9	28°16.5	87°51.2	93°55.2	118°06.1
8	72°08.2	9.0'	24°50.4	3.1'	55.7'	82°29.8	73°01.0	51°39.4	45°50.0	28°46.9	88°08.7	94°23.7	118°32.6
9	86°36.2	9.0'	24°53.5	3.0'	55.7'	81°58.5	72°31.2	51°09.8	45°19.1	29°17.3	88°26.2	94°52.2	118°59.1
10	101°04.2	8.9'	24°56.5	2.8'	55.7'	81°27.2	72°01.4	50°40.3	44°48.2	29°47.8	88°43.7	95°20.7	119°25.6
11	115°32.1	8.9'	24°59.3	2.7'	55.7'	80°55.8	71°31.5	50°10.7	44°17.2	30°18.4	89°01.3	95°49.2	119°52.0
12	130°00.0	8.8'	N 25°02.0	2.6'	55.8'	80°24.4	71°01.6	49°41.2	43°46.3	30°49.0	89°18.8	96°17.8	
13	144°27.8	8.8'	25°04.6	2.4'	55.8'	79°53.0	70°31.7	49°11.7	43°15.3	31°19.6	89°36.4	96°46.4	
14	158°55.6	8.7'	25°07.0	2.3'	55.8'	79°21.6	70°01.8	48°42.2	42°44.3	31°50.4	89°54.0	97°15.0	
15	173°23.3	8.7'	25°09.3	2.2'	55.8'	78°50.1	69°31.8	48°12.6	42°13.3	32°21.1	90°11.6	97°43.6	
16	187°51.0	8.6'	$25^{\circ}11.5$	2.0'	55.9'	78°18.6	69°01.8	47°43.1	41°42.3	32°52.0	90°29.2	98°12.2	
17	202°18.6	8.6'	25°13.5	1.9'	55.9'	77°47.1	68°31.8	47°13.7	41°11.3	33°22.8	90°46.8	98°40.8	
18	216°46.2	8.5'	N25°15.4	1.8'	55.9'	77°15.6	68°01.8	46°44.2	40°40.2	33°53.8	91°04.5	99°09.4	
19	231°13.8	8.5'	25°17.2	1.6'	55.9'	76°44.0	67°31.7	46°14.7	40°09.2	34°24.7	91°22.1	99°38.1	
20	245°41.3	8.4'	25°18.8	1.5'	56.0'	76°12.4	67°01.6	45°45.3	39°38.1	34°55.7	91°39.8	100°06.8	
21	260°08.7	8.4'	25°20.3	1.4'	56.0'	75°40.8	66°31.5	45° 15.8	39°07.0	35°26.8	91°57.4	100°35.5	
22	274°36.1	8.4'	$25^{\circ}21.6$	1.2'	56.0'	75°09.2	66°01.4	44°46.4	38°35.9	35°57.9	92°15.1	101°04.2	
23	289°03.5	8.3'	25°22.9	1.1'	56.0'	74°37.5	65°31.3	44°17.0	38°04.8	36°29.1	92°32.8	101°32.9	
8 th	SD =	= 15.1′	Mer. pass	. 03:01	L								

h	Moon	(9 th	Oct)	

Lunar Distance (objects with largest hourly LD delta)

Mon	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Mars	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	303°30.8	8.3'	N25°23.9	0.9'	56.1'		74°05.8	65°01.1	37°33.7		37°00.3	92°50.5	102°01.6
1	317°58.1	8.2'	25°24.9	0.8'	56.1'	119°34.6	73°34.1	64°30.9	37°02.6		37°31.5	93°08.2	102°30.3
2	332°25.3	8.2'	25°25.7	0.7'	56.1'	119°05.4	73°02.4	64°00.6	36°31.5		38°02.8	93°25.9	102°59.1
3	346°52.5	8.2'	25°26.3	0.5'	56.1'	118°36.2	72°30.6	63°30.4	36°00.3		38°34.1	93°43.6	103°27.9
4	1°19.7	8.1'	25°26.9	0.4'	56.2'	118°07.0	71°58.8	63°00.1	35°29.2	11°20.7	39°05.5	94°01.3	103°56.6
5	15°46.9	8.1'	25°27.2	0.2'	56.2'	117°37.7	71°27.0	62°29.8	34°58.0	11°41.9	39°36.9	94°19.0	104°25.4
6	30°14.0	8.1'	N 25°27.5	0.1'	56.2'	117°08.4	70°55.1	61°59.4	34°26.9	12°04.0	40°08.3	94°36.7	104°54.2
7	44°41.0	8.0'	25°27.6	-0.0'	56.2'	116°39.1	70°23.3	61°29.1	33°55.7	12°26.7	40°39.8	94°54.4	105°23.0
8	59°08.1	8.0'	25°27.5	-0.2'	56.3'	116°09.7	69°51.4	60°58.7	33°24.5	12°50.1	41°11.4	95°12.1	105°51.8
9	73°35.1	8.0'	25°27.4	-0.3'	56.3'	115°40.3	69°19.4	60°28.3	32°53.4	13°14.2	41°42.9	95°29.8	106° 20.7
10	88°02.1	8.0'	25°27.0	-0.5'	56.3'	115°10.9	68°47.5	59°57.8	32°22.2	13°38.8	42°14.6	95°47.5	106°49.5
11	102°29.0	7.9'	25°26.6	-0.6'	56.4'	114°41.4	68°15.5	59°27.4	31°51.0	14°03.9	42°46.2	96°05.2	107°18.3
12	116°56.0	7.9'	N25°25.9	-0.8'	56.4'	114°12.0	67°43.5	58°56.9	31°19.8	14°29.4	43°17.9	96°22.8	107° 47.2
13	131°22.9	7.9'	25°25.2	-0.9'	56.4'	113°42.4	67°11.4	58° 26.3	30°48.6	14°55.4	43°49.7	96°40.5	108°16.0
14	145°49.7	7.9'	25°24.3	-1.0'	56.4'	113°12.9	66°39.4	57°55.8	30°17.4	15°21.9	44°21.4	96°58.2	108°44.9
15	160°16.6	7.8'	25°23.2	-1.2'	56.5'	112°43.3	66°07.3	57°25.2	29°46.2	15°48.6	44°53.2	97° 15.8	109°13.8
16	174°43.4	7.8'	25°22.0	-1.3'	56.5'	112°13.7	65°35.1	56°54.6	29°15.0	16°15.8	45°25.1	97°33.5	109°42.7
17	189°10.2	7.8'	25°20.7	-1.5'	56.5'	111°44.1	65°03.0	56°23.9	28°43.9	16°43.2	45°57.0	97°51.1	110°11.5
18	203°37.0	7.8'	$N25^{\circ}19.2$	-1.6'	56.5'	111°14.4	64°30.8	55°53.3	28° 12.7	17° 10.9	46°28.9	98°08.7	110°40.4
19	218°03.8	7.8'	25°17.6	-1.8'	56.6'	110°44.8	63°58.6	55°22.6	27°41.5	17°39.0	47°00.9	98°26.3	111°09.3
20	232°30.6	7.7'	25°15.8	-1.9'	56.6'	110°15.0	63°26.3	54°51.9	27°10.4	18°07.2	47°32.9	98°43.9	111°38.2
21	246°57.3	7.7'	25°13.9	-2.1'	56.6'	109°45.3	62°54.1	54°21.1	26°39.3	18°35.7	48°05.0	99°01.5	112°07.1
22	261°24.0	7.7'	$25^{\circ}11.9$	-2.2'	56.7'	109°15.5	62°21.8	53°50.3	26°08.2	19°04.5	48°37.1	99° 19.1	112°36.0
23	275°50.8	7.7'	25°09.7	-2.3'	56.7'	108°45.7	61°49.4	53°19.5	25°37.1	19°33.4	49°09.2	99°36.6	113°04.9
9 th	SD	= 15.3	Mer. pas	s. 03:54					Sun	SD = 16.0'			

Moon (10th Oct)

h

Lunar Distance	(objects with	largest hourly	y LD delta)
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Tue	GHA	ν	Dec	d	HP	-Sun	-Regulus	-Mars	-Pollux	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	290°17.5	7.7'	N25°07.3	-2.5'	56.7'	108°15.8	61°17.1	52°48.7	25°06.0	20°02.6		49°41.4	113°33.8
1	304°44.2	7.7'	25°04.8	-2.6'	56.7'	107°45.9	60°44.7	52°17.8	24°34.9	20°31.9		50° 13.6	114°02.7
2	319°10.8	7.7'	25°02.2	-2.8'	56.8'	107°16.0	60°12.2	51°46.9	24°03.9	21°01.4		50°45.8	114°31.6
3	333°37.5	7.7'	24°59.4	-2.9'	56.8'	106°46.1	59°39.8	51°15.9	23°32.9	21°31.1		51°18.1	115°00.5
4	348°04.2	7.7'	24°56.5	-3.1'	56.8'	106°16.1	59°07.3	50°45.0	23°02.0	22°00.9		51°50.4	115°29.4
5	2°30.8	7.7'	24°53.4	-3.2'	56.9'	105°46.1	58°34.8	50°14.0	22°31.1	22°30.9		52°22.8	115°58.3
6	16°57.5	7.6'	N24°50.2	-3.4'	56.9'	105°16.0	58°02.2	49°43.0	22°00.2	23°01.1	23°30.6	52°55.2	116°27.2
7	31°24.1	7.6'	24°46.8	-3.5'	56.9'	104°46.0	57°29.6	49°11.9	21°29.4	23°31.3	23°46.4	53°27.6	116°56.1
8	45°50.8	7.6'	24°43.3	-3.7'	57.0'	104°15.8	56°57.0	48°40.8	20°58.6	24°01.7	24°02.7	54°00.1	117°25.0
9	60°17.4	7.6'	24°39.6	-3.8'	57.0'	103°45.7	56°24.4	48°09.7	20°28.0	24°32.3	24°19.5	54°32.6	117°53.9
10	74°44.1	7.6'	24°35.8	-4.0'	57.0'	103°15.5	55°51.7	47°38.6	19°57.4	25°02.9	24°36.9	55°05.2	118°22.7
11	89°10.7	7.6'	24°31.9	-4.1'	57.0'	102°45.3	55°19.0	47°07.4	19°26.8	25°33.7	24°54.8	55°37.7	118°51.6
12	103°37.3	7.6'	N 24°27.8	-4.2'	57.1'	102°15.0	54°46.2	46°36.2	18°56.4	26°04.5	25°13.2	56°10.4	119°20.4
13	118°04.0	7.6'	24°23.5	-4.4'	57.1'	101°44.8	54°13.5	46°05.0	18°26.1	26° 35.5	25°32.0	56°43.0	119°49.3
14	132°30.6	7.7'	24°19.2	-4.5'	57.1'	101°14.4	53°40.7	45°33.7	17°55.8	27°06.6	25°51.3	57° 15.8	
15	146°57.3	7.7'	24°14.6	-4.7'	57.2'	100°44.1	53°07.8	45°02.4	17°25.7	27°37.8	26°11.0	57°48.5	
16	161°24.0	7.7'	24°09.9	-4.8'	57.2'	100°13.7	52°34.9	44°31.1	16°55.8	28°09.0	26°31.2	58°21.3	
17	175°50.6	7.7'	24°05.1	-5.0'	57.2'	99°43.3	52°02.0	43°59.7	16°26.0	28°40.4	26°51.8	58°54.1	
18	190°17.3	7.7'	N 24°00.2	-5.1'	57.3'	99°12.8	51°29.1	43°28.3	15°56.4	29° 11.9	27°12.8	59°27.0	
19	204°44.0	7.7'	23°55.1	-5.3'	57.3'	98°42.3	50°56.1	42°56.9	15°26.9	29°43.4	27°34.1	59°59.9	
20	219°10.7	7.7'	23°49.8	-5.4'	57.3'	98°11.8	50°23.1	42°25.4	14°57.7	30° 15.0	27°55.9	60°32.8	
21	233°37.4	7.7'	23°44.4	-5.5'	57.4'	97°41.2	49°50.1	41°53.9	14°28.8	30°46.7	28°18.0	61°05.8	
22	248°04.1	7.7'	23°38.9	-5.7'	57.4'	97°10.6	49°17.0	41°22.4	14°00.1	31°18.5	28°40.4	61°38.8	
23	262°30.8	7.7'	23°33.2	-5.8'	57.4'	96°40.0	48°43.9	40°50.8	13°31.7	31°50.4	29°03.2	62°11.9	
10 th	SD :	= 15.5'	Mer. pass	s. 04:50					Sun	SD = 16.0'			

h Moon (11th Oct)

Lunar Distance	(objects with	largest hourly	[,] LD delta)	1
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Wed	GHA	ν	Dec	d	HP	-Sun	-Venus	-Regulus	-Mars	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	276°57.5	7.8'	N 23°27.4	-6.0'	57.4'	96°09.3	58°02.9	48° 10.7	40°19.3	20°54.3	29° 26.4	32°22.3	62°45.0
1	291°24.3	7.8'	23°21.4	-6.1'	57.5'	95°38.6	57°32.7	47°37.6	39°47.6	21°12.2	29°49.8	32°54.3	63°18.1
2	305°51.1	7.8'	23°15.3	-6.2'	57.5'	95°07.9	57°02.5	47°04.4	39°16.0	21°30.8	30° 13.6	33°26.4	63°51.3
3	320°17.8	7.8'	23°09.1	-6.4'	57.5'	94°37.1	56°32.3	46°31.1	38°44.3	21°49.9	30°37.6	33°58.6	64°24.5
4	334°44.6	7.8'	23°02.7	-6.5'	57.6'	94°06.3	56°02.0	45° 57.8	38°12.6	22°09.5	31°02.0	34°30.8	64°57.8
5	349°11.5	7.8'	22°56.1	-6.7'	57.6'	93°35.4	55°31.7	45°24.5	37°40.9	22°29.7	31°26.6	35°03.1	65°31.1
6	3°38.3	7.9'	N 22°49.5	-6.8'	57.6'	93°04.5	55°01.3	44°51.2	37°09.1	22°50.4	31°51.4	35°35.5	66°04.4
7	18°05.2	7.9'	22°42.7	-6.9'	57.7'	92°33.6	54°30.9	44°17.8	36°37.3	23°11.6	32° 16.6	36°07.9	66°37.8
8	32°32.0	7.9'	22°35.7	-7.1'	57.7'	92°02.6	54°00.5	43°44.4	36°05.5	23°33.3	32°42.0	36°40.4	67°11.3
9	46°58.9	7.9'	22°28.6	-7.2'	57.7'	91°31.6	53°30.0	43°10.9	35°33.6	23°55.4	33°07.6	37°12.9	67°44.7
10	61°25.8	7.9'	22°21.4	-7.4'	57.8'	91°00.6	52° 59.6	42°37.4	35°01.7	24°18.0	33°33.5	37°45.6	68°18.2
11	75°52.8	8.0'	$22^{\circ}14.0$	-7.5'	57.8'	90°29.5	52°29.0	42°03.9	34°29.8	24°41.0	33°59.6	38°18.2	68°51.8
12	90°19.7	8.0'	N 22°06.5	-7.6'	57.8'	89°58.4	51°58.5	41°30.4	33°57.8	25°04.4	34°26.0	38°51.0	69°25.3
13	104°46.7	8.0'	21°58.9	-7.8'	57.9'	89°27.2	51°27.9	40°56.8	33°25.8	25°28.2	34°52.5	39°23.8	69°59.0
14	119°13.7	8.0'	21°51.1	-7.9'	57.9'	88° 56.0	50°57.3	40°23.1	32°53.8	25°52.4	35° 19.3	39°56.7	70°32.6
15	133°40.8	8.1'	21°43.2	-8.0'	57.9'	88°24.8	50°26.6	39°49.5	32°21.8	26°16.9	35°46.2	40°29.6	71°06.3
16	148°07.8	8.1'	21°35.2	-8.2'	58.0'	87°53.5	49°55.9	39°15.8	31°49.7	26°41.8	36°13.4	41°02.6	71°40.1
17	162°34.9	8.1'	21°27.0	-8.3'	58.0'	87°22.2	49°25.2	38°42.1	31°17.6	27°07.0	36°40.7	41°35.6	72°13.9
18	177°02.0	8.1'	N 21°18.7	-8.4'	58.0'	86°50.9	48°54.4	38°08.3	30°45.5	27°32.5	37°08.3	42°08.7	72°47.7
19	191°29.1	8.2'	21°10.3	-8.6'	58.1'	86° 19.5	48°23.6	37°34.5	30°13.3	27°58.3	37°36.0	42°41.9	73°21.5
20	205°56.3	8.2'	21°01.7	-8.7'	58.1'	85°48.0	47°52.7	37°00.7	29°41.1	28°24.4	38°03.9	43°15.1	73°55.5
21	220°23.5	8.2'	20°53.0	-8.8'	58.1'	85°16.6	47°21.9	36°26.8	29°08.9	28°50.8	38° 32.0	43°48.3	74°29.4
22	234°50.7	8.2'	20°44.2	-9.0'	58.2'	84°45.1	46°51.0	35°52.9	28°36.7	29°17.5	39°00.2	44°21.7	75°03.4
23	249°17.9	8.3'	20°35.2	-9.1'	58.2'	84°13.5	46°20.0	35°19.0	28°04.4	29°44.4	39°28.6	44°55.0	75°37.4
11 th	SD :	= 15.7	Mer. pas	s. 05:45					Su	n SD = 16.0'			

h	Moon	(12 th Oct)	

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Sun	-Venus	-Regulus	-Mars	+Pollux	+Capella	+Aldebaran	+Saturn
0	263°45.2	8.3'	N20°26.1	-9.2'	58.2'	83°41.9	45°49.1	34°45.0	27°32.1		39°57.2	45°28.5	76°11.5
1	278°12.5	8.3'	$20^{\circ}16.9$	-9.3'	58.3'	83°10.3	45°18.0	34°11.1	26°59.8		40°25.9	46°01.9	76°45.6
2	292°39.8	8.4'	20°07.5	-9.5'	58.3'	82°38.6	44°47.0	33°37.0	26° 27.5		40°54.8	46°35.5	77°19.8
3	307°07.2	8.4'	$19^{\circ}58.1$	-9.6'	58.3'	82°06.9	44°15.9	33°03.0	25°55.1		41°23.8	47°09.1	77°54.0
4	321°34.6	8.4'	19°48.5	-9.7'	58.4'	81°35.2	43°44.8	32°28.9	25°22.7		41°52.9	47°42.7	78°28.2
5	336°02.0	8.4'	19°38.7	-9.9'	58.4'	81°03.4	43°13.7	31°54.7	24°50.3		42°22.2	48°16.4	79°02.5
6	350°29.5	8.5'	N 19°28.9	-10.0'	58.4'	80°31.6	42°42.5	31°20.6	24° 17.9		42°51.7	48°50.1	79°36.8
7	4°56.9	8.5'	$19^{\circ}18.9$	-10.1'	58.5'	79°59.7	42°11.3	30°46.4	23°45.5		43°21.2	49°23.9	80°11.1
8	19°24.5	8.5'	19°08.8	-10.2'	58.5'	79°27.8	41°40.0	30°12.2	23° 13.1		43°50.9	49°57.8	80°45.5
9	33°52.0	8.6'	18°58.6	-10.3'	58.5'	78°55.9	41°08.7	29°37.9	22°40.6		44°20.8	50°31.7	81°20.0
10	48°19.6	8.6'	18°48.3	-10.5'	58.6'	78°23.9	40°37.4	29°03.7	22°08.1	10°52.3	44°50.7	51°05.6	81°54.5
11	62°47.2	8.6'	18°37.8	-10.6'	58.6'	77°51.9	40°06.1	28°29.4	21°35.7	11°18.8	45°20.8	51°39.6	82°29.0
12	77°14.8	8.7'	$N18^{\circ}27.2$	-10.7'	58.6'	77°19.8	39°34.7	27°55.0	21°03.2	11°46.1	45°51.0	52°13.7	83°03.6
13	91°42.5	8.7'	$18^{\circ}16.5$	-10.8'	58.7'	76°47.7	39°03.3	27°20.7	20°30.7	12°14.0	46°21.3	52°47.8	83°38.2
14	106°10.2	8.7'	18°05.7	-10.9'	58.7'	76°15.6	38°31.8	26°46.3	19°58.2	12°42.4	46°51.7	53°21.9	84°12.8
15	120°37.9	8.8'	17°54.8	-11.0'	58.7'	75°43.4	38°00.3	26°11.9	19°25.7	13°11.5	47°22.3	53°56.1	84°47.5
16	135°05.6	8.8'	17°43.7	-11.2'	58.8'	75°11.2	37°28.8	25°37.5	18°53.2	13°40.9	47°52.9	54°30.4	85°22.2
17	149°33.4	8.8'	17°32.6	-11.3'	58.8'	74°38.9	36°57.3	25°03.0	18°20.8	14°10.9	48°23.7	55°04.7	85°57.0
18	164°01.3	8.8'	$N17^{\circ}21.3$	-11.4'	58.8'	74°06.6	36°25.7	24°28.5	17°48.3	14°41.2	48°54.5	55°39.0	86°31.8
19	178°29.1	8.9'	$17^{\circ}09.9$	-11.5'	58.9'	73°34.3	35°54.1	23°54.0	17° 15.9	15°11.8	49°25.5	56°13.4	87°06.7
20	192°57.0	8.9'	16°58.4	-11.6'	58.9'	73°01.9	35°22.5	23°19.5	16°43.5	15°42.8	49°56.6	56°47.8	87°41.6
21	207°24.9	8.9'	16°46.8	-11.7'	58.9'	72°29.5	34°50.8	22°45.0	16°11.1	16°14.1	50°27.7	57°22.3	88°16.5
22	221°52.8	9.0'	16°35.1	-11.8'	59.0'	71°57.0	34°19.1	22°10.4	15°38.8	16°45.7	50°59.0	57°56.9	88°51.5
23	236°20.8	9.0'	16°23.2	-11.9'	59.0'	71°24.5	33°47.4	21°35.9	15°06.6	17°17.6	51°30.4	58°31.5	89°26.5
12 th	SD	= 15.9	o' Mer. pas	s. 06:39					Sun S	5D = 16.0'			

h Moon (13th Oct)

Lunar Distance (objects with largest hourly LD delta)

Fri	GHA	ν	Dec	d	HP	-Sun	-Jupiter	-Regulus	-Mars	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	250°48.8	9.0'	N 16°11.3	-12.0'	59.0'	70°52.0		21°01.3	14°34.4	17°49.6	42°01.8	59°06.1	90°01.5
1	265°16.8	9.1'	15°59.3	-12.1'	59.1'	70°19.4		20°26.7	14°02.2	18°21.9	42°33.2	59°40.8	90°36.6
2	279°44.9	9.1'	15°47.1	-12.2'	59.1'	69°46.8		19°52.1	13°30.2	18°54.4	43°04.8	60°15.5	91°11.8
3	294°13.0	9.1'	15°34.9	-12.4'	59.1'	69°14.1		19°17.5	12°58.2	19°27.1	43°36.5	60°50.2	91°47.0
4	308°41.1	9.1'	15°22.5	-12.5'	59.2'	68°41.4		18°43.0	12°26.4	20°00.0	44°08.2	61°25.1	92°22.2
5	323°09.3	9.2'	$15^{\circ}10.1$	-12.6'	59.2'	68°08.7		18°08.4	11°54.8	20°33.0	44°40.1	61°59.9	92°57.4
6	337°37.4	9.2'	N 14°57.5	-12.7'	59.2'	67°35.9		17°33.8	11°23.3	21°06.2	45°12.1	62°34.8	93°32.7
7	352°05.6	9.2'	14°44.9	-12.8'	59.3'	67°03.1		16°59.3	10°52.0	21°39.5	45°44.2	63°09.8	94°08.1
8	6°33.9	9.3'	14°32.1	-12.8'	59.3'	66°30.2		16°24.7	10°20.9	22°13.0	46°16.4	63°44.8	94°43.4
9	21°02.1	9.3'	14°19.3	-12.9'	59.3'	65°57.3		15°50.2	9°50.2	22°46.7	46°48.7	64°19.8	95°18.9
10	35°30.4	9.3'	14°06.3	-13.0'	59.4'	65°24.4		15°15.8	9°19.8	23°20.4	47°21.1	64°54.9	95°54.3
11	49°58.7	9.3'	13°53.3	-13.1'	59.4'	64°51.4	54°58.4	14°41.4	8°49.8	23°54.3	47°53.6	65°30.0	96°29.8
12	64°27.1	9.4'	N13°40.1	-13.2'	59.4'	64°18.4	54°23.6	14°07.0	8°20.2	24°28.3	48°26.1	66°05.2	97°05.4
13	78°55.4	9.4'	13°26.9	-13.3'	59.5'	63°45.4	53°48.7	13°32.7	7°51.3	25°02.4	48°58.8	66°40.4	97°40.9
14	93°23.8	9.4'	13°13.6	-13.4'	59.5'	63°12.3	53°13.8	12°58.5	7°23.1	25°36.6	49°31.6	67°15.7	98°16.5
15	107°52.2	9.4'	13°00.2	-13.5'	59.5'	62°39.1	52°38.9	12°24.4	6°55.8	26°10.9	50°04.4	67°51.0	98°52.2
16	122°20.7	9.5'	12°46.7	-13.6'	59.5'	62°06.0	52°04.0	11°50.5		26°45.3	50°37.3	68°26.3	99°27.9
17	136°49.1	9.5'	12°33.1	-13.7'	59.6'	61°32.8	51°29.0	11°16.6		27°19.8	51°10.3	69°01.7	100°03.6
18	151°17.6	9.5'	$N12^{\circ}19.4$	-13.8'	59.6'	60°59.5	50°54.0	10°43.0		27°54.3	51°43.4	69°37.1	100°39.4
19	165°46.1	9.5'	12°05.7	-13.8'	59.6'	60°26.3	50°18.9	10°09.6		28°29.0	52°16.6	70°12.6	101°15.2
20	180°14.6	9.5'	11°51.8	-13.9'	59.7'	59°53.0	49°43.8	9°36.4		29°03.8	52°49.8	70°48.1	101°51.0
21	194°43.2	9.6'	11°37.9	-14.0'	59.7'	59°19.6	49°08.7	9°03.6		29°38.6	53°23.2	71°23.7	102°26.9
22	209°11.8	9.6'	11°23.9	-14.1'	59.7'	58°46.2	48°33.6	8°31.1		30°13.5	53°56.6	71°59.3	103°02.8
23	223°40.3	9.6'	11°09.8	-14.2'	59.8'	58°12.8	47°58.4	7°59.1		30°48.5	54°30.0	72°34.9	103°38.8
13 th	SD	= 16.1	Mer. pas	s. 07:33					Sur	SD = 16.0	o'	·	

h Moon (14th Oct)

Sat	GHA	ν	Dec	d	HP	-Sun	-Jupiter	-Venus	±Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	238°08.9	9.6'	N 10°55.7	-14.2'	59.8'	57°39.4	47°23.2	20°28.4	7°27.8	31°23.6	55°03.6	73°10.6	104° 14.7
1	252°37.6	9.6'	10°41.5	-14.3'	59.8'	57°05.9	46°47.9	19°56.4	6°57.1	31°58.7	55° 37.2	73°46.3	104°50.8
2	267°06.2	9.7'	$10^{\circ}27.1$	-14.4'	59.8'	56°32.3	46°12.6	19°24.5	6°27.3	32°33.9	56° 10.9	74°22.1	105°26.8
3	281°34.9	9.7'	$10^{\circ}12.8$	-14.5'	59.9'	55°58.8	45°37.3	18°52.6		33°09.2	56° 44.7	74°57.9	106°02.9
4	296°03.5	9.7'	09°58.3	-14.5'	59.9'	55°25.2	45°02.0	18°20.7		33°44.6	57° 18.5	75°33.7	106°39.0
5	310°32.2	9.7'	09°43.8	-14.6'	59.9'	54°51.6	44°26.6	17°48.9		34°20.0	57° 52.4	76°09.6	107°15.2
6	325°00.9	9.7'	N09°29.2	-14.7'	60.0'	54°17.9	43°51.3	17° 17.1		34°55.4	58° 26.3	76°45.5	107°51.4
7	339°29.7	9.7'	09°14.5	-14.7'	60.0'	53°44.2	43°15.8	16°45.4		35°31.0	59°00.4	77°21.5	108°27.6
8	353°58.4	9.7'	08°59.8	-14.8'	60.0'	53°10.5	42°40.4	16°13.8		36°06.6	59°34.4	77°57.5	109°03.9
9	8°27.1	9.8'	08°45.0	-14.9'	60.0'	52°36.7	42°04.9	15°42.2		36°42.2	60°08.6	78°33.5	109°40.2
10	22°55.9	9.8'	08°30.1	-14.9'	60.1'	52°02.9	41°29.4	15°10.8		37° 17.9	60°42.8	79°09.6	110°16.5
11	37°24.7	9.8'	08°15.2	-15.0'	60.1'	51°29.1	40°53.9	14°39.5		37°53.7	61°17.1	79°45.7	110°52.9
12	51°53.4	9.8'	N08°00.2	-15.0'	60.1'	50°55.2	40°18.4	14°08.3		38°29.5	61°51.4	80°21.8	111°29.3
13	66°22.2	9.8'	07°45.2	-15.1'	60.2'	50°21.3	39°42.8	13°37.2		39°05.4	62°25.8	80°58.0	112°05.7
14	80°51.0	9.8'	07°30.1	-15.2'	60.2'	49°47.4	39°07.3	13°06.4		39°41.3	63°00.2	81°34.2	112°42.2
15	95°19.8	9.8'	$07^{\circ}14.9$	-15.2'	60.2'	49°13.5	38°31.7	12°35.7		40° 17.3	63°34.7	82°10.4	113° 18.7
16	109°48.6	9.8'	06°59.7	-15.3'	60.2'	48°39.5	37°56.0	12°05.3		40°53.3	64°09.3	82°46.7	113°55.2
17	124°17.5	9.8'	06°44.4	-15.3'	60.3'	48°05.5	37°20.4	11°35.1		41°29.4	64°43.9	83°23.0	114°31.7
18	138°46.3	9.8'	$N06^{\circ}29.1$	-15.4'	60.3'	47°31.4	36°44.7	11°05.3		42°05.5	65° 18.5	83°59.4	115°08.3
19	153°15.1	9.8'	06°13.8	-15.4'	60.3'	46°57.4	36°09.1	10°35.8		42°41.7	65°53.2	84°35.8	115°44.9
20	167°43.9	9.8'	05°58.3	-15.5'	60.3'	46°23.3	35°33.4	10°06.8		43°17.9	66°28.0	85°12.2	116°21.5
21	182°12.8	9.8'	05°42.9	-15.5'	60.3'	45°49.2	34°57.7	9°38.2		43°54.1	67°02.8	85°48.6	116°58.2
22	196°41.6	9.8'	05°27.4	-15.6'	60.4'	45°15.0	34°22.0	9°10.2	7°56.6	44°30.4	67°37.6	86°25.1	117°34.9
23	211°10.4	9.8'	05°11.8	-15.6'	60.4'	44°40.8	33°46.2	8°42.8	8°29.2	45°06.8	68° 12.5	87°01.6	118°11.6
14 th	SD	= 16.3	B' Mer. pas	s. 08:25					Sun	SD = 16.0	·		

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

Sun	GHA	ν	Dec	d	HP	-Acrux	-Sun	-Jupiter	+Regulus	+Procyon	+Pollux	+Betelgeuse	+Aldebaran
0	225°39.3	9.8'	N 04°56.2	-15.6'	60.4'	71°32.6	44°06.7	33° 10.5	9°02.5	43°01.1	45°43.2	68°47.5	87°38.1
1	240°08.1	9.8'	04°40.6	-15.7'	60.4'	71°09.8	43°32.4	32°34.8	9°36.2	43°35.2	46°19.6	69°22.4	88° 14.7
2	254°36.9	9.8'	04°24.9	-15.7'	60.5'	70°47.1	42°58.2	31°59.0	10°10.3	44°09.5	46°56.1	69° 57.5	88°51.3
3	269°05.8	9.8'	04°09.2	-15.7'	60.5'	70°24.5	42°23.9	31°23.3	10°44.8	44°43.8	47°32.6	70°32.5	89°27.9
4	283°34.6	9.8'	03°53.4	-15.8'	60.5'	70°01.9	41°49.6	30°47.5	$11^{\circ}19.6$	45°18.2	48°09.1	71°07.7	90°04.6
5	298°03.4	9.8'	03°37.7	-15.8'	60.5'	69°39.4	41°15.3	30°11.8	11°54.6	45°52.7	48°45.7	71°42.8	90°41.3
6	312°32.2	9.8'	N03°21.8	-15.8'	60.5'	69°16.9	40°41.0	29°36.0	12°29.8	46°27.2	49°22.3	72°18.0	91°18.0
7	327°01.0	9.8'	03°06.0	-15.9'	60.6'	68°54.6	40°06.6	29°00.3	13°05.3	47°01.9	49°59.0	72°53.3	91°54.7
8	341°29.8	9.8'	$02^{\circ}50.1$	-15.9'	60.6'	68°32.3		28° 24.5	13°40.9	47°36.6	50°35.7	73°28.5	92°31.5
9	355°58.6	9.8'	02°34.2	-15.9'	60.6'	68°10.1		27°48.8	14°16.6	48°11.4	51°12.4	74°03.8	93°08.3
10	10°27.4	9.8'	02°18.3	-16.0'	60.6'	67°48.0		27°13.1	14°52.6	48°46.2	51°49.2	74°39.2	93°45.1
11	24°56.1	9.8'	02°02.3	-16.0'	60.6'	67°26.0		26°37.4	15°28.6	49°21.1	52°26.0	75°14.6	94°22.0
12	39°24.9	9.7'	N01°46.4	-16.0'	60.7'	67°04.1		26°01.7	16°04.7	49°56.1	53°02.8	75°50.0	94°58.8
13	53°53.6	9.7'	01°30.4	-16.0'	60.7'	66°42.3		25°26.0	16°41.0	50°31.2	53°39.7	76°25.5	95°35.7
14	68°22.4	9.7'	$01^{\circ}14.4$	-16.0'	60.7'	66°20.6		24°50.4	17°17.4	51°06.3	54°16.6	77°00.9	96°12.7
15	82°51.1	9.7'	00°58.3	-16.0'	60.7'	65°59.0		24°14.8	17°53.8	51°41.5	54°53.5	77°36.5	96°49.6
16	97°19.8	9.7'	00°42.3	-16.1'	60.7'	65°37.5		23°39.2	18°30.3	52°16.7	55°30.4	78°12.0	97°26.5
17	111°48.5	9.7'	00°26.2	-16.1'	60.7'	65°16.1		23°03.7	19°06.9	52°52.0	56°07.4	78°47.6	98°03.5
18	126°17.1	9.6'	N 00°10.2	-16.1'	60.8'	64°54.8		22°28.2	19°43.6	53°27.3	56°44.4	79°23.2	98°40.5
19	140°45.8	9.6'	S 00°05.9	-16.1'	60.8'	64°33.6		21°52.8	20°20.3	54°02.7	57°21.5	79°58.8	99° 17.5
20	155°14.4	9.6'	00°22.0	-16.1'	60.8'	64°12.6		21°17.4	20°57.1	54°38.1	57°58.5	80°34.5	99°54.6
21	169°43.0	9.6'	00°38.1	-16.1'	60.8'	63°51.7		20°42.1	21°34.0	55°13.6	58°35.6	81°10.2	100°31.6
22	184°11.6	9.6'	00°54.2	-16.1'	60.8'	63°30.9		20°06.9	22°10.9	55°49.2	59°12.7	81°45.9	101°08.7
23	198°40.2	9.5'	01°10.3	-16.1'	60.8'	63°10.3		19°31.8	22°47.8	56°24.8	59°49.9	82°21.6	101°45.8
15 th	SD	= 16.5	6' Mer. pas	ss. 09:17					Sur	SD = 16.0'			

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

												,	
Mon	GHA	ν	Dec	d	HP	-Acrux	-Jupiter	+Regulus	+Mars	+Procyon	+Pollux	+Betelgeuse	+Aldebaran
0	213°08.7	9.5'	S 01°26.4	-16.1'	60.8'	62°49.8	18°56.7	23°24.8	28°24.6	57°00.4	60°27.0	82°57.4	102°22.9
1	227°37.2	9.5'	$01^{\circ}42.5$	-16.1'	60.9'	62°29.4	18°21.8	24°01.9	29°00.3	57°36.1	61°04.2	83°33.1	103°00.0
2	242°05.7	9.5'	$01^{\circ}58.6$	-16.1'	60.9'	62°09.1	17°47.0	24°39.0	29°36.0	58°11.8	61°41.4	84°08.9	103°37.2
3	256°34.2	9.4'	02°14.7	-16.1'	60.9'	61°49.1	17°12.3	25°16.1	30°11.7	58°47.5	62°18.6	84°44.8	104°14.3
4	271°02.6	9.4'	02°30.8	-16.1'	60.9'	61°29.1	16°37.8	25°53.2	30°47.4	59°23.3	62°55.9	85°20.6	104°51.5
5	285°31.0	9.4'	$02^{\circ}46.9$	-16.1'	60.9'	61°09.3	16°03.4	26°30.4	31°23.2	59°59.2	63°33.1	85°56.4	105°28.7
6	299°59.4	9.3'	S 03°02.9	-16.1'	60.9'	60°49.7	15°29.3	27°07.7	31°59.0	60°35.0	64°10.4	86°32.3	106°05.9
7	314°27.7	9.3'	03°19.0	-16.0'	60.9'	60°30.2	14°55.3	27°44.9	32°34.8	61°10.9	64°47.7	87°08.2	106°43.1
8	328°56.1	9.3'	03°35.0	-16.0'	60.9'	60° 10.9	14°21.6	28°22.2	33°10.7	61°46.9	65°25.0	87°44.1	107°20.3
9	343°24.3	9.3'	03°51.1	-16.0'	60.9'	59°51.8	13°48.2	28° 59.5	33°46.5	62°22.9	66°02.3	88°20.0	107°57.5
10	357°52.6	9.2'	$04^{\circ}07.1$	-16.0'	60.9'	59°32.9	13°15.0	29°36.9	34°22.4	62°58.9	66°39.7	88°56.0	108°34.7
11	12°20.8	9.2'	$04^{\circ}23.1$	-16.0'	61.0'	59°14.1	12°42.3	30°14.3	34°58.3	63°34.9	67°17.0	89°31.9	109°12.0
12	26°49.0	9.2'	S 04°39.0	-15.9'	61.0'	58° 55.5	12°09.9	30°51.6	35°34.3	64°10.9	67°54.4	90°07.9	109°49.2
13	41°17.2	9.1'	04°55.0	-15.9'	61.0'	58° 37.1	11°38.0	31°29.1	36° 10.2	64°47.0	68°31.8	90°43.8	110°26.5
14	55°45.3	9.1'	$05^{\circ}10.9$	-15.9'	61.0'	58° 18.8	11°06.6	32°06.5	36°46.2	65°23.1	69°09.2	91°19.8	111°03.7
15	70°13.3	9.0'	05°26.8	-15.9'	61.0'	58°00.8	10°35.8	32°43.9	37°22.2	65°59.3	69°46.6	91°55.8	111°41.0
16	84°41.4	9.0'	05°42.6	-15.8'	61.0'	57°43.0	10°05.8	33°21.4	37°58.2	66°35.4	70°24.0	92°31.7	112°18.3
17	99°09.4	9.0'	05°58.4	-15.8'	61.0'	57°25.3	9°36.6	33°58.9	38°34.2	67°11.6	71°01.5	93°07.7	112°55.5
18	113°37.3	8.9'	S 06°14.2	-15.8'	61.0'	57°07.9	9°08.3	34°36.4	39°10.3	67°47.8	71°38.9	93°43.7	113°32.8
19	128°05.3	8.9'	06°30.0	-15.7'	61.0'	56° 50.7		35°13.9	39°46.3	68°24.0	72°16.4	94°19.7	114°10.1
20	142°33.2	8.8'	06°45.7	-15.7'	61.0'	56°33.7		35°51.5	40°22.4	69°00.3	72°53.8	94°55.7	114°47.4
21	157°01.0	8.8'	$07^{\circ}01.4$	-15.6'	61.0'	56° 16.9		36°29.0	40°58.4	69°36.5	73°31.3	95°31.7	115°24.6
22	171°28.8	8.8'	$07^{\circ}17.0$	-15.6'	61.0'	56°00.3		37°06.5	41°34.5	70°12.8	74°08.8	96°07.7	116°01.9
23	185°56.5	8.7'	07°32.6	-15.6'	61.0'	55°44.0		37°44.1	42°10.6	70°49.1	74°46.2	96°43.7	116°39.2
16 th	SD	= 16.6	' Mer. pas	ss. 10:09								-	

1.	Moon (17 th Oct)	Lunar Distance (objects with largest hourly LD delta)
n	MOOD (1/" UCT)	I linar i listance i oniects with largest nollriv i i li delta i

Tue	GHA	ν	Dec	d	HP	± Acrux	+Regulus	+Mars	+Procyon	+Pollux	+Betelgeuse	+Capella	+Aldebaran
0	200°24.2	8.7'	S 07°48.2	-15.5'	61.0'	55°27.8	38°21.7	42°46.7	71°25.4	75°23.7	97°19.7	106°38.0	117°16.4
1	214°51.9	8.6'	08°03.7	-15.5'	61.0'	55°12.0	38°59.3	43°22.8	72°01.7	76°01.2	97°55.7	107°13.1	117°53.7
2	229°19.5	8.6'	$08^{\circ}19.2$	-15.4'	61.0'	54°56.3	39°36.8	43°58.9	72°38.0	76°38.7	98°31.7	107°48.2	118°31.0
3	243°47.1	8.5'	08°34.6	-15.4'	61.0'	54°40.9	40°14.4	44°35.0	73°14.4	77°16.2	99°07.7	108°23.3	119°08.2
4	258°14.6	8.5'	08°49.9	-15.3'	61.0'	54°25.8	40°52.0	45°11.2	73°50.7	77°53.6	99°43.7	108°58.4	119°45.5
5	272°42.1	8.4'	09°05.2	-15.2'	61.0'		41°29.6	45°47.3	74°27.1	78°31.1	100° 19.7	109°33.5	
6	287°09.5	8.4'	S 09°20.5	-15.2'	61.0'		42°07.2	46°23.4	75°03.4	79°08.6	100°55.6	110°08.5	
7	301°36.9	8.3'	09°35.6	-15.1'	61.0'		42°44.8	46°59.5	75°39.8	79°46.1	101°31.6	110°43.6	
8	316°04.2	8.3'	09°50.8	-15.1'	61.0'		43°22.4	47°35.7	76°16.2	80°23.6	102°07.5	111°18.6	
9	330°31.5	8.2'	10°05.8	-15.0'	61.0'		44°00.1	48°11.8	76°52.6	81°01.1	102°43.5	111°53.5	
10	344°58.7	8.2'	10°20.8	-14.9'	61.0'		44°37.7	48°47.9	77°28.9	81°38.6	103° 19.4	112°28.5	
11	359°25.9	8.1'	$10^{\circ}35.7$	-14.9'	61.0'		45°15.3	49°24.0	78°05.3	82°16.0	103°55.3	113°03.4	
12	13°53.0	8.1'	S 10°50.6	-14.8'	61.0'		45°52.9	50°00.2	78°41.7	82°53.5	104°31.2	113°38.3	
13	28°20.1	8.0'	11°05.4	-14.7'	61.0'			<u>'</u>		ew Moon —		·	·
14	42°47.1	8.0'	11°20.1	-14.6'	61.0'								
15	57°14.1	7.9'	11°34.8	-14.6'	60.9'		_		Ne	ew Moon —			
16	71°41.0	7.9'	$11^{\circ}49.3$	-14.5'	60.9'		_						
17	86°07.9	7.8'	12°03.8	-14.4'	60.9'				Ne	ew Moon —			
18	100°34.7	7.8'	S 12°18.2	-14.3'	60.9'								
19	115°01.4	7.7'	12°32.5	-14.2'	60.9'		_						
20	129°28.1	7.6'	12°46.8	-14.2'	60.9'		_						
21	143°54.8	7.6'	13°00.9	-14.1'	60.9'								
22	158°21.4	7.5'	13°15.0	-14.0'	60.9'								
23	172°47.9	7.5'	13°29.0	-13.9'	60.9'				Ne	ew Moon —			
17 th	SD	= 16.6	' Mer. pas	ss. 11:02									

h		Моо	n (18 th O	ct)		Lunar Dis	stance (ol	ojects wi	th larges	t hourly LD	delta)
Wed	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Altair	-Vega	-Rigil Kent.	-Antares
0	187°14.4	7.4'	S 13°42.9	-13.8'	60.9'	_		New	Moon ——		
1	201°40.8	7.4'	13°56.7	-13.7'	60.8'	_		New	Moon ——		
2	216°07.1	7.3'	14°10.4	-13.6'	60.8'	_		New	Moon ——		
3	230°33.4	7.2'	14°24.0	-13.5'	60.8'	_		New	Moon ——		
4	244°59.7	7.2'	14°37.5	-13.4'	60.8'	_		New	Moon ——		
5	259°25.9	7.1'	14°50.9	-13.3'	60.8'	_		New	Moon ——		
6	273°52.0	7.1'	S 15°04.2	-13.2'	60.8'	_		New	Moon ——		
7	288°18.1	7.0'	15°17.4	-13.1'	60.8'	_		New	Moon ——		
8	302°44.1	7.0'	15°30.5	-13.0'	60.7'	_		New	Moon ——		
9	317°10.1	6.9'	15°43.5	-12.9'	60.7'	_		New	Moon ——		
10	331°36.0	6.8'	15°56.4	-12.8'	60.7'	_		New	Moon ——		
11	346°01.8	6.8'	$16^{\circ}09.2$	-12.7'	60.7'	_		New	Moon ——		
12	0°27.6	6.7'	S 16°21.8	-12.5'	60.7'	_		New	Moon ——		
13	14°53.3	6.7'	16°34.4	-12.4'	60.6'	_		New	Moon ——		
14	29°19.0	6.6'	16°46.8	-12.3'	60.6'	_		New	Moon ——		
15	43°44.6	6.6'	$16^{\circ}59.1$	-12.2'	60.6'	_					
16	58°10.2	6.5'	$17^{\circ}11.3$	-12.1'	60.6'	_		New	Moon ——		
17	72°35.7	6.5'	17°23.4	-11.9'	60.6'	_		New	Moon ——		
18	87°01.2	6.4'	S 17°35.3	-11.8'	60.5'	115°23.4	109°16.0	90°10.2	85°25.4	43°54.7	35°21.3
19	101°26.6	6.4'	$17^{\circ}47.1$	-11.7'	60.5'	114°50.4	108°58.1	89°37.3	85°07.8	43°38.9	34°44.1
20	115°51.9	6.3'	17°58.8	-11.6'	60.5'	114°17.4	108°40.2	89°04.5	84°50.3	43°23.5	34°07.0
21	130°17.2	6.2'	18°10.4	-11.4'	60.5'	113°44.3	108°22.2	88°31.6	84°32.8	43°08.4	33°29.8
22	144°42.5	6.2'	$18^{\circ}21.8$	-11.3'	60.5'	113°11.2	108°04.1	87°58.8	84°15.4		32°52.7
23	159°07.7	6.1'	18°33.1	-11.2'	60.4'	112°38.2	107°45.9	87°26.0	83°58.0		32°15.7
18 th	SD	= 16.6	Mer. pa	ss. 11:58							

h		Моо	on (19 th C	ct)		Luna	r Distanc	e (objects	with lar	gest hou	rly LD de	elta)
Thu	GHA	ν	Dec	d	HP	-Fomalhaut	-Deneb	-Achernar	-Altair	-Vega	-Antares	+Arcturus
0	173°32.8	6.1'	S 18°44.3	-11.0'	60.4'	112°05.1	107°27.6		86°53.3	83°40.6	31°38.6	
1	187°57.9	6.0'	18°55.4	-10.9'	60.4'	111°32.0	107°09.2		86°20.6	83°23.4	31°01.6	
2	202°22.9	6.0'	19°06.3	-10.8'	60.4'	110°58.9	106°50.8		85°47.9	83°06.1	30°24.6	
3	216°47.9	5.9'	$19^{\circ}17.1$	-10.6'	60.3'	110°25.8	106°32.3		85° 15.2	82°48.9	29°47.7	
4	231°12.9	5.9'	19°27.7	-10.5'	60.3'	109°52.8	106°13.7		84°42.6	82°31.8	29°10.8	
5	245°37.8	5.8'	19°38.2	-10.4'	60.3'	109° 19.7	105°55.1		84°10.0	82°14.7	28°33.9	
6	260°02.6	5.8'	S 19°48.6	-10.2'	60.3'	108°46.6	105°36.3		83°37.5	81°57.7	27°57.0	
7	274°27.4	5.8'	19°58.8	-10.1'	60.2'	108° 13.5	105°17.5		83°04.9	81°40.7	27°20.2	
8	288°52.1	5.7'	20°08.8	-9.9'	60.2'	107°40.4	104°58.7		82°32.5	81°23.8	26°43.5	
9	303°16.8	5.7'	20°18.8	-9.8'	60.2'	107°07.4	104°39.8		82°00.1	81°07.0	26°06.8	
10	317°41.5	5.6'	20°28.6	-9.6'	60.1'	106°34.3	104°20.8		81°27.7	80°50.2	25°30.1	40°00.9
11	332°06.1	5.6'	20°38.2	-9.5'	60.1'	106°01.3	104°01.8	101°01.8	80°55.3	80°33.5	24°53.4	40°16.6
12	346°30.7	5.5'	S 20°47.7	-9.3'	60.1'	105°28.2	103°42.7	100°46.7	80°23.1	80°16.9	24°16.8	40°32.6
13	0°55.2	5.5'	20°57.0	-9.2'	60.1'	104°55.2	103°23.6	100°31.5	79°50.8	80°00.3	23°40.2	40°48.9
14	15°19.7	5.5'	21°06.2	-9.0'	60.0'	104°22.2	103°04.4	100°16.4	79°18.6	79°43.8	23°03.7	41°05.6
15	29°44.2	5.4'	21°15.3	-8.9'	60.0'	103°49.2	102°45.2	100°01.1	78°46.5	79°27.4	22°27.2	41°22.6
16	44°08.6	5.4'	21°24.2	-8.7'	60.0'	103°16.2	102°26.0	99°45.9	78°14.4	79°11.0	21°50.8	41°40.0
17	58°33.0	5.3'	21°32.9	-8.6'	59.9'	102°43.3	102°06.6	99°30.6	77°42.3	78°54.7	21°14.4	41°57.7
18	72°57.4	5.3'	S 21°41.5	-8.4'	59.9'	102°10.3	101°47.3	99° 15.3	77° 10.4	78°38.5	20°38.0	42°15.6
19	87°21.7	5.3'	21°49.9	-8.3'	59.9'	101°37.4	101°27.9	98°59.9	76°38.4	78°22.4	20°01.7	42°33.9
20	101°46.0	5.3'	21°58.2	-8.1'	59.8'	101°04.5	101°08.5	98°44.5	76°06.5	78°06.4	19°25.4	42°52.5
21	116°10.2	5.2'	22°06.3	-8.0'	59.8'	100°31.6	100°49.1	98°29.1	75°34.7	77°50.4	18°49.2	43°11.3
22	130°34.4	5.2'	22°14.3	-7.8'	59.8'	99°58.8	100°29.6	98°13.6	75°03.0	77°34.5	18°13.0	43°30.4
23	144°58.6	5.2'	22°22.1	-7.6'	59.7'	99°26.0	100°10.1	97°58.1	74°31.3	77°18.8	17°36.9	43°49.8
10th	CD	_ 16 5	·/ NA	12.56								

h		Moor	າ (20 th O	ct)	Lunar Distance (objects with largest hourly LD delta)							
Fri	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Achernar	-Vega	-Altair	-Antares	+Arcturus
0	159°22.8	5.1'	S 22°29.7	-7.5'	59.7'	99°50.5	98°53.2	97°42.6	77°03.1	73°59.6	17°00.8	44°09.5
1	173°46.9	5.1'	22°37.2	-7.3'	59.7'	99°31.0	98°20.4	97°27.0	76°47.4	73°28.1	16°24.8	44°29.4
2	188°11.1	5.1'	22°44.5	-7.2'	59.7'	99°11.4	97°47.7	97° 11.5	76°31.9	72°56.5	15°48.9	44°49.5
3	202°35.1	5.1'	22°51.7	-7.0'	59.6'	98°51.8	97°14.9	96°55.9	76°16.5	72°25.1	15°13.0	45°09.9
4	216°59.2	5.1'	22°58.7	-6.8'	59.6'	98°32.2	96°42.3	96°40.3	76°01.2	71°53.7	14°37.1	45°30.5
5	231°23.3	5.0'	23°05.5	-6.7'	59.5'	98°12.5	96°09.6	96°24.7	75°45.9	71°22.4	14°01.3	45°51.4
6	245°47.3	5.0'	S 23°12.2	-6.5'	59.5'	97°52.9	95°37.0	96°09.1	75°30.8	70°51.2	13°25.6	46°12.4
7	260°11.3	5.0'	23°18.7	-6.3'	59.5'	97°33.2	95°04.4	95°53.4	75°15.7	70°20.0	12°49.9	46°33.7
8	274°35.3	5.0'	23°25.0	-6.2'	59.4'	97°13.5	94°31.9	95° 37.8		69°48.9	12°14.3	46° 55.2
9	288°59.3	5.0'	23°31.2	-6.0'	59.4'	96°53.9	93°59.4	95°22.1		69°17.8	11°38.8	47°16.8
10	303°23.3	5.0'	23°37.2	-5.8'	59.4'	96°34.2	93°26.9	95°06.4		68°46.9	11°03.3	47°38.7
11	317°47.3	5.0'	23°43.1	-5.7'	59.3'	96°14.5	92°54.4	94°50.7		68°16.0	10°28.0	48°00.7
12	332°11.3	5.0'	S 23°48.8	-5.5'	59.3'	95°54.8	92°22.0	94°35.1		67°45.2	9°52.7	48°22.9
13	346°35.2	5.0'	23°54.3	-5.3'	59.3'	95°35.1	91°49.7	94° 19.4		67°14.5	9°17.5	48° 45.3
14	0°59.2	5.0'	23°59.6	-5.2'	59.2'	95°15.4	91°17.4	94°03.7		66°43.8	8°42.4	49°07.8
15	15°23.1	5.0'	24°04.8	-5.0'	59.2'	94°55.7	90°45.1	93°48.0		66°13.3	8°07.5	49°30.6
16	29°47.1	5.0'	24°09.8	-4.8'	59.2'	94°36.0	90°12.8	93°32.3		65°42.8	7°32.6	49°53.4
17	44°11.0	5.0'	24°14.6	-4.7'	59.1'	94°16.3	89°40.6	93°16.6		65°12.4	6°58.0	50°16.4
18	58°35.0	5.0'	S 24°19.3	-4.5'	59.1'	93°56.6	89°08.5	93°00.9		64°42.0	6°23.5	50°39.6
19	72°58.9	5.0'	24°23.8	-4.3'	59.0'	93°36.9	88°36.4	92°45.2		64°11.8	5°49.3	51°02.9
20	87°22.9	5.0'	24°28.2	-4.2'	59.0'	93°17.3	88°04.3	92°29.6		63°41.7	5°15.3	51°26.3
21	101°46.9	5.0'	24°32.3	-4.0'	59.0'	92°57.6	87°32.3	92° 13.9		63°11.6	4°41.8	51°49.9
22	116°10.9	5.0'	24°36.3	-3.8'	58.9'	92°38.0	87°00.3	91°58.3		62°41.7	4°08.7	52° 13.5
23	130°34.9	5.0'	24°40.2	-3.7'	58.9'	92°18.3	86°28.4	91°42.6		62°11.8	3°36.4	52°37.3
20 th	SD :	= 16.3'	Mer. pas	s. 13:56	j							

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

Sat	GHA	ν	Dec	d	HP	-Deneb	-Achernar	-Fomalhaut	-Altair	+Antares	+Sun	+Hadar	+Arcturus
0	144°58.9	5.0'	S 24°43.8	-3.5'	58.9'	91°58.7	91°27.0	85°56.5	61°42.0				53°01.3
1	159°22.9	5.0'	24°47.3	-3.3'	58.8'	91°39.1	91°11.4	85°24.7	61°12.3				53°25.3
2	173°47.0	5.1'	24°50.6	-3.2'	58.8'	91°19.6	90°55.8	84°52.9	60°42.7				53°49.4
3	188°11.0	5.1'	24°53.8	-3.0'	58.7'	91°00.0	90°40.2	84°21.1	60°13.2				54°13.7
4	202°35.1	5.1'	24°56.8	-2.8'	58.7'	90°40.5	90°24.6	83°49.5	59°43.9		41°30.7		54°38.0
5	216°59.2	5.1'	24°59.6	-2.7'	58.7'	90°21.0	90°09.1	83°17.8	59°14.6		42°02.8		55°02.4
6	231°23.3	5.2'	S 25°02.3	-2.5'	58.6'	90°01.5	89°53.6	82°46.3	58°45.4		42°34.9		55°26.9
7	245°47.5	5.2'	25°04.7	-2.3'	58.6'	89°42.0	89°38.1	82°14.7	58° 16.3		43°06.9		55°51.6
8	260°11.7	5.2'	25°07.1	-2.2'	58.5'	89°22.6	89°22.6	81°43.2	57°47.3		43°38.9		56°16.2
9	274°35.9	5.3'	25°09.2	-2.0'	58.5'	89°03.2	89°07.2	81°11.8	57° 18.5		44°10.8		56°41.0
10	289°00.2	5.3'	25°11.2	-1.8'	58.5'	88°43.9	88°51.7	80°40.5	56°49.7		44°42.7		57°05.9
11	303°24.4	5.3'	$25^{\circ}13.0$	-1.7'	58.4'	88°24.5	88°36.4	80°09.1	56°21.1		45°14.6		57°30.8
12	317°48.8	5.4'	S 25°14.7	-1.5'	58.4'	88°05.2	88°21.0	79°37.9	55°52.5	4°32.5	45°46.4		57°55.8
13	332° 13.1	5.4'	$25^{\circ}16.1$	-1.3'	58.4'	87°46.0	88°05.7	79°06.7	55°24.1	5°05.2	46°18.2		58°20.8
14	346° 37.5	5.4'	25° 17.5	-1.2'	58.3'	87° 26.7	87°50.3	78°35.5	54°55.8	5°38.2	46°49.9		58°46.0
15	1°02.0	5.5'	25°18.6	-1.0'	58.3'	87°07.6	87°35.1	78°04.4	54°27.6	6°11.5	47°21.6	45°48.2	59°11.2
16	15° 26.5	5.5'	$25^{\circ}19.6$	-0.8'	58.2'	86°48.4	87°19.8	77°33.4	53° 59.6	6°44.8	47°53.2	46°03.5	59°36.4
17	29°51.0	5.6'	25°20.4	-0.7'	58.2'	86°29.3	87°04.6	77°02.4	53°31.6	7°18.3	48°24.8	46°19.0	60°01.7
18	44° 15.6	5.6'	S 25°21.1	-0.5'	58.2'	86° 10.2	86°49.5	76°31.5	53°03.8	7°51.9	48°56.3	46°34.8	60°27.1
19	58°40.2	5.7'	25°21.6	-0.3'	58.1'	85°51.2	86°34.3	76°00.7	52°36.2	8°25.5	49°27.8	46°50.8	60°52.5
20	73°04.8	5.7'	25°21.9	-0.2'	58.1'	85°32.2	86°19.2	75°29.9	52°08.6	8°59.1	49°59.3	47°07.0	61°17.9
21	87° 29.6	5.8'	25°22.1	-0.0'	58.0'	85°13.3	86°04.2	74°59.2	51°41.2	9°32.7	50°30.7	47°23.4	61°43.4
22	101°54.4	5.8'	$25^{\circ}22.1$	0.1'	58.0'	84°54.4	85°49.2	74°28.5	51°13.9	10°06.3	51°02.0	47°40.1	62°08.9
23	116° 19.2	5.9'	25°22.0	0.3'	58.0'	84°35.6		73°57.9	50°46.8	10°40.0	51°33.3	47°56.9	62°34.5
21 st	SD =	= 16.1′	Mer. pas	s. 14:56	5	$Sun\;SD=16.1'$							

Moon (22nd Oct) h Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Deneb	-Fomalhaut	-Altair	+Antares	+Rigil Kent.	+Hadar	+Sun	+Arcturus
0	130°44.1	5.9'	S 25°21.7	0.5'	57.9'	84°16.8	73°27.3	50°19.7	11°13.6	44° 39.2	48°14.0	52°04.6	63°00.1
1	145°09.0	6.0'	25°21.2	0.6'	57.9'	83°58.0	72°56.8	49°52.9	11°47.2	44°54.6	48°31.3	52°35.8	63°25.8
2	159°34.0	6.1'	25°20.6	0.8'	57.8'	83°39.3	72°26.4	49°26.1	12°20.8	45° 10.4	48°48.7	53°07.0	63°51.5
3	173°59.1	6.1'	25°19.8	0.9'	57.8'	83°20.7	71°56.1	48°59.6	12°54.3	45°26.3	49°06.4	53°38.1	64°17.2
4	188°24.2	6.2'	$25^{\circ}18.9$	1.1'	57.8'	83°02.1	71°25.8	48°33.1	13°27.9	45° 42.5	49°24.2	54°09.2	64°43.0
5	202°49.4	6.3'	$25^{\circ}17.8$	1.2'	57.7'	82°43.6	70°55.5	48°06.9	14°01.4	45° 58.9	49°42.2	54°40.2	65°08.7
6	217°14.7	6.3'	S 25°16.6	1.4'	57.7'	82°25.1	70°25.4	47°40.7	14°34.8	46° 15.5	50°00.4	55°11.2	65°34.5
7	231°40.0	6.4'	25°15.2	1.5'	57.6'	82°06.7	69°55.3	47°14.8	15°08.3	46°32.4	50°18.7	55°42.2	66°00.4
8	246°05.4	6.5'	$25^{\circ}13.7$	1.7'	57.6'	81°48.3	69°25.3	46°49.0	15°41.7	46°49.4	50°37.2	56°13.1	66°26.2
9	260°30.9	6.5'	$25^{\circ}12.0$	1.8'	57.6'	81°30.0	68°55.3	46°23.3	16°15.0	47°06.7	50°55.9	56°43.9	66°52.1
10	274°56.4	6.6'	$25^{\circ}10.1$	2.0'	57.5'	81°11.8	68°25.4	45°57.8	16°48.3	47°24.1	51°14.7	57°14.7	67°18.0
11	289°22.0	6.7'	$25^{\circ}08.1$	2.1'	57.5'	80°53.6	67°55.6	45°32.5	17°21.6	47°41.8	51°33.7	57°45.5	67°43.9
12	303°47.7	6.8'	S 25°06.0	2.3'	57.4'	80°35.5	67°25.9	45°07.4	17°54.9	47° 59.6	51°52.8	58°16.2	68°09.8
13	318°13.4	6.8'	25°03.7	2.4'	57.4'	80° 17.5	66°56.2	44°42.4	18°28.1	48° 17.6	52°12.1	58°46.9	68°35.7
14	332°39.3	6.9'	25°01.2	2.6'	57.4'	79°59.5	66°26.6	44°17.7	19°01.2	48°35.8	52°31.5	59°17.5	69°01.7
15	347°05.2	7.0'	24°58.6	2.7'	57.3'	79°41.5	65°57.0	43°53.1	19°34.4	48° 54.1	52°51.1	59°48.1	69°27.7
16	1°31.2	7.1'	24°55.9	2.9'	57.3'	79°23.7	65°27.6	43°28.7	20°07.5	49° 12.7	53°10.7	60°18.6	69°53.6
17	15°57.2	7.1'	24°53.0	3.0'	57.3'	79°05.9	64°58.2	43°04.4	20°40.5	49°31.3	53°30.5	60°49.1	70°19.6
18	30°23.4	7.2'	S 24°50.0	3.2'	57.2'	78°48.2	64°28.9	42°40.4	21°13.5	49° 50.2	53°50.5	61°19.5	70°45.6
19	44°49.6	7.3'	24°46.8	3.3'	57.2'	78°30.5	63°59.6	42°16.6	21°46.4	50°09.2	54°10.5	61°49.9	71°11.6
20	59°15.9	7.4'	24°43.5	3.4'	57.1'	78° 13.0	63°30.4	41°53.0	22°19.4	50°28.3	54°30.6	62°20.3	71°37.6
21	73°42.3	7.5'	24°40.1	3.6'	57.1'	77°55.4	63°01.3	41°29.5	22°52.2	50° 47.6	54°50.9	62°50.6	72°03.6
22	88°08.8	7.6'	24°36.5	3.7'	57.1'	77°38.0	62°32.3	41°06.3	23°25.1	51°07.1	55°11.3	63°20.9	72°29.6
23	102°35.4	7.6'	24°32.8	3.9'	57.0'	77°20.6	62°03.4	40°43.3	23°57.8	51°26.6	55°31.8	63°51.1	72°55.6
22 nd	SD =	= 15.8′	Mer. pass	s. 15:54	4	$Sun\;SD=16.1'$							

h Moon (23 rd Oct)	Lunar Distance (ob	bjects with largest hourl	y LD delta)
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Mon	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Hadar	+Sun	+Arcturus
0	117°02.0	7.7'	S 24°28.9	4.0'	57.0'		77°03.4	61°34.5	40°20.6	24°30.6	55°52.4	64°21.3	73°21.6
1	131°28.8	7.8'	24°25.0	4.1'	56.9'		76°46.2	61°05.7	39°58.0	25°03.3	56° 13.1	64°51.4	73°47.6
2	145°55.6	7.9'	24°20.8	4.3'	56.9'		$76^{\circ}29.0$	60°37.0	39°35.7	25°36.0	56° 33.8	65°21.5	74°13.6
3	160°22.5	8.0'	24°16.6	4.4'	56.9'		$76^{\circ}12.0$	60°08.4	39°13.6	26°08.6	56°54.7	65°51.5	74°39.6
4	174°49.5	8.1'	24°12.2	4.5'	56.8'		75°55.0	59°39.9	38°51.7	26°41.1	57° 15.7	66°21.5	75°05.6
5	189°16.6	8.2'	24°07.7	4.6'	56.8'		$75^{\circ}38.1$	59°11.4	38°30.1	27°13.7	57°36.7	66°51.5	75°31.5
6	203°43.8	8.3'	S 24°03.0	4.8'	56.8'		$75^{\circ}21.3$	58°43.0	38°08.8	27°46.2	57° 57.9	67°21.4	75°57.5
7	218°11.0	8.4'	23°58.2	4.9'	56.7'		75°04.5	58°14.7	37°47.7	28°18.6	$58^{\circ}19.1$	67°51.3	76°23.5
8	232°38.4	8.5'	23°53.3	5.0'	56.7'	119°32.8	74°47.9	57°46.5	37°26.8	28°51.0	58°40.4	68°21.1	76°49.4
9	247°05.9	8.5'	23°48.3	5.2'	56.7'	119°00.5	74°31.3	57°18.4	37°06.2	29°23.4	59°01.8	68°50.9	77°15.4
10	261°33.4	8.6'	23°43.2	5.3'	56.6'	118°28.3	74° 14.8	56°50.3	36°45.9	29°55.7	59°23.2	69°20.6	77°41.3
11	276°01.0	8.7'	23°37.9	5.4'	56.6'	117°56.1	73°58.4	56°22.4	36°25.9	30°28.0	59°44.8	69°50.3	78°07.3
12	290°28.8	8.8'	S 23°32.5	5.5'	56.5'	117°24.0	73°42.1	55°54.5	36°06.1	31°00.2	60°06.3	70°20.0	78°33.2
13	304°56.6	8.9'	23°27.0	5.6'	56.5'	116°51.9	73°25.9	55°26.7	35°46.7	31°32.4	60°28.0	70°49.6	78°59.1
14	319°24.5	9.0'	23°21.3	5.8'	56.5'	116°19.8	73°09.8	54°59.1	35°27.5	32°04.6	60°49.7	71°19.2	79°25.0
15	333°52.6	9.1'	23°15.6	5.9'	56.4'	115°47.8	72°53.7	54°31.5	35°08.6	32°36.7	61°11.5	71°48.7	79°50.9
16	348°20.7	9.2'	23°09.7	6.0'	56.4	115°15.8	72°37.8	54°04.0	34°50.0	33°08.8	61°33.4	72°18.2	80°16.7
17	2°48.9	9.3'	23°03.7	6.1'	56.4'	114°43.9	72°21.9	53°36.6	34°31.8	33°40.8	61°55.3	72°47.6	80°42.6
18	17°17.2	9.4'	S 22°57.6	6.2'	56.3'	114°12.0	72°06.1	53°09.3	34°13.8	34°12.8	62° 17.2	73°17.0	81°08.4
19	31°45.6	9.5'	22°51.4	6.3'	56.3'	113°40.1	71°50.4	52°42.0	33°56.2	34°44.8	62°39.3	73°46.4	81°34.2
20	46°14.1	9.6'	22°45.0	6.4'	56.3'	113°08.3	71°34.9	52°14.9	33°38.9	35°16.7	63°01.3	74°15.7	82°00.0
21	60°42.7	9.7'	22°38.6	6.6'	56.2'	112°36.5	71°19.4	51°47.9	33°22.0	35°48.5	63°23.5	74°45.0	82°25.8
22	75°11.4	9.8'	22°32.0	6.7'	56.2'	112°04.7	71°04.0	51°21.0	33°05.4	36°20.4	63°45.6	75°14.3	82°51.5
23	89°40.1	9.9'	22°25.4	6.8'	56.2'	111°33.0	70°48.7	50°54.2	32°49.2	36°52.2	64°07.9	75°43.5	83°17.3
23 rd	SD =	= 15.5'	Mer. pass	. 16:48	3				Sun SD	= 16.1'			

h Moon (24th Oct)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Hadar	+Sun	+Arcturus	
0	104°09.0	10.0'	S 22°18.6	6.9'	56.1'	111°01.3	70°33.5	50°27.4	32°33.3	37°23.9	64°30.1	76°12.7	83°43.0	
1	118°38.0	10.1'	22°11.7	7.0'	56.1'	110°29.7	70°18.4	50°00.8	32°17.8	37° 55.7	64°52.4	76°41.8	84°08.7	
2	133°07.1	10.2'	22°04.7	7.1'	56.1'	109°58.1	70°03.4	49°34.3	32°02.6	38°27.3	65°14.8	77°10.9	84°34.4	
3	147°36.2	10.3'	21°57.6	7.2'	56.0'	109°26.5		49°07.9		38°59.0	65°37.2	77°40.0	85°00.0	
4	162°05.5	10.4'	$21^{\circ}50.5$	7.3'	56.0'	108°55.0		48°41.7		39°30.6	65°59.6	78°09.0	85°25.7	
5	176°34.8	10.5'	21°43.2	7.4'	56.0'	108°23.5		48°15.5		40°02.2	66°22.1	78°38.0	85°51.3	
6	191°04.3	10.5'	S 21°35.8	7.5'	55.9'	107°52.0		47°49.4		40°33.7	66°44.6	79°06.9	86°16.9	
7	205°33.8	10.6'	21°28.3	7.6'	55.9'	107°20.6		47°23.5		41°05.2	67°07.1	79°35.8	86°42.4	
8	220°03.5	10.7'	21°20.7	7.7'	55.9'	106°49.2		46°57.6		41°36.6	67°29.7	80°04.7	87°08.0	
9	234°33.2	10.8'	21°13.0	7.8'	55.8'	106° 17.8		46°31.9		42°08.1	67°52.3	80°33.5	87°33.5	
10	249°03.1	10.9'	21°05.2	7.9'	55.8'	105°46.5		46°06.3		42°39.4	68°14.9	81°02.3	87°59.0	
11	263°33.0	11.0'	20°57.3	8.0'	55.8'	105° 15.2		45°40.9		43°10.8	68°37.6	81°31.1	88°24.5	
12	278°03.0	11.1'	S 20°49.4	8.1'	55.7'	104°43.9		45°15.5		43°42.1	69°00.3	81°59.8	88°49.9	
13	292°33.1	11.2'	20°41.3	8.2'	55.7'	104° 12.7		44°50.3		44° 13.4	69°23.0	82°28.5	89°15.3	
14	307°03.3	11.3'	20°33.1	8.2'	55.7'	103°41.5		44°25.2		44°44.6	69°45.7	82°57.2	89°40.7	
15	321°33.7	11.4'	20°24.9	8.3'	55.6'	103° 10.4		44°00.3		45° 15.9	70°08.5	83°25.8	90°06.0	
16	336°04.1	11.5'	20° 16.6	8.4'	55.6'	102°39.3		43°35.5		45° 47.0	70°31.3	83°54.4	90°31.4	
17	350°34.5	11.6'	20°08.1	8.5'	55.6'	102°08.2		43°10.8		46° 18.2	70°54.1	84°23.0	90°56.7	
18	5°05.1	11.7'	S 19°59.6	8.6'	55.6'	101°37.1		42°46.2		46°49.3	71°16.9	84°51.5	91°21.9	
19	19°35.8	11.8'	19°51.0	8.7'	55.5'	101°06.1		42°21.8		47°20.4	71°39.8	85°20.0	91°47.2	
20	34°06.6	11.9'	19°42.3	8.8'	55.5'	100°35.1		41°57.6		47°51.4	72°02.6	85°48.5	92°12.4	
21	48°37.4	11.9'	19°33.6	8.8'	55.5'	100°04.1		41°33.5		48°22.4	72°25.5	86°16.9	92°37.6	
22	63°08.4	12.0'	19°24.7	8.9'	55.4'	99°33.2		41°09.5		48°53.4	72°48.4	86°45.3	93°02.7	
23	77°39.4	12.1'	19° 15.8	9.0'	55.4'	99°02.3		40°45.7		49°24.4	73°11.3	87°13.7	93°27.8	
24 th	SD :	= 15.3'	Mer. pass	. 17:39	ı	$Sun\;SD=16.1'$								

h Moon (25th Oct)

Lunar Distance (objects with largest hourly LD delta)

						UD ALL C. F. H A							
Wed	GHA	ν	Dec	d	HP	-Aldebaran	-Saturn	-Fomalhaut	+Antares	+Rigil Kent.	+Hadar	+Sun	+Arcturus
0	92°10.5	12.2'	S 19°06.8	9.1'	55.4'		98°31.4	40°22.1	49°55.3	69°11.3	73°34.3	87°42.0	93°52.9
1	106°41.7	12.3'	18°57.7	9.2'	55.4'		98°00.6	39°58.6	50°26.2	69°34.3	73°57.2	88°10.3	94°18.0
2	121°13.0	12.4'	18°48.5	9.2'	55.3'		97°29.8	39°35.3	50°57.0	69° 57.3	74°20.2	88°38.6	94°43.0
3	135°44.4	12.5'	18°39.3	9.3'	55.3'		96°59.0	39°12.1	51°27.9	70°20.3	74°43.2	89°06.8	95°08.0
4	150°15.9	12.6'	18°30.0	9.4'	55.3'		96°28.2	38°49.1	51°58.6	70°43.3	75°06.1	89°35.0	95°33.0
5	164°47.5	12.6'	18°20.6	9.5'	55.3'		95°57.5	38°26.3	52°29.4	71°06.3	75°29.1	90°03.2	95°57.9
6	179°19.1	12.7'	S 18°11.1	9.5'	55.2'		95°26.8	38°03.7	53°00.2	71°29.4	75°52.1	90°31.3	96°22.8
7	193°50.9	12.8'	18°01.6	9.6'	55.2'		94°56.1	37°41.3	53°30.9	71°52.5	76°15.1	90°59.5	96°47.6
8	208°22.7	12.9'	17°52.0	9.7'	55.2'		94°25.5	37°19.0	54°01.5	72° 15.6	76°38.2	91°27.6	97°12.5
9	222°54.6	13.0'	17°42.3	9.8'	55.1'		93°54.9	36°56.9	54°32.2	72°38.7	77°01.2	91°55.6	97°37.3
10	237°26.6	13.1'	17°32.6	9.8'	55.1'		93°24.3	36°35.1	55°02.8	73°01.8	77°24.2	92°23.7	98°02.0
11	251°58.6	13.1'	17°22.7	9.9'	55.1'		92°53.7	36°13.4	55°33.4	73°25.0	77°47.3	92°51.7	98°26.7
12	266°30.8	13.2'	S 17°12.8	10.0'	55.1'		92°23.2	35°52.0	56°04.0	73°48.1	78°10.3	93°19.7	98°51.4
13	281°03.0	13.3'	17°02.9	10.0'	55.0'		91°52.7	35°30.7	56°34.5	74°11.3	78°33.3	93°47.6	99°16.0
14	295°35.3	13.4'	$16^{\circ}52.9$	10.1'	55.0'		91°22.2	35°09.7	57°05.1	74°34.5	78°56.4	94°15.6	99°40.7
15	310°07.7	13.5'	16°42.8	10.1'	55.0'		90°51.8	34°48.9	57°35.5	74° 57.7	79°19.4	94°43.5	100°05.2
16	324°40.2	13.5'	16°32.6	10.2'	55.0'		90°21.4	34°28.3	58°06.0	75°20.9	79°42.5	95°11.3	100°29.8
17	339°12.7	13.6'	$16^{\circ}22.4$	10.3'	55.0'		89°51.0	34°08.0	58°36.5	75°44.1	80°05.6	95°39.2	100°54.3
18	353°45.3	13.7'	S 16°12.2	10.3'	54.9'		89°20.6	33°47.9	59°06.9	76°07.4	80°28.6	96°07.0	101°18.7
19	8°18.0	13.8'	$16^{\circ}01.8$	10.4'	54.9'		88° 50.2	33°28.0	59°37.3	76°30.6	80°51.7	96°34.8	101°43.1
20	22°50.8	13.8'	15°51.4	10.5'	54.9'		88° 19.9	33°08.4	60°07.6	76°53.8	81°14.7	97°02.6	102°07.5
21	37°23.7	13.9'	15°41.0	10.5'	54.9'	119°45.6	87°49.6	32°49.0	60°38.0	77° 17.1	81°37.8	97°30.4	102°31.8
22	51°56.6	14.0'	15°30.5	10.6'	54.8'	119° 15.8	87°19.3	32°29.9	61°08.3	77°40.4	82°00.9	97°58.1	102°56.1
23	66°29.6	14.1'	$15^{\circ}19.9$	10.6'	54.8'	118°45.9	86°49.1	32°11.1	61°38.6	78°03.6	82°23.9	98°25.8	103°20.4
25 th	SD	= 15.1'	Mer. pass	s. 18:26		SunSD=16.1'							

h Moon (26th Oct)

Thu	GHA	ν	Dec	d	HP	-Rigel	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Sun	+Arcturus
0	81°02.6	14.1'	S 15°09.3	10.7'	54.8'			118°16.0	86°18.8	62°08.9	78° 26.9	98°53.5	103°44.6
1	95°35.8	14.2'	$14^{\circ}58.6$	10.7'	54.8'			117°46.2	85°48.6	62°39.1	78°50.2	99°21.1	104°08.8
2	110°09.0	14.3'	14°47.9	10.8'	54.8'			117°16.4	85°18.4	63°09.3	79° 13.5	99°48.8	104°32.9
3	124°42.3	14.3'	14°37.1	10.8'	54.7'	119°41.1		116°46.6	84°48.3	63°39.6	79°36.7	100°16.4	104°57.0
4	139°15.6	14.4'	$14^{\circ}26.3$	10.9'	54.7'	119°17.7		116°16.8	84°18.1	64°09.7	80°00.0	100°44.0	105°21.1
5	153°49.0	14.5'	$14^{\circ}15.4$	10.9'	54.7'	118°54.4		115°47.0	83°48.0	64°39.9	80°23.3	101°11.6	105°45.1
6	168°22.5	14.5'	S 14°04.4	11.0'	54.7'	118°30.9		115°17.3	83°17.9	65°10.1	80°46.6	101°39.1	106°09.0
7	182°56.0	14.6'	13°53.4	11.0'	54.7'	118°07.5		114°47.5	82°47.8	65°40.2	81°09.9	102°06.7	106°32.9
8	197°29.7	14.7'	13°42.4	11.1'	54.6'	117°44.0		114°17.8	82°17.8	66°10.3	81°33.2	102°34.2	106°56.8
9	212°03.3	14.7'	13°31.3	11.1'	54.6'	117°20.4		113°48.1	81°47.7	66°40.4	81°56.5	103°01.7	107°20.6
10	226°37.1	14.8'	$13^{\circ}20.2$	11.2'	54.6'	116°56.9		113°18.4	81°17.7	67°10.4	82°19.8	103°29.1	107°44.4
11	241°10.9	14.9'	$13^{\circ}09.0$	11.2'	54.6'	116°33.2		112°48.8	80°47.7	67°40.5	82°43.1	103°56.6	108°08.1
12	255°44.7	14.9'	S 12°57.8	11.3'	54.6'	116°09.6		112°19.1	80°17.7	68°10.5	83°06.4	104°24.0	108°31.8
13	270°18.6	15.0'	$12^{\circ}46.5$	11.3'	54.5'	115°45.9	119°34.6	111°49.5	79°47.8	68°40.5	83°29.7	104°51.4	108°55.5
14	284°52.6	15.0'	12°35.2	11.4'	54.5'	115°22.2	119°07.2	111°19.8	79°17.8	69°10.5	83°53.0	105°18.8	109°19.1
15	299°26.7	15.1'	$12^{\circ}23.8$	11.4'	54.5'	114°58.4	118°39.7	110°50.2	78°47.9	69°40.5	84°16.3	105°46.2	109°42.6
16	314°00.8	15.2'	$12^{\circ}12.4$	11.4'	54.5'	114°34.7	118°12.3	110°20.6	78°18.0	70°10.4	84°39.5	106°13.6	110°06.1
17	328°34.9	15.2'	$12^{\circ}01.0$	11.5'	54.5'	114°10.8	117°44.8	109°51.1	77°48.1	70°40.4	85°02.8	106°40.9	110°29.5
18	343°09.1	15.3'	S 11°49.5	11.5'	54.5'	113°47.0	117°17.3	109°21.5	77°18.2	71°10.3	85°26.1	107°08.3	110°52.9
19	357°43.4	15.3'	$11^{\circ}38.0$	11.6'	54.4'	113°23.1	116°49.9	108°51.9	76°48.4	71°40.2	85°49.4	107°35.6	111°16.3
20	12°17.7	15.4'	$11^{\circ}26.4$	11.6'	54.4'	112°59.2	116°22.4	108°22.4	76°18.5	72°10.1	86°12.6	108°02.9	111°39.6
21	26°52.1	15.4'	$11^{\circ}14.8$	11.6'	54.4'	112°35.3	115°54.9	107°52.9	75°48.7	72°40.0	86°35.9	108°30.2	112°02.8
22	41°26.5	15.5'	$11^{\circ}03.1$	11.7'	54.4'	112°11.3	115°27.4	107°23.4	75°18.9	73°09.9	86°59.2	108°57.4	112°26.0
23	56°01.0	15.5'	$10^{\circ}51.5$	11.7'	54.4'	111°47.4	114°59.9	106°53.9	74°49.1	73°39.7	87°22.4	109°24.7	112°49.1
26 th	SD	= 14.9'	4.9' Mer. pass. 19:09 Sun SD = 16.1'										

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

Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Antares	+Rigil Kent.	+Sun	+Arcturus
0	70°35.5	15.6'	S 10°39.7	11.8'	54.4'		114°32.4	106°24.4	74°19.3	74°09.5	87°45.7	109°51.9	113°12.2
1	85°10.1	15.6'	10°28.0	11.8'	54.4'		114°04.9	105°54.9	73°49.6	74°39.4	88° 08.9	110°19.1	113°35.2
2	99°44.7	15.7'	$10^{\circ}16.2$	11.8'	54.3'		113°37.4	105°25.4	73°19.8	75°09.2	88°32.1	110°46.3	113°58.1
3	114°19.4	15.7'	$10^{\circ}04.4$	11.9'	54.3'		113°09.9	104°56.0	72°50.1	75°39.0	88°55.4	111°13.5	114°21.1
4	128°54.1	15.8'	09°52.5	11.9'	54.3'		112°42.4	104° 26.5	72°20.4	76°08.7	89° 18.6	111°40.7	114°43.9
5	143°28.8	15.8'	09°40.7	11.9'	54.3'		112°14.8	103°57.1	71°50.7	76°38.5	89°41.8	112°07.9	115°06.7
6	158°03.6	15.8'	S 09°28.7	11.9'	54.3'		111°47.3	103°27.7	71°21.0	77°08.3	90°05.0	112°35.0	115°29.4
7	172°38.5	15.9'	$09^{\circ}16.8$	12.0'	54.3'		111°19.8	102°58.3	70°51.3	77°38.0	90°28.2	113°02.2	115°52.1
8	187°13.4	15.9'	09°04.8	12.0'	54.3'		110°52.2	102°28.9	70°21.6	78°07.7	90°51.3	113°29.3	116°14.7
9	201°48.3	16.0'	08°52.8	12.0'	54.3'		110°24.7	101°59.5	69°52.0	78°37.5	91°14.5	113°56.4	116°37.2
10	216°23.2	16.0'	08°40.8	12.1'	54.2'	119°56.0	109°57.2	101°30.1	69°22.3	79°07.2	91°37.7	114°23.5	116°59.7
11	230°58.3	16.0'	08°28.7	12.1'	54.2'	119°28.1	109°29.6	101°00.7	68°52.7	79°36.9	92°00.8	114°50.6	117°22.1
12	245°33.3	16.1'	S 08°16.6	12.1'	54.2'	119°00.3	109°02.1	100°31.4	68°23.1	80°06.6	92°23.9	115°17.7	117°44.5
13	260°08.4	16.1'	$08^{\circ}04.5$	12.1'	54.2'	118°32.4	108°34.5	100°02.0	67°53.5	80°36.2	92°47.1	115°44.8	118°06.8
14	274°43.5	16.2'	$07^{\circ}52.3$	12.2'	54.2'	118°04.5	108°07.0	99°32.7	67°23.9	81°05.9	93°10.2	116°11.8	118°29.0
15	289°18.7	16.2'	07°40.2	12.2'	54.2'	117°36.6	107°39.4	99°03.3	66°54.3	81°35.6	93°33.3	116°38.9	118°51.1
16	303°53.8	16.2'	$07^{\circ}28.0$	12.2'	54.2'	117°08.7	107°11.9	98°34.0	66°24.8	82°05.2	93°56.3	117°05.9	119°13.2
17	318°29.1	16.3'	$07^{\circ}15.7$	12.2'	54.2'	116°40.8	106°44.3	98°04.7	65°55.2	82°34.9	94°19.4	117°33.0	119°35.2
18	333°04.3	16.3'	S 07°03.5	12.3'	54.2'	116° 12.9	106°16.7	97°35.3	65°25.7	83°04.5	94° 42.5	118°00.0	119°57.2
19	347°39.6	16.3'	$06^{\circ}51.2$	12.3'	54.2'	115°44.9	105°49.2	97°06.0	64°56.1	83°34.1	95°05.5	118°27.0	
20	2°14.9	16.3'	06°38.9	12.3'	54.1'	115° 17.0	105°21.6	96°36.7	64°26.6	84°03.7	95°28.5	118°54.0	
21	16°50.3	16.4'	$06^{\circ}26.6$	12.3'	54.1'	114°49.1	104°54.0	96°07.4	63°57.1	84°33.4	95°51.5	119°21.0	
22	31°25.6	16.4'	$06^{\circ}14.3$	12.4'	54.1'	114°21.1	104°26.4	95°38.2	63°27.6	85°03.0	96°14.5	119°48.0	
23	46°01.0	16.4'	$06^{\circ}01.9$	12.4'	54.1'	113°53.2	103°58.9	95°08.9	62°58.1	85°32.6	96°37.5		
27 th	SD	$= 14.8^{\prime}$	Mer. pass	s. 19:51		$Sun\;SD=16.1'$							

Moon (28th Oct)

h

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Altair	+Antares	+Rigil Kent.
0	60°36.5	16.5'	S 05°49.6	12.4'	54.1'	113°25.2	103°31.3	101°41.2	94°39.6	62°28.6	40°51.2	86°02.2	97°00.5
1	75°11.9	16.5'	05°37.2	12.4'	54.1'	112°57.2	103°03.7	101°16.8	94°10.3	61°59.1	41°12.0	86°31.7	97°23.4
2	89°47.4	16.5'	05°24.8	12.4'	54.1'	112°29.3	102°36.1	100°52.3	93°41.1	61°29.6	41°32.9	87°01.3	97°46.3
3	104°22.9	16.5'	$05^{\circ}12.3$	12.4'	54.1'	112°01.3	102°08.5	100°27.8	93°11.8	61°00.2	41°53.9	87°30.9	98°09.2
4	118°58.4	16.5'	04°59.9	12.5'	54.1'	111°33.3	101°41.0	100°03.4	92°42.6	60°30.7	42° 15.1	88°00.5	98°32.1
5	133°33.9	16.6'	04°47.4	12.5'	54.1'	111°05.3	101°13.4	99°38.9	92°13.3	60°01.3	42°36.4	88°30.0	98°55.0
6	148°09.5	16.6'	S 04°35.0	12.5'	54.1'	110°37.3	100°45.8	99°14.4	91°44.1	59°31.8	42°57.9	88°59.6	99°17.8
7	162°45.1	16.6'	04°22.5	12.5'	54.1'	110°09.3	100°18.2	98°49.9	91°14.8	59°02.4	43° 19.4	89°29.2	99°40.7
8	177°20.7	16.6'	$04^{\circ}10.0$	12.5'	54.1'	109°41.3	99°50.6	98°25.3	90°45.6	58°33.0	43°41.1	89°58.7	100°03.5
9	191°56.3	16.6'	03°57.5	12.5'	54.1'	109°13.3	99°23.0	98°00.8	90°16.3	58°03.6	44°02.9	90°28.3	100°26.3
10	206°31.9	16.6'	03°44.9	12.5'	54.0'	108°45.3	98°55.4	97°36.3	89°47.1	57°34.1	44°24.9	90°57.8	100°49.0
11	221°07.6	16.7'	03°32.4	12.6'	54.0'	108° 17.3	98°27.8	97°11.7	89°17.9	57°04.7	44°46.9	91°27.3	101°11.8
12	235°43.3	16.7'	S 03°19.8	12.6'	54.0'	107°49.2	98°00.2	96°47.2	88°48.6	56°35.3	45°09.1	91°56.9	101°34.5
13	250°18.9	16.7'	03°07.3	12.6'	54.0'	107°21.2	97°32.6	96°22.6	88°19.4	56°05.9	45°31.3	92°26.4	101°57.2
14	264°54.6	16.7'	02°54.7	12.6'	54.0'	106°53.2	97°04.9	95°58.0	87°50.2	55°36.6	45°53.7	92°55.9	102°19.9
15	279°30.3	16.7'	$02^{\circ}42.1$	12.6'	54.0'	106°25.1	96°37.3	95°33.5	87°21.0	55°07.2	46° 16.2	93°25.5	102°42.5
16	294°06.0	16.7'	02°29.5	12.6'	54.0'	105°57.1	96°09.7	95°08.9	86°51.8	54°37.8	46°38.7	93°55.0	103°05.1
17	308°41.8	16.7'	$02^{\circ}16.9$	12.6'	54.0'	105°29.0	95°42.1	94°44.3	86°22.5	54°08.4	47°01.4	94°24.5	103°27.7
18	323°17.5	16.7'	S 02°04.3	12.6'	54.0'	105°00.9	95°14.5	94°19.7	85°53.3	53°39.1	47°24.2	94°54.1	103°50.3
19	337°53.2	16.7'	$01^{\circ}51.7$	12.6'	54.0'	104°32.9	94°46.9	93°55.1	85°24.1	53°09.7	47°47.0	95°23.6	104°12.8
20	352°29.0	16.8'	$01^{\circ}39.1$	12.6'	54.0'	104°04.8	94°19.2	93°30.5	84°54.9	52°40.4	48° 10.0	95°53.1	104°35.3
21	7°04.7	16.8'	$01^{\circ}26.5$	12.6'	54.0'	103°36.7	93°51.6	93°05.9	84°25.7	52°11.0	48° 33.0	96°22.7	104°57.8
22	21°40.5	16.8'	$01^{\circ}13.8$	12.6'	54.0'	103°08.6	93°24.0	92°41.3	83°56.5	51°41.7	48° 56.2	96°52.2	105°20.3
23	36°16.2	16.8'	$01^{\circ}01.2$	12.6'	54.0'	102°40.5	92°56.4	92°16.7	83°27.3	51°12.4	49° 19.4	97°21.7	105°42.7
28 th	SD	= 14.8'	Mer. pass	20:31									

Moon (29th Oct)

Lunar Distance	(objects with	largest hourly	/ LD delta))
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Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	50°52.0	16.8'	S 00°48.6	12.6'	54.0'			82°58.0	50°43.0		49°42.7	97°51.2	106°05.1
1	65°27.8	16.8'	00°35.9	12.6'	54.0'			82°28.8	50°13.7		50°06.1	98° 20.8	106°27.5
2	80°03.5	16.8'	$00^{\circ}23.3$	12.6'	54.0'			81°59.6	49°44.4		50°29.5	98° 50.3	106°49.8
3	94°39.3	16.8'	S 00°10.6	12.6'	54.0'			81°30.4	49°15.1	29°28.9	50°53.1	99° 19.8	107°12.1
4	109°15.1	16.8'	N 00°02.0	12.6'	54.0'			81°01.2	48°45.8	29°44.5	51°16.7	99°49.4	107°34.4
5	123°50.8	16.8'	$00^{\circ}14.7$	12.6'	54.0'			80°32.0	48°16.5	30°00.4	51°40.4	100°18.9	107°56.7
6	138°26.6	16.8'	N00°27.3	12.6'	54.0'			80°02.8	47°47.2	30°16.7	52°04.1	100°48.4	108°18.9
7	153°02.3	16.8'	00°40.0	12.6'	54.0'			79°33.5	47°17.9	30°33.2	52°28.0	101°18.0	108°41.0
8	167°38.1	16.7'	00°52.6	12.6'	54.0'			79°04.3	46°48.6	30°50.1	52°51.9	101°47.5	109°03.2
9	182°13.8	16.7'	$01^{\circ}05.2$	12.6'	54.0'			78°35.1	46°19.3	31°07.2	53°15.8	102°17.1	109°25.3
10	196°49.6	16.7'	$01^{\circ}17.9$	12.6'	54.0'			78°05.9	45°50.0	31°24.6	53°39.9	102°46.6	109°47.3
11	211°25.3	16.7'	$01^{\circ}30.5$	12.6'	54.0'		119°31.4	77°36.7	45°20.7	31°42.3	54°04.0	103°16.2	110°09.3
12	226°01.0	16.7'	N 01°43.2	12.6'	54.0'		$119^{\circ}02.1$	77°07.4	44°51.5	32°00.2	54°28.1	103°45.7	110°31.3
13	240°36.7	16.7'	01°55.8	12.6'	54.0'		118°32.9	76°38.2	44°22.2	32°18.4	54°52.4	104° 15.3	110°53.3
14	255°12.4	16.7'	02°08.4	12.6'	54.0'		118°03.6	76°09.0	43°52.9	32°36.9	55°16.7	104°44.8	111°15.2
15	269°48.1	16.7'	02°21.0	12.6'	54.0'		117°34.3	75°39.7	43°23.7	32°55.6	55°41.0	105° 14.4	111°37.0
16	284°23.8	16.7'	02°33.6	12.6'	54.0'		117°05.1	75°10.5	42°54.4	33°14.5	56°05.5	105°44.0	111°58.9
17	298°59.5	16.6'	02°46.2	12.6'	54.0'		116° 35.8	74°41.2	42°25.2	33°33.7	56°29.9	106°13.6	112°20.6
18	313°35.1	16.6'	N 02°58.8	12.6'	54.0'	119°42.8	$116^{\circ}06.5$	74°12.0	41°55.9	33°53.1	56°54.5	106°43.1	112°42.4
19	328°10.7	16.6'	03°11.4	12.6'	54.0'	119°14.6	115°37.2	73°42.7	41°26.7	34°12.7	57°19.1	107°12.7	113°04.0
20	342°46.4	16.6'	03°24.0	12.6'	54.0'	118°46.3	$115^{\circ}07.8$	73°13.5	40°57.5	34°32.5	57°43.7	107°42.3	113°25.7
21	357°22.0	16.6'	03°36.6	12.6'	54.0'	118°18.0	114° 38.5	72°44.2	40°28.2	34°52.5	58°08.4	108°11.9	113°47.3
22	11°57.5	16.6'	03°49.1	12.5'	54.0'	117°49.7	114°09.2	72°15.0	39°59.0	35°12.8	58°33.1	108°41.5	114°08.8
23	26°33.1	16.5'	04°01.6	12.5'	54.0'	117°21.4	113°39.8	71°45.7	39°29.8	35°33.2	58°57.9	109°11.1	114°30.3
29 th	SD	$=14.7^{\prime}$	Mer. pass	. 21:11									

h		Moon	(30th Oc	t)			Lunar	Distance	(objects	with largest	hourly L	D delta
Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares

Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Antares	+Rigil Kent.
0	41°08.7	16.5'	N 04°14.2	12.5'	54.0'	116°53.1	113°10.5	71°16.4	39°00.6	35°53.8	59°22.8	109°40.8	114°51.7
1	55°44.2	16.5'	04°26.7	12.5'	54.0'	116°24.8	112°41.1	70°47.2	38°31.4	36°14.6	59° 47.7	110°10.4	115°13.1
2	$70^{\circ}19.7$	16.5'	04°39.2	12.5'	54.0'	115°56.4	112°11.8	70°17.9	38°02.2	36°35.6	60° 12.7	110°40.0	115°34.5
3	84°55.2	16.5'	04°51.7	12.5'	54.0'	115°28.0	111°42.4	69°48.6	37°33.0	36°56.7	60°37.7	111°09.6	115°55.8
4	99°30.6	16.4'	05°04.2	12.5'	54.0'	114°59.7	111°13.0	69°19.3	37°03.8	37°18.0	61°02.7	111°39.3	116°17.0
5	114°06.1	16.4'	05°16.6	12.4'	54.1'	114°31.2	110°43.6	68°50.0	36°34.7	37°39.5	61°27.8	112°08.9	116°38.1
6	128°41.5	16.4'	N 05°29.1	12.4'	54.1'	114°02.8	110°14.2	68°20.7	36°05.5	38°01.2	61°53.0	112°38.6	116°59.3
7	143°16.8	16.4'	05°41.5	12.4'	54.1'	113°34.4	109°44.8	67°51.4	35°36.4	38°23.0	62°18.2	113°08.3	117°20.3
8	157°52.2	16.3'	05°53.9	12.4'	54.1'	113°05.9	109°15.4	67°22.1	35°07.2	38°45.0	62°43.4	113°37.9	117°41.3
9	172°27.5	16.3'	06°06.3	12.4'	54.1'	112°37.4	108°46.0	66°52.8	34°38.1	39°07.1	63°08.7	114°07.6	118°02.2
10	187°02.8	16.3'	$06^{\circ}18.6$	12.3'	54.1'	112°08.9	108°16.5	66°23.4	34°09.0	39°29.3	63°34.0	114°37.3	118°23.1
11	201°38.1	16.2'	$06^{\circ}31.0$	12.3'	54.1'	111°40.4	107°47.1	65°54.1	33°39.9	39°51.7	63°59.4	115°07.0	118°43.9
12	216°13.3	16.2'	N 06°43.3	12.3'	54.1'	111°11.9	107°17.6	65°24.8	33° 10.8	40°14.3	64°24.8	115°36.7	119°04.6
13	230°48.5	16.2'	06°55.6	12.3'	54.1'	110°43.4	106°48.1	64°55.4	32°41.7	40°36.9	64°50.2	116°06.5	119°25.3
14	245°23.7	16.1'	07°07.9	12.3'	54.1'	110°14.8	106°18.7	64°26.1	32°12.6	40°59.7	65° 15.7	116°36.2	119°45.9
15	259°58.8	16.1'	07°20.2	12.2'	54.1'	109°46.2	105°49.2	63°56.7	31°43.6	41°22.7	65°41.2	117°05.9	
16	274°33.9	16.1'	07°32.4	12.2'	54.1'	109°17.6	105°19.7	63°27.4	31°14.5	41°45.7	66°06.8	117°35.7	
17	289°09.0	16.0'	07°44.6	12.2'	54.1'	108°49.0	104°50.1	62°58.0	30°45.5	42°08.9	66°32.4	118°05.4	
18	303°44.0	16.0'	N 07°56.8	12.2'	54.1'	108°20.4	104°20.6	62°28.7	30°16.5	42°32.2	66°58.0	118°35.2	
19	$318^{\circ}19.0$	16.0'	08°08.9	12.1'	54.1'	107°51.7	103°51.1	61°59.3	29°47.5	42°55.6	67°23.7	119°05.0	
20	332°54.0	15.9'	$08^{\circ}21.1$	12.1'	54.1'	107°23.1	103°21.5	61°29.9	29° 18.5	43°19.1	67°49.4	119°34.7	
21	347°28.9	15.9'	08°33.2	12.1'	54.2'	106°54.4	102°52.0	61°00.5	28°49.6	43°42.8	68° 15.2		
22	2°03.8	15.8'	08°45.3	12.0'	54.2'	106°25.7	102°22.4	60°31.1	28°20.7	44°06.5	68°41.0		
23	16°38.6	15.8'	08°57.3	12.0'	54.2'	105°57.0	101°52.8	60°01.7	27°51.8	44°30.4	69°06.8		
30 th	SD	$=14.7^{\prime}$	Mer. pass	. 21:52									

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

		IVIOOI	1 (31 00	.L)			Lullar	Distance (C	bbjects w	itii iargest	nourly L	D delta)	
Tue	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	31° 13.4	15.8'	N09°09.3	12.0'	54.2'	105°28.3	101°23.2	79°35.8	70°20.7	59°32.3	27°22.9	44°54.3	69°32.7
1	45°48.2	15.7'	$09^{\circ}21.3$	12.0'	54.2'	104°59.5	100°53.6	79°07.4	69°53.1	59°02.9	26°54.1	45°18.4	69°58.5
2	60°22.9	15.7'	09°33.3	11.9'	54.2'	104°30.8	100°24.0	78°39.0	69°25.4	58°33.5	26°25.3	45°42.5	70°24.5
3	74°57.6	15.6'	09°45.2	11.9'	54.2'	104°02.0	99°54.4	78° 10.5	68°57.7	58°04.0	25°56.5	46°06.8	70°50.4
4	89°32.2	15.6'	09°57.1	11.9'	54.2'	103°33.2	99°24.7	77°42.1	68°30.1	57°34.6	25°27.8	46°31.1	71°16.4
5	104°06.8	15.5'	10°08.9	11.8'	54.2'	103°04.4	98°55.1	77° 13.6	68°02.4	57°05.1	24°59.1	46°55.6	71°42.4
6	118°41.3	15.5'	$N10^{\circ}20.7$	11.8'	54.2'	102°35.6	98°25.4	76° 45.2	67°34.8	56°35.7	24°30.4	47°20.1	72°08.5
7	133° 15.8	15.4'	10°32.5	11.7'	54.2'	102°06.8	97°55.7	76° 16.7	67°07.1	56°06.2	24°01.8	47°44.7	72°34.6
8	147°50.3	15.4'	10°44.3	11.7'	54.2'	101°37.9	97°26.1	75°48.2	66°39.5	55°36.8	23°33.3	48°09.4	73°00.7
9	162°24.7	15.3'	$10^{\circ}56.0$	11.7'	54.3'	101°09.0	96°56.3	75° 19.8	66°11.9	55°07.3	23°04.7	48°34.2	73°26.8
10	176°59.0	15.3'	11°07.6	11.6'	54.3'	100°40.2	96°26.6	74°51.3	65°44.3	54°37.8	22°36.3	48°59.0	73°53.0
11	191°33.3	15.2'	$11^{\circ}19.3$	11.6'	54.3'	100°11.3	95°56.9	74°22.8	65°16.6	54°08.3	22°07.9	49°24.0	74°19.2
12	206° 07.6	15.2'	N 11°30.9	11.6'	54.3'	99°42.3	95°27.2	73°54.3	64°49.0	53°38.9	21°39.5	49°49.0	74°45.4
13	220°41.8	15.1'	11°42.4	11.5'	54.3'	99°13.4	94°57.4	73°25.8	64°21.4	53°09.4	21°11.3	50°14.1	75°11.7
14	235°15.9	15.1'	$11^{\circ}53.9$	11.5'	54.3'	98°44.5	94°27.6	72°57.3	63°53.8	52°39.9	20°43.1	50°39.3	75°38.0
15	249°50.0	15.0'	12°05.4	11.4'	54.3'	98° 15.5	93°57.8	72°28.8	63°26.2	52°10.3	20°15.0	51°04.5	76°04.3
16	264°24.1	15.0'	12°16.8	11.4'	54.3'	97°46.5	93°28.0	72°00.3	62°58.7	51°40.8	19°46.9	51°29.9	76°30.6
17	278°58.0	14.9'	12°28.2	11.3'	54.3'	97°17.5	92°58.2	71°31.8	62°31.1	51°11.3	19°19.0	51°55.2	76°57.0
18	293°32.0	14.9'	$N12^{\circ}39.5$	11.3'	54.3'	96°48.5	92°28.4	71°03.3	62°03.5	50°41.8	18°51.2	52°20.7	77°23.4
19	308°05.9	14.8'	12°50.8	11.2'	54.4'	96°19.5	91°58.6	70°34.7	61°36.0	50°12.3	18°23.5	52°46.2	77°49.8
20	322°39.7	14.8'	13°02.1	11.2'	54.4'	95°50.4	91°28.7	70°06.2	61°08.4	49°42.7	17°55.9	53°11.8	78°16.3
21	337° 13.4	14.7'	13°13.3	11.1'	54.4'	95°21.4	90°58.9	69°37.7	60°40.9	49°13.2	17°28.4	53°37.5	78°42.7
22	351°47.1	14.6'	13°24.4	11.1'	54.4'	94°52.3	90°29.0	69°09.1	60°13.4	48°43.6	17°01.1	54°03.2	79°09.2
23	6°20.8	14.6'	13°35.5	11.0'	54.4'	94°23.2	89°59.1	68°40.6	59°45.9	48°14.1	16°33.9	54°29.0	79°35.8
31 st	SD	$=14.8^{\prime}$	Mer. pass	. 22:34									

ı	h Moon (1 st Nov)	Lunar	Distance	(objects)	wi+h	largest	hourly	חו	dolta)	١
r	n IVIOON (1 ²² IVOV)	∟unar	Distance	lobiects	with	iargest	nouriv	LU	deita	1

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Fomalhaut	+Altair
0	20°54.4	14.5'	N 13°46.5	11.0'	54.4'		93°54.1	89°29.2	68°12.1	59°18.4	47°44.5	54°54.9	80°02.3
1	35°27.9	14.5'	13°57.5	10.9'	54.4'		93°25.0	88°59.3	67°43.5	58°50.9	47°14.9	55°20.8	80°28.9
2	50°01.4	14.4'	14°08.5	10.9'	54.4'		92°55.9	88°29.3	67°15.0	58°23.5	46°45.4	55°46.8	80°55.5
3	64°34.8	14.3'	14°19.4	10.8'	54.5'		92°26.7	87°59.4	66°46.4	57°56.0	46°15.8	56°12.8	81°22.1
4	79°08.1	14.3'	14°30.2	10.8'	54.5'		91°57.6	87°29.4	66°17.9	57°28.6	45°46.2	56°38.9	81°48.7
5	93°41.4	14.2'	14°41.0	10.7'	54.5'		91°28.4	86°59.4	65°49.3	57°01.2	45°16.6	57°05.1	82°15.4
6	108°14.6	14.2'	N14°51.7	10.7'	54.5'		90°59.2	86°29.4	65°20.8	56°33.7	44°47.1	57°31.3	82°42.0
7	122°47.8	14.1'	15°02.4	10.6'	54.5'		90°30.0	85°59.4	64°52.2	56°06.4	44°17.5	57°57.6	83°08.7
8	137°20.9	14.0'	15°13.0	10.6'	54.5'		90°00.8	85°29.4	64°23.7	55°39.0	43°47.9	58°23.9	83°35.5
9	151°53.9	14.0'	15°23.5	10.5'	54.5'		89°31.5	84°59.3	63°55.1	55°11.7	43°18.3	58°50.2	84°02.2
10	166°26.9	13.9'	15°34.0	10.4'	54.5'		89°02.3	84°29.3	63°26.6	54°44.3	42°48.7	59°16.7	84°29.0
11	180°59.8	13.8'	15°44.5	10.4'	54.6'		88°33.0	83°59.2	62°58.0	54°17.0	42°19.1	59°43.1	84°55.7
12	195°32.6	13.8'	N15°54.8	10.3'	54.6'		88°03.7	83°29.1	62°29.5	53°49.8	41°49.5	60°09.7	85°22.5
13	210°05.4	13.7'	$16^{\circ}05.1$	10.2'	54.6'	119°56.0	87°34.4	82°59.0	62°00.9	53°22.5	41°19.9	60°36.2	85°49.4
14	224°38.1	13.6'	16°15.4	10.2'	54.6'	119°25.7	87°05.1	82°28.9	61°32.4	52°55.3	40°50.3	61°02.9	86°16.2
15	239°10.7	13.6'	$16^{\circ}25.5$	10.1'	54.6'	118°55.4	86°35.8	81°58.8	61°03.8	52°28.1	40°20.7	61°29.5	86°43.0
16	253°43.3	13.5'	16°35.7	10.0'	54.6'	118°25.1	86°06.4	81°28.7	60°35.3	52°00.9	39°51.1	61°56.2	87°09.9
17	268°15.8	13.4'	16°45.7	10.0'	54.6'	117°54.8	85°37.1	80°58.5	60°06.7	51°33.7	39°21.5	62°23.0	87°36.8
18	282°48.2	13.4'	$N16^{\circ}55.7$	9.9'	54.7'	117°24.5	85°07.7	80°28.3	59°38.2	51°06.6	38°51.9	62°49.8	88°03.7
19	297°20.6	13.3'	17°05.6	9.8'	54.7'	116°54.1	84°38.3	79°58.1	59°09.6	50°39.5	38°22.3	63°16.7	88°30.6
20	311°52.9	13.2'	17° 15.4	9.8'	54.7'	116°23.8	84°08.9	79°27.9	58°41.1	50°12.5	37°52.7	63°43.6	88°57.6
21	326°25.1	13.2'	17°25.2	9.7'	54.7'	115°53.4	83°39.5	78°57.7	58°12.6	49°45.5	37°23.1	64°10.5	89°24.5
22	340°57.3	13.1'	17°34.9	9.6'	54.7'	115°23.0	83°10.1	78°27.5	57°44.0	49°18.5	36°53.5	64°37.5	89°51.5
23	355°29.3	13.0'	17°44.5	9.6'	54.7'	114°52.5	82°40.7	77°57.2	57°15.5	48°51.5	36°23.9	65°04.5	90°18.5
1 st	SD	$= 14.8^{\prime}$	Mer. pass	. 23:19									

h Moon (2nd Nov)

Lunar Distance (objects with largest hourly LD delta)

Thu	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	10°01.3	12.9'	N 17°54.1	9.5'	54.7'	114°22.1	82°11.2	77°27.0	35°54.4		65°31.6		90°45.5
1	24°33.3	12.9'	18°03.6	9.4'	54.8'	113°51.7	81°41.7	76°56.7	35°24.8		65°58.7		91°12.5
2	39°05.1	12.8'	18° 13.0	9.3'	54.8'	113°21.2	81°12.3	76°26.4	34°55.2		66°25.8		91°39.5
3	53°36.9	12.7'	18° 22.3	9.3'	54.8'	112°50.7	80°42.8	75°56.1	34°25.7		66°53.0		92°06.6
4	68°08.7	12.6'	18°31.5	9.2'	54.8'	112°20.2	80°13.3	75°25.7	33°56.2		67°20.3	72°14.8	92°33.6
5	82°40.3	12.6'	18°40.7	9.1'	54.8'	111°49.7	79°43.7	74°55.4	33°26.6		67°47.5	72°29.9	93°00.7
6	97°11.9	12.5'	N 18°49.8	9.0'	54.8'	111°19.1	79°14.2	74°25.0	32°57.1		68°14.8	72°45.1	93°27.8
7	111°43.4	12.4'	18°58.8	8.9'	54.8'	110°48.6	78°44.6	73°54.6	32°27.6		68°42.2	73°00.4	93°54.9
8	126°14.8	12.4'	19°07.8	8.8'	54.9'	110°18.0	78° 15.1	73°24.3	31°58.1		69°09.5	73°15.7	94°22.0
9	140°46.2	12.3'	$19^{\circ}16.6$	8.8'	54.9'	109°47.4	77°45.5	72°53.8	31°28.7		69°37.0	73°31.2	94°49.1
10	155°17.5	12.2'	19°25.4	8.7'	54.9'	109°16.8	77° 15.9	72°23.4	30°59.2		70°04.4	73°46.7	95°16.2
11	169°48.7	12.1'	19°34.1	8.6'	54.9'	108°46.1	76°46.3	71°53.0	30°29.8		70°31.9	74°02.2	95°43.3
12	184°19.8	12.1'	N19°42.6	8.5'	54.9'	108° 15.5	76°16.7	71°22.5	30°00.4		70°59.4	74°17.8	96°10.5
13	198°50.9	12.0'	19°51.2	8.4'	54.9'	107°44.8	75°47.1	70°52.1	29°31.0		71°27.0	74°33.5	96°37.6
14	213°21.9	11.9'	19°59.6	8.3'	55.0'	107°14.1	75° 17.5	70°21.6	29°01.6		71°54.6	74°49.3	97°04.8
15	227°52.8	11.8'	20°07.9	8.2'	55.0'	106°43.4	74°47.8	69°51.1	28°32.3		72°22.2	75°05.1	97°32.0
16	242°23.6	11.8'	$20^{\circ}16.2$	8.2'	55.0'	106°12.7	74°18.2	69°20.6	28°03.0		72°49.8	75°21.0	97°59.1
17	256°54.4	11.7'	20°24.3	8.1'	55.0'	105°42.0	73°48.5	68°50.0	27°33.7		73°17.5	75°36.9	98°26.3
18	271°25.1	11.6'	N 20°32.4	8.0'	55.0'	105°11.2	73° 18.8	68° 19.5	27°04.5	10°14.8	73°45.2	75°53.0	98°53.5
19	285°55.7	11.5'	20°40.3	7.9'	55.0'	104°40.4	72°49.1	67°48.9	26°35.3	10°36.7	74°13.0	76°09.0	99°20.7
20	300°26.2	11.5'	20°48.2	7.8'	55.0'	104°09.6	72° 19.4	67°18.3	26°06.1	10°59.3	74°40.8	76°25.2	99°47.9
21	314°56.7	11.4'	20°56.0	7.7'	55.1'	103°38.8	71°49.7	66°47.7	25°37.0	11°22.5	75°08.6	76°41.3	100°15.1
22	329°27.1	11.3'	21°03.7	7.6'	55.1'	103°08.0	71°20.0	66°17.1	25°08.0	11°46.4	75°36.4	76°57.6	100°42.3
23	343°57.4	11.2'	21°11.3	7.5'	55.1'	102°37.1	70°50.2	65°46.5	24°39.0	12°10.8	76°04.3	77°13.9	101°09.5
2 nd	SD	= 14.9	' Mer. pas	s:-									

Moon	(3 rd	Nov)

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Fri	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Saturn	+Fomalhaut	+Deneb	+Altair
-							_						_
0	358°27.7	11.2'	N21°18.8	7.4'	55.1'	107°24.2	102°06.3	70°20.5	65°15.9	12°35.8	76°32.2	77°30.3	101°36.8
1	12°57.8	11.1'	21°26.2	7.3'	55.1'	106°54.8	101°35.4	69°50.7	64°45.2	13°01.2	77°00.1	77°46.7	102°04.0
2	27°27.9	11.0'	21°33.5	7.2'	55.1'	106°25.4	101°04.5	69°21.0	64°14.5	13°27.0	77°28.1	78°03.1	102°31.2
3	41°58.0	11.0'	21°40.7	7.1'	55.2'	105°55.9	100°33.6	68°51.2	63°43.8	13°53.1	77°56.1	78° 19.7	102°58.4
4	56°27.9	10.9'	21°47.7	7.0'	55.2'	105°26.4	100°02.6	68°21.4	63°13.1	14°19.6	78°24.1	78°36.2	103°25.7
5	70°57.8	10.8'	21°54.7	6.9'	55.2'	104°56.9	99°31.7	67°51.6	62°42.4	14°46.5	78°52.1	78°52.8	103°52.9
6	85°27.6	10.7'	$N22^{\circ}01.6$	6.8'	55.2'	104°27.4	99°00.7	67°21.8	62°11.7	15°13.6	79°20.2	79°09.5	104°20.1
7	99°57.4	10.7'	22°08.4	6.7'	55.2'	103°57.9	98°29.7	66°52.0	61°40.9	15°41.0	79°48.3	79°26.2	104°47.4
8	114°27.0	10.6'	22°15.1	6.6'	55.3'	103°28.3	97°58.7	66°22.2	61°10.2	16°08.6	80°16.4	79°43.0	105°14.6
9	128°56.6	10.5'	22°21.6	6.5'	55.3'	102°58.8	97°27.6	65°52.4	60°39.4	16°36.5	80°44.5	79°59.8	105°41.8
10	143°26.1	10.5'	22°28.1	6.4'	55.3'	102°29.2	96°56.6	65°22.5	60°08.6	17°04.6	81°12.7	80° 16.7	106°09.1
11	157°55.6	10.4'	22°34.5	6.2'	55.3'	101°59.6	96°25.5	64°52.7	59°37.8	17°32.8	81°40.9	80°33.6	106°36.3
12	172°25.0	10.3'	N22°40.7	6.1'	55.3'	101°29.9	95°54.4	64°22.8	59°07.0	18°01.3	82°09.1	80°50.5	107°03.5
13	186°54.3	10.2'	22°46.8	6.0'	55.3'	101°00.3	95°23.3	63°53.0	58°36.1	18°29.9	82°37.4	81°07.5	107°30.7
14	201°23.5	10.2'	22°52.9	5.9'	55.4'	100°30.6	94°52.2	63°23.1	58°05.3	18°58.7	83°05.6	81°24.5	107°57.9
15	215°52.7	10.1'	22°58.8	5.8'	55.4'	100°00.9	94°21.0	62°53.2	57°34.4	19°27.6	83°33.9	81°41.6	108°25.1
16	230°21.8	10.0'	23°04.6	5.7'	55.4'	99°31.2	93°49.8	62°23.4	57°03.5	19°56.7	84°02.2	81°58.7	108°52.3
17	244°50.8	10.0'	23°10.3	5.6'	55.4'	99°01.5	93°18.7	61°53.5	56°32.6	20°25.9	84°30.6	82°15.9	109°19.5
18	259°19.8	9.9'	N23°15.8	5.5'	55.4'	98°31.7	92°47.5	61°23.6	56°01.7	20°55.2	84°58.9	82°33.1	109°46.7
19	273°48.7	9.8'	23°21.3	5.3'	55.4'	98°02.0	92°16.2	60°53.7	55°30.8	21°24.6	85°27.3	82°50.3	110°13.9
20	288°17.6	9.8'	23°26.6	5.2'	55.5'	97°32.2	91°45.0	60°23.8	54°59.9	21°54.2	85°55.7	83°07.6	110°41.1
21	302°46.3	9.7'	23°31.9	5.1'	55.5'	97°02.4	91°13.7	59°53.9	54°28.9	22°23.8	86°24.1	83°24.8	111°08.2
22	317°15.0	9.6'	23°37.0	5.0'	55.5'	96°32.6	90°42.4	59°24.0	53°57.9	22°53.6	86°52.5	83°42.2	111°35.4
23	331°43.7	9.6'	23°41.9	4.9'	55.5'	96°02.7	90°11.1	58°54.1	53°27.0	23°23.4	87°21.0	83°59.5	112°02.5
3 rd	SD	= 15.0'	Mer. pass.	00:06									

h	Moon	/ / th	May)
h	IVI∩∩n	14"	I/IO// I

Lunar Distance	(objects with	largest hourly	y LD delta))
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Sat	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	346°12.3	9.5'	N 23°46.8	4.7'	55.5'	95°32.9	89°39.8	58°24.2	52°56.0	23°53.3	84°16.9	87°49.5	112°29.6
1	0°40.8	9.5'	23°51.5	4.6'	55.6'	95°03.0	89°08.5	57°54.3	52°25.0	24°23.3	84°34.4	88°18.0	112°56.8
2	15°09.2	9.4'	23°56.2	4.5'	55.6'	94°33.1	88°37.1	57°24.4	51°53.9	24°53.4	84°51.8	88°46.5	113°23.8
3	29°37.6	9.3'	24°00.7	4.4'	55.6'	94°03.2	88°05.8	56°54.5	51°22.9	25°23.6	85°09.3	89°15.0	113°50.9
4	44°06.0	9.3'	24°05.0	4.3'	55.6'	93°33.2	87°34.4	56°24.6	50°51.9	25°53.8	85°26.8	89°43.6	114°18.0
5	58°34.2	9.2'	24°09.3	4.1'	55.6'	93°03.3	87°02.9	55°54.7	50°20.8	26°24.2	85°44.4	90°12.2	114°45.0
6	73°02.4	9.2'	$N24^{\circ}13.4$	4.0'	55.7'	92°33.3	86°31.5	55°24.7	49°49.7	26°54.5	86°01.9	90°40.7	115°12.1
7	87°30.6	9.1'	24°17.4	3.9'	55.7'	92°03.3	86°00.0	54°54.8	49° 18.6	27°25.0	86°19.5	91°09.4	115°39.1
8	101°58.7	9.0'	$24^{\circ}21.3$	3.7'	55.7'	91°33.3	85°28.6	54°24.9	48°47.5	27°55.5	86°37.1	91°38.0	116°06.1
9	116°26.7	9.0'	24°25.0	3.6'	55.7'	91°03.2	84°57.1	53°55.0	48°16.4	28°26.1	86°54.8	92°06.6	116°33.0
10	130°54.7	8.9'	24°28.6	3.5'	55.7'	90°33.2	84°25.6	53°25.1	47°45.3	28°56.7	87°12.4	92°35.3	117°00.0
11	145°22.7	8.9'	24°32.1	3.4'	55.7'	90°03.1	83°54.0	52°55.2	47°14.2	29°27.4	87°30.1	93°03.9	117°26.9
12	159°50.6	8.8'	N 24°35.5	3.2'	55.8'	89°33.0	83°22.5	52°25.3	46°43.0	29°58.1	87°47.8	93°32.6	117°53.8
13	174°18.4	8.8'	24°38.7	3.1'	55.8'	89°02.9	82°50.9	51°55.4	46°11.9	30°28.9	88°05.5	94°01.3	118°20.7
14	188°46.2	8.7'	24°41.8	3.0'	55.8'	88°32.8	82°19.3	51°25.5	45°40.7	30°59.8	88°23.3	94°30.0	118°47.5
15	203°13.9	8.7'	24°44.8	2.8'	55.8'	88°02.6	81°47.7	50°55.7	45°09.5	31°30.6	88°41.0	94°58.8	119°14.3
16	217°41.6	8.6'	24°47.6	2.7'	55.8'	87°32.4	81°16.1	50°25.8	44°38.4	32°01.6	88°58.8	95°27.5	119°41.1
17	232°09.2	8.6'	24°50.3	2.6'	55.9'	87°02.2	80°44.4	49°55.9	44°07.2	32°32.6	89°16.6	95°56.2	
18	246°36.8	8.5'	N 24°52.9	2.4'	55.9'	86°32.0	80°12.8	49°26.1	43°36.0	33°03.6	89°34.4	96°25.0	
19	261°04.3	8.5'	24°55.3	2.3'	55.9'	86°01.8	79°41.1	48°56.2	43°04.7	33°34.7	89°52.2	96°53.8	
20	275°31.8	8.5'	24°57.6	2.2'	55.9'	85°31.5	79°09.4	48°26.4	42°33.5	34°05.8	90°10.0	97°22.6	
21	289°59.3	8.4'	24°59.8	2.0'	55.9'	85°01.3	78°37.6	47°56.6	42°02.3	34°37.0	90°27.8	97°51.4	
22	304°26.7	8.4'	25°01.8	1.9'	56.0'	84°31.0	78°05.9	47°26.8	41°31.1	35°08.2	90°45.7	98°20.2	
23	318°54.1	8.3'	25°03.7	1.8'	56.0'	84°00.7	77°34.1	46°57.0	40°59.8	35°39.4	91°03.5	98°49.0	
4 th	SD =	= 15.1 [']	Mer. pass	. 00:57	,								

h Moon (5th Nov)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Regulus	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	333°21.4	8.3'	N 25°05.5	1.6'	56.0'			77°02.3	40°28.6		36°10.7	91°21.4	99°17.9
1	347°48.7	8.3'	$25^{\circ}07.1$	1.5'	56.0'			76° 30.5	39°57.3		36°42.1	91°39.3	99°46.7
2	2°15.9	8.2'	25°08.6	1.3'	56.0'			75°58.7	39°26.0		37°13.4	91°57.2	100°15.5
3	16°43.2	8.2'	$25^{\circ}09.9$	1.2'	56.1'			75°26.8	38°54.8		37°44.8	92°15.0	100°44.4
4	31°10.3	8.1'	$25^{\circ}11.1$	1.1'	56.1'			74°55.0	38°23.5		38°16.3	92°32.9	101°13.3
5	45°37.5	8.1'	25°12.2	0.9'	56.1'		119°31.4	74°23.1	37°52.2		38°47.8	92°50.8	101°42.1
6	60°04.6	8.1'	$N25^{\circ}13.1$	0.8'	56.1'		119°00.2	73°51.2	37°20.9		39°19.3	93°08.7	102°11.0
7	74°31.7	8.1'	$25^{\circ}13.9$	0.6'	56.1'		118°28.9	73° 19.2	36°49.6		39°50.8	93°26.6	102°39.9
8	88°58.7	8.0'	$25^{\circ}14.5$	0.5'	56.2'		117°57.6	72°47.3	36°18.3		40°22.4	93°44.5	103°08.8
9	103°25.8	8.0'	$25^{\circ}15.0$	0.4'	56.2'		117°26.3	72°15.3	35°47.1		40°54.0	94°02.4	103°37.7
10	117°52.8	8.0'	$25^{\circ}15.4$	0.2'	56.2'		116°55.0	71°43.3	35°15.8	11°22.8	41°25.7	94°20.2	104°06.6
11	132°19.7	7.9'	$25^{\circ}15.6$	0.1'	56.2'		116°23.6	71°11.3	34°44.5	11°44.8	41°57.4	94°38.1	104°35.5
12	146°46.7	7.9'	$N25^{\circ}15.7$	-0.1'	56.2'		115°52.2	70°39.3	34°13.2	12°07.6	42°29.1	94°56.0	105°04.4
13	161°13.6	7.9'	$25^{\circ}15.6$	-0.2'	56.3'		115°20.8	70°07.2	33°41.9	12°31.0	43°00.8	95°13.9	105°33.3
14	175°40.5	7.9'	25°15.4	-0.3'	56.3'		114°49.4	69°35.2	33°10.6	12°55.1	43°32.6	95°31.7	106°02.3
15	190°07.4	7.9'	$25^{\circ}15.1$	-0.5'	56.3'		114°17.9	69°03.1	32°39.3	13°19.7	44°04.4	95°49.6	106°31.2
16	204°34.3	7.8'	$25^{\circ}14.6$	-0.6'	56.3'		113°46.5	68°31.0	32°08.1	13°44.9	44°36.3	96°07.4	107°00.1
17	219°01.1	7.8'	$25^{\circ}14.0$	-0.8'	56.3'		113°15.0	67°58.8	31°36.8	14°10.5	45°08.2	96°25.3	107°29.0
18	233°27.9	7.8'	$N25^{\circ}13.2$	-0.9'	56.4'		112°43.5	67°26.7	31°05.6	14°36.6	45°40.1	96°43.1	107°58.0
19	247°54.7	7.8'	$25^{\circ}12.3$	-1.1'	56.4'		112°11.9	66° 54.5	30°34.3	15°03.1	46°12.0	97°00.9	108°26.9
20	262°21.5	7.8'	25°11.2	-1.2'	56.4'		111°40.4	66°22.3	30°03.1	15°30.0	46°44.0	97°18.7	108°55.8
21	276°48.3	7.8'	25°10.0	-1.4'	56.4'	119°53.1	111°08.8	65°50.1	29°31.9	15°57.2	47°16.0	97°36.5	109°24.7
22	291°15.1	7.8'	25°08.6	-1.5'	56.5'	119°20.8	110°37.2	65° 17.8	29°00.7	16°24.7	47°48.0	97°54.3	109°53.6
23	305°41.9	7.8'	25°07.2	-1.6'	56.5'	118°48.5	110°05.5	64°45.6	28°29.5	16°52.6	48°20.1	98°12.0	110°22.6
5 th	SD:	= 15.3'	Mer. pass	s. 01:51						·			

h Moon (6th Nov)

Lunar Distance (objects with largest hourly LD delta)

n		IVIOO	n (o ivo	v)			Lunar	Distance	(objects	with larges	t nourly L	.D deita)	
Mon	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	320°08.6	7.7'	N25°05.5	-1.8'	56.5'	118°16.2	109°33.9	71°16.3	64°13.3	17°20.7		48°52.2	110°51.5
1	334°35.4	7.7'	25°03.7	-1.9'	56.5'	117°43.9	109°02.2	70°45.5	63°41.0	17°49.0		49°24.3	111°20.4
2	349°02.1	7.7'	25°01.8	-2.1'	56.5'	117°11.5	108°30.5	70°14.6	63°08.7	18°17.6		49°56.4	111°49.3
3	3°28.9	7.7'	24°59.7	-2.2'	56.6'	116°39.1	107°58.8	69°43.7	62°36.4	18°46.4		50°28.6	112°18.2
4	17°55.6	7.7'	24°57.5	-2.4'	56.6'	116°06.7	107°27.0	69°12.8	62°04.0	19° 15.5		51°00.8	112°47.1
5	32°22.3	7.7'	24°55.2	-2.5'	56.6'	115°34.3	106°55.3	68°41.9	61°31.6	19°44.7		51°33.1	113°16.0
6	46°49.1	7.7'	N 24°52.7	-2.6'	56.6'	115°01.8	106°23.5	68°11.0	60°59.2	20°14.1		52°05.3	113°44.8
7	61°15.8	7.7'	24°50.0	-2.8'	56.6'	114°29.4	105°51.7	67°40.0	60°26.8	20°43.6		52°37.6	114°13.7
8	75°42.5	7.7'	24°47.2	-2.9'	56.7'	113°56.9	105°19.8	67°09.0	59°54.4	21°13.3		53°09.9	114°42.6
9	90°09.3	7.7'	24°44.3	-3.1'	56.7'	113°24.3	104°48.0	66°38.0	59°21.9	21°43.2		53°42.3	115°11.4
10	104°36.0	7.7'	24°41.2	-3.2'	56.7'	112°51.8	104°16.1	66°07.0	58°49.4	22°13.2		54°14.7	115°40.2
11	119°02.8	7.8'	24°38.0	-3.4'	56.7'	112°19.2	103°44.2	65°36.0	58°16.9	22°43.3		54°47.1	116°09.1
12	133°29.5	7.8'	N24°34.6	-3.5'	56.8'	111°46.6	103°12.2	65°04.9	57°44.4	23°13.6	23°51.7	55°19.5	116°37.9
13	147°56.3	7.8'	24°31.1	-3.6'	56.8'	111°14.0	102°40.3	64°33.8	57°11.8	23°44.0	24°07.7	55°51.9	117°06.7
14	162°23.1	7.8'	24°27.5	-3.8'	56.8'	110°41.4	102°08.3	64°02.7	56°39.3	24°14.5	24°24.2	56°24.4	117°35.4
15	176°49.8	7.8'	24°23.7	-3.9'	56.8'	110°08.7	101°36.3	63°31.6	56°06.7	24°45.1	24°41.3	56°56.9	118°04.2
16	191°16.6	7.8'	24°19.8	-4.1'	56.8'	109°36.1	101°04.3	63°00.4	55°34.1	25°15.8	24°58.8	57°29.5	118°32.9
17	205°43.4	7.8'	24°15.7	-4.2'	56.9'	109°03.4	100°32.2	62°29.3	55°01.4	25°46.6	25°16.9	58°02.0	119°01.7
18	220°10.3	7.8'	N24°11.5	-4.4'	56.9'	108°30.6	100°00.2	61°58.1	54°28.8	26°17.5	25°35.4	58°34.6	119°30.4
19	234°37.1	7.9'	24°07.1	-4.5'	56.9'	107°57.9	99°28.1	61°26.9	53°56.1	26°48.5	25°54.3	59°07.3	119°59.0
20	249°04.0	7.9'	24°02.6	-4.6'	56.9'	107°25.1	98°55.9	60°55.6	53°23.4	27°19.6	26°13.7	59°39.9	
21	263°30.8	7.9'	23°58.0	-4.8'	57.0'	106°52.3	98°23.8	60°24.4	52°50.7	27°50.8	26°33.5	60°12.6	
22	277°57.7	7.9'	23°53.2	-4.9'	57.0'	106°19.5	97°51.6	59°53.1	$52^{\circ}17.9$	28°22.0	26°53.7	60°45.3	
23	292°24.6	7.9'	23°48.3	-5.1'	57.0'	105°46.7	97°19.4	59°21.8	51°45.2	28°53.4	27°14.4	61°18.0	
6 th	SD	= 15.4'	Mer. pas	s. 02:46									

h	Moon	(7th	Nov)

Tue	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	306°51.6	7.9'	N 23°43.2	-5.2'	57.0'	105°13.8	96°47.2	58° 50.5	51°12.4		27°35.4	29°24.8	61°50.8
1	321°18.5	8.0'	23°38.0	-5.3'	57.0'	104°40.9	96° 15.0	58° 19.2	50°39.6		27°56.7	29°56.2	62°23.6
2	335°45.5	8.0'	23°32.7	-5.5'	57.1'	104°08.0	95°42.7	57° 47.8	50°06.8		28°18.4	30°27.8	62°56.4
3	350°12.5	8.0'	23°27.2	-5.6'	57.1'	103°35.0	95°10.4	57° 16.4	49°33.9	20°00.1	28°40.5	30°59.4	63°29.2
4	4°39.5	8.0'	23°21.6	-5.8'	57.1'	103°02.1	94°38.1	56°45.0	49°01.1	20°16.5	29°02.9	31°31.0	64°02.1
5	19°06.5	8.1'	23°15.8	-5.9'	57.1'	102°29.1	94°05.8	56°13.6	48°28.2	20°33.4	29°25.6	32°02.8	64°34.9
6	33°33.6	8.1'	N23°09.9	-6.0'	57.2'	101°56.1	93°33.4	55°42.2	47°55.3	20°51.1	29°48.7	32°34.6	65°07.9
7	48°00.7	8.1'	23°03.9	-6.2'	57.2'	101°23.1	93°01.1	55° 10.7	47°22.3	21°09.3	30°12.0	33°06.4	65°40.8
8	62°27.8	8.2'	22°57.8	-6.3'	57.2'	100°50.0	92°28.7	54°39.2	46°49.4	21°28.1	30°35.6	33°38.3	66°13.8
9	76°55.0	8.2'	22°51.5	-6.4'	57.2'	100°16.9	91°56.2	54°07.7	46°16.4	21°47.4	30°59.5	34°10.3	66°46.8
10	91°22.2	8.2'	22°45.0	-6.6'	57.3'	99°43.8	91°23.8	53°36.2	45°43.4	22°07.3	31°23.7	34°42.3	67°19.8
11	105°49.4	8.2'	22°38.5	-6.7'	57.3'	99°10.7	90°51.3	53°04.7	45°10.4	22°27.7	31°48.1	35° 14.4	67°52.8
12	120°16.6	8.3'	N22°31.8	-6.8'	57.3'	98°37.5	90°18.8	52°33.1	44°37.4	22°48.6	32°12.8	35°46.6	68°25.9
13	134°43.9	8.3'	22°25.0	-7.0'	57.3'	98°04.3	89°46.3	52°01.5	44°04.3	23°09.9	32°37.7	36° 18.7	68°59.0
14	149°11.2	8.3'	22°18.0	-7.1'	57.3'	97°31.1	89°13.7	51°29.9	43°31.2	23°31.7	33°02.9	36°51.0	69°32.1
15	163°38.5	8.4'	22°10.9	-7.2'	57.4'	96°57.9	88°41.1	50°58.3	42°58.1	23°53.9	33°28.3	37°23.3	70°05.3
16	178°05.9	8.4'	22°03.7	-7.4'	57.4'	96°24.7	88°08.5	50°26.7	42°25.0	24°16.6	33°53.9	37°55.6	70°38.5
17	192°33.3	8.4'	21°56.3	-7.5'	57.4'	95°51.4	87°35.9	49°55.0	41°51.9	24°39.6	34°19.7	38°28.0	71°11.7
18	207°00.8	8.5'	N 21°48.8	-7.6'	57.4'	95°18.1	87°03.3	49°23.3	41°18.7	25°03.1	34°45.7	39°00.4	71°44.9
19	221°28.2	8.5'	21°41.2	-7.7'	57.5'	94°44.7	86°30.6	48°51.6	40°45.5	25°26.8	35°12.0	39°32.9	72°18.2
20	235°55.8	8.6'	21°33.5	-7.9'	57.5'	94°11.4	85°57.9	48° 19.9	40°12.3	25°51.0	35°38.4	40°05.4	72°51.5
21	250°23.3	8.6'	21°25.6	-8.0'	57.5'	93°38.0	85°25.2	47°48.1	39°39.1	26°15.4	$36^{\circ}05.0$	40°37.9	73°24.8
22	264°50.9	8.6'	21°17.6	-8.1'	57.5'	93°04.6	84°52.4	47° 16.4	39°05.9	26°40.2	36°31.8	41° 10.5	73°58.1
23	279°18.5	8.7'	21°09.5	-8.2'	57.6'	92°31.2	84°19.7	46°44.6	38°32.6	27°05.3	36°58.8	41°43.2	74°31.5
7 th	SD :	= 15.6'	Mer. pas	s. 03:41									

h	Moon	(8 th	Nov)	١

h

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	293°46.2	8.7'	N 21°01.3	-8.4'	57.6'	91°57.7	83°46.9	46°12.8	37°59.3	27°30.7	37°25.9	42°15.9	75°04.9
1	308°13.9	8.7'	20°52.9	-8.5'	57.6'	91°24.3	83°14.0	45°41.0	37°26.0	27°56.4	37°53.2	42°48.6	75°38.3
2	322°41.6	8.8'	20°44.4	-8.6'	57.6'	90°50.8	82°41.2	45°09.1	36°52.7	28°22.3	38°20.7	43°21.4	76°11.8
3	337°09.4	8.8'	20°35.8	-8.7'	57.6'	90°17.2	82°08.3	44°37.3	36°19.4	28°48.5	38°48.3	43°54.2	76°45.2
4	351°37.2	8.9'	20°27.0	-8.9'	57.7'	89°43.7	81°35.4	44°05.4	35°46.0	29°15.0	39°16.1	44°27.0	77°18.7
5	6°05.1	8.9'	20°18.2	-9.0'	57.7'	89°10.1	81°02.5	43°33.5	35°12.6	29°41.7	39°44.0	44°59.9	77°52.3
6	20°33.0	8.9'	N 20°09.2	-9.1'	57.7'	88°36.5	80°29.6	43°01.6	34°39.2	30°08.6	40°12.1	45°32.9	78°25.8
7	35°00.9	9.0'	20°00.1	-9.2'	57.7'	88°02.8	79°56.6	42°29.6	34°05.8	30°35.7	40°40.3	46°05.8	78°59.4
8	49°28.9	9.0'	$19^{\circ}50.9$	-9.3'	57.8'	87°29.2	79°23.6	41°57.7	33°32.4	31°03.1	41°08.6	46°38.9	79°33.0
9	63°56.9	9.1'	19°41.6	-9.5'	57.8'	86°55.5	78°50.6	41°25.7	32°58.9	31°30.7	41°37.1	47°11.9	80°06.6
10	78°25.0	9.1'	19°32.1	-9.6'	57.8'	86°21.8	78°17.5	40°53.7	32°25.5	31°58.4	42°05.7	47°45.0	80°40.3
11	92°53.1	9.1'	19°22.6	-9.7'	57.8'	85°48.1	77°44.5	40°21.7	31°52.0	32°26.4	42°34.4	48°18.1	81°14.0
12	107°21.2	9.2'	$N19^{\circ}12.9$	-9.8'	57.9'	85°14.3	77°11.4	39°49.7	31°18.5	32°54.5	43°03.3	48°51.3	81°47.7
13	121°49.4	9.2'	$19^{\circ}03.1$	-9.9'	57.9'	84°40.5	76°38.2	39°17.6	30°45.0	33°22.8	43°32.2	49°24.5	82°21.4
14	136°17.7	9.3'	18°53.2	-10.0'	57.9'	84°06.7	76°05.1	38°45.6	30°11.4	33°51.3	44°01.3	49°57.7	82°55.2
15	150°45.9	9.3'	18°43.1	-10.1'	57.9'	83°32.8	75°31.9	38°13.5	29°37.9	34°20.0	44°30.5	50°31.0	83°29.0
16	165°14.2	9.3'	18°33.0	-10.2'	58.0'	82°59.0	74°58.7	37°41.4	29°04.3	34°48.8	44°59.8	51°04.3	84°02.8
17	179°42.6	9.4'	18°22.8	-10.4'	58.0'	82°25.1	74°25.5	37°09.3	28°30.7	35°17.8	45°29.2	51°37.6	84°36.7
18	194°11.0	9.4'	$N18^{\circ}12.4$	-10.5'	58.0'	81°51.2	73°52.2	36°37.2	27°57.2	35°46.9	45°58.7	52°11.0	85°10.5
19	208°39.4	9.5'	18°02.0	-10.6'	58.0'	81°17.2	73°19.0	36°05.1	27°23.6	36°16.2	46°28.3	52°44.4	85°44.4
20	223°07.9	9.5'	$17^{\circ}51.4$	-10.7'	58.1'	80°43.2	72°45.7	35°32.9	26°49.9	36°45.6	46°58.1	53°17.8	86°18.4
21	237°36.4	9.6'	17°40.7	-10.8'	58.1'	80°09.2	72°12.3	35°00.8	26°16.3	37°15.1	47°27.9	53°51.3	86°52.3
22	252°04.9	9.6'	$17^{\circ}29.9$	-10.9'	58.1'	79°35.2	71°39.0	34°28.6	25°42.7	37°44.8	47°57.8	54°24.8	87°26.3
23	266°33.5	9.6'	$17^{\circ}19.1$	-11.0'	58.1'	79°01.2	71°05.6	33°56.4	25°09.0	38°14.6	48°27.8	54°58.4	88°00.3
8 th	SD	= 15.7	7' Mer. pas	ss. 04:35									

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

Thu	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	281°02.2	9.7'	N 17°08.1	-11.1'	58.1'	78°27.1	70°32.2	33°24.2	24°35.4	14°45.0	38°44.5	55°32.0	88°34.4
1	295°30.8	9.7'	16°57.0	-11.2'	58.2'	77°53.0	69°58.8	32°52.0	24°01.8	15° 14.6	39°14.6	56°05.6	89°08.4
2	309°59.6	9.8'	16°45.8	-11.3'	58.2'	77°18.8	69°25.3	32°19.8	23°28.1	15°44.6	39°44.7	56°39.2	89°42.5
3	324°28.3	9.8'	16°34.5	-11.4'	58.2'	76°44.7	68°51.9	31°47.6	22°54.4	16° 14.9	40°15.0	57°12.9	90°16.6
4	338°57.1	9.8'	16°23.1	-11.5'	58.2'	76°10.5	68°18.3	31°15.4	22°20.8	16°45.5	40°45.4	57°46.6	90°50.8
5	353°25.9	9.9'	$16^{\circ}11.6$	-11.6'	58.3'	75°36.3	67°44.8	30°43.1	21°47.1	17°16.3	41°15.9	58°20.4	91°25.0
6	7°54.8	9.9'	$N16^{\circ}00.0$	-11.7'	58.3'	75°02.0	67°11.3	30°10.9	21°13.5	17°47.3	41°46.5	58°54.2	91°59.2
7	22°23.7	9.9'	15°48.3	-11.8'	58.3'	74°27.8	66°37.7	29°38.6	20°39.8	18° 18.6	42°17.2	59°28.0	92°33.4
8	36°52.7	10.0'	15°36.6	-11.9'	58.3'	73°53.5	66°04.1	29°06.4	20°06.2	18°50.0	42°48.0	60°01.8	93°07.6
9	51°21.7	10.0'	15°24.7	-12.0'	58.4'	73°19.1	65°30.4	28°34.1	19°32.6	19°21.6	43°18.9	60°35.7	93°41.9
10	65°50.7	10.1'	$15^{\circ}12.7$	-12.1'	58.4'	72°44.8	64°56.8	28°01.9	18°59.0	19°53.4	43°49.9	61°09.6	94°16.2
11	80°19.7	10.1'	15°00.7	-12.1'	58.4'	72°10.4	64°23.1	27°29.6	18°25.4	20°25.4	44°20.9	61°43.6	94°50.6
12	94°48.8	10.1'	N 14°48.5	-12.2'	58.4'	71°36.0	63°49.4	26°57.4	17°51.8	20°57.5	44°52.1	62°17.6	95°24.9
13	109°18.0	10.2'	14°36.3	-12.3'	58.5'	71°01.6	63°15.7	26°25.2	17°18.3	21°29.8	45°23.4	62°51.6	95°59.3
14	123°47.1	10.2'	14°24.0	-12.4'	58.5'	70°27.1	62°41.9	25°52.9	16°44.8	22°02.2	45°54.7	63°25.6	96°33.7
15	138°16.3	10.2'	14° 11.6	-12.5'	58.5'	69°52.6	62°08.1	25°20.7	16°11.3	22°34.7	46°26.2	63°59.7	97°08.2
16	152°45.6	10.3'	13°59.1	-12.6'	58.5'	69°18.1	61°34.3	24°48.5	15°37.9	23°07.3	46°57.7	64°33.8	97°42.6
17	167°14.8	10.3'	13°46.5	-12.7'	58.6'	68°43.6	61°00.5	24°16.3	15°04.6	23°40.0	47°29.3	65°08.0	98°17.1
18	181°44.1	10.3'	N13°33.8	-12.8'	58.6'	68°09.0	60°26.6	23°44.1	14°31.3	24°12.9	48°00.9	65°42.1	98°51.6
19	196°13.5	10.4'	13°21.0	-12.8'	58.6'	67°34.4	59°52.8	23°11.9	13°58.1	24°45.9	48°32.7	66°16.3	99°26.2
20	210°42.8	10.4'	13°08.2	-12.9'	58.6'	66°59.8	59°18.9	22°39.8	13°25.0	25° 18.9	49°04.5	66°50.6	100°00.8
21	225°12.2	10.4'	12°55.3	-13.0'	58.6'	66°25.1	58°44.9	22°07.7	12°52.0	25°52.1	49°36.4	67°24.8	100°35.4
22	239°41.7	10.5'	12°42.3	-13.1'	58.7'	65°50.5	58°11.0	21°35.6	12°19.1	26°25.3	50°08.3	67°59.1	101°10.0
23	254°11.1	10.5'	12°29.2	-13.2'	58.7'	65°15.7	57°37.0	21°03.6	11°46.4	26°58.6	50°40.4	68°33.5	101°44.6
9 th	SD	= 15.9'	Mer. pas	s. 05:27									

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

Fri	GHA	ν	Dec	d	HP	-Sun	-Spica	-Jupiter	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	268°40.6	10.5'	$N12^{\circ}16.1$	-13.2'	58.7'	88° 37.4	64°41.0	57°03.0	11°13.9	27°32.0	51°12.5	69°07.8	102°19.3
1	283°10.1	10.5'	12°02.8	-13.3'	58.7'	88°05.2	64°06.3	56°29.0	10°41.5	28°05.5	51°44.6	69°42.2	102°54.0
2	297°39.7	10.6'	11°49.5	-13.4'	58.8'	87°32.9	63°31.5	55°54.9	10°09.4	28°39.0	52° 16.9	70°16.6	103°28.8
3	312°09.2	10.6'	11°36.2	-13.4'	58.8'	87°00.7	62°56.7	55°20.8	9°37.6	29°12.7	52°49.2	70°51.1	104°03.5
4	326°38.8	10.6'	11°22.7	-13.5'	58.8'	86°28.4	62°21.8	54°46.7	9°06.2	29°46.4	53°21.6	71°25.6	104°38.3
5	341°08.5	10.6'	$11^{\circ}09.2$	-13.6'	58.8'	85°56.1	61°46.9	54°12.6	8°35.1	30°20.1	53°54.0	72°00.1	105°13.1
6	355°38.1	10.7'	N10°55.6	-13.7'	58.9'	85°23.7	61°12.0	53°38.5	8°04.6	30°54.0	54°26.5	72°34.6	105°48.0
7	10°07.8	10.7'	10°41.9	-13.7'	58.9'	84°51.3	60°37.1	53°04.3	7°34.7	31°27.9	54°59.0	73°09.2	106°22.8
8	24°37.5	10.7'	10°28.2	-13.8'	58.9'	84° 18.9	60°02.2	52°30.1	7°05.5	32°01.8	55°31.6	73°43.8	106°57.7
9	39°07.2	10.7'	10°14.4	-13.9'	58.9'	83°46.5	59°27.2	51°55.9	6°37.2	32°35.8	56°04.3	74° 18.5	107°32.6
10	53°36.9	10.8'	$10^{\circ}00.6$	-13.9'	59.0'	83°14.0	58°52.2	51°21.7		33°09.9	56° 37.0	74°53.1	108°07.6
11	68°06.7	10.8'	09°46.6	-14.0'	59.0'	82°41.5	58° 17.2	50°47.4		33°44.1	57°09.8	75°27.8	108°42.5
12	82°36.5	10.8'	N09°32.7	-14.0'	59.0'	82°09.0	57°42.1	50°13.1		34°18.3	57°42.6	76°02.5	109°17.5
13	97°06.3	10.8'	09°18.6	-14.1'	59.0'	81°36.5	57°07.0	49°38.8		34°52.5	58° 15.5	76°37.3	109°52.5
14	111°36.1	10.8'	09°04.5	-14.2'	59.0'	81°03.9	56°31.9	49°04.5		35°26.8	58° 48.5	77° 12.1	110°27.6
15	126°05.9	10.9'	08°50.3	-14.2'	59.1'	80°31.3	55°56.8	48°30.2		$36^{\circ}01.2$	59°21.5	77°46.9	111°02.6
16	140°35.8	10.9'	08°36.1	-14.3'	59.1'	79°58.7	55°21.6	47°55.8		36°35.6	59° 54.5	78°21.7	111°37.7
17	155°05.6	10.9'	08°21.8	-14.3'	59.1'	79°26.0	54°46.4	47°21.4		37°10.0	60°27.6	78°56.6	112°12.8
18	169°35.5	10.9'	N 08°07.5	-14.4'	59.1'	78°53.3	54°11.2	46°47.0		37°44.5	61°00.8	79°31.5	112°48.0
19	184°05.4	10.9'	$07^{\circ}53.1$	-14.4'	59.2'	78°20.6	53°35.9	46°12.6		$38^{\circ}19.0$	61°34.0	80°06.4	113°23.1
20	198°35.3	10.9'	07°38.6	-14.5'	59.2'	77°47.9	53°00.7	45°38.1		38°53.6	62°07.2	80°41.4	113°58.3
21	213°05.2	10.9'	$07^{\circ}24.1$	-14.5'	59.2'	77° 15.1	52°25.4	45°03.7		39°28.3	62°40.5	81°16.3	114°33.5
22	227°35.2	10.9'	07°09.6	-14.6'	59.2'	76°42.4	51°50.1	44°29.2		40°03.0	63°13.9	81°51.4	115°08.7
23	242°05.1	10.9'	06°55.0	-14.6'	59.2'	76°09.5	51°14.7	43°54.7		40°37.7	63°47.2	82°26.4	115°44.0
10 th	SD	= 16.0	Mer. pas	s. 06:18					Sur	SD = 16.1	1'		

h Moon (11	1 th Nov)	Lunar Distance (objects with	largest hourly	LD delta
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Sat	GHA	ν	Dec	d	HP	-Sun	-Spica	-Venus	-Jupiter	+Regulus	+Pollux	+Aldebaran	+Saturn
0	256°35.1	11.0'	N 06°40.4	-14.7'	59.3'	75°36.7	50°39.3	44°23.5	43°20.2		41°12.4	83°01.5	116°19.3
1	271°05.0	11.0'	06°25.7	-14.7'	59.3'	75°03.8	50°03.9	43°51.6	42°45.6		41°47.3	83°36.5	116°54.6
2	285°35.0	11.0'	$06^{\circ}10.9$	-14.8'	59.3'	74°30.9	49° 28.5	43°19.6	42°11.1		42°22.1	84°11.7	117°29.9
3	300°05.0	11.0'	$05^{\circ}56.1$	-14.8'	59.3'	73°58.0	48°53.1	42°47.7	41°36.5		42°57.0	84°46.8	118°05.2
4	314°34.9	11.0'	05°41.3	-14.9'	59.3'	73°25.1	48°17.6	42°15.7	41°01.9		43°31.9	85°22.0	118°40.6
5	329°04.9	11.0'	05°26.5	-14.9'	59.4'	72°52.1	47°42.1	41°43.8	40°27.3	7°40.4	44°06.9	85° 57.2	119°16.0
6	343°34.9	11.0'	N 05°11.6	-14.9'	59.4'	72°19.1	47°06.6	41°11.8	39°52.7	8°11.0	44°41.9	86°32.4	119°51.4
7	358°04.9	11.0'	04°56.6	-15.0'	59.4'	71°46.1	46°31.0	40°39.8	39°18.1	8°42.3	45°17.0	87° 07.7	
8	12°34.8	11.0'	04°41.6	-15.0'	59.4'	71°13.0	45°55.4	40°07.8	38°43.5	9°14.1	45°52.0	87°43.0	
9	27°04.8	11.0'	04°26.6	-15.0'	59.4'	70°39.9	45° 19.9	39°35.7	38°08.8	9°46.4	46°27.2	88° 18.3	
10	41°34.8	11.0'	$04^{\circ}11.6$	-15.1'	59.5'	70°06.8	44°44.2	39°03.7	37°34.1	10° 19.0	47°02.3	88°53.6	
11	56°04.8	11.0'	03°56.5	-15.1'	59.5'	69°33.7	44°08.6	38°31.7	36°59.5	10°52.0	47°37.5	89°29.0	
12	70°34.8	11.0'	N 03°41.4	-15.1'	59.5'	69°00.6	43°32.9	37°59.6	36°24.8	11°25.3	48°12.8	90°04.3	
13	85°04.7	11.0'	03°26.2	-15.2'	59.5'	68°27.4	42°57.2	37°27.5	35°50.1	11°58.9	48°48.0	90°39.7	
14	99°34.7	11.0'	$03^{\circ}11.1$	-15.2'	59.5'	67°54.2	42°21.5	36°55.4	35°15.4	12°32.7	49°23.3	91° 15.2	
15	114°04.7	11.0'	02°55.8	-15.2'	59.6'	67°21.0	41°45.8	36°23.4	34°40.7	13°06.7	49°58.6	91°50.6	
16	128°34.6	10.9'	02°40.6	-15.3'	59.6'	66°47.7	41°10.0	35°51.3	34°06.0	13°40.8	50°34.0	92°26.1	
17	143°04.5	10.9'	02°25.4	-15.3'	59.6'	66° 14.5	40°34.3	35°19.2	33°31.3	14° 15.2	51°09.4	93°01.6	
18	157°34.5	10.9'	$N02^{\circ}10.1$	-15.3'	59.6'	65°41.2	39° 58.5	34°47.1	32°56.6	14°49.6	51°44.8	93°37.2	
19	172°04.4	10.9'	01°54.8	-15.3'	59.6'	65°07.9	39°22.6	34°14.9	32°21.8	15°24.2	52°20.3	94° 12.7	
20	186°34.3	10.9'	$01^{\circ}39.5$	-15.3'	59.7'	64°34.5	38°46.8	33°42.8	31°47.1	15°59.0	52°55.8	94°48.3	
21	201°04.2	10.9'	$01^{\circ}24.1$	-15.4'	59.7'	64°01.1	38° 10.9	33°10.7	31°12.4	16°33.8	53°31.3	95°23.9	
22	215°34.1	10.9'	01°08.8	-15.4'	59.7'	63°27.8	37°35.0	32°38.6	30°37.7	17°08.7	54°06.9	95°59.5	
23	230°04.0	10.8'	00°53.4	-15.4'	59.7'	62°54.4	36°59.1	32°06.5	30°03.0	17°43.8	54°42.5	96°35.1	
11 th	SD = 16.2' Mer. pass. 07:08 Sun $SD = 16.1'$ at 0h; $16.2'$ at 23h												

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

									(especie man la gest meanly 12 denta)				
Sun	GHA	ν	Dec	d	HP	-Sun	-Spica	-Venus	-Jupiter	+Regulus	+Procyon	+Pollux	+Aldebaran
0	244°33.8	10.8'	N 00°38.0	-15.4'	59.7'	62°20.9	36°23.2	31°34.4	29°28.3	18° 18.9	51°59.5	55°18.1	97°10.8
1	259°03.6	10.8'	00°22.6	-15.4'	59.7'	61°47.5	35°47.3	31°02.3	28°53.6	18°54.1	52°33.5	55°53.7	97°46.5
2	273°33.4	10.8'	N 00°07.2	-15.4'	59.8'	61°14.0	35°11.3	30°30.2	28°18.9	19°29.3	53°07.7	56°29.4	98°22.2
3	288°03.2	10.8'	S 00°08.2	-15.4'	59.8'	60°40.5	34°35.3	29°58.1	27°44.3	20°04.7	53°41.9	57°05.1	98°57.9
4	302°33.0	10.7'	00°23.6	-15.4'	59.8'	60°07.0	33°59.4	29°26.0	27°09.6	20°40.1	54°16.1	57°40.8	99°33.7
5	317°02.8	10.7'	00°39.1	-15.4'	59.8'	59°33.4	33°23.3	28°53.9	26°35.0	21° 15.5	54°50.4	58°16.6	100°09.5
6	331°32.5	10.7'	S 00°54.5	-15.4'	59.8'	58° 59.9	32°47.3	28°21.9	26°00.4	21°51.0	55°24.7	58°52.4	100°45.3
7	346°02.2	10.7'	$01^{\circ}09.9$	-15.4'	59.8'	58° 26.3	32°11.3	27°49.8	25°25.8	22°26.6	55°59.1	59°28.2	101°21.1
8	0°31.9	10.7'	01°25.4	-15.4'	59.9'	57°52.7	31°35.2	27°17.8	24°51.2	23°02.2	56°33.6	60°04.0	101°56.9
9	15°01.5	10.6'	01°40.8	-15.4'	59.9'	57° 19.1	30°59.1	26°45.8	24°16.7	23°37.9	57°08.0	60°39.9	102°32.7
10	29°31.1	10.6'	01°56.3	-15.4'	59.9'	56° 45.5	30°23.0	26°13.8	23°42.2	24°13.6	57°42.5	61°15.7	103°08.6
11	44°00.7	10.6'	$02^{\circ}11.7$	-15.4'	59.9'	56°11.8	29°46.9	25°41.9	23°07.8	24°49.4	58°17.1	61°51.7	103°44.5
12	58°30.3	10.5'	S 02°27.2	-15.4'	59.9'	55°38.1	29° 10.8	25°10.0	22°33.4	25° 25.2	58°51.7	62°27.6	104°20.4
13	72°59.8	10.5'	02°42.6	-15.4'	59.9'	55°04.4	28°34.7	24°38.1	21°59.1	26°01.1	59°26.4	63°03.5	104°56.3
14	87°29.3	10.5'	02°58.0	-15.4'	59.9'	54°30.7	27°58.6	24°06.3	21°24.8	26°37.0	60°01.0	63°39.5	105°32.3
15	101°58.8	10.4'	03°13.5	-15.4'	60.0'	53°57.0	27°22.4	23°34.5	20°50.6	27° 12.9	60°35.8	64°15.5	106°08.2
16	116°28.2	10.4'	03°28.9	-15.4'	60.0'	53°23.2	26°46.3	23°02.7	20°16.4	27°48.9	61°10.5	64°51.6	106°44.2
17	130°57.6	10.4'	03°44.3	-15.4'	60.0'	52°49.5	26°10.1	22°31.0	19°42.4	28°24.9	61°45.3	65°27.6	107°20.2
18	145°27.0	10.3'	S 03°59.6	-15.4'	60.0'	52° 15.7	25°33.9	21°59.4	19°08.4	29°00.9	62°20.1	66°03.7	107°56.2
19	159°56.3	10.3'	04°15.0	-15.4'	60.0'	51°41.9	24°57.7	21°27.8	18°34.5	29°37.0	62°55.0	66°39.8	108°32.2
20	174°25.6	10.3'	04°30.4	-15.3'	60.0'	51°08.1	24°21.6	20°56.3	18°00.8	30° 13.1	63°29.9	67°15.9	109°08.2
21	188°54.9	10.2'	04°45.7	-15.3'	60.0'	50°34.3	23°45.4	20°24.8	17°27.2	30°49.2	64°04.8	67°52.0	109°44.3
22	203°24.1	10.2'	$05^{\circ}01.0$	-15.3'	60.0'	50°00.4	23°09.2	19°53.5	16°53.7	31°25.4	64°39.8	68°28.2	110°20.3
23	217°53.2	10.1'	05°16.3	-15.3'	60.1'	49°26.6	22°33.0	19°22.2	16°20.4	32°01.6	65°14.8	69°04.3	110°56.4
12 th	2 th SD = 16.3′ Mer. pass. 07:58								Sun	SD = 16.2'			

h Moon (13 th Nov)	Lunar Distance (objects with largest hourly LD delta)
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Mon	GHA	ν	Dec	d	HP	-Sun	-Spica	-Venus	-Jupiter	+Regulus	+Procyon	+Pollux	+Aldebaran
0	232°22.4	10.1'	S 05°31.6	-15.2'	60.1'	48°52.7	21°56.8	18°51.1	15° 47.2	32°37.8	65°49.8	69°40.5	111°32.5
1	246°51.5	10.0'	05°46.8	-15.2'	60.1'	48°18.8	21°20.6	18°20.1	15° 14.3	33°14.0	66°24.8	70° 16.7	112°08.6
2	261°20.5	10.0'	$06^{\circ}02.1$	-15.2'	60.1'	47°44.9	20°44.4	17°49.2	14°41.5	33°50.3	66°59.9	70°53.0	112°44.7
3	275°49.5	9.9'	06°17.3	-15.2'	60.1'	47°11.0	20°08.3	17°18.4	14°09.1	34°26.6	67°35.0	71°29.2	113° 20.8
4	290°18.4	9.9'	06°32.4	-15.1'	60.1'	46°37.1	19°32.1	16°47.8	13°36.9	35°02.9	68°10.2	72°05.5	113°56.9
5	304°47.3	9.9'	06°47.6	-15.1'	60.1'	46°03.2	18°56.0	16°17.3	13°05.0	35°39.2	68°45.3	72°41.7	114°33.1
6	319°16.2	9.8'	S 07°02.7	-15.1'	60.1'	45°29.2	18°19.8	15°47.1	12°33.5	36°15.6	69°20.5	73°18.0	115°09.2
7	333°45.0	9.8'	$07^{\circ}17.7$	-15.0'	60.1'	44°55.3	17°43.7	15°17.0	12°02.4	36°52.0	69°55.7	73°54.3	115°45.4
8	348°13.8	9.7'	07°32.7	-15.0'	60.1'	44°21.3	17°07.6	14°47.2	11°31.8	37°28.4	70°30.9	74°30.7	116°21.5
9	2°42.5	9.7'	07°47.7	-15.0'	60.1'	43°47.4	16°31.5	14°17.7	11°01.7	38°04.8	71°06.2	75°07.0	116° 57.7
10	$17^{\circ}11.1$	9.6'	08°02.7	-14.9'	60.2'	43°13.4	15°55.5	13°48.4	10°32.2	38°41.2	71°41.5	75°43.3	117°33.9
11	31°39.7	9.5'	08°17.6	-14.9'	60.2'	42°39.4	15°19.5	13°19.5	10°03.5	39°17.7	72°16.8	76° 19.7	118° 10.1
12	46°08.3	9.5'	S 08°32.5	-14.8'	60.2'	42°05.4	14°43.6	12°50.9	9°35.6	39°54.1	72°52.1	76°56.1	118°46.2
13	60°36.7	9.4'	08°47.3	-14.8'	60.2'	41°31.4	14°07.7	12°22.7	9°08.6	40°30.6	73°27.4	77°32.5	119°22.4
14	75°05.2	9.4'	$09^{\circ}02.1$	-14.7'	60.2'	40°57.4	13°31.8	11°55.0		41°07.1	74°02.8	78°08.9	119°58.6
15	89°33.6	9.3'	09°16.8	-14.7'	60.2'	40°23.4	12°56.1	11°27.8		41°43.7	74°38.2	78°45.3	
16	104°01.9	9.3'	09°31.5	-14.6'	60.2'		12°20.4	11°01.1		42°20.2	75°13.6	79°21.7	
17	118°30.2	9.2'	09°46.1	-14.6'	60.2'		11°44.8	10°35.1		42°56.7	75°49.0	79°58.1	
18	132°58.4	9.1'	S 10°00.6	-14.5'	60.2'		11°09.3	10°09.9		43°33.3	76°24.4	80°34.6	
19	147°26.5	9.1'	10°15.2	-14.5'	60.2'		10°34.0	9°45.4		44°09.9	76°59.8	81°11.0	
20	161°54.6	9.0'	$10^{\circ}29.6$	-14.4'	60.2'		9°58.8	9°21.9		44°46.5	77°35.3	81°47.5	
21	176°22.6	9.0'	$10^{\circ}44.0$	-14.3'	60.2'		9°23.8			45°23.1	78°10.8	82°24.0	
22	190°50.6	8.9'	$10^{\circ}58.3$	-14.3'	60.2'		8°49.1			45°59.7	78°46.2	83°00.4	
23	205°18.5	8.8'	11°12.6	-14.2'	60.2'		8°14.6			46°36.3	79°21.7	83°36.9	
13 th	SD = 16.4' Mer. pass. 08:49 $Sun SD = 16.2'$												

Moon (14th Nov)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Rigil Kent.	-Hadar	±Spica	+Mars	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	219°46.3	8.8'	S 11°26.8	-14.1'	60.2'	53°11.1	50°45.4	7°40.5	36°06.6	47°12.9	79°57.2	84°13.4	105°45.4
1	234°14.1	8.7'	11°41.0	-14.1'	60.2'	52°48.4	50°25.1	7°06.8	36°41.5	47°49.5	80°32.7	84°49.9	106°20.4
2	248°41.8	8.7'	11°55.0	-14.0'	60.2'	52°25.8	50°05.0	6°33.7	37°16.4	48°26.2	81°08.2	85°26.4	106°55.3
3	263°09.5	8.6'	$12^{\circ}09.1$	-13.9'	60.2'	52°03.4	49°45.1	6°01.3	37°51.4	49°02.8	81°43.8	86°02.9	107°30.3
4	277°37.1	8.5'	12°23.0	-13.9'	60.2'	51°41.2	49°25.5	5°29.8	38°26.4	49°39.5	82°19.3	86°39.4	108°05.3
5	292°04.6	8.5'	12°36.8	-13.8'	60.2'	51° 19.2	49°06.1		39°01.3	50°16.2	82°54.9	87°15.9	108°40.2
6	306°32.1	8.4'	S 12°50.6	-13.7'	60.2'	50°57.4	48°46.9		39°36.3	50°52.8	83°30.4	87°52.5	109°15.1
7	320°59.5	8.3'	13°04.3	-13.6'	60.2'	50° 35.8	48°28.0		40°11.4	51°29.5	84°06.0	88°29.0	109°50.1
8	335°26.8	8.3'	13°18.0	-13.5'	60.2'	50° 14.4	48°09.4		40°46.4	52°06.2	84°41.5	89°05.5	110°25.0
9	349°54.0	8.2'	13°31.5	-13.5'	60.2'	49°53.3	47°51.0		41°21.4	52°42.9	85°17.1	89°42.0	110°59.9
10	4°21.2	8.1'	13°45.0	-13.4'	60.2'	49°32.4	47°32.9		41°56.5	53°19.6	85°52.7	90°18.6	111°34.8
11	18°48.3	8.1'	13°58.4	-13.3'	60.2'	49°11.7	47°15.0		42°31.5	53°56.2	86°28.2	90°55.1	112°09.6
12	33°15.4	8.0'	S 14°11.7	-13.2'	60.2'	48°51.2	46°57.5		43°06.6	54°32.9	87°03.8	91°31.6	112°44.5
13	47°42.4	7.9'	14°24.9	-13.1'	60.2'	48°31.0	46°40.2		43°41.7	55°09.6	87°39.4	92°08.1	113°19.3
14	62°09.3	7.8'	14°38.0	-13.0'	60.2'	48°11.0	46°23.2		44°16.8	55°46.3	88°14.9	92°44.7	113°54.1
15	76°36.1	7.8'	14°51.0	-12.9'	60.2'	47°51.2	46°06.6		44°51.9	56°23.0	88°50.5	93°21.2	114°28.9
16	91°02.9	7.7'	15°04.0	-12.8'	60.2'	47°31.8	45°50.2		45°27.0	56°59.7	89°26.1	93°57.7	115°03.7
17	105°29.6	7.6'	15°16.8	-12.7'	60.2'	47°12.6	45°34.1		46°02.1	57°36.4	90°01.6	94°34.2	115°38.5
18	119°56.3	7.6'	S 15°29.6	-12.6'	60.2'	46°53.6	45°18.4		46°37.2	58°13.1	90°37.2	95°10.7	116°13.2
19	134°22.8	7.5'	15°42.2	-12.5'	60.2'	46°34.9	45°03.0		47°12.3	58°49.8	91°12.8	95°47.2	116°47.9
20	148°49.3	7.4'	$15^{\circ}54.7$	-12.4'	60.2'	46°16.6	44°47.9		47°47.4	59°26.5	91°48.3	96°23.7	117°22.6
21	163°15.8	7.4'	$16^{\circ}07.2$	-12.3'	60.2'	45°58.5		6°31.6	48°22.5	60°03.1	92°23.9	97°00.2	117°57.2
22	177°42.1	7.3'	$16^{\circ}19.5$	-12.2'	60.2'	45°40.7		7°04.7	48°57.6	60°39.8	92°59.4	97°36.7	118°31.9
23	192°08.4	7.2'	16°31.8	-12.1'	60.2'	45°23.2		7°38.3	49°32.7	61°16.5	93°35.0	98°13.2	119°06.4
14 th	SD	= 16.4	' Mer. pa	ss. 09:42					-			-	

Moon (15th Nov)

Lunar Distance (objects with largest hourly LD delta)

n		IOOIVI	า (15 เง	ov)			Lunar L	Distance	objects	with large	st hourly l	-D delta)	
Wed	GHA	ν	Dec	d	HP	-Rigil Kent.	+Spica	+Jupiter	+Mars	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	206°34.6	7.1'	S 16°43.9	-12.0'	60.2'	45°05.9	8°12.4	15° 44.1	50°07.8	61°53.1	94°10.5	98°49.7	119°41.0
1	221°00.8	7.1'	16°55.9	-11.9'	60.2'	44°49.1	8°46.8	16° 17.4	50°43.0	62°29.8	94°46.0	99°26.1	
2	235°26.9	7.0'	$17^{\circ}07.9$	-11.8'	60.1'	44°32.5	9°21.5	16°51.0	51°18.1	63°06.5	95°21.5	100°02.6	
3	249°52.9	6.9'	$17^{\circ}19.7$	-11.7'	60.1'	44°16.2	9°56.5	17°24.7	51°53.2	63°43.1	95°57.0	100°39.0	
4	264°18.8	6.9'	17°31.3	-11.6'	60.1'	44°00.3	10°31.6	17°58.6	52°28.3	64°19.8	96°32.5	101°15.5	
5	278°44.7	6.8'	17°42.9	-11.5'	60.1'	43°44.7	11°06.9	18°32.6	53°03.4	64°56.4	97°08.0	101°51.9	
6	293°10.5	6.7'	S 17°54.4	-11.3'	60.1'	43°29.5	11°42.4	19°06.7	53°38.5	65°33.0	97°43.4	102°28.3	
7	307°36.2	6.7'	18°05.7	-11.2'	60.1'		12° 17.9	19°40.9	54°13.5	66°09.6	98°18.9	103°04.7	
8	322°01.9	6.6'	$18^{\circ}16.9$	-11.1'	60.1'		12°53.6	20° 15.3	54°48.6	66°46.2	98°54.3	103°41.1	
9	336°27.5	6.5'	18°28.0	-11.0'	60.1'		13°29.3	20°49.7	55°23.7	67°22.8	99°29.7	104°17.5	
10	350°53.0	6.5'	18°39.0	-10.9'	60.1'		14°05.1	21°24.2	55°58.8	67°59.4	100°05.1	104°53.8	
11	5°18.5	6.4'	18°49.9	-10.7'	60.1'		14°41.0	21°58.8	56°33.8	68°36.0	100°40.5	105°30.2	
12	19°43.9	6.3'	S 19°00.6	-10.6'	60.0'		15° 16.9	22°33.5	57°08.9	69°12.5	101°15.9	106°06.5	
13	34°09.2	6.3'	$19^{\circ}11.2$	-10.5'	60.0'		15°52.9	23°08.2	57°43.9	69°49.1	101°51.2	106°42.9	
14	48°34.5	6.2'	19°21.7	-10.3'	60.0'		16°28.9	23°43.0	58° 18.9	70°25.6	102°26.6	107°19.2	
15	62°59.7	6.1'	19°32.0	-10.2'	60.0'		17°04.9	24°17.8	58°53.9	71°02.1	103°01.9	107°55.4	
16	77°24.8	6.1'	19°42.2	-10.1'	60.0'		17°40.9	24°52.7	59°28.9	71°38.6	103°37.2	108°31.7	
17	91°49.9	6.0'	19°52.3	-9.9'	60.0'		18° 17.0	25°27.6	60°03.9	72°15.1	104°12.4	109°08.0	
18	106°14.9	6.0'	S 20°02.2	-9.8'	60.0'		18°53.1	26°02.5	60°38.9	72°51.6	104°47.7	109°44.2	
19	120°39.9	5.9'	$20^{\circ}12.0$	-9.7'	59.9'		19°29.2	26°37.5	61°13.9	73°28.1	105°22.9	110°20.4	
20	135°04.8	5.8'	$20^{\circ}21.7$	-9.5'	59.9'		20°05.3	27° 12.5	61°48.8	74°04.5	105°58.1	110°56.6	
21	149°29.6	5.8'	20°31.2	-9.4'	59.9'		20°41.4	27° 47.5	62°23.8	74°40.9	106°33.3	111°32.8	
22	163°54.4	5.7'	20°40.6	-9.2'	59.9'		·		Ne	w Moon ——			
23	178°19.1	5.7'	20°49.8	-9.1'	59.9'				Ne	w Moon ——			
15 th	SD	= 16.4	Mer. pa:	ss. 10:38				-			-	-	

Moon (16th Nov)

Thu	GHA	ν	Dec	d	HP	
0	192°43.8	5.6'	S 20°58.9	-9.0'	59.9'	New Moon
1	207°08.4	5.6'	$21^{\circ}07.9$	-8.8'	59.8'	New Moon
2	221°33.0	5.5'	$21^{\circ}16.7$	-8.7'	59.8'	New Moon
3	235°57.5	5.4'	21°25.3	-8.5'	59.8'	New Moon
4	250°21.9	5.4'	21°33.9	-8.4'	59.8'	New Moon
5	264°46.3	5.3'	21°42.2	-8.2'	59.8'	New Moon
6	279°10.7	5.3'	S 21°50.4	-8.1'	59.8'	New Moon
7	293°35.0	5.3'	$21^{\circ}58.5$	-7.9'	59.7'	New Moon
8	307°59.2	5.2'	22°06.4	-7.8'	59.7'	New Moon
9	322°23.4	5.2'	$22^{\circ}14.1$	-7.6'	59.7'	New Moon
10	336°47.6	5.1'	22°21.7	-7.4'	59.7'	New Moon
11	351°11.7	5.1'	22°29.2	-7.3'	59.7'	New Moon
12	5°35.8	5.0'	S 22°36.5	-7.1'	59.6'	New Moon
13	19°59.8	5.0'	22°43.6	-7.0'	59.6'	New Moon
14	34°23.8	5.0'	22°50.6	-6.8'	59.6'	New Moon
15	48°47.8	4.9'	22°57.4	-6.6'	59.6'	New Moon
16	63°11.7	4.9'	23°04.0	-6.5'	59.5'	New Moon
17	77°35.6	4.9'	23°10.5	-6.3'	59.5'	New Moon
18	91°59.5	4.8'	S 23°16.9	-6.2'	59.5'	New Moon
19	106°23.3	4.8'	23°23.0	-6.0'	59.5'	New Moon
20	120°47.2	4.8'	23°29.0	-5.8'	59.4'	New Moon
21	135°10.9	4.8'	23°34.9	-5.7'	59.4'	New Moon
22	149°34.7	4.7'	23°40.5	-5.5'	59.4'	New Moon
23	163°58.5	4.7'	23°46.0	-5.3'	59.4'	New Moon
16 th	SD :	= 16.3'	Mer. pas	s. 11:37	,	

SD = 16.2' Mer. pass. 12:37

h		Моог	n (17 th No	ov)		Lunar [Distance (objects witl	n largest	hourly LD delta)
Fri	GHA	ν	Dec	d	HP	-Deneb	-Achernar	-Fomalhaut	-Altair	± Antares
0	178°22.2	4.7'	S 23°51.4	-5.2'	59.3'			New M	oon ——	
1	192°45.9	4.7'	23°56.5	-5.0'	59.3'			New M	oon ——	
2	207°09.6	4.7'	24°01.5	-4.8'	59.3'			New M	oon ——	
3	221°33.2	4.7'	24°06.4	-4.7'	59.3'			New M	oon ——	
4	235°56.9	4.6'	$24^{\circ}11.1$	-4.5'	59.2'			New M	oon ——	
5	250°20.5	4.6'	24°15.6	-4.3'	59.2'			New M	oon ——	
6	264°44.2	4.6'	S 24°19.9	-4.2'	59.2'			New M	oon ——	
7	279°07.8	4.6'	24°24.1	-4.0'	59.2'	93°02.8	92°27.6	87°51.7	63°24.2	5°01.3
8	293°31.4	4.6'	24°28.0	-3.8'	59.1'	92°42.8	92°11.9	87° 19.4	62°53.8	4°28.0
9	307°55.1	4.6'	24°31.9	-3.7'	59.1'	92°22.9	91°56.2	86° 47.2	62°23.5	3°55.3
10	322°18.7	4.6'	24°35.5	-3.5'	59.1'	92°03.0	91°40.5	86° 15.0	61°53.3	
11	336°42.3	4.6'	24°39.0	-3.3'	59.0'	91°43.1	91°24.8	85°42.9	61°23.1	
12	351°05.9	4.6'	S 24°42.3	-3.1'	59.0'	91°23.2	91°09.2	85° 10.8	60°53.1	
13	5°29.6	4.6'	24°45.5	-3.0'	59.0'	91°03.3	90°53.5	84°38.7	60°23.1	
14	19°53.2	4.7'	24°48.5	-2.8'	59.0'	90°43.4	90°37.9	84°06.7	59°53.3	
15	34°16.9	4.7'	24°51.3	-2.6'	58.9'	90°23.5	90°22.2	83°34.7	59°23.5	
16	48°40.5	4.7'	24°53.9	-2.5'	58.9'	90°03.7	90°06.6	83°02.7	58°53.8	
17	63°04.2	4.7'	24°56.4	-2.3'	58.9'	89°43.9	89°51.0	82°30.8	58°24.2	
18	77°27.9	4.7'	S 24°58.7	-2.1'	58.8'	89°24.1	89°35.4	81°59.0	57°54.7	
19	91°51.6	4.7'	25°00.8	-2.0'	58.8'	89°04.3	89° 19.9	81°27.2	57°25.3	
20	106°15.4	4.8'	25°02.7	-1.8'	58.8'	88°44.6	89°04.3	80°55.4	56°56.0	
21	120°39.1	4.8'	25°04.5	-1.6'	58.7'	88°24.9	88°48.8	80°23.7	56°26.9	
22	135°02.9	4.8'	25°06.1	-1.4'	58.7'	88°05.2	88°33.3	79°52.0	55°57.8	4°24.2
23	149°26.7	4.8'	25°07.6	-1.3'	58.7'	87°45.5	88°17.9	79°20.3	55°28.8	4°57.0

h		Moor	n (18 th No	ov)		Lunar Di	stance (objects with	n largest	hourly LD delta)
Sat	GHA	ν	Dec	d	HP	-Achernar	-Deneb	-Fomalhaut	-Altair	+Antares
0	163°50.6	4.9'	S 25°08.9	-1.1'	58.7'	88°02.4	87°25.9	78°48.8	54°59.9	5°30.2
1	178°14.4	4.9'	25°10.0	-0.9'	58.6'	87°47.0	87°06.3	78° 17.2	54°31.2	6°03.7
2	192°38.3	4.9'	25°10.9	-0.8'	58.6'	87°31.6	86°46.7	77° 45.7	54°02.6	6°37.4
3	207°02.3	5.0'	25°11.7	-0.6'	58.6'	87°16.2	86°27.2	77° 14.3	53°34.0	7°11.3
4	221°26.2	5.0'	25°12.3	-0.4'	58.5'	87°00.9	86°07.7	76°42.9	53°05.6	7°45.3
5	235°50.3	5.1'	$25^{\circ}12.7$	-0.3'	58.5'	86°45.6	85°48.3	76°11.6	52°37.4	8°19.3
6	250°14.3	5.1'	S 25°13.0	-0.1'	58.5'	86°30.4	85°28.8	75°40.3	52°09.2	8°53.4
7	264°38.4	5.1'	25°13.1	0.1'	58.4'	86°15.1	85°09.5	75°09.1	51°41.2	9°27.6
8	279°02.6	5.2'	25°13.0	0.2'	58.4'	86°00.0	84°50.1	74°37.9	51°13.3	10°01.7
9	293°26.8	5.2'	25°12.8	0.4'	58.4'	85°44.8	84°30.9	74°06.8	50°45.5	10°35.9
10	307°51.0	5.3'	25°12.4	0.6'	58.3'	85°29.7	84°11.6	73°35.7	50°17.9	11°10.1
11	322°15.3	5.3'	$25^{\circ}11.9$	0.7'	58.3'	85°14.6	83°52.4	73°04.7	49°50.4	11°44.3
12	336°39.6	5.4'	S 25°11.2	0.9'	58.3'	84°59.6	83°33.3	72°33.8	49°23.0	12° 18.4
13	351°04.0	5.5'	25°10.3	1.0'	58.2'		83°14.2	72°02.9	48°55.8	12° 52.6
14	5°28.5	5.5'	25°09.3	1.2'	58.2'		82°55.2	71°32.1	48°28.8	13°26.8
15	19°53.0	5.6'	25°08.1	1.4'	58.2'		82°36.2	71°01.3	48°01.9	14°00.9
16	34°17.6	5.6'	25°06.7	1.5'	58.1'		82°17.3	70°30.6	47°35.1	14°35.0
17	48°42.2	5.7'	25°05.2	1.7'	58.1'		81°58.4	69°59.9	47°08.5	15°09.1
18	63°06.9	5.8'	S 25°03.5	1.8'	58.1'		81°39.6	69°29.4	46°42.1	15°43.1
19	77°31.7	5.8'	25°01.7	2.0'	58.0'		81°20.8	68° 58.9	46°15.8	16° 17.1
20	91°56.5	5.9'	24°59.7	2.1'	58.0'		81°02.1	68°28.4	45°49.7	16°51.1
21	106°21.4	6.0'	24°57.6	2.3'	58.0'		80°43.5	67°58.0	45°23.8	17°25.1
22	120°46.4	6.0'	24°55.3	2.4'	57.9'		80°24.9	67°27.7	44°58.0	17°59.0
23	135°11.4	6.1'	24°52.8	2.6'	57.9'		80°06.4	66° 57.5	44°32.4	18° 32.9
18 th	SD =	= 16.0'	Mer. pas	s. 13:37	,					

h		Moon	(19 th No	ov)		Lunar D	istance ((objects wit	h largest	hourly LI	O delta)
Sun	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Sun
0	149°36.5	6.2'	S 24°50.2	2.8'	57.8'		79°47.9	66° 27.3	44°07.0	19°06.7	
1	164°01.7	6.3'	24°47.5	2.9'	57.8'		79°29.5	65° 57.2	43°41.8	19°40.6	
2	178°27.0	6.3'	24°44.6	3.1'	57.8'		79°11.2	65°27.1	43°16.8	20°14.3	
3	192°52.3	6.4'	24°41.5	3.2'	57.7'		78°53.0	64° 57.2	42°51.9	20°48.1	
4	207°17.7	6.5'	24°38.3	3.3'	57.7'		78°34.8	64°27.3	42°27.3	21°21.8	
5	221°43.2	6.6'	24°35.0	3.5'	57.7'		78°16.7	63°57.5	42°02.9	21°55.5	
6	236°08.8	6.7'	S 24°31.5	3.6'	57.6'		77°58.6	63°27.7	41°38.6	22°29.1	
7	250°34.5	6.7'	24°27.8	3.8'	57.6'		77°40.7	62°58.0	41°14.6	23°02.7	
8	265°00.2	6.8'	24°24.1	3.9'	57.6'		77°22.8	62°28.4	40°50.8	23°36.3	
9	279°26.1	6.9'	24°20.1	4.1'	57.5'		77°05.0	61°58.9	40°27.3	24°09.8	
10	293°52.0	7.0'	24°16.1	4.2'	57.5'		76°47.2	61°29.5	40°03.9	24°43.2	
11	308°18.0	7.1'	24°11.9	4.3'	57.5'		76°29.6	61°00.1	39°40.8	25°16.7	
12	322°44.1	7.2'	S 24°07.5	4.5'	57.4'		76°12.0	60°30.9	39°17.9	25°50.1	
13	337°10.3	7.3'	24°03.0	4.6'	57.4'	119°53.8	75°54.5	60°01.7	38°55.3	26°23.4	
14	351°36.5	7.4'	23°58.4	4.8'	57.4'	119°20.6	75°37.1	59° 32.5	38°32.9	26°56.7	
15	6°02.9	7.5'	23°53.7	4.9'	57.3'	118°47.5	75°19.8	59°03.5	38°10.8	27°30.0	
16	20°29.3	7.5'	23°48.8	5.0'	57.3'	118°14.4	75°02.5	58° 34.6	37°48.9	28°03.2	40°07.1
17	34°55.9	7.6'	23°43.8	5.2'	57.3'	117°41.3	74°45.3	58°05.7	37°27.3	28°36.4	40°37.7
18	49°22.5	7.7'	S 23°38.6	5.3'	57.2'	117°08.3	74°28.3	57°36.9	37°06.0	29°09.6	41°08.2
19	63°49.3	7.8'	23°33.3	5.4'	57.2'	116°35.3	74°11.3	57°08.3	36°45.0	29°42.7	41°38.7
20	78°16.1	7.9'	23°27.9	5.5'	57.1'	116°02.3	73°54.4	56° 39.7	36°24.2	30°15.7	42°09.1
21	92°43.0	8.0'	23°22.4	5.7'	57.1'	115°29.4	73°37.6	56°11.2	36°03.7	30°48.8	42°39.5
22	$107^{\circ}10.1$	8.1' 8.2'	$23^{\circ}16.7$	5.8'	57.1'	114°56.6	73°20.8	55° 42.8	35°43.5	31°21.7	43°09.9
23	121°37.2	23°10.9	5.9'	57.0'	0' 114°23.7 73°04.2 55°14.4 35°23.7 31°54.7 43°40.2						
19 th	SD =	= 15.8′	Mer. pass	s. 14:3!	5			Sun SD =	= 16.2'		

20th

Mer. pass. 15:29

SD = 15.5'

h		Moon	(20 th No	v)		Lunar D	istance (objects wit	h largest	hourly LI	D delta)
Mon	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair	+Antares	+Sun
0	136°04.4	8.3'	S 23°05.0	6.0'	57.0'	113°50.9	72°47.7	54°46.2	35°04.1	32°27.6	44°10.4
1	150°31.7	8.4'	22°59.0	6.2'	57.0'	113°18.2	72°31.2	54°18.1	34°44.9	33°00.4	44°40.7
2	164°59.1	8.5'	22°52.8	6.3'	56.9'	112°45.5	72°14.9	53°50.1	34°25.9	33°33.2	45°10.9
3	179°26.7	8.6'	22°46.5	6.4'	56.9'	112°12.8	71°58.7	53°22.1	34°07.4	34°06.0	45°41.0
4	193°54.3	8.7'	22°40.1	6.5'	56.9'	111°40.2	71°42.5	52°54.3	33°49.1	34°38.8	46°11.1
5	208°22.0	8.8'	22°33.6	6.6'	56.8'	111°07.6	71°26.5	52°26.6	33°31.2	35°11.4	46°41.2
6	222°49.8	8.9'	S 22°27.0	6.7'	56.8'	110°35.1	71°10.5	51°59.0	33°13.7	35°44.1	47°11.2
7	237°17.7	9.0'	22°20.3	6.9'	56.8'	110°02.5	70°54.7	51°31.5	32°56.5	36°16.7	47°41.2
8	251°45.7	9.1'	22°13.4	7.0'	56.7'	109°30.1	70°38.9	51°04.1	32°39.7	36°49.3	48°11.2
9	266°13.9	9.2'	22°06.4	7.1'	56.7'	108°57.6	70°23.3	50°36.8	32°23.3	37°21.8	48°41.1
10	280°42.1	9.3'	21°59.4	7.2'	56.7'	108°25.3	70°07.7	50°09.6	32°07.2	37°54.3	49°11.0
11	295°10.4	9.4'	21°52.2	7.3'	56.6'	107°52.9	69°52.3	49°42.5	31°51.6	38°26.7	49°40.8
12	309°38.8	9.5'	S 21°44.9	7.4'	56.6'	107°20.6	69°37.0	49°15.6	31°36.3	38°59.1	50°10.6
13	324°07.4	9.6'	21°37.5	7.5'	56.6'	106°48.3	69°21.7	48°48.7		39°31.5	50°40.4
14	338°36.0	9.7'	21°30.0	7.6'	56.5'	106°16.1	69°06.6	48°22.0		40°03.8	51°10.1
15	353°04.7	9.8'	21°22.4	7.7'	56.5'	105°43.9	68°51.6	47°55.4		40°36.1	51°39.8
16	7°33.5	9.9'	$21^{\circ}14.7$	7.8'	56.5'	105°11.8		47°28.9		41°08.3	52°09.4
17	22°02.5	10.0'	$21^{\circ}06.8$	7.9'	56.4'	104°39.6		47°02.6		41°40.5	52°39.0
18	36°31.5	10.1'	S 20°58.9	8.0'	56.4'	104°07.6		46°36.4		42°12.7	53°08.6
19	51°00.6	10.2'	20°50.9	8.1'	56.4'	103°35.5		46°10.3		42°44.8	53°38.1
20	65°29.9	10.3'	20°42.8	8.2'	56.3'	103°03.5		45°44.3		43°16.9	54°07.6
21	79°59.2	10.4'	20°34.6	8.3'	56.3'	102°31.6		45°18.5		43°48.9	54°37.0
22	94°28.6	10.5'	20°26.3	8.4'	56.3'	101°59.7		44°52.8		44°20.9	55°06.4
23	108°58.2	10.6'	20°17.9	8.5'	56.2'	101°27.8		44°27.2		44°52.9	55°35.8

Sun SD = 16.2'

h		Moon	(21st No	v)			Lunar Di	stance	
Tue	GHA	ν	Dec	d	HP	-Saturn	-Fomalhaut	+Antares	+Sun
0	123° 27.8	10.7'	S 20°09.4	8.6'	56.2'	100°55.9	44°01.8	45°24.8	56°05.1
1	137° 57.5	10.8'	20°00.8	8.7'	56.2'	100°24.1	43°36.5	45°56.7	56°34.4
2	152°27.4	10.9'	19°52.2	8.8'	56.1'	99°52.4	43°11.4	46°28.5	57°03.6
3	166° 57.3	11.0'	19°43.4	8.8'	56.1'	99°20.6	42°46.4	47°00.4	57°32.9
4	181°27.4	11.1'	19°34.6	8.9'	56.1'	98°48.9	42°21.6	47°32.1	58°02.0
5	195°57.5	11.2'	19°25.7	9.0'	56.0'	98°17.3	41°57.0	48°03.9	58°31.2
6	210°27.7	11.3'	S 19°16.6	9.1'	56.0'	97°45.7	41°32.5	48°35.5	59°00.3
7	224°58.1	11.4'	$19^{\circ}07.6$	9.2'	56.0'	97°14.1	41°08.1	49°07.2	59°29.3
8	239°28.5	11.5'	18°58.4	9.3'	55.9'	96°42.5	40°44.0	49°38.8	59°58.4
9	253°59.0	11.6'	$18^{\circ}49.1$	9.3'	55.9'	96°11.0	40°20.0	50°10.4	60°27.4
10	268°29.6	11.7'	18°39.8	9.4'	55.9'	95°39.5	39°56.1	50°42.0	60°56.3
11	283°00.3	11.8'	18°30.4	9.5'	55.8'	95°08.1	39°32.5	51°13.5	61°25.3
12	297°31.2	11.9'	S 18°20.9	9.6'	55.8'	94°36.7	39°09.0	51°44.9	61°54.1
13	312°02.1	12.0'	$18^{\circ}11.3$	9.6'	55.8'	94°05.3	38°45.8	52°16.4	62°23.0
14	326°33.1	12.1'	$18^{\circ}01.7$	9.7'	55.8'	93°34.0	38°22.7	52°47.8	62°51.8
15	341°04.2	12.2'	$17^{\circ}51.9$	9.8'	55.7'	93°02.7	37°59.8	53°19.1	63°20.6
16	355°35.3	12.3'	17°42.2	9.9'	55.7'	92°31.5	37°37.1	53°50.5	63°49.3
17	10°06.6	12.4'	17°32.3	9.9'	55.7'	92°00.2	37° 14.6	54°21.8	64°18.0
18	24°38.0	12.5'	S 17°22.4	10.0'	55.6'	91°29.1	36°52.3	54°53.0	64°46.7
19	39°09.4	12.6'	$17^{\circ}12.4$	10.1'	55.6'	90°57.9	36°30.2	55°24.3	65°15.4
20	53°41.0	12.6'	17°02.3	10.1'	55.6'	90°26.8	36°08.4	55°55.5	65°44.0
21	68°12.6	12.7'	$16^{\circ}52.2$	10.2'	55.6'	89°55.7	35°46.8	56°26.6	66°12.6
22	82°44.4	12.8'	16°42.0	10.3'	55.5'	89°24.6	35°25.4	56°57.7	66°41.1
23	97°16.2	12.9'	16°31.7	10.3'	55.5'	88°53.6	35°04.2	57°28.8	67°09.6
21 st	SD	= 15.3'	Mer. pass	s. 16:18			Sun SD =	= 16.2′	

h		Moon	(22 nd No	ov)		Lu	nar Distand	ce (object	s with la	rgest hourl	y LD delta	a)		
Wed	GHA	ν	Dec	d	HP	-Capella	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Antares	+Sun		
0	111°48.1	13.0'	S 16°21.4	10.4'	55.5'				88°22.6	34°43.3	57°59.9	67°38.1		
1	126°20.1	13.1'	$16^{\circ}11.0$	10.5'	55.4'				87°51.7	34°22.6	58°30.9	68°06.5		
2	140°52.1	13.2'	$16^{\circ}00.5$	10.5'	55.4'				87°20.8	34°02.1	59°01.9	68°35.0		
3	155°24.3	13.2'	15°50.0	10.6'	55.4'				86°49.9	33°42.0	59°32.9	69°03.4		
4	169°56.6	13.3'	15°39.4	10.6'	55.4'				86°19.0	33°22.1	60°03.8	69°31.7		
5	184°28.9	13.4'	$15^{\circ}28.8$	10.7'	55.3'		119°51.9		85°48.2	33°02.4	60°34.7	70°00.0		
6	199°01.3	13.5'	$$15^{\circ}18.1$	10.7'	55.3'		119°21.4		85°17.4	32°43.1	61°05.6	70°28.3		
7	213°33.8	13.6'	15°07.4	10.8'	55.3'		119°21.4 85°17.4 32°43.1 61°05.6 7 118°51.0 84°46.6 32°24.0 61°36.4 7 118°20.6 84°15.9 32°05.2 62°07.2 7 117°50.2 83°45.2 31°46.7 62°38.0 7 117°19.9 83°14.5 31°28.5 63°08.8 7 116°49.6 119°50.7 82°43.9 31°10.7 63°39.5 7 116°19.3 119°26.9 82°13.3 30°53.1 64°10.2 7 115°49.0 119°03.1 81°42.7 30°35.9 64°40.8 7							
8	228°06.3	13.6'	$14^{\circ}56.6$	10.9'	55.3'							71°24.8		
9	242°39.0	13.7'	14°45.7	10.9'	55.2'							71°53.0		
10	257°11.7	13.8'	14°34.8	11.0'	55.2'							72°21.2		
11	271°44.5	13.9'	14°23.9	11.0'	55.2'		116°49.6	119°50.7	82°43.9	31°10.7	63°39.5	72°49.3		
12	286°17.4	14.0'	S 14°12.9	11.1'	55.2'		116°19.3	119°26.9	82°13.3	30°53.1	64°10.2	73°17.4		
13	300°50.4	14.0'	14°01.8	11.1'	55.1'		115°49.0	119°03.1			64°40.8	73°45.5		
14	315°23.4	14.1'	13°50.7	11.2'	55.1'		115°18.8	118°39.3	81°12.1	30°19.0	65°11.5	74°13.6		
15	329°56.5	14.2'	13°39.5	11.2'	55.1'		114°48.5	118° 15.4	80°41.6	30°02.4	65°42.1	74°41.6		
16	344°29.7	14.3'	13°28.3	11.2'	55.1'		114°18.3	$117^{\circ}51.5$	80°11.1	29°46.2	66°12.6	75°09.6		
17	359°02.9	14.3'	$13^{\circ}17.1$	11.3'	55.0'		113°48.2	117°27.6	79°40.6	29°30.4	66°43.2	75°37.6		
18	13°36.3	14.4'	S 13°05.8	11.3'	55.0'		113°18.0	117°03.6	79°10.2	29°14.9	67°13.7	76°05.6		
19	28°09.7	14.5'	12°54.5	11.4'	55.0'		112°47.9	116°39.6	78°39.8	28°59.8	67°44.2	76°33.5		
20	42°43.1	14.5'	12°43.1	11.4'	55.0'	119°52.9	112°17.8	$116^{\circ}15.6$	78°09.4		68°14.7	77°01.4		
21	57°16.7	14.6'	$12^{\circ}31.7$	11.5'	54.9'	119°25.1	111°47.7	$115^{\circ}51.5$	77°39.0		68°45.1	77°29.2		
22	71°50.3	14.7'	12°20.2	11.5'	54.9'	118° 57.3	111°17.7	115°27.4	77°08.7		69°15.5 69°45.9	77°57.1		
23	86°23.9	14.7'	12°08.7	11.5'	54.9'	118°29.5	110°47.6	115°03.3	76°38.4		78°24.9			
22 nd	SD	= 15.1'	Mer. pass	s. 17:04				Su	n SD = 16	.2′				

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

Thu	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Altair	+Sun
0	100°57.7	14.8'	S 11°57.1	11.6'	54.9'		118°01.7	114°39.1	110° 17.6	76°08.1		78°52.7
1	115°31.5	14.9'	11°45.5	11.6'	54.9'		117°33.9	114°14.9	109°47.6	75°37.9		79°20.5
2	130°05.3	14.9'	11°33.9	11.7'	54.8'		117°06.1	113°50.7	109°17.7	75°07.7		79°48.2
3	144°39.2	15.0'	11°22.3	11.7'	54.8'		116°38.3	113°26.5	108°47.7	74°37.5		80°15.9
4	159°13.2	15.0'	$11^{\circ}10.6$	11.7'	54.8'		116°10.5	113°02.3	108°17.8	74°07.3		80°43.7
5	173°47.3	15.1'	$10^{\circ}58.8$	11.8'	54.8'		115°42.7	112°38.0	107°47.9	73°37.1	32°32.6	81°11.3
6	188°21.4	15.2'	S 10°47.0	11.8'	54.8'		115°14.9	112°13.7	107°18.0	73°07.0	32°48.0	81°39.0
7	202°55.5	15.2'	10°35.2	11.8'	54.7'		114°47.1	111°49.4	106°48.2	72°36.9	33°03.8	82°06.6
8	217°29.7	15.3'	10°23.4	11.9'	54.7'		114°19.3	111°25.1	106°18.3	72°06.8	33°19.8	82°34.2
9	232°04.0	15.3'	$10^{\circ}11.5$	11.9'	54.7'		113°51.5	111°00.7	105°48.5	71°36.8	33°36.1	83°01.8
10	246°38.3	15.4'	09°59.6	11.9'	54.7'		113°23.7	110°36.4	105°18.7	71°06.7	33°52.6	83°29.4
11	261°12.7	15.4'	09°47.7	12.0'	54.7'		112°55.9	110°12.0	104°48.9	70°36.7	34°09.5	83°56.9
12	275°47.2	15.5'	S 09°35.7	12.0'	54.6'		112°28.1	109°47.6	104°19.2	70°06.7	34°26.5	84°24.5
13	290°21.6	15.5'	09°23.7	12.0'	54.6'		112°00.3	109°23.2	103°49.4	69°36.8	34°43.9	84°52.0
14	304°56.2	15.6'	$09^{\circ}11.7$	12.0'	54.6'		111°32.5	108°58.7	103° 19.7	69°06.8	35°01.4	85°19.5
15	319°30.8	15.6'	08°59.7	12.1'	54.6'		111°04.8	108°34.3	102°50.0	68°36.9	35°19.2	85°46.9
16	334°05.4	15.7'	08°47.6	12.1'	54.6'		110°37.0	108°09.8	102°20.3	68°07.0	35°37.2	86°14.4
17	348°40.1	15.7'	08°35.5	12.1'	54.6'		110°09.2	107°45.3	101°50.6	67°37.1	35°55.5	86°41.8
18	3°14.8	15.8'	S 08°23.4	12.2'	54.5'	119°50.2	109°41.4	107°20.9	101°21.0	67°07.2	36°13.9	87°09.2
19	17°49.6	15.8'	$08^{\circ}11.2$	12.2'	54.5'	119°22.1	109°13.7	106°56.4	100°51.3	66°37.4	36°32.6	87°36.6
20	32°24.4	15.9'	$07^{\circ}59.0$	12.2'	54.5'	118°53.9	108°45.9	106°31.8	100°21.7	66°07.6	36°51.5	88°04.0
21	46°59.3	15.9'	07°46.8	12.2'	54.5'	118°25.8	108°18.1	106°07.3	99°52.1	65°37.8	37°10.5	88°31.3
22	61°34.2	15.9'	07°34.6	12.2'	54.5'	117°57.6	107°50.4	105°42.8	99°22.5	65°08.0	37°29.8	88°58.7
23	76°09.1	16.0'	07°22.4	12.3'	54.5'	117°29.5	107°22.6	105°18.2	98°52.9	64°38.2	37°49.2	89°26.0
23 rd	SD	= 15.0'	Mer. pass	s. 17:47				Sun	SD = 16.2'			

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

Fri	GHA	ν	Dec	d	HP	-Sirius	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Altair	+Sun
0	90°44.1	16.0'	S 07°10.1	12.3'	54.4'		117°01.3	106°54.9	104°53.7	98°23.4	64°08.5	38°08.9	89°53.3
1	105°19.1	16.1'	06°57.8	12.3'	54.4'		116°33.2	106°27.1	104°29.1	97°53.8	63°38.8	38°28.7	90°20.6
2	119°54.2	16.1'	06°45.5	12.3'	54.4'		116°05.0	105°59.4	104°04.6	97°24.3	63°09.1	38°48.7	90°47.9
3	134°29.3	16.1'	06°33.2	12.3'	54.4'		115°36.8	105°31.7	103°40.0	96°54.8	62°39.4	39°08.8	91°15.2
4	149°04.5	16.2'	06°20.8	12.4'	54.4'		115°08.7	105°03.9	103°15.4	96°25.3	62°09.7	39°29.1	91°42.4
5	163°39.6	16.2'	$06^{\circ}08.5$	12.4'	54.4'		114°40.5	104°36.2	102°50.8	95°55.8	61°40.0	39°49.6	92°09.7
6	178°14.8	16.2'	S 05°56.1	12.4'	54.4'		114°12.4	104°08.5	102°26.2	95°26.3	61°10.4	40°10.2	92°36.9
7	192°50.1	16.3'	05°43.7	12.4'	54.4'		113°44.2	103°40.7	102°01.6	94°56.8	60°40.8	40°30.9	93°04.1
8	207°25.3	16.3'	$05^{\circ}31.3$	12.4'	54.3'		113°16.1	103°13.0	101°37.0	94°27.4	60°11.2	40°51.8	93°31.3
9	222°00.7	16.3'	$05^{\circ}18.8$	12.4'	54.3'		112°47.9	102°45.3	101°12.3	93°57.9	59°41.6	41°12.9	93°58.5
10	236°36.0	16.4'	05°06.4	12.5'	54.3'		112°19.8	102°17.6	100°47.7	93°28.5	59°12.0	41°34.1	94°25.6
11	251°11.3	16.4'	04°53.9	12.5'	54.3'		111°51.6	101°49.9	100°23.1	92°59.1	58°42.5	41°55.4	94°52.8
12	265°46.7	16.4'	S 04°41.5	12.5'	54.3'		111°23.5	101°22.2	99°58.4	92°29.7	58°12.9	42°16.8	95°19.9
13	280°22.1	16.4'	$04^{\circ}29.0$	12.5'	54.3'	119°47.9	110°55.3	100°54.5	99°33.8	92°00.3	57°43.4	42°38.4	95°47.1
14	294°57.6	16.5'	$04^{\circ}16.5$	12.5'	54.3'	119°27.7	110°27.2	100°26.8	99°09.1	91°30.9	57°13.9	43°00.1	96°14.2
15	309°33.1	16.5'	$04^{\circ}04.0$	12.5'	54.3'	119°07.3	109°59.0	99°59.1	98°44.5	91°01.5	56°44.4	43°21.9	96°41.3
16	324°08.5	16.5'	03°51.5	12.5'	54.3'	118°46.9	109°30.9	99°31.4	98°19.8	90°32.2	56°14.9	43°43.9	97°08.4
17	338°44.0	16.5'	03°38.9	12.5'	54.2'	118°26.4	109°02.7	99°03.7	97°55.2	90°02.8	55°45.4	44°05.9	97°35.5
18	353°19.6	16.6'	S 03°26.4	12.5'	54.2'	118°05.9	108°34.6	98°36.1	97°30.5	89°33.5	55°16.0	44°28.1	98°02.6
19	7°55.1	16.6'	$03^{\circ}13.9$	12.6'	54.2'	117°45.3	108°06.4	98°08.4	97°05.8	89°04.1	54°46.5	44°50.3	98°29.7
20	22°30.7	16.6'	$03^{\circ}01.3$	12.6'	54.2'	117°24.6	107°38.3	97°40.7	96°41.2	88°34.8	54°17.1	45°12.7	98°56.7
21	37°06.3	16.6'	02°48.7	12.6'	54.2'	117°03.9	107°10.1	97°13.0	96°16.5	88°05.5	53°47.7	45°35.2	99°23.8
22	51°41.9	16.6'	02°36.2	12.6'	54.2'	116°43.1	106°42.0	96°45.4	95°51.8	87°36.2	53°18.3	45°57.8	99°50.9
23	66°17.5	16.6'	02°23.6	12.6'	54.2'	116°22.3	106°13.8	96°17.7	95°27.2	87°06.9	52°48.9	46°20.4	100°17.9
24 th	SD	$=14.8^{\prime}$	Mer. pass	s. 18:27					Sun SD =	= 16.2′			

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

Sat	GHA	ν	Dec	d	HP	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	80°53.1	16.6'	S 02°11.0	12.6'	54.2'		105°45.7	95°50.0	86°37.6	52° 19.5		46°43.2	100°44.9
1	95°28.8	16.7'	01°58.4	12.6'	54.2'		105°17.5	95°22.4	86°08.3	51°50.2		47°06.1	101°12.0
2	110°04.5	16.7'	01°45.8	12.6'	54.2'		104°49.4	94°54.7	85°39.0	51°20.8		47°29.0	101°39.0
3	124°40.1	16.7'	01°33.3	12.6'	54.2'		104°21.2	94°27.1	85°09.7	50°51.5		47°52.0	102°06.0
4	139°15.8	16.7'	$01^{\circ}20.7$	12.6'	54.2'		103°53.1	93°59.4	84°40.5	50°22.1		48°15.2	102°33.0
5	153°51.5	16.7'	$01^{\circ}08.1$	12.6'	54.2'		103°24.9	93°31.8	84°11.2	49°52.8		48°38.4	103°00.0
6	168°27.2	16.7'	S 00°55.5	12.6'	54.2'		102°56.8	93°04.1	83°42.0	49°23.5		49°01.7	103°27.0
7	183°02.9	16.7'	00°42.9	12.6'	54.1'		102°28.6	92°36.5	83°12.7	48° 54.2		49°25.0	103°54.0
8	197°38.6	16.7'	00°30.3	12.6'	54.1'		102°00.5	92°08.9	82°43.5	48° 24.9		49°48.5	104°21.0
9	212°14.3	16.7'	$00^{\circ}17.6$	12.6'	54.1'		101°32.3	91°41.2	82°14.2	47°55.6		50°12.0	104°48.0
10	226°50.1	16.7'	S 00°05.0	12.6'	54.1'		101°04.1	91°13.6	81°45.0	47°26.4	29°32.7	50°35.6	105°15.0
11	241°25.8	16.7'	N 00°07.6	12.6'	54.1'		100°36.0	90°46.0	81°15.7	46°57.1	29°48.1	50°59.3	105°42.0
12	256°01.5	16.7'	N00°20.2	12.6'	54.1'		100°07.8	90°18.3	80°46.5	46°27.9	30°03.8	51°23.0	106°09.0
13	270°37.3	16.7'	00°32.7	12.6'	54.1'		99°39.6	89°50.7	80°17.3	45°58.7	30° 19.8	51°46.8	106°35.9
14	285°13.0	16.7'	00°45.3	12.6'	54.1'		99°11.5	89°23.1	79°48.1	45°29.4	30°36.0	52°10.7	107°02.9
15	299°48.7	16.7'	00°57.9	12.6'	54.1'		98°43.3	88°55.5	79°18.8	45°00.2	30°52.6	52°34.6	107°29.9
16	314°24.4	16.7'	$01^{\circ}10.5$	12.6'	54.1'		98°15.1	88°27.8	78°49.6	44°31.0	31°09.5	52°58.6	107°56.9
17	329°00.2	16.7'	$01^{\circ}23.1$	12.6'	54.1'		97°47.0	88°00.2	78°20.4	44°01.8	31°26.7	53°22.7	108°23.8
18	343°35.9	16.7'	$N01^{\circ}35.7$	12.6'	54.1'	119°42.5	97°18.8	87°32.6	77°51.2	43°32.6	31°44.1	53°46.8	108°50.8
19	358°11.6	16.7'	01°48.2	12.6'	54.1'	119° 13.3	96°50.6	87°05.0	77°22.0	43°03.5	32°01.8	54°11.0	109°17.8
20	12°47.3	16.7'	02°00.8	12.6'	54.1'	118°44.1	96°22.4	86°37.4	76°52.8	42°34.3	32° 19.7	54°35.3	109°44.7
21	27°23.0	16.7'	02°13.4	12.5'	54.1'	118° 14.9	95°54.2	86°09.7	76°23.5	42°05.2	32° 37.9	54°59.6	110°11.7
22	41°58.7	16.7'	02°25.9	12.5'	54.1'	117° 45.7	95°26.1	85°42.1	75°54.3	41°36.0	32°56.4	55°24.0	110°38.7
23	56°34.4	16.7'	02°38.5	12.5'								111°05.6	
25 th	SD	$= 14.8^{\prime}$	Mer. pass	. 19:07					Sun SD =	= 16.2′			

h Moon (26th Nov)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	71°10.0	16.7'	N02°51.0	12.5'	54.1'		116°47.2	94°29.7	74°55.9	40°37.8	33°34.0	56°12.9	111°32.6
1	85°45.7	16.6'	03°03.5	12.5'	54.1'	119°58.8	116° 17.9	94°01.5	74°26.7	40°08.7	33°53.1	56°37.5	111°59.6
2	100°21.4	16.6'	$03^{\circ}16.0$	12.5'	54.1'	119°30.6	115°48.7	93°33.3	73°57.5	39°39.6	34° 12.5	57°02.1	112°26.6
3	114°57.0	16.6'	03°28.5	12.5'	54.1'	119°02.3	$115^{\circ}19.5$	93°05.1	73°28.3	39° 10.5	34°32.1	57°26.7	112°53.6
4	129°32.6	16.6'	03°41.0	12.5'	54.1'	118°34.1	114°50.2	92°36.9	72°59.1	38°41.4	34°51.9	57°51.4	113°20.5
5	144°08.2	16.6'	03°53.5	12.5'	54.1'	118°05.8	114°20.9	92°08.6	72°29.8	38° 12.3	35°11.9	58°16.2	113°47.5
6	158°43.8	16.6'	N 04°05.9	12.4'	54.1'	117°37.5	113°51.7	91°40.4	72°00.6	37°43.3	35°32.0	58°41.0	114°14.5
7	173°19.4	16.6'	04°18.4	12.4'	54.1'	117°09.2	113°22.4	91°12.2	71°31.4	37° 14.2	35°52.4	59°05.8	114°41.5
8	187°54.9	16.5'	04°30.8	12.4'	54.1'	116°40.9	112°53.1	90°44.0	71°02.2	36° 45.2	36°13.0	59°30.7	115°08.5
9	202°30.5	16.5'	04°43.3	12.4'	54.1'	116°12.6	112°23.8	90°15.7	70°33.0	36° 16.2	36°33.7	59°55.6	115°35.5
10	217°06.0	16.5'	04°55.7	12.4'	54.1'	115°44.3	111°54.5	89°47.5	70°03.7	35°47.1	36°54.6	60°20.6	116°02.5
11	231°41.5	16.5'	$05^{\circ}08.1$	12.4'	54.1'	115°15.9	111°25.2	89°19.3	69°34.5	35° 18.1	37°15.7	60°45.7	116°29.5
12	246°16.9	16.4'	N05°20.4	12.4'	54.1'	114°47.5	110°55.9	88°51.0	69°05.3	34°49.2	37°37.0	61°10.8	116°56.5
13	260°52.4	16.4'	05°32.8	12.3'	54.1'	114°19.2	110°26.6	88°22.8	68°36.0	34°20.2	37°58.4	61°35.9	117°23.5
14	275°27.8	16.4'	05°45.1	12.3'	54.1'	113°50.8	109°57.3	87°54.5	68°06.8	33°51.2	38° 20.0	62°01.1	117°50.6
15	290°03.2	16.4'	05°57.4	12.3'	54.1'	113°22.3	109°28.0	87°26.2	67°37.5	33°22.3	38°41.7	62°26.3	118°17.6
16	304°38.6	16.3'	06°09.7	12.3'	54.1'	112°53.9	108°58.6	86°58.0	67°08.3	32°53.4	39°03.6	62°51.5	118°44.6
17	319°13.9	16.3'	06°22.0	12.3'	54.1'	112°25.5	108°29.3	86°29.7	66°39.0	32°24.4	39°25.6	63°16.8	119°11.7
18	333°49.2	16.3'	N 06°34.3	12.2'	54.2'	111°57.0	107°59.9	86°01.4	66°09.8	31°55.6	39° 47.8	63°42.2	119°38.7
19	348°24.5	16.3'	06°46.5	12.2'	54.2'	111°28.5	107°30.6	85°33.1	65°40.5	31°26.7	40°10.1	64°07.5	
20	2°59.7	16.2'	06°58.7	12.2'	54.2'	111°00.0	$107^{\circ}01.2$	85°04.8	65°11.3	30°57.8	40°32.5	64°33.0	
21	17°35.0	16.2'	$07^{\circ}10.9$	12.2'	54.2'	110°31.5	106°31.8	84°36.5	64°42.0	30°29.0	40°55.1	64°58.4	
22	32°10.1	16.2'	$07^{\circ}23.1$	12.1'	54.2'	110°03.0	106°02.4	84°08.2	64°12.7	30°00.2	41°17.8	65°23.9	
23	46°45.3	16.1'	07°35.2	12.1'	54.2'	109°34.5	105°33.0	83°39.9	63°43.4	29°31.4	41°40.7	65°49.5	
26 th	SD	$=14.8^{\prime}$	Mer. pass	. 19:48					Sun SD =	16.2 [']			

h Moon (27th Nov)

Lunar Distance (objects with largest hourly LD delta)

										a. 800 t			
Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	-Saturn	+Fomalhaut	+Altair
0	61°20.4	16.1'	N 07°47.4	12.1'	54.2'	109°05.9	105°03.6	83°11.6	73°44.6	63°14.1	29°02.6	42°03.6	66°15.0
1	75°55.5	16.0'	07°59.4	12.1'	54.2'	108°37.3	104°34.2	82°43.3	73°17.0	62°44.8	28°33.8	42°26.7	66°40.6
2	90°30.6	16.0'	$08^{\circ}11.5$	12.0'	54.2'	108°08.8	104°04.7	82°15.0	72°49.5	62° 15.5	28°05.1	42°49.9	67°06.3
3	105°05.6	16.0'	08°23.6	12.0'	54.2'	107°40.1	103°35.3	81°46.6	72°21.9	61°46.2	27°36.4	43°13.2	67°32.0
4	119°40.5	15.9'	08°35.6	12.0'	54.2'	107°11.5	103°05.8	81°18.3	71°54.3	61° 16.9	27°07.8	43°36.6	67°57.7
5	134°15.5	15.9'	08°47.6	12.0'	54.2'	106°42.9	102°36.3	80°49.9	71°26.7	60°47.6	26°39.1	44°00.2	68°23.5
6	148°50.4	15.9'	N 08°59.5	11.9'	54.2'	106°14.2	102°06.9	80°21.6	70°59.2	60°18.3	26°10.5	44°23.8	68°49.2
7	163°25.2	15.8'	09°11.4	11.9'	54.2'	105°45.6	101°37.4	79°53.2	70°31.6	59°48.9	25°42.0	44°47.6	69°15.1
8	178°00.0	15.8'	09°23.3	11.9'	54.2'	105°16.9	101°07.8	79°24.8	70°04.0	59° 19.6	25°13.4	45°11.4	69°40.9
9	192°34.8	15.7'	09°35.2	11.8'	54.3'	104°48.2	100°38.3	78°56.5	69°36.4	58° 50.2	24°44.9	45°35.4	70°06.8
10	207°09.5	15.7'	09°47.0	11.8'	54.3'	104°19.5	100°08.8	78°28.1	69°08.9	58° 20.9	24°16.5	45°59.4	70°32.8
11	221°44.2	15.6'	09°58.8	11.8'	54.3'	103°50.7	99°39.2	77°59.7	68°41.3	57°51.5	23°48.1	46°23.6	70°58.7
12	236°18.8	15.6'	$N10^{\circ}10.6$	11.7'	54.3'	103°22.0	99°09.7	77°31.3	68°13.8	57°22.1	23°19.7	46° 47.8	71°24.7
13	250°53.4	15.5'	10°22.3	11.7'	54.3'	102°53.2	98°40.1	77°02.9	67°46.2	56° 52.8	22°51.4	47° 12.2	71°50.7
14	265°28.0	15.5'	10°34.0	11.7'	54.3'	102°24.4	98°10.5	76°34.5	67°18.6	56° 23.4	22°23.2	47°36.6	72°16.8
15	280°02.5	15.4'	10°45.7	11.6'	54.3'	101°55.6	97°40.9	76°06.0	66°51.1	55° 54.0	21°55.0	48°01.1	72°42.9
16	294°36.9	15.4'	10°57.3	11.6'	54.3'	101°26.8	97°11.3	75°37.6	66°23.6	55° 24.6	21°26.9	48° 25.7	73°09.0
17	309°11.3	15.3'	$11^{\circ}08.9$	11.5'	54.3'	100°58.0	96°41.7	75°09.2	65°56.0	54° 55.2	20°58.9	48°50.4	73°35.2
18	323°45.6	15.3'	N 11°20.5	11.5'	54.3'	100°29.1	96°12.0	74°40.7	65°28.5	54°25.7	20°30.9	49°15.2	74°01.3
19	338°19.9	15.2'	11°32.0	11.5'	54.4'	100°00.2	95°42.4	74°12.3	65°00.9	53° 56.3	20°03.0	49°40.0	74°27.5
20	352°54.2	15.2'	11°43.4	11.4'	54.4'	99°31.3	95°12.7	73°43.8	64°33.4	53° 26.9	19°35.2	50°04.9	74°53.8
21	7°28.3	15.1'	11°54.9	11.4'	54.4'	99°02.4	94°43.0	73°15.4	64°05.9	52° 57.4	19°07.5	50° 29.9	75°20.1
22	22°02.5	15.1'	12°06.3	11.3'	54.4'	98°33.5	94°13.3	72°46.9	63°38.4	52°28.0	18°39.9	50°55.0	75°46.4
23	36°36.5	15.0'	$12^{\circ}17.6$	11.3'	54.4'	98°04.6	93°43.6	72°18.4	63°10.9	51°58.5	18°12.5	51°20.2	76°12.7
27 th	SD	= 14.8'	Mer. pass	. 20:29						-			

h	Moon	()Qth	Mov)

Lunar Distance (objects with largest hourly LD delta)

HP -Regulus -Procyon -Pollux -Betelgeuse -Capella -Aldebaran +Fomalhaut +Altair

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Fomalhaut	+Altair
0	51°10.6	15.0'	N 12°28.9	11.3'	54.4'		97°35.6	93°13.8	71°49.9	62°43.4	51°29.0	51°45.4	76°39.1
1	65°44.5	14.9'	12°40.2	11.2'	54.4'		97°06.6	92°44.1	71°21.4	62°15.9	50° 59.5	52°10.8	77°05.4
2	80°18.4	14.8'	12°51.4	11.2'	54.4'		96°37.6	92°14.3	70°53.0	61°48.4	50°30.0	52°36.1	77°31.9
3	94°52.3	14.8'	13°02.6	11.1'	54.4'		96°08.6	91°44.5	70°24.4	61°20.9	50°00.5	53°01.6	77°58.3
4	109°26.1	14.7'	13°13.7	11.1'	54.5'		95°39.6	91°14.7	69°55.9	60°53.4	49°31.0	53°27.1	78°24.8
5	123°59.8	14.7'	13°24.8	11.0'	54.5'		95°10.5	90°44.9	69°27.4	60°26.0	49°01.5	53°52.7	78°51.3
6	138°33.5	14.6'	N13°35.8	11.0'	54.5'		94°41.4	90° 15.0	68°58.9	59°58.5	48°32.0	54° 18.4	79° 17.8
7	153°07.1	14.5'	13°46.8	10.9'	54.5'		94°12.4	89°45.2	68°30.4	59°31.1	48°02.5	54°44.1	79°44.3
8	167°40.6	14.5'	13°57.7	10.9'	54.5'		93°43.2	89° 15.3	68°01.8	59°03.6	47° 32.9	55°09.9	80° 10.9
9	182°14.1	14.4'	14°08.6	10.8'	54.5'		93°14.1	88°45.4	67°33.3	58°36.2	47°03.4	55° 35.8	80°37.5
10	196°47.5	14.4'	14°19.4	10.8'	54.5'		92°45.0	88° 15.5	67°04.7	58°08.8	46°33.8	56°01.7	81°04.2
11	211°20.9	14.3'	14°30.2	10.7'	54.6'		92°15.8	87°45.6	66°36.2	57°41.4	46°04.2	56° 27.7	81°30.8
12	225°54.1	14.2'	N 14°40.9	10.7'	54.6'		91°46.6	87° 15.6	66°07.6	57°14.0	45°34.7	56°53.7	81°57.5
13	240°27.4	14.2'	14°51.6	10.6'	54.6'		91°17.4	86°45.7	65°39.0	56°46.6	45°05.1	57° 19.8	82°24.2
14	255°00.5	14.1'	15°02.2	10.6'	54.6'		90°48.2	86° 15.7	65°10.5	56°19.3	44° 35.5	57°46.0	82°50.9
15	269°33.6	14.0'	$15^{\circ}12.7$	10.5'	54.6'		90°19.0	85°45.7	64°41.9	55°51.9	44°05.9	58° 12.2	83° 17.7
16	284°06.6	13.9'	15°23.2	10.4'	54.6'		89°49.7	85° 15.7	64°13.3	55°24.6	43°36.3	58° 38.5	83°44.5
17	298°39.6	13.9'	15°33.7	10.4'	54.6'		89°20.4	84°45.6	63°44.7	54°57.3	43°06.7	59°04.8	84°11.3
18	313°12.4	13.8'	N 15°44.0	10.3'	54.7'		88°51.1	84° 15.5	63°16.1	54°30.0	42°37.1	59°31.2	84°38.1
19	327°45.3	13.7'	15°54.4	10.3'	54.7'		88°21.8	83°45.5	62°47.5	54°02.7	42°07.4	59° 57.7	85°05.0
20	342°18.0	13.7'	$16^{\circ}04.6$	10.2'	54.7'		87°52.5	83° 15.4	62°18.9	53°35.4	41°37.8	60°24.2	85°31.8
21	356°50.7	13.6'	$16^{\circ}14.8$	10.1'	54.7'	119°42.4	87°23.1	82°45.3	61°50.3	53°08.2	41°08.2	60°50.7	85°58.7
22	11°23.3	13.5'	$16^{\circ}25.0$	10.1'	54.7'	119°12.1	86°53.8	82°15.1	61°21.7	52°41.0	40°38.5	61°17.3	86°25.6
23	25°55.8	13.5'	16°35.0	10.0'	54.7'	118°41.8	86°24.4	81°45.0	60°53.1	52°13.8	40°08.9	61°44.0	86°52.6
28 th	SD	= 14.8'	Mer. pass	. 21:13									

h Moon (29th Nov)

Lunar Distance (objects with largest hourly LD delta)

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	+Fomalhaut	+Deneb	+Altair
0	40°28.2	13.4'	N 16°45.0	9.9'	54.8'	118°11.5	85°54.9	81°14.8	60°24.5	39°39.2	62°10.7		87° 19.6
1	55°00.6	13.3'	16°55.0	9.9'	54.8'	117°41.1	85°25.5	80°44.6	59°55.9	39°09.6	62°37.5		87°46.5
2	69°32.9	13.2'	17°04.8	9.8'	54.8'	117°10.7	84°56.1	80°14.4	59°27.3	38°39.9	63°04.3		88° 13.5
3	84°05.1	13.2'	$17^{\circ}14.7$	9.7'	54.8'	116°40.3	84°26.6	79°44.1	58° 58.7	38°10.3	63°31.2		88°40.6
4	98°37.3	13.1'	17°24.4	9.7'	54.8'	116°09.9	83°57.1	79°13.9	58°30.1	37°40.6	63°58.1		89°07.6
5	113°09.4	13.0'	$17^{\circ}34.1$	9.6'	54.8'	115°39.4	83°27.6	78°43.6	58°01.4	37°10.9	64°25.0		89°34.7
6	127°41.4	12.9'	N17°43.7	9.5'	54.9'	115°09.0	82°58.1	78°13.3	57°32.8	36°41.3	64°52.0		90°01.8
7	142°13.3	12.8'	17°53.2	9.5'	54.9'	114°38.5	82°28.5	77°42.9	57° 04.2	36°11.6	65°19.1		90°28.9
8	156°45.1	12.8'	18°02.6	9.4'	54.9'	114°07.9	81°59.0	77°12.6	56° 35.6	35°41.9	65°46.2		90°56.0
9	171°16.9	12.7'	18°12.0	9.3'	54.9'	113°37.4	81°29.4	76°42.2	56°07.0	35°12.3	66°13.4	71°33.1	91°23.2
10	185°48.6	12.6'	18°21.3	9.2'	54.9'	113°06.8	80°59.8	76°11.9	55°38.4	34°42.6	66°40.6	71°48.2	91°50.3
11	200°20.2	12.5'	18°30.5	9.2'	55.0'	112°36.2	80°30.1	75°41.4	55°09.8	34°13.0	67°07.8	72°03.4	92°17.5
12	214°51.8	12.5'	N18°39.7	9.1'	55.0'	112°05.6	80°00.5	75°11.0	54°41.2	33°43.3	67°35.1	72°18.6	92°44.7
13	229°23.2	12.4'	18°48.8	9.0'	55.0'	111°35.0	79°30.8	74°40.6	54° 12.6	33°13.7	68°02.4	72°33.9	93°11.9
14	243°54.6	12.3'	18°57.8	8.9'	55.0'	111°04.3	79°01.2	74°10.1	53°44.0	32°44.0	68°29.8	72°49.3	93°39.2
15	258°25.9	12.2'	19°06.7	8.8'	55.0'	110°33.7	78°31.5	73°39.6	53° 15.4	32°14.4	68°57.2	73°04.8	94°06.4
16	272°57.1	12.1'	19°15.5	8.7'	55.0'	110°02.9	78°01.7	73°09.1	52°46.8	31°44.8	69°24.7	73°20.3	94°33.7
17	287°28.3	12.1'	19°24.3	8.7'	55.1'	109°32.2	77°32.0	72°38.5	52° 18.2	31°15.2	69°52.2	73°36.0	95°01.0
18	301°59.3	12.0'	N19°32.9	8.6'	55.1'	109°01.5	77°02.3	72°08.0	51°49.7	30°45.6	70°19.7	73°51.7	95°28.3
19	316°30.3	11.9'	19°41.5	8.5'	55.1'	108°30.7	76°32.5	71°37.4	51°21.1	30°16.0	70°47.3	74°07.4	95°55.6
20	331°01.2	11.8'	19°50.0	8.4'	55.1'	107°59.9	76°02.7	71°06.8	50° 52.6	29°46.4	71°14.9	74°23.3	96°22.9
21	345°32.0	11.7'	19°58.4	8.3'	55.1'	107°29.0	75°32.9	70°36.2	50°24.0	29°16.9	71°42.6	74°39.2	96°50.3
22	0°02.8	11.7'	20°06.7	8.2'	55.2'	106°58.2	75°03.0	70°05.5	49° 55.5	28°47.4	72°10.3	74°55.1	97°17.6
23	14°33.4	11.6'	$20^{\circ}15.0$	8.1'	55.2'	106°27.3	74°33.2	69°34.9	49°27.0	28°17.9	72°38.1	75°11.2	97°45.0
29 th	SD	= 14.9'	Mer. pass.	22:00									

Moon (30th Nov)

h

Thu	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Saturn	+Fomalhaut	+Deneb	+Altair
<u> </u>						iviais							
0	29°04.0	11.5'	N20°23.1	8.1'	55.2'		105°56.4	74°03.3	69°04.2	11°10.9	73°05.8	75° 27.3	98°12.4
1	43°34.5	11.4'	20°31.2	8.0'	55.2'		105°25.5	73°33.5	68°33.5	11°34.4	73°33.7	75°43.5	98°39.8
2	58°04.9	11.3'	20°39.1	7.9'	55.2'		104°54.5	73°03.6	68°02.7	11°58.4	74°01.5	75°59.7	99°07.2
3	72°35.2	11.3'	20°47.0	7.8'	55.3'		104°23.5	72°33.6	67°32.0	12°23.0	74°29.4	76°16.0	99°34.6
4	87°05.5	11.2'	20°54.8	7.7'	55.3'		103°52.5	72°03.7	67°01.2	12°48.1	74°57.4	76°32.4	100°02.1
5	101°35.7	11.1'	21°02.5	7.6'	55.3'		103°21.5	71°33.7	66°30.4	13°13.6	75°25.3	76°48.8	100°29.5
6	116°05.8	11.0'	N 21°10.0	7.5'	55.3'		102°50.5	71°03.8	65°59.6	13°39.6	75°53.3	77°05.3	100°57.0
7	130°35.8	10.9'	$21^{\circ}17.5$	7.4'	55.3'		102°19.4	70°33.8	65°28.7	14°05.9	76°21.4	77°21.8	101°24.4
8	145°05.7	10.8'	21°24.9	7.3'	55.4'		101°48.3	70°03.8	64°57.8	14°32.6	76°49.5	77°38.4	101°51.9
9	159°35.5	10.8'	21°32.2	7.2'	55.4'		101°17.1	69°33.8	64°27.0	14°59.5	77°17.6	77°55.1	102°19.4
10	174°05.3	10.7'	21°39.4	7.1'	55.4'		100°46.0	69°03.7	63°56.0	15°26.8	77°45.7	78°11.8	102°46.9
11	188°35.0	10.6'	21°46.5	7.0'	55.4'		100°14.8	68°33.7	63°25.1	15°54.4	78°13.9	78°28.6	103°14.4
12	203°04.6	10.5'	N21°53.5	6.9'	55.5'	119°32.7	99°43.6	68°03.6	62°54.2	16°22.2	78°42.1	78°45.4	103°41.9
13	217°34.1	10.4'	22°00.4	6.8'	55.5'	119°02.9	99°12.4	67°33.5	62°23.2	16°50.2	79°10.4	79°02.3	104°09.4
14	232°03.6	10.4'	22°07.1	6.7'	55.5'	118°33.1	98°41.1	67°03.4	61°52.2	17°18.4	79°38.7	79°19.2	104°37.0
15	246°32.9	10.3'	22°13.8	6.6'	55.5'	118°03.2	98°09.8	66°33.3	61°21.2	17°46.9	80°07.0	79°36.2	105°04.5
16	261°02.2	10.2'	22°20.4	6.5'	55.5'	117°33.3	97°38.5	66°03.2	60°50.1	18°15.5	80°35.3	79°53.3	105°32.0
17	275°31.4	10.1'	22°26.8	6.3'	55.6'	117°03.4	97°07.2	65°33.0	60°19.0	18°44.3	81°03.7	80°10.4	105°59.5
18	290°00.6	10.1'	N22°33.2	6.2'	55.6'	116°33.5	96°35.8	65°02.9	59°48.0	19°13.2	81°32.1	80°27.5	106°27.1
19	304°29.6	10.0'	22°39.4	6.1'	55.6'	116°03.5	96°04.4	64°32.7	59°16.8	19°42.4	82°00.6	80°44.7	106°54.6
20	318°58.6	9.9'	22°45.5	6.0'	55.6'	115°33.5	95°33.0	64°02.5	58°45.7	20°11.6	82°29.0	81°01.9	107°22.2
21	333°27.5	9.8'	22°51.6	5.9'	55.6'	115°03.5	95°01.6	63°32.3	58°14.6	20°41.0	82°57.5	81°19.2	107°49.7
22	347°56.3	9.7'	22°57.5	5.8'	55.7'	114°33.4	94°30.1	$63^{\circ}02.1$	57°43.4	21°10.5	83°26.1	81°36.5	108°17.3
23	2°25.0	9.7'	23°03.2	5.7'	55.7'	114°03.4	93°58.6	62°31.9	57°12.2	21°40.2	83°54.6	81°53.9	108°44.8
30 th	SD :	= 15.1'	Mer. pass.	22:50									

h	Moon (1st Dec)	Lunar Distance (objects with largest hourly LD delta)
n	IVIOON LIE DECT	I linar Distance Conjects with Jargest hollry LLD deltal

Fri	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	16°53.7	9.6'	N 23°08.9	5.6'	55.7'	113°33.3	93°27.1	62°01.6	56°41.0	22°09.9	82°11.3	84°23.2	109°12.4
1	31°22.3	9.5'	23°14.5	5.4'	55.7'	113°03.1	92°55.6	61°31.4	56°09.8	22°39.8	82°28.8	84°51.9	109°39.9
2	45°50.8	9.4'	23°19.9	5.3'	55.8'	112°33.0	92°24.0	61°01.1	55°38.5	23°09.8	82°46.3	85°20.5	110°07.5
3	60°19.3	9.4'	23°25.2	5.2'	55.8'	112°02.8	91°52.4	60°30.9	55°07.2	23°39.9	83°03.8	85°49.2	110°35.0
4	74°47.6	9.3'	23°30.4	5.1'	55.8'	111°32.6	91°20.8	60°00.6	54°35.9	24°10.0	83°21.4	86°17.9	111°02.5
5	89°15.9	9.2'	23°35.5	5.0'	55.8'	111°02.3	90°49.2	59°30.3	54°04.6	24°40.3	83°39.0	86°46.6	111°30.1
6	103°44.2	9.2'	N 23°40.5	4.8'	55.8'	110°32.1	90°17.5	59°00.0	53°33.3	25°10.6	83°56.7	87°15.4	111°57.6
7	118°12.3	9.1'	23°45.3	4.7'	55.9'	110°01.8	89°45.8	58°29.7	53°01.9	25°41.1	84°14.4	87°44.1	112°25.1
8	132°40.4	9.0'	23°50.0	4.6'	55.9'	109°31.4	89°14.1	57°59.4	52°30.5	26°11.6	84°32.1	88°13.0	112°52.6
9	147°08.4	8.9'	23°54.6	4.5'	55.9'	109°01.1	88°42.3	57°29.0	51°59.1	26°42.2	84°49.9	88°41.8	113°20.1
10	161°36.4	8.9'	23°59.1	4.3'	55.9'	108°30.7	88°10.6	56°58.7	51°27.7	27°12.8	85°07.7	89°10.6	113°47.6
11	176°04.3	8.8'	24°03.5	4.2'	56.0'	108°00.3	87°38.8	56°28.4	50°56.3	27°43.6	85°25.5	89°39.5	114°15.1
12	190°32.1	8.7'	N 24°07.7	4.1'	56.0'	107°29.9	87°06.9	55°58.0	50°24.8	28°14.4	85°43.4	90°08.4	114°42.5
13	204°59.8	8.7'	24°11.8	4.0'	56.0'	106°59.4	86°35.1	55°27.7	49°53.4	28°45.2	86°01.2	90°37.4	115°10.0
14	219°27.5	8.6'	24°15.7	3.8'	56.0'	106°28.9	86°03.2	54°57.3	49°21.9	29°16.2	86°19.2	91°06.3	115°37.4
15	233°55.1	8.6'	24°19.6	3.7'	56.0'	105°58.4	85°31.3	54°27.0	48°50.4	29°47.2	86°37.1	91°35.3	116°04.9
16	248°22.7	8.5'	24°23.3	3.6'	56.1'	105°27.9	84°59.4	53°56.6	48°18.8	30°18.2	86°55.1	92°04.3	116°32.3
17	262°50.2	8.4'	24°26.8	3.4'	56.1'	104°57.3	84°27.4	53°26.2	47°47.3	30°49.3	87°13.1	92°33.3	116°59.7
18	277°17.6	8.4'	N 24°30.3	3.3'	56.1'	104°26.7	83°55.4	52°55.9	47°15.7	31°20.5	87°31.1	93°02.3	117°27.0
19	291°45.0	8.3'	24°33.6	3.2'	56.1'	103°56.1	83°23.4	52°25.5	46°44.2	31°51.7	87°49.1	93°31.4	117°54.4
20	306°12.3	8.3'	24°36.7	3.0'	56.2'	103°25.5	82°51.4	51°55.1	46°12.6	32°23.0	88°07.2	94°00.5	118°21.7
21	320°39.6	8.2'	24°39.8	2.9'	56.2'	102°54.8	82°19.4	51°24.7	45°41.0	32°54.4	88°25.3	94°29.6	118°49.0
22	335°06.8	8.1'	24°42.7	2.8'	56.2'	102°24.1	81°47.3	50°54.4	45°09.3	33°25.8	88°43.4	94°58.7	119°16.3
23	349°33.9	8.1'	24°45.5	2.6'	56.2'	101°53.4	81°15.2	50°24.0	44°37.7	33°57.2	89°01.5	95°27.8	119°43.5
1 st	SD =	= 15.2′	Mer. pass	. 23:43	3								

h	Moon	(2 nd	Dec)	١

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Jupiter	-Mars	-Regulus	-Pollux	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	4°01.0	8.0'	N 24°48.1	2.5'	56.2'		101°22.6	80°43.0	44°06.1		34°28.7	89°19.7	95°57.0
1	18°28.1	8.0'	24°50.6	2.4'	56.3'		100°51.8	80°10.9	43°34.4		35°00.2	89°37.8	96°26.1
2	32°55.1	7.9'	24°52.9	2.2'	56.3'		100°21.0	79°38.7	43°02.7		35°31.8	89°56.0	96°55.3
3	47°22.0	7.9'	24°55.2	2.1'	56.3'		99°50.2	79°06.5	42°31.0		36°03.4	90°14.2	97°24.5
4	61°48.9	7.8'	24°57.2	1.9'	56.3'		99°19.3	78°34.3	41°59.3		36°35.1	90°32.4	97°53.7
5	76°15.7	7.8'	24°59.2	1.8'	56.4'		98°48.4	78°02.0	41°27.6		37°06.8	90°50.6	98°23.0
6	90°42.5	7.8'	$N25^{\circ}01.0$	1.7'	56.4'		98° 17.5	77°29.7	40°55.9		37°38.6	91°08.9	98° 52.2
7	105°09.3	7.7'	25°02.7	1.5'	56.4'		97°46.6	76°57.4	40°24.1		38°10.4	91°27.1	99°21.5
8	119°36.0	7.7'	25°04.2	1.4'	56.4'		97° 15.6	76°25.1	39°52.4		38°42.2	91°45.4	99°50.7
9	134°02.7	7.6'	25°05.5	1.2'	56.4'		96° 44.6	75°52.7	39°20.6		39°14.1	92°03.6	100°20.0
10	148°29.3	7.6'	25°06.8	1.1'	56.5'		96°13.6	75°20.4	38°48.8		39°46.1	92°21.9	100°49.3
11	162°55.9	7.6'	25°07.9	0.9'	56.5'		95°42.6	74°48.0	38° 17.1		40°18.0	92°40.1	101° 18.6
12	177°22.5	7.5'	N 25°08.8	0.8'	56.5'		95°11.5	74° 15.5	37°45.3		40°50.0	92°58.4	101°48.0
13	191°49.0	7.5'	25°09.6	0.7'	56.5'		94°40.5	73°43.1	37° 13.5		41°22.1	93°16.7	102° 17.3
14	206°15.5	7.4'	25°10.3	0.5'	56.5'		94°09.3	73° 10.6	36°41.7		41°54.2	93°35.0	102°46.6
15	220°41.9	7.4'	25°10.8	0.4'	56.6'		93°38.2	72°38.1	36°09.9		42°26.3	93°53.3	103° 16.0
16	235°08.3	7.4'	25°11.2	0.2'	56.6'		93°07.0	72°05.6	35°38.1	_	42°58.4	94°11.5	103°45.3
17	249°34.7	7.4'	25°11.4	0.1'	56.6'		92°35.9	71°33.0	35°06.3	11°27.1	43°30.6	94°29.8	104°14.7
18	264°01.1	7.3'	$N25^{\circ}11.5$	-0.1'	56.6'		92°04.6	71°00.4	34°34.5	11°49.8	44°02.9	94°48.1	104°44.1
19	278°27.4	7.3'	25°11.4	-0.2'	56.7'		91°33.4	70°27.8	34°02.7	12°13.2	44°35.1	95°06.4	105° 13.5
20	292°53.7	7.3'	25°11.2	-0.4'	56.7'		91°02.1	69°55.2	33°30.9	12°37.4	45°07.4	95°24.6	105° 42.9
21	307°20.0	7.3'	25°10.8	-0.5	56.7'	119°46.1	90°30.9	69°22.6	32°59.1	13°02.1	45°39.8	95°42.9	106°12.2
22	321°46.3	7.2'	25°10.3	-0.7'	56.7'	119°14.1	89°59.5	68°49.9	32°27.3	13°27.5	46°12.1	96°01.2	106°41.6
23	336°12.5	7.2'	25°09.6	-0.8'	56.7'	118°42.0	89°28.2	68° 17.2	31°55.5	13°53.3	46°44.5	96°19.4	107°11.0
2 nd	SD	= 15.	3′ Mer. pa	ss:-									

Moon (3rd Dec)

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	350°38.7	7.2'	N 25°08.8	-1.0'	56.8'		118°09.8	88°56.9	67°44.5	14°19.7		47°17.0	107°40.4
1	5°04.9	7.2'	25°07.9	-1.1'	56.8'		117°37.7	88°25.5	67°11.8	14°46.5		47°49.4	108°09.8
2	19°31.1	7.2'	25°06.8	-1.3'	56.8'		117°05.5	87°54.1	66°39.0	15°13.7		48°21.9	108°39.2
3	33°57.3	7.2'	25°05.5	-1.4'	56.8'		116°33.3	87°22.6	66°06.2	15°41.2		48°54.5	109°08.6
4	48°23.4	7.1'	$25^{\circ}04.1$	-1.5'	56.9'	119°36.3	116°01.1	86°51.2	65°33.4	16°09.2		49°27.0	109°38.0
5	62°49.6	7.1'	25°02.6	-1.7'	56.9'	119°03.4	115°28.8	86°19.7	65°00.6	16°37.4		49°59.6	110°07.4
6	77°15.7	7.1'	$N25^{\circ}00.9$	-1.8'	56.9'	118°30.5	114°56.5	85°48.2	64°27.8	17°05.9		50°32.2	110°36.8
7	91°41.9	7.1'	24°59.0	-2.0'	56.9'	117°57.6	114°24.2	85°16.7	63°54.9	17°34.7		51°04.9	111°06.2
8	106°08.0	7.1'	24°57.1	-2.1'	56.9'	117°24.6	113°51.9	84°45.2	63°22.0	18°03.8		51°37.6	111°35.6
9	120°34.1	7.1'	24°54.9	-2.3'	57.0'	116°51.7	113°19.5	84°13.6	62°49.1	18°33.0		52°10.3	112°05.0
10	135°00.2	7.1'	24°52.6	-2.4'	57.0'	116°18.7	112°47.1	83°42.0	62°16.1	19°02.5		52°43.0	112°34.4
11	149°26.3	7.1'	24°50.2	-2.6'	57.0'	115°45.7	112°14.7	83°10.4	61°43.2	19°32.2		53°15.8	113°03.7
12	163°52.4	7.1'	N 24°47.6	-2.7'	57.0'	115°12.6	111°42.3	82°38.8	61°10.2	20°02.1		53°48.6	113°33.1
13	178°18.5	7.1'	24°44.9	-2.9'	57.0'	114°39.6	111°09.8	82°07.1	60°37.2	20°32.2		54°21.4	114°02.4
14	192°44.7	7.1'	24°42.0	-3.0'	57.1'	114°06.5	110°37.4	81°35.4	60°04.2	21°02.4		54°54.3	114°31.8
15	207°10.8	7.1'	24°38.9	-3.2'	57.1'	113°33.4	110°04.8	81°03.7	59°31.1	21°32.8		55°27.2	115°01.1
16	221°36.9	7.1'	24°35.8	-3.3'	57.1'	113°00.2	109°32.3	80°32.0	58°58.1	22°03.4		56°00.1	115°30.4
17	236°03.0	7.1'	24°32.4	-3.5'	57.1'	112°27.1	108°59.8	80°00.3	58°25.0	22°34.1	23°38.5	56°33.0	115°59.7
18	250°29.2	7.2'	N 24°29.0	-3.6'	57.1'	111°53.9	108°27.2	79°28.5	57°51.9	23°04.9	23°54.1	57°06.0	116°29.0
19	264°55.3	7.2'	24°25.3	-3.8'	57.2'	111°20.7	107°54.6	78°56.7	57°18.7	23°35.8	24°10.3	57°39.0	116°58.3
20	279°21.5	7.2'	24°21.6	-3.9'	57.2'	110°47.5	107°22.0	78°24.9	56°45.6	24°06.9	24°27.0	58°12.0	117°27.5
21	293°47.7	7.2'	24°17.6	-4.1'	57.2'	110°14.2	106°49.3	77°53.1	56°12.4	24°38.0	24°44.3	58°45.0	117°56.7
22	308°13.9	7.2'	24°13.6	-4.2'	57.2'	109°41.0	106°16.6	77°21.2	55°39.2	25°09.3	25°02.1	59°18.1	118°25.9
23	322°40.1	7.2'	24°09.4	-4.4'	57.2'	109°07.7	105°43.9	76°49.4	55°06.0	25°40.7	25°20.4	59°51.2	118°55.1
3 rd	SD	= 15.5'	Mer. pas	s. 00:39									

h Moon (4th Dec)

Mon	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	337°06.3	7.2'	N 24°05.0	-4.5'	57.3'	108°34.4	105°11.2	76°17.5	54°32.8		25°39.2	26°12.1	60°24.3
1	351°32.5	7.3'	24°00.5	-4.6'	57.3'	108°01.0	104°38.5	75°45.6	53°59.5		25°58.4	26°43.7	60°57.5
2	5°58.8	7.3'	23°55.9	-4.8'	57.3'	107°27.7	104°05.7	75°13.6	53°26.3		26°18.1	27°15.3	61°30.6
3	20°25.1	7.3'	23°51.1	-4.9'	57.3'	106°54.3	103°32.9	74°41.7	52°53.0		26°38.3	27°47.1	62°03.8
4	34°51.4	7.3'	23°46.1	-5.1'	57.3'	106°20.9	103°00.1	74°09.7	52°19.7		26°58.8	28°18.9	62°37.1
5	49°17.7	7.4'	23°41.1	-5.2'	57.4'	105°47.5	102°27.3	73°37.7	51°46.4		27°19.8	28°50.8	63°10.3
6	63°44.1	7.4'	N23°35.8	-5.4'	57.4'	105°14.1	101°54.5	73°05.7	51°13.0		27°41.2	29°22.7	63°43.6
7	78°10.4	7.4'	23°30.5	-5.5'	57.4'	104°40.6	101°21.6	72°33.7	50°39.7		28°02.9	29°54.8	64°16.9
8	92°36.8	7.4'	23°25.0	-5.6'	57.4'	104°07.1	100°48.7	72°01.7	50°06.3	19°38.4	28°25.0	30°26.9	64°50.2
9	107°03.3	7.5'	23°19.3	-5.8'	57.4'	103°33.6	100°15.8	71°29.6	49°32.9	19°54.4	28°47.4	30°59.0	65°23.5
10	121°29.7	7.5'	23°13.5	-5.9'	57.5'	103°00.1	99°42.9	70°57.5	48°59.5	20°11.0	29°10.2	31°31.2	65°56.9
11	135°56.2	7.5'	23°07.6	-6.1'	57.5'	102°26.6	99°09.9	70°25.4	48°26.1	20°28.4	29°33.4	32°03.5	66°30.3
12	150°22.8	7.6'	$N23^{\circ}01.5$	-6.2'	57.5'	101°53.0	98°36.9	69°53.3	47°52.6	20°46.4	29°56.8	32°35.9	67°03.7
13	164°49.3	7.6'	22°55.3	-6.3'	57.5'	101°19.4	98°03.9	69°21.2	47°19.1	21°05.0	30°20.5	33°08.3	67°37.1
14	179°15.9	7.6'	22°49.0	-6.5'	57.5'	100°45.8	97°30.9	68°49.0	46°45.7	21°24.2	30°44.6	33°40.7	68°10.6
15	193°42.6	7.7'	22°42.5	-6.6'	57.6'	100°12.2	96°57.9	68°16.8	46°12.2	21°44.0	31°08.9	34°13.3	68°44.0
16	208°09.2	7.7'	22°35.9	-6.8'	57.6'	99°38.6	96°24.8	67°44.6	45°38.6	22°04.3	31°33.5	34°45.8	69°17.5
17	222°35.9	7.7'	22°29.1	-6.9'	57.6'	99°04.9	95°51.7	67°12.4	45°05.1	22°25.2	31°58.3	35°18.4	69°51.1
18	237°02.7	7.8'	$N22^{\circ}22.3$	-7.0'	57.6'	98°31.2	95°18.6	66°40.2	44°31.6	22°46.5	32°23.4	35°51.1	70°24.6
19	251°29.5	7.8'	22°15.2	-7.2'	57.6'	97°57.5	94°45.5	66°08.0	43°58.0	23°08.3	32°48.8	36°23.8	70°58.2
20	265°56.3	7.9'	22°08.1	-7.3'	57.7'	97°23.8	94°12.4	65°35.7	43°24.4	23°30.6	33°14.3	36°56.5	71°31.7
21	280°23.1	7.9'	22°00.8	-7.4'	57.7'	96°50.1	93°39.2	65°03.4	42°50.8	23°53.3	33°40.2	37°29.3	72°05.4
22	294°50.1	7.9'	21°53.3	-7.6'	57.7'	96°16.3	93°06.1	64°31.1	42°17.2	24°16.5	34°06.2	38°02.2	72°39.0
23	309°17.0	8.0'	21°45.8	-7.7'	57.7'	95°42.5	92°32.9	63°58.8	41°43.6	24°40.0	34°32.4	38°35.1	73°12.6
4 th	SD :	= 15.6'	Mer. pas	s. 01:35	i								

h Moon (5th Dec)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Betelgeuse	+Capella	+Aldebaran	+Saturn
0	323°44.0	8.0'	N21°38.1	-7.8'	57.7'	95°08.7	91°59.7	63°26.5	41°10.0	25°03.9	34°58.9	39°08.0	73°46.3
1	338°11.0	8.1'	21°30.3	-7.9'	57.7'	94°34.9	91°26.4	62°54.2	40°36.3	25°28.2	35°25.5	39°40.9	74°20.0
2	352°38.1	8.1'	21°22.3	-8.1'	57.8'	94°01.1	90°53.2	62°21.8	40°02.7	25°52.8	35°52.4	40° 13.9	74°53.7
3	7°05.2	8.2'	21°14.3	-8.2'	57.8'	93°27.3	90°19.9	61°49.4	39°29.0	26°17.8	36°19.4	40°47.0	75°27.4
4	21°32.4	8.2'	$21^{\circ}06.1$	-8.3'	57.8'	92°53.4	89°46.6	61° 17.1	38°55.3	26°43.1	36°46.6	41°20.1	76°01.1
5	35°59.6	8.3'	20°57.7	-8.5'	57.8'	92°19.5	89°13.3	60°44.7	38°21.6	27°08.7	37°14.0	41°53.2	76°34.9
6	50°26.9	8.3'	N 20°49.3	-8.6'	57.8'	91°45.6	88°40.0	60°12.2	37°47.9	27°34.5	37°41.5	42°26.3	77°08.7
7	64°54.2	8.4'	20°40.7	-8.7'	57.9'	91°11.7	88°06.6	59° 39.8	37° 14.2	28°00.7	38°09.2	42° 59.5	77°42.5
8	79°21.6	8.4'	20°32.0	-8.8'	57.9'	90°37.7	87°33.3	59°07.4	36°40.5	28°27.1	38°37.1	43°32.7	78°16.3
9	93°49.0	8.5'	20°23.2	-8.9'	57.9'	90°03.8	86°59.9	58°34.9	36°06.7	28°53.8	39°05.1	44°06.0	78°50.1
10	108°16.4	8.5'	20°14.2	-9.1'	57.9'	89°29.8	86°26.5	58°02.4	35°33.0	29°20.7	39°33.3	44°39.2	79°24.0
11	122°43.9	8.6'	20°05.2	-9.2'	57.9'	88°55.8	85°53.1	57°30.0	34°59.2	29°47.9	40°01.6	45°12.6	79°57.9
12	137°11.5	8.6'	N 19°56.0	-9.3'	57.9'	88°21.8	85° 19.7	56° 57.5	34° 25.4	30°15.3	40°30.0	45°45.9	80°31.8
13	151°39.1	8.7'	19°46.7	-9.4'	58.0'	87°47.8	84°46.2	56°25.0	33°51.6	30°42.9	40°58.6	46° 19.3	81°05.7
14	166°06.8	8.7'	19°37.3	-9.5'	58.0'	87°13.7	84°12.8	55°52.4	33° 17.8	31°10.7	41°27.3	46°52.7	81°39.6
15	180°34.5	8.8'	19°27.7	-9.6'	58.0'	86°39.7	83°39.3	55° 19.9	32°44.0	31°38.7	41°56.1	47°26.1	82°13.6
16	195°02.2	8.8'	$19^{\circ}18.1$	-9.8'	58.0'	86°05.6	83°05.8	54°47.4	32°10.2	32°06.9	42°25.0	47°59.6	82°47.5
17	209°30.0	8.9'	19°08.3	-9.9'	58.0'	85°31.5	82°32.3	54°14.8	31°36.4	32°35.3	42°54.1	48°33.1	83°21.5
18	223°57.9	8.9'	N 18°58.5	-10.0'	58.0'	84°57.4	81°58.8	53°42.2	31°02.6	33°03.8	43°23.3	49°06.6	83°55.5
19	238°25.8	9.0'	18°48.5	-10.1'	58.1'	84°23.2	81°25.2	53°09.6	30°28.8	33°32.6	43°52.6	49°40.1	84°29.5
20	252°53.8	9.0'	18°38.4	-10.2'	58.1'	83°49.1	80°51.7	52°37.0	29°55.0	34°01.4	44°22.0	50° 13.7	85°03.6
21	267°21.8	9.1'	18°28.2	-10.3'	58.1'	83°14.9	80°18.1	52°04.4	29°21.1	34°30.5	44°51.5	50°47.3	85°37.6
22	281°49.9	9.1'	18°17.8	-10.4'	58.1'	82°40.8	79°44.5	51°31.8	28°47.3	34°59.7	45°21.1	51°20.9	86°11.7
23	296°18.0	9.2'	18°07.4	-10.5'	58.1'	82°06.6	79°10.9	50°59.2	28°13.5	35°29.0	45°50.8	51°54.6	86°45.8
5 th	SD	= 15.7	" Mer. pas	ss. 02:31						·			

h Moon (6th Dec)

Wed	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	310°46.2	9.2'	N17°56.9	-10.6'	58.1'	81°32.4	78°37.3	50°26.6	27°39.6	12°17.0	35°58.5	52°28.2	87°19.9
1	325°14.4	9.3'	17°46.2	-10.7'	58.2'	80°58.1	78°03.6	49°53.9	27°05.8	12°44.4	36°28.1	53°01.9	87°54.0
2	339°42.7	9.3'	17°35.5	-10.8'	58.2'	80°23.9	77°30.0	49°21.3	26°32.0	13°12.2	36°57.9	53°35.7	88°28.1
3	354°11.0	9.4'	17°24.7	-10.9'	58.2'	79°49.6	76°56.3	48°48.6	25°58.1	13°40.6	37°27.7	54°09.4	89°02.2
4	8°39.4	9.4'	17°13.7	-11.0'	58.2'	79°15.4	76°22.6	48° 15.9	25°24.3	14°09.4	37°57.7	54°43.2	89°36.4
5	23°07.9	9.5'	$17^{\circ}02.7$	-11.1'	58.2'	78°41.1	75°48.9	47°43.3	24°50.5	14°38.6	38°27.8	55°17.0	90°10.6
6	37°36.4	9.5'	N 16°51.5	-11.2'	58.2'	78°06.8	75°15.2	47° 10.6	24°16.7	15°08.2	38°58.0	55°50.8	90°44.8
7	52°04.9	9.6'	16°40.3	-11.3'	58.2'	77°32.5	74°41.5	46°37.9	23°42.9	15°38.1	39°28.4	56°24.6	91°19.0
8	66°33.5	9.6'	16°28.9	-11.4'	58.3'	76°58.1	74°07.7	46°05.2	23°09.1	16°08.3	39°58.8	56°58.5	91°53.2
9	81°02.1	9.7'	$16^{\circ}17.5$	-11.5'	58.3'	76°23.8	73°34.0	45°32.5	22°35.3	16°38.8	40°29.3	57°32.4	92°27.4
10	95°30.8	9.7'	$16^{\circ}06.0$	-11.6'	58.3'	75°49.4	73°00.2	44°59.8	22°01.6	17°09.5	41°00.0	58°06.3	93°01.7
11	109°59.6	9.8'	15°54.4	-11.7'	58.3'	75°15.0	72°26.4	44°27.1	21°27.8	17°40.5	41°30.7	58°40.2	93°36.0
12	124°28.4	9.8'	N 15°42.6	-11.8'	58.3'	74°40.7	71°52.6	43°54.3	20°54.1	18°11.7	42°01.5	59°14.1	94°10.2
13	138°57.2	9.9'	15°30.8	-11.9'	58.3'	74°06.2	71°18.8	43°21.6	20°20.4	18°43.0	42°32.4	59°48.1	94°44.5
14	153°26.1	9.9'	15°18.9	-12.0'	58.4'	73°31.8	70°45.0	42°48.9	19°46.7	19°14.6	43°03.4	60°22.1	95°18.8
15	167°55.1	10.0'	15°06.9	-12.1'	58.4'	72°57.4	70°11.2	42°16.2	19° 13.1	19°46.4	43°34.5	60°56.1	95°53.2
16	182°24.1	10.0'	14°54.9	-12.2'	58.4'	72°22.9	69°37.3	41°43.4	18° 39.5	20°18.2	44°05.6	61°30.1	96°27.5
17	196°53.1	10.1'	14°42.7	-12.2'	58.4'	71°48.5	69°03.5	41°10.7	18°05.9	20°50.3	44°36.9	62°04.2	97°01.8
18	211°22.2	10.1'	N14°30.5	-12.3'	58.4'	71°14.0	68°29.6	40°37.9	17°32.4	21°22.5	45°08.2	62°38.2	97°36.2
19	225°51.4	10.2'	$14^{\circ}18.1$	-12.4'	58.4'	70°39.5	67°55.7	40°05.2	16°58.9	21°54.8	45°39.6	63°12.3	98°10.6
20	240°20.6	10.2'	14°05.7	-12.5'	58.4'	70°05.0	67°21.8	39°32.5	16°25.5	22°27.2	46°11.0	63°46.4	98°45.0
21	254°49.8	10.3'	13°53.2	-12.6'	58.5'	69°30.5	66°47.9	38°59.7	15°52.2	22°59.7	46°42.5	64°20.5	99°19.4
22	269°19.1	10.3'	13°40.7	-12.7'	58.5'	68°55.9	66°14.0	38°27.0	15° 18.9	23°32.4	47°14.1	64°54.7	99°53.8
23	283°48.4	10.4'	13°28.0	-12.7'	58.5'	68°21.4	65°40.1	37°54.2	14°45.7	24°05.1	47°45.8	65°28.8	100°28.2
6 th	SD	= 15.9'	Mer. pas	s. 03:24									

h Moon (7 th Dec)	Lunar Distance (objects with larg	gest hourly LD delta

		11100	(. 20	-,				Distanc	- (gest meanly	LD derta)	
Thu	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Pollux	+Betelgeuse	+Aldebaran	+Saturn
0	298°17.8	10.4'	N13° 15.3	-12.8'	58.5'	67°46.8	65°06.1	37°21.5	14°12.7	24°37.9	48°17.5	66°03.0	101°02.7
1	312°47.2	10.5'	13°02.5	-12.9'	58.5'	67°12.3	64°32.1	36°48.8	13°39.7	25°10.9	48°49.3	66°37.2	101°37.1
2	327°16.7	10.5'	12°49.6	-13.0'	58.5'	66°37.7	63°58.2	36°16.0	13°06.8	25°43.9	49°21.2	67°11.4	102°11.6
3	341°46.2	10.5'	12°36.6	-13.0'	58.5'	66°03.1	63°24.2	35°43.3	12°34.1	26° 16.9	49°53.1	67°45.6	102°46.1
4	356°15.7	10.6'	12°23.6	-13.1'	58.5'	65°28.5	62°50.2	35°10.6	12°01.6	26°50.1	50°25.0	68°19.9	103°20.5
5	10°45.3	10.6'	12° 10.5	-13.2'	58.6'	64°53.8	62°16.2	34°37.9	11°29.3	27°23.3	50°57.0	68°54.1	103°55.0
6	25°14.9	10.7'	N11°57.4	-13.2'	58.6'	64°19.2	61°42.2	34°05.2	10°57.2	27°56.6	51°29.1	69°28.4	104°29.6
7	39°44.6	10.7'	$11^{\circ}44.1$	-13.3'	58.6'	63°44.5	61°08.2	33°32.5	10°25.3	28°30.0	52°01.2	70°02.7	105°04.1
8	54°14.3	10.8'	11°30.8	-13.4'	58.6'	63°09.9	60°34.1	32°59.8	9°53.8	29°03.4	52°33.4	70°37.0	105°38.6
9	68°44.1	10.8'	$11^{\circ}17.4$	-13.4'	58.6'	62°35.2	60°00.1	32°27.2	9°22.6	29°36.9	53°05.6	71°11.4	106°13.2
10	83°13.9	10.8'	11°04.0	-13.5'	58.6'	62°00.5	59°26.0	31°54.5	8°51.8	30°10.4	53°37.9	71°45.7	106°47.7
11	97°43.7	10.9'	10°50.5	-13.6'	58.6'	61°25.8	58°52.0	31°21.9	8°21.5	30°44.0	54°10.2	72°20.1	107°22.3
12	112°13.6	10.9'	N10°37.0	-13.6'	58.7'	60°51.1	58°17.9	30°49.3	7°51.9	31°17.7	54°42.6	72°54.4	107°56.9
13	126°43.5	10.9'	10°23.3	-13.7'	58.7'	60°16.4	57°43.8	30°16.7	7°23.0	31°51.4	55°15.0	73°28.8	108°31.5
14	141°13.4	11.0'	10°09.7	-13.7'	58.7'	59°41.6	57°09.7	29°44.1	6°54.9	32°25.1	55°47.5	74°03.2	109°06.1
15	155°43.4	11.0'	09°55.9	-13.8'	58.7'	59°06.9	56°35.6	29°11.5		32°58.9	56°20.0	74°37.6	109°40.7
16	170°13.4	11.0'	09°42.1	-13.9'	58.7'	58°32.1	56°01.5	28°39.0		33°32.7	56°52.5	75°12.1	110° 15.3
17	184°43.4	11.1'	09°28.3	-13.9'	58.7'	57°57.3	55°27.4	28°06.5		34°06.6	57°25.1	75°46.5	110°49.9
18	199°13.5	11.1'	N09° 14.4	-14.0'	58.7'	57°22.6	54°53.3	27°34.0		34°40.5	57°57.7	76°21.0	111°24.6
19	213°43.6	11.1'	09°00.4	-14.0'	58.7'	56°47.8	54°19.1	27°01.6		35°14.4	58°30.4	76°55.5	111°59.2
20	228°13.7	11.2'	08°46.4	-14.1'	58.8'	56°13.0	53°45.0	26°29.1		35°48.4	59°03.1	77°30.0	112°33.9
21	242°43.9	11.2'	08°32.3	-14.1'	58.8'	55°38.1	53°10.8	25°56.8		36°22.5	59°35.8	78°04.5	113°08.5
22	257°14.1	11.2'	08° 18.2	-14.2'	58.8'	55°03.3	52°36.7	25°24.4		36°56.5	60°08.6	78°39.0	113°43.2
23	271°44.3	11.2'	08°04.0	-14.2'	58.8'	54°28.5	52°02.5	24°52.2		37°30.6	60°41.4	79°13.5	114°17.9
7 th	SD	= 16.0'	Mer. pas	s. 04:15									

h		Моо	n (8 th De	c)			Lunar D	istance	(objects	with large	st hourly	LD delta)	
Fri	GHA	ν	Dec	d	HP	-Sun	-Spica	-Jupiter	-Mars	+Regulus	+Pollux	+Aldebaran	+Saturn
0	286°14.5	11.3'	N 07°49.8	-14.3'	58.8'	106°04.9	53°53.6	51°28.3	24°19.9		38°04.7	79°48.1	114°52.6
1	300°44.8	11.3'	07°35.6	-14.3'	58.8'	105°32.6	53° 18.7	50°54.2	23°47.7		38°38.9	80°22.6	115°27.3
2	315°15.1	11.3'	07°21.3	-14.3'	58.8'	105°00.2	52°43.9	50°20.0	23°15.6		39°13.1	80°57.2	116°02.0
3	329°45.4	11.3'	07°06.9	-14.4'	58.8'	104°27.8	52°09.0	49°45.8	22°43.5		39°47.3	81°31.8	116°36.7
4	344°15.7	11.4'	06°52.6	-14.4'	58.8'	103°55.4	51°34.1	49°11.6	22°11.5		40°21.6	82°06.4	117°11.5
5	358°46.1	11.4'	06°38.1	-14.5'	58.9'	103°22.9	50°59.2	48°37.4	21°39.6		40°55.8	82°41.0	117°46.2
6	13° 16.5	11.4'	N 06°23.7	-14.5'	58.9'	102°50.5	50°24.2	48°03.2	21°07.8		41°30.2	83° 15.6	118°20.9
7	27°46.9	11.4'	06°09.2	-14.5'	58.9'	102°18.0	49°49.3	47°29.0	20°36.0		42°04.5	83°50.3	118°55.7
8	42°17.3	11.4'	05°54.6	-14.6'	58.9'	101°45.6	49° 14.4	46°54.8	20°04.4		42°38.9	84°24.9	119°30.4
9	56°47.7	11.5'	05°40.1	-14.6'	58.9'	101°13.1	48°39.4	46°20.5	19°32.8		43°13.2	84°59.6	
10	71°18.2	11.5'	05°25.5	-14.6'	58.9'	100°40.6	48°04.5	45°46.3	19°01.4		43°47.7	85°34.2	
11	85°48.7	11.5'	$05^{\circ}10.8$	-14.7'	58.9'	100°08.1	47°29.5	45°12.1	18°30.1	7°57.6	44°22.1	86°08.9	
12	100°19.1	11.5'	N04°56.1	-14.7'	58.9'	99°35.6	46°54.5	44°37.8	17°58.9	8°27.6	44°56.6	86°43.6	
13	114°49.6	11.5'	04°41.4	-14.7'	58.9'	99°03.1	46° 19.5	44°03.6	17°27.9	8°58.3	45°31.0	87° 18.3	
14	129°20.1	11.5'	04°26.7	-14.8'	58.9'	98°30.6	45° 44.5	43°29.4	16°57.0	9°29.4	46°05.6	87°53.1	
15	143°50.7	11.5'	04°11.9	-14.8'	59.0'	97°58.0	45°09.5	42°55.1	16°26.4	10°01.0	46°40.1	88° 27.8	
16	158°21.2	11.5'	03°57.2	-14.8'	59.0'	97°25.5	44°34.5	42°20.9	15°55.9	10°33.0	47°14.6	89°02.5	
17	172°51.7	11.5'	03°42.3	-14.8'	59.0'	96°52.9	43°59.5	41°46.7	15°25.7	11°05.3	47°49.2	89°37.3	
18	187°22.3	11.6'	N03°27.5	-14.9'	59.0'	96°20.3	43°24.5	41°12.4	14°55.7	11°37.9	48°23.8	90°12.1	
19	201°52.8	11.6'	03°12.7	-14.9'	59.0'	95°47.7	42°49.4	40°38.2	14°25.9	12°10.7	48°58.4	90°46.8	
20	216°23.4	11.6'	02°57.8	-14.9'	59.0'	95°15.1	42°14.4	40°03.9	13°56.5	12°43.8	49°33.1	91°21.6	
21	230°53.9	11.6'	02°42.9	-14.9'	59.0'	94°42.5	41°39.3	39°29.7	13°27.5	13°17.0	50°07.7	91°56.4	
22	245°24.5	11.6'	02°28.0	-14.9'	59.0'	94°09.9	41°04.2	38°55.5	12°58.8	13°50.4	50°42.4	92°31.2	
23	259°55.1	11.6'	02°13.0	-15.0'	59.0'	93°37.3	40°29.2	38°21.2	12°30.5	14°24.0	51°17.1	93°06.1	
8 th	SD	= 16.0	Mer. pas	s. 05:05					Sun	SD = 16.2'			

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

Sat GHA ν Dec 0 274°25.6 11.6' N01°58.1 1 288°56.2 11.6' 01°43.1 2 303°26.8 11.6' 01°28.1 3 317°57.3 11.6' 01°13.1 4 332°27.9 11.6' 00°58.1 5 346°58.5 11.6' 00°43.1 6 1°29.0 11.5' N00°28.1 7 15°59.6 11.5' N00°13.1	-15.0' 59.1' -15.0' 59.1' -15.0' 59.1' -15.0' 59.1'	-Sun 93°04.6 92°32.0 91°59.3 91°26.6	-Venus 68°10.3 67°38.3 67°06.4 66°34.4	- Spica 39°54.1 39°19.0 38°43.9	-Jupiter 37°47.0 37°12.8	+Regulus 14°57.7 15°31.5	+Procyon 48°37.3 49°10.5	+Pollux 51°51.8 52°26.5	+Aldebaran
1 288°56.2 11.6' 01°43.1 2 303°26.8 11.6' 01°28.1 3 317°57.3 11.6' 01°13.1 4 332°27.9 11.6' 00°58.1 5 346°58.5 11.6' 00°43.1 6 1°29.0 11.5' N00°28.1	-15.0' 59.1' -15.0' 59.1' -15.0' 59.1' -15.0' 59.1'	92°32.0 91°59.3 91°26.6	67°38.3 67°06.4	39°19.0	37°12.8				
2 303°26.8 11.6' 01°28.1 3 317°57.3 11.6' 01°13.1 4 332°27.9 11.6' 00°58.1 5 346°58.5 11.6' 00°43.1 6 1°29.0 11.5' N00°28.1	-15.0' 59.1' -15.0' 59.1' -15.0' 59.1'	91°59.3 91°26.6	67°06.4			15° 31.5	49°10.5	E2026 E	
3 317°57.3 11.6' 01°13.1 4 332°27.9 11.6' 00°58.1 5 346°58.5 11.6' 00°43.1 6 1°29.0 11.5' N 00°28.1	-15.0' 59.1' -15.0' 59.1'	91°26.6		38°43.9				5∠ ∠0.5	94°15.7
4 332°27.9 11.6' 00°58.1 5 346°58.5 11.6' 00°43.1 6 1°29.0 11.5' N 00°28.1	-15.0' 59.1'		660311		36°38.6	16°05.4	49°43.6	53°01.3	94°50.6
5 346°58.5 11.6' 00°43.1 6 1°29.0 11.5' N 00°28.1		000 52 0		38°08.8	36°04.4	16°39.4	50°16.8	53°36.0	95°25.4
6 1°29.0 11.5' N 00°28.1	-15.0' 59.1'	90°53.9	66°02.5	37°33.7	35°30.2	17° 13.5	50°50.1	54°10.8	96°00.3
		90°21.2	65°30.5	36°58.6	34°56.0	17° 47.7	51°23.3	54°45.6	96°35.2
7 15°59.6 11.5' N 00°13.1	-15.0' 59.1'	89°48.5	64°58.6	36°23.4	34°21.8	18°21.9	51°56.7	55°20.4	97°10.1
	-15.0' 59.1'	89°15.8	64°26.6	35°48.3	33°47.6	18° 56.3	52°30.0	55°55.3	97°45.0
8 30°30.1 11.5′ \$ 00°01.9		88°43.1	63°54.6	35°13.2	33°13.4	19°30.7	53°03.4	56°30.1	98°19.9
9 45°00.6 11.5' 00°17.0		88°10.3	63°22.6	34°38.0	32°39.3	20°05.1	53°36.9	57°05.0	98°54.8
10 59°31.1 11.5' 00°32.0		87°37.6	62°50.6	34°02.9	32°05.1	20°39.6	54°10.3	57°39.9	99°29.7
$11 \mid 74^{\circ}01.7 11.5' 00^{\circ}47.1$	-15.0' 59.1'	87°04.8	62°18.5	33°27.7	31°31.0	21° 14.2	54°43.9	58°14.8	100°04.6
12 88°32.2 11.5' S 01°02.1	-15.0' 59.1'	86°32.1	61°46.5	32°52.6	30°56.9	21°48.8	55°17.4	58°49.7	100°39.6
13 103°02.6 11.5' 01°17.1	-15.0' 59.2'	85°59.3	61°14.5	32°17.4	30°22.8	22°23.4	55°51.0	59°24.6	101°14.5
14 117°33.1 11.4' 01°32.2		85°26.5	60°42.4	31°42.3	29°48.8	22°58.1	56°24.6	59°59.5	101°49.5
15 132°03.5 11.4' 01°47.2		84°53.7	60°10.4	31°07.1	29°14.7	23°32.9	56°58.2	60°34.5	102°24.4
16 146°34.0 11.4' 02°02.2		84°20.9	59°38.3	30°31.9	28°40.7	24°07.6	57°31.9	61°09.4	102°59.4
17 161°04.4 11.4' 02°17.2	-15.0' 59.2'	83°48.1	59°06.3	29°56.8	28°06.7	24° 42.4	58°05.6	61°44.4	103°34.4
18 175°34.8 11.4' \$ 02°32.2	-15.0' 59.2'	83°15.3	58°34.2	29°21.6	27°32.7	25° 17.3	58°39.4	62°19.4	104°09.3
19 190°05.2 11.4' 02°47.2		82°42.4	58°02.1	28°46.4	26°58.8	25°52.1	59°13.1	62°54.4	104°44.3
20 204°35.5 11.3' 03°02.2		82°09.6	57°30.0	28°11.3	26°24.9	26°27.0	59°46.9	63°29.4	105°19.3
21 219°05.8 11.3' 03°17.2		81°36.8	56° 57.9	27°36.1	25°51.0	27°02.0	60°20.7	64°04.5	105°54.3
22 233°36.2 11.3' 03°32.2		81°03.9	56°25.9	27°00.9	25°17.2	27°36.9	60°54.6	64°39.5	106°29.3
23 248°06.4 11.3' 03°47.1	-14.9' 59.2'	80°31.0	55°53.7	26°25.8	24°43.4	28° 11.9	61°28.4	65°14.6	107°04.3
9^{th} SD = $16.1'$ Mer. pa	ss. 05:54				Sun	SD = 16.2'			

Sun	GHA	ν	Dec	d	HP	-Sun	-Antares	-Spica	-Jupiter	+Regulus	+Procyon	+Pollux	+Aldebaran
0	262°36.7	11.2'	S 04°02.1	-14.9'	59.2'	79°58.2		25°50.6	24°09.6	28°46.9	62°02.3	65°49.6	107°39.4
1	277°06.9	11.2'	$04^{\circ}17.0$	-14.9'	59.2'	79°25.3		25° 15.4	23°36.0	29°22.0	62°36.3	66°24.7	108° 14.4
2	291°37.1	11.2'	04°31.9	-14.9'	59.2'	78°52.4		24°40.3	23°02.3	29°57.0	63°10.2	66°59.8	108°49.4
3	306°07.3	11.1'	04°46.7	-14.9'	59.2'	78° 19.5		24°05.1	22°28.7	30°32.1	63°44.2	67°34.9	109°24.4
4	320°37.4	11.1'	$05^{\circ}01.6$	-14.8'	59.3'	77°46.6		23°30.0	21°55.2	31°07.2	64°18.2	68°10.0	109°59.5
5	335°07.5	11.1'	$05^{\circ}16.4$	-14.8'	59.3'	77°13.7		22°54.8	21°21.8	31°42.3	64°52.2	68°45.1	110°34.5
6	349°37.6	11.0'	S 05°31.2	-14.8'	59.3'	76°40.7		22° 19.7	20°48.4	32°17.4	65°26.2	69°20.3	111°09.6
7	4°07.7	11.0'	05°46.0	-14.8'	59.3'	76°07.8		21°44.6	20°15.2	32°52.6	66°00.2	69°55.4	111°44.6
8	18°37.7	11.0'	$06^{\circ}00.8$	-14.7'	59.3'	75°34.9		21°09.5	19°42.0	33°27.8	66°34.3	70°30.6	112° 19.7
9	33°07.6	10.9'	$06^{\circ}15.5$	-14.7'	59.3'	75°01.9		20°34.4	19°08.9	34°03.0	67°08.4	71°05.7	112°54.7
10	47°37.6	10.9'	06°30.2	-14.7'	59.3'	74°29.0		19°59.3	18°35.9	34°38.2	67°42.5	71°40.9	113°29.8
11	62°07.5	10.9'	06°44.8	-14.6'	59.3'	73°56.0		19°24.2	18°03.1	35°13.4	68°16.6	72°16.1	114°04.9
12	76°37.3	10.8'	S 06°59.5	-14.6'	59.3'	73°23.1		18°49.2	17°30.4	35°48.6	68°50.8	72°51.3	114°39.9
13	91°07.1	10.8'	$07^{\circ}14.1$	-14.6'	59.3'	72°50.1		18° 14.2	16°57.8	36°23.9	69°25.0	73°26.5	115° 15.0
14	105°36.9	10.7'	07°28.6	-14.5'	59.3'	72°17.1		17°39.2	16°25.4	36°59.1	69°59.1	74°01.7	115°50.1
15	120°06.6	10.7'	$07^{\circ}43.1$	-14.5'	59.3'	71°44.1	62°29.0	17°04.3	15°53.2	37°34.4	70°33.3	74°36.9	116°25.1
16	134°36.3	10.6'	07°57.6	-14.4'	59.3'	71°11.1	61°53.5	16°29.3	15°21.2	38°09.7	71°07.5	75°12.1	117°00.2
17	149°06.0	10.6'	$08^{\circ}12.0$	-14.4'	59.3'	70°38.1	$61^{\circ}18.0$	15°54.4	14°49.4	38°45.0	71°41.8	75°47.3	117°35.3
18	163°35.6	10.6'	S 08°26.4	-14.4'	59.3'	70°05.1	60°42.4	15° 19.6	14° 17.9	39°20.3	72°16.0	76°22.6	118° 10.4
19	178°05.1	10.5'	08°40.8	-14.3'	59.3'	69°32.1	60°06.9	14°44.8	13°46.6	39°55.7	72°50.3	76°57.8	118° 45.5
20	192°34.6	10.5'	$08^{\circ}55.1$	-14.3'	59.3'	68°59.1	59°31.3	14°10.1	13° 15.7	40°31.0	73°24.5	77°33.1	119°20.5
21	207°04.1	10.4'	09°09.4	-14.2'	59.3'	68°26.1	58°55.7	13°35.4	12°45.1	41°06.4	73°58.8	78°08.3	119°55.6
22	221°33.5	10.4'	09°23.6	-14.2'	59.3'	67°53.1	58°20.2	13°00.8	12°14.9	41°41.7	74°33.1	78°43.6	
23	236°02.9	10.3'	09°37.7	-14.1'	59.3'	67°20.0	57°44.6	12°26.3	11°45.2	42°17.1	75°07.4	79°18.9	
10 th	SD	= 16.2'	Mer. pas	s. 06:43					Sun	SD = 16.2'			

+Pollux

 $\mathsf{SD} = \mathsf{16.2'} \quad \mathsf{Mer. \ pass. \ 07:33}$

Moon (11th Dec)

h		Moor	n (11 th De	ec)			Lunar	Distance	(objects	with larg	est hourly	LD delta	a)
Mon	GHA	ν	Dec	d	HP	-Sun	-Antares	-Venus	-Spica	+Regulus	+Procyon	+Pollux	+Betelgeuse
0	250°32.2	10.3'	S 09°51.9	-14.1'	59.3'	66°47.0	57°09.0	42°29.7	11°51.9	42°52.5	75°41.7	79°54.1	101°33.0
1	265°01.4	10.2'	10°05.9	-14.0'	59.3'	66°13.9	56°33.5	41°57.5	11°17.6	43°27.9	76°16.1	80°29.4	102°06.9
2	279°30.6	10.2'	$10^{\circ}19.9$	-14.0'	59.3'	65°40.9	55° 57.9	41°25.3	10°43.5	44°03.3	76°50.4	81°04.7	102°40.8
3	293°59.8	10.1'	10°33.9	-13.9'	59.3'	65°07.9	55°22.3	40°53.1	10°09.5	44°38.7	77°24.8	81°40.0	103°14.7
4	308°28.9	10.0'	10°47.8	-13.8'	59.3'	64°34.8	54°46.7	40°20.9	9°35.7	45° 14.1	77°59.1	82°15.3	103°48.6
5	322°57.9	10.0'	$11^{\circ}01.6$	-13.8'	59.3'	64°01.7	54°11.1	39°48.7	9°02.1	45°49.5	78°33.5	82°50.6	104°22.5
6	337°26.9	9.9'	S 11°15.4	-13.7'	59.3'	63°28.7	53°35.5	39°16.5	8°28.8	46°25.0	79°07.9	83°25.9	104°56.4
7	351°55.8	9.9'	11°29.1	-13.7'	59.3'	62°55.6	52°59.9	38°44.4	7°55.9	47°00.4	79°42.3	84°01.2	105°30.3
8	6°24.7	9.8'	11°42.8	-13.6'	59.3'	62°22.5	52°24.3	38°12.2	7°23.3	47° 35.8	80°16.7	84°36.6	106°04.2
9	20°53.5	9.8'	11°56.4	-13.5'	59.3'	61°49.5	51°48.7	37°40.0	6°51.2	48° 11.3	80°51.1	85°11.9	106°38.0
10	35°22.3	9.7'	12°09.9	-13.5'	59.3'	61°16.4	51°13.1	37°07.9	6°19.8	48° 46.8	81°25.5	85°47.2	107°11.9
11	49°51.0	9.6'	12°23.3	-13.4'	59.3'	60°43.3	50°37.5	36°35.7	5°49.1	49°22.2	81°59.9	86°22.5	107°45.8
12	64°19.6	9.6'	S 12°36.7	-13.3'	59.3'	60°10.2	50°01.8	36°03.5		49°57.7	82°34.3	86°57.9	108°19.6
13	78°48.2	9.5'	12°50.1	-13.2'	59.3'	59°37.2	49°26.2	35°31.4		50°33.2	83°08.8	87°33.2	108°53.5
14	93°16.7	9.4'	13°03.3	-13.2'	59.3'	59°04.1	48°50.6	34°59.3		51°08.7	83°43.2	88°08.6	109°27.3
15	107°45.1	9.4'	13°16.5	-13.1'	59.3'	58°31.0	48° 15.0	34°27.1		51°44.2	84°17.6	88°43.9	110°01.1
16	122°13.5	9.3'	13°29.6	-13.0'	59.3'	57°57.9	47°39.4	33°55.0		52° 19.6	84°52.1	89°19.2	110°34.9
17	136°41.8	9.3'	13°42.6	-12.9'	59.3'	57°24.8	47°03.7	33°22.9		52°55.1	85°26.5	89°54.6	111°08.7
18	151°10.1	9.2'	S 13°55.5	-12.9'	59.3'	56°51.7	46°28.1	32°50.8		53°30.6	86°01.0	90°29.9	111°42.5
19	165°38.3	9.1'	14°08.4	-12.8'	59.3'	56°18.6	45°52.5	32°18.7		54°06.1	86°35.4	91°05.3	112°16.3
20	180°06.4	9.1'	14°21.2	-12.7'	59.3'	55°45.5	45°16.9	31°46.6		54°41.7	87°09.9	91°40.6	112°50.0
21	194°34.5	9.0'	14°33.9	-12.6'	59.3'	55°12.5	44°41.2	31°14.6		55° 17.2	87°44.3	92°16.0	113°23.7
22	209°02.4	8.9'	14°46.5	-12.5'	59.3'	54°39.4	44°05.6	30°42.5		55° 52.7	88°18.8	92°51.3	113°57.5
23	223°30.4	8.9'	14°59.0	-12.4'	59.3'	54°06.3	43°30.0	30°10.5		56°28.2	88°53.3	93°26.7	114°31.2

Sun SD = 16.2'

h		Моо	n (12 th D	ec)			Lunar Dis	stance (o	bjects w	ith large	st hourly l	_D delta)
Tue	GHA	ν	Dec	d	HP	-Sun	-Rigil Kent.	-Antares	-Venus	+Spica	+Regulus	+Procyon
0	237°58.2	8.8'	S 15°11.5	-12.4'	59.3'	53°33.2	47°24.1	42°54.4	29°38.4		57°03.7	89°27.7
1	252°26.0	8.7'	15°23.8	-12.3'	59.3'	53°00.1	47°05.6	42°18.7	29°06.4		57°39.2	90°02.2

Ì	12 th	SD	- 16 2	Mer nas	e 08·26					Sun SD	- 16.2'			
	23	210°19.9	7.2'	19°30.3	-9.9'	59.2'	40°52.7		29° 15.9	17°30.1	16°44.0	70°40.4	102°39.3	107°34.2
	22	195°53.6	7.3'	19°20.3	-10.0'	59.2'	41°25.7		29°51.4	18°01.2	16°09.1	70°04.9	102°05.0	106°58.9
	21	181°27.3	7.3'	$19^{\circ}10.1$	-10.2'	59.2'	41°58.8		30°26.9	18° 32.4	15°34.2	69°29.5	101°30.7	106°23.7
	20	167°00.9	7.4'	18°59.8	-10.3'	59.2'	42°31.8		31°02.5	19°03.7	14°59.3	68°54.0	100°56.3	105°48.4
	19	152°34.4	7.5'	18°49.4	-10.4'	59.2'	43°04.8		31°38.0	19°35.0	14°24.6	68° 18.5	100°21.9	105°13.1
	18	138°07.9	7.5'	S 18°38.9	-10.5'	59.3'	43°37.8		32°13.6	20°06.4	13°49.8	67°43.0	99°47.6	104°37.9
	17	123°41.2	7.6'	18°28.3	-10.6'	59.3'	44°10.9		32°49.1	20°37.9	13°15.2	67°07.5	99°13.2	104°02.6
ı	16	109°14.6	7.7'	$18^{\circ}17.6$	-10.7'	59.3'	44°43.9		33°24.7	21°09.4	12°40.6	66°32.0	98°38.8	103°27.3
	15	94°47.8	7.7'	18°06.7	-10.9'	59.3'	45°17.0		34°00.3	21°40.9	12°06.1	65°56.5	98°04.4	102°52.0
	14	80°21.0	7.8'	17°55.8	-11.0'	59.3'	45°50.0		34°35.8	22°12.5	11°31.8	65°21.0	97°30.0	102°16.7
ı	13	65°54.1	7.9'	$17^{\circ}44.7$	-11.1'	59.3'	46°23.1	43°44.4	35°11.4	22°44.2	10°57.5	64°45.5	96°55.5	101°41.4
	12	51°27.2	8.0'	S 17°33.5	-11.2'	59.3'	46°56.2	43°59.5	35°47.0	23° 15.9	10°23.5	64°09.9	96°21.1	101°06.1
	11	37°00.1	8.0'	17°22.2	-11.3'	59.3'	47°29.2	44°15.0	36°22.6	23°47.6	9°49.5	63°34.4	95°46.7	100°30.7
١	10	22°33.0	8.1'	$17^{\circ}10.8$	-11.4'	59.3'	48°02.3	44°30.7	36°58.2	24° 19.3	9°15.9	62°58.9	95°12.3	99°55.4
	9	8°05.9	8.2'	$16^{\circ}59.3$	-11.5'	59.3'	48°35.4	44°46.8	37°33.8	24°51.1	8°42.4	62°23.4	94°37.8	99°20.1
	8	353°38.6	8.2'	16°47.7	-11.6'	59.3'	49°08.5	45°03.2	38°09.4	25°23.0	8°09.3	61°47.9	94°03.4	98°44.8
	7	339°11.3	8.3'	16°36.0	-11.7'	59.3'	49°41.6	45°19.8	38° 45.0	25°54.8	7°36.5	61°12.4	93°28.9	98°09.4
	6	324°43.9	8.4'	S 16°24.3	-11.8'	59.3'	50°14.6	45°36.8	39°20.6	26° 26.7	7°04.2	60°36.8	92°54.5	97°34.1
	5	310°16.5	8.4'	16°12.4	-11.9'	59.3'	50°47.7	45°54.0	39°56.3	26°58.6	6°32.5	60°01.3	92°20.0	96°58.7
ı	4	295°49.0	8.5'	16°00.4	-12.0'	59.3'	51°20.8	46°11.5	40°31.9	27° 30.5		59°25.8	91°45.6	96°23.4
	3	281°21.4	8.6'	15°48.3	-12.1'	59.3'	51°53.9	46°29.3	41°07.5	28°02.5		58° 50.3	91°11.1	95°48.1
	2	266°53.7	8.7'	15°36.1	-12.2'	59.3'	52°27.0	46°47.3	41°43.1	28° 34.4		58° 14.7	90°36.6	95°12.7
	1	252°26.0	8.7'	15°23.8	-12.3'	59.3'	53°00.1	47°05.6	42°18.7	29°06.4		57°39.2	90°02.2	94°37.4
	0	237°58.2	8.8	S 15°11.5	-12.4	59.3	53°33.2	47°24.1	42°54.4	29°38.4		57°03.7	89°27.7	94°02.0

Mary (19th Day)			
	h	Moon (13 th Dec)	Lunar Distance (objects with largest hourly LD delta)

			. (13 2	· · ·		Earlar Bistarice				ce (objects with largest hearty LB delta)				
Wed	GHA	ν	Dec	d	HP	-Antares	-Venus	+Spica	+Jupiter	+Mars	+Regulus	+Procyon	+Pollux	
0	224°46.0	7.1'	S 19°40.2	-9.8'	59.2'	28°40.3	16°59.1	17° 19.0	19°53.9	45°35.7	71°15.9	103°13.7	108°09.4	
1	239°12.2	7.1'	19°50.0	-9.7'	59.2'	28°04.8	16°28.2	17°54.0	20°27.2	46°09.6	71°51.3	103°48.0	108°44.6	
2	253°38.2	7.0'	$19^{\circ}59.7$	-9.5'	59.2'	27°29.3	15°57.4	18°29.0	21°00.6	46°43.5	72°26.8	104°22.3	109°19.9	
3	268°04.2	6.9'	20°09.2	-9.4'	59.2'	26°53.8	15°26.7	19°04.0	21°34.1	47° 17.4	73°02.2	104°56.6	109°55.1	
4	282°30.2	6.9'	20°18.6	-9.3'	59.2'	26°18.4	14°56.1	19°39.1	22°07.6	47°51.3	73°37.7	105°30.8	110°30.3	
5	296°56.0	6.8'	20°27.9	-9.2'	59.2'	25°42.9	14°25.6	20° 14.2	22°41.2	48°25.2	74°13.1	106°05.1	111°05.5	
6	311°21.8	6.7'	S 20°37.0	-9.0'	59.2'	25°07.5	13°55.3	20°49.3	23°14.9	48°59.1	74°48.6	106°39.3	111°40.7	
7	325°47.6	6.7'	$20^{\circ}46.1$	-8.9'	59.1'	24°32.0	13°25.2	21°24.4	23°48.7	49°33.0	75°24.0	107°13.5	112° 15.8	
8	340°13.2	6.6'	20°55.0	-8.8'	59.1'	23°56.6	12°55.3	21°59.6	24°22.5	50°06.9	75°59.4	107°47.7	112°51.0	
9	354°38.8	6.5'	21°03.7	-8.6'	59.1'	23°21.2	12°25.6	22°34.7	24°56.3	50°40.8	76°34.8	108°21.9	113°26.1	
10	9°04.4	6.5'	21°12.3	-8.5'	59.1'	22°45.8	11°56.1	23°09.9	25°30.2	51°14.7	77°10.2	108°56.1	114°01.3	
11	23°29.9	6.4'	21°20.8	-8.3'	59.1'	22°10.4	11°26.8	23°45.0	26°04.1	51°48.6	77°45.6	109°30.3	114°36.4	
12	37°55.3	6.4'	S 21°29.1	-8.2'	59.1'	21°35.0	10°57.9	24° 20.2	26°38.1	52° 22.5	78°20.9	110°04.4	115°11.5	
13	52°20.7	6.3'	21°37.4	-8.1'	59.1'	20°59.7	10°29.3	24°55.4	27° 12.1	52°56.4	78°56.3	110°38.5	115°46.6	
14	66°46.0	6.3'	21°45.4	-7.9'	59.1'	20°24.3	10°01.1	25°30.5	27°46.1	53°30.3	79°31.7	111°12.6	116°21.6	
15	81°11.2	6.2'	21°53.3	-7.8'	59.1'	19°49.0	9°33.4	26°05.7	28°20.2	54°04.2	80°07.0	111°46.7	116°56.7	
16	95°36.4	6.1'	22°01.1	-7.6'	59.0'	19°13.7	9°06.1	26°40.9	28°54.3	54°38.1	80°42.3	112°20.7	117°31.8	
17	110°01.6	6.1'	22°08.8	-7.5'	59.0'	18°38.4	8°39.4	27°16.0	29°28.4	55°12.0	81°17.7	112°54.7	118°06.8	
18	124°26.6	6.0'	S 22°16.3	-7.3'	59.0'	18°03.1	8°13.5	27°51.2	30°02.5	55°45.8	81°53.0	113°28.7	118°41.8	
19	138°51.7	6.0'	22°23.6	-7.2'	59.0'	17°27.9	7°48.2	28° 26.4	30°36.7	56° 19.7	82°28.3	114°02.7	119° 16.8	
20	153°16.6	5.9'	22°30.8	-7.1'	59.0'	16°52.7	7°24.0	29°01.5	31°10.8	56° 53.5	83°03.6	114°36.7	119°51.8	
21	167°41.6	5.9'	22°37.9	-6.9'	59.0'	16°17.5		29°36.7	31°45.0	57°27.4	83°38.8	115°10.6		
22	182°06.5	5.8'	22°44.8	-6.8'	59.0'	15°42.3		30°11.8	32°19.2	58°01.2	84°14.1	115°44.5		
23	196°31.3	5.8'	22°51.5	-6.6'	59.0'	15°07.2		30°47.0	32°53.4	58°35.1	84°49.3	116°18.4		
13 th	SD :	= 16.1'	Mer. pas	s. 09:22	!									

11th

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

Thu	GHA	ν	Dec	d	HP	-Antares	+Venus	+Spica	+Jupiter	+Mars	+Regulus	+Procyon	+Sirius
0	210°56.1	5.7'	S 22°58.1	-6.5'	58.9'	14°32.1		31°22.1	33°27.6	59°08.9	85°24.6	116°52.2	117°29.9
1	225°20.8	5.7'	23°04.6	-6.3'	58.9'	13°57.0		31°57.2	34°01.9	59°42.7	85°59.8	117°26.0	117°54.6
2	239°45.5	5.7'	23°10.9	-6.1'	58.9'	13°22.0		32°32.3	34°36.1	60°16.5	86°35.0	117°59.8	118°19.1
3	254°10.2	5.6'	23°17.0	-6.0'	58.9'	12°47.0		33°07.5	35°10.3	60°50.3	87°10.2	118°33.6	118°43.5
4	268°34.8	5.6'	23°23.0	-5.8'	58.9'	12°12.0		33°42.6	35°44.5	61°24.0	87°45.3	119°07.3	119°07.8
5	282°59.3	5.5'	23°28.9	-5.7'	58.9'	11°37.1		34°17.6	36°18.8	61°57.8	88°20.5	119°41.0	119°32.0
6	297°23.9	5.5'	S 23°34.5	-5.5'	58.9'	11°02.2		34°52.7	36°53.0	62°31.6	88°55.6		119°56.0
7	311°48.4	5.5'	23°40.1	-5.4'	58.8'	10°27.4		35°27.8	37°27.3	63°05.3	89°30.8		
8	326°12.8	5.4'	23°45.4	-5.2'	58.8'	9°52.7		36°02.8	38°01.5	63°39.0	90°05.9		
9	340°37.3	5.4'	23°50.7	-5.1'	58.8'	9°18.0		36°37.9	38°35.7	64°12.7	90°41.0		
10	355°01.7	5.4'	23°55.7	-4.9'	58.8'	8°43.5		37°12.9	39°10.0	64°46.4	91°16.0		
11	9°26.0	5.3'	24°00.6	-4.7'	58.8'	8°09.0		37°47.9	39°44.2	65°20.1	91°51.1		
12	23°50.4	5.3'	S 24°05.3	-4.6'	58.8'	7°34.6		38°22.9	40°18.4	65°53.8	92°26.1		
13	38°14.7	5.3'	24°09.9	-4.4'	58.7'	7°00.4		38°57.9	40°52.7	66°27.5	93°01.1		
14	52°39.0	5.3'	24°14.3	-4.3'	58.7'	6°26.4		39°32.9	41°26.9	67°01.1	93°36.1		
15	67°03.3	5.2'	24°18.6	-4.1'	58.7'	5°52.6		40°07.8	42°01.1	67°34.7	94°11.1		
16	81°27.5	5.2'	24°22.7	-3.9'	58.7'	5°19.1		40°42.8	42°35.3	68°08.3	94°46.1		
17	95°51.7	5.2'	24°26.6	-3.8'	58.7'	4°46.0		41°17.7	43°09.5	68°41.9	95°21.0		
18	110°15.9	5.2'	S 24°30.4	-3.6'	58.7'	4°13.4	8°01.6	41°52.6	43°43.6	69°15.5	95°56.0		
19	124°40.1	5.2'	24°34.0	-3.4'	58.6'	3°41.6	8°26.9	42°27.5	44°17.8	69°49.0	96°30.9		
20	139°04.3	5.2'	24°37.4	-3.3'	58.6'		8°52.9	43°02.3	44°52.0	70°22.6	97°05.7		
21	153°28.5	5.2'	24°40.7	-3.1'	58.6'		9°19.5	43°37.2	45°26.1	70°56.1	97°40.6		
22	167°52.6	5.2'	24°43.8	-2.9'	58.6'		9°46.6	44°12.0	46°00.2	71°29.6	98°15.4		
23	182°16.8	5.1'	24°46.8	-2.8'	58.6'		10°14.1	44°46.8	46°34.4	72°03.1	98°50.3		
14 th	SD =	= 16.1'	Mer. pas	s. 10:21	-								

Moon (15th Dec)

Lunar Distance (objects with largest hourly LD delta)

h		Moor	ı (15 th De	ec)			Lunar E	Distance (objects wi	th larges	t hourly	LD delta)		
Fri	GHA	ν	Dec	d	HP	+Venus	+Spica	+Jupiter	+Arcturus	+Acrux	+Mars	+Regulus	+Adhara	
0	196°40.9	5.1'	S 24°49.5	-2.6'	58.5'	10°42.0	45°21.6	47°08.5	54°30.3		72°36.5	99°25.0	115°14.5	
1	211°05.1	5.1'	24°52.2	-2.5'	58.5'	11°10.2	45°56.4	47°42.6	54°54.6		73°10.0	99°59.8	115°32.7	
2	225°29.2	5.1'	24°54.6	-2.3'	58.5'	11°38.7	46°31.1	48° 16.6	55° 19.0		73°43.4	100°34.6	115°50.8	
3	239°53.4	5.1'	24°56.9	-2.1'	58.5'	12°07.4	47°05.9	48°50.7	55°43.5		74°16.8	101°09.3	116°08.7	
4	254°17.5	5.1'	24°59.0	-2.0'	58.5'	12°36.4	47°40.6	49°24.8	56°08.1		74°50.2	101°44.0	116°26.5	
5	268°41.7	5.2'	25°01.0	-1.8'	58.4'	13°05.5	48° 15.3	49°58.8	56°32.8	56°01.8	75°23.5	102° 18.7	116°44.1	
6	283°05.8	5.2'	S 25°02.8	-1.6'	58.4'	13°34.8	48°49.9	50°32.8	56° 57.6	56°17.1	75°56.9	102°53.3	117°01.6	
7	297°30.0	5.2'	25°04.4	-1.5'	58.4'	14°04.2	49°24.6	51°06.8	57°22.5	56°32.6	76°30.2	103°28.0	117°19.0	
8	311°54.2	5.2'	25°05.9	-1.3'	58.4'		·		New I				'	
9	326°18.4	5.2'	25°07.2	-1.1'	58.4'	New Moon								
10	340°42.6	5.2'	25°08.3	-1.0'	58.3'				New I				İ	
11	355°06.8	5.2'	25°09.3	-0.8'	58.3'				New I	Moon ——				
12	9°31.0	5.3'	S 25°10.1	-0.6'	58.3'				New I					
13	23°55.3	5.3'	$25^{\circ}10.7$	-0.5'	58.3'				New I	Moon				
14	38°19.6	5.3'	$25^{\circ}11.2$	-0.3'	58.2'				New I					
15	52°43.9	5.3'	$25^{\circ}11.5$	-0.2'	58.2'				New I					
16	67°08.2	5.4'	$25^{\circ}11.7$	0.0'	58.2'				New I					
17	81°32.6	5.4'	25°11.7	0.2'	58.2'				New I	Moon ——				
18	95°57.0	5.4'	S 25°11.5	0.3'	58.2'				New I					
19	110°21.4	5.5'	25°11.2	0.5'	58.1'				New I	Moon				
20	124°45.8	5.5'	25°10.7	0.7'	58.1'				New I	Moon ——				
21	139°10.3	5.5'	25°10.0	0.8'	58.1'				New I	Moon				
22	153°34.9	5.6'	25°09.2	1.0'	58.1'				New I	Moon				
23	167°59.5	5.6'	25°08.2	1.1'	58.0'				New I	Moon ——				
15 th	SD =	= 16.0′	Mer. pass	s. 11:20)									

Moon (16th Dec)

Lunar Distance

			(-						
Sat	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair
0	182°24.1	5.7'	S 25°07.1	1.3'	58.0'			Moon ——	
1	196°48.7	5.7'	25°05.8	1.5'	58.0'			Moon ——	
2	211°13.4	5.8'	25°04.3	1.6'	58.0'			Moon ——	
3	225°38.2	5.8'	25°02.7	1.8'	57.9'			Moon	
4	240°03.0	5.9'	25°00.9	1.9'	57.9'			Moon ———	
5	254°27.9	5.9'	24°59.0	2.1'	57.9'			Moon ——	
6	268°52.8	6.0'	S 24°56.9	2.2'	57.9'			Moon ——	
7	283°17.8	6.0'	24°54.7	2.4'	57.8'			Moon ——	
8	297°42.8	6.1'	24°52.3	2.5'	57.8'			Moon ——	
9	312°07.9	6.1'	24°49.7	2.7'	57.8'			Moon ——	
10	326°33.0	6.2'	24°47.0	2.9'	57.8'			Moon	
11	340°58.2	6.3'	24°44.2	3.0'	57.7'			Moon ——	
12	355°23.5	6.3'	S 24°41.2	3.2'	57.7'			Moon ——	
13	9°48.8	6.4'	24°38.0	3.3'	57.7'			Moon	
14	24°14.2	6.5'	24°34.7	3.4'	57.6'			Moon ——	
15	38°39.7	6.5'	24°31.3	3.6'	57.6'			Moon ———	
16	53°05.2	6.6'	24°27.7	3.7'	57.6'			Moon ———	
17	67°30.8	6.7'	24°23.9	3.9'	57.6'			Moon ——	
18	81°56.5	6.8'	S 24°20.0	4.0'	57.5'			Moon ——	
19	96°22.3	6.8'	$24^{\circ}16.0$	4.2'	57.5'			Moon	
20	110°48.1	6.9'	24°11.8	4.3'	57.5'			Moon ——	
21	125°14.0	7.0'	24°07.5	4.5'	57.5'			Moon	
22	139°40.0	7.1'	24°03.1	4.6'	57.4'	118°51.1	76°05.8	60° 27.7	39°11.3
23	154°06.0	7.1'	23°58.5	4.7'	57.4'	118°17.8	75°48.1	59° 58.5	38°48.6
16 th	SD =	= 15.8′	Mer. pass	s. 12:19	9				

h		Moon	(17 th De	ec)		Lunar Distance					
Sun	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut	-Altair		
0	168°32.2	7.2'	S 23°53.7	4.9'	57.4'	117°44.6	75°30.6	59° 29.3	38°26.0		
1	182°58.4	7.3'	23°48.9	5.0'	57.3'	117°11.3	75°13.1	59°00.1	38°03.8		
2	197°24.7	7.4'	23°43.9	5.1'	57.3'	116°38.1	74°55.7	58°31.1	37°41.8		
3	211°51.1	7.5'	23°38.7	5.3'	57.3'	116°05.0	74°38.4	58°02.1	37°20.0		
4	226°17.6	7.6'	23°33.4	5.4'	57.3'	115°31.8	74°21.2	57° 33.2	36°58.5		
5	240°44.1	7.6'	23°28.0	5.5'	57.2'	114°58.7	74°04.0	57°04.4	36°37.3		
6	255°10.8	7.7'	S 23°22.5	5.7'	57.2'	114°25.7	73°47.0	56° 35.7	36°16.4		
7	269°37.5	7.8'	23°16.8	5.8'	57.2'	113°52.6	73°30.0	56°07.1	35°55.7		
8	284°04.3	7.9'	23°11.0	5.9'	57.2'	113°19.6	73°13.1	55°38.5	35°35.4		
9	298°31.2	8.0'	23°05.1	6.1'	57.1'	112°46.6	72°56.3	55° 10.1	35°15.4		
10	312°58.2	8.1'	22°59.0	6.2'	57.1'	112°13.7	72°39.6	54°41.7	34°55.6		
11	327°25.3	8.2'	22°52.9	6.3'	57.1'	111°40.8	72°23.0	54° 13.4	34°36.2		
12	341°52.5	8.3'	S 22°46.6	6.4'	57.0'	111°07.9	72°06.5	53° 45.2	34°17.2		
13	356°19.8	8.4'	22°40.1	6.5'	57.0'	110°35.0	71°50.1	53° 17.1	33°58.4		
14	10°47.1	8.5'	22°33.6	6.7'	57.0'	110°02.2	71°33.7	52°49.1	33°40.0		
15	25°14.6	8.5'	22°26.9	6.8'	57.0'	109°29.4	71°17.5	52°21.2	33°22.0		
16	39°42.1	8.6'	22°20.2	6.9'	56.9'	108°56.6	71°01.4	51°53.4	33°04.3		
17	54°09.8	8.7'	22°13.3	7.0'	56.9'	108°23.9	70°45.3	51°25.7	32°47.0		
18	68°37.5	8.8'	S 22°06.2	7.1'	56.9'	107°51.2	70°29.4	50° 58.2	32°30.0		
19	83°05.3	8.9'	$21^{\circ}59.1$	7.2'	56.8'	107°18.6	70°13.6	50°30.7	32°13.4		
20	97°33.2	9.0'	21°51.9	7.4'	56.8'	106°45.9	69°57.8	50°03.3	31°57.3		
21	112°01.3	9.1'	21°44.5	7.5'	56.8'	106°13.3	69°42.2	49°36.0	31°41.5		
22	126°29.4	9.2'	21°37.0	7.6'	56.8'	105°40.8	69°26.7	49°08.9	31°26.1		
23	140°57.6	9.3'	$21^{\circ}29.5$	7.7'	56.7'	105°08.3	69°11.3	48°41.8			
. 44-											

Mer. pass. 13:15

23 17th

SD = 15.6'

h		Moon	(18 th De		Lunar Distance					
Mon	GHA	ν	Dec	d	HP	-Saturn	-Deneb	-Fomalhaut		
0	155°25.9	9.4'	S 21°21.8	7.8'	56.7'	104°35.8	68°56.0	48°14.9		
1	169°54.3	9.5'	21°14.0	7.9'	56.7'	104°03.3	68°40.8	47°48.1		
2	184°22.8	9.6'	$21^{\circ}06.1$	8.0'	56.6'	103°30.9	68°25.7	47°21.4		
3	198°51.4	9.7'	20°58.1	8.1'	56.6'	102°58.5		46°54.8		
4	213°20.1	9.8'	20°50.0	8.2'	56.6'	102°26.1		46°28.4		
5	227°48.9	9.9'	20°41.8	8.3'	56.6'	101°53.8		46°02.1		
6	242°17.8	10.0'	S 20°33.5	8.4'	56.5'	101°21.5		45°35.9		
7	256°46.8	10.1'	20°25.1	8.5'	56.5'	100°49.2		45°09.8		
8	271°15.9	10.2'	$20^{\circ}16.6$	8.6'	56.5'	100°17.0		44°43.9		
9	285°45.1	10.3'	20°08.0	8.7'	56.4'	99°44.8		44°18.2		
10	300°14.3	10.4'	19°59.3	8.8'	56.4'	99°12.7		43°52.6		
11	314°43.7	10.5'	$19^{\circ}50.5$	8.9'	56.4'	98°40.6		43°27.1		
12	329°13.2	10.6'	S 19°41.7	9.0'	56.4'	98°08.5		43°01.8		
13	343°42.8	10.7'	19°32.7	9.1'	56.3'	97°36.4		42°36.6		
14	358°12.4	10.8'	19°23.6	9.1'	56.3'	97°04.4		42°11.6		
15	12°42.2	10.9'	19°14.5	9.2'	56.3'	96°32.4		41°46.7		
16	27°12.1	11.0'	19°05.3	9.3'	56.2'	96°00.5		41°22.0		
17	41°42.0	11.1'	$18^{\circ}56.0$	9.4'	56.2'	95°28.5		40°57.5		
18	56°12.1	11.1'	S 18°46.6	9.5'	56.2'	94°56.7		40°33.2		
19	70°42.2	11.2'	18°37.1	9.6'	56.2'	94°24.8		40°09.0		
20	85°12.5	11.3'	18°27.5	9.6'	56.1'	93°53.0		39°45.0		
21	99°42.8	11.4'	$18^{\circ}17.9$	9.7'	56.1'	93°21.2		39°21.2		
22	114°13.2	11.5'	$18^{\circ}08.1$	9.8'	56.1'	92°49.5		38°57.6		
23	128°43.8	11.6'	17°58.4	9.9'	56.0'	92°17.7		38°34.1		
18 th	SD	= 15.5'	Mer. pass.	14:07						

h		Moon	(19 th De	ec)		Lunar Dis	tance (ol	jects wi	th largest h	ourly LD delta)	
Tue	GHA	ν	Dec	d	HP	-Aldebaran	-Rigel	-Saturn	-Fomalhaut	+Sun	
0	143°14.4	11.7'	S 17°48.5	10.0'	56.0'			91°46.1	38°10.9		
1	157°45.1	11.8'	$17^{\circ}38.5$	10.0'	56.0'			91°14.4	37°47.9		
2	172°15.9	11.9'	$17^{\circ}28.5$	10.1'	56.0'			90°42.8	37°25.0		
3	186°46.8	12.0'	$17^{\circ}18.4$	10.2'	55.9'			90°11.2	37°02.4		
4	201°17.8	12.1'	$17^{\circ}08.2$	10.2'	55.9'			89°39.7	36°40.0		
5	215°48.9	12.2'	$16^{\circ}58.0$	10.3'	55.9'			89°08.2	36°17.9		
6	230°20.0	12.3'	S 16°47.7	10.4'	55.9'			88°36.7	35°55.9		
7	244°51.3	12.3'	$16^{\circ}37.3$	10.4'	55.8'			88°05.2	35°34.2		
8	259°22.6	12.4'	$16^{\circ}26.9$	10.5'	55.8'			87°33.8	35°12.8		
9	273°54.1	12.5'	$16^{\circ}16.4$	10.6'	55.8'			87°02.4	34°51.5		
10	288°25.6	12.6'	$16^{\circ}05.8$	10.6'	55.7'			86°31.1	34°30.6		
11	302°57.2	12.7'	$15^{\circ}55.1$	10.7'	55.7'			85° 59.8	34°09.8		
12	317°28.9	12.8'	S 15°44.5	10.8'	55.7'			85°28.5	33°49.4	41°15.0	
13	332°00.7	12.9'	15°33.7	10.8'	55.7'			84°57.3	33°29.2	41°43.9	
14	346°32.6	13.0'	$15^{\circ}22.9$	10.9'	55.6'	119°55.4		84°26.0	33°09.3	42°12.7	
15	1°04.5	13.0'	$15^{\circ}12.0$	10.9'	55.6'	119°24.4		83°54.9	32°49.7	42°41.5	
16	15°36.6	13.1'	$15^{\circ}01.1$	11.0'	55.6'	118° 53.5		83°23.7	32°30.4	43°10.3	
17	30°08.7	13.2'	$14^{\circ}50.1$	11.0'	55.6'	118°22.6		82°52.6	32°11.4	43°39.1	
18	44°40.9	13.3'	S 14°39.0	11.1'	55.5'	117°51.8		82°21.5	31°52.7	44°07.8	
19	59°13.2	13.4'	$14^{\circ}27.9$	11.2'	55.5'	117°21.0		81°50.4	31°34.3	44°36.5	
20	73°45.5	13.4'	$14^{\circ}16.8$	11.2'	55.5'	116°50.2	119°54.9	81°19.4	31°16.2	45°05.1	
21	88°18.0	13.5'	$14^{\circ}05.6$	11.3'	55.5'	116° 19.4	119°30.7	80°48.4	30°58.4	45°33.8	
22	102°50.5	13.6'	13°54.3	11.3'	55.4'	115°48.6	119°06.6	80° 17.5	30°41.0	46°02.3	
23	117°23.1	13.7'	13°43.0	11.4'	55.4'	115° 17.9	118°42.4	79°46.5	30°24.0	46°30.9	
19 th	SD = 15.3' Mer. pass. 14:56					$Sun\;SD=16.2'$					

Wed	GHA	ν	Dec	d	HP	-Capella	-Rigel	-Aldebaran	-Saturn	-Fomalhaut	+Altair	+Sun
0	131°55.8	13.8'	S 13°31.7	11.4'	55.4'		118°18.1	114° 47.2	79°15.6	30°07.3		46° 59.5
1	146°28.5	13.8'	13°20.3	11.4'	55.4'		117°53.8	114° 16.6	78°44.8	29°50.9		47°28.0
2	161°01.3	13.9'	13°08.8	11.5'	55.3'		117°29.5	113°45.9	78°13.9	29°35.0		47°56.4
3	175°34.2	14.0'	12°57.3	11.5'	55.3'		117°05.1	113° 15.3	77°43.1	29°19.4		48°24.9
4	190°07.2	14.0'	12°45.8	11.6'	55.3'		116°40.8	112°44.7	77°12.4	29°04.2		48°53.3
5	204°40.3	14.1'	12°34.2	11.6'	55.3'	119°45.4	116°16.3	112° 14.2	76°41.6			49°21.7
6	219°13.4	14.2'	S 12°22.6	11.7'	55.2'	119° 17.1	115°51.9	111°43.6	76°10.9			49°50.1
7	233°46.6	14.3'	12°10.9	11.7'	55.2'	118°48.9	115°27.4	111°13.1	75°40.2			50° 18.4
8	248°19.9	14.3'	11°59.2	11.7'	55.2'	118°20.7	115°02.9	110°42.7	75°09.6			50°46.7
9	262°53.2	14.4'	11°47.5	11.8'	55.2'	117°52.5	114°38.4	110° 12.2	74°39.0			51°15.0
10	277°26.6	14.5'	11°35.7	11.8'	55.2'	117°24.3	114°13.9	109°41.8	74°08.4			51°43.2
11	292°00.0	14.5'	11°23.9	11.9'	55.1'	116°56.1	113°49.3	109°11.4	73°37.8			52°11.5
12	306°33.6	14.6'	S 11°12.0	11.9'	55.1'	116°27.9	113°24.7	108°41.0	73°07.3			52°39.6
13	321°07.2	14.7'	$11^{\circ}00.1$	11.9'	55.1'	115°59.6	113°00.1	108° 10.6	72°36.7		32°15.0	53°07.8
14	335°40.8	14.7'	10°48.2	12.0'	55.1'	115°31.4	112°35.5	107°40.3	72°06.3		32°30.5	53°36.0
15	350°14.6	14.8'	10°36.2	12.0'	55.0'	115°03.3	112°10.8	107°10.0	71°35.8		32°46.3	54°04.1
16	4°48.4	14.9'	10°24.2	12.0'	55.0'	114°35.1	111°46.1	106°39.7	71°05.4		33°02.4	54°32.2
17	19°22.2	14.9'	10°12.2	12.1'	55.0'	114°06.9	111°21.5	106°09.4	70°35.0		33°18.7	55°00.2
18	33°56.1	15.0'	S 10°00.2	12.1'	55.0'	113°38.7	110°56.8	105°39.2	70°04.6		33°35.4	55°28.3
19	48°30.1	15.0'	09°48.1	12.1'	55.0'	113° 10.5	110°32.0	105°09.0	69°34.3		33°52.3	55°56.3
20	63°04.1	15.1'	09°35.9	12.1'	54.9'	112°42.4	110°07.3	104°38.8	69°04.0		34°09.5	56°24.2
21	77°38.2	15.1'	09°23.8	12.2'	54.9'	112°14.2	109°42.6	104°08.7	68°33.7		34°26.9	56°52.2
22	92°12.4	15.2'	09°11.6	12.2'	54.9'	111°46.0	109°17.8	103°38.5	68°03.5		34°44.6	57°20.1
23	106°46.6	15.3'	08°59.4	12.2'	54.9'	111°17.9	108°53.1	103°08.4	67°33.2		35°02.6	57°48.1
20 th	SD	= 15.1'	Mer. pass	s. 15:40				Sun $SD = 16$	i.2' at 0h: 1	l6.3' at 23h		

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

	Moon (21 Dec)					Edital Distance (objects with largest hourly LD delta)							
Thu	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Altair	+Sun	
0	121°20.8	15.3'	S 08°47.2	12.3'	54.9'		110°49.7	108°28.3	102°38.3	67°03.0	35°20.7	58°15.9	
1	135°55.1	15.4'	08°34.9	12.3'	54.8'		110°21.6	108°03.5	102°08.2	66°32.9	35°39.1	58°43.8	
2	150°29.5	15.4'	08°22.7	12.3'	54.8'		109°53.5	107°38.7	101°38.2	66°02.7	35°57.7	59°11.6	
3	165°03.9	15.5'	$08^{\circ}10.4$	12.3'	54.8'	119°39.7	109°25.4	107°13.9	101°08.2	65°32.6	36°16.6	59°39.5	
4	179°38.3	15.5'	$07^{\circ}58.0$	12.3'	54.8'	119°11.2	108°57.3	106°49.1	100°38.2	65°02.5	36°35.6	60°07.2	
5	194°12.9	15.6'	07°45.7	12.4'	54.8'	118°42.7	108°29.2	106°24.2	100°08.2	64°32.4	36°54.8	60°35.0	
6	208°47.4	15.6'	S 07°33.3	12.4'	54.7'	118°14.2	108°01.1	105°59.4	99°38.2	64°02.4	37°14.3	61°02.8	
7	223°22.0	15.7'	$07^{\circ}21.0$	12.4'	54.7'	117°45.7	107°33.0	105°34.6	99°08.3	63°32.3	37°33.9	61°30.5	
8	237°56.7	15.7'	07°08.5	12.4'	54.7'	117°17.2	107°04.9	105°09.7	98°38.3	63°02.3	37°53.7	61°58.2	
9	252°31.4	15.7'	$06^{\circ}56.1$	12.4'	54.7'	116°48.7	106°36.8	104°44.9	98°08.5	62°32.4	38°13.7	62°25.9	
10	267°06.1	15.8'	06°43.7	12.5'	54.7'	116°20.2	106°08.8	104°20.0	97°38.6	62°02.4	38°33.9	62°53.5	
11	281°40.9	15.8'	06°31.2	12.5'	54.7'	115°51.7	105°40.7	103°55.2	97°08.7	61°32.5	38°54.2	63°21.2	
12	296°15.7	15.9'	S 06°18.7	12.5'	54.6'	115°23.3	105°12.7	103°30.3	96°38.9	61°02.6	39°14.7	63°48.8	
13	310°50.6	15.9'	$06^{\circ}06.2$	12.5'	54.6'	114°54.8	104°44.7	103°05.4	96°09.1	60°32.7	39°35.4	64°16.4	
14	325°25.5	15.9'	05°53.7	12.5'	54.6'	114°26.3	104°16.7	102°40.6	95°39.3	60°02.9	39°56.2	64°44.0	
15	340°00.4	16.0'	05°41.2	12.5'	54.6'	113°57.9	103°48.6	102°15.7	95°09.5	59°33.0	40°17.2	65°11.5	
16	354°35.4	16.0'	05°28.7	12.5'	54.6'	113°29.4	103°20.6	101°50.8	94°39.7	59°03.2	40°38.3	65°39.0	
17	9°10.5	16.1'	$05^{\circ}16.1$	12.6'	54.6'	113°01.0	102°52.7	101°25.9	94°10.0	58°33.5	40°59.5	66°06.6	
18	23°45.5	16.1'	S 05°03.6	12.6'	54.5'	112°32.5	102°24.7	101°01.1	93°40.3	58°03.7	41°20.9	66°34.1	
19	38°20.6	16.1'	$04^{\circ}51.0$	12.6'	54.5'	112°04.1	101°56.7	100°36.2	93°10.6	57°34.0	41°42.4	67°01.5	
20	52°55.7	16.2'	04°38.4	12.6'	54.5'	111°35.7	101°28.7	100°11.3	92°40.9	57°04.2	42°04.1	67°29.0	
21	67°30.9	16.2'	04°25.8	12.6'	54.5'	111°07.2	101°00.8	99°46.4	92°11.2	56°34.6	42°25.8	67°56.5	
22	82°06.1	16.2'	$04^{\circ}13.2$	12.6'	54.5'	110°38.8	100°32.9	99°21.6	91°41.5	56°04.9	42°47.7	68°23.9	
23	96°41.3	16.3'	04°00.6	12.6'	54.5'	110°10.4	100°04.9	98°56.7	91°11.9	55°35.2	43°09.7	68°51.3	
21 st	SD	= 15.0'	Mer. pas	s. 16:22				Sun	SD = 16.3'				

h	Moon (22 nd Dec)						Lunar Di	stance (objects wit	h largest	hourly LD	delta)	
Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun

		IVIOOII	(22 00	, ,			Lanai Di	Jeanice (objects wit	ii iai gest	Hourry LD V	acita	
Fri	GHA	ν	Dec	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	111°16.6	16.3'	S 03°48.0	12.6'	54.5'	109°42.0	99°37.0	98°31.8	90°42.3	55°05.6		43°31.9	69°18.7
1	125°51.8	16.3'	03°35.4	12.6'	54.4'	109°13.6	99°09.1	98°06.9	90°12.7	54°36.0		43°54.1	69°46.1
2	140°27.1	16.3'	03°22.7	12.6'	54.4'	108°45.2	98°41.2	97°42.1	89°43.1	54°06.4		44°16.5	70°13.4
3	155°02.5	16.4'	$03^{\circ}10.1$	12.6'	54.4'	108°16.9	98°13.3	97°17.2	89°13.5	53°36.8		44°38.9	70°40.8
4	169°37.8	16.4'	02°57.5	12.6'	54.4'	107°48.5	97°45.4	96°52.3	88°44.0	53°07.3		45°01.5	71°08.1
5	184°13.2	16.4'	02°44.8	12.7'	54.4'	107°20.1	97°17.5	96°27.5	88°14.4	52°37.8		45°24.1	71°35.4
6	198°48.6	16.4'	S 02°32.2	12.7'	54.4'	106°51.8	96°49.7	96°02.6	87°44.9	52°08.3		45°46.9	72°02.7
7	213°24.0	16.4'	$02^{\circ}19.5$	12.7'	54.4'	106°23.4	96°21.8	95°37.8	87°15.4	51°38.8		46°09.7	72°30.0
8	227°59.5	16.5'	02°06.9	12.7'	54.4'	105°55.1	95°54.0	95°12.9	86°45.9	51°09.3		46°32.6	72°57.3
9	242°35.0	16.5'	01°54.2	12.7'	54.3'	105°26.7	95°26.1	94°48.1	86°16.4	50°39.9		46°55.7	73°24.5
10	257°10.4	16.5'	01°41.5	12.7'	54.3'	104°58.4	94°58.3	94°23.2	85°46.9	50°10.5		47°18.8	73°51.8
11	271°45.9	16.5'	$01^{\circ}28.9$	12.7'	54.3'	104°30.0	94°30.5	93°58.4	85°17.5	49°41.0		47°42.0	74°19.0
12	286°21.5	16.5'	S 01°16.2	12.7'	54.3'	104°01.7	94°02.7	93°33.6	84°48.0	49°11.7		48°05.2	74°46.2
13	300°57.0	16.6'	$01^{\circ}03.5$	12.7'	54.3'	103°33.4	93°34.9	93°08.7	84°18.6	48°42.3		48°28.6	75°13.4
14	315°32.6	16.6'	00°50.9	12.7'	54.3'	103°05.1	93°07.1	92°43.9	83°49.2	48°12.9		48°52.0	75°40.6
15	330°08.1	16.6'	00°38.2	12.7'	54.3'	102°36.8	92°39.3	92°19.1	83°19.8	47°43.6		49°15.5	76°07.8
16	344°43.7	16.6'	00°25.6	12.7'	54.3'	102°08.5	92°11.5	91°54.3	82°50.4	47°14.3		49°39.1	76°35.0
17	359°19.3	16.6'	$00^{\circ}12.9$	12.6'	54.3'	101°40.2	91°43.8	91°29.5	82°21.0	46°45.0		50°02.8	77°02.1
18	13°54.9	16.6'	S 00°00.3	12.6'	54.3'	101°11.9	91°16.0	91°04.7	81°51.6	46°15.7		50°26.5	77°29.3
19	28°30.5	16.6'	N00°12.4	12.6'	54.3'	100°43.6	90°48.3	90°39.9	81°22.3	45°46.5	29°52.0	50°50.3	77°56.4
20	43°06.1	16.6'	00°25.0	12.6'	54.2'	100°15.3	90°20.5	90°15.1	80°52.9	45°17.2	30°07.6	51°14.1	78°23.6
21	57°41.7	16.6'	$00^{\circ}37.6$	12.6'	54.2'	99°47.0	89°52.8	89°50.4	80°23.6	44°48.0	30°23.6	51°38.0	78°50.7
22	72°17.4	16.6'	00°50.3	12.6'	54.2'	99°18.8	89°25.1	89°25.6	79°54.3	44°18.8	30°39.8	52°02.0	79°17.8
23	86°53.0	16.6'	$01^{\circ}02.9$	12.6'	54.2'	98°50.5	88°57.4	89°00.8	79°25.0	43°49.6	30°56.3	52°26.1	79°44.9
22 nd	SD	$=14.9^{\prime}$	Mer. pass	. 17:03					Sun SD =	= 16.3 [']	·		

h Moon (23rd Dec)

Lunar Distance (objects with largest hourly LD delta)

Sat	GHA	ν	Dec	d	HP	-Pollux	-Procyon	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	101°28.6	16.6'	$N01^{\circ}15.5$	12.6'	54.2'			98°22.2	78°55.6	43°20.5	31°13.1	52°50.2	80°12.0
1	116°04.3	16.6'	$01^{\circ}28.1$	12.6'	54.2'			97°54.0	78° 26.3	42°51.3	31°30.2	53°14.3	80°39.1
2	130°39.9	16.6'	01°40.7	12.6'	54.2'	119°46.2		97°25.7	77°57.0	42°22.2	31°47.6	53°38.6	81°06.2
3	145°15.6	16.6'	01°53.3	12.6'	54.2'	119°16.9		96°57.5	77°27.8	41°53.1	32°05.2	54°02.8	81°33.2
4	159°51.2	16.6'	02°05.9	12.6'	54.2'	118°47.6		96°29.2	76°58.5	41°24.0	32°23.1	54°27.2	82°00.3
5	174°26.8	16.6'	02°18.4	12.6'	54.2'	118°18.4		96°01.0	76°29.2	40°54.9	32°41.3	54°51.6	82°27.4
6	189°02.5	16.6'	$N02^{\circ}31.0$	12.5'	54.2'	117°49.1		95°32.7	76°00.0	40°25.8	32°59.7	55°16.0	82°54.4
7	203°38.1	16.6'	02°43.5	12.5'	54.2'	117°19.8		95°04.5	75° 30.7	39°56.8	33°18.3	55°40.5	83°21.5
8	218°13.8	16.6'	$02^{\circ}56.1$	12.5'	54.2'	116°50.6		94°36.3	75°01.5	39°27.8	33°37.1	56°05.0	83°48.5
9	232°49.4	16.6'	03°08.6	12.5'	54.2'	116°21.3		94°08.0	74°32.2	38°58.8	33°56.2	56°29.6	84°15.5
10	247°25.0	16.6'	03°21.1	12.5'	54.2'	115°52.1	119°37.1	93°39.8	74°03.0	38°29.8	34°15.5	56°54.3	84°42.6
11	262°00.6	16.6'	03°33.6	12.5'	54.2'	115°22.8	119°08.9	93°11.6	73°33.8	38°00.8	34°35.0	57°18.9	85°09.6
12	276°36.2	16.6'	N03°46.1	12.5'	54.2'	114°53.5	118°40.6	92°43.3	73°04.5	37°31.9	34°54.7	57°43.7	85°36.6
13	291°11.8	16.6'	03°58.5	12.4'	54.2'	114°24.3	118°12.3	92°15.1	72°35.3	37°02.9	35°14.5	58°08.4	86°03.7
14	305°47.4	16.6'	$04^{\circ}11.0$	12.4'	54.2'	113°55.0	117°44.0	91°46.9	72°06.1	36°34.0	35°34.6	58°33.3	86°30.7
15	320°23.0	16.6'	04°23.4	12.4'	54.2'	113°25.8	117°15.7	91°18.7	71°36.9	36°05.1	35°54.9	58°58.1	86°57.7
16	334°58.5	16.5'	04°35.8	12.4'	54.2'	112°56.5	116°47.4	90°50.5	71°07.7	35°36.2	36°15.4	59°23.0	87°24.7
17	349°34.1	16.5'	04°48.2	12.4'	54.2'	112°27.3	116°19.1	90°22.3	70°38.5	35°07.4	36°36.0	59°48.0	87°51.7
18	4°09.6	16.5'	N 05°00.6	12.4'	54.1'	111°58.0	115°50.8	89°54.0	70°09.3	34°38.5	36°56.8	60°13.0	88°18.7
19	18°45.1	16.5'	05°13.0	12.3'	54.1'	111°28.8	115°22.5	89°25.8	69°40.1	34°09.7	37°17.8	60°38.0	88°45.7
20	33°20.6	16.5'	05°25.3	12.3'	54.1'	110°59.5	114°54.1	88°57.6	69° 10.9	33°40.9	37°38.9	61°03.1	89°12.7
21	47°56.1	16.5'	05°37.6	12.3'	54.1'	110°30.2	114°25.8	88°29.4	68°41.7	33°12.2	38°00.2	61°28.2	89°39.8
22	62°31.6	16.4'	05°49.9	12.3'	54.1'	110°01.0	113°57.4	88°01.2	68° 12.5	32°43.4	38°21.7	61°53.3	90°06.8
23	77°07.0	16.4'	$06^{\circ}02.2$	12.3'	.3' 54.1' 109°31.7 113°29.0 87°33.0 67°43.4 32°14.7 38°43.3 62°18.5 90°3								90°33.8
23 rd	SD = 14.8' Mer. pass. 17:43 $Sun SD = 16.3'$												

Moon (24th Dec)

h

Lunar Distance (objects with largest hourly LD delta)

Sun	GHA	ν	Dec	ď	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	91°42.4	16.4'	N 06°14.5	12.2'	54.1'	113°00.7	109°02.5	87°04.8	67°14.2	31°46.0	39°05.1	62°43.7	91°00.8
1	106°17.8	16.4'	06°26.7	12.2'	54.2'	112°32.3	108°33.2	86°36.6	66°45.0	31° 17.3	39°27.0	63°09.0	91°27.8
2	120°53.2	16.3'	06°38.9	12.2'	54.2'	112°03.9	108°03.9	86°08.4	66°15.8	30°48.7	39°49.0	63°34.3	91°54.8
3	135°28.5	16.3'	$06^{\circ}51.1$	12.2'	54.2'	111°35.5	107°34.7	85°40.1	65°46.6	30°20.0	40°11.2	63°59.6	92°21.8
4	150°03.9	16.3'	07°03.2	12.1'	54.2'	111°07.1	107°05.4	85°11.9	65°17.5	29°51.4	40°33.5	64°24.9	92°48.8
5	164°39.2	16.3'	$07^{\circ}15.4$	12.1'	54.2'	110°38.6	106°36.1	84°43.7	64°48.3	29°22.9	40°55.9	64°50.3	93°15.9
6	179°14.4	16.2'	N07°27.5	12.1'	54.2'	110°10.2	106°06.8	84°15.5	64°19.1	28°54.3	41°18.5	65°15.8	93°42.9
7	193°49.7	16.2'	07°39.6	12.1'	54.2'	109°41.8	105°37.5	83°47.3	63°49.9	28°25.8	41°41.1	65°41.2	94°09.9
8	208°24.9	16.2'	$07^{\circ}51.6$	12.0'	54.2'	109°13.3	105°08.2	83°19.1	63°20.8	27°57.3	42°03.9	66°06.7	94°36.9
9	223°00.1	16.2'	08°03.7	12.0'	54.2'	108°44.8	104°38.9	82°50.9	62°51.6	27°28.9	42°26.9	66°32.3	95°04.0
10	237°35.2	16.1'	$08^{\circ}15.7$	12.0'	54.2'	108°16.4	104°09.6	82°22.7	62°22.4	27°00.5	42°49.9	66°57.8	95°31.0
11	252°10.3	16.1'	08°27.6	11.9'	54.2'	107°47.9	103°40.3	81°54.4	61°53.2	26°32.1	43°13.0	67°23.4	95°58.1
12	266°45.4	16.1'	N08°39.6	11.9'	54.2'	107°19.4	103°11.0	81°26.2	61°24.1	26°03.7	43°36.3	67°49.0	96°25.1
13	281°20.5	16.0'	08°51.5	11.9'	54.2'	106°50.9	102°41.7	80°58.0	60°54.9	25°35.4	43°59.6	68°14.7	96°52.2
14	295°55.5	16.0'	09°03.4	11.9'	54.2'	106°22.3	102°12.3	80°29.8	60°25.7	25°07.2	44°23.1	68°40.4	97°19.2
15	310°30.5	15.9'	09°15.2	11.8'	54.2'	105°53.8	101°43.0	80°01.6	59°56.5	24°39.0	44°46.7	69°06.1	97°46.3
16	325°05.4	15.9'	09°27.0	11.8'	54.2'	105°25.3	101°13.6	79°33.3	59°27.3	24° 10.8	45°10.3	69°31.8	98°13.4
17	339°40.3	15.9'	09°38.8	11.8'	54.2'	104°56.7	100°44.3	79°05.1	58°58.1	23°42.7	45°34.1	69°57.6	98°40.4
18	354°15.2	15.8'	N 09°50.6	11.7'	54.2'	104°28.1	100°14.9	78°36.9	58°28.9	23° 14.7	45°57.9	70°23.4	99°07.5
19	8°50.0	15.8'	10°02.3	11.7'	54.2'	103°59.5	99°45.5	78°08.6	57°59.7	22°46.7	46°21.9	70°49.2	99°34.6
20	23°24.8	15.7'	10°14.0	11.6'	54.2'	103°30.9	99°16.2	77°40.4	57°30.5	22°18.7	46° 45.9	71°15.1	100°01.7
21	37°59.6	15.7'	$10^{\circ}25.6$	11.6'	54.2'	103°02.3	98°46.8	77°12.1	57°01.3	21°50.8	47° 10.0	71°41.0	100°28.8
22	52°34.3	15.7'	10°37.2	11.6'	54.2'	102°33.7	98° 17.4	76°43.9	56°32.1	21°23.0	47°34.3	72°06.9	100°56.0
23	67°08.9	15.6'	10°48.8	11.5'	54.3'	102°05.1	97°48.0	76°15.6	56°02.9	20°55.3	47°58.6	72°32.8	101°23.1
24 th	SD	= 14.8'	Mer. pass	. 18:24					Sun SD =	= 16.3 [']			

h Moon (25th Dec)

Mon	GHA	ν	Dec	d	HP	-Procyon	-Pollux	-Betelgeuse	-Aldebaran	-Saturn	+Fomalhaut	+Altair	+Sun
0	81°43.5	15.6'	N11°00.4	11.5'	54.3'	101°36.4	97° 18.5	75°47.4	55°33.7	20°27.7	48°22.9	72°58.8	101°50.2
1	96°18.1	15.5'	11°11.9	11.5'	54.3'	101°07.8	96°49.1	75°19.1	55°04.5	20°00.1	48°47.4	73°24.8	102°17.4
2	110°52.6	15.5'	11°23.3	11.4'	54.3'	100°39.1	96° 19.7	74°50.9	54°35.2	19°32.6	49°12.0	73°50.8	102°44.6
3	125°27.1	15.4'	11°34.7	11.4'	54.3'	100°10.4	95°50.2	74°22.6	54°06.0	19°05.3	49° 36.6	74° 16.9	103°11.7
4	140°01.5	15.4'	$11^{\circ}46.1$	11.3'	54.3'	99°41.7	95°20.7	73°54.3	53°36.8	18°38.0	50°01.3	74°43.0	103°38.9
5	154°35.9	15.3'	11°57.4	11.3'	54.3'	99°13.0	94°51.3	73°26.1	53°07.5	18° 10.9	50°26.0	$75^{\circ}09.1$	104°06.1
6	169°10.2	15.3'	$N12^{\circ}08.7$	11.3'	54.3'	98°44.3	94°21.8	72°57.8	52°38.3	17°43.9	50°50.9	75°35.2	104°33.3
7	183°44.5	15.2'	12°20.0	11.2'	54.3'	98°15.5	93°52.3	72°29.5	52°09.0	17° 17.0	51° 15.8	76°01.4	105°00.6
8	198°18.7	15.2'	12°31.2	11.2'	54.3'	97°46.8	93°22.7	72°01.2	51°39.8	16°50.2	51°40.8	76°27.5	105°27.8
9	212°52.8	15.1'	12°42.4	11.1'	54.3'	97°18.0	92°53.2	71°32.9	51°10.5	16°23.7	52°05.9	76°53.8	105°55.0
10	227°27.0	15.1'	12°53.5	11.1'	54.4'	96°49.2	92°23.7	71°04.7	50°41.2	15°57.3	52°31.0	77°20.0	106°22.3
11	242°01.0	15.0'	13°04.6	11.0'	54.4'	96°20.4	91°54.1	70°36.4	50°12.0	15°31.1	52° 56.2	77°46.2	106°49.6
12	256°35.0	14.9'	$N13^{\circ}15.6$	11.0'	54.4'	95°51.6	91°24.6	70°08.1	49°42.7	15°05.1	53°21.5	78° 12.5	107°16.9
13	271°09.0	14.9'	13°26.6	10.9'	54.4'	95°22.7	90°55.0	69°39.8	49°13.4	14°39.3	53°46.8	78°38.8	107°44.2
14	285°42.8	14.8'	13°37.5	10.9'	54.4'	94°53.9	90°25.4	69°11.4	48°44.1	14°13.8	54° 12.2	79°05.2	108°11.5
15	300°16.7	14.8'	13°48.4	10.8'	54.4'	94°25.0	89°55.8	68°43.1	48°14.8	13°48.6	54° 37.7	79°31.5	108°38.8
16	314°50.4	14.7'	13°59.2	10.8'	54.4'	93°56.1	89°26.1	68°14.8	47°45.5	13°23.6	55°03.2	79°57.9	109°06.2
17	329°24.1	14.6'	14°10.0	10.7'	54.4'	93°27.2	88° 56.5	67°46.5	47°16.2	12°59.0	55°28.8	80°24.3	109°33.5
18	343°57.8	14.6'	N14°20.7	10.7'	54.5'	92°58.3	88°26.8	67°18.2	46°46.8	12°34.8	55°54.5	80°50.8	110°00.9
19	358°31.4	14.5'	14°31.4	10.6'	54.5'	92°29.4	87°57.1	66°49.8	46°17.5	12°10.9	56° 20.2	81°17.2	110°28.3
20	13°04.9	14.5'	14°42.0	10.6'	54.5'	92°00.4	87°27.4	66°21.5	45°48.2	11°47.6	56°46.0	81°43.7	110°55.7
21	27°38.4	14.4'	$14^{\circ}52.6$	10.5'	54.5'	91°31.5	86°57.7	65°53.2	45°18.8	11°24.7	57° 11.8	82°10.2	111°23.2
22	42°11.7	14.3'	15°03.1	10.5'	54.5'	91°02.5	86°28.0	65°24.8	44°49.5	11°02.3	57° 37.7	82°36.7	111°50.6
23	56°45.1	14.3'	15° 13.6	10.4'	54.5'	90°33.5	85°58.3	64°56.5	44°20.2	10°40.6	58°03.7	83°03.3	112°18.1
25 th	SD	= 14.8'	Mer. pass	. 19:06					Sun SD =	= 16.3′			

h Moon (26th Dec)

Lunar Distance (objects with largest hourly LD delta)

Tue	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Fomalhaut	+Deneb	+Altair	+Sun
0	71°18.3	14.2'	$N15^{\circ}24.0$	10.3'	54.5'		90°04.5	85°28.5	43°50.8	58°29.7		83°29.8	112°45.6
1	85°51.5	14.1'	15°34.3	10.3'	54.6'		89°35.4	84°58.7	43°21.4	58°55.7		83°56.4	113°13.1
2	100°24.7	14.1'	15°44.6	10.2'	54.6'		89°06.4	84°28.9	42°52.1	59°21.9		84°23.1	113°40.6
3	114°57.7	14.0'	15°54.8	10.2'	54.6'		88° 37.3	83°59.1	42°22.7	59°48.0		84°49.7	114°08.1
4	129°30.7	13.9'	$16^{\circ}05.0$	10.1'	54.6'		88°08.2	83°29.2	41°53.3	60°14.3		85°16.4	114°35.7
5	144°03.6	13.9'	$16^{\circ}15.1$	10.0'	54.6'	119°57.0	87°39.1	82°59.4	41°23.9	60°40.5		85°43.0	115°03.3
6	158°36.5	13.8'	$N16^{\circ}25.2$	10.0'	54.6'	119°26.9	87°09.9	82°29.5	40°54.5	61°06.9		86°09.8	115°30.9
7	173°09.3	13.7'	16°35.1	9.9'	54.7'	118°56.9	86°40.8	81°59.6	40°25.1	61°33.3		86°36.5	115°58.5
8	187°42.0	13.6'	16°45.1	9.9'	54.7'	118° 26.8	86°11.6	81°29.7	39°55.7	61°59.7		87°03.2	116°26.2
9	202°14.6	13.6'	16°54.9	9.8'	54.7'	117°56.7	85°42.4	80°59.8	39°26.3	62°26.2		87°30.0	116°53.8
10	216°47.2	13.5'	$17^{\circ}04.7$	9.7'	54.7'	117°26.6	85° 13.2	80°29.8	38°56.9	62°52.7		87°56.8	117°21.5
11	231°19.7	13.4'	$17^{\circ}14.4$	9.7'	54.7'	116°56.4	84°44.0	79°59.8	38°27.5	63°19.3		88°23.6	117°49.2
12	245°52.1	13.3'	$N17^{\circ}24.1$	9.6'	54.7'	116°26.3	84°14.7	79°29.8	37°58.1	63°46.0		88°50.5	118°17.0
13	260°24.4	13.3'	17°33.7	9.5'	54.8'	115°56.1	83°45.5	78°59.8	37°28.6	64°12.7		89°17.3	118°44.7
14	274°56.7	13.2'	17°43.2	9.5'	54.8'	115°25.9	83° 16.2	78°29.8	36°59.2	64°39.4		89°44.2	119°12.5
15	289°28.9	13.1'	17°52.7	9.4'	54.8'	114°55.6	82°46.9	77°59.7	36°29.8	65°06.2		90°11.1	119°40.3
16	304°01.0	13.0'	18°02.0	9.3'	54.8'	114°25.4	82° 17.5	77°29.6	36°00.4	65°33.0		90°38.0	
17	318°33.0	13.0'	$18^{\circ}11.4$	9.2'	54.8'	113°55.1	81°48.2	76°59.5	35°31.0	65°59.9		91°05.0	
18	333°05.0	12.9'	$N18^{\circ}20.6$	9.2'	54.9'	113°24.8	81° 18.8	76°29.4	35°01.5	66°26.8		91°31.9	
19	347°36.8	12.8'	18°29.8	9.1'	54.9'	112°54.5	80°49.4	75°59.2	34°32.1	66°53.8	71°50.0	91°58.9	İ
20	2°08.6	12.7'	18°38.8	9.0'	54.9'	112°24.1	80°20.0	75°29.0	34°02.7	67°20.8	72°05.1	92°25.9	
21	16°40.3	12.6'	18°47.9	8.9'	54.9'	111°53.7	79°50.6	74°58.8	33°33.3	67°47.9	72°20.3	92°52.9	
22	31°12.0	12.6'	$18^{\circ}56.8$	8.9'	54.9'	111°23.3	79°21.1	74°28.6	33°03.9	68°15.0	72°35.6	93°20.0	
23	45°43.5	12.5'	19°05.6	8.8'	55.0'	110°52.9	78°51.6	73°58.4	32°34.4	68°42.2	72°51.0	93°47.0	
26 th	SD	$=14.9^{\prime}$	Mer. pass	. 19:51					Sun SD	= 16.3'			

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

Wed	GHA	ν	Dec	d	HP	-Regulus	-Procyon	-Pollux	-Aldebaran	+Saturn	+Fomalhaut	+Deneb	+Altair
0	60°15.0	12.4'	N19°14.4	8.7'	55.0'	110°22.4	78°22.1	73°28.1	32°05.0		69°09.4	73°06.4	94°14.1
1	74°46.4	12.3'	19°23.1	8.6'	55.0'	109°51.9	77°52.6	72°57.8	31°35.7		69° 36.6	73°21.9	94°41.2
2	89°17.7	12.2'	19°31.7	8.5'	55.0'	109°21.4	77°23.1	72°27.5	31°06.3		70°03.9	73°37.5	95°08.3
3	103°48.9	12.1'	19°40.3	8.5'	55.0'	108°50.9	76°53.5	71°57.1	30°36.9		70°31.3	73°53.1	95°35.4
4	118°20.1	12.1'	19°48.7	8.4'	55.1'	108°20.3	76°23.9	71°26.8	30°07.5	10°15.1	70°58.6	74°08.9	96°02.6
5	132°51.2	12.0'	19°57.1	8.3'	55.1'	107°49.7	75°54.3	70°56.4	29°38.2	10°36.5	71°26.1	74°24.7	96°29.8
6	147°22.1	11.9'	N20°05.4	8.2'	55.1'	107°19.1	75°24.7	70°25.9	29°08.9	10°58.6	71°53.5	74°40.5	96°57.0
7	161°53.0	11.8'	20°13.6	8.1'	55.1'	106°48.4	74°55.1	69°55.5	28° 39.5	11°21.4	72°21.0	74°56.4	97°24.2
8	176°23.8	11.7'	20°21.7	8.0'	55.2'	106°17.7	74°25.4	69°25.0	28° 10.2	11°44.8	72°48.6	75°12.4	97°51.4
9	190°54.6	11.6'	20°29.7	7.9'	55.2'	105°47.0	73°55.7	68°54.5	27°41.0	12°08.8	73°16.2	75°28.5	98°18.6
10	205°25.2	11.6'	20°37.7	7.8'	55.2'	105°16.3	73°26.0	68°24.0	27°11.7	12°33.3	73°43.8	75°44.7	98°45.9
11	219°55.8	11.5'	20°45.5	7.8'	55.2'	104°45.5	72°56.3	67°53.4	26°42.5	12°58.3	74°11.5	76°00.9	99°13.1
12	234°26.3	11.4'	N20°53.3	7.7'	55.2'	104°14.7	72°26.5	67°22.9	26°13.3	13°23.7	74°39.2	76°17.1	99°40.4
13	248°56.6	11.3'	21°00.9	7.6'	55.3'	103°43.9	71°56.7	66°52.3	25°44.2	13°49.5	75°07.0	76°33.5	100°07.7
14	263°27.0	11.2'	21°08.5	7.5'	55.3'	103°13.0	71°26.9	66°21.6	25° 15.0	14° 15.6	75° 34.8	76°49.8	100°35.0
15	277°57.2	11.1'	$21^{\circ}16.0$	7.4'	55.3'	102°42.2	70°57.1	65°51.0	24°46.0	14°42.1	76°02.6	77°06.3	101°02.4
16	292°27.3	11.1'	21°23.3	7.3'	55.3'	102°11.3	70°27.3	65°20.3	24°16.9	15°08.9	76°30.5	77°22.8	101°29.7
17	306°57.4	11.0'	21°30.6	7.2'	55.4'	101°40.3	69°57.4	64°49.6	23°48.0	15°36.0	76°58.4	77°39.4	101°57.1
18	321°27.3	10.9'	N21°37.8	7.1'	55.4'	101°09.3	69°27.5	64°18.9	23°19.0	16°03.3	77° 26.4	77°56.0	102°24.4
19	335°57.2	10.8'	21°44.9	7.0'	55.4'	100°38.3	68°57.6	63°48.1	22°50.2	16°30.9	77°54.3	78°12.7	102°51.8
20	350°27.0	10.7'	$21^{\circ}51.9$	6.9'	55.4'	100°07.3	68°27.7	63°17.3	22°21.4	16°58.7	78°22.4	78°29.5	103°19.2
21	4°56.7	10.6'	21°58.8	6.8'	55.5'	99°36.2	67°57.8	62°46.5	21°52.7	17°26.7	78° 50.5	78°46.3	103°46.6
22	19°26.3	10.5'	22°05.5	6.7'	55.5'	99°05.1	67°27.8	62°15.6	21°24.0	17°54.9	79° 18.6	79°03.2	104°14.0
23	33°55.9	10.5'	22°12.2	6.6'	55.5'	98°34.0	66°57.8	61°44.8	20°55.5	18°23.3	79°46.7	79°20.1	104°41.5
27 th	SD	= 15.0'	Mer. pass.	20:40									

h		Moon	(28 th De	c)			Lunar D	istance (objects v	vith large	st hourly	LD delta)	
Thu	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	48°25.3	10.4'	$N22^{\circ}18.8$	6.5'	55.5'		98°02.8	66°27.8	61°13.9	18°51.9	79°37.1	80°14.9	105°08.9
1	62°54.7	10.3'	22°25.3	6.4'	55.6'		97°31.6	65°57.8	60°43.0	19°20.7	79°54.1	80°43.1	105°36.4
2	77°24.0	10.2'	22°31.6	6.3'	55.6'		97°00.4	65°27.7	60°12.0	19°49.6	80°11.2	81°11.4	106°03.8
3	91°53.2	10.1'	22°37.9	6.1'	55.6'		96°29.2	64°57.6	59°41.0	20°18.6	80°28.4	81°39.7	106°31.3
4	106°22.3	10.0'	22°44.0	6.0'	55.6'		95°57.9	64°27.6	59°10.0	20°47.8	80°45.5	82°08.0	106°58.8
5	120°51.3	9.9'	22°50.1	5.9'	55.7'		95°26.6	63°57.4	58°39.0	21°17.1	81°02.8	82°36.4	107°26.3
6	135°20.3	9.9'	N 22°56.0	5.8'	55.7'		94°55.2	63°27.3	58°07.9	21°46.5	81°20.1	83°04.8	107°53.7
7	149°49.1	9.8'	23°01.8	5.7'	55.7'		94°23.8	62°57.2	57°36.8	22°16.1	81°37.4	83°33.3	108°21.2
8	164°17.9	9.7'	23°07.5	5.6'	55.7'		93°52.4	62°27.0	57°05.7	22°45.7	81°54.8	84°01.7	108°48.8
9	178°46.6	9.6'	23°13.1	5.5'	55.8'		93°20.9	61°56.8	56°34.5	23° 15.5	82°12.2	84°30.3	109°16.3
10	193°15.2	9.5'	23°18.6	5.4'	55.8'		92°49.5	61°26.6	56°03.4	23°45.4	82°29.7	84°58.8	109°43.8
11	207°43.8	9.5'	23°24.0	5.2'	55.8'		92°17.9	60°56.4	55°32.2	24°15.4	82°47.2	85°27.4	110°11.3
12	222°12.2	9.4'	N23°29.2	5.1'	55.9'		91°46.4	60°26.1	55°00.9	24°45.5	83°04.8	85°56.0	110°38.8
13	236°40.6	9.3'	23°34.3	5.0'	55.9'		91°14.8	59°55.9	54°29.7	25° 15.6	83°22.4	86°24.7	111°06.3
14	251°08.9	9.2'	23°39.3	4.9'	55.9'		90°43.2	59°25.6	53°58.4	25°45.9	83°40.1	86°53.4	111°33.9
15	265°37.1	9.1'	23°44.2	4.8'	55.9'		90°11.5	58°55.3	53°27.1	26° 16.2	83°57.8	87°22.1	112°01.4
16	280°05.3	9.1'	23°49.0	4.6'	56.0'		89°39.9	58°25.0	52°55.7	26°46.7	84°15.5	87°50.8	112°28.9
17	294°33.3	9.0'	23°53.6	4.5'	56.0'		89°08.1	57°54.7	52°24.3	27°17.2	84°33.3	88°19.6	112°56.4
18	309°01.3	8.9'	N 23°58.2	4.4'	56.0'		88°36.4	57°24.3	51°52.9	27°47.8	84°51.1	88°48.4	113°24.0
19	323°29.2	8.8'	24°02.6	4.3'	56.0'		88°04.6	56°54.0	51°21.5	28° 18.4	85°08.9	89°17.3	113°51.5
20	337°57.0	8.8'	24°06.8	4.1'	56.1'		87°32.8	56°23.6	50°50.1	28°49.2	85°26.8	89°46.2	114°19.0
21	352°24.8	8.7'	24°11.0	4.0'	56.1'	119°38.0	87°00.9	55°53.2	50°18.6	29°20.0	85°44.7	90°15.1	114°46.5
22	6°52.5	8.6'	24°15.0	3.9'	56.1'	119°07.4	86°29.0	55°22.8	49°47.1	29°50.9	86°02.7	90°44.0	115°14.0
23	21°20.1	8.5'	24°18.9	3.8'	56.2'	118°36.7	85°57.1	54°52.4	49°15.5	30°21.8	86°20.7	91°13.0	115°41.5
28 th	SD	= 15.1'	Mer. pass.	21:31									

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

Fri	GHA	ν	Dec	d	HP	-Mars	-Regulus	-Procyon	-Pollux	+Saturn	+Deneb	+Fomalhaut	+Altair
0	35°47.6	8.5'	N 24°22.7	3.6'	56.2'	118°06.0	85°25.2	54°22.0	48°44.0	30°52.9	86°38.7	91°42.0	116°09.0
1	50°15.1	8.4'	24°26.3	3.5'	56.2'	117°35.3	84°53.2	53°51.5	48°12.4	31°23.9	86°56.8	92°11.1	116°36.5
2	64°42.4	8.3'	24°29.8	3.4'	56.2'	117°04.5	84°21.1	53°21.1	47°40.8	31°55.1	87°14.9	92°40.1	117°04.0
3	79°09.8	8.2'	24°33.2	3.2'	56.3'	116°33.7	83°49.1	52°50.6	47°09.1	32°26.3	87°33.0	93°09.2	117°31.4
4	93°37.0	8.2'	24°36.4	3.1'	56.3'	116°02.8	83°17.0	52°20.2	46°37.5	32°57.6	87°51.1	93°38.3	117°58.9
5	108°04.2	8.1'	24°39.5	3.0'	56.3'	115°31.9	82°44.8	51°49.7	46°05.8	33°28.9	88°09.3	94°07.5	118°26.3
6	122°31.3	8.0'	N 24°42.5	2.8'	56.4'	115°01.0	82°12.7	51° 19.2	45°34.1	34°00.3	88°27.5	94°36.7	118°53.7
7	136°58.4	8.0'	24°45.3	2.7'	56.4'	114°30.0	81°40.5	50°48.7	45°02.3	34°31.8	88°45.7	95°05.9	119°21.1
8	151°25.3	7.9'	24°48.0	2.6'	56.4'	113°59.0	81°08.2	50° 18.2	44°30.6	35°03.3	89°04.0	95°35.1	119°48.5
9	165°52.3	7.9'	24°50.6	2.4'	56.4'	113°28.0	80°36.0	49° 47.7	43°58.8	35°34.8	89°22.2	96°04.4	
10	180°19.1	7.8'	24°53.0	2.3'	56.5'	112°56.9	80°03.7	49° 17.2	43°27.0	36°06.5	89°40.5	96°33.6	
11	194°45.9	7.7'	24°55.3	2.1'	56.5'	112°25.7	79°31.3	48°46.7	42°55.2	36°38.1	89°58.8	97°03.0	
12	209°12.6	7.7'	N 24°57.5	2.0'	56.5'	111°54.6	78°59.0	48° 16.2	42°23.3	37°09.9	90°17.2	97°32.3	
13	223°39.3	7.6'	24°59.5	1.9'	56.6'	111°23.4	78°26.5	47° 45.7	41°51.4	37°41.6	90°35.5	98°01.6	
14	238°05.9	7.6'	25°01.3	1.7'	56.6'	110°52.1	77°54.1	47° 15.2	41°19.5	38°13.5	90°53.9	98°31.0	
15	252°32.5	7.5'	25°03.1	1.6'	56.6'	110°20.9	77°21.6	46° 44.7	40°47.6	38°45.4	91°12.3	99°00.4	
16	266°59.0	7.5'	25°04.6	1.4'	56.6'	109°49.6	76°49.1	46°14.1	40°15.7	39°17.3	91°30.7	99°29.9	
17	281°25.5	7.4'	$25^{\circ}06.1$	1.3'	56.7'	109°18.2	76°16.6	45°43.6	39°43.7	39°49.3	91°49.1	99°59.3	
18	295°51.9	7.3'	N 25°07.4	1.2'	56.7'	108°46.8	75°44.0	45° 13.1	39°11.7	40°21.3	92°07.5	100°28.8	
19	310°18.2	7.3'	25°08.5	1.0'	56.7'	108°15.4	75°11.3	44° 42.7	38°39.7	40°53.4	92°26.0	100°58.3	l i
20	324°44.5	7.3'	25°09.5	0.9'	56.8'	107°43.9	74°38.7	44° 12.2	38°07.7	41°25.6	92°44.4	101°27.8	
21	339°10.8	7.2'	$25^{\circ}10.4$	0.7'	56.8'	107°12.4	74°06.0	43°41.7	37°35.7	41°57.7	93°02.9	101°57.3	
22	353°37.0	7.2'	$25^{\circ}11.1$	0.6'	56.8'	106°40.9	73°33.3	43°11.2	37°03.7	42°30.0	93°21.4	102°26.9	
23	8°03.1	7.1'	25°11.7	0.4'	56.9'	106°09.3	73°00.5	42°40.8	36°31.6	43°02.3	93°39.8	102°56.5	
29 th	SD =	= 15.3′	Mer. pass	. 22:27									

Moon (30th Dec)

Lunar Distance (objects with largest hourly LD delta)

h		Moor	n (30 th De	ec)			Lunar	Distance	(objects	with largest	hourly L	D delta)	
Sat	GHA	ν	Dec	d	HP	-Spica	-Jupiter	-Mars	-Regulus	+Aldebaran	+Saturn	+Deneb	+Fomalhaut
0	22°29.2	7.1'	$N25^{\circ}12.1$	0.3'	56.9'			105°37.7	72°27.7		43°34.6	93°58.3	103°26.1
1	36°55.3	7.0'	25°12.4	0.1'	56.9'			105°06.1	71°54.9		44°07.0	94°16.8	103°55.7
2	51°21.3	7.0'	$25^{\circ}12.5$	-0.0'	56.9'			104°34.4	71°22.0	11°35.5	44°39.4	94°35.3	104°25.3
3	65°47.3	7.0'	$25^{\circ}12.5$	-0.2'	57.0'			104°02.7	70°49.2	11°58.7	45°11.8	94°53.8	104°54.9
4	80°13.3	6.9'	$25^{\circ}12.3$	-0.3'	57.0'			103°30.9	70°16.2	12°22.5	45°44.3	95°12.3	105°24.6
5	94°39.2	6.9'	$25^{\circ}12.0$	-0.5'	57.0'			102°59.1	69°43.3	12°47.1	46° 16.9	95°30.8	105°54.3
6	109°05.1	6.9'	N25°11.5	-0.6'	57.1'			102°27.3	69°10.3	13°12.3	46°49.5	95°49.3	106°23.9
7	123°30.9	6.8'	25°10.9	-0.8'	57.1'			101°55.4	68°37.2	13°38.1	47°22.1	96°07.8	106°53.6
8	137°56.8	6.8'	25°10.1	-0.9'	57.1'			101°23.5	68°04.2	14°04.4	47°54.8	96°26.3	107°23.3
9	152°22.5	6.8'	25°09.2	-1.1'	57.1'			100°51.6	67°31.1	14°31.2	48° 27.5	96°44.7	107°53.1
10	166°48.3	6.7'	25°08.1	-1.2'	57.2'			100°19.6	66°57.9	14°58.4	49°00.3	97°03.2	108°22.8
11	181°14.0	6.7'	25°06.9	-1.4'	57.2'			99°47.6	66°24.8	15°26.1	49°33.1	97°21.7	108°52.5
12	195°39.7	6.7'	N25°05.5	-1.5'	57.2'	119°54.4		99°15.6	65°51.6	15°54.1	50°06.0	97°40.1	109°22.3
13	210°05.4	6.7'	25°03.9	-1.7'	57.3'	119°21.1	119°47.3	98°43.5	65°18.3	16°22.5	50°38.9	97°58.6	109°52.0
14	224°31.1	6.6'	25°02.3	-1.8'	57.3'	118°47.8	119°14.5	98°11.4	64°45.1	16°51.2	51°11.8	98°17.0	110°21.8
15	238°56.7	6.6'	25°00.4	-2.0'	57.3'	118°14.5	118°41.7	97°39.2	64°11.8	17°20.2	51°44.8	98°35.4	110°51.6
16	253°22.4	6.6'	24°58.4	-2.1'	57.3'	117°41.1	118°08.8	97°07.0	63°38.4	17°49.5	52° 17.8	98°53.9	111°21.3
17	267°48.0	6.6'	24°56.3	-2.3'	57.4'	117°07.7	117°35.9	96°34.8	63°05.1	18°19.1	52°50.9	99°12.2	111°51.1
18	282°13.6	6.6'	N 24°54.0	-2.5'	57.4'	116°34.2	117°02.9	96°02.6	62°31.7	18°48.9	53°24.0	99°30.6	112°20.9
19	296°39.2	6.6'	24°51.5	-2.6'	57.4'	116°00.7	116°29.9	95°30.3	61°58.2	19°18.9	53°57.1	99°49.0	112°50.7
20	311°04.7	6.6'	24°48.9	-2.8'	57.4'	115°27.2	115°56.9	94°57.9	61°24.8	19°49.1	54°30.3	100°07.3	113°20.5
21	325°30.3	6.6'	24°46.1	-2.9'	57.5'	114°53.7	115°23.9	94°25.6	60°51.3	20°19.6	55°03.5	100°25.6	113°50.2
22	339°55.8	6.5'	24°43.2	-3.1'	57.5'	114°20.1	114°50.8	93°53.2	60°17.8	20°50.2	55°36.7	100°43.9	114°20.0
23	354°21.4	6.5'	24°40.2	-3.2'	57.5'	113°46.5	114° 17.6	93°20.8	59°44.2	21°21.0	56°10.0	101°02.1	114°49.8
30 th	SD	= 15.5	Mer. pas	s. 23:23	3								

Moon (31st Dec)

Sun	GHA	ν	Dec	d	HP	-Jupiter	-Spica	-Mars	-Regulus	+Aldebaran	+Capella	+Saturn	+Fomalhaut
0	8°46.9	6.5'	N 24°36.9	-3.4'	57.6'	113°44.5	113°12.8	92°48.3	59°10.6	21°51.9		56°43.4	115°19.6
1	23° 12.5	6.5'	24°33.6	-3.5'	57.6'	113°11.3	112°39.1	92°15.8	58°37.0	22°23.1	23°33.1	57°16.7	115°49.3
2	37°38.0	6.5'	24°30.0	-3.7'	57.6'	112°38.0	112°05.4	91°43.3	58°03.3	22°54.3	23°48.9	57°50.1	116°19.1
3	52°03.5	6.5'	24° 26.4	-3.8'	57.6'	112°04.8	111°31.6	91°10.8	57°29.7	23°25.7	24°05.2	58°23.6	116°48.8
4	66°29.1	6.5'	24°22.5	-4.0'	57.7'	111°31.5	110°57.9	90°38.2	56°56.0	23°57.3	24°22.1	58°57.1	117°18.6
5	80°54.6	6.5'	24° 18.5	-4.1'	57.7'	110°58.1	110°24.0	90°05.5	56°22.2	24°28.9	24°39.5	59°30.6	117°48.3
6	95°20.2	6.6'	N 24°14.4	-4.3'	57.7'	110°24.8	109°50.2	89°32.9	55°48.4	25°00.7	24°57.5	60°04.1	118°18.0
7	109°45.7	6.6'	$24^{\circ}10.1$	-4.4'	57.7'	109°51.4	109°16.3	89°00.2	55°14.6	25°32.6	25°16.1	60°37.7	118°47.7
8	124°11.3	6.6'	24°05.6	-4.6'	57.8'	109°17.9	108°42.4	88°27.5	54°40.8	26°04.6	25°35.1	61°11.3	119°17.4
9	138°36.8	6.6'	$24^{\circ}01.1$	-4.7'	57.8'	108°44.5	108°08.4	87°54.8	54°06.9	26°36.7	25°54.6	61°45.0	119°47.1
10	153°02.4	6.6'	23°56.3	-4.9'	57.8'	108°11.0	107°34.5	87°22.0	53°33.1	27°09.0	26°14.7	62°18.7	
11	167°28.0	6.6'	23°51.4	-5.1'	57.8'	107°37.4	107°00.5	86°49.2	52°59.1	27°41.3	26°35.1	62°52.4	
12	181°53.6	6.6'	N23°46.4	-5.2'	57.9'	107°03.9	106°26.4	86° 16.3	52°25.2	28° 13.7	26°56.1	63°26.1	
13	196° 19.2	6.6'	23°41.2	-5.4'	57.9'	106°30.3	105°52.3	85°43.5	51°51.2	28°46.2	27°17.4	63°59.9	
14	210°44.9	6.7'	23°35.8	-5.5'	57.9'	105°56.6	105°18.2	85° 10.6	51°17.2	29° 18.8	27°39.2	64°33.7	
15	225° 10.5	6.7'	23°30.3	-5.6'	58.0'	105°23.0	104°44.1	84°37.6	50°43.2	29°51.4	28°01.3	65°07.6	
16	239°36.2	6.7'	23°24.7	-5.8'	58.0'	104°49.3	104°10.0	84°04.7	50°09.1	30°24.2	28°23.9	65°41.5	
17	254°01.9	6.7'	23° 18.9	-5.9'	58.0'	104°15.5	103°35.8	83°31.7	49°35.1	30°57.0	28°46.8	66°15.4	
18	268°27.6	6.7'	$N23^{\circ}12.9$	-6.1'	58.0'	103°41.8	103°01.5	82°58.7	49°00.9	31°29.9	29°10.1	66°49.4	
19	282°53.4	6.8'	23°06.8	-6.2'	58.1'	103°08.0	102°27.3	82°25.6	48°26.8	32°02.8	29°33.7	67°23.4	
20	297°19.1	6.8'	23°00.6	-6.4'	58.1'	102°34.2	101°53.0	81°52.6	47°52.6	32° 35.9	29°57.7	67°57.4	
21	311°44.9	6.8'	22°54.2	-6.5'	58.1'	102°00.3	101°18.7	81° 19.5	47°18.5	33°09.0	$30^{\circ}21.9$	68°31.4	
22	326°10.8	6.9'	22°47.7	-6.7'	58.1'	101°26.5	100°44.4	80°46.3	46°44.2	33°42.1	30°46.5	69°05.5	
23	340°36.6	6.9'	22°41.0	-6.8'	58.1'	100°52.6	100°10.0	80°13.2	46°10.0	34°15.4	31°11.4	69°39.6	
31 st	SD	= 15.	7' Mer. pa	ss:-									