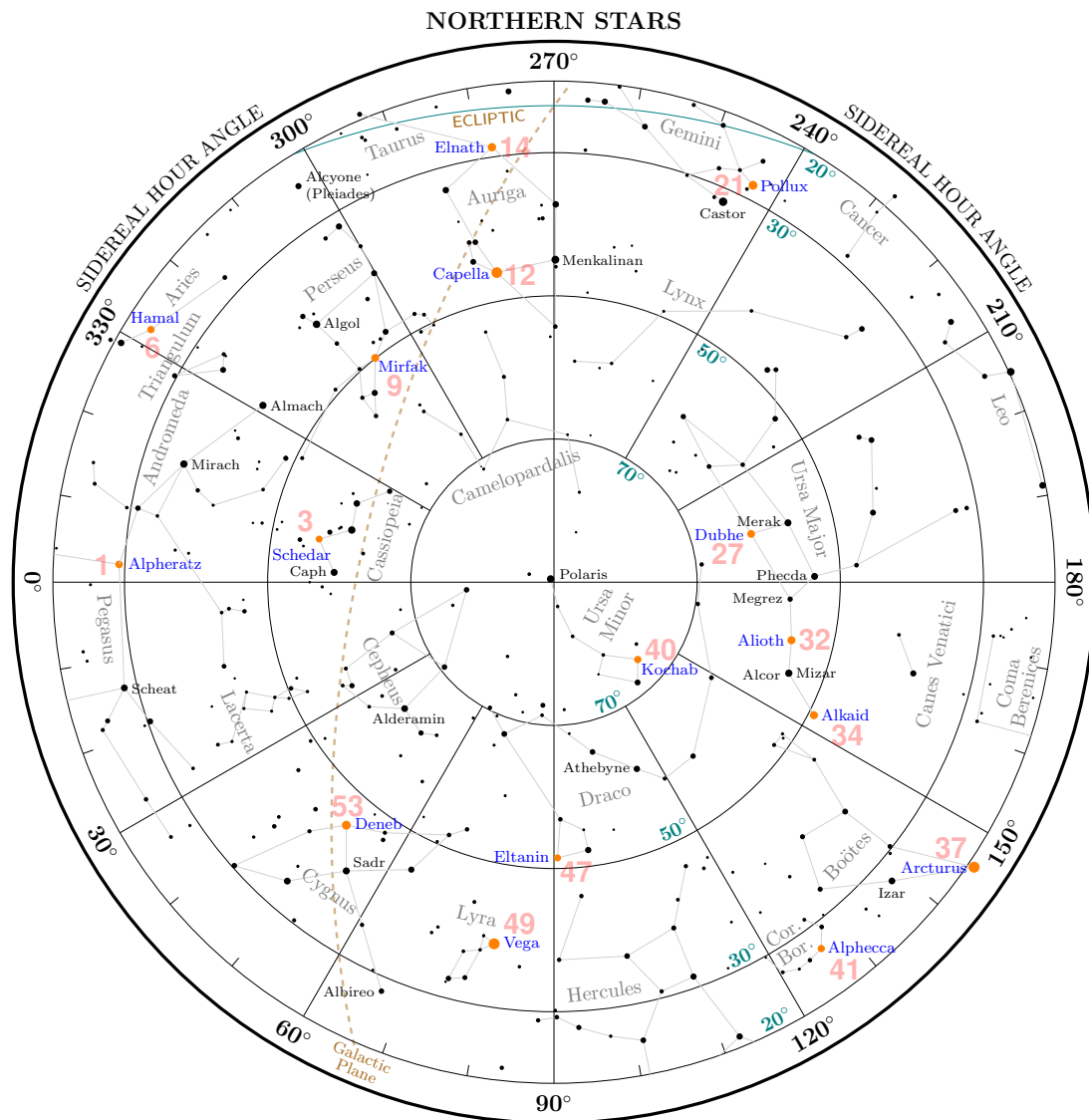


GENERATED USING EPHEM



THE NAUTICAL ALMANAC

10.06.1995

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June 10, 11, 12 (Sat., Sun., Mon.)

Aries		Venus		Mars		Jupiter		Saturn		Stars		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	SHA	Dec	
0	257°52.9	200°40.2	N18°54.1	98°26.3	N09°53.5	9°59.5	S21°05.3	262°25.6	S04°09.8	Alpheratz	357°57.6	29°03.8
1	272°55.4	215°39.6	54.8	113°27.6	53.0	25°02.3	05.2	277°28.0	09.8	Ankaa	353°29.2	-42°19.6
2	287°57.8	230°38.9	55.5	128°28.9	52.5	40°05.1	05.2	292°30.3	09.8	Schedar	349°56.2	56°30.5
3	303°00.3	245°38.3	· · 56.3	143°30.2	· · 51.9	55°07.9	· · 05.1	307°32.7	· · 09.7	Diphda	349°09.6	-18°00.6
4	318°02.7	260°37.6	57.0	158°31.5	51.4	70°10.7	05.1	322°35.1	09.7	Achernar	335°37.3	-57°15.4
5	333°05.2	275°37.0	57.7	173°32.8	50.9	85°13.5	05.1	337°37.4	09.7	Hamal	328°16.3	23°26.3
6	348°07.7	290°36.3	N18°58.5	188°34.1	N09°50.4	100°16.3	S21°05.0	352°39.8	S04°09.6	Polaris	323°25.0	89°14.4
7	3°10.1	305°35.6	59.2	203°35.4	49.9	115°19.1	05.0	7°42.1	09.6	Acamar	315°29.0	-40°19.3
8	18°12.6	320°35.0	18°59.9	218°36.7	49.4	130°21.9	04.9	22°44.5	09.6	Menkar	314°29.5	4°04.2
9	33°15.1	335°34.3	19°00.6	233°38.0	· · 48.9	145°24.7	· · 04.9	37°46.9	· · 09.5	Mirfak	309°00.2	49°50.5
10	48°17.5	350°33.7	01.4	248°39.3	48.3	160°27.5	04.9	52°49.2	09.5	Aldebaran	291°05.3	16°29.9
11	63°20.0	5°33.0	02.1	263°40.6	47.8	175°30.3	04.8	67°51.6	09.5	Rigel	281°25.4	-8°12.5
12	78°22.5	20°32.3	N19°02.8	278°41.9	N09°47.3	190°33.1	S21°04.8	82°54.0	S04°09.4	Capella	280°55.0	45°59.5
13	93°24.9	35°31.7	03.5	293°43.2	46.8	205°35.9	04.7	97°56.3	09.4	Bellatrix	278°46.9	6°20.6
14	108°27.4	50°31.0	04.3	308°44.5	46.3	220°38.6	04.7	112°58.7	09.4	Elnath	278°30.2	28°36.1
15	123°29.9	65°30.4	· · 05.0	323°45.8	· · 45.8	235°41.4	· · 04.7	128°01.0	· · 09.3	Alnilam	276°00.5	-1°12.4
16	138°32.3	80°29.7	05.7	338°47.1	45.3	250°44.2	04.6	143°03.4	09.3	Betelgeuse	271°16.3	7°24.2
17	153°34.8	95°29.0	06.4	353°48.4	44.7	265°47.0	04.6	158°05.8	09.3	Canopus	264°02.7	-52°41.8
18	168°37.2	110°28.4	N19°07.2	8°49.7	N09°44.2	280°49.8	S21°04.5	173°08.1	S04°09.3	Sirius	258°46.0	-16°42.8
19	183°39.7	125°27.7	07.9	23°51.0	43.7	295°52.6	04.5	188°10.5	09.2	Adhara	255°23.5	-28°58.2
20	198°42.2	140°27.0	08.6	38°52.3	43.2	310°55.4	04.5	203°12.9	09.2	Procyon	245°14.2	5°14.1
21	213°44.6	155°26.4	· · 09.3	53°53.6	· · 42.7	325°58.2	· · 04.4	218°15.2	· · 09.2	Pollux	243°44.6	28°02.2
22	228°47.1	170°25.7	10.0	68°54.9	42.2	341°01.0	04.4	233°17.6	09.1	Avior	234°24.0	-59°30.1
23	243°49.6	185°25.0	10.7	83°56.2	41.7	356°03.8	04.3	248°20.0	09.1	Suhail	223°02.6	-43°25.2
Mer.pass. 06:47		ν -0.7' d 0.7' m -3.8		ν 1.3' d -0.5' m 1.0		ν 2.8' d 0.0' m -2.4		ν 2.4' d 0.0' m 1.2				

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	258°52.0	200°24.4	N19°11.5	98°57.5	N09°41.1	11°06.6	S21°04.3	263°22.3	S04°09.1
1	273°54.5	215°23.7	12.2	113°58.8	40.6	26°09.4	04.2	278°24.7	09.0
2	288°57.0	230°23.0	12.9	129°00.1	40.1	41°12.2	04.2	293°27.1	09.0
3	303°59.4	245°22.4	· · 13.6	144°01.4	· · 39.6	56°15.0	· · 04.2	308°29.4	· · 09.0
4	319°01.9	260°21.7	14.3	159°02.7	39.1	71°17.7	04.1	323°31.8	08.9
5	334°04.4	275°21.0	15.0	174°04.0	38.6	86°20.5	04.1	338°34.1	08.9
6	349°06.8	290°20.4	N19°15.7	189°05.3	N09°38.0	101°23.3	S21°04.0	353°36.5	S04°08.9
7	4°09.3	305°19.7	16.4	204°06.6	37.5	116°26.1	04.0	8°38.9	08.8
8	19°11.7	320°19.0	17.1	219°07.9	37.0	131°28.9	04.0	23°41.2	08.8
9	34°14.2	335°18.4	· · 17.9	234°09.2	· · 36.5	146°31.7	· · 03.9	38°43.6	· · 08.8
10	49°16.7	350°17.7	18.6	249°10.5	36.0	161°34.5	03.9	53°46.0	08.7
11	64°19.1	5°17.0	19.3	264°11.8	35.5	176°37.3	03.8	68°48.3	08.7
12	79°21.6	20°16.4	N19°20.0	279°13.1	N09°34.9	191°40.1	S21°03.8	83°50.7	S04°08.7
13	94°24.1	35°15.7	20.7	294°14.4	34.4	206°42.9	03.8	98°53.1	08.7
14	109°26.5	50°15.0	21.4	309°15.7	33.9	221°45.7	03.7	113°55.4	08.6
15	124°29.0	65°14.3	· · 22.1	324°17.0	· · 33.4	236°48.4	· · 03.7	128°57.8	· · 08.6
16	139°31.5	80°13.7	22.8	339°18.3	32.9	251°51.2	03.6	144°00.2	08.6
17	154°33.9	95°13.0	23.5	354°19.6	32.4	266°54.0	03.6	159°02.5	08.5
18	169°36.4	110°12.3	N19°24.2	9°20.9	N09°31.8	281°56.8	S21°03.6	174°04.9	S04°08.5
19	184°38.9	125°11.6	24.9	24°22.2	31.3	296°59.6	03.5	189°07.3	08.5
20	199°41.3	140°11.0	25.6	39°23.5	30.8	312°02.4	03.5	204°09.6	08.4
21	214°43.8	155°10.3	· · 26.3	54°24.8	· · 30.3	327°05.2	· · 03.4	219°12.0	· · 08.4
22	229°46.2	170°09.6	27.0	69°26.1	29.8	342°08.0	03.4	234°14.4	08.4
23	244°48.7	185°08.9	27.7	84°27.4	29.2	357°10.8	03.4	249°16.7	08.4
Mer.pass. 06:43		ν -0.7' d 0.7' m -3.8		ν 1.3' d -0.5' m 1.0		ν 2.8' d 0.0' m -2.4		ν 2.4' d 0.0' m 1.2	

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	259°51.2	200°08.3	N19°28.4	99°28.7	N09°28.7	12°13.6	S21°03.3	264°19.1	S04°08.3
1	274°53.6	215°07.6	29.1	114°30.0	28.2	27°16.4	03.3	279°21.5	08.3
2	289°56.1	230°06.9	29.8	129°31.2	27.7	42°19.1	03.2	294°23.8	08.3
3	304°58.6	245°06.2	· · 30.4	144°32.5	· · 27.2	57°21.9	· · 03.2	309°26.2	· · 08.2
4	320°01.0	260°05.5	31.1	159°33.8	26.6	72°24.7	03.2	324°28.6	08.2
5	335°03.5	275°04.9	31.8	174°35.1	26.1	87°27.5	03.1	339°31.0	08.2
6	350°06.0	290°04.2	N19°32.5	189°36.4	N09°25.6	102°30.3	S21°03.1	354°33.3	S04°08.1
7	5°08.4	305°03.5	33.2	204°37.7	25.1	117°33.1	03.0	9°35.7	08.1
8	20°10.9	320°02.8	33.9	219°39.0	24.6	132°35.9	03.0	24°38.1	08.1
9	35°13.4	335°02.1	· · 34.6	234°40.3	· · 24.0	147°38.7	· · 03.0	39°40.4	· · 08.1
10	50°15.8	350°01.5	35.3	249°41.6	23.5	162°41.5	02.9	54°42.8	08.0
11	65°18.3	5°00.8	35.9	264°42.9	23.0	177°44.2	02.9	69°45.2	08.0
12	80°20.7	20°00.1	N19°36.6	279°44.2	N09°22.5	192°47.0	S21°02.8	84°47.5	S04°08.0
13	95°23.2	34°59.4	37.3	294°45.5	22.0	207°49.8	02.8	99°49.9	07.9
14	110°25.7	49°58.7	38.0	309°46.8	21.4	222°52.6	02.8	114°52.3	07.9
15	125°28.1	64°58.0	· · 38.7	324°48.1	· · 20.9	237°55.4	· · 02.7	129°54.7	· · 07.9
16	140°30.6	79°57.3	39.4	339°49.4	20.4	252°58.2	02.7	144°57.0	07.9
17	155°33.1	94°56.7	40.0	354°50.6	19.9	268°01.0	02.6	159°59.4	07.8
18	170°35.5	109°56.0	N19°40.7	9°51.9	N09°19.3	283°03.8	S21°02.6	175°01.8	S04°07.8
19	185°38.0	124°55.3	41.4	24°53.2	18.8	298°06.6	02.6	190°04.1	07.8
20	200°40.5	139°54.6	42.1	39°54.5	18.3	313°09.3	02.5	205°06.5	07.7
21	215°42.9	154°53.9	· · 42.7	54°55.8	· · 17.8	328°12.1	· · 02.5	220°08.9	· · 07.7
22	230°45.4	169°53.2	43.4	69°57.1	17.3	343°14.9	02.4	235°11.2	07.7
23	245°47.8	184°52.5	44.1	84°58.4	16.7	358°17.7	02.4	250°13.6	07.7
Mer.pass. 06:39		ν -0.7' d 0.7' m -3.8		ν 1.3' d -0.5' m 1.0		ν 2.8' d 0.0' m -2.4		ν 2.4' d 0.0' m 1.2	

Jun 10 Sat	SHA	Mer.pass
Venus	302°47.3	10:38
Mars	200°33.4	17:25
Jupiter	112°06.6	23:16
Saturn	4°32.7	06:29

Jun 11 Sun	SHA	Mer.pass
Venus	301°32.3	10:39
Mars	200°05.5	17:23
Jupiter	112°14.5	23:11
Saturn	4°30.3	06:25

Jun 12 Mon	SHA	Mer.pass
Venus	300°17.1	10:40
Mars	199°37.5	17:21
Jupiter	112°22.4	23:07
Saturn	4°27.9	06:22

Horizontal parallax	
Venus:	0.1
Mars:	0.1

h	Sun				Moon			
Sat	GHA	Dec	GHA	ν	Dec	d	HP	
0	180°11.5	N22°57.3	45°58.9	7.3'	S12°58.0	-9.1'	60.0'	
1	195°11.4	57.5	60°25.2	7.2'	13°07.1	-9.0'	60.0'	
2	210°11.3	57.7	74°51.4	7.1'	13°16.1	-9.0'	60.1'	
3	225°11.1	· · 57.9	89°17.6	7.0'	13°25.1	-8.9'	60.1'	
4	240°11.0	58.1	103°43.6	6.9'	13°34.0	-8.8'	60.1'	
5	255°10.9	58.3	118°09.5	6.9'	13°42.8	-8.7'	60.2'	
6	270°10.8	N22°58.5	132°35.4	6.8'	S13°51.5	-8.7'	60.2'	
7	285°10.7	58.7	147°01.2	6.7'	14°00.2	-8.6'	60.2'	
8	300°10.5	58.9	161°26.9	6.6'	14°08.8	-8.5'	60.3'	
9	315°10.4	· · 59.1	175°52.5	6.5'	14°17.2	-8.4'	60.3'	
10	330°10.3	59.3	190°18.0	6.4'	14°25.6	-8.3'	60.3'	
11	345°10.2	59.5	204°43.4	6.3'	14°34.0	-8.2'	60.4'	
12	0°10.0	N22°59.7	219°08.7	6.2'	S14°42.2	-8.1'	60.4'	
13	15°09.9	22°59.9	233°34.0	6.2'	14°50.3	-8.0'	60.4'	
14	30°09.8	23°00.1	247°59.1	6.1'	14°58.4	-8.0'	60.5'	
15	45°09.7	· · 00.3	262°24.2	6.0'	15°06.3	-7.9'	60.5'	
16	60°09.5	00.5	276°49.2	5.9'	15°14.2	-7.8'	60.5'	
17	75°09.4	00.6	291°14.1	5.8'	15°21.9	-7.7'	60.6'	
18	90°09.3	N23°00.8	305°38.9	5.7'	S15°29.6	-7.6'	60.6'	
19	105°09.2	01.0	320°03.7	5.7'	15°37.2	-7.5'	60.6'	
20	120°09.1	01.2	334°28.3	5.6'	15°44.6	-7.4'	60.6'	
21	135°08.9	· · 01.4	348°52.9	5.5'	15°52.0	-7.3'	60.7'	
22	150°08.8	01.6	3°17.4	5.4'	15°59.3	-7.2'	60.7'	
23	165°08.7	01.8	17°41.8	5.3'	16°06.4	-7.1'	60.7'	
SD = 15.8' d = 0.2'								

Sun	GHA	Dec	GHA	ν	Dec	d	HP	
0	180°08.6	N23°02.0	32°06.1	5.2'	S16°13.5	-6.9'	60.7'	
1	195°08.4	02.2	46°30.4	5.2'	16°20.4	-6.8'	60.8'	
2	210°08.3	02.3	60°54.5	5.1'	16°27.3	-6.7'	60.8'	
3	225°08.2	· · 02.5	75°18.6	5.0'	16°34.0	-6.6'	60.8'	
4	240°08.1	02.7	89°42.6	4.9'	16°40.6	-6.5'	60.8'	
5	255°07.9	02.9	104°06.6	4.9'	16°47.1	-6.4'	60.9'	
6	270°07.8	N23°03.1	118°30.4	4.8'	S16°53.5	-6.3'	60.9'	
7	285°07.7	03.2	132°54.2	4.7'	16°59.8	-6.2'	60.9'	
8	300°07.6	03.4	147°17.9	4.6'	17°05.9	-6.0'	60.9'	
9	315°07.4	· · 03.6	161°41.6	4.6'	17°12.0	-5.9'	61.0'	
10	330°07.3	03.8	176°05.1	4.5'	17°17.9	-5.8'	61.0'	
11	345°07.2	04.0	190°28.6	4.4'	17°23.7	-5.7'	61.0'	
12	0°07.1	N23°04.1	204°52.1	4.4'	S17°29.4	-5.6'	61.0'	
13	15°06.9	04.3	219°15.4	4.3'	17°34.9	-5.4'	61.0'	
14	30°06.8	04.5	233°38.7	4.2'	17°40.4	-5.3'	61.1'	
15	45°06.7	· · 04.7	248°01.9	4.2'	17°45.7	-5.2'	61.1'	
16	60°06.6	04.8	262°25.1	4.1'	17°50.8	-5.1'	61.1'	
17	75°06.4	05.0	276°48.2	4.0'	17°55.9	-4.9'	61.1'	
18	90°06.3	N23°05.2	291°11.2	4.0'	S18°00.8	-4.8'	61.1'	
19	105°06.2	05.4	305°34.2	3.9'	18°05.6	-4.7'	61.2'	
20	120°06.1	05.5	319°57.1	3.9'	18°10.3	-4.5'	61.2'	
21	135°05.9	· · 05.7	334°20.0	3.8'	18°14.8	-4.4'	61.2'	
22	150°05.8	05.9	348°42.8	3.7'	18°19.2	-4.3'	61.2'	
23	165°05.7	06.1	3°05.5	3.7'	18°23.5	-4.1'	61.2'	
SD = 15.8' d = 0.2'								

Mon	GHA	Dec	GHA	ν	Dec	d	HP	
0	180°05.6	N23°06.2	17°28.2	3.6'	S18°27.6	-4.0'	61.2'	
1	195°05.4	06.4	31°50.8	3.6'	18°31.6	-3.9'	61.2'	
2	210°05.3	06.6	46°13.4	3.5'	18°35.4	-3.7'	61.3'	
3	225°05.2	· · 06.7	60°36.0	3.5'	18°39.2	-3.6'	61.3'	
4	240°05.1	06.9	74°58.5	3.5'	18°42.7	-3.4'	61.3'	
5	255°04.9	07.1	89°20.9	3.4'	18°46.2	-3.3'	61.3'	
6	270°04.8	N23°07.2	103°43.3	3.4'	S18°49.5	-3.2'	61.3'	
7	285°04.7	07.4	118°05.7	3.3'	18°52.6	-3.0'	61.3'	
8	300°04.5	07.6	132°28.0	3.3'	18°55.6	-2.9'	61.3'	
9	315°04.4	· · 07.7	146°50.3	3.3'	18°58.5	-2.7'	61.3'	
10	330°04.3	07.9	161°12.6	3.2'	19°01.2	-2.6'	61.4'	
11	345°04.2	08.0	175°34.8	3.2'	19°03.8	-2.4'	61.4'	
12	0°04.0	N23°08.2	189°57.0	3.2'	S19°06.3	-2.3'	61.4'	
13	15°03.9	08.4	204°19.1	3.1'	19°08.6	-2.2'	61.4'	
14	30°03.8	08.5	218°41.3	3.1'	19°10.7	-2.0'	61.4'	
15	45°03.7	· · 08.7	233°03.4	3.1'	19°12.7	-1.9'	61.4'	
16	60°03.5	08.8	247°25.5	3.1'	19°14.6	-1.7'	61.4'	
17	75°03.4	09.0	261°47.5	3.0'	19°16.3	-1.6'	61.4'	
18	90°03.3	N23°09.1	276°09.6	3.0'	S19°17.9	-1.4'	61.4'	
19	105°03.1	09.3	290°31.6	3.0'	19°19.3	-1.3'	61.4'	
20	120°03.0	09.5	304°53.6	3.0'	19°20.5	-1.1'	61.4'	
21	135°02.9	· · 09.6	319°15.6	3.0'	19°21.7	-1.0'	61.4'	
22	150°02.8	09.8	333°37.5	3.0'	19°22.6	-0.8'	61.4'	
23	165°02.6	09.9	347°59.5	3.0'	19°23.5	-0.7'	61.4'	
SD = 15.8' d = 0.2'								

Lat.	Twilight		Sunrise	Sunset	Twilight	
	Naut.	Civil			Civil	Naut.
N 72°						
N 70°						
68°						
66°	—:—	—:—	00:26	23:41	—:—	—:—
64°	—:—	—:—	01:39	22:22	—:—	—:—
62°	—:—	—:—	02:14	21:46	—:—	—:—
60°	—:—	01:01	02:39	21:21	23:00	—:—
N 58°	—:—	01:46	02:58	21:01	22:15	—:—
56°	—:—	02:14	03:15	20:45	21:46	—:—
54°	00:56	02:35	03:28	20:31	21:25	23:05
52°	01:37	02:52	03:40	20:19	21:07	22:23
50°	02:03	03:07	03:51	20:08	20:53	21:57
45°	02:47	03:36	04:13	19:46	20:23	21:13
N 40°	03:17	03:58	04:31	19:28	20:01	20:43
35°	03:39	04:16	04:46	19:14	19:43	20:20
30°	03:58	04:31	04:58	19:01	19:28	20:01
20°	04:26	04:55	05:20	18:39	19:04	19:33
N 10°	04:49	05:16	05:39	18:20	18:44	19:11
0°	05:07	05:33	05:56	18:03	18:26	18:52
S 10°	05:24	05:50	06:13	17:46	18:09	18:35
20°	05:40	06:07	06:31	17:28	17:52	18:19
30°	05:56	06:26	06:52	17:07	17:33	18:03
35°	06:05	06:36	07:04	16:55	17:23	17:54
40°	06:14	06:48	07:18	16:41	17:11	17:45
45°	06:24	07:01	07:35	16:24	16:58	17:35
S 50°	06:35	07:17	07:55	16:04	16:42	17:24
52°	06:40	07:24	08:05	15:54	16:35	17:18
54°	06:46	07:32	08:16	15:43	16:27	17:13
56°	06:52	07:41	08:28	15:31	16:18	17:07
58°	06:59	07:51	08:42	15:17	16:08	17:00
S 60°	07:06	08:02	08:59	15:00	15:57	16:53

Lat.	Moonrise			Moonset		
	Sat	Sun	Mon	Sat	Sun	Mon
N 72°	19:46			23:33		
N 70°	19:04	21:08	22:58	00:17	00:16	00:19
68°	18:36	20:22	21:51	00:35	00:45	01:05
66°	18:15	19:52	21:15	00:50	01:07	01:35
64°	17:58	19:30	20:49	01:02	01:25	01:58
62°	17:44	19:12	20:29	01:13	01:39	02:17
60°	17:32	18:57	20:13	01:22	01:51	02:32
N 58°	17:22	18:45	19:59	01:30	02:02	02:45
56°	17:13	18:34	19:47	01:37	02:11	02:56
54°	17:06	18:24	19:36	01:43	02:20	03:06
52°	16:59	18:16	19:27	01:49	02:27	03:14
50°	16:52	18:08	19:19	01:54	02:34	03:22
45°	16:39	17:52	19:01	02:05	02:48	03:39
N 40°	16:28	17:39	18:47	02:14	03:00	03:53
35°	16:18	17:27	18:35	02:22	03:10	04:04
30°	16:10	17:17	18:24	02:29	03:19	04:15
20°	15:56	17:01	18:06	02:42	03:34	04:32
N 10°	15:44	16:46	17:50	02:52	03:48	04:48
0°	15:32	16:32	17:35	03:02	04:00	05:02
S 10°	15:21	16:19	17:20	03:12	04:13	05:16
20°	15:09	16:04	17:05	03:23	04:27	05:32
30°	14:55	15:48	16:47	03:35	04:42	05:49
35°	14:47	15:38	16:36	03:42	04:51	05:59
40°	14:38	15:27	16:24	03:50	05:01	06:11
45°	14:28	15:15	16:10	04:00	05:13	06:25
S 50°	14:15	14:59	15:53	04:11	05:28	06:42
52°	14:09	14:52	15:45	04:17	05:35	06:50
54°	14:03	14:44	15:36	04:23	05:43	06:58
56°	13:56	14:35	15:26	04:29	05:51	07:08
58°	13:48	14:25	15:14	04:37	06:01	07:20
S 60°	13:39	14:14	15:01	04:45	06:12	07:33

Day	Sun		Mer. Pass	Moon		Age
	Eqn. of Time 00 ^h mm:ss	12 ^h mm:ss		Upper hh:mm	Lower hh:mm	
10	00:46	00:40	11:59	21:46	09:17	12(86%)
11	00:34	00:28	12:00	22:47	10:16	13(93%)
12	00:22	00:16	12:00	23:50	11:18	14(98%)